

The Veterans Memorial Bridge

Reno Nevada

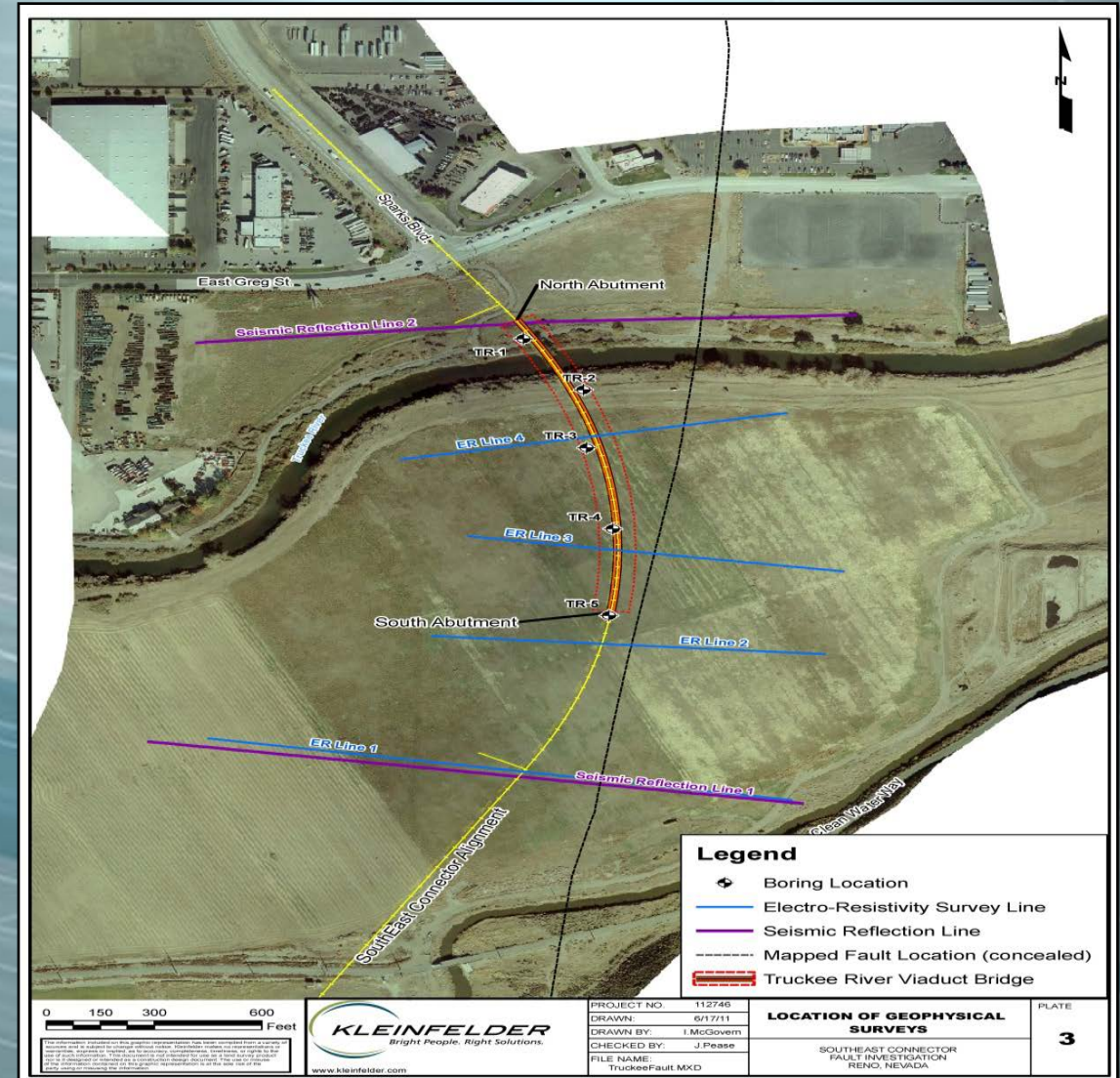


Location: City of Reno and Sparks, NV



Bridge Site Specific Issues:

- Highly Seismic Area, (Zone 4) ,
PGA=0.58g
- Adjacent to Fault Rupture Line
- Liquefiable Soils and Lateral Spreading



Fault Rupture Evaluation

- ▶ Low displacement: 1.5 feet
- ▶ Fault rupture Recurrence Interval, RI: greater than 11,000 years
- ▶ Slip Rate: less than 0.2 mm/yr
- ▶ Low probability faults

Fault Rupture Mitigation One vs. Two Bridges

- ▶ Two bridges advantages:
- ▶ Allow to move independently
- ▶ Allow more relative displacement
- ▶ Increase the overall individual displacement capacity

Soil Liquefaction and Lateral Spreading

Permanent Displacement:

- ▶ North Abutment: up to 8.2 inches
- ▶ Piers 6 thru 9: up to 3 inches

Seismic Slope Stability Results:

- ▶ Yield acceleration: 0.125g to 0.135g
- ▶ Soil Lateral Displacement: 0.7 to 0.8 feet

