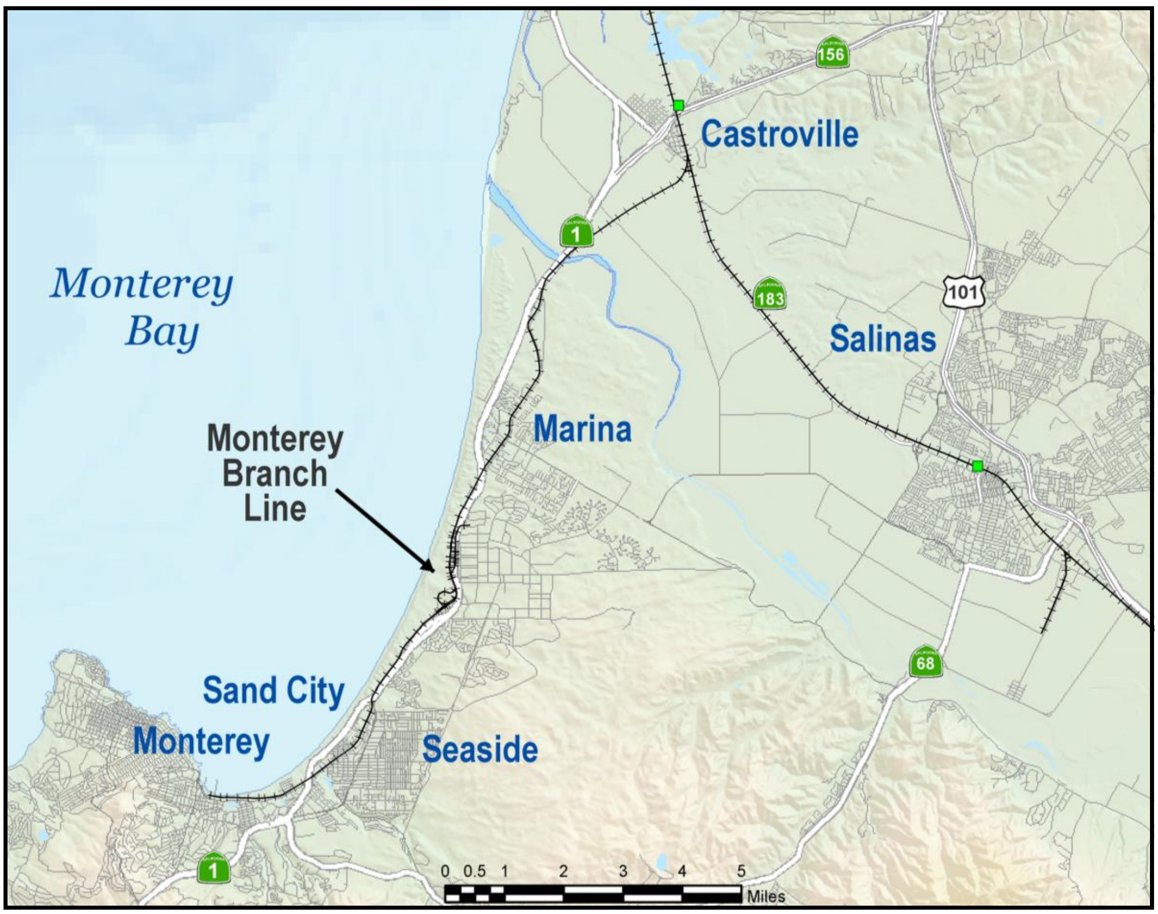
TRANSPORTATION AGENCY FOR MONTEREY COUNTY

BRIDGE STRATEGY REPORT
FOR THE
MONTEREY PENINSULA LIGHT RAIL PROJECT



PARSONS
July 2005
May 2010 Update

Bridge Strategy Report

for the

Monterey Peninsula Light Rail Project

Prepared for

Transportation Agency for Monterey County

Prepared by

PARSONS

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CONTENTS

INTRODUCTION

The following strategy report offers an independent assessment and provides recommendations for rehabilitation, retrofitting or replacement of the bridges on the former Union Pacific Monterey Branch line to meet the needs for restoration of passenger service. The findings in this report are based on available information, field assessment, conceptual engineering and cost estimates. This investigation is a part of the alternatives analysis being conducted for the Transportation Agency for Monterey County (TAMC) to examine re-establishment of passenger rail service on the Monterey Branch line between Castroville and Monterey. It is our understanding that no freight service will be re-established on this line.

Parsons personnel Bob Scales, Sheila Apte and Dave Wemmer, together with TAMC representative Karen Clysdale, visited the bridges on the Monterey Branch on September 14, 2004 and performed a general inspection. Parsons also reviewed applicable portions of the reports by STV titled "Monterey Intercity Passenger Rail Project" dated March 2003; a Salinas River Bridge Inspection and Evaluation report by Modjeski and Masters dated September 28, 2001; Preliminary Geotechnical Recommendations by Shannon & Wilson dated December 2001; and Union Pacific's bridge inspection report of 1997. Our recommendations are based on the field visit, the above reports' findings and other available geotechnical information for the Monte Road Bridge. All of this resource material is attached and incorporated by reference to this Strategy Report.

To facilitate the 2010 update of this strategy report, Parsons personnel Dale Bartholomew, Nathan Stout and Ram Mothe visited the bridges on the Monterey Branch during the week of February 1 through February 5, 2010. A more detailed inspection of the Salinas River Bridge was performed to ascertain whether additional deterioration of the steel in the bridge had occurred since the Modjeski and Masters (M&M) Inspection in 2001. Significant additional deterioration was found with the resulting requirement that additional repairs be performed for the rehabilitation options.

As a part of this 2010 strategy report update, Parsons performed a re-rating and re-evaluation of the existing Salinas River Bridge superstructure by extrapolation from the ratings listed in the M&M Inspection and Evaluation Report since existing bridge Shop Plans were not made available. Parsons also developed revised rehabilitation recommendations to include repair of the additional deterioration and to accommodate a 30-year plus lifespan for the rehabilitated bridge. In addition, Parsons has updated the cost estimates for the rehabilitation options to include the additional repairs and updated all rehabilitation and replacement options to reflect 2010 material and labor costs. Parsons' 2010 Inspection and Re-Evaluation Report and updated cost estimates are also attached and incorporated by reference into this updated Strategy Report.

PROPOSED PASSENGER SERVICE OPTIONS

Parsons has identified a series of "Preliminary Alternatives" for discussion purposes and to elicit agency and public comment for scoping alternatives analysis. The following rail equipment and service options were considered.

1. Intercity trains similar to Capitol **C**orridor trains (typical Amtrak West equipment), running two to four round trips per day between San Francisco and the Monterey Peninsula with one locomotive and two or three passenger coaches. **Operation of intercity trains similar to Capitol Corridor trains between Castroville and Monterey is no longer under consideration, as a result of the detailed analysis of alternatives completed in 2009.** Very low passenger forecasts prepared previously by AECOM indicate that compliant* DMU equipment (Colorado Railcar) may be appropriate as alternative equipment. **Colorado Railcar equipment will require only E-23 (140' span) to E-36 (14' span) minimum normal bridge rating.** Patronage forecasts are likely to be a few hundred individual passenger trips per day each direction.

2. Caltrain equipment, running up to three round trips per day assuming one locomotive unit and five bi-level coaches. Patronage forecasts are likely to be several hundred individual passenger trips per day each direction. **Operation of Caltrain bi-level equipment between Castroville and Monterey is no longer under consideration, as a result of the detailed analysis of alternatives completed in 2009.**

3. DMU or EMU shuttles (non-compliant*) between Monterey and Castroville. **Siemens AG non-compliant equipment will require E-15 (140' span) to E-29 (14' span) minimum normal bridge rating. Stadler GTW equipment requires even lower minimum normal bridge ratings. EMU shuttles are no longer an option.** Assume two scenarios:

   - Twelve round trips per day with two-car consists.
   - Thirty-six round trips per day with **two**-car consists.

   Patronage forecasts are likely to be several **hundred** individual passenger trips per day each direction **using the portion of the line between Castroville and Marina**.

4. A combination of intercity **compliant DMU** trains **(Colorado Railcar) for up to three round trips per day each direction** and **non-compliant** DMU shuttle trains **operating up to thirty-six round trips per day with 2-car consists.** Patronage forecasts are likely to be several **hundred** individual passenger trips per day each direction **using the portion of the line between Castroville and Marina**.

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*Where passenger equipment is operated on a line with freight equipment, the FRA requires that the passenger equipment meet certain crash worthiness requirements. This equipment is referred to as compliant. Conversely non-compliant equipment is that which is operated on a line solely dedicated to passenger operations.

STEEL BRIDGES

M.P. 113.46—Salinas River Bridge, 715-foot Steel Through Truss Bridge

The Salinas River Bridge is a 715-foot long, 5-span (143 feet each), truss bridge carrying a single track across the Salinas River. The structure consists of warren type, steel through trusses with concrete piers and abutments. The piers and the abutments are supported on 50-foot timber piles. The bridge was constructed in 1904 with a new first span added to the north end of the bridge in 1914. (See Appendix A drawings for the original bridge and the addition.) Abutments 1 **and** 2 and piers 2 and 3 are accessible by land and piers 4 and 5 are located in the river. We understand that the water level fluctuates considerably depending on the season. The bridge has extensive corrosion causing loss of structural section through the bridge members. Generally the primary load carrying members have a moderate loss; however, some of the secondary members have extensive corrosion and need replacement.

During the 2010 re-inspection and re-evaluation, the bridge was found to have extensively advanced corrosion causing from 5 to 40 percent additional loss of structural section throughout the bridge members. While increased, the primary load carrying members still have a moderate loss except in Span 1 where up to a 40 percent increase was found. With the re-inspection, a majority of the secondary members in Spans 2 through 5 now have extensive corrosion and need replacement. The re-inspection also revealed that the open timber deck must also be replaced.

Alternatives Analysis

REHABILITATION

Rehabilitation repairs as described in the STV (Modjeski and Masters) report including realigning the two shifted trusses, replacing the bearings, replacing the identified bracing, lattice and the connection members, replacing some chord cover plates, repairing the crack at abutment 1, and painting the bridge are required. Painting of the bridge would entail cleaning by water blasting and painting as described in the report. The cost of rehabilitation is $2.7 million. It should be noted that the above-described repairs do not include seismic retrofitting and therefore to protect the public in the case of an earthquake, it is recommended that a site seismic monitoring system be installed and train operating rules enacted as described in the reports.

In addition to the replacements listed above, the 2010 re-inspection and re-evaluation found that there was a significant increase in the amount of bracing requiring replacement, including virtually all of the top lateral and sway bracing in Spans 2 through 5. A much higher percentage of lacing bars or lattice bracing and lateral bracing connection members (gusset plates) throughout the bridge now require replacing. Nearly all the chord member cover plates now require replacement and, to extend the life-span of the repairs to a minimum of 30 years, the significant increase in top flange deterioration in the Span 1 bottom chords and diagonals requires that the channel top flanges be cut off and replaced with new flange angles bolted to the webs of the existing members before other new replacement material can be attached.

The 2010 re-inspection and re-evaluation also found that deterioration of the open deck timber ties had also increased since the 2001 M&M inspection and that the ties were now in fair to poor condition such that the entire deck required replacement. With all of the additional steel repairs, the timber deck replacement, and cleaning and painting, the cost of the existing bridge rehabilitation in 2010 dollars is now $6.3 million as detailed in Appendix F.

In addition to the above, the service life of a high quality bridge paint system and an open timber deck is 15 to 20 years, maybe much less for a paint system in a salt-air environment that does not receive annual paint life extension maintenance. Annual paint life extension maintenance includes keeping trees trimmed and well clear of the bridge; and washing the bridge to remove bird dung, leaves, dirt, ballast, and other debris that promotes corrosion. It has been found that tree trimming and washing on at least an annual basis will even double the life of an unpainted older non-weathering steel bridge, even possibly in a salt-air environment.

It is therefore recommended that tree trimming and washing be budgeted and performed on an annual basis and that timber deck replacement and cleaning,

minor steel repairs, and repainting be budgeted and performed on a regular 15 year maintenance cycle. Performing these tasks on a regular maintenance cycle will easily prolong the life of the bridge to over 30 years or even indefinitely.

Since the equipment proposed under service options **3 and 4** is lighter than the freight equipment that traditionally operated on this line, these passenger trains can be operated on the bridge without exceeding the capacity of the bridge's current condition. However, operating rules should be enacted to protect against unforeseen train consists that would overload the bridge. One example would be to not allow an unexpected second locomotive behind the lead locomotive while crossing the bridge. Final design should evaluate this load case and restrict the location of the engine as necessary.

With the significant increase in deterioration found in the 2010 re-inspection and re-evaluation, even the equipment now proposed under service options 3 and 4 cannot be operated over the bridge without performing the recommended steel repairs and replacing the open timber deck, particularly if a minimum 30-year service life is to be provided.

We also anticipate the need for a restriction on work trains with ballast hoppers traveling across the bridge. Ballast for track restoration or maintenance may have to be trucked to the south of the bridge and then loaded on the work trains. **Since work train operations will be infrequent, however, maximum rated capacity of members could be used. Even so, f**urther evaluation of the bridge capacity will be required to establish the type of locomotive that can be used for work trains and the level of ballast, which can be transported if a loaded work train is to travel across the bridge.

Potential scour impact is a critical issue for the existing bridge, as the existing foundations have relatively shallow (50-foot) pile foundations. Scour is the erosion and deepening of the riverbed due to increased flows during a high water event. Significant scour could undermine the foundations leading to a catastrophic failure of the bridge. The Shannon & Wilson report estimated 30 foot of scour based on the hydraulic studies at the adjacent downstream Monte Road and Highway 1 bridges. Because all four bridges constrict the floodway, and because the upstream floodplain is considerably wider than the channel at the bridges, it can be assumed that contraction scour could add another 10 feet of scour. Therefore, a total scour of 40 plus feet may be expected at the railroad bridge during high water events. Placement of rip rap around the piers would mitigate potential scour but the cost of rip rap could be prohibitively high considering the amount of rip rap required.

In lieu of rip rap protection, another monitoring system could be installed to monitor the water level during high water events. Based on the structure vulnerability, an acceptable scour depth can be established which would determine the critical water surface elevation beyond which it would not be advisable to run the trains across the bridge. The monitoring system could be connected to a signal warning system, which would stop the trains before they cross the bridge when the critical water level is reached. We understand FHWA has such a "Plan of action for scour critical bridges" which is similar to the above-described system.

The operation of the monitoring and signaling system for both seismic and scour would have to be inspected and maintained as necessary. Bay Area Rapid Transit (BART) has a similar system in place for seismic events.

It is also recommended that the riverbed profile be measured at least once a year to detect any erosion and scour problems that may impact the bridge's stability. Shannon and Wilson cited a 20 mph limit on the train speed to provide a sufficient warning to a moving train before it reaches the bridge. This limit should be revisited by TAMC since the speed limit is a risk management issue.

The cost of the monitoring and signaling system for both seismic and scour is included in Parsons' estimate. Parsons recommends further hydrological and scour investigation before deciding on the bridge rehabilitation option. Based on the results of such an investigation, the stability of the foundations can be more accurately determined. The ground profile assumed to support our current recommendations is based on the Union Pacific Railroad's 1997 inspection and report (see Appendix A).

During the preliminary engineering/design phase, topographic and bathymetric surveys need to be carried out and the bridge should be re- evaluated if conditions are different than currently assumed.

It is important to note that a new bridge would be able to resist the anticipated seismic demands as well as withstand the anticipated erosion due to potential scour without the need for riprap. A new bridge would also not need a seismic or high water monitoring and signal warning system.

RETROFIT (WITH REHABILITATION)

Rehabilitating the superstructure together with seismically retrofitting the substructure, as suggested by the Shannon & Wilson geotechnical report was evaluated. The cost of this option is estimated to be approximately $8.4M. However, the life span of superstructure would only be approximately 15 years compared to over 75 years for a replacement bridge. In 15 years, the trusses would have to be replaced and would be placed on the retrofitted substructure. Since the cost of rehabilitation and retrofitting is comparative to the replacement cost (and would be likely greater when you add in the cost of future superstructure replacement), and comparing the life cycle cost for both alternatives, this option does not appear to be economically prudent.

Rehabilitating the superstructure as described in the updated recommendations above, together with seismically retrofitting the substructure, as suggested by the Shannon & Wilson geotechnical report is now estimated to cost

approximately $14.4 million in 2010 dollars. See Appendix F. In spite of the life span of the rehabilitated superstructure being more than 15 years with a regular deck and paint maintenance cycle eliminating the need for replacement of the truss spans, this option still does not appear to be economically prudent.

REHABILITATION AND SPAN 1 REPLACEMENT

With the significant increase in deterioration found in Span 1 necessitating a significant increase in repairs to primary bottom chord and diagonal members, replacing Span 1 with a new deck girder span and rehabilitating the remainder of the existing bridge appeared to be a viable alternative. A Span 1 replacement using a steel deck plate girder span of the same type as investigated for the on-line alternative described below was assumed. This alternative, however, was estimated to cost approximately $8.0 million in 2010 dollars revealing that repair of the existing bridge without substructure retrofit still has a lower initial cost than replacement. See Appendix F.

REPLACEMENT

Parsons examined two alignment design options which included keeping the replacement bridge on the same existing alignment, or moving it down stream. An upstream alignment option was not considered prudent as it would have negatively impacted the track alignments approaching the bridge. A replacement structure on a new downstream alignment is proposed to be located approximately 40 feet from the existing structure to clear the concrete piers and most of the supporting timber piles. Note that the proposed location would be within existing TAMC right-of-way. The new alignment would maintain the same top of rail elevation. Bent locations would be kept at the same alignment relative to the channel as the existing bridges in order to minimize an increase in anticipated scour.

Both steel plate deck girder and the prestressed box girder design options were considered. The steel plate girder superstructure would consist of 11-foot deep twin plate girders with a cast-in-place concrete deck supporting the track structure. The girders would be supported on cast-in-place concrete caps. The substructure consisting of two 6-foot diameter cast-in-steel shell concrete piles is proposed at this location similar to the downstream Monte Road Bridge and the Highway 1 bridges. The pile spacing would be kept at approximately18 feet to achieve needed lateral capacity to resist seismic loads. The 6-foot diameter steel shells would be 1-inch thick, which includes ¼ inch corrosion allowance. The pile shells would be filled with concrete and reinforcing steel to resist vertical and lateral loads.

Per Shannon and Wilson’s geotechnical report, the soils at the site are liquefiable and the substructure would be unsupported for approximately 30 feet below the existing ground during a seismic event. Hence, the large diameter steel shells filled with concrete would offer adequate lateral and vertical support. The proposed piles would be approximately 130 feet long as recommended in the Shannon & Wilson's geotechnical report. The construction cost of this option would be approximately $10.1 million. **The updated construction cost in 2010 dollars is now estimated to be approximately $9.6 million which includes the recent significant drop in steel costs. Even though an increase in steel costs in the near future has been rumored, this increase should be covered by the contingency amount included in the cost estimate of Appendix F.**

A prestressed concrete box girder design was also considered. This option would consist of 12-foot deep box girders supported on cast-in-place concrete caps and two 7-foot diameter cast in steel shell concrete piles. The 7-foot diameter piles are assumed to be 130 feet long and 1-1/8 inches thick, which includes ¼ inch corrosion allowance. This option would cost approximately $7.7 million for construction, which is less expensive than the steel plate girder alternate. **The updated construction cost in 2010 dollars is now estimated to be approximately $10.9 million which is now more than the steel option. See Appendix F.**

Of these alternatives, **in addition to lower 2010 overall costs**, the steel plate girder option on a new alignment would offer ease of construction, lighter weight, and reduced substructure cost. A plate girder alternative would also avoid extensive false work construction. Partial length girders could be brought to the site and spliced during erection. The superstructure would require periodic inspection **and** maintenance**, including annual tree trimming and bridge washing and** cleaning and painting **on approximately a 15 year cycle**. The concrete option, however, would require only routine inspection and minimal maintenance.

A superstructure replacement option consisting of steel plate girders on the existing alignment was also considered. The existing structure would have to be removed to the bottom of the concrete piers. Partial abutment removal would also be necessary. The existing timber piles supporting the concrete piers would be very difficult to pull out and if pulled, soil would be disturbed which in turn would reduce the lateral capacity of the new piles. Therefore, Parsons would propose to leave the timber piles in place and construct new piles and pile caps to clear the existing piles. This would make the pier cap considerably longer and deeper than rebuilding the bridge on a new alignment. Seven-foot diameter, cast-in-steel shell concrete piles are proposed for this alternative due to heavier superstructure loads. The construction cost of this alternate is estimated to be approximately $11.6 million.

For the existing alignment option, the updated construction cost in 2010 dollars is now estimated to be approximately $11.7 million which also includes the recent significant drop in steel costs. See Appendix F. The superstructure of this option would also require periodic inspection and maintenance, including annual tree trimming and bridge washing and cleaning and painting on approximately a 15 year cycle.

ADDITIONAL COST CONSIDERATIONS

Note the above construction cost estimates for all the options include a 25 percent contingency allowance. Approximately 25 to 30 percent should be added to the above cost for the design/ construction management/agency soft costs and another 10 to 15 percent should be considered as an unallocated contingency for the steep increase in steel and concrete prices during 2003–2004, which may decline or rise in the future. **These adjustments, except for the design, construction management, and agency soft costs, have been included in the updated cost estimates of Appendix F, as well as the recent significant drop in steel costs. The rumored increase in steel costs in the future should, however, be considered.**

Recommendation

Parsons recommends replacement of the bridge on a new downstream alignment within the existing railroad right of way. Although there is a higher initial cost for a new bridge the overall life cycle cost spread over the 75 plus year life would be lower. A new bridge will also provide less risk as it will be designed to current codes in regards to seismic and high water events. This also provides for assurance that substantial interruption (1 to 2 years) caused by a seismic or high water event to passenger services would be minimized or eliminated. The cost of a new bridge ranges between approximately $8 and $10 million for concrete and steel superstructure alternatives respectively. At this time it appears the concrete superstructure would provide the preferred alternative but this would be confirmed during the next phase of engineering development.

Updated costs of a new bridge in 2010 dollars ranges between approximately $9.6 and $10.9 million for steel and concrete superstructure alternatives respectively. At this time it appears the steel superstructure may now provide the preferred alternative but this also must be confirmed during the next phase of engineering development and the added maintenance of a steel structure must be considered.

If the funds are not available to replace the bridge, Parsons recommends rehabilitating the bridge, including installing the monitoring and signaling system for both seismic and scour, to carry very limited service as **now** described in service options 3 and 4**. T**he possibility of an extended interruption in service to a large number of patrons in the case of significant damage caused by an earthquake or high water event **must, however, be considered**. Note **also** that **a concrete** bridge replacement would have a lower life cycle cost since the existing bridge will need replacement in 15 to 20 years **or need to have annual tree trimming and bridge washing maintenance and have the timber deck replaced and cleaning, minor steel repairs, and painting performed on a 15 year cycle.**

BASIS OF ALTERNATIVES ANALYSIS AND RECOMMENDATION

The following assumptions form the basis for the above analysis, recommendations and cost estimates.

1. The steel plate girders can be transported to the job site in pieces via either truck or barge. They would then be spliced together during construction. Parsons understands that the water depth changes considerably depending on the season. We anticipate that temporary construction trestles and/or embankments will be required across portions of the river, the extent of which will depend on the type of superstructure used. Since there is no existing rail service on the line now, it will not be necessary to maintain rail service during construction, which would allow for maximum flexibility.

2. Bridge Inspection: Parsons assumes the inspection procedure followed by Modjeski and Masters was in accordance with AREMA, Volume 2, Chapter 15, Section 7.4. **The AREMA procedures were followed during the Parsons 2010 re-inspection and re-evaluation.**

3. Cost estimate for rehabilitation of the existing bridge:

   - Cost of replacement and repair of the structural steel members is based on the cost estimate by Modjeski and Masters increased by an escalation factor. A 30 percent escalation factor was used based on Caltrans Highway Construction Cost Index for steel and concrete. A 15 percent escalation factor is included in the cost estimate while another 15 percent should be added as an unallocated contingency since the steep increase in steel and concrete cost during 2003–2004 is unusual and may decline or rise in the future. **The updated cost estimates of Appendix F are based on the 2010 Caltrans Highway Construction Cost Index for steel and concrete and other industry references, including the recent significant drop in steel costs. Contingency factors have been included and others should be included as described above. The rumored increase in steel costs in the future should also be considered.**
   - Maximum operating speed: As recommended in Shannon & Wilson's report, 20 mph is assumed for the strategy report. Additional research should be undertaken to check whether an increase in speed is feasible.
   - All construction to be completed prior to start of train operations.
   - Cost of ballast and track work is not included **except for the cost of the open timber deck replacement using special structural grade bridge ties that are larger than standard track ties.**
   - Cost of permitting, relocation, property acquisition, if needed, permit for temporary access, cost to the agency is not included.

- Environmental assessment or evaluation regarding wet lands, endangered species and hazardous materials in the soil, water or air was not performed and therefore environmental investigation and mitigation costs are not included.
- A proposed 30-inch diameter water line from the proposed desalinization plant at Moss Landing may not be attached to the existing bridge since the water supply may be disrupted after a seismic event.

4. Cost estimate for the replacement bridge:
   - Most of the unit costs are based on the cost estimate for Monte Road Bridge increased by an escalation factor. The Monte Road Bridge, which is downstream from this bridge, was retrofitted in 2001. The retrofit scheme included extending the concrete caps at each bent and supporting it with two 6-foot diameter cast-in-steel-shell concrete piles similar to the proposed method for the new bridge. A 30 percent escalation factor was used based on Caltrans Highway Construction Cost Index for steel and concrete. A 15 percent escalation factor is included in the cost estimate while another 15 percent should be added as an unallocated contingency since the steep increase in steel and concrete cost during 2003–2004 is unusual and may decline or rise in the future. **The updated cost estimates of Appendix F are based on the 2010 Caltrans Highway Construction Cost Index for steel and concrete and other industry references, including the recent significant drop in steel costs. Contingency factors have been included and others should be included as described above. The rumored increase in steel costs in the future should also be considered.**
   - Includes removal of the existing superstructure and substructure down to the top of the timber piles and partial removal of the abutments.
   - Replacement of bridge structures and new embankment only.
   - Utility identification and relocation is not included.
   - All construction to be completed prior to start of train operations.
   - Cost of ballast and track work is not included.
   - Cost of permitting, relocation, property acquisition, if needed, permit for temporary access, cost to the agency is not included.
   - Environmental assessment or evaluation regarding wet lands, endangered species and hazardous materials in the soil, water or air was not performed. Therefore, the cost of environmental investigation and mitigation is not included.
5. The existing bridge is not considered historic according to the STV final report. However, after constructing the replacement structure, the question of whether to remove or retain the existing structure is not covered under the present scope of this investigation and would be determined in

consultation with state historic and environmental protection agencies. Per the STV report, a records search from the Northwest Information Center in Rohnert Park, California indicates that the project area is potentially sensitive for historic cultural resources. The cost associated with identification process and mitigation measures, if any, is not included in this initial estimate.

6. Parsons recommends undertaking additional detailed analysis in the preliminary engineering/design phase before adopting any of the above design options including hydrological studies and geotechnical investigation.
7. Parsons has not carried out a rigorous cost/benefit analysis of all the alternatives presented above and suggests that this analysis be undertaken in the preliminary engineering/design phase to follow this conceptual level study **and updated conceptual level study.**

TIMBER TRESTLES

General

EXISTING CONDITIONS

As noted above, a general inspection of the timber trestles was performed September 14, 2004. Inspection included visual observation and hammer sounding of selected timber bridge members. Visual observation was performed to find obvious defects (splits, checks, exterior damage), while timber sounding was performed to find general indications of interior decay (voids). The interiors of timbers typically decay, because this is where moisture is held and bacteria can grow. In most cases failure of timber bridge members results from interior decay and the resulting loss of structural section.

For this updated Bridge Strategy Report, a cursory visual inspection was made by Parsons personnel on February 5, 2010. No significantly deteriorated conditions were found that would change the following evaluations and recommendations, particularly since most final recommendations are for replacement of the timber trestle with a new concrete trestle or replacing by filling on a culvert. Because of this, no updated cost estimates have been made for the timber trestle bridges.

Parsons obtained a copy of the last bridge inspection report performed by Union Pacific in 1997. See Appendix A. Also attached is a copy of UPRR inspection codes and corresponding defect types. In addition to visual observation and sounding of timbers, the UPRR inspection included selected drilling (3/16-inch inspection hole), probing, and measuring of internal voids where soundings indicated potential significant internal defects. It is Parsons' opinion that the UPRR inspection provides a reasonably accurate assessment of the general condition of the bridge at the time of the inspection.

Our approach to inspection of the bridges was to perform a general inspection to a level of detail so as to generally confirm the findings and accuracy of the UPRR inspection. Parsons' inspection generally concurs with the UPRR inspection findings as being accurate for the purposes of this study.

Parsons found the bridges to be in fair to good condition. With minor to moderate maintenance/rehabilitation work, the bridges could provide the required level of service for all proposed passenger equipment.

It is important to note that in the event of an emergency condition (e.g., damage from an earthquake or fire) the timber bridges could be replaced under emergency operations in a reasonable amount of time (less than a month) assuming availability of materials and contractors. After a major seismic event, immediate availability of these resources could be an issue. Assuming the interruption to service would be limited, this issue is not considered a factor in the determination of whether to rehabilitate/retrofit or replace the timber trestles. This is different than the decision methodology taken at the Salinas River Bridge, which would be out of service for an extended period of time if significant damage were sustained to a rehabilitated, existing bridge.

It is recommended that a detailed inspection of the trestles be performed during final design of this project to specifically identify bridge member conditions. Due to the nature of timber, it is important to note that even detailed inspections cannot identify member conditions with absolute certainty, and therefore, some risk will remain as to additional limited repairs after initial rehabilitation is complete. Also, a higher than normal inspection frequency—quarterly versus annually—is recommended during the first year of operation over existing bridges that are kept in service so as to identify any unforeseen conditions.

LIVE LOAD RATING

The timber trestles were constructed by the Southern Pacific Transportation Company (SPTCo.) to standard plan Common Standard CS 0039. (See Appendix A for Plan.) This is a common bridge type found on the former SPTCo. main lines and branch lines. The bridge's live load capacity is controlled by the strength of the bridge decks (superstructure made up of the timber stringers) and is typically controlled by bending stresses. The E rated capacity of the decks is shown in the following table for three assumed conditions. A range is provided that reflects the slightly different size of stringers and depths of ballast in the different trestles.

Very Good Condition	(no section loss)	E57-66
Good Condition	(10% section loss)	E50-58
Fair Condition	(20% section loss)	E43-50

The approximate equivalent E rating for the various proposed passenger equipment is shown in the following table. In the case of conventional commuter equipment, such as Caltrain's Baby Bullet or the Amtrak West equipment (such as the Capitols), the engine is the controlling load **(dropped from further consider-ation)**. Note DMUs and EMUs have no locomotive as part of the train set, as each car is self-propelled.

Also shown is the rating of typical work train equipment that might be operated by track maintenance operations. This train rates the highest on these timber trestles. **Lighter weight work train equipment could be used or, i**f needed, load limits could be established on work train equipment to bring it into conformance with the bridge's rating. Also, given the infrequency of the operation of work trains, they could be treated as special temporary loads and take advantage of **maximum ratings or** temporary increased allowable stresses in bridge members that effectively increases the bridge's ratings.

Conventional commuter equipment (Caltrain Baby Bullet or Amtrak West, including the Capitols). **Dropped from further consideration.**	E-45
DMU (e.g., compliant* Colorado Railcar)	E-**36**
DMU (e.g., non-compliant* **Siemens AG "DESIRO"**)	E-**29**
EMU (e.g., non-compliant* Breda Type 8, MBTA). **Dropped from further consideration.**	E-15
Work train locomotive (e.g., SD 45)	E-50
Work train 100 ton (263k gross) ballast hopper cars	E-51

*Per FRA rules "non-compliant" cars are only allowed on tracks where no freight operations are allowed.

SEISMIC VULNERABILITY AND RETROFITTING

Based on the geotechnical recommendations by Parikh Consultants, Inc. for the adjacent Monte Road retrofit project (see Appendix A), the governing fault for this project is the King City–Reliz Fault. This fault has the potential for a maximum credible earthquake of magnitude 7.0 and estimated peak bedrock acceleration of 0.50 g. As a comparison, the Loma Prieta earthquake had a peak rock acceleration of 0.64 g recorded 1 kilometer from the epicenter. The Santa Cruz Railroad branch line, which is in close proximity to the Loma Prieta epicenter, has similar timber ballast deck bridges. Per Parson's discussion with UPRR, none of the Santa Cruz branch timber trestles or other similar timber trestles in the larger regional area suffered damage. Because other important factors besides peak rock acceleration ultimately determine the actual design acceleration at the bridge sites, it is hard to make an exact comparison with Loma Prieta, but in gross terms, it is likely the bridges in this project would experience similar, strong ground motions and accelerations. Therefore, at this conceptual stage of the project, Parsons suggests it is likely that the trestles could survive the projected maximum credible event with limited damage.

If, upon more detailed investigation in the following design phase of this project, it is determined that the trestles were subject to significant damage, then retrofitting might be recommended. Retrofitting, most likely involving installation of additional piles at each bent (likely two) together with some connectivity improvements, would be fairly expensive. Costs could be approximately 25 to 35 percent of the cost of a new replacement bridge and would be significantly more expensive than replacement of the bridge with embankment fill and a culvert(s). Additionally, the life of a retrofitted bridge would be the remaining life of the existing timber, while a new bridge would last 75 plus years. For this reason, Parsons does not recommend retrofitting the existing bridges at this time.

APPROACH TO REHABILITATION, RETROFIT OR REPLACEMENT

This section does not make final recommendations for rehabilitation, retrofit or replacement of the bridges. Specific recommendations are given in the following individual bridge sections. The following provides general recommendations for the approach to rehabilitation, retrofit and replacement.

Rehabilitation

Based on the above ratings, Parsons makes the following general recommendations if rehabilitation of the timber trestles is chosen.

1. Conventional Commuter Compliant DMU Equipment or Mixed Service, Service Options 1, 2 **(intercity only trains – both dropped from further consideration)** and 4—Recommend the trestles be repaired to restore a good condition and its associated E rating. Both compliant commuter and work train equipment could then operate over the bridges within their design rating.
2. DMU and EMU Equipment (Non-Compliant), Service Option 3 **(EMU equipment dropped from further consideration)**—Given the equipment ratings are significantly lower than the bridge's current fair condition ratings, recommend making only repairs regarding the bridge handrail. Due to their infrequency, work trains would operate over the trestles as a temporary overload. AREMA criteria allows for a 30 percent increase in allowable stresses for temporary overloads. This would increase the weakest bridge's rating to accommodate the work train.

Retrofit

As noted above, Parsons does not recommend retrofitting the bridges at this time. Further study and engineering during the next phase of design should more closely examine this issue.

Replacement

Where a bridge is recommended for replacement by a new bridge (to maintain an opening of a waterway (Tembladero Creek)) Parsons recommends a standard railroad industry prestressed concrete trestle bridge. This bridge would be made of precast, prestressed concrete girders, cast in place concrete caps supported on piles.

Where a bridge structure is not required to maintain an opening of a waterway, Parsons recommends removing the existing timber trestle down to the ground line, placing a culvert(s) to transmit local water and backfilling to create a new track earthen embankment.

Alternatives Analysis and Recommendations

M.P. 111.05—Tembladero Slough, 150-foot Ballast Deck Trestle on Timber Piles

(Looking Southwest)

Rehabilitation

1. Service Options 1, 2 **(intercity only trains—both dropped from further consideration)** and 4—The trestle is in fair condition and the following repairs are assumed to accommodate conventional commuter equipment.
    - Replace ballast guard timbers and construct handrails.
    - Replace selected bent bracing, stringers, caps and pile extensions.
    - Make miscellaneous, minor repairs to abutments.

The cost of these repairs is approximately $150,000 to $250,000. The remaining life of this bridge could be up to 20 years. Annualized cost based on a 20-year life is approximately $10,000 per year.

2. Service Option 3—The following repairs are assumed for the lighter non-compliant DMU/EMU equipment **(EMU equipment dropped from further consideration)**.
    - Replace ballast guard timbers and construct handrails.
    - Replace selected bent bracing.
    - Make miscellaneous, minor repairs to abutments.

The cost of these repairs is approximately $60,000. The remaining life for this bridge for these light loads could be 20 to 30 years. Annualized cost based on a 25-year life is approximately $2,400 per year.

Replacement

This bridge spans a named waterway, Tembladero Creek, which is maintained and operated by Monterey County Water Resources within a 50 foot easement. A dirt road crosses under the bridge and is assumed to be the County's for purposes of maintaining the creek. The creek is also a Federal Emergency Management Agency (FEMA) designated floodway. FEMA prohibits any modifications that could cause a rise in the 100-year backwater level to waterway openings in a floodway.

A replacement structure consisting of prestressed, precast concrete girders supported on driven pile bents is recommended. Lengthening the bridge by 30 feet (15 feet each end) would eliminate the current vertical abutments which have experienced lateral movement in the past. The existing bridge would be removed down to the ground line. The expected life for a new bridge is approximately 75 years. The cost of a new bridge is approximately $850,000. Based on a 75-year lifespan, the annualized cost is approximately $8,000 to $11,300 per year.

Recommendation

For service options 1, 2 **(intercity only trains—both dropped from further consideration)** and 4, with compliant DMUs, Parsons recommends replacing the bridge with a new bridge. The annualized cost of a new bridge compares favorably to rehabilitation. A new bridge also provides a structure of known quality, whereas the exact condition of the existing structure, even after a detailed inspection, cannot be known. A new bridge will be maintenance-free for many years, whereas the existing bridge will require maintenance that may not be identifiable until train operations resume. Note that a timber trestle also represents a continual fire risk.

For service option 3, non-compliant DMU/EMUs **(EMU equipment dropped from further consideration)**, TAMC may want to retain the existing bridge. With these lightweight cars, the existing bridge in its current condition most likely has a remaining life of 20 to 30 years.

M.P. 111.93—Alisal Slough, 45-foot Ballast Deck Trestle on Timber Piles

(Looking East)

Rehabilitation

1. Service Options 1, 2 **(intercity only trains – both dropped from further consideration)** and 4—The trestle is in fair to good condition and the following repairs are assumed to accommodate conventional commuter and compliant DMU equipment.
   - Replace ballast guard timbers and construct handrails.
   - Replace selected bent bracing, stringers, caps and pile extensions.

The cost of these repairs is $45,000 to $74,250. The remaining life for this bridge could be as much as 20 years. Annualized cost is approximately $2,250 to $3,600 per year.

2. Service Option 3—Only the following repairs are assumed for handling lighter, non-compliant DMU/EMU equipment **(EMU equipment dropped from further consideration)**.
   - Replace ballast guard timbers and construct handrails.

The cost of these repairs is approximately $18,000. The remaining life of this bridge for these light loads could be as much as 20 to 30 years. Annualized cost based on 25-year life is approximately $600 per year.

Replacement

The USGS quad map shows that this bridge spans a named waterway, Alisal Slough. The waterway is a blue line on quad maps in both directions. Alisal Slough is several miles long, suggesting it has a large drainage area. **Recently, the**

passageway under the bridge has been filled with soil by Monterey County as a part of a mosquito abatement program. A small diameter pipe has been installed to carry well pump water from the north side of the track embankment to the Alisal Slough which remains on the south side. The bridge still remains in place and should be replaced with an engineered fill. The Alisal Slough no longer exists to the north of the tracks having been filled by adjacent agricultural operations. The USGS quad maps are out of date.

The waterway passes through relatively small culverts under farm roads on **the south** side of the track. Assuming the adjacent roadway culverts were designed properly and if no flooding problems have been noted at this location, then this bridge can be downsized to a culvert possibly matching the size of the adjacent roadway culverts. The watershed of the Alisal Slough is very flat and the FEMA map shows widespread, shallow flooding. Parsons concluded that replacing the bridge with a culvert would probably be permitted because of the small roadway culverts**, the bridge filling already performed by Monterey County,** and the flood storage characteristic of the watershed. Monterey County Water Resources does not have, nor does any irrigation district have, jurisdiction over this waterway.

It is also noteworthy that the FEMA map shows flooding on both sides of this bridge but the embankment is above the 100-year flood level, so downsizing the bridge will not cause the 100-year flood to overtop the tracks.

Replacing the bridge with an embankment and a culvert to match the adjacent culvert sizes is recommended as a replacement for the existing bridge. The existing bridge will be removed from the deck down to the ground, which will facilitate efficient placement of the new **engineered** embankment. Cost of removing the old bridge, placing a new culvert and embankment is $30,000. The culvert has an expected lifespan of approximately 75 years and is relatively easy and inexpensive to replace.

Recommendation

Given the low cost, Parsons recommends replacing the existing bridge with an embankment and culvert undercrossing. The cost is approximately $30,000.

M.P. 112.54—120-foot Ballast Deck Trestle on Timber Pile Bents

(Looking East)

Rehabilitation

1. Service Options 1, 2 **(intercity only trains – both dropped from further consideration)** and 4—The trestle is in fair to good condition and in need of repairs to extend its life before service is restored. Repairs generally include:
   - Replace ballast guard timbers and construct handrails
   - Replace selected bent bracing, stringers, caps and pile extensions.

The cost of these repairs is approximately $120,000 to $200,000. The expected life of this bridge could be 20 years. Annualized cost is approximately $6,000 to $10,000 per year.

2. Service Option 3—Only the following repairs are assumed for handling lighter, non-compliant DMU/EMU equipment **(EMU equipment dropped from further consideration)**.
   - Replace ballast guard timbers.
   - Construct handrail.

The cost of these repairs is approximately $48,000. The expected life of this bridge for these light loads could be as much as 20 to 30 years. Annualized cost based on 25-year life is approximately $2,000 per year.

Replacement

This bridge spans an irrigation supply canal or drainage ditch and therefore cannot be completely filled. Monterey County Water Resources does not have, nor does any irrigation district have, jurisdiction over this waterway. It apparently is used by local farmers on either side of the railroad right-of-way. Assuming that the culvert under Monte Road (probably downstream) is correctly sized to convey irrigation or drainage flow, then this bridge could probably be downsized to a culvert matching the size of the culvert under Monte Road. The drainage area to this bridge, obtained from the USGS digital elevation model (DEM), is rather small (about 36 acres). If this bridge is not used for irrigation, then a design using the Rational method, even for a 100-year flood, would probably allow it to be replaced with a 36-inch pipe.

Replacing the bridge with embankment and a culvert to match the adjacent culvert size is recommended as a replacement for the existing bridge. The existing bridge will be removed from the deck down to the ground which will facilitate efficient placement of the new embankment. Cost of removing and disposing of the old bridge and placing a new culvert and embankment is $57,000. The culvert has an expected life of approximately 75 years and is relatively simple and inexpensive to replace.

Recommendation
Given the low cost, Parsons recommends replacing the existing bridge with an embankment and culvert undercrossing. The estimated cost is $57,000.

M.P. 112.80—225-foot Ballast Deck Trestle on Concrete Piers

(Looking East)

Rehabilitation

1. Service Options 1, 2 **(intercity only trains – both dropped from further consideration)** and 4—The trestle is in fair to good condition and the following repairs are assumed to accommodate conventional commuter and compliant DMU equipment. Although the concrete piers are fractured, they appear to be structurally intact. Per UPRR's inspection report, piers 4, 7 and 10 appear to be sinking. Two timber jacking bents have been installed to help support the superstructure. Settlement appears to be minor and does not appear to jeopardize the long-term serviceability of the bridge. Minor shimming of the superstructure might be needed on an infrequent basis in the future.

   - Replace ballast guard timbers and construct handrails.
   - Replace selected stringers and cap sills.
   - Make miscellaneous minor repairs to abutments.

The cost of these repairs is approximately $180,000 to $293,000. The remaining life of this bridge could be 20 years. Annualized cost is approximately $9,000 to $14,650 per year.

2. Service Option 3—Only the following repairs are assumed for handling lighter, non-compliant DMU/EMU equipment **(EMU equipment dropped from further consideration)**.
   - Replace ballast guard timbers and construct handrail.

The cost of these repairs is approximately $90,000. The expected life of this bridge for these light loads could be 20 to 30 years. Annualized cost based on a 25-year life is approximately $3,600 per year.

Replacement

This bridge does not appear to convey irrigation water or a significant amount of storm water and is most likely an equalizing structure. The drainage area from the DEM is only about 10 acres, suggesting that a much smaller structure would safely convey design flood discharges from this small drainage area. It is very likely that this bridge could be replaced with a couple of culverts that would match the conveyance of the box culvert under Monte Road.

Although this and some of the other bridges are equalizing rather than conveyance structures, it is generally recommended to keep the waterway open to allow the equalizing function. Environmental agencies generally reject complete closure of bridges that block aquatic life movements. Failing to maintain the equalizing character could provoke liabilities on either side. Although Bridge 112.80 has a small drainage area and is likely an equalizing structure, it is recommended that the bridge be replaced with two culverts to allow aquatic movements, avoid potential ponding upstream, and minimize the risk of flooding adjacent lands.

Cost of removing the old bridge, placing a new culvert and embankment is $76,000. The culvert has an expected life of approximately 75 years and is relatively simple and inexpensive to replace.

Recommendation

Replace the existing bridge with an embankment and culvert undercrossing for an approximate cost of $76,000.

M.P. 113.04—90-foot Ballast Deck Trestle on Concrete Piers

(Looking East)

Rehabilitation

1. Service Options 1, 2 **(intercity only trains – both dropped from further consideration)** and 4—The trestle is in fair to good condition and the following repairs are assumed to accommodate conventional commuter and compliant DMU equipment.
   - Replace ballast guard timbers and construct handrails.
   - Replace selected stringers and cap sills.

The cost of these repairs is approximately $72,000 to $117,000. The expected life for this bridge could be 20 plus years. Annualized cost is approximately $3,600 to $5,850 per year.

2. Service Option 3—Only the following repairs are assumed for handling lighter, non-compliant DMU/EMU equipment **(EMU equipment dropped from further consideration)**.
   - Replace ballast guard timbers and construct handrails.

The cost of these repairs is approximately $36,000. The expected life of this bridge for these light loads could be 20 to 30 years. Annualized cost based on a 25-year lifespan is approximately $1,440 per year.

Replacement
The USGS DEM shows this bridge is located in a high point with no local drainage area and no apparent companion structure under Monte Road for conveyance. This bridge can probably be eliminated. If a culvert does cross under Monte Road, its conveyance would be matched at a minimum.

Recommendation
Given the low cost, Parsons recommends replacing the existing bridge with an embankment and culvert undercrossing. The approximate cost is $43,000.

Additional Cost Considerations

Note the above construction cost estimates for all of the options include a 25 percent contingency allowance. Approximately 25 to 30 percent should be added to the above cost for the design/construction management/agency soft costs. Where a new replacement bridge is recommended, another 10 to 15 percent should be considered as an unallocated contingency for the steep increase in steel and concrete prices during 2003–2004, which may decline or rise in the future.

CONCRETE BRIDGES

MP 123.80—Lake George, 45-Foot Prestressed Concrete Trestle

(Looking West)

This bridge appears to have been constructed in the 1970s or 1980s by Southern Pacific Railroad in accordance with their standard plans. It is a 2-span bridge with each span being 22-feet 6-inches, most likely designed for a minimum E72 live load. It requires no repairs prior to re-establishing train service. It is anticipated that no or very limited seismic retrofitting would be required. The existing bike path would be removed and the track reconstructed.

APPENDIX A

Attachments

Bridge Strategy Report
For
Monterey Branch Line

Attachment Index
November 2004

1. UPRR 97 inspection report
2. Salinas River Replacement Bridge
   2.1. General Plan
   2.2. Typical section
3. Salinas River Bridge-cost estimate
   3.1. Existing Bridge Rehabilitation
   3.2. Existing Bridge Rehabilitation with substructure retrofit
   3.3. Replacement Bridge on new alignment-Concrete
   3.4. Replacement Bridge on new alignment-Steel
   3.5. Replacement Bridge on existing alignment-Steel
4. Existing Salinas River Bridge
   4.1. Details of new Abutment I
   4.2. Details of new Abutment II
   4.3. Plan and elevation
   4.4. Abutment No. 1- Elevation
   4.5. Abutment No. 1- Plan
   4.6. Pier No. 1- Elevation
   4.7. Pier No. 1- Plan
   4.8. Pier No. 2- Elevation
   4.9. Pier No. 2- Plan
   4.10. Pier No. 3- Elevation
   4.11. Pier No. 3- Plan
   4.12. Abutment No. 2- Elevation
   4.13. Abutment No. 2- Plan
5. Southern Pacific Lines - Common Standard Ballasted deck Trestle
6. Geotechnical Report for Monte Road Bridge by Parikh Consultants

EE - 0.01 GENERAL BRIDGE INSPECTION

GENERAL NOTES: INSPECTED 4-30-97 C.A.VAN SICKLE R.M.THOMPSON

EE - 110.40 CASTROVILLE

EE - 110.76 NO PHOTO
CULVERT LENGTH 20 BUILT 1916
12" DIA. CIP HB/R 3 NOT COATED
INSPECTED: 04/30/97
GENERAL NOTES: DROP INLET BOTH SIDES

EE - 111.01 NO PHOTO
CULVERT LENGTH 19 BUILT 1912
16" DIA. CIP HB/R 4 NOT COATED
INSPECTED: 04/30/97
GENERAL NOTES: CONCRETE HEADWALLS
DROP INLET & GRATE RIGHT SIDE
RIGHT SIDE BURIED

EE - 111.05 TEMBLADERO SLOUGH PHOTO
B D TRESTLE LENGTH 150 BUILT 1909 CS 00039
INSPECTED: 04/30/97

1 T T 5B O 5B O O O O 10 X

T O O O O O 4V : : 4V O 4A O O O 13

2 T T 2V S 2V O O O 12 X

T O O O O O O : : O O O O O O 14 8

3 T T O O O O 4B O 12 X

T O O O O O 2V : : O O O O O O 14 10

4 T T O O 1A S S O 12 X

T 2V O O 2V O O : : O O O O O O 15 4

5 T T O O O O O V 12 X

T O O O O O O : : O 4V O O O O 9 6

6 T T O 3A 3B O O O 12 X W

T 4V 4B O O O O : : O O O O O O 14 0

7 T T O O S O O O 14 X W

T O O O O O O : : O O O O O O 15 0

8 T T O O O 4B O V 14 X W

T O O O O O O : : O O O O O O 14 10 L

9 T T O O O S S V 12 X

T O O O O O O : : O 4B O O O O 15 6 L

10 T T O O O O O V 11 X

T O O O 4B O O : : 4A O 4A O O O 12 6

```
11     T T   O  O  O  O  O  O                V         9 X


PILING: 14.00 " DIA.
LATERAL BRACING:       STANDARD
LONGITUDINAL BRACING: STANDARD
CAPS: 14.50" x 11.75" x 16.00' SAWN
STRINGERS:       8.00" x 17.00" SAWN    YEAR: 1909
DECK TYPE:      TIMBER,  THICKNESS:  3.00 "
DECK WIDTH:     15'  0"
DECKING:        GOOD
B D TIES:       GOOD
BALLAST DEPTH: 14"
BALLAST GUARD: 13" HIGH
WALKWAY  - NONE
HANDRAIL - BOTH SIDES; TIMBER
RAIL:  112 LB  JJ
ALIGN: CURVE RIGHT  1.00 DEG.  20 MPH
APPROACHES LOW - ENDING
PROFILE: POOR
UNDERWATER INSPECTION NOT REQUIRED
GENERAL NOTES: * BENT 1 NEEDS STRUT REPLACED
               * HANDRAILS DAMAGED BOTH SIDES
               CONCRETE BULKHEADS ON EAST END HAS VERTICAL FRACTURE
               BETWEEN STRINGERS 6 & 7, RIGHT HALF OF BULKHEAD IS
               SINKING & FALLING OUT INTO BENT 11 PILES
               9" BELOW WALLPLATE
               WEST END IS UPTIGHT AGAINST BENT 1 PILES LEFT SIDE
               BOTH BULKHEADS VERTICALLY FRACTURED
               PANELS 1,2,10 & 11, HAVE 6"X8" STRUTS
               BALLAST GUARDS COVERED WITH METAL
               CONCRETE BULKHEADS

EE   -  111.93                                                      PHOTO
B D TRESTLE   LENGTH    45 BUILT 1909 CS 00039
INSPECTED: 04/30/97
  1     C T    CONC ABUT                                 O    9
    T    O  O  O  O  O  O       :    : O  O  O  O  O  O           14  6

  2     T T    O  O  O  O  O                  O          9 X

    T    O  O  O  O  O  5A      :    : O  O  O  O  O  O           15  3

  3     T T    O  S  O  S  O                  O          9 X

    T    O  O  5V O  O  O       :    : O  O  O  O  O  O           14  6

  4     C T    CONC ABUT                                 O    9

PILING: 14.00 " DIA.
LATERAL BRACING:       STANDARD
LONGITUDINAL BRACING: STANDARD
CAPS: 13.50" x 13.50" x 16.00' SAWN
CAPS: BNT 1&4=WP
STRINGERS:       7.75" x 16.75" SAWN    YEAR: 1909
DECK TYPE:      TIMBER,  THICKNESS:  3.00 "
DECK WIDTH:     15'  0"
DECKING:        GOOD
B D TIES:       FAIR
BALLAST DEPTH: 16"
BALLAST GUARD: 12" HIGH
WALKWAY  - NONE
```

HANDRAIL - BOTH SIDES; TIMBER
RAIL: 112 LB JJ
ALIGN: TANGENT 20 MPH
APPROACHES LOW - BEGINNING
PROFILE: GOOD
NO STANDING WATER
UNDERWATER INSPECTION NOT REQUIRED
GENERAL NOTES: * HANDRAILS MISSING BOTH SIDES
* FLAMMABLE VEGETATION BOTH SIDES
VERTICAL FRACTURE IN WEST ABUTMENT

EE - 112.46 NASHUA RD

EE - 112.54 PHOTO
B D TRESTLE LENGTH 120 BUILT 1909 CS 00039
INSPECTED: 04/30/97

1 C T CONC ABUT O 7
T 4B 4V O 4V O 4V : : O 4B O 4V 5V 4V 14 6

2 T T 4V 4V O O S V 8
T O 4V O 4B O O : : 4V 4B O O 4V 4V 15 0

3 T T O O O O O V 8 X
T 4V 4A O 4B O O : : 4A O O 5V O O 15 0

4 T T O 2V O 5V O V 9 X
T O 4A O O O 4V : : O O O 5V O O 15 0

5 T T O O O O O O 10 X
T O O O O O 4B : : O O 4B 4V 4V 4V 15 0

6 T T O O O 4B O V 9 X
T 4V O O O 4V 4V : : O O 5V O O 4V 15 0

7 T T S S O O O V 9 X
T 4V 4V 4V 4V O 4V : : O O O O O O 15 0

8 T T O O O O O V 6
T O O O O O O : : 5V O 4B O O O 14 6

9 C T CONC ABUT O 5

PILING: 14.00 " DIA.
LATERAL BRACING: STANDARD
LONGITUDINAL BRACING: STANDARD
CAPS: 13.50" x 13.50" x 16.00' SAWN
CAPS: ABUTS=12"X4"X16'
STRINGERS: 7.75" x 16.50" SAWN YEAR: 1909
DECK TYPE: TIMBER, THICKNESS: 3.00 "
DECK WIDTH: 15' 0"
DECKING: GOOD
B D TIES: GOOD
BALLAST DEPTH: 12"
BALLAST GUARD: 14" HIGH
WALKWAY - NONE

HANDRAIL - BOTH SIDES; TIMBER
RAIL: 90 LB JJ
ALIGN: TANGENT 20 MPH
APPROACHES LOW - NO
PROFILE: GOOD
NO STANDING WATER
UNDERWATER INSPECTION NOT REQUIRED
GENERAL NOTES: * HANDRAILS DAMAGED BOTH SIDES
VERTICAL FRACTURE WEST ABUTMENT
BALLAST GUARDS COVERED WITH METAL

EE - 112.80 PHOTO
B D TRESTLE LENGTH 225 BUILT 1909 CS 00039
INSPECTED: 04/30/97

```
  1    C T   CONCRETE ABUTMENT                            O    5
    T   O  O  4B O  2B O        :     : O  O  O  O  O  O            14  6

  2    C T   CONCRETE PIER                                O    5
    T   O  O  O  O  O  O        :     : O  O  O  O  O  O            15  0

  3    C T   CONCRETE PIER                                O    6
    T   O  O  O  O  O  O        :     : O  O  O  O  O  O            15  0

  4    C T   CONCRETE PIER                                O    6
    T   O  O  O  O  O  O        :     : O  O  O  O  O  O            15  0

  5    C T   CONCRETE PIER                                O    6
    T   O  O  O  O  O  O        :     : O  O  O  O  O  O            15  0

  6    C T   CONCRETE PIER                                O    6
    T   O  O  O  O  O  O        :     : O  O  O  O  O  O            15  0

  7    C T   CONCRETE PIER                                O    6
    T   O  O  O  O  O  O        :     : O  O  O  O  O  O            15  0

  8    C T   CONCRETE PIER                                O    6
    T   O  O  O  O  O  O        :     : O  O  O  O  O  O            15  0

  9    C T   CONCRETE PIER                                O    6
    T   O  O  O  O  O  O        :     : O  O  O  O  O  O            15  0

 10    C T   CONCRETE PIER                                O    6
    T   O  O  O  O  O  O        :     : O  O  O  O  O  O            15  0

 11    C T   CONCRETE PIER                                O    6
    T   O  O  O  O  O  O        :     : O  O  O  O  O  O            15  0

 12    C T   CONCRETE PIER                                O    6
    T   O  O  O  O  O  4V       :     : O  5V O  O  O  O            15  0

 13    C T   CONCRETE PIER                                O    6
    T   O  O  O  O  O  O        :     : O  O  O  O  O  O            15  0

 14    C T   CONCRETE PIER                                O    6
    T   O  O  O  O  O  O        :     : O  O  O  O  O  O            15  0

 15    C T   CONCRETE PIER                                O    6
    T   O  O  O  O  O  O        :     : O  O  O  O  O  O            14  6

 16    C T   CONCRETE ABUTMENT                            O    6
```

LATERAL BRACING: STANDARD
LONGITUDINAL BRACING: STANDARD

```
CAPS: 16.50" x  7.50" x 15.00' SAWN
STRINGERS:       8.00" x 16.00" SAWN    YEAR: 1909
DECK TYPE:      TIMBER,  THICKNESS:  3.00 "
DECK WIDTH:     15'  0"
DECKING:        GOOD
B D TIES:       FAIR
BALLAST DEPTH: 18"
BALLAST GUARD:  6" HIGH
WALKWAY  - NONE
HANDRAIL - NONE
RAIL:  110 LB  JJ
ALIGN: TANGENT  20 MPH
APPROACHES LOW - NO
PROFILE: GOOD
DRAINAGE SURVEY 1954
NO STANDING WATER
UNDERWATER INSPECTION NOT REQUIRED
GENERAL NOTES: * GROUT BROKEN UNDER WALL PLATES
               * PIERS 4,7&10, ARE SINKING
               BENT 2 & 7 STILL HAVE JACKING BENTS IN PLACE
               ALL PIERS FRACTURED

EE   -  113.04                                                              PHOTO
B D TRESTLE   LENGTH    90 BUILT 1909 CS 00039
INSPECTED: 04/30/97
  1     C T    CONCRETE ABUTMENT                         O    7
    T    4V O  O  O  O  O        :    : O  O  O  O  O  O             14  6

  2     C T    CONCRETE PIER                             O    7
    T    4V O  O  O  O  O        :    : O  O  O  O  O  O             15  0

  3     C T    CONCRETE PIER                             O    7
    T    O  O  O  O  O  O        :    : O  O  O  O  O  O             15  0

  4     C T    CONCRETE PIER                             O    7
    T    O  5V O  O  O  O        :    : O  O  O  O  O  O             15  0

  5     C T    CONCRETE PIER                             O    7
    T    5V O  O  O  O  O        :    : O  O  O  O  O  O             15  0

  6     C T    CONCRETE PIER                             O    7
    T    5V O  O  O  O  O        :    : O  O  O  O  O  O             14  6

  7     C T    CONCRETE ABUTMENT                         O    7

LATERAL BRACING:       STANDARD
LONGITUDINAL BRACING: STANDARD
CAPS: 17.00" x  8.00" x 16.00' SAWN
CAPS: ABUTS= 12"X4"
STRINGERS:       8.00" x 16.50" SAWN    YEAR: 1909
DECK TYPE:      TIMBER,  THICKNESS:  3.00 "
DECK WIDTH:     16'  0"
DECKING:        GOOD
B D TIES:       POOR
BALLAST DEPTH: 13"
BALLAST GUARD: 13" HIGH
WALKWAY  - NONE
HANDRAIL - BOTH SIDES; TIMBER
RAIL:  110 LB  JJ
ALIGN: TANGENT  20 MPH
APPROACHES LOW - BOTH ENDS
PROFILE: GOOD
NO STANDING WATER
```

UNDERWATER INSPECTION NOT REQUIRED
GENERAL NOTES: * HANDRAIL DAMAGED BOTH SIDES
* ABUTMENT WING TORE OFF EAST END LEFT SIDE
PIERS 3 & 4 HAVE SETTLED
BALLAST GUARDS COVERED WITH METAL

EE - 113.46 SALINAS RIVER, NEPONSET PHOTO
O D STEEL LENGTH 715 BUILT 1904
INSPECTED: 04/30/97

1		O C	CONCRETE ABUTMENT	20	
	S	TRT			140
2		O C	CONCRETE PIER	25	
	S	TRT			140
3		O C	CONCRETE PIER	30	
	S	TRT			140
4		O C	CONCRETE PIER	30	
	S	TRT			140
5		O C	CONCRETE PIER	30	
	S	TRT			140
6		O C	CONCRETE ABUTMENT	20	

: :

DMG

RTG
TIES: 10" x 10" x 10' at 14" 33 BAD TIES / 543 TIES TOTAL
NO SPACER BLOCKS
DECK HAS GUARD TIMBERS
NO PANDROL PLATES
RAIL ANCHORS NOT PER STANDARD
ANCHOR END PATTERN NOT PER STANDARD
WALKWAY - NONE
HANDRAIL - NONE
RAIL: 110 LB JJ
ALIGN: TANGENT 20 MPH
APPROACHES LOW - NO
PROFILE: POOR
STANDING WATER, BENTS: span 2 thru 5
UNDERWATER INSPECTION NOT REQUIRED
GENERAL NOTES: * PIERS 3&4 SEAT STONES HAVE SHIFTED 1 3/4"
* TOP LATERAL HITCH PLATES RUSTED OUT
* MANY RUSTED OUT RIVETS
* EAST ABUTMENT, STRINGER 1 LOW
* LINE BOLTS LOOSE
* ANCHOR BOLTS DAMAGED
* IMPAIRED HORIZONAL CLEARENCE
* EXPANSION ROLLERS FROZEN EAST END
* SPAN 2 OUT OF LINE 12"
TRUSSES ARE NO LONGER IN LINE
HEAVY GROWTH OF TREES WEST END
STRUCTURE VERY RUSTY
HISTORY: CONC ABUTS & PRS 1904. W ABUT 1914.
ORIGINAL W ABUT REMODELED TO PIER 1914.
PIERS 2&3 HAVE MOVED 15" DUE TO THE EARTH QUAKE,
OCT 17 1989.
-
140' TRT PBCO ORDER C8883
FABRICATED 1914 DESIGN E55 SPEC 1006
281,165 LBS (NOT INCLUDING DECK)
-
4 - 140' TRT PBCO ORDER 341E
FABRICATED 1904 DESIGN E55 SPEC 1006
1,038,579 LBS (NOT INCLUDING DECK)
-

ANALYSIS FILE 37818-1

SPUR 1, SWITCHING OFF AT 114.85
EE - 115.10 STATE 1 LONE STAR IND. SPUR PHOTO
OVERHEAD BUILT 1977
INSPECTED: 04/30/97
GENERAL NOTES: 2 PARALLEL CONCRETE STRUCTURES
SKEWED
2 TRACKS
VC ? HC 9'10" RIGHT SIDE

EE - 116.99 LAPIS NO PHOTO
CULVERT LENGTH 50 BUILT 1957
36" DIA. CMP HB/R 11 COATED
INSPECTED: 04/30/97
GENERAL NOTES: CAN'T LOCATE
CONCRETE HEADWALLS

EE - 117.02 RESERVATION ROAD

EE - 117.30 NO PHOTO
CULVERT LENGTH 30 BUILT 1992
12" DIA. CMP HB/R 7 NOT COATED
INSPECTED: 04/30/97

EE - 117.67 NO PHOTO
OVERHEAD BUILT 1976
INSPECTED: 04/30/97
GENERAL NOTES: 2 PARALLEL CONCRETE STRUCTURES
SKEWED
VC 23'6" HC 18' RIGHT SIDE

EE - 119.02 8TH STREET FORT ORD PHOTO
OVERHEAD BUILT 1972
INSPECTED: 04/30/97
GENERAL NOTES: REINFORCED CONCRETE & BEAM TYPE STRUCTURE
CONCRETE ABUTMENTS AND PIERS
HANDRAILS BOTH SIDES
VC 24'9" HC 15'LEFT SIDE
CONTINUOUS OVER FREEWAY LEFT SIDE

EE - 119.20 FORT ORD

SPUR 1, SWITCHING OFF AT 119.56
EE - 119.66 STATE 1, FORT ORD PHOTO
OVERHEAD BUILT 1972
INSPECTED: 04/30/97
GENERAL NOTES: 2 PARALLEL CONCRETE STRUCTURES
2 CONCRETE PIERS PER BENT
HANDRAIL BOTH SIDES
SKEWED
REVERSE CURVE
VC 25'

EE - 119.64 I STREET UNDERPASS FORT ORD PHOTO
CONCRETE LENGTH 37 BUILT 1972
INSPECTED: 04/30/97

1	C	CONC ABUT	20	
	C	RCD		37
2	C	CONC ABUT	20	

: :

DMG

RTG
LATERAL BRACING: STANDARD
LONGITUDINAL BRACING: STANDARD
DECK TYPE: CONCRETE
DECK WIDTH: 15' 0"
DECKING: GOOD
B D TIES: GOOD
BALLAST DEPTH: 12"
BALLAST GUARD: 0" HIGH
WALKWAY - NONE
HANDRAIL - RIGHT SIDE; METAL
RAIL: 119 LB CWR
ALIGN: TANGENT 20 MPH
APPROACHES LOW - NO
PROFILE: GOOD
NO STANDING WATER
UNDERWATER INSPECTION NOT REQUIRED
GENERAL NOTES: * ABUTMENT WING WALL CROWDED OUT 2" WEST END
RIGHT SIDE
CONTINUOUS UNDER FREEWAY LEFT SIDE
SKEWED
HISTORY: GMO #67889.

EE - 119.67 FORT ORD ROADWAY UNDERPASS PHOTO
CULVERT LENGTH 241 BUILT 1943
14' x 10' CBC HB/R 16 NOT COATED
INSPECTED: 04/30/97
GENERAL NOTES: STRUCTURE BUILT FOR 2 TKS, MT RS
CONTINUOUS UNDER FREEWAY LEFT SIDE
PAVED
VC 9'11".

EE - 120.98 WORKFIELD NO PHOTO
CULVERT LENGTH 32 BUILT 1957
18" DIA. CMP HB/R 5 COATED
INSPECTED: 04/30/97
GENERAL NOTES: SILTED BOTH SIDES

EE - 122.18 PRATTICO PHOTO
OVERHEAD BUILT 1967
INSPECTED: 04/30/97
GENERAL NOTES: 2 PARALLEL REINFORCED CONCRETE STRUCTURES
CONCRETE ABUTMENTS AND PIERS
REINFORCED CONCRETE DECK
TRACK THRU PANEL 3
METAL HANDRAILS BOTH SIDES
SKEWED
VC 23' 3" HC OVER MINIMUM
CURVE LEFT
HISTORY: GMO 60048

SPUR 1, SWITCHING OFF AT 122.86
EE - 122.96 GRANITE ROCK TO RIGHT NO PHOTO
UNLOADING HOP
INSPECTED: 04/30/97
GENERAL NOTES: 20'8"X18' CONC PIT
METAL LINED
14"X24" UNDER EACH RAIL
METAL GRATE

EE - 123.30 SEASIDE

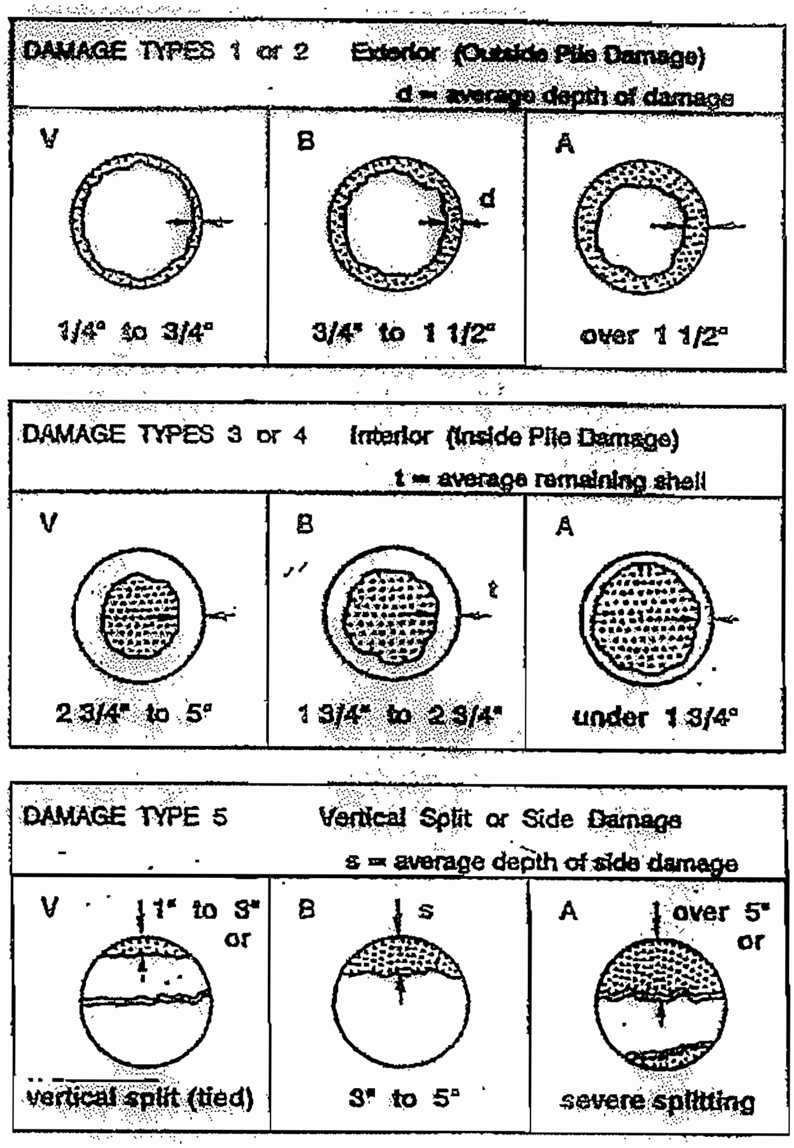
GENERAL NOTES: PROPOSE ABANDON-ICC DOCKET AB-12-DEC 28 1978-SURV

EE - 123.60 TIE BUMPER & RAIL REMOVED

EE - 123.63 CYN DEL REY STREET

EE - 125.70 MONTEREY

SEVERITY OF PILE DAMAGE



CIRCUMFERENCE (IN)	35	38	41	44	47	50	53	57
DIAMETER (IN)	11	12	13	14	15	16	17	18

Revised 03/01/93

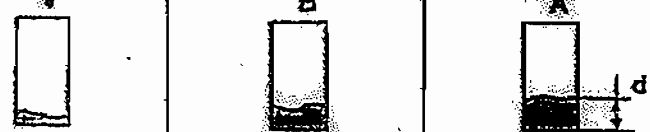
FIGUR

SEVERITY OF STRINGER DAMAGE

DAMAGE TYPE 1 Interior Decay Anywhere Along the Span
t = average remaining shell

V	B	A
over 2 1/2"	1 1/2" to 2 1/2"	under 1 1/2"

DAMAGE TYPE 2 Inclined Splits or Damage at Top or Btm. of Stringer, Full Width, d = average height of damage



V	B	A
under 2"	2" to 4 1/2"	over 4 1/2"

DAMAGE TYPE 3 Vertical Splits Inclined Across the Stringer or Damage on the Sides, w = average depth of split or damage

V	B	A
under 1 1/2"	1 1/2" to 3 1/2"	over 3 1/2"

DAMAGE TYPE 4 Horizontal Splits, Full Width

V	B	A
One Split, Length of Split: under 3 ft	One Split, Length of Split: 3 ft to 6 ft	Multiple Splits or, Length of Split: over 6 ft

DAMAGE TYPE 5 Crushing, Multiple Splits or Decay Over Cap

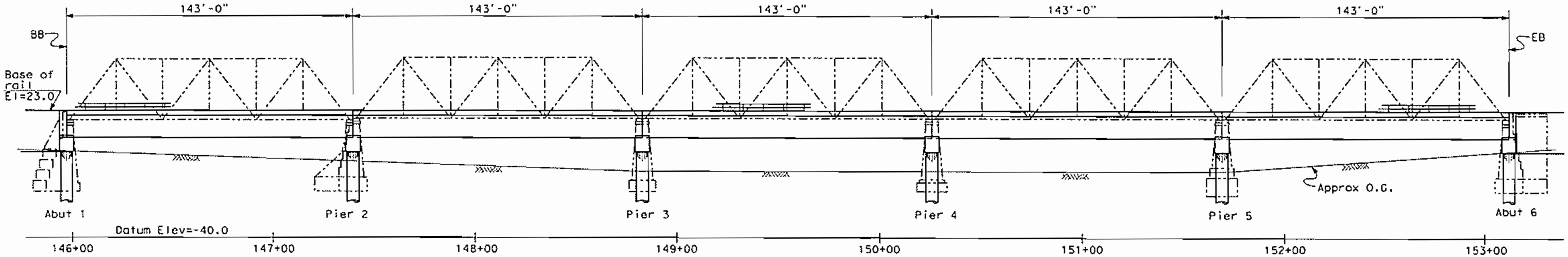
V	B	A
Type 1V Decay or, Depth of Crushing: under 1/2"	Type 1B Decay or, Depth of Crushing: 1/2" to 1"	Multiple Splits or, Type 1A Decay or, Depth of Crushing: over 1"

Revised 03/01/93

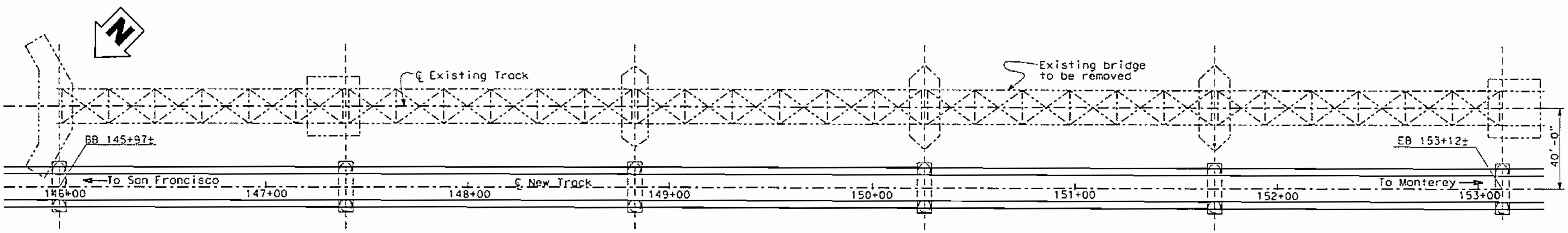
FIGURE

PREPARED FOR THE TRANSPORTATION AGENCY FOR MONTEREY COUNTY

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT



ELEVATION
1"=50'-0"



PLAN
1"=50'-0"

Notes:

1. Datum elevation shown taken from the 1904 As-Built Plans.
2. Ground elevation is based on 1997 field inspection report.
3. Bridge is located at M.P.113.46.

LEGEND:

- - - - Indicates existing structure
——— Indicates new structure

DESIGNED BY	S.A/E.M.	DATE
DRAWN BY	E.M.	DATE
CHECKED BY		DATE
APPROVED		DATE

PARSONS
120 HOWARD STREET, SUITE 850
SAN FRANCISCO, CALIFORNIA 94105

SALINAS RIVER BRIDGE STRATEGY REPORT

GENERAL PLAN

BRIDGE NO.		CU
SCALE:	AS NOTED	EA

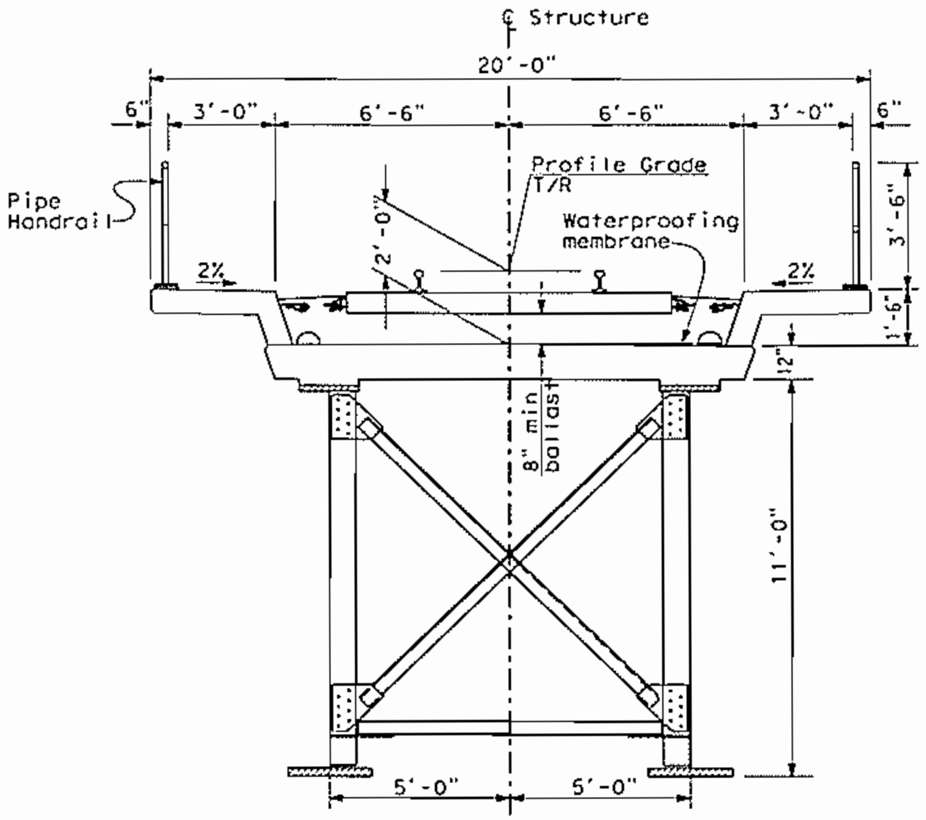
ADVANCE PLANNING STUDY SHEET (METRIC) (REV. 3/1/99)

FILE => q:\646120\120gp1.sht

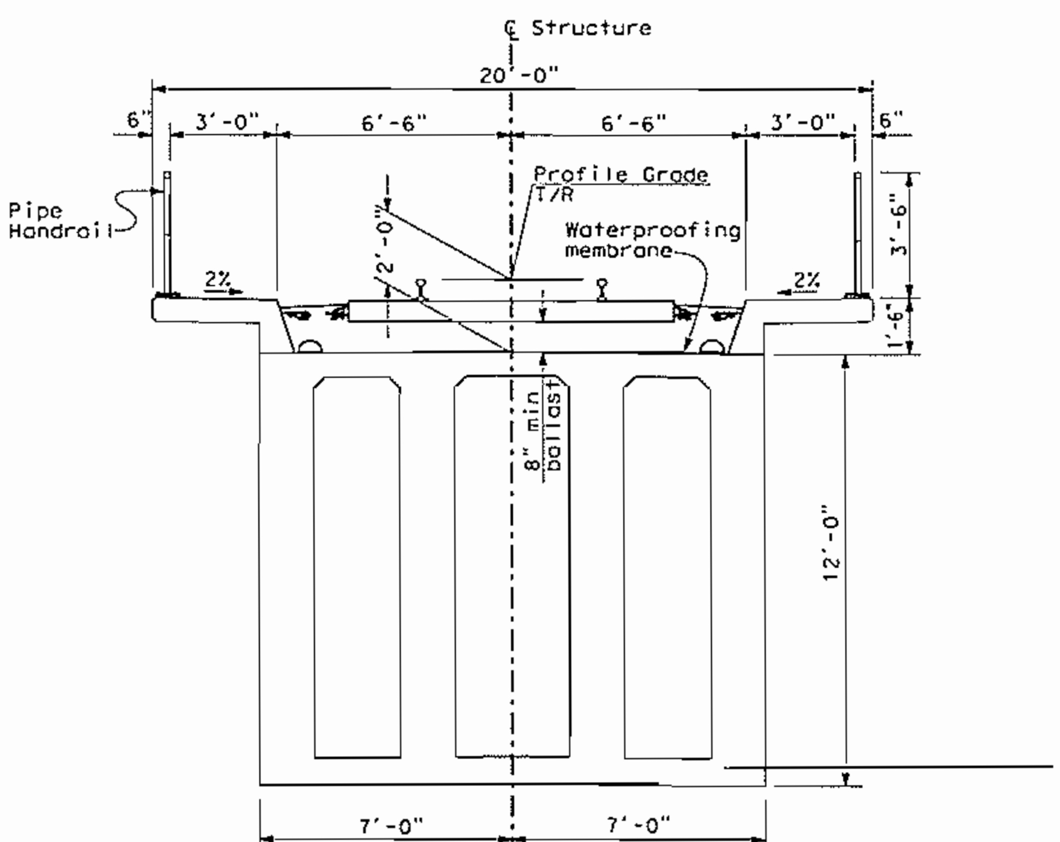
USERNAME => $USER1 DATE PLOTTED => 10/07/2004 TIME PLOTTED => 01:48:11 PM

PREPARED FOR THE TRANSPORTATION AGENCY FOR MONTEREY COUNTY

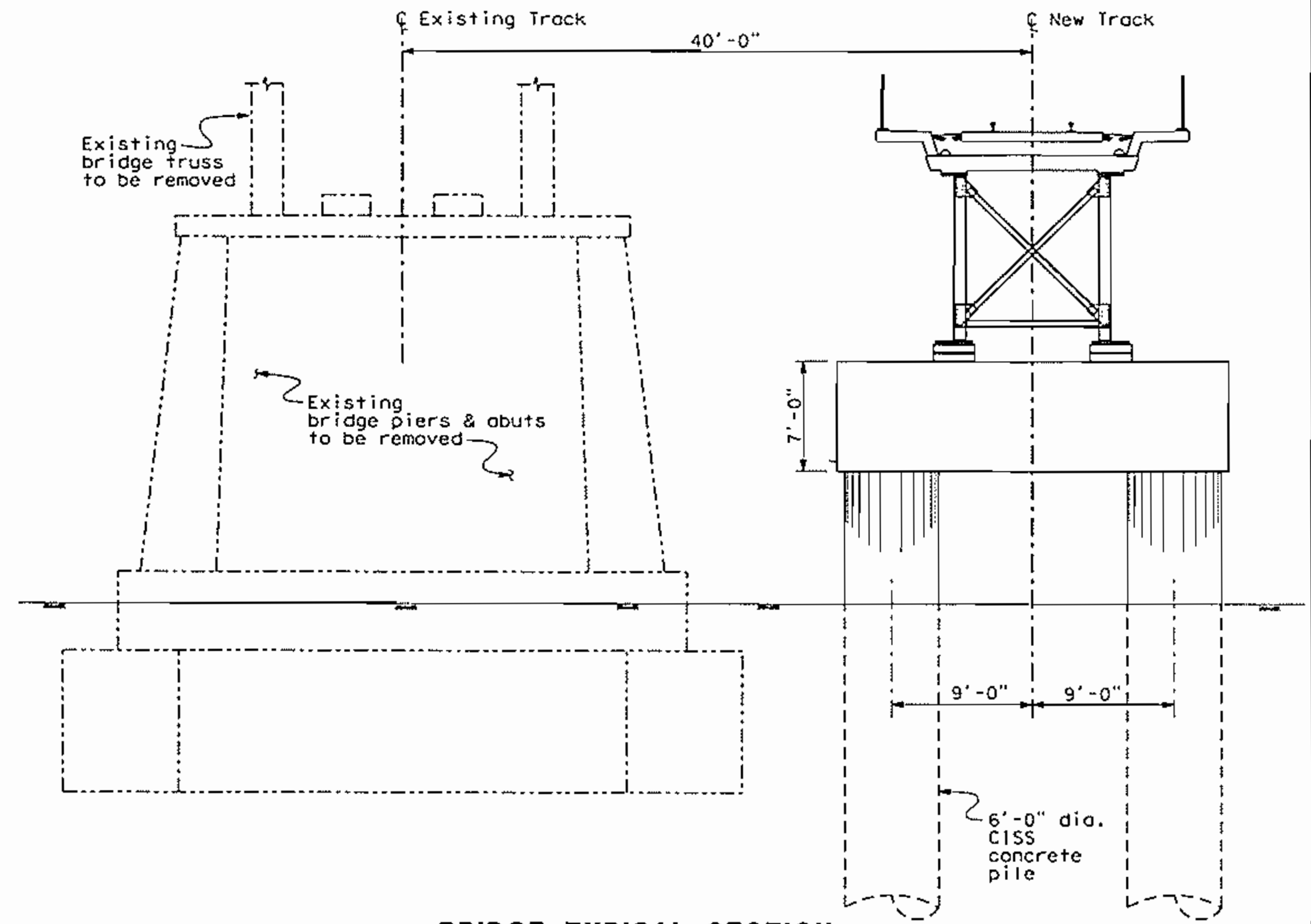
DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT



TYPICAL SECTION
STEEL DECK PLATE GIRDERS
¼"=1'-0"



TYPICAL SECTION
PS CONCRETE BOX GIRDERS
¼"=1'-0"



BRIDGE TYPICAL SECTION
⅛"=1'-0"

DESIGNED BY	S.A/E.M.	DATE	
DRAWN BY	E.M.	DATE	
CHECKED BY		DATE	
APPROVED		DATE	

PARSONS
120 HOWARD STREET, SUITE 850
SAN FRANCISCO, CALIFORNIA 94105

SALINAS RIVER BRIDGE
STRATEGY REPORT
TYPICAL SECTION

BRIDGE NO.	CU
SCALE: AS NOTED	EA

USERNAME => #USER1 DATE PLOTTED => 10/14/2004 TIME PLOTTED => 10:29:02 AM

	GENERAL PLAN ESTIMATE	X	ADVANCE PLANNING ESTIMATE

RCVD BY:

IN EST:

OUT EST:

BRIDGE:	SALINAS RIVER BRIDGE (retrofit)	BR. No. MP 113.46	DISTRICT:
TYPE:	STEEL THROUGH TRUSS		RTE:
CU:			CO:
EA:			PM:

LENGTH: 715.00 WIDTH: 20.00 AREA (SF) = 14,300

DESIGN SECTION:			
# OF STRUCTURES IN PROJECT :		EST. NO.	1
PRICES BY :	S.Apte	COST INDEX:	
QUANTITIES BY:		DATE:	10/20/2004
QUANTITIES CHECKED BY:		DATE:	

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	REALIGN TRUSS SPANS		LS			$64,000.00
2	REPLACE ALL TRUSS EXPANSION BEARINGS		LS			$187,000.00
3	REPLACE FIXED BEARING PEDESTALS - SPANS 3 & 4		LS			$60,000.00
4	REPLACE DETERIORATED SECTIONS OF TOP		LS			$375,000.00
	CHORD, COVER PLATES, ALL SPANS					
5	REPAIR AREAS OF SIGNIFICANT SECTION LOSSES		LS			$115,000.00
	IN PRIMARY TRUSS MEMBERS					
6	REPAIR OR REPLACE TRUSS BRACING		LS			$115,000.00
	COMPONENTS					
7	REPLACE DETERIORATED LACING BARS OF THE		LS			$85,000.00
	TRUSS MEMBERS					
8	REPAIR OR REPLACE FLOOR SYSTEM		LS			$115,000.00
	COMPONENTS					
9	REPAIR STRINGER EXPANSION BEARINGS		LS			$45,000.00
	SPANS 2,3, AND 4					
10	CLEAN AND PAINT ALL BRIDGE MEMBERS		LS			$525,000.00
11	REPAIR ABUTMENT 1 CONCRETE CRACK		LS			$11,000.00
12	PIPE HANDRAILING		LF	1,430	$28.00	$40,040.00
13	SIESMIC AND SCOUR MONITORING					$230,000.00
14						
15						

SUBTOTAL	$1,967,040
MOBILIZATION (@ 10 %)	$196,704
SUBTOTAL BRIDGE ITEMS	$2,163,744
CONTINGENCIES (@ 25%)	$540,936
BRIDGE TOTAL COST	$2,704,680
COST PER SQ. FT.	$189.14
BRIDGE REMOVAL (CONTINGENCIES INCL.)	
GRAND TOTAL	$2,704,680
FOR BUDGET PURPOSES - SAY	**$2,700,000**

COMMENTS:

	GENERAL PLAN ESTIMATE	X	ADVANCE PLANNING ESTIMATE

RCVD BY:
IN EST:
OUT EST:

BRIDGE: SALINAS RIVER BRIDGE (retrofit including substructure) BR. No. MP 113.46
DISTRICT:
TYPE: STEEL THROUGH TRUSS
RTE:
CU:
CO:
EA:
PM:

LENGTH: 715.00 WIDTH: 20.00 AREA (SF) = 14,300

DESIGN SECTION:
OF STRUCTURES IN PROJECT :
EST. NO. 1
PRICES BY : S.Apte
COST INDEX:
QUANTITIES BY:
DATE: 10/20/2004
QUANTITIES CHECKED BY:
DATE:

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	REALIGN TRUSS SPANS		LS			$64,000.00
2	REPLACE ALL TRUSS EXPANSION BEARINGS		LS			$187,000.00
3	REPLACE FIXED BEARING PEDESTALS - SPANS 3 & 4		LS			$60,000.00
4	REPLACE DETERIORATED SECTIONS OF TOP		LS			$375,000.00
	CHORD, COVER PLATES, ALL SPANS					
5	REPAIR AREAS OF SIGNIFICANT SECTION LOSSES		LS			$115,000.00
	IN PRIMARY TRUSS MEMBERS					
6	REPAIR OR REPLACE TRUSS BRACING		LS			$115,000.00
	COMPONENTS					
7	REPLACE DETERIORATED LACING BARS OF THE		LS			$85,000.00
	TRUSS MEMBERS					
8	REPAIR OR REPLACE FLOOR SYSTEM		LS			$115,000.00
	COMPONENTS					
9	REPAIR STRINGER EXPANSION BEARINGS		LS			$45,000.00
	SPANS 2,3, AND 4					
10	CLEAN AND PAINT ALL BRIDGE MEMBERS		LS			$525,000.00
12	PIPE HANDRAILING		LF	1,430	$28.00	$40,040.00
13	FURNISH 84" CISSC CONCRETE PILES		LF	1,560	$858	$1,338,480.00
14	DRIVE 84" CISSC CONCRETE PILES		EA	12	$95,000.00	$1,140,000.00
15	STRUCTURAL CONCRETE, BRIDGE		CY	1,908	$650.00	$1,240,200.00
16	BAR REINFORCING STEEL (BRIDGE)		LB	318,979	$0.75	$239,234.38
17	STRUCTURE EXCAVATION (BRIDGE)		CY	533	$75.00	$40,000.00
18	STRUCTURE BACKFILL (BRIDGE)		CY	213	$76.00	$16,213.33

SUBTOTAL	$5,740,168
MOBILIZATION (@ 10 %)	$574,017
SUBTOTAL BRIDGE ITEMS	$6,314,184
CONTINGENCIES (@ 25%)	$1,578,546
BRIDGE TOTAL COST	$7,892,731
COST PER SQ. FT.	$551.94
BRIDGE REMOVAL (35% CONTINGENCY INCL.)	$542,338
GRAND TOTAL	$8,435,069
FOR BUDGET PURPOSES - SAY	$8,400,000

COMMENTS:

	GENERAL PLAN ESTIMATE	X	ADVANCE PLANNING ESTIMATE

RCVD BY:

IN EST:

OUT EST:

BRIDGE: SALINAS RIVER BRIDGE (new track alignment)	BR. No.: MP 113.46		DISTRICT:
TYPE: PS CONCRETE BOX GIRDER			RTE:
CU:			CO:
EA:			PM:
LENGTH: 715.00	WIDTH: 20.00		AREA (SF) = 14,300

DESIGN SECTION:			
# OF STRUCTURES IN PROJECT :		EST. NO.	1
PRICES BY :		COST INDEX:	
QUANTITIES BY:	E.Mobo	DATE:	10/20/2004
QUANTITIES CHECKED BY:		DATE:	

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	TEMPORARY RAILING		LF			
2	REMOVE CONCRETE		CY			
3	STRUCTURE EXCAVATION (BRIDGE)		CY	103	$75.00	$7,700.00
4	STRUCTURE EXCAVATION		CY			
5	STRUCTURE BACKFILL (BRIDGE)		CY	48	$76.00	$3,636.74
6	PERVIOUS BACKFILL MATERIAL		CY			
7	CIDH CONCRETE PILING		LF			
8	FURNISH 84" CISSC CONCRETE PILES		LF	1,560	$858	$1,337,700.00
9	DRIVE 84" CISSC CONCRETE PILES		EA	12	$95,000.00	$1,140,000.00
10	FURNISH PC/PS CONCRETE GIRDERS		EA			
11	ERECT PC/PS CONCRETE GIRDERS		EA			
12	STRUCTURAL CONCRETE, BRIDGE		CY	2,560	$650.00	$1,663,877.32
13	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY			
14	STRUCTURAL CONCRETE, APPROACH SLAB		CY			
15	PRESTRESSING CONCRETE		LS			$224,000.00
16	BAR REINFORCING STEEL (BRIDGE)		LB	537,158	$0.75	$402,868.15
17	FURNISH STRUCTURAL STEEL		LB			
18	ERECT STRUCTURAL STEEL (INCL PAINT)		LB			
19	JOINT SEAL ASSEMBLY (MR = 4 1/2") > 2"		LF	40	$188.00	$7,520.00
20	JOINT SEAL (MR =1") 2" max		LF			
21	SLOPE PAVING		CY			
22	CONCRETE BARRIER		LF			
23	MISCELLANEOUS METAL (BRIDGE)		LB			
24	MISC METAL (RESTRAINER - TIE ROD)		LB			
25	PIPE HANDRAILING		LF	1,430	$28.00	$40,040.00
26	NEW EMBANKMENT		LS			$415,000.00
27						
28						

SUBTOTAL	$5,242,342
MOBILIZATION (@ 10 %)	$524,234
SUBTOTAL BRIDGE ITEMS	$5,766,576
CONTINGENCIES (@ 25%)	$1,441,644
BRIDGE TOTAL COST	$7,208,221
COST PER SQ. FT.	$504.07
BRIDGE REMOVAL (35% CONTINGENCY INCL.)	$542,338
GRAND TOTAL	$7,750,558
FOR BUDGET PURPOSES - SAY	**$7,751,000**

COMMENTS:

salinas_rev2.xls/psconcrete

	GENERAL PLAN ESTIMATE	X	ADVANCE PLANNING ESTIMATE

RCVD BY:

IN EST:
OUT EST:

BRIDGE:	SALINAS RIVER BRIDGE (new track alignment)	**BR. No.:**	MP 113.46	**DISTRICT:**	
TYPE:	**STEEL DECK PLATE GIRDER**			**RTE:**	
CU:				**CO:**	
EA:				**PM:**	
	LENGTH: 715.00	**WIDTH:**	20.00	**AREA (SF) =**	14,300

DESIGN SECTION:			
# OF STRUCTURES IN PROJECT :		**EST. NO.**	1
PRICES BY :		**COST INDEX:**	
QUANTITIES BY:	E.Mobo	**DATE:**	10/20/2004
QUANTITIES CHECKED BY:		**DATE:**	

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	TEMPORARY RAILING		LF			
2	REMOVE CONCRETE		CY			
3	STRUCTURE EXCAVATION (BRIDGE)		CY	103	$75.00	$7,700.00
4	STRUCTURE EXCAVATION		CY			
5	STRUCTURE BACKFILL (BRIDGE)		CY	48	$76.00	$3,636.74
6	PERVIOUS BACKFILL MATERIAL		CY			
7	CIDH CONCRETE PILING		LF			
8	FURNISH 72" CISSC CONCRETE PILES		LF	1,560	$630.00	$982,800.00
9	DRIVE 72" CISSC CONCRETE PILES		EA	12	$75,000.00	$900,000.00
10	FURNISH PC/PS CONCRETE GIRDERS		EA			
11	ERECT PC/PS CONCRETE GIRDERS		EA			
12	STRUCTURAL CONCRETE, BRIDGE		CY	812	$650.00	$527,595.37
13	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY			
14	STRUCTURAL CONCRETE, APPROACH SLAB		CY			
15	PRESTRESSING STEEL		LB			
16	BAR REINFORCING STEEL (BRIDGE)		LB	159,813	$0.75	$119,859.38
17	FURNISH STRUCTURAL STEEL		LB	1,222,605	$2.80	$3,423,294.05
18	ERECT STRUCTURAL STEEL (INCL PAINT)		LB	1,222,605	$0.45	$550,172.26
19	JOINT SEAL ASSEMBLY (MR =) > 2"		LF			
20	JOINT SEAL (MR =1") 2" max		LF			
21	SLOPE PAVING		CY			
22	CONCRETE BARRIER		LF			
23	MISCELLANEOUS METAL (BRIDGE)		LB			
24	MISC METAL (RESTRAINER - TIE ROD)		LB			
25	PIPE HANDRAILING		LF	1,430	$28.00	$40,040.00
26	NEW EMBANKMENT		LS			$415,000.00
27						
28						
29						
30						

SUBTOTAL	$6,970,098
MOBILIZATION (@ 10 %)	$697,010
SUBTOTAL BRIDGE ITEMS	$7,667,108
CONTINGENCIES (@ 25%)	$1,916,777
BRIDGE TOTAL COST	$9,583,884
COST PER SQ. FT.	$670.20
BRIDGE REMOVAL (35% CONTINGENCY INCL.)	$542,338
GRAND TOTAL	$10,126,222
FOR BUDGET PURPOSES - SAY	**$10,126,000**

COMMENTS:

salinas_rev2.xls/steelplate

	GENERAL PLAN ESTIMATE	X	ADVANCE PLANNING ESTIMATE

RCVD BY:

IN EST:
OUT EST:

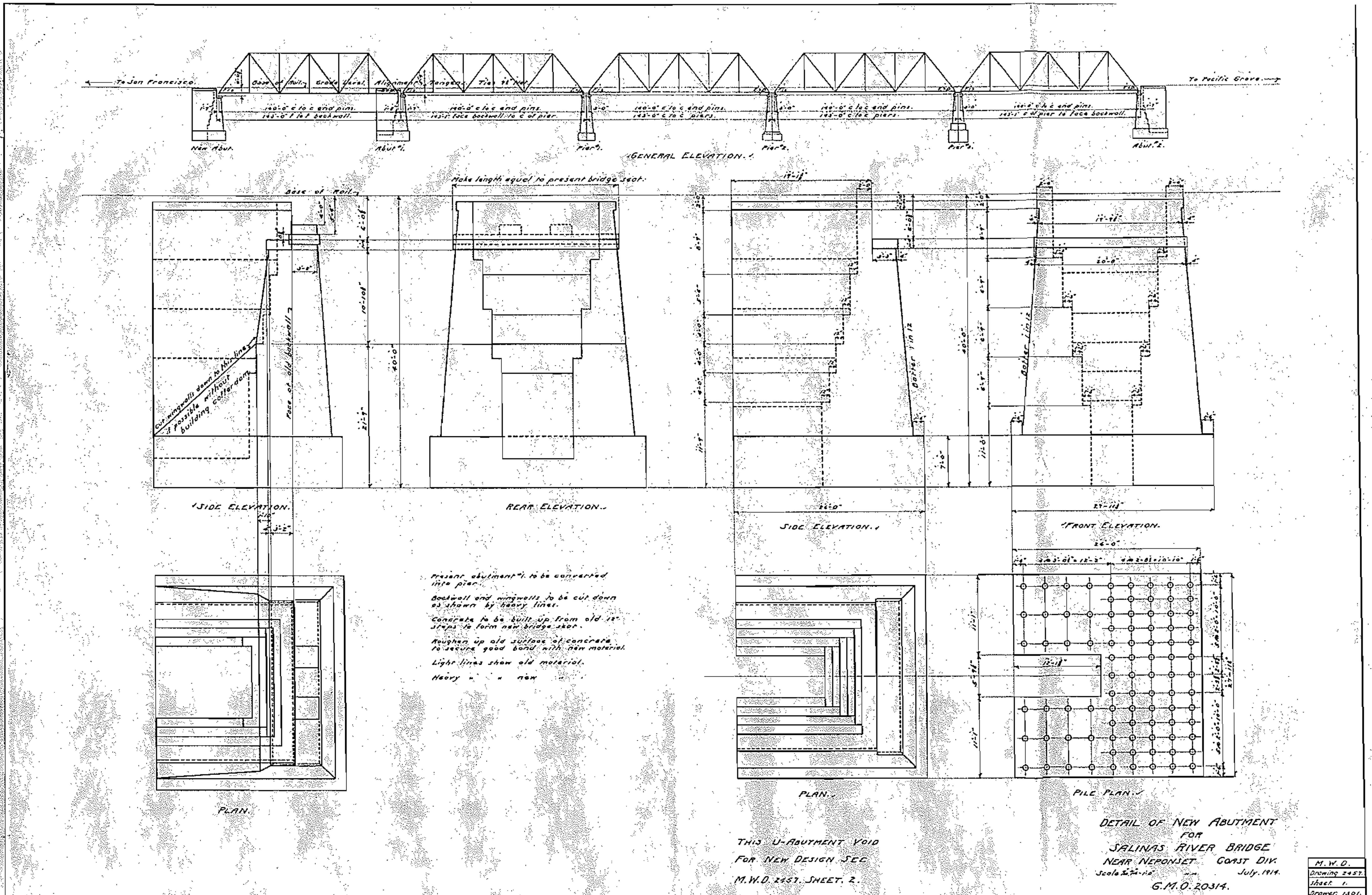
BRIDGE: SALINAS RIVER BRIDGE (same track alignment) **BR. No.:** MP 113.46 **DISTRICT:**
TYPE: **STEEL DECK PLATE GIRDER** **RTE:**
CU: **CO:**
EA: **PM:**
LENGTH: 715.00 **WIDTH:** 20.00 **AREA (SF) =** 14,300
DESIGN SECTION:
 # OF STRUCTURES IN PROJECT : **EST. NO.** 1
PRICES BY : **COST INDEX:**
QUANTITIES BY: E.Mobo **DATE:** 10/20/2004
QUANTITIES CHECKED BY: **DATE:**

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	TEMPORARY RAILING		LF			
2	REMOVE CONCRETE		CY			
3	STRUCTURE EXCAVATION (BRIDGE)		CY	533	$75.00	$40,000.00
4	STRUCTURE EXCAVATION		CY			
5	STRUCTURE BACKFILL (BRIDGE)		CY	213	$76.00	$16,213.33
6	PERVIOUS BACKFILL MATERIAL		CY			
7	CIDH CONCRETE PILING		LF			
8	FURNISH 84" CISSC CONCRETE PILES		LF	1,560	$858	$1,337,700.00
9	DRIVE 84" CISSC CONCRETE PILES		EA	12	$95,000	$1,140,000.00
10	FURNISH PC/PS CONCRETE GIRDERS		EA			
11	ERECT PC/PS CONCRETE GIRDERS		EA			
12	STRUCTURAL CONCRETE, BRIDGE		CY	1,908	$650.00	$1,240,428.70
13	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY			
14	STRUCTURAL CONCRETE, APPROACH SLAB		CY			
15	PRESTRESSING STEEL		LB			
16	BAR REINFORCING STEEL (BRIDGE)		LB	318,979	$0.75	$239,234.38
17	FURNISH STRUCTURAL STEEL		LB	1,222,605	$2.80	$3,423,294.05
18	ERECT STRUCTURAL STEEL (INCL PAINT)		LB	1,222,605	$0.45	$550,172.26
19	JOINT SEAL ASSEMBLY (MR =) > 2"		LF			
20	JOINT SEAL (MR =1") 2" max		LF			
21	SLOPE PAVING		CY			
22	CONCRETE BARRIER		LF			
23	MISCELLANEOUS METAL (BRIDGE)		LB			
24	MISC METAL (RESTRAINER - TIE ROD)		LB			
25	PIPE HANDRAILING		LF	1,430	$28.00	$40,040.00
26						
27						
28						
29						
30						

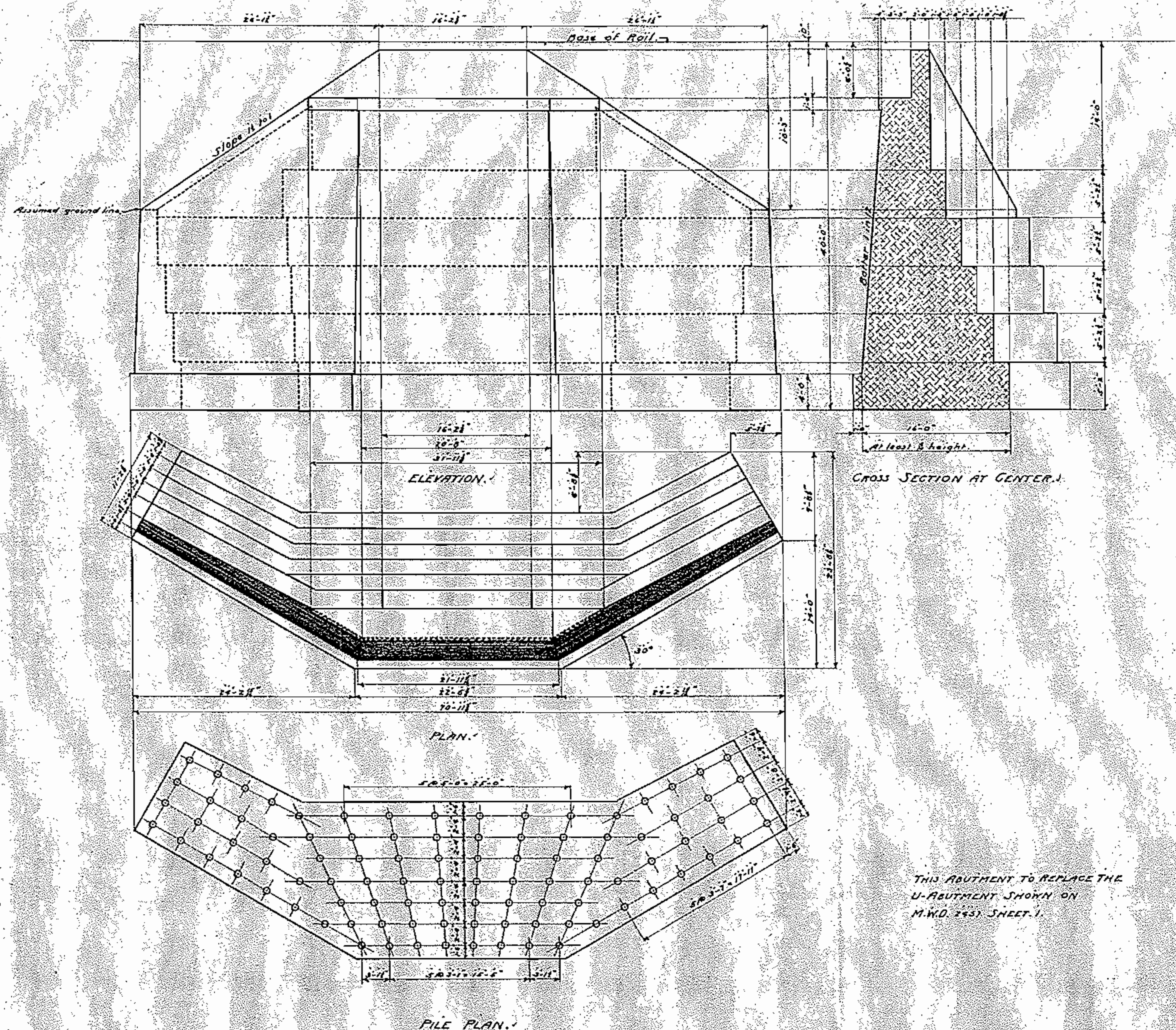
SUBTOTAL	$8,027,083
MOBILIZATION (@ 10 %)	$802,708
SUBTOTAL BRIDGE ITEMS	$8,829,791
CONTINGENCIES (@ 25%)	$2,207,448
BRIDGE TOTAL COST	$11,037,239
COST PER SQ. FT.	$771.83
BRIDGE REMOVAL (35% CONTINGENCY INCL.)	$542,338
GRAND TOTAL	$11,579,577
FOR BUDGET PURPOSES - SAY	**$11,580,000**

COMMENTS:

salinas_rev2.xls/steelplate (2)



To San Francisco.
To Pacific Grove.
New Abut.
Abut. #1.
Pier #1.
Pier #2.
Pier #3.
Abut. #2.
GENERAL ELEVATION.
Make length equal to present bridge seat.
Base of Rail.
Cut wingwalls down to this line if possible without building cofferdam.
Face of old backwall.
SIDE ELEVATION.
REAR ELEVATION.
Batter 1 in 12
SIDE ELEVATION.
FRONT ELEVATION.
PLAN.
PLAN.
PILE PLAN.
Present abutment #1. to be converted into pier.
Backwall and wingwalls to be cut down as shown by heavy lines.
Concrete to be built up from old 12" steps to form new bridge seat.
Roughen up old surface of concrete to secure good bond with new material.
Light lines show old material.
Heavy " " new "
THIS U-ABUTMENT VOID
FOR NEW DESIGN SEE
M.W.D. 2457. SHEET. 2.
DETAIL OF NEW ABUTMENT
FOR
SALINAS RIVER BRIDGE
NEAR NEPONSET COAST DIV.
July. 1914.
G.M.O. 20314.
M.W.D.
Drawing 2457.
Sheet 1.
Drawer 1301.



