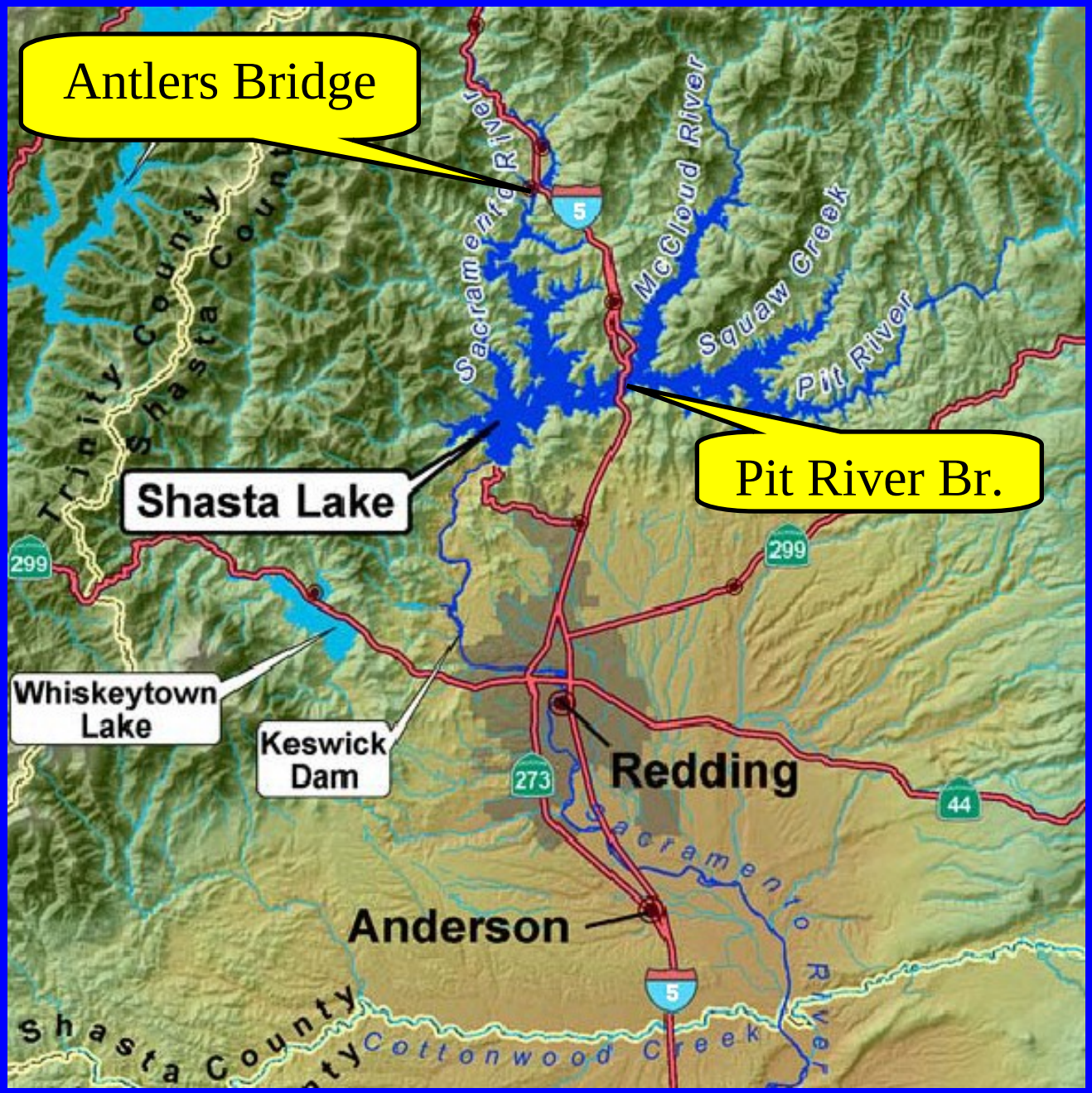
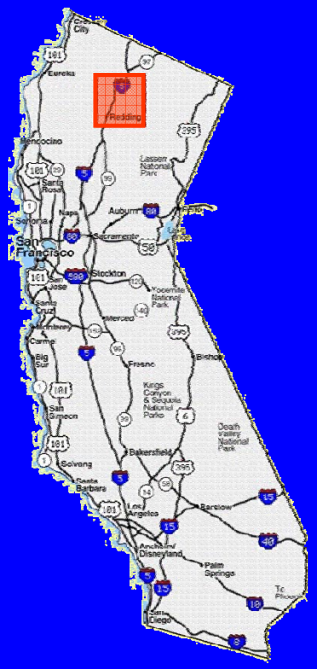
Antlers Bridge Replacement

Contractor Outreach

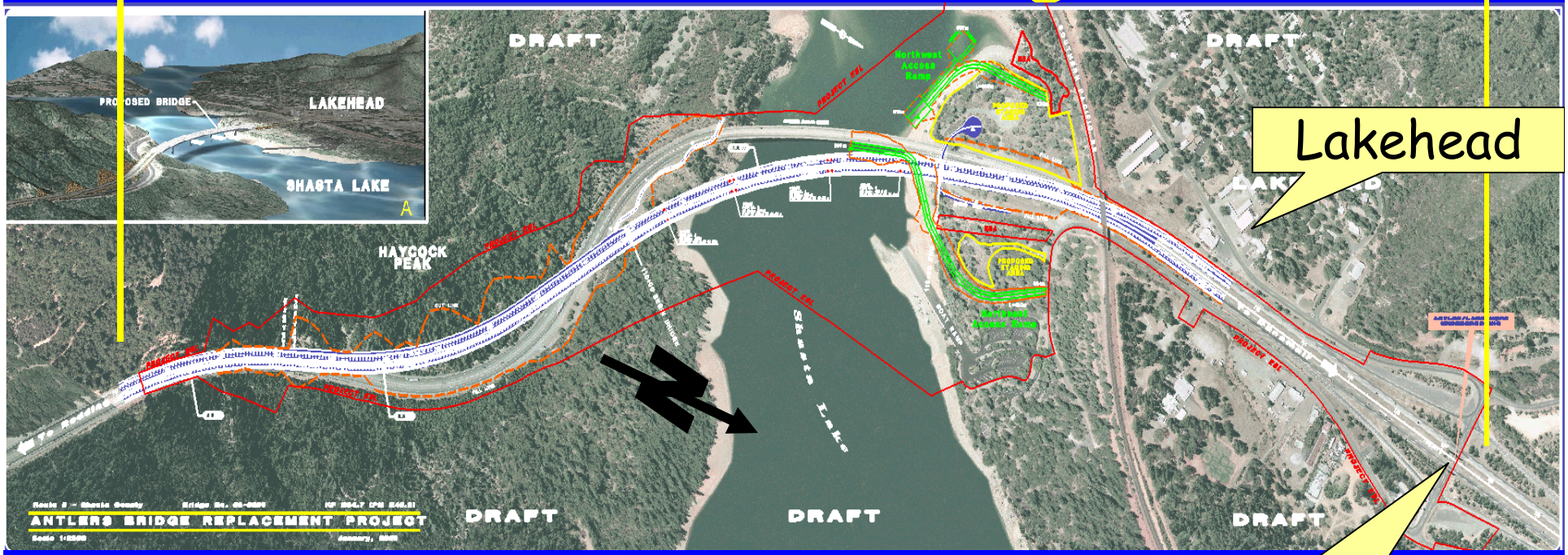

Antlers Bridge
Pit River Br.
Shasta Lake
Whiskeytown Lake
Keswick Dam
Redding
Anderson
Trinity County
Shasta County
Sacramento River
McCloud River
Squaw Creek
Pit River
Cottonwood Creek
5
299
273
44