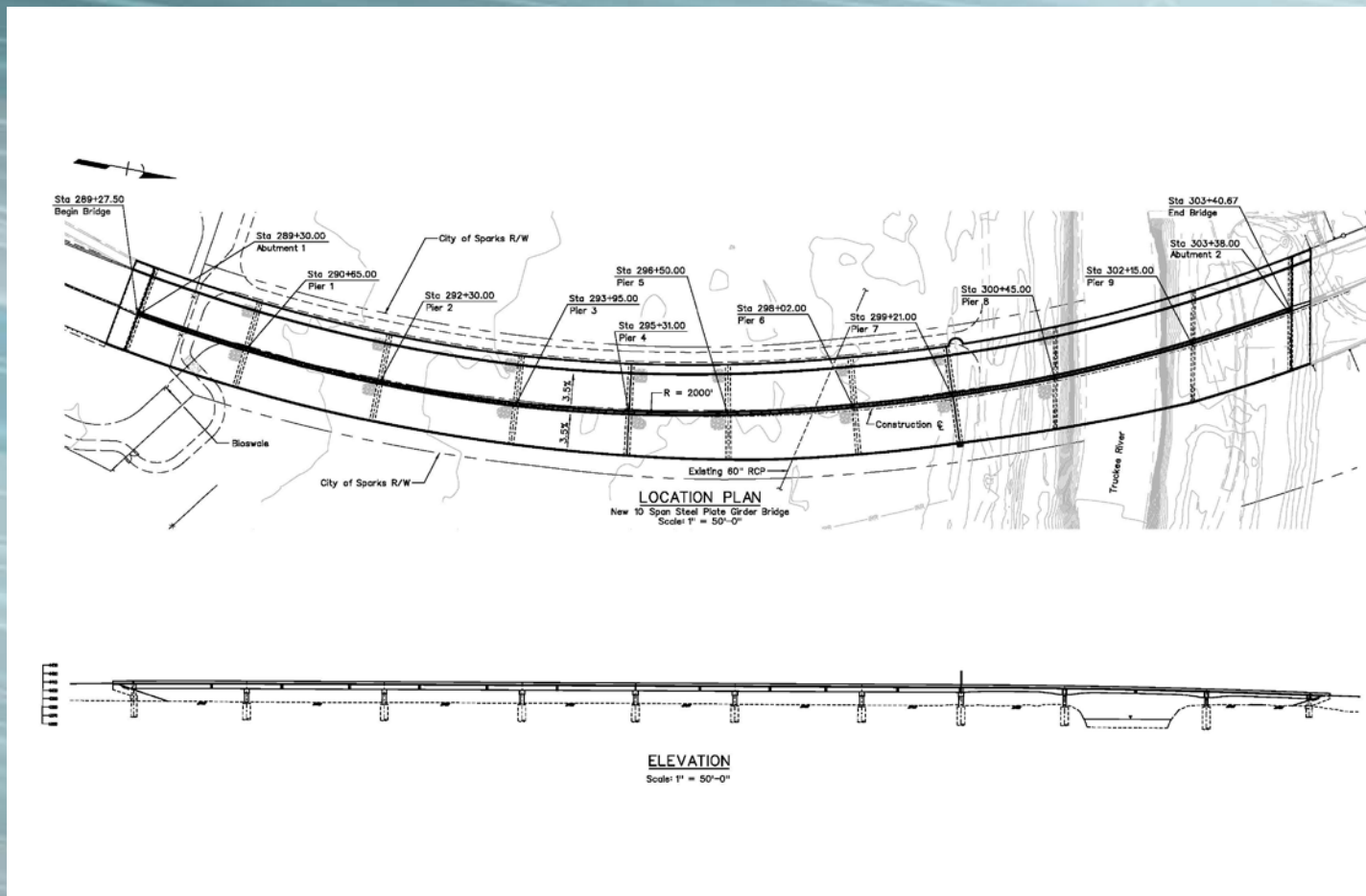
Five Bridge Alternatives Considered:

- ▶ Precast Pre-Stressed Girders
- ▶ C.I.P. Post-Tensioned Box Girders
- ▶ Prismatic Steel Plate Girders
- ▶ Haunch Steel Plate Girders
- ▶ Combination of Steel Prismatic Plate Girders on the Viaduct and a Steel Arch across the Truckee River.

