Philo Greenwood Road At Navarro River Bridge Project

QUINCY ENGINEERING

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MENDOCINO COUNTY 1850

20 YEARS

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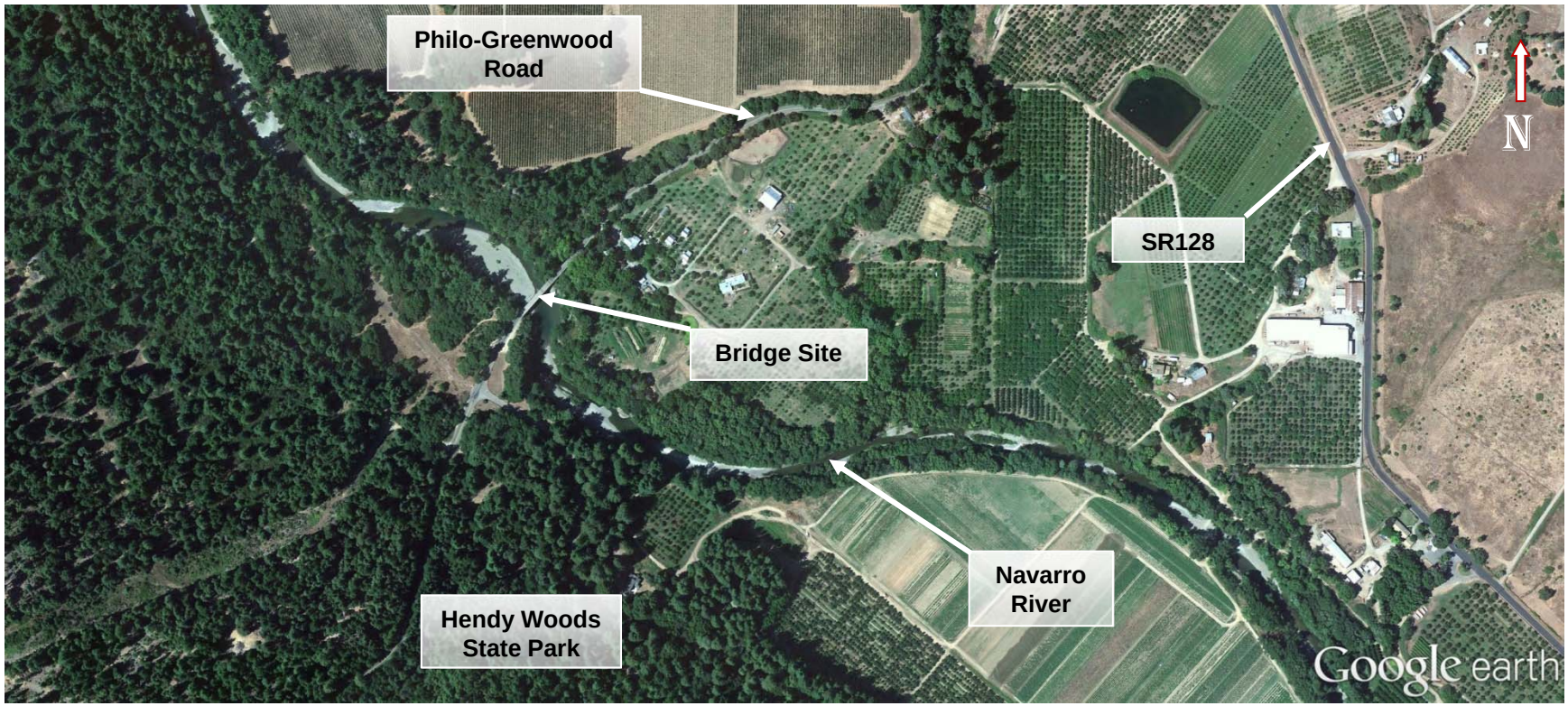
Agenda

- Welcome
- Introduction
- Purpose & Need
- Process
- Roadway Design
- Bridge Design
- Next Steps
- Schedule
- Breakout Session

Welcome

- Share Information and Solicit Public Input
- Project Team- Self Introductions
- History
  - Constructed in 1951
  - Not Currently Considered a Historic Structure
  - Functionally Obsolete
  - Reaching End of its Service Life
- Federal Highway Bridge Program
  - 88.53% Federal HBP Dollars
  - 11.47% Federal Toll Credits

Project Location



Purpose

Retrofit or Replace Deficient Bridge

- Provide Safe Crossing
- Reduce Maintenance

Improve Public Safety

- Bring up to Current Design Standards
- Increase Lane & Shoulder Width
- Match Adjacent Roadway
- Provide Pedestrian Access

Need- Existing Bridge

- Seismically Deficient
- Structurally Deficient
- Substandard Railing
- Functionally Obsolete (Width)

Need- Component Condition

- Timbers - Splits, Shakes, & Decay
- Trestle Footing - Cracks & Settlement
- Concrete Piers - Deterioration

Considerations

- Natural Setting
- Aesthetics
- Traffic
- Minimizing Construction Impacts
- Minimizing Permanent Environmental Impacts
- Recreational Users
- Pedestrians and Bicyclists
- Utilities
- Funding

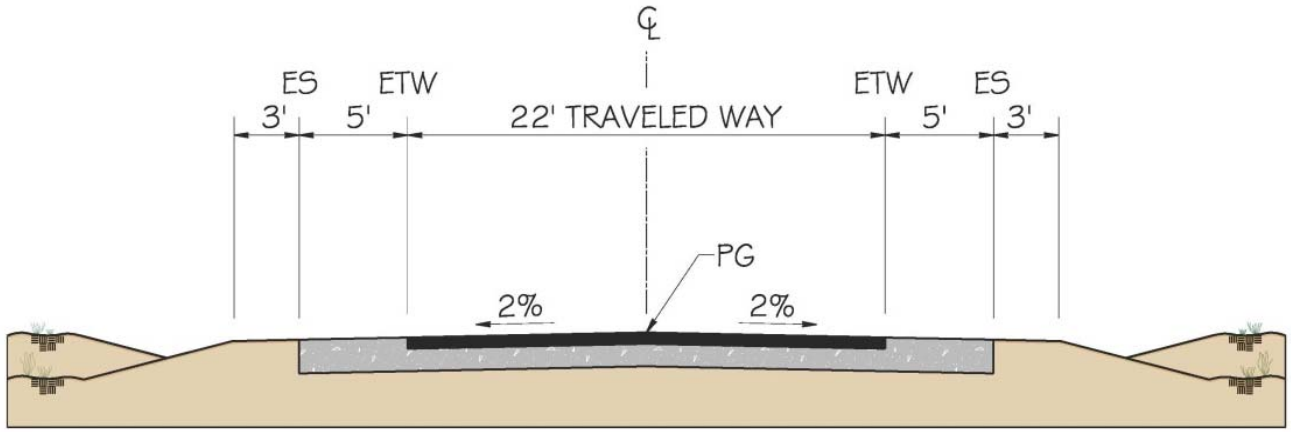
Environmental Compliance (NEPA CE, CEQA MND)