Location

Project Limits

1.5 miles long



Lakehead

Antlers Rd Interchange

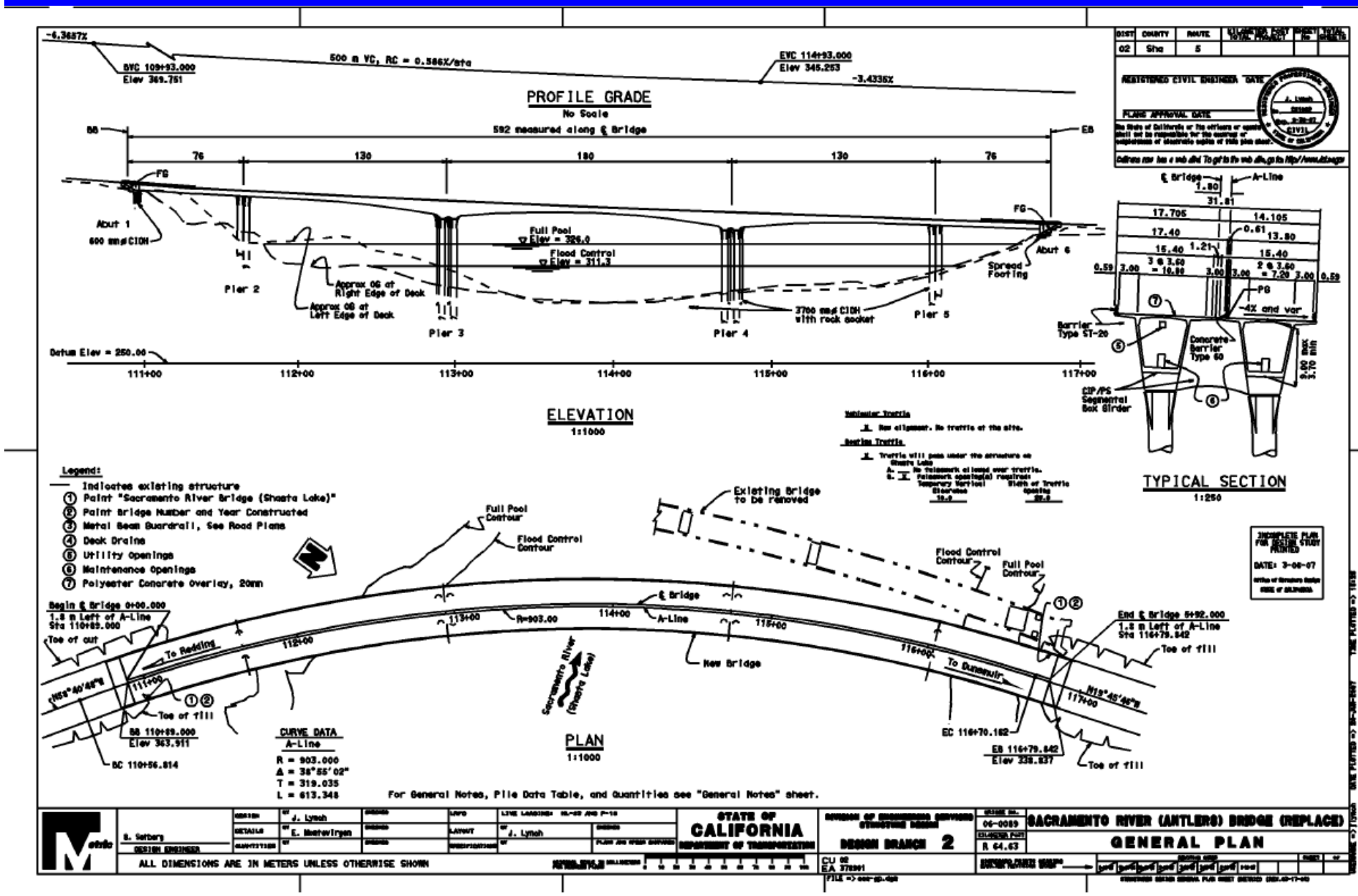
Existing Bridge

- 1328' Steel Truss
- 245' Main Span
- 2 Lanes NB and SB
- 8 Spans
- Spread Footings

Proposed Bridge

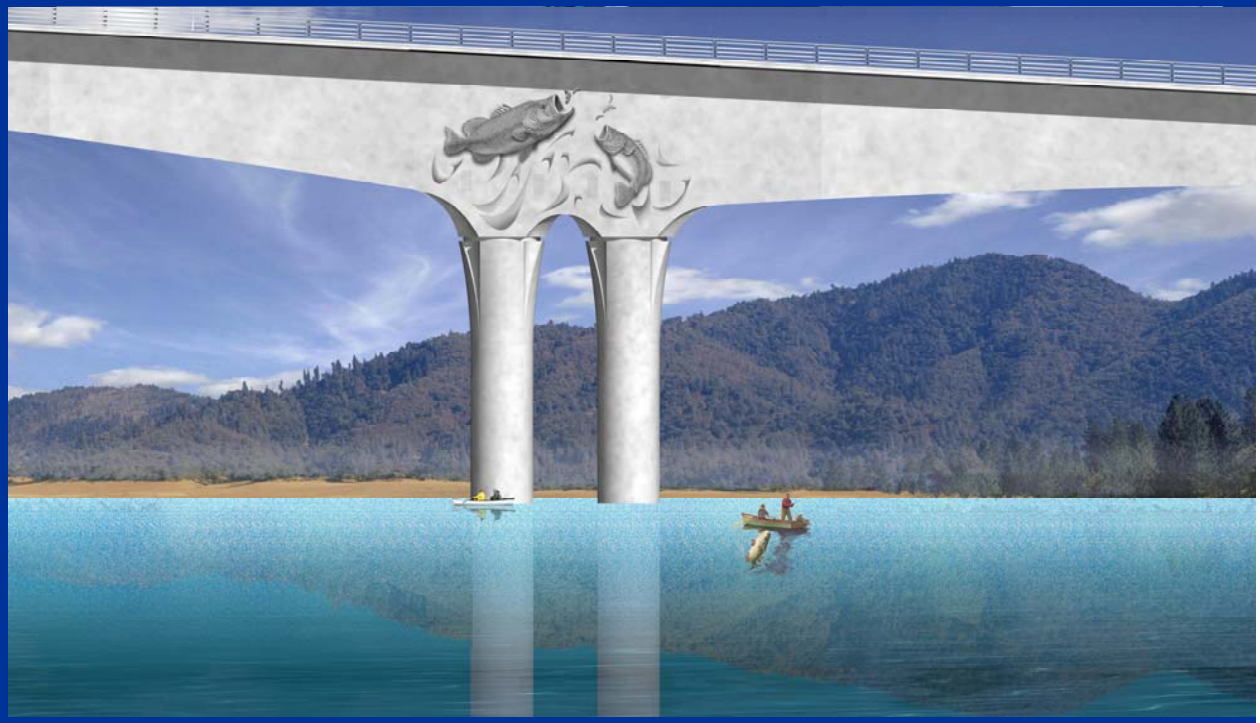
- 1970' Reinforced Concrete
- 590' Main Span
- 3 Lanes SB two Lanes NB
- 5 Spans
- Large Round Piles