Preferred Alternative: Combination of Steel Prismatic and Haunch Girders

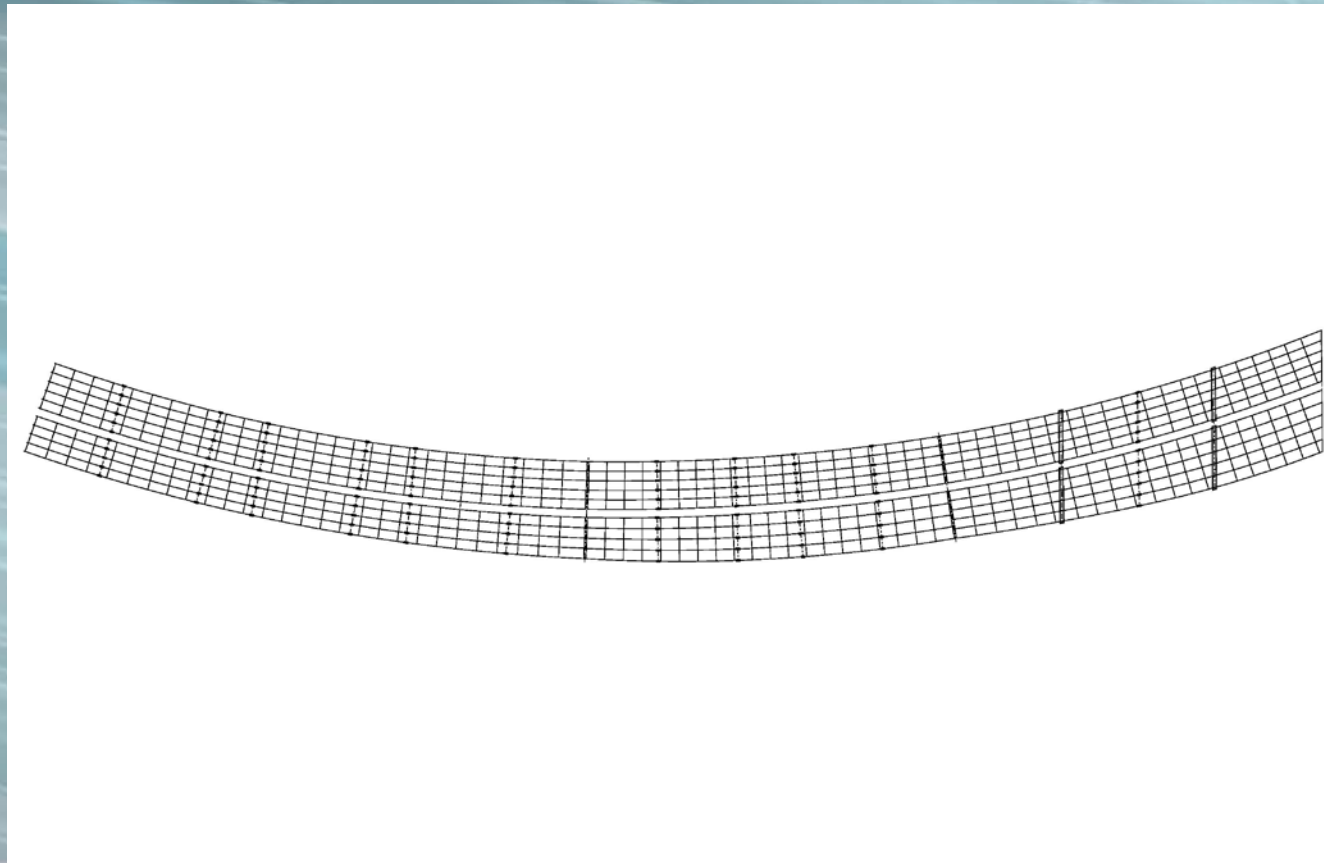


Complex Bridge Geometry

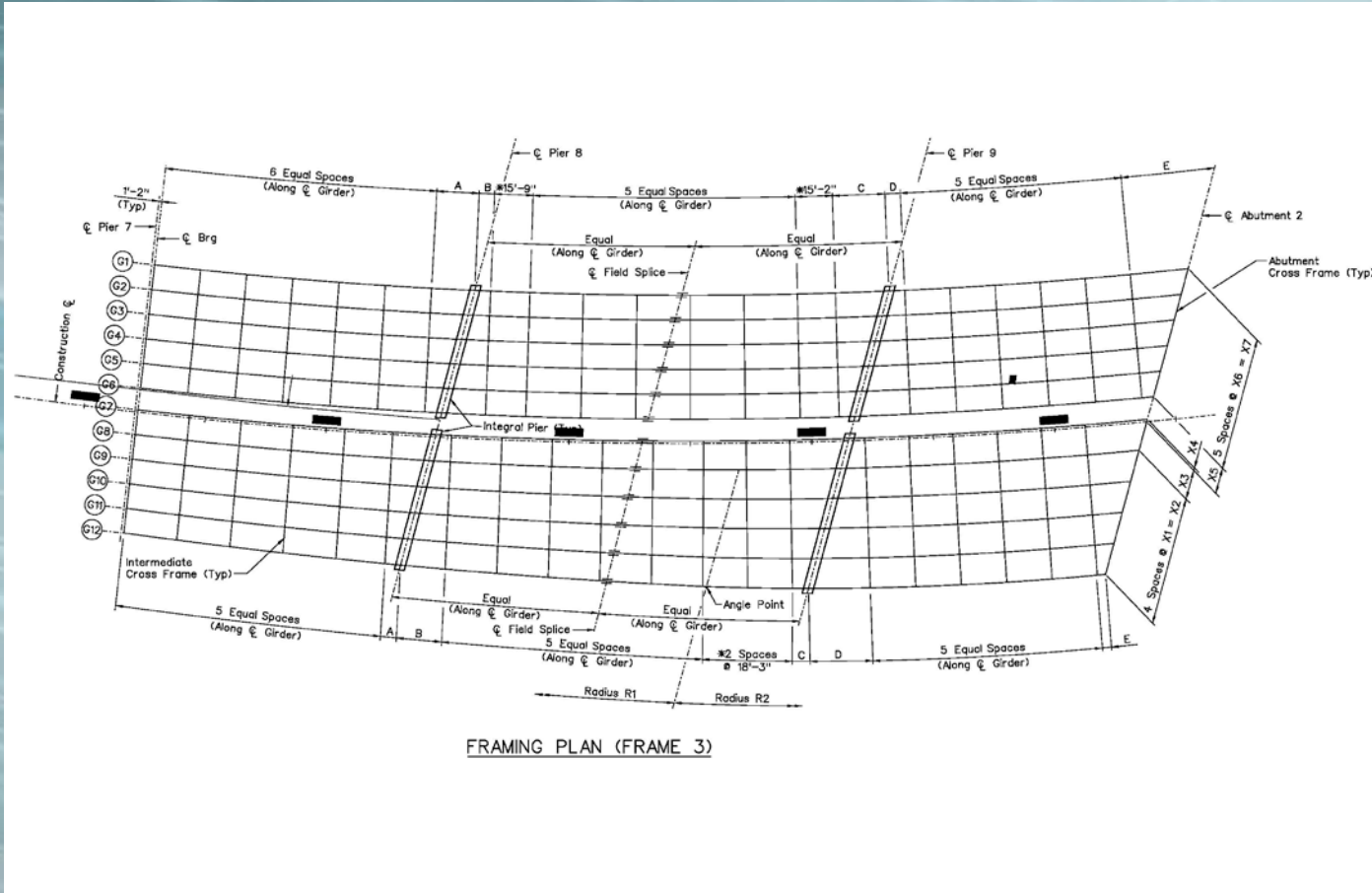