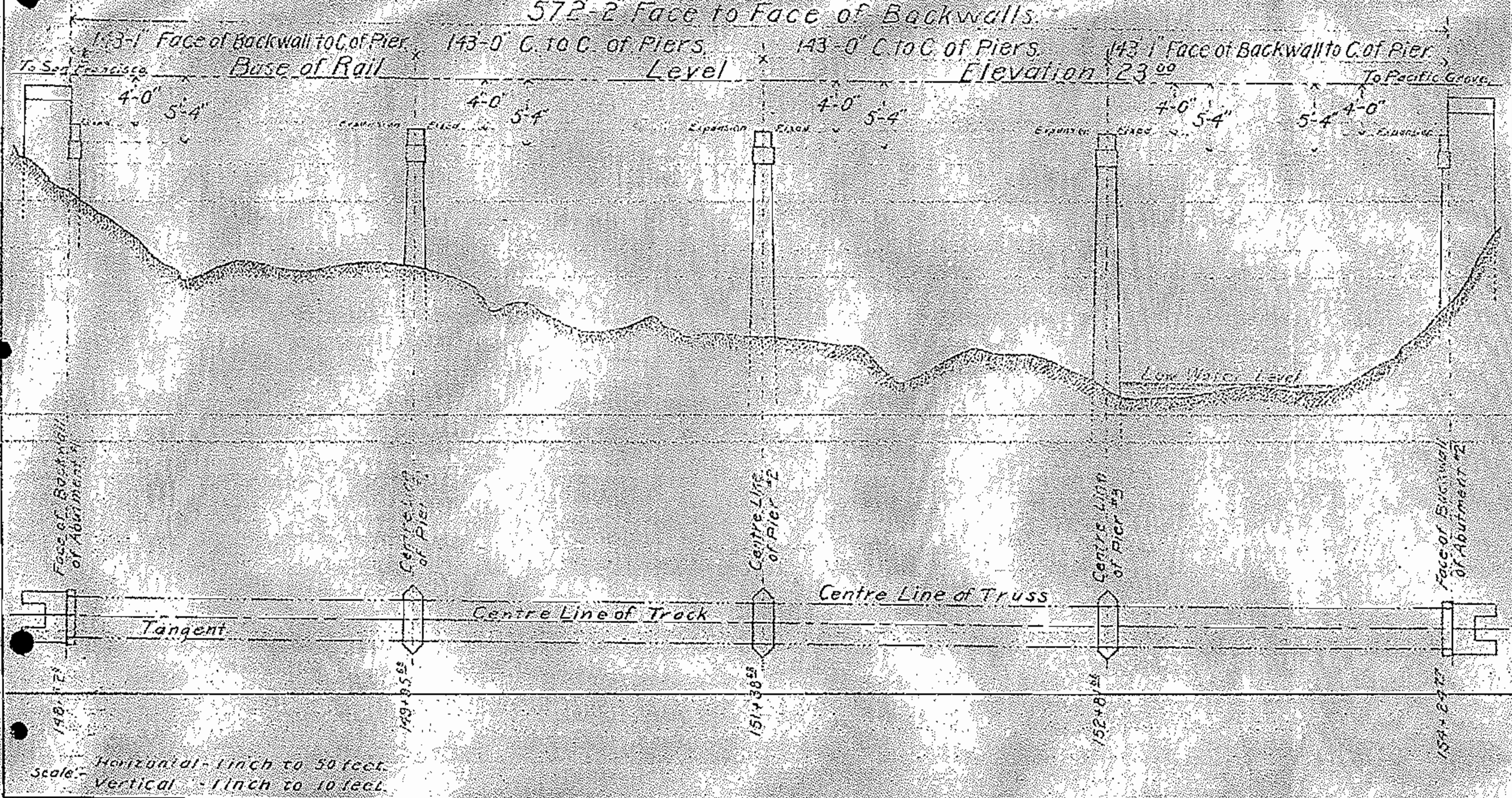
THIS ABUTMENT TO REPLACE THE U-ABUTMENT SHOWN ON M.W.D. 2451 SHEET. 1.

DETAIL OF NEW ABUTMENT
FOR
SALINAS RIVER BRIDGE
NEAR NEPONSET COAST DIV.
Scale ¼"=1'-0" Aug. 1919.
G.M.O. 20314.

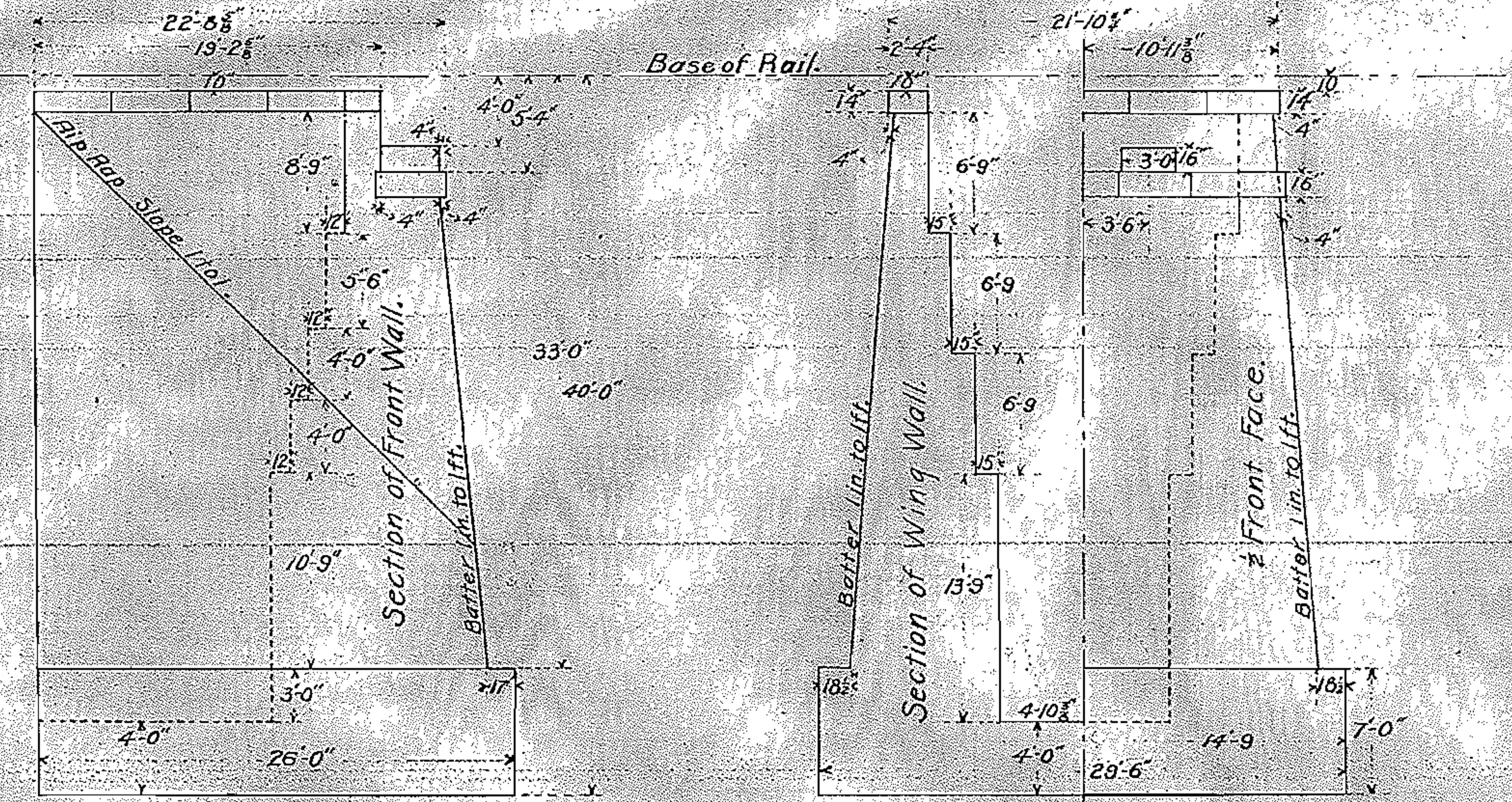
M.W.D.
Drawing. 2451.
Sheet. 2.
Drawer. 1301.

SALINAS RIVER BRIDGE NEAR NEPONSET

year 1904



SALINAS RIVER BRIDGE NEAR NEPONSET.



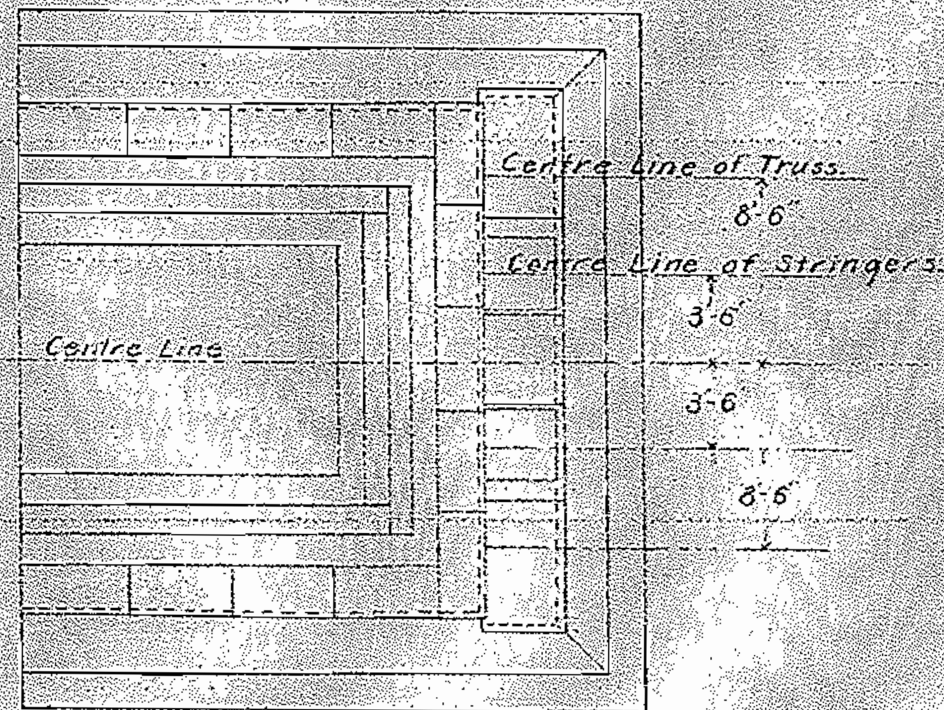
SIDE ELEVATION-WINGS. FRONT ELEVATION.

ABUTMENT No. 1.

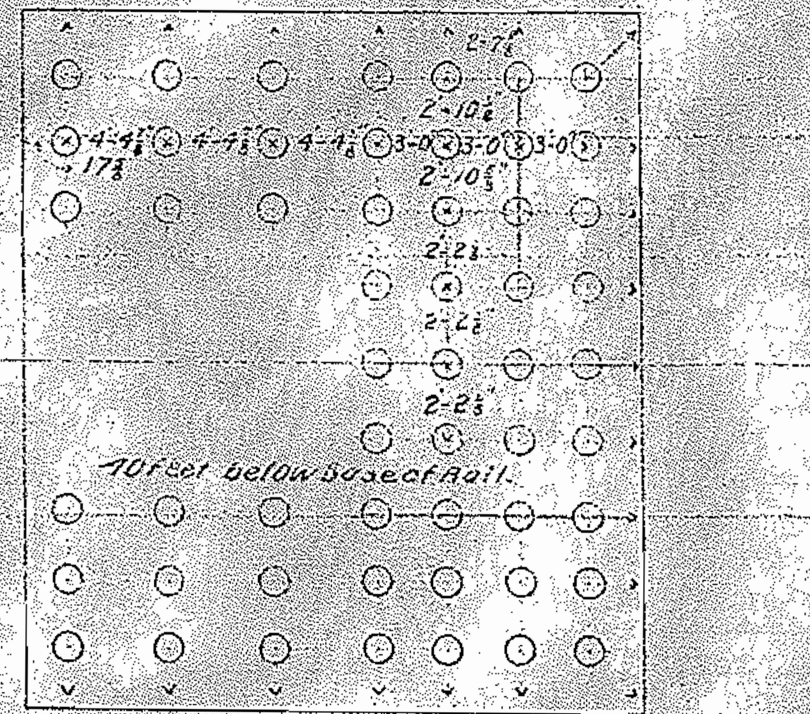
Note:
568.25 Cubic yards of Concrete.
9.62 " " " Granite Coping.

Scale - One eighth of an inch to one foot.

Salinas River Bridge near Neponset.



PLAN.



FOUNDATION PLAN – PILE LOCATION.

ABUTMENT No. 1.

Note: Piles marked thus (⟶) are battered 2 ins. per ft. in direction indicated by arrow.

54-Piles 2669 Lin. Ft. Average Length 49.42 ft.

22 Piles Drove with 2600 lb Hammer.

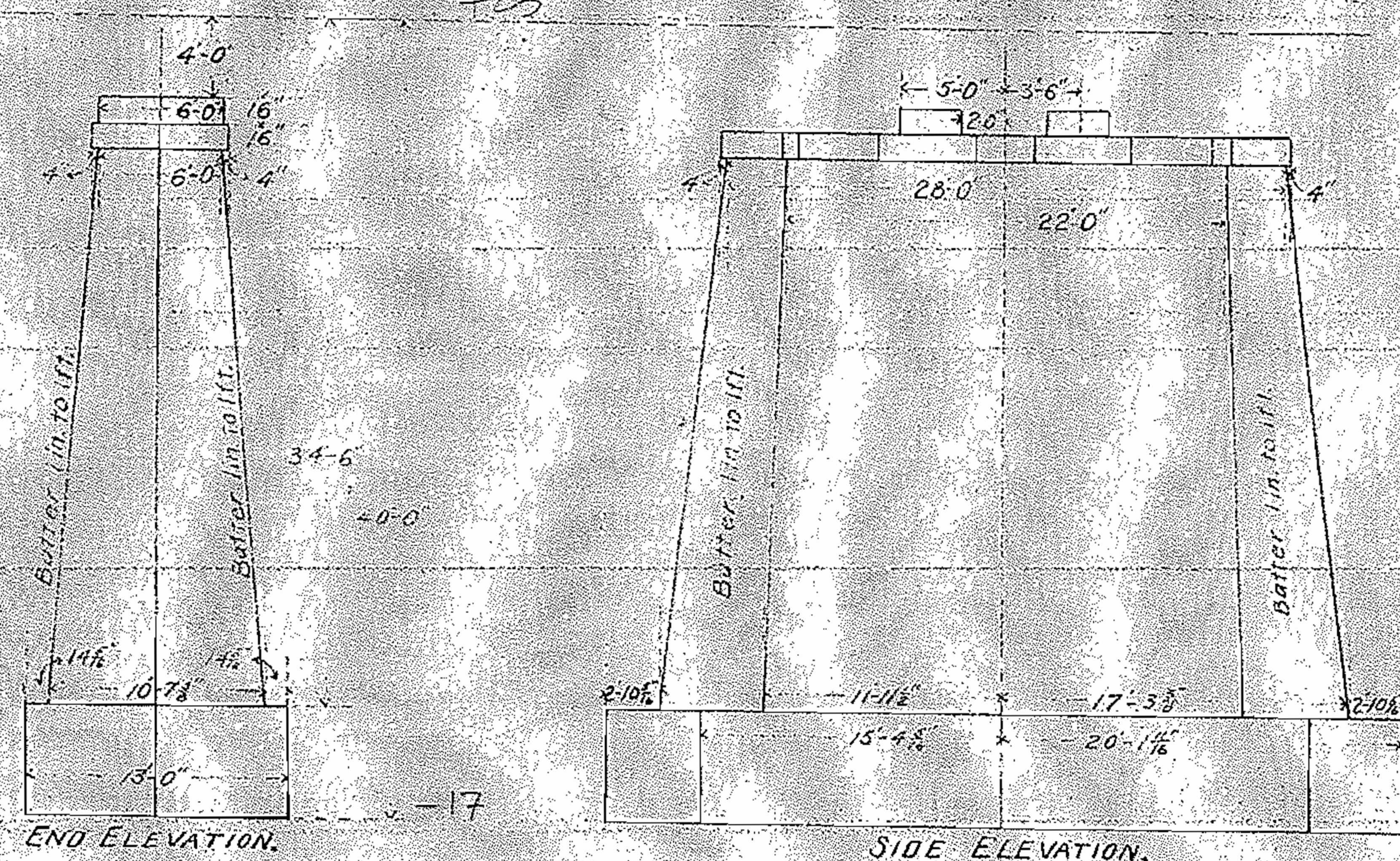
32 " " " 3000 lb. "

Average Drops to Last Ft. 2600 lb. Hammer 15. 3000 lb. " 17.

Average Length of Drop 2600 lb " 31 feet. 3000 lb. " 25 " .

Scale – One eighth of an inch to one foot.

SALINAS RIVER BRIDGE NEAR NEPONSET.

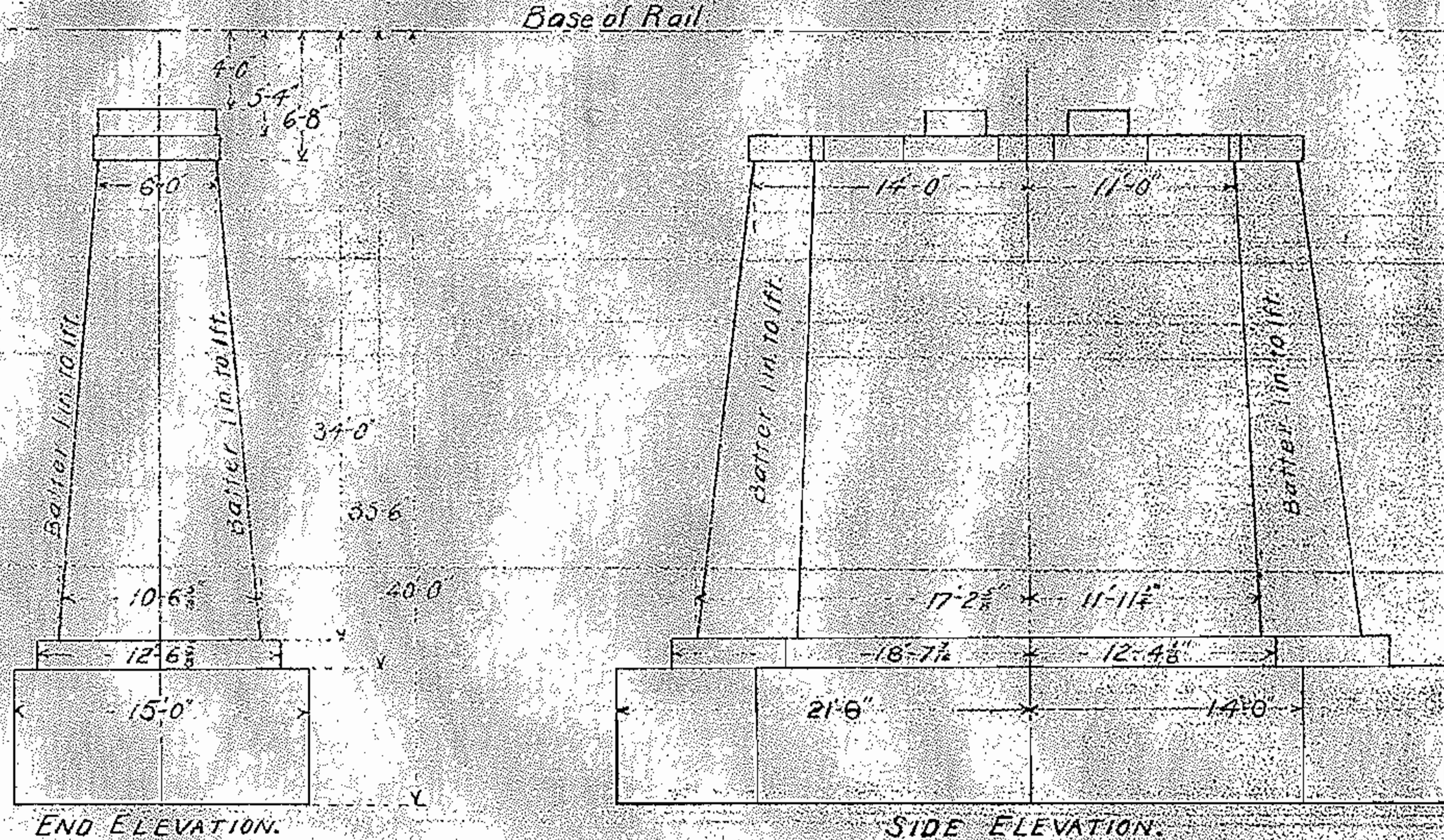


PIER NO. 1.

Note:
318 Cubic yards of Concrete.
9 " " of Granite Coping.

Scale - One eighth of an inch to one foot.

Salinas River Bridge near Neponset.

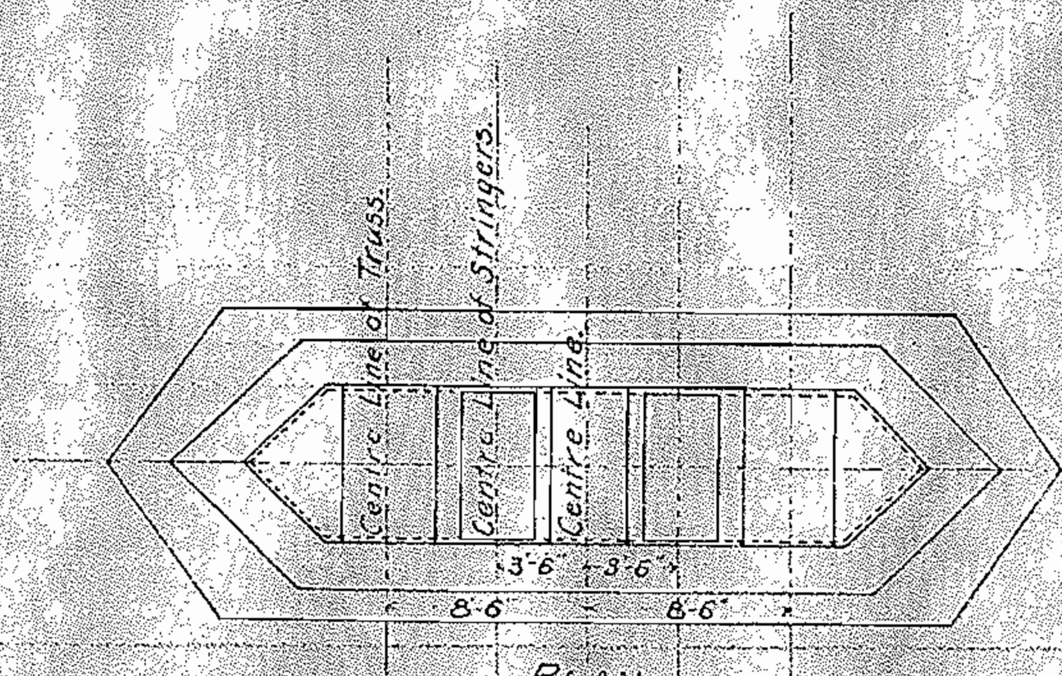


Pier No. 2.

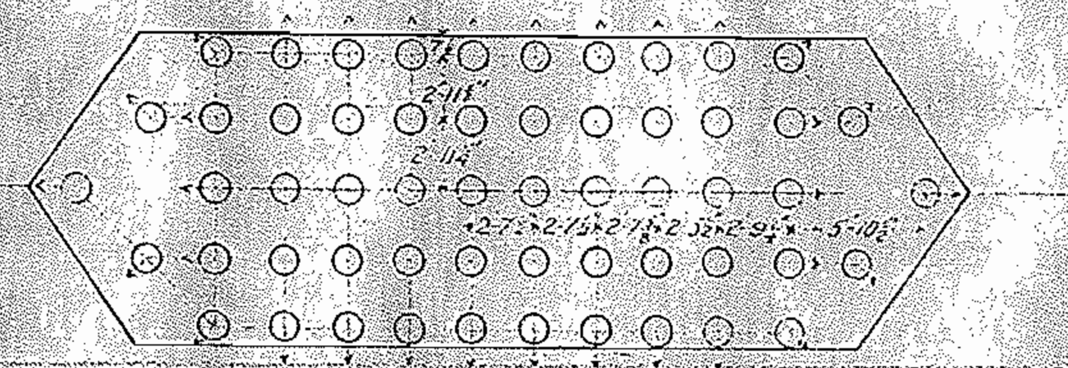
Note—
[illegible] Cubic yards of Concrete
[illegible] of Granite Coping

Scale – One eighth of an inch to one foot.

SALINAS RIVER BRIDGE NEAR NEPONSET.



PLAN.



FOUNDATION PLAN - PILE LOCATION.

(40 feet below Base of Rail.)

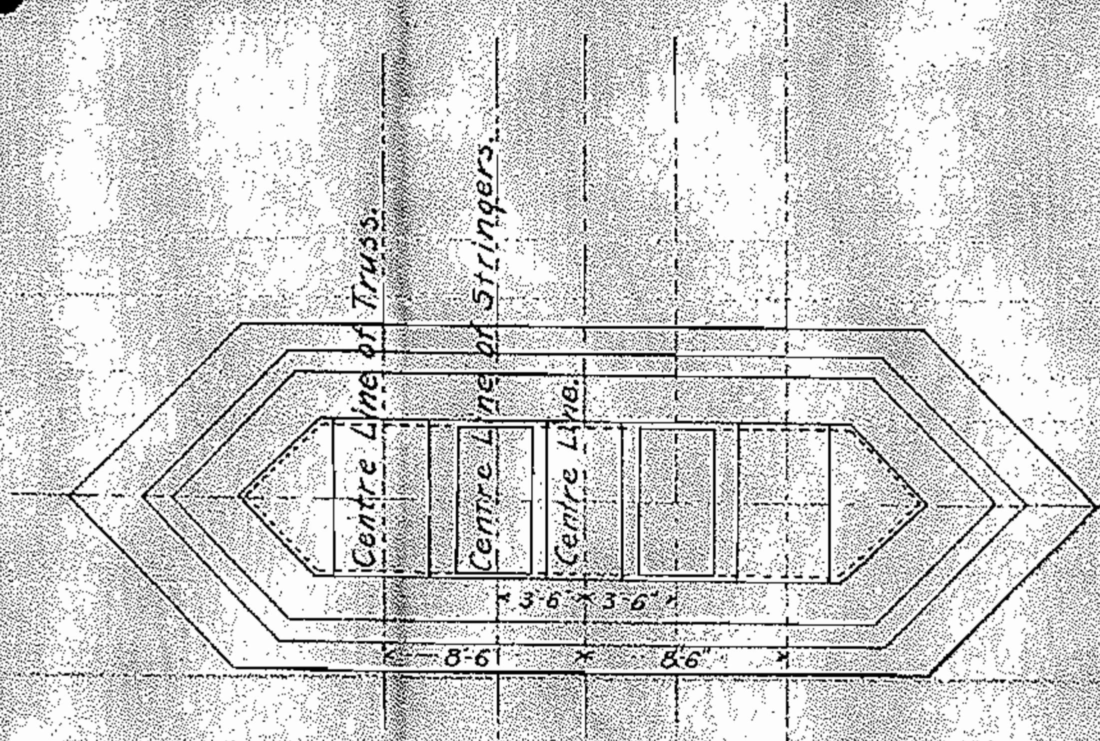
PIER No. 1.

Note:- Piles marked thus (⟶) are battered 2 ins. per ft. in direction indicated by arrow.
56 - Piles 2781 Lin. Ft. Average Length - 49.66 ft.
24 Piles Drove with 2600 lb Hammer.
32 " " " 3000 lb "

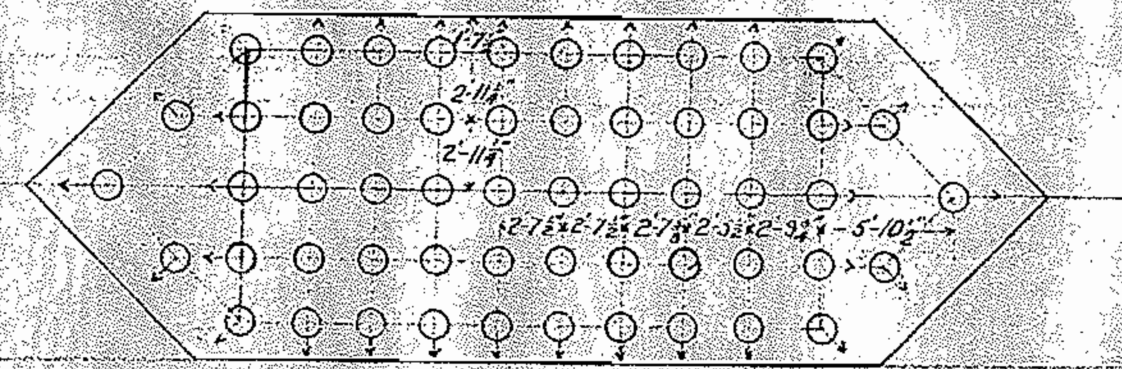
Average Drops to Last Ft.	2600 lb. Hammer	12.
	3000 lb. "	17.
Average Length of Drop	2600 lb. "	21 feet.
	3000 lb. "	16 "

Scale - One eighth of an inch to one foot.

SALINAS RIVER BRIDGE NEAR NEPONSET.



PLAN.



FOUNDATION PLAN - PILE LOCATION.

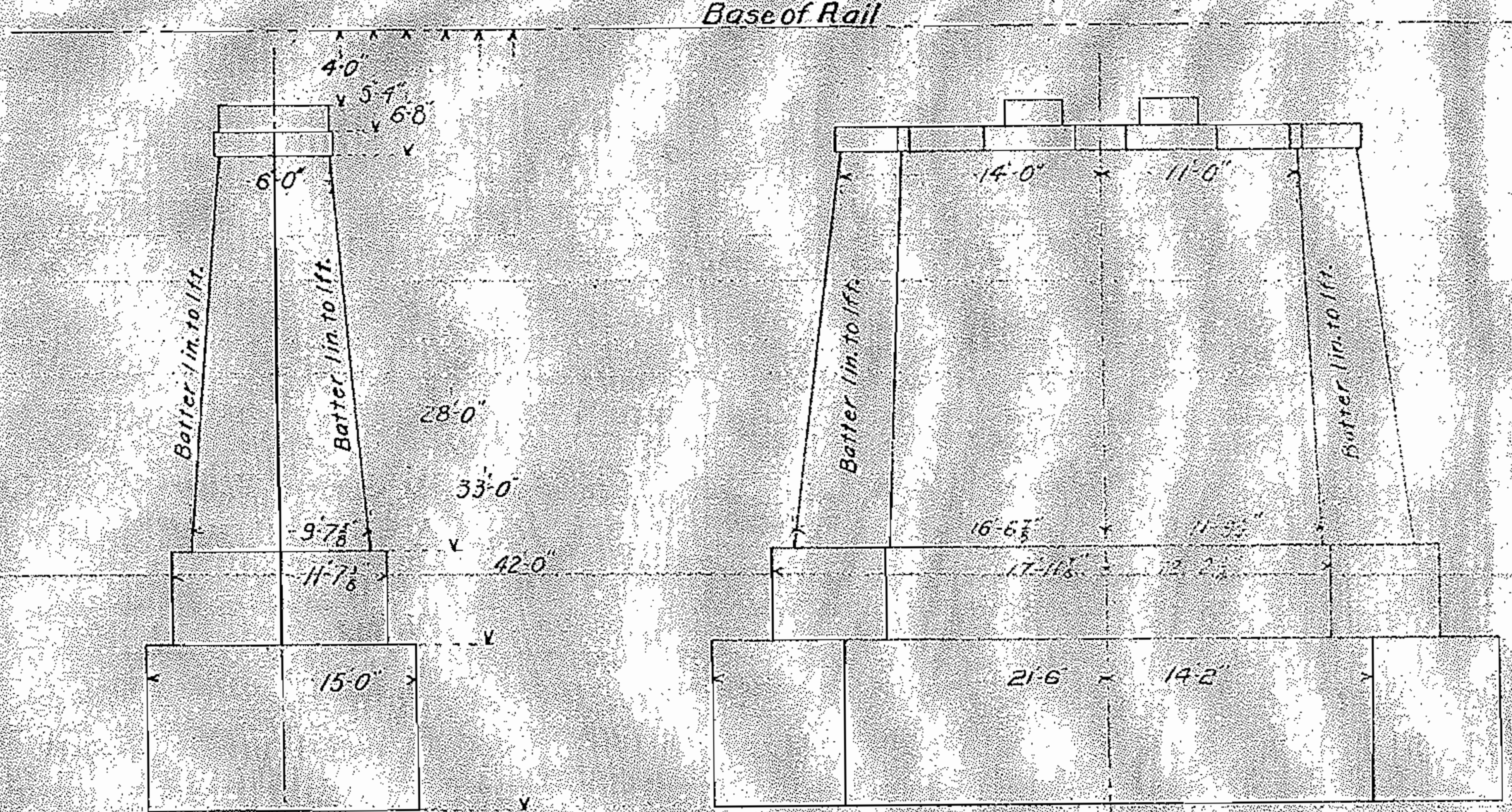
(40 feet below Base of Rail.)

PIER No. 2.

Note:- Piles marked thus (⟶) are battered 2 Ins. per ft. in direction indicated by arrow.
56-Piles 2876 Lin. Ft. Average Length 51.34 ft.
All Piles Drove with 3000 lb. Hammer.
Average Drops to Last Ft. - 12
Average Length of Drop - 17 feet.

Scale - One eighth of an inch to one foot.

SALINAS RIVER BRIDGE NEAR NEPONSET.



END ELEVATION.

SIDE ELEVATION.

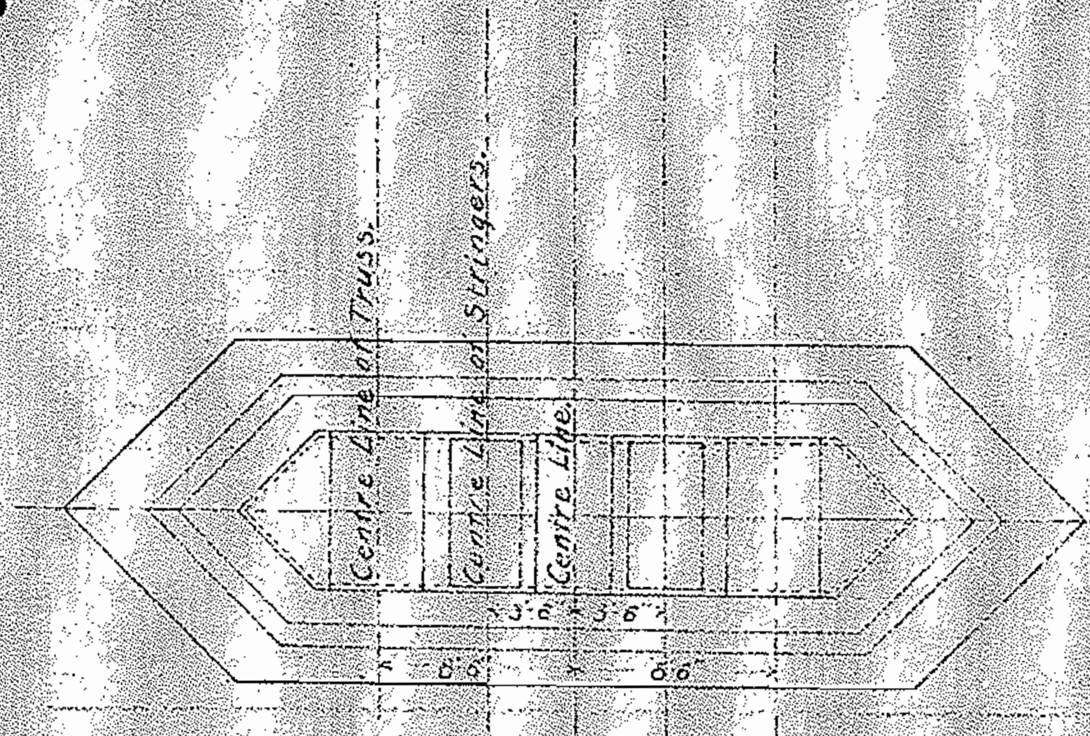
PIER NO. 3.

Note –

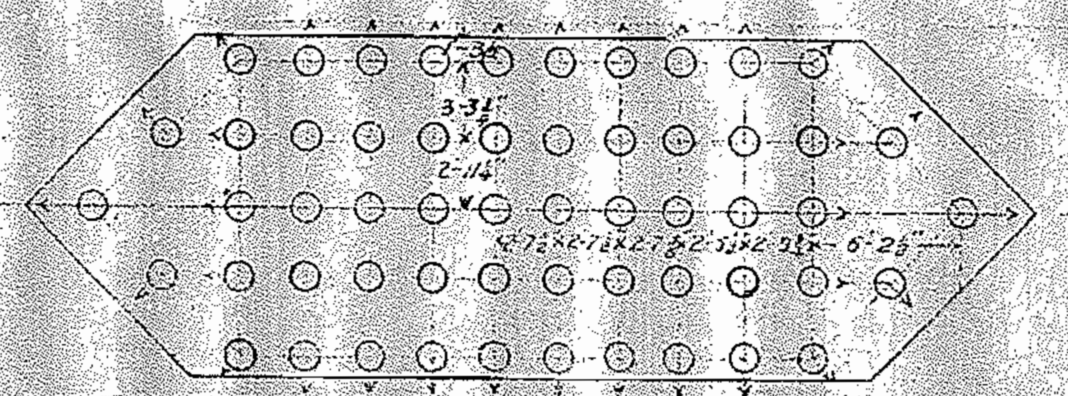
428 cubic yards of Concrete.
9 " " of Granite Coping.

Scale – One eighth of an inch to one foot.

SALINAS RIVER BRIDGE NEAR NEPONSET.



PLAN.



FOUNDATION PLAN - PILE LOCATION.

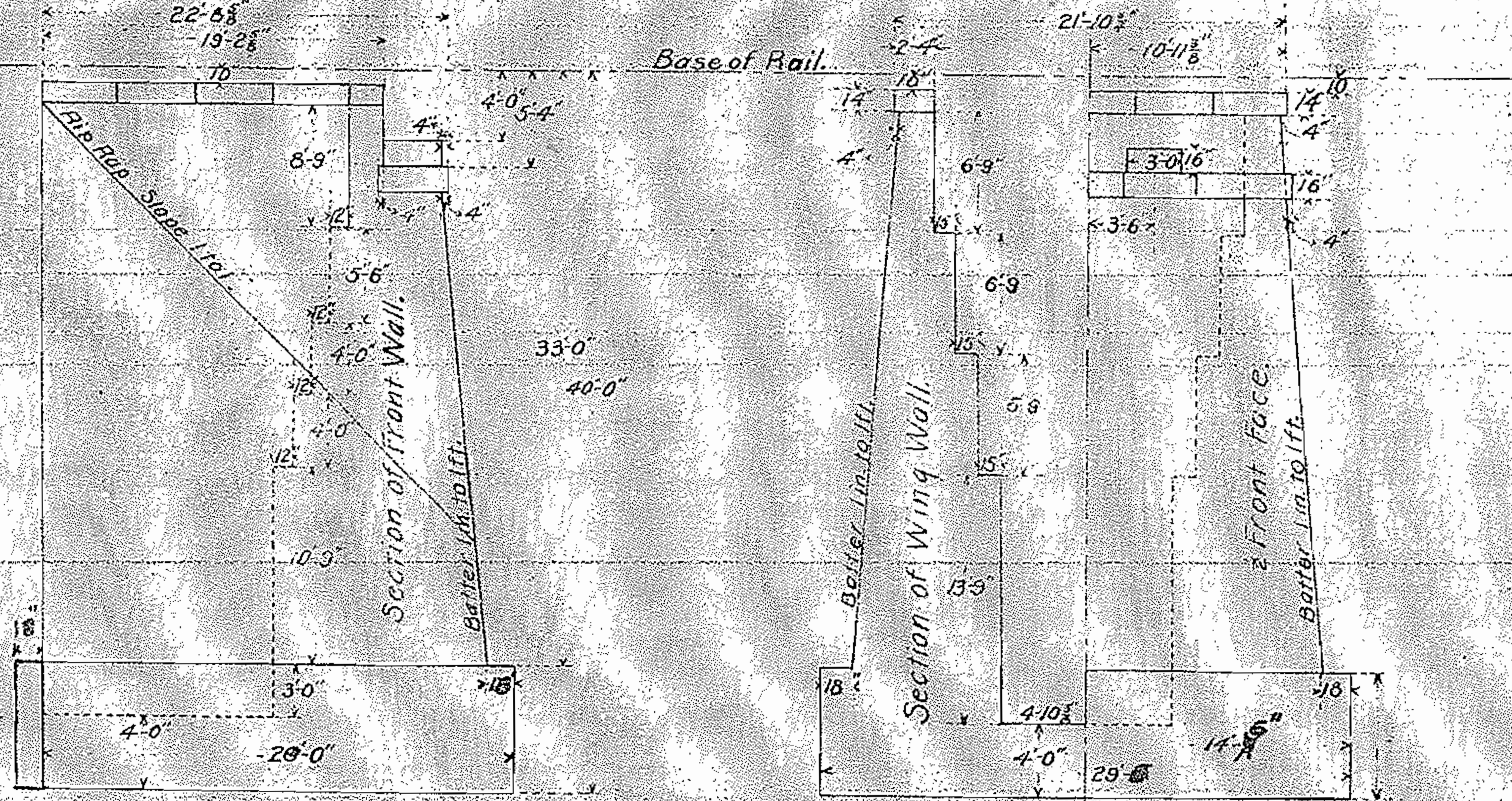
PIER NO. 3.

(40 feet below Base of Rail.)

Note - Piles marked thus (⟶) are battered 2 ins. per ft. in direction indicated by arrow.
56 - Piles 2946 Lin. Ft. Average Length - 52.61 ft.
All Piles Driven with 3000 lb Hammer.
Average Drops to Last Ft. - 18.
Average Length of Drop - 15 feet.

Scale - One eighth of an inch to one foot.

SALINAS RIVER BRIDGE NEAR NEPONSET.



SIDE ELEVATION-WINGS.

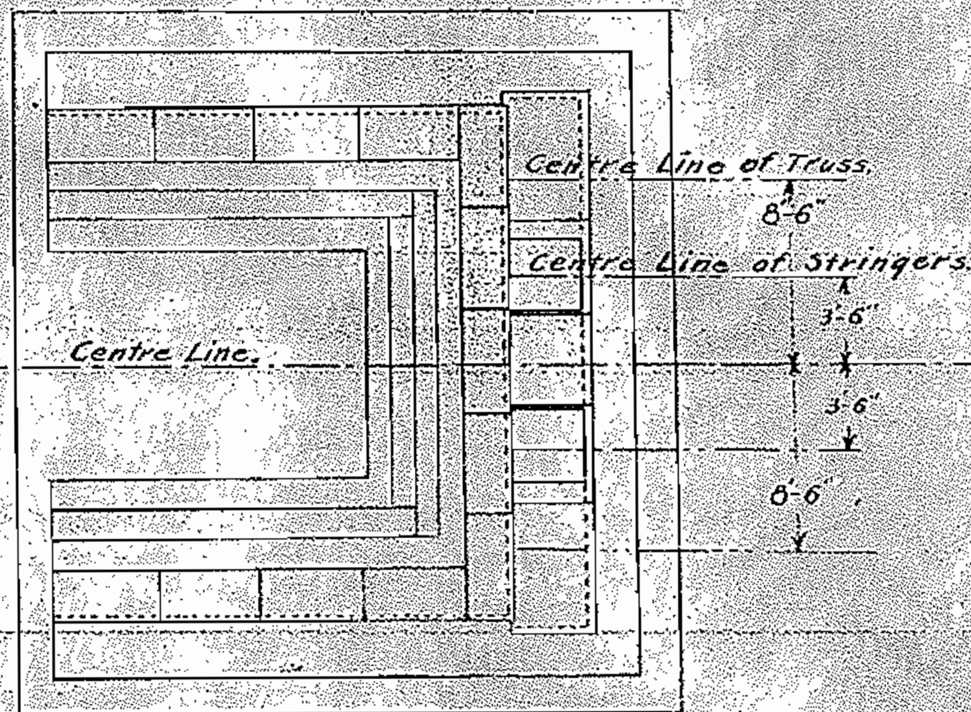
FRONT ELEVATION.

ABUTMENT No 2

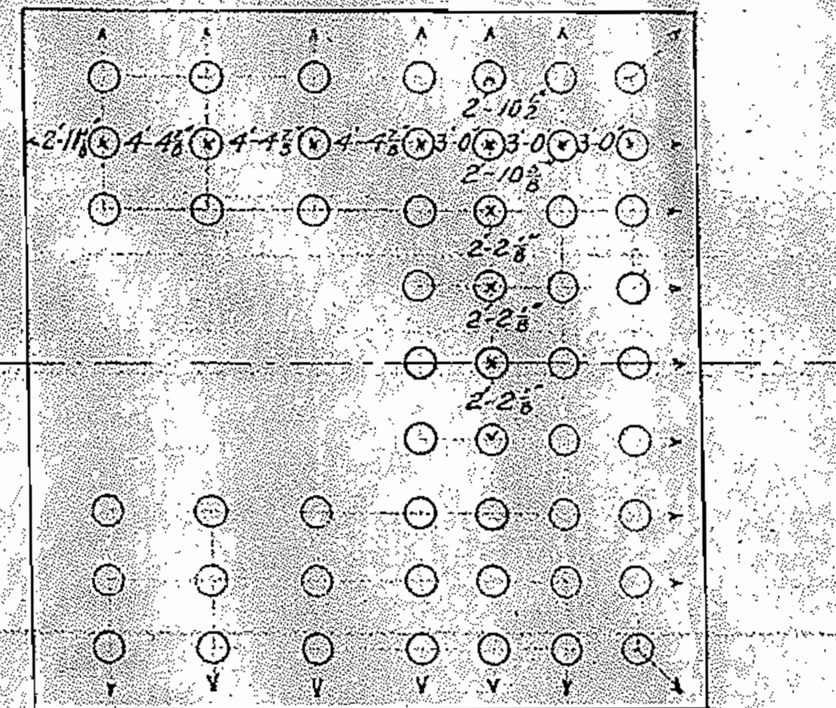
Scale - One eighth of an inch to one foot.

Note:
569⅔ Cubic yards of Concrete.
9 62 " " " Granite Coping.

SALINAS RIVER BRIDGE NEAR NEPONSET.



PLAN.



FOUNDATION PLAN – PILE LOCATION.

ABUTMENT No. 2.

(42 feet below Base of Rail.)

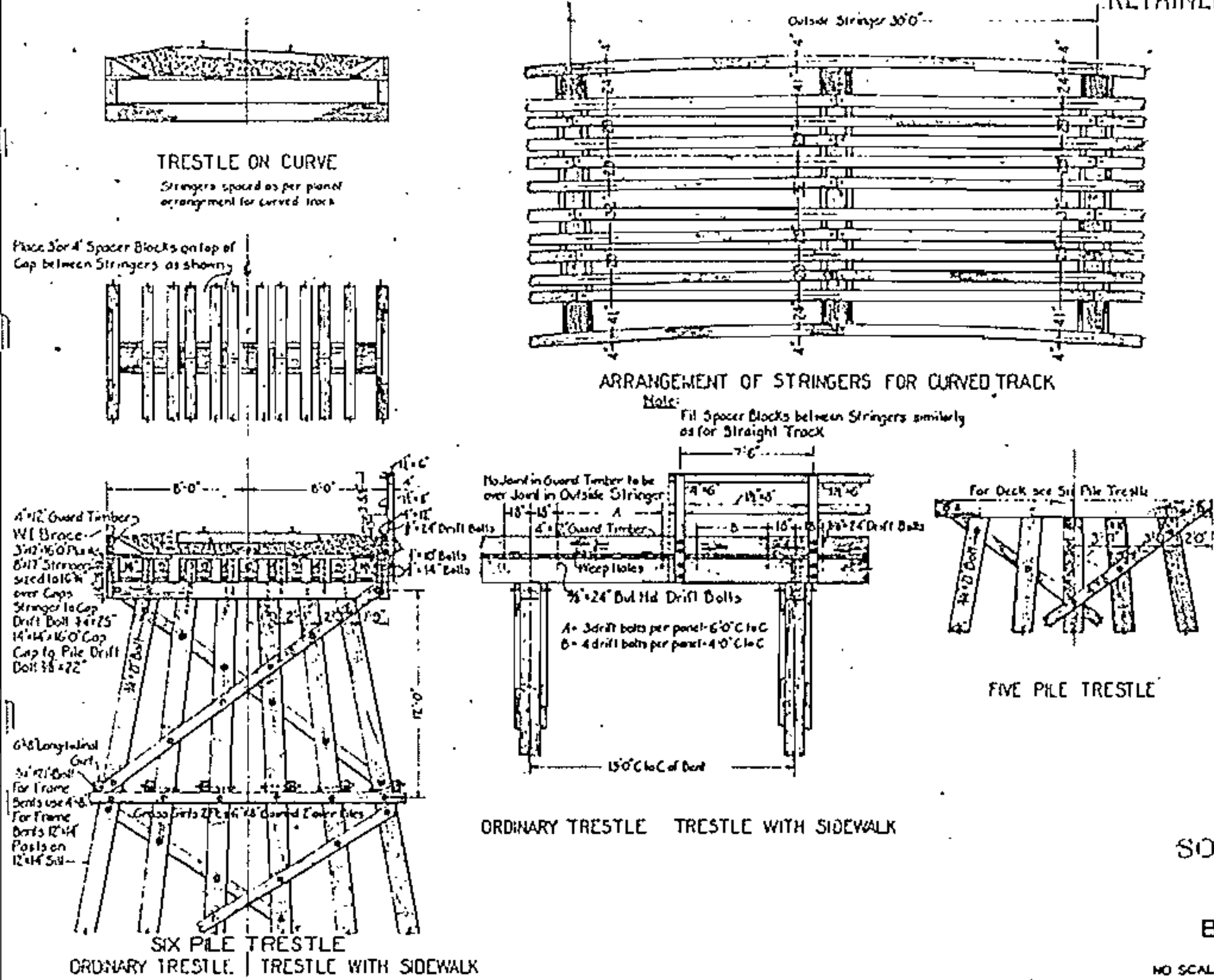
Note:- Piles marked thus (⟶) are battered 2 ins per ft in direction indicated by arrow.
54-Piles 2619 Lin Ft. Average Length 48.51 ft.
All Piles Drove with 3000lb Hammer.
~~Average Drops to Last Foot—14.~~
Average Length of Drop —27 feet.

Scale:- One eighth of an inch to one foot.

NOT FOR CURRENT USE

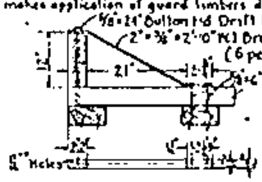
RETAINED FOR INFORMATION ONLY

C.S. 39



GENERAL NOTES

1. For longitudinal bracing see drawing C.S. 322.
2. No longitudinal bracing to be used for heights less than 16 ft from ground surface to top of cap
3. Sway bracing to be omitted for heights less than 7 ft from ground surface to top of cap
4. Coarse ballast (no dimension less than 1 inch) to be used next to guard timbers
5. Floor planking to be spiked with 6 inch spikes, two at each end and one at each intermediate stringer.
6. Bents to be spaced radially on curve - and spaced so that outside stringer will be 30 ft long
7. Superelevation to be effected by increasing depth of ballast under outer rail, the depth of ballast under inner rail remaining constant
8. Outside stringers to be drift bolted to caps at every bent. Inside stringers to be drift bolted to caps at ends only, except for trestles two bays long, for which they are to be drift bolted to caps at all bents
9. Creosoted timber to be used for piles, caps, stringers, guard timbers and deck planking, also for sway bracing when authorized by General Manager. Untreated timber to be used for bent rocking and spacer blocks, also for sway bracing when creosoted bracing not specially authorized
10. The center line of piles prolonged should meet at a common point about 26 ft above base of rail.
11. The six pile ballasted deck trestle is to be used on all main and branch lines where power heavier than Cooper's E50 is operated or is expected to be operated within the life of the trestle.
12. The five pile ballasted deck trestle is to be used where no power heavier than Cooper's E50 is or will be operated
13. Dressed floor planks may be used if variation in thickness makes application of guard timbers difficult.



WROUGHT IRON BRACE

SOUTHERN PACIFIC LINES
COMMON STANDARD
SINGLE TRACK
BALLASTED DECK TRESTLE

NO SCALE

ADOPTED MAY 1907
REVISED JAN 8, 1928

PARIKH CONSULTANTS, INC.

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• Environmental
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• Construction Inspection

Dokken Engineering
3054 Gold Canal Drive
Rancho Cordova, CA 95670

COPY

October 27, 1998
Job No. 97112.13

Attn: Mr. John Maniscalco

Subject: Geotechnical Engineering Investigation, Seismic Retrofit of Monte Road Bridge at Salinas River, (County No. 135/Caltrans No. 44C-93), Monterey County, CA

Gentlemen:

This report summarizes the geotechnical engineering investigation provided for design of seismic retrofit of the subject bridge structure.

Introduction

The existing bridge is a 785 feet long, seven span steel structure. The superstructure consists of three steel built-up "I" girders with reinforced concrete deck. At the beginning and end of the bridge, the superstructure cantilevers out from the end piers for about 15 feet and sits on the finished grade. Therefore, the bridge has no "abutments". The bridge is supported on six concrete piers. Each pier is 4 feet wide and 30 feet long with two hollow chambers inside. The piers are supported on driven piles with a service capacity of 35 Tons. The existing ground along the bridge is relatively level with ground elevations typically ranging from 7 feet to 10 feet. At Pier 2 where the existing river flow is, the mudline is at approximately Elev. -3 feet.

The actual pile type of the existing foundation piles is not indicated on the as-built plans. For design purpose, we have assumed that Alternative C pile (Tapered steel shell filled with concrete) was used for the bridge. The as-built plans indicate a pile length (for estimating purposes) of 65 feet, and the average penetration is 57 feet.

As-built Log of Test Borings (LOTB) is not available for the bridge. Field exploration consisting of six borings was performed for retrofit design. Based on geology and subsoil information, there is a high liquefaction potential at the site, and the proposed retrofit strategy will require large diameter Cast-In-Steel-Shell (CISS) piles to provide lateral and vertical support.

Field Exploration

The subsurface conditions at the site were studied by drilling six exploratory borings. The approximate boring locations are shown on the plan portion of the attached LOTB sheets.

Borings M-5 and M-6 were located within the water (Piers 2 and 3), and the drilling was performed from a barge utilizing a skid rig. The other four "land" borings were drilled with a truck mounted rig. The borings were advanced using 5-inch diameter rotary wash boring method down to maximum Elev. -123 feet. Representative samples were obtained from the borings at various depths using 1.4-inch I.D. Standard Penetration Test (SPT) sampler. The sampler was driven 18 inches into the subsurface soils under the impact of a 140-pound hammer having a free fall of 30 inches. The blow counts required to drive the sampler for the last 12 inches are presented on the LOTB. Laboratory test results are shown on the LOTB and attached with the report.

Subsurface Conditions

Based on the borings drilled, the subsoils generally consist of an upper loose sand, silty sand and sandy silt layer down to about Elev. -30 feet overlying thick, soft clayey materials with organics. Very dense sand was encountered below about Elev. -105 feet near Piers 5 and 6. Boring M-4 drilled at Pier 1 encountered primarily clayey material in the upper 70 feet depth and about 12 feet of very dense sand from Elev. -62 feet to Elev. -74 feet.

The consistency of the upper sand and silt is generally loose with SPT-N values ranging from 0 (push) to 10. The clayey materials below the upper sand/silt are generally soft to firm and extend to below Elev. -90. This thick clay layer contains organics and stringers of sands and silts.

Groundwater was encountered at Elev. 0 during drilling (June 1998). It should be noted that groundwater levels measured at the site will vary with water level in the Salinas River and will change with passage of time due to groundwater fluctuations from season to season, surface run-off, weather condition, subsurface flow, and other factors which may not be present at the time of the investigation.

Liquefaction Potential

Based on the borings drilled and general geology, the upper loose sand and silt down to about Elev. -30 feet has high liquefaction potential, except at Pier 1 where boring M-4 encountered primarily clayey material. This liquefaction potential is similar to that of the adjacent Caltrans Route 1 bridge (#44-216 R/L, Route 1 at Salinas River).

Seismic Design Criteria

Based on the seismic hazard map prepared by Mualchin (Caltrans, 1996), the governing fault is the King City-Reliz Fault (Mw = 7.0), and a peak bedrock acceleration of 0.5 g is anticipated at the site.

The subsoil conditions (liquefaction-prone sand and soft clay) do not fit the assumptions for ATC-32 ARS curves. Previous retrofit studies for the adjacent Caltrans bridge (#44-216 R/L) by Bechtel (December 1995) have recommended that the preliminary response spectrum developed at the University of California for soft cohesive soils, relatively thick and very strong ground shaking (Seed and Dickenson, 1994) be used for retrofit design. This spectrum was modified to extend the flat peak acceleration region to zero-period by the strategy committee. A copy of this spectrum is attached with this report. It is understood that potential soil liquefaction may result in a different and more complex ground response. This response spectrum has been used for retrofit design of Caltrans bridge #44-216 R/L and is valid for seismic retrofit design of the subject structure. The effect of liquefaction has been considered in LPILE analyses for design of the large diameter CISS piles during seismic loading.

Capacities of As-Built Foundations

Location	Foundation Type	Design Load	Specified Pile Tip Elevation	Ult. Comp. for Retrofit Design	Ult. Tension for Retrofit Design
Pier 1	Tapered steel shell filled with concrete (butt = 15.5"ϕ, tip = 8"ϕ; Alternative C)	35 Tons	-65'	70 Tons	8 Tons
Pier 2	"	35 Tons	-81'	50 Tons	0
Pier 3	"	35 Tons	-81'	50 Tons	0
Pier 4	"	35 Tons	-81'	50 Tons	0
Pier 5	"	35 Tons	-81'	50 Tons	0
Pier 6	"	35 Tons	-76'	50 Tons	0

- The exact pile type is not indicated on the as-built plans. Based on the Pile Details sheet, we have assumed that Alternative C (Tapered steel shell filled with concrete) was used for foundation support. For this pile type, uplift capacity is limited by 12' of rebar in the pile. Since the pile caps of Piers 2 through 6 are within the liquefaction zone, no uplift capacity is recommended. The specified tip elevation is deduced from the pile length (65' for estimating purposes) shown on the as-built plans. We have neglected pile capacity within the potential liquefaction zone.

Large Diameter CISS Piles for Retrofit

Due to water, liquefiable sands and soft clays at the site, lateral design and vertical demands will require relatively large diameter and deep piles. Based on our analyses and discussion with the designer, 72"ϕ CISS piles are recommended to provide lateral capacity for seismic retrofit. For retrofit design, the geotechnical parameters for analyses of laterally loaded piles using LPILE Program are presented in the attached tables.

Based on site conditions, boring data and discussion with the designer, the 72"ϕ diameter CISS piles should be designed for the most critical condition which has a cantilever length of about 13 feet above mudline and a liquefaction zone through Elev. -30 feet. The pile top is anticipated at Elev. 10$\pm$ feet. The piles are assumed to have a pinned condition at the top. The generalized soil profile with geotechnical parameters for LPILE analyses for Piers 2 through 6 is presented below.

- *Generalized Soil Profile (Piers 2 through 6)*

Approx. Elevation (ft.)	Generalized Soil Profile	LPILE Soil Type	Probable Soil Strength	K (pci)	E50 (in/in)	Effect. Unit Wt. (pci)
- 3 to -30	Sand and silt, loose (Potentially liquefiable zone; To account for liquefaction, use 10% of the initial p-y curve per ATC-32.)	4, SAND (with liquefaction)	ϕ = 30° & p-multiplier = 0.1	20	--	0.026
-30 to -55	Clay with organics, soft	1, CLAY	c = 4.51 psi	250	0.02	0.022
-55 to -75	Sand and silt, medium dense	4, SAND	ϕ = 32°	60	--	0.022
-75 to -120	Clay, stiff	3, CLAY	c = 10.83 psi	500	0.005	0.029

At Pier 1, Boring M-4 encountered primarily clayey material. Liquefaction potential at Pier 1 is low. Existing grade at Pier 1 is at Elev. 14 feet $\pm$, and the as-built footing bottom is at Elev. -8 feet. Therefore, the as-built piles are embedded at 22 feet below grade. The generalized soil profile with geotechnical parameters for LPILE analyses is presented below. Based on the analyses, the as-built piles can provide a lateral capacity of 40 kips (BDS standards) under seismic loading with an anticipated deflection of about 3.5 inches.

- *Generalized Soil Profile (Pier 1)*

Approx. Elevation (ft.)	Generalized Soil Profile	LPILE Soil Type	Probable Soil Strength	K (pci)	E50 (in/in)	Effect. Unit Wt. (pci)
14 to 0	Clay, stiff	3, CLAY	c = 13.89 psi	500	0.005	0.069
0 to -20	Clay, soft to firm	1, CLAY	c = 4.51 psi	300	0.02	0.029
-20 to -25	Silt to sandy silt, soft	4, SAND	ϕ = 30°	60	--	0.029
-25 to -40	Clay with sand lenses, stiff	1, CLAY	c = 6.94 psi	500	0.01	0.029
-40 to -55	Clay with organics, soft	1, CLAY	c = 2.08 psi	300	0.02	0.029
-55 to -60	Sandy silt, loose	4, SAND	ϕ = 28°	20	--	0.029
-60 to -65	Sand, very dense	4, SAND	ϕ = 40°	125	--	0.029

It has been noted that the conventional approach of soil-pile interaction analyses using p-y relations tend to underestimate the subgrade resistance for large diameter shafts because most lateral soil support (p-y) criteria are based on data from pile load tests using 24-inch diameter piles. ATC-32 report (Section 4.5.5.1) states a procedure to adjust the subgrade modulus (k) and E50 for large diameter shafts. The k and E50 values in the attached tables are for typical piles (24-inch diameter, say). For analyses of the 72"ϕ CISS piles, we have adopted the procedures stated in ATC-32 report, and the LPILE analyses results presented in this report reflect the effect of large diameter shafts.

LPILE analyses results including deflection, moment, shear and soil reaction along the pile length are attached with this report. Based on the analyses, we recommend a pile length of 115' for the 72"ϕ CISS piles at Piers 2 through 6. Pile top is assumed at Elev. 10 feet. Based on discussion with the designer, it is our understanding that the ultimate compression on the CISS piles will range from 735 kips to 990 kips. The specified tip elevations are provided as follows:

72"ϕ CAST-IN-STEEL-SHELL PILES

Location	Design Loading (Service)	Nominal Resistance		Design Tip Elev. (ft)	Specified Tip Elev. (ft)
		Compression	Tension		
Pier 1	N/A	735 kips	0	-66.0 (1); -55.0 (3)	-66.0
Pier 2	N/A	990 kips	0	-112.0 (1)&(4); -105.0 (3)&(4)	-112.0
Pier 3	N/A	970 kips	0	-110.0 (1)&(4); -105.0 (3)&(4)	-110.0
Pier 4	N/A	947 kips	0	-108.0 (1)&(4); -105.0 (3)&(4)	-108.0
Pier 5	N/A	955 kips	0	-109.0 (1)&(4); -105.0 (3)&(4)	-109.0
Pier 6	N/A	735 kips	0	-100.0 (1)&(4); -105.0 (3)&(4)	-105.0

Design Tip Elevation is controlled by the following demands: (1) Compression, (2) Tension, (3) Lateral Load during Seismic Condition, (4) Liquefaction to Elev. -30 feet (Piers 2 through 6)
* The proposed pile top is at Elev. 10 feet; this reference elevation can be used for determining specified tip elevation.

Construction Considerations

Piers 2 and 3 are normally in water and the rest of the piers are in dry river bed. The water level in the river during our recent investigation was only 3 feet deep at Pier 2. However, The water depth was about 25 feet and 11 feet (September 1996) when we drilled at Bents 2 and 3 of the adjacent Caltrans Route 1 bridge (#44-216 R/L). Therefore, the river water level will fluctuate with seasons. Depending on the water level in the Salinas river, construction at Piers 2 and 3 may require a barge or a trestle structure for equipment access.

The interior of the steel shell should be cleaned out and replaced with concrete. The depth of interior cleaning and rebar/concrete placement should be determined based on structural demands. Typically, about 8 feet of the soil is left in the bottom portion of the shell to minimize the need for dewatering. A 3-foot thick layer of seal course can be used inside the steel shell to facilitate pile construction. The recommended minimum wall thickness for the steel shell is one inch.

Corrosion Potential

Chemical tests were performed to determine the corrosion potential of the subsoil. The test results indicated a minimum resistivity of 320 ohm-cm, a pH value of 8.0, water soluble chloride and sulfate concentration of 315 and 418 ppm, respectively. Based on the data, the subsoil is highly corrosive. The site should be considered in a marine environment. All concrete in piles should meet Caltrans specifications for Type "C" pile. For CISS piles, it is recommended that a reduction of 1/4 inch of the wall thickness be considered if the steel is utilized in design basis. The test results are attached in the appendix.

Limitation: Please be advised that we are performing a professional service and that our conclusions are professional opinion only. All work done and all recommendations made are in accordance with generally accepted geotechnical engineering principles and practices. No other warranty, expressed or implied, of merchantability or fitness, is made or intended in connection with our work.

If you have any questions concerning items covered in this report, please contact this office at your convenience.

Very truly yours,
PARIKH CONSULTANTS, INC.

Y. David Wang

Y.David Wang, Ph.D, P.E. C52911
Project Engineer

REGISTERED PROFESSIONAL GAURANG R. PARIKH No. 666 EXP. 12-31-01 GEOTECHNICAL STATE OF CALIFORNIA

Gary Parikh, P.E., G.E. 666
Project Manager

Attachments:

Appendix A - Log of Test Borings (9/1998)
Appendix B - Laboratory Data
Appendix C - Recommended ARS Curve
LPILE Analyses Results (72"ϕ CISS pile - Piers 2 thru 6)
Critical Pile Length (Piers 2 thru 6)
LPILE Analyses Results (As-built pile at Pier 1)

APPENDIX B

Inspection and Evaluation Report
Salinas River Bridge No. 113.46

Modjeski and Masters
September 28, 2001

TRANSIT AUTHORITY
OF
MONTEREY COUNTY, CALIFORNIA

MONTEREY BRANCH LINE
CASTROVILLE TO SEASIDE, CA

INSPECTION AND EVALUATION REPORT

SALINAS RIVER BRIDGE NO. 113.46

Submitted to:
Mr. Richard D. Walker
STV, Incorporated
Los Angeles, CA

Submitted by:

MODJESKI and MASTERS
Consulting Engineers

September 28, 2001

TABLE OF CONTENTS

SALINAS RIVER BRIDGE
INSPECTION AND EVALUATION REPORT

EXECUTIVE SUMMARY

This Report covers the inspection and evaluation of Bridge No. 113.46 crossing the Salinas River near Neponset, CA. This key bridge is a major factor in the overall feasibility evaluation for the establishment of intercity passenger rail service from Monterey County to San Francisco.

As a subcontractor to STV, Inc. of Los Angeles, Modjeski and Masters, Inc. has inspected the Salinas River Bridge, recorded metalwork losses required for the rating of the bridge, determined the live load carrying capacity of the bridge, preformed a preliminary seismic evaluation and presents repair recommendations and their costs.

Bridge No. 113.46 is a single-track railroad bridge crossing the Salinas River, adjacent to the California Highway 1 bridges. The bridge consists of five Warren-type steel through truss spans supported by concrete piers and abutments. This open deck bridge is on a tangent alignment with 0% grade. The bridge has a 15.0-ft. horizontal clearance which is substandard. The Line has been out of service for a number of years. Spans 2-5 are identical 6-panel, 140-ft. long spans build in 1903, Span 1 although similar in appearance was built in 1914 and has different structural details. It is known that the abutments and one pier have supporting piling, but no plans are available to confirm if the other piers are pile supported.

The Salinas River Bridge No. 113.64 was inspected and found to be in marginal physical condition with extensive active corrosion causing loss of member sectional properties. Besides the truss primary members which have areas of moderate metalwork losses, a number of light secondary bracing members have significant losses and the bearings are inoperative being frozen with corrosion. Additionally, the misalignment of several truss spans and piers caused by the Loma Prieta earthquake in 1989 have not been repaired.

The bridge was rated per AREMA Manual for Railway Engineering, Chapter 15, Part 7 - Ratings for both the As-Built and As-Is physical conditions for both Normal and Maximum live load carrying capacities. The minimum rated, Normal Rated capacity for the bridge is Cooper E-37.7 controlled by a truss bottom chord with loss of metalwork section. The controlling Normal Rated capacity for the floor system is Cooper E-69.5. An equivalent Cooper E rating required for a common commuter type train is E-26.6 for truss bottom chords and E-37.0 for the floor system. Thus, despite significant metalwork losses due to corrosion, the bridge has sufficient strength to carry commuter traffic.

There apparently is no specific seismic retrofit criteria that directly applies for the Salinas River Bridge. However, a project specific approach consistent with AREMA recommended seismic guidelines can be developed based on published manuals, standard specifications, and methodologies of Caltrans, AASHTO, FHWA. It is not always practical or economically feasible to retrofit a bridge to the same level of performance as a new bridge. There are methods available such as bridge sensors and traffic controller alerts from seismology centers that can control the likelihood of a commuter train being on the bridge at the time of a seismic event. It is also known that the Salinas River Bridge sustained damage in the 1989 Loma Prieta earthquake, but that the bridge could have been placed back in service in a very short period of time by realigning several trusses. TAMC will need to determine the level of seismic risk they are willing to accept. The range in cost could be from no cost with the acceptance of the bridge as-is to retrofits such as that done on the adjacent highway bridges that had significant costs.

It is recommended that the existing Salinas River Bridge be rehabilitated. Although the bridge has sufficient capacity for the intended intercity commuter rail equipment, many repairs are needed to restore proper bridge functioning. Some of the types of repairs include: realigning the trusses, replacement of truss bearings, replacement of bracing members and their connections, replacement of top chord cover plates where plates are very thin or have significant holes, patch plating where there are significant losses in primary members, and the cleaning and preservation of the metalwork. Structural repairs are estimated to cost \$1,000,000. Preservation of the steel spans can range from \$500,000 for simply waterblasting and overcoating the metalwork to \$2,000,000 for a full abrasive blast cleaning and application of a three-coat paint system. Seismic retrofitting the bridge can range from do-nothing to \$3,000,000 or more.

It is our recommendation that the bridge be structurally repaired sufficient for a 20-year life, that the TAMC accept seismic risk without retrofitting the bridge, and that the bridge metalwork be cleaned and overcoated, all at a cost of approximately \$1,500,000.

SALINAS RIVER BRIDGE
INSPECTION AND EVALUATION REPORT

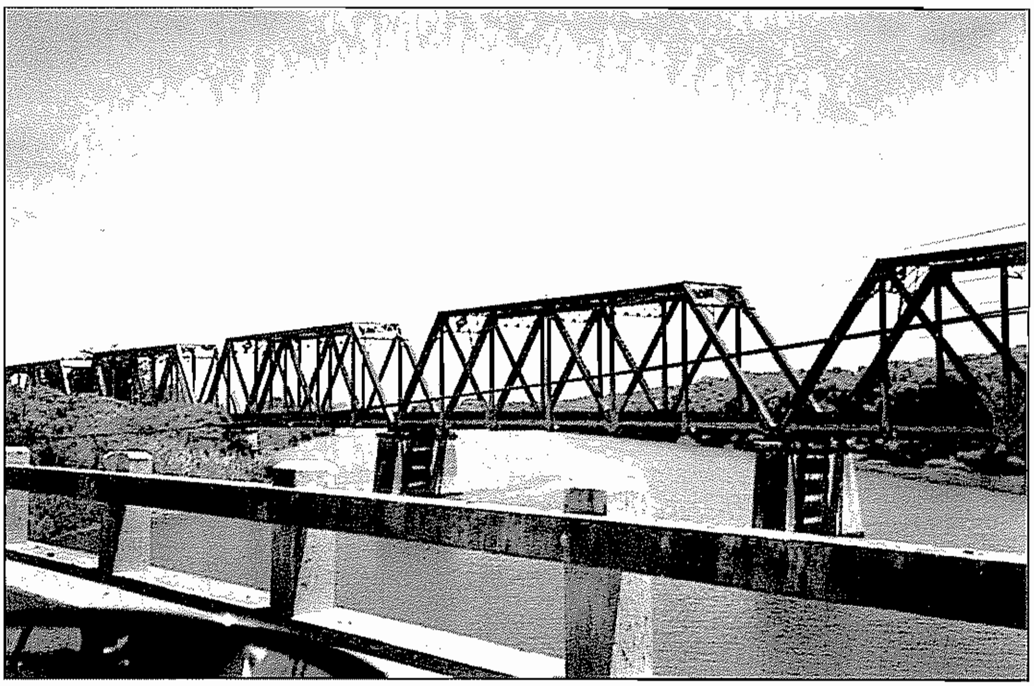
SCOPE OF SERVICES

Within the existing Monterey Branch Line from Castroville to Seaside, CA is a significant bridge over the Salinas River at Mile Post 113.46. The need to restore or replace this key bridge is a major factor in the overall feasibility evaluation for establishment of intercity passenger rail service from Monterey County to San Francisco.

Modjeski and Masters, Inc., as a subconsultant to STV, Inc. of Los Angeles, CA, has been engaged to perform engineering services to determine the condition, capacity and extent of repairs needed to establish passenger rail service over the existing bridge. In broader terms, those services are: inspect the existing bridge for significant metalwork losses, rate the bridge based on those losses for load carrying capacity, determine the extent of required rehabilitation, evaluate seismic retrofit needs, determine rehabilitation costs, and present these findings in a report.

BRIDGE NO. 113.46 - DESCRIPTION AND HISTORY

Bridge No. 113.46 is a single track railroad bridge that crosses the Salinas River, near Neponset, CA., adjacent to the California Highway 1 bridges, see **Appendix 1 - Location Map**. The bridge consists of five steel through truss spans supported by concrete piers and abutments **(see Photograph No. 1)**. This open deck bridge is on a tangent alignment with 0% grade. The Line and bridge have been out of service for a number of years.



Photograph No. 1 – View of Spans 1-4 (left to right) and the first two panels of Span 5, from a highway bridge located between the railroad bridge and Highway 1 bridge.

SALINAS RIVER BRIDGE
INSPECTION AND EVALUATION REPORT

The existing bridge was constructed in 1903 for the Southern Pacific Company. The superstructure consisted of four identical 140-ft. long Warren type through truss spans of 6 panels, fabricated by the Phoenix Bridge Company, see appended Exhibit 2A - 1902 Bridge Plans. The spans have a 17.0-ft. distance between truss lines and 30.0 ft. vertically between truss chord centers which provides a 15.25-ft. horizontal clearance (currently substandard) and a 23.0-ft. vertical clearance above base of rail. In 1914 an additional span was fabricated by the American Bridge Company, see appended Exhibit 2B - 1914 Bridge Plans. This span was located to the north or San Francisco end of the bridge and although it appears to be identical and the truss centers are the same, the distance between top and bottom chords is 31.0 ft. The span provides a 15.0-ft. horizontal clearance (currently substandard) and a 24-ft. vertical clearance above base of rail. The structural details of this fifth span are different than that of the other four spans.

At the time of the 1914 bridge modification, a new northern abutment was constructed and the existing northern abutment modified to the shape of the other piers. The bridge plans indicate that there are timber piling of unknown length supporting the original and new abutments, but there are no references to piling beneath the piers, see **Appendix 2C - 1914 Bridge Foundation Plan**.

The bridge has experienced a number of seismic events with the 1906 and the 1989 events being the strongest know events. The 1989 Loma Prieta earthquake resulted in several piers being displaced and several spans atop the piers being shifted, see **Report - Seismic Section and Appendix 6 - Loma Prieta Seismic Report**. No known repairs were made following that incident as the bridge was out of service.

In the late 1990's the bridge became the property of the Union Pacific Railroad Company as a result of a merger.

INSPECTION OF BRIDGE 113.46

The Salinas River Bridge was visually inspected during the period of July 16–20, 2001 by Messrs. Jason C. Mezzic and Randy P. Songy of Modjeski and Masters, Inc., in conformance with applicable sections of the AREMA Manual for Railway Engineering. The purpose of this inspection was to evaluate the physical condition of each structural component, with emphasis on estimating the extent of section loss of primary truss members and floor system components, as needed to determine the current load rating and the extent of repair work needed prior to re-opening the bridge. The inspection did not include an underwater inspection, hydrology or hydraulic evaluation, nor inspection of the track components.

Numbering systems of the substructure and superstructure have varied over the years, but for the purpose of this inspection and report the spans are numbered 1 through 5, piers are numbered 1 through 4, and abutments are numbered 1 and 2 (all from north to south, or San Francisco to Monterey), as shown on the inspection charts of **Appendix 3 - Inspection Chart.** In addition, to distinguish specific bridge components and further define locations of items noted during the inspection, the designations of Left and Right are used and spans are divided into panels, as shown on the inspection charts.

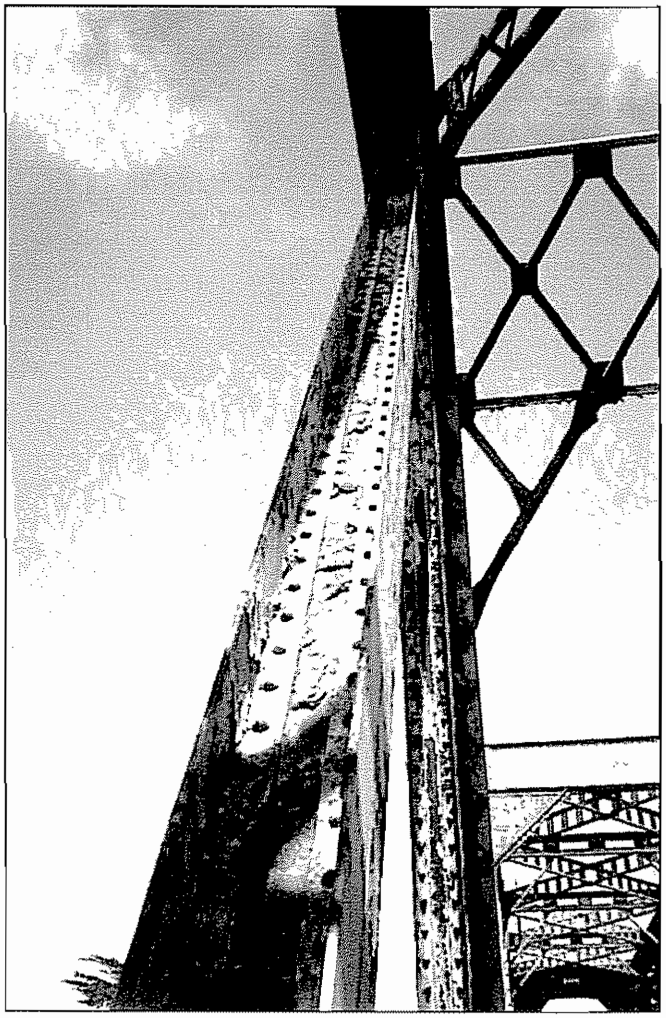
To develop the current load rating of the bridge as mentioned above, the amount of section loss of each portion (top flange, bottom flange, web, etc.) of each major bridge component was visually estimated and where significant, locations of isolated areas of section loss were measured and referenced from the end or center of the member, as needed for analysis.

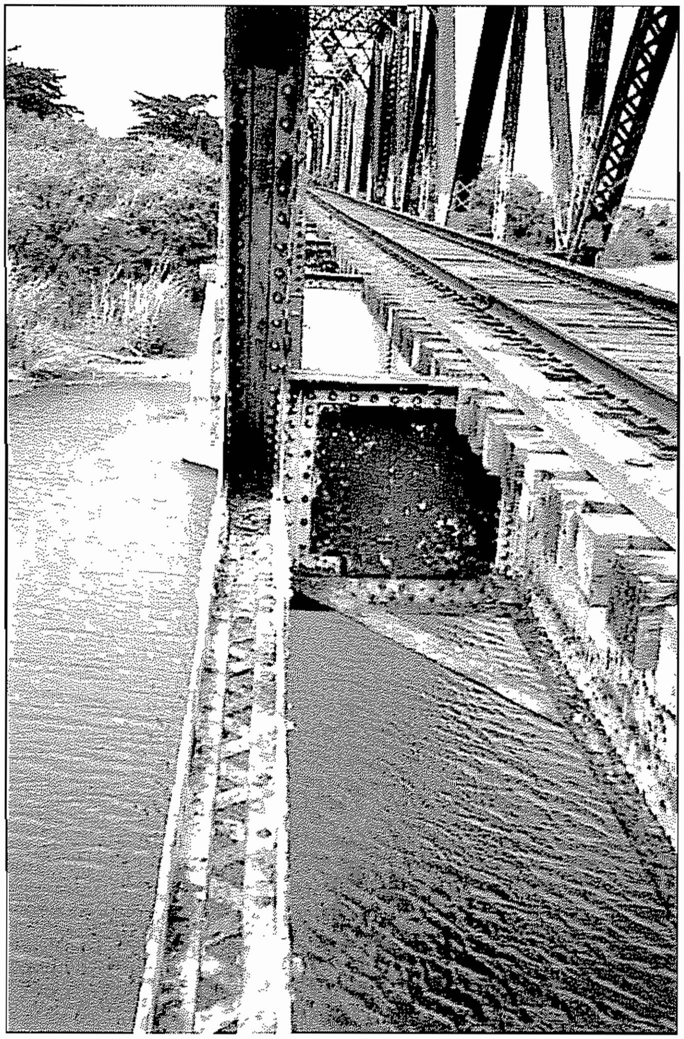
GENERAL PHYSICAL CONDITIONS

The Salinas River Bridge is in overall marginal condition due to deterioration of the superstructure metalwork caused by corrosion, which can be attributed to the salt-laden coastal environment and failure of the protective paint system, and due to misalignment of the substructure and superstructure as caused by the Loma Prieta earthquake of 1989.

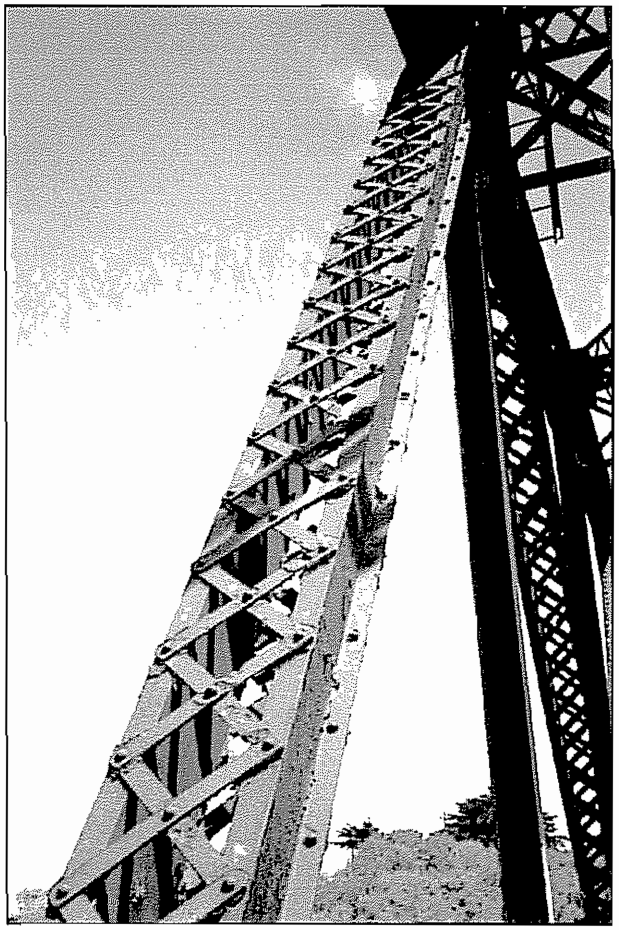
The condition of the paint system varies from good to very poor as shown in **Photograph Nos. 2-6**, and in general the condition of the paint system is usually worse in locations that are typically exposed to direct sunlight and wind, such as the top surfaces of top chords, end posts, floorbeam flanges, etc.

Photograph No. 2 (right) – View shows the paint condition of Diagonal U1-L2 (foreground) and Post U1-L1 (background) of the right truss of Span 2.

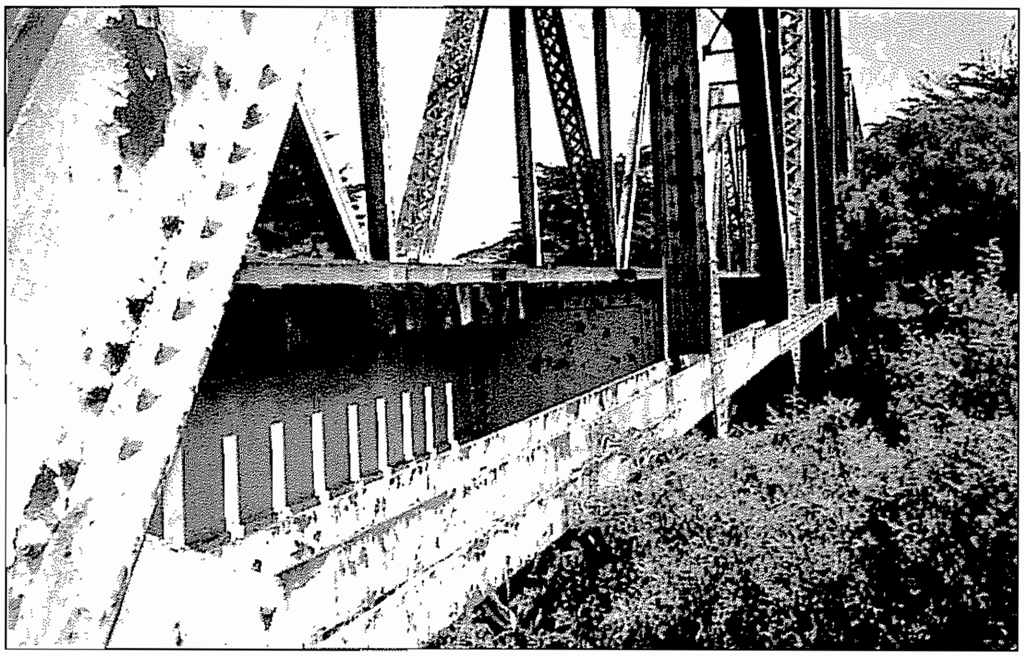




Photograph No. 3 (left) – View shows truss members and floor system components in Panel 5 of Span 4, right side. Note various paint conditions of the bottom chord, diagonal, floorbeam, and stringer.



Photograph No. 4 (left) – View shows Diagonal U3-L4 of the right truss of Span 5. Note that there is very little paint remaining on the diagonal.



Photograph No. 5 – View shows the bottom chord of the left truss of Span 2. Note that most of the paint still remains on visible portions of the bottom chord and adjacent floor system components.

Photograph No. 6 – View shows the top chord and upper truss bracing of Span 5. Note that there is very little paint remaining on the visible surfaces.

In correlation with failure of the paint system, corrosion is widespread and remains active throughout the metalwork of all spans of the bridge with varying degrees of severity and associated section loss. Conditions are generally worse on the top of horizontal surfaces such as top chord cover plates, lateral connection plates, bottom chord webs, and floorbeam flanges. This is probably due to moisture and other corrosive elements of the coastal environment that naturally collect and remain in contact with horizontal surfaces for longer periods of time than that which occurs on vertical and diagonal surfaces.

