

# **CRAIG CREEK BRIDGE REPLACEMENT**

Accelerated Bridge Construction utilizing  
Precast P/S Adjacent Box Beams &  
Precast Abutments

Randip Bains, P.E.

# CRAIG CREEK BRIDGE





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- Existing structure built 1924
- 3 Span RC T-Beam
- Spread Footing supports
- Identified as Scour Critical Bridge
- Recommended for replacement

# CRAIG CREEK BRIDGE

## Alternatives considered

### CIP P/S 2-SPAN SLAB BRIDGE

- Limited construction window July 15<sup>th</sup> – Oct 15<sup>th</sup>
- CIP construction / stage construction would have required two construction seasons.
- Maintain two-lanes of traffic for extended construction duration.
- Stage construction required wider bridge width than needed
- Increased project cost due to
  - constructing wider structure
  - conforming roadway approaches
  - acquiring additional R/W
  - relocation of existing utilities

# CRAIG CREEK BRIDGE

## Alternatives considered

### **Adjacent Precast Prestressed Concrete Box Girder**

- Minimize on-site construction duration
- Eliminate the additional bridge width needed for traffic handling
- Eliminate the need for falsework and formwork
- Eliminate the need for additional R/W
- Construction to be completed within single construction window
- Considered full closure of route 99 versus maintaining one lane of signalized traffic control.
- Sufficient lead time needed to ensure construction during work window



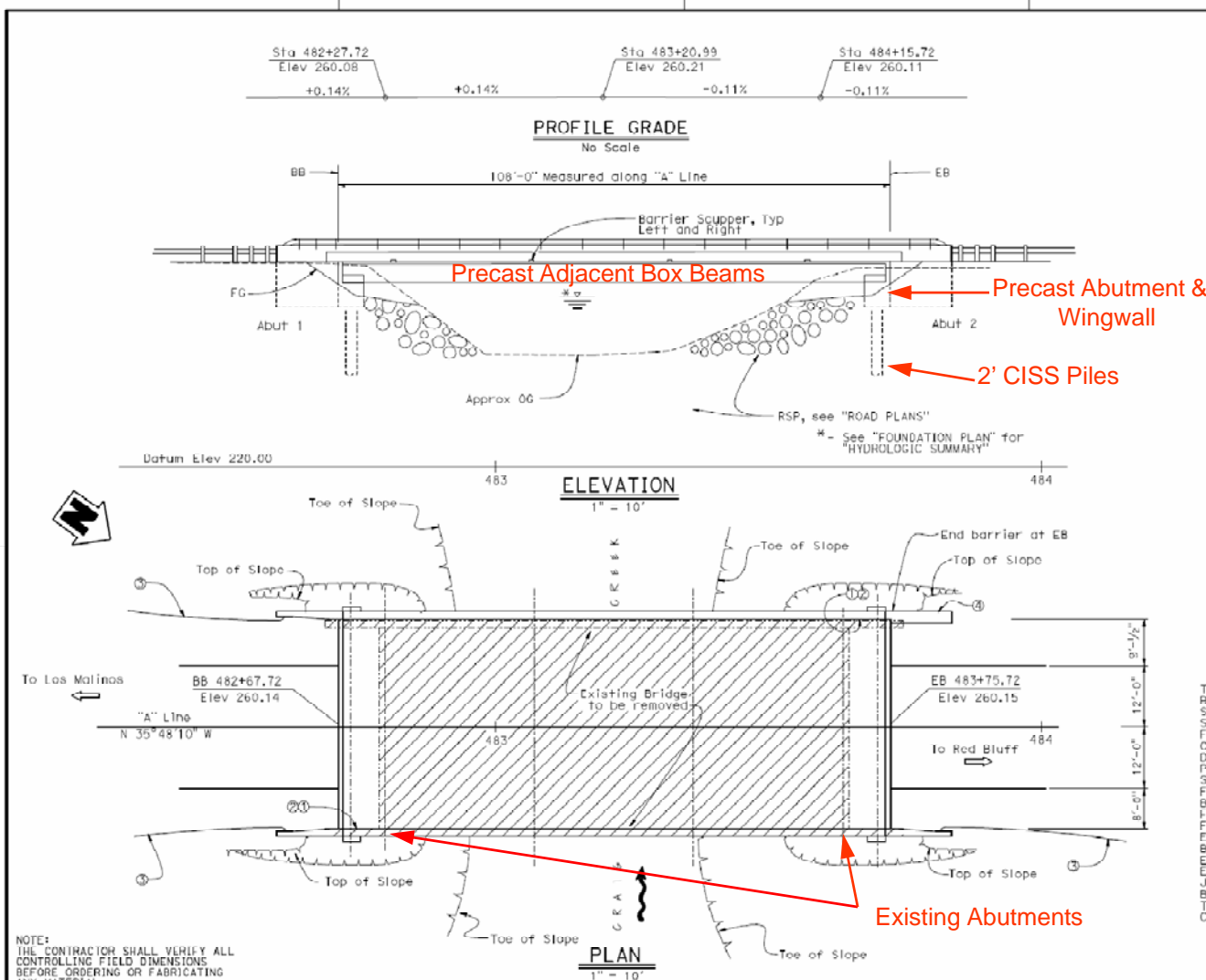
DIST	COUNTY	ROUTE	TOTAL MILES TOTAL PROJECT	SHEET NO	TOTAL SHEETS
02	Teh	99	15.4/15.5 20.9/21.5	48	67