SB Bridge – Concentric Girders

NB Bridge – Tapered Girders



NB and SB Bridge –Frame 3

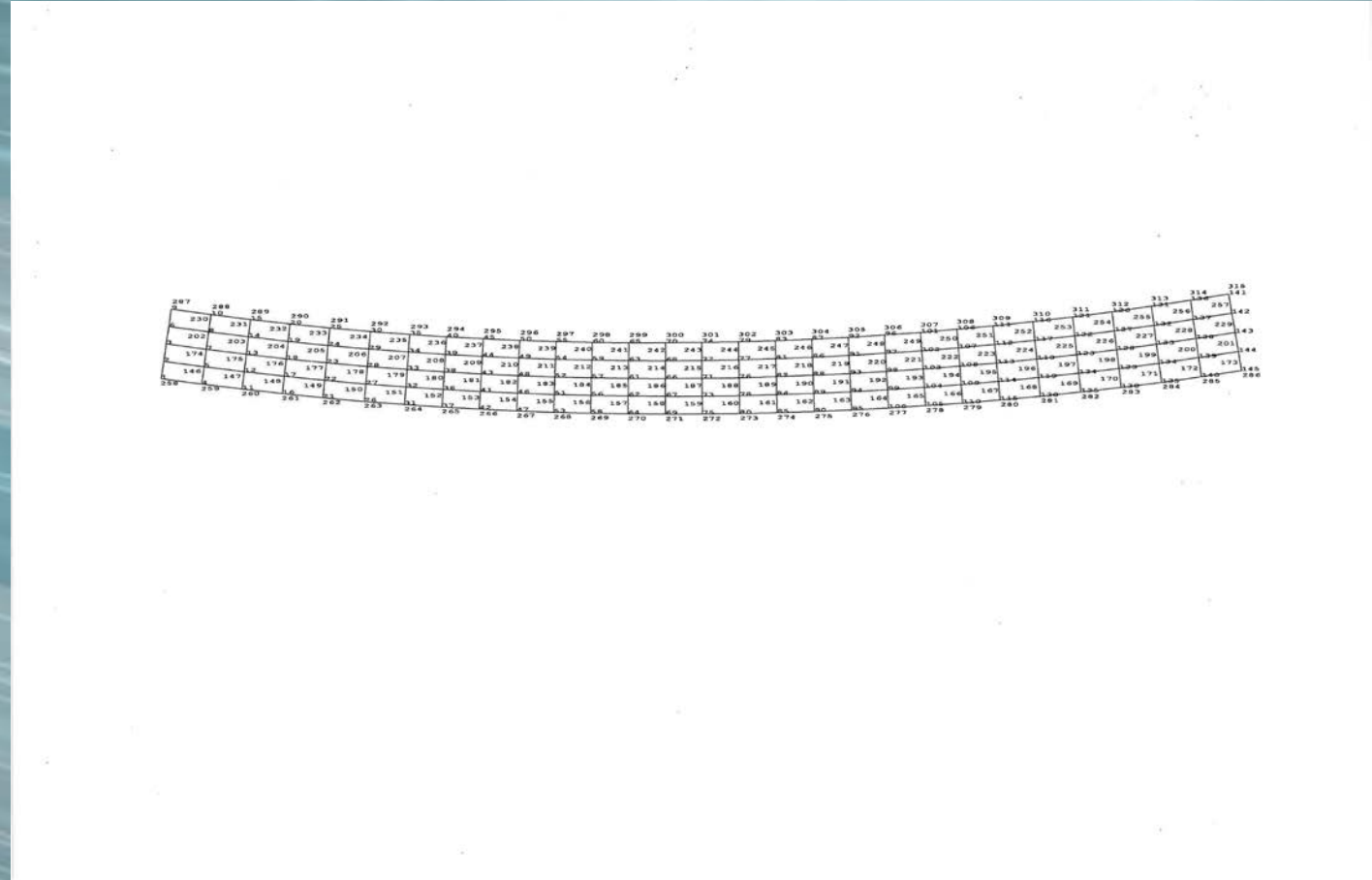


Primary Load Carrying Members

- ▶ Plate Girders
- ▶ Cross Frames