All specific defects noted during the inspection, including estimated amounts of section loss for each truss member and floor system component, are listed in the data tables of **Appendix 4** of this report, and the numbering system and directional designations used to locate the defects are shown on the inspection charts of **Appendix 3.**

A. SUPERSTRUCTURE

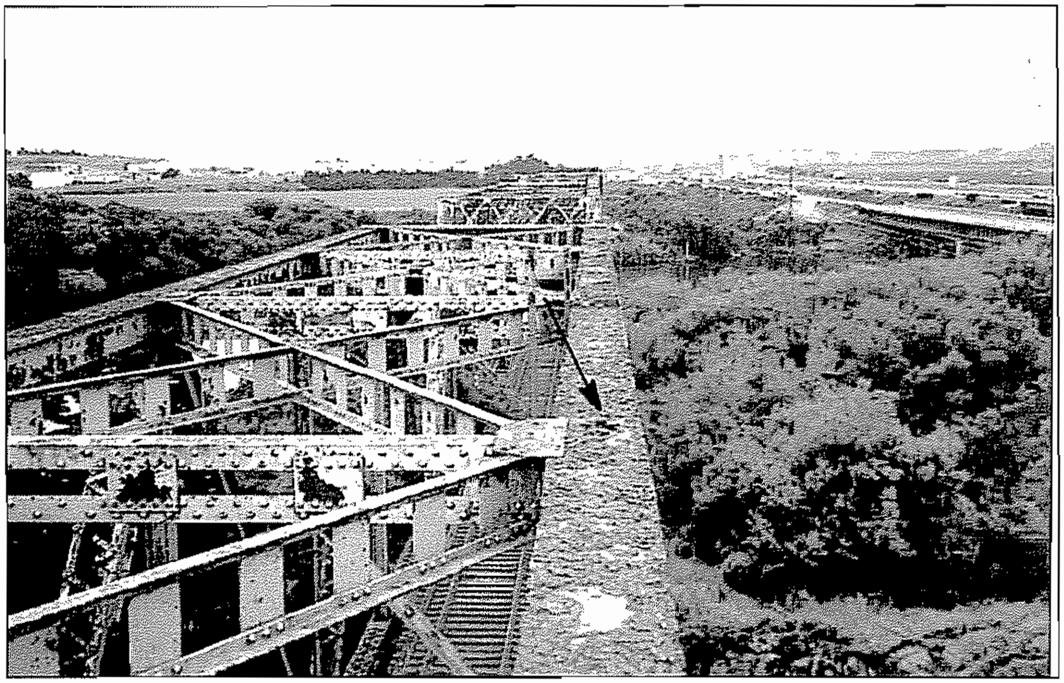
The superstructure of the Salinas River Bridge is in marginal condition due to corrosion and section loss of structural metalwork, frozen expansion bearings, and misalignment of spans. No fatigue cracks were noted during the inspection.

Section loss of the metalwork has occurred primarily due to "deposit corrosion" associated with deposits of dirt, moisture, etc. that have accumulated on the various surfaces. In addition, "crevice corrosion" which develops between plies of steel along the edges of connections has also caused minor section loss and "spreading" at a few locations. The following is a brief summary of conditions noted at each section of the superstructure (for a complete list of defects noted see **Appendix 4 - Member Losses**).

Truss Members

The condition of truss members throughout the bridge varies from good to poor due to the amounts of section loss caused by deposit corrosion and crevice corrosion, with the most extensive section loss noted at the top surface of the top chords due to deposit corrosion (**see Photograph No. 7**). Although not as severe, section loss is also widespread at the bottom chord, especially at locations where the bottom chord has a solid horizontal web plate instead of lacing bars (in Panels 3 & 4 of Spans 2-5), as shown in **Photograph No. 8**. At such locations, dirt and debris has accumulated in the bottom chord contributing to the retention of moisture and increasing the rate of corrosion and section loss. In addition, within the same panels the bottom chord also has plates attached to the inboard and outboard flanges, and crevice corrosion has developed at the interface of the plates and flange angles causing minor spreading and section loss (**also shown in Photograph No. 8**).

In addition to conditions noted at the top and bottom chords, small isolated areas of corrosion with significant section loss were noted at several vertical and diagonal truss members, and such areas are usually located along the upper edge of lower truss gusset plates, as shown in **Photograph No. 9.**



Photograph No. 7 – View of the top chord of Span 1 from Panel Point U1R. Note extensive corrosion and section loss of the cover plate, including holes at U2R (arrow).

Photograph No. 8 – View shows corrosion and minor section loss at the web plate and Outboard flange of the bottom chord in Panel 4 of Span 4, right side. Also note minor section loss and spreading at the flanges due to crevice corrosion.

Photograph No. 9 – View shows an isolated area of section loss in the outboard flange of the post at Panel Point L4L of Span 2 (arrow).

Truss Bracing

The condition of truss bracing of the Salinas River Bridge varies from good to very poor due to varying amounts of corrosion and section loss of the bracing members and connection plates. The most extensive and severe section loss within the truss bracing has occurred at upper connection plates of top lateral members, some of which no longer provide a connection between the lateral and top chord, as shown in **Photograph No. 10**. In addition, severe section loss has also occurred at some top and bottom lateral members, and at portions of top struts and sway frames, as shown in **Photograph No. 11.**

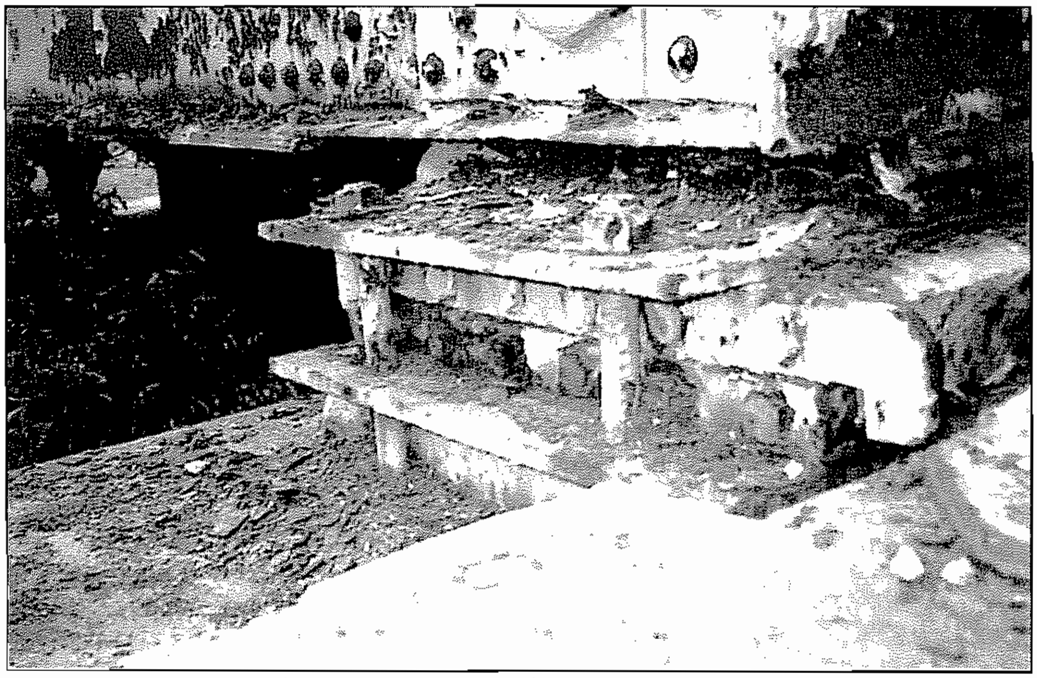
Truss Bearings

At most locations, segmental rollers of the truss expansion bearings appear to be frozen, and at Span 1 the segmental rollers are no longer centered under the upper bearing plate and appear to be "working out" **(see Photograph No. 12)**.

Extensive corrosion has occurred at back-to-back channels of expansion bearing pedestals, and at I-beams of fixed bearing pedestals, causing significant section loss in the webs and flanges of pedestal channels and I-beams **(see Photograph Nos. 13 & 14).** Several broken and missing anchor bolts were noted at the expansion bearings.

Photograph No. 10 – View shows 100% section loss of the upper connection plate of the top lateral, at Panel Point U5L of Span 3.

Photograph No. 11 – View shows 100% section loss of the bottom angles of the sway bracing between Panel Points U2L & U2R of Span 5.



Photograph No. 12 – View of the truss expansion bearing of Span 1, right side. Note that the segmental roller at the right side of the photo is no longer under the upper bearing plate.

Photograph No. 13 – View of the truss expansion bearing of Span 3, right side. Note extensive corrosion at back-to-back channels of the bearing pedestal.

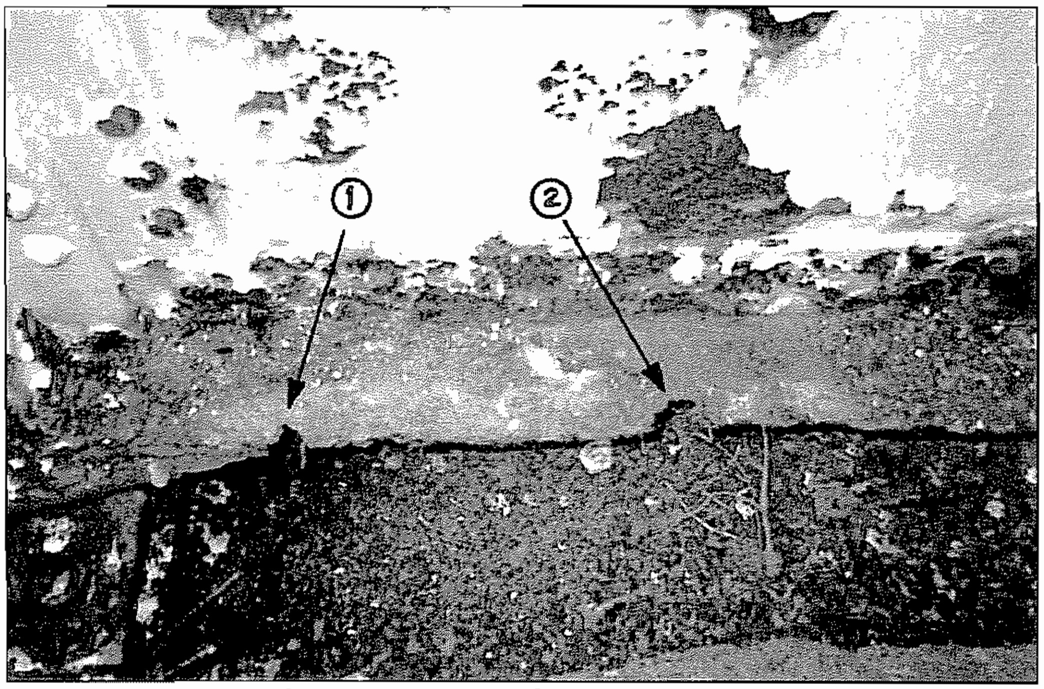
Photograph No. 14 – View of the truss fixed bearing of Span 3, left side. Note corrosion and section loss along the bottom of the webs of the bearing pedestal I-beams.

Floor System

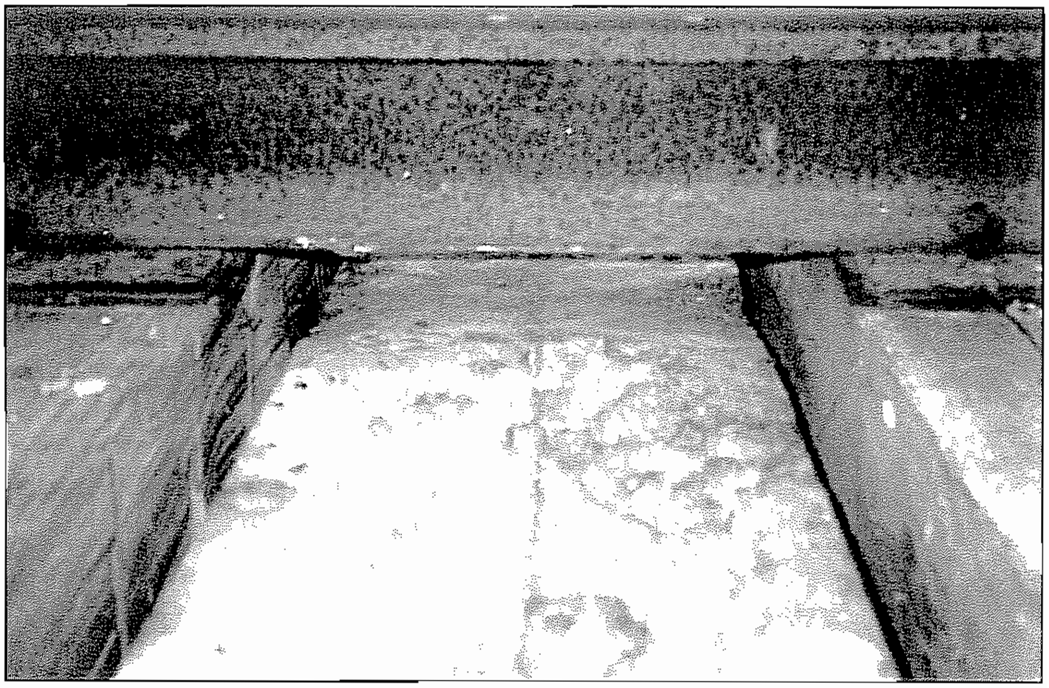
The floor system of the Salinas River Bridge is in generally fair condition with extensive deposit corrosion and minor section loss noted mainly at the flanges of floorbeams and stringers. Floorbeam bottom flanges are typically corroded with minor section loss along the top surface, but at one location (Span 1, Floorbeam 6) severe section loss was noted at the floorbeam bottom flange **(see Photograph No. 15)**. At floorbeam top flanges, section loss is typically worse in areas located directly beneath the rails and guard timbers of the track, which is probably due to the lack of sunlight reaching these areas to help evaporate deposits of moisture, and the resulting extended contact time of the corrosive elements on the steel **(see Photograph No. 16)**.

Minor section loss is typical at stringer top flanges due to corrosion and due to wear from the cross ties. Section loss at stringer bottom flanges due to corrosion is also generally minor and usually only noted at the outboard side of stringers, and it is typically worse at stringers to the right side of the bridge. Significant section loss was noted at a few stringer bottom flanges located near stringer bearings, as shown in **Photograph No. 17**.

The most severe areas of section loss within the floor system were noted at stringer bracket top flanges, at end post-to-floorbeam connection plates, and at floorbeam bracket connection angles, all in Span 1 **(see Photograph Nos. 18-20)**. These conditions do not exist at Spans 2-5 as these four original spans are of different design and detail and do not contain stringer brackets, end post-to-floorbeam connection plates or floorbeam brackets.

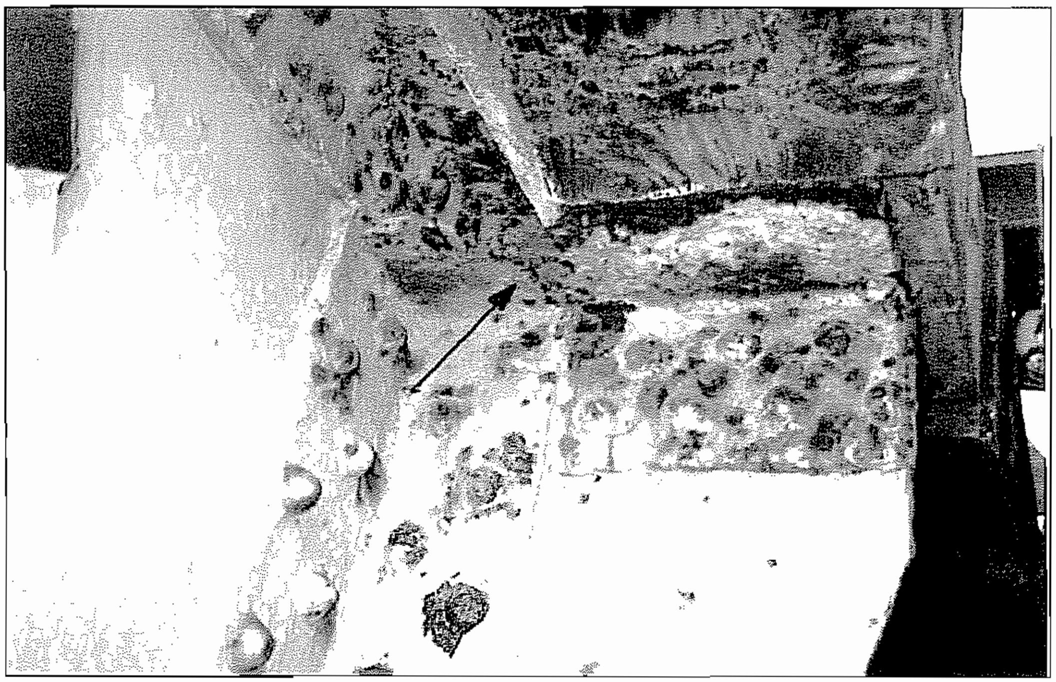


Photograph No. 15 – View shows the bottom flange of Floorbeam 6 of Span 1, right side, where 70% section loss was noted 15" from the end of floorbeam (arrow 1) and 40% section loss was noted 31" from the end of floorbeam (arrow 2).

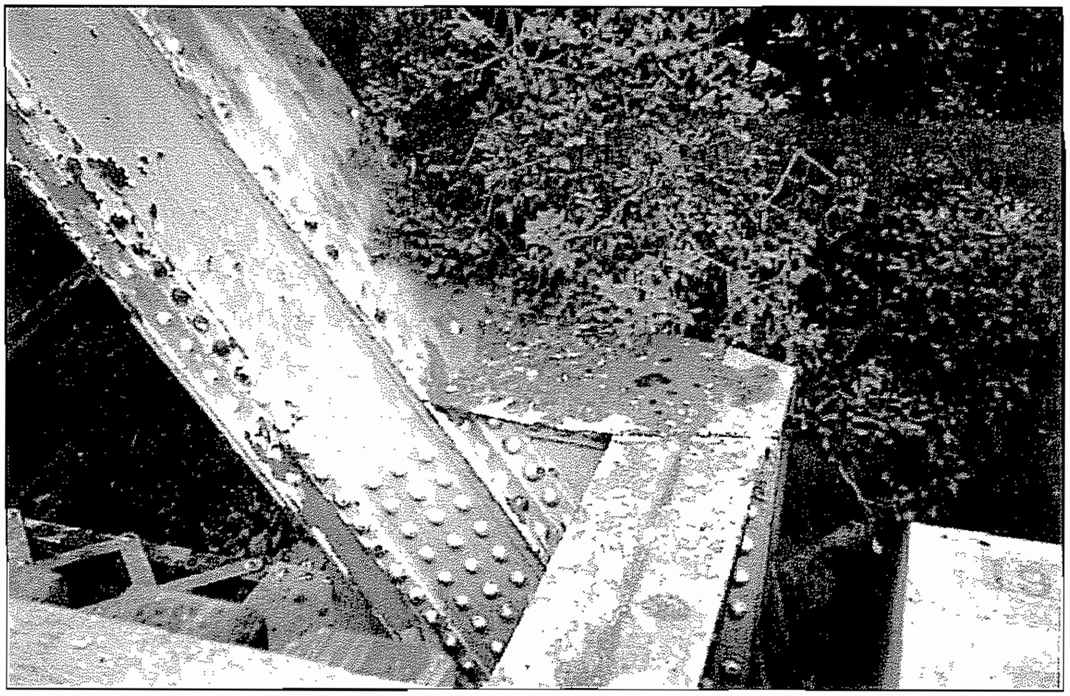


Photograph No. 16 – View shows section loss in the top flange of Floorbeam 5 of Span 4, under the left rail of the track.

Photograph No. 17 – View of the bottom flange of the right stringer in Panel 1 of Span 5, at the fixed bearing at Pier 4. Note location where 30% section loss has occurred (arrow).



Photograph No. 18 – View shows 100% section loss of the inboard top flange of the right stringerbracket, at Floorbeam 6 of Span 1



Photograph No. 19 – View of the end post-to-floorbeam connection plate of Span 1 at L0, right side. Note the holes in the plate, which has 70% section loss overall.

Photograph No. 20 – View shows the left floorbeam bracket of Floorbeam 3 of Span 1, where 50% section loss was noted at horizontal legs of the angles connecting it to the floorbeam.

Stringer Bearings
Exposed portions of stringer sole plates and bearing plates are typically corroded and minor section loss has occurred at bearing stiffeners at a few locations **(see Photograph No. 21)**. Corrosion at the fixed bearings does not cause concern at this time, but corrosion at the expansion bearings could inhibit intended movement during thermal expansion and contraction of the bridge, thereby transferring unintended stresses into the floor system.

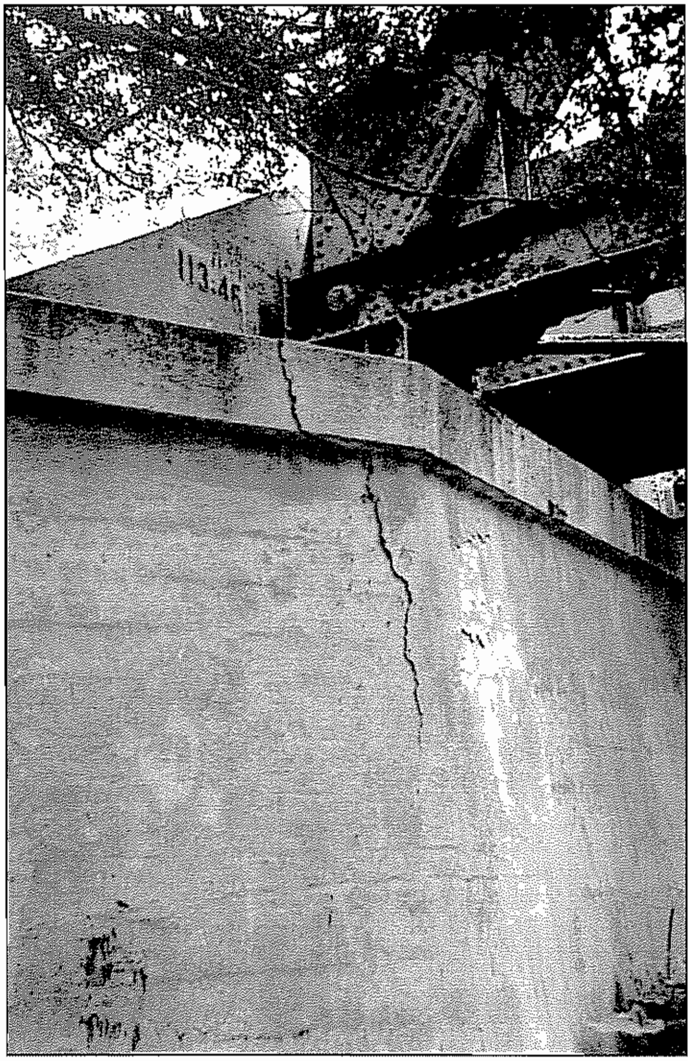
The right stringer expansion bearing of Span 2, at Pier 2, was in the "fully expanded" position at the time of inspection and the end of the stringer was in contact with the adjacent stringer of Span 3, indicating possible "fixity" of the expansion bearing(s) of Span 2 and/or movement of the substructure. The adjacent right truss expansion bearing was also in the expanded position and all expansion bearings appeared to be frozen, but the expansion bearings at the left side of the pier were not excessively expanded. Therefore, although all expansion bearings of Span 2 appear to be frozen, contact of the stringers at Pier 2 is probably due to movement of the substructure as noted during an inspection performed by Modjeski and Masters, Inc. in October of 1989, after the Loma Prieta earthquake.

Photograph No. 21 – View of the right stringer expansion bearing of Span 4, at Pier 4. Note corrosion at the stringer bottom flange, sole plate and bed plate, and minor section loss at the bottom of the bearing stiffeners.

B. SUBSTRUCTURE

The piers and abutments of the Salinas River Bridge are in good condition, except for movement that occurred during the Loma Prieta earthquake of 1989, and a crack in Abutment No. 1 that also resulted from the earthquake **(see Photograph No. 22)**. Since the earthquake, however, it appears that the substructure has remained stable and no additional significant cracks or other defects were noted above the waterline or mud-line. This inspection did not include a position survey or underwater inspection of the substructure.

Photograph No. 22– View shows a crack in Abutment No. 1, at the right truss bearing.



EVALUATION - LOAD CARRYING CAPACITY

The original four bridge spans were designed per Southern Pacific Specification 16, a loading configuration similar to that of the Cooper E-50 loading. The 1914 span was designed for the same loading configuration and the American Bridge Company, Common Standard 140'-0" Span. The 1902 spans were fabricated of medium steel and the 1914 span of medium open-hearth steel.

The live load carrying capacity of Bridge 113.46 was calculated based on the provisions of the AREMA Manual for Railway Engineering, Chapter 15 - Steel Structures, Section 7 - Ratings, bridge plans and findings of the bridge inspection which included measurement of metalwork losses as they relate to critical sections of the bridge.

As previously related, the spans of Bridge 113.46 are all Warren type spans of 6 panels at 23'-4" for a end pin-to-end pin distance of 140 ft. The truss members are all built-up sections of riveted plates, angles and channels with fixed connections. The floor system consists of two stringers per panel at a 7.0 ft. spacing. All floorbeams and stringers are riveted built-up members of plates and angles with fixed connections between stringers and floorbeams and between floorbeams and trusses. All truss primary members and the floor system are internally redundant members. No member modifications were noted.

Normal and maximum ratings were calculated for Bridge 113.46. The Normal Rating is the load level which can be carried by the existing structure for its expected service life at allowable stresses (0.55Fy). The Maximum Rating is the load level which the structure can support at infrequent intervals at a stress level of 0.80Fy. Two Load Cases were used in the calculations: Load Case A which is Capacity minus Dead Load divided by the sum of Live Load plus Impact; and Load Case B 1.25 time Capacity less Dead Load and Wind Load divided by the sum of Live Load plus Impact plus Longitudinal and Lateral Loads.

Bridge 113.46 was rated for the As-Build (full section) condition and for the As-Is (measured losses) condition. The ratings are based on a steel yield strength of 30,000 psi which is recommended by the AREMA rating provisions when the grade of steel used is not specifically known. The results of the ratings are summarized below with the controlling members and controlling Load Case indicated. More detailed rating results are shown in appended Exhibit 5 - Load Ratings

SALINAS RIVER BRIDGE
INSPECTION AND EVALUATION REPORT

AS BUILD CONDITION (Minimum Rating Value)

Trusses	Normal Rating	E-46.5	Bottom Chords	Spans 2-5	Load Case B
	Maximum Rating	E-75.6			
Floor System	Normal Rating	E-59.0	Floorbeams	Span 1	Load Case A
	Maximum Rating	E-87.9			

AS-IS CONDITION (Minimum Rating Value)

Trusses	Normal Rating	E-37.7	Bottom Chord, Left Truss, L0L2, Span 3
	Maximum Rating	E-62.6	Load Case B
Floor System	Normal Rating	E-69.5	Stringer shear, Span 1, Load Case A
	Maximum Rating	E-103.3	Left Stringer 6, Span 2

NOTE: Although the shown Cooper E ratings shown represent the minimum ratings, there are a number of other bridge members which similar low ratings.

Since there are a number of low Cooper E ratings, the actual required equivalent Cooper E for an anticipated commuter train consisting of a single 4-axle locomotive (268,000 lbs.) followed by 4-axle commuter cars (152,000 lbs.) was evaluated with the results shown below.

REQUIRED EQUIVALENT COOPER E RATING FOR TYPICAL COMMUTER TRAIN

Trusses	Bottom Chords	E-26.6
	Top Chords	E-28.7
	Hangers	E-37.0
Floor System	Stringers	E-39.7
	Floorbeams	E-37.0

Despite the loss of metalwork from extensive active corrosion present, Bridge 113.46 has sufficient capacity to handle anticipated commuter type equipment. However, there are many light sections, secondary bracking members that are in poor physical condition that are not a part of the rating procedure that will need replacement in kind or patch plated. The bridge in its present condition does not have the capacity for freight traffic.

SALINAS RIVER BRIDGE
INSPECTION AND EVALUATION REPORT

PRELIMINARY SEISMIC RECOMMENDATIONS

The evaluation of the need and type of seismic retrofit of the Salinas River Bridge, MP 113.46 involves several aspects, which include:

1. Development of Retrofit Criteria
2. Evaluation of Seismic Risk Reduction Measures
3. Evaluation of Structural Measures for Seismic Retrofit
4. Evaluation of Ground Improvement Measures for Site Remediation

1. Development of Retrofit Criteria

The Salinas River Bridge is intended to carry light rail traffic consisting of Amtrak-type locomotives and coaches (two or three per train). The anticipated schedule is about two round trips per day. The existing seismic performance criteria developed for bridges, applies mainly to the design and evaluation of highway bridges (e.g., Caltrans 1999 Seismic Design Methodology, AASHTO 1996 Standard Specifications for Highway Bridges and 1998 LRFD Design Specifications) that have a relatively high occupancy rate, and to the design of railroad bridges (AREMA) that carry mainly freight traffic. There apparently are no seismic retrofit criteria that would be directly applicable to the Salinas River Bridge.

Caltrans Seismic Performance Criteria

The Caltrans (Caltrans 1999) seismic performance criteria include two ground motion levels, Functional and Safety. The Functional ground motion represents a lower level earthquake, which may be assessed either deterministically or probabilistically. The Safety ground motion represents a larger earthquake, which may also be assessed deterministically or probabilistically. The deterministic assessment corresponds to the maximum credible earthquake and the probabilistic ground motion typically has a long return period of approximately 1,000 to 2,000 years. Bridges are classified as either Ordinary or Important (all bridges are considered Ordinary unless they have been designated as Important). The performance requirements for Ordinary bridges are immediate service and repairable damage after the Functional ground motion and limited service and significant damage after the Safety ground motion. This criteria is primarily for new bridge designs but it is also used for existing bridges.

AASHTO Seismic Performance Criteria

The AASHTO Standard Specifications for Highway Bridges (AASHTO 1996) use a probabilistic ground motion with a return period of 475 years as the design ground motion and the AASHTO LRFD Bridge Design Specifications (AASHTO 1998) use a probabilistic ground motion with a return period of 475 years for all bridge designs except critical bridges, for which a larger return period, e.g., 2,500 years is used. Bridges are expected to resist small to moderate earthquakes (which are not explicitly defined in the specifications) within the elastic range, and survive the design level earthquake without collapse of all or part of the bridge. The evaluation of exiting bridges is covered in the FHWA Seismic Retrofitting Manual for Highway Bridges (FHWA 1994), which is based on the premise that it is not always practical or economically feasible to retrofit a bridge to the same level of performance as a new bridge.

AREMA Seismic Performance Criteria

The seismic design guidelines included in Chapter 9 of the AREMA Manual for Railway Engineering (AREMA, 2001) are based on a three-level ground motion and performance criteria approach that is consistent with the railroad post-seismic event response procedures.

The performance criteria requirements include serviceability, ultimate and survivability limit states. The serviceability limit state is primarily concerned with train safety after a moderate earthquake. The structure is required to survive with only minor damage that does not affect train traffic. The ultimate limit state ensures overall structural integrity during a larger magnitude earthquake, and its objective is to minimize damage and loss of structure use. The survivability limit state is concerned with the survival of the bridge after a very rare and intense earthquake. Its objective is to minimize the likelihood of severe damage or bridge collapse.

Each response limit state is related to a given ground motion level. The recommended ground motion return period range for the design of new bridges is 50 to 100 years for the serviceability level ground motion (Ground Motion Level 1), 200 to 500 years for the ultimate limit state (Ground Motion Level 2) and 1000 to 2400 years for the survivability limit state (Ground Motion Level 3). The actual return period to be used for each ground motion level within the specified range is determined based on the structure importance classification.

The AREMA guidelines assign an importance classification factor to each limit state. The importance classification factors are determined based on three measures: Immediate Safety, Immediate Value and Replacement Value. Each of these measures are represented by a factor that ranges from 1 to 4. The Immediate Safety value is based on an occupancy factor, a hazardous material factor and a community lifeline factor. The occupancy factor is related to the number of passenger trains per day, the hazardous material factor depends on the type of materials being handled and the community life-line factor reflects the danger to community if the structure fails. The Immediate Value is based on a railroad utilization factor, which is related to the volume of traffic and a detour availability factor. The Replacement Value reflects the difficulty of replacing the structure. It is based on span length, bridge length and bridge height factors. The importance classification factor for each limit state is calculated by summing up the Immediate Safety, Immediate Value and Replacement Value, after they are multiplied by weighting factors that depend on the limit state. The Immediate Safety, Immediate Value, Replacement Value and Importance Classification factors estimated for the Salinas River Bridge based on seismic design guidelines are shown in Table 1.

Table 1. Importance Classification Factors

Limit State	Immediate Safety	Immediate Value	Replacement Value	Importance Classification Factor
Serviceability	2	1	4.5	1.8
Ultimate	2	1	4.5	1.5
Survivability	2	1	4.5	3.8

Based on these importance classification factors the design ground motion return periods are 75 years for the serviceability limit state, 300 years for the ultimate limit state and 2,300 years for the survivability limit state. Peak ground acceleration values were estimated based on the acceleration maps included in AREMA Chapter 9, and on the USGS nearest grid point peak ground acceleration data available from the USGS web site (see Table 2). The two estimates are quite different and it is clear that more reliable site-specific information is needed.

Table 2. Ground Motion Levels and Peak Ground Accelerations Estimates

Ground Motion Level	Frequency	Average Return Period (Years)	Peak Ground Acceleration AREMA Maps	Peak Ground Acceleration USGS Nearest Grid Point
1	Occasional	75	0.2g	0.4g
2	Rare	300	0.3g	0.5g
3	Very Rare	2,300	0.6g	0.7g

The AREMA seismic performance criteria are primarily for new bridge designs. Specific criteria and ground motion selection guidelines for the evaluation of exiting bridges have not been developed yet.

Recommended Approach

It is recommended that a project specific approach consistent with the AREMA design criteria be developed. Such an approach will be able to incorporate factors such as:

- Intended service life of the bridge in its present condition
- Relatively low occupancy rate
- Post seismic event response policy
- Use of seismic risk reduction measures such as earthquake triggering devices
- Intended performance after a given level earthquake
- Time constrains for bridge repairs
- The planned level of seismic upgrade for the track, embankments and other structures along the line

In general, the seismic criteria for new bridges, which are designed for long service lives of 75 years and over, is not directly applicable to existing bridges that are intended to remain in service for a limited period of time. The exposure time to risk is different. For example, for a 10% probability of exceedance in 50 years the design ground motion level return period is 475 years, while for a 10% probability of exeedance in 25 years the design ground motion level return period is only 240 years, which is associated with a lower ground motion level. Taking into account the effect of the different exposure rates for existing bridges in an explicit manner has recently been proposed in MCEER Highway Project Task 106-G-2.2, as part of the development of a new seismic retrofitting manual for highway structures.

Highway bridges and heavily used transit lines have high occupancy rates. For two train round trips a day, the Salinas River Bridge has a train occupancy rate of only about 0.1% This occupancy rate can be related to the occupancy rate of other bridges and the criteria used for their design. An example where the low occupancy rate had a significant impact on bridge retrofit, is the Big Dann and Cedar Creek Arch bridges, on Highway 271 near Leggett, California. It was felt that due to the very low average daily traffic count the probability that a car will be on the bridges for a random 15 seconds of strong shaking is very low (less than 1% if it is estimated that it takes 8 seconds to cross the bridge for one hundred cars in a 24 hour period). Because of the high costs involved no retrofit was done. Instead, the local community and Caltrans put forth a proposal to place seismic gates that would close in the event of strong ground motions. The gates will be activated by triggering sensors and will prevent cars from crossing after a major event until inspection can take place.

In order to address several performance levels and incorporate risk factors such as limited service life and occupancy rate, site-specific information on the ground motion level and likelihood of liquefaction as a function of the ground motion return period is needed. If such information was not developed during previous studies that involved the seismic retrofit of the Monte Road Bridge and the Highway 1 Bridges, further site-specific investigation is recommended.

2. Evaluation of Seismic Risk Reduction Measures

Seismic retrofit is not the only option for reducing seismic risk, especially for railroad bridges. Train traffic can be controlled from a centralized place and effective post seismic event operation policies can be implemented. In addition various earthquake or bridge damage detection triggering devices can be used with direct signals to the dispatcher and the locomotive engineer for fast response.

3. Evaluation of Structural Measures for Seismic Retrofit

The main seismic hazard for the Salinas River Bridge is liquefaction induced pier movement. During past earthquakes railroad bridges have survived ground shaking with little or no damage, but were damaged by ground movements. During the Loma Prieta Earthquake Pier 2 shifted towards the channel about 5 inches and Pier 3 shifted transversely about 6 to 9 inches, but without settlement, see appended Exhibit 6 - Loma Prieta Seismic Report. The Loma Prieta Earthquake had a magnitude of 7.1 and its epicenter was located 23 miles away from the bridge. From 1974 to present there were 12 earthquakes with a magnitude between 5 and 5.7 within a 30-mile radius from the bridge, with no apparent effects on the bridge (there were no earthquakes between 5.7 and 7.1 during this time period).

The need and the type of retrofit will depend on the ground motion levels and performance requirements selected for each limit state. Past performance indicates that a 7.1 magnitude earthquake can exceed the serviceability limit state but it may not exceed the ultimate and the survivability limit states.

Retrofit of bridges on liquefiable soils is difficult. There are two approaches to structural retrofit; one is to accommodate movements and the other is to resist loads. The most appropriate approach depends on the type, strength and configuration of the existing bridge and the ground motion levels considered. For example, movements of the superstructure that can affect train safety should not be allowed as part of a retrofit required to satisfy the serviceability criteria with respect to Ground Motion Level 1.

If retrofit of the Salinas River Bridge is required for satisfying the serviceability limit state, allowing movement that does not affect the superstructure, or using ground improvement measures appear to be the main options. Trying to resist loads through the existing piers is difficult because of their high rigidity and relatively low capacity. Ground movement will tend to move the piers along, and any resisting loads could be high enough to damage the pier or the connection to the pier. Adding a deep pile supported structure to somewhat bypass the piers is an option, but it could infringe on the channel opening, and it could be costly.

Retrofitting the Salinas River Bridge for movements for Ground Motion Level 3 can be a cost effective approach since the loads associated with ground movements during large earthquakes can be significant and difficult to resist. The bridge bearings will need to be replaced and the pier top area may need to be extended to be able to accommodate the expected movements.

4. Evaluation of Ground Improvement Measures for Site Remediation

Site remediation techniques may be used alone or in combination with structural retrofit to prevent liquefaction and/or minimize ground displacement demands. They generally include:

- Insitu ground densification around the bridge piers to reduce ground deformations
- The use of deep soil mixing using cement to form stabilizing zones around the piers
- Other types of ground improvement such as dewatering, gravel drains, or permanent grouting

The most common densification method is the vibro-replacement technique which creates stone columns approximately 3 feet in diameter. The stone columns form a densified zone and facilitate drainage of excess pore pressure. This method has been found to be effective in past earthquakes. Compaction grouting involves pumping a stiff mix of soil, cement and water into the ground under high pressure to compress or densify the soil.

SALINAS RIVER BRIDGE
INSPECTION AND EVALUATION REPORT

EXTENT OF REPAIRS AND COST

Prior to opening the Salinas River Bridge for intercity passenger rail service, various structural repairs should be completed as outlined in **Appendix 7** and as summarized herein. Prior to final design of those repairs, all bridge members should be cleaned of accumulated dirt, debris, and loose corrosion product sufficient for a follow-up inspection for detailing repairs.

Due to the extent of damage from the active corrosion, a variety of type structural repairs will be needed. For primary members with significant metalwork losses in local areas, the repairs will be performed by installing bolted splices or patch plates over zones of section loss sufficient to restore the capacity of the member. For bracing members where there may be a number of missing pieces of light angle, it may be cost effective to replace the whole member in kind. The same applies for minor member connection plates that have extensive losses. The top chord, top cover plates have deep pitting, thin sections, holes and deteriorated rivet heads. The replacement of sections of the cover plate, in kind, is the most economical repair method. Rivets that have head losses, but the steel plies remain in full clamping contact, can remain in service. Conversely, at locations where there is separation of plies or prying action, deteriorated rivets should be replaced with bolts on a one-for-one basis.

Repair costs have been developed for the various type structural repairs based on previous similar bridge rehabilitation project costs, quantities required for these repairs times current material and labor costs, and from general construction experience.

SUMMARY OF STRUCTURAL REPAIRS

1.	Realign truss spans moved during the Loma Prieta earthquake	$ 50,000
2.	Replace all truss expansion bearings	150,000
3.	Replace fixed bearing pedestals, Spans 3 & 4	50,000
4.	Replace in kind, deteriorated sections of top chord, cov. pls., all spans	325,000
5.	Repair areas of significant section losses in primary truss members	100,000
6.	Repair or replace truss bracing components	100,000
7.	Replace deteriorated lacing bars of truss members	75,000
8.	Repair or replace floor system components	100,000
9.	Repair stringer expansion bearings Spans 2, 3 & 4	40,000
10.	Clean and overcoat all bridge members	500,000
11.	Repair Abutment 1 concrete crack	10,000
	TOTAL	$ 1,500,000

The cost for repositioning the spans misaligned in the 1989 Loma Prieta earthquake has been included above, however no repairs or associated costs have been allocated for the two piers that also moved in that earthquake. Piers built circa 1902, if built atop piling, commonly had a timber mat between the piling and concrete stem. The mat normally was not drift pinned to the piling. Based on similar bridges of similar age in California that were constructed in the coastal area and for the

Southern Pacific, if there was any pier base movement it would occur between the piles and timber mat without causing loss of pile capacity. Thus, it is judged that the piers that moved during the earthquake are adequate for the support of the anticipated commuter train live loads.

The preservation of the bridge metalwork can be accomplished by two means; abrasive blast cleaning to remove all corrosion and lead paint followed by a three-coat high performance paint system, or by high pressure washing to remove all loose corrosion product and loose paint followed by an application of a protective overcoat specifically formulated for adhering to minimally prepared surfaces.

The abrasive blast cleaning of the bridge would require full containment and special lead abatement procedures. This costly cleaning method should be performed prior to the restoration of traffic so that the traffic will not have to travel through the containment. The long term life of a high performance paint system may be in question due to the extent of surface pitting, pack rust in crevises, thin ragged edges on members and the like. Based on the cost to blast clean a bridge of somewhat similar deterioration in a similar coastal environment, the cost to clean and paint the Salinas River Bridge is estimated to be $2,000,000.

For an overcoating application in preserving the bridge metalwork, the water and residue from the blast and removed product will have to be caught and properly disposed. The overcoat paint formulated for such an application generally is a thick coating up to 16 mills that can fill in crevices and pitted areas plus has a high degree of film flexibility. The cost for waterblast cleaning and overcoating the 5 spans is estimated to cost $500,000.

As stated previously, it appears that a seismic criteria will need to be established to evaluate and possible retrofit of the bridge or accept a level of damage. The adjacent highway bridges which are of different type construction were earthquake retrofitted using retrofit bents, pin and hanger retrofits, catch blocks and shear keys, and added cross bracing. The Monte Road seismic upgrade reportedly cost approximately $2,693,000. Thus, the Salinas River Bridge seismic retrofit cost order of magnitude could easily be in excess of $3,000,000. The Shannon & Wilson, Inc. Preliminary Geotechnical Recommendations Report for this project discusses the soils conditions at Bridge No. 113.46, the need for hydrologic and scour analyses during the final design phase and a number of scenarios for possible seismic retrofit or replacement of the piers, if TAMC pursues seismic upgrading.

Based on the past usage or lack of usage, the bridge has not experienced high annual tonnage levels which would produce fatigue damage. The proposed intercity passenger traffic will likewise not result in fatigue damage. Therefore, with the repair of the bridge significant metalwork losses and the cleaning and protective coating of the bridge, the bridge should structurally be sufficient for another 20 years of service. This does not address the possible obsolescence due to restricted horizontal clearance or any imposed seismic retrofit requirements that would exceed economical justification for keeping this bridge in service.

SALINAS RIVER BRIDGE
INSPECTION AND EVALUATION REPORT

RECOMMENDATIONS

Prior to opening the Salinas River Bridge for commuter traffic, structural repairs and the preservation of the bridge metalwork should be performed. The specific defects are shown in **Appendix 4** and the recommended repairs are shown in **Appendix 7** with a summary of repairs and costs shown in Report Section - Extent of Repairs and Cost.

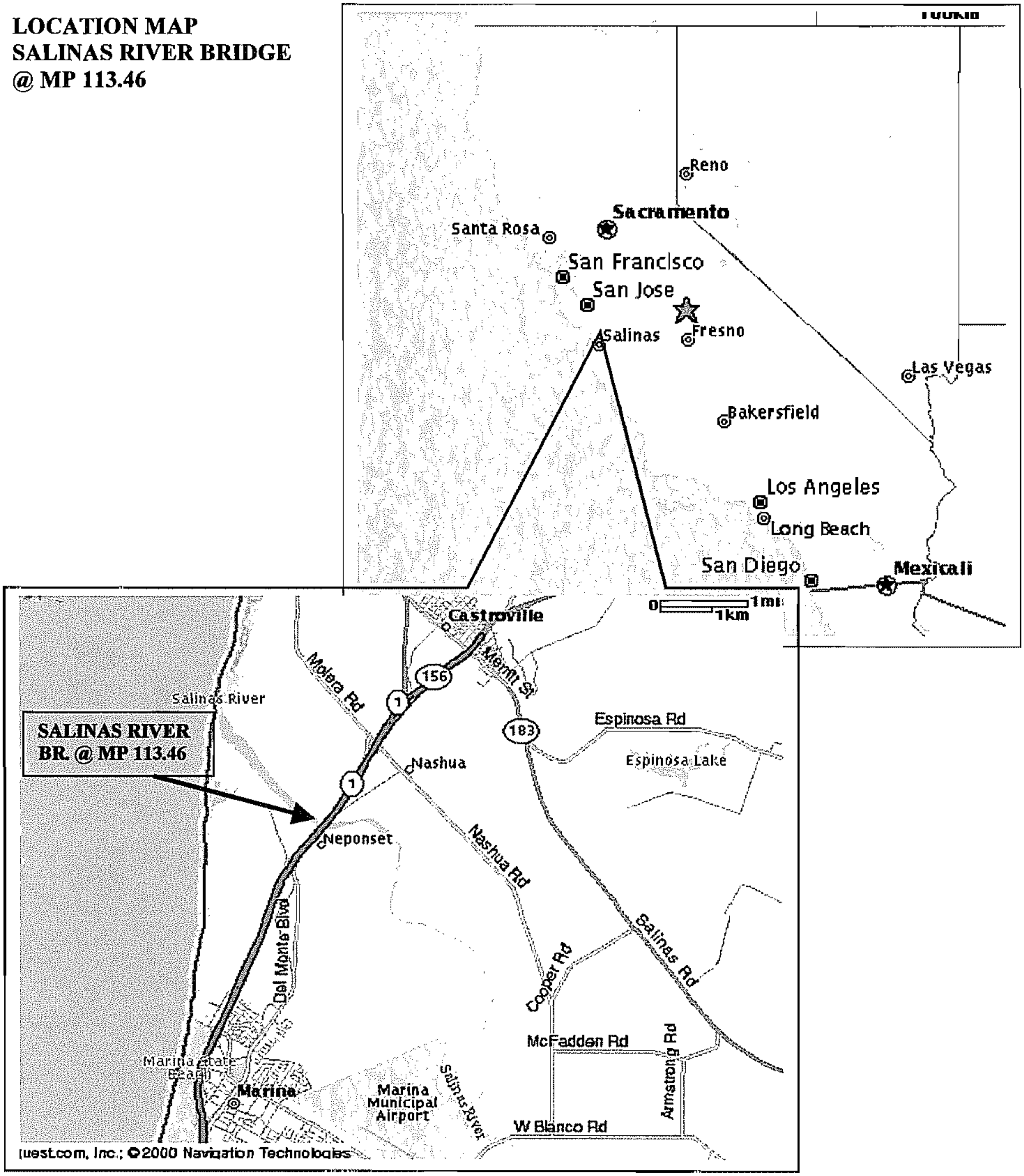
Based on the inspection findings and load capacity analyses, the bridge can be structurally repaired and preserved sufficient to carry intercity passenger service for the next 20 years at a cost of $1,500,000. This cost does not include track on the bridge, seismic retrofits or engineering the repairs. It is recommended that TAMC implement site seismic monitors and train control procedures in lieu of performing bridge seismic retrofits at this time.

APPENDIX 1

LOCATION MAP

Appendix 1

LOCATION MAP
SALINAS RIVER BRIDGE
@ MP 113.46



YAHOO! Maps

Yahoo! - Yellow Pages - Help

Powered by Mapquest.com (tm)

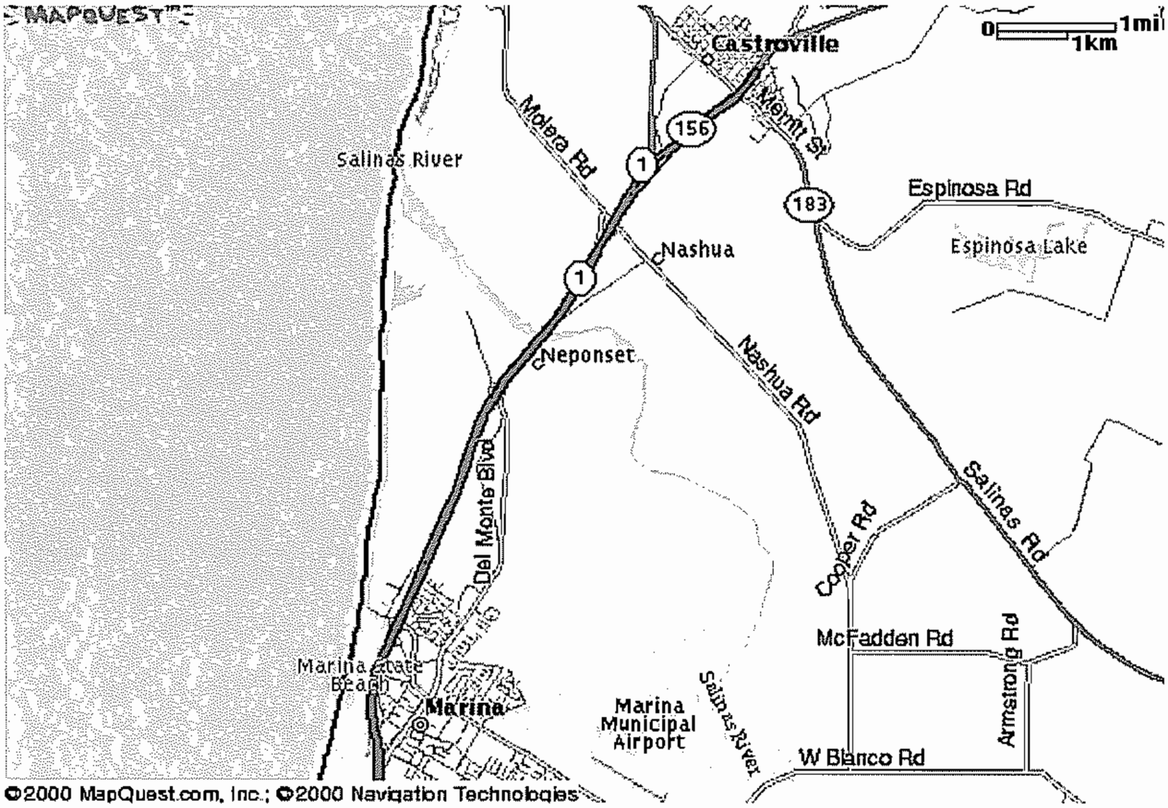
Welcome, Guest User

Create My Locations - Sign In

Yahoo! Maps

Salinas, CA 93901

Save This Address



N W E S

Zoom In
[1]
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4
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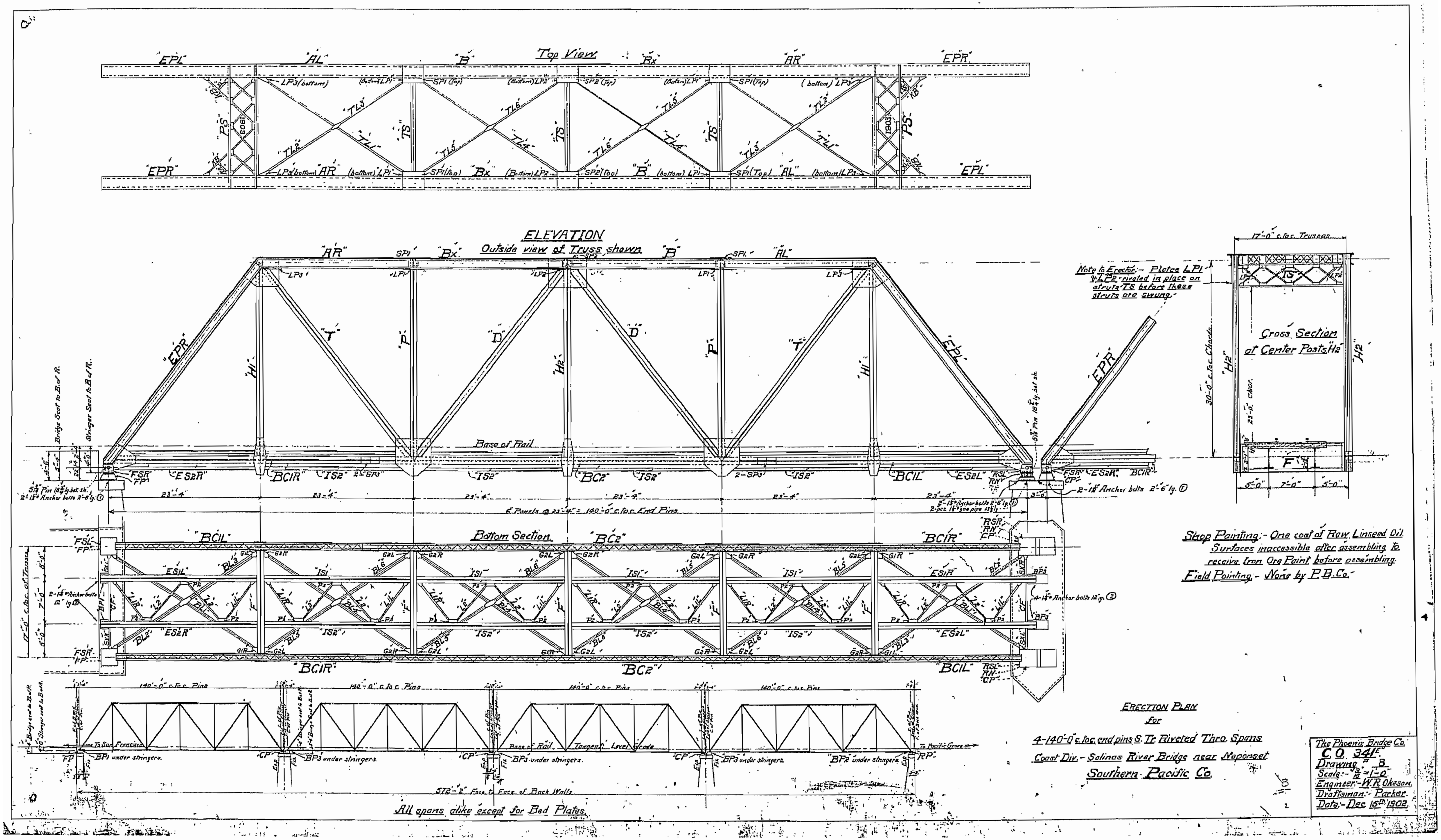
[6]
[7]
[8]
[9]
[10]
Zoom Out

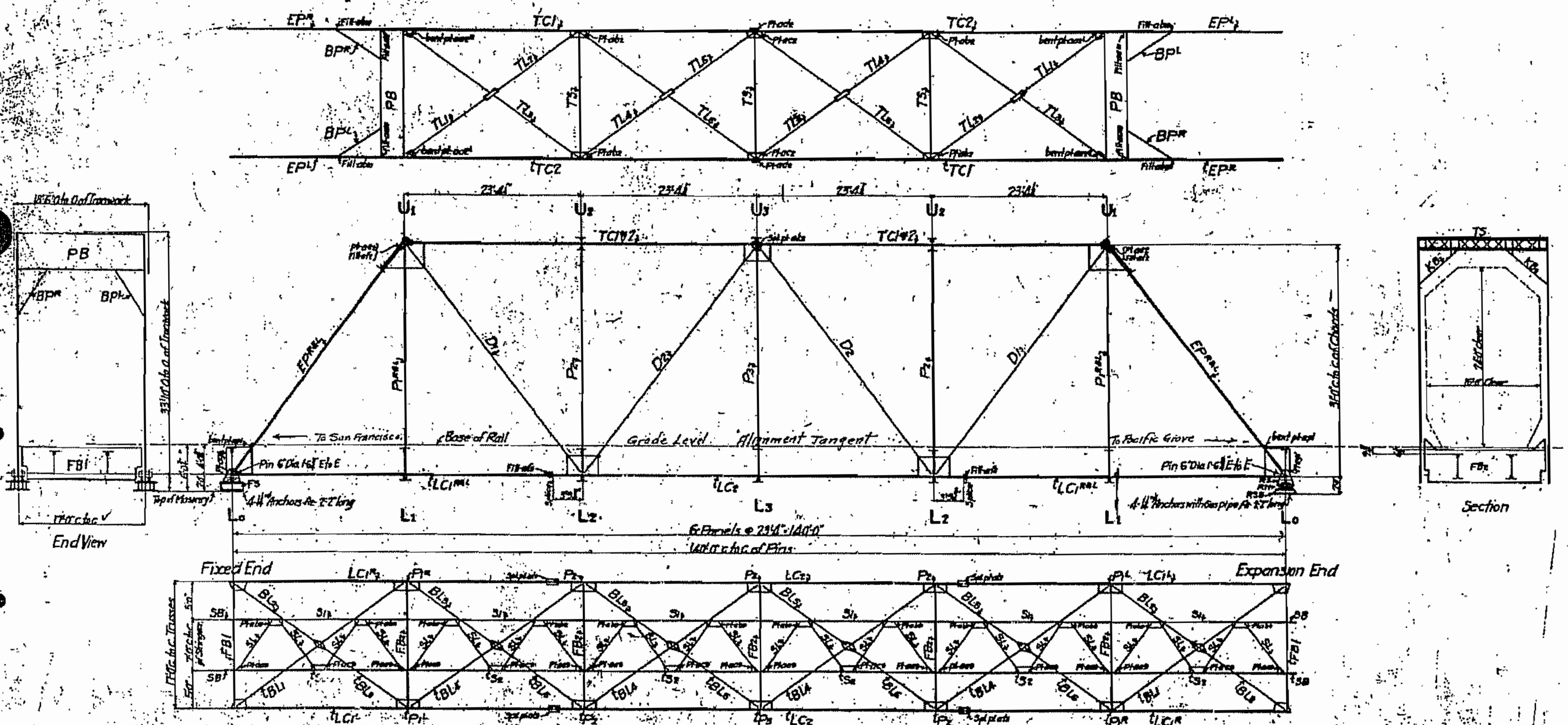
Email Map

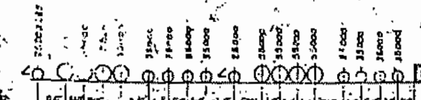
Interactive Map

APPENDIX 2

2A -1902 BRIDGE PLAN
2B - 1914 BRIDGE PLAN
2C - 1914 FOUNDATION PLAN


Top View
ELEVATION
Outside view of Truss shown
Base of Rail
6 Panels @ 23'-4" = 140'-0" c. to c. End Pins
Bottom Section
Note to Erector: - Plates LP1 & LP2 riveted in place on struts TS before these struts are swung.
17'-0" c. to c. Trusses
Cross Section at Center Posts H2
30'-0" c. to c. Chords
Shop Painting: - One coat of Raw Linseed Oil. Surfaces inaccessible after assembling to receive Iron Ore Paint before assembling.
Field Painting: - None by P.B.Co.
572'-2" Face to Face of Back Walls
All spans alike except for Bed Plates.
ERECTION PLAN
for
4-140'-0" c. to c. end pins S. Tr. Riveted Thro. Spans
Coast Div. - Salinas River Bridge near Neponset
Southern Pacific Co.
The Phoenix Bridge Co.
C.O. 341E
Drawing # 8
Scale - 3/8" = 1'-0
Engineer - W.R. Okeson
Draftsman - Parker
Date - Dec 15th 1902





140'0 Through Riv. Truss Bridges Mfg. from Common Std. Drawings C Shwn (?)									
Order	Railway	Division	Br. No.	Location	No. Spans	Year	Fabricated by	Remarks	Floor Bolts
B3868	So.Pac.Ry	New Mexico & Arizona R.R.	[illegible]	Patagonia Ariz	One	1907	Toledo Plant	[illegible]	Not Furnished
B3869	So.Pac.Ry	New Mexico & Arizona R.R.	[illegible]	Patagonia Ariz	One	1907	Toledo Plant	[illegible]	Not Furnished
B5384	So.Pac.Ry	New Mexico & Arizona R.R.	[illegible]	Patagonia Ariz	One	1909	Ambr. Plant	[illegible]	Not Furnished
B5385	So.Pac.Ry	New Mexico & Arizona R.R.	[illegible]	Patagonia Ariz	One	1909	Ambr. Plant	[illegible]	Not Furnished
B5386	So.Pac.Ry	New Mexico & Arizona R.R.	[illegible]	Patagonia Ariz	One	1909	Ambr. Plant	[illegible]	Not Furnished
C8875	So.Pac.Ry	Coast Div.	Salinas R.	Neponset, Cal.	6 ...	1912	Amb. Plant	... Grade level	Not Furnished

List of Drawings

Sheet No.	Description	Sheet No.	Description
E1	Erection Diagram	F1	Shop Bolts
1	End Posts	EF1	Erector's List Fld. Riv.
2	Top Chords	R1	Shipping Sheets
3	Lower Chords	SH1	Shop Bills
4	Posts		
5	Diagonals		
6	Top Laterals		
7	Bottom Laterals		
8	Floor Beams		
9	Stringers		
10	Portals & Struts		
11	Shoes		
C1	Roller Nest		
C2	Pins		
C3	Anchor Bolts		
C4	Summary Fld. Rivets		

Approved 9/4/07

Consulting Engineer

Notes:
Material: Med. O. H. Steel ...
Specifications: Common Std. No. 1000 Revised 1909
Inspection: R.W. Hunt & Co.
Erection: by others
Field Paint: ...
Shop Paint: One coat red lead & oil
Surfaces in contact one coat
Surfaces inaccessible after erection one coat
Rivets: ⅞" dia. except where otherwise noted.
Open Holes: 15/16" dia. except where otherwise noted.
All holes punched 3/16" small and reamed to 1/16" larger than dia. of rivet except laterals, bracing, stiffeners, fillers, tie pls. and lacing.
All spliced members should be put together in shop and field holes reamed to fit while members with their splice pls. are in place and match marked.
Field connections of beams to trusses and stringers to beams reamed to a metal template ... thick.

Southern Pacific Co.
Salinas River Bridge Coast Div.
near Neponset Calif.

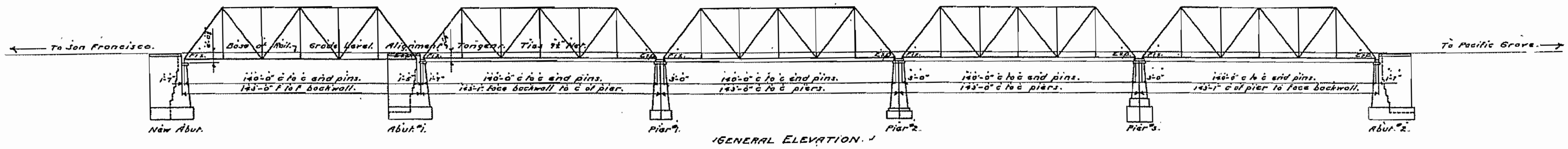
Erection Diagram,
COM. STANDARD 140' 0" SPAN.

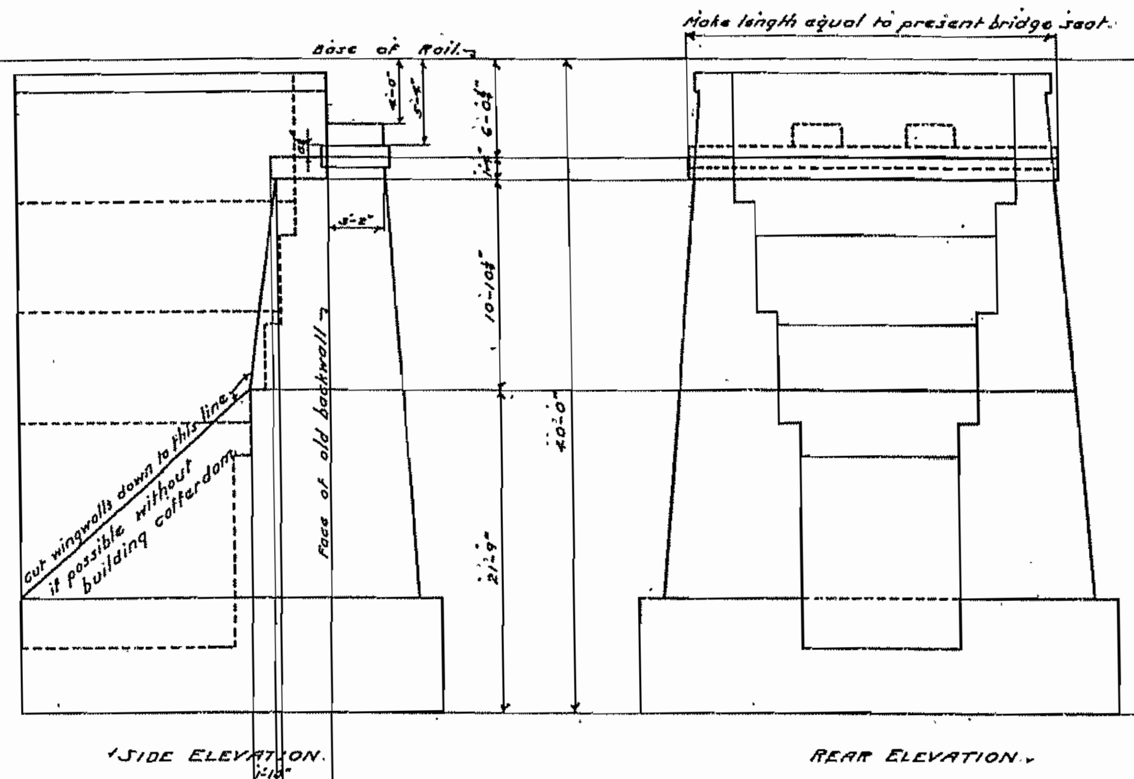
SINGLE TRACK THRU. RIVETED TRUSS BRIDGE.
Length 140' 0" c. to c. End Pins.
Width 17' 0" c. to c. Trusses.
Depth 31' ... c. to c. of Chords.
Scale ...

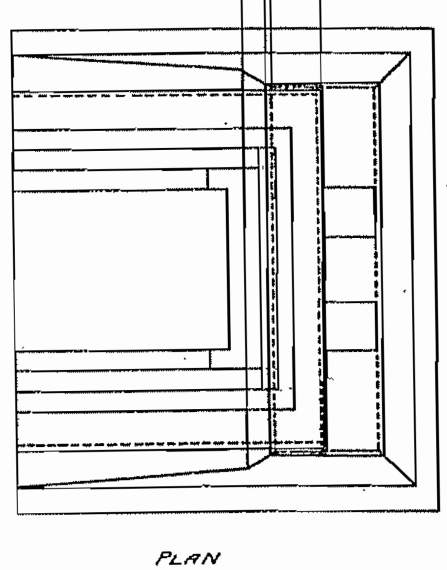
AMERICAN BRIDGE CO.

Amb. PLANT

Design Made at ... In Charge of ...
Detailed by ... Date ... Checked by ... Date 7-31-...
Fld. Conn. Chk. by ... Date ...
ORDER NO. C8875 SHEET NO. E1







Present abutment #1. to be converted into pier.

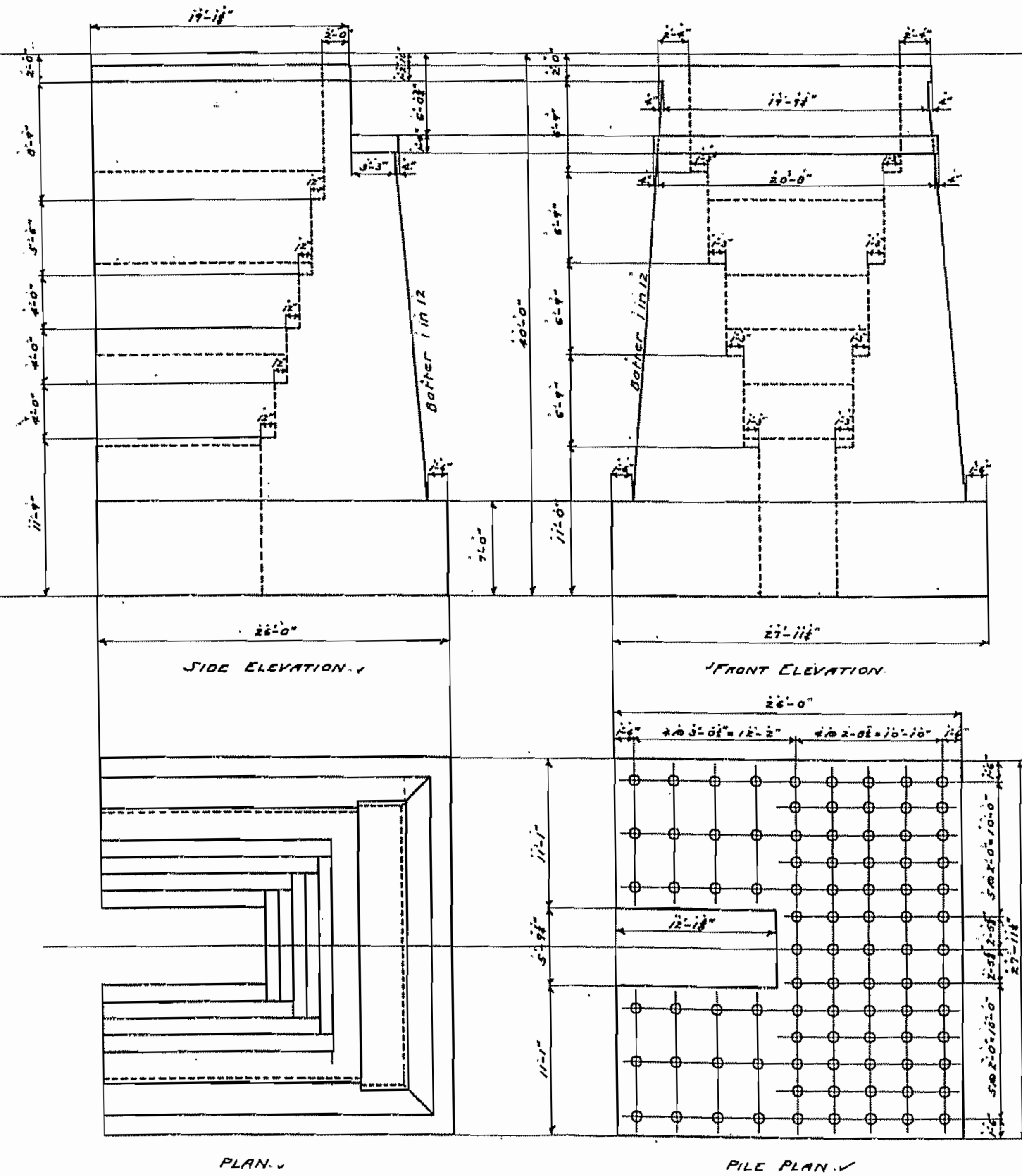
Backwall and wingwalls to be cut down as shown by heavy lines.

Concrete to be built up from old 12" steps to form new bridge seat.

Roughen up old surface of concrete to secure good bond with new material.

Light lines show old material.

Heavy " " new "



THIS U-ABUTMENT VOID

FOR NEW DESIGN SEE

M.W.D. 2457. SHEET. 2.

DETAIL OF NEW ABUTMENT

FOR

SALINAS RIVER BRIDGE

NEAR NEPONSET COAST DIV.

Scale ¼"=1'-0" July 1914.

G.M.O. 20314

M.W.D.

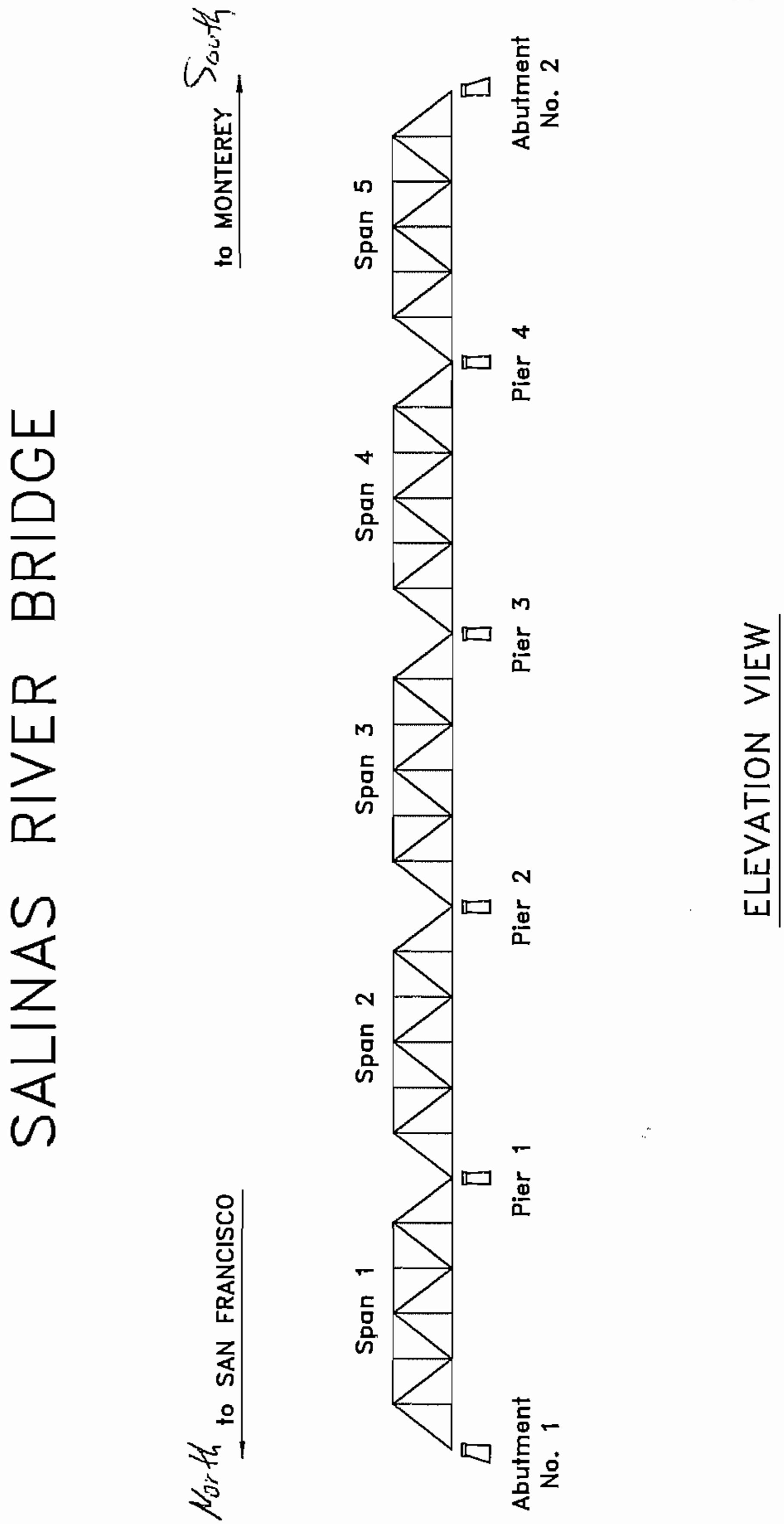
Drawing. 24

Sheet

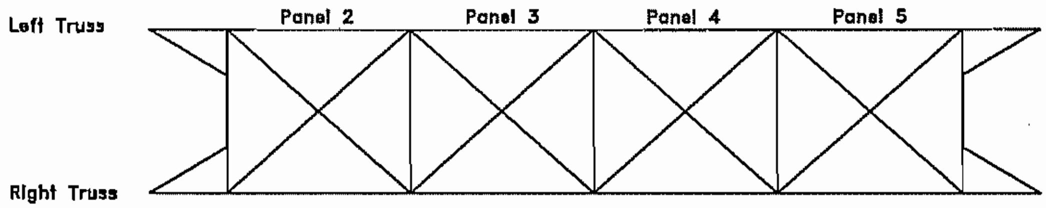
APPENDIX 3

INSPECTION CHARTS

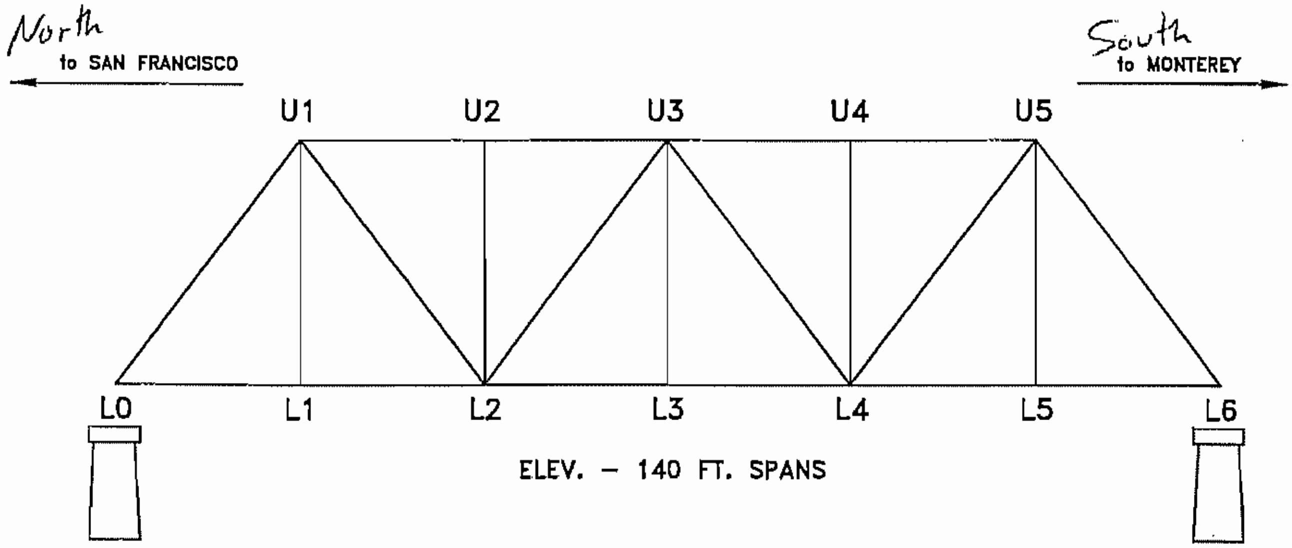
Appendix 3


SALINAS RIVER BRIDGE
North to SAN FRANCISCO
to MONTEREY South
Abutment No. 1
Span 1
Pier 1
Span 2
Pier 2
Span 3
Pier 3
Span 4
Pier 4
Span 5
Abutment No. 2
ELEVATION VIEW

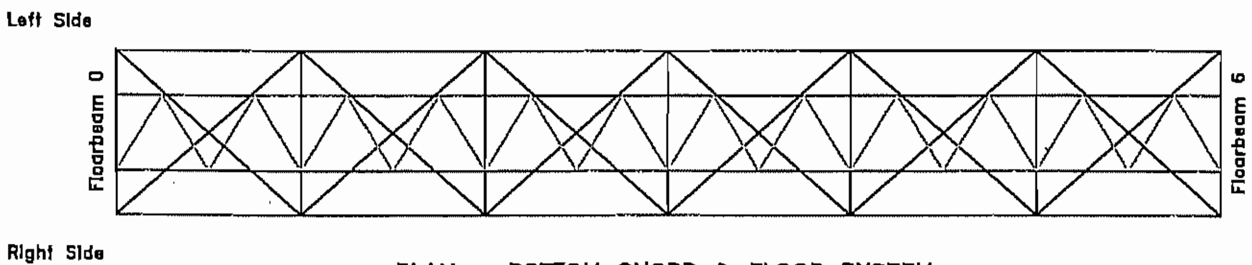
SALINAS RIVER BRIDGE



PLAN – TOP CHORD



ELEV. – 140 FT. SPANS



PLAN – BOTTOM CHORD & FLOOR SYSTEM

TRUSS NUMBERING DIAGRAM

APPENDIX 4

MEMBER LOSSES

LEGEND

BC	- Bottom Chord
BF	- Bottom Flange
Brg	- Bearing
btm	- bottom
btw	- between
Exp	- Expansion
Fl	- Flange
Flbm	- Floorbeam
horiz	- horizontal
Inbd	- Inboard
L	- angle
Lt	- Left
Mty	- Monterey
Outbd	- Outboard
Rt	- Right
SF	- San Francisco
SL	- Section Loss
Str	- Stringer
TC	- Top Chord
TF	- Top Flange

Salinas River Bridge
Inspection Report

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
1	1	**End Post (Lt)**		
		Cover Plate	10%	
		Outbd TF		
		Outbd BF		
		Outbd Web		
		Inbd TF		
		Inbd BF		
		Inbd Web		
1	1	**End Post (Rt)**		
		Cover Plate	15%	
		Outbd TF		
		Outbd BF		
		Outbd Web		
		Inbd TF		
		Inbd BF		
		Inbd Web		
1	1	**Bottom Chord (Lt)**		
		Outbd TF	20%	
		Outbd BF	10%	
		Outbd Web		
		Inbd TF	20%	
		Inbd BF	5%	
		Inbd Web		
1	1	**Bottom Chord (Rt)**		
		Outbd TF	50%	located 16" from center of bearing pin at L0R
			40%	typical between L0 and L1
		Outbd BF	90%	located 16" from center of brg pin at L0R
		Outbd Web		
		Inbd TF	40%	located 16" from center of bearing pin at L0R
			40%	typical between L0 and L1
		Inbd BF		
		Inbd Web		
1	L1L-U1L	**Hanger (Lt)**		
		Outbd Fl (SF side)	20%	along top of bottom chord
		Outbd Fl (Mty side)	20%	along top of bottom chord
		Inbd Fl (SF side)		
		Inbd Fl (Mty side)		
		Web		
1	L1R-U1R	**Hanger (Rt)**		
		Outbd Fl (SF side)	10%	along top of bottom chord
		Outbd Fl (Mty side)	10%	along top of bottom chord
		Inbd Fl (SF side)		

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		Inbd Fl (Mty side)		
		Web		
1	**2**	**Bottom Chord (Lt)**		100% SL at 90% of top lacing bars
		Outbd TF	50%	
		Outbd BF	10%	
		Outbd Web	5%	
		Inbd TF	50%	
		Inbd BF	10%	
		Inbd Web	5%	
1	**2**	**Bottom Chord (Rt)**		
		Outbd TF	50%	
		Outbd BF		
		Outbd Web		
		Inbd TF	50%	
		Inbd BF		
		Inbd Web		
1	**2**	**Top Chord (Lt)**		
		Cover Plate	50%	
		Outbd TF	5%	
		Outbd BF	10%	
		Outbd Web		
		Inbd TF	5%	
		Inbd BF	30%	
		Inbd Web		
1	**2**	**Top Chord (Rt)**		
		Cover Plate	80%	near U1R
			90%	near U2R
			60%	typical along length of member, except as noted above
		Outbd TF	10%	
		Outbd BF	50%	
		Outbd Web	5%	
		Inbd TF		
		Inbd BF	20%	
		Inbd Web	5%	
1	**2**	**Diagonal (Lt)**		
		Outbd TF	20%	
		Outbd BF	5%	
		Outbd Web	5%	
		Inbd TF	20%	
		Inbd BF	20%	
		Inbd Web	5%	
1	**2**	**Diagonal (Rt)**		

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		Outbd TF	50%	
		Outbd BF	25%	
		Outbd Web	5%	
		Inbd TF	50%	
		Inbd BF	10%	
		Inbd Web	5%	
1	**L2L-U2L**	**Post (Lt)**		
		Outbd Fl (SF side)		
		Outbd Fl (Mty side)		
		Inbd Fl (SF side)		
		Inbd Fl (Mty side)		
		Web		
1	**L2R-U2R**	**Post (Rt)**		
		Outbd Fl (SF side)		
		Outbd Fl (Mty side)	50%	just below top chord
			15%	along 10 ft. section at mid-height of post
		Inbd Fl (SF side)		
		Inbd Fl (Mty side)	25%	above fill plate at flbm connection
		Web		
1	**3**	**Bottom Chord (Lt)**		100% SL at 30% of top lacing bars; Bottom chord covered with tree limbs.
		Outbd TF	20%	
		Outbd BF	10%	
		Outbd Web	5%	
		Inbd TF	20%	
		Inbd BF	10%	
		Inbd Web	5%	
1	**3**	**Bottom Chord (Rt)**		Bottom chord covered with tree limbs.
		Outbd TF	15%	
		Outbd BF		
		Outbd Web		
		Inbd TF	15%	
		Inbd BF		
		Inbd Web		
1	**3**	**Top Chord (Lt)**		
		Cover Plate	50%	
		Outbd TF	5%	
		Outbd BF	10%	
		Outbd Web		
		Inbd TF	20%	
		Inbd BF	30%	
		Inbd Web	5%	

TABLE 1

TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
1	3	**Top Chord (Rt)**		
		Cover Plate	50%	
		Outbd TF	15%	
		Outbd BF	50%	
		Outbd Web	5%	
		Inbd TF	5%	
		Inbd BF	40%	
		Inbd Web	5%	
1	3	**Diagonal (Lt)**		
		Outbd TF	10%	
		Outbd BF	10%	
		Outbd Web	5%	
		Inbd TF	10%	
		Inbd BF	10%	
		Inbd Web	5%	
1	3	**Diagonal (Rt)**		100% SL at upper 12 top lacing bars, and 50% SL at remaining top lacing bars.
		Outbd TF	50%	
		Outbd BF	30%	
		Outbd Web	5%	
		Inbd TF	50%	
		Inbd BF	10%	
		Inbd Web	10%	
1	L3L-U3L	**Hanger (Lt)**		
		Outbd Fl (SF side)		
		Outbd Fl (Mty side)		
		Inbd Fl (SF side)	40%	along top of fill plate at flbm connection
		Inbd Fl (Mty side)	25%	along top of fill plate at flbm connection
		Web		
1	L3R-U3R	**Hanger (Rt)**		
		Outbd Fl (SF side)		
		Outbd Fl (Mty side)		
		Inbd Fl (SF side)	50%	along top of fill plate at flbm connection
		Inbd Fl (Mty side)	20%	along top of fill plate at flbm connection
		Web		
1	4	**Bottom Chord (Lt)**		100% SL at 50% of top lacing bars; Bottom chord covered with tree limbs.
		Outbd TF	50%	
		Outbd BF	25%	
		Outbd Web	5%	
		Inbd TF	50%	
		Inbd BF	25%	

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

Salinas River Bridge
Inspection Report

TABLE 1

TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		Inbd Web	5%	
1	**4**	**Bottom Chord (Rt)**		Bottom chord covered with tree limbs.
		Outbd TF	20%	
		Outbd BF	15%	
		Outbd Web	5%	
		Inbd TF	20%	
		Inbd BF	15%	
		Inbd Web	5%	
1	**4**	**Top Chord (Lt)**		
		Cover Plate	40%	
		Outbd TF		
		Outbd BF	15%	
		Outbd Web	5%	
		Inbd TF	5%	
		Inbd BF	30%	
		Inbd Web	10%	
1	**4**	**Top Chord (Rt)**		
		Cover Plate	80%	at 6 ft. section near U3R and at 8 ft. section near U4R
			60%	between sections noted above
		Outbd TF	5%	
		Outbd BF	50%	
		Outbd Web	5%	
		Inbd TF		
		Inbd BF	10%	
		Inbd Web		
1	**4**	**Diagonal (Lt)**		100% SL at two top lacing bars; 50% SL at remaining top lacing bars
		Outbd TF	50%	
		Outbd BF	20%	
		Outbd Web	5%	
		Inbd TF	50%	
		Inbd BF	40%	
		Inbd Web	5%	
1	**4**	**Diagonal (Rt)**		100% SL at 75% of bottom lacing bars and at 10% of top lacing bars; 50% SL at remaining lacing bars.
		Outbd TF	50%	
		Outbd BF	25%	
		Outbd Web	5%	
		Inbd TF	25%	
		Inbd BF	5%	
		Inbd Web		
1	**L4L-U4L**	**Post (Lt)**		

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		Outbd Fl (SF side)	5%	
		Outbd Fl (Mty side)	5%	
		Inbd Fl (SF side)	20%	
		Inbd Fl (Mty side)	20%	
		Web		80% SL at all lacing bars
1	**L4R-U4R**	**Post (Rt)**		
		Outbd Fl (SF side)	10%	
		Outbd Fl (Mty side)	10%	
		Inbd Fl (SF side)	5%	
		Inbd Fl (Mty side)	5%	
		Web		80% SL at all lacing bars
1	**5**	**Bottom Chord (Lt)**		95% SL at 50% of top lacing bars
		Outbd TF	70%	
		Outbd BF	10%	
		Outbd Web		
		Inbd TF	70%	
		Inbd BF	10%	
		Inbd Web		
1	**5**	**Bottom Chord (Rt)**		
		Outbd TF	50%	50% SL at L5R; 20% SL typical
		Outbd BF	20%	
		Outbd Web	5%	
		Inbd TF	50%	50% SL at L5R; 20% SL typical
		Inbd BF	20%	
		Inbd Web	5%	
1	**5**	**Top Chord (Lt)**		
		Cover Plate	50%	
		Outbd TF		
		Outbd BF	15%	
		Outbd Web		
		Inbd TF	15%	
		Inbd BF	30%	
		Inbd Web	5%	
1	**5**	**Top Chord (Rt)**		
		Cover Plate	90%	near U4R and at 7 ft. section near U5R
			70%	between sections noted above
		Outbd TF	10%	
		Outbd BF	70%	
		Outbd Web	5%	
		Inbd TF	5%	
		Inbd BF	10%	
		Inbd Web		

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
1	5	**Diagonal (Lt)**		
		Outbd TF	50%	
		Outbd BF	15%	
		Outbd Web	5%	
		Inbd TF	40%	
		Inbd BF	20%	
		Inbd Web	5%	
1	5	**Diagonal (Rt)**		100% SL at seven top lacing bars
		Outbd TF	40%	
		Outbd BF	60%	
		Outbd Web	5%	
		Inbd TF	40%	
		Inbd BF	15%	
		Inbd Web	10%	
1	L5L-U5L	**Hanger (Lt)**		
		Outbd Fl (SF side)	5%	along top of bottom chord
		Outbd Fl (Mty side)	20%	along top of bottom chord
		Inbd Fl (SF side)	5%	near U5L
		Inbd Fl (Mty side)	5%	near U5L
		Web		
1	L5R-U5R	**Hanger (Rt)**		
		Outbd Fl (SF side)	10%	along top of bottom chord
		Outbd Fl (Mty side)	10%	along top of bottom chord
		Inbd Fl (SF side)		
		Inbd Fl (Mty side)	5%	along top of fill plate at flbm connection
		Web		
1	6	**Bottom Chord (Lt)**		95% SL at 50% of top lacing bars
		Outbd TF	50%	
		Outbd BF	20%	
		Outbd Web		
		Inbd TF	50%	
		Inbd BF	15%	
		Inbd Web		
1	6	**Bottom Chord (Rt)**		
		Outbd TF	50%	50% SL at L5R; 20% SL typical
		Outbd BF	25%	
		Outbd Web	5%	
		Inbd TF	50%	50% SL at L5R; 20% SL typical
		Inbd BF	15%	
		Inbd Web	5%	
1	6	**End Post (Lt)**		

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		Cover Plate	70%	70% SL at isolated area located approximately 3 ft. above flbm; 5% SL typical
		Outbd TF		
		Outbd BF	20%	
		Outbd Web		
		Inbd TF		
		Inbd BF	20%	
		Inbd Web		
1	**6**	**End Post (Rt)**		
		Cover Plate	10%	
		Outbd TF		
		Outbd BF	30%	
		Outbd Web		
		Inbd TF		
		Inbd BF	5%	
		Inbd Web		
2	**1**	**End Post (Lt)**		
		Cover Plate		
		Outbd TF		
		Outbd BF		
		Outbd Web		
		Inbd TF	5%	
		Inbd BF	5%	
		Inbd Web	5%	
2	**1**	**End Post (Rt)**		
		Cover Plate	10%	
		Outbd TF		
		Outbd BF		
		Outbd Web		
		Inbd TF		
		Inbd BF		
		Inbd Web		
2	**1**	**Bottom Chord (Lt)**		Tree limbs growing into bottom chord
		Outbd Fl (top)	10%	at L1L
			5%	throughout length of member, except as noted above
		Outbd Fl (btm)		
		Inbd Fl (top)	5%	
		Inbd Fl (btm)		
		Web		20% SL at 50% of lacing bars
2	**1**	**Bottom Chord (Rt)**		
		Outbd Fl (top)	10%	
		Outbd Fl (btm)		

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

Salinas River Bridge
Inspection Report

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		Inbd Fl (top)	10%	
		Inbd Fl (btm)		
		Web		
2	**L1L-U1L**	**Hanger (Lt)**		
		Outbd Fl (SF side)		
		Outbd Fl (Mty side)	10%	
		Inbd Fl (SF side)		
		Inbd Fl (Mty side)		
		Web		
2	**L1R-U1R**	**Hanger (Rt)**		
		Outbd Fl (SF side)	25%	along top of gusset plate at L1R
		Outbd Fl (Mty side)		
		Inbd Fl (SF side)		
		Inbd Fl (Mty side)		
		Web		
2	**2**	**Bottom Chord (Lt)**		Tree limbs growing into bottom chord
		Outbd Fl (top)	5%	
		Outbd Fl (btm)	5%	
		Inbd Fl (top)	5%	
		Inbd Fl (btm)	5%	
		Web		20% SL at 10% of lacing bars
2	**2**	**Bottom Chord (Rt)**		
		Outbd Fl (top)	10%	in area btw gusset plates at L2R (probably due to moisture associated with accumulation of debris/ballast btw gussets plates)
			5%	throughout length of member, except as noted above
		Outbd Fl (btm)		
		Inbd Fl (top)	10%	in area btw gusset plates at L2R (probably due to moisture associated with accumulation of debris/ballast btw gussets plates)
			5%	throughout length of member, except as noted above
		Inbd Fl (btm)		
		Web		
2	**2**	**Top Chord (Lt)**		
		Cover Plate	15%	
		Outbd TF		
		Outbd BF		
		Outbd Web		
		Inbd TF	20%	
		Inbd BF	5%	
		Inbd Web		
2	**2**	**Top Chord (Rt)**		

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

TABLE 1

TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		Cover Plate	5%	
		Outbd TF		
		Outbd BF	10%	
		Outbd Web	5%	
		Inbd TF		
		Inbd BF		
		Inbd Web		
2	**2**	**Diagonal (Lt)**		
		Outbd Fl (top)	5%	near mid-point btw U1L & L2L
		Outbd Fl (btm)		
		Inbd Fl (top)		
		Inbd Fl (btm)		
		Web	20%	in horiz leg of both top angles and in section of web plate btw angles, just above connection at L2L
2	**2**	**Diagonal (Rt)**		debris build-up btw gusset plates at L2R
		Outbd Fl (top)		
		Outbd Fl (btm)		
		Inbd Fl (top)		
		Inbd Fl (btm)		
		Web	10%	in section of web plate btw angles
2	**L2L-U2L**	**Post (Lt)**		
		Outbd Fl (SF side)		
		Outbd Fl (Mty side)		
		Inbd Fl (SF side)		
		Inbd Fl (Mty side)		
		Web	5%	located 3 ft. above flbm connection
2	**L2R-U2R**	**Post (Rt)**		
		Outbd Fl (SF side)		
		Outbd Fl (Mty side)		
		Inbd Fl (SF side)	25%	along top of gusset plate at L2R
		Inbd Fl (Mty side)		
		Web		
2	**3**	**Bottom Chord (Lt)**		
		Outbd Fl Plate		
		Outbd Fl (top L)	5%	
		Outbd Fl (btm L)	5%	
		Inbd Fl Plate		
		Inbd Fl (top L)	5%	
		Inbd Fl (btm L)	5%	
		Web	10%	in horiz leg of both top angles and in section of web plate btw angles
2	**3**	**Bottom Chord (Rt)**		

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		Outbd Fl Plate		
		Outbd Fl (top L)	5%	
		Outbd Fl (btm L)		
		Inbd Fl Plate		
		Inbd Fl (top L)	5%	
		Inbd Fl (btm L)		
		Web	10%	in horiz leg of both top angles and in section of web plate btw angles
2	**3**	**Top Chord (Lt)**		
		Cover Plate	25%	
		Outbd TF		
		Outbd BF	10%	
		Outbd Web		
		Inbd TF		
		Inbd BF	15%	
		Inbd Web		
2	**3**	**Top Chord (Rt)**		
		Cover Plate	10%	
		Outbd TF		
		Outbd BF	10%	
		Outbd Web	5%	
		Inbd TF		
		Inbd BF	10%	
		Inbd Web		
2	**3**	**Diagonal (Lt)**		100% SL at two bottom lacing bars and 20% SL at remaining bottom lacing bars
		Outbd TF		
		Outbd BF	5%	
		Outbd Web		
		Inbd TF	10%	
		Inbd BF	10%	
		Inbd Web	5%	
2	**3**	**Diagonal (Rt)**		
		Outbd TF	5%	
		Outbd BF	5%	
		Outbd Web		
		Inbd TF		
		Inbd BF		
		Inbd Web		
2	**L3L-U3L**	**Hanger (Lt)**		
		Outbd Fl (SF side)		
		Outbd Fl (Mty side)		

TABLE 1

TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		Inbd Fl (SF side)		
		Inbd Fl (Mty side)	5%	along top of gusset plate at L3L
		Web	5%	
2	L3R-U3R	**Hanger (Rt)**		
		Outbd Fl (SF side)		
		Outbd Fl (Mty side)		
		Inbd Fl (SF side)	5%	along top of gusset plate at L3R
		Inbd Fl (Mty side)		
		Web	5%	in section of web plate btw angles
2	4	**Bottom Chord (Lt)**		
		Outbd Fl Plate		
		Outbd Fl (top L)	20%	
		Outbd Fl (btm L)	10%	
		Inbd Fl Plate		
		Inbd Fl (top L)	20%	
		Inbd Fl (btm L)	10%	
		Web	20%	in horiz leg of both top angles and in section of web plate btw angles
2	4	**Bottom Chord (Rt)**		
		Outbd Fl Plate		
		Outbd Fl (top L)	5%	
		Outbd Fl (btm L)		
		Inbd Fl Plate	5%	along gusset plate at L3R
		Inbd Fl (top L)	10%	
		Inbd Fl (btm L)		
		Web	10%	in horiz leg of both top angles and in section of web plate btw angles
2	4	**Top Chord (Lt)**		
		Cover Plate	50%	
		Outbd TF		
		Outbd BF		
		Outbd Web		
		Inbd TF	5%	
		Inbd BF	20%	
		Inbd Web	5%	
2	4	**Top Chord (Rt)**		
		Cover Plate	10%	
		Outbd TF		
		Outbd BF	15%	
		Outbd Web	5%	
		Inbd TF		
		Inbd BF		

