

# Advanced Planning Studies for San Elijo Lagoon Improvements



June 2006



June 28, 2006

California Department of Transportation  
Attention: Majid Kharrati, P.E.  
3024 Juan Street  
P.O. Box 85406  
San Diego, California 92186-5406

**Re: I-5 San Elijo Lagoon Advanced Planning Studies  
Preliminary Design and Estimate**

Dear Mr. Kharrati,

We are pleased to submit four (4) copies of the Final Preliminary Advanced Planning Studies and Cost Estimates for the six bridge configurations over the San Elijo Lagoon per Caltrans Review Comments, dated April 24, 2006.

The plans identify preliminary alternatives as developed by our Structures Design Team. A preliminary cost estimate was prepared for the each of the alternatives. The preliminary cost estimate was organized into two alternatives for the proposed Coast Highway 101 Bridge, NCTD Railroad Bridge, and I-5 San Elijo Lagoon Bridge and Undercrossing.

**Preliminary Design Alternatives:** The proposed alternatives were developed to provide sufficient length to span proposed channel improvements to the San Elijo Lagoon. A description of the bridge configurations are provided in the Advanced Planning Study Design Memorandum and Alternatives Comparison Matrix.

**Preliminary Engineer's Estimate of Cost:** A Preliminary Engineer's Estimate of Cost has been developed to assist with estimating construction fees. Because of the preliminary nature of the cost estimate, a contingency of 25% is included.

<b>COST OVERVIEW</b>	<b>Alternative 1 (Million)</b>	<b>Alternative 2 (Million)</b>
<b>Coast Highway 101 Bridge</b>	\$ 3.7	\$ 3.3
<b>NCTD Railroad Bridge</b>	\$ 6.6	\$ 6.4
<b>I-5 San Elijo Lagoon Bridge and Undercrossing</b>	\$ 22.9	\$ 67.6

If you have any questions or comments, please call us.

Sincerely,

**Dokken Engineering**  
Chris Johnson, PE  
Project Manager  
1576-210  
CJ/kmj




## Advanced Planning Studies for San Elijo Lagoon Improvements

	Location	Span Length (Meters)		Proposed Structure Type		Accommodations*	Cost (Millions) 10% Mobilization 25% Contingencies	
		Channel	Bridge	Superstructure	Substructure			
1-5 San Elijo Lagoon and Undercrossing	Alternative 1	Spans Revised Lagoon Portion Only <i>Existing Bridge Location</i>	80	133.3	5-Span Cast-In-Place Prestressed Concrete Box Girder	Circular Concrete Columns Cast-In-Steel-Shell Piles (CISS)	*Two Stage Construction Sequence *Caltrans Proposed I-5 Corridor Improvements	\$22.9
	Alternative 2	Spans Entire Lagoon <i>Existing Bridge Location</i>	-	539.0	15-Span Cast-In-Place Prestressed Concrete Box Girder	Circular Concrete Columns Cast-In-Steel-Shell Piles (CISS)	*Two Stage Construction Sequence *Caltrans Proposed I-5 Corridor Improvements	\$67.6
Coast Highway 101	Alternative 1	Spans Revised Lagoon Portion Only <i>Existing Bridge Location</i>	40	67.4	6-Span Reinforced Concrete Slab <i>(0.554 m thick)</i>	Cast-In-Drilled-Hole Concrete Piles (CIDH)	*Two Stage Construction Sequence	\$3.7
	Alternative 2	Spans New Channel <i>800 m South of Existing Bridge Location</i>	60	67.0	6-Span Reinforced Concrete Slab <i>(0.554 m thick)</i>	Driven Concrete Piles (Pile Extensions) Seat type/Strutted Abutments	*Two Stage Construction Sequence	\$3.3
NCTD Railroad	Alternative 1	Spans Revised Lagoon Portion Only <i>Existing Bridge Location</i>	150	150.0	10-Span Precast Prestressed Concrete Box Girder	Circular Concrete Columns Reinforced Concrete Cap CISS Concrete Piles	*Temporary Shoofly Bridge to allow for Replacement <i>(East of Existing Bridge)</i>	\$6.6
	Alternative 2	Spans New Channel <i>400 m South of Existing Bridge Location</i>	180	217.5	15-Span Precast Prestressed Concrete Box Girder	Circular Concrete Columns CISS Concrete Piles	*Temporary Shoofly Bridge to allow for Replacement <i>(West of Existing Bridge)</i>	\$6.4

