SOUTH COAST WATER DISTRICT

Partnering With The Community

LAGUNA BEACH COUNTY WATER DISTRICT

Doheny Desalination Project

Multi-State Salinity Coalition Annual Salinity Summit

January 29, 2016

GHD

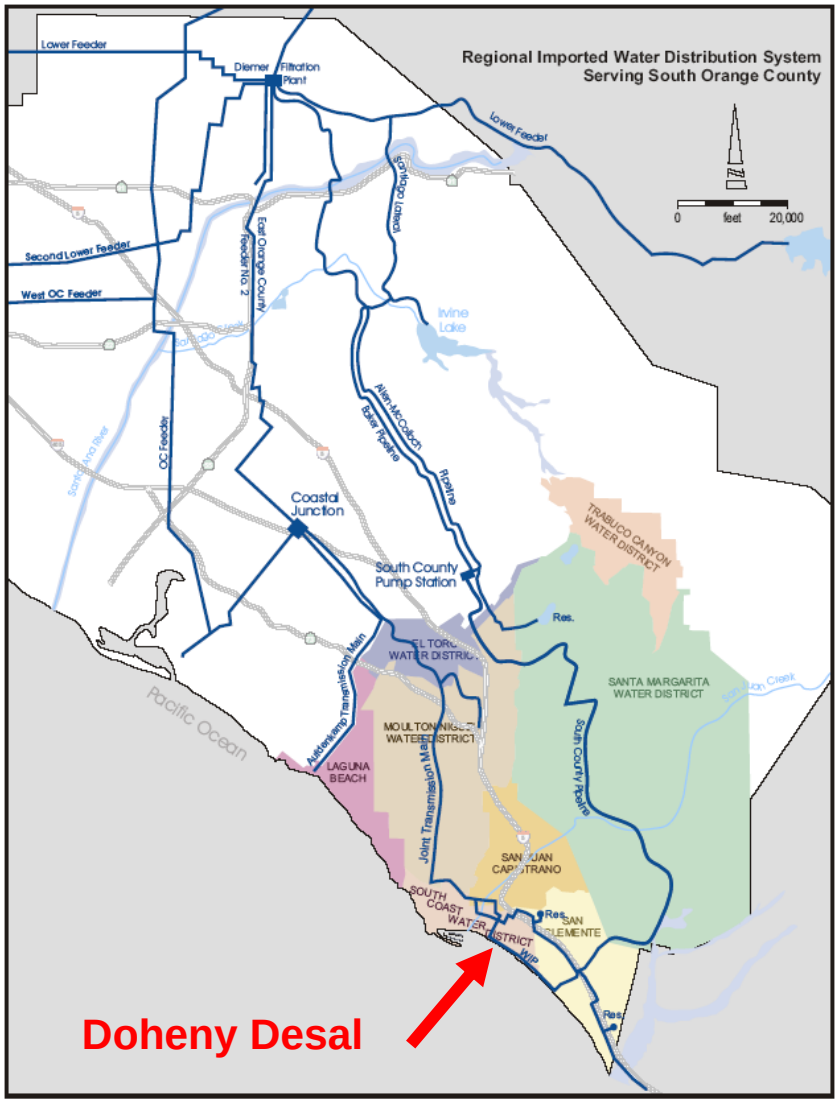
Presentation Overview

- South Coast Water District
- Doheny Desalination Project Background
- Doheny Desalination Program Goals
- Phase 1 High Level Schedule

Courtesy OC Register

South Coast Water District

- Service Area includes cities of Dana Point, South Laguna Beach, North Coastal San Clemente, & Southernmost San Juan Capistrano
- Serves over 40,000 residents and many visitors each year
- Successful recycled water and conservation programs are in place