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

TABLE 1

TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		Inbd Web		
2	4	**Diagonal (Lt)**		
		Outbd TF	10%	
		Outbd BF	5%	
		Outbd Web	5%	
		Inbd TF	5%	
		Inbd BF	10%	
		Inbd Web	5%	
2	4	**Diagonal (Rt)**		
		Outbd TF	5%	
		Outbd BF	20%	
		Outbd Web	5%	
		Inbd TF	20%	
		Inbd BF		
		Inbd Web	5%	
2	L4L-U4L	**Post (Lt)**		
		Outbd Fl (SF side)	10%	along top of gusset plate at L4L
		Outbd Fl (Mty side)		
		Inbd Fl (SF side)	5%	along top of gusset plate at L4L
		Inbd Fl (Mty side)	5%	along top of gusset plate at L4L
		Web	5%	
2	L4R-U4R	**Post (Rt)**		
		Outbd Fl (SF side)		
		Outbd Fl (Mty side)		
		Inbd Fl (SF side)		
		Inbd Fl (Mty side)		
		Web		
2	5	**Bottom Chord (Lt)**		
		Outbd Fl (top)	10%	
		Outbd Fl (btm)	5%	
		Inbd Fl (top)	10%	
		Inbd Fl (btm)	5%	
		Web	20%	in horiz legs of both top angles
				50% SL at all lacing bars
2	5	**Bottom Chord (Rt)**		
		Outbd Fl (top)	5%	
		Outbd Fl (btm)		
		Inbd Fl (top)	5%	
		Inbd Fl (btm)		
		Web	5%	in horiz legs of both top angles
2	5	**Top Chord (Lt)**		
		Cover Plate	25%	

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

TABLE 1

TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		Outbd TF		
		Outbd BF		
		Outbd Web		
		Inbd TF		
		Inbd BF	15%	
		Inbd Web		
2	**5**	**Top Chord (Rt)**		
		Cover Plate	60%	at 12" length of member adjacent to lateral connection plate at U4R
			15%	throughout length of member, except as noted above
		Outbd TF		
		Outbd BF	15%	
		Outbd Web	5%	
		Inbd TF		
		Inbd BF		
		Inbd Web		
2	**5**	**Diagonal (Lt)**		
		Outbd Fl (top)		
		Outbd Fl (btm)		
		Inbd Fl (top)		
		Inbd Fl (btm)		
		Web	20%	in horiz leg of both top angles and in section of web plate btw angles (along 5 ft. length starting at L4L)
2	**5**	**Diagonal (Rt)**		
		Outbd Fl (top)		
		Outbd Fl (btm)	5%	along gusset plate at L4R
		Inbd Fl (top)	20%	along gusset plate at L4R
		Inbd Fl (btm)	15%	along gusset plate at L4R
		Web	10%	in horiz leg of both top angles and in section of web plate btw angles
2	**L5L-U5L**	**Hanger (Lt)**		
		Outbd Fl (SF side)		
		Outbd Fl (Mty side)		
		Inbd Fl (SF side)		
		Inbd Fl (Mty side)		
		Web	10%	along 3 ft. length of member starting at top of flbm
2	**L5R-U5R**	**Hanger (Rt)**		
		Outbd Fl (SF side)		
		Outbd Fl (Mty side)		
		Inbd Fl (SF side)		
		Inbd Fl (Mty side)		
		Web		

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
2	6	**Bottom Chord (Lt)**		
		Outbd Fl (top)	10%	
		Outbd Fl (btm)		
		Inbd Fl (top)	10%	
		Inbd Fl (btm)		
		Web		30% SL at all lacing bars
2	6	**Bottom Chord (Rt)**		
		Outbd Fl (top)	5%	
		Outbd Fl (btm)		
		Inbd Fl (top)	5%	
		Inbd Fl (btm)		
		Web	10%	in horiz legs of both top angles
2	6	**End Post (Lt)**		10% SL at all bottom lacing bars
		Cover Plate	10%	
		Outbd TF		
		Outbd BF		
		Outbd Web		
		Inbd TF		
		Inbd BF	10%	
		Inbd Web		
2	6	**End Post (Rt)**		
		Cover Plate		
		Outbd TF		
		Outbd BF	5%	
		Outbd Web		
		Inbd TF		
		Inbd BF		
		Inbd Web		
3	1	**End Post (Lt)**		50% SL at 50% of the bottom lacing bars
		Cover Plate		
		Outbd TF	5%	
		Outbd BF	5%	
		Outbd Web	5%	
		Inbd TF	10%	
		Inbd BF	5%	
		Inbd Web		
3	1	**End Post (Rt)**		100% SL at ten bottom lacing bars; remainder of lacing bars in poor condition
		Cover Plate	10%	
		Outbd TF		
		Outbd BF	5%	
		Outbd Web		

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		Inbd TF		
		Inbd BF		
		Inbd Web		
3	**1**	**Bottom Chord (Lt)**		
		Outbd Fl (top)	10%	
		Outbd Fl (btm)	15%	
		Inbd Fl (top)		
		Inbd Fl (btm)	15%	
		Web	20%	in horiz leg of both top angles
				20% SL of all lacing bars
3	**1**	**Bottom Chord (Rt)**		Tree limbs growing into bottom chord.
		Outbd Fl (top)	5%	
		Outbd Fl (btm)		
		Inbd Fl (top)	5%	
		Inbd Fl (btm)		
		Web	10%	in horiz leg of both top angles
3	**L1L-U1L**	**Hanger (Lt)**		50% SL of inboard gusset plate at L1L, above floorbeam
		Outbd Fl (SF side)	15%	along top of gusset plate at L1L
		Outbd Fl (Mty side)	15%	along top of gusset plate at L1L
		Inbd Fl (SF side)	10%	along top of gusset plate at L1L
		Inbd Fl (Mty side)	10%	along top of gusset plate at L1L
		Web	5%	
3	**L1R-U1R**	**Hanger (Rt)**		
		Outbd Fl (SF side)		
		Outbd Fl (Mty side)		
		Inbd Fl (SF side)	30%	along top of gusset plate at L1R
		Inbd Fl (Mty side)	30%	along top of gusset plate at L1R
		Web		
3	**2**	**Bottom Chord (Lt)**		
		Outbd Fl (top)	5%	
		Outbd Fl (btm)		
		Inbd Fl (top)		
		Inbd Fl (btm)	5%	
		Web	10%	in horiz leg of both top angles
3	**2**	**Bottom Chord (Rt)**		
		Outbd Fl (top)		
		Outbd Fl (btm)		
		Inbd Fl (top)	5%	
		Inbd Fl (btm)		
		Web	10%	in horiz leg of Inbd top angle
			5%	in horiz leg of Outbd top angle

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
3	2	**Top Chord (Lt)**		
		Cover Plate	15%	
		Outbd TF		
		Outbd BF		
		Outbd Web		
		Inbd TF	5%	
		Inbd BF	15%	
		Inbd Web		
3	2	**Top Chord (Rt)**		
		Cover Plate	10%	
		Outbd TF		
		Outbd BF	15%	
		Outbd Web		
		Inbd TF		
		Inbd BF	10%	
		Inbd Web		
3	2	**Diagonal (Lt)**		
		Outbd Fl (top)	10%	along top of gusset plate at L2L
		Outbd Fl (btm)	5%	
		Inbd Fl (top)	10%	along top of gusset plate at L2L
		Inbd Fl (btm)	5%	
		Web	20%	in horiz leg of both top angles and in section of web plate between angles, along 4 ft. length of member starting from L2L
3	2	**Diagonal (Rt)**		
		Outbd Fl (top)	5%	
		Outbd Fl (btm)		
		Inbd Fl (top)	30%	along gusset plate at L2R
		Inbd Fl (btm)	5%	along gusset plate at L2R
		Web	5%	in horiz leg of both top angles and in section of web plate between angles
3	L2L-U2L	**Post (Lt)**		
		Outbd Fl (SF side)		
		Outbd Fl (Mty side)		
		Inbd Fl (SF side)	5%	along top of gusset plate at L2L
		Inbd Fl (Mty side)	5%	along top of gusset plate at L2L
		Web	5%	
3	L2R-U2R	**Post (Rt)**		
		Outbd Fl (SF side)		
		Outbd Fl (Mty side)		
		Inbd Fl (SF side)	5%	along top of gusset plate at L2R
		Inbd Fl (Mty side)		

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		Web		
3	3	**Bottom Chord (Lt)**		
		Outbd Fl Plate		
		Outbd Fl (top L)		
		Outbd Fl (btm L)		
		Inbd Fl Plate		
		Inbd Fl (top L)		
		Inbd Fl (btm L)		
		Web	20%	in horiz leg of both top angles and in section of web plate btw angles
3	3	**Bottom Chord (Rt)**		
		Outbd Fl Plate		
		Outbd Fl (top L)	10%	
		Outbd Fl (btm L)		
		Inbd Fl Plate		
		Inbd Fl (top L)	10%	
		Inbd Fl (btm L)		
		Web	10%	in horiz leg of both top angles and in section of web plate btw angles
3	3	**Top Chord (Lt)**		
		Cover Plate	50%	
		Outbd TF		
		Outbd BF		
		Outbd Web		
		Inbd TF	5%	
		Inbd BF	10%	
		Inbd Web		
3	3	**Top Chord (Rt)**		
		Cover Plate	70%	along 2 ft length of member adjacent to lateral connection plate at U2R
			15%	typical SL along length of member, except as noted above
		Outbd TF		
		Outbd BF	10%	
		Outbd Web		
		Inbd TF		
		Inbd BF	5%	
		Inbd Web		
3	3	**Diagonal (Lt)**		20% SL at 30% of the bottom lacing bars
		Outbd TF		
		Outbd BF		
		Outbd Web		

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		Inbd TF		
		Inbd BF		
		Inbd Web		
3	**3**	**Diagonal (Rt)**		
		Outbd TF	5%	
		Outbd BF	5%	
		Outbd Web	5%	
		Inbd TF	20%	along edges of top lacing bars
		Inbd BF		
		Inbd Web	5%	
3	**L3L-U3L**	**Hanger (Lt)**		
		Outbd Fl (SF side)		
		Outbd Fl (Mty side)		
		Inbd Fl (SF side)		
		Inbd Fl (Mty side)		
		Web	5%	
3	**L3R-U3R**	**Hanger (Rt)**		
		Outbd Fl (SF side)		
		Outbd Fl (Mty side)		
		Inbd Fl (SF side)		
		Inbd Fl (Mty side)	5%	
		Web	5%	only in section of web plate between angles
3	**4**	**Bottom Chord (Lt)**		
		Outbd Fl Plate		
		Outbd Fl (top L)		
		Outbd Fl (btm L)		
		Inbd Fl Plate		
		Inbd Fl (top L)		
		Inbd Fl (btm L)		
		Web	20%	in horiz leg of both top angles and in section of web plate btw angles
3	**4**	**Bottom Chord (Rt)**		minor spreading at Inbd and Outbd flange angles and cover plates due to crevice corrosion
		Outbd Fl Plate		
		Outbd Fl (top L)	5%	
		Outbd Fl (btm L)		
		Inbd Fl Plate		
		Inbd Fl (top L)	10%	
		Inbd Fl (btm L)		
		Web	10%	in horiz leg of both top angles and in section of web plate btw angles
3	**4**	**Top Chord (Lt)**		

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

TABLE 1

TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		Cover Plate	50%	
		Outbd TF		
		Outbd BF		
		Outbd Web		
		Inbd TF		
		Inbd BF	15%	
		Inbd Web		
3	**4**	**Top Chord (Rt)**		
		Cover Plate	10%	
		Outbd TF		
		Outbd BF	5%	
		Outbd Web	5%	
		Inbd TF		
		Inbd BF	5%	
		Inbd Web		
3	**4**	**Diagonal (Lt)**		
		Outbd TF	5%	
		Outbd BF	5%	
		Outbd Web	5%	
		Inbd TF	5%	
		Inbd BF	5%	
		Inbd Web	5%	
3	**4**	**Diagonal (Rt)**		
		Outbd TF	30%	
		Outbd BF	20%	
		Outbd Web	5%	
		Inbd TF	50%	
		Inbd BF	5%	
		Inbd Web	10%	
3	**L4L-U4L**	**Post (Lt)**		
		Outbd Fl (SF side)	30%	along top of gusset plate at L4L
		Outbd Fl (Mty side)		
		Inbd Fl (SF side)		
		Inbd Fl (Mty side)		
		Web		
3	**L4R-U4R**	**Post (Rt)**		
		Outbd Fl (SF side)		
		Outbd Fl (Mty side)		
		Inbd Fl (SF side)	15%	along gusset plate at L4R
		Inbd Fl (Mty side)	5%	along gusset plate at L4R
		Web		
3	**5**	**Bottom Chord (Lt)**		

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		Outbd Fl (top)		
		Outbd Fl (btm)		
		Inbd Fl (top)		
		Inbd Fl (btm)		
		Web	15%	in horiz leg of both top angles
				30% SL of all lacing bars
3	**5**	**Bottom Chord (Rt)**		
		Outbd Fl (top)	5%	
		Outbd Fl (btm)		
		Inbd Fl (top)	5%	
		Inbd Fl (btm)		
		Web	5%	in horiz leg of both top angles
3	**5**	**Top Chord (Lt)**		
		Cover Plate	50%	
		Outbd TF		
		Outbd BF		
		Outbd Web		
		Inbd TF	5%	
		Inbd BF	15%	
		Inbd Web		
3	**5**	**Top Chord (Rt)**		
		Cover Plate	10%	
		Outbd TF		
		Outbd BF	10%	
		Outbd Web		
		Inbd TF		
		Inbd BF	10%	
		Inbd Web		
3	**5**	**Diagonal (Lt)**		
		Outbd Fl (top)	10%	along gusset plate at L4L
		Outbd Fl (btm)		
		Inbd Fl (top)		
		Inbd Fl (btm)		
		Web		
3	**5**	**Diagonal (Rt)**		
		Outbd Fl (top)	5%	along gusset plate at L4L
		Outbd Fl (btm)	5%	along gusset plate at L4L
		Inbd Fl (top)	20%	along gusset plate at L4L
		Inbd Fl (btm)	10%	along gusset plate at L4L
		Web		
3	**L5L-U5L**	**Hanger (Lt)**		
		Outbd Fl (SF side)		

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

TABLE 1

TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		Outbd Fl (Mty side)		
		Inbd Fl (SF side)	10%	at two isolated locations: 1.5 ft. from top of gusset plate at L5L, and 3 ft. from top of gusset plate at L5L
		Inbd Fl (Mty side)		
		Web		
3	**L5R-U5R**	**Hanger (Rt)**		
		Outbd Fl (SF side)		
		Outbd Fl (Mty side)		
		Inbd Fl (SF side)		
		Inbd Fl (Mty side)		
		Web		
3	**6**	**Bottom Chord (Lt)**		
		Outbd Fl (top)		
		Outbd Fl (btm)		
		Inbd Fl (top)		
		Inbd Fl (btm)		
		Web		30% SL at 90% of the lacing bars
3	**6**	**Bottom Chord (Rt)**		
		Outbd Fl (top)	5%	
		Outbd Fl (btm)		
		Inbd Fl (top)	5%	
		Inbd Fl (btm)		
		Web	5%	in horiz leg of both top angles
3	**6**	**End Post (Lt)**		
		Cover Plate		
		Outbd TF		
		Outbd BF		
		Outbd Web		
		Inbd TF	10%	
		Inbd BF	10%	
		Inbd Web		
3	**6**	**End Post (Rt)**		
		Cover Plate		
		Outbd TF		
		Outbd BF	5%	
		Outbd Web		5% SL in vertical leg of bottom angle
		Inbd TF		
		Inbd BF		
		Inbd Web		
4	**1**	**End Post (Lt)**		50% SL at 75% of the bottom lacing bars
		Cover Plate	5%	
		Outbd TF		

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		Outbd BF		
		Outbd Web		
		Inbd TF	5%	
		Inbd BF	10%	
		Inbd Web		
4	**1**	**End Post (Rt)**		100% SL at six of the bottom lacing bars
		Cover Plate	5%	
		Outbd TF		
		Outbd BF	5%	
		Outbd Web	5%	
		Inbd TF		
		Inbd BF		
		Inbd Web		
4	**1**	**Bottom Chord (Lt)**		
		Outbd Fl (top)	10%	
		Outbd Fl (btm)		
		Inbd Fl (top)	10%	
		Inbd Fl (btm)		
		Web	30%	in horiz leg of both top angles
				50% SL at 75% of lacing bars
4	**1**	**Bottom Chord (Rt)**		
		Outbd Fl (top)		
		Outbd Fl (btm)		
		Inbd Fl (top)	5%	
		Inbd Fl (btm)		
		Web	10%	in horiz leg of inboard top angle
4	**L1L-U1L**	**Hanger (Lt)**		
		Outbd Fl (SF side)		
		Outbd Fl (Mty side)	20%	along 2 ft. length of member starting from top of gusset plate at **L1L**
		Inbd Fl (SF side)		
		Inbd Fl (Mty side)		
		Web		
4	**L1R-U1R**	**Hanger (Rt)**		
		Outbd Fl (SF side)		
		Outbd Fl (Mty side)		
		Inbd Fl (SF side)		
		Inbd Fl (Mty side)		
		Web	5%	in section of web plate between angles
4	**2**	**Bottom Chord (Lt)**		
		Outbd Fl (top)	10%	
		Outbd Fl (btm)		

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

TABLE 1

TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		Inbd Fl (top)	10%	
		Inbd Fl (btm)		
		Web	15%	in horiz leg of both top angles
				50% SL at all lacing bars
4	**2**	**Bottom Chord (Rt)**		
		Outbd Fl (top)	5%	
		Outbd Fl (btm)		
		Inbd Fl (top)	5%	
		Inbd Fl (btm)		
		Web	10%	in horiz leg of inboard top angle
			5%	in horiz leg of outboard top angle
4	**2**	**Top Chord (Lt)**		
		Cover Plate	30%	
		Outbd TF		
		Outbd BF		
		Outbd Web		
		Inbd TF	5%	
		Inbd BF	15%	
		Inbd Web	5%	
4	**2**	**Top Chord (Rt)**		
		Cover Plate	10%	
		Outbd TF		
		Outbd BF	15%	
		Outbd Web		
		Inbd TF		
		Inbd BF	5%	
		Inbd Web		
4	**2**	**Diagonal (Lt)**		
		Outbd Fl (top)	5%	
		Outbd Fl (btm)	5%	
		Inbd Fl (top)	30%	along gusset plate at L2L
		Inbd Fl (btm)	5%	
		Web	5%	in horiz leg of both top angles and in section of web plate between angles
4	**2**	**Diagonal (Rt)**		
		Outbd Fl (top)	5%	along gusset plate at L2R
		Outbd Fl (btm)		
		Inbd Fl (top)	10%	along gusset plate at L2R
		Inbd Fl (btm)	5%	along gusset plate at L2R
		Web	5%	in horiz leg of both top angles and in section of web plate between angles
4	**L2L-U2L**	**Post (Lt)**		

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

TABLE 1

TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		Outbd Fl (SF side)		
		Outbd Fl (Mty side)		
		Inbd Fl (SF side)		
		Inbd Fl (Mty side)		
		Web		
4	**L2R-U2R**	**Post (Rt)**		
		Outbd Fl (SF side)		
		Outbd Fl (Mty side)		
		Inbd Fl (SF side)	5%	along gusset plate at L2R
		Inbd Fl (Mty side)	5%	along gusset plate at L2R
		Web		
4	**3**	**Bottom Chord (Lt)**		
		Outbd Fl Plate		
		Outbd Fl (top L)	10%	
		Outbd Fl (btm L)		
		Inbd Fl Plate		
		Inbd Fl (top L)	10%	
		Inbd Fl (btm L)		
		Web	20%	in horiz leg of both top angles and in section of web plate btw angles
4	**3**	**Bottom Chord (Rt)**		minor spreading at Inbd and Outbd flange angles and cover plates due to crevice corrosion
		Outbd Fl Plate		
		Outbd Fl (top L)	10%	
		Outbd Fl (btm L)		
		Inbd Fl Plate		
		Inbd Fl (top L)	10%	
		Inbd Fl (btm L)		
		Web	10%	in horiz leg of both top angles and in section of web plate btw angles
4	**3**	**Top Chord (Lt)**		
		Cover Plate	50%	
		Outbd TF		
		Outbd BF		
		Outbd Web		
		Inbd TF		
		Inbd BF		
		Inbd Web		
4	**3**	**Top Chord (Rt)**		
		Cover Plate	30%	along edge of lateral connection plate at U2R
			10%	throughout length of member, except as noted above
		Outbd TF		

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		Outbd BF	10%	
		Outbd Web		
		Inbd TF		
		Inbd BF	10%	
		Inbd Web		
4	**3**	**Diagonal (Lt)**		50% SL at 10% of bottom lacing bars
		Outbd TF		
		Outbd BF		
		Outbd Web		
		Inbd TF		
		Inbd BF	5%	
		Inbd Web		
4	**3**	**Diagonal (Rt)**		
		Outbd TF	5%	
		Outbd BF	20%	at an isolated location
		Outbd Web	5%	
		Inbd TF	5%	
		Inbd BF		
		Inbd Web		
4	**L3L-U3L**	**Hanger (Lt)**		
		Outbd Fl (SF side)		
		Outbd Fl (Mty side)		
		Inbd Fl (SF side)		
		Inbd Fl (Mty side)		
		Web		
4	**L3R-U3R**	**Hanger (Rt)**		
		Outbd Fl (SF side)		
		Outbd Fl (Mty side)		
		Inbd Fl (SF side)		
		Inbd Fl (Mty side)		
		Web		
4	**4**	**Bottom Chord (Lt)**		
		Outbd Fl Plate		
		Outbd Fl (top L)	10%	
		Outbd Fl (btm L)		
		Inbd Fl Plate	10%	
		Inbd Fl (top L)		
		Inbd Fl (btm L)		
		Web	20%	in horiz leg of both top angles and in section of web plate btw angles
4	**4**	**Bottom Chord (Rt)**		minor spreading at Inbd and Outbd flange angles and cover plates due to crevice corrosion

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		Outbd Fl Plate		
		Outbd Fl (top L)	10%	
		Outbd Fl (btm L)		
		Inbd Fl Plate		
		Inbd Fl (top L)	10%	
		Inbd Fl (btm L)		
		Web	10%	in horiz leg of both top angles and in section of web plate btw angles
4	4	**Top Chord (Lt)**		
		Cover Plate	40%	
		Outbd TF		
		Outbd BF		
		Outbd Web		
		Inbd TF	5%	
		Inbd BF	20%	
		Inbd Web		
4	4	**Top Chord (Rt)**		
		Cover Plate	50%	in 2 ft. length of member adjacent to lateral connection plate at U3R
			50%	in 2 ft. length of member adjacent to lateral connection plate at U4R
			15%	throughout length of member, except as noted above
		Outbd TF		
		Outbd BF	10%	
		Outbd Web		
		Inbd TF		
		Inbd BF		
		Inbd Web		
4	4	**Diagonal (Lt)**		
		Outbd TF	25%	along edge of lacing bar
		Outbd BF		
		Outbd Web		
		Inbd TF	25%	along edge of lacing bar
		Inbd BF	25%	
		Inbd Web		
4	4	**Diagonal (Rt)**		
		Outbd TF	15%	
		Outbd BF	20%	
		Outbd Web	10%	
		Inbd TF	25%	
		Inbd BF	15%	
		Inbd Web	15%	

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
4	**L4L-U4L**	**Post (Lt)**		
		Outbd Fl (SF side)	30%	along top of gusset plate at L4L
		Outbd Fl (Mty side)	15%	along top of gusset plate at L4L
		Inbd Fl (SF side)		
		Inbd Fl (Mty side)		
		Web	5%	
4	**L4R-U4R**	**Post (Rt)**		
		Outbd Fl (SF side)		
		Outbd Fl (Mty side)	5%	along top of gusset plate at L4R
		Inbd Fl (SF side)		
		Inbd Fl (Mty side)		
		Web		
4	**5**	**Bottom Chord (Lt)**		
		Outbd Fl (top)	10%	
		Outbd Fl (btm)		
		Inbd Fl (top)	10%	
		Inbd Fl (btm)		
		Web	15%	in horiz leg of both top angles
				25% SL at all lacing bars
4	**5**	**Bottom Chord (Rt)**		
		Outbd Fl (top)	5%	
			10%	at L4R & L5R (between gusset plates)
		Outbd Fl (btm)		
		Inbd Fl (top)	5%	
			10%	at L4R & L5R (between gusset plates)
		Inbd Fl (btm)		
		Web	5%	in horiz leg of both top angles
4	**5**	**Top Chord (Lt)**		
		Cover Plate	40%	
		Outbd TF		
		Outbd BF		
		Outbd Web		
		Inbd TF		
		Inbd BF	10%	
		Inbd Web		
4	**5**	**Top Chord (Rt)**		
		Cover Plate	50%	in 1 ft. length of member adjacent to lateral connection plate at U4R
			15%	throughout length of member, except as noted above
		Outbd TF		
		Outbd BF	15%	
		Outbd Web	5%	in vertical leg of bottom angle (only)

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		Inbd TF		
		Inbd BF	5%	
		Inbd Web	5%	in vertical leg of bottom angle (only)
4	**5**	**Diagonal (Lt)**		75% SL of inboard and outboard gusset plates at L4L in area located between the hanger and the diagonal of Panel 5.
		Outbd Fl (top)		
		Outbd Fl (btm)	5%	
		Inbd Fl (top)		
		Inbd Fl (btm)		
		Web		
4	**5**	**Diagonal (Rt)**		
		Outbd Fl (top)		
		Outbd Fl (btm)		
		Inbd Fl (top)	15%	along gusset plate at L4R
		Inbd Fl (btm)	10%	along gusset plate at L4R
		Web		
4	**L5L-U5L**	**Hanger (Lt)**		
		Outbd Fl (SF side)	20%	along top of gusset plate at L5L
		Outbd Fl (Mty side)		
		Inbd Fl (SF side)		
		Inbd Fl (Mty side)		
		Web		
4	**L5R-U5R**	**Hanger (Rt)**		
		Outbd Fl (SF side)		
		Outbd Fl (Mty side)		
		Inbd Fl (SF side)		
		Inbd Fl (Mty side)		
		Web		
4	**6**	**Bottom Chord (Lt)**		
		Outbd Fl (top)	5%	
		Outbd Fl (btm)	5%	
		Inbd Fl (top)	5%	
		Inbd Fl (btm)		
		Web		25% SL at 95% of lacing bars
4	**6**	**Bottom Chord (Rt)**		
		Outbd Fl (top)	5%	
			10%	at L5R (between gusset plates)
		Outbd Fl (btm)		
		Inbd Fl (top)	5%	
			10%	at L5R (between gusset plates)
		Inbd Fl (btm)		

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

TABLE 1

TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		Web	10%	in horiz leg of outboard top angle
			5%	in horiz leg of inboard top angle
4	**6**	**End Post (Lt)**		
		Cover Plate		
		Outbd TF		
		Outbd BF		
		Outbd Web		
		Inbd TF	5%	
		Inbd BF		
		Inbd Web		
4	**6**	**End Post (Rt)**		80% SL of outside pin plate and 30% SL of gusset plate, at the outboard side of the bearing pin at L6R (no SL at inside pin plate).
		Cover Plate		
		Outbd TF		
		Outbd BF	10%	
		Outbd Web		
		Inbd TF		
		Inbd BF		
		Inbd Web		
5	**1**	**End Post (Lt)**		20% SL at all bottom lacing bars (1 lacing bar broken)
		Cover Plate		
		Outbd TF		
		Outbd BF		
		Outbd Web		
		Inbd TF		
		Inbd BF		
		Inbd Web		
5	**1**	**End Post (Rt)**		100% SL at four bottom lacing bars at top of end post
		Cover Plate	20%	at isolated location along edge of bottom horiz angle of portal
		Outbd TF		
		Outbd BF		
		Outbd Web		
		Inbd TF		
		Inbd BF		
		Inbd Web		
5	**1**	**Bottom Chord (Lt)**		
		Outbd Fl (top)	15%	
		Outbd Fl (btm)		
		Inbd Fl (top)	10%	
		Inbd Fl (btm)		

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

TABLE 1

TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		Web	10%	in horiz leg of both top angles
				50% SL at all lacing bars
5	**1**	**Bottom Chord (Rt)**		
		Outbd Fl (top)	5%	
		Outbd Fl (btm)		
		Inbd Fl (top)	5%	
		Inbd Fl (btm)		
		Web	10%	in horiz leg of top inboard angle
			5%	in horiz leg of top outboard angle
5	**L1L-U1L**	**Hanger (Lt)**		
		Outbd Fl (SF side)		
		Outbd Fl (Mty side)		
		Inbd Fl (SF side)		
		Inbd Fl (Mty side)		
		Web		
5	**L1R-U1R**	**Hanger (Rt)**		
		Outbd Fl (SF side)		
		Outbd Fl (Mty side)		
		Inbd Fl (SF side)	5%	along top of gusset plate at L1R
		Inbd Fl (Mty side)	5%	along top of gusset plate at L1R
		Web		
5	**2**	**Bottom Chord (Lt)**		
		Outbd Fl (top)	5%	
		Outbd Fl (btm)		
		Inbd Fl (top)	5%	
		Inbd Fl (btm)		
		Web	5%	in horiz leg of top outboard angle
				50% SL at all lacing bars
5	**2**	**Bottom Chord (Rt)**		
		Outbd Fl (top)	5%	
		Outbd Fl (btm)		
		Inbd Fl (top)	5%	
		Inbd Fl (btm)		
		Web	10%	in horiz leg of both top angles
5	**2**	**Top Chord (Lt)**		
		Cover Plate	40%	
		Outbd TF		
		Outbd BF		
		Outbd Web		
		Inbd TF		
		Inbd BF		
		Inbd Web	15%	

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
5	**2**	**Top Chord (Rt)**		
		Cover Plate	20%	
		Outbd TF		
		Outbd BF	10%	
		Outbd Web	10%	in vertical leg of bottom angle (only)
		Inbd TF		
		Inbd BF	5%	
		Inbd Web		
5	**2**	**Diagonal (Lt)**		
		Outbd Fl (top)	15%	
		Outbd Fl (btm)		
		Inbd Fl (top)		
		Inbd Fl (btm)		
		Web	25%	in horiz leg of outboard top angle and in section of web plate between angles
5	**2**	**Diagonal (Rt)**		
		Outbd Fl (top)		
		Outbd Fl (btm)		
		Inbd Fl (top)	15%	along edge of gusset plate at L2R
		Inbd Fl (btm)	5%	along edge of gusset plate at L2R
		Web	5%	in horiz leg of outboard top angle and in section of web plate between angles
5	**L2L-U2L**	**Post (Lt)**		
		Outbd Fl (SF side)		
		Outbd Fl (Mty side)		
		Inbd Fl (SF side)		
		Inbd Fl (Mty side)		
		Web		
5	**L2R-U2R**	**Post (Rt)**		
		Outbd Fl (SF side)		
		Outbd Fl (Mty side)		
		Inbd Fl (SF side)		
		Inbd Fl (Mty side)		
		Web		
5	**3**	**Bottom Chord (Lt)**		
		Outbd Fl Plate		
		Outbd Fl (top L)	5%	
		Outbd Fl (btm L)		
		Inbd Fl Plate		
		Inbd Fl (top L)		
		Inbd Fl (btm L)		

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

TABLE 1

TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		Web	10%	in horiz leg of both top angles and in section of web plate btw angles
5	**3**	**Bottom Chord (Rt)**		minor spreading at Inbd and Outbd flange plates and angles due to crevice corrosion
		Outbd Fl Plate		
		Outbd Fl (top L)	5%	
		Outbd Fl (btm L)		
		Inbd Fl Plate		
		Inbd Fl (top L)	5%	
		Inbd Fl (btm L)		
		Web	10%	in horiz leg of both top angles and in section of web plate btw angles
5	**3**	**Top Chord (Lt)**		
		Cover Plate	75%	
		Outbd TF		
		Outbd BF		
		Outbd Web		
		Inbd TF	5%	
		Inbd BF	20%	
		Inbd Web		
5	**3**	**Top Chord (Rt)**		
		Cover Plate	50%	near lateral connection plate at U2R
			30%	throughout length of member, except as noted above
		Outbd TF		
		Outbd BF	10%	
		Outbd Web	5%	in vertical leg of bottom angle (only)
		Inbd TF		
		Inbd BF	5%	
		Inbd Web		
5	**3**	**Diagonal (Lt)**		
		Outbd TF		
		Outbd BF		
		Outbd Web		
		Inbd TF		
		Inbd BF		
		Inbd Web		
5	**3**	**Diagonal (Rt)**		100% SL at five bottom lacing bars
		Outbd TF	5%	
		Outbd BF	5%	
		Outbd Web	2%	
		Inbd TF	5%	
		Inbd BF		

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		Inbd Web		
5	**L3L-U3L**	**Hanger (Lt)**		25% SL of inboard gusset plate at L3L, above flbm
		Outbd Fl (SF side)		
		Outbd Fl (Mty side)		
		Inbd Fl (SF side)		
		Inbd Fl (Mty side)		
		Web		
5	**L3R-U3R**	**Hanger (Rt)**		
		Outbd Fl (SF side)		
		Outbd Fl (Mty side)		
		Inbd Fl (SF side)		
		Inbd Fl (Mty side)		
		Web		
5	**4**	**Bottom Chord (Lt)**		
		Outbd Fl Plate		
		Outbd Fl (top L)	20%	
		Outbd Fl (btm L)		
		Inbd Fl Plate		
		Inbd Fl (top L)	15%	
		Inbd Fl (btm L)		
		Web	15%	in horiz leg of both top angles and in section of web plate btw angles
5	**4**	**Bottom Chord (Rt)**		minor spreading at Inbd and Outbd flange plates and angles due to crevice corrosion
		Outbd Fl Plate		
		Outbd Fl (top L)	5%	
		Outbd Fl (btm L)		
		Inbd Fl Plate		
		Inbd Fl (top L)	5%	
		Inbd Fl (btm L)		
		Web	10%	in horiz leg of both top angles and in section of web plate btw angles
5	**4**	**Top Chord (Lt)**		
		Cover Plate	50%	
		Outbd TF		
		Outbd BF		
		Outbd Web		
		Inbd TF	5%	
		Inbd BF	15%	
		Inbd Web		
5	**4**	**Top Chord (Rt)**		
		Cover Plate	40%	near lateral connection plate at U3R

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

TABLE 1

TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
			20%	throughout length of member, except as noted above
		Outbd TF		
		Outbd BF	10%	
		Outbd Web	5%	in vertical leg of bottom angle (only)
		Inbd TF		
		Inbd BF		
		Inbd Web		
5	**4**	**Diagonal (Lt)**		90% SL at 10% of top lacing bars
		Outbd TF		
		Outbd BF		
		Outbd Web		
		Inbd TF		
		Inbd BF	40%	
		Inbd Web	10%	
5	**4**	**Diagonal (Rt)**		100% SL at one bottom lacing bar
				100% SL at three top lacing bars
		Outbd TF	15%	
		Outbd BF	10%	
		Outbd Web	2%	
		Inbd TF	15%	
		Inbd BF		
		Inbd Web		
5	**L4L-U4L**	**Post (Lt)**		
		Outbd Fl (SF side)	10%	along top of gusset plate at L4L
		Outbd Fl (Mty side)	10%	along top of gusset plate at L4L
		Inbd Fl (SF side)		
		Inbd Fl (Mty side)		
		Web		
5	**L4R-U4R**	**Post (Rt)**		
		Outbd Fl (SF side)		
		Outbd Fl (Mty side)		
		Inbd Fl (SF side)		
		Inbd Fl (Mty side)	5%	along top of gusset plate at L4R
		Web		
5	**5**	**Bottom Chord (Lt)**		
		Outbd Fl (top)		
		Outbd Fl (btm)		
		Inbd Fl (top)		
		Inbd Fl (btm)		
		Web	20%	in horiz leg of top inboard angle
				30% SL at all lacing bars
5	**5**	**Bottom Chord (Rt)**		

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

TABLE 1

TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		Outbd Fl (top)	5%	
		Outbd Fl (btm)		
		Inbd Fl (top)	5%	
		Inbd Fl (btm)		
		Web	10%	in horiz leg of both angles
5	**5**	**Top Chord (Lt)**		
		Cover Plate	50%	
		Outbd TF		
		Outbd BF		
		Outbd Web		
		Inbd TF		
		Inbd BF	10%	
		Inbd Web		
5	**5**	**Top Chord (Rt)**		
		Cover Plate	50%	near lateral connection plate at U4R
			25%	throughout length of member, except as noted above
		Outbd TF		
		Outbd BF	10%	
		Outbd Web	10%	in vertical leg of bottom angle (only)
		Inbd TF		
		Inbd BF		
		Inbd Web		
5	**5**	**Diagonal (Lt)**		
		Outbd Fl (top)		
		Outbd Fl (btm)		
		Inbd Fl (top)	30%	along edge of gusset plate at L4L
		Inbd Fl (btm)	20%	along edge of gusset plate at L4L
		Web		
5	**5**	**Diagonal (Rt)**		
		Outbd Fl (top)	10%	along edge of gusset plate at L4R
		Outbd Fl (btm)	5%	along edge of gusset plate at L4R
		Inbd Fl (top)	10%	along edge of gusset plate at L4R
		Inbd Fl (btm)	5%	along edge of gusset plate at L4R
		Web		
5	**L5L-U5L**	**Hanger (Lt)**		25% SL of inboard gusset plate at L5L, in area above floorbeam
		Outbd Fl (SF side)		
		Outbd Fl (Mty side)		
		Inbd Fl (SF side)		
		Inbd Fl (Mty side)		
		Web		
5	**L5R-U5R**	**Hanger (Rt)**		

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

TABLE 1

TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		Outbd Fl (SF side)		
		Outbd Fl (Mty side)		
		Inbd Fl (SF side)	5%	along top of gusset plate at L5R
		Inbd Fl (Mty side)	5%	along top of gusset plate at L5R
		Web		
5	**6**	**Bottom Chord (Lt)**		
		Outbd Fl (top)	5%	
		Outbd Fl (btm)		
		Inbd Fl (top)		
		Inbd Fl (btm)		
		Web	10%	in horiz leg of both top angles
				10% SL at all lacing bars
5	**6**	**Bottom Chord (Rt)**		
		Outbd Fl (top)	5%	
		Outbd Fl (btm)		
		Inbd Fl (top)	5%	
		Inbd Fl (btm)		
		Web	10%	in horiz leg of both top angles
5	**6**	**End Post (Lt)**		
		Cover Plate	20%	at isolated location along edge of bottom horiz angle of portal frame
		Outbd TF		
		Outbd BF		
		Outbd Web		
		Inbd TF	5%	
		Inbd BF	10%	
		Inbd Web		
5	**6**	**End Post (Rt)**		
		Cover Plate	25%	at isolated location along edge of bottom horiz angle of portal frame
		Outbd TF		
		Outbd BF		
		Outbd Web		
		Inbd TF		
		Inbd BF		
		Inbd Web		

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

TABLE 2
TRUSS BRACING

SPAN	MEMBER NUMBER	COMPONENT	SECT. LOSS	COMMENT
1	L0L-L1R	Bottom Lateral		
1	L0R-L1L	Bottom Lateral		
1	U1L-U1R	Portal Frame	50%	in bottom flange angles of top strut, at center-line of bridge
1	L1L-L2R	Bottom Lateral	25%	near L1L
1	L1R-L2L	Bottom Lateral	50%	near L1R
1	U1L-U2R	Top Lateral		
1	U1R-U2L	Top Lateral		
1	U2	Top Strut		
1	U2L	Knee Brace		
1	U2R	Knee Brace		
1	L2L-L3R	Bottom Lateral	50%	near L2L
			50%	near L3R
1	L2R-L3L	Bottom Lateral	30%	near L3L
1	U2L-U3R	Top Lateral		
1	U2R-U3L	Top Lateral		
1	U3	Top Strut		
1	U3L	Knee Brace		
1	U3R	Knee Brace		
1	L3L-L4R	Bottom Lateral	50%	near L3L
			50%	near L4R
1	L3R-L4L	Bottom Lateral	50%	near L3R
			50%	near L4L
1	U3L-U4R	Top Lateral		
1	U3R-U4L	Top Lateral		
1	U4	Top Strut		
1	U4L	Knee Brace		
1	U4R	Knee Brace		
1	L4L-L5R	Bottom Lateral	50%	near L5R
			40%	near L4L
1	L4R-L5L	Bottom Lateral	50%	near L4R
1	U4L-U5R	Top Lateral		
1	U4R-U5L	Top Lateral		
1	L5L-L6R	Bottom Lateral		
1	L5R-L6L	Bottom Lateral	50%	near L5R
1	U5L-U5R	Portal Frame	50%	in bottom flange angles of top strut, at center-line of bridge
2	L0L-L1R	Bottom Lateral		
2	L0R-L1L	Bottom Lateral		
2	U1L-U1R	Portal Frame		
2	L1L-L2R	Bottom Lateral		
2	L1R-L2L	Bottom Lateral		

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

TABLE 2

TRUSS BRACING

SPAN	MEMBER NUMBER	COMPONENT	SECT. LOSS	COMMENT
2	U1L-U2R	Top Lateral		
2	U1R-U2L	Top Lateral		
2	U2	Top Strut	70%	in bottom angles
2	U2	Sway Bracing	70%	in bottom angles
2	L2L-L3R	Bottom Lateral		
2	L2R-L3L	Bottom Lateral		
2	U2L-U3R	Top Lateral		100% SL of top connection plate at U2L
				50% SL of bottom connection plate at U2L
2	U2R-U3L	Top Lateral		
2	U3	Top Strut	70%	in bottom angles
2	U3	Sway Bracing	70%	in bottom angles
2	L3L-L4R	Bottom Lateral		
2	L3R-L4L	Bottom Lateral		
2	U3L-U4R	Top Lateral		90% SL of top connection plate at U3L
				50% SL of bottom connection plate at U3L
2	U3R-U4L	Top Lateral		
2	U4	Top Strut		
2	U4	Sway Bracing	70%	in bottom angles
2	L4L-L5R	Bottom Lateral		
2	L4R-L5L	Bottom Lateral		
2	U4L-U5R	Top Lateral		
2	U4R-U5L	Top Lateral		95% SL of top connection plate at U5L
				25% SL of bottom connection plate at U5L
2	L5L-L6R	Bottom Lateral		
2	L5R-L6L	Bottom Lateral		
2	U5L-U5R	Portal Frame		
3	L0L-L1R	Bottom Lateral		
3	L0R-L1L	Bottom Lateral		
3	U1L-U1R	Portal Frame		
3	L1L-L2R	Bottom Lateral		
3	L1R-L2L	Bottom Lateral		
3	U1L-U2R	Top Lateral		95% SL of top connection plate at U1L
3	U1R-U2L	Top Lateral		95% SL of top connection plate at U2L
3	U2	Top Strut	70%	in bottom angles
3	U2	Sway Bracing	50%	in bottom angles
3	L2L-L3R	Bottom Lateral		
3	L2R-L3L	Bottom Lateral		
3	U2L-U3R	Top Lateral		90% SL of top connection plate at U2L
3	U2R-U3L	Top Lateral		
3	U3	Top Strut	70%	in bottom angles
3	U3	Sway Bracing	50%	in bottom angles
3	L3L-L4R	Bottom Lateral		

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

Salinas River Bridge
Inspection Report

TABLE 2

TRUSS BRACING

SPAN	MEMBER NUMBER	COMPONENT	SECT. LOSS	COMMENT
3	L3R-L4L	Bottom Lateral		
3	U3L-U4R	Top Lateral	70%	in top angle near U3L
				70% SL of top connection plate at U3L
			50%	in top angle at center connection
3	U3R-U4L	Top Lateral		90% SL of top connection plate at U4L
3	U4	Top Strut		
3	U4	Sway Bracing		
3	L4L-L5R	Bottom Lateral		
3	L4R-L5L	Bottom Lateral		70% SL of connection plate at L4R
3	U4L-U5R	Top Lateral		90% SL of top connection plate at U4L
3	U4R-U5L	Top Lateral		100% SL of top connection plate at U5L
3	L5L-L6R	Bottom Lateral		
3	L5R-L6L	Bottom Lateral		
3	U5L-U5R	Portal Frame		
4	L0L-L1R	Bottom Lateral		
4	L0R-L1L	Bottom Lateral		
4	U1L-U1R	Portal Frame		
4	L1L-L2R	Bottom Lateral		
4	L1R-L2L	Bottom Lateral		
4	U1L-U2R	Top Lateral		100% SL of top connection plate at U1L
				25% SL of bottom connection plate at U1L
4	U1R-U2L	Top Lateral		
4	U2	Top Strut	70%	in bottom angles
				lacing bars in poor condition
4	U2	Sway Bracing	70%	in bottom angles
4	L2L-L3R	Bottom Lateral		
4	L2R-L3L	Bottom Lateral		
4	U2L-U3R	Top Lateral		
4	U2R-U3L	Top Lateral	100%	in bottom angle at U3L
4	U3	Top Strut	50%	in bottom angles
4	U3	Sway Bracing	70%	in bottom angles
4	L3L-L4R	Bottom Lateral		
4	L3R-L4L	Bottom Lateral		
4	U3L-U4R	Top Lateral		
4	U3R-U4L	Top Lateral	70%	in bottom angle at U3R
4	U4	Top Strut	40%	in bottom angles
4	U4	Sway Bracing	60%	in bottom angles
4	L4L-L5R	Bottom Lateral		
4	L4R-L5L	Bottom Lateral		
4	U4L-U5R	Top Lateral		50% SL of top connection plate at U4L
				75% SL of top connection plate at U5R
4	U4R-U5L	Top Lateral		100% SL of top connection plate at U5L

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

TABLE 2

TRUSS BRACING

SPAN	MEMBER NUMBER	COMPONENT	SECT. LOSS	COMMENT
				40% SL of bottom connection plate at U5L
4	L5L-L6R	Bottom Lateral		50% SL of connection plate at L6R
4	L5R-L6L	Bottom Lateral		
4	U5L-U5R	Portal Frame		
5	L0L-L1R	Bottom Lateral		
5	L0R-L1L	Bottom Lateral		
5	U1L-U1R	Portal Frame		
5	L1L-L2R	Bottom Lateral		
5	L1R-L2L	Bottom Lateral		
5	U1L-U2R	Top Lateral		100% SL of top connection plate at U1L
				50% SL of bottom connection plate at U1L
			50%	in top angle between center connection and U2R
			30%	in bottom angle between center connection and U2R
5	U1R-U2L	Top Lateral		95% SL of top connection plate at U2L
5	U2	Top Strut	15%	in bottom angles
5	U2	Sway Bracing	100%	in bottom angles
5	L2L-L3R	Bottom Lateral		
5	L2R-L3L	Bottom Lateral		
5	U2L-U3R	Top Lateral		95% SL of top connection plate at U2L
5	U2R-U3L	Top Lateral		90% SL of top connection plate at U3L
5	U3	Top Strut	30%	in bottom angles
5	U3	Sway Bracing	50%	in bottom angles
5	L3L-L4R	Bottom Lateral		
5	L3R-L4L	Bottom Lateral		
5	U3L-U4R	Top Lateral		75% SL of top connection plate at U3L
5	U3R-U4L	Top Lateral		50% SL of top connection plate at U4L
				50% SL of top connection plate at U3R
5	U4	Top Strut		
5	U4	Sway Bracing		
5	L4L-L5R	Bottom Lateral		
5	L4R-L5L	Bottom Lateral		
5	U4L-U5R	Top Lateral		
5	U4R-U5L	Top Lateral		100% SL of top connection plate at U5L
				75% SL of bottom connection plate at U5L
5	L5L-L6R	Bottom Lateral		
5	L5R-L6L	Bottom Lateral		
5	U5L-U5R	Portal Frame		

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

TABLE 3
TRUSS BEARINGS

SPAN	PANEL OR PANEL PT.	COMPONENT	COMMENT
1	L0L	Truss Fixed Brg. (Lt)	
1	L0R	Truss Fixed Brg. (Rt)	
1	L6L	Truss Exp. Brg. (Lt)	Segmental rollers frozen and "working out" (shifted toward Monterey side of bearing).
			Corrosion at bearing plates above and below rollers with minor SL.
			3 of 4 anchor bolts broken.
1	L6R	Truss Exp. Brg. (Rt)	Segmental rollers frozen and "working out" (shifted toward Monterey side of bearing).
			Corrosion at bearing plates above and below rollers with minor SL.
2	L0L	Truss Fixed Brg. (Lt)	
2	L0R	Truss Fixed Brg. (Rt)	
2	L6L	Truss Exp. Brg. (Lt)	Segmental rollers frozen.
			Channels of bearing pedestal have 20% SL (average) in webs along bottom fillets and 30% SL (average) of bottom flanges.
			Inboard anchor bolt missing.
2	L6R	Truss Exp. Brg. (Rt)	Segmental rollers frozen in expanded position.
			Channels of bearing pedestal have 20% SL (average) in webs along bottom fillets and 30% SL (average) of bottom flanges.
			Minor section loss at top surface of bed plate (1/8" thick pack rust, outside of bearing area).
			Minor section loss at bearing plate atop segmental rollers.
			Both anchor bolts are missing.
3	L0L	Truss Fixed Brg. (Lt)	I-beams of bearing pedestal have 25% SL (average) in webs along bottom fillets.
			Minor section loss at bearing plate atop pedestal I-beams (10% reduction in plate thickness outside of bearing area).
			Minor section loss at top surface of bed plate (20% reduction in plate thickness outside of bearing area).
3	L0R	Truss Fixed Brg. (Rt)	I-beams of bearing pedestal have 20% SL (average) in webs along bottom flange.
			Minor section loss at bearing plate atop pedestal I-beams (1/2" thick pack rust, plate thickness reduced from 15/16" to 3/4" outside of bearing area).
			Minor section loss at top surface of bed plate (1/2" thick pack rust located outside of bearing area).
3	L6L	Truss Exp. Brg. (Lt)	Channels of bearing pedestal have 10% SL (average) in webs along bottom fillets.
			Minor pack rust at top flange of pedestal channels.
			Outboard anchor bolt missing.

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

TABLE 3
TRUSS BEARINGS

SPAN	PANEL OR PANEL PT.	COMPONENT	COMMENT
3	L6R	Truss Exp. Brg. (Rt)	Segmental rollers frozen.
			Channels of bearing pedestal have 20% SL (average) in webs along bottom fillets.
			Minor section loss at bearing plate atop segmental rollers.
			Minor section loss at top surface of bed plate (1/4" thick pack rust).
			Outboard anchor bolt missing.
			50% SL of inboard anchor bolt.
4	L0L	Truss Fixed Brg. (Lt)	I-beams of bearing pedestal have 20% SL (average) of bottom flanges.
4	L0R	Truss Fixed Brg. (Rt)	I-beams of bearing pedestal have 20% SL (average) of webs along bottom fillets.
			1/4" to 1/2" thick pack rust with minor section loss at top surface of bearing plate atop pedestal I-beams, outside of bearing area.
			1/4" to 1/2" thick pack rust with minor section loss at top surface of bed plate, outside of bearing area.
4	L6L	Truss Exp. Brg. (Lt)	Segmental rollers frozen.
			Channels of bearing pedestal have 10% SL (average) in webs along bottom fillets.
			15% SL at top surface of bed plate, outside of bearing area.
4	L6R	Truss Exp. Brg. (Rt)	Segmental rollers frozen.
			Channels of bearing pedestal have 20% SL (average) of webs along bottom fillets.
			1/4" to 1/2" thick pack rust with minor section loss at top surface of bed plate, outside of bearing area.
5	L0L	Truss Fixed Brg. (Lt)	The two inboard I-beams of the bearing pedestal have 15% SL of top flanges and 15% SL of webs along 6" length of beams, at the Monterey side of bearing.
			20% SL at top surface of bed plate, outside of bearing area.
5	L0R	Truss Fixed Brg. (Rt)	I-beams of bearing pedestal have minor (less than 5%) SL of webs along bottom fillets.
			1/4" to 1/2" thick pack rust with minor section loss at top surface of bearing plate atop pedestal I-beams, outside of bearing area.
			1/4" to 1/2" thick pack rust with minor section loss at top surface of bed plate, outside of bearing area.
5	L6L	Truss Exp. Brg. (Lt)	
5	L6R	Truss Exp. Brg. (Rt)	Channels of bearing pedestal have 5% SL (average) of webs along bottom fillets.

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

Salinas River Bridge
Inspection Report

TABLE 4

FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
1	L0	**Floorbeam 0**		
		TF (SF side)	5%	located 30" left of center-line
		TF (Mty side)	5%	located 30" left of center-line
		BF (SF side)	15%	located 15" from end, left side
		BF (Mty side)	15%	located 15" from end, left side
		Web		
1	L0L	**End Post-Flbm TF Connection Plate (Lt)**	30%	
1	L0R	**End Post-Flbm TF Connection Plate (Rt)**	70%	
1	L0	**Str Bracket (Lt)**		
		TF Outbd	95%	
		TF Inbd	70%	1" x 2" hole
1	L0	**Str Bracket (Rt)**		
		TF Outbd	10%	
		TF Inbd	15%	
1	Panel 1	**Stringer (Lt)**		
		TF Outbd		
		TF Inbd		
		BF Outbd		
		BF Inbd		
		Web		
1	Panel 1	**Stringer (Rt)**		
		TF Outbd		
		TF Inbd		
		BF Outbd		
		BF Inbd		
		Web		
1	Panel 1	**Str Top Laterals**		7" diameter hole in 2nd lateral connection plate from Flbm 0, at Rt stringer.
1	L1	**Floorbeam 1**		
		TF Cover Plate	10%	located 30" left of center-line of flbm
		TF (SF side)		
		TF (Mty side)		
		BF Cover Plate		
		BF (SF side)		
		BF (Mty side)	10%	horiz leg of angle, Lt side (between Str & BC)
		Web		1" diameter hole in web (at top of Rt Str, Outbd side)
				3/4" diameter hole in web (at top of Lt Str)
		Lt Flbm Bracket		
		Rt Flbm Bracket		

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3

TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
1	Panel 2	**Stringer (Lt)**		
		TF Outbd		
		TF Inbd		
		BF Outbd		
		BF Inbd		
		Web		
1	Panel 2	**Stringer (Rt)**		
		TF Outbd		
		TF Inbd		
		BF Outbd		
		BF Inbd		
		Web		
1	Panel 2	**Str Top Laterals**		
1	L2	**Floorbeam 2**		
		TF Cover Plate	5%	at various locations including center-line of flbm
		TF (SF side)		
		TF (Mty side)		
		BF Cover Plate		
		BF (SF side)	5%	horiz leg of angle, Lt side (between Str & BC)
		BF (Mty side)		
		Web		
		Lt Flbm Bracket		
		Rt Flbm Bracket		
1	Panel 3	**Stringer (Lt)**		
		TF Outbd	5%	
		TF Inbd		
		BF Outbd		
		BF Inbd		
		Web		
1	Panel 3	**Stringer (Rt)**		
		TF Outbd		
		TF Inbd		
		BF Outbd		
		BF Inbd		
		Web		
1	Panel 3	**Str Top Laterals**		
1	L3	**Floorbeam 3**		
		TF Cover Plate	10%	at various locations
		TF (SF side)		
		TF (Mty side)		
		BF Cover Plate		
		BF (SF side)	25%	horiz leg of angle, Rt side (between Str & BC)

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3

TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
			5%	horiz leg of angle, Lt side (between Str & BC)
		BF (Mty side)	25%	horiz leg of angle, Rt side (between Str & BC)
			5%	horiz leg of angle, Lt side (between Str & BC)
		Web		1" diameter hole in web (at top of Rt Str, Outbd side)
		Lt Flbm Bracket		50% SL of horiz legs of both connection angles riveted to flbm TF
		Rt Flbm Bracket	10%	in top portion of bracket plate
				50% SL of horiz legs of both connection angles riveted to flbm TF
1	**Panel 4**	**Stringer (Lt)**		
		TF Outbd	5%	
		TF Inbd		
		BF Outbd		
		BF Inbd		
		Web		
1	**Panel 4**	**Stringer (Rt)**		
		TF Outbd		
		TF Inbd		
		BF Outbd		
		BF Inbd		
		Web		
1	**Panel 4**	**Str Top Laterals**		
1	**L4**	**Floorbeam 4**		
		TF Cover Plate	15%	throughout entire length
		TF (SF side)		
		TF (Mty side)		
		BF Cover Plate		
		BF (SF side)	5%	horiz leg of angle, Lt side (between Str & BC)
			15%	horiz leg of angle, Rt side (between Str & BC)
		BF (Mty side)	15%	horiz leg of angle, Lt side (between Str & BC)
			15%	horiz leg of angle, Rt side (between Str & BC)
		Web		2" diameter hole in web (at top of Rt Str, Outbd. side)
		Lt Flbm Bracket		
		Rt Flbm Bracket		
1	**Panel 5**	**Stringer (Lt)**		
		TF Outbd	5%	at mid-panel
		TF Inbd		
		BF Outbd		
		BF Inbd		
		Web		
1	**Panel 5**	**Stringer (Rt)**		
		TF Outbd		

Salinas River Bridge
Inspection Report

TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		TF Inbd		
		BF Outbd	10%	
		BF Inbd		
		Web		
1	**Panel 5**	**Str Top Laterals**		
1	**L5**	**Floorbeam 5**		
		TF Cover Plate	15%	throughout entire length
		TF (SF side)		
		TF (Mty side)		
		BF Cover Plate		
		BF (SF side)	25%	horiz leg of angle, Rt side (between Str & BC)
		BF (Mty side)	15%	horiz leg of angle, Lt side (between Str & BC)
			25%	horiz leg of angle, Rt side (between Str & BC)
		Web		1/2" x 2" hole in web (at top of Rt Str, Outbd side)
		Lt Flbm Bracket	40%	in bracket plate
				75% SL of horiz legs of both connection angles riveted to flbm TF
		Rt Flbm Bracket	30%	in bracket plate, along bottom connection angles
				90% SL of horiz legs of both connection angles riveted to flbm TF
1	**Panel 6**	**Stringer (Lt)**		
		TF Outbd	5%	
		TF Inbd		
		BF Outbd		
		BF Inbd		
		Web		
1	**Panel 6**	**Stringer (Rt)**		
		TF Outbd		
		TF Inbd		
		BF Outbd	10%	
		BF Inbd		
		Web		
1	**Panel 6**	**Str Top Laterals**		
1	**L6**	**Floorbeam 6**		
		TF (SF side)		
		TF (Mty side)		
		BF (SF side)	70%	located 15" from end of flbm, Rt side
			10%	located 31" from end of flbm, Rt side
			15%	located 15" from end of flbm, Lt side
		BF (Mty side)	70%	located 15" from end of flbm, Rt side
			40%	located 31" from end of flbm, Rt side
			10%	located 15" from end of flbm, Lt side

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3

TABLE 4

FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
			15%	located at center section of floorbeam (btw stringers)
		Web		5% SL in vertical leg of BF angle on Mty side, at center section of floorbeam (btw. stringers)
1	L6L	**End Post-Flbm TF Connection Plate (Lt)**	70%	
1	L6R	**End Post-Flbm TF Connection Plate (Rt)**	90%	
1	**L6**	**Str Bracket (Lt)**		
		TF Outbd	70%	1" x 2" hole
		TF Inbd	80%	1" x 2" hole
1	**L6**	**Str Bracket (Rt)**		
		TF Outbd	100%	
		TF Inbd	80%	1" x 2" hole
2	**Panel 1**	**Stringer (Lt)**		
		TF Outbd	10%	at Flbm 1
		TF Inbd		
		BF Outbd		
		BF Inbd		
		Web		
2	**Panel 1**	**Stringer (Rt)**		
		TF Outbd	5%	
		TF Inbd	5%	
		BF Outbd	10%	
		BF Inbd		
		Web		
2	**Panel 1**	**Str. Top Laterals**		
2	**L1**	**Floorbeam 1**		
		TF (SF side)	10%	at 30" to Lt and Rt of center (under rails)
			10%	at 50" to Lt and Rt of center (under guard timbers)
		TF (Mty side)	10%	at 30" to Lt and Rt of center (under rails)
			10%	at 50" to Lt and Rt of center (under guard timbers)
		BF (SF side)	5%	Lt side (btw Str & BC)
			10%	Rt side (btw Str & BC)
			5%	center (btw stringers)
		BF (Mty side)	10%	Lt side (btw Str & BC)
			10%	Rt side (btw Str & BC)
			5%	center (btw stringers)
		Web		
2	**Panel 2**	**Stringer (Lt)**		
		TF Outbd	10%	at Flbms 1 & 2
		TF Inbd		

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3

TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		BF Outbd		
		BF Inbd		
		Web		
2	**Panel 2**	**Stringer (Rt)**		
		TF Outbd	5%	
		TF Inbd	5%	
		BF Outbd	10%	
		BF Inbd		
		Web		
2	**Panel 2**	**Str. Top Laterals**		
2	**L2**	**Floorbeam 2**		
		TF (SF side)	15%	at 30" to Lt and Rt of center (under rails)
			15%	at 50" to Lt and Rt of center (under guard timbers)
		TF (Mty side)	15%	at 30" to Lt and Rt of center (under rails)
			15%	at 50" to Lt and Rt of center (under guard timbers)
		BF (SF side)	10%	Lt side (btw Str & BC)
			10%	Rt side (btw Str & BC)
			5%	center (btw stringers)
		BF (Mty side)	15%	Lt side (btw Str & BC)
			10%	Rt side (btw Str & BC)
			15%	center (btw stringers)
		Web		
2	**Panel 3**	**Stringer (Lt)**		
		TF Outbd	10%	at Flbm 2
		TF Inbd		
		BF Outbd		
		BF Inbd		
		Web		
2	**Panel 3**	**Stringer (Rt)**		
		TF Outbd	5%	
		TF Inbd		
		BF Outbd	5%	
		BF Inbd		
		Web		
2	**Panel 3**	**Str. Top Laterals**		
2	**L3**	**Floorbeam 3**		
		TF (SF side)	10%	at 30" to Lt and Rt of center (under rails)
			10%	at 50" to Lt and Rt of center (under guard timbers)
		TF (Mty side)	10%	at 30" to Lt and Rt of center (under rails)
			10%	at 50" to Lt and Rt of center (under guard timbers)
		BF (SF side)	10%	Lt side (btw Str & BC)
			15%	Rt side (btw Str & BC)

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3

TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
			10%	center (btw stringers)
		BF (Mty side)	15%	Lt side (btw Str & BC)
			10%	Rt side (btw Str & BC)
			5%	center (btw stringers)
		Web		3/4" diameter hole in web at top of Rt Str, Outbd side
2	**Panel 4**	**Stringer (Lt)**		
		TF Outbd	15%	at Flbms 3 & 4
		TF Inbd		
		BF Outbd	5%	
		BF Inbd		
		Web		
2	**Panel 4**	**Stringer (Rt)**		
		TF Outbd	5%	
		TF Inbd	5%	
		BF Outbd	10%	
		BF Inbd		
		Web		
2	**Panel 4**	**Str. Top Laterals**		
2	**L4**	**Floorbeam 4**		
		TF (SF side)	10%	at 30" to Lt and Rt of center (under rails)
			10%	at 50" to Lt and Rt of center (under guard timbers)
		TF (Mty side)	10%	at 30" to Lt and Rt of center (under rails)
			10%	at 50" to Lt and Rt of center (under guard timbers)
		BF (SF side)	10%	Lt side (btw Str & BC)
			10%	Rt side (btw Str & BC)
		BF (Mty side)	15%	Lt side (btw Str & BC)
			15%	Rt side (btw Str & BC)
			5%	center (btw stringers)
		Web	5%	Lt side (btw Str & BC)
2	**Panel 5**	**Stringer (Lt)**		
		TF Outbd	10%	along 7 ft. length of member starting from L4L
		TF Inbd		
		BF Outbd		
		BF Inbd		
		Web		
2	**Panel 5**	**Stringer (Rt)**		
		TF Outbd	5%	
		TF Inbd	5%	
		BF Outbd	15%	
		BF Inbd		
		Web		
2	**Panel 5**	**Str. Top Laterals**		

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3

TABLE 4

FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
2	**L5**	**Floorbeam 5**		
		TF (SF side)	10%	at 30" to Lt and Rt of center (under rails)
			10%	at 50" to Lt and Rt of center (under guard timbers)
		TF (Mty side)	10%	at 30" to Lt and Rt of center (under rails)
			10%	at 50" to Lt and Rt of center (under guard timbers)
		BF (SF side)	5%	Lt side (btw Str & BC)
			15%	Rt side (btw Str & BC)
			10%	center (btw stringers)
		BF (Mty side)	15%	Lt side (btw Str & BC)
			15%	Rt side (btw Str & BC)
		Web		
2	**Panel 6**	**Stringer (Lt)**		
		TF Outbd		
		TF Inbd		
		BF Outbd	30%	at bearing at Pier 2
		BF Inbd		
		Web		
2	**Panel 6**	**Stringer (Rt)**		
		TF Outbd	5%	
		TF Inbd	5%	
		BF Outbd	10%	
		BF Inbd		
		Web		
2	**Panel 6**	**Str. Top Laterals**		
3	**Panel 1**	**Stringer (Lt)**		
		TF Outbd		
		TF Inbd		
		BF Outbd	20%	at the bearing at Pier 2
			10%	along 3 ft length of member starting from the bearing
		BF Inbd		
		Web		
3	**Panel 1**	**Stringer (Rt)**		
		TF Outbd	5%	
		TF Inbd	5%	
		BF Outbd	10%	
		BF Inbd		
		Web		
3	**Panel 1**	**Str. Top Laterals**		
3	**L1**	**Floorbeam 1**		
		TF (SF side)	10%	at 30" to Lt and Rt of center (under rails)
			10%	at 50" to Lt and Rt of center (under guard timbers)
		TF (Mty side)	10%	at 30" to Lt and Rt of center (under rails)

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3

TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
			10%	at 50" to Lt and Rt of center (under guard timbers)
		BF (SF side)	15%	Rt side (btw Str & BC)
		BF (Mty side)	10%	Rt side (btw Str & BC)
		Web		
3	**Panel 2**	**Stringer (Lt)**		
		TF Outbd	10%	
		TF Inbd		
		BF Outbd		
		BF Inbd		
		Web		
3	**Panel 2**	**Stringer (Rt)**		
		TF Outbd	10%	
		TF Inbd	10%	
		BF Outbd	10%	
		BF Inbd		
		Web		
3	**Panel 2**	**Str. Top Laterals**		
3	**L2**	**Floorbeam 2**		
		TF (SF side)	10%	at 30" to Lt and Rt of center (under rails)
			10%	at 50" to Lt and Rt of center (under guard timbers)
		TF (Mty side)	10%	at 30" to Lt and Rt of center (under rails)
			10%	at 50" to Lt and Rt of center (under guard timbers)
		BF (SF side)	10%	Lt side (btw Str & BC)
			10%	Rt side (btw Str & BC)
			5%	center (btw stringers)
		BF (Mty side)	15%	Lt side (btw Str & BC)
			10%	Rt side (btw Str & BC)
			5%	center (btw stringers)
		Web	5%	Lt side (btw Str & BC)
				1-1/2" x 13" hole in web at top of Lt Str
				1" x 13" hole in web at top of Rt Str
3	**Panel 3**	**Stringer (Lt)**		
		TF Outbd	10%	along 3 ft. length at both ends of stringer
		TF Inbd		
		BF Outbd		
		BF Inbd		
		Web		
3	**Panel 3**	**Stringer (Rt)**		
		TF Outbd	10%	
		TF Inbd	10%	
		BF Outbd	10%	at horiz leg of angle
			5%	at vertical leg of angle

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3

TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		BF Inbd		
		Web		
3	**Panel 3**	**Str. Top Laterals**		
3	L3	**Floorbeam 3**		
		TF (SF side)	10%	at 30" to Lt and Rt of center (under rails)
			10%	at 50" to Lt and Rt of center (under guard timbers)
		TF (Mty side)	10%	at 30" to Lt and Rt of center (under rails)
			10%	at 50" to Lt and Rt of center (under guard timbers)
		BF (SF side)	10%	Lt side (btw Str & BC)
			10%	Rt side (btw Str & BC)
			5%	center (btw stringers)
		BF (Mty side)	5%	Lt side (btw Str & BC)
			15%	Rt side (btw Str & BC)
			10%	center (btw stringers)
		Web		1" x 13" hole in web at top of Rt Str
3	**Panel 4**	**Stringer (Lt)**		
		TF Outbd		
		TF Inbd		
		BF Outbd		
		BF Inbd		
		Web		
3	**Panel 4**	**Stringer (Rt)**		
		TF Outbd	10%	
		TF Inbd	10%	
		BF Outbd	15%	
		BF Inbd		
		Web		
3	**Panel 4**	**Str. Top Laterals**		
3	**L4**	**Floorbeam 4**		
		TF (SF side)	15%	at 30" to Lt and Rt of center (under rails)
			15%	at 50" to Lt and Rt of center (under guard timbers)
		TF (Mty side)	15%	at 30" to Lt and Rt of center (under rails)
			15%	at 50" to Lt and Rt of center (under guard timbers)
		BF (SF side)	5%	Lt side (btw Str & BC)
			5%	Rt side (btw Str & BC)
		BF (Mty side)	10%	Lt side (btw Str & BC)
			15%	Rt side (btw Str & BC)
			10%	center (btw stringers)
		Web	25%	Lt side (btw Str & BC) along top of bottom flange angle
				1" x 4" hole in web at Lt side, at btm lateral connection angle
				1-1/2" x 13" hole in web at top of Lt Str

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3

TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
3	**Panel 5**	**Stringer (Lt)**		
		TF Outbd		
		TF Inbd		
		BF Outbd		
		BF Inbd		
		Web		
3	**Panel 5**	**Stringer (Rt)**		
		TF Outbd	10%	
		TF Inbd	10%	
		BF Outbd	15%	
		BF Inbd		
		Web		
3	**Panel 5**	**Str. Top Laterals**		
3	**L5**	**Floorbeam 5**		
		TF (SF side)	10%	at 30" to Lt and Rt of center (under rails)
			10%	at 50" to Lt and Rt of center (under guard timbers)
		TF (Mty side)	10%	at 30" to Lt and Rt of center (under rails)
			10%	at 50" to Lt and Rt of center (under guard timbers)
		BF (SF side)	5%	Lt side (btw Str & BC)
			10%	Rt side (btw Str & BC)
			5%	center (btw stringers)
		BF (Mty side)	10%	Lt side (btw Str & BC)
			10%	Rt side (btw Str & BC)
			5%	center (btw stringers)
		Web		
3	**Panel 6**	**Stringer (Lt)**		
		TF Outbd		
		TF Inbd		
		BF Outbd		
		BF Inbd		
		Web		
3	**Panel 6**	**Stringer (Rt)**		
		TF Outbd	5%	
		TF Inbd	5%	
		BF Outbd	10%	
		BF Inbd		
		Web		
3	**Panel 6**	**Str. Top Laterals**		
4	**Panel 1**	**Stringer (Lt)**		
		TF Outbd		
		TF Inbd		
		BF Outbd	10%	

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3

Salinas River Bridge
Inspection Report

TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		BF Inbd		
		Web		
4	**Panel 1**	**Stringer (Rt)**		
		TF Outbd	10%	
		TF Inbd	10%	
		BF Outbd	10%	
		BF Inbd		
		Web		
4	**Panel 1**	**Str. Top Laterals**		
4	**L1**	**Floorbeam 1**		
		TF (SF side)	15%	at 30" to Lt and Rt of center (under rails)
			15%	at 50" to Lt and Rt of center (under guard timbers)
		TF (Mty side)	15%	at 30" to Lt and Rt of center (under rails)
			15%	at 50" to Lt and Rt of center (under guard timbers)
		BF (SF side)	10%	Lt side (btw Str & BC)
			15%	Rt side (btw Str & BC)
			5%	center (btw stringers)
		BF (Mty side)	10%	Lt side (btw Str & BC)
			15%	Rt side (btw Str & BC)
			10%	center (btw stringers)
		Web		1/2" x 13" hole in web at top of Rt stringer
4	**Panel 2**	**Stringer (Lt)**		
		TF Outbd		
		TF Inbd		
		BF Outbd		
		BF Inbd		
		Web		
4	**Panel 2**	**Stringer (Rt)**		
		TF Outbd	10%	
		TF Inbd	10%	
		BF Outbd	15%	
		BF Inbd		
		Web		
4	**Panel 2**	**Str. Top Laterals**		
4	**L2**	**Floorbeam 2**		
		TF (SF side)	15%	at 30" to Lt and Rt of center (under rails)
			15%	at 50" to Lt and Rt of center (under guard timbers)
		TF (Mty side)	15%	at 30" to Lt and Rt of center (under rails)
			15%	at 50" to Lt and Rt of center (under guard timbers)
		BF (SF side)	15%	Lt side (btw Str & BC)
			10%	Rt side (btw Str & BC)
			5%	center (btw stringers)

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3

TABLE 4

FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		BF (Mty side)	15%	Lt side (btw Str & BC)
			15%	Rt side (btw Str & BC)
			10%	center (btw stringers)
		Web	5%	Lt side (btw Str & BC)
				1" diameter hole in web at top of Lt stringer
4	**Panel 3**	**Stringer (Lt)**		
		TF Outbd		
		TF Inbd		
		BF Outbd		
		BF Inbd		
		Web		
4	**Panel 3**	**Stringer (Rt)**		
		TF Outbd		
		TF Inbd		
		BF Outbd	15%	
		BF Inbd		
		Web		
4	**Panel 3**	**Str. Top Laterals**		
4	**L3**	**Floorbeam 3**		
		TF (SF side)	10%	at 30" to Lt of center (under rail)
			15%	at 30" to Rt of center (under rail)
			10%	at 50" to Lt of center (under guard timber)
			15%	at 50" to Rt of center (under guard timber)
		TF (Mty side)	10%	at 30" to Lt of center (under rail)
			15%	at 30" to Rt of center (under rail)
			10%	at 50" to Lt of center (under guard timber)
			15%	at 50" to Rt of center (under guard timber)
		BF (SF side)	5%	Lt side (btw Str & BC)
			10%	Rt side (btw Str & BC)
			10%	center (btw stringers)
		BF (Mty side)	10%	Lt side (btw Str & BC)
			10%	Rt side (btw Str & BC)
			5%	center (btw stringers)
		Web		
4	**Panel 4**	**Stringer (Lt)**		
		TF Outbd		
		TF Inbd		
		BF Outbd		
		BF Inbd		
		Web		
4	**Panel 4**	**Stringer (Rt)**		
		TF Outbd	5%	

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3

TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		TF Inbd	5%	
		BF Outbd	10%	
		BF Inbd		
		Web		
4	**Panel 4**	**Str. Top Laterals**		
4	**L4**	**Floorbeam 4**		
		TF (SF side)	20%	at 30" to Lt of center (under rail)
			15%	at 30" to Rt of center (under rail)
			20%	at 50" to Lt of center (under guard timber)
			15%	at 50" to Rt of center (under guard timber)
		TF (Mty side)	20%	at 30" to Lt of center (under rail)
			15%	at 30" to Rt of center (under rail)
			20%	at 50" to Lt of center (under guard timber)
			15%	at 50" to Rt of center (under guard timber)
		BF (SF side)	20%	Lt side (btw Str & BC)
			10%	Rt side (btw Str & BC)
			5%	center (btw stringers)
		BF (Mty side)	20%	Lt side (btw Str & BC)
			10%	Rt side (btw Str & BC)
			5%	center (btw stringers)
		Web		web plate thickness reduced 50% along 1 ft. length of bottom flange angle, starting 1.5 ft. from left end of floorbeam
4	**Panel 5**	**Stringer (Lt)**		
		TF Outbd		
		TF Inbd		
		BF Outbd	5%	
		BF Inbd		
		Web		
4	**Panel 5**	**Stringer (Rt)**		
		TF Outbd	10%	
		TF Inbd	10%	
		BF Outbd	10%	
		BF Inbd		
		Web		
4	**Panel 5**	**Str. Top Laterals**		
4	**L5**	**Floorbeam 5**		
		TF (SF side)	20%	at 30" to Lt of center (under rail)
			15%	at 30" to Rt of center (under rail)
			20%	at 50" to Lt of center (under guard timber)
			15%	at 50" to Rt of center (under guard timber)
		TF (Mty side)	20%	at 30" to Lt of center (under rail)

TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
			15%	at 30" to Rt of center (under rail)
			20%	at 50" to Lt of center (under guard timber)
			15%	at 50" to Rt of center (under guard timber)
		BF (SF side)	10%	Lt side (btw Str & BC)
			10%	Rt side (btw Str & BC)
		BF (Mty side)	10%	Lt side (btw Str & BC)
			15%	Rt side (btw Str & BC)
		Web		1" x 13" hole in web at top of Rt stringer
4	**Panel 6**	**Stringer (Lt)**		
		TF Outbd		
		TF Inbd		
		BF Outbd	10%	at the bearing, at Pier 4
		BF Inbd		
		Web		
4	**Panel 6**	**Stringer (Rt)**		
		TF Outbd	5%	
		TF Inbd	5%	
		BF Outbd	10%	
		BF Inbd		
		Web		
4	**Panel 6**	**Str. Top Laterals**		
5	**Panel 1**	**Stringer (Lt)**		
		TF Outbd		
		TF Inbd		
		BF Outbd		
		BF Inbd		
		Web		
5	**Panel 1**	**Stringer (Rt)**		
		TF Outbd	5%	
		TF Inbd	5%	
		BF Outbd	30%	notch in edge of BF at an isolated location just past the sole plate at the fixed bearing
			15%	throughout length of member, except as noted above
		BF Inbd		
		Web		
5	**Panel 1**	**Str. Top Laterals**		
5	**L1**	**Floorbeam 1**		
		TF (SF side)	10%	at 30" to Lt and Rt of center (under rails)
			10%	at 50" to Lt and Rt of center (under guard timbers)
		TF (Mty side)	10%	at 30" to Lt and Rt of center (under rails)
			10%	at 50" to Lt and Rt of center (under guard timbers)
		BF (SF side)	10%	Rt side (btw Str & BC)

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3

TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		BF (Mty side)	10%	Lt side (btw Str & BC)
			10%	Rt side (btw Str & BC)
			5%	center (btw stringers)
		Web		
5	**Panel 2**	**Stringer (Lt)**		
		TF Outbd		
		TF Inbd		
		BF Outbd		
		BF Inbd		
		Web		
5	**Panel 2**	**Stringer (Rt)**		
		TF Outbd	10%	
		TF Inbd	10%	
		BF Outbd	5%	
		BF Inbd		
		Web		
5	**Panel 2**	**Str. Top Laterals**		
5	**L2**	**Floorbeam 2**		
		TF (SF side)	10%	at 30" to Lt of center (under rail)
			15%	at 30" to Rt of center (under rail)
			10%	at 50" to Lt of center (under guard timber)
			15%	at 50" to Rt of center (under guard timber)
		TF (Mty side)	10%	at 30" to Lt of center (under rail)
			15%	at 30" to Rt of center (under rail)
			10%	at 50" to Lt of center (under guard timber)
			15%	at 50" to Rt of center (under guard timber)
		BF (SF side)	10%	Lt side (btw Str & BC)
			15%	Rt side (btw Str & BC)
			5%	center (btw stringers)
		BF (Mty side)	20%	Lt side (btw Str & BC)
			15%	Rt side (btw Str & BC)
			5%	center (btw stringers)
		Web		web plate thickness reduced 50% along edge of bottom flange angle, Lt side (btw Str & BC)
5	**Panel 3**	**Stringer (Lt)**		
		TF Outbd		
		TF Inbd		
		BF Outbd		
		BF Inbd		
		Web		
5	**Panel 3**	**Stringer (Rt)**		
		TF Outbd	10%	

TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		TF Inbd	10%	
		BF Outbd	10%	
		BF Inbd		
		Web		
5	**Panel 3**	**Str. Top Laterals**		
5	**L3**	**Floorbeam 3**		
		TF (SF side)	15%	at 30" to Lt and Rt of center (under rails)
			15%	at 50" to Lt and Rt of center (under guard timbers)
			30%	at 20" to Lt of center
		TF (Mty side)	15%	at 30" to Lt and Rt of center (under rails)
			15%	at 50" to Lt and Rt of center (under guard timbers)
			30%	at 20" to Lt of center
		BF (SF side)	10%	Lt side (btw Str & BC)
			10%	Rt side (btw Str & BC)
			5%	center (btw stringers)
		BF (Mty side)	5%	Lt side (btw Str & BC)
			10%	Rt side (btw Str & BC)
			10%	center (btw stringers)
		Web		web plate thickness reduced by 20% along edge of bottom flange angle, Lt side (btw Str & BC)
5	**Panel 4**	**Stringer (Lt)**		
		TF Outbd		
		TF Inbd		
		BF Outbd		
		BF Inbd		
		Web		
5	**Panel 4**	**Stringer (Rt)**		
		TF Outbd	10%	
		TF Inbd	10%	
		BF Outbd	10%	
		BF Inbd		
		Web		
5	**Panel 4**	**Str. Top Laterals**		
5	**L4**	**Floorbeam 4**		
		TF (SF side)	10%	at 30" to Lt of center (under rail)
			5%	at 30" to Rt of center (under rail)
			10%	at 50" to Lt of center (under guard timber)
			5%	at 50" to Rt of center (under guard timber)
		TF (Mty side)	10%	at 30" to Lt of center (under rail)
			5%	at 30" to Rt of center (under rail)
			10%	at 50" to Lt of center (under guard timber)
			5%	at 50" to Rt of center (under guard timber)

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3

TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		BF (SF side)	5%	Rt side (btw Str & BC)
		BF (Mty side)	5%	Lt side (btw Str & BC)
			10%	Rt side (btw Str & BC)
			5%	center (btw stringers)
		Web		1" x 13" hole in web at top of Lt stringer
5	**Panel 5**	**Stringer (Lt)**		
		TF Outbd		
		TF Inbd		
		BF Outbd		
		BF Inbd		
		Web		
5	**Panel 5**	**Stringer (Rt)**		
		TF Outbd	10%	
		TF Inbd	10%	
		BF Outbd	15%	
		BF Inbd		
		Web		
5	**Panel 5**	**Str. Top Laterals**		
5	**L5**	**Floorbeam 5**		
		TF (SF side)	10%	at 30" to Lt of center (under rail)
			15%	at 30" to Rt of center (under rail)
			10%	at 50" to Lt of center (under guard timber)
			15%	at 50" to Rt of center (under guard timber)
		TF (Mty side)	10%	at 30" to Lt of center (under rail)
			15%	at 30" to Rt of center (under rail)
			10%	at 50" to Lt of center (under guard timber)
			15%	at 50" to Rt of center (under guard timber)
		BF (SF side)	5%	Lt side (btw Str & BC)
			15%	Rt side (btw Str & BC)
			10%	center (btw stringers)
		BF (Mty side)	15%	Lt side (btw Str & BC)
			10%	Rt side (btw Str & BC)
			10%	center (btw stringers)
		Web		
5	**Panel 6**	**Stringer (Lt)**		
		TF Outbd		
		TF Inbd		
		BF Outbd		
		BF Inbd		
		Web		
5	**Panel 6**	**Stringer (Rt)**		
		TF Outbd	10%	

TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	SECT. LOSS	COMMENT
		TF Inbd	10%	
		BF Outbd	5%	
		BF Inbd		
		Web		
5	**Panel 6**	**Str. Top Laterals**		

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3

Salinas River Bridge
Inspection Report

TABLE 5
STRINGER BEARINGS

SPAN	PANEL OR PANEL PT.	COMPONENT	COMMENT
2	L0	Str. Fixed Brg. (Lt)	
2	L0	Str. Fixed Brg. (Rt)	
2	L6	Str Exp. Brg (Lt)	Corrosion at stringer BF, sole plate, shim plate and bed plate, with no visible signs of expansion and contraction (30% SL in stringer BF, outboard side).
2	L6	Str. Exp. Brg. (Rt)	Corrosion at stringer BF, sole plate, shim plate and bed plate, with no visible signs of expansion and contraction.
			End of stringer in contact with stringer of Span 3, Panel 1 (probably due to previously documented movement of substructure caused by an earthquake).
3	L0	Str. Fixed Brg. (Lt)	Corrosion at stringer BF, sole plate, shim plate and bed plate.
3	L0	Str. Fixed Brg. (Rt)	Corrosion at stringer BF, sole plate, shim plate and bed plate.
			End of stringer in contact with stringer of Span 2, Panel 6 (probably due to previously documented movement of substructure caused by an earthquake).
3	L6	Str. Exp. Brg. (Lt)	Minor corrosion at shim plate and bed plate.
3	L6	Str. Exp. Brg. (Rt)	Corrosion at stringer BF, sole plate, shim plate and bed plate with SL along edges of plates and btm flange.
4	L0	Str. Fixed Brg. (Lt)	Minor corrosion at shim plate and bed plate.
4	L0	Str. Fixed Brg. (Rt)	Corrosion at stringer BF, sole plate, shim plate and bed plate with minor section loss in Str BF and along edges of plates.
			10% SL of the end bearing stiffener, outboard side.
4	L6	Str. Exp. Brg (Lt)	Corrosion at stringer BF, sole plate, shim plate and bed plate with minor section loss in Str BF and along edges of plates.
4	L6	Str. Exp. Brg (Rt)	Corrosion at stringer BF, sole plate, shim plate and bed plate with minor section loss in Str BF and along edges of plates.
			20% SL of the end bearing stiffener, outboard side.
5	L0	Str. Fixed Brg. (Lt)	Corrosion at sole plate, shim plate and bed plate with minor section loss along edges of plates.
5	L0	Str. Fixed Brg. (Rt)	Corrosion at stringer BF, sole plate, shim plate and bed plate with minor section loss along edges of plates.
5	L6	Str. Exp. Brg. (Lt)	
5	L6	Str. Exp Brg. (Rt)	Minor corrosion on top surfaces of stringer bottom flange and sole plate.

For abbreviations, see Legend on first page of Appendix 4.
For guide to numbering system and directional designations, see Appendix 3.

APPENDIX 5

LOAD RATINGS

SALINAS RIVER BRIDGE
AS-BUILT LOAD RATING - 30 FT. DEEP TRUSS

TRUSS MEMBERS - LOAD CASE A

NORMAL RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	RF	E80-RATING
End Post	651.90	91.53	775.9	0.5	21.5	5.875	499.1	1.12	89.8
Bottom Chord (BC1)	309.21	56.19	476.3	0.5	21.5	5.875	306.4	0.83	66.1
Bottom Chord (BC2)	558.69	102.46	826.5	0.5	21.5	5.875	531.6	0.86	68.7
Top Chord	589.20	90.99	738.6	0.5	21.5	5.875	475.1	1.05	83.9
Diagonal (T) (ten.)	379.83	56.69	514.8	0.5	21.5	5.875	331.1	0.98	78.1
Diagonal (D) (comp.)	380.30	18.69	299.3	0.5	21.5	5.875	192.5	1.88	150.3
Hanger (center)	217.39	19.50	290.8	0.5	39.0	5.875	214.0	0.92	74.0

MAXIMUM RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	RF	E80-RATING
End Post	952.80	91.53	775.9	0.5	21.5	5.875	499.1	1.73	138.1
Bottom Chord (BC1)	449.76	56.19	476.3	0.5	21.5	5.875	306.4	1.28	102.8
Bottom Chord (BC2)	812.64	102.46	826.5	0.5	21.5	5.875	531.6	1.34	106.9
Top Chord	855.70	90.99	738.6	0.5	21.5	5.875	475.1	1.61	128.8
Diagonal (T) (ten.)	552.48	56.69	514.8	0.5	21.5	5.875	331.1	1.50	119.8
Diagonal (D) (comp.)	553.40	18.69	299.3	0.5	21.5	5.875	192.5	2.78	222.2
Hanger (center)	316.20	19.50	290.8	0.5	39.0	5.875	214.0	1.39	110.9

SALINAS RIVER BRIDGE
AS-BUILT LOAD RATING - 30 FT. DEEP TRUSS

TRUSS MEMBERS - LOAD CASE B

NORMAL RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	RF	E80-RATING
End Post	814.9	91.53	775.9	0.5	21.5	5.875	499.1	9.5	0.0	2.89	1.42	113.8
Bottom Chord (BC1)	386.5	56.19	476.3	0.5	21.5	5.875	306.4	49.2	148.0	29.2	0.58	46.5
Bottom Chord (BC2)	698.4	102.46	826.5	0.5	21.5	5.875	531.6	65.5	148.0	37.5	0.74	59.2
Top Chord	736.5	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.32	105.3
Diagonal (T) (ten.)	474.8	56.69	514.8	0.5	21.5	5.875	331.1	5.7	0.0	2.3	1.24	98.9
Diagonal (D) (comp.)	475.4	18.69	299.3	0.5	21.5	5.875	192.5	1.9	0.0	1.7	2.34	187.3
Hanger (center)	271.7	19.50	290.8	0.5	39.0	5.875	214.0	3.0	0.0	2.74	1.15	92.0

MAXIMUM RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	RF	E80-RATING
End Post	1191.0	91.53	775.9	0.5	21.5	5.875	499.1	9.5	0.0	2.89	2.17	173.7
Bottom Chord (BC1)	562.2	56.19	476.3	0.5	21.5	5.875	306.4	49.2	148.0	29.2	0.94	75.6
Bottom Chord (BC2)	1015.8	102.46	826.5	0.5	21.5	5.875	531.6	65.5	148.0	37.5	1.18	94.6
Top Chord	1069.6	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	2.01	161.0
Diagonal (T) (ten.)	690.6	56.69	514.8	0.5	21.5	5.875	331.1	5.7	0.0	2.3	1.88	150.7
Diagonal (D) (comp.)	691.8	18.69	299.3	0.5	21.5	5.875	192.5	1.9	0.0	1.7	3.46	276.4
Hanger (center)	395.3	19.50	290.8	0.5	39.0	5.875	214.0	3.0	0.0	2.74	1.72	137.6

SALINAS RIVER BRIDGE
AS-BUILT LOAD RATING - 30 FT. DEEP TRUSS

FLOOR SYSTEM - LOAD CASE A

NORMAL RATING

MEMBER	CAPACITY (KSI)	DL (KSI)	LL (E80-KSI)	DIST.	IMPACT %	RE %	LL+I (KSI)	RF	E80-RATING
Stringer (moment)	16.5	0.686	10.55	1.0	39.0	14.275	16.8	0.94	75.5
Floorbeam (moment)	16.5	0.872	9.89	1.0	39.0	5.875	14.6	1.07	85.9
Stringer (shear)	10.5	0.322	5.92	1.0	39.0	14.275	9.4	1.08	86.6
Floorbeam (shear)	10.5	0.576	6.4	1.0	39.0	5.875	9.4	1.05	84.3

MAXIMUM RATING

MEMBER	CAPACITY (KSI)	DL (KSI)	LL (E80-KSI)	DIST.	IMPACT %	RE %	LL+I (KSI)	RF	E80-RATING
Stringer (moment)	24.0	0.686	10.55	1.0	39.0	14.275	16.8	1.39	111.3
Floorbeam (moment)	24.0	0.872	9.89	1.0	39.0	5.875	14.6	1.59	127.1
Stringer (shear)	18.0	0.322	5.92	1.0	39.0	14.275	9.4	1.88	150.4
Floarbeam (shear)	18.0	0.576	6.4	1.0	39.0	5.875	9.4	1.85	148.0

SALINAS RIVER BRIDGE
AS-BUILT LOAD RATING - 30 FT. DEEP TRUSS

PINS - LOAD CASE A

NORMAL RATING

MEMBER	CAPACITY (KSI)	DL (KSI)	LL+I (E80-KSI)	RF	E80-RATING
Shear in Pin	12.6	0.79	4.05	2.92	233.3
Bearing on Pin & PL's	22.5	3.96	20.23	0.92	73.3
*Bearing on Pin & PL's	22.5	4.27	21.79	0.84	66.9
Bending in Pin	24.9	3.75	19.1	1.11	88.6

MAXIMUM RATING

MEMBER	CAPACITY (KSI)	DL (KSI)	LL (E80-KSI)	RF	E80-RATING
Shear in Pin	21.6	0.79	4.05	5.14	411.1
Bearing on Pin & PL's	n/a	n/a	n/a	n/a	n/a
*Bearing on Pin & PL's	n/a	n/a	n/a	n/a	n/a
Bending in Pin	48.0	3.75	19.1	2.32	185.3

* - indicates stress check at double angles located beneath the pin, midway between gusset plates.