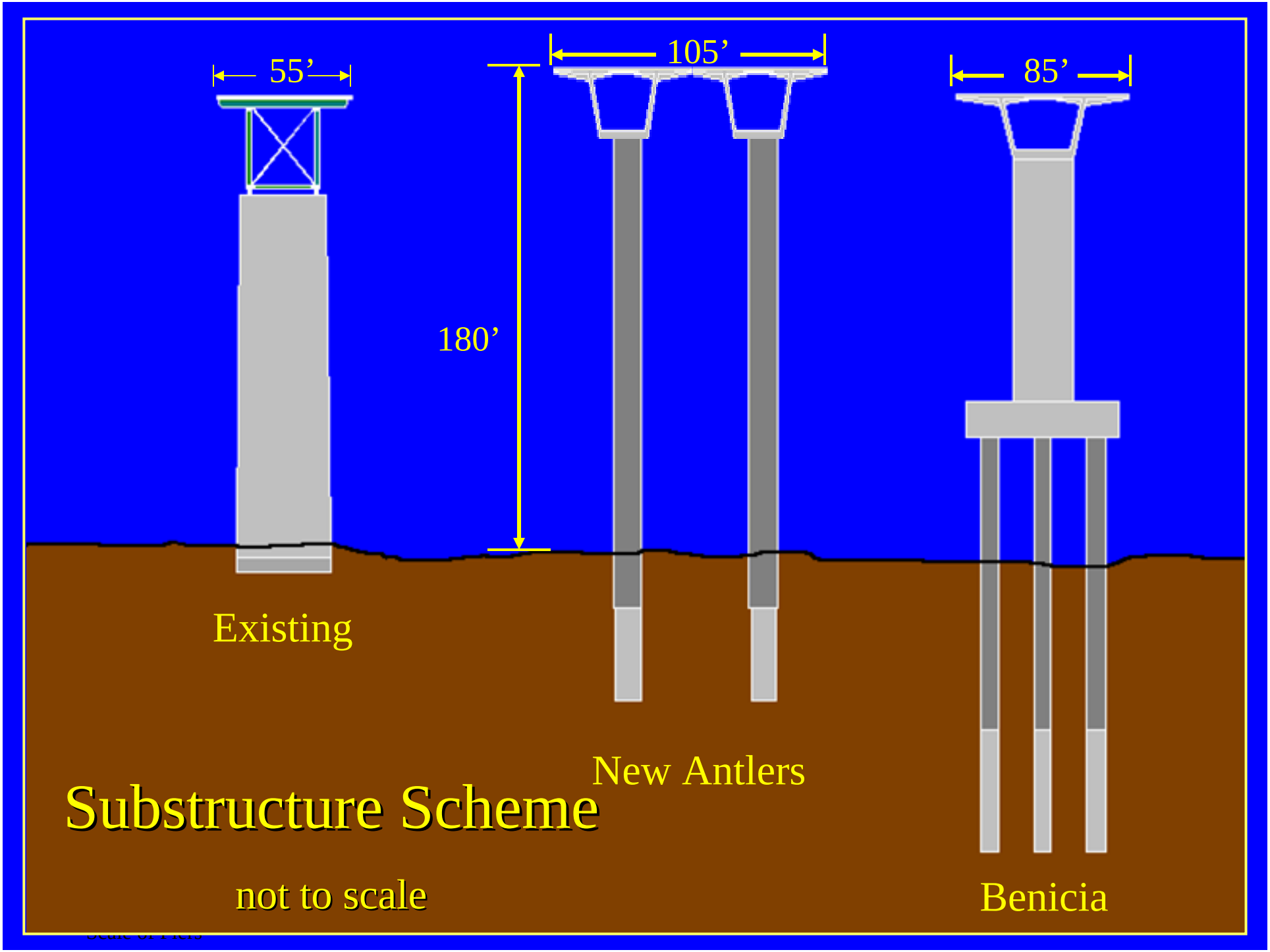
General Plan



New Bridge

- Concrete Segmental
- 12 deep foundations
- 3.7 m diam CIDH




55’
105’
85’
180’
Existing
New Antlers
Substructure Scheme
not to scale
Benicia

PRELIMINARY STRUCTURE QUANTITIES

Concrete

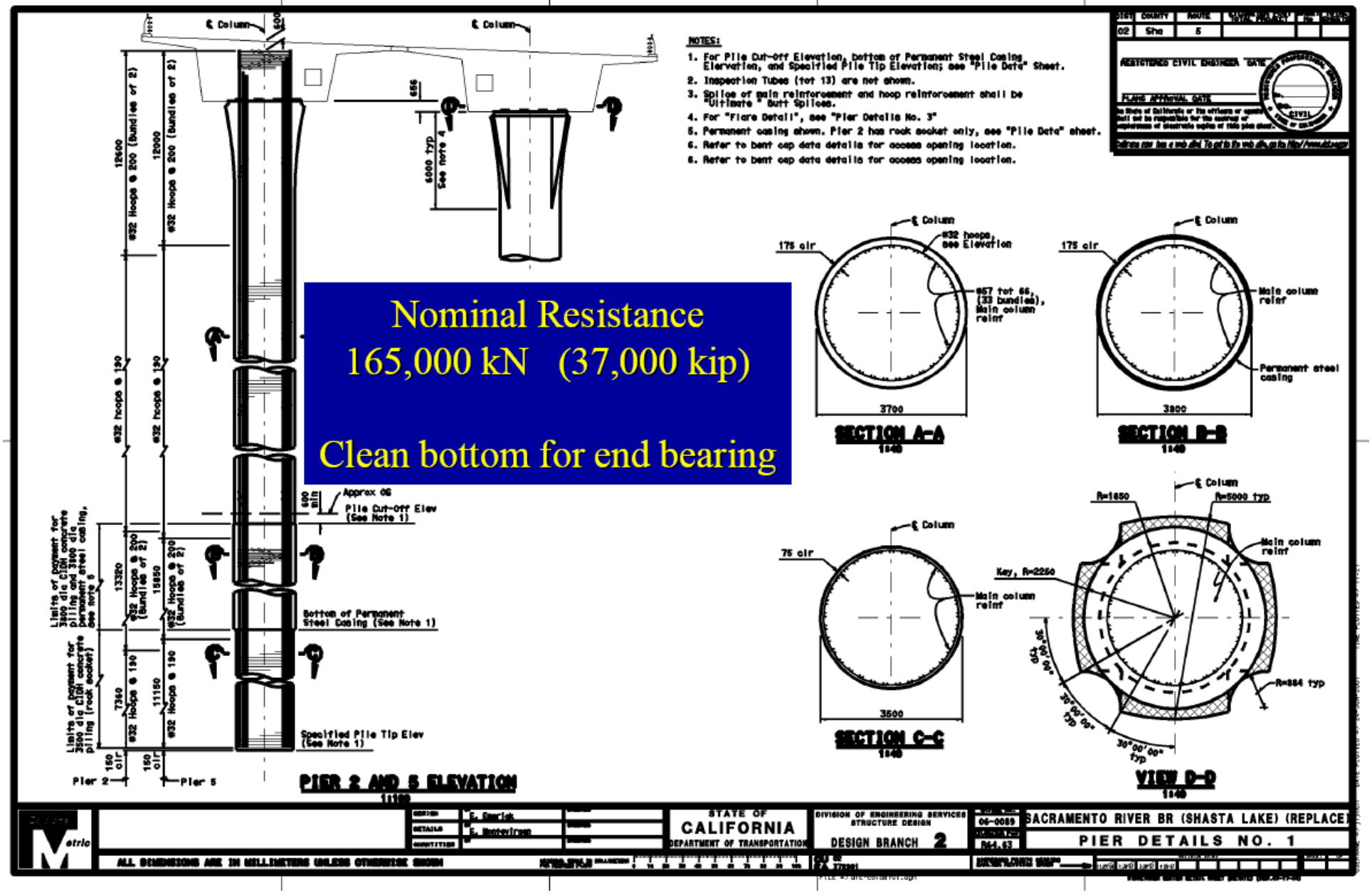
- Substructure: 5,200 m^3
- Superstructure: 22,000 m^3
- Segment Range: 50-70 m^3