**Structure Design Review**  
**Comments and Responses**

# STRUCTURE DESIGN REVIEW COMMENTS AND RESPONSES

Co-Rte-K SD-5\_Local\_RR Reviewer N. Gee / P. Wang SAN ELIJO LAGOON BRIDGE REPLACEMENTS  
 Cost Center-EA 11-11A1124 Functional Unit Div of Engineering Services - OSFP  
 Advance Planning Study Date April 20, 2006

No.	Plan/SSP/ Page No.	Comments	Response/Actions	Initials	
				(a)	(b)
<b>S. Coast Highway 101 Bridge (Replace)</b>					
1	Alt 1 - Estimate	Change unit for Furnish Pile from "EA" to "M" and for Drive Pile from "M" to "EA".	Revision has been made.	mm	kj
2	Alt 1 - Estimate	Add "Area = 1698 m2".	This is already provided in the structure information provided above the estimate. This is typical for all structure APS estimates on this project.	mm	kj
3	Alt 1 - APS General Plan	Add "ALTERNATIVE 1" above the title.	Revision has been made.	mm	kj
4	Alt 1 - APS General Plan	Cost estimate provided on plan sheet does not match Estimate spreadsheet.	Spreadsheet is correct. Will revise estimate shown on plan to match spreadsheet.	mm	kj
5	Alt 1 - APS General Plan	Change construction centerline call-out to "Centerline South Coast Highway 101".	Revision has been made.	mm	kj
6	Alt 1 - APS General Plan	Show Kilometer post and elevation of BB and EB on the plan view.	Will add approximate deck elevation at BB and EB. Kilometer post for this local road is not available.	mm	kj
7	Alt 1 - APS General Plan	Add "with 406mm $\phi$ CIDH pile" after pile extension call-out on the Typical Section.	Will add "with 400mm $\phi$ CIDH pile" rather than "with 406mm $\phi$ and change the diameter of the pile extension to 0.400m to match the pile conventional metric size.	mm	kj
8	Alt 1 - APS General Plan	In the Legend, change item 3 to 4 to match designation shown in plan view.	Changed designation in plan view to 3 to match the Legend.	mm	kj
9	Alt 1 - APS General Plan	In the Elevation view, provide an arrow from the "Driven concrete pile foundation assumed" note up the abutment piles.	Added "at abutments" to the end of the note to be more concise, since it applies to both abutments but not the piers.	mm	kj
10	Alt 1 - APS Typical Section	Add "ALTERNATIVE 1" above the title.	Will do.	mm	kj
12	Alt 2 - APS Plan	Cost estimate provided on plan sheet does not match Estimate spreadsheet.	Spreadsheet is correct. Will revise estimate shown on plan to match spreadsheet.	mm	kj
13	Alt 2 - APS Plan	Show Kilometer post and elevation of BB and EB on the plan view.	Will add approximate deck elevation at BB and EB. Kilometer post for this local road is not available.	mm	kj
14	Alt 2 - APS Plan	Add "with 406mm $\phi$ driven pile" after pile extension call-out on the Typical Section.	Will add "with 400mm $\phi$ driven pile" rather than "with 406mm $\phi$ driven pile" and change the diameter of the pile extension to 0.400m to match the pile size.	mm	kj
15	Alt 2 - APS	In the Elevation view, provide an arrow from the "Driven	Will do.	mm	kj