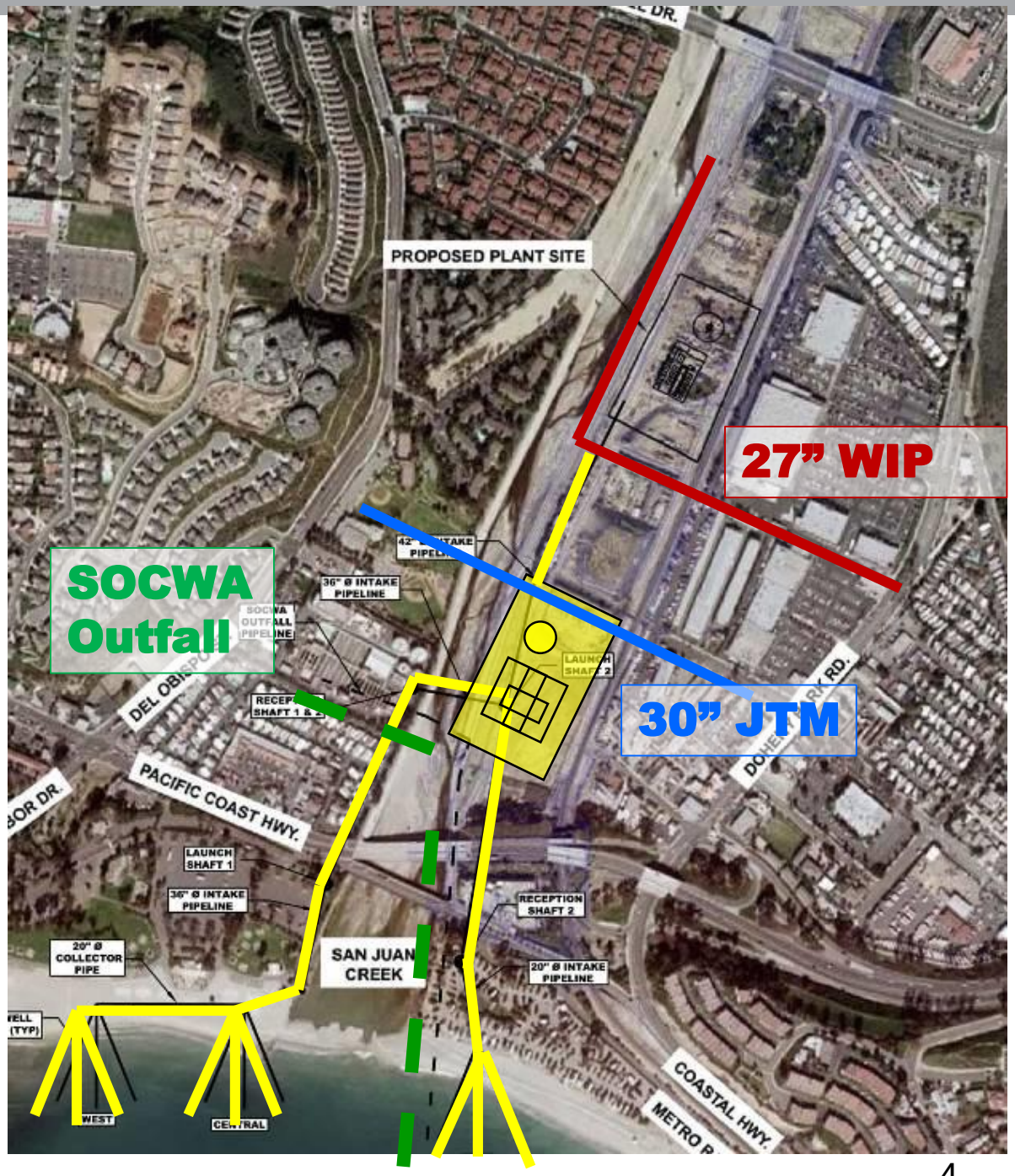
The Need for Ocean Desalination in South Orange County

- 90% dependency on imported water
- Imported pipelines cross ~five faults; high vulnerability
- 2004/2013 South Orange County Reliability Studies identified following Risks:
  - Emergency shutdowns of outside facilities
  - Prolonged drought
  - Lack of local project implementation
- Studies identified Doheny Desalination Project to improve reliability (2004 & 2013 South Orange County Reliability Studies and 2003 & 2007 Boyle Engineering Studies)