Steel

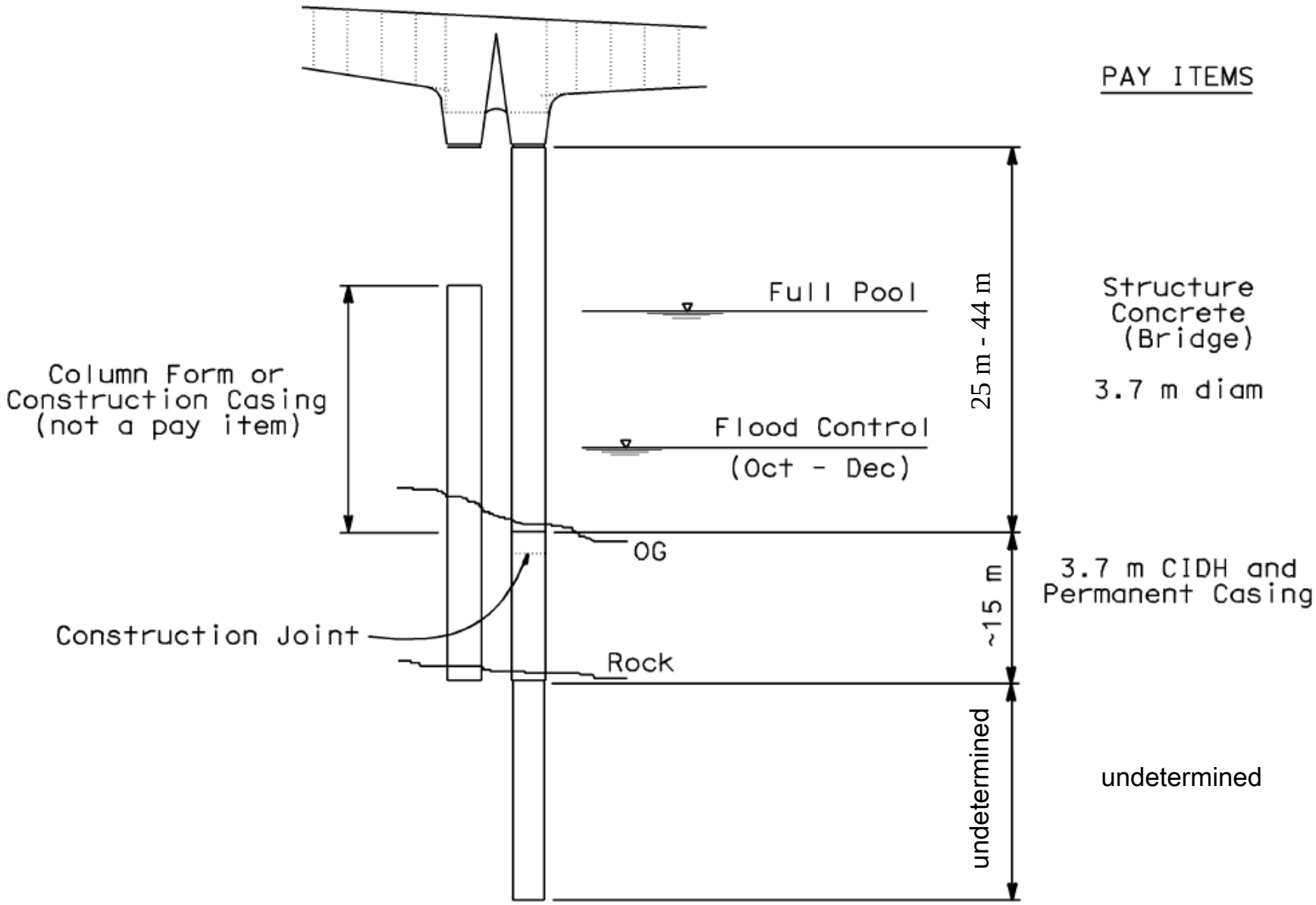
- Rebar: 5,300,000 kg
- Minimum Casing: 430,000 kg (pay limit, cutting casing at OG)
- Maximum Casing: 1,433,000 kg (casing extended to high water)
- Prestressing: 1,015,000 kg

- **Superstucture/Substructure Quantities 70/30**

Foundation


NOTES:
1. For Pile Cut-Off Elevation, bottom of Permanent Steel Casing Elevation, and Specified Pile Tip Elevation; see "Pile Data" Sheet.
2. Inspection Tubes (tot 13) are not shown.
3. Splice of main reinforcement and hoop reinforcement shall be "Ultimate" Butt Splices.
4. For "Flare Detail", see "Pier Details No. 3"
5. Permanent casing shown. Pier 2 has rock socket only, see "Pile Data" sheet.
6. Refer to bent cap data details for access opening location.
6. Refer to bent cap data details for access opening location.
Nominal Resistance
165,000 kN (37,000 kip)
Clean bottom for end bearing
Approx GS
Pile Cut-Off Elev (See Note 1)
Bottom of Permanent Steel Casing (See Note 1)
Specified Pile Tip Elev (See Note 1)
Pier 2
Pier 5
PIER 2 AND 5 ELEVATION
SECTION A-A
SECTION B-B
SECTION C-C
VIEW D-D
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 2
SACRAMENTO RIVER BR (SHASTA LAKE) (REPLACE)
PIER DETAILS NO. 1
ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

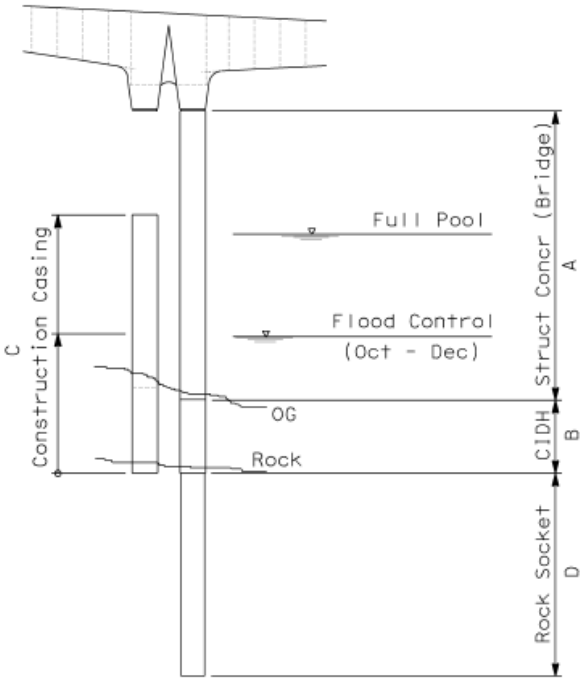
Foundation


PAY ITEMS
Full Pool
Flood Control
(Oct - Dec)
25 m - 44 m
Structure
Concrete
(Bridge)
3.7 m diam
Column Form or
Construction Casing
(not a pay item)
OG
~15 m
3.7 m CIDH and
Permanent Casing
Construction Joint
Rock
undetermined
undetermined

Pile Summary

Dimensional Ranges (All lengths are in meters.)