*Handy Sign Base* 8/27/09  
REGISTERED CIVIL ENGINEER DATE

12-14-09  
PLANS APPROVAL DATE

*Handy S. Bailey*  
REGISTERED PROFESSIONAL ENGINEER  
No. 64172  
Exp. 6-30-11  
STATE OF CALIFORNIA

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NOTE:  
THE CONTRACTOR SHALL VERIFY ALL  
CONTROLLING FIELD DIMENSIONS  
BEFORE ORDERING OR FABRICATING  
ANY MATERIAL.

 Indicates Existing Bridge Removal  
"Br. No. 08-0014"

----- Indicates Existing Structure  
 ————— Indicates New Structure

- ① Paint "CRAIG CREEK"
- ② Paint "BRIDGE NO. 08-0168"
- ③ MBOB, see "ROAD PLANS"
- ④ Crash Cushion, see "ROAD PLANS"  
Place over precast wingwall

Scuppers required in Left and Right Barrier  
Rails at Stations 482+80, 483+07, 483+34, 483+61

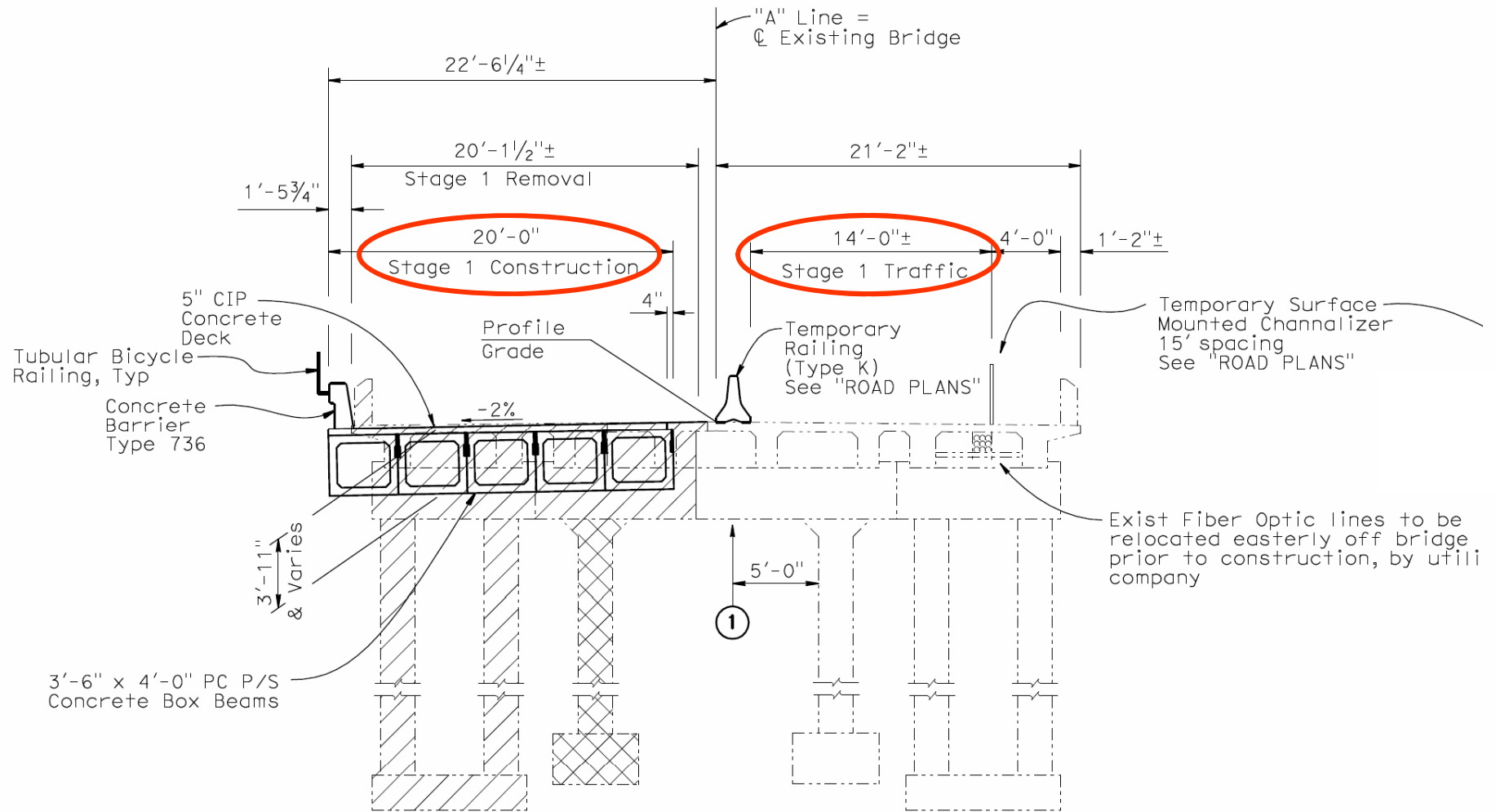
For "GENERAL NOTES", "PILE DATA TABLE",  
and "INDEX TO PLANS" see "INDEX TO PLANS"  
sheet.