Doheny Desalination Project

- Slant wells located on Doheny Beach
- Brine Disposal through SOCWA Outfall
- Desalination Facility sited on SCWD property

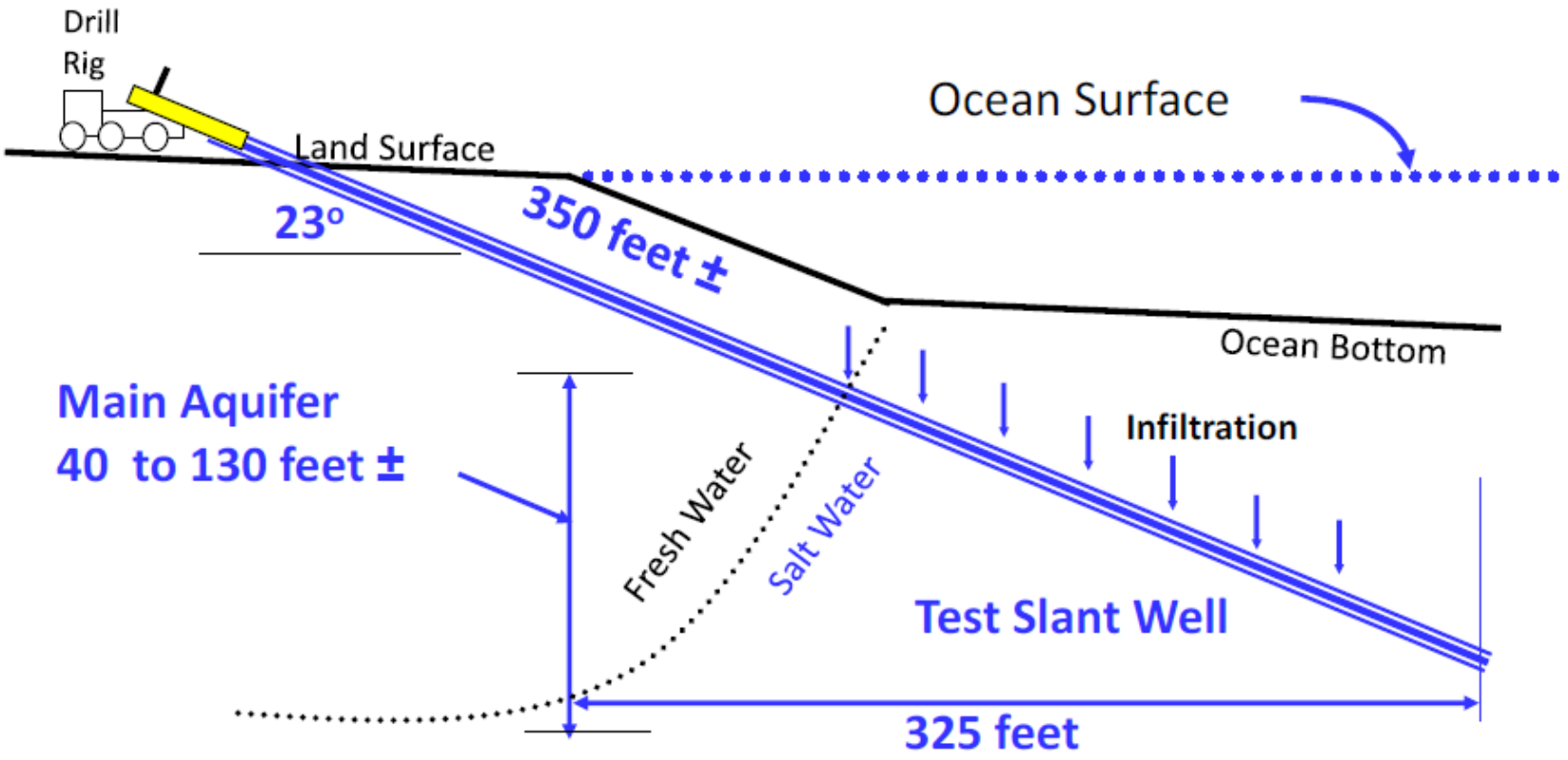
Location of facilities is indicative



Major Work Done To Date