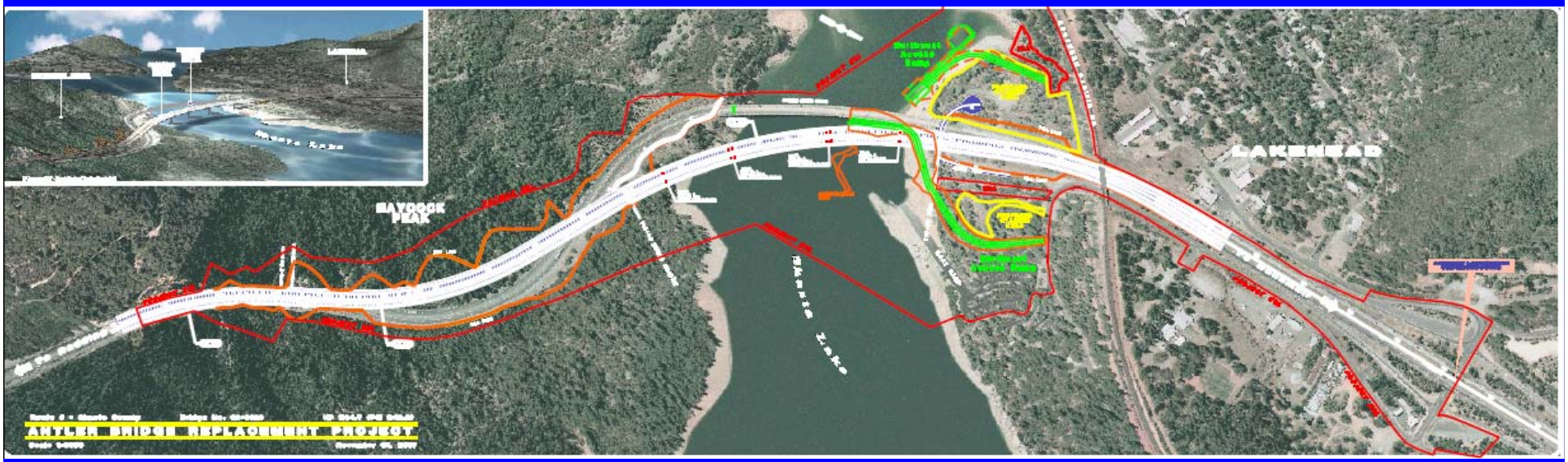
Full Pool Elevation	326 m				
Flood Control Elevation	310 m				
"Guaranteed" Drawdown	16 m				
		Pier 2	**Pier 3**	**Pier 4**	**Pier 5**
Column Height (m)	A	25	34 – 46	40 – 42	31
OG Elevation		329 – 333	298 – 310	294 – 296	306 – 307
Max Water Depth at Full Pool		0	28	32	20
Max Water Depth at Flood Control		0	12	16	4
CIDH length ("soft soil")	B	14	14	17	16
Construction Casing Length	C	15	30 – 46	37 – 53	24 - 40
Casing Weight (tons)		58	116 – 178	143 – 205	93 – 155
Rock Socket Length	D	14	20	20	17
Total Rebar Cage Length	A+B+D+9	64	89	88	73
Cage length below water		9 – 25	46 – 62	53 – 69	37 – 53



Geology

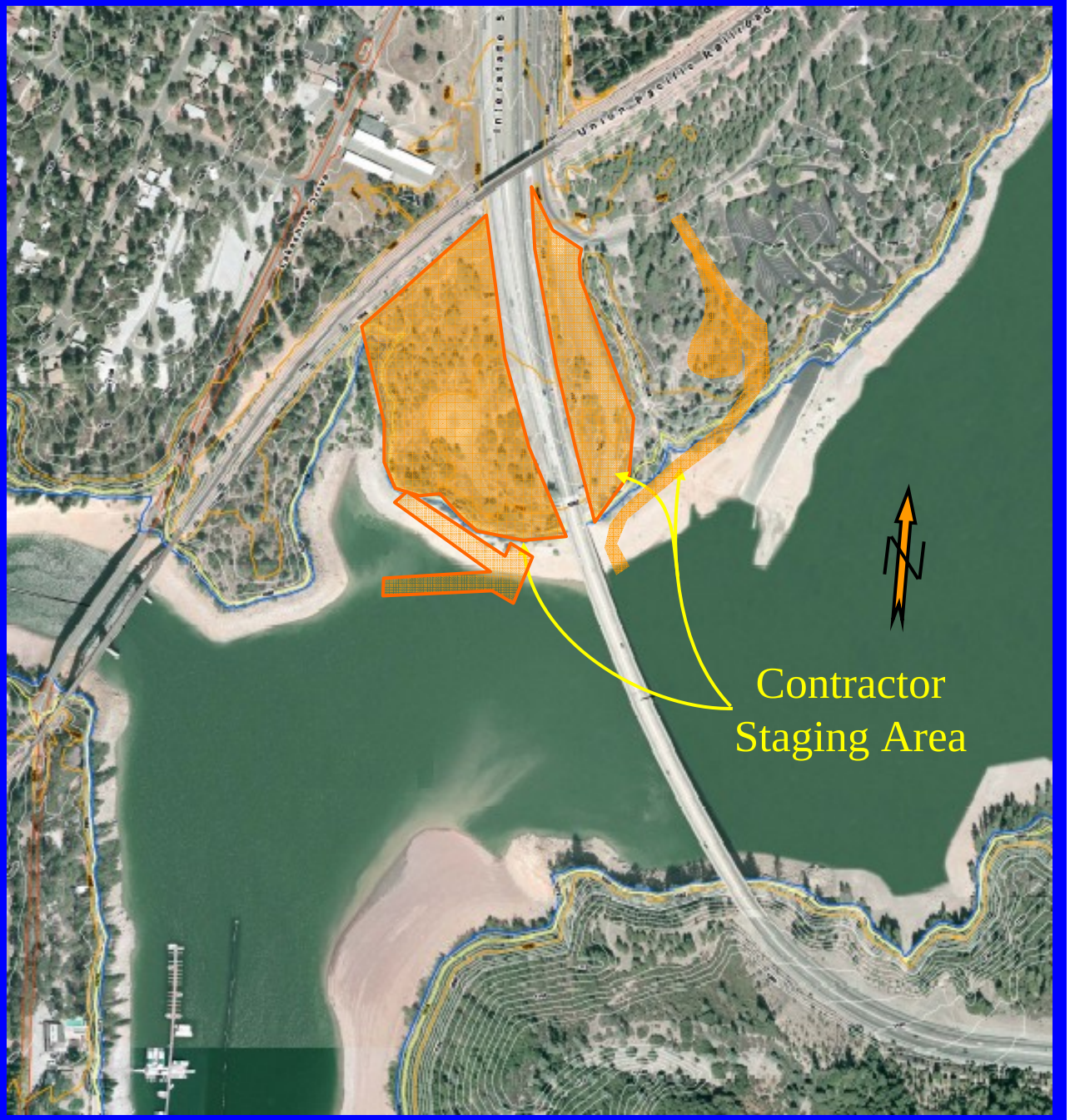
- Fractured Surface
- Metashale & Metasandstone
- q_u to 190 MPa (27 ksi)
- RQD to 85%