SALINAS RIVER BRIDGE
AS-BUILT LOAD RATING - 31 FT. DEEP TRUSS

TRUSS MEMBERS - LOAD CASE A

NORMAL RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE%	LL+I (KIPS)	RF	E80-RATING
End Post	636.50	84.17	766.62	0.5	21.5	5.875	493.1	1.12	89.6
Bottom Chord (LC1)	343.2	50.61	460.85	0.5	21.5	5.875	296.4	0.99	79.0
Bottom Chord (LC2)	601.9	91.63	799.53	0.5	21.5	5.875	514.3	0.99	79.4
Top Chord	568.30	80.90	715.06	0.5	21.5	5.875	459.9	1.06	84.8
Diagonal (D1) (ten.)	394.00	50.38	508.6	0.5	21.5	5.875	327.1	1.05	84.0
Diagonal (D2) (comp.)	379.50	17.84	296.01	0.5	21.5	5.875	190.4	1.90	152.0
Hanger (center)	332.1	18.00	290.8	0.5	39.0	5.875	214.0	1.47	117.4

MAXIMUM RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE%	LL+I (KIPS)	RF	E80-RATING
End Post	923.80	84.17	766.62	0.5	21.5	5.875	493.1	1.70	136.2
Bottom Chord (LC1)	499.2	50.61	460.85	0.5	21.5	5.875	296.4	1.51	121.1
Bottom Chord (LC2)	875.5	91.63	799.53	0.5	21.5	5.875	514.3	1.52	121.9
Top Chord	829.00	80.90	715.06	0.5	21.5	5.875	459.9	1.63	130.1
Diagonal (D1) (ten.)	573.1	50.38	508.6	0.5	21.5	5.875	327.1	1.60	127.8
Diagonal (D2) (comp.)	550.20	17.84	296.01	0.5	21.5	5.875	190.4	2.80	223.7
Hanger (center)	483.10	18.00	290.8	0.5	39.0	5.875	214.0	2.17	173.9

SALINAS RIVER BRIDGE
AS-BUILT LOAD RATING - 31 FT. DEEP TRUSS

TRUSS MEMBERS - LOAD CASE B

NORMAL RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE%	LL+I (KIPS)	WIND	LONGIT.	LATERAL	RF	E80-RATING
End Post	795.63	84.17	766.62	0.5	21.5	5.875	493.1	10.8	0.0	5.00	1.41	112.5
Bottom Chord (LC1)	429.00	50.61	460.85	0.5	21.5	5.875	296.4	49.8	148.0	30.4	0.69	55.4
Bottom Chord (LC2)	752.38	91.63	799.53	0.5	21.5	5.875	514.3	66.6	148.0	39.7	0.85	67.7
Top Chord	710.38	80.90	715.06	0.5	21.5	5.875	459.9	17.7	0.0	4.8	1.32	105.3
Diagonal (D1) (ten.)	492.50	50.38	508.6	0.5	21.5	5.875	327.1	6.5	0.0	4.0	1.32	105.2
Diagonal (D2) (comp.)	474.38	17.84	296.01	0.5	21.5	5.875	190.4	2.2	0.0	3.0	2.35	187.9
Hanger (center)	415.13	18.00	290.8	0.5	39.0	5.875	214.0	3.5	0.0	4.80	1.80	144.0

MAXIMUM RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE%	LL+I (KIPS)	WIND	LONGIT.	LATERAL	RF	E80-RATING
End Post	1154.75	84.17	766.62	0.5	21.5	5.875	493.1	10.8	0.0	5.00	2.13	170.2
Bottom Chord (LC1)	624.00	50.61	460.85	0.5	21.5	5.875	296.4	49.8	148.0	30.4	1.10	88.2
Bottom Chord (LC2)	1094.38	91.63	799.53	0.5	21.5	5.875	514.3	66.6	148.0	39.7	1.33	106.7
Top Chord	1036.25	80.90	715.06	0.5	21.5	5.875	459.9	17.7	0.0	4.8	2.02	161.4
Diagonal (D1) (ten.)	716.38	50.38	508.6	0.5	21.5	5.875	327.1	6.5	0.0	4.0	1.99	159.3
Diagonal (D2) (comp.)	687.75	17.84	296.01	0.5	21.5	5.875	190.4	2.2	0.0	3.0	3.45	276.2
Hanger (center)	603.88	18.00	290.8	0.5	39.0	5.875	214.0	3.5	0.0	4.80	2.66	213.0

Appendix 5

SALINAS RIVER BRIDGE
AS-BUILT LOAD RATING - 31 FT. DEEP TRUSS

FLOOR SYSTEM - LOAD CASE A

NORMAL RATING

MEMBER	CAPACITY (KSI)	DL (KSI)	LL (E80-KSI)	DIST.	IMPACT %	RE%	LL+I (KSI)	RF	E80-RATING
Stringer (moment)	16.5	0.621	10.51	1.0	39.0	14.275	16.7	0.95	76.1
Floorbeam (moment)	16.5	1.16	14.13	1.0	39.0	5.875	20.8	0.74	59.0
Stringer (shear)	10.5	0.364	7.35	1.0	39.0	14.275	11.7	0.87	69.5
Floorbeam (shear)	10.5	0.53	6.3	1.0	39.0	5.875	9.3	1.08	86.0

MAXIMUM RATING

MEMBER	CAPACITY (KSI)	DL (KSI)	LL (E80-KSI)	DIST.	IMPACT %	RE%	LL+I (KSI)	RF	E80-RATING
Stringer (moment)	24.0	0.621	10.51	1.0	39.0	14.275	16.7	1.40	112.0
Floorbeam (moment)	24.0	1.16	14.13	1.0	39.0	5.875	20.8	1.10	87.9
Stringer (shear)	18.0	0.364	7.35	1.0	39.0	14.275	11.7	1.51	120.8
Floorbeam (shear)	18.0	0.53	6.3	1.0	39.0	5.875	9.3	1.88	150.7

SALINAS RIVER BRIDGE
AS-BUILT LOAD RATING - 31 FT. DEEP TRUSS

PINS - LOAD CASE A

NORMAL RATING

MEMBER	CAPACITY (KSI)	DL (KSI)	LL+I (E80-KSI)	RF	E80-RATING
Shear in Pin	12.6	1.41	8.93	1.25	100.2
Bearing on Pin & PL's	22.5	3.29	20.83	0.92	73.8
Bending in Pin	24.9	3.17	20.1	1.08	86.5

MAXIMUM RATING

MEMBER	CAPACITY (KSI)	DL (KSI)	LL (E80-KSI)	RF	E80-RATING
Shear in Pin	21.6	1.41	8.93	2.26	180.9
Bearing on Pin & PL's	n/a	n/a	n/a	n/a	n/a
Bending in Pin	48.0	3.17	20.1	2.23	178.4

SALINAS RIVER

RAILROAD BRIDGE

AS-INSPECTED LOAD RATING

CALCULATIONS

SPAN 1

MODJESKI and MASTERS, P.C.
ENGINEERS
POUGHKEEPSIE, NEW YORK

SALINAS RIVER BRIDGE
AS-INSPECTED LOAD RATING - 31 FT. DEEP TRUSS
SPAN 1
LEFT TRUSS MEMBERS - LOAD CASE A

NORMAL RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE%	LL+I (KIPS)	RF	E80-RATING
End Post L0U1	624	84.17	766.62	0.5	21.5	5.875	493.1	1.09	87.6
Bottom Chord (LC1) L0L2	285	50.61	460.85	0.5	21.5	5.875	296.4	0.79	63.3
Bottom Chord (LC2) L2L4	520	91.63	799.53	0.5	21.5	5.875	514.3	0.83	66.6
Bottom Chord (LC1) L4L6	283	50.61	460.85	0.5	21.5	5.875	296.4	0.78	62.7
Top Chord U1U2	486	80.90	715.06	0.5	21.5	5.875	459.9	0.88	70.5
Top Chord U2U3	478	80.90	715.06	0.5	21.5	5.875	459.9	0.86	69.1
Top Chord U3U4	481	80.90	715.06	0.5	21.5	5.875	459.9	0.87	69.6
Top Chord U4U5	477	80.90	715.06	0.5	21.5	5.875	459.9	0.86	68.9
U1L2 Diag. (D1) (ten.)	353	50.38	508.6	0.5	21.5	5.875	327.1	0.93	74.0
L2U3 Diag. (D2) (comp.)	351	17.84	296.01	0.5	21.5	5.875	190.4	1.75	140.0
U3L4 Diag. (D2) (comp.)	305	17.84	296.01	0.5	21.5	5.875	190.4	1.51	120.7
U4L5 Diag. (D1) (ten.)	330	50.38	508.6	0.5	21.5	5.875	327.1	0.85	68.4
L3U3 Hanger (center)	302	18.00	290.8	0.5	39.0	5.875	214.0	1.33	106.2
L1U1	281	16.50	291.2	0.5	39.0	5.875	214.3	1.23	98.8
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	###	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	###	#VALUE!
L5U5	284	16.50	291.2	0.5	39.0	5.875	214.3	1.25	99.9
End Post U5L6	531.00	84.17	766.62	0.5	21.5	5.875	493.1	0.91	72.5

MAXIMUM RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE%	LL+I (KIPS)	RF	E80-RATING
End Post L0U1	908	84.17	766.62	0.5	21.5	5.875	493.1	1.67	133.7
Bottom Chord (LC1) L0L2	414	50.61	460.85	0.5	21.5	5.875	296.4	1.23	98.1
Bottom Chord (LC2) L2L4	756	91.63	799.53	0.5	21.5	5.875	514.3	1.29	103.4
Bottom Chord (LC1) L4L6	411	50.61	460.85	0.5	21.5	5.875	296.4	1.22	97.3
Top Chord U1U2	707	80.90	715.06	0.5	21.5	5.875	459.9	1.36	108.9
Top Chord U2U3	695	80.90	715.06	0.5	21.5	5.875	459.9	1.34	106.8
Top Chord U3U4	700	80.90	715.06	0.5	21.5	5.875	459.9	1.35	107.7
Top Chord U4U5	694	80.90	715.06	0.5	21.5	5.875	459.9	1.33	106.6
U1L2 Diag. (D1) (ten.)	514	50.38	508.6	0.5	21.5	5.875	327.1	1.42	113.4
L2U3 Diag. (D2) (comp.)	511	17.84	296.01	0.5	21.5	5.875	190.4	2.59	207.2
U3L4 Diag. (D2) (comp.)	444	17.84	296.01	0.5	21.5	5.875	190.4	2.24	179.1
U4L5 Diag. (D1) (ten.)	480	50.38	508.6	0.5	21.5	5.875	327.1	1.31	105.1
L3U3 Hanger (center)	439	18.00	290.8	0.5	39.0	5.875	214.0	1.97	157.4
L1U1	409	16.50	291.2	0.5	39.0	5.875	214.3	1.83	146.5
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	###	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	###	#VALUE!
L5U5	413	16.50	291.2	0.5	39.0	5.875	214.3	1.85	148.0
End Post U5L6	772	84.17	766.62	0.5	21.5	5.875	493.1	1.39	111.6

SALINAS RIVER BRIDGE
AS-INSPECTED LOAD RATING - 31 FT. DEEP TRUSS
SPAN 1
RIGHT TRUSS MEMBERS - LOAD CASE A

NORMAL RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE%	LL+I (KIPS)	RF	E80-RATING
End Post L0U1	618	84.17	766.62	0.5	21.5	5.875	493.1	1.08	86.6
Bottom Chord (LC1) L0L2	305	50.61	460.85	0.5	21.5	5.875	296.4	0.86	68.7
Bottom Chord (LC2) L2L4	553	91.63	799.53	0.5	21.5	5.875	514.3	0.90	71.8
Bottom Chord (LC1) L4L6	278	50.61	460.85	0.5	21.5	5.875	296.4	0.77	61.4
Top Chord U1U2	410	80.90	715.06	0.5	21.5	5.875	459.9	0.72	57.2
Top Chord U2U3	447	80.90	715.06	0.5	21.5	5.875	459.9	0.80	63.7
Top Chord U3U4	434	80.90	715.06	0.5	21.5	5.875	459.9	0.77	61.4
Top Chord U4U5	409	80.90	715.06	0.5	21.5	5.875	459.9	0.71	57.1
U1L2 Diag. (D1) (ten.)	326	50.38	508.6	0.5	21.5	5.875	327.1	0.84	67.4
L2U3 Diag. (D2) (comp.)	307	17.84	296.01	0.5	21.5	5.875	190.4	1.52	121.5
U3L4 Diag. (D2) (comp.)	333	17.84	296.01	0.5	21.5	5.875	190.4	1.66	132.4
U4L5 Diag. (D1) (ten.)	311	50.38	508.6	0.5	21.5	5.875	327.1	0.80	63.7
L3U3 Hanger (center)	267	18.00	290.8	0.5	39.0	5.875	214.0	1.16	93.1
L1U1	291	16.50	291.2	0.5	39.0	5.875	214.3	1.28	102.5
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	###	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	###	#VALUE!
L5U5	288	16.50	291.2	0.5	39.0	5.875	214.3	1.27	101.4
End Post U5L6	602	84.17	766.62	0.5	21.5	5.875	493.1	1.05	84.0

MAXIMUM RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE%	LL+I (KIPS)	RF	E80-RATING
End Post L0U1	899	84.17	766.62	0.5	21.5	5.875	493.1	1.65	132.2
Bottom Chord (LC1) L0L2	406	50.61	460.85	0.5	21.5	5.875	296.4	1.20	95.9
Bottom Chord (LC2) L2L4	804	91.63	799.53	0.5	21.5	5.875	514.3	1.39	110.8
Bottom Chord (LC1) L4L6	404	50.61	460.85	0.5	21.5	5.875	296.4	1.19	95.4
Top Chord U1U2	596	80.90	715.06	0.5	21.5	5.875	459.9	1.12	89.6
Top Chord U2U3	650	80.90	715.06	0.5	21.5	5.875	459.9	1.24	99.0
Top Chord U3U4	632	80.90	715.06	0.5	21.5	5.875	459.9	1.20	95.9
Top Chord U4U5	595	80.90	715.06	0.5	21.5	5.875	459.9	1.12	89.4
U1L2 Diag. (D1) (ten.)	474	50.38	508.6	0.5	21.5	5.875	327.1	1.29	103.6
L2U3 Diag. (D2) (comp.)	446	17.84	296.01	0.5	21.5	5.875	190.4	2.25	179.9
U3L4 Diag. (D2) (comp.)	485	17.84	296.01	0.5	21.5	5.875	190.4	2.45	196.3
U4L5 Diag. (D1) (ten.)	452	50.38	508.6	0.5	21.5	5.875	327.1	1.23	98.2
L3U3 Hanger (center)	389	18.00	290.8	0.5	39.0	5.875	214.0	1.73	138.7
L1U1	423	16.50	291.2	0.5	39.0	5.875	214.3	1.90	151.8
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	###	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	###	#VALUE!
L5U5	419	16.50	291.2	0.5	39.0	5.875	214.3	1.88	150.3
End Post U5L6	875	84.17	766.62	0.5	21.5	5.875	493.1	1.60	128.3

SALINAS RIVER BRIDGE
AS-INSPECTED LOAD RATING - 31 FT. DEEP TRUSS
SPAN 1
LEFT TRUSS MEMBERS - LOAD CASE B

NORMAL RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE%	LL+I (KIPS)	WIND	LONGIT.	LATERAL	RF	E80-RATING
End Post L0U1	780	84.17	766.62	0.5	21.5	5.875	493.1	10.8	0.0	5.00	1.38	110.0
Bottom Chord (LC1) L0L2	356	50.61	460.85	0.5	21.5	5.875	296.4	49.8	148.0	30.4	0.54	43.1
Bottom Chord (LC2) L2L4	650	91.63	799.53	0.5	21.5	5.875	514.3	66.6	148.0	39.7	0.70	56.0
Bottom Chord (LC1) L4L6	354	50.61	460.85	0.5	21.5	5.875	296.4	49.8	148.0	30.4	0.53	42.7
Top Chord U1U2	608	80.90	715.06	0.5	21.5	5.875	459.9	17.7	0.0	4.8	1.10	87.7
Top Chord U2U3	598	80.90	715.06	0.5	21.5	5.875	459.9	17.7	0.0	4.8	1.07	86.0
Top Chord U3U4	601	80.90	715.06	0.5	21.5	5.875	459.9	17.7	0.0	4.8	1.08	86.5
Top Chord U4U5	596	80.90	715.06	0.5	21.5	5.875	459.9	17.7	0.0	4.8	1.07	85.6
U1L2 Diagonal (D1) (ten.)	441	50.38	508.6	0.5	21.5	5.875	327.1	6.5	0.0	4.0	1.16	92.8
L2U3 Diagonal (D2) (comp.)	439	17.84	296.01	0.5	21.5	5.875	190.4	2.2	0.0	3.0	2.17	173.3
U3L4 Diagonal (D2) (comp.)	381	17.84	296.01	0.5	21.5	5.875	190.4	2.2	0.0	3.0	1.87	149.3
U4L5 Diagonal (D1) (ten.)	413	50.38	508.6	0.5	21.5	5.875	327.1	6.5	0.0	4.0	1.08	86.0
L3U3 Hanger (center)	378	18.00	290.8	0.5	39.0	5.875	214.0	3.5	0.0	4.80	1.63	130.4
L1U1	351	16.50	291.2	0.5	39.0	5.875	214.3	3.5	276.0	4.80	0.67	53.5
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.5	276.0	4.80	###	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.5	276.0	4.80	###	#VALUE!
L5U5	355	16.50	291.2	0.5	39.0	5.875	214.3	3.5	276.0	4.80	0.68	54.1
End Post U5L6	664	84.17	766.62	0.5	21.5	5.875	493.1	10.8	0.0	5.00	1.14	91.4

MAXIMUM RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE%	LL+I (KIPS)	WIND	LONGIT.	LATERAL	RF	E80-RATING
End Post L0U1	1135	84.17	766.62	0.5	21.5	5.875	493.1	10.8	0.0	5.00	2.09	167.0
Bottom Chord (LC1) L0L2	518	50.61	460.85	0.5	21.5	5.875	296.4	49.8	148.0	30.4	0.88	70.4
Bottom Chord (LC2) L2L4	945	91.63	799.53	0.5	21.5	5.875	514.3	66.6	148.0	39.7	1.12	89.7
Bottom Chord (LC1) L4L6	514	50.61	460.85	0.5	21.5	5.875	296.4	49.8	148.0	30.4	0.87	69.7
Top Chord U1U2	884	80.90	715.06	0.5	21.5	5.875	459.9	17.7	0.0	4.8	1.69	135.2
Top Chord U2U3	869	80.90	715.06	0.5	21.5	5.875	459.9	17.7	0.0	4.8	1.66	132.6
Top Chord U3U4	875	80.90	715.06	0.5	21.5	5.875	459.9	17.7	0.0	4.8	1.67	133.7
Top Chord U4U5	868	80.90	715.06	0.5	21.5	5.875	459.9	17.7	0.0	4.8	1.66	132.4
U1L2 Diagonal (D1) (ten.)	643	50.38	508.6	0.5	21.5	5.875	327.1	6.5	0.0	4.0	1.77	141.6
L2U3 Diagonal (D2) (comp.)	640	17.84	296.01	0.5	21.5	5.875	190.4	2.2	0.0	3.0	3.21	256.5
U3L4 Diagonal (D2) (comp.)	555	17.84	296.01	0.5	21.5	5.875	190.4	2.2	0.0	3.0	2.77	221.3
U4L5 Diagonal (D1) (ten.)	600	50.38	508.6	0.5	21.5	5.875	327.1	6.5	0.0	4.0	1.64	131.2
L3U3 Hanger (center)	549	18.00	290.8	0.5	39.0	5.875	214.0	3.5	0.0	4.80	2.41	192.9
L1U1	511	16.50	291.2	0.5	39.0	5.875	214.3	3.5	0.0	4.80	2.24	179.3
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.5	0.0	4.80	###	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.5	0.0	4.80	###	#VALUE!
L5U5	516	16.50	291.2	0.5	39.0	5.875	214.3	3.5	0.0	4.80	2.26	181.1
End Post U5L6	965	84.17	766.62	0.5	21.5	5.875	493.1	10.8	0.0	5.00	1.75	139.7

SALINAS RIVER BRIDGE
AS-INSPECTED LOAD RATING - 31 FT. DEEP TRUSS
SPAN 1
RIGHT TRUSS MEMBERS - LOAD CASE B

NORMAL RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE%	LL+I (KIPS)	WIND	LONGIT.	LATERAL	RF	E80-RATING
End Post L0U1	773	84.17	766.62	0.5	21.5	5.875	493.1	10.8	0.0	5.00	1.36	108.9
Bottom Chord (LC1) L0L2	381	50.61	460.85	0.5	21.5	5.875	296.4	49.8	148.0	30.4	0.59	47.3
Bottom Chord (LC2) L2L4	691	91.63	799.53	0.5	21.5	5.875	514.3	66.6	148.0	39.7	0.76	60.7
Bottom Chord (LC1) L4L6	348	50.61	460.85	0.5	21.5	5.875	296.4	49.8	148.0	30.4	0.52	41.7
Top Chord U1U2	513	80.90	715.06	0.5	21.5	5.875	459.9	17.7	0.0	4.8	0.89	71.3
Top Chord U2U3	559	80.90	715.06	0.5	21.5	5.875	459.9	17.7	0.0	4.8	0.99	79.3
Top Chord U3U4	543	80.90	715.06	0.5	21.5	5.875	459.9	17.7	0.0	4.8	0.96	76.5
Top Chord U4U5	511	80.90	715.06	0.5	21.5	5.875	459.9	17.7	0.0	4.8	0.89	71.0
U1L2 Diagonal (D1) (ten.)	408	50.38	508.6	0.5	21.5	5.875	327.1	6.5	0.0	4.0	1.06	84.8
L2U3 Diagonal (D2) (comp.)	384	17.84	296.01	0.5	21.5	5.875	190.4	2.2	0.0	3.0	1.88	150.6
U3L4 Diagonal (D2) (comp.)	416	17.84	296.01	0.5	21.5	5.875	190.4	2.2	0.0	3.0	2.05	163.8
U4L5 Diagonal (D1) (ten.)	389	50.38	508.6	0.5	21.5	5.875	327.1	6.5	0.0	4.0	1.00	80.2
L3U3 Hanger (center)	334	18.00	290.8	0.5	39.0	5.875	214.0	3.5	0.0	4.80	1.43	114.3
L1U1	364	16.50	291.2	0.5	39.0	5.875	214.3	3.5	276.0	4.80	0.69	55.6
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.5	276.0	4.80	###	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.5	276.0	4.80	###	#VALUE!
L5U5	360	16.50	291.2	0.5	39.0	5.875	214.3	3.5	276.0	4.80	0.69	54.9
End Post U5L6	753	84.17	766.62	0.5	21.5	5.875	493.1	10.8	0.0	5.00	1.32	105.7

MAXIMUM RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE%	LL+I (KIPS)	WIND	LONGIT.	LATERAL	RF	E80-RATING
End Post L0U1	1111	84.17	766.62	0.5	21.5	5.875	493.1	10.8	0.0	5.00	2.04	163.2
Bottom Chord (LC1) L0L2	508	50.61	460.85	0.5	21.5	5.875	296.4	49.8	148.0	30.4	0.86	68.7
Bottom Chord (LC2) L2L4	1005	91.63	799.53	0.5	21.5	5.875	514.3	66.6	148.0	39.7	1.21	96.5
Bottom Chord (LC1) L4L6	505	50.61	460.85	0.5	21.5	5.875	296.4	49.8	148.0	30.4	0.85	68.2
Top Chord U1U2	745	80.90	715.06	0.5	21.5	5.875	459.9	17.7	0.0	4.8	1.39	111.3
Top Chord U2U3	813	80.90	715.06	0.5	21.5	5.875	459.9	17.7	0.0	4.8	1.54	123.0
Top Chord U3U4	790	80.90	715.06	0.5	21.5	5.875	459.9	17.7	0.0	4.8	1.49	119.0
Top Chord U4U5	744	80.90	715.06	0.5	21.5	5.875	459.9	17.7	0.0	4.8	1.39	111.1
U1L2 Diagonal (D1) (ten.)	593	50.38	508.6	0.5	21.5	5.875	327.1	6.5	0.0	4.0	1.62	129.5
L2U3 Diagonal (D2) (comp.)	558	17.84	296.01	0.5	21.5	5.875	190.4	2.2	0.0	3.0	2.78	222.5
U3L4 Diagonal (D2) (comp.)	606	17.84	296.01	0.5	21.5	5.875	190.4	2.2	0.0	3.0	3.03	242.4
U4L5 Diagonal (D1) (ten.)	565	50.38	508.6	0.5	21.5	5.875	327.1	6.5	0.0	4.0	1.53	122.8
L3U3 Hanger (center)	486	18.00	290.8	0.5	39.0	5.875	214.0	3.5	0.0	4.80	2.12	169.9
L1U1	529	16.50	291.2	0.5	39.0	5.875	214.3	3.5	0.0	4.80	2.32	185.9
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.5	0.0	4.80	###	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.5	0.0	4.80	###	#VALUE!
L5U5	524	16.50	291.2	0.5	39.0	5.875	214.3	3.5	0.0	4.80	2.30	184.1
End Post U5L6	1094	84.17	766.62	0.5	21.5	5.875	493.1	10.8	0.0	5.00	2.01	160.5

SALINAS RIVER BRIDGE
AS-INSPECTED LOAD RATING - 31 FT. DEEP TRUSS
SPAN 1
FLOOR SYSTEM - LOAD CASE A

NORMAL RATING

MEMBER	CAPACITY (KSI)	DL (KSI)	LL (E80-KSI)	DIST.	IMPACT %	RE%	LL+I (KSI)	RF	E80-RATING
Stringer Panel 1 (Lt.) (moment)	16.5	0.62	10.51	1.0	39.0	14.275	16.7	0.95	76.1
Stringer Panel 1 (Rt.) (moment)	16.5	0.62	10.51	1.0	39.0	14.275	16.7	0.95	76.1
Stringer Panel 2 (Lt.) (moment)	16.5	0.62	10.51	1.0	39.0	14.275	16.7	0.95	76.1
Stringer Panel 2 (Rt.) (moment)	16.5	0.62	10.51	1.0	39.0	14.275	16.7	0.95	76.1
Stringer Panel 3 (Lt.) (moment)	16.5	0.62	10.53	1.0	39.0	14.275	16.7	0.95	76.0
Stringer Panel 3 (Rt.) (moment)	16.5	0.62	10.51	1.0	39.0	14.275	16.7	0.95	76.1
Stringer Panel 4 (Lt.) (moment)	16.5	0.62	10.53	1.0	39.0	14.275	16.7	0.95	76.0
Stringer Panel 4 (Rt.) (moment)	16.5	0.62	10.51	1.0	39.0	14.275	16.7	0.95	76.1
Stringer Panel 5 (Lt.) (moment)	16.5	0.62	10.53	1.0	39.0	14.275	16.7	0.95	76.0
Stringer Panel 5 (Rt.) (moment)	16.5	0.62	10.56	1.0	39.0	14.275	16.8	0.95	75.7
Stringer Panel 6 (Lt.) (moment)	16.5	0.62	10.53	1.0	39.0	14.275	16.7	0.95	76.0
Stringer Panel 6 (Rt.) (moment)	16.5	0.64	10.77	1.0	39.0	14.275	17.1	0.93	74.2
Floorbeam L1 (moment)	16.5	0.78	9.55	1.0	39.0	5.875	14.1	1.12	89.5
Floorbeam L2 (moment)	16.5	0.78	9.45	1.0	39.0	5.875	13.9	1.13	90.4
Floorbeam L3 (moment)	16.5	0.84	10.17	1.0	39.0	5.875	15.0	1.05	83.7
Floorbeam L4 (moment)	16.5	0.81	9.83	1.0	39.0	5.875	14.5	1.08	86.8
Floorbeam L5 (moment)	16.5	0.83	10.08	1.0	39.0	5.875	14.8	1.06	84.5
Stringer (shear)	10.5	0.364	7.35	1.0	39.0	14.275	11.7	0.87	69.5
Floorbeam (shear)	10.5	0.53	6.3	1.0	39.0	5.875	9.3	1.08	86.0

MAXIMUM RATING

MEMBER	CAPACITY (KSI)	DL (KSI)	LL (E80-KSI)	DIST.	IMPACT %	RE%	LL+I (KSI)	RF	E80-RATING
Stringer Panel 1 (Lt.) (moment)	24.0	0.62	10.51	1.0	39.0	14.275	16.7	1.40	112.0
Stringer Panel 1 (Rt.) (moment)	24.0	0.62	10.51	1.0	39.0	5.875	15.5	1.51	120.9
Stringer Panel 2 (Lt.) (moment)	24.0	0.62	10.51	1.0	39.0	5.875	15.5	1.51	120.9
Stringer Panel 2 (Rt.) (moment)	24.0	0.62	10.51	1.0	39.0	5.875	15.5	1.51	120.9
Stringer Panel 3 (Lt.) (moment)	24.0	0.62	10.53	1.0	39.0	5.875	15.5	1.51	120.7
Stringer Panel 3 (Rt.) (moment)	24.0	0.62	10.51	1.0	39.0	5.875	15.5	1.51	120.9
Stringer Panel 4 (Lt.) (moment)	24.0	0.62	10.53	1.0	39.0	5.875	15.5	1.51	120.7
Stringer Panel 4 (Rt.) (moment)	24.0	0.62	10.51	1.0	39.0	5.875	15.5	1.51	120.9
Stringer Panel 5 (Lt.) (moment)	24.0	0.62	10.53	1.0	39.0	5.875	15.5	1.51	120.7
Stringer Panel 5 (Rt.) (moment)	24.0	0.62	10.56	1.0	39.0	5.875	15.5	1.50	120.4
Stringer Panel 6 (Lt.) (moment)	24.0	0.62	10.53	1.0	39.0	5.875	15.5	1.51	120.7
Stringer Panel 6 (Rt.) (moment)	24.0	0.64	10.77	1.0	39.0	5.875	15.8	1.47	117.9
Floorbeam L1 (moment)	24.0	0.78	9.55	1.0	39.0	5.875	14.1	1.65	132.2
Floorbeam L2 (moment)	24.0	0.78	9.45	1.0	39.0	5.875	13.9	1.67	133.6
Floorbeam L3 (moment)	24.0	0.84	10.17	1.0	39.0	5.875	15.0	1.55	123.8
Floorbeam L4 (moment)	24.0	0.81	9.83	1.0	39.0	5.875	14.5	1.60	128.2
Floorbeam L5 (moment)	24.0	0.83	10.08	1.0	39.0	5.875	14.8	1.56	125.0
Stringer (shear)	18.0	0.364	7.35	1.0	39.0	14.275	11.7	1.51	120.8
Floorbeam (shear)	18.0	0.53	6.3	1.0	39.0	5.875	9.3	1.88	150.7

SALINAS RIVER

RAILROAD BRIDGE

AS-INSPECTED
LOAD RATING

CALCULATIONS

SPAN 2

MODJESKI and MASTERS, P.C.
ENGINEERS
POUGHKEEPSIE, NEW YORK

SALINAS RIVER BRIDGE
AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS
SPAN 2
LEFT TRUSS MEMBERS - LOAD CASE A

NORMAL RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	RF	E80-RATING
End Post L0U1	643	91.53	775.9	0.5	21.5	5.875	499.1	1.11	88.4
Bottom Chord (BC1) L0L2	296	56.19	476.3	0.5	21.5	5.875	306.4	0.78	62.6
Bottom Chord (BC2) L2L4	494	102.46	826.5	0.5	21.5	5.875	531.6	0.74	58.9
Bottom Chord (BC1) L4L6	273	56.19	476.3	0.5	21.5	5.875	306.4	0.71	56.6
Top Chord U1U2	565	90.99	738.6	0.5	21.5	5.875	475.1	1.00	79.8
Top Chord U2U3	547	90.99	738.6	0.5	21.5	5.875	475.1	0.96	76.8
Top Chord U3U4	513	90.99	738.6	0.5	21.5	5.875	475.1	0.89	71.1
Top Chord U4U5	552	90.99	738.6	0.5	21.5	5.875	475.1	0.97	77.6
U1L2 Diag. (T) (ten.)	357	56.69	514.8	0.5	21.5	5.875	331.1	0.91	72.6
L2U3 Diag. (D) (comp.)	366	18.69	299.3	0.5	21.5	5.875	192.5	1.80	144.3
U3L4 Diag. (D) (comp.)	361	18.69	299.3	0.5	21.5	5.875	192.5	1.78	142.3
U4L5 Diag. (ten.)	360	56.69	514.8	0.5	21.5	5.875	331.1	0.92	73.3
L3U3 Hanger (center)	212	19.50	290.8	0.5	39.0	5.875	214.0	0.90	72.0
L1U1	214	18.00	291.2	0.5	39.0	5.875	214.3	0.91	73.2
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	####	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	####	#VALUE!
L5U5	210	18.00	291.2	0.5	39.0	5.875	214.3	0.90	71.7
End Post U5L6	637	91.53	775.9	0.5	21.5	5.875	499.1	1.09	87.4

MAXIMUM RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	RF	E80-RATING
End Post L0U1	935	91.53	775.9	0.5	21.5	5.875	499.1	1.69	135.2
Bottom Chord (BC1) L0L2	430	56.19	476.3	0.5	21.5	5.875	306.4	1.22	97.6
Bottom Chord (BC2) L2L4	719	102.46	826.5	0.5	21.5	5.875	531.6	1.16	92.8
Bottom Chord (BC1) L4L6	397	56.19	476.3	0.5	21.5	5.875	306.4	1.11	89.0
Top Chord U1U2	821	90.99	738.6	0.5	21.5	5.875	475.1	1.54	122.9
Top Chord U2U3	797	90.99	738.6	0.5	21.5	5.875	475.1	1.49	118.9
Top Chord U3U4	747	90.99	738.6	0.5	21.5	5.875	475.1	1.38	110.5
Top Chord U4U5	803	90.99	738.6	0.5	21.5	5.875	475.1	1.50	119.9
U1L2 Diag. (T) (ten.)	519	56.69	514.8	0.5	21.5	5.875	331.1	1.40	111.7
L2U3 Diag. (D) (comp.)	532	18.69	299.3	0.5	21.5	5.875	192.5	2.67	213.3
U3L4 Diag. (D) (comp.)	525	18.69	299.3	0.5	21.5	5.875	192.5	2.63	210.4
U4L5 Diag. (ten.)	524	56.69	514.8	0.5	21.5	5.875	331.1	1.41	112.9
L3U3 Hanger (center)	309	19.50	290.8	0.5	39.0	5.875	214.0	1.35	108.2
L1U1	312	18.00	291.2	0.5	39.0	5.875	214.3	1.37	109.8
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	####	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	####	#VALUE!
L5U5	306	18.00	291.2	0.5	39.0	5.875	214.3	1.34	107.5
End Post U5L6	926	91.53	775.9	0.5	21.5	5.875	499.1	1.67	133.8

SALINAS RIVER BRIDGE
AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS
SPAN 2
RIGHT TRUSS MEMBERS - LOAD CASE A

NORMAL RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	RF	E80-RATING
End Post L0U1	640	91.53	775.9	0.5	21.5	5.875	499.1	1.10	87.9
Bottom Chord (BC1) L0L2	296	56.19	476.3	0.5	21.5	5.875	306.4	0.78	62.6
Bottom Chord (BC2) L2L4	527	102.46	826.5	0.5	21.5	5.875	531.6	0.80	63.9
Bottom Chord (BC1) L4L6	295	56.19	476.3	0.5	21.5	5.875	306.4	0.78	62.4
Top Chord U1U2	573	90.99	738.6	0.5	21.5	5.875	475.1	1.01	81.2
Top Chord U2U3	562	90.99	738.6	0.5	21.5	5.875	475.1	0.99	79.3
Top Chord U3U4	564	90.99	738.6	0.5	21.5	5.875	475.1	1.00	79.7
Top Chord U4U5	503	90.99	738.6	0.5	21.5	5.875	475.1	0.87	69.4
U1L2 Diag. (T) (ten.)	370	56.69	514.8	0.5	21.5	5.875	331.1	0.95	75.7
L2U3 Diag. (D) (comp.)	378	18.69	299.3	0.5	21.5	5.875	192.5	1.87	149.3
U3L4 Diag. (D) (comp.)	358	18.69	299.3	0.5	21.5	5.875	192.5	1.76	141.0
U4L5 Diag. (ten.)	344	56.69	514.8	0.5	21.5	5.875	331.1	0.87	69.4
L3U3 Hanger (center)	212	19.50	290.8	0.5	39.0	5.875	214.0	0.90	72.0
L1U1	210	18.00	291.2	0.5	39.0	5.875	214.3	0.90	71.7
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	####	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	####	#VALUE!
L5U5	217	18.00	291.2	0.5	39.0	5.875	214.3	0.93	74.3
End Post U5L6	651	91.53	775.9	0.5	21.5	5.875	499.1	1.12	89.7

MAXIMUM RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	RF	E80-RATING
End Post L0U1	931	91.53	775.9	0.5	21.5	5.875	499.1	1.68	134.6
Bottom Chord (BC1) L0L2	430	56.19	476.3	0.5	21.5	5.875	306.4	1.22	97.6
Bottom Chord (BC2) L2L4	767	102.46	826.5	0.5	21.5	5.875	531.6	1.25	100.0
Bottom Chord (BC1) L4L6	428	56.19	476.3	0.5	21.5	5.875	306.4	1.21	97.1
Top Chord U1U2	833	90.99	738.6	0.5	21.5	5.875	475.1	1.56	125.0
Top Chord U2U3	817	90.99	738.6	0.5	21.5	5.875	475.1	1.53	122.3
Top Chord U3U4	821	90.99	738.6	0.5	21.5	5.875	475.1	1.54	122.9
Top Chord U4U5	732	90.99	738.6	0.5	21.5	5.875	475.1	1.35	107.9
U1L2 Diag. (T) (ten.)	538	56.69	514.8	0.5	21.5	5.875	331.1	1.45	116.3
L2U3 Diag. (D) (comp.)	550	18.69	299.3	0.5	21.5	5.875	192.5	2.76	220.8
U3L4 Diag. (D) (comp.)	521	18.69	299.3	0.5	21.5	5.875	192.5	2.61	208.7
U4L5 Diag. (ten.)	500	56.69	514.8	0.5	21.5	5.875	331.1	1.34	107.1
L3U3 Hanger (center)	309	19.50	290.8	0.5	39.0	5.875	214.0	1.35	108.2
L1U1	305	18.00	291.2	0.5	39.0	5.875	214.3	1.34	107.2
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	####	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	####	#VALUE!
L5U5	316	18.00	291.2	0.5	39.0	5.875	214.3	1.39	111.3
End Post U5L6	947	91.53	775.9	0.5	21.5	5.875	499.1	1.71	137.1

SALINAS RIVER BRIDGE
AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS
SPAN 2
LEFT TRUSS MEMBERS - LOAD CASE B

NORMAL RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	RF	E80-RATING
End Post L0U1	804.0	91.53	775.9	0.5	21.5	5.875	499.1	9.5	0.0	2.89	1.40	112.0
Bottom Chord (BC1) L0L2	370.0	56.19	476.3	0.5	21.5	5.875	306.4	49.2	148.0	29.2	0.55	43.8
Bottom Chord (BC2) L2L4	618.0	102.46	826.5	0.5	21.5	5.875	531.6	65.5	148.0	37.5	0.63	50.2
Bottom Chord (BC1) L4L6	341.0	56.19	476.3	0.5	21.5	5.875	306.4	49.2	148.0	29.2	0.49	39.0
Top Chord U1U2	706.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.25	100.2
Top Chord U2U3	684.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.21	96.5
Top Chord U3U4	641.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.12	89.3
Top Chord U4U5	690.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.22	97.5
U1L2 Diag. (T) (ten.)	446.0	56.69	514.8	0.5	21.5	5.875	331.1	5.7	0.0	2.3	1.15	92.0
L2U3 Diag. (D) (comp.)	458.0	18.69	299.3	0.5	21.5	5.875	192.5	1.9	0.0	1.7	2.25	180.2
U3L4 Diag. (D) (comp.)	451.0	18.69	299.3	0.5	21.5	5.875	192.5	1.9	0.0	1.7	2.22	177.3
U4L5 Diag. (T) (ten.)	450.0	56.69	514.8	0.5	21.5	5.875	331.1	5.7	0.0	2.3	1.16	93.0
L3U3 Hanger (center)	265.0	19.50	290.8	0.5	39.0	5.875	214.0	3.0	0.0	2.74	1.12	89.5
L1U1	268.0	18.00	291.2	0.5	39.0	5.875	214.3	3.0	0.0	2.74	1.14	91.1
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.0	0.0	2.74	####	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.0	0.0	2.74	####	#VALUE!
L5U5	263.0	18.00	291.2	0.5	39.0	5.875	214.3	3.0	0.0	2.74	1.12	89.2
End Post U5L6	796.0	91.53	775.9	0.5	21.5	5.875	499.1	9.5	0.0	2.89	1.38	110.8

MAXIMUM RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	RF	E80-RATING
End Post L0U1	1169.0	91.53	775.9	0.5	21.5	5.875	499.1	9.5	0.0	2.89	2.13	170.2
Bottom Chord (BC1) L0L2	538.0	56.19	476.3	0.5	21.5	5.875	306.4	49.2	148.0	29.2	0.89	71.6
Bottom Chord (BC2) L2L4	899.0	102.46	826.5	0.5	21.5	5.875	531.6	65.5	148.0	37.5	1.02	81.6
Bottom Chord (BC1) L4L6	496.0	56.19	476.3	0.5	21.5	5.875	306.4	49.2	148.0	29.2	0.81	64.6
Top Chord U1U2	1026.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.92	153.7
Top Chord U2U3	996.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.86	148.7
Top Chord U3U4	934.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.73	138.3
Top Chord U4U5	1004.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.88	150.0
U1L2 Diag. (T) (ten.)	649.0	56.69	514.8	0.5	21.5	5.875	331.1	5.7	0.0	2.3	1.76	140.7
L2U3 Diag. (D) (comp.)	665.0	18.69	299.3	0.5	21.5	5.875	192.5	1.9	0.0	1.7	3.32	265.4
U3L4 Diag. (D) (comp.)	656.0	18.69	299.3	0.5	21.5	5.875	192.5	1.9	0.0	1.7	3.27	261.7
U4L5 Diag. (T) (ten.)	655.0	56.69	514.8	0.5	21.5	5.875	331.1	5.7	0.0	2.3	1.78	142.2
L3U3 Hanger (center)	386.0	19.50	290.8	0.5	39.0	5.875	214.0	3.0	0.0	2.74	1.68	134.2
L1U1	390.0	18.00	291.2	0.5	39.0	5.875	214.3	3.0	0.0	2.74	1.70	136.0
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.0	0.0	2.74	####	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.0	0.0	2.74	####	#VALUE!
L5U5	383.0	18.00	291.2	0.5	39.0	5.875	214.3	3.0	0.0	2.74	1.67	133.4
End Post U5L6	1158.0	91.53	775.9	0.5	21.5	5.875	499.1	9.5	0.0	2.89	2.11	168.5

SALINAS RIVER BRIDGE
AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS
SPAN 2
RIGHT TRUSS MEMBERS - LOAD CASE B

NORMAL RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	RF	E80-RATING
End Post L0U1	800.0	91.53	775.9	0.5	21.5	5.875	499.1	9.5	0.0	2.89	1.39	111.4
Bottom Chord (BC1) L0L2	370.0	56.19	476.3	0.5	21.5	5.875	306.4	49.2	148.0	29.2	0.55	43.8
Bottom Chord (BC2) L2L4	659.0	102.46	826.5	0.5	21.5	5.875	531.6	65.5	148.0	37.5	0.68	54.8
Bottom Chord (BC1) L4L6	369.0	56.19	476.3	0.5	21.5	5.875	306.4	49.2	148.0	29.2	0.55	43.6
Top Chord U1U2	716.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.27	101.8
Top Chord U2U3	703.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.25	99.7
Top Chord U3U4	705.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.25	100.0
Top Chord U4U5	629.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.09	87.3
U1L2 Diag. (T) (ten.)	463.0	56.69	514.8	0.5	21.5	5.875	331.1	5.7	0.0	2.3	1.20	96.1
L2U3 Diag. (D) (comp.)	473.0	18.69	299.3	0.5	21.5	5.875	192.5	1.9	0.0	1.7	2.33	186.3
U3L4 Diag. (D) (comp.)	448.0	18.69	299.3	0.5	21.5	5.875	192.5	1.9	0.0	1.7	2.20	176.0
U4L5 Diag. (T) (ten.)	430.0	56.69	514.8	0.5	21.5	5.875	331.1	5.7	0.0	2.3	1.10	88.2
L3U3 Hanger (center)	265.0	19.50	290.8	0.5	39.0	5.875	214.0	3.0	0.0	2.74	1.12	89.5
L1U1	263.0	18.00	291.2	0.5	39.0	5.875	214.3	3.0	0.0	2.74	1.12	89.2
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.0	0.0	2.74	####	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.0	0.0	2.74	####	#VALUE!
L5U5	271.0	18.00	291.2	0.5	39.0	5.875	214.3	3.0	0.0	2.74	1.15	92.2
End Post U5L6	814.0	91.53	775.9	0.5	21.5	5.875	499.1	9.5	0.0	2.89	1.42	113.6

MAXIMUM RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	RF	E80-RATING
End Post L0U1	1164.0	91.53	775.9	0.5	21.5	5.875	499.1	9.5	0.0	2.89	2.12	169.4
Bottom Chord (BC1) L0L2	538.0	56.19	476.3	0.5	21.5	5.875	306.4	49.2	148.0	29.2	0.89	71.6
Bottom Chord (BC2) L2L4	959.0	102.46	826.5	0.5	21.5	5.875	531.6	65.5	148.0	37.5	1.10	88.2
Bottom Chord (BC1) L4L6	535.0	56.19	476.3	0.5	21.5	5.875	306.4	49.2	148.0	29.2	0.89	71.1
Top Chord U1U2	1041.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.95	156.2
Top Chord U2U3	1021.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.91	152.9
Top Chord U3U4	1026.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.92	153.7
Top Chord U4U5	915.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.69	135.1
U1L2 Diag. (T) (ten.)	673.0	56.69	514.8	0.5	21.5	5.875	331.1	5.7	0.0	2.3	1.83	146.5
L2U3 Diag. (D) (comp.)	688.0	18.69	299.3	0.5	21.5	5.875	192.5	1.9	0.0	1.7	3.44	274.9
U3L4 Diag. (D) (comp.)	651.0	18.69	299.3	0.5	21.5	5.875	192.5	1.9	0.0	1.7	3.25	259.6
U4L5 Diag. (T) (ten.)	625.0	56.69	514.8	0.5	21.5	5.875	331.1	5.7	0.0	2.3	1.69	135.0
L3U3 Hanger (center)	386.0	19.50	290.8	0.5	39.0	5.875	214.0	3.0	0.0	2.74	1.68	134.2
L1U1	381.0	18.00	291.2	0.5	39.0	5.875	214.3	3.0	0.0	2.74	1.66	132.7
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.0	0.0	2.74	####	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.0	0.0	2.74	####	#VALUE!
L5U5	395.0	18.00	291.2	0.5	39.0	5.875	214.3	3.0	0.0	2.74	1.72	137.9
End Post U5L6	1184.0	91.53	775.9	0.5	21.5	5.875	499.1	9.5	0.0	2.89	2.16	172.6

SALINAS RIVER BRIDGE
AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS
SPAN 2
FLOOR SYSTEM - LOAD CASE A

NORMAL RATING

MEMBER	CAPACITY (KSI)	DL (KSI)	LL (E80-KSI)	DIST.	IMPACT %	RE %	LL+I (KSI)	RF	E80-RATING
Stringer Panel 1 (Lt.) (moment)	16.5	0.659	10.6	1.0	39.0	14.275	16.8	0.94	75.3
Stringer Panel 1 (Rt.) (moment)	16.5	0.675	10.86	1.0	39.0	14.275	17.3	0.92	73.4
Stringer Panel 2 (Lt.) (moment)	16.5	0.659	10.6	1.0	39.0	14.275	16.8	0.94	75.3
Stringer Panel 2 (Rt.) (moment)	16.5	0.675	10.86	1.0	39.0	14.275	17.3	0.92	73.4
Stringer Panel 3 (Lt.) (moment)	16.5	0.659	10.6	1.0	39.0	14.275	16.8	0.94	75.3
Stringer Panel 3 (Rt.) (moment)	16.5	0.665	10.7	1.0	39.0	14.275	17.0	0.93	74.5
Stringer Panel 4 (Lt.) (moment)	16.5	0.665	10.7	1.0	39.0	14.275	17.0	0.93	74.5
Stringer Panel 4 (Rt.) (moment)	16.5	0.675	10.86	1.0	39.0	14.275	17.3	0.92	73.4
Stringer Panel 5 (Lt.) (moment)	16.5	0.659	10.6	1.0	39.0	14.275	16.8	0.94	75.3
Stringer Panel 5 (Rt.) (moment)	16.5	0.683	11	1.0	39.0	14.275	17.5	0.91	72.4
Stringer Panel 6 (Lt.) (moment)	16.5	0.706	11.36	1.0	39.0	14.275	18.0	0.88	70.0
Stringer Panel 6 (Rt.) (moment)	16.5	0.675	10.86	1.0	39.0	14.275	17.3	0.92	73.4
Floorbeam L1 (moment)	16.5	0.9	10.21	1.0	39.0	5.875	15.0	1.04	83.1
Floorbeam L2 (moment)	16.5	0.919	10.42	1.0	39.0	5.875	15.3	1.02	81.3
Floorbeam L3 (moment)	16.5	0.915	10.38	1.0	39.0	5.875	15.3	1.02	81.6
Floorbeam L4 (moment)	16.5	0.889	10.08	1.0	39.0	5.875	14.8	1.05	84.2
Floorbeam L5 (moment)	16.5	0.898	10.19	1.0	39.0	5.875	15.0	1.04	83.2
Stringer (shear)	10.5	0.322	5.92	1.0	39.0	14.275	9.4	1.08	86.6
Floorbeam (shear)	10.5	0.576	6.4	1.0	39.0	5.875	9.4	1.05	84.3

MAXIMUM RATING

MEMBER	CAPACITY (KSI)	DL (KSI)	LL (E80-KSI)	DIST.	IMPACT %	RE %	LL+I (KSI)	RF	E80-RATING
Stringer Panel 1 (Lt.) (moment)	24.0	0.659	10.6	1.0	39.0	14.275	16.8	1.39	110.9
Stringer Panel 1 (Rt.) (moment)	24.0	0.675	10.86	1.0	39.0	14.275	17.3	1.35	108.2
Stringer Panel 2 (Lt.) (moment)	24.0	0.659	10.6	1.0	39.0	14.275	16.8	1.39	110.9
Stringer Panel 2 (Rt.) (moment)	24.0	0.675	10.86	1.0	39.0	14.275	17.3	1.35	108.2
Stringer Panel 3 (Lt.) (moment)	24.0	0.659	10.6	1.0	39.0	14.275	16.8	1.39	110.9
Stringer Panel 3 (Rt.) (moment)	24.0	0.665	10.7	1.0	39.0	14.275	17.0	1.37	109.8
Stringer Panel 4 (Lt.) (moment)	24.0	0.665	10.7	1.0	39.0	14.275	17.0	1.37	109.8
Stringer Panel 4 (Rt.) (moment)	24.0	0.675	10.86	1.0	39.0	14.275	17.3	1.35	108.2
Stringer Panel 5 (Lt.) (moment)	24.0	0.659	10.6	1.0	39.0	14.275	16.8	1.39	110.9
Stringer Panel 5 (Rt.) (moment)	24.0	0.683	11	1.0	39.0	14.275	17.5	1.33	106.8
Stringer Panel 6 (Lt.) (moment)	24.0	0.706	11.36	1.0	39.0	14.275	18.0	1.29	103.3
Stringer Panel 6 (Rt.) (moment)	24.0	0.675	10.86	1.0	39.0	14.275	17.3	1.35	108.2
Floorbeam L1 (moment)	24.0	0.9	10.21	1.0	39.0	14.275	16.2	1.42	113.9
Floorbeam L2 (moment)	24.0	0.919	10.42	1.0	39.0	14.275	16.6	1.39	111.6
Floorbeam L3 (moment)	24.0	0.915	10.38	1.0	39.0	14.275	16.5	1.40	112.0
Floorbeam L4 (moment)	24.0	0.889	10.08	1.0	39.0	14.275	16.0	1.44	115.5
Floorbeam L5 (moment)	24.0	0.898	10.19	1.0	39.0	5.875	15.0	1.54	123.2
Stringer (shear)	18.0	0.322	5.92	1.0	39.0	14.275	9.4	1.88	150.4
Floorbeam (shear)	18.0	0.576	6.4	1.0	39.0	5.875	9.4	1.85	148.0

SALINAS RIVER

RAILROAD BRIDGE

AS-INSPECTED
LOAD RATING

CALCULATIONS

SPAN 3

MODJESKI and MASTERS, P.C.
ENGINEERS
POUGHKEEPSIE, NEW YORK

SALINAS RIVER BRIDGE
AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS
SPAN 3
LEFT TRUSS MEMBERS - LOAD CASE A

NORMAL RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	RF	E80-RATING
End Post L0U1	639	91.53	775.9	0.5	21.5	5.875	499.1	1.10	87.8
Bottom Chord (BC1) L0L2	266	56.19	476.3	0.5	21.5	5.875	306.4	0.68	54.8
Bottom Chord (BC2) L2L4	535	102.46	826.5	0.5	21.5	5.875	531.6	0.81	65.1
Bottom Chord (BC1) L4L6	297	56.19	476.3	0.5	21.5	5.875	306.4	0.79	62.9
Top Chord U1U2	563	90.99	738.6	0.5	21.5	5.875	475.1	0.99	79.5
Top Chord U2U3	523	90.99	738.6	0.5	21.5	5.875	475.1	0.91	72.8
Top Chord U3U4	523	90.99	738.6	0.5	21.5	5.875	475.1	0.91	72.8
Top Chord U4U5	522	90.99	738.6	0.5	21.5	5.875	475.1	0.91	72.6
U1L2 Diag. (T) (ten.)	341	56.69	514.8	0.5	21.5	5.875	331.1	0.86	68.7
L2U3 Diag. (D) (comp.)	380	18.69	299.3	0.5	21.5	5.875	192.5	1.88	150.1
U3L4 Diag. (D) (comp.)	363	18.69	299.3	0.5	21.5	5.875	192.5	1.79	143.1
U4L5 Diag. (ten.)	373	56.69	514.8	0.5	21.5	5.875	331.1	0.96	76.4
L3U3 Hanger (center)	214	19.50	290.8	0.5	39.0	5.875	214.0	0.91	72.7
L1U1	198	18.00	291.2	0.5	39.0	5.875	214.3	0.84	67.2
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	####	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	####	#VALUE!
L5U5	214	18.00	291.2	0.5	39.0	5.875	214.3	0.91	73.2
End Post U5L6	648	91.53	775.9	0.5	21.5	5.875	499.1	1.12	89.2

MAXIMUM RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	RF	E80-RATING
End Post L0U1	929	91.53	775.9	0.5	21.5	5.875	499.1	1.68	134.2
Bottom Chord (BC1) L0L2	387	56.19	476.3	0.5	21.5	5.875	306.4	1.08	86.4
Bottom Chord (BC2) L2L4	778	102.46	826.5	0.5	21.5	5.875	531.6	1.27	101.7
Bottom Chord (BC1) L4L6	432	56.19	476.3	0.5	21.5	5.875	306.4	1.23	98.1
Top Chord U1U2	819	90.99	738.6	0.5	21.5	5.875	475.1	1.53	122.6
Top Chord U2U3	761	90.99	738.6	0.5	21.5	5.875	475.1	1.41	112.8
Top Chord U3U4	760	90.99	738.6	0.5	21.5	5.875	475.1	1.41	112.7
Top Chord U4U5	759	90.99	738.6	0.5	21.5	5.875	475.1	1.41	112.5
U1L2 Diag. (T) (ten.)	496	56.69	514.8	0.5	21.5	5.875	331.1	1.33	106.1
L2U3 Diag. (D) (comp.)	554	18.69	299.3	0.5	21.5	5.875	192.5	2.78	222.5
U3L4 Diag. (D) (comp.)	528	18.69	299.3	0.5	21.5	5.875	192.5	2.65	211.7
U4L5 Diag. (ten.)	543	56.69	514.8	0.5	21.5	5.875	331.1	1.47	117.5
L3U3 Hanger (center)	311	19.50	290.8	0.5	39.0	5.875	214.0	1.36	109.0
L1U1	289	18.00	291.2	0.5	39.0	5.875	214.3	1.26	101.2
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	####	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	####	#VALUE!
L5U5	312	18.00	291.2	0.5	39.0	5.875	214.3	1.37	109.8
End Post U5L6	942	91.53	775.9	0.5	21.5	5.875	499.1	1.70	136.3

SALINAS RIVER BRIDGE
AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS
SPAN 3
RIGHT TRUSS MEMBERS - LOAD CASE A

NORMAL RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	RF	E80-RATING
End Post L0U1	637	91.53	775.9	0.5	21.5	5.875	499.1	1.09	87.4
Bottom Chord (BC1) L0L2	295	56.19	476.3	0.5	21.5	5.875	306.4	0.78	62.4
Bottom Chord (BC2) L2L4	533	102.46	826.5	0.5	21.5	5.875	531.6	0.81	64.8
Bottom Chord (BC1) L4L6	298	56.19	476.3	0.5	21.5	5.875	306.4	0.79	63.1
Top Chord U1U2	566	90.99	738.6	0.5	21.5	5.875	475.1	1.00	80.0
Top Chord U2U3	496	90.99	738.6	0.5	21.5	5.875	475.1	0.85	68.2
Top Chord U3U4	567	90.99	738.6	0.5	21.5	5.875	475.1	1.00	80.2
Top Chord U4U5	573	90.99	738.6	0.5	21.5	5.875	475.1	1.01	81.2
U1L2 Diag. (T) (ten.)	349	56.69	514.8	0.5	21.5	5.875	331.1	0.88	70.6
L2U3 Diag. (D) (comp.)	361	18.69	299.3	0.5	21.5	5.875	192.5	1.78	142.3
U3L4 Diag. (D) (comp.)	339	18.69	299.3	0.5	21.5	5.875	192.5	1.66	133.1
U4L5 Diag. (ten.)	354	56.69	514.8	0.5	21.5	5.875	331.1	0.90	71.8
L3U3 Hanger (center)	212	19.50	290.8	0.5	39.0	5.875	214.0	0.90	72.0
L1U1	199	18.00	291.2	0.5	39.0	5.875	214.3	0.84	67.6
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	####	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	####	#VALUE!
L5U5	217	18.00	291.2	0.5	39.0	5.875	214.3	0.93	74.3
End Post U5L6	651	91.53	775.9	0.5	21.5	5.875	499.1	1.12	89.7

MAXIMUM RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	RF	E80-RATING
End Post L0U1	927	91.53	775.9	0.5	21.5	5.875	499.1	1.67	133.9
Bottom Chord (BC1) L0L2	428	56.19	476.3	0.5	21.5	5.875	306.4	1.21	97.1
Bottom Chord (BC2) L2L4	776	102.46	826.5	0.5	21.5	5.875	531.6	1.27	101.4
Bottom Chord (BC1) L4L6	434	56.19	476.3	0.5	21.5	5.875	306.4	1.23	98.7
Top Chord U1U2	823	90.99	738.6	0.5	21.5	5.875	475.1	1.54	123.3
Top Chord U2U3	722	90.99	738.6	0.5	21.5	5.875	475.1	1.33	106.3
Top Chord U3U4	825	90.99	738.6	0.5	21.5	5.875	475.1	1.55	123.6
Top Chord U4U5	833	90.99	738.6	0.5	21.5	5.875	475.1	1.56	125.0
U1L2 Diag. (T) (ten.)	508	56.69	514.8	0.5	21.5	5.875	331.1	1.36	109.0
L2U3 Diag. (D) (comp.)	525	18.69	299.3	0.5	21.5	5.875	192.5	2.63	210.4
U3L4 Diag. (D) (comp.)	493	18.69	299.3	0.5	21.5	5.875	192.5	2.46	197.1
U4L5 Diag. (ten.)	515	56.69	514.8	0.5	21.5	5.875	331.1	1.38	110.7
L3U3 Hanger (center)	309	19.50	290.8	0.5	39.0	5.875	214.0	1.35	108.2
L1U1	289	18.00	291.2	0.5	39.0	5.875	214.3	1.26	101.2
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	####	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	####	#VALUE!
L5U5	316	18.00	291.2	0.5	39.0	5.875	214.3	1.39	111.3
End Post U5L6	947	91.53	775.9	0.5	21.5	5.875	499.1	1.71	137.1

SALINAS RIVER BRIDGE
AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS
SPAN 3
LEFT TRUSS MEMBERS - LOAD CASE B

NORMAL RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	RF	E80-RATING
End Post L0U1	799.0	91.53	775.9	0.5	21.5	5.875	499.1	9.5	0.0	2.89	1.39	111.2
Bottom Chord (BC1) L0L2	333.0	56.19	476.3	0.5	21.5	5.875	306.4	49.2	148.0	29.2	0.47	37.7
Bottom Chord (BC2) L2L4	669.0	102.46	826.5	0.5	21.5	5.875	531.6	65.5	148.0	37.5	0.70	55.9
Bottom Chord (BC1) L4L6	371.0	56.19	476.3	0.5	21.5	5.875	306.4	49.2	148.0	29.2	0.55	43.9
Top Chord U1U2	704.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.25	99.8
Top Chord U2U3	654.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.14	91.5
Top Chord U3U4	654.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.14	91.5
Top Chord U4U5	653.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.14	91.3
U1L2 Diag. (T) (ten.)	426.0	56.69	514.8	0.5	21.5	5.875	331.1	5.7	0.0	2.3	1.09	87.2
L2U3 Diag. (D) (comp.)	475.0	18.69	299.3	0.5	21.5	5.875	192.5	1.9	0.0	1.7	2.34	187.2
U3L4 Diag. (D) (comp.)	454.0	18.69	299.3	0.5	21.5	5.875	192.5	1.9	0.0	1.7	2.23	178.5
U4L5 Diag. (T) (ten.)	466.0	56.69	514.8	0.5	21.5	5.875	331.1	5.7	0.0	2.3	1.21	96.8
L3U3 Hanger (center)	268.0	19.50	290.8	0.5	39.0	5.875	214.0	3.0	0.0	2.74	1.13	90.6
L1U1	248.0	18.00	291.2	0.5	39.0	5.875	214.3	3.0	0.0	2.74	1.05	83.7
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.0	0.0	2.74	####	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.0	0.0	2.74	####	#VALUE!
L5U5	268.0	18.00	291.2	0.5	39.0	5.875	214.3	3.0	0.0	2.74	1.14	91.1
End Post U5L6	810.0	91.53	775.9	0.5	21.5	5.875	499.1	9.5	0.0	2.89	1.41	113.0

MAXIMUM RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	RF	E80-RATING
End Post L0U1	1161.0	91.53	775.9	0.5	21.5	5.875	499.1	9.5	0.0	2.89	2.11	168.9
Bottom Chord (BC1) L0L2	484.0	56.19	476.3	0.5	21.5	5.875	306.4	49.2	148.0	29.2	0.78	62.6
Bottom Chord (BC2) L2L4	973.0	102.46	826.5	0.5	21.5	5.875	531.6	65.5	148.0	37.5	1.12	89.8
Bottom Chord (BC1) L4L6	540.0	56.19	476.3	0.5	21.5	5.875	306.4	49.2	148.0	29.2	0.90	71.9
Top Chord U1U2	1024.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.92	153.4
Top Chord U2U3	951.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.76	141.2
Top Chord U3U4	950.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.76	141.0
Top Chord U4U5	949.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.76	140.8
U1L2 Diag. (T) (ten.)	620.0	56.69	514.8	0.5	21.5	5.875	331.1	5.7	0.0	2.3	1.67	133.8
L2U3 Diag. (D) (comp.)	693.0	18.69	299.3	0.5	21.5	5.875	192.5	1.9	0.0	1.7	3.46	276.9
U3L4 Diag. (D) (comp.)	660.0	18.69	299.3	0.5	21.5	5.875	192.5	1.9	0.0	1.7	3.29	263.4
U4L5 Diag. (T) (ten.)	679.0	56.69	514.8	0.5	21.5	5.875	331.1	5.7	0.0	2.3	1.85	147.9
L3U3 Hanger (center)	389.0	19.50	290.8	0.5	39.0	5.875	214.0	3.0	0.0	2.74	1.69	135.3
L1U1	361.0	18.00	291.2	0.5	39.0	5.875	214.3	3.0	0.0	2.74	1.57	125.3
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.0	0.0	2.74	####	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.0	0.0	2.74	####	#VALUE!
L5U5	390.0	18.00	291.2	0.5	39.0	5.875	214.3	3.0	0.0	2.74	1.70	136.0
End Post U5L6	1178.0	91.53	775.9	0.5	21.5	5.875	499.1	9.5	0.0	2.89	2.15	171.6

SALINAS RIVER BRIDGE
AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS
SPAN 3
RIGHT TRUSS MEMBERS - LOAD CASE B

NORMAL RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	RF	E80-RATING
End Post L0U1	796.0	91.53	775.9	0.5	21.5	5.875	499.1	9.5	0.0	2.89	1.38	110.8
Bottom Chord (BC1) L0L2	369.0	56.19	476.3	0.5	21.5	5.875	306.4	49.2	148.0	29.2	0.55	43.6
Bottom Chord (BC2) L2L4	666.0	102.46	826.5	0.5	21.5	5.875	531.6	65.5	148.0	37.5	0.69	55.6
Bottom Chord (BC1) L4L6	373.0	56.19	476.3	0.5	21.5	5.875	306.4	49.2	148.0	29.2	0.55	44.3
Top Chord U1U2	708.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.26	100.5
Top Chord U2U3	620.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.07	85.8
Top Chord U3U4	709.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.26	100.7
Top Chord U4U5	716.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.27	101.8
U1L2 Diag. (T) (ten.)	436.0	56.69	514.8	0.5	21.5	5.875	331.1	5.7	0.0	2.3	1.12	89.6
L2U3 Diag. (D) (comp.)	451.0	18.69	299.3	0.5	21.5	5.875	192.5	1.9	0.0	1.7	2.22	177.3
U3L4 Diag. (D) (comp.)	424.0	18.69	299.3	0.5	21.5	5.875	192.5	1.9	0.0	1.7	2.08	166.2
U4L5 Diag. (T) (ten.)	443.0	56.69	514.8	0.5	21.5	5.875	331.1	5.7	0.0	2.3	1.14	91.3
L3U3 Hanger (center)	265.0	19.50	290.8	0.5	39.0	5.875	214.0	3.0	0.0	2.74	1.12	89.5
L1U1	249.0	18.00	291.2	0.5	39.0	5.875	214.3	3.0	0.0	2.74	1.05	84.0
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.0	0.0	2.74	####	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.0	0.0	2.74	####	#VALUE!
L5U5	271.0	18.00	291.2	0.5	39.0	5.875	214.3	3.0	0.0	2.74	1.15	92.2
End Post U5L6	814.0	91.53	775.9	0.5	21.5	5.875	499.1	9.5	0.0	2.89	1.42	113.6

MAXIMUM RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	RF	E80-RATING
End Post L0U1	1159.0	91.53	775.9	0.5	21.5	5.875	499.1	9.5	0.0	2.89	2.11	168.6
Bottom Chord (BC1) L0L2	535.0	56.19	476.3	0.5	21.5	5.875	306.4	49.2	148.0	29.2	0.89	71.1
Bottom Chord (BC2) L2L4	970.0	102.46	826.5	0.5	21.5	5.875	531.6	65.5	148.0	37.5	1.12	89.5
Bottom Chord (BC1) L4L6	543.0	56.19	476.3	0.5	21.5	5.875	306.4	49.2	148.0	29.2	0.90	72.4
Top Chord U1U2	1029.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.93	154.2
Top Chord U2U3	903.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.66	133.1
Top Chord U3U4	1031.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.93	154.6
Top Chord U4U5	1041.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.95	156.2
U1L2 Diag. (T) (ten.)	635.0	56.69	514.8	0.5	21.5	5.875	331.1	5.7	0.0	2.3	1.72	137.4
L2U3 Diag. (D) (comp.)	656.0	18.69	299.3	0.5	21.5	5.875	192.5	1.9	0.0	1.7	3.27	261.7
U3L4 Diag. (D) (comp.)	616.0	18.69	299.3	0.5	21.5	5.875	192.5	1.9	0.0	1.7	3.07	245.2
U4L5 Diag. (T) (ten.)	644.0	56.69	514.8	0.5	21.5	5.875	331.1	5.7	0.0	2.3	1.74	139.5
L3U3 Hanger (center)	386.0	19.50	290.8	0.5	39.0	5.875	214.0	3.0	0.0	2.74	1.68	134.2
L1U1	361.0	18.00	291.2	0.5	39.0	5.875	214.3	3.0	0.0	2.74	1.57	125.3
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.0	0.0	2.74	####	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.0	0.0	2.74	####	#VALUE!
L5U5	395.0	18.00	291.2	0.5	39.0	5.875	214.3	3.0	0.0	2.74	1.72	137.9
End Post U5L6	1184.0	91.53	775.9	0.5	21.5	5.875	499.1	9.5	0.0	2.89	2.16	172.6

SALINAS RIVER BRIDGE
AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS
SPAN 3
FLOOR SYSTEM - LOAD CASE A

NORMAL RATING

MEMBER	CAPACITY (KSI)	DL (KSI)	LL (E80-KSI)	DIST.	IMPACT %	RE %	LL+I (KSI)	RF	E80-RATING
Stringer Panel 1 (Lt.) (moment)	16.5	0.672	10.81	1.0	39.0	14.275	17.2	0.92	73.7
Stringer Panel 1 (Rt.) (moment)	16.5	0.675	10.86	1.0	39.0	14.275	17.3	0.92	73.4
Stringer Panel 2 (Lt.) (moment)	16.5	0.659	10.6	1.0	39.0	14.275	16.8	0.94	75.3
Stringer Panel 2 (Rt.) (moment)	16.5	0.679	10.92	1.0	39.0	14.275	17.3	0.91	73.0
Stringer Panel 3 (Lt.) (moment)	16.5	0.656	10.55	1.0	39.0	14.275	16.8	0.95	75.6
Stringer Panel 3 (Rt.) (moment)	16.5	0.684	11	1.0	39.0	14.275	17.5	0.91	72.4
Stringer Panel 4 (Lt.) (moment)	16.5	0.656	10.55	1.0	39.0	14.275	16.8	0.95	75.6
Stringer Panel 4 (Rt.) (moment)	16.5	0.687	11.05	1.0	39.0	14.275	17.6	0.90	72.1
Stringer Panel 5 (Lt.) (moment)	16.5	0.656	10.55	1.0	39.0	14.275	16.8	0.95	75.6
Stringer Panel 5 (Rt.) (moment)	16.5	0.687	11.05	1.0	39.0	14.275	17.6	0.90	72.1
Stringer Panel 6 (Lt.) (moment)	16.5	0.656	10.55	1.0	39.0	14.275	16.8	0.95	75.6
Stringer Panel 6 (Rt.) (moment)	16.5	0.675	10.86	1.0	39.0	14.275	17.3	0.92	73.4
Floorbeam L1 (moment)	16.5	0.881	9.99	1.0	39.0	5.875	14.7	1.06	85.0
Floorbeam L2 (moment)	16.5	0.897	10.17	1.0	39.0	5.875	15.0	1.04	83.4
Floorbeam L3 (moment)	16.5	0.906	10.27	1.0	39.0	5.875	15.1	1.03	82.5
Floorbeam L4 (moment)	16.5	0.92	10.43	1.0	39.0	5.875	15.3	1.02	81.2
Floorbeam L5 (moment)	16.5	0.897	10.17	1.0	39.0	5.875	15.0	1.04	83.4
Stringer (shear)	10.5	0.322	5.92	1.0	39.0	14.275	9.4	1.08	86.6
Floorbeam (shear)	10.5	0.576	6.4	1.0	39.0	5.875	9.4	1.05	84.3

MAXIMUM RATING

MEMBER	CAPACITY (KSI)	DL (KSI)	LL (E80-KSI)	DIST.	IMPACT %	RE %	LL+I (KSI)	RF	E80-RATING
Stringer Panel 1 (Lt.) (moment)	24.0	0.672	10.81	1.0	39.0	14.275	17.2	1.36	108.7
Stringer Panel 1 (Rt.) (moment)	24.0	0.675	10.86	1.0	39.0	14.275	17.3	1.35	108.2
Stringer Panel 2 (Lt.) (moment)	24.0	0.659	10.6	1.0	39.0	14.275	16.8	1.39	110.9
Stringer Panel 2 (Rt.) (moment)	24.0	0.679	10.92	1.0	39.0	14.275	17.3	1.34	107.6
Stringer Panel 3 (Lt.) (moment)	24.0	0.656	10.55	1.0	39.0	14.275	16.8	1.39	111.4
Stringer Panel 3 (Rt.) (moment)	24.0	0.684	11	1.0	39.0	14.275	17.5	1.33	106.8
Stringer Panel 4 (Lt.) (moment)	24.0	0.656	10.55	1.0	39.0	14.275	16.8	1.39	111.4
Stringer Panel 4 (Rt.) (moment)	24.0	0.687	11.05	1.0	39.0	14.275	17.6	1.33	106.3
Stringer Panel 5 (Lt.) (moment)	24.0	0.656	10.55	1.0	39.0	14.275	16.8	1.39	111.4
Stringer Panel 5 (Rt.) (moment)	24.0	0.687	11.05	1.0	39.0	14.275	17.6	1.33	106.3
Stringer Panel 6 (Lt.) (mament)	24.0	0.656	10.55	1.0	39.0	14.275	16.8	1.39	111.4
Stringer Panel 6 (Rt.) (moment)	24.0	0.675	10.86	1.0	39.0	14.275	17.3	1.35	108.2
Floorbeam L1 (moment)	24.0	0.881	9.99	1.0	39.0	14.275	15.9	1.46	116.6
Floorbeam L2 (mament)	24.0	0.897	10.17	1.0	39.0	14.275	16.2	1.43	114.4
Floorbeam L3 (moment)	24.0	0.906	10.27	1.0	39.0	14.275	16.3	1.42	113.3
Floorbeam L4 (moment)	24.0	0.92	10.43	1.0	39.0	14.275	16.6	1.39	111.4
Floorbeam L5 (moment)	24.0	0.897	10.17	1.0	39.0	5.875	15.0	1.54	123.5
Stringer (shear)	18.0	0.322	5.92	1.0	39.0	14.275	9.4	1.88	150.4
Floorbeam (shear)	18.0	0.576	6.4	1.0	39.0	5.875	9.4	1.85	148.0

SALINAS RIVER

RAILROAD BRIDGE

AS-INSPECTED LOAD RATING

CALCULATIONS

SPAN 4

MODJESKI and MASTERS, P.C.
ENGINEERS
POUGHKEEPSIE, NEW YORK

SALINAS RIVER BRIDGE
AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS
SPAN 4
LEFT TRUSS MEMBERS - LOAD CASE A

NORMAL RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	RF	E80-RATING
End Post L0U1	641	91.53	775.9	0.5	21.5	5.875	499.1	1.10	88.1
Bottom Chord (BC1) L0L2	272	56.19	476.3	0.5	21.5	5.875	306.4	0.70	56.4
Bottom Chord (BC2) L2L4	519	102.46	826.5	0.5	21.5	5.875	531.6	0.78	62.7
Bottom Chord (BC1) L4L6	284	56.19	476.3	0.5	21.5	5.875	306.4	0.74	59.5
Top Chord U1U2	539	90.99	738.6	0.5	21.5	5.875	475.1	0.94	75.4
Top Chord U2U3	529	90.99	738.6	0.5	21.5	5.875	475.1	0.92	73.8
Top Chord U3U4	532	90.99	738.6	0.5	21.5	5.875	475.1	0.93	74.3
Top Chord U4U5	536	90.99	738.6	0.5	21.5	5.875	475.1	0.94	74.9
U1L2 Diag. (T) (ten.)	346	56.69	514.8	0.5	21.5	5.875	331.1	0.87	69.9
L2U3 Diag. (D) (comp.)	379	18.69	299.3	0.5	21.5	5.875	192.5	1.87	149.7
U3L4 Diag. (D) (comp.)	365	18.69	299.3	0.5	21.5	5.875	192.5	1.80	143.9
U4L5 Diag. (ten.)	377	56.69	514.8	0.5	21.5	5.875	331.1	0.97	77.4
L3U3 Hanger (center)	217	19.50	290.8	0.5	39.0	5.875	214.0	0.92	73.8
L1U1	211	18.00	291.2	0.5	39.0	5.875	214.3	0.90	72.1
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	####	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	####	#VALUE!
L5U5	211	18.00	291.2	0.5	39.0	5.875	214.3	0.90	72.1
End Post U5L6	652	91.53	775.9	0.5	21.5	5.875	499.1	1.12	89.8

MAXIMUM RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	RF	E80-RATING
End Post L0U1	933	91.53	775.9	0.5	21.5	5.875	499.1	1.69	134.9
Bottom Chord (BC1) L0L2	395	56.19	476.3	0.5	21.5	5.875	306.4	1.11	88.5
Bottom Chord (BC2) L2L4	755	102.46	826.5	0.5	21.5	5.875	531.6	1.23	98.2
Bottom Chord (BC1) L4L6	413	56.19	476.3	0.5	21.5	5.875	306.4	1.16	93.2
Top Chord U1U2	784	90.99	738.6	0.5	21.5	5.875	475.1	1.46	116.7
Top Chord U2U3	769	90.99	738.6	0.5	21.5	5.875	475.1	1.43	114.2
Top Chord U3U4	774	90.99	738.6	0.5	21.5	5.875	475.1	1.44	115.0
Top Chord U4U5	780	90.99	738.6	0.5	21.5	5.875	475.1	1.45	116.0
U1L2 Diag. (T) (ten.)	503	56.69	514.8	0.5	21.5	5.875	331.1	1.35	107.8
L2U3 Diag. (D) (comp.)	552	18.69	299.3	0.5	21.5	5.875	192.5	2.77	221.6
U3L4 Diag. (D) (comp.)	531	18.69	299.3	0.5	21.5	5.875	192.5	2.66	212.9
U4L5 Diag. (ten.)	548	56.69	514.8	0.5	21.5	5.875	331.1	1.48	118.7
L3U3 Hanger (center)	316	19.50	290.8	0.5	39.0	5.875	214.0	1.39	110.9
L1U1	307	18.00	291.2	0.5	39.0	5.875	214.3	1.35	107.9
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	####	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	####	#VALUE!
L5U5	307	18.00	291.2	0.5	39.0	5.875	214.3	1.35	107.9
End Post U5L6	948	91.53	775.9	0.5	21.5	5.875	499.1	1.72	137.3

SALINAS RIVER BRIDGE
AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS
SPAN 4
RIGHT TRUSS MEMBERS - LOAD CASE A

NORMAL RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	RF	E80-RATING
End Post L0U1	637	91.53	775.9	0.5	21.5	5.875	499.1	1.09	87.4
Bottom Chord (BC1) L0L2	297	56.19	476.3	0.5	21.5	5.875	306.4	0.79	62.9
Bottom Chord (BC2) L2L4	533	102.46	826.5	0.5	21.5	5.875	531.6	0.81	64.8
Bottom Chord (BC1) L4L6	290	56.19	476.3	0.5	21.5	5.875	306.4	0.76	61.1
Top Chord U1U2	568	90.99	738.6	0.5	21.5	5.875	475.1	1.00	80.3
Top Chord U2U3	544	90.99	738.6	0.5	21.5	5.875	475.1	0.95	76.3
Top Chord U3U4	524	90.99	738.6	0.5	21.5	5.875	475.1	0.91	72.9
Top Chord U4U5	520	90.99	738.6	0.5	21.5	5.875	475.1	0.90	72.2
U1L2 Diag. (T) (ten.)	362	56.69	514.8	0.5	21.5	5.875	331.1	0.92	73.8
L2U3 Diag. (D) (comp.)	368	18.69	299.3	0.5	21.5	5.875	192.5	1.81	145.2
U3L4 Diag. (D) (comp.)	332	18.69	299.3	0.5	21.5	5.875	192.5	1.63	130.2
U4L5 Diag. (ten.)	364	56.69	514.8	0.5	21.5	5.875	331.1	0.93	74.2
L3U3 Hanger (center)	217	19.50	290.8	0.5	39.0	5.875	214.0	0.92	73.8
L1U1	216	18.00	291.2	0.5	39.0	5.875	214.3	0.92	73.9
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	####	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	####	#VALUE!
L5U5	217	18.00	291.2	0.5	39.0	5.875	214.3	0.93	74.3
End Post U5L6	650	91.53	775.9	0.5	21.5	5.875	499.1	1.12	89.5

MAXIMUM RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	RF	E80-RATING
End Post L0U1	927	91.53	775.9	0.5	21.5	5.875	499.1	1.67	133.9
Bottom Chord (BC1) L0L2	431	56.19	476.3	0.5	21.5	5.875	306.4	1.22	97.9
Bottom Chord (BC2) L2L4	776	102.46	826.5	0.5	21.5	5.875	531.6	1.27	101.4
Bottom Chord (BC1) L4L6	421	56.19	476.3	0.5	21.5	5.875	306.4	1.19	95.3
Top Chord U1U2	826	90.99	738.6	0.5	21.5	5.875	475.1	1.55	123.8
Top Chord U2U3	791	90.99	738.6	0.5	21.5	5.875	475.1	1.47	117.9
Top Chord U3U4	762	90.99	738.6	0.5	21.5	5.875	475.1	1.41	113.0
Top Chord U4U5	756	90.99	738.6	0.5	21.5	5.875	475.1	1.40	112.0
U1L2 Diag. (T) (ten.)	526	56.69	514.8	0.5	21.5	5.875	331.1	1.42	113.4
L2U3 Diag. (D) (comp.)	535	18.69	299.3	0.5	21.5	5.875	192.5	2.68	214.6
U3L4 Diag. (D) (comp.)	483	18.69	299.3	0.5	21.5	5.875	192.5	2.41	193.0
U4L5 Diag. (ten.)	529	56.69	514.8	0.5	21.5	5.875	331.1	1.43	114.1
L3U3 Hanger (center)	316	19.50	290.8	0.5	39.0	5.875	214.0	1.39	110.9
L1U1	314	18.00	291.2	0.5	39.0	5.875	214.3	1.38	110.5
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	####	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	####	#VALUE!
L5U5	316	18.00	291.2	0.5	39.0	5.875	214.3	1.39	111.3
End Post U5L6	945	91.53	775.9	0.5	21.5	5.875	499.1	1.71	136.8

SALINAS RIVER BRIDGE
AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS
SPAN 4
LEFT TRUSS MEMBERS - LOAD CASE B

NORMAL RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	RF	E80-RATING
End Post L0U1	801.0	91.53	775.9	0.5	21.5	5.875	499.1	9.5	0.0	2.89	1.39	111.6
Bottom Chord (BC1) L0L2	340.0	56.19	476.3	0.5	21.5	5.875	306.4	49.2	148.0	29.2	0.49	38.8
Bottom Chord (BC2) L2L4	649.0	102.46	826.5	0.5	21.5	5.875	531.6	65.5	148.0	37.5	0.67	53.7
Bottom Chord (BC1) L4L6	355.0	56.19	476.3	0.5	21.5	5.875	306.4	49.2	148.0	29.2	0.52	41.3
Top Chord U1U2	674.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.18	94.8
Top Chord U2U3	661.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.16	92.6
Top Chord U3U4	665.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.17	93.3
Top Chord U4U5	670.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.18	94.1
U1L2 Diag. (T) (ten.)	433.0	56.69	514.8	0.5	21.5	5.875	331.1	5.7	0.0	2.3	1.11	88.9
L2U3 Diag. (D) (comp.)	474.0	18.69	299.3	0.5	21.5	5.875	192.5	1.9	0.0	1.7	2.33	186.7
U3L4 Diag. (D) (comp.)	456.0	18.69	299.3	0.5	21.5	5.875	192.5	1.9	0.0	1.7	2.24	179.3
U4L5 Diag. (T) (ten.)	471.0	56.69	514.8	0.5	21.5	5.875	331.1	5.7	0.0	2.3	1.23	98.0
L3U3 Hanger (center)	271.0	19.50	290.8	0.5	39.0	5.875	214.0	3.0	0.0	2.74	1.15	91.7
L1U1	264.0	18.00	291.2	0.5	39.0	5.875	214.3	3.0	0.0	2.74	1.12	89.6
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.0	0.0	2.74	####	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.0	0.0	2.74	####	#VALUE!
L5U5	264.0	18.00	291.2	0.5	39.0	5.875	214.3	3.0	0.0	2.74	1.12	89.6
End Post U5L6	815.0	91.53	775.9	0.5	21.5	5.875	499.1	9.5	0.0	2.89	1.42	113.8

MAXIMUM RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	RF	E80-RATING
End Post L0U1	1166.0	91.53	775.9	0.5	21.5	5.875	499.1	9.5	0.0	2.89	2.12	169.7
Bottom Chord (BC1) L0L2	494.0	56.19	476.3	0.5	21.5	5.875	306.4	49.2	148.0	29.2	0.80	64.3
Bottom Chord (BC2) L2L4	944.0	102.46	826.5	0.5	21.5	5.875	531.6	65.5	148.0	37.5	1.08	86.6
Bottom Chord (BC1) L4L6	516.0	56.19	476.3	0.5	21.5	5.875	306.4	49.2	148.0	29.2	0.85	67.9
Top Chord U1U2	980.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.83	146.0
Top Chord U2U3	961.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.79	142.8
Top Chord U3U4	968.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.80	144.0
Top Chord U4U5	975.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.81	145.2
U1L2 Diag. (T) (ten.)	629.0	56.69	514.8	0.5	21.5	5.875	331.1	5.7	0.0	2.3	1.70	135.9
L2U3 Diag. (D) (comp.)	690.0	18.69	299.3	0.5	21.5	5.875	192.5	1.9	0.0	1.7	3.45	275.7
U3L4 Diag. (D) (comp.)	664.0	18.69	299.3	0.5	21.5	5.875	192.5	1.9	0.0	1.7	3.31	265.0
U4L5 Diag. (T) (ten.)	685.0	56.69	514.8	0.5	21.5	5.875	331.1	5.7	0.0	2.3	1.87	149.4
L3U3 Hanger (center)	395.0	19.50	290.8	0.5	39.0	5.875	214.0	3.0	0.0	2.74	1.72	137.5
L1U1	384.0	18.00	291.2	0.5	39.0	5.875	214.3	3.0	0.0	2.74	1.67	133.8
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.0	0.0	2.74	####	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.0	0.0	2.74	####	#VALUE!
L5U5	384.0	18.00	291.2	0.5	39.0	5.875	214.3	3.0	0.0	2.74	1.67	133.8
End Post U5L6	1185.0	91.53	775.9	0.5	21.5	5.875	499.1	9.5	0.0	2.89	2.16	172.8

SALINAS RIVER BRIDGE
AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS
SPAN 4
RIGHT TRUSS MEMBERS - LOAD CASE B

NORMAL RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	RF	E80-RATING
End Post L0U1	796.0	91.53	775.9	0.5	21.5	5.875	499.1	9.5	0.0	2.89	1.38	110.8
Bottom Chord (BC1) L0L2	371.0	56.19	476.3	0.5	21.5	5.875	306.4	49.2	148.0	29.2	0.55	43.9
Bottom Chord (BC2) L2L4	666.0	102.46	826.5	0.5	21.5	5.875	531.6	65.5	148.0	37.5	0.69	55.6
Bottom Chord (BC1) L4L6	363.0	56.19	476.3	0.5	21.5	5.875	306.4	49.2	148.0	29.2	0.53	42.6
Top Chord U1U2	710.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.26	100.8
Top Chord U2U3	680.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.20	95.8
Top Chord U3U4	655.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.15	91.6
Top Chord U4U5	650.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.13	90.8
U1L2 Diag. (T) (ten.)	453.0	56.69	514.8	0.5	21.5	5.875	331.1	5.7	0.0	2.3	1.17	93.7
L2U3 Diag. (D) (comp.)	460.0	18.69	299.3	0.5	21.5	5.875	192.5	1.9	0.0	1.7	2.26	181.0
U3L4 Diag. (D) (comp.)	415.0	18.69	299.3	0.5	21.5	5.875	192.5	1.9	0.0	1.7	2.03	162.4
U4L5 Diag. (T) (ten.)	455.0	56.69	514.8	0.5	21.5	5.875	331.1	5.7	0.0	2.3	1.18	94.2
L3U3 Hanger (center)	271.0	19.50	290.8	0.5	39.0	5.875	214.0	3.0	0.0	2.74	1.15	91.7
L1U1	270.0	18.00	291.2	0.5	39.0	5.875	214.3	3.0	0.0	2.74	1.15	91.8
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.0	0.0	2.74	####	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.0	0.0	2.74	####	#VALUE!
L5U5	271.0	18.00	291.2	0.5	39.0	5.875	214.3	3.0	0.0	2.74	1.15	92.2
End Post U5L6	813.0	91.53	775.9	0.5	21.5	5.875	499.1	9.5	0.0	2.89	1.42	113.5

MAXIMUM RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	RF	E80-RATING
End Post L0U1	1159.0	91.53	775.9	0.5	21.5	5.875	499.1	9.5	0.0	2.89	2.11	168.6
Bottom Chord (BC1) L0L2	539.0	56.19	476.3	0.5	21.5	5.875	306.4	49.2	148.0	29.2	0.90	71.7
Bottom Chord (BC2) L2L4	970.0	102.46	826.5	0.5	21.5	5.875	531.6	65.5	148.0	37.5	1.12	89.5
Bottom Chord (BC1) L4L6	526.0	56.19	476.3	0.5	21.5	5.875	306.4	49.2	148.0	29.2	0.87	69.6
Top Chord U1U2	1033.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.94	154.9
Top Chord U2U3	989.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.84	147.5
Top Chord U3U4	953.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.77	141.5
Top Chord U4U5	945.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.75	140.2
U1L2 Diag. (T) (ten.)	658.0	56.69	514.8	0.5	21.5	5.875	331.1	5.7	0.0	2.3	1.79	142.9
L2U3 Diag. (D) (comp.)	669.0	18.69	299.3	0.5	21.5	5.875	192.5	1.9	0.0	1.7	3.34	267.1
U3L4 Diag. (D) (comp.)	604.0	18.69	299.3	0.5	21.5	5.875	192.5	1.9	0.0	1.7	3.00	240.3
U4L5 Diag. (T) (ten.)	661.0	56.69	514.8	0.5	21.5	5.875	331.1	5.7	0.0	2.3	1.80	143.6
L3U3 Hanger (center)	395.0	19.50	290.8	0.5	39.0	5.875	214.0	3.0	0.0	2.74	1.72	137.5
L1U1	393.0	18.00	291.2	0.5	39.0	5.875	214.3	3.0	0.0	2.74	1.71	137.1
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.0	0.0	2.74	####	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.0	0.0	2.74	####	#VALUE!
L5U5	395.0	18.00	291.2	0.5	39.0	5.875	214.3	3.0	0.0	2.74	1.72	137.9
End Post U5L6	1181.0	91.53	775.9	0.5	21.5	5.875	499.1	9.5	0.0	2.89	2.15	172.1

SALINAS RIVER BRIDGE
AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS
SPAN 4
FLOOR SYSTEM - LOAD CASE A

NORMAL RATING

MEMBER	CAPACITY (KSI)	DL (KSI)	LL (E80-KSI)	DIST.	IMPACT %	RE %	LL+I (KSI)	RF	E80-RATING
Stringer Panel 1 (Lt.) (moment)	16.5	0.672	10.81	1.0	39.0	14.275	17.2	0.92	73.7
Stringer Panel 1 (Rt.) (moment)	16.5	0.679	10.92	1.0	39.0	14.275	17.3	0.91	73.0
Stringer Panel 2 (Lt.) (moment)	16.5	0.656	10.55	1.0	39.0	14.275	16.8	0.95	75.6
Stringer Panel 2 (Rt.) (moment)	16.5	0.687	11.05	1.0	39.0	14.275	17.6	0.90	72.1
Stringer Panel 3 (Lt.) (moment)	16.5	0.656	10.55	1.0	39.0	14.275	16.8	0.95	75.6
Stringer Panel 3 (Rt.) (moment)	16.5	0.68	10.94	1.0	39.0	14.275	17.4	0.91	72.8
Stringer Panel 4 (Lt.) (moment)	16.5	0.656	10.55	1.0	39.0	14.275	16.8	0.95	75.6
Stringer Panel 4 (Rt.) (moment)	16.5	0.675	10.86	1.0	39.0	14.275	17.3	0.92	73.4
Stringer Panel 5 (Lt.) (moment)	16.5	0.664	10.68	1.0	39.0	14.275	17.0	0.93	74.7
Stringer Panel 5 (Rt.) (moment)	16.5	0.679	10.92	1.0	39.0	14.275	17.3	0.91	73.0
Stringer Panel 6 (Lt.) (moment)	16.5	0.656	10.55	1.0	39.0	14.275	16.8	0.95	75.6
Stringer Panel 6 (Rt.) (moment)	16.5	0.675	10.86	1.0	39.0	14.275	17.3	0.92	73.4
Floorbeam L1 (moment)	16.5	0.915	10.37	1.0	39.0	5.875	15.3	1.02	81.7
Floorbeam L2 (moment)	16.5	0.927	10.51	1.0	39.0	5.875	15.5	1.01	80.5
Floorbeam L3 (moment)	16.5	0.919	10.42	1.0	39.0	5.875	15.3	1.02	81.3
Floorbeam L4 (moment)	16.5	0.904	10.25	1.0	39.0	5.875	15.1	1.03	82.7
Floorbeam L5 (moment)	16.5	0.932	10.57	1.0	39.0	5.875	15.6	1.00	80.1
Stringer (shear)	10.5	0.322	5.92	1.0	39.0	14.275	9.4	1.08	86.6
Floorbeam (shear)	10.5	0.576	6.4	1.0	39.0	5.875	9.4	1.05	84.3

MAXIMUM RATING

MEMBER	CAPACITY (KSI)	DL (KSI)	LL (E80-KSI)	DIST.	IMPACT %	RE %	LL+I (KSI)	RF	E80-RATING
Stringer Panel 1 (Lt.) (moment)	24.0	0.672	10.81	1.0	39.0	14.275	17.2	1.36	108.7
Stringer Panel 1 (Rt.) (moment)	24.0	0.679	10.92	1.0	39.0	14.275	17.3	1.34	107.6
Stringer Panel 2 (Lt.) (moment)	24.0	0.656	10.55	1.0	39.0	14.275	16.8	1.39	111.4
Stringer Panel 2 (Rt.) (moment)	24.0	0.687	11.05	1.0	39.0	14.275	17.6	1.33	106.3
Stringer Panel 3 (Lt.) (moment)	24.0	0.656	10.55	1.0	39.0	14.275	16.8	1.39	111.4
Stringer Panel 3 (Rt.) (moment)	24.0	0.68	10.94	1.0	39.0	14.275	17.4	1.34	107.4
Stringer Panel 4 (Lt.) (moment)	24.0	0.656	10.55	1.0	39.0	14.275	16.8	1.39	111.4
Stringer Panel 4 (Rt.) (moment)	24.0	0.675	10.86	1.0	39.0	14.275	17.3	1.35	108.2
Stringer Panel 5 (Lt.) (moment)	24.0	0.664	10.68	1.0	39.0	14.275	17.0	1.38	110.0
Stringer Panel 5 (Rt.) (moment)	24.0	0.679	10.92	1.0	39.0	14.275	17.3	1.34	107.6
Stringer Panel 6 (Lt.) (moment)	24.0	0.656	10.55	1.0	39.0	14.275	16.8	1.39	111.4
Stringer Panel 6 (Rt.) (moment)	24.0	0.675	10.86	1.0	39.0	14.275	17.3	1.35	108.2
Floorbeam L1 (moment)	24.0	0.915	10.37	1.0	39.0	14.275	16.5	1.40	112.1
Floorbeam L2 (moment)	24.0	0.927	10.51	1.0	39.0	14.275	16.7	1.38	110.6
Floorbeam L3 (moment)	24.0	0.919	10.42	1.0	39.0	14.275	16.6	1.39	111.6
Floorbeam L4 (moment)	24.0	0.904	10.25	1.0	39.0	14.275	16.3	1.42	113.5
Floorbeam L5 (moment)	24.0	0.932	10.57	1.0	39.0	5.875	15.6	1.48	118.6
Stringer (shear)	18.0	0.322	5.92	1.0	39.0	14.275	9.4	1.88	150.4
Floorbeam (shear)	18.0	0.576	6.4	1.0	39.0	5.875	9.4	1.85	148.0

SALINAS RIVER

RAILROAD BRIDGE

AS-INSPECTED LOAD RATING

CALCULATIONS

SPAN 5

MODJESKI and MASTERS, P.C.
ENGINEERS
POUGHKEEPSIE, NEW YORK

SALINAS RIVER BRIDGE
AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS
SPAN 5
LEFT TRUSS MEMBERS - LOAD CASE A

NORMAL RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	RF	E80-RATING
End Post L0U1	654	91.53	775.9	0.5	21.5	5.875	499.1	1.13	90.2
Bottom Chord (BC1) L0L2	284	56.19	476.3	0.5	21.5	5.875	306.4	0.74	59.5
Bottom Chord (BC2) L2L4	517	102.46	826.5	0.5	21.5	5.875	531.6	0.78	62.4
Bottom Chord (BC1) L4L6	298	56.19	476.3	0.5	21.5	5.875	306.4	0.79	63.1
Top Chord U1U2	541	90.99	738.6	0.5	21.5	5.875	475.1	0.95	75.8
Top Chord U2U3	487	90.99	738.6	0.5	21.5	5.875	475.1	0.83	66.7
Top Chord U3U4	522	90.99	738.6	0.5	21.5	5.875	475.1	0.91	72.6
Top Chord U4U5	524	90.99	738.6	0.5	21.5	5.875	475.1	0.91	72.9
U1L2 Diag. (T) (ten.)	354	56.69	514.8	0.5	21.5	5.875	331.1	0.90	71.8
L2U3 Diag. (D) (comp.)	380	18.69	299.3	0.5	21.5	5.875	192.5	1.88	150.1
U3L4 Diag. (D) (comp.)	359	18.69	299.3	0.5	21.5	5.875	192.5	1.77	141.4
U4L5 Diag. (ten.)	347	56.69	514.8	0.5	21.5	5.875	331.1	0.88	70.1
L3U3 Hanger (center)	217	19.50	290.8	0.5	39.0	5.875	214.0	0.92	73.8
L1U1	227	18.00	291.2	0.5	39.0	5.875	214.3	0.98	78.0
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	####	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	####	#VALUE!
L5U5	217	18.00	291.2	0.5	39.0	5.875	214.3	0.93	74.3
End Post U5L6	622	91.53	775.9	0.5	21.5	5.875	499.1	1.06	85.0

MAXIMUM RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	RF	E80-RATING
End Post L0U1	951	91.53	775.9	0.5	21.5	5.875	499.1	1.72	137.8
Bottom Chord (BC1) L0L2	414	56.19	476.3	0.5	21.5	5.875	306.4	1.17	93.4
Bottom Chord (BC2) L2L4	752	102.46	826.5	0.5	21.5	5.875	531.6	1.22	97.7
Bottom Chord (BC1) L4L6	433	56.19	476.3	0.5	21.5	5.875	306.4	1.23	98.4
Top Chord U1U2	787	90.99	738.6	0.5	21.5	5.875	475.1	1.47	117.2
Top Chord U2U3	708	90.99	738.6	0.5	21.5	5.875	475.1	1.30	103.9
Top Chord U3U4	759	90.99	738.6	0.5	21.5	5.875	475.1	1.41	112.5
Top Chord U4U5	762	90.99	738.6	0.5	21.5	5.875	475.1	1.41	113.0
U1L2 Diag. (T) (ten.)	515	56.69	514.8	0.5	21.5	5.875	331.1	1.38	110.7
L2U3 Diag. (D) (comp.)	554	18.69	299.3	0.5	21.5	5.875	192.5	2.78	222.5
U3L4 Diag. (D) (comp.)	522	18.69	299.3	0.5	21.5	5.875	192.5	2.61	209.2
U4L5 Diag. (ten.)	505	56.69	514.8	0.5	21.5	5.875	331.1	1.35	108.3
L3U3 Hanger (center)	316	19.50	290.8	0.5	39.0	5.875	214.0	1.39	110.9
L1U1	330	18.00	291.2	0.5	39.0	5.875	214.3	1.46	116.5
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	####	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	####	#VALUE!
L5U5	316	18.00	291.2	0.5	39.0	5.875	214.3	1.39	111.3
End Post U5L6	905	91.53	775.9	0.5	21.5	5.875	499.1	1.63	130.4

SALINAS RIVER BRIDGE
AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS
SPAN 5
RIGHT TRUSS MEMBERS - LOAD CASE A

NORMAL RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	RF	E80-RATING
End Post L0U1	626	91.53	775.9	0.5	21.5	5.875	499.1	1.07	85.7
Bottom Chord (BC1) L0L2	295	56.19	476.3	0.5	21.5	5.875	306.4	0.78	62.4
Bottom Chord (BC2) L2L4	540	102.46	826.5	0.5	21.5	5.875	531.6	0.82	65.8
Bottom Chord (BC1) L4L6	295	56.19	476.3	0.5	21.5	5.875	306.4	0.78	62.4
Top Chord U1U2	555	90.99	738.6	0.5	21.5	5.875	475.1	0.98	78.1
Top Chord U2U3	520	90.99	738.6	0.5	21.5	5.875	475.1	0.90	72.2
Top Chord U3U4	535	90.99	738.6	0.5	21.5	5.875	475.1	0.93	74.8
Top Chord U4U5	521	90.99	738.6	0.5	21.5	5.875	475.1	0.91	72.4
U1L2 Diag. (T) (ten.)	362	56.69	514.8	0.5	21.5	5.875	331.1	0.92	73.8
L2U3 Diag. (D) (comp.)	374	18.69	299.3	0.5	21.5	5.875	192.5	1.85	147.7
U3L4 Diag. (D) (comp.)	367	18.69	299.3	0.5	21.5	5.875	192.5	1.81	144.7
U4L5 Diag. (ten.)	360	56.69	514.8	0.5	21.5	5.875	331.1	0.92	73.3
L3U3 Hanger (center)	217	19.50	290.8	0.5	39.0	5.875	214.0	0.92	73.8
L1U1	214	18.00	291.2	0.5	39.0	5.875	214.3	0.91	73.2
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	####	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	####	#VALUE!
L5U5	214	18.00	291.2	0.5	39.0	5.875	214.3	0.91	73.2
End Post U5L6	619	91.53	775.9	0.5	21.5	5.875	499.1	1.06	84.6

MAXIMUM RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	RF	E80-RATING
End Post L0U1	911	91.53	775.9	0.5	21.5	5.875	499.1	1.64	131.4
Bottom Chord (BC1) L0L2	428	56.19	476.3	0.5	21.5	5.875	306.4	1.21	97.1
Bottom Chord (BC2) L2L4	786	102.46	826.5	0.5	21.5	5.875	531.6	1.29	102.9
Bottom Chord (BC1) L4L6	428	56.19	476.3	0.5	21.5	5.875	306.4	1.21	97.1
Top Chord U1U2	807	90.99	738.6	0.5	21.5	5.875	475.1	1.51	120.6
Top Chord U2U3	757	90.99	738.6	0.5	21.5	5.875	475.1	1.40	112.2
Top Chord U3U4	778	90.99	738.6	0.5	21.5	5.875	475.1	1.45	115.7
Top Chord U4U5	758	90.99	738.6	0.5	21.5	5.875	475.1	1.40	112.3
U1L2 Diag. (T) (ten.)	526	56.69	514.8	0.5	21.5	5.875	331.1	1.42	113.4
L2U3 Diag. (D) (comp.)	544	18.69	299.3	0.5	21.5	5.875	192.5	2.73	218.3
U3L4 Diag. (D) (comp.)	534	18.69	299.3	0.5	21.5	5.875	192.5	2.68	214.1
U4L5 Diag. (ten.)	524	56.69	514.8	0.5	21.5	5.875	331.1	1.41	112.9
L3U3 Hanger (center)	316	19.50	290.8	0.5	39.0	5.875	214.0	1.39	110.9
L1U1	312	18.00	291.2	0.5	39.0	5.875	214.3	1.37	109.8
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	####	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	####	#VALUE!
L5U5	312	18.00	291.2	0.5	39.0	5.875	214.3	1.37	109.8
End Post U5L6	901	91.53	775.9	0.5	21.5	5.875	499.1	1.62	129.8

SALINAS RIVER BRIDGE
AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS
SPAN 5
LEFT TRUSS MEMBERS - LOAD CASE B

NORMAL RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	RF	E80-RATING
End Post L0U1	818.0	91.53	775.9	0.5	21.5	5.875	499.1	9.5	0.0	2.89	1.43	114.3
Bottom Chord (BC1) L0L2	355.0	56.19	476.3	0.5	21.5	5.875	306.4	49.2	148.0	29.2	0.52	41.3
Bottom Chord (BC2) L2L4	646.0	102.46	826.5	0.5	21.5	5.875	531.6	65.5	148.0	37.5	0.67	53.3
Bottom Chord (BC1) L4L6	373.0	56.19	476.3	0.5	21.5	5.875	306.4	49.2	148.0	29.2	0.55	44.3
Top Chord U1U2	676.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.19	95.1
Top Chord U2U3	609.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.05	83.9
Top Chord U3U4	653.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.14	91.3
Top Chord U4U5	655.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.15	91.6
U1L2 Diag. (T) (ten.)	443.0	56.69	514.8	0.5	21.5	5.875	331.1	5.7	0.0	2.3	1.14	91.3
L2U3 Diag. (D) (comp.)	475.0	18.69	299.3	0.5	21.5	5.875	192.5	1.9	0.0	1.7	2.34	187.2
U3L4 Diag. (D) (comp.)	449.0	18.69	299.3	0.5	21.5	5.875	192.5	1.9	0.0	1.7	2.21	176.4
U4L5 Diag. (T) (ten.)	434.0	56.69	514.8	0.5	21.5	5.875	331.1	5.7	0.0	2.3	1.11	89.2
L3U3 Hanger (center)	271.0	19.50	290.8	0.5	39.0	5.875	214.0	3.0	0.0	2.74	1.15	91.7
L1U1	284.0	18.00	291.2	0.5	39.0	5.875	214.3	3.0	0.0	2.74	1.21	97.0
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.0	0.0	2.74	####	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.0	0.0	2.74	####	#VALUE!
L5U5	271.0	18.00	291.2	0.5	39.0	5.875	214.3	3.0	0.0	2.74	1.15	92.2
End Post U5L6	778.0	91.53	775.9	0.5	21.5	5.875	499.1	9.5	0.0	2.89	1.35	107.9

