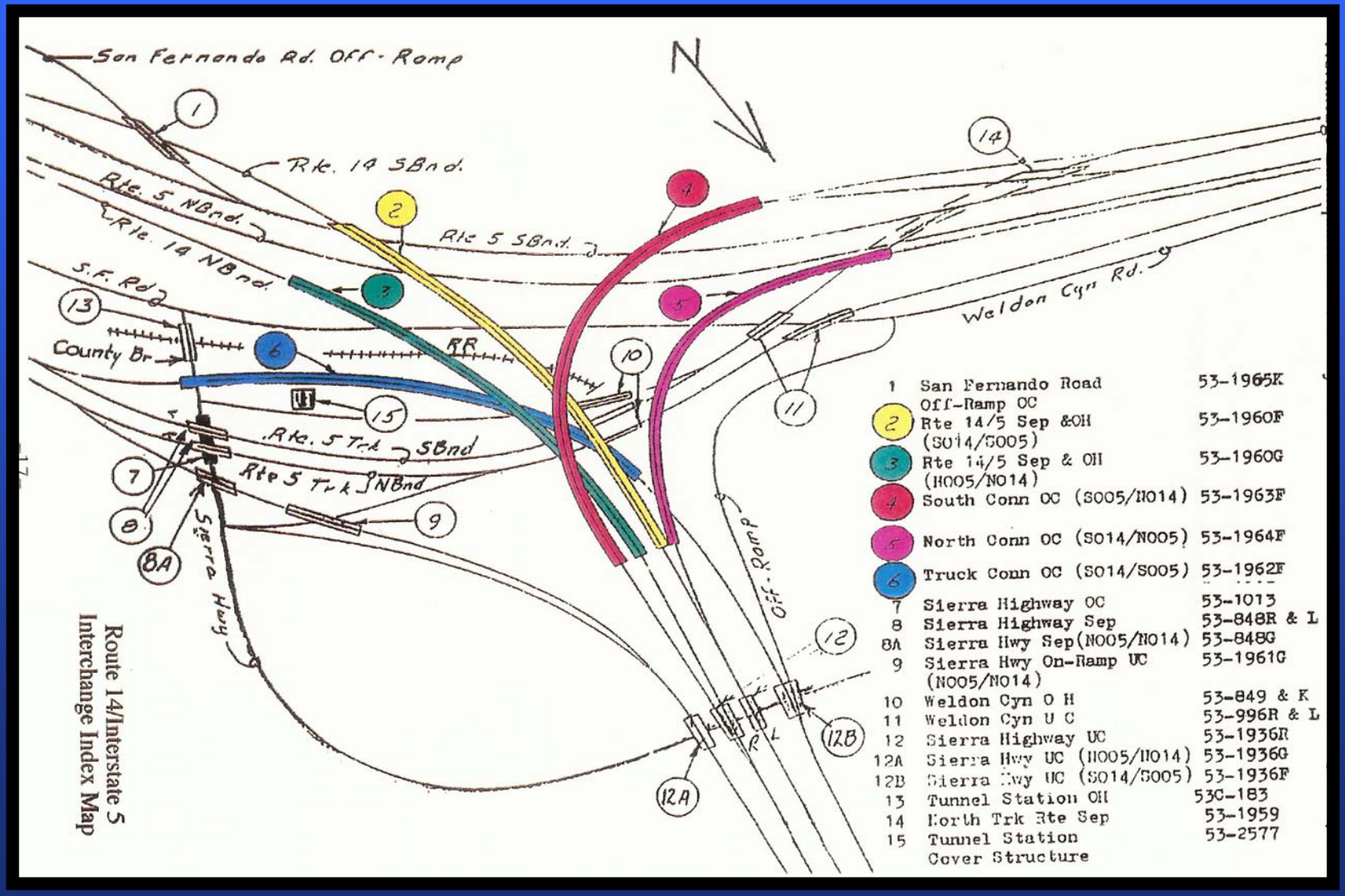
A case history and construction constraints