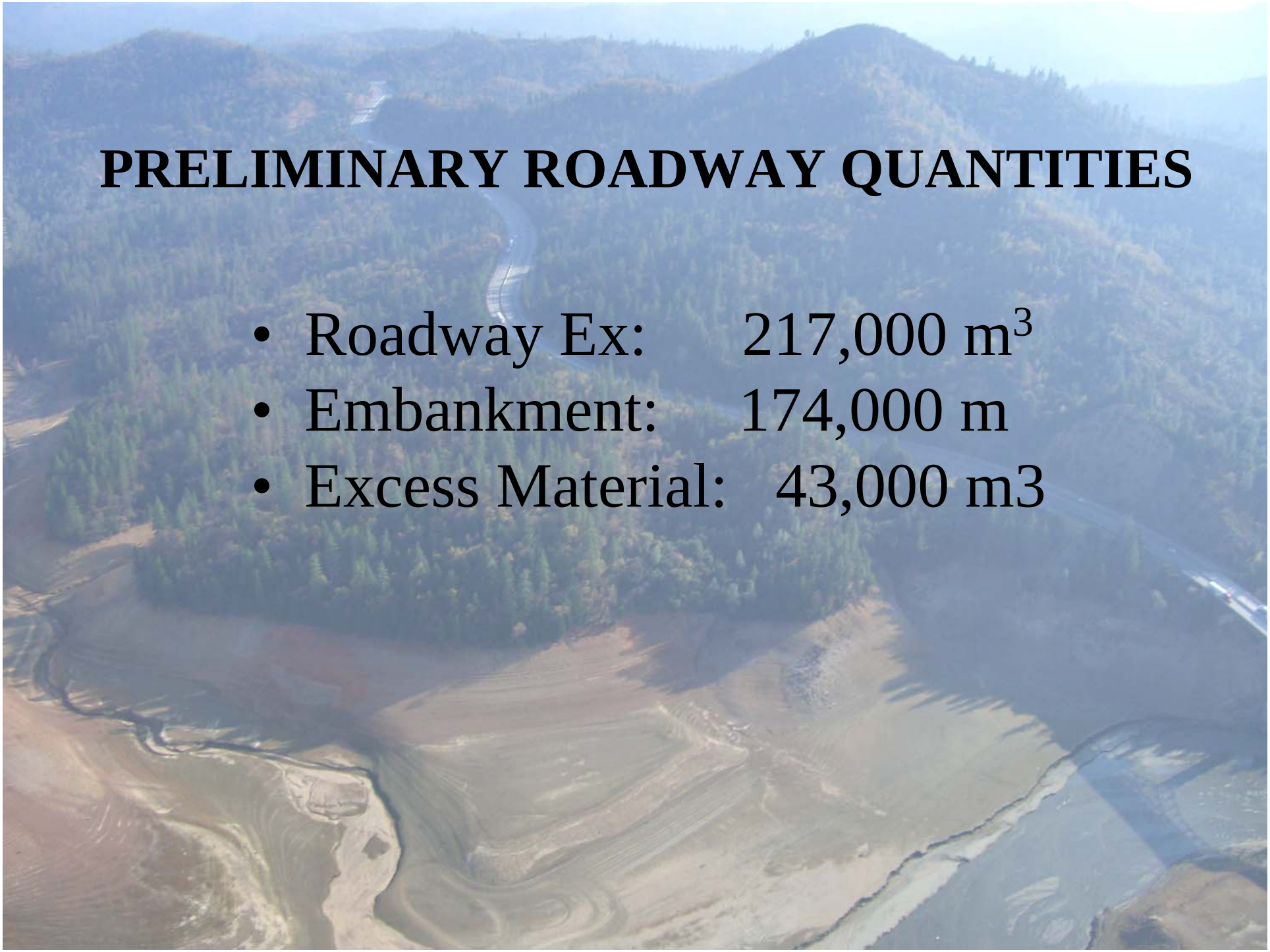
Project Layout



Staging

- Located in NW quad
- Approx 6.8 acres





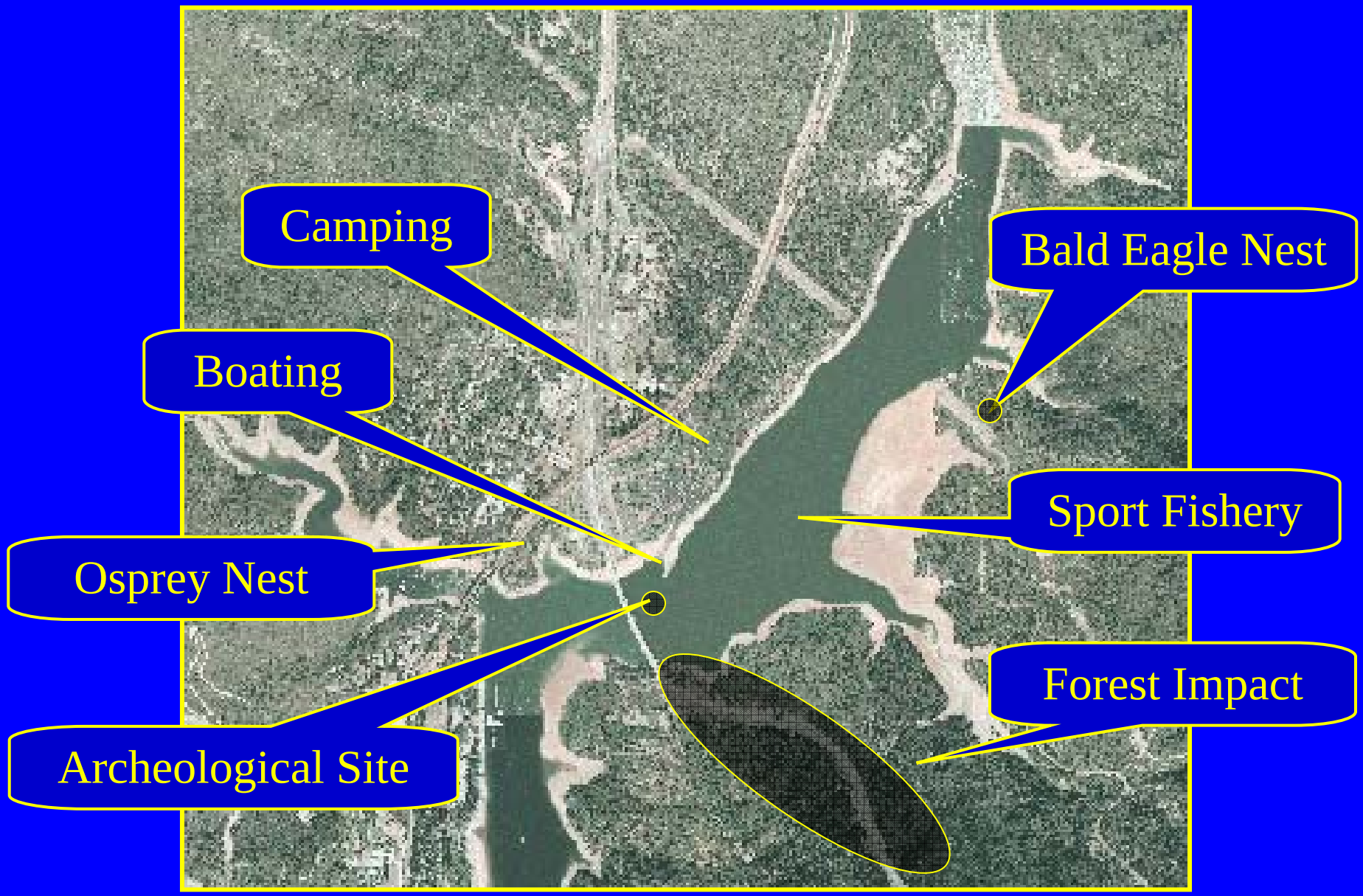
PRELIMINARY ROADWAY QUANTITIES

- Roadway Ex: 217,000 m^3
- Embankment: 174,000 m
- Excess Material: 43,000 m3

Disposal Site

PROJECT STRIP MAP AERIAL LAYOUT.dgn 11/14/2007 3:00:20 PM

Environmental



DRAFT ANTLERS WORK WINDOWS

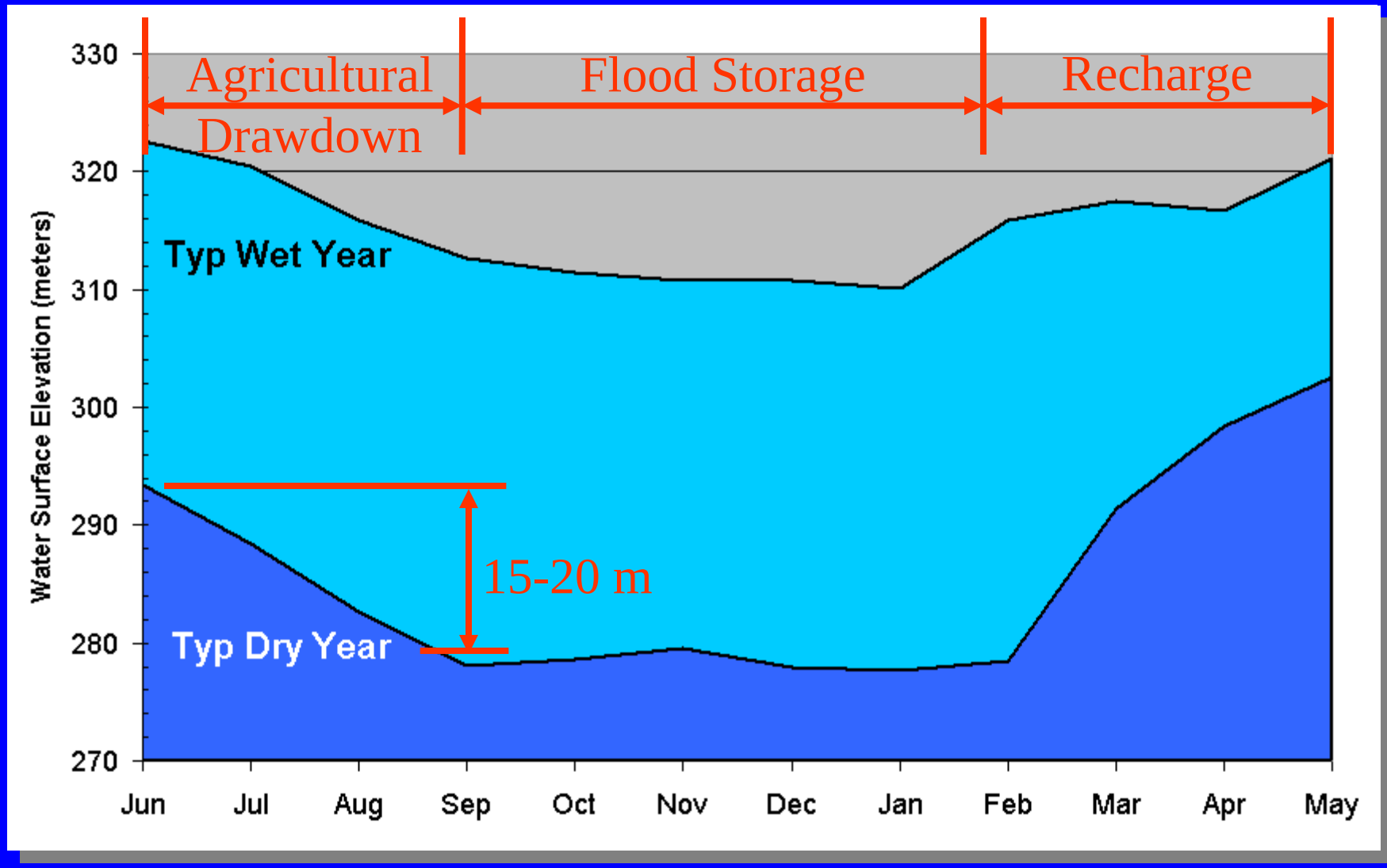
Work windows apply to any given calender year

Activity	January		February		March		April		May		June		July		August		September		October		November		December	
	1-15	16-31	1-15	16-28	1-15	16-31	1-15	16-30	1-15	16-31	1-15	16-30	1-15	16-31	1-15	16-31	1-15	16-30	1-15	16-30	1-15	16-30	1-15	16-31
Tree Removal (Migratory Bird Act)																								
Excavation by Blasting (controlled blasting required)																								
Contractors Use of Public Ramp (USFS Recreation)																								
Pile Driving dia < 1.2 m (fish kill will be an issue if in water)																								
Pile Driving for tressle construction (eagle, osprey & fisheries) requires bubble curtain																								
Pile Driving dia >= to 1.2 m (eagle, osprey & fisheries) requires bubble curtain																								
Night Work (due to proximity of Campground)																								
Demolition by Blasting bubble curtain/blast suppression device required for underwater blasting																								
Demolition Superstructure (non blasting) (**with** Swallows exclusion devises in place)																								
Demolition Superstructure (non blasting) (**without** Swallows exclusion devises in place)																								
Demolition Substructure (**with** bat exclusion devices in place)																								
Demolition Substructure (**without** bat exclusion devices in place)																								