MAXIMUM RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	RF	E80-RATING
End Post L0U1	1189.0	91.53	775.9	0.5	21.5	5.875	499.1	9.5	0.0	2.89	2.17	173.4
Bottom Chord (BC1) L0L2	518.0	56.19	476.3	0.5	21.5	5.875	306.4	49.2	148.0	29.2	0.85	68.3
Bottom Chord (BC2) L2L4	940.0	102.46	826.5	0.5	21.5	5.875	531.6	65.5	148.0	37.5	1.08	86.1
Bottom Chord (BC1) L4L6	541.0	56.19	476.3	0.5	21.5	5.875	306.4	49.2	148.0	29.2	0.90	72.1
Top Chord U1U2	984.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.83	146.7
Top Chord U2U3	885.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.63	130.1
Top Chord U3U4	949.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.76	140.8
Top Chord U4U5	953.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.77	141.5
U1L2 Diag. (T) (ten.)	644.0	56.69	514.8	0.5	21.5	5.875	331.1	5.7	0.0	2.3	1.74	139.5
L2U3 Diag. (D) (comp.)	693.0	18.69	299.3	0.5	21.5	5.875	192.5	1.9	0.0	1.7	3.46	276.9
U3L4 Diag. (D) (comp.)	653.0	18.69	299.3	0.5	21.5	5.875	192.5	1.9	0.0	1.7	3.26	260.5
U4L5 Diag. (T) (ten.)	631.0	56.69	514.8	0.5	21.5	5.875	331.1	5.7	0.0	2.3	1.71	136.4
L3U3 Hanger (center)	395.0	19.50	290.8	0.5	39.0	5.875	214.0	3.0	0.0	2.74	1.72	137.5
L1U1	413.0	18.00	291.2	0.5	39.0	5.875	214.3	3.0	0.0	2.74	1.81	144.5
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.0	0.0	2.74	####	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.0	0.0	2.74	####	#VALUE!
L5U5	395.0	18.00	291.2	0.5	39.0	5.875	214.3	3.0	0.0	2.74	1.72	137.9
End Post U5L6	1131.0	91.53	775.9	0.5	21.5	5.875	499.1	9.5	0.0	2.89	2.05	164.2

SALINAS RIVER BRIDGE
AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS
SPAN 5
RIGHT TRUSS MEMBERS - LOAD CASE B

NORMAL RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	RF	E80-RATING
End Post L0U1	783.0	91.53	775.9	0.5	21.5	5.875	499.1	9.5	0.0	2.89	1.36	108.7
Bottom Chord (BC1) L0L2	369.0	56.19	476.3	0.5	21.5	5.875	306.4	49.2	148.0	29.2	0.55	43.6
Bottom Chord (BC2) L2L4	675.0	102.46	826.5	0.5	21.5	5.875	531.6	65.5	148.0	37.5	0.71	56.6
Bottom Chord (BC1) L4L6	369.0	56.19	476.3	0.5	21.5	5.875	306.4	49.2	148.0	29.2	0.55	43.6
Top Chord U1U2	694.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.23	98.1
Top Chord U2U3	650.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.13	90.8
Top Chord U3U4	669.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.17	94.0
Top Chord U4U5	651.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.14	90.9
U1L2 Diag. (T) (ten.)	453.0	56.69	514.8	0.5	21.5	5.875	331.1	5.7	0.0	2.3	1.17	93.7
L2U3 Diag. (D) (comp.)	468.0	18.69	299.3	0.5	21.5	5.875	192.5	1.9	0.0	1.7	2.30	184.3
U3L4 Diag. (D) (comp.)	459.0	18.69	299.3	0.5	21.5	5.875	192.5	1.9	0.0	1.7	2.26	180.6
U4L5 Diag. (T) (ten.)	450.0	56.69	514.8	0.5	21.5	5.875	331.1	5.7	0.0	2.3	1.16	93.0
L3U3 Hanger (center)	271.0	19.50	290.8	0.5	39.0	5.875	214.0	3.0	0.0	2.74	1.15	91.7
L1U1	268.0	18.00	291.2	0.5	39.0	5.875	214.3	3.0	0.0	2.74	1.14	91.1
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.0	0.0	2.74	####	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.0	0.0	2.74	####	#VALUE!
L5U5	268.0	18.00	291.2	0.5	39.0	5.875	214.3	3.0	0.0	2.74	1.14	91.1
End Post U5L6	774.0	91.53	775.9	0.5	21.5	5.875	499.1	9.5	0.0	2.89	1.34	107.3

MAXIMUM RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	RF	E80-RATING
End Post L0U1	1139.0	91.53	775.9	0.5	21.5	5.875	499.1	9.5	0.0	2.89	2.07	165.4
Bottom Chord (BC1) L0L2	535.0	56.19	476.3	0.5	21.5	5.875	306.4	49.2	148.0	29.2	0.89	71.1
Bottom Chord (BC2) L2L4	983.0	102.46	826.5	0.5	21.5	5.875	531.6	65.5	148.0	37.5	1.14	90.9
Bottom Chord (BC1) L4L6	535.0	56.19	476.3	0.5	21.5	5.875	306.4	49.2	148.0	29.2	0.89	71.1
Top Chord U1U2	1009.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.89	150.9
Top Chord U2U3	946.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.75	140.3
Top Chord U3U4	973.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.81	144.9
Top Chord U4U5	948.0	90.99	738.6	0.5	21.5	5.875	475.1	16.7	0.0	2.8	1.76	140.7
U1L2 Diag. (T) (ten.)	658.0	56.69	514.8	0.5	21.5	5.875	331.1	5.7	0.0	2.3	1.79	142.9
L2U3 Diag. (D) (comp.)	680.0	18.69	299.3	0.5	21.5	5.875	192.5	1.9	0.0	1.7	3.39	271.6
U3L4 Diag. (D) (comp.)	668.0	18.69	299.3	0.5	21.5	5.875	192.5	1.9	0.0	1.7	3.33	266.6
U4L5 Diag. (T) (ten.)	655.0	56.69	514.8	0.5	21.5	5.875	331.1	5.7	0.0	2.3	1.78	142.2
L3U3 Hanger (center)	395.0	19.50	290.8	0.5	39.0	5.875	214.0	3.0	0.0	2.74	1.72	137.5
L1U1	390.0	18.00	291.2	0.5	39.0	5.875	214.3	3.0	0.0	2.74	1.70	136.0
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.0	0.0	2.74	####	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.875	0.0	3.0	0.0	2.74	####	#VALUE!
L5U5	390.0	18.00	291.2	0.5	39.0	5.875	214.3	3.0	0.0	2.74	1.70	136.0
End Post U5L6	1126.0	91.53	775.9	0.5	21.5	5.875	499.1	9.5	0.0	2.89	2.04	163.4

SALINAS RIVER BRIDGE
AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS
SPAN 5
FLOOR SYSTEM - LOAD CASE A

NORMAL RATING

MEMBER	CAPACITY (KSI)	DL (KSI)	LL (E80-KSI)	DIST.	IMPACT %	RE %	LL+I (KSI)	RF	E80-RATING
Stringer Panel 1 (Lt.) (moment)	16.5	0.656	10.55	1.0	39.0	14.275	16.8	0.95	75.6
Stringer Panel 1 (Rt.) (moment)	16.5	0.683	11	1.0	39.0	14.275	17.5	0.91	72.4
Stringer Panel 2 (Lt.) (moment)	16.5	0.656	10.55	1.0	39.0	14.275	16.8	0.95	75.6
Stringer Panel 2 (Rt.) (moment)	16.5	0.67	10.79	1.0	39.0	14.275	17.1	0.92	73.9
Stringer Panel 3 (Lt.) (moment)	16.5	0.656	10.55	1.0	39.0	14.275	16.8	0.95	75.6
Stringer Panel 3 (Rt.) (moment)	16.5	0.679	10.92	1.0	39.0	14.275	17.3	0.91	73.0
Stringer Panel 4 (Lt.) (moment)	16.5	0.656	10.55	1.0	39.0	14.275	16.8	0.95	75.6
Stringer Panel 4 (Rt.) (moment)	16.5	0.679	10.92	1.0	39.0	14.275	17.3	0.91	73.0
Stringer Panel 5 (Lt.) (moment)	16.5	0.656	10.55	1.0	39.0	14.275	16.8	0.95	75.6
Stringer Panel 5 (Rt.) (moment)	16.5	0.687	11.05	1.0	39.0	14.275	17.6	0.90	72.1
Stringer Panel 6 (Lt.) (moment)	16.5	0.656	10.55	1.0	39.0	14.275	16.8	0.95	75.6
Stringer Panel 6 (Rt.) (moment)	16.5	0.67	10.79	1.0	39.0	14.275	17.1	0.92	73.9
Floorbeam L1 (moment)	16.5	0.919	10.42	1.0	39.0	5.875	15.3	1.02	81.3
Floorbeam L2 (moment)	16.5	0.902	10.23	1.0	39.0	5.875	15.1	1.04	82.9
Floorbeam L3 (moment)	16.5	0.937	10.63	1.0	39.0	5.875	15.6	0.99	79.6
Floorbeam L4 (moment)	16.5	0.919	10.42	1.0	39.0	5.875	15.3	1.02	81.3
Floorbeam L5 (moment)	16.5	0.943	10.7	1.0	39.0	5.875	15.7	0.99	79.0
Stringer (shear)	10.5	0.322	5.92	1.0	39.0	14.275	9.4	1.08	86.6
Floorbeam (shear)	10.5	0.576	6.4	1.0	39.0	5.875	9.4	1.05	84.3

MAXIMUM RATING

MEMBER	CAPACITY (KSI)	DL (KSI)	LL (E80-KSI)	DIST.	IMPACT %	RE %	LL+I (KSI)	RF	E80-RATING
Stringer Panel 1 (Lt.) (moment)	24.0	0.656	10.55	1.0	39.0	14.275	16.8	1.39	111.4
Stringer Panel 1 (Rt.) (moment)	24.0	0.683	11	1.0	39.0	14.275	17.5	1.33	106.8
Stringer Panel 2 (Lt.) (moment)	24.0	0.656	10.55	1.0	39.0	14.275	16.8	1.39	111.4
Stringer Panel 2 (Rt.) (moment)	24.0	0.67	10.79	1.0	39.0	14.275	17.1	1.36	108.9
Stringer Panel 3 (Lt.) (moment)	24.0	0.656	10.55	1.0	39.0	14.275	16.8	1.39	111.4
Stringer Panel 3 (Rt.) (moment)	24.0	0.679	10.92	1.0	39.0	14.275	17.3	1.34	107.6
Stringer Panel 4 (Lt.) (moment)	24.0	0.656	10.55	1.0	39.0	14.275	16.8	1.39	111.4
Stringer Panel 4 (Rt.) (moment)	24.0	0.679	10.92	1.0	39.0	14.275	17.3	1.34	107.6
Stringer Panel 5 (Lt.) (moment)	24.0	0.656	10.55	1.0	39.0	14.275	16.8	1.39	111.4
Stringer Panel 5 (Rt.) (moment)	24.0	0.687	11.05	1.0	39.0	14.275	17.6	1.33	106.3
Stringer Panel 6 (Lt.) (moment)	24.0	0.656	10.55	1.0	39.0	14.275	16.8	1.39	111.4
Stringer Panel 6 (Rt.) (moment)	24.0	0.67	10.79	1.0	39.0	14.275	17.1	1.36	108.9
Floorbeam L1 (moment)	24.0	0.919	10.42	1.0	39.0	14.275	16.6	1.39	111.6
Floorbeam L2 (moment)	24.0	0.902	10.23	1.0	39.0	14.275	16.2	1.42	113.7
Floorbeam L3 (moment)	24.0	0.937	10.63	1.0	39.0	14.275	16.9	1.37	109.3
Floorbeam L4 (moment)	24.0	0.919	10.42	1.0	39.0	14.275	16.6	1.39	111.6
Floorbeam L5 (moment)	24.0	0.943	10.7	1.0	39.0	5.875	15.7	1.46	117.1
Stringer (shear)	18.0	0.322	5.92	1.0	39.0	14.275	9.4	1.88	150.4
Floorbeam (shear)	18.0	0.576	6.4	1.0	39.0	5.875	9.4	1.85	148.0

Appendix 5

COMPARISON OF LOADING RESULTING FROM PASSENGER TRAIN TO E-80 LOADING
SALINAS-30 FOOT DEEP TRUSS

TRUSS MEMBERS			E- EQUIVALENT
MEMBER	LL (E-80 -LOADING - KIPS)	LL (PASSENGER TRAIN - KIPS)	PASSENGER
LO-U1	775.9	257.49	26.55
L0-L2	476.3	158	26.54
L2-L2'	826.5	272.31	26.36
U1-U3	738.6	251.84	27.28
U1-L2	514.8	184.74	28.71
L2-U3	299.3	107.74	28.80
HANGER	290.8	134.33	36.95
FLOOR SYSTEM			
MOMENTS			E- EQUIVALENT
	LL (E-80 -LOADING - FT-KIPS)	LL (PASSENGER TRAIN - FT-KIPS)	PASSENGER
STRINGER	531	245.58	37.00
FLOORBEAM	724	335.54	37.08
SHEAR			E- EQUIVALENT
	LL (E-80 -LOADING - KIPS)	LL (PASSENGER TRAIN - KIPS)	PASSENGER
STRINGER	108.8	54	39.71
FLOORBEAM	145	67.102	37.02

COMPARISON OF LOADING RESULTING FROM PASSENGER TRAIN TO E-80 LOADING
SALINAS-31 FOOT DEEP TRUSS

TRUSS MEMBERS			E-80 EQUIVALENT
MEMBER	LL (E-80 -LOADING - KIPS)	LL (PASSENGER TRAIN - KIPS)	PASSENGER
LO-U1	766.62	254.33	26.54
L0-L2	460.85	152.95	26.55
L2-L2'	799.53	263.45	26.36
U1-U3	715.06	243.76	27.27
U1-L2	508.6	182.52	28.71
L2-U3	296.01	106.54	28.79
HANGER	290.8	134.33	36.95
FLOOR SYSTEM MOMENTS			E-80 EQUIVALENT
	LL (E-80 -LOADING - FT-KIPS)	LL (PASSENGER TRAIN - FT-KIPS)	PASSENGER
STRINGER	531	245.58	37.00
FLOORBEAM	724	335.54	37.08
SHEAR			E-80 EQUIVALENT
	LL (E-80 -LOADING - KIPS)	LL (PASSENGER TRAIN - KIPS)	PASSENGER
STRINGER	108.8	54	39.71
FLOORBEAM	145	67.102	37.02

APPENDIX 6

LOMA PRIETA REPORT

MODJESKI AND MASTERS

CONSULTING ENGINEERS

Founded 1893

1055 ST CHARLES AVE
NEW ORLEANS LA 70130
TELEPHONE 504 524 4344

October 30, 1989

Mr. K. L. Wammel,
Engineer - Bridges
Southern Pacific Trans. Co.
One Market Plaza
Room 1007
San Francisco, CA 94105

RE: SOUTHERN PACIFIC RAILROAD BRIDGES
OCTOBER 17, 1989 EARTHQUAKE DAMAGE

Dear Mr. Wammel:

For the records, the writer has written a short description of earthquake damage done to your structures mainly because of the significance of closeness of your bridges to the epicenter, the size of the earthquake and the lack of significant damage. The epicenter was officially located at Loma Prieta in the Santa Cruz mountains and was 7.1 on the Richter scale. The main line reportedly did not sustain structural damage. Only four structures were damaged, one having minor superstructure damage and three with substructure damage.

While highway bridges sustained major damage, the railroad bridges did not. There were several interesting observations about railroad bridge details that played a roll in their survival.

1. Pier cap stones acted as a buffer between superstructures and pier stems and shifted rather than allowing damage to occur.

2. Anchor bolts that held caused minor damage while deteriorated anchor bolts sheared off after minimal resistance and did not cause damage.

3. Segmental roller bearings although many were frozen from corrosion, survived because they did not have pintles, only shear slots.

4. Although girder spans shifted relative to bolster base bearings, the size of the bearings and pier tops were large enough that the movement of piers did not allow any spans to drop.

5. At the Watsonville and Santa Cruz bridges there was an inward movement towards the channel while at Castroville there was a separation of land masses.

We appreciated the opportunity to have inspected these structures.

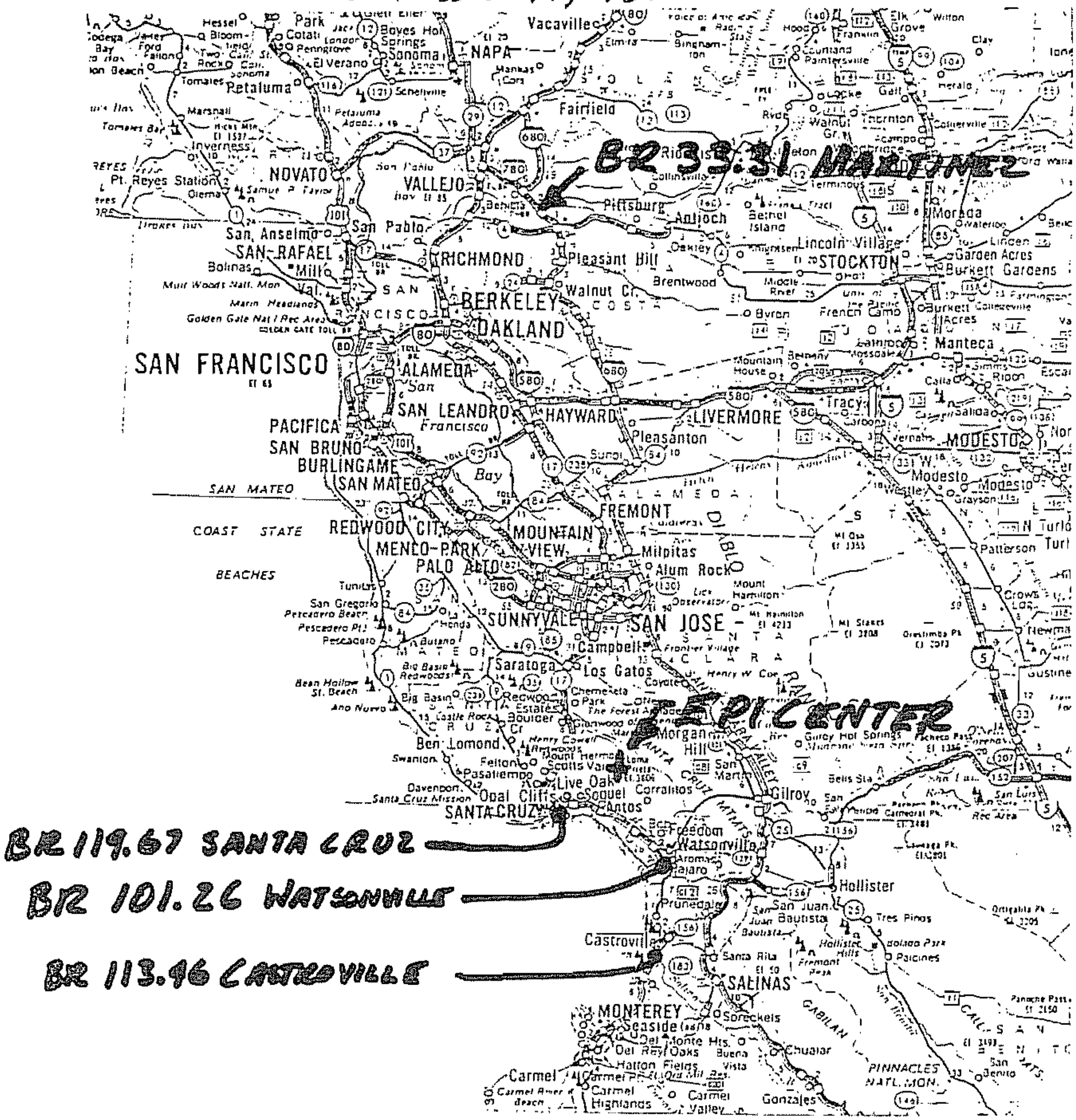
Very truly yours,

MODJESKI AND MASTERS
Consulting Engineers

D. F. Sorgenfrei

DFS:gls
Attachments

SOUTHERN PACIFIC RAILROAD D13
7.1 EARTHQUAKE
OCTOBER 17, 1989



BRIDGE NO. 113.46 - CASTROVILLE, CA

This 1904 bridge consists of 5 - 140 ft. long thru truss spans over the Salinas River approximately 25 miles from the epicenter. The metalwork was not damaged but a shift occurred at Pier 3 which caused a 6-9 inch lateral displacement of the spans which kinked the track.

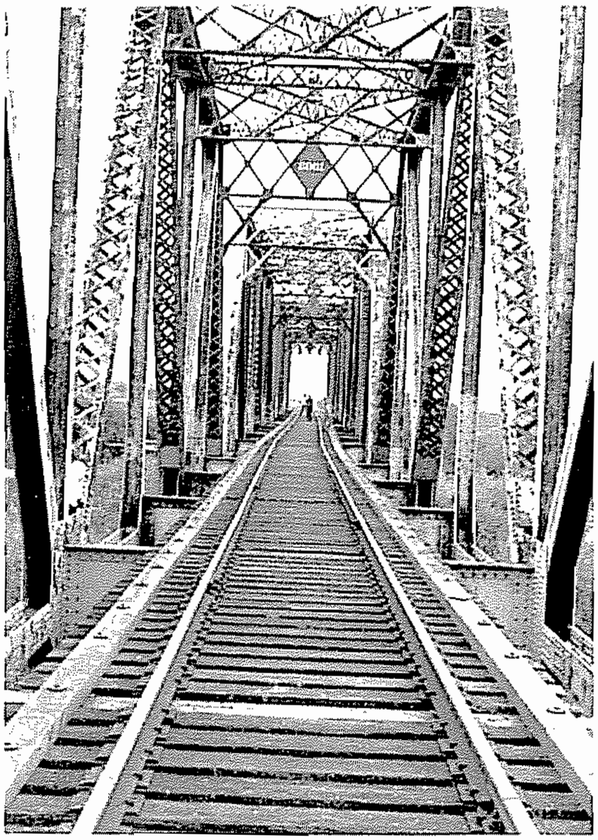
The quake caused several large fissures in the ground and by observation of the superstructure it became apparent that there was a spread in the land mass.

The west abutment (Pier 1) stayed stationary, Pier 2 shifted eastward about 5 inches, Pier 3 shifted to the left by 6-9 inches, and the remainder of the piers were undisturbed moving as a group. The scenario is confirmed by the following observations.

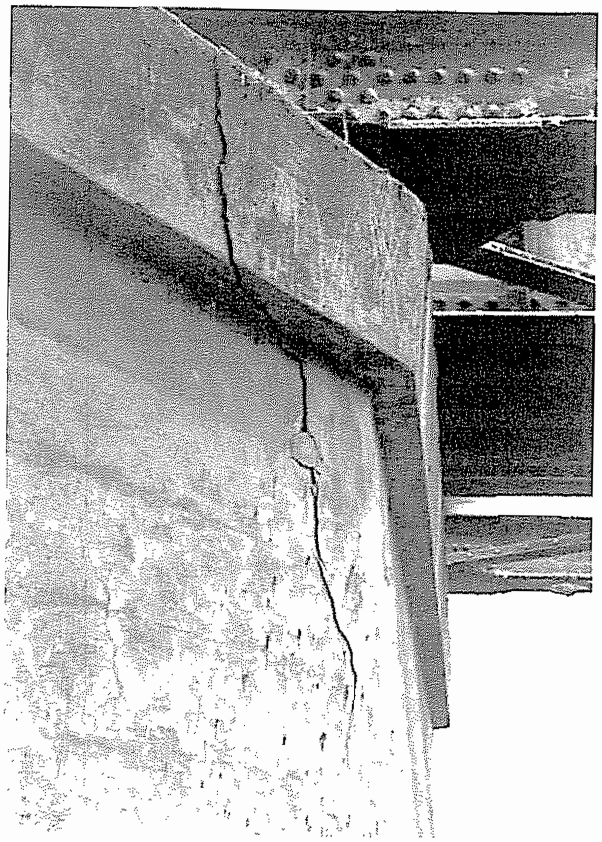
West Abutment	- No gaps indicating movement between the concrete and ground.
	- Concrete cracked at the right seat but held the fixed bearing of the 1st span in place.
Pier 2	- Pier shifted to east about 5 inches.
	- Span 1 expansion roller west and Span 2 fixed bearings remaindered unchanged in relation to the pier top but rollers became exposed from under Span 1.
Pier 3	- Pier shifted to the left 6-9 inches with soil heaval adjacent to the pier and gaps between the soil and pier to a depth of 8 ft. No superstructure shift on pier top.
Pier 4	- No pier shifts noted.

The track was scheduled to be shifted several inches to restore traffic. After a period of time the trusses will be realigned. If there is any pier movement then possible foundation reinforcement will be considered.

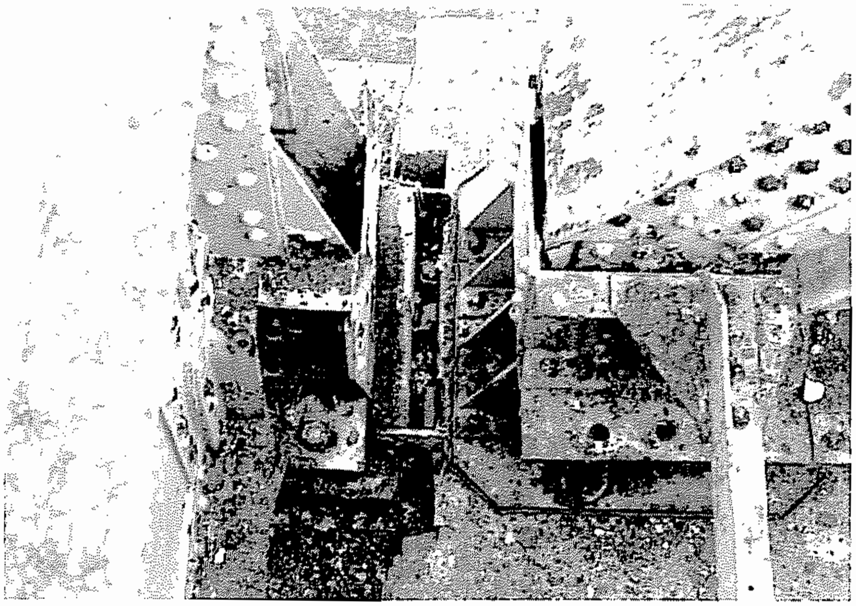
BRIDGE NO. 113.46 - CASTROVILLE, CA



PHOTOGRAPH NO. 16 - View of 6-9 inch left shift in the track at Pier 3.



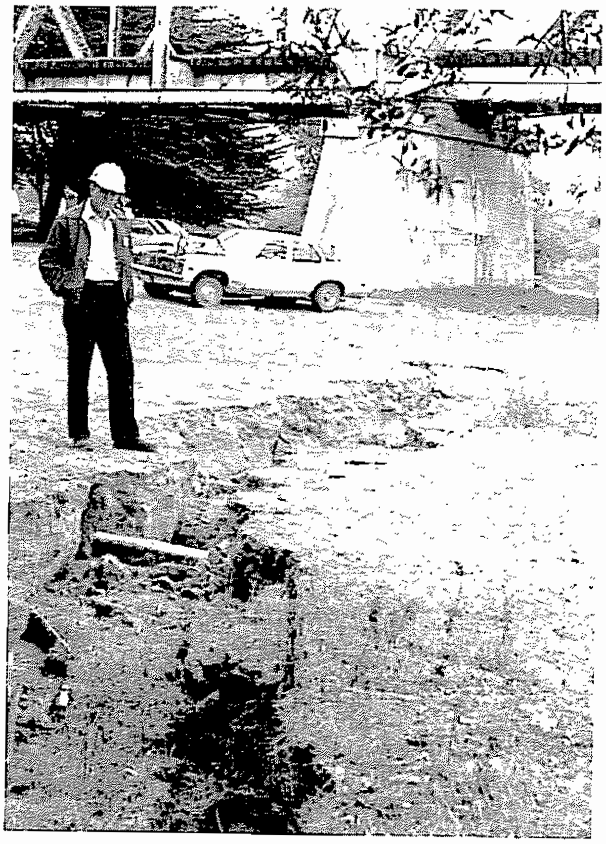
PHOTOGRAPH NO. 17 - View of the west abutment crack cause by the truss anchor bolt (Span 1) holding the fixed bearing in place.



PHOTOGRAPH NO. 18 - View of the left expansion roller nest exposed at Pier 2 (east end of Span 1). Pier 2 shifted to the east (right).

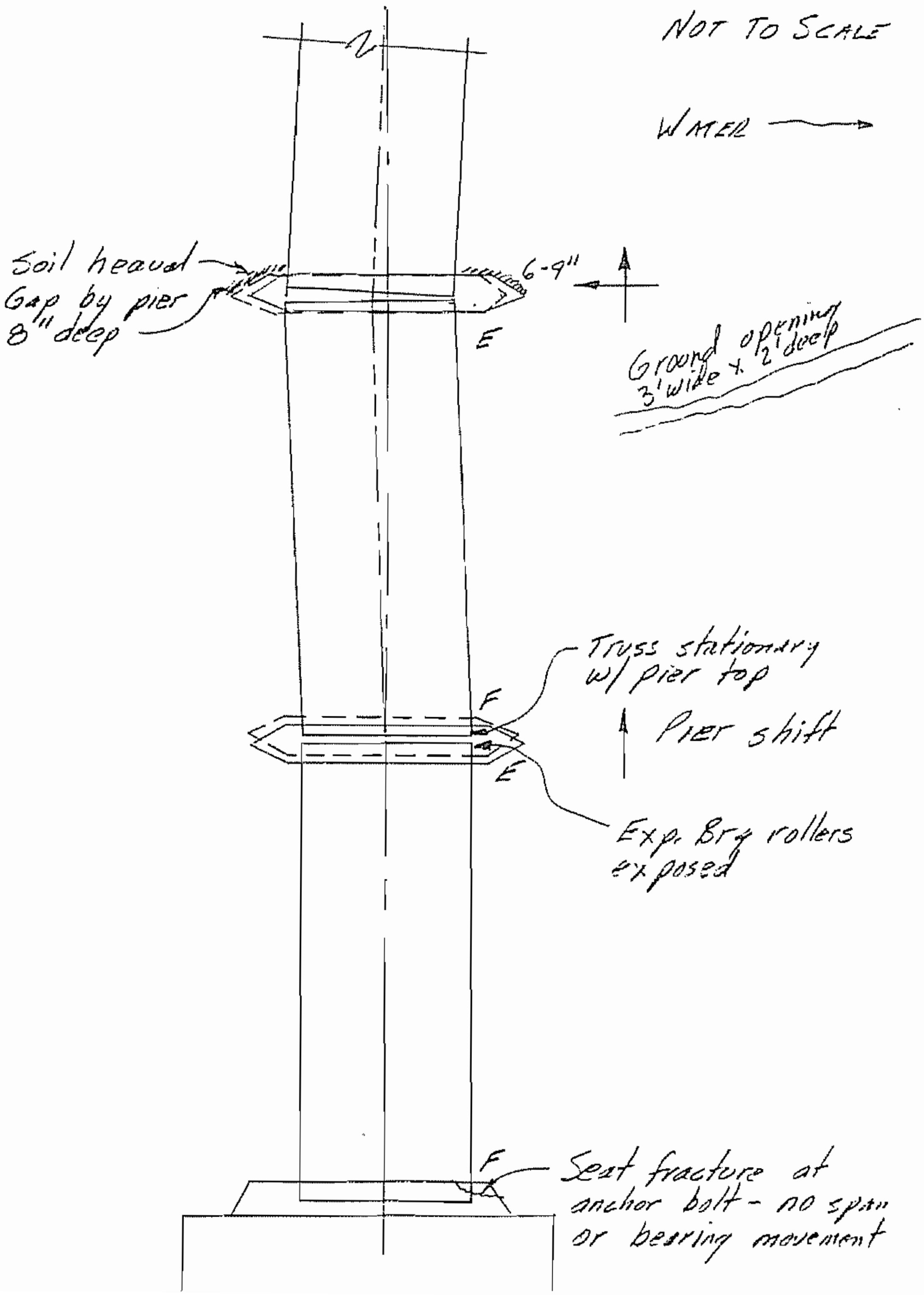
PHOTOGRAPH NO. 19 - View of gap between pier and ground indicating pier movement during the quake.

BRIDGE NO. 113.46 - CASTROVILLE, CA



PHOTOGRAPH NO. 20 - View of a ground fissure between Piers 2 and 3. Pier 2 is in the background.

SOUTHERN PACIFIC RAILROAD DKB 10-89
STEEL BRIDGE EVALUATION
BR NO. 113.46 Salinas River



APPENDIX 7

RECOMMENDED REPAIRS

RECOMMENDED REPAIRS

Superstructure

1. Realign truss spans moved during Loma Prieta earthquake

2. Replace truss expansion bearings of Spans 1-5, including replacement of: bearing pedestal, segmental rollers, bearing plate above rollers, and anchor bolts.

3. Replace bearing pedestals of truss fixed bearings of Spans 3 & 4.

4. Replace deteriorated sections of top chord cover plates at the following locations:

   Span 1, Panels 2-5, Left & Right Trusses (40%-90% section loss)
   Span 2, Panel 4, Left Truss (50% section loss)
   Span 2, Panel 5, Right Truss (60% section loss)
   Span 3, Panel 3, Left & Right Trusses (50% & 70% section loss)
   Span 3, Panel 4, Left Truss (50% section loss)
   Span 3, Panel 5, Left Truss (50% section loss)
   Span 4, Panels 3-5, Left & Right Trusses (30%-50% section loss)
   Span 5, Panel 2, Left Truss (40% section loss)
   Span 5, Panels 3-5, Left & Right Trusses (30%-75% section loss)

5. Repair areas of section loss at the following truss members:

   Span 1, U2R, Post (50% section loss at one side of outboard flange)
   Span 1, L3L, Hanger (25% & 40% section loss of inboard flange)
   Span 1, L3R, Hanger (20% & 50% section loss of inboard flange)
   Span 1, L6L, End Post (70% section loss of cover plate)
   Span 2, L1R, Hanger (25% section loss at one side of outboard flange)
   Span 3, L1R, Hanger (30% section loss at both sides of inboard flange)
   Span 4, L4L, Post (30% & 15% section loss of outboard flange)
   Span 4, L4L, Gusset Plate (75% section loss of inboard & outboard plates)
   Span 4, L6R, End Post (80% section loss of outboard pin plate & 30% section loss of gusset plate at bearing pin)
   Span 5, L4L, Diagonal L4L-U5L (30% & 20% section loss of inboard flange)

6. Repair or replace the following truss bracing components:

Span 2, Panel 3, Top Lateral upper connection plate at U2L (100% SL)
Span 2, Panel 4, Top Lateral upper connection plate at U3L (90% SL)
Span 2, Panel 5, Top Lateral upper connection plate at U5L (95% SL)
Span 3, Panel 2, Top Lateral upper connection plate at U1L (95% SL)
Span 3, Panel 2, Top Lateral upper connection plate at U2L (95% SL)
Span 3, Panel 3, Top Lateral upper connection plate at U2L (90% SL)
Span 3, Panel 4, Top Lateral upper connection plate at U3L (70% SL)
Span 3, Panel 4, Top Lateral upper angle near U3L (70% SL)
Span 3, Panel 4, Top Lateral upper connection plate at U4L (90% SL)
Span 3, Panel 5, Bottom Lateral connection plate at L4R (70% SL)
Span 3, Panel 5, Top Lateral upper connection plate at U4L (90% SL)
Span 3, Panel 5, Top Lateral upper connection plate at U5L (100% SL)
Span 4, Panel 2, Top Lateral upper connection plate at U1L (100% SL)
Span 4, Panel 3, Top Lateral lower angle at U3L (100% SL)
Span 4, Panel 4, Top Lateral lower angle at U3R (70% SL)
Span 4, Panel 5, Top Lateral upper connection plate at U5L (100% SL)
Span 4, Panel 5, Top Lateral upper connection plate at U5R (75% SL)
Span 5, Panel 2, Top Lateral upper connection plate at U1L (100% SL)
Span 5, Panel 2, Top Lateral upper connection plate at U2L (95% SL)
Span 5, Panel Point U2, Sway Bracing bottom angles (100% SL)
Span 5, Panel 3, Top Lateral upper connection plate at U2L (95% SL)
Span 5, Panel 3, Top Lateral upper connection plate at U3L (90% SL)
Span 5, Panel 4, Top Lateral upper connection plate at U3L (75% SL)
Span 5, Panel 5, Top Lateral upper connection plate at U5L (100% SL)
Span 5, Panel 5, Top Lateral lower connection plate at U5L (75% SL)

7. Replace deteriorated lacing bars of the following truss members:

Span 1, Panel 2, Left Truss, Bottom Chord
Span 1, Panel 3, Left Truss, Bottom Chord
Span 1, Panel 3, Right Truss, Diagonal
Span 1, Panel 4, Left Truss, Bottom Chord
Span 1, Panel 4, Left Truss, Diagonal
Span 1, Panel 4, Right Truss, Diagonal
Span 1, Panel 5, Right Truss, Diagonal
Span 1, Panel 6, Left Truss, Bottom Chord
Span 2, Panel 3, Left Truss, Diagonal
Span 3, Panel 1, Left Truss, End Post
Span 3, Panel 1, Right Truss, End Post
Span 4, Panel 1, Left Truss, End Post
Span 4, Panel 1, Right Truss, End Post
Span 5, Panel 1, Right Truss, End Post
Span 5, Panel 3, Right Truss, Diagonal
Span 5, Panel 4, Left Truss, Diagonal
Span 5, Panel 4, Right Truss, Diagonal

8. Repair or replace the following floor system components:

    Span 1, at L0R, End Post-to-Floorbeam connection plate (70% SL)
    Span 1, at Floorbeam 0, Left Stringer Bracket top flange angles (95% & 70% SL)
    Span 1, at Floorbeam 3, Left Floorbeam Bracket connection angles (50% SL)
    Span 1, at Floorbeam 3, Right Floorbeam Bracket connection angles (50% SL)
    Span 1, at Floorbeam 5, Left Floorbeam Bracket plate (40% SL)
    Span 1, at Floorbeam 5, Left Floorbeam Bracket connection angles (75% SL)
    Span 1, at Floorbeam 5, Right Floorbeam Bracket plate (30% SL)
    Span 1, at Floorbeam 5, Right Floorbeam Bracket connection angles (90% SL)
    Span 1, Floorbeam 6, Floorbeam bottom flange angles (70% & 40% SL)
    Span 1, at L6L, End Post-to-Floorbeam connection plate (70% SL)
    Span 1, at L6R, End Post-to-Floorbeam connection plate (90% SL)
    Span 1, at Floorbeam 6, Left Stringer Bracket top flange angles (80% & 70% SL)
    Span 1, at Floorbeam 6, Right Stringer Bracket top flange (100% & 80% SL)
    Span 2, Panel 6, Left Stringer bottom flange (30% SL)
    Span 3, Panel 1, Left Stringer bottom flange (20% SL)
    Span 5, Panel 1, Right Stringer bottom flange (30% SL)
    Span 5, Floorbeam 3, Floorbeam top flange (30% SL)

9. Rehabilitate stringer expansion bearings at Spans 2, 3 & 4, including replacement of sole plates and shim plates, and replacement or re-surfacing bed plates.

10. Clean and overcoat all bridge members.

Substructure

11. Repair crack in Abutment No. 1 at right truss bearing.

APPENDIX C

Preliminary Geotechnical Recommendations for Monterey Branch Line

Shannon & Wilson, Inc.
December 18, 2001

Preliminary Geotechnical Recommendations for Monterey Branch Lane Castroville to Seaside Transit Authority of Monterey County, California

December 2001

SHANNON & WILSON, INC.

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

At Shannon & Wilson, our mission is to be a progressive, well-managed professional consulting firm in the fields of engineering and applied earth sciences. Our goal is to perform our services with the highest degree of professionalism with due consideration to the best interests of the public, our clients, and our employees.

Submitted To:
Mr. Richard D. Walker
STV Incorporated
1055 West Seventh Street, Suite 3150
Los Angeles, California 90017-2577

By:
Shannon & Wilson, Inc.
400 N 34th Street, Suite 100
Seattle, Washington 98103

21-1-09294-001

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

SEATTLE
RICHLAND
FAIRBANKS
ANCHORAGE
DENVER
SAINT LOUIS
BOSTON

December 18, 2001

Mr. Richard D. Walker
STV Incorporated
1055 West Seventh Street, Suite 3150
Los Angeles, CA 90017-2577

**RE: PRELIMINARY GEOTECHNICAL RECOMMENDATIONS FOR MONTEREY BRANCH LINE, CASTROVILLE TO SEASIDE, TRANSIT AUTHORITY OF MONTEREY COUNTY, CALIFORNIA
STV PROJECT 306-10201-15.3**

Dear Mr. Walker:

The enclosed report presents our preliminary geotechnical recommendations for upgrading the existing Monterey Branch Line from Castroville to Seaside, California, for commuter rail use. Our recommendations address existing embankments, minor structures, Salinas River Bridge No. 113.46, track drainage considerations, and mitigation measures to reduce deposition of wind-blown sand on the tracks.

We appreciate the opportunity to be of service to you on this project and look forward to providing additional services as the project proceeds. If you have any questions, please call Stan Boyle at (206) 695-6863.

Sincerely,

SHANNON & WILSON, INC.

Stanley R. Boyle
Associate

SRB:CAR:DNM/srb

Enclosure: Preliminary Geotechnical Recommendations for Monterey Branch Line, Castroville to Seaside, Transit Authority of Monterey County, California

c: Donald Sergenfrei, Mojeski and Masters

21-1-09294-001.L2/wp/lkd

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EXECUTIVE SUMMARY

The Transit Authority of Monterey County (TAMC) has proposed to initiate intercity passenger rail service from the Monterey, California, area to San Francisco, California. As part of the this project, TAMC proposes to run trains over existing and currently unused Union Pacific Railroad (UP) track between Castroville and Seaside, California (Figure 1). The line segment includes approximately 13 miles of embankment, five ballast-deck timber bridges, and a five-span, steel, through-truss bridge over the Salinas River. In addition to other considerations, embankment and track section reconstruction, structure upgrades, and drainage improvements may be necessary over some or all of this line segment. Shannon & Wilson, as a subconsultant to STV, Inc., performed a preliminary engineering level geotechnical assessment along this line segment. Our work is described and our recommendations are presented in this report.

For the preliminary engineering phase of this project Shannon & Wilson visited the project area and observed conditions along portions of the existing railroad on two occasions: March 8, 2000, and July 11 and 12, 2001. We also completed four soil borings near Salinas River Bridge No. 113.46, reviewed regional geologic and liquefaction susceptibility data, and collected and reviewed subsurface and hydrologic data that had been prepared for three highway bridges that cross the Salinas River. No subsurface explorations were conducted to evaluate the existing embankments or track structure.

In our opinion, the railroad embankments of the Monterey Branch Line between Castroville and Seaside are generally stable and adequate for their intended use to support intercity train traffic. Some localized work to treat soft track locations, flatten slopes, and drain ballast pockets will probably be required to improve embankment stability and track performance before and after train traffic is reestablished. Surface drainage should be improved by raising the embankment, sloping embankment shoulders to drain, and grading surrounding land so that water flows away from the embankment. Ditches and culverts should be cleaned and upgraded where necessary to accommodate runoff. In our opinion, the existing ballast is fouled, of poor quality and low durability, consists of rounded particles, and is likely of inadequate thickness. It is probable that no subballast is present below the ballast. For preliminary engineering purposes, we recommend assuming 20 to 24 inches of existing soil and ballast beneath the ties would need to be removed and replaced with 8 to 12 inches of granular subballast and 12 inches of ballast.

Windblown sand appears to be regularly deposited on the track near Milepost (MP) 122. Because of the proximity of this site to the beach, pervasive winds, and local landforms, sand will likely need to be removed from the track at this location at irregular intervals. Sand fences, berms, land regrading, and vegetation could be used to reduce the quantity of sand deposited on the track and the frequency at which this sand must be removed.

We recommend that a structural engineer evaluate the existing timber bridges at MP 111.03, MP 111.93, and MP 112.54 to determine if they need to be replaced. If replacement is deemed necessary, we recommend that subsurface explorations be completed during the final design stage of this project. Alternatives for replacing these bridges are location dependent and include, but are not limited to, replacement with single or multi-span bridges and replacement with embankments. Properly designed culverts should be installed through embankments constructed to replace these bridges. We recommend replacing the existing timber bridges at MP 112.80 and MP 113.04 with embankments.

Liquefaction, lateral spread, and sand boils have occurred at or near the Salinas River Bridge during past earthquakes. Movement of Pier 1 and permanent offset of Pier 2 were documented following the 1989 Loma Prieta earthquake. Because of the potential for earthquake-induced damage, the three highway bridges over the Salinas River near MP 113.46 have been seismically upgraded. Soils encountered in explorations that we conducted near Salinas River Bridge Piers 1 and 2 suggest that soil conditions at this site are similar to those at the nearby highway bridges. Based on this similarity in soil profile, in our opinion, piles installed to seismically retrofit the railroad bridge would need to be founded on bearing material at depths of 100 to 130 feet. We encountered gravel, cobbles, or larger rock at depths of 15 to 43 feet in the three borings we drilled near Pier 2. We were unable to advance the drill through these materials in two of the borings. Where these materials are present, they could interfere with and increase the difficulty and cost associated with installation of new piles to retrofit the existing foundations.

Seismic upgrading of the existing Salinas River Bridge No. 113.46 foundations using a system similar to that used on the nearby highway bridges would likely cost in excess of $3,000,000. If Salinas River Bridge foundations are not replaced or seismically upgraded, we recommend that instruments be installed on the bridge to monitor for settlement at each pier and abutment. This system could activate a signal warning system to stop trains if settlement is detected. Strong motion detectors could also be installed to activate the signals and stop trains if a threshold level of earthquake-induced ground movement is detected. The cost for settlement and strong motion monitoring instruments and signals would be on the order of $165,000 to $200,000.

TABLE OF CONTENTS

Page

TABLE

LIST OF FIGURES

LIST OF APPENDICES

Appendix

PRELIMINARY GEOTECHNICAL RECOMMENDATIONS FOR MONTEREY BRANCH LINE CASTROVILLE TO SEASIDE TRANSIT AUTHORITY OF MONTEREY COUNTY, CALIFORNIA

1.0 INTRODUCTION

The Transit Authority of Monterey County (TAMC) has proposed to initiate intercity passenger rail service from the Monterey, California, area to San Francisco, California. As part of the this project, TAMC proposes to run trains over existing and currently unused Union Pacific Railroad (UP) track between Castroville and Seaside, California (Figure 1). The line segment includes approximately 13 miles of embankment, five ballast-deck timber bridges, and a five-span, steel, through-truss bridge over the Salinas River. In addition to other considerations, embankment and track section reconstruction, structure upgrades, and drainage improvements may be necessary over some or all of this line segment.

Feasibility and engineering studies for the proposed reopening and possible upgrade of the Monterey subdivision is being evaluated for TAMC by a team of consultants headed by STV Incorporated (STV), Los Angeles, California. Shannon & Wilson (SW) is part of this team. This report presents our preliminary geotechnical recommendations for the proposed project.

Our work was authorized by Mr. David L. Borger of STV on January 15, 2001. Notice to proceed was issued in June 2001.

2.0 SITE AND PROJECT DESCRIPTION

2.1 General

The subject line segment is referred to as the Monterey Subdivision or Monterey Branch Line. This line extends from Castroville to Seaside in Monterey County, California. The line formerly connected with mainline tracks that are currently operated by UP approximately 9/10ths of a mile north of the Highway 183 road crossing in Castroville. It is our understanding that the switch at this connection point (Milepost [MP] 110.15) has been removed (see Figure 2). South of Castroville, the track passes through cropland until just north of the Salinas River. South of the Salinas River, the railroad generally follows close to Highway 1 through the City of Marina, Fort Ord Military Reservation, and City of Seaside (Seaside). The present project ends within the Seaside city limits. The tracks have been removed or are covered by vegetation, soil, asphalt, or other materials and structures in a number of locations south of Fort Ord and through Seaside and south of the current project limits through the City of Monterey. (Note: Throughout this report, geographic directions are given relative to the railroad, i.e., north = railroad-north, west = railroad-west, etc., and may or may not be the true geographic direction.)

It is our understanding that portions of this line were first put into service in the mid- to late 1800s. Four spans of the Salinas River Bridge were constructed about 1903 and the north abutment and fifth span were added about 1914. It is our understanding that the foundations and possibly the decks of the five existing minor bridges between the Salinas River and Castroville were likely re-constructed to their general present configuration in the 1920s and 1930s. The track has been out of service for at least 5 years.

2.2 Field Reconnaissance

We visited the project area and observed conditions along portions of the existing railroad on two occasions: March 8, 2000, and July 11 and 12, 2001. Our preliminary engineering phase observations and assessment of geotechnical aspects of the railroad embankment and structures are presented below. During our site visits, we visually observed readily accessible portions of existing embankments, structures, and adjacent areas. We did not perform detailed observations or subsurface explorations of embankment or structure conditions along the entire alignment during our visits. Nor did we make measurements of the embankments or structures or conduct a topographic survey of the alignment or adjacent areas. A survey of the railroad, including topography, has not been provided to us, but we recommend that a survey be accomplished for final engineering studies and design. Descriptions of our observations are presented below.

2.2.1 Embankments and Track Section

The majority of the track railroad-north of approximately MP 113.80 crosses Salinas River flood deposits. In general, this land has been graded and is currently used as cropland. With the exception of the area immediately south of the river on the east side of the track, the land adjacent to the track south of the Salinas River is generally not farmed. The majority of the Monterey Branch Line is constructed on embankments less than 6 feet high. Higher embankments were observed at bridge approach fills, through Fort Ord, and are also present at other locations. The track passes through cuts in a few locations. Along a substantial length of the railroad, the embankment shoulder is located near the end of the ties and is not wide enough to support ballast at the end of the ties. In some cases, the ties extend a few inches beyond the top of the embankment.

Low embankments; shallow, unmaintained, and overgrown ditches; poor surface drainage; and areas where water may pond adjacent to the embankment were observed along the railroad. Plugged or damaged culverts were not observed, but are suspected to be present. These conditions may cause infiltration of water into the embankment, which could wet and weaken subgrade soils and foul ballast, and contribute to poor embankment and track performance and "soft track." Because the track is out of service and we have not been in contact with personnel familiar with the maintenance history of the Monterey Branch Line, historic soft track locations could not be identified during our site reconnaissance.

Much of the track ballast that we observed appeared fouled. Ballast breakdown, pushing of ballast into underlying soils, pumping of soils upward into the ballast, windblown soil, transport of soil in runoff water that flows into the track section, and other factors likely contributed to ballast fouling. The ballast also appeared to be of poor quality rock that, in our opinion, would likely not meet American Railway Engineers and Maintenance-of-Way Association (AREMA) standards.

Relatively large rock (more than 3 feet maximum dimension) was observed on the east side of the approach fills to the Salinas River bridge. This rock may have been placed during initial construction, to reconstruct or buttress the embankments, or to provide erosion protection.

2.2.2 MP 122 Sand Deposits on Track

Sand completely or partially covered the track for approximately 100 feet near MP 122, just north of the Highway 1 overpass at MP 122.17. The sand was as much as 6 feet deep over the track. In places, vegetation (ice plant) has grown on the sand that covers the track, indicating areas where sand has been in place for a number of years. At this location, an abandoned paved road parallels the track about 30 to 40 feet to the west. An approximately 8- to 10-foot-high sand deposit separates the track from this road and the road is mostly buried with sand in this area. West of the tracks and road are sand dunes. In our opinion, the sand on the track and road is wind deposited and derived from those dunes and from the beach immediately to the west. Two high points in the dune fields are located west of the road and north and south of the track section that is covered with sand. These high points have a maximum elevation in excess of 50 feet above the rail. The surface of the dune field between these high points is much lower, about 15 feet in elevation above the rail west of the location where the tracks are covered with sand. In our opinion, wind that is funneled through this trough between the dune field high points blows at sufficient velocity to transport sand. Sand carried by this wind is deposited on the road and railroad. Vegetation (ice plant) has established itself on a large portion of the east surface of the dunes, i.e., on the track side of the dunes, in this area. However, little vegetation was observed near the low point of the dunes. In our opinion, this lack of vegetation is at least partially associated with frequent disturbance by people walking over the sand to the beach.

2.2.3 Minor Bridges

2.2.3.1 MP 111.03

The bridge at MP 111.03 is a multi-span, ballast deck, timber bridge supported on timber piles and bents. The bridge has concrete abutments. The bridge spans Tembladero Slough and has a total length of approximately 150 feet (Figures 2 and 3). The number 28 was observed stamped into some of the timber piles, which may indicate that those piles were installed in 1928.

Timber bents are located beneath the bridge structure within a few feet of each abutment. These bents may have been installed to reinforce the abutments or raise the bridge following abutment settlement. The southernmost end of the bridge (for three bents) appears to have settled. The south concrete abutment appears to have settled 6 to 8 inches relative to the adjacent timber bent and deck. The north abutment may also have settled, but not as much as the south abutment. The bottoms of the north and south abutments appear to be rotated toward the slough. This may indicate that these abutments have moved laterally.

2.2.3.2 MP 111.93

The bridge at MP 111.93 is located at the west end of Alisal Slough (Figures 2 and 3). This ballast deck, timber bridge is supported on timber piles and bents. The bridge spans the slough channel and has a total length of approximately 45 feet. The construction date for this bridge is not known and we did not observe (or look for) numbers stamped into timbers. The area under and around the bridge appears to be vegetated with wetland plants. Tires and other trash were observed in the area and ground surface depression around the bridge. Although the channel appears to extend to the east across adjacent agricultural fields, the channel ends approximately 30 feet west of the bridge. West of the bridge, the old channel (indicated on

Figures 2 and 3) is filled to the approximate level of the surrounding farmland. Water that may flow westward down the channel from areas east of the bridge appears to feed into a culvert located at the west end of the channel. The condition of this culvert and its outlet were not observed.

The bridge has concrete abutments with concrete wing walls. We observed timber piles that had been cut off near the ground surface between the existing timber bents. These piles may have supported an earlier structure. Cracks were observed in the north abutment. The bottom of this abutment appeared to have settled and moved laterally toward the channel.

2.2.3.3 MP 112.54

The bridge at MP 112.54 is a multi-span, ballast deck, timber bridge that is supported on timber piles and bents. The bridge spans a small ditch and has a total length of approximately 120 feet. The ditch may be the remains of a filled channel that the bridge originally spanned at this location (Figures 2 and 3). The ditch follows along the east side of the embankment north of the bridge. The extent and direction of the ditch west of the bridge was not noted. Water was observed in the ditch on July 12, 2001. The number 26 was observed stamped into some of the timber beams, which may indicate that those beams were installed in 1926.

The bridge has concrete abutments with concrete wing walls. We observed timber piles that had been cut off near the ground surface between existing timber bents. These piles may have supported an earlier structure. Cracks were observed in the south abutment. The bents supporting the bridge appeared to be vertical; which may indicate that significant lateral spread has not occurred at this location.

2.2.3.4 MP 112.80

The bridge at MP 112.80 is a multi-span, ballast deck, timber bridge that appears to be supported on concrete spread footings. The bridge has concrete abutments with concrete wing walls. The bridge spans a depression in the surrounding terrain and has a total length of approximately 235 feet. Relatively level and extensive cropland is present east of the railroad and west of Monte Road. An approximately 6- to 8-foot-long concrete box culvert, partially filled and with its ends mostly blocked by soil and vegetation, was observed below Monte Road at this location. The ground surface depression and the culvert under the road suggest that a channel or drainage ditch may once have passed under the railroad bridge and roadway at this location, although no channel is indicated on geologic maps we reviewed for this area (Figures 2 and 3). The number 22 was observed stamped into some of the timber beams, which may indicate that those beams were installed in 1922. The number "1909" is cast into the south abutment concrete, indicating that the abutment was likely constructed in 1909.

We observed timber piles that had been cut off near the ground surface between existing footings. These piles may have supported an earlier structure. We observed timber "helper" bents between the concrete footings at two locations along the length of the bridge. The bridge sagged along its entire length, rising up toward each abutment. The sag may have occurred because the footings settled. This settlement may be associated with consolidation, soil displacement, earthquake-induced liquefaction, or other factors.

2.2.3.5 MP 113.04

The bridge at MP 113.04 is a multi-span, ballast deck, timber bridge that appears to be supported on concrete spread footings. The bridge has concrete abutments with concrete wing walls. The bridge spans a depression in the surrounding terrain and has a total length of approximately 90 feet. The ground surface depression may be the remains of a filled channel that the bridge originally spanned at this location, although no channel is indicated on geologic maps we reviewed for this area (Figures 2 and 3). The land east and west of the bridge appears to have been graded for farming. The number 26 was observed stamped into some of the timber beams, which may indicate that those beams were installed in 1926.

2.2.4 Salinas River Bridge No. 113.46, MP 113.46

The track crosses the Salinas River at MP 113.46 on a 700-foot-long, five span, through-truss, steel bridge (see Figures 2, 3, and 4). Concrete piers and abutments support the ends of each span. We observed the numbers "1903" and "1914" in steel plates on the southern four spans and northernmost span, respectively. These numbers likely indicate that these spans were constructed about 1903 and 1914, respectively.

For the purposes of this report, we have numbered the piers from 1 to 4 from north to south and numbered the north and south abutments Abutment 1 and 2, respectively, see Figure 4. Abutments 1 and 2 and Piers 1 and 2 are accessible on land. The east side of Pier 2 was only a few feet from the Salinas River at the time of our site visit. Piers 3 and 4 are located in the river. Abutment 1 is located approximately 320 feet away from the river measured along the railroad alignment. Abutment 2 is on the south river bank. The river bank and bridge abutment fill adjacent to Abutment 2 appeared to be relatively steep and may be undercut. We observed timber piles and rock riprap near and around Abutment 2. These have been installed to provide erosion protection for Abutment 2 and abutment fill.

Drawings that were provided to us show that Abutment 1 is supported on timber piles (Modjeski and Masters, 2001b). The depth to which the piles are driven is not known. No drawings were made available to us for Abutment 2 or the pier foundations. However, in our opinion, it is likely that they are timber pile supported.

The ground near and around the Salinas River bridge is known to be susceptible to liquefaction. Liquefaction, sand boils, and lateral spread were documented following the 1906 San Francisco earthquake and the 1989 Loma Prieta earthquake (Dupré and Tinsley, 1980a, 1980b, 1998; Tinsley, 1998a, 1998b). During a post-Loma Prieta earthquake reconnaissance, Modjeski and Masters (2000) observed damage to Abutment 1, movement of Piers 1 and 2, ground cracking, and lateral spread.

Just west of the railroad, three highway bridges span the Salinas River. The Monte Road Bridge is located a couple hundred feet west of the railroad. It is our understanding that this bridge is owned by Monterey County. Separate northbound and southbound bridges for California Highway 1 are located a couple hundred feet west of the Monte Road Bridge. These two bridges are operated and maintained by the California Department of Transportation (CalTran).

We understand that the Highway 1 bridges were seismically upgraded a few years ago. Foundation upgrades involved installing 6-foot-diameter concrete-filled steel pipes and 8-foot-diameter concrete-filled drilled shafts, on the east and west side of each pier or abutment. These new piles and shafts were connected with the existing bridge piers by extending a pile cap from the new piles to the existing piers. The new piles and shafts were installed to depths on the order of 100 to 130 feet (CalTran, 1997; Parish Consultants, 1997).

Construction activities for seismic upgrade of the Monte Road Bridge were underway during our July 2001 visit to the site. We observed foundation systems similar to those used to seismically upgrade the Highway 1 bridges being installed. The foundation upgrades consist of 6-foot-diameter, concrete-filled steel pipes installed on the east and west side of each of the existing bridge piers and abutments. It is our understanding that these piles will be connected to the existing bridge piers by extending a concrete cap from the new piles to the existing piers.

The contractor personnel reported that the piles were being installed by first vibrating each steel pipe (casing) to a depth of approximately 50 feet and then driving the casings to the design depth (100 to 130 feet) using a diesel hammer. After the casings are driven, the soil inside each casing will be excavated and the casing filled with concrete (Dokken Engineering, 2000; Parikh Consultants, 1998).

3.0 FIELD EXPLORATIONS

Subsurface conditions near the Salinas River Bridge were explored by drilling four soil borings, ranging in depth from 26 to 121.5 feet. The borings were drilled near the west side of Piers 1 and 2, at the approximate locations shown on Figure 4. Three borings were accomplished near Pier 2. The second and third borings near this pier, borings MP 113.46-2b and MP 113.46-2c, were drilled because rock that stopped advance of the drill was encountered in borings MP 113.46-2a and MP 113.46-2b at relatively shallow depth. Possible explanations for the presence of this rock in an area where only alluvial deposits were anticipated are presented elsewhere in this report.

The drilling and soil sampling program is described in Appendix A.

4.0 LABORATORY TESTING

Laboratory tests were performed on selected soil samples obtained from the borings drilled for this project. The samples were tested to determine the basic index properties of the foundation soils. The laboratory testing was performed at the SW laboratory in Seattle, Washington, in general accordance with ASTM standard test procedures. Descriptions of the laboratory tests are presented in Appendix B. Test results are presented in Appendix B or on the boring logs in Appendix A.

5.0 SUBSURFACE INFORMATION FOR NEARBY PROJECTS

To supplement the subsurface information acquired from the borings and laboratory tests, we collected and reviewed subsurface information available from Monterey County and CalTran for the Monte Road Bridge and the Highway 1 bridges (Caltran, 1997; Dokken Engineering, 2000; Parikh Consultants, 1997, 1998). Geologic profiles and laboratory test results that we obtained for these bridges are presented in Appendix C.

6.0 GEOLOGY AND SUBSURFACE CONDITIONS

6.1 General Geology

Our understanding of the geology of the region is based primarily on a review of published United States Geological Survey (USGS) maps and documents, geotechnical reports prepared for highway bridges over the Salinas River, subsurface explorations performed for this project, and our observations. Geologic and liquefaction susceptibility maps for the portion of the line between Castroville and approximately MP 121.5 are presented in Figures 2 and 3. General descriptions of geologic units that occur along the Monterey Branch Line are presented below. These descriptions are based on a geologic map prepared by Dupré and Tinsley (1980a).

6.1.1 Older Flood-Plain Deposits (Qof)

From Castroville to approximately 3/10ths of a mile south of the Salinas River and within the historic flood plain of the Salinas River, the railroad predominantly crosses Older Flood-Plain Deposits. This geologic unit consists of unlithified and normally consolidated relatively fine-grained, deposits of sand and silt, and commonly includes relatively thin, discontinuous layers of clay. These deposits are reportedly as much as 330 feet thick where they fill buried valleys. The depth to the water table is variable, but is generally 10 to 33 feet. These soils are moderately susceptible for liquefaction except where the depth to the water table is greater than 33 feet.

6.1.2 Channel-fill Deposits (Qcf)

Numerous partially or completely filled channels cross the historic Salinas River flood plain. The location of some of these channels are shown on Figure 2. Channel-fill deposits consist primarily of normally consolidated, highly plastic clay, silty clay, and silt overlying moderately well-sorted silt and sand. These materials are deposited in abandoned channels with both older and younger flood-plain deposits. The thickness of these deposits is reportedly generally less than 10 feet. Many of the channel areas have been artificially filled with material that is poorly compacted and prone to subsidence. Expansive soils are common. These areas are poorly drained, groundwater is generally within 10 feet of the surface, and the underlying channel deposits typically have a high susceptibility for liquefaction. Water flows or ponds in channels that have not been filled in.

6.1.3 Younger Flood-Plain Deposits (Qyf, Qyfa)

These deposits consist of unlithified, relatively fine-grained, heterogeneous deposits of sand and silt, and commonly include relatively thin, discontinuous layers of clay. Gravel content increases toward the Santa Cruz Mountains and is locally abundant within channel and lower point bar deposits. The soils have moderate permeability and porosity and a very high susceptibility for liquefaction. The thickness of the deposit is generally less than 20 feet. The depth to the water table is commonly less than 6 feet. Areas underlain by these deposits have a relatively high susceptibility to flooding except in areas where they are protected by artificial levies.

6.1.4 Older Coastal Dune Deposits [Younger Dune Deposits (Qod_1); Older Dune Deposits (Qod_2)]

South of the Salinas River Bridge (MP 113.46) to Seaside, the railroad predominantly crosses coastal dune deposits. These deposits generally consist of weakly lithified, well-sorted fine- to medium-grained sand that was deposited in extensive coastal dune fields during at least two different periods. The thickness of these deposits is not reported by Dupre and Tinsley (1980) and likely varies from a few feet to greater than 50 feet. These soils are generally well-drained and have high porosity and permeability except at the surface. These materials have a low susceptibility for liquefaction except where the water table is within 10 feet of the surface, where the susceptibility for liquefaction may be moderate.

6.1.5 Fladrian Dune Deposits (Qfd)

Sand dune deposits follow the coastline south and north of the Salinas River. South of the river these deposits are designated Fladrian Dune Deposits. The railroad is constructed on or near (east of) these deposits near the southern end of Fort Ord and the northern limit of Seaside. These soils consist of unlithified well-sorted sand that is as much as 100 feet thick and is deposited in a belt of parabolic dunes. These dunes are more than 2,000 feet wide in places. The dunes are relatively stable in their current configuration, vegetative status, and climatic environment. Accelerated erosion could occur, and was observed, where the vegetation is disturbed or where vegetation is not established. These soils are generally well-drained and have high porosity and permeability. The liquefaction potential for these soils ranges from moderate to low, depending on the depth to the water table.

6.2 Liquefaction Susceptibility

The liquefaction susceptibility of soils depends on the soil properties, groundwater depth, terrain, and other factors. In general, areas that have experienced liquefaction during past earthquakes have high susceptibility for liquefaction. A liquefaction susceptibility map for the northern part of the project is presented in Figure 3. According to the Dupré and Tinsley (1980a, 1980b) geologic and liquefaction susceptibility maps, channel-fill deposits and soils near and below the Salinas River have high susceptibility for liquefaction. Liquefaction and lateral spread of soils below and near the Salinas River Bridge were documented following the 1906 San Francisco and 1989 Loma Prieta earthquakes (Dupré & Tinsley, 1980b; Tinsley, et al. 1998a, 1998b; Modjeski and Masters, 2000). Liquefaction and earthquake-induced ground movement may also have contributed to settlement and structural damage that we observed at other bridges along the railroad north of the Salinas River, however, this has not been verified.

The flood deposits and filled-channels north of approximately MP 113.80 have moderate to high liquefaction susceptibility. The liquefaction potential of these soils is increased where groundwater is near the ground surface. Earthquake-induced ground settlement, sand boils, and liquefaction occurred in these materials at numerous sites near the railroad as a result of the 1989 Loma Prieta earthquake (Tinsley et al. 1998a, 1998b). South of the Salinas River flood plain, the dune deposits that the railroad crosses generally have low susceptibility for liquefaction. Higher liquefaction susceptibility may be present where the embankment crosses or is located in low-lying areas where the groundwater is near the surface. No instances of earthquake-induced ground movement, spread, or settlement of railroad embankments on the Monterey Branch Line are reported by Tinsley et al., except near the Salinas River bridge. We are unaware of earthquake ground movement records that may have been developed by or for the former operators of the Monterey Branch Line during a post-Loma Prieta earthquake assessment of the railroad.

7.0 PRELIMINARY RECOMMENDATIONS

7.1 Embankments and Track Section

No subsurface explorations were conducted to evaluate the existing embankments or track section for this preliminary geotechnical engineering report. The following preliminary recommendations are based on discussions with other team members familiar with this line, our observations, and our experience.

7.1.1 Embankment Stability

Based on our observations of the railroad embankments, discussions with STV personnel, probable embankment material borrow source locations, and our experience, it is our opinion that the railroad embankments of the Monterey Branch Line between Castroville and Seaside are generally stable and adequate for their intended use to support Inter-city train traffic. However, we did not perform detailed observations or subsurface explorations of embankment or structure conditions along the entire alignment during these visits. Instances of past instability or areas that are susceptible to instability may be present. Soft track and locations of poor track performance are, in our opinion, most easily and reliably identified by observing embankment, track, and rail performance during rail operations. Other methods of assessing potential soft track locations, such as ground penetrating radar, may also be used, but completion of this type of work is outside our authorized work scope. If marginally stable or previously unstable locations are identified during track reconstruction or rail operations, we recommend that we be notified and given an opportunity to provide site-specific recommendations.

Embankments with relatively steep side slopes, poorly constructed embankments (e.g., poor compaction), and embankments constructed with or over fine-grained and poorly-drained soils are the most likely locations to experience instability. All of these conditions were observed or are suspected to occur along the alignment; however, evidence of past instability at these locations was not noted. Steep slopes that do occur may result from overly steep initial construction, widening of embankment shoulders, undercutting of the bottom of embankment slopes, and other causes. In general, embankment side slopes should be 2 horizontal to 1 vertical (2H:1V) or flatter. Steeper slopes may be acceptable for embankments consisting of and underlain by well-drained granular soils. Flatter slopes may be required for embankments constructed of or founded on other soils. In general, embankment slopes should be uniform from the shoulder to the toe of the slope and constructed at an inclination appropriate for the embankment and foundation soils.

- We recommend that embankments that are undercut be repaired and their toes protected from erosion. In our opinion, overbuilt embankment shoulders should be trimmed until they are approximately 12 feet from track centerline. Excavated material should not be deposited high on embankment slopes. It should be placed near the toe of the slope such that the slope is flattened or disposed of off site. Where this is not possible or practical, site-specific geotechnical recommendations should be developed. Stability of embankment locations that have experienced past instability should be improved by flattening or buttressing slopes, improving surface and subsurface drainage (as appropriate), and draining water from ballast pockets (described elsewhere in this report).

- We recommend that where the shoulder is of insufficient width to retain ballast, as occurs at many locations along the track, the existing embankment should be widened to provide adequate shoulders to retain ballast.

We do not know the reason for large rock being present on the east side of the Salinas River Bridge approach fills. Consequently, we cannot provide recommendations for appropriate evaluation to assess whether the rock is serving its intended function. Three possible explanations for this rock are that (1) it was placed during construction or reconstruction of the embankment, (2) it may have been placed to protect the embankment during floods, and (3) it was placed to buttress the embankments. We recommend monitoring the performance of these embankments and postponing further assessment of them until the final design or construction phase of this project, or until after track defects begin to occur during railroad operations.

7.1.2 Track Section – Ballast and Subballast

In our opinion, the existing ballast is fouled, of poor quality and low durability, consists of rounded particles, and is likely of inadequate thickness. The presence of subballast material was not confirmed, and, based on our experience, it is probable that no subballast is present beneath the ballast for all or the majority of the line.

- For preliminary engineering, we recommend assuming 20 to 24 inches of existing soil and ballast beneath the ties should be removed and replaced with 8 to 12 inches of granular subballast and 12 inches of ballast. An evaluation of subgrade soil strength and the thickness and condition of existing ballast should be made before the required thicknesses of these materials is determined for final design.

- We recommend that the embankment subgrade conditions be evaluated during the final design phase through completion of a number of test pits along the project alignment. We recommend that an allowance for a minimum of one test pit per half mile of track be included in the final design budget. The actual number of test pits required may be greater or less and will depend on subsurface conditions and observations made during future site visits by design team members.

7.2 Drainage

7.2.1 Surface Drainage

An economical means of improving embankment stability and decreasing soft track related maintenance is to improve surface drainage so that runoff water is directed away from the embankment. Water should not be permitted to pond on shoulders or adjacent to embankments.

- We recommend that the embankment be raised as necessary so that it is well above the surrounding ground. We recommend that the top of subballast (approximately 24 inches below the bottom of ties) should be a minimum of 6 inches above adjacent ground.

- We recommend that surface drainage be improved along the railroad so that water flows away from the embankment and does not pond near it. The top of the embankment should be graded so that water will flow away from the track and so that it does not sit or pond on the shoulders.

- We recommend that ditches be cleaned, deepened, widened, and regraded, as appropriate, to convey water away from the track. Hydrologic evaluations may be appropriate in some locations to evaluate the adequacy of ditches. Ditch inverts should be a minimum of 6 inches below the bottom of subballast and a minimum of 3 feet below top of tie.

- We recommend that existing culverts be cleaned, repaired, and replaced as necessary so that water will flow downgrade and away from the embankment. Hydrologic evaluation should be performed to check existing culvert sizes and to size new and replacement culverts. We recommend that the embankments near culvert headwalls and ditches upstream and downstream of culverts be evaluated for past occurrences of erosion and potential to erode. Erosion protection should be provided where the potential for erosion is thought to exist.

7.2.2 Subsurface Drainage

Because much of the track has experienced about 100 years of train traffic and was likely originally poorly constructed (e.g., inadequate compaction, poor quality soils), we anticipate that ballast pockets are present in the embankments along much of the line. Ballast pockets are depressions that form in railroad embankments as a result of train loading, deformation of the embankment or foundation soils, and subsequent addition of ballast to raise or restore the track. Ballast pockets in the embankments may be only a few inches deep to many feet deep. Water trapped in ballast pockets is a major contributor to track settlement and failures, ballast fouling, and other "soft track" conditions.

- We recommend that trench drains be constructed across the embankment to drain ballast pockets that are identified during embankment and track reconstruction. Trench drains should also be constructed to drain ballast pockets in areas that are known or suspected "soft track" locations. Trench drains are gravel-filled trenches that are installed to intercept and drain groundwater. These drains would be installed during the construction phase of the project. For preliminary engineering and project budgeting purposes, we recommend assuming thirty, 8- to 10-foot-deep trench drains and six, 12-foot-deep trench drains along the length of the project. The drains should be assumed to extend beneath both rails and daylight at the toe of one side of the embankment. We expect that most of these drains would be installed north of MP 130.80 and primarily in bridge approach fills and higher embankments. The actual number of trench drains required may be greater or less and will depend on subsurface conditions and observations made during future site visits by design team members and observations made during the construction phase of the project.

Excavation for construction of the trench drains will also provide subsurface information about the embankment and embankment soils and can be used to supplement information obtained through excavation of test pits (discussed previously).

Other types of subsurface drainage may also be appropriate in some locations, e.g., trench drains or pipe subdrains parallel to or away from the track. We recommend that site-specific evaluations and recommendations be developed when candidate locations are identified. We recommend that further assessment of the potential need for these alternative subsurface drainage systems be performed during the final design phase of this project after existing topography and approximate proposed embankment configuration are developed.

7.3 MP 122 Sand Deposits on Track

In our opinion, the track at this location could be cleared by excavating the sand that currently buries it. Excavation slopes on both sides of the track should be 1.75H:1V or flatter. Because the sand dunes in this area are active and sand is frequently transported toward the track by onshore winds, keeping the track open will likely require relatively frequent maintenance. If frequent maintenance to remove sand is not acceptable, we recommend implementation of one of the following methods to reduce the frequency of maintenance and the volume of material that is deposited on the track:

a) Close up the gap between the high points in the beach dunes by filling it with sand and anchoring the sand in place with vegetation. This alternative should be relatively simple to construct, but may change the dynamics of the wind-erosion-deposition environment and may ultimately result in sand deposition at a new location along the track.

b) Plow out the existing road to create a low-wind-velocity zone so that sand is deposited on the road instead of on the track. A sand fence installed in the gap on the dunes west of the road may be required to reduce wind velocities so that the sand is deposited on the road, before it reaches the track. We recommend that vegetation be planted on disturbed surfaces and exposed sand west of the track and around the sand fence.

c) Reshape the existing sand berm between the track and existing road or relocate the berm further west to construct a low wind velocity zone between the berm and the track. This would facilitate deposition of sand on the berm before it reaches the track. We recommend that vegetation be planted on the berm to help hold the sand in place.

d) This alternative is identical to the previous alternative except that a sand fence would be installed as far west as practical on the berm to reduce wind velocities and deposit most of the sand west of the track. We recommend that vegetation be planted on the sand on the berm and around the sand fence to help hold the sand in place.

We observed less evidence of sand migration in well vegetated areas. Since people walking across the dunes apparently disturb the vegetation, we recommend installing erosion resistant walkways such as stairs, pavers, and wood boardwalks. Ice plant or other appropriate vegetation should be planted on the sand to reduce the sand migration rate and help trap sand particles that might otherwise bounce along the ground surface. Geocells or other erosion control materials could be installed over the sand to hold it in place until vegetation is established. Permits may be required to perform construction work on the existing road and in the dunes west of the existing road.

7.4 Minor Bridges

During our July 12, 2001, site visit with Jay Craft of STV, we observed five existing timber bridges between Castroville and the Salinas River. We have not been provided plans for these bridges or their foundations. A review of these plans, if they exist, would be helpful in evaluating their condition and providing recommendations for repair, restoration, and replacement. This information, if available, should be reviewed prior to the final design phase and prior to performing soil explorations for final design. The preliminary engineering recommendations made below are based on our observations, opinions of probable construction methods provided by Jay Craft, interpretation of the regional geology, and our experience. These recommendations are preliminary. Subsurface explorations and engineering analyses should be performed and site-specific analyses and designs should be completed prior to implementation of these recommendations.

7.4.1 MP 111.03

We recommend that the existing bridge at MP 111.03 be evaluated by a structural engineer to determine if this bridge should be replaced. Based on discussions with STV, a replacement bridge would likely consist of a three- to five-span, pre-cast concrete ballast deck structure. Bents with multiple steel or pre-cast concrete piles are likely candidate foundations for this structure. Multiple large-diameter culverts may also be appropriate for replacing the existing bridge, if it is replaced.

For final design, if bridge replacement is recommended, we recommend drilling borings near the proposed replacement abutment locations and adjacent to the slough. Additional borings may be recommended near or at proposed bent locations, depending on the soil conditions encountered in the borings and on access. The borings should be advanced a minimum of 50 feet below the ground surface and a minimum of 10 feet into bearing material. Based on our review of geologic maps for this area, we anticipate that adequate end-bearing material would not be encountered and that bridge piles would be designed as friction piles. For these soil conditions, we recommend that at least one boring be advanced to a depth of 100 feet.

7.4.2 MP 111.93

We recommend that the existing bridge be evaluated by a structural engineer to determine if it should be replaced. Alternatives for replacing this bridge include:

1. Fill in the old channel. This may require installation of a culvert to connect with the existing culvert inlet located just west of the existing bridge. Fill placement would occur within what is probably a wetland. The significance of the potential wetland and issues associated with filling it should be determined. Prior to placing fill, wet, soft, and loose soil should be removed. Construction of the embankment fill may include installation of geosynthetic reinforcement, geotextile fabrics, drainage aggregates, and rock fill. If this alternative is selected, we recommend drilling a single boring to a depth of 30 to 40 feet near the center of the existing bridge.

2. Replace the existing bridge with a single span, pre-cast concrete, ballast-deck bridge supported on new pile-supported abutments. If this alternative is selected, we recommend that borings be drilled at the proposed abutment locations for the replacement bridge. The borings should be advanced a minimum of 50 feet below the ground surface and a minimum of 10 feet into bearing material. Based on our review of geologic maps

for this area, it is likely that adequate bearing material would not be encountered and that bridge piles would be designed as friction piles. For these soil conditions, we recommend that at least one boring be advanced to a depth of 100 feet.

7.4.3 MP 112.54

The existing bridge appears to be in relatively poor condition. We recommend that a structural engineer evaluate the condition of the existing bridge to determine if this bridge should be replaced. Alternatives for replacing this bridge include:

1. Fill in the old channel. This would require installation of a culvert beneath the fill. Fill placement would occur within what is probably a wetland. The significance of the potential wetland and issues associated with filling it should be determined. Prior to placing fill, wet, soft, and loose soil should be removed. Construction of the embankment fill may include installation of geosynthetic reinforcement, geotextile fabrics, drainage aggregates, and rock fill. Installation of the culvert at a skew to the embankment alignment may improve ditch channel hydraulics. If this alternative is selected, we recommend that a single boring to a depth of 30 to 40 feet be drilled near the center of the existing bridge.

2. Replace the existing bridge with a single span, pre-cast concrete, ballast-deck bridge supported on new pile-supported abutments. Realign the existing ditch so that it passes under the bridge at a skew to the embankment alignment. This may improve ditch channel hydraulics. If this alternative is selected, we recommend that borings be drilled at the proposed abutment locations for the replacement bridge. The borings should be advanced a minimum of 50 feet below the ground surface and a minimum of 10 feet into bearing material. Based on our review of geologic maps for this area, it is likely that adequate bearing material would not be encountered and that bridge piles would be designed as friction piles. For these soil conditions, we recommend that at least one boring be advanced to a depth of 100 feet.

7.4.4 MP 112.80

We recommend that this bridge be replaced with an embankment. The fields east and west of the railroad are higher than the ground beneath the bridge and there is nowhere for water to flow to; i.e., no channels, culverts, pipes, or other means to drain water away from the railroad were observed. We recommend that a single 30-foot-deep boring be drilled at this location prior to final design of the embankment. Prior to placing fill, wet, soft, and loose soil should be removed. Construction of the embankment fill may include installation of geosynthetic reinforcement, geotextile fabrics, drainage aggregates, and rock fill.

7.4.5 MP 113.04

We recommend that this bridge be replaced with an embankment. The fields east and west of the railroad are higher than the ground beneath the bridge and there is nowhere for water to flow to; i.e., no channels, culverts, pipes, or other means to drain water away from the railroad were observed. We recommend that a single 30-foot-deep boring be drilled at this location prior to final design of the embankment. Prior to placing fill, wet, soft, and loose soil should be removed. Construction of the embankment fill may include installation of geosynthetic reinforcement, geotextile fabrics, drainage aggregates, and rock fill.

7.5 Salinas River Bridge No. 113.46

7.5.1 Foundation Conditions and Seismic Retrofit

The condition of the foundations of the Salinas River Bridge was not evaluated as part of the preliminary engineering for this project. However, if the existing piers and abutments are timber pile-supported and the piles have been continuously submerged since they were installed, the piles may still be in adequate condition to continue supporting the piers and abutments. We note that although horizontal movement of piers was observed following the 1989 Loma Prieta earthquake, no settlement was reported (Modjeski and Masters, 2000). Thus, the vertical capacity of the piles may be sufficient to support the bridge and low volume rail traffic. Alternatively, the piles at these piers could have been damaged or stressed such that they are inadequate for static loads and would not survive another major earthquake and ground movement. An investigation of the existing piles may be appropriate, but would likely be difficult to accomplish and costly. Even if the foundation conditions is investigated, there would likely be significant uncertainty in intepreting the observations. The decision to further evaluate the existing foundations or to seismically upgrade the foundations or not should be made by TAMC.

In our opinion, if seismic upgrading of the Salinas River Bridge is pursued by TAMC, the foundations of the bridge should also be seismically upgraded. Liquefaction, ground settlement, and lateral spread occurred at or near the bridge during the 1906 and 1989 earthquakes. Lateral spread of the north bank and ground shaking during the 1989 earthquake caused Pier 1 to shift south about 5 inches and Pier 2 to shift east by 6 to 9 inches. The earthquake caused several large fissures in the north bank, which are indicative of southward spread of the ground toward the river (Modjeski and Masters, 2000). Numerous other instances of earthquake-induced ground movement, liquefaction, and sand boils reportedly occurred near the site during the 1989 earthquake (Tinsley et al., 1998a, 1998b).

The nearby northbound and southbound Highway 1 bridges were recently seismically upgraded. Construction for seismically upgrading the Monte Road Bridge was ongoing during our July 2001 site visit. Seismic upgrading of these bridge foundations was generally accomplished by driving 4- to 6-foot-diameter steel pipe piles to depths of more than 100 feet, filling those casings with concrete, and constructing concrete caps on the piles to connect them to the existing bridge foundations.

Borings drilled near Piers 1 and 2 were advanced to a maximum depth of 121.5 feet. In general, with the exception of rock encountered in borings MP 113.46-2a, -2b, and -2c, discussed below, the soil profiles encountered in these borings were similar to those reported for borings completed during subsurface explorations performed for the nearby Monte Road and Highway 1 bridges (see Appendix C). Based on this similarity in soil profile, in our opinion, for preliminary engineering purposes it is appropriate to assume that piles bearing at depths of 100 to 130 feet would likely also be appropriate for seismic retrofit of the Salinas River Bridge. Thus, the bearing depth for these piles would be similar to that used for seismic retrofit of the nearby highway bridges.

If seismic upgrading of the foundations is pursued, we recommend that, at a minimum, during the final design phase of the project, borings should be drilled adjacent to Piers 3 and 4 and Abutments 1 and 2 or near the proposed location of new piers. These borings are necessary to estimate embedment depths at each pile location, evaluate possible obstructions, and develop bid quantities. Borings adjacent to Piers 3 and 4 and Abutment 2 may require that work be performed from a barge or the bridge deck.

The selection of foundation type for seismically retrofitting the existing bridge foundation depends on the construction method and subsurface conditions. Our explorations near Pier 2 (i.e., borings MP 113.46-2a, MP 113.46-2b, and MP 113.46-2c) encountered what may be gravel, cobbles, and possibly larger rock at depths between about 15 to 43 feet. Because of poor sample recovery and difficulty drilling, we do not know the consistency or size of this material. Based on the site geology and interpretation of boring information available for boring MP 113.46-1 and the nearby highway bridges, it is our opinion that this rock does not naturally occur at this location. In our opinion, it is likely that this material was imported to develop access for construction or repair of the piers or bridge spans or for placement of riprap around the piers, or the rock may be riprap placed to fill/repair scour holes or to protect the piers. Similar material may be present near other piers or along the bridge alignment.

In our opinion, it is unlikely that large-diameter steel pipe piles could be driven through the rock encountered near Pier 2 or at other locations where it occurs. If large diameter piles similar to those used to seismically retrofit the nearby highway bridges are selected for the bridge foundation upgrade, alternative means of installing these piles may be necessary. Alternatives include:

1. Excavating and removing the obstructions.
2. Pounding a spud through the obstructions to displace it so that a pipe casing could be installed.
3. Drilling through the obstructions using special bits so that the driven steel casing or drilled shaft pile can be installed.

Because of the special equipment and longer construction time required to install large-diameter foundation piles through potential obstructions, these alternatives may be relatively expensive to implement. Installing a number of smaller diameter piles at locations where rock is encountered may be more readily accomplished and more economical than installing large-diameter piles, although the practicality of doing so is uncertain. The number of smaller diameter piles needed would depend on the lateral capacity requirements and pile diameter. Installation of these piles may require that a spud be pounded through the obstructions to displace them or that this zone be pre-drilled. The piles could then be installed through the spudded or pre-drilled opening. If the obstruction consists of relatively large dimension rock, driving of piles is not recommended as they may be damaged or deflected during driving. Another alternative may be to construct new foundations and move the bridge onto these foundations.

7.5.2 Bridge Instrumentation and Signals

In our opinion, if the existing foundations are not investigated and found to be satisfactory for static (i.e., nonseismic) conditions under railroad loading and the bridge foundations are not seismically retrofitted, it would be appropriate to install instruments on the bridge to monitor bridge performance. We recommend that instruments be installed to monitor for settlement at each pier and abutment. A number of instruments could be used for this purpose. One appropriate system would incorporate the Vertical Movement Detector (VMD) that has been successfully used on Burlington Northern Santa Fe Railway and Union Pacific Railroad lines to monitor for ground settlement. This system is described in Appendix D.

In addition to settlement monitoring instruments, we recommend that TAMC implement operational procedures that address train operations and facilities inspection following a seismic event. TAMC may consider contracting with an organization that would monitor for and provide warning of strong ground motions. An alternative would be to install a strong motion detector near or on the Salinas River Bridge that would detect earthquake-induced ground motions and activate signals if some threshold motion is exceeded.

Settlement and strong motion monitoring instruments should be connected to a signal warning system to stop trains before they cross the bridge if settlement or strong motion is detected. STV Consultants has informed us that they intend to propose limiting train speeds across the bridge to about 20 miles per hour (mph) if foundation upgrades are not performed or if limited bridge structure upgrades are performed. STV proposes installing the signals near either end of the bridge. We understand that there is sufficient sight distance for train operators to see signals installed near the bridge ends and to stop trains operating at 20 mph in response to these signals before the train reaches the bridge.

We recommend that settlement and strong motion monitoring instrumentation and the signal system be designed during the final design stage of this project. Details to be addressed include, but are not limited to, system components, installation of the instruments and vandal protective components, and signal and power requirements and systems. We have been advised by STV that signals, power, and battery backup for a signal system could be installed for about $100,000. VMD instruments installed as described in Appendix D would cost about $40,000 to $50,000. Strong motion detectors and vandal protection equipment may cost another $25,000 to $50,000. The total for the instruments and signals would be on the order of $165,000 to $200,000.

7.5.3 Hydrologic Considerations

Depending on the selected seismic foundation upgrades, the upgraded piers may or may not increase the backwater depth of flood flows beneath the bridge. We recommend that foundation repairs or replacement be selected to limit further restriction of the channel from its existing condition. If new foundations are constructed and the bridge relocated to those foundations, we recommend that for preliminary engineering purposes an allowance be included to remove the existing foundations to about elevation 0 feet.

Hydrologic studies have not been conducted for this preliminary engineering phase of the project. Based on information we obtained for the Highway 1 Bridge and the Monte Road Bridge seismic upgrade project, we expect that if the available river channel is not reduced from its current condition by the proposed foundation repairs or replacement, the design scour depth would likely be on the order of 30 feet (Braithwaite, 2001; Caltran, 1962, 1970). Copies of these reference documents are included in Appendix C. We recommend that this scour depth be assumed for the preliminary engineering phase of this project. We recommend that hydrologic and scour analyses for the Salinas River Bridge be implemented during the final design phase.

7.5.4 Foundation Retrofit Costs

We obtained a copy of the engineer's estimate and low-bid contractor's prices for the Monte Bridge Road seismic upgrade project from the construction manager for Monterey County. These prices are presented in Table 1. These prices may be useful for generating an order-of-magnitude preliminary construction cost estimates for seismically upgrading the existing Salinas River Bridge foundations. We recommend that (1) two piles per existing pier and similar pile lengths be assumed, (2) contingencies be added for piles potentially larger than the 6-foot-diameter piles installed for Monte Road Bridge and for difficult pile installation at piers that may have rock or other obstructions, and (3) the prices be increased for inflation. Based on the Monte Road Bridge seismic retrofit cost data that we obtained from Monterey County Department of Public Works (Table 1), in our opinion , the cost to seismically retrofit the Salinas River Bridge foundations using concrete-filled steel piles would be on the order of $3,000,000. Costs could increase significantly if obstructions are encountered during pile installation.

We recommend that an allowance be made for placing riprap erosion protection around Abutment 2. Scour protection and riprap placement around the piers and Abutment 1 may also be required. We do not have sufficient information to estimate riprap quantities or installation effort at this time. The need for scour protection and material quantities would be determined during the final design phase after topographic and bathymetric surveys and hydrologic evaluations are completed. In our opinion, about 1,000 to 2,000 cubic yards of riprap could be required. The cost to install this material would likely be on the order of $50,000 to $200,000, depending on material quantities, sources, and accessibility. These costs do not include permits required for this work.

8.0 LIMITATIONS

This report was prepared for the exclusive use of STV and TAMC for specific application to the preliminary design phase for proposed upgrades to the Monterey Branch Line between Catroville and Seaside, California, as it relates to the geotechnical aspects discussed in the report. The data and report should be provided to other engineering and consulting firms involved in the preliminary engineering phase of this project for information based on factual data only and not as a warranty of subsurface conditions, such as those interpreted from the explorations or discussed elsewhere in this report.

The analyses, conclusions, and recommendations presented in this report were prepared in accordance with generally accepted professional geotechnical engineering principles and practice in this area at this time. No other warranty, either express or implied, is made. The analyses, conclusions, and recommendations contained in this report are based on site conditions as they existed during our site visits, and further assume that the explorations are representative of the subsurface conditions throughout the site; i.e., the subsurface conditions everywhere are not significantly different from those disclosed by the explorations. Additional explorations have been proposed and, in our opinion, should be accomplished during the final design phase of this project.

Unanticipated conditions are commonly encountered and cannot be fully determined by explorations and site observations. Such unexpected conditions frequently require that additional expenditures be made to achieve a properly constructed project. Therefore, some contingency fund is recommended to accommodate such potential extra costs. If subsurface conditions different from those described in this report are observed or appear to be present during construction, we should be advised at once so that we can review these conditions and reconsider our recommendations, where necessary.

If there is a substantial lapse of time between the submission of this report and the start of work at the site, or if conditions have changed because of natural forces or construction operations at or adjacent to the site, we recommend that this report be reviewed to determine the applicability of the conclusions and recommendations, considering the changed conditions and time lapse.

Construction observation and quality control and assurance are important to the successful implementation of any construction project. We recommend that they be incorporated for the proposed track and structure upgrades. Shannon & Wilson advocates that the "Observational Method" be used for the proposed construction. This method recognizes that limited information is known about the subsurface conditions and that subsurface conditions may vary. The method uses information learned from observations that are made during the work to modify the design or construction so that the desired objective is achieved. Shannon & Wilson could provide construction observation services and provide the oversight that would be required for implementation of the observational method.

The scope of our services for this report did not include any environmental assessment or evaluation regarding the presence or absence of wetlands, endangered species, or hazardous or toxic materials in the soil, surface water, groundwater or air at the subject site. Shannon & Wilson has prepared the attached "Important Information About Your Geotechnical Report" to assist you and others in understanding the use and limitations of our reports (Appendix E).

In providing opinions of probable construction cost, TAMC should understand that Shannon & Wilson has no control over the cost or availability of labor, equipment, or materials, or over market conditions or the contractors' method of pricing, and that our opinions of probable construction costs are made on the basis of our professional judgment and experience. Shannon & Wilson makes no warranty, express or implied, that the bids or the negotiated cost of the work will not vary from our opinion of probable construction cost.

SHANNON & WILSON, INC.

Stanley R. Boyle
Associate

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER A. ROBERTSON
No. GE 2471
EXP 9/30/05
GEOTECHNICAL
STATE OF CALIFORNIA

12/18/01

Christopher R. Robertson, P.E., G.E.
Senior Associate

SRB:CAR:DNM/srb

9.0 REFERENCES

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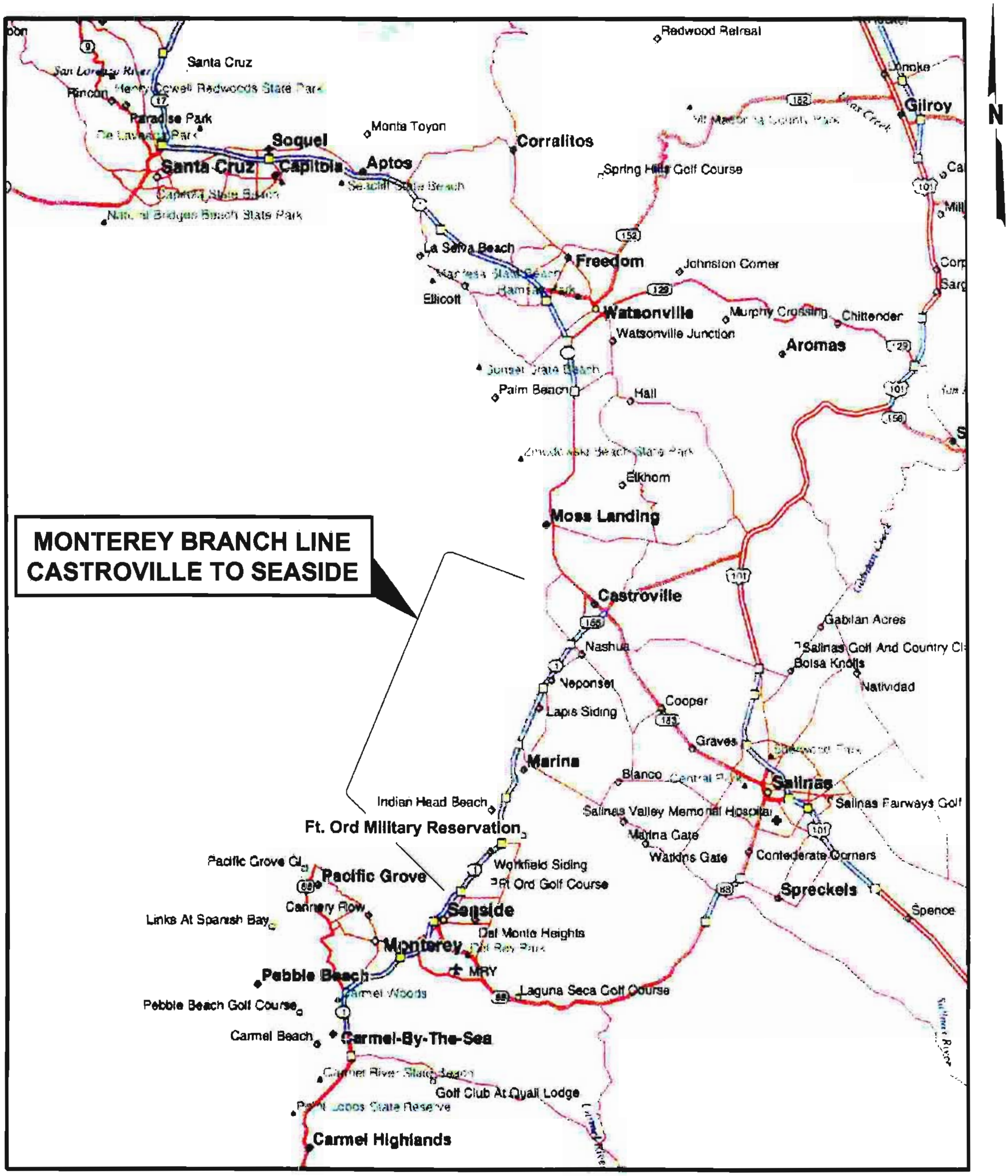
TABLE 1
BID SUMMARY FOR BRIDGE SEISMIC RETROFIT: MONTE ROAD BRIDGE [1,2]

				Engineers Estimate		Low Bid Contractor	
Item No.	Item	Unit of Meas.	Estimated Quantity	Item Price	Extended Total	Item Price	Extended Total
1	Partnering	LS	1	$2,000	$2,000	$1	$1
2	Resident Engineer's Office	LS	1	$20,000	$20,000	$10,000	$10,000
3	Construction Signs	LS	1	$10,000	$10,000	$2,000	$2,000
4	Traffic Control System	LS	1	$150,000	$150,000	$6,000	$6,000
5	Trimming	LS	1	$3,000	$3,000	$4,500	$4,500
6	Structure Excavation (Bridge)	CY	112	$64.00	$7,168	$125.00	$14,000
7	Structure Backfill (Bridge)	CY	62	$66.00	$4,092	$140.00	$8,680
8	Furnish 72" Cast-in-Steel-Shell Concrete Piling [3]	LF	1387	$550.00	$762,850	$290.00	$402,230
9	Drive 72" Cast-in-Steel-Shell Concrete Piling [3]	EA	12	$65,000.00	$780,000	$80,000	$960,000
10	Structure Concrete (Bridge)	CY	402	$580.00	$233,160	$500.00	$201,000
11	Bar Reinforcing Steel (Bridge)	LB	347,500	$0.65	$225,875	$0.75	$260,625
12	Structural Steel (Bridge)	LB	130,000	$2.80	$364,000	$4.00	$520,000
13	Clean and Paint Structural Steel	LS	1	$41,000	$41,000	$30,000	$30,000
14	Spot Blast Clean and Paint Undercoat	SF	1050	$49.00	$51,450	$40	$42,000
15	Work Area Monitoring	LS	1	$10,000	$10,000	$12,000	$12,000
16	Mobilization	LS	1	$296,488.33	$296,488	$220,000	$220,000
	Monte Bridge Subtotal				**$2,961,083**		**$2,693,036**

Notes:
1. Bid Summary from Monterey County Department of Public Works (2001).
2. See Appendix C for General Plan of Monte Bridge Earthquake Retrofit.
3. It is our understanding that bid items 8 and 9 include furnishing steel shell, driving steel shell, excavating material from within shell, concrete filling, and all other miscellaneous activities associated with installation of the piling.