- ▶ Integral Bent Caps



MDX Grid Model Frame 1

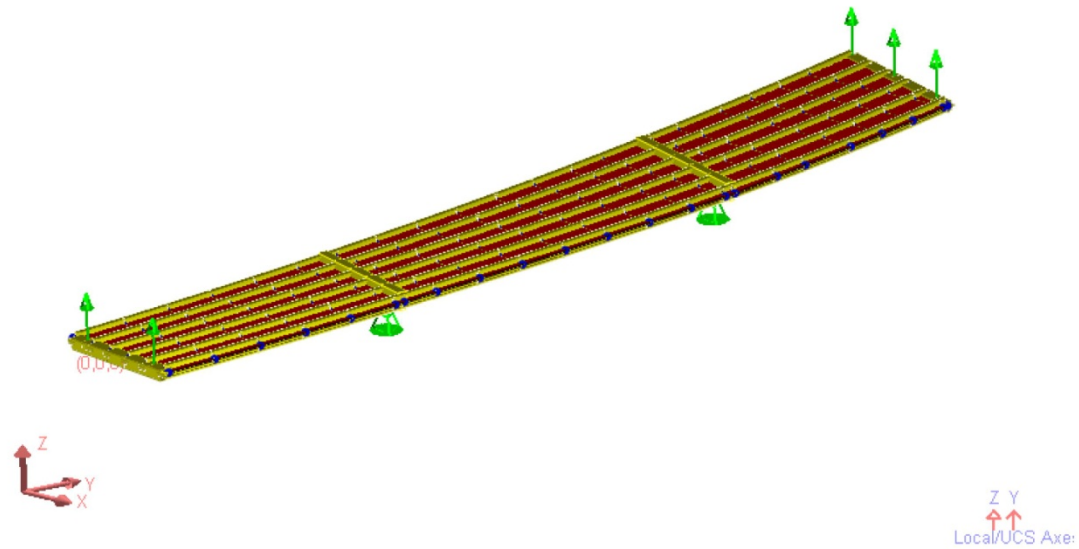




3-D LARSA Model Frame 3

Graphics View 1

Zoom 1.953X

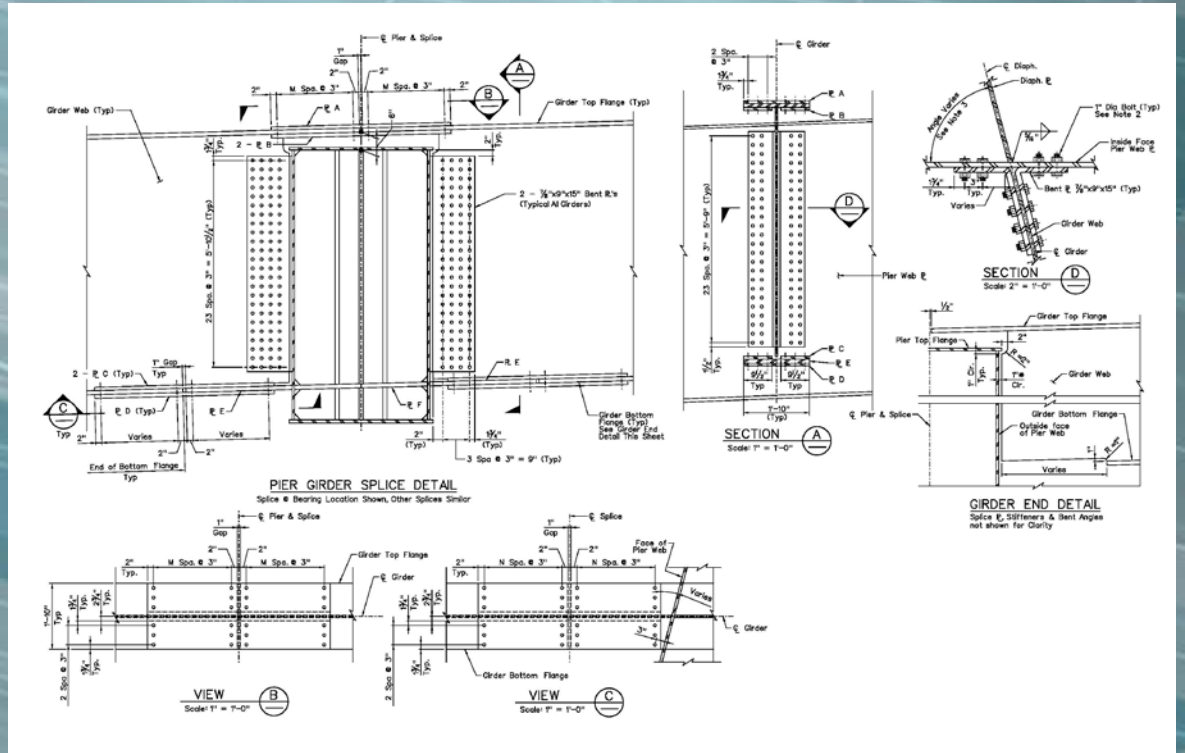