For "TYPICAL SECTION" see "GENERAL PLAN  
NO. 2" sheet

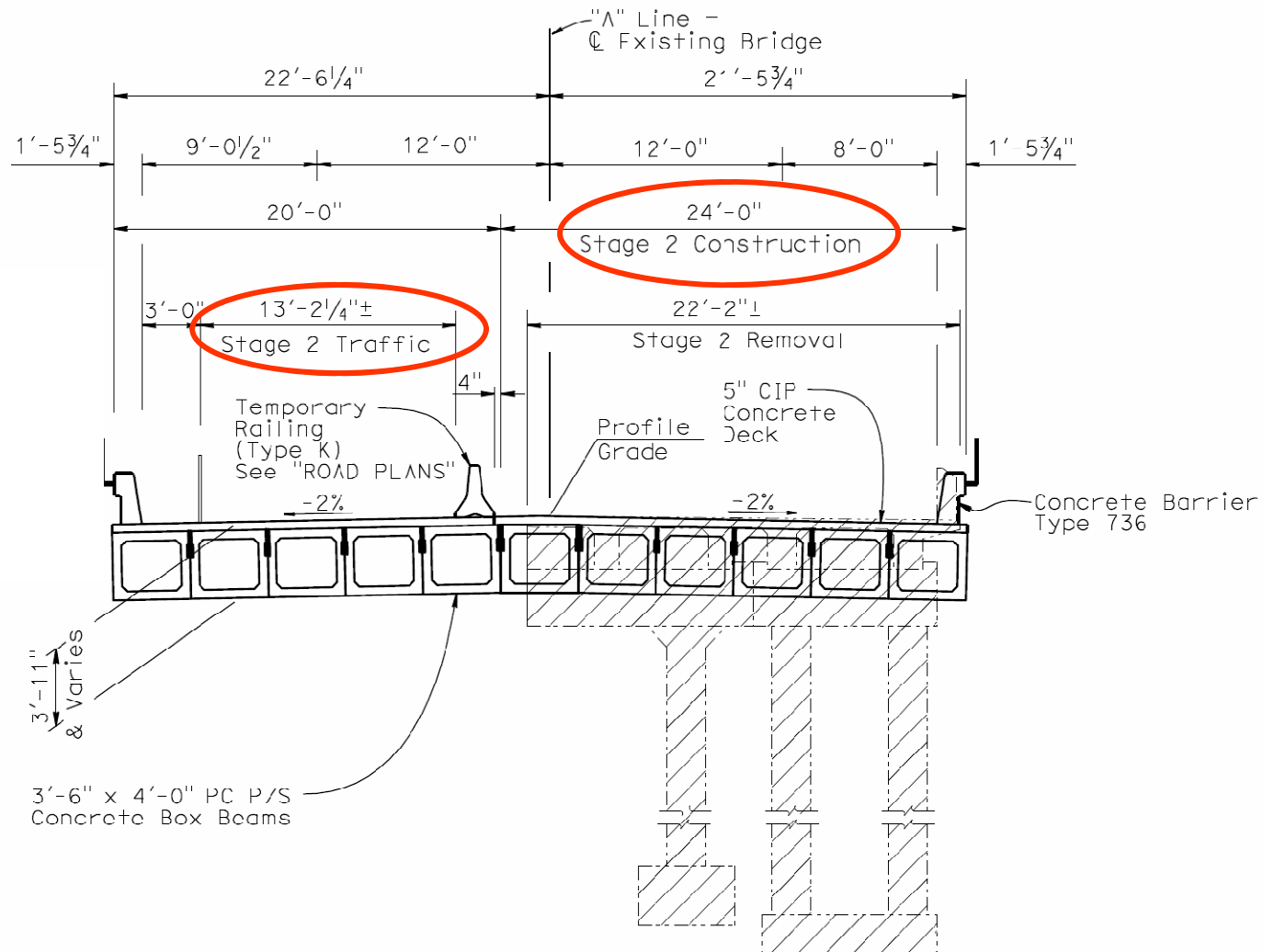
	QUANTITIES	
TEMPORARY SUPPORT		LUMP SUM
BRIDGE REMOVAL		LUMP SUM
STRUCTURE EXCAVATION (BRIDGE)	590	CY
STRUCTURE BACKFILL (BRIDGE)	106	CY
FURNISH 24" CAST-IN-STEEL SHELL	785	LF
CONCRETE PILING		
DRIVE 24" CAST-IN-STEEL SHELL CONCRETE	12	EA
PILE		
STRUCTURAL CONCRETE, BRIDGE	150	CY
FURNISH PRECAST PRESTRESSED CONCRETE BOX	11	EA
BEAM (100'-110')		
FURNISH PRECAST ABUTMENT	4	EA
FURNISH PRECAST WINGWALL	4	EA
ERECT PRECAST PRESTRESSED CONCRETE BOX	11	EA
BEAM		
ERECT PRECAST ABUTMENT	4	EA
ERECT PRECAST WINGWALL	4	EA
JOINT SEAL (MR 1')	85	LF
BAR REINFORCING STEEL (BRIDGE)	36,800	LB
TUBULAR GUYWIRE RAILING	264	LF
CONCRETE BARRIER (TYPE 736)	264	LF