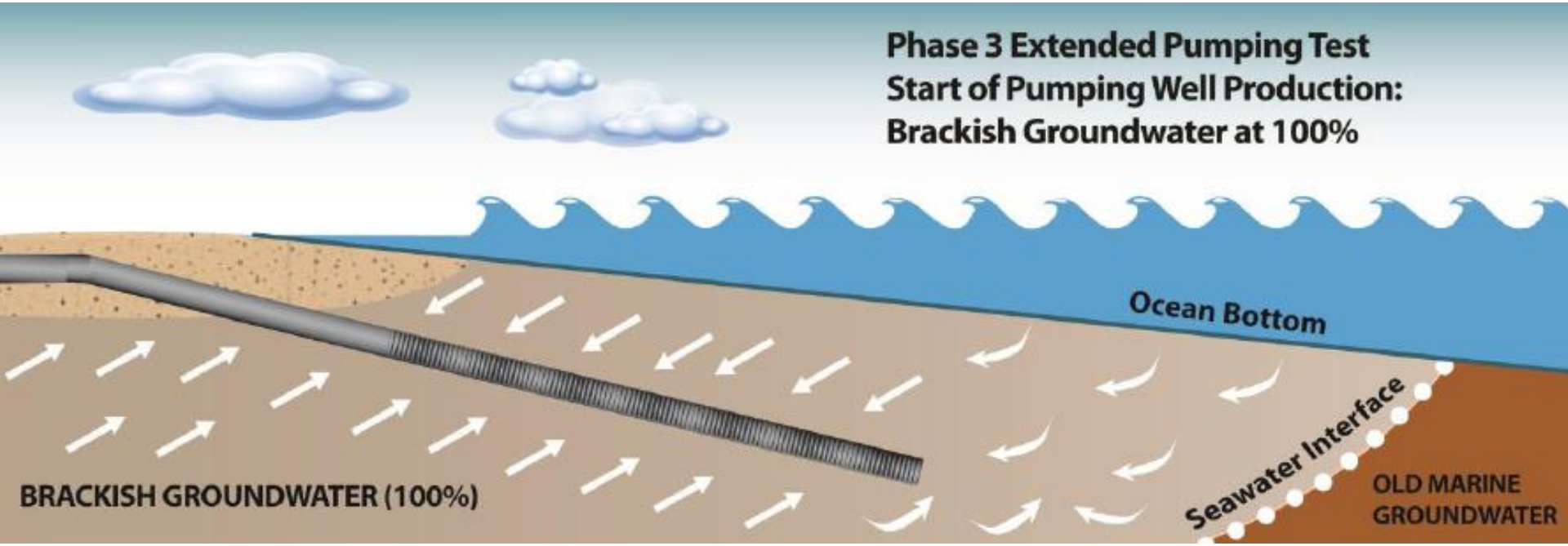
- Metropolitan Water District of Orange County and local project participants invested over $10M across many years, including:
- Engineering Feasibility Studies
- Hydrogeology Studies
- Test Slant Well – Long Term Pumping Test and Pilot Test