Variable Water Level

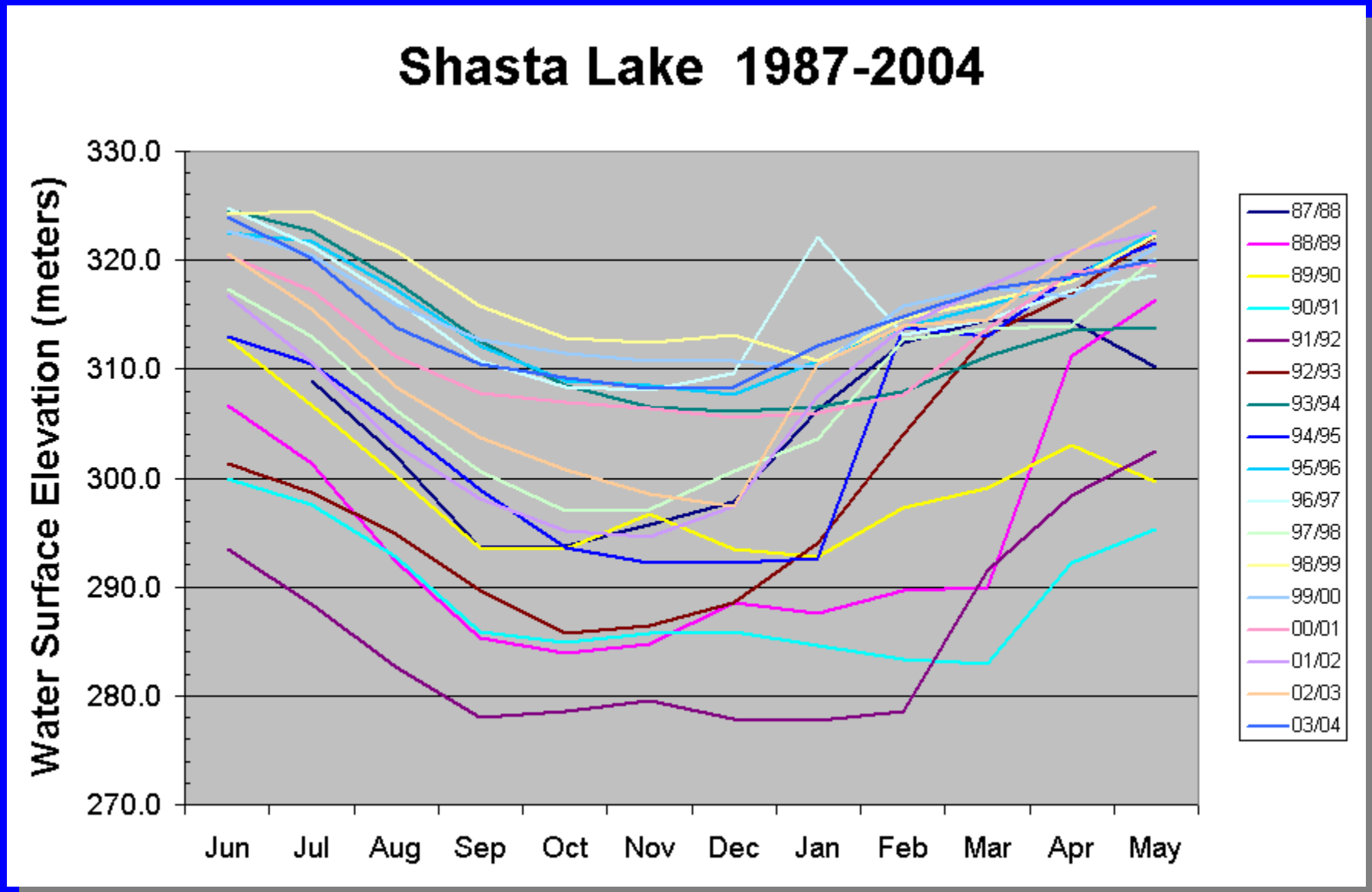
High/Low Water Photos

Annual Water Cycle

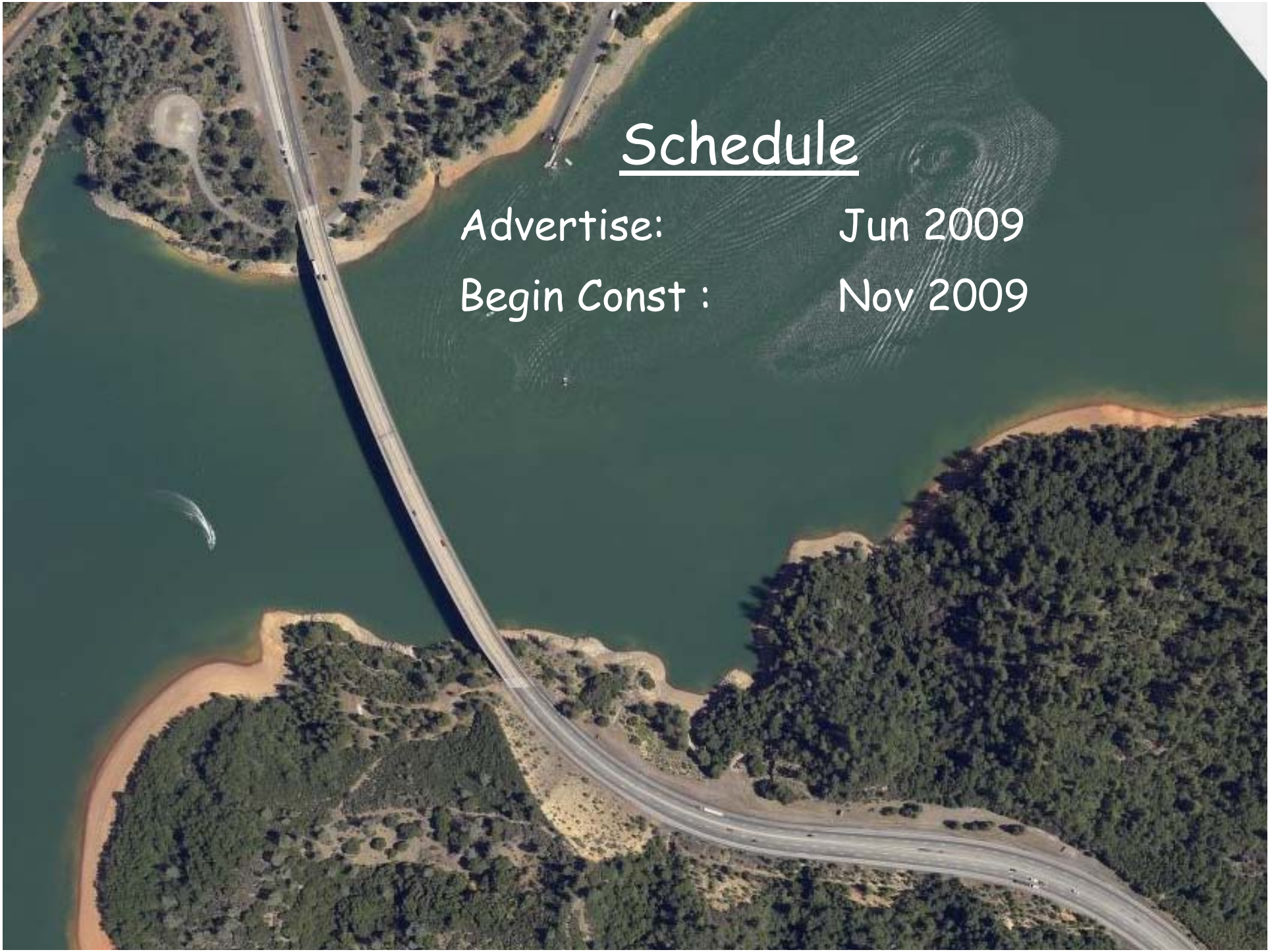


Annual Water Graph

Historical Water Cycles



Historical Water Graph



Schedule

Advertise:	Jun 2009
Begin Const :	Nov 2009