Joseph E. Downing DESIGN ENGINEER	DESIGN	BY: Randip S Bains	CHECKED: Jose M Aquino III	PLAN & REVISIONS FACTOR DESIGN	LYNE LOADINGS	PLAN & REVISIONS PERMIT DESIGN VEHICLE	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 3	REVISION NO.	CRAIG CREEK BRIDGE (REPLACE) GENERAL PLAN NO. 1
	DETAILS	BY: Jay Reid	CHECKED: Jose M Aquino III	LAYOUT	BY: Randip S Bains	CHECKED: Jose M Aquino III			OR-0168	
	ORIENTED	BY: Art Herrera	CHECKED: Mike Bergman	SPEED LOCATIONS	BY: Dave Klein	CHECKED: Dave Klein			POST MILE 21.13	
COMPUTER'S RECORDING: CRAB SCALE: 1/8"=1'-0" 1/4"=1'-0" 1/2"=1'-0"										

# CRAIG CREEK BRIDGE



# CRAIG CREEK BRIDGE





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27/09  
DATE

REGISTERED PROFESSIONAL  
Pandip S Bains  
No. 44112  
Exp. 9-30-11  
CIVIL  
STATE OF CALIFORNIA

NOTES:

For location of "SECTION A-A" and "SECTION B-B"  
see "PRECAST ABUTMENT LAYOUT" sheet