0 5 10

Distance In Miles

NOTE

Map adapted from Delorme Street Atlas USA, Version 7.0, dated 1999.

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VICINITY MAP

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FIG. 1

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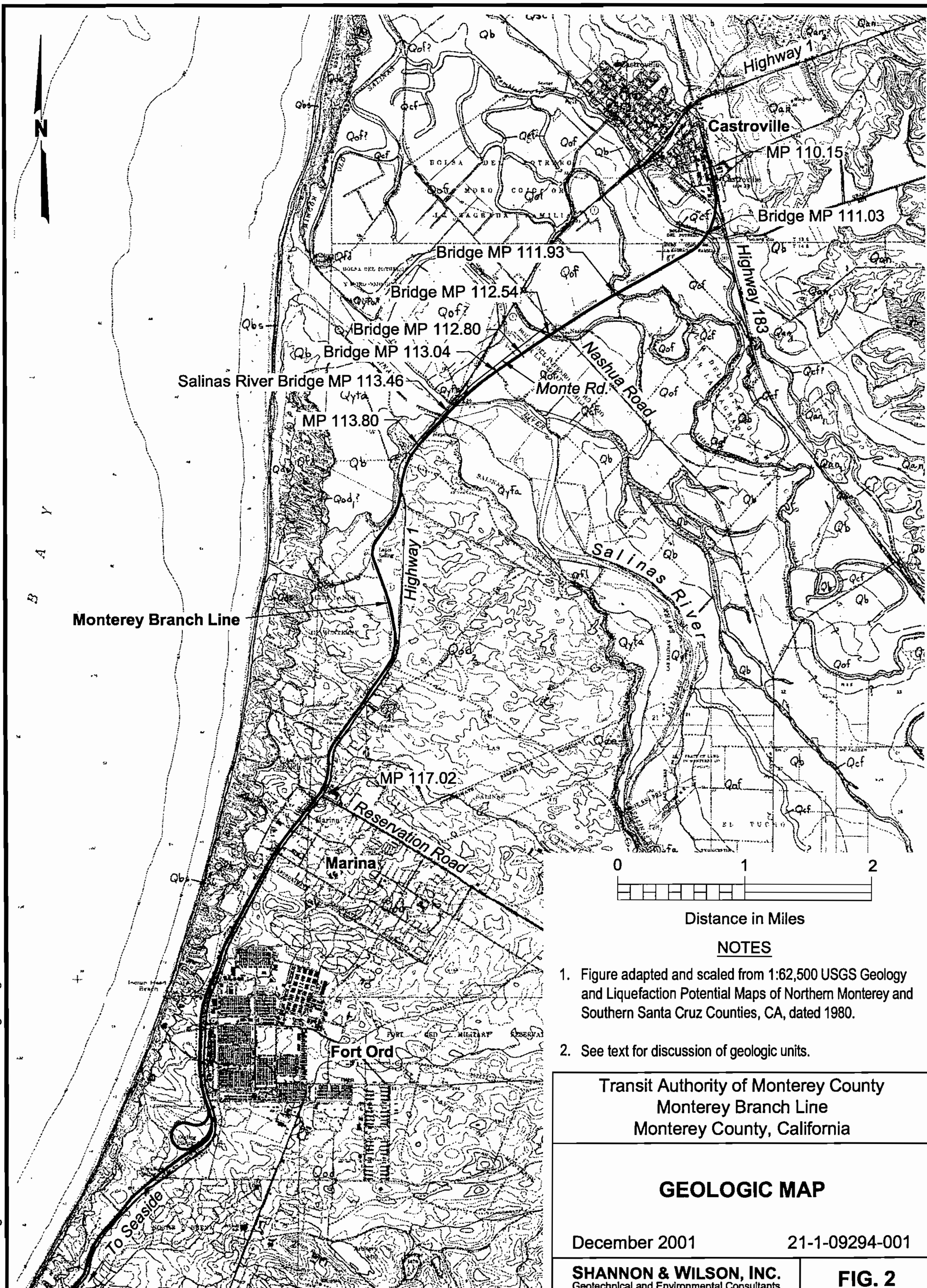

NOTES

1. Figure adapted and scaled from 1:62,500 USGS Geology and Liquefaction Potential Maps of Northern Monterey and Southern Santa Cruz Counties, CA, dated 1980.
2. See text for discussion of geologic units.

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Monterey County, California

GEOLOGIC MAP

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FIG. 2

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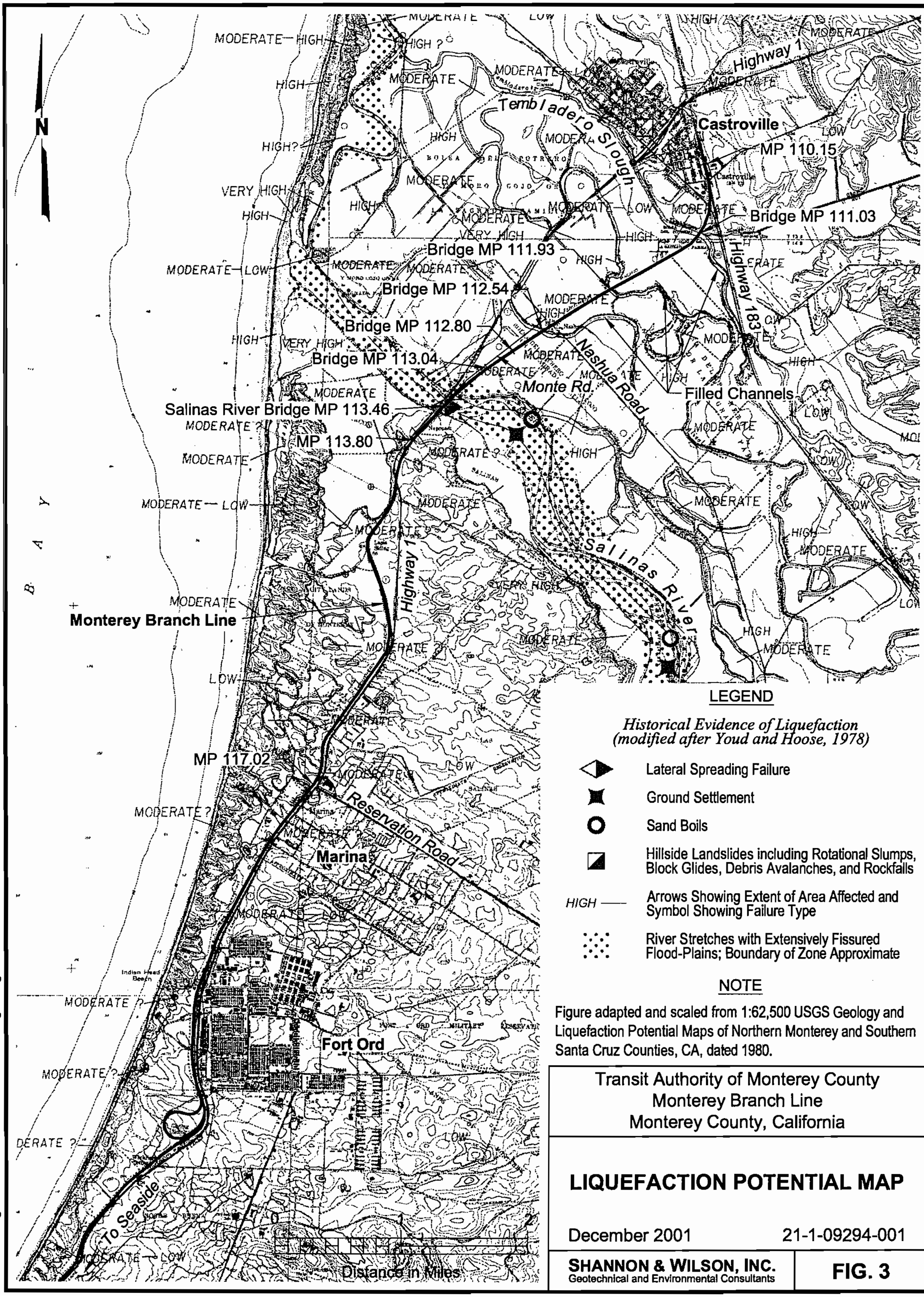

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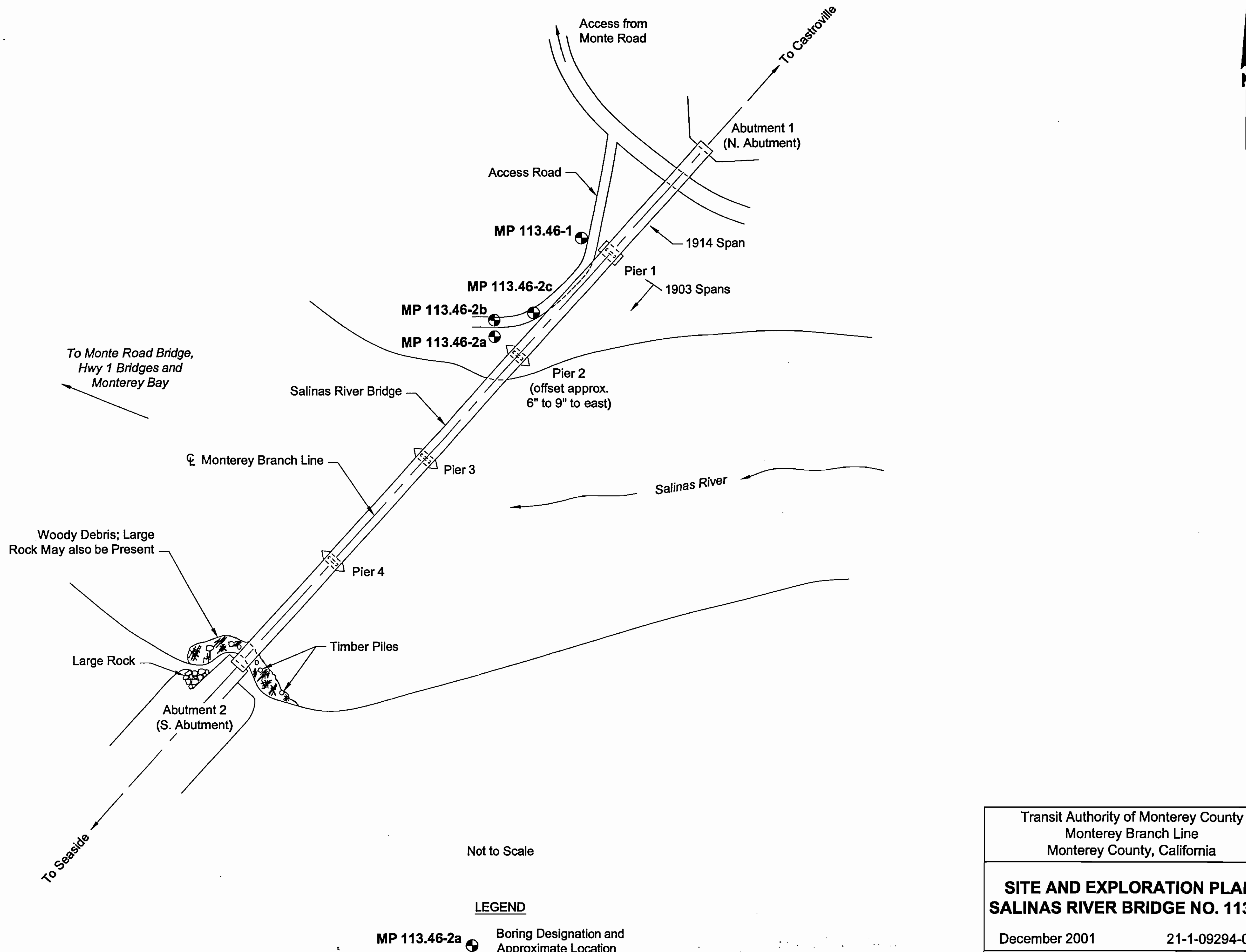

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SITE AND EXPLORATION PLAN:
SALINAS RIVER BRIDGE NO. 113.46

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FIG. 4

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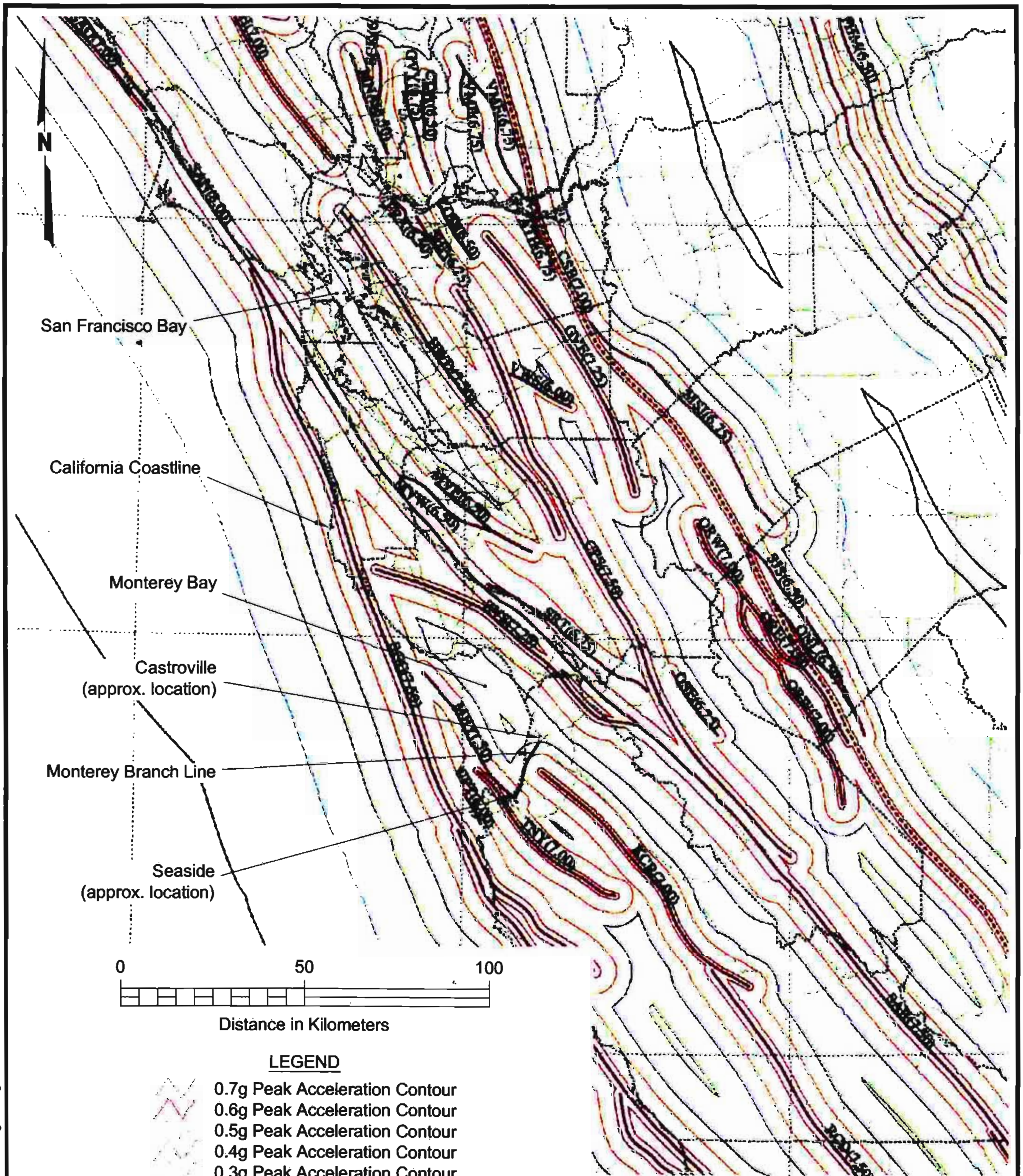

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SEISMIC HAZARD MAP

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FIG. 5

File: I:\Drafting\211\09294-001\21-1-09294-001 Fig 5.dwg Date: 12-17-2001 Author: cnk

APPENDIX A

SUBSURFACE EXPLORATION PROGRAM

APPENDIX A

SUBSURFACE EXPLORATION PROGRAM

TABLE OF CONTENTS

LIST OF FIGURES

Figure No.

APPENDIX A

SUBSURFACE EXPLORATION PROGRAM

Subsurface conditions at the site were explored by drilling four soil borings with a Holemaster – Failing 250 track-mounted drill rig. The explorations were performed by Pitcher Drilling Company of Santa Clara, California, under subcontract to Shannon & Wilson, and were completed on July 11 and 12, 2001. The borings were performed using mud-rotary techniques with a 4 7/8-inch-diameter tricone bit. During mud-rotary drilling, drilling mud consisting of a bentonite slurry, is pumped out of a mud tank at the ground surface, down the drill rods, out through the bit, up the annulus of the hole between the drill rods and borehole, and back into the mud tank. The circulation of drilling mud removes the cuttings generated during the drilling process from the hole and carries them to the surface where they are allowed to settle out in the mud tank. The drilling mud also keeps the hole from caving or collapsing during sampling. Samples are obtained by removing the drill rods and drill bit from the borehole, removing the drill bit from the drill rods, attaching a sampler to the drill rods, and lowering the sampler to the bottom of the hole.

A total of four borings were accomplished, ranging in depth from 26 to 121.5 feet. The borings were drilled near the west side of Piers 1 and 2, at the approximate locations shown on Figure 4. When planning the preliminary engineering phase explorations for this project we proposed to complete three borings near Salinas River Bridge No. 113.46 to depths of about 100 feet. The proposed borings were to be located near Piers 1, 2 and 4. The boring proposed near Pier 4 was eliminated from the preliminary engineering phase explorations because (1) drilling for that boring would have to be performed from a barge or from the bridge deck and would have cost more than was budgeted for this work (the bridge deck would need upgrading to provide access), (2) explorations completed near Piers 1 and 2 appeared to confirm that the soil profile at the Salinas River Bridge was similar to that encountered in the explorations that were performed for the nearby highway bridges, (3) we obtained a significant amount of subsurface data for the nearby highway bridges that should be generally applicable to our site, and (4) additional explorations were required near Pier 2 because gravel, cobbles, or larger rock were encountered in borings drilled near that pier, thus using up some of the money that was budgeted for drilling near Pier 4. Two of the three borings drilled near Pier 2 could not advance through the gravels, cobbles, or rock that they encountered. In our opinion, the explorations that we completed and the information obtained for the nearby highway bridges are sufficient for preliminary engineering purposes.

Boring locations were determined by measuring with a steel or cloth tape from existing site features. The ground surface elevation was estimated based on information found in reports prepared for seismic upgrade of the Monte Road Bridge and the Highway 1 bridges (Parikh Consultants, 1997, 1998). A Shannon & Wilson geologist was on site to observe the borings. Soil samples were visually classified in the field and returned to our lab for testing and further classification. Boring logs are presented in this appendix.

Standard Penetration Tests (SPTs) were performed in borings MP 113.46-1, MP 113.46-2a, and MP 113.46-2c. In borings MP 113.46-1 and MP 113.46-2a, SPTs were performed at 5-foot intervals at depths less than 40 feet and at 10-foot intervals thereafter. No sampling was performed in boring MP 113.46-2b or in the upper 50 feet of boring MP 113.46-2c. SPTs were performed at 10 foot intervals at depths of 50 feet and greater in boring MP 113.46-2c. The SPT tests were performed in general accordance with the American Society for Testing and Materials (ASTM) Designation D 1586, Standard Method for Penetration Test and Split-Barrel Sampling of Soils. The SPT consists of driving a 2-inch outside-diameter (O.D.) split-spoon sampler a total distance of 18 inches into the bottom of the boring with a 140-pound hammer falling 30 inches. The number of blows required to cause the last 12 inches of penetration is termed the Standard Penetration Resistance (N-value) and is shown on the boring logs. A rope wrapped around a cat-head was used to raise the hammer prior to each blow.

Shannon & Wilson, Inc. (S&W), uses a soil classification system modified from the Unified Soil Classification System (USCS). Elements of the USCS and other definitions are provided on this and the following page. Soil descriptions are based on visual-manual procedures (ASTM D 2488-93) unless otherwise noted.

S&W CLASSIFICATION OF SOIL CONSTITUENTS

- MAJOR constituents compose more than 40 percent, by weight, of the soil. Major consituents are capitalized (i.e., SAND).
- Minor constituents compose 12 to 50 percent of the soil and precede the major constituents (i.e., silty SAND). Minor constituents preceded by "slightly" compose 5 to 12 percent of the soil (i.e., slightly silty SAND).
- Trace constituents compose 0 to 5 percent of the soil (i.e., slightly silty SAND, trace of gravel).

MOISTURE CONTENT DEFINITIONS

Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, from below water table

ABBREVIATIONS

ATD	At Time of Drilling
Elev.	Elevation
ft	feet
FeO	Iron Oxide
HSA	Hollow Stem Auger
ID	Inside Diameter
in	inches
lbs	pounds
Mon.	Monument cover
N	Blows for last two 6-inch increments
NA	Not applicable or not available
NP	Non plastic
OD	Outside diameter
OVA	Organic vapor analyzer
PID	Photo-ionization detector
ppm	parts per million
PVC	Polyvinyl Chloride
SS	Split spoon sampler
SPT	Standard penetration test
USC	Unified soil classification
WLI	Water level indicator

GRAIN SIZE DEFINITION

DESCRIPTION	SIEVE NUMBER AND/OR SIZE
FINES	< #200 (0.8 mm)
SAND*	
- Fine	#200 to #40 (0.8 to 0.4 mm)
- Medium	#40 to #10 (0.4 to 2 mm)
- Coarse	#10 to #4 (2 to 5 mm)
GRAVEL*	
- Fine	#4 to 3/4 inch (5 to 19 mm)
- Coarse	3/4 to 3 inches (19 to 76 mm)
COBBLES	3 to 12 inches (76 to 305 mm)
BOULDERS	> 12 inches (305 mm)

* Unless otherwise noted, sands and gravels, when present, range from fine to coarse in grain size.

RELATIVE DENSITY / CONSISTENCY

COARSE-GRAINED SOILS		FINE-GRAINED SOILS	
N, SPT, BLOWS/FT.	RELATIVE DENSITY	N, SPT, BLOWS/FT.	RELATIVE CONSISTENCY
0 - 4	Very loose	Under 2	Very soft
4 - 10	Loose	2 - 4	Soft
10 - 30	Medium dense	4 - 8	Medium stiff
30 - 50	Dense	8 - 15	Stiff
Over 50	Very dense	15 - 30	Very stiff
		Over 30	Hard

WELL AND OTHER SYMBOLS

Cement/Concrete	Asphalt or Cap
Bentonite Grout	Slough
Bentonite Seal	Ash
Silica Sand	Bedrock
PVC Screen	
Vibrating Wire	

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Monterey Branch Line
Monterey County, California

SOIL CLASSIFICATION AND LOG KEY

August 2001 | 21-1-09294-001

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FIG. A-1
Sheet 1 of 2

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)
(From ASTM D 2487-98 & 2488-93)

MAJOR DIVISIONS			GROUP/GRAPHIC SYMBOL	TYPICAL DESCRIPTION
COARSE-GRAINED SOILS *(more than 50% retained on No. 200 sieve)*	Gravels *(more than 50% of coarse fraction retained on No. 4 sieve)*	Clean Gravels *(less than 5% fines)*	GW	Well-graded gravels, gravels, gravel/sand mixtures, little or no fines
			GP	Poorly graded gravels, gravel-sand mixtures, little or no fines
		Gravels with Fines *(more than 12% fines)*	GM	Silty gravels, gravel-sand-silt mixtures
			GC	Clayey gravels, gravel-sand-clay mixtures
	Sands *(50% or more of coarse fraction passes the No. 4 sieve)*	Clean Sands *(less than 5% fines)*	SW	Well-graded sands, gravelly sands, little or no fines
			SP	Poorly graded sand, gravelly sands, little or no fines
		Sands with Fines *(more than 12% fines)*	SM	Silty sands, sand-silt mixtures
			SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS *(50% or more passes the No. 200 sieve)*	Silts and Clays *(liquid limit less than 50)*	Inorganic	ML	Inorganic silts of low to medium plasticity, rock flour, sandy silts, gravelly silts, or clayey silts with slight plasticity
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		Organic	OL	Organic silts and organic silty clays of low plasticity
	Silts and Clays *(liquid limit 50 or more)*	Inorganic	MH	Inorganic silts, micaceous or diatomaceous fine sands or silty soils, elastic silt
			CH	Inorganic clays or medium to high plasticity, sandy fat clay, or gravelly fat clay
		Organic	OH	Organic clays of medium to high plasticity, organic silts
HIGHLY-ORGANIC SOILS	Primarily organic matter, dark in color, and organic odor		PT	Peat, humus, swamp soils with high organic content (see ASTM D 4427)

NOTES

1. Dual symbols *(symbols separated by a hyphen, i.e., SP-SM, slightly silty fine SAND)* are used for soils with between 5% and 12% fines or when the liquid limit and plasticity index values plot in the CL-ML area of the plasticity chart.

2. Borderline symbols *(symbols separated by a slash, i.e., CL/ML, silty CLAY/clayey SILT; GW/SW, sandy GRAVEL/gravelly SAND)* indicate that the soil may fall into one of two possible basic groups.

Transit Authority of Monterey County
Monterey Branch Line
Monterey County, California

SOIL CLASSIFICATION AND LOG KEY

August 2001 21-1-09294-001

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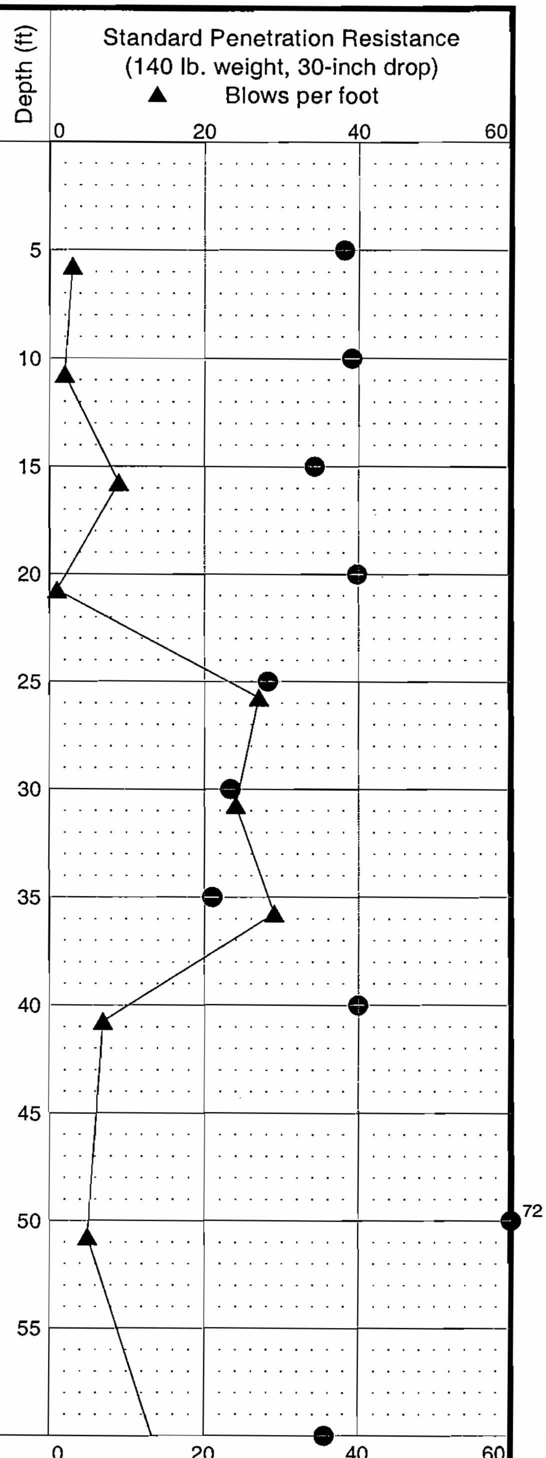
FIG. A-1
Sheet 2 of 2

SOIL DESCRIPTION Surface Elevation: Approx. 10 Ft.	Depth (ft)	Samples	Ground Water
Loose, light brown, silty fine SAND, trace of gravel; dry to moist; massive; (Fill) SM.			
Very loose to loose, brown to dark gray, slightly silty to silty fine SAND; wet; faintly bedded, abundant silt seams with trace of clay at top, scattered iron oxide pockets at top, abundant wood fragments toward bottom; SM/SP-SM. - seam of slightly silty sand at 6.2 feet - seam of dark gray, silty clay at 11.3 feet	4.5	1, 2, 3	During Drilling
Very loose, dark gray, slightly fine sandy to fine sandy SILT; wet; bedded with seams of fine sand, abundant organic-rich seams; ML.	19.5	4	
Medium dense, gray, slightly silty SAND (fine to medium, trace of coarse); wet; bedded, locally trace of fine gravel; SP-SM. - gravel inferred from drilling between 25.9 and 26.9 feet - gradational contact at 39.5 feet	25.0	5, 6, 7	
Medium stiff, dark gray, silty CLAY; wet to moist; massive; CH. - abundant 3-inch slightly silty sand seams between 39.5 and 43.0 feet - scattered shell fragments at 57.0 feet	39.5	8, 9	
CONTINUED NEXT PAGE	59.0		



CONTINUED NEXT PAGE

LEGEND

- * Sample Not Recovered
- 2-inch O.D. Split Spoon Sample
- 3-inch O.D. Shelby Tube Sample
- Ground Water Level ATD

● % Water Content

Plastic Limit ├─●─┤ Liquid Limit
Natural Water Content

NOTES

1. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
2. The discussion in the text of this report is necessary for a proper understanding of the nature of the subsurface materials.
3. Groundwater level, if indicated above, is for the date specified and may vary.
4. Refer to KEY for explanation of "Symbols" and definitions.
5. USCS designation is based on visual-manual classification and selected laboratory index testing.

Transit Authority of Monterey County
Monterey Branch Line
Monterey County, California

LOG OF BORING MP113.46-1

August 2001 21-1-09294-001

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

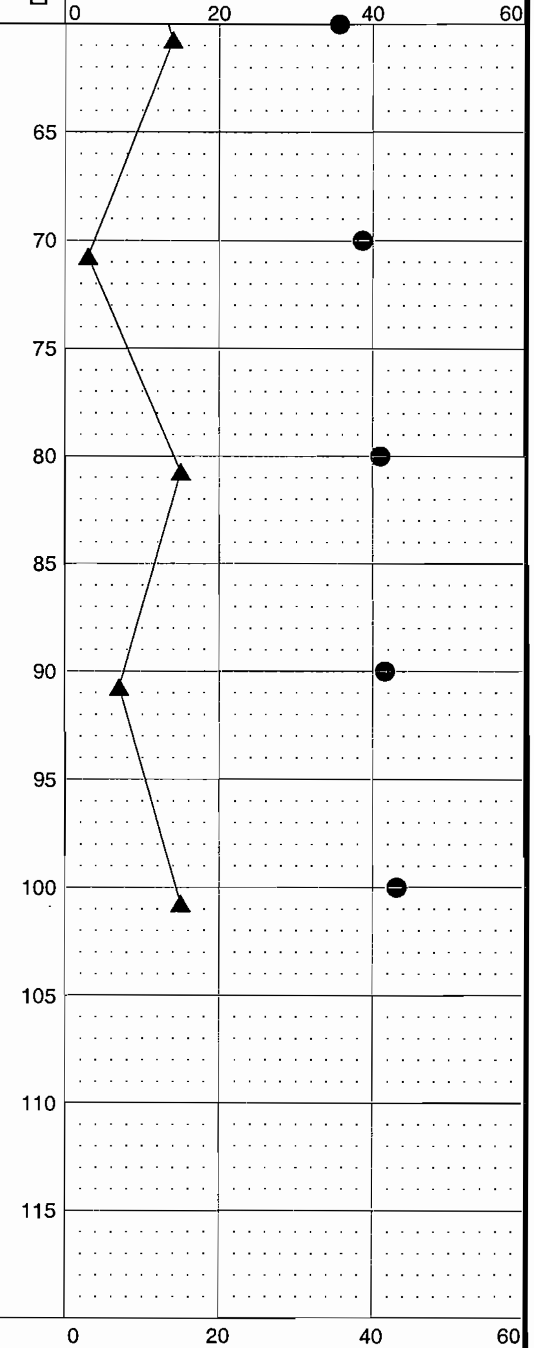
FIG. A-2
Sheet 1 of 2

Log: WDN Rev: SRB Typ: EET

MASTER_LOG 21-09294.GPJ SHAN_WIL.GDT 8/21/01

SOIL DESCRIPTION Surface Elevation: Approx. 10 Ft.	Depth (ft)	Symbol	Samples	Ground Water
Soft to stiff, gray to dark gray, slightly fine sandy SILT, trace of clay; moist; massive, bioturbated with sand pockets, abundant fine organic fragments; ML. - 2-inch silty fine sand seam at 70.6 feet	70.8		10, 11	
Soft to stiff, gray, silty CLAY, trace of sand; moist; massive, abundant randomly oriented discontinuous fractures, scattered organics; CL.	87.0		12	
Medium stiff, gray, clayey SILT, trace of fine sand; moist; massive, bioturbated with abundant sandy pockets, abundant organic fragments; ML/CL.	91.3		13	
Stiff, gray, silty CLAY; moist; massive; CL/CH.	101.5		14	
BOTTOM OF BORING COMPLETED ON 07/11/2001				

Standard Penetration Resistance
(140 lb. weight, 30-inch drop)
▲ Blows per foot



● % Water Content

Plastic Limit ├──●──┤ Liquid Limit
Natural Water Content

LEGEND

* Sample Not Recovered
Ⅰ 2-inch O.D. Split Spoon Sample
Ⅱ 3-inch O.D. Shelby Tube Sample
▽ Ground Water Level ATD

NOTES

1. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
2. The discussion in the text of this report is necessary for a proper understanding of the nature of the subsurface materials.
3. Groundwater level, if indicated above, is for the date specified and may vary.
4. Refer to KEY for explanation of "Symbols" and definitions.
5. USCS designation is based on visual-manual classification and selected laboratory index testing.

Transit Authority of Monterey County
Monterey Branch Line
Monterey County, California

LOG OF BORING MP113.46-1

August 2001 21-1-09294-001

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. A-2
Sheet 2 of 2

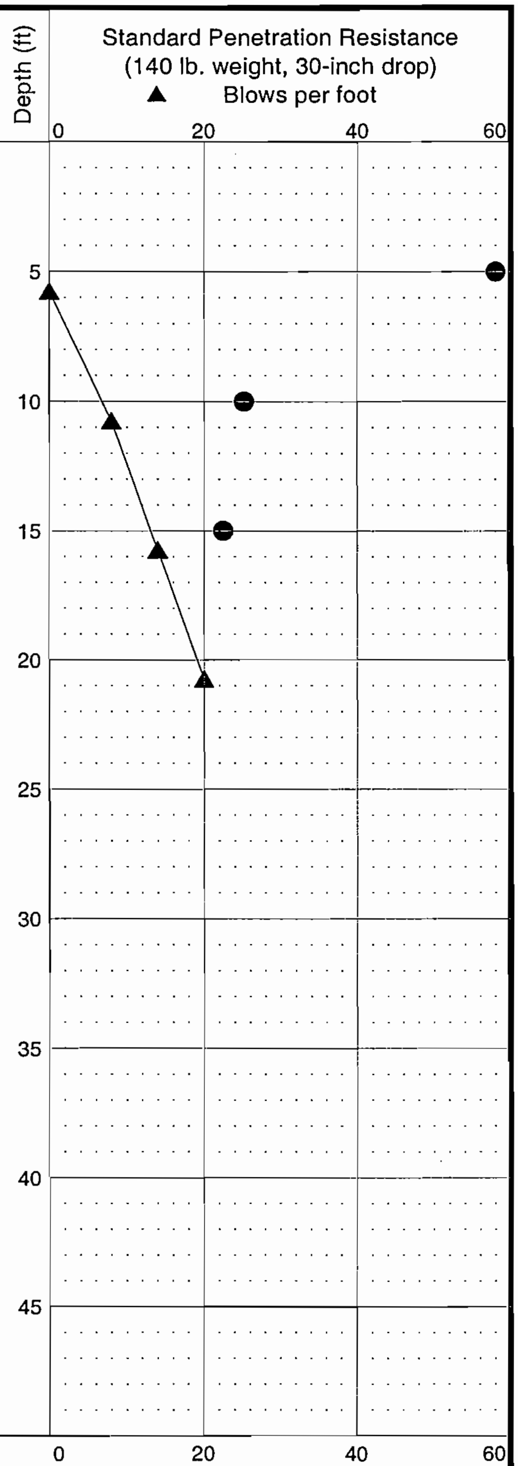
MASTER_LOG 21-09294.GPJ SHAN_WIL.GDT 8/21/01 Log: WDN Rev: SRB Typ: EET

SOIL DESCRIPTION

Surface Elevation: Approx. 9 Ft.

Soil Description	Depth (ft)
Loose, brown, silty fine SAND; dry; massive; SM.	2.0
Very soft, dark gray, slightly clayey SILT, trace of fine sand; wet; massive, abundant organics; ML.	7.0
Loose to medium dense, light gray, fine to medium SAND, trace of silt, trace to slightly gravelly; wet; massive (gravel appears to be angular, granitic ballast rock); SP.	16.5
Medium dense, gray, slightly silty, sandy GRAVEL; wet; (soil inferred from cuttings and drill action); GP-GM. - gravelly, inferred from drill action from 16.5 to 19.5 feet and from 23.5 to 30.0 feet	30.0

Samples: 1, 2, 3, 4



BOTTOM OF BORING
COMPLETED 07/12/2001

Notes:

(1) Driller lost all drilling fluid circulation in open work gravel and cobbles after penetrating a cobble/boulder at 23.5 feet. The borehole subsequently caved from 30.0 to 17.5 feet.

(2) Based on the drill cuttings, the gravel/cobble/boulder composition appeared granitic with some sedimentary clasts.

(3) Boring was terminated at 30.0 feet and redrilled at location (MP113.46-2b).

Log: WDN Rev: SRB Typ: EET

LEGEND

- * Sample Not Recovered
- 2-inch O.D. Split Spoon Sample
- 3-inch O.D. Shelby Tube Sample
- ∇ Ground Water Level ATD

● % Water Content

Plastic Limit ├─●─┤ Liquid Limit
Natural Water Content

NOTES

1. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
2. The discussion in the text of this report is necessary for a proper understanding of the nature of the subsurface materials.
3. Groundwater level, if indicated above, is for the date specified and may vary.
4. Refer to KEY for explanation of "Symbols" and definitions.
5. USCS designation is based on visual-manual classification and selected laboratory index testing.

Transit Authority of Monterey County
Monterey Branch Line
Monterey County, California

LOG OF BORING MP113.46-2a

August 2001 — 21-1-09294-001

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. A-3

MASTER_LOG 21-09294.GPJ SHAN_WIL.GDT 8/21/01

SOIL DESCRIPTION Surface Elevation: Approx. 9 Ft.	Depth (ft)	Symbol	Samples	Ground Water	Depth (ft)	Standard Penetration Resistance (140 lb. weight, 30-inch drop) ▲ Blows per foot (0 20 40 60)
- gravel and/or cobbles encountered between 15.0 and 16.5 feet - gravel and/or cobbles encountered between 20.0 and 24.5 feet - driller lost drilling fluid circulation in open-work gravel/cobbles at 24.5 feet - borehole subsequently caved between 20.0 and 26.0 feet.	26.0				5 10 15 20 25 30 35 40 45	

BOTTOM OF BORING
COMPLETED 07/12/2001

Notes:

(1) Boring MP113.46-2b was not sampled due to existing soil information from MP113.46-2a to 30.0 feet.

(2) Refer to boring MP113-46-2a for the soil descriptions above 15.0 feet.

(3) The soil descriptions for this boring are based on drill action and cuttings return.

Boring moved to third location (MP113.46-2c) and redrilled.

0 20 40 60

● % Water Content

Plastic Limit ├──●──┤ Liquid Limit
Natural Water Content

LEGEND

- * Sample Not Recovered
- ⌶ 2-inch O.D. Split Spoon Sample
- Ⅱ 3-inch O.D. Shelby Tube Sample
- ⊻ Ground Water Level ATD

NOTES

1. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
2. The discussion in the text of this report is necessary for a proper understanding of the nature of the subsurface materials.
3. Groundwater level, if indicated above, is for the date specified and may vary.
4. Refer to KEY for explanation of "Symbols" and definitions.
5. USCS designation is based on visual-manual classification and selected laboratory index testing.

Transit Authority of Monterey County
Monterey Branch Line
Monterey County, California

LOG OF BORING MP113.46-2b

August 2001 21-1-09294-001

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FIG. A-4

MASTER_LOG 21-09294.GPJ SHAN_WIL.GDT 8/21/01 Log: WDN Rev: SRB Typ: EET

SOIL DESCRIPTION Surface Elevation: Approx. 8.5 Ft.	Depth (ft)	Symbol	Samples	Ground Water	Depth (ft)	Standard Penetration Resistance (140 lb. weight, 30-inch drop) ▲ Blows per foot (0 20 40 60)
Notes: (1) Boring MP113.46-2c was drilled without sampling to 50.0 feet. Refer to borings MP113.46-2a (S-1 through S-4) and MP113.46-2b for soil descriptions. (2) The soil descriptions for this boring at depths less than 50 feet are based on drill action and cuttings return.					5 10	
- gravel, inferred from drill action, between 15.0 and 16.5 feet					15	
- gravel/cobbles, inferred from drill action, between 20.0 and 24.5 feet					20	
- driller notes sandy soils, inferred from drill action, from 24.5 to 30.0 feet					25 30 35	
- gravelly at 38.5 feet - gravelly between 40.5 and 42.5 feet					40	
Medium stiff, dark gray, silty CLAY; moist; massive; CH.	42.5				45	75

CONTINUED NEXT PAGE

0 20 40 60

LEGEND

- * Sample Not Recovered
- 2-inch O.D. Split Spoon Sample
- 3-inch O.D. Shelby Tube Sample
- ⊽ Ground Water Level ATD

● % Water Content

Plastic Limit ├─●─┤ Liquid Limit
Natural Water Content

NOTES

1. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
2. The discussion in the text of this report is necessary for a proper understanding of the nature of the subsurface materials.
3. Groundwater level, if indicated above, is for the date specified and may vary.
4. Refer to KEY for explanation of "Symbols" and definitions.
5. USCS designation is based on visual-manual classification and selected laboratory index testing.

Transit Authority of Monterey County
Monterey Branch Line
Monterey County, California

LOG OF BORING MP113.46-2c

August 2001 21-1-09294-001

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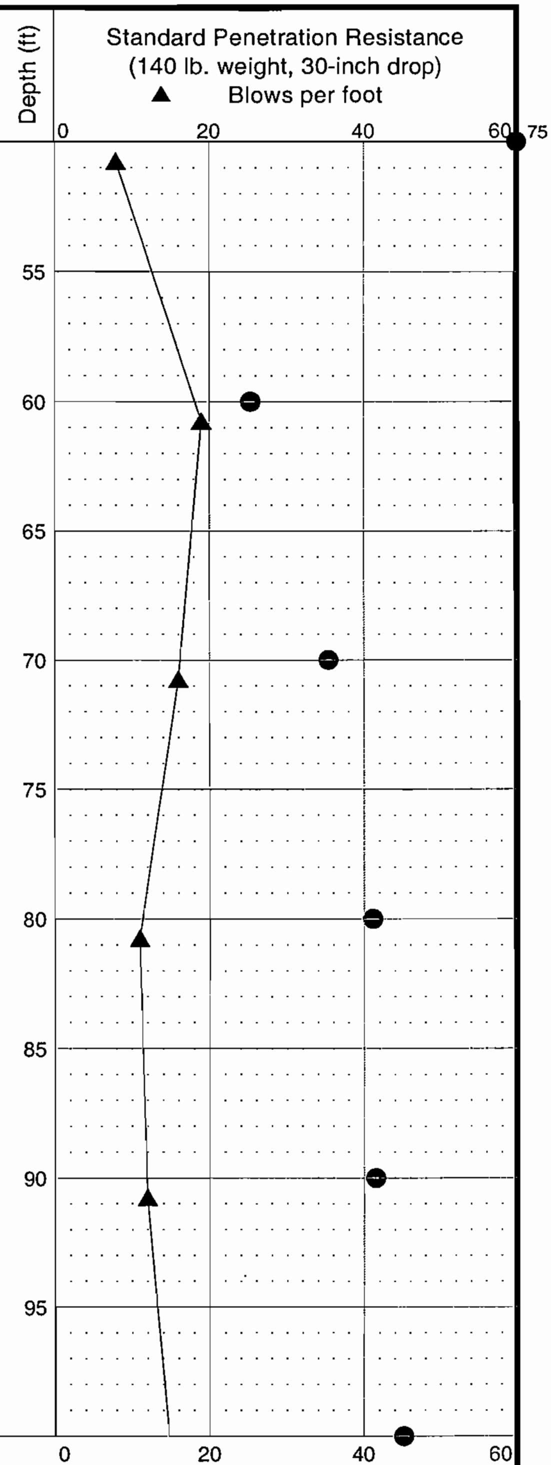
FIG. A-5
Sheet 1 of 3

MASTER_LOG 21-09294.GPJ SHAN_WIL.GDT 8/21/01 Log: WDN Rev: SRB Typ: EET

SOIL DESCRIPTION	Depth (ft)	Symbol	Samples	Ground Water
Surface Elevation: Approx. 8.5 Ft.				
			5	
Medium dense, gray, silty fine SAND; moist; bedded, scattered organic fragments; SM.	60.2		6	
Stiff to very stiff, gray, silty CLAY, trace of sand; moist to wet; abundant organic fragments, abundant randomly oriented discontinuous fractures; CL.	60.8		7, 8	
Stiff, gray, clayey SILT, trace of fine sand to slightly clayey, fine sandy SILT; moist to wet; bedded, scattered organic fragments; ML/CL.	89.2		9	
Stiff, gray, silty CLAY; moist; massive, scattered organics, abundant randomly oriented discontinuous fractures; CL.	92.0			

CONTINUED NEXT PAGE



LEGEND

- * Sample Not Recovered
- ⌶ 2-inch O.D. Split Spoon Sample
- Ⅱ 3-inch O.D. Shelby Tube Sample
- ∇ Ground Water Level ATD

NOTES

1. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
2. The discussion in the text of this report is necessary for a proper understanding of the nature of the subsurface materials.
3. Groundwater level, if indicated above, is for the date specified and may vary.
4. Refer to KEY for explanation of "Symbols" and definitions.
5. USCS designation is based on visual-manual classification and selected laboratory index testing.

Transit Authority of Monterey County
Monterey Branch Line
Monterey County, California

LOG OF BORING MP113.46-2c

August 2001 21-1-09294-001

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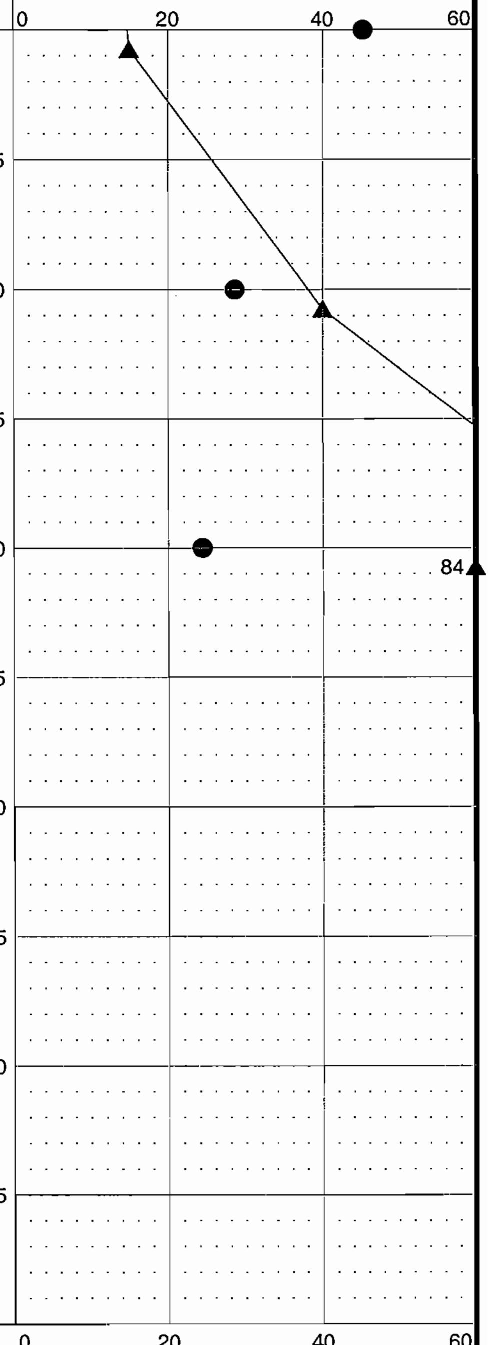
FIG. A-5
Sheet 2 of 3

SOIL DESCRIPTION Surface Elevation: Approx. 8.5 Ft.	Depth (ft)	Symbol	Samples	Ground Water	Depth (ft)
			10		
Dense to very dense, gray, slightly silty to silty fine SAND; moist; massive, locally silty at top; SP-SM/SM.	108.5		11		
			12		
BOTTOM OF BORING COMPLETED 07/12/2001	121.5				

Standard Penetration Resistance
(140 lb. weight, 30-inch drop)
▲ Blows per foot



● % Water Content

Plastic Limit ├─●─┤ Liquid Limit
Natural Water Content

LEGEND

* Sample Not Recovered
2-inch O.D. Split Spoon Sample
3-inch O.D. Shelby Tube Sample
Ground Water Level ATD

NOTES

1. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
2. The discussion in the text of this report is necessary for a proper understanding of the nature of the subsurface materials.
3. Groundwater level, if indicated above, is for the date specified and may vary.
4. Refer to KEY for explanation of "Symbols" and definitions.
5. USCS designation is based on visual-manual classification and selected laboratory index testing.

Transit Authority of Monterey County
Monterey Branch Line
Monterey County, California

LOG OF BORING MP113.46-2c

August 2001 21-1-09294-001

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FIG. A-5
Sheet 3 of 3

APPENDIX B

LABORATORY TESTS

APPENDIX B

LABORATORY TESTS

TABLE OF CONTENTS

Page

FIGURE

Figure No.

APPENDIX B

LABORATORY TESTS

B.1 VISUAL CLASSIFICATION

All of the soil samples recovered from the borings were visually reclassified in our laboratory using a system based on American Society for Testing and Materials (ASTM) Designation D 2487, Standard Test Method for Classification of Soil for Engineering Purposes and/or ASTM Designation D 2488, Standard Recommended Practice for Description of Soils (Visual-Manual Procedure). This visual classification method allows for convenient and consistent comparison of soils from widespread geographic areas.

The individual sample classifications have been incorporated into the boring logs presented in Appendix A.

B.2 MOISTURE CONTENT DETERMINATION

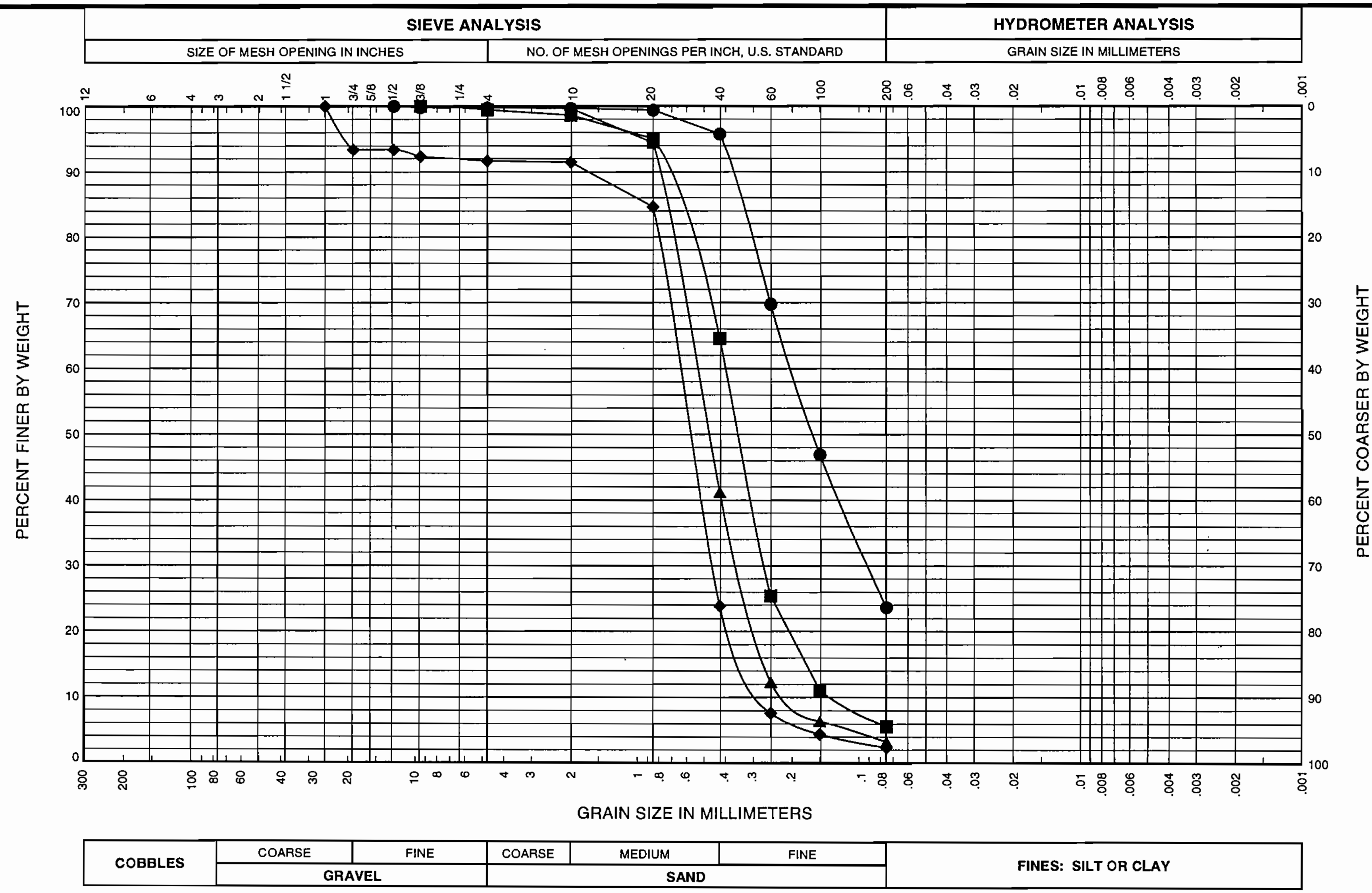
The moisture content of all soil samples recovered from the field explorations was determined in general accordance with ASTM Designation D 216, Standard Method of Laboratory Determination of Water (Moisture) Content of Soil, Rock, and Soil-Aggregate Mixtures. Comparison of natural water content of a soil with its index properties can be useful in characterizing soil unit weight, consistency, compressibility, and strength.

Moisture contents are plotted on the boring logs presented in Appendix A.

B.3 GRAIN-SIZE ANALYSIS

Grain-size analyses were performed on selected samples of granular soil in general accordance with ASTM Designation D 422, Standard Method for Particle-Size Analysis of Soils. Only sieve analyses were performed for our work, i.e., hydrometer analyses to determine the grain-size distribution of particles smaller than the U.S. Standard Number 200 sieve were not performed.

Grain-size distribution is used to assist in classifying soils and evaluating their liquefaction potential, and to provide correlation with soil properties, including permeability and capillarity. Results of the grain-size analyses are plotted on a grain-size distribution curve presented in Appendix B, Figure B-1. Along with each grain-size distribution is a tabulated summary containing the sample distribution, percentage of fines passing the No. 200 sieve, and natural moisture content.



BORING AND SAMPLE NO.	DEPTH (feet)	U.S.C.S. SYMBOL	SAMPLE DESCRIPTION	FINES %	NAT. W.C. %	LL %	PL %	PI %
● MP113.46-1, S-3	15.0	SM	Light gray, silty, fine SAND; scattered organics	23.6	34.2			
■ MP113.46-1, S-6	30.0	SP-SM	Light gray, slightly silty, fine to medium SAND, trace of gravel	5.6	23.3			
▲ MP113.46-2a, S-2	10.0	SP	Light gray, fine to medium SAND, trace of silt	3.2	25.2			
◆ MP113.46-2a, S-3	15.0	SP	Light gray, slightly gravelly, fine to medium SAND, trace of silt	2.3	22.5			

Transit Authority of Monterey County
Monterey Branch Line
Monterey County, California

GRAIN SIZE DISTRIBUTION

August 2001 21-1-09294-001

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. B-1

GSAMAIN1 21-09294.GPJ SHAN WIL.GDT 12/19/01

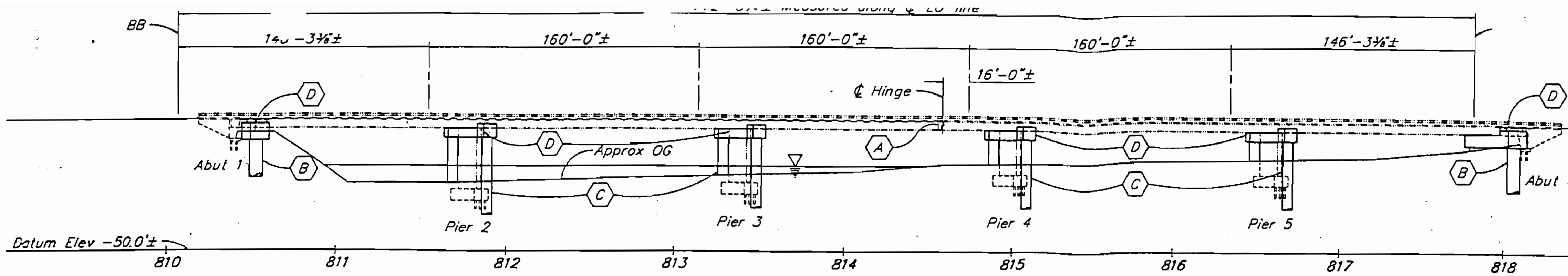
FIG. B-1

APPENDIX C

SUPPLEMENTAL GEOTECHNICAL INFORMATION FOR HIGHWAY BRIDGES OVER SALINAS RIVER

APPENDIX C

TABLE OF CONTENTS



ELEVATION
1" = 40'

05

REGISTERED CIVIL ENGINEER
4/11/97
PLANS APPROVAL DATE

BIGGS CARDOSA ASSOCIATES INC.
1871 THE ALAMEDA, SUITE 200
SAN JOSE, CALIFORNIA 95126

REGISTERED PROFESSIONAL ENGINEER
ROY M. SCHNABEL
No. C46828
Exp. 6-30-98
CIVIL
STATE OF CALIFORNIA

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

RETROFIT LEGEND

- (A) Install pipe seat extenders & construct diaphragm bolsters
- (B) Construct 8'-0" dia CIDH piles
- (C) Install 6'-0" dia CISS piles
- (D) Construct transverse beam

LEGEND:

- - - - Indicates existing structure
- —— Indicates new construction
- A/5 Indicates section no. / Indicates sheet no. shown on
- 1/6 Indicates detail no. / Indicates sheet no. shown on

NOTES:

1. See 'Abutment Retrofit Details' sheet for General Notes
2. See 'Pile Details' sheets for Pile Data Tables

INDEX TO BRIDGE PLANS

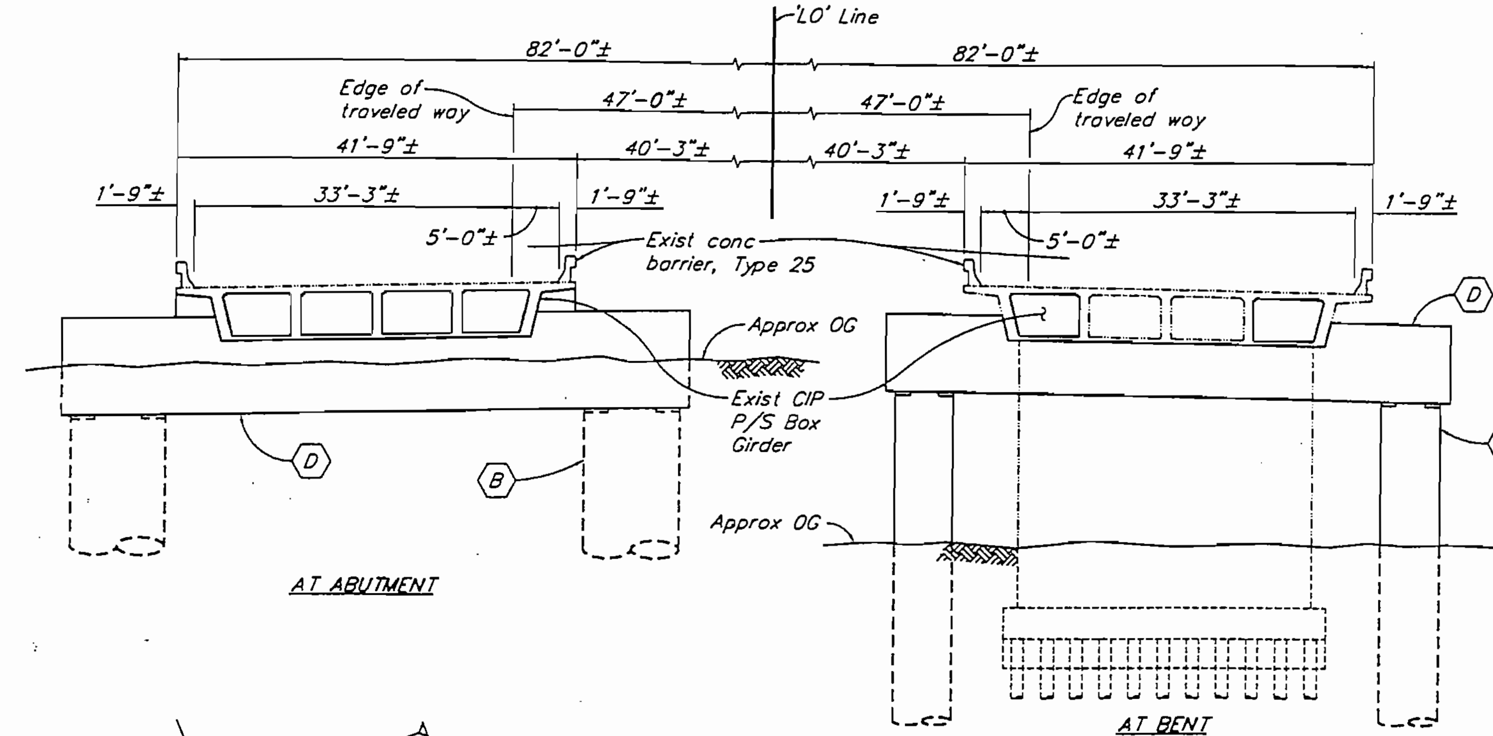
SHEET	TITLE
1	GENERAL PLAN
2	ABUTMENT RETROFIT LAYOUT
3	ABUTMENT RETROFIT DETAILS
4	BENT RETROFIT LAYOUT
5	BENT RETROFIT DETAILS
6	HINGE RETROFIT LAYOUT
7	HINGE RETROFIT DETAILS
8	PILE DETAILS NO. 1
9	PILE DETAILS NO. 2
10	LOG OF TEST BORINGS 1 OF 2
11	LOG OF TEST BORINGS 2 OF 2
12	AS-BUILT LOG OF TEST BORINGS 1 OF 2
13	AS-BUILT LOG OF TEST BORINGS 2 OF 2

STANDARD PLAN DATED JULY 1992

A10A/B	ABBREVIATIONS & SYMBOLS
B0-1	BRIDGE DETAILS

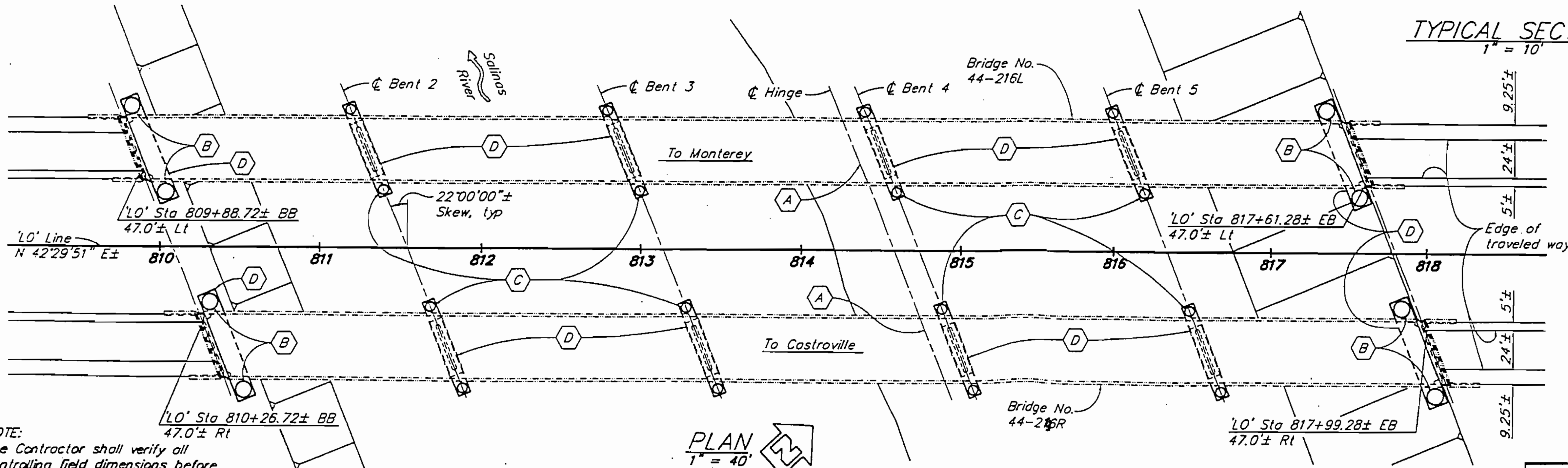
ABBREVIATIONS

Approx	Approximate
CIDH	Cast-in-drilled-hole
CISS	Cast-in-steel shell
eq	Equal
P/S	prestress



TYPICAL SECTION
1" = 10'

PS&E



PLAN
1" = 40'

NOTE:
The Contractor shall verify all controlling field dimensions before ordering or fabricating any material

DESIGN	BY I. S. LI	CHECKED S. A. METZLER	LOAD FACTOR DESIGN			
DETAILS	BY I. S. LI	CHECKED S. A. METZLER	LAYOUT	BY R. E. MOE	CHECKED	S. A. METZLER
QUANTITIES	BY A. DING	CHECKED C. A. LAWRENCE	SPECIFICATIONS	BY R. M. SCHNABEL	PLANS AND SPECS COMPARED	S. A. METZLER

PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

ROY M. SCHNABEL
PROJECT ENGINEER

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 59X850-23
EA 05-413321

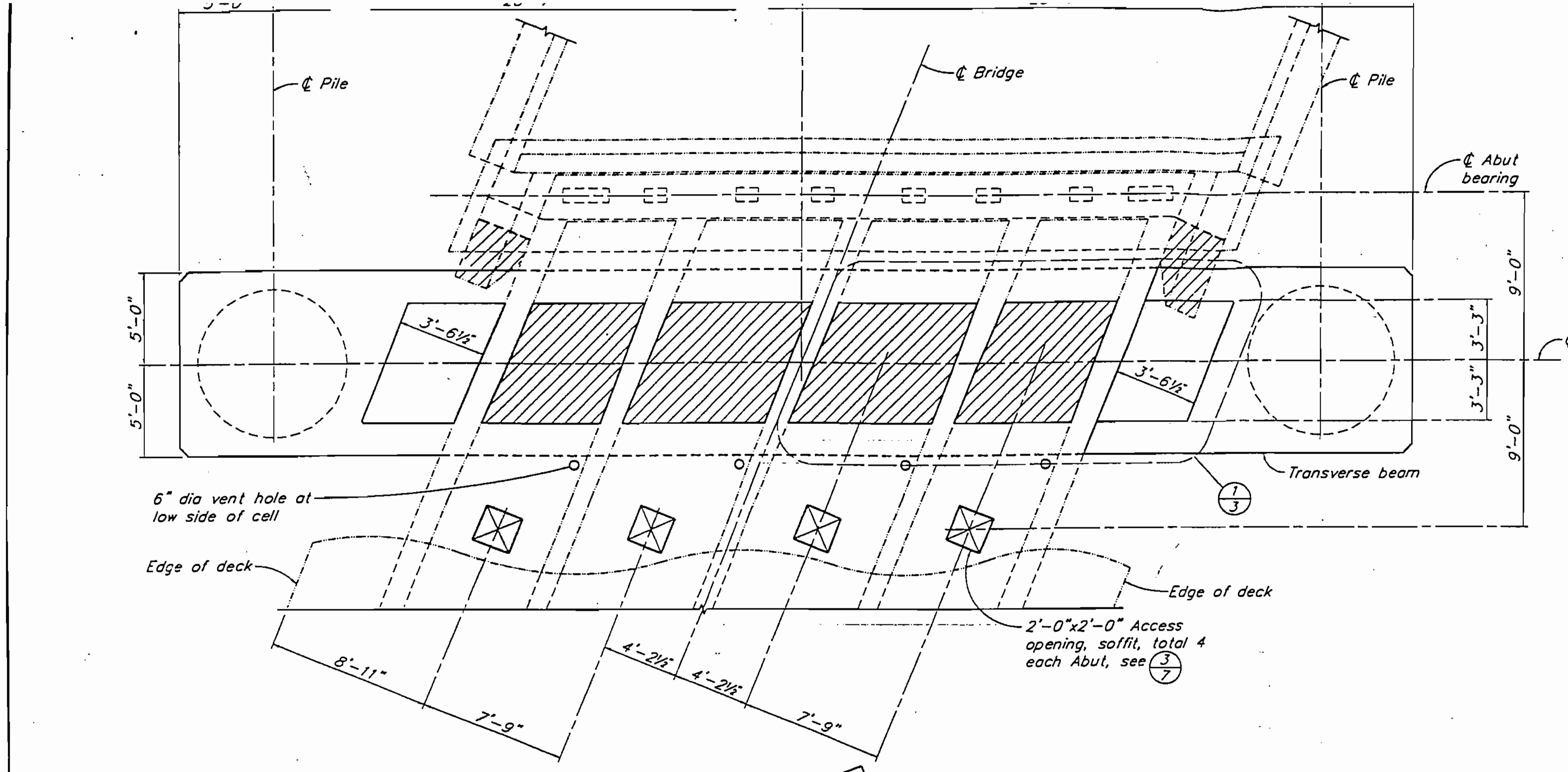
BRIDGE NO. 44-216R/L
POST MILE 89.2

DISREGARD PRINTS BEARING EARLIER REVISION DATES

EARTHQUAKE RETROFIT PROJECT No. 818
SALINAS RIVER BRIDGE
GENERAL PLAN

REVISION DATES (PRELIMINARY STAGE ONLY) 2/24/97 3/24/97 4/11/97

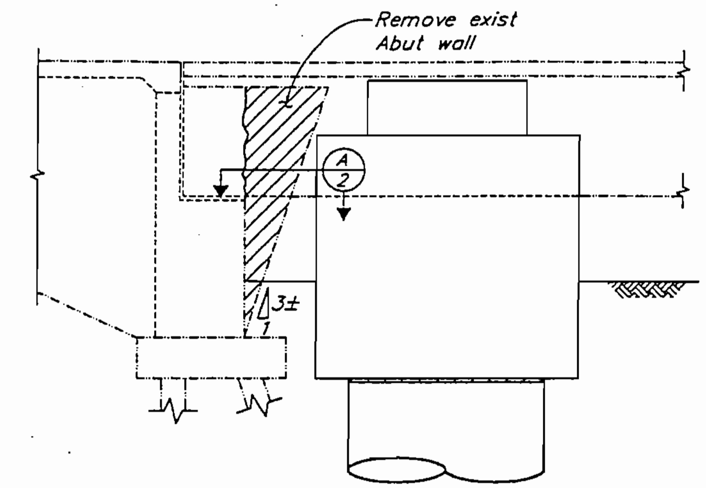
SHEET 1 OF 13



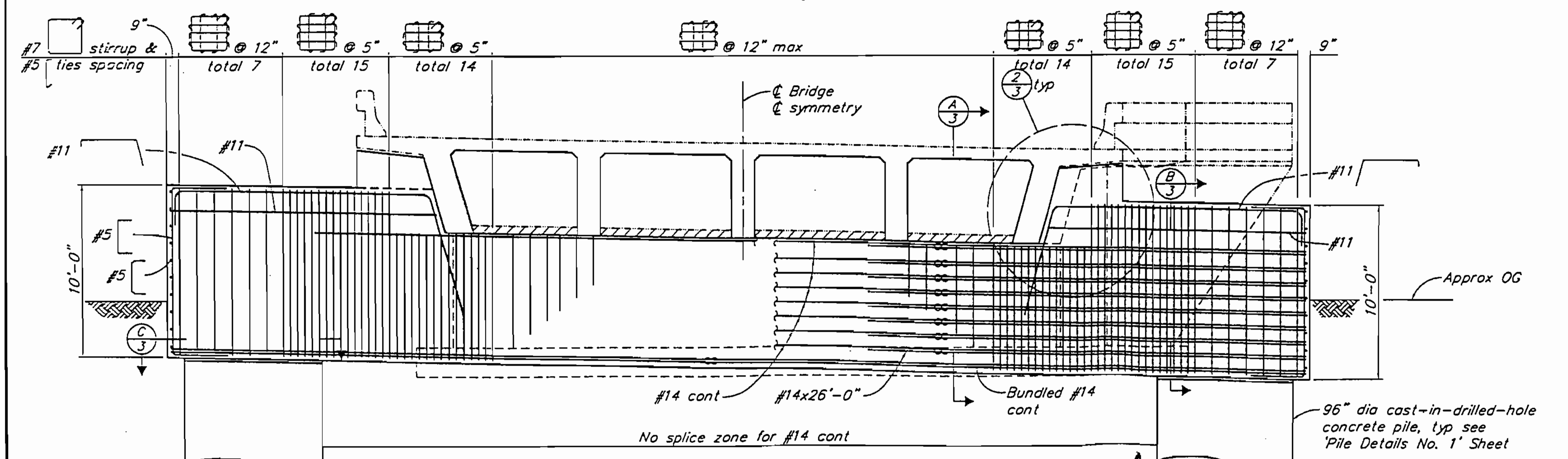
PLAN
1/4" = 1'-0"

Notes:
1. All dimensions measured along ℄ bent except the dimensions to access openings
2. Abut 1L shown, Abut 1R, 6L & 6R similar
3. Stirrups & ties to be placed normal to ℄ bent and spaced along ℄ bent
4. Box girder soffit shall not be removed on two adjacent cells simultaneously at any time during retrofit construction

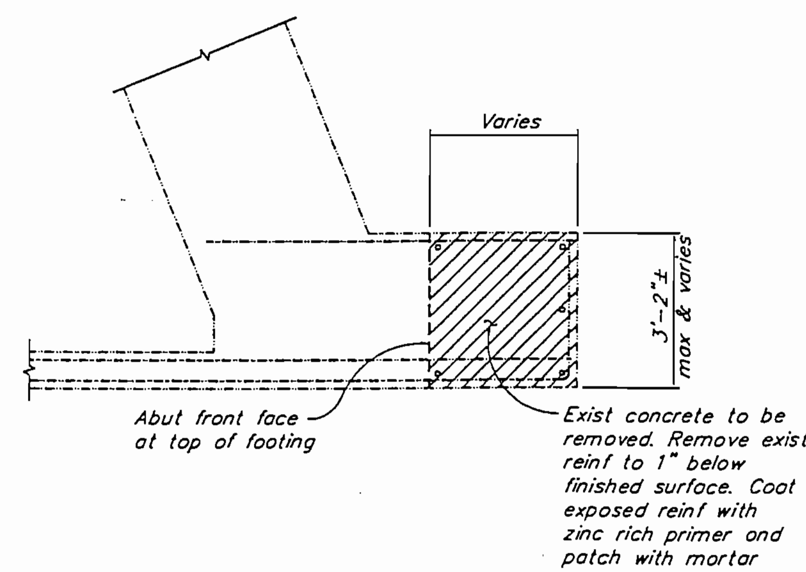
Legend:
Indicates bundled bars
Indicates concrete to be removed



WINGWALL ELEVATION
1/4" = 1'-0"



ELEVATION
1/4" = 1'-0"



SECTION A/2
1/2" = 1'-0"

NOTE:
The Contractor shall verify all controlling field dimensions before ordering or fabricating any material

05

REGISTERED CIVIL ENGINEER
4/11/97
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER ROY M. SCHNABEL No. C46828 Exp. 6-30-98 CIVIL STATE OF CALIFORNIA

BIGGS CARDOSA ASSOCIATES INC.
1871 THE ALAMEDA, SUITE 200
SAN JOSE, CALIFORNIA 95126

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

DESIGN	BY I. S. LI	CHECKED S. A. METZLER	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
DETAILS	BY I. S. LI	CHECKED S. A. METZLER	
QUANTITIES	BY A. DING	CHECKED C. A. LAWRENCE	

DESIGN OVERSIGHT
SIGN OFF DATE

ROY M. SCHNABEL
PROJECT ENGINEER

BRIDGE NO. 44-216R/L
POST MILE 89.2

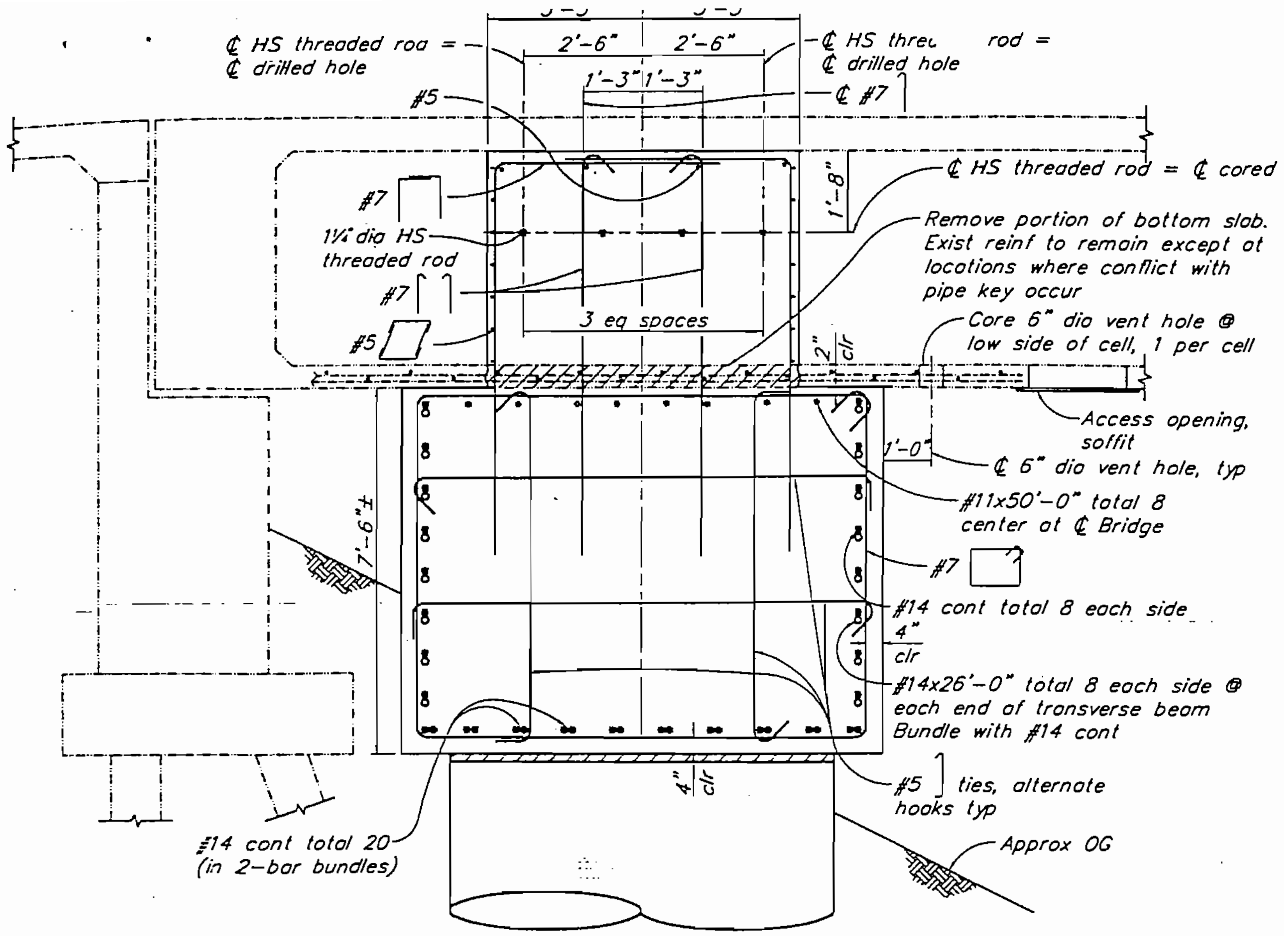
EARTHQUAKE RETROFIT PROJECT No. 818
SALINAS RIVER BRIDGE
ABUTMENT RETROFIT LAYOUT

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

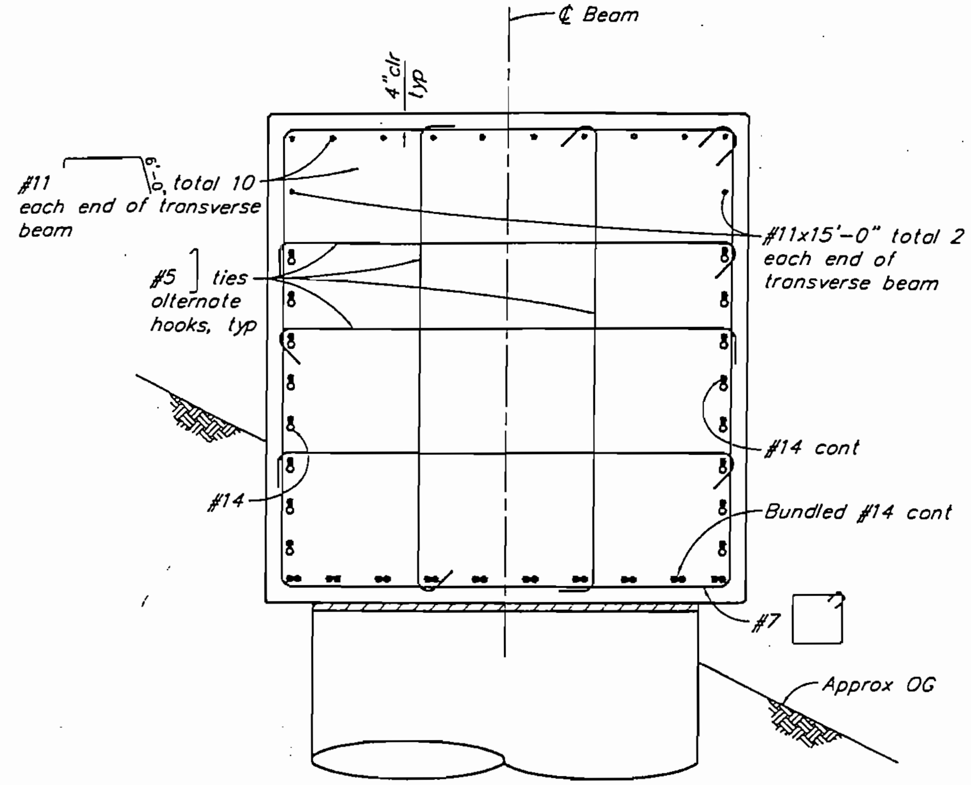
CU 59X850-23
EA 05-413321

DISREGARD PRINTS BEARING EARLIER REVISION DATES
REVISION DATES (PRELIMINARY STAGE ONLY) 2/14/97 3/04/97 4/11/97

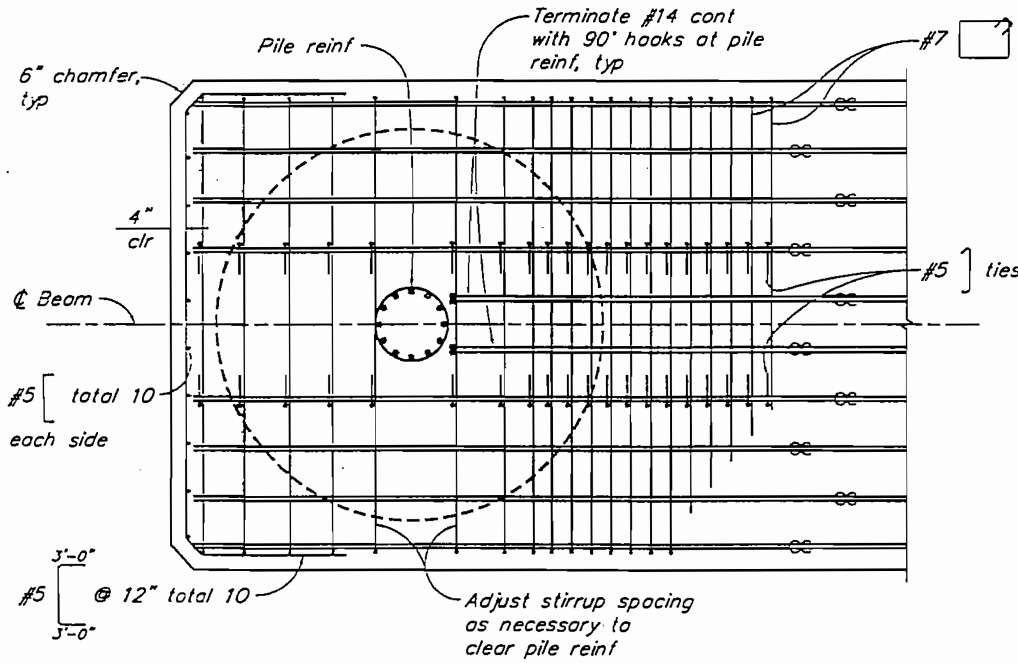
SHEET 2 OF 13



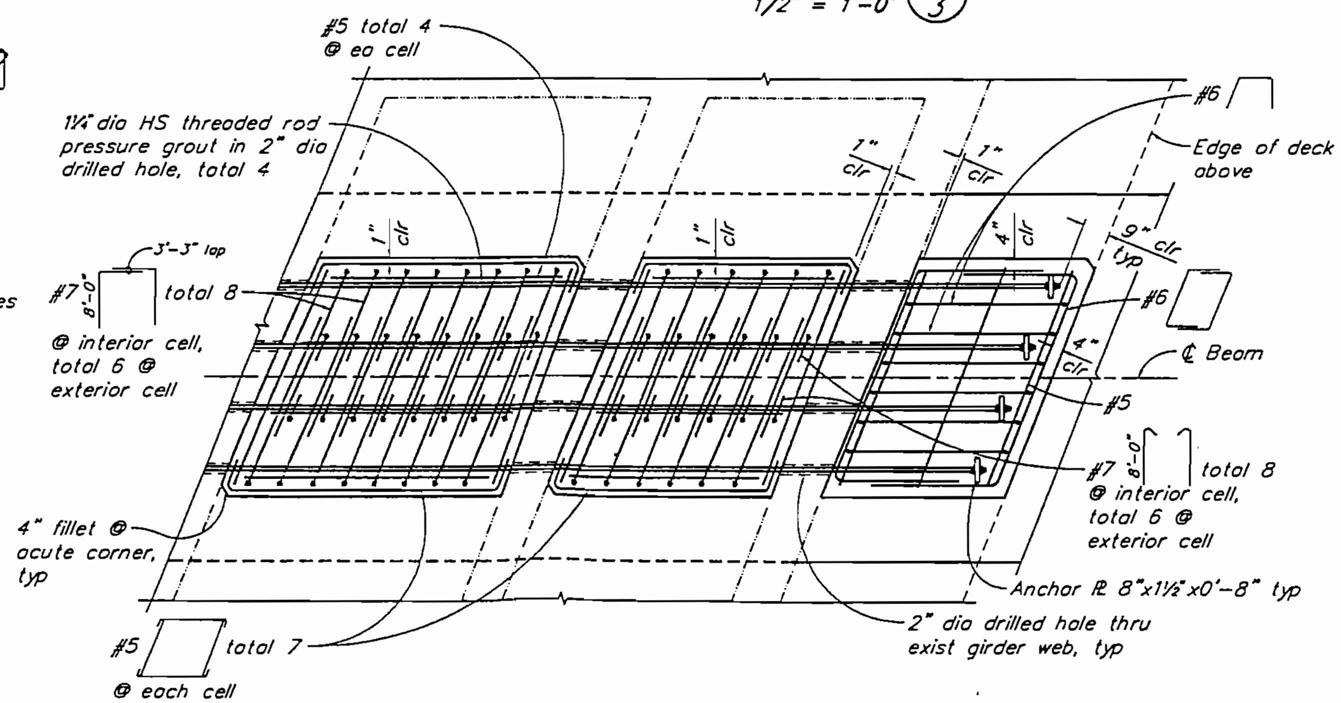
SECTION A/3
1/2" = 1'-0"



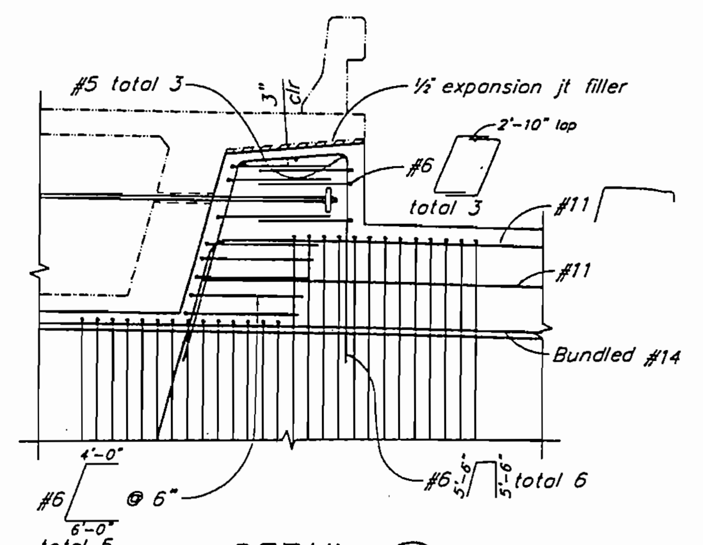
SECTION B/3
1/2" = 1'-0"



SECTION C/3
1/2" = 1'-0"



DETAIL 1/3
3/8" = 1'-0"



DETAIL 2/3
3/8" = 1'-0"

NOTE:
The Contractor shall verify all controlling field dimensions before ordering or fabricating any material

Indicates bundled bars

Indicates concrete to be removed

05

REGISTERED CIVIL ENGINEER

4/11/97

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER ROY M. SCHNABEL No. C46828 Exp. 6-30-98 CIVIL STATE OF CALIFORNIA

BIGGS CARDOSA ASSOCIATES INC.
1871 THE ALAMEDA, SUITE 200
SAN JOSE, CALIFORNIA 95126

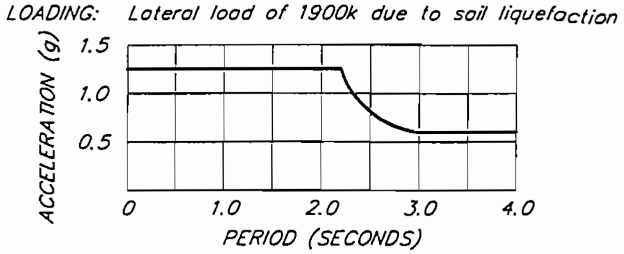
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

GENERAL NOTES
LOAD FACTOR DESIGN

DESIGN: Bridge Design Specifications (1983 AASHTO with interims and revisions by Caltrans)

SEISMIC LOADING: Site Specific Acceleration Response Spectra

STATIC LOADING: Lateral load of 1900k due to soil liquefaction



REINFORCED CONCRETE:

EXISTING (ASSUMED VALUES)	NEW CONSTRUCTION
fy = 66,000 psi	fy = 60,000 psi
f'c = 5,000 psi	f'c = 3,250 psi
n = 7	n = 9

STRUCTURAL STEEL:
NEW CONSTRUCTION
Fy = 35 ksi (Pipe keys)
Fy = 45 ksi (Steel shell A252)

EXISTING FOUNDATION DATA (ASSUMED VALUES):
ULTIMATE PILE CAPACITY = 180 kips (compression)
= 20 kips (tension)

DESIGN OVERSIGHT	DESIGN	BY I. S. LI	CHECKED S. A. METZLER	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	ROY M. SCHNABEL PROJECT ENGINEER
SIGN OFF DATE	DETAILS	BY I. S. LI	CHECKED S. A. METZLER		
	QUANTITIES	BY A. DING	CHECKED C. A. LAWRENCE		

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 59X850-23
EA 05-413321

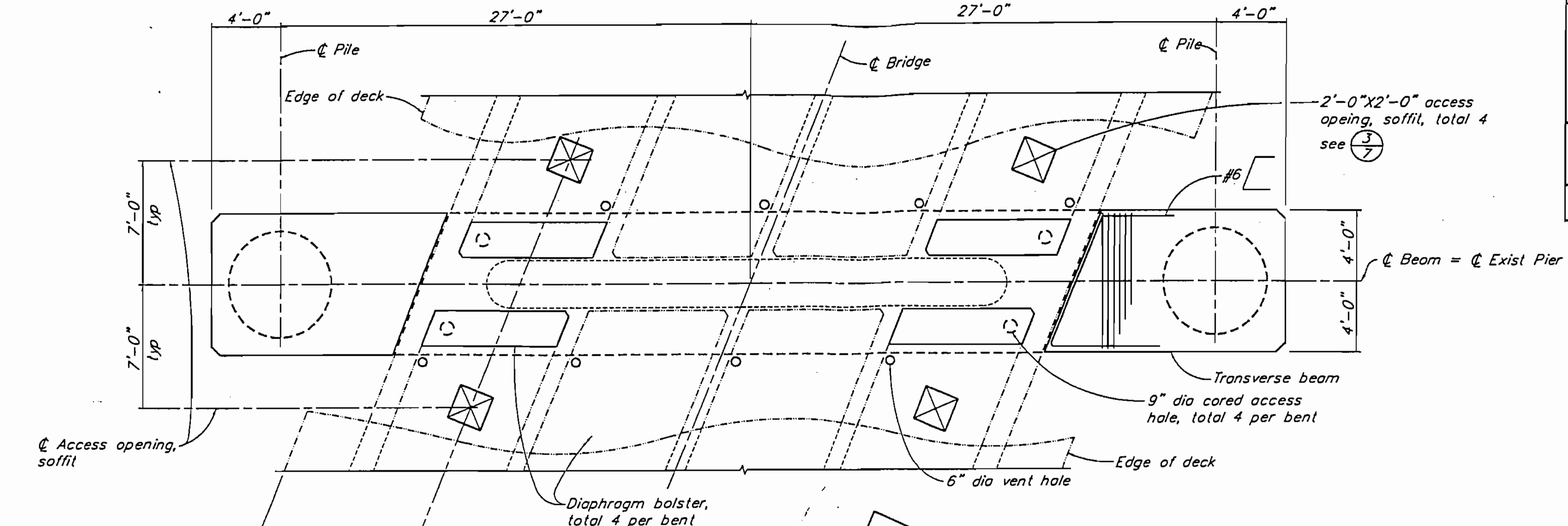
BRIDGE NO. 44-216R/L
POST MILE 89.2

DISREGARD PRINTS BEARING EARLIER REVISION DATES

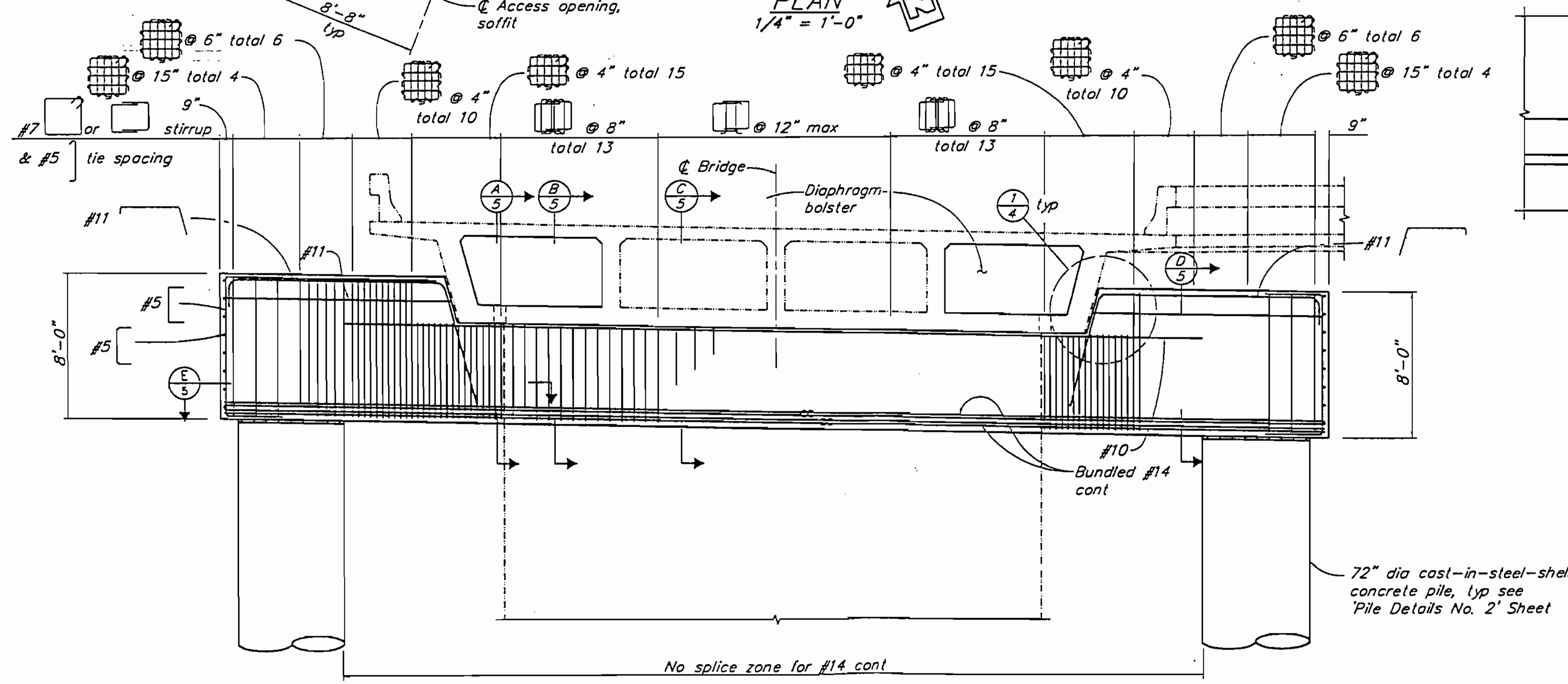
EARTHQUAKE RETROFIT PROJECT No. 818
SALINAS RIVER BRIDGE
ABUTMENT RETROFIT DETAILS