Studies Required:

1. Noise
2. Water Quality
3. Hazardous Waste
4. Floodplain Impacts
5. Biology (Natural Environment Study and Biological Assessment)
6. Wetlands Assessment and Delineation
7. Section 4(f) De Minimis (Not adversely effecting activities or attributes of Hendy Woods SP)
8. Visual Resources
9. Construction/Encroachment on State Lands
10. Farmlands
11. Cultural/Historical (Area of Potential Effects Map, Historic Preservation Study Report, Archaeological Study Report, Historical Resource Evaluation Report)
12. Permits needed: Army Corps Section 404 Nationwide, Regional Water Quality Control Board Section 401 Water Quality Certification , CA Fish and Wildlife Section 1602 Streambed Alteration

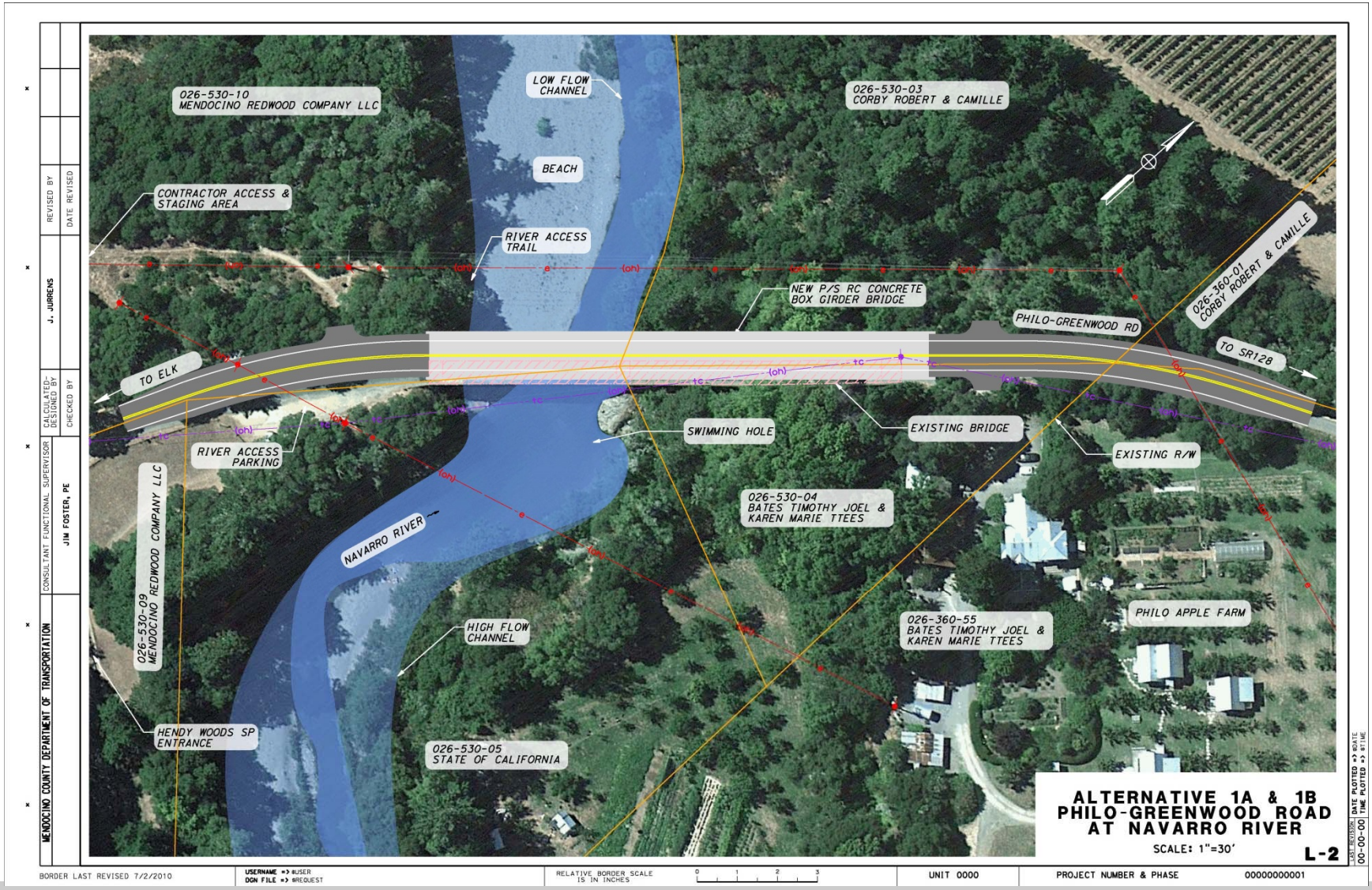
Roadway Criteria

- Rural Minor Collector
- 418 Average Daily Traffic (2012)
- 40 MPH Proposed Design Speed (Rolling Terrain)
- 11’ Lanes, 5’shoulders, 5’ sidewalk on south side of bridge
- Meets Accepted Design Standards