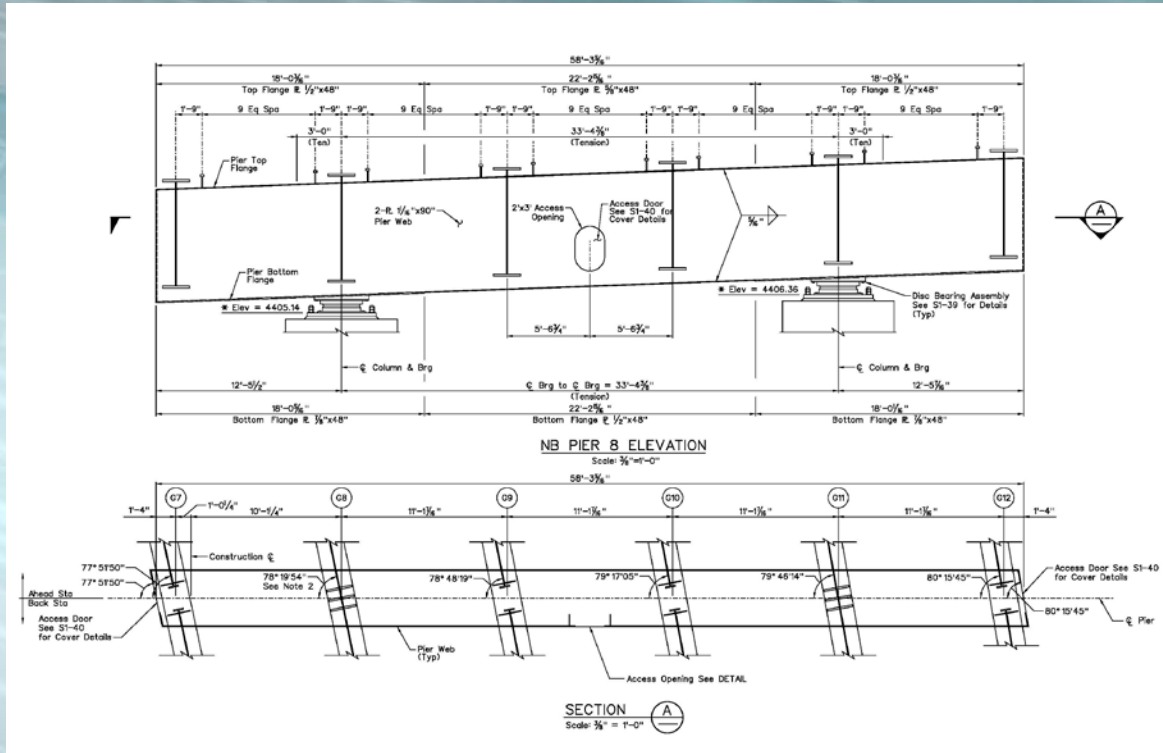


\\TPE-SERV-1\New Projects\221746 Southeast Connector\Design\Bridge\Truckee River Br\Substructure\Steel Pier Caps\Fram 3 Model.lar
Last Analysis Run : 8/22/2013 10:46:08 AM