Schematic of a Slant Well



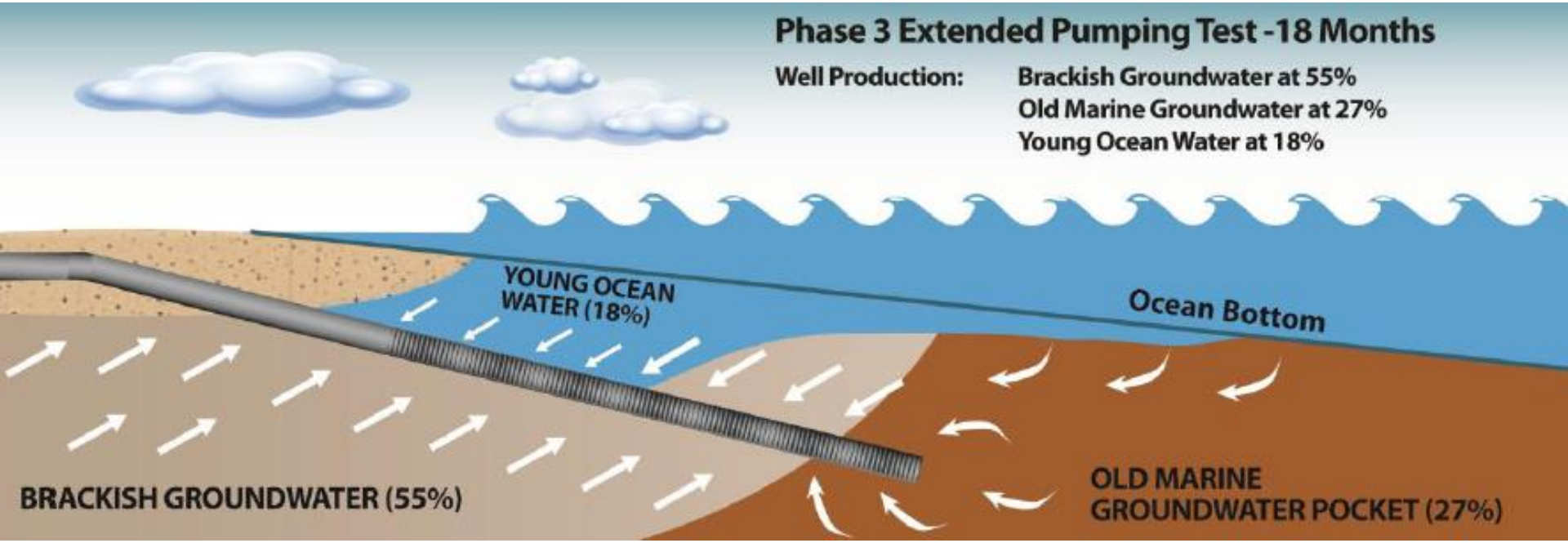
Source Water Production vs. Time

Start of Slant Well Production



Source Water Production vs. Time

18 months of Slant Well Production



MWDOC/Partnership Work was Successful

- Concluded that project was feasible and could produce 15 million gallons per day of NEW POTABLE SUPPLY at an estimated capital cost of ~$150 Million, or $1,611 per AF not counting subsidies. Incentives from MWD would reduce this cost.

Next Steps for the Doheny Desalination Project?

Doheny Desalination Draft Program Goals

- Use ocean desalination as a means to provide a ***reliable, long term, sustainable, drought-proof supply of potable water*** to customers

- Develop a large scale, regional ocean desalination facility using environmentally responsible methods in all aspects of the project, including the methods used for seawater intake and brine disposal, and innovative approaches for electrical power.

- Engage, inform, and educate the Public about the benefits and key features of the Ocean Desalination Program

Near Term Objectives

- Complete Foundational Action Funding Program initiative – Major Deliverable is estimation of Sustainable Yield (on track for January 2016 and Science Panel by Feb/Mar)

- Complete the 4-5 MGD Phase 1 Demonstration Production Facility utilizing subsurface slant well intake technology by mid-2019

- Utilize the Phase 1 Demonstration Production Facility as a means to:
  - Educate the Public
  - Confirm and optimize key aspects of the design
  - Pilot test various promising new desalination technologies