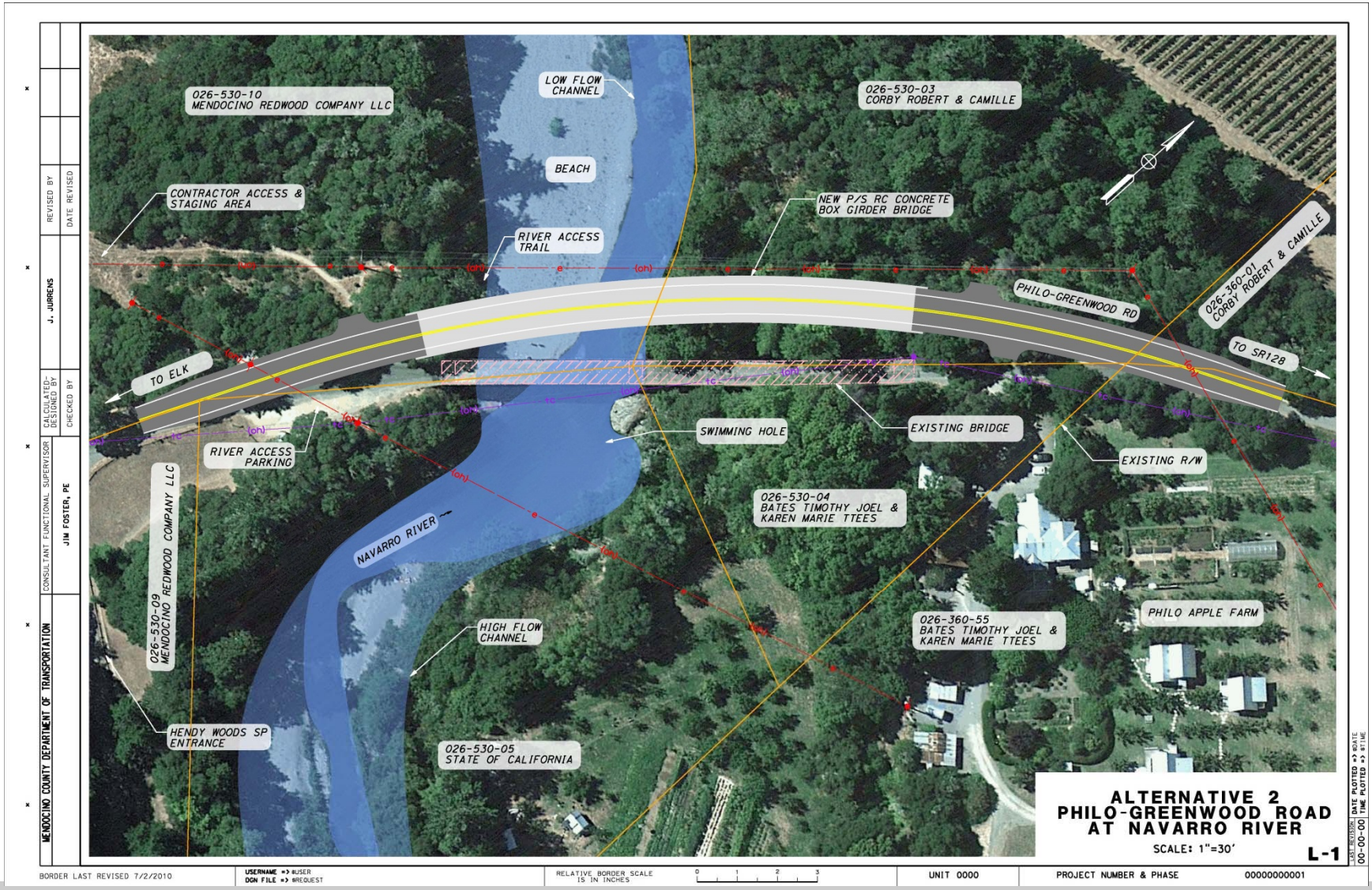


PHILO-GREENWOOD ROAD
TYPICAL SECTION

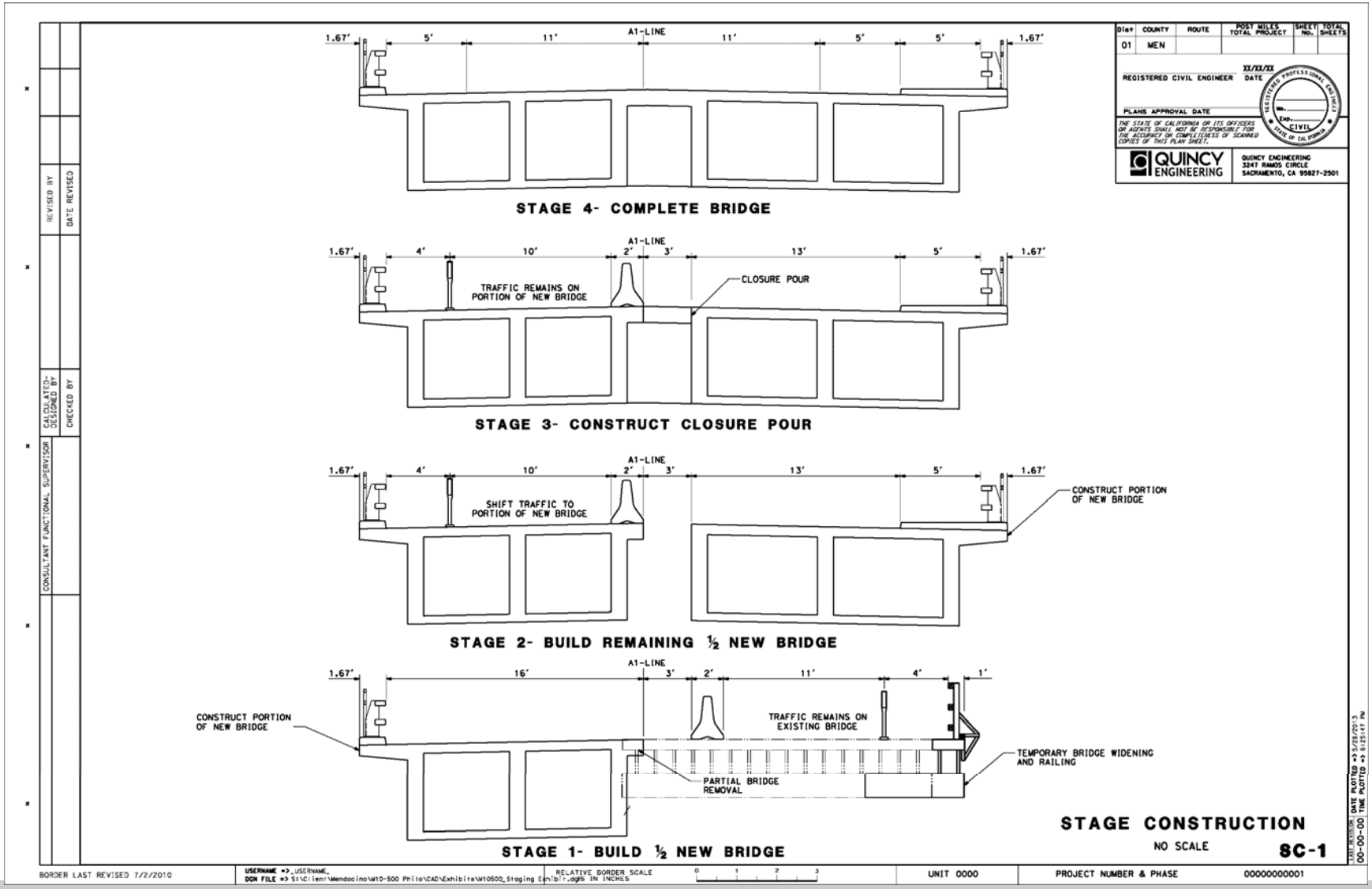
Alternative 1- Existing Alignment



Alternative 2- Downstream Alignment



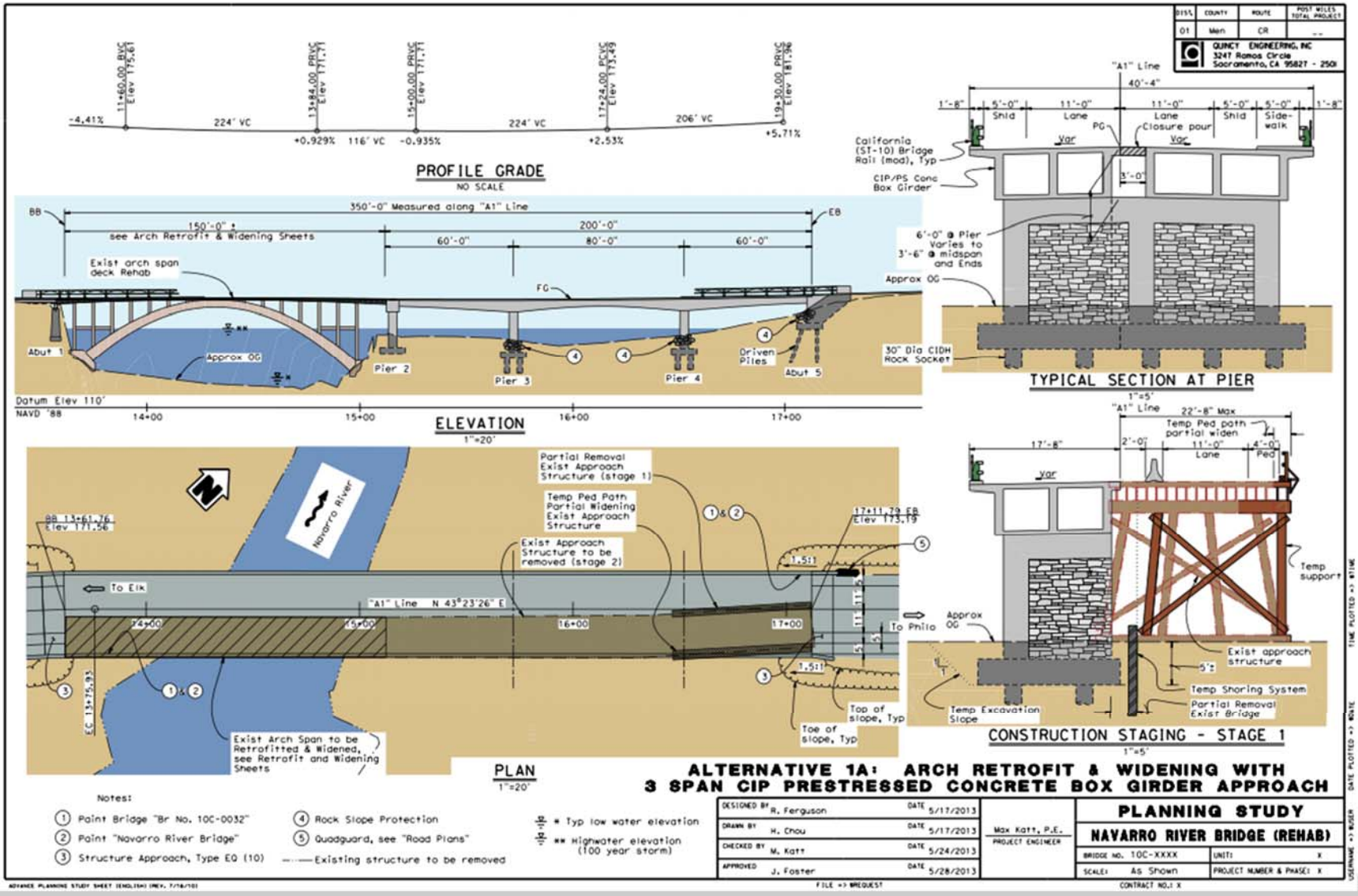
Traffic Handling



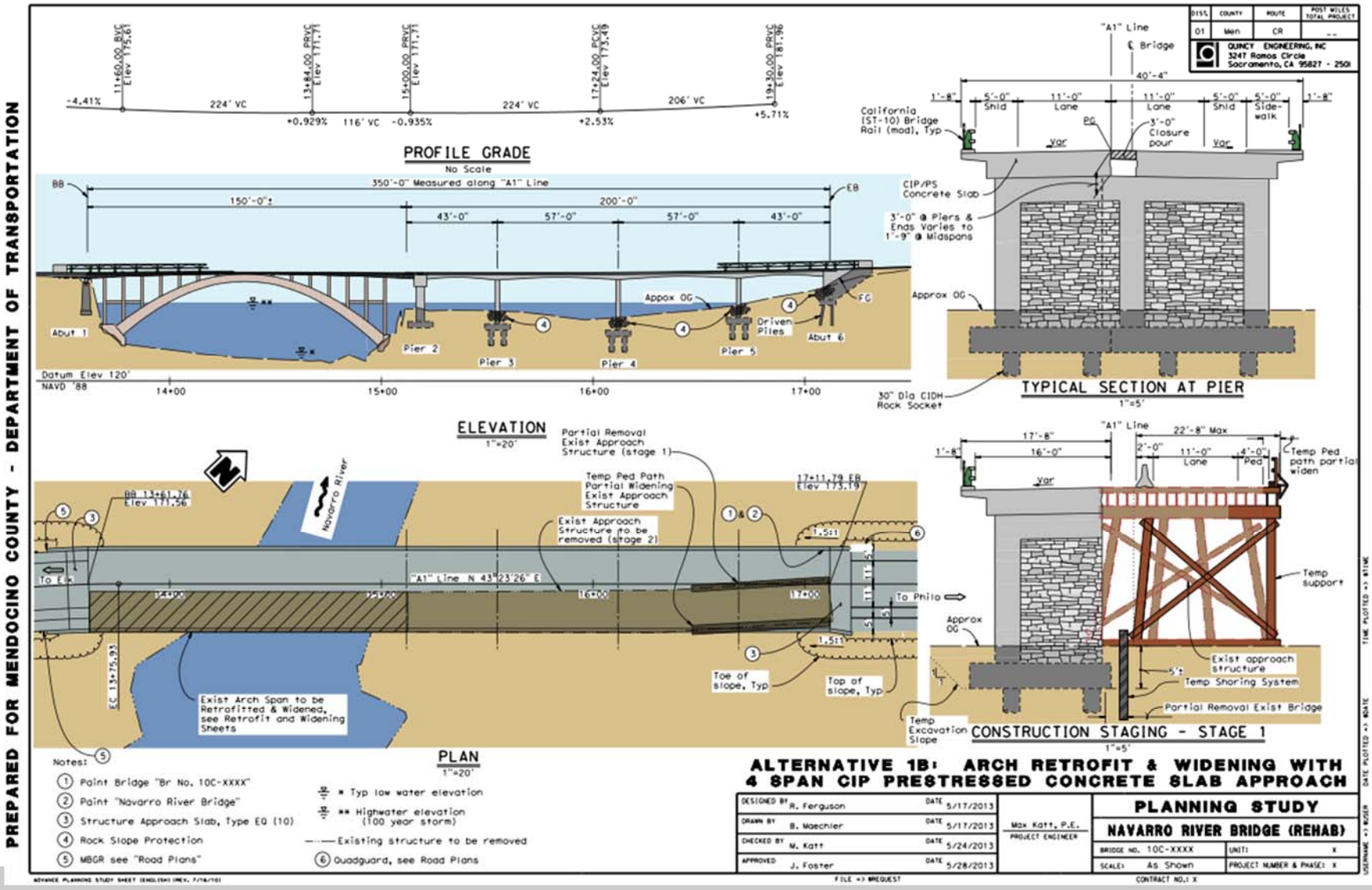
Roadway Alternatives Summary

Alt	Description	Pros	Cons
1A	Existing Alignment (Two Stage)	• Retain Existing Footprint • Minimizes Permanent Impacts • Minimize R/W Impacts • Minimize Roadway Costs • Minimize Visual Impacts	• Staged Traffic During Construction • Longer Construction Duration
1B	Existing Alignment (Two Stage)	• Retain Existing Footprint • Minimizes Permanent Impacts • Minimize R/W Impacts • Minimize Roadway Costs • Minimize Visual Impacts	• Staged Traffic During Construction • Longer Construction Duration
2	New Downstream Alignment	• Retain Existing Traffic Pattern • Isolate Traffic From Construction • Improve Horizontal & Vertical Geometry	• More Visual & Aesthetic Impacts • Higher Permanent R/W acquisition, • More permanent environmental impacts, More Roadway Work • More Costly

Bridge Alternative 1A- Rehabilitate & Widen

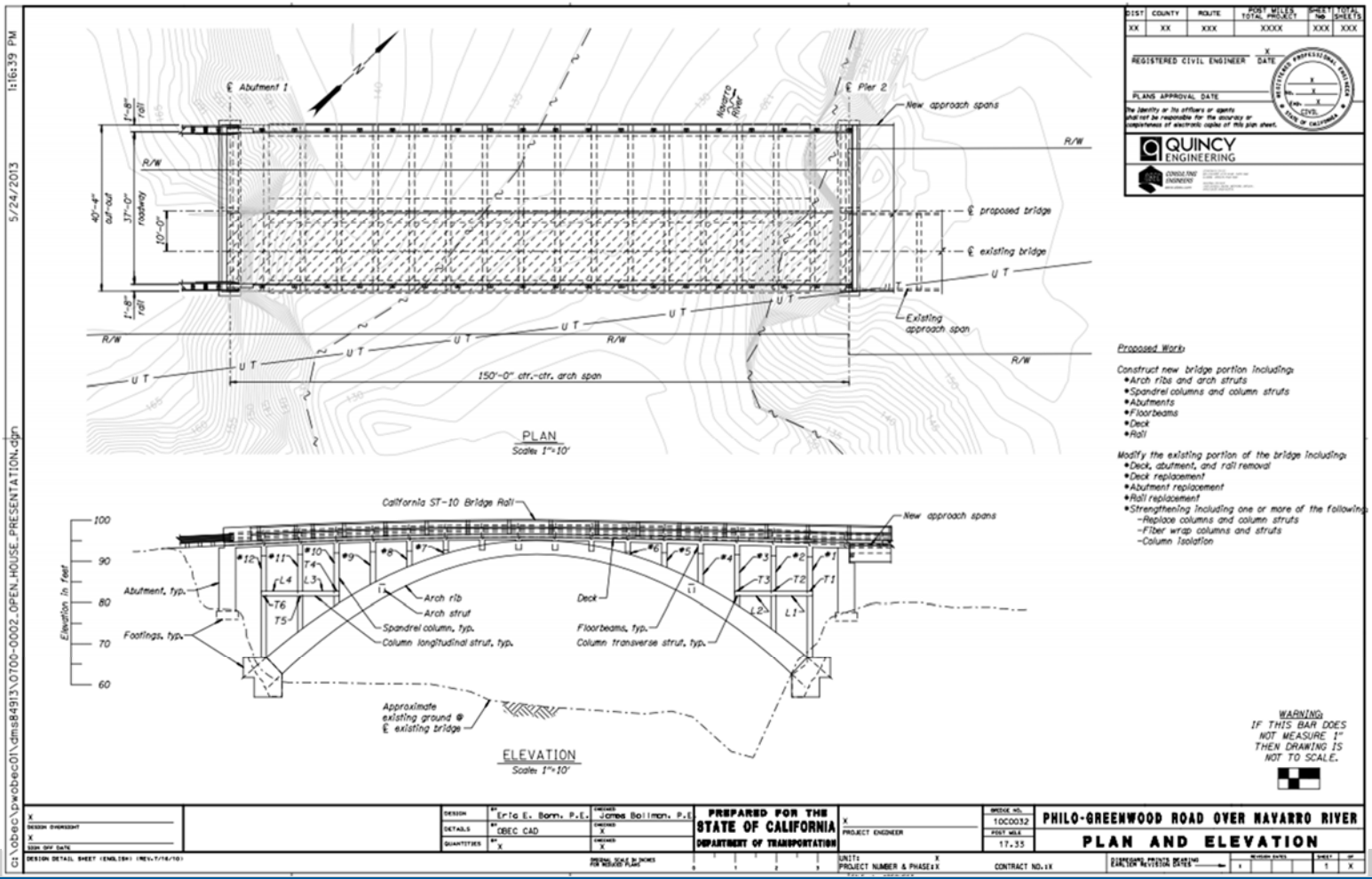


Bridge Alternative 1B- Rehabilitate & Widen



Arch Widening & Rehabilitation

- Rehabilitation of Arch Ribs and Spandrel Columns is Feasible
- Widened Arch Structure can withstand modern Vehicular and Seismic Loads