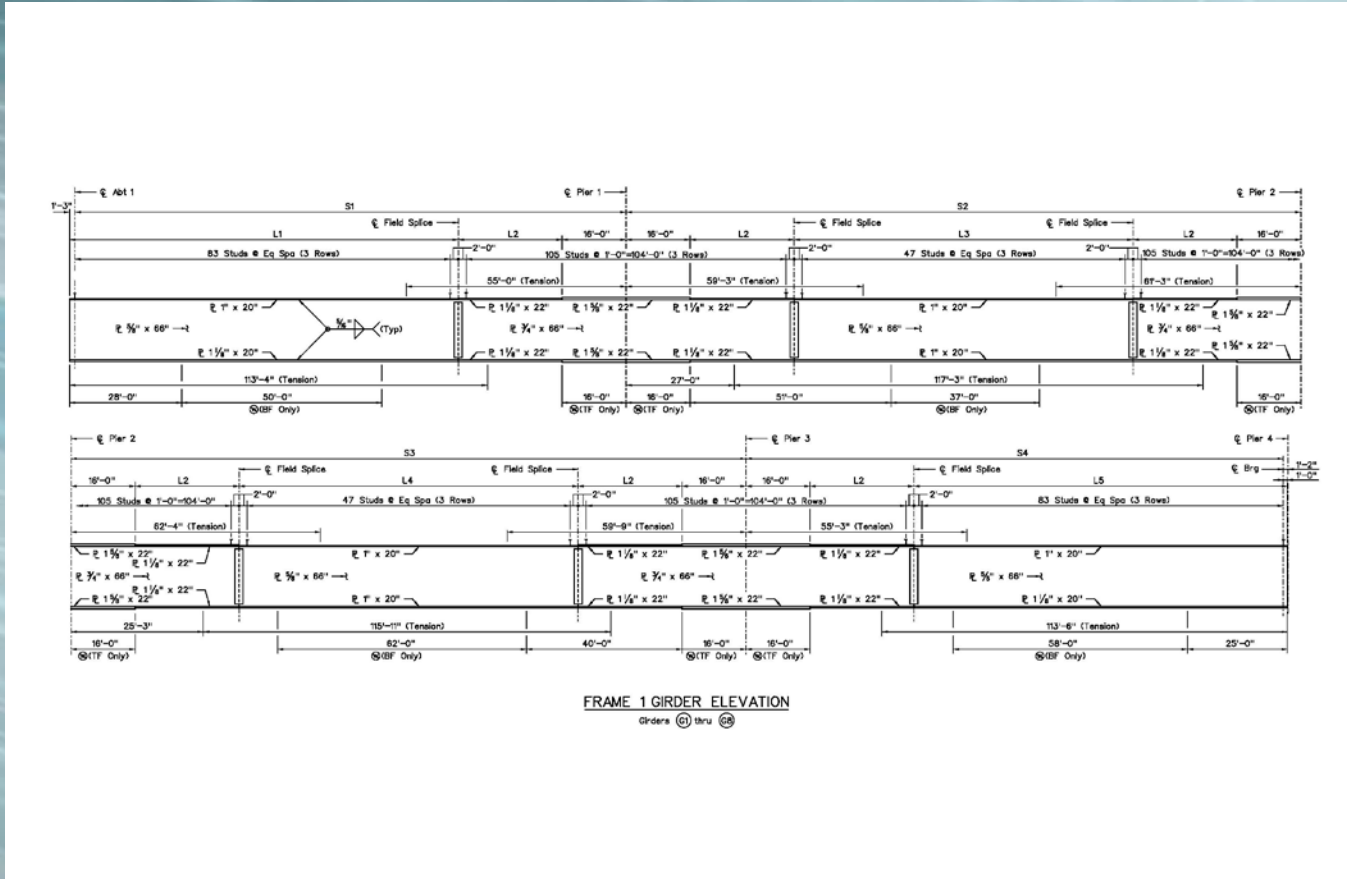
jescamilla

Page 1

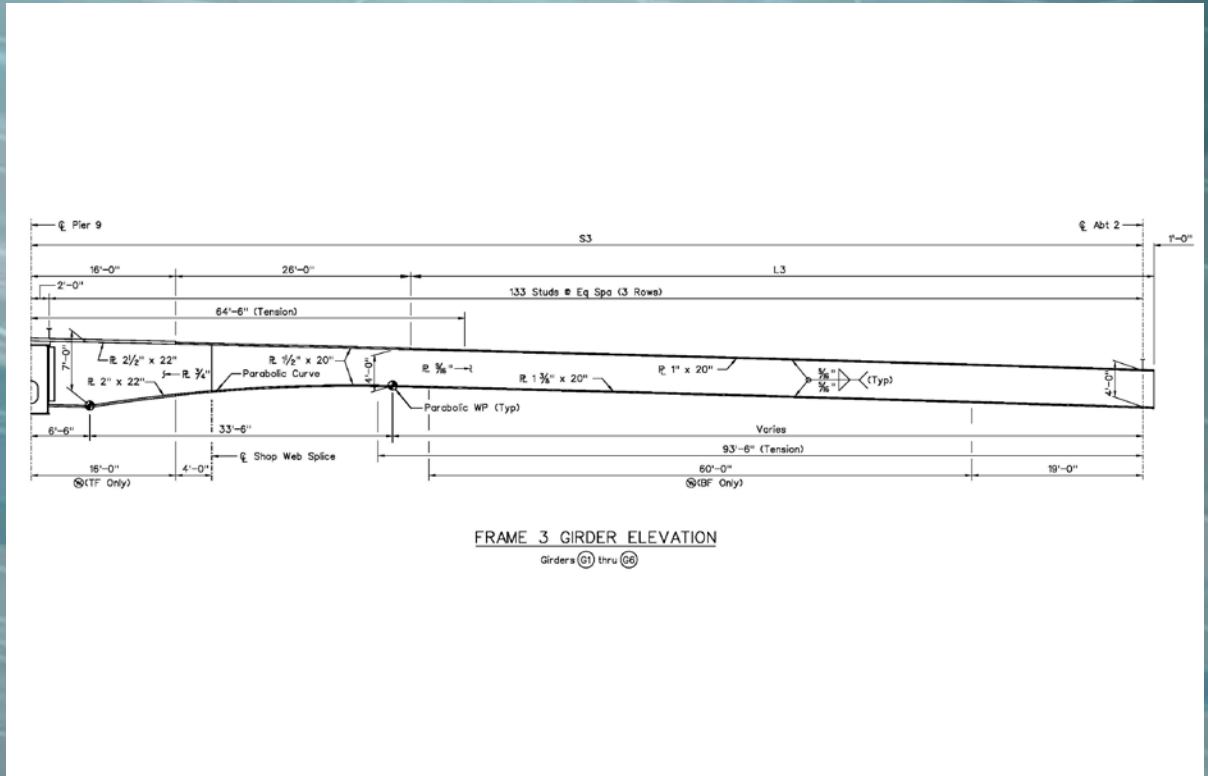
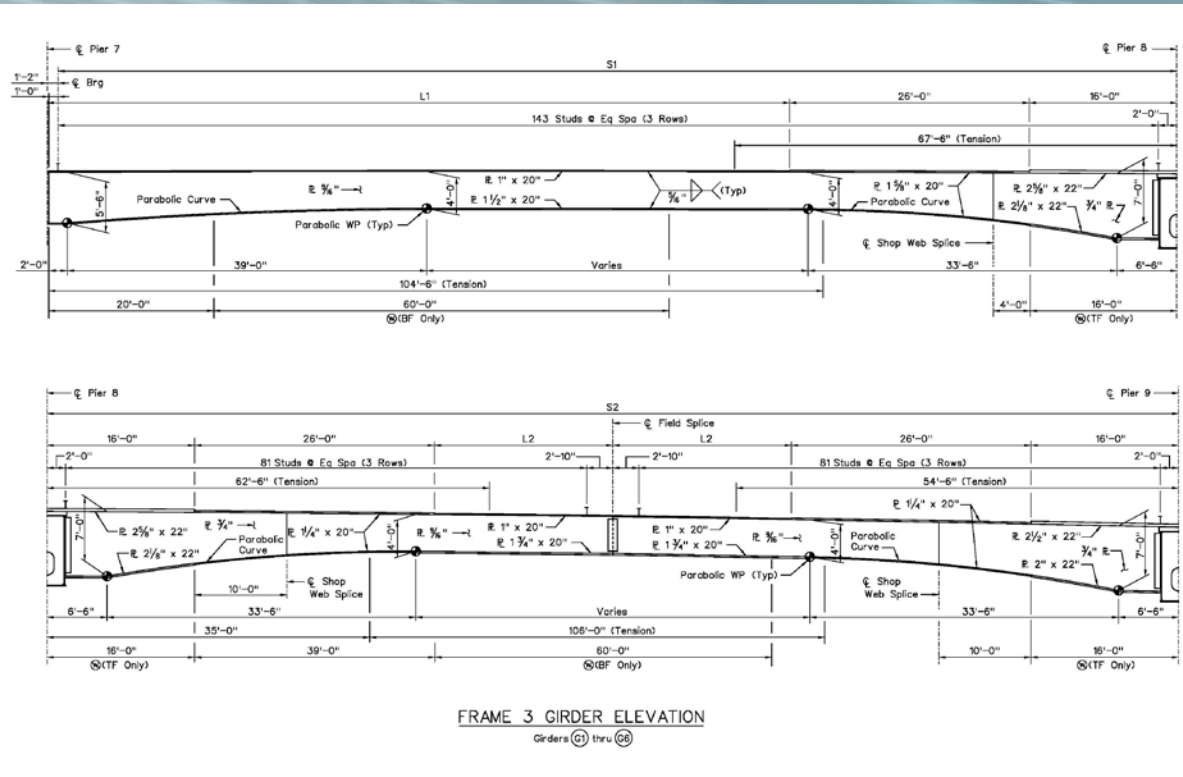
Integral Steel Bent Cap



Girder Elevation - Frame 1 & 2



Girder Elevation - Frame 3





Bridge Construction Schedule

- ▶ Start Date: April, 2013
- ▶ Estimated Completion Date: April, 2014

Plate Girder Fabrication Shop



Bed for Plasma Cutter

Plate Girder Fabrication Shop



Heat Curving Girder



Drilling Holes in Web for Field Splice Connection



Bridge Construction



Bridge Construction



Bridge Construction



Bridge Construction