For "DETAIL D" see "PRECAST ABUTMENT  
DETAILS NO. 3" sheet

CRAIG CREEK BRIDGE (REPLACE)
PRECAST ABUTMENT DETAILS NO. 2

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Revision 0015

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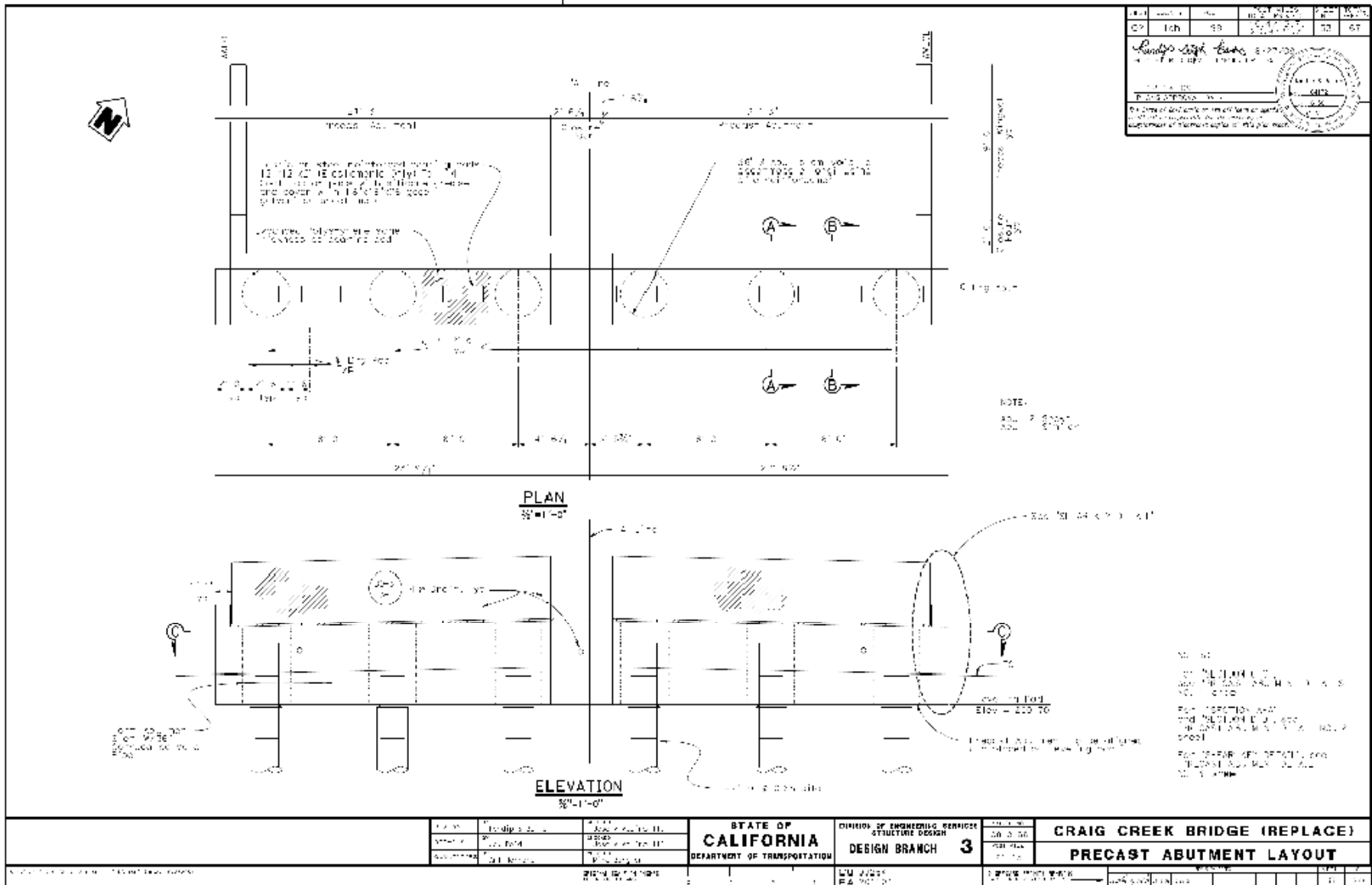
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DISCARD PRIVATE BEARING	
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8	20
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# CRAIG CREEK BRIDGE



100



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DAVID S. BABIN  
No. 84172  
CIVIL  
STATE OF FLORIDA



1. Erect PC box beams 6'-0" x 4'-0" girder 4 to 6 ft. tie rods at diaphragms from
2. Stress lower - tie rods to 20% of Pjack to snug boxes.
3. Fill in all longitudinal keyways and diaphragm block-outs with no shrink grout.
4. Stress lower - tie rods to 50% Pjack after grout has cured to a minimum ksi strength.
5. Reduce stress on upper tie rods to 50% Pjack.
6. Stress lower - tie rods to Pjack.
7. Release upper - tie rods after upper tie rods has been fully tensioned.
8. Place CIP deck and barrier.
9. 6" x 6" duct to be fully grouted.
11. Tie rod anchor blockouts to be filled with structure concrete after tie rod duct has been grouted.

For 'DETAILS D, E, and F' see "TIE ROD DETAILS" sheet

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**CRAIG CREEK BRIDGE (REPLACE)**  
**GIRDER LAYOUT**

# CRAIG CREEK BRIDGE