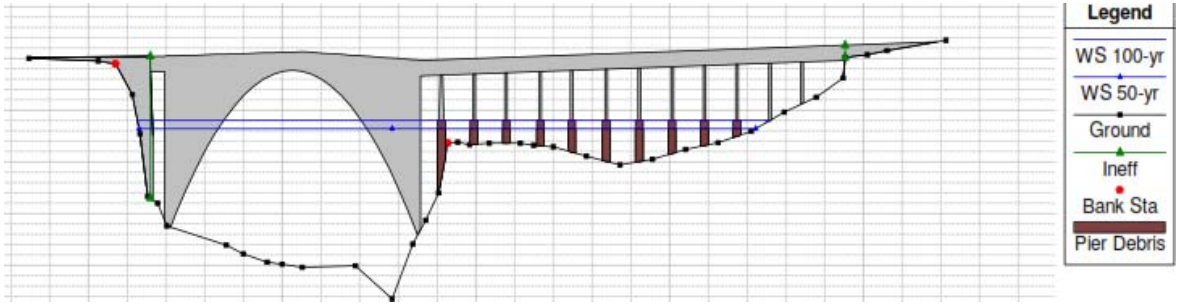


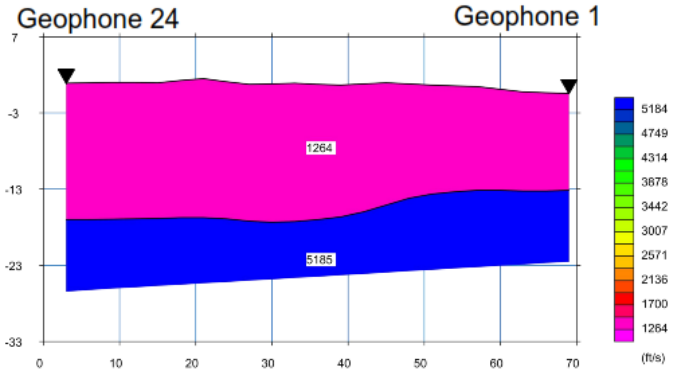
Existing Bridge Assessment

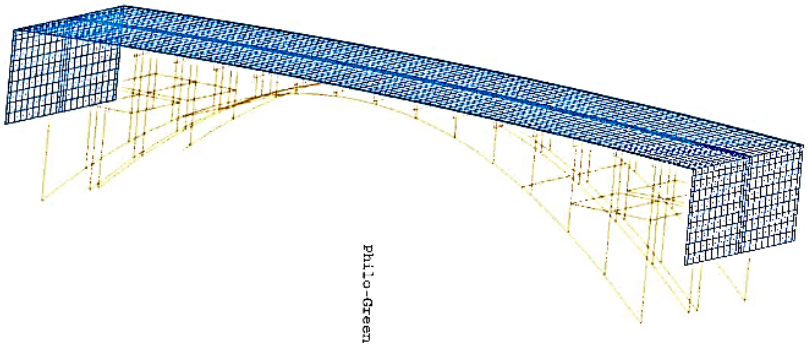
- Concrete Material Properties
  - Deck, Arch Ribs, Pier Support
- Structural Evaluation – Load Capacity
  - Deck, Spandrel Columns, Arch Rib

Existing Bridge Assessment

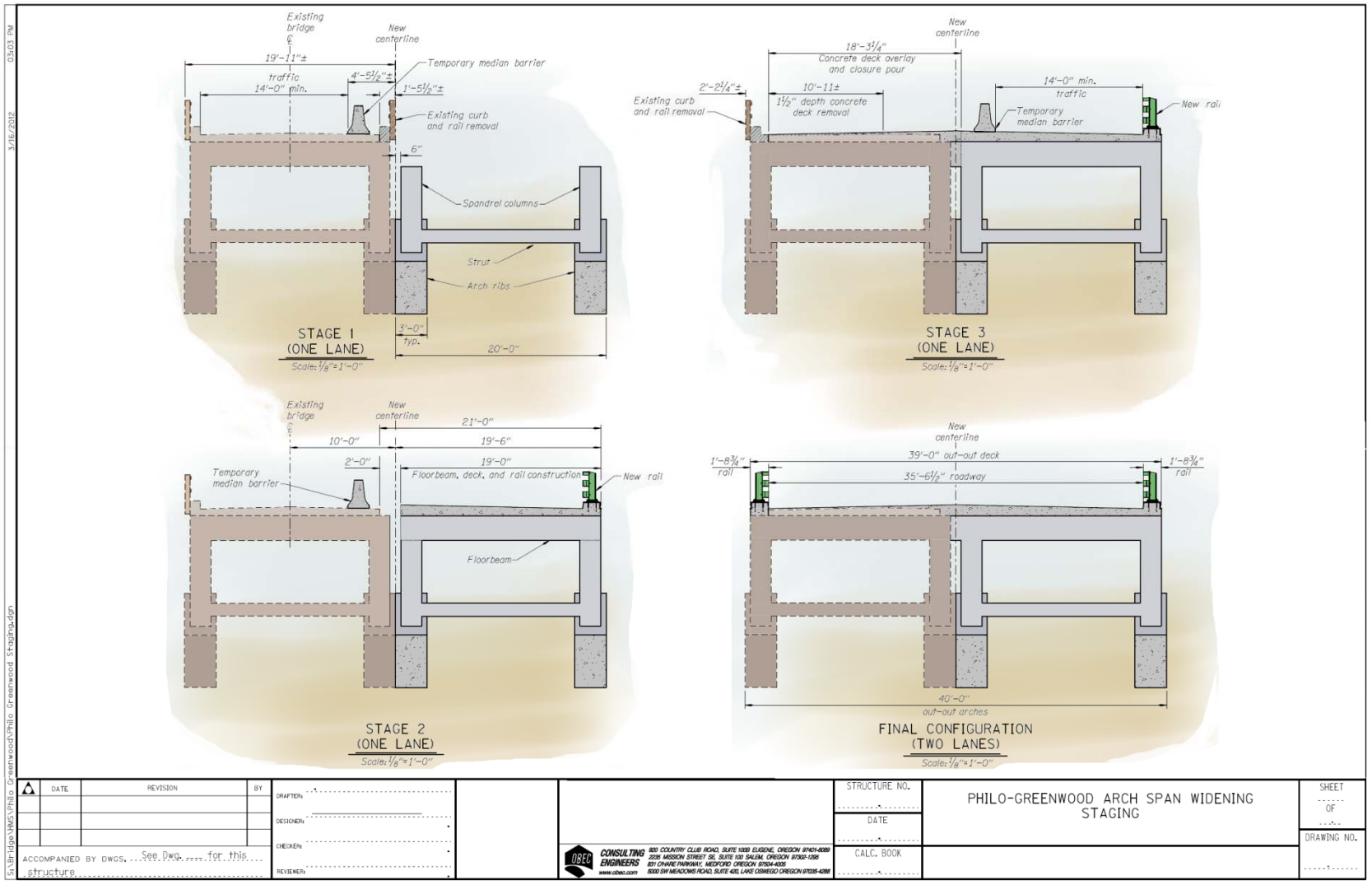
- Seismic Analysis
- Geotechnical Evaluation
- Hydraulic Evaluation
- Final Conclusions