REVISION DATES (PRELIMINARY STAGE ONLY): 2/04/97 3/04/97 4/11/97

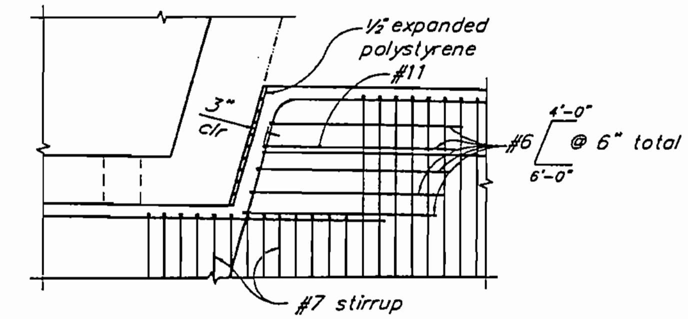
SHEET 3 OF 13



PLAN
1/4" = 1'-0"



ELEVATION
1/4" = 1'-0"



DETAIL 1/4
1/2" = 1'-0"

Notes:
1. Bent 2R shown, other bents similar.
2. All dimensions measured along ℄ bent except for dimensions to access openings
3. Stirrups and ties shall be placed normal to ℄ bent & spaced along ℄ bent

Ledgend:
Indicates bundled bars

NOTE:
The Contractor shall verify all controlling field dimensions before ordering or fabricating any material

05

Roy M Schnabel
REGISTERED CIVIL ENGINEER
4/11/97
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER ROY M. SCHNABEL No. C46828 Exp. 6-30-98 CIVIL STATE OF CALIFORNIA

BIGGS CARDOSA ASSOCIATES INC.
1871 THE ALAMEDA, SUITE 200
SAN JOSE, CALIFORNIA 95126

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DESIGN	BY I. S. LI	CHECKED S. A. METZLER	
DETAILS	BY I. S. LI	CHECKED S. A. METZLER	
QUANTITIES	BY A. DING	CHECKED C. A. LAWRENCE	

PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

ROY M. SCHNABEL
PROJECT ENGINEER

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 59X850-23
EA 05-413321

BRIDGE NO. 44-216R/L
POST MILE 89.2

DISREGARD PRINTS BEARING EARLIER REVISION DATES

EARTHQUAKE RETROFIT PROJECT No. 818
SALINAS RIVER BRIDGE
BENT RETROFIT LAYOUT

REVISION DATES (PRELIMINARY STAGE ONLY) 2/14/97 3/24/97 4/11/97

SHEET 4 OF 13

Roy M. Schnabel
REGISTERED CIVIL ENGINEER
4/11/97
PLANS APPROVAL DATE
BIGGS CARDOSA ASSOCIATES INC.
1871 THE ALAMEDA, SUITE 200
SAN JOSE, CALIFORNIA 95126

REGISTERED PROFESSIONAL ENGINEER
ROY M. SCHNABEL
No. C46828
Exp. 6-30-98
CIVIL
STATE OF CALIFORNIA

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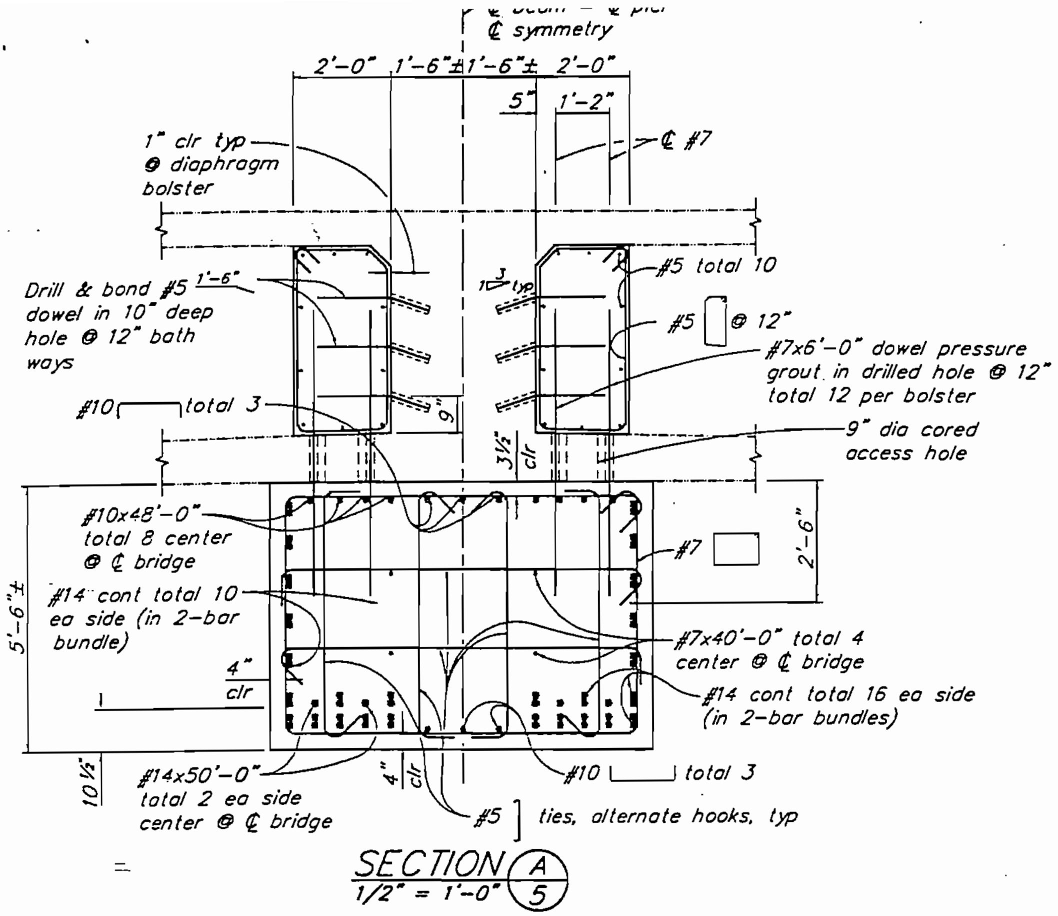
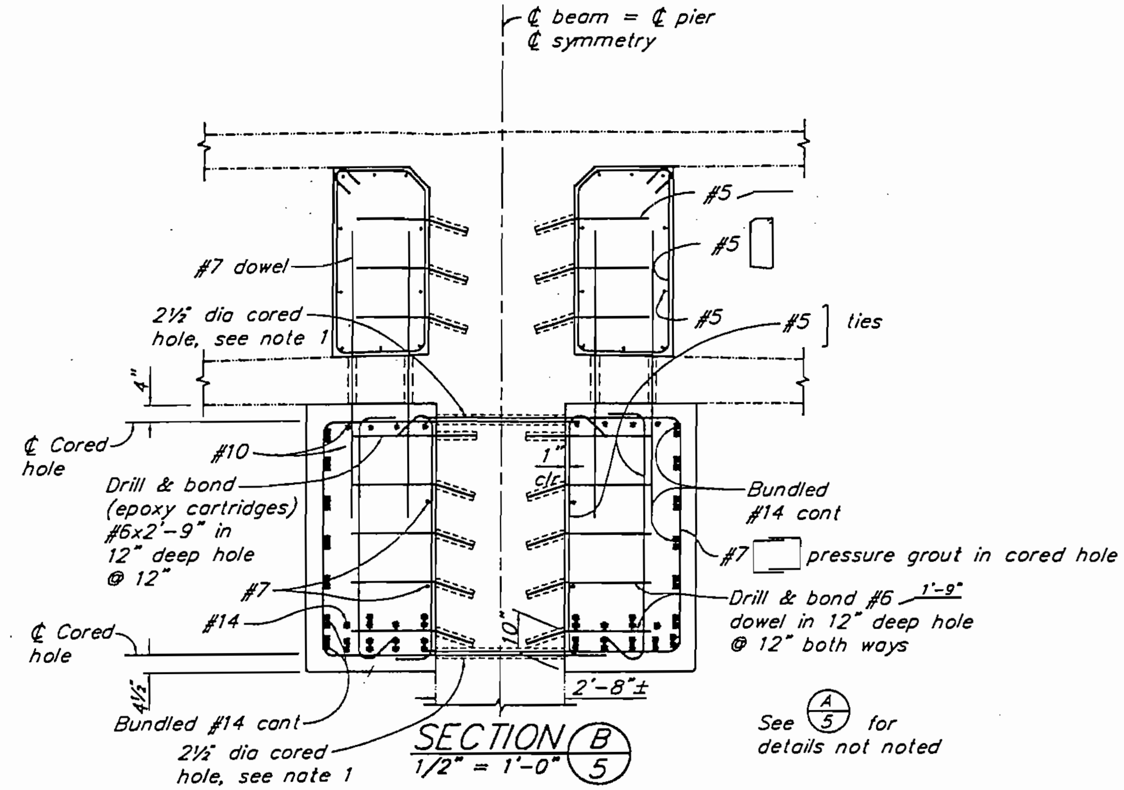
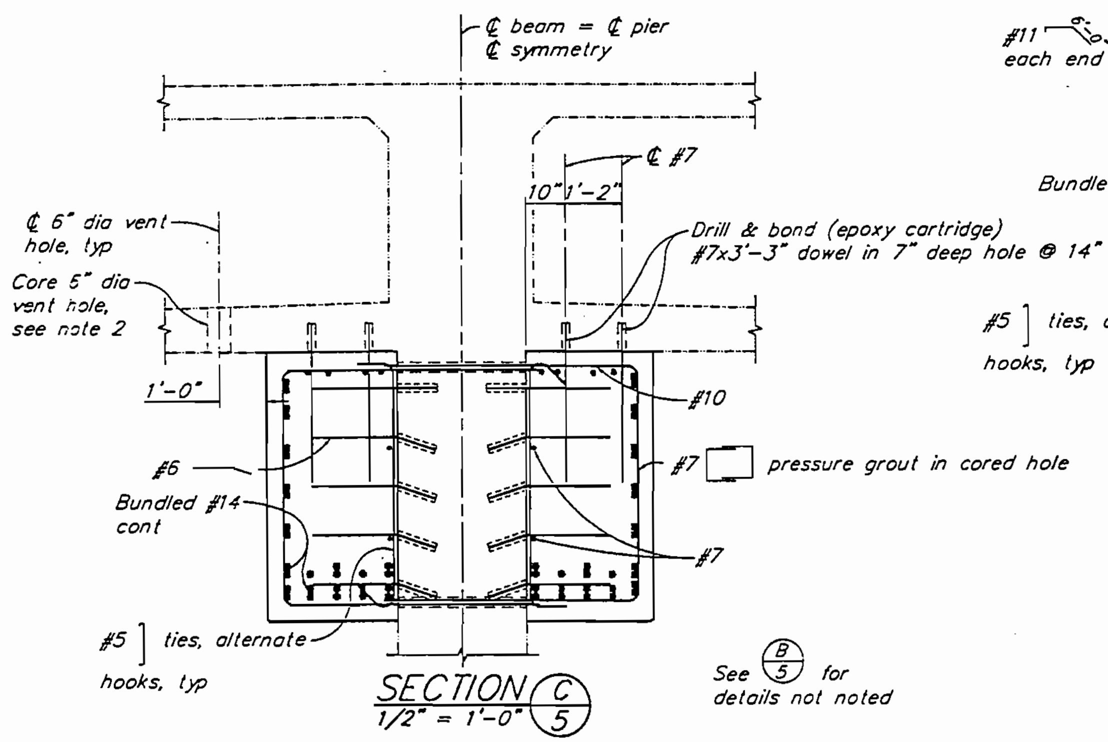
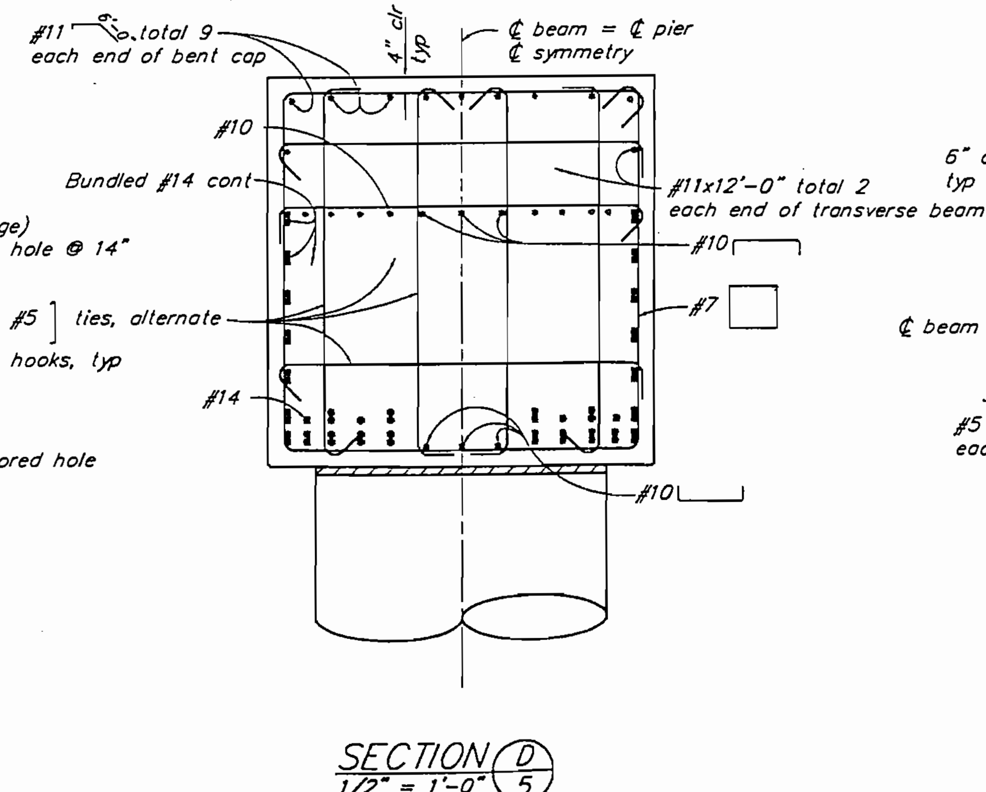


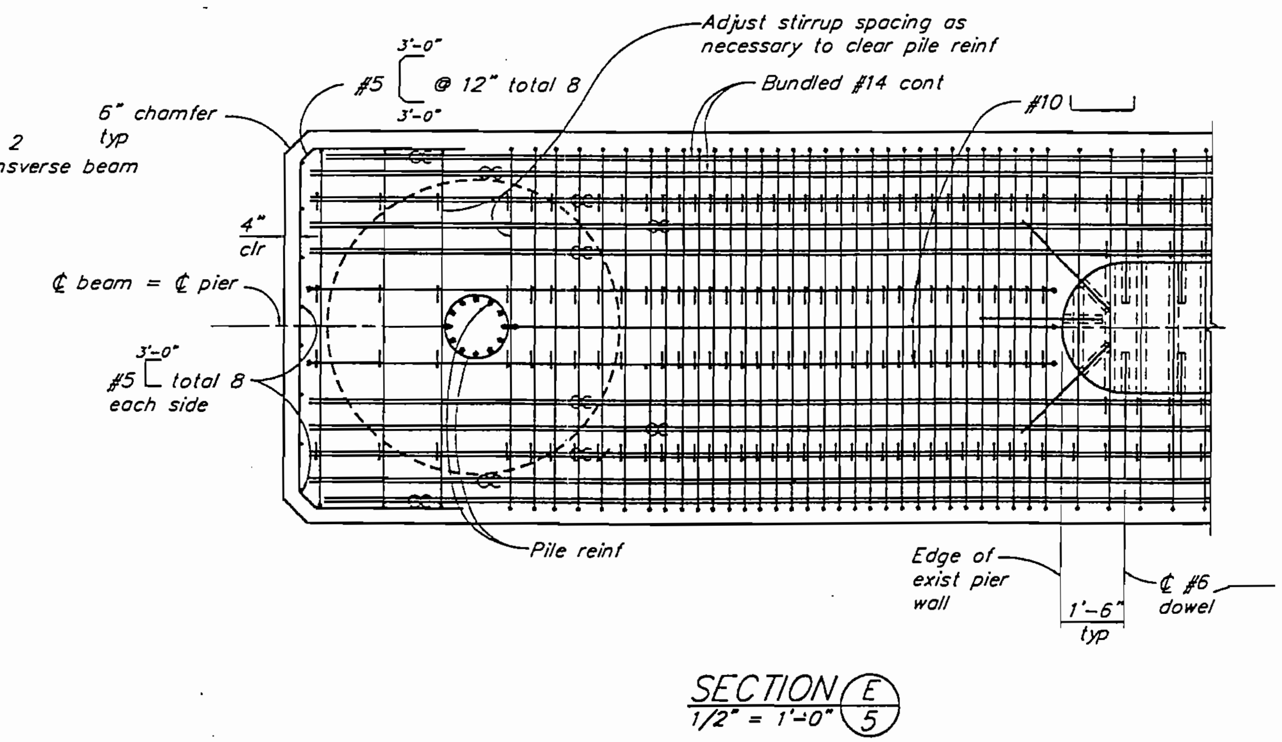


Ledgend:
Indicates bundled bars

Notes:
1. 2½" dia holes shall be cored @ 24" max and grouted prior to coring adjacent holes
2. 2 vents per span in each bay as needed. One vent to be located at low point of span and the other to be located at opposite end. Vent holes required only where existing holes are blocked by new construction







NOTE:
The Contractor shall verify all controlling field dimensions before ordering or fabricating any material

DESIGN	BY I. S. LI	CHECKED S. A. METZLER	
DETAILS	BY I. S. LI	CHECKED S. A. METZLER	
QUANTITIES	BY A. DING	CHECKED C. A. LAWRENCE	

DESIGN OVERSIGHT
SIGN OFF DATE

PREPARED FOR THE
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ROY M. SCHNABEL
PROJECT ENGINEER

BRIDGE NO. 44-216R/L
POST MILE 89.2

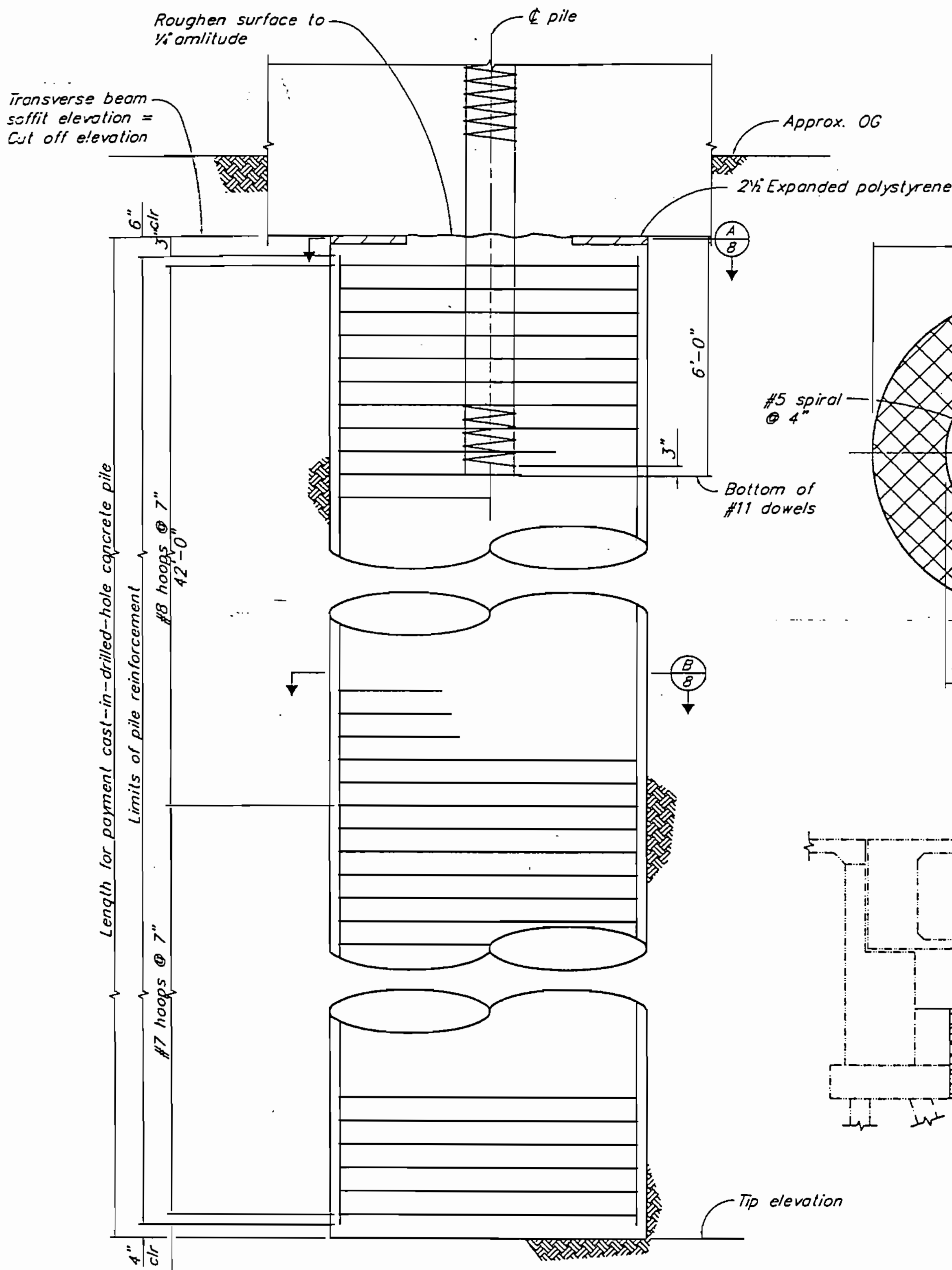
EARTHQUAKE RETROFIT PROJECT No. 818
SALINAS RIVER BRIDGE
BENT RETROFIT DETAILS

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3
CU 59X850-23
EA 05-413321
DISREGARD PRINTS BEARING EARLIER REVISION DATES
REVISION DATES (PRELIMINARY STAGE ONLY) 2/24/97 3/24/97 4/11/97
SHEET 5 OF 13
96020.41 (9602055)

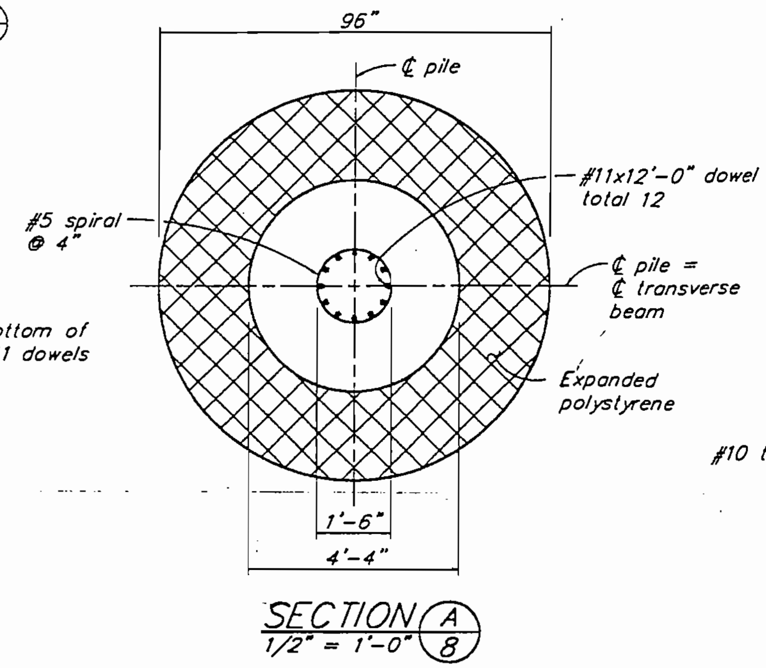
PILE DATA: 96" DIA CAST-IN-DRILLED-HOLE CONCRETE PILE

	LEFT STRUCTURE				RIGHT STRUCTURE			
Location	Design Loading (service)	Norminal Resistance Compression	Cut-off elevation	Specified tip elev	Design Loading (service)	Norminal Resistance Compression	Cut-off elevation	Specified tip elev
Abut 1L	N/A	900 kips	13.9	-58.1	N/A	900 kips	14.9	-57.1
Abut 1R	N/A	900 kips	14.9	-57.1	N/A	900 kips	13.8	-58.2
Abut 6L	N/A	900 kips	11.7	-90.3	N/A	900 kips	12.4	-89.6
Abut 6R	N/A	900 kips	12.5	-89.5	N/A	900 kips	11.2	-90.8

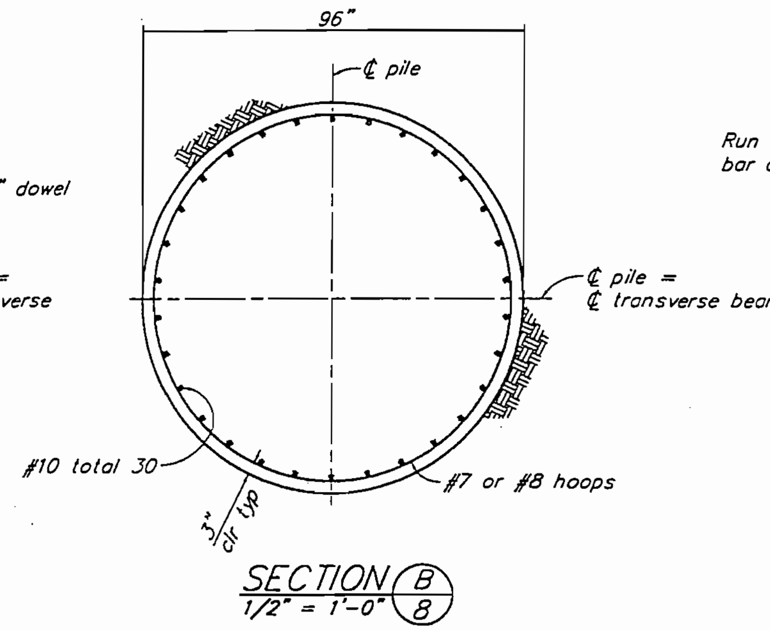
Note:
'L' & 'R' designates left & right pile, respectively, looking up station



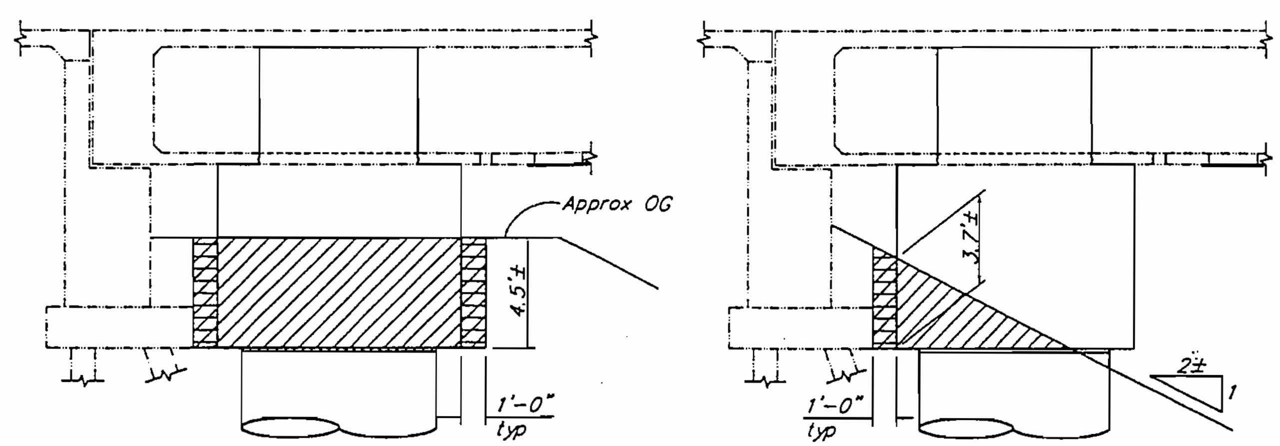
CIDH PILE ELEVATION
1/2" = 1'-0"



SECTION A/8
1/2" = 1'-0"



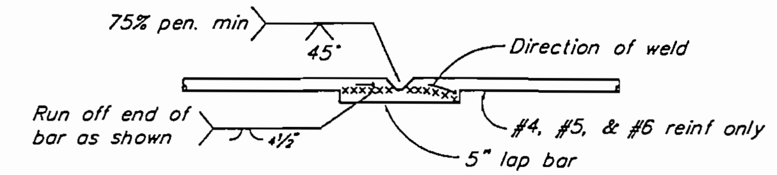
SECTION B/8
1/2" = 1'-0"



Structure Excavation (Bridge)

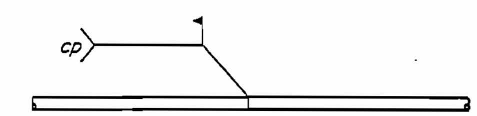
Structure Backfill (Bridge)

LIMITS OF PAYMENT FOR EXCAVATION & BACKFILL
No Scale



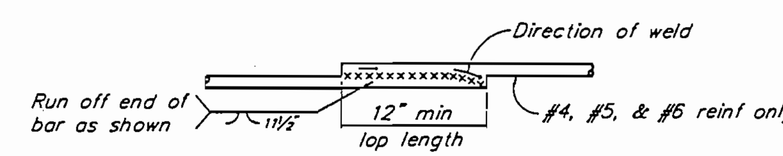
Notes:
1. Butt weld to be made first.
2. Butt weld to be made in flat or horiz position
3. Lap bar to be centered on splice
4. Flare weld to be made in direction shown
5. Lap bar to be equal in size to hoop bar

VEE GROOVE WELDED SPLICE OPTION



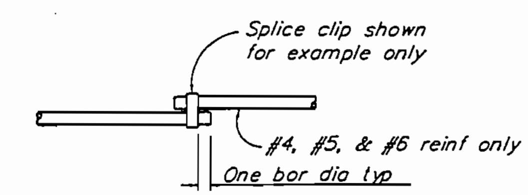
Individual hoops, made continuous with 100% penetration weld shall be used

BUTT WELDED CONTINUOUS HOOP OPTION



Note: Flare weld to be made in direction shown

WELDED LAP SPLICE AND ANCHOR OPTION



MECHANICAL LAP SPLICE AND ANCHOR OPTION

BAR SPIRAL SPLICE & SPIRAL ANCHOR & HOOP DETAIL
NO SCALE

NOTE:
The Contractor shall verify all controlling field dimensions before ordering or fabricating any material

DIST	COUNTY	ROUTE	TOTAL PROJECT	NO.	SHEETS
05					

REGISTERED CIVIL ENGINEER
4/11/97
PLANS APPROVAL DATE
BIGGS CARDOSA ASSOCIATES INC.
1871 THE ALAMEDA, SUITE 200
SAN JOSE, CALIFORNIA 95126

REGISTERED PROFESSIONAL ENGINEER ROY M. SCHNABEL No. C46828 Exp. 6-30-98 CIVIL STATE OF CALIFORNIA

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DESIGN	BY I. S. LI	CHECKED S. A. METZLER	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
DETAILS	BY I. S. LI	CHECKED S. A. METZLER	
QUANTITIES	BY A. DING	CHECKED C. A. LAWRENCE	

ROY M. SCHNABEL
PROJECT ENGINEER

BRIDGE NO. 44-216R/L
POST MILE 89.2

EARTHQUAKE RETROFIT PROJECT No. 818
SALINAS RIVER BRIDGE
PILE DETAILS NO. 1

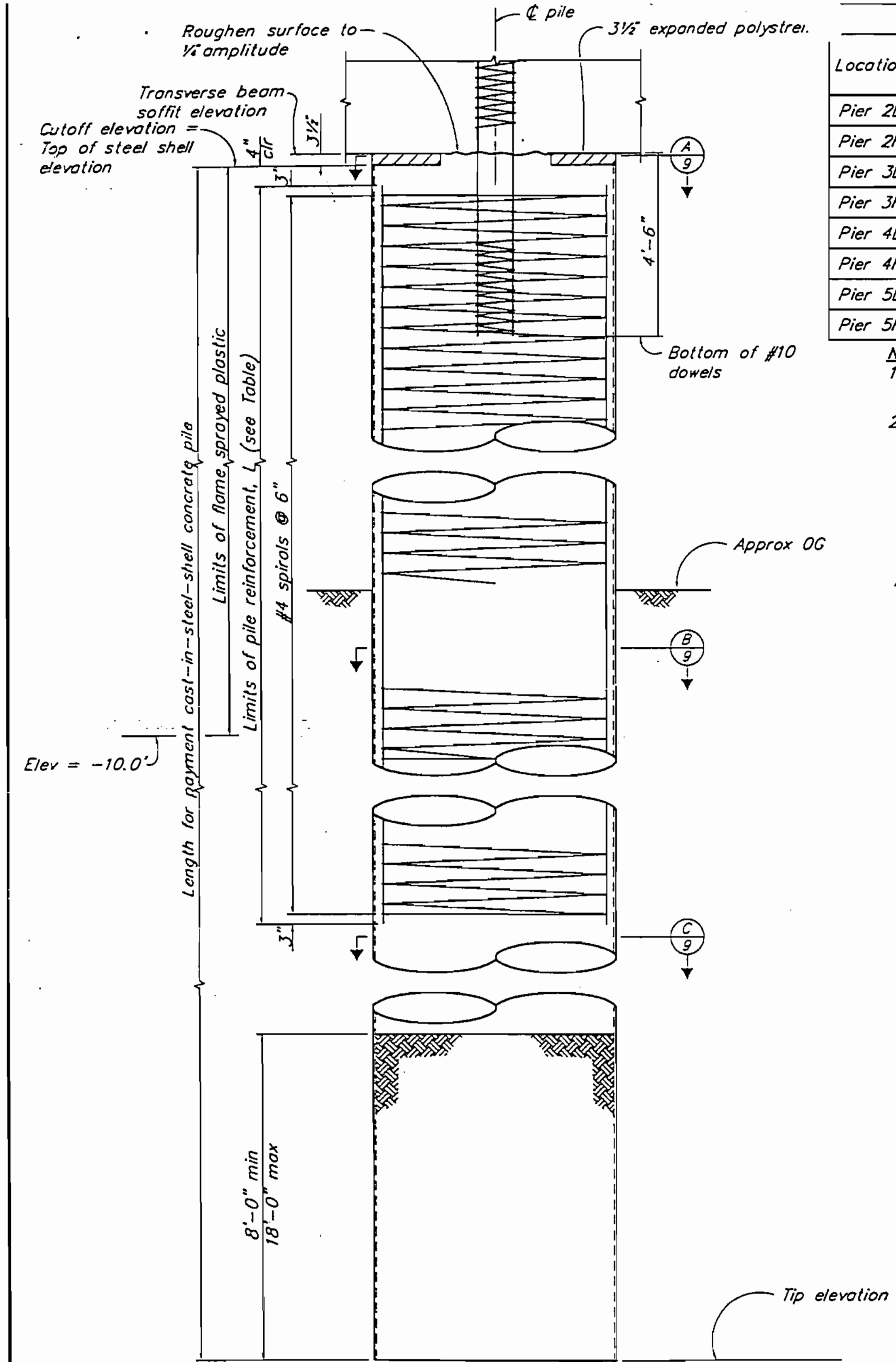
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 59X850-23
EA 05-413321

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY) 2/24/97 3/24/97 4/11/97

SHEET 8 OF 13



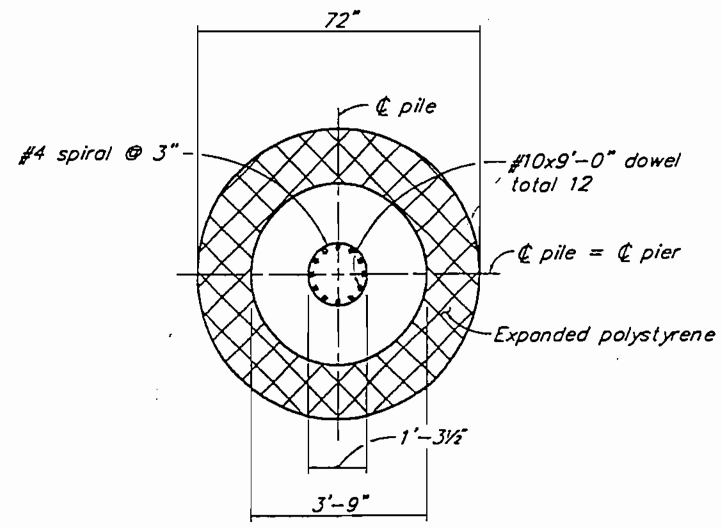
CISS PILE ELEVATION
1/2" = 1'-0"

LEFT STRUCTURE							RIGHT STRUCTURE					
Location	Design Loading (service)	Norminal Resistance Compression	Norminal Resistance Tension	Cut-off elevation	Design tip elev	Specified tip elev	Design Loading (service)	Norminal Resistance Compression	Norminal Resistance Tension	Cut-off elevation	Design tip elev	Specified tip elev
Pier 2L	N/A	1500 kips	–	15.5	−101.0(1); −94.5(2)	−101.0	N/A	1500 kips	–	16.5	−101.0(1); −93.5(2)	−101.0
Pier 2R	N/A	1500 kips	–	16.5	−101.0(1); −93.5(2)	−101.0	N/A	1500 kips	–	15.4	−101.0(1); −94.6(2)	−101.0
Pier 3L	N/A	1500 kips	–	15.2	−116.0(1); −114.8(2)	−116.0	N/A	1500 kips	–	16.1	−116.0(1); −113.9(2)	−116.0
Pier 3R	N/A	1500 kips	–	16.2	−116.0(1); −113.8(2)	−116.0	N/A	1500 kips	–	15.0	−116.0(1); −115.0(2)	−116.0
Pier 4L	N/A	1500 kips	–	14.8	−102.5(1); −101.2(2)	−102.5	N/A	1500 kips	–	15.6	−102.5(1); −100.4(2)	−102.5
Pier 4R	N/A	1500 kips	–	15.7	−102.5(1); −100.3(2)	−102.5	N/A	1500 kips	–	14.5	−102.5(1); −101.5(2)	−102.5
Pier 5L	N/A	1500 kips	–	14.1	−106.0(1); −80.9(2)	−106.0	N/A	1500 kips	–	14.9	−106.0(1); −80.1(2)	−106.0
Pier 5R	N/A	1500 kips	–	15.0	−106.0(1); −80.0(2)	−106.0	N/A	1500 kips	–	13.7	−106.0(1); −81.3(2)	−106.0

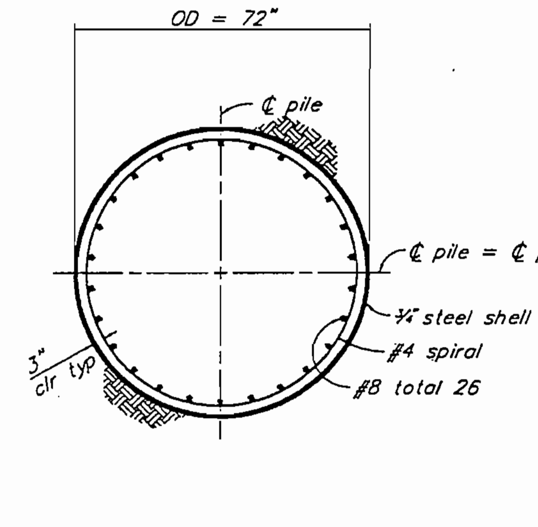
Notes:
1. Design tip elevation is controlled by the following demands:
   (1) Compression; (2) Lateral Loads
2. 'L' & 'R' designates left & right pile, respectively, looking up station

REGISTERED CIVIL ENGINEER
4/11/97
PLANS APPROVAL DATE
REGISTERED PROFESSIONAL ENGINEER ROY M. SCHNABEL No. C46828 Exp. 6-30-98 CIVIL STATE OF CALIFORNIA

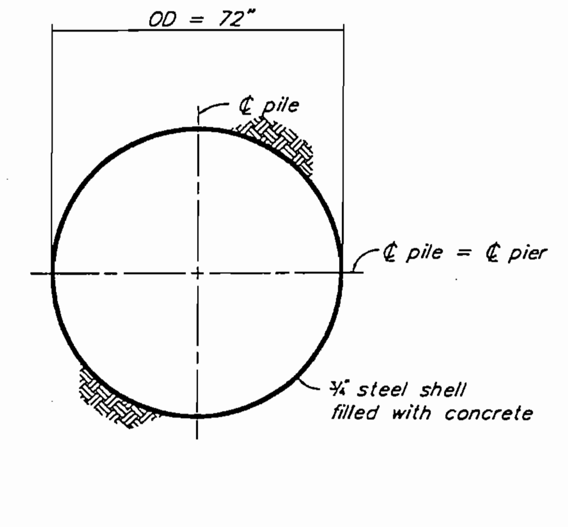
BIGGS CARDOSA ASSOCIATES INC.
1871 THE ALAMEDA, SUITE 200
SAN JOSE, CALIFORNIA 95126



SECTION A/9
1/2" = 1'-0"

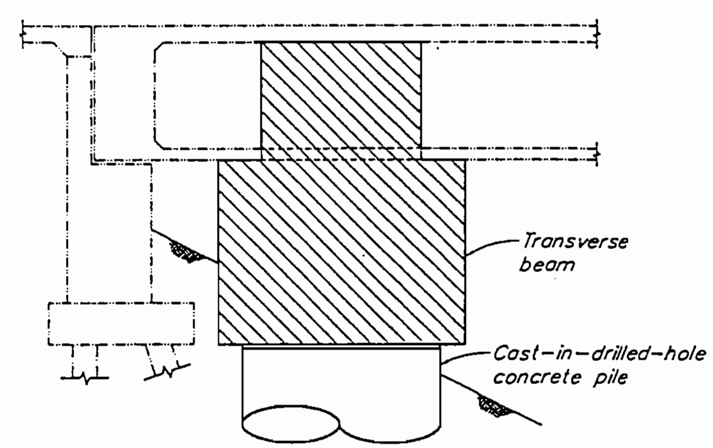


SECTION B/9
1/2" = 1'-0"

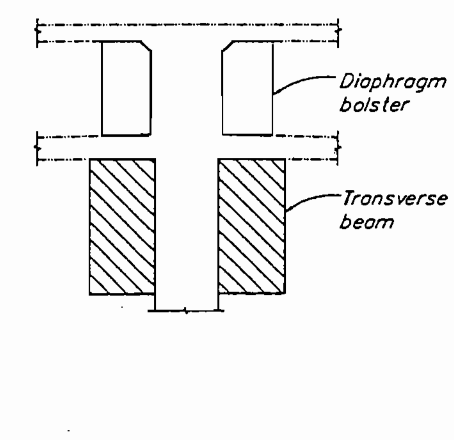


SECTION C/9
1/2" = 1'-0"

LIMITS OF PILE REINFORCEMENT	
Location	L
Pier 2L/R	100'
Pier 3L/R	110'
Pier 4L/R	90'
Pier 5L/R	80'



AT ABUTMENT



AT BENT

Structural Concrete, Bridge

CONCRETE TYPE LIMITS
NO SCALE

NOTE:
The Contractor shall verify all controlling field dimensions before ordering or fabricating any material

EARTHQUAKE RETROFIT PROJECT No. 818

SALINAS RIVER BRIDGE

PILE DETAILS NO. 2

DESIGN	BY I. S. LI	CHECKED S. A. METZLER	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	ROY M. SCHNABEL PROJECT ENGINEER
DETAILS	BY I. S. LI	CHECKED S. A. METZLER		
QUANTITIES	BY A. DING	CHECKED C. A. LAWRENCE		

DESIGN OVERSIGHT
SIGN OFF DATE

BRIDGE NO. 44-216R/L
POST MILE 89.2

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

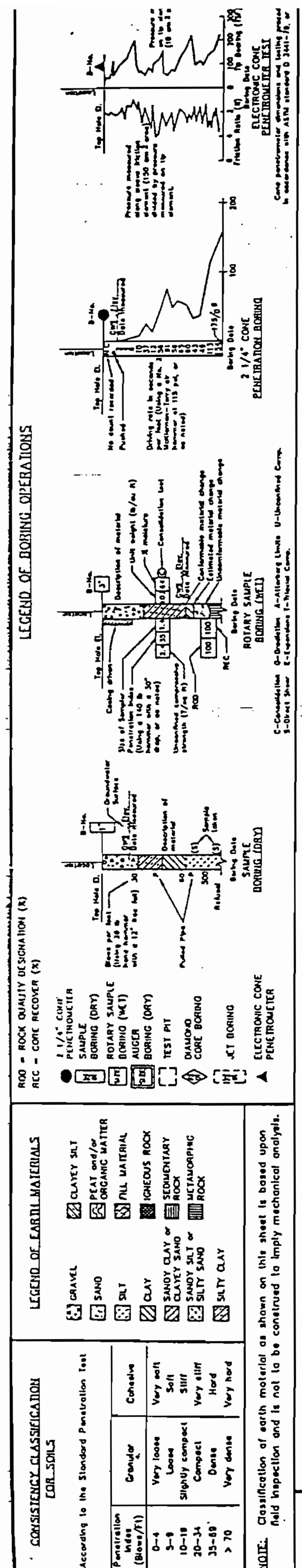
CU 59X850-23
EA 05-413321

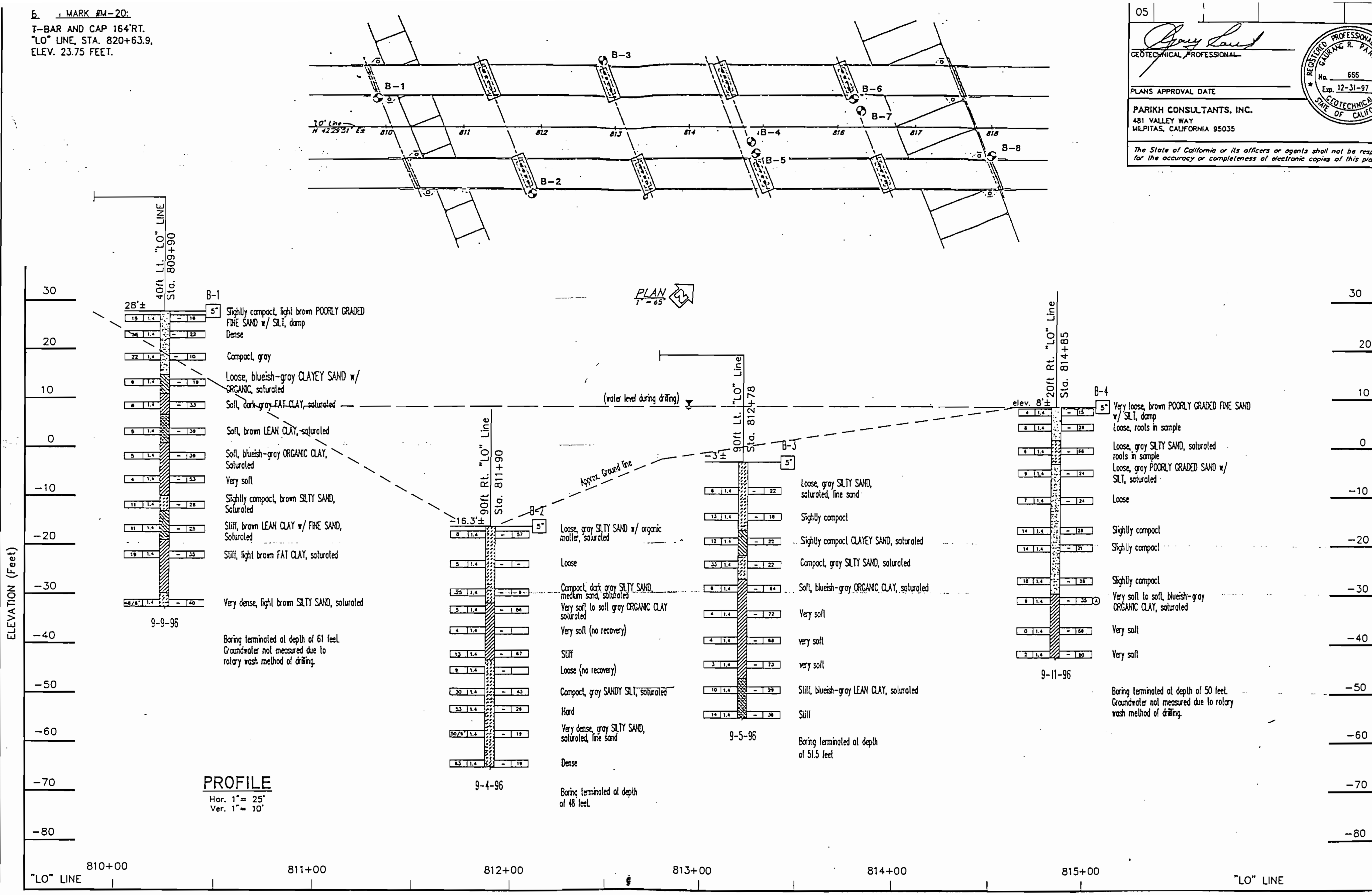
DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY) 2/24/97 3/24/97 4/11/97

SHEET 9 OF 13

6. MARK #M-20:
T-BAR AND CAP 164'RT.
"LO" LINE, STA. 820+63.9,
ELEV. 23.75 FEET.





05
GEOTECHNICAL PROFESSIONAL
PLANS APPROVAL DATE
REGISTERED PROFESSIONAL ENGINEER GAURANG R. PARIKH No. 666 Exp. 12-31-97 GEOTECHNICAL STATE OF CALIFORNIA

PARIKH CONSULTANTS, INC.
481 VALLEY WAY
MILPITAS, CALIFORNIA 95035

DRAWN BY	H. SU	T. RUBY FIELD INVESTIGATOR	
CHECKED BY	Y. D. WANG	REGISTRATION NO. FEBRUARY, 1997	

PREPARED FOR THE
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

Y. D. WANG
PROJECT ENGINEER

BRIDGE NO. 44-216R/L
POST MILE 89.2

EARTHQUAKE RETROFIT PROJECT No. 818
SALINAS RIVER BRIDGE
LOG OF TEST BORINGS 1 OF 2

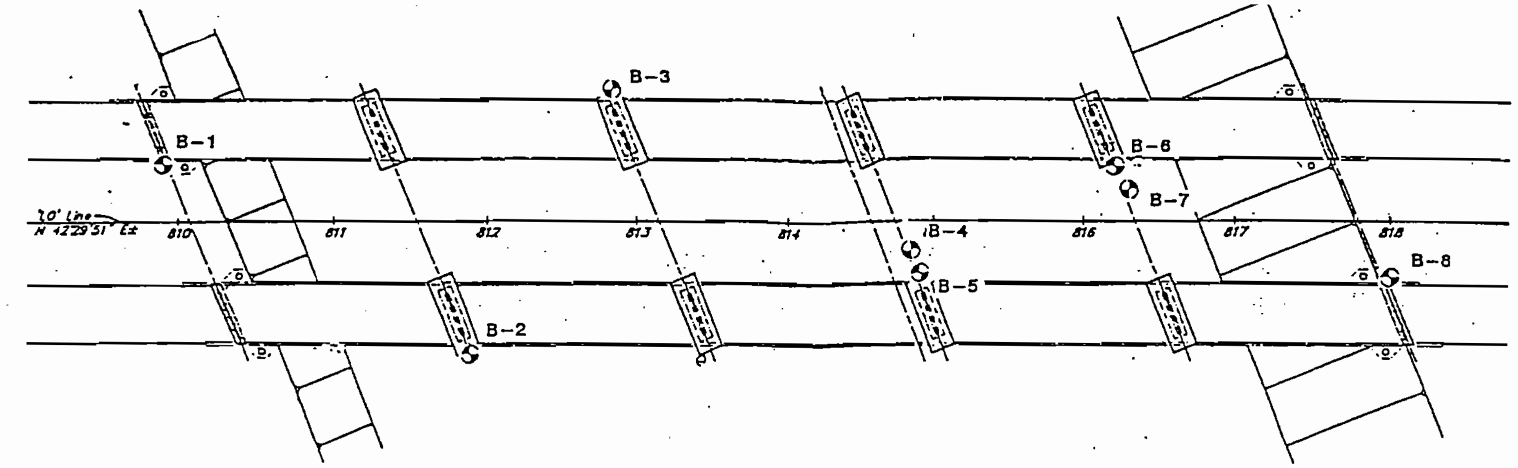
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 59X850-23
EA 05-413321

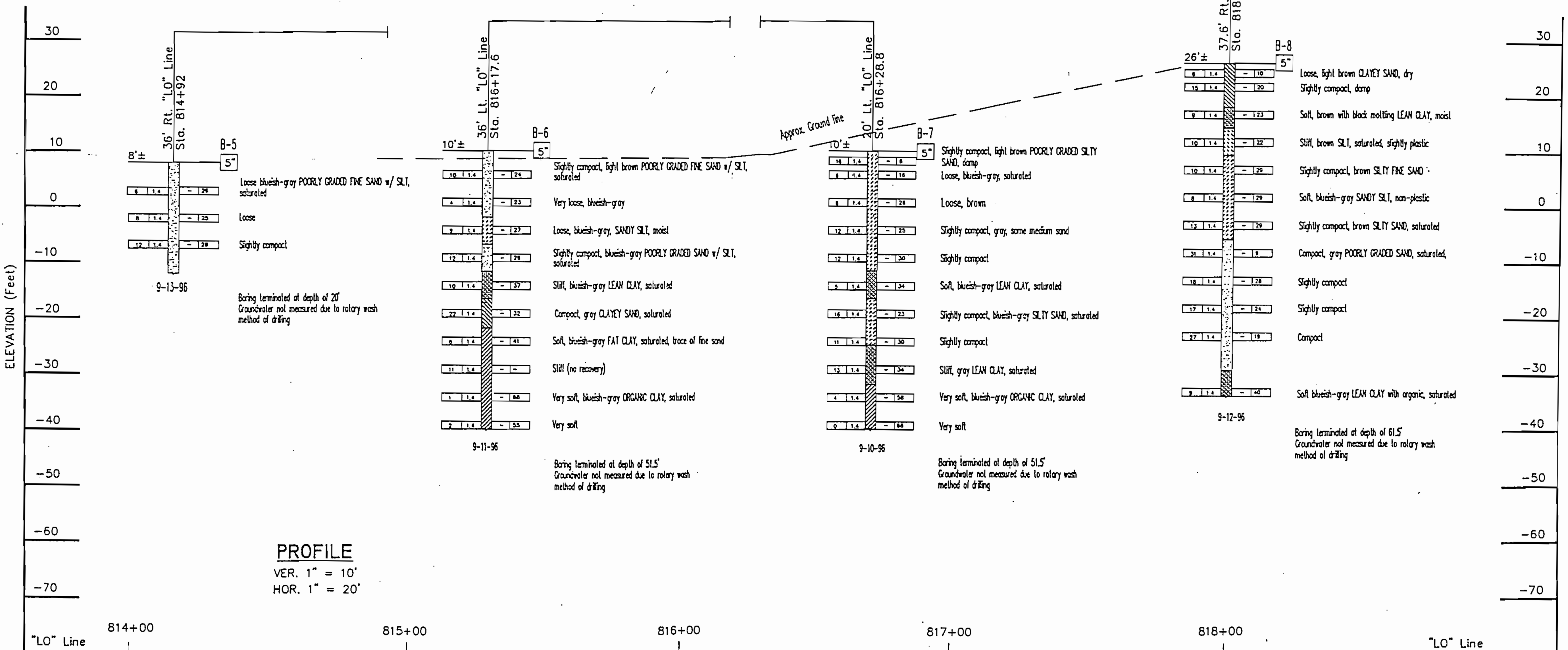
DISREGARD PRINTS BEARING EARLIER REVISION DATES
REVISION DATES (PRELIMINARY STAGE ONLY) 2/24/97 3/24/97 4/11/97

SHEET 10 OF 13

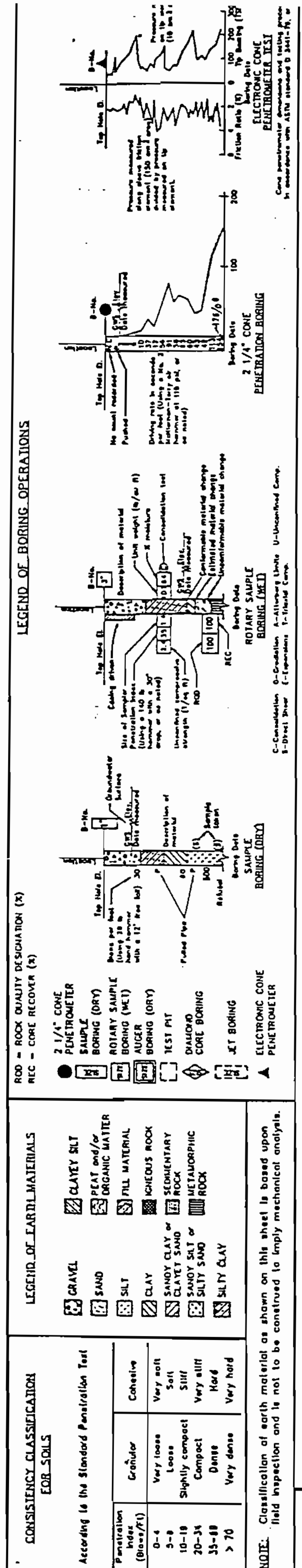
BENCHMARK #M-20:
T-BAR AND CAP 164'RT.
"LO" LINE, STA. 820+63.9,
ELEV. 23.75 FEET.



PLAN
1" = 65'



PROFILE
VER. 1" = 10'
HOR. 1" = 20'



GEOTECHNICAL PROFESSIONAL

PLANS APPROVAL DATE

PARIKH CONSULTANTS, INC.
481 VALLEY WAY
MILPITAS, CALIFORNIA 95035

REGISTERED PROFESSIONAL ENGINEER GAURANG R. PARIKH No. 666 Exp. 12-31-97 GEOTECHNICAL STATE OF CALIFORNIA

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DESIGN OVERSIGHT	DRAWN BY	H. SU	T. RUBY FIELD INVESTIGATOR	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	Y. D. WANG PROJECT ENGINEER	BRIDGE NO. 44-216R/L	EARTHQUAKE RETROFIT PROJECT No. 818
SIGN OFF DATE	CHECKED BY	Y. D. WANG	REGISTRATION NO. FEBRUARY, 1997			POST MILE 89.2	SALINAS RIVER BRIDGE LOG OF TEST BORINGS 2 OF 2

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 59X850
EA 05-413321

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY) 2/04/97 3/04/97 4/11/97

SHEET 11

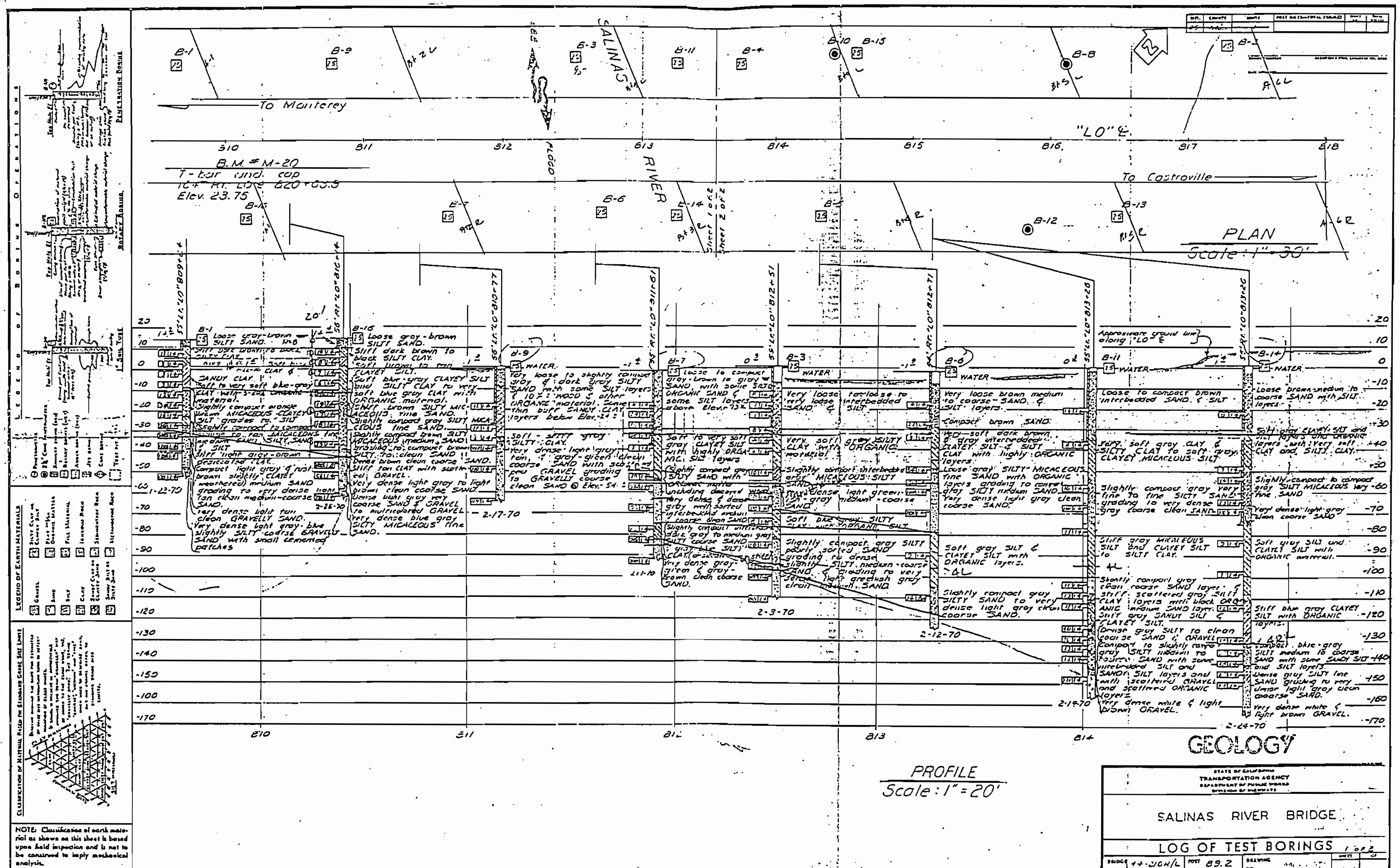
Boring Sheets were used to prepare the geotechnical report.

GEOTECHNICAL PROFESSIONAL

REGISTERED GEOTECHNICAL ENGINEER No. 666 Exp. 12-31-97 STATE OF CALIFORNIA

TO ACCOMP ANS DATED 05

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



EARTHQUAKE RETROFIT PROJECT No. 818

SALINAS RIVER BRIDGE

AS-BUILT LOG OF TEST BORINGS 1 OF 2

NOTE:
ADDITIONAL AS-BUILT FOUNDATION DATA MAY BE AVAILABLE AT THE OFFICE OF TRANSPORTATION MATERIALS AND RESEARCH 5900 FOLSOM BOULEVARD SACRAMENTO, CALIFORNIA 95819.

DESIGN	BY	CHECKED	
DETAILS	BY	CHECKED	
QUANTITIES	BY	CHECKED	

PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

PROJECT ENGINEER

BRIDGE NO. 44-216R/L

POST MILE 89.2

DESIGN OVERSIGHT

SIGN OFF DATE

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 59X850-23
EA 05-413321

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY) 2/14/97 3/21/97 4/11/97

SHEET 12 OF 13

(96020S12) 9602C

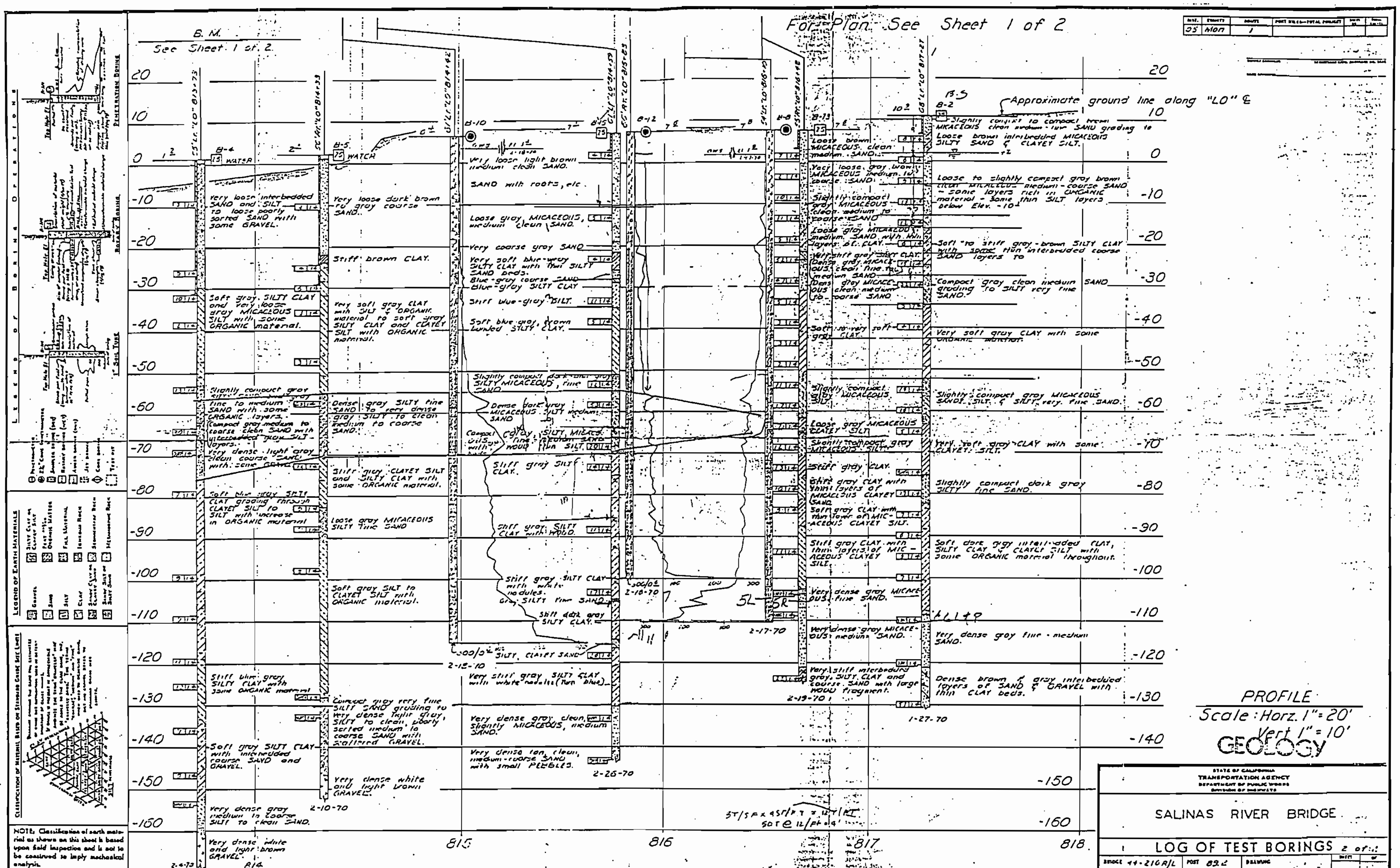
Boring Sheets were used to prepare the geotechnical report.

GEOTECHNICAL PROFESSIONAL

REGISTERED GEOTECHNICAL ENGINEER No. 666 Exp. 12-31-97 STATE OF CALIFORNIA

TO ACCOM	PLANS DATED	05	

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



EARTHQUAKE RETROFIT PROJECT No. 8

NOTE:
ADDITIONAL AS-BUILT FOUNDATION DATA MAY BE AVAILABLE AT THE OFFICE OF TRANSPORTATION MATERIALS AND RESEARCH 5900 FOLSOM BOULEVARD SACRAMENTO, CALIFORNIA 95819.

DESIGN	BY	CHECKED	
DETAILS	BY	CHECKED	
QUANTITIES	BY	CHECKED	

PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

PROJECT ENGINEER

BRIDGE NO.	44-216R/L
POST MILE	89.2

SALINAS RIVER BRIDGE

AS-BUILT LOG OF TEST BORINGS 2 OF

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 59X850-23
EA 05-413321

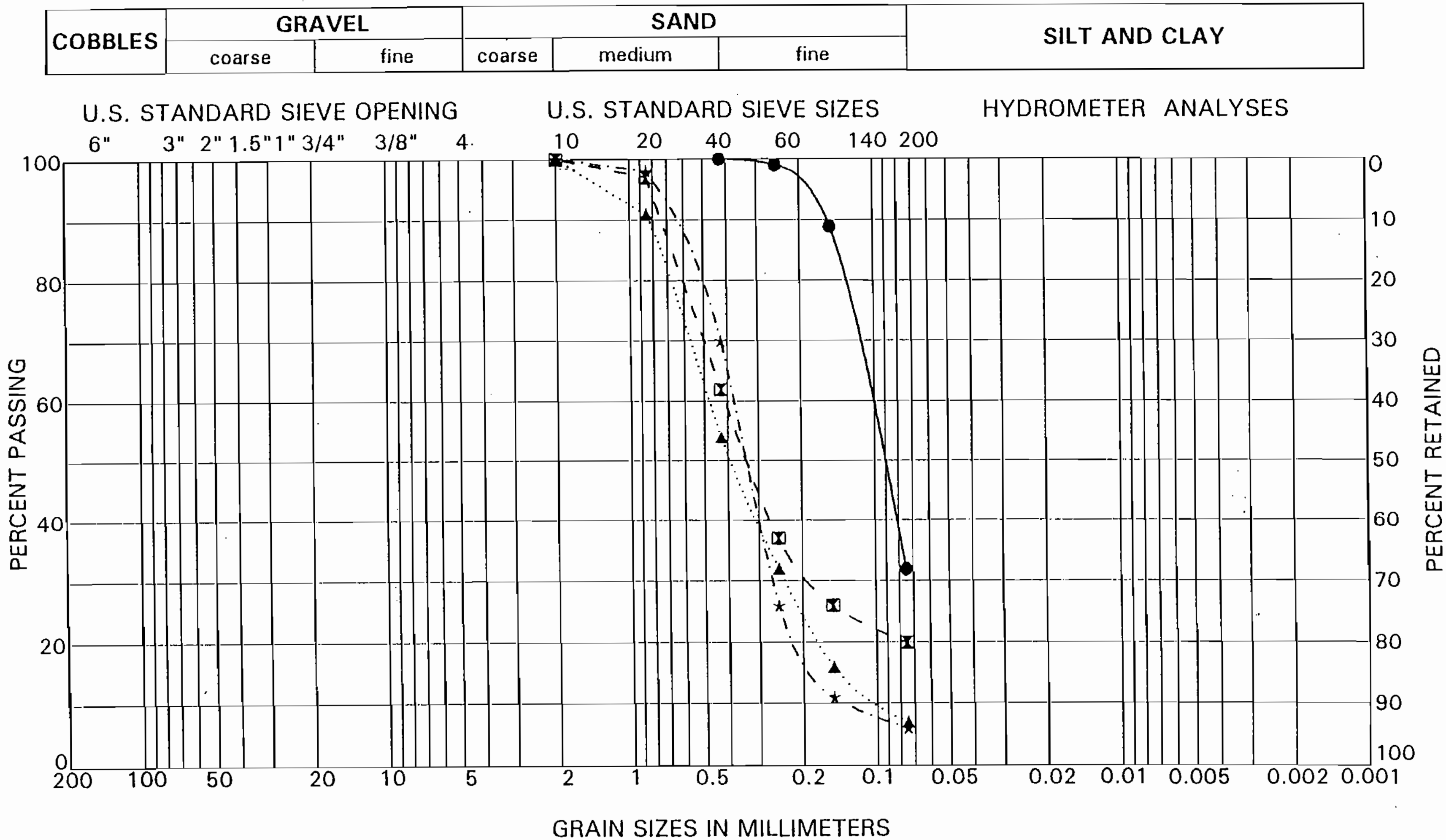
DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY) 2/24/97 3/13/97 3/4/97 4/11/97

SHEET 13

(96020S13)

GRAIN SIZE DISTRIBUTION CURVES



Boring Number	Sample Number	Depth (feet)	Symbol	LL	PI	Description
B1	9	41.0	●			SILTY SAND
B3	2	10.0	⌧			SILTY SAND
B4	5	19.5	▲			POORLY GRADED SAND WITH SILT
B5	3	16.0	★			POORLY GRADED SAND WITH SILT

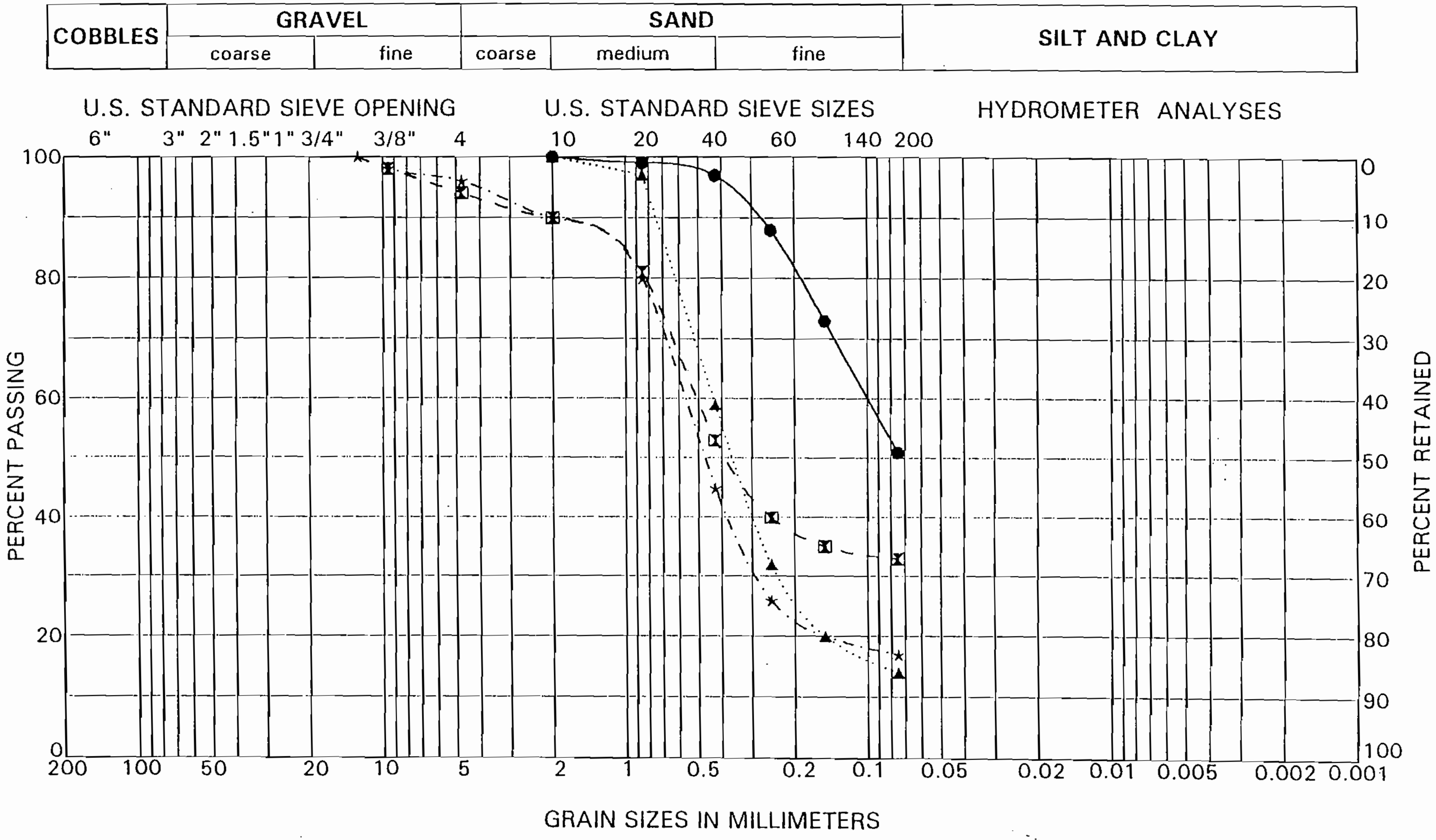
PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS ENGINEERING

SALINAS RIVER BRIDGE
MONTEREY COUNTY, CALIFORNIA

JOB NO: 96121.15

PLATE NO: B-2A

GRAIN SIZE DISTRIBUTION CURVES



Boring Number	Sample Number	Depth (feet)	Symbol	LL	PI	Description
B6	3	16.0	●			SANDY SILT
B6	6	31.0	⊠			CLAYEY SAND
B7	2	6.0	▲			SILTY SAND
B7	7	31.0	★			SILTY SAND

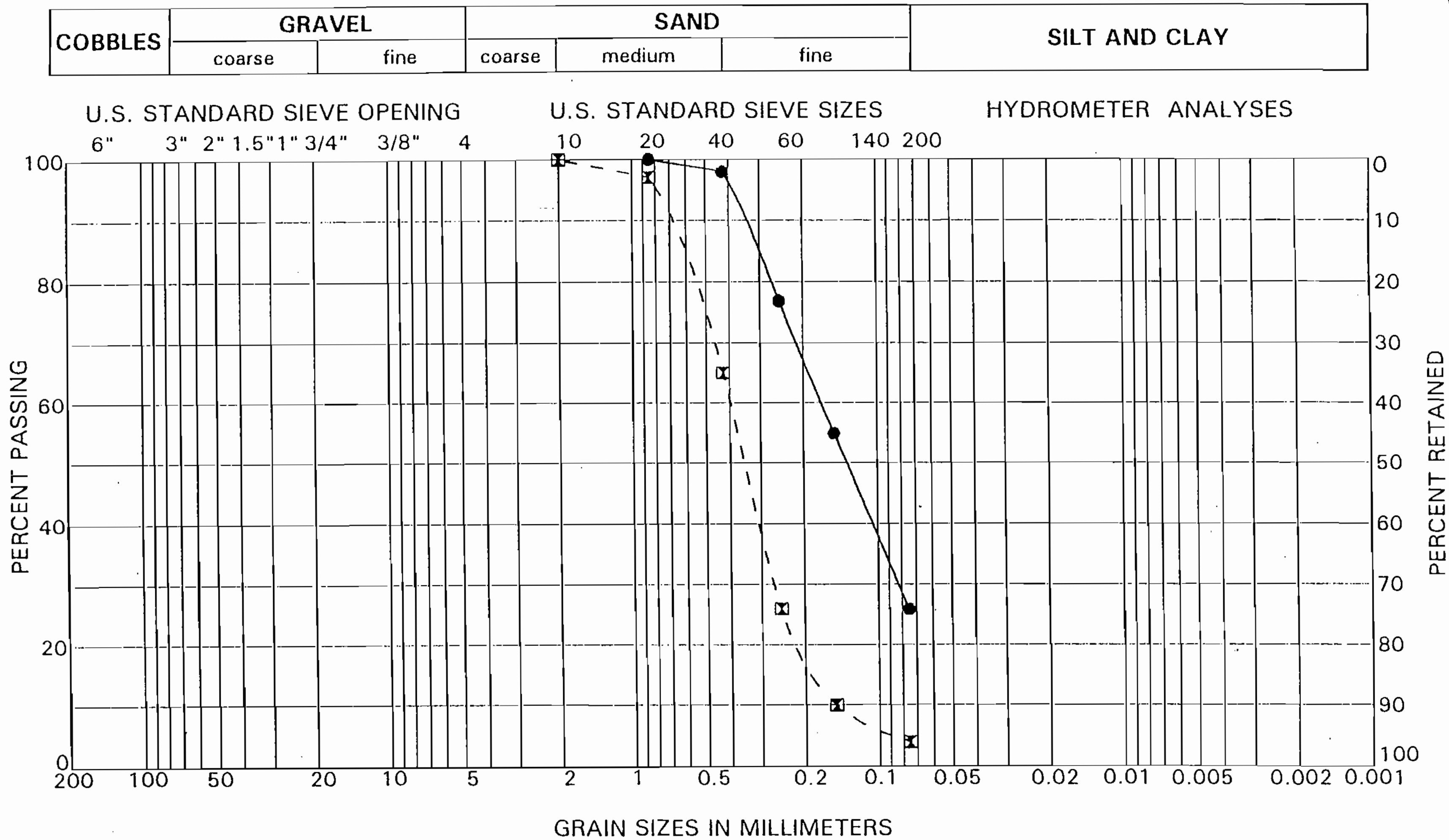
PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS ENGINEERING

SALINAS RIVER BRIDGE
MONTEREY COUNTY, CALIFORNIA

JOB NO: 96121.15

PLATE NO: B-2B

GRAIN SIZE DISTRIBUTION CURVES



Boring Number	Sample Number	Depth (feet)	Symbol	LL	PI	Description
B8	5	21.0	●			SILTY SAND
B8	10	46.0	⊠			POORLY GRADED SAND

PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS ENGINEERING

SALINAS RIVER BRIDGE
MONTEREY COUNTY, CALIFORNIA

JOB NO: 96121.15

PLATE NO: B-2C

AnaCon Testing Laboratories, Inc.

415 Fairchild Drive
Telephone: (415) 335-1233

Mountain View, California 94043
Facsimile: (415) 335-1076

October 3, 1996/ld

ATL No.: 0036.01
Lab No.: 35000.1.6 A

'arikh Consultants, Inc.
81 Valley Way
lilpitas, California 95035

ttention: Y. David Wang

ervice: CHLORIDE & SULFATE TESTS

b No.: 96121.15

ate Received: October 2, 1996

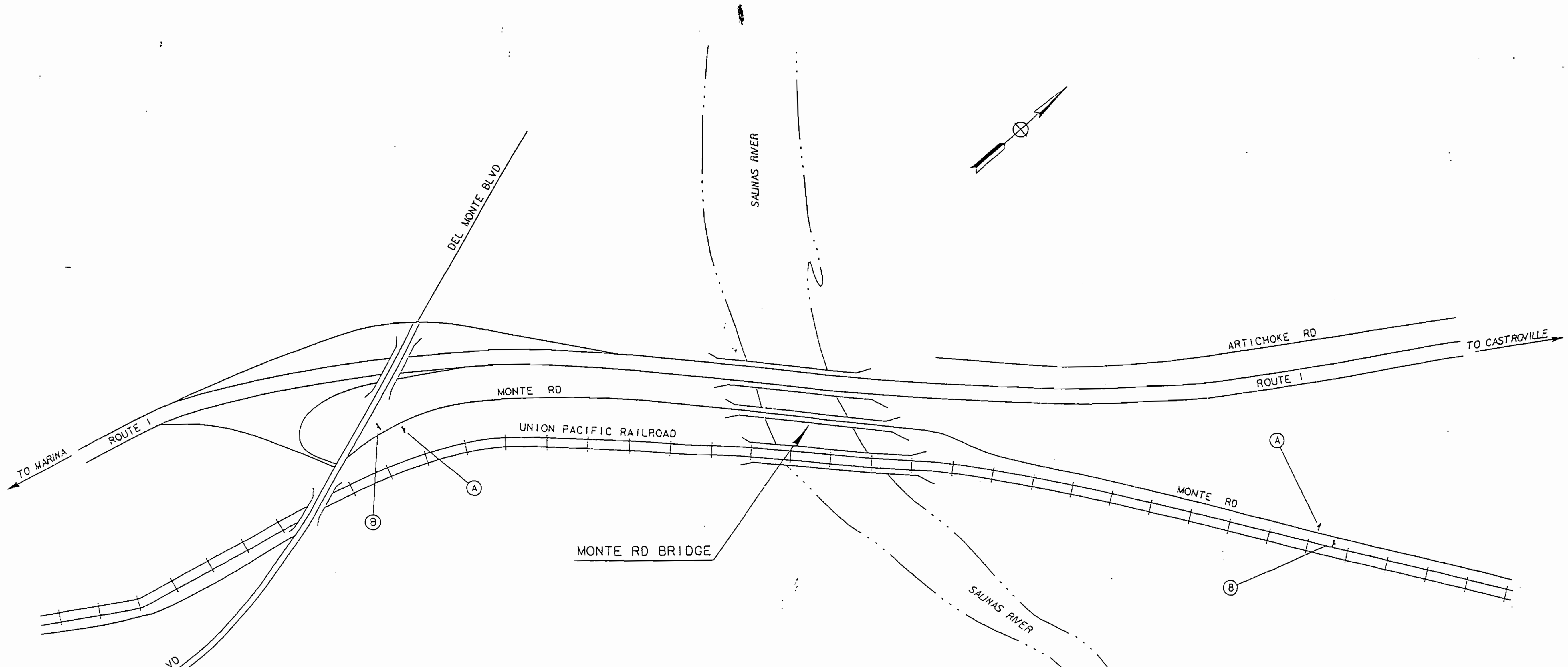
mple Identification:	Water Soluble Chloride* mg. / Kg. Found	Water Soluble Sulfate** mg. / Kg. Found
96121.15	255	720

/ater Soluble Chloride, mg Cl/Kg Soil: Requirement - 500 max. Calif. Test Method 422

Water Soluble Sulfate, mg SO_4/Kg Soil: Requirement - 2000 max. Calif. Test Method 417

espectfully submitted,
naCon Testing Laboratories, Inc.

uis Davis
emistry Laboratory



CONSTRUCTION AREA SIGNS (STATIONARY MOUNTED)

Sign No.	Sign	Panel Size	Sign Message	No. of Posts-Size	Each
A	C18	48" X 48"	ROAD CONSTRUCTION AHEAD	1 - 4" X 6"	2
B	C13	60" X 24"	END CONSTRUCTION	2 - 4" X 4"	2

Note: Exact location and position of signs to be determined by the Engineer.

1025ccs01.dgn REV. 9 KM 12/19/00

Submitted by Anthony L. Yoo Date 7/14/00
DESIGN BY F. Nostratis CHKD BY A. Yoo
DRAWN BY F. Nostratis CHKD BY A. Yoo
SPECIFICATIONS WRITTEN BY A. Yoo CHKD BY
Approval Recommended by
Public Works Senior Design Engineer

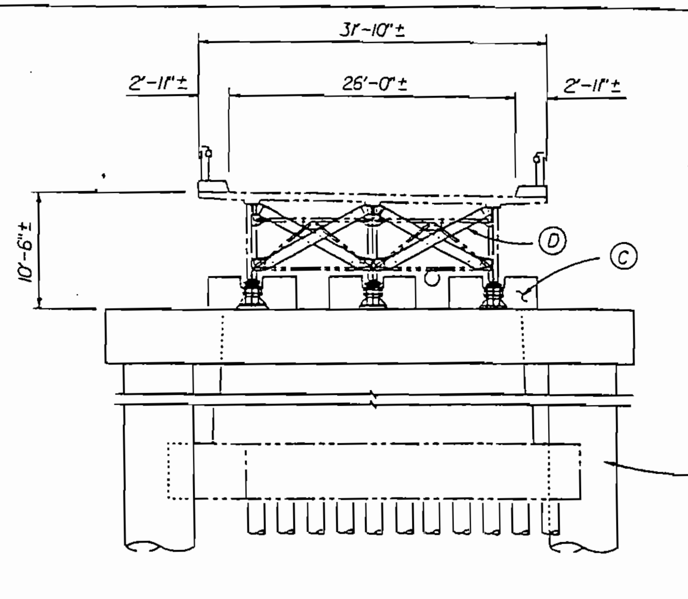
REGISTERED PROFESSIONAL ENGINEER
Anthony L. Yoo
No. C46313
Exp. 12/31/02
CIVIL
STATE OF CALIFORNIA

DOKKEN ENGINEERING
3054 Gold Canal Drive
Rancho Cordova, CA 95670
(916)858-0642

MONTEREY COUNTY CALIFORNIA 1850
MONTEREY COUNTY PUBLIC WORKS
BRIDGE DESIGN
312 EAST ALISAL STREET
SALINAS, CALIFORNIA 93901
(831) 755-4800/FAX 755-4958

EARTHQUAKE RETROFIT
CONSTRUCTION AREA SIGNS
MONTE ROAD BRIDGE
at Salinas River
County No. 135. State No. 44C-0093

DATE	DWG. NO.		SHEET
12/00			2
SCALE None	PROJECT NO. 01-220765		OF 20



PILE DATA - CAST-IN-STEEL-SHELL (CISS) CONCRETE PILES

Location/Type	Design Loading (Service)	Nominal Resistance		Design Tip Elevation	Specified Tip Elevation
		Compression	Tension		
Pier 1 /72xl.0	N/A	735 kips	0 kips	-66.0 (1); -55.0 (3)	-66.0
Pier 2 /72xl.0	N/A	990 kips	0 kips	-112.0 (1)&(4); -105.0 (3)&(4)	-112.0
Pier 3 /72xl.0	N/A	970 kips	0 kips	-110.0 (1)&(4); -105.0 (3)&(4)	-110.0
Pier 4 /72xl.0	N/A	947 kips	0 kips	-108.0 (1)&(4); -105.0 (3)&(4)	-108.0
Pier 5 /72xl.0	N/A	955 kips	0 kips	-109.0 (1)&(4); -105.0 (3)&(4)	-109.0
Pier 6 /72xl.0	N/A	735 kips	0 kips	-100.0 (1)&(4); -105.0 (3)&(4)	-105.0

Design Tip Elevation is controlled by the following demands: (1) Compression, (2) Tension, (3) Lateral Load during Seismic Condition, (4) Liquefaction to Elev. -30 feet (Piers 2 through 6)

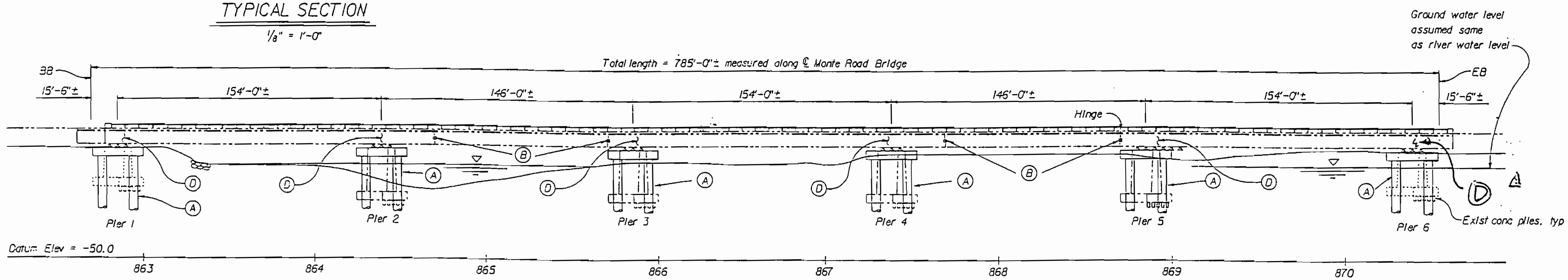
RETROFIT LEGEND

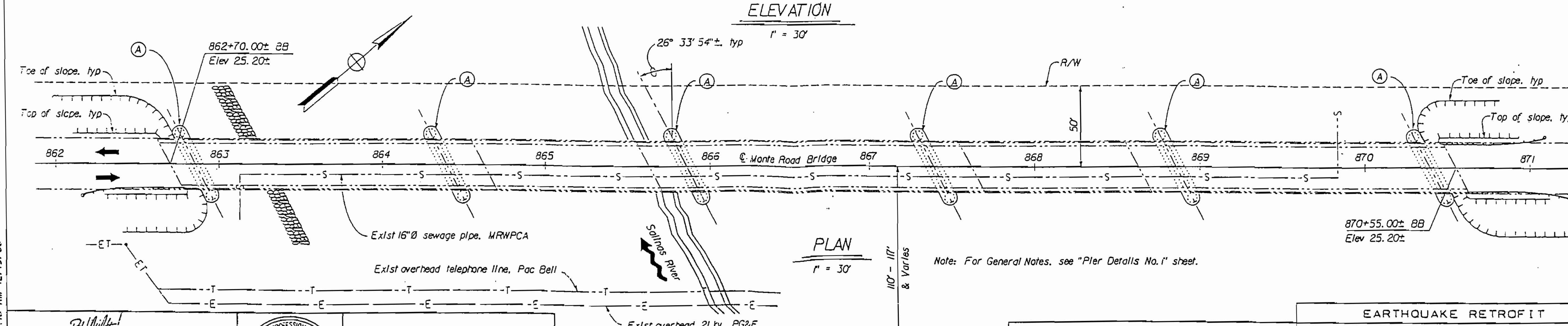
- (A) Bent Retrofit
- (B) Pin and Hanger retrofit
- (C) Catcher blocks & shear keys
- (D) Cross Bracing

LEGEND

- Indicates existing structure
- Indicates new construction
- Indicates direction of traffic
- Indicates direction of flow
- Standard plan sheet no.
- Detail no.

△1 6-12-01





Note: For General Notes, see "Pier Details No. 1" sheet.

Note:
The Contractor shall verify all controlling field dimensions before ordering or fabricating any material.

For complete R/W data, see R/W Record Maps at County office

Submitted by	[signature]	Date	12-20-00
Design by	R. Miller	Chkd by	H. Hamzawi
Drawn by	T. Florence	Chkd by	H. Hamzawi
Specifications written by	R. Miller	Chkd by	
Approval Recommended by	Public Works Senior Design Engineer		

REGISTERED PROFESSIONAL ENGINEER
RAYMOND H. MILLER, JR.
No. 42501
Exp. 3-31-04
CIVIL
STATE OF CALIFORNIA

DOKKEN ENGINEERING
3054 Gold Canal Drive
Rancho Cordova, CA 95670
(916)858-0642

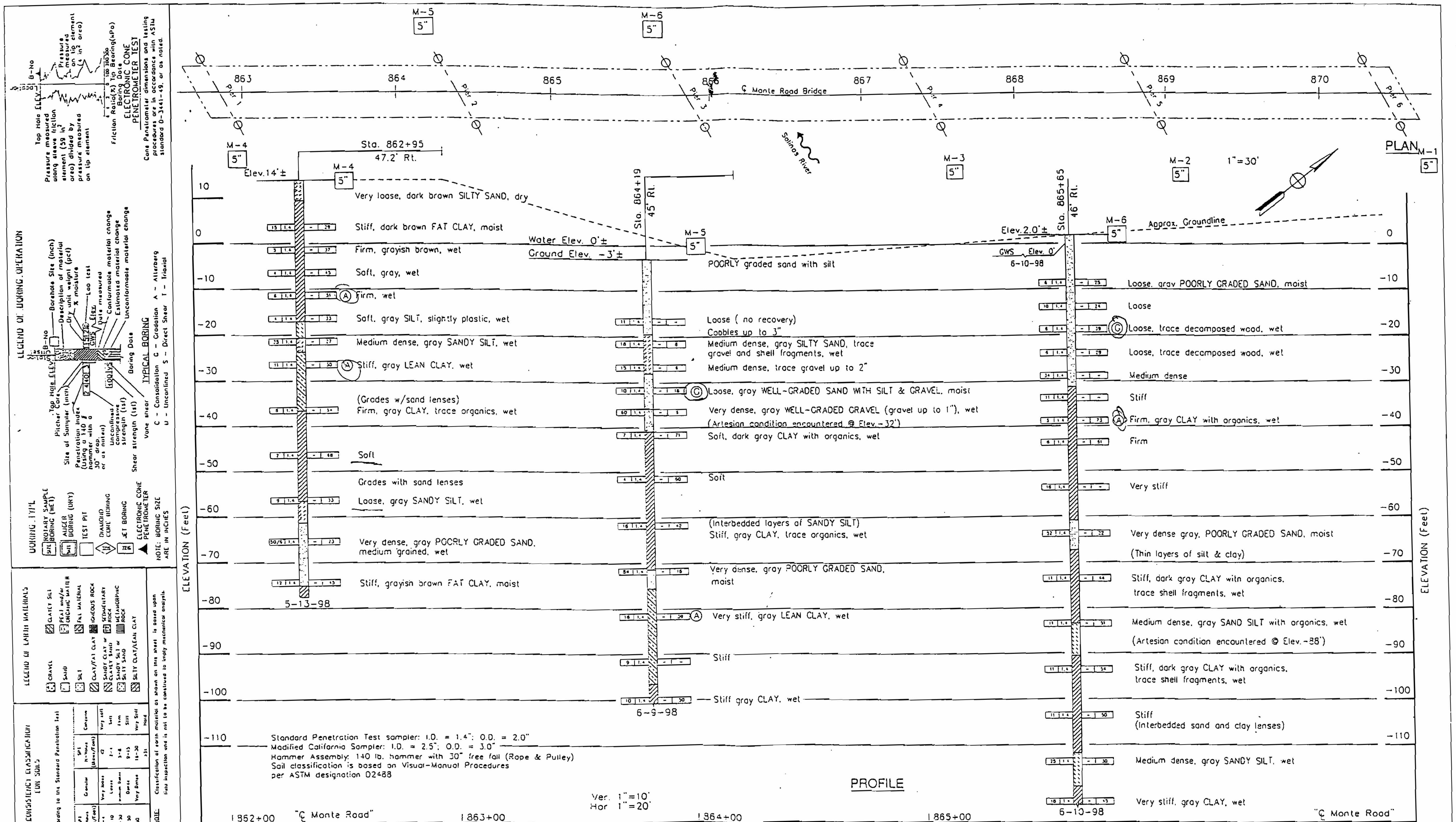
MONTEREY COUNTY PUBLIC WORKS
BRIDGE DESIGN
312 EAST ALISAL STREET
SALINAS, CALIFORNIA 93901
(831) 755-4800/FAX 755-4958

COUNTY OF MONTEREY CALIFORNIA 1850

EARTHQUAKE RETROFIT
GENERAL PLAN
MONTE ROAD BRIDGE
at Salinas River
County No. 135, State No. 44C-0093

DATE	DWG. NO.	SHEET
12/00		3
SCALE	PROJECT NO.	OF
As noted	31-220755	20

1025CGP.DGN REV.10 KM 12/13/00



Submitted by DOKKEN ENGINEERING
3054 Gold Canal Drive
Rancho Cordova, CA 95670

FIELD INVESTIGATOR GREG BLOOM
DRAWN BY TONIA DEAN
CHECKED BY Y. DAVID WANG
Y. DAVID WANG PROJECT ENGINEER
DATE SEPT 1998
Approval Recommended by
Deputy Public Works Director, Engineering