Benefits of Phase 1 Doheny Desalination Demonstration Production Facility

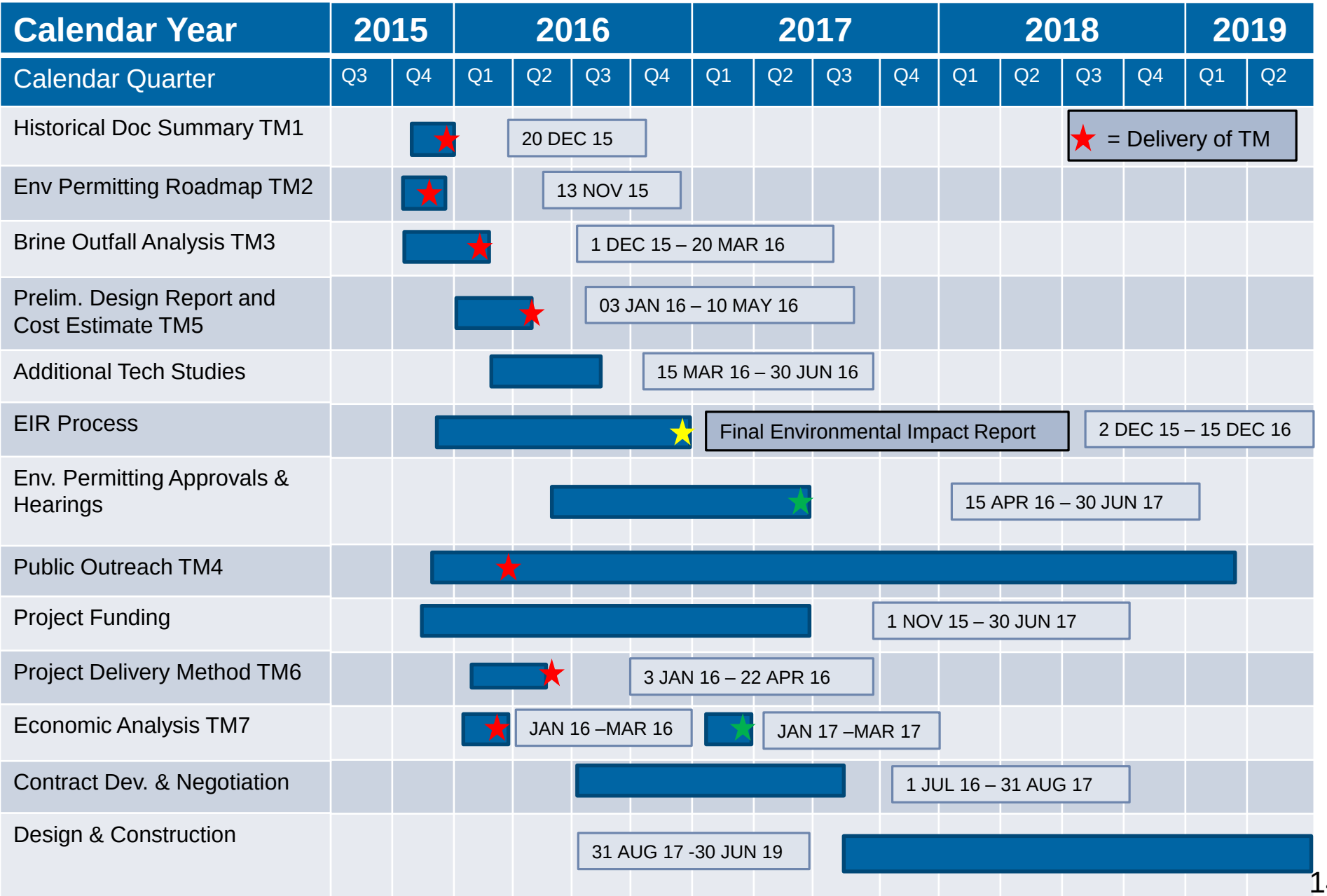
- A 4-5 MGD Ocean Desalination Demonstration Production Facility will increase potable water supply reliability in the near term

- Allow for a better understanding of slant well intake performance and feedwater quality over time, allowing for optimizing full scale plant design and minimizing full scale project risk

- A smaller desalination facility can be constructed in a shorter time frame and with less capital expenditure

- Slant wells located on Doheny Beach will act as a seawater intrusion barrier to San Juan Basin

Phase 1 Desalination Facility High Level Schedule



GHD Team

GHD

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KESTREL CONSULTING

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Marine Ecology

QUESTIONS?

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