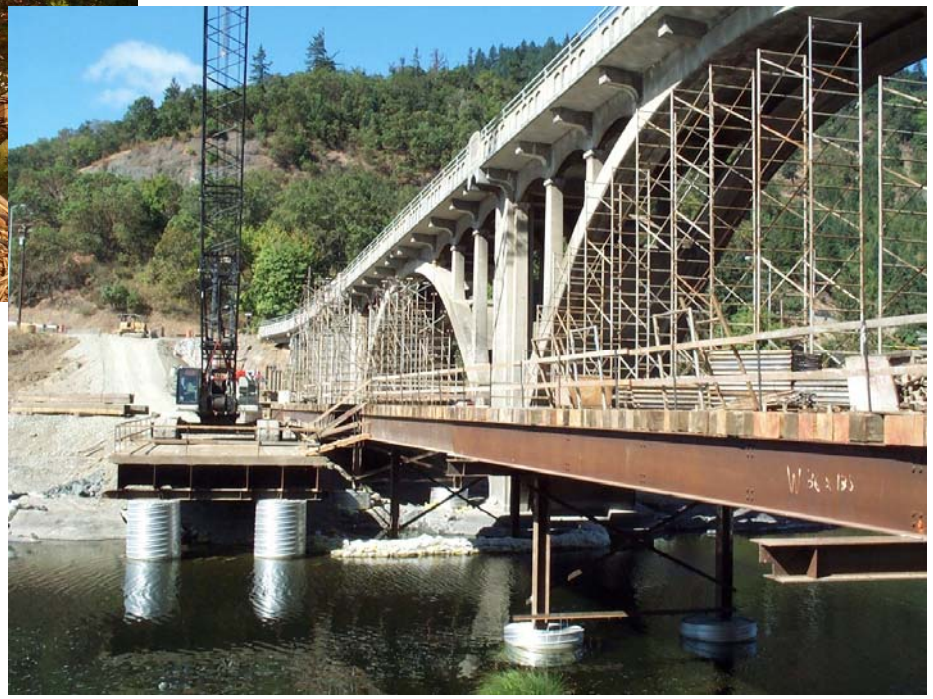


Construction Staging



Arch Span Widening- Staged Construction

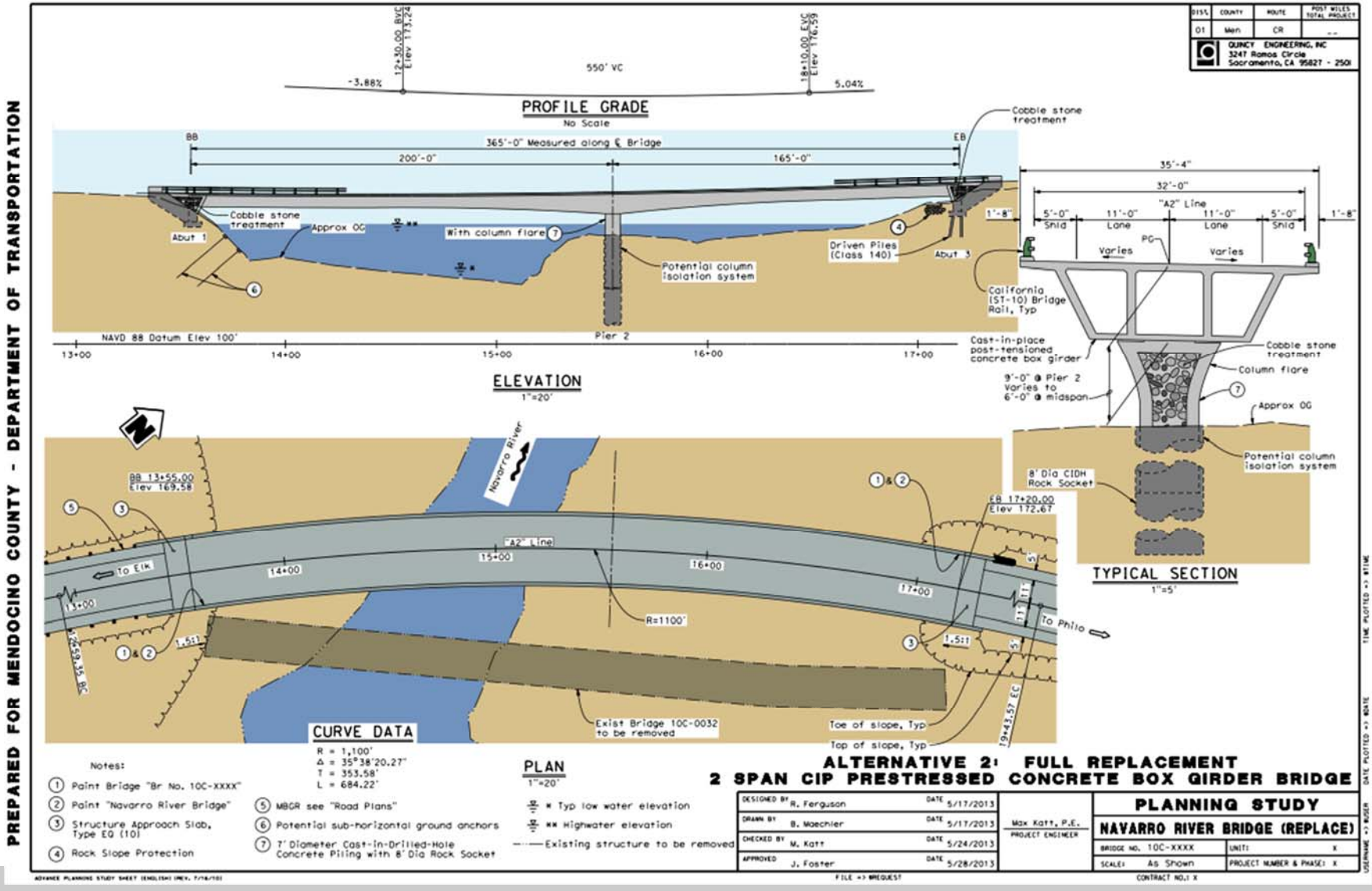
Sample Construction Staging



Comparison- Existing

Comparison- Retrofit

Bridge Alternative 2- Full Replacement



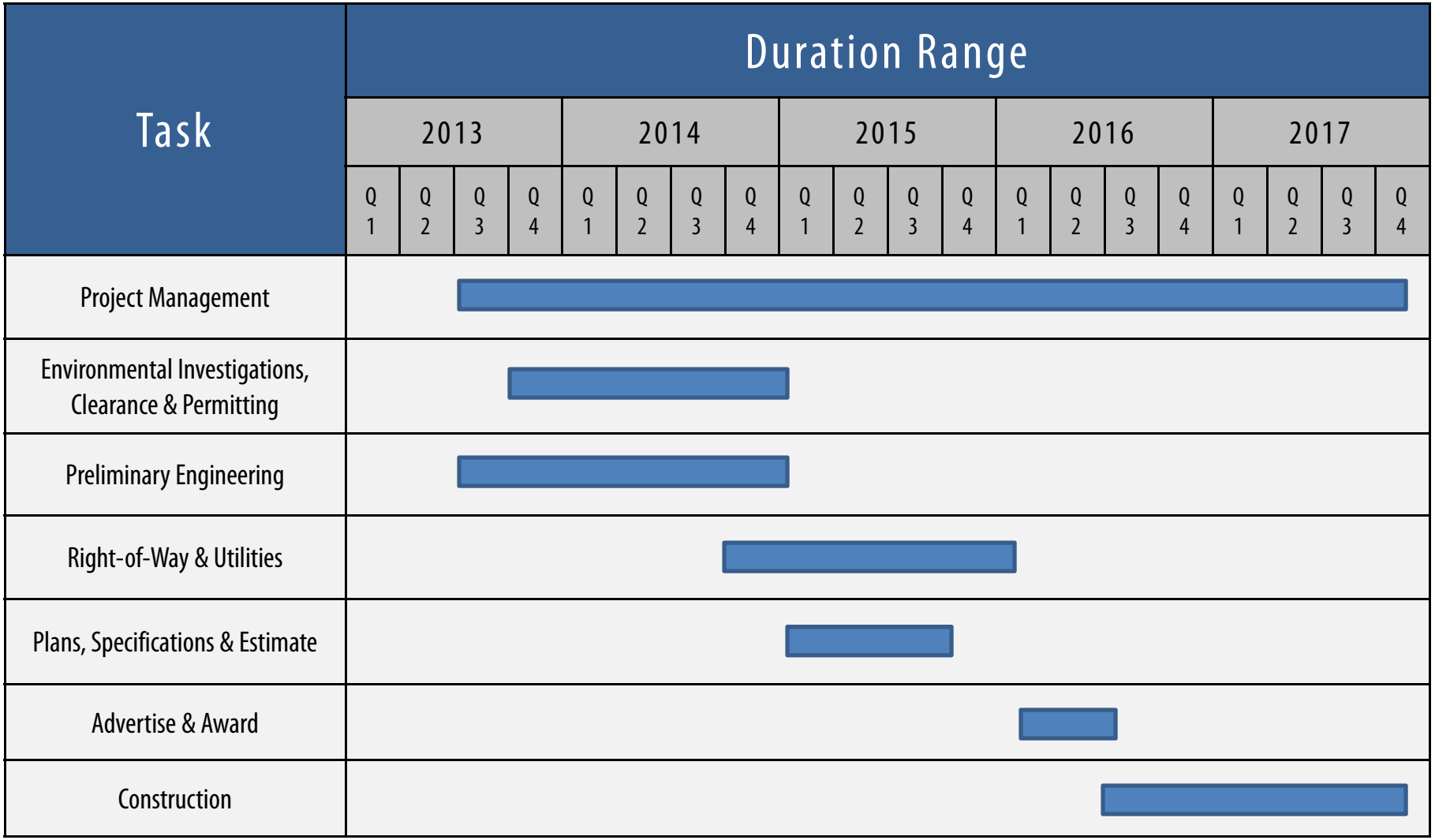
Bridge Alternatives Summary

Alternative	New Bridge	Construction Duration & Traffic Handling	Construction Cost (in Millions)	Pros	Cons
 **1A:** Retrofit & Widen On Existing Alignment	3 Span Cast-in-place Prestressed Concrete Box Girder	Two Seasons Staged on Existing Bridge	Road: $0.9M Bridge: $4.2M **Total: $5.1M**	• Aesthetics • Preservation • Small Footprint	• Traffic Handling
 **1B:** Retrofit & Widen On Existing Alignment	4 Span Cast-in-place Prestressed Concrete Slab	Two Seasons Staged on Existing Bridge	Road: $0.9M Bridge: $4.8M **Total: $5.7M**	• Aesthetics • Preservation • Small Footprint	• Traffic Handling • Most Expensive
 **2:** Replacement On Northern Alignment	2 Span Cast-in-place Prestressed Concrete Box Girder	Single Season No Staging	Road: $1.0M Bridge: $3.9M **Total: $4.9M**	• Low Traffic Impacts • Shortest Duration	• Aesthetics • Removes Arch • Large Footprint

Next Steps

- Continue Preliminary Engineering
- Retrofit Strategy & Scope Approval
- Select Preferred Alternative
- Complete Environmental Studies
- Complete Preliminary Engineering
- Complete Environmental Clearance
- Complete Final Plans, Specifications, and Estimate
- Obtain Regulatory Permits
- Advertise, Administer, and Award Project
- Begin and Complete Construction

Schedule


Task
Duration Range
2013
2014
2015
2016
2017
Q 1
Q 2
Q 3
Q 4
Project Management
Environmental Investigations, Clearance & Permitting
Preliminary Engineering
Right-of-Way & Utilities
Plans, Specifications & Estimate
Advertise & Award
Construction

Breakout Session