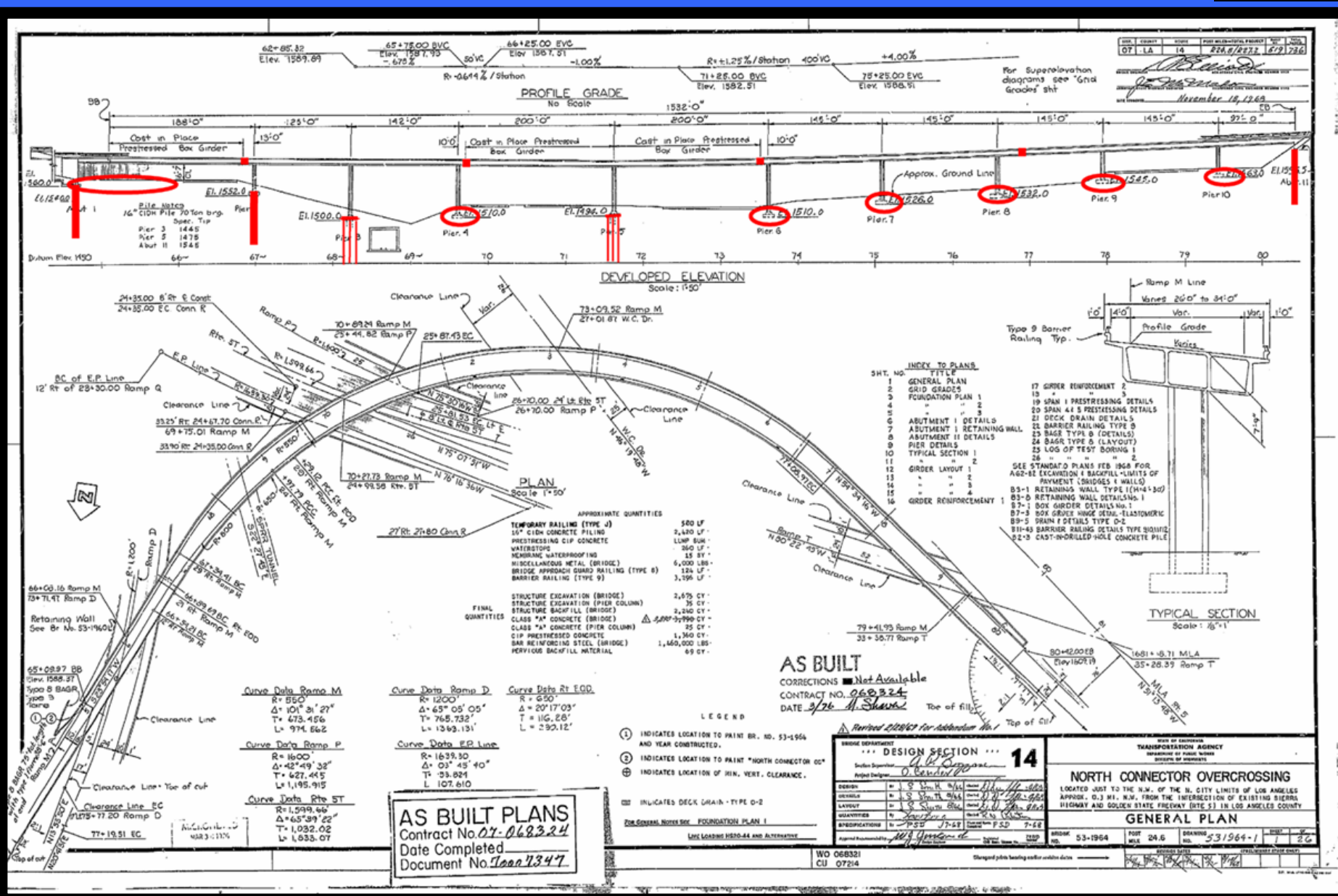
Mark DeSalvatore

5 / 14 Interchange



State of California

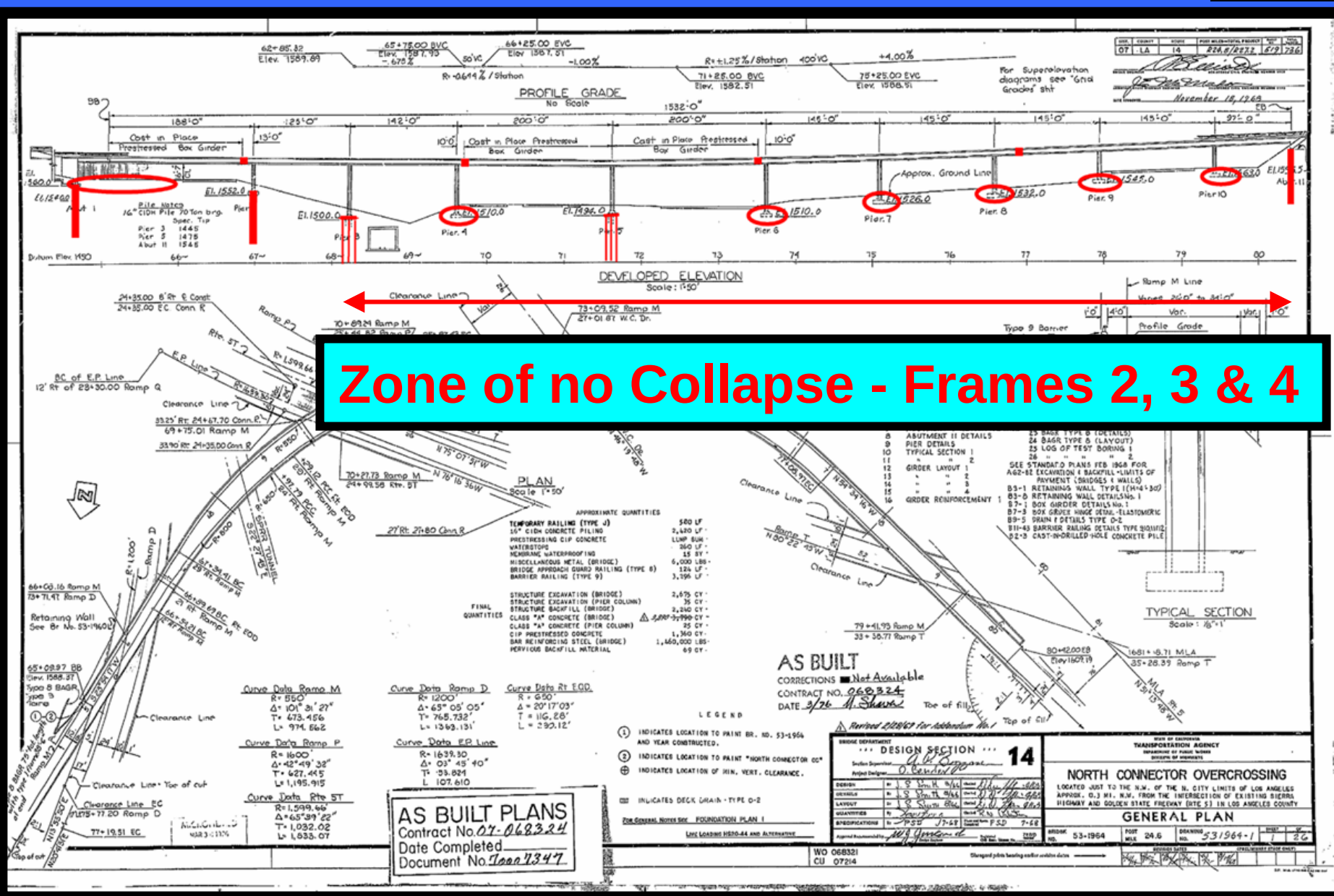
Department of Transportation



14/5 North Connector - Frames 1 & 2

14/5 North Connector – Abutment 1

14/5 North Connector – Hinge 1 & Pier 2


PROFILE GRADE
No Scale
DEVELOPED ELEVATION
Scale: 1"=50'
PLAN
Scale 1"=50'
TYPICAL SECTION
Scale: 1/8"=1'
Zone of no Collapse - Frames 2, 3 & 4
AS BUILT
CORRECTIONS Not Available
CONTRACT NO. 068324
DATE 3/76
AS BUILT PLANS
Contract No. 07-068324
Date Completed
Document No. 1000 7347
DESIGN SECTION 14
NORTH CONNECTOR OVERCROSSING
GENERAL PLAN
WO 06832I
CU 07214

Current Bridge Design Specification

AASHTO LRFD Bridge Specifications

Footing size - Controlled by the 3 Limit States

- **LRFD - Service Limit State:**
  - **Footing Size is determined by:**
    - **Equivalent uniform contact Pressure**
    - **Allowable Settlement of the Footing**
      - **Caltrans allows 1 or 2 inches**
      - **Can increase the Allowable Settlement**

- **LRFD - Strength Limit State:**
  - **Footing Size is determined by:**
    - **Equivalent uniform contact Pressure**
      - **Structure loadings**
      - **Load Factors**
        - » **Can Reduce the Load Factors, (γ)**
    - **The Ultimate Soil Bearing Capacity, (q_{ult})**
      - **As Footing size, (B) goes down so does – q_{ult}**
      - **Increase the Design Resistance Factors, (Φ)**
        - » **Values currently used are 0.45 and .50**

- **LRFD - Extreme Limit State:**
  - **Footing Size is determined by:**
    - **Load Factors, (γ) are 1**
    - **Design Resistance Factors, (Φ) are also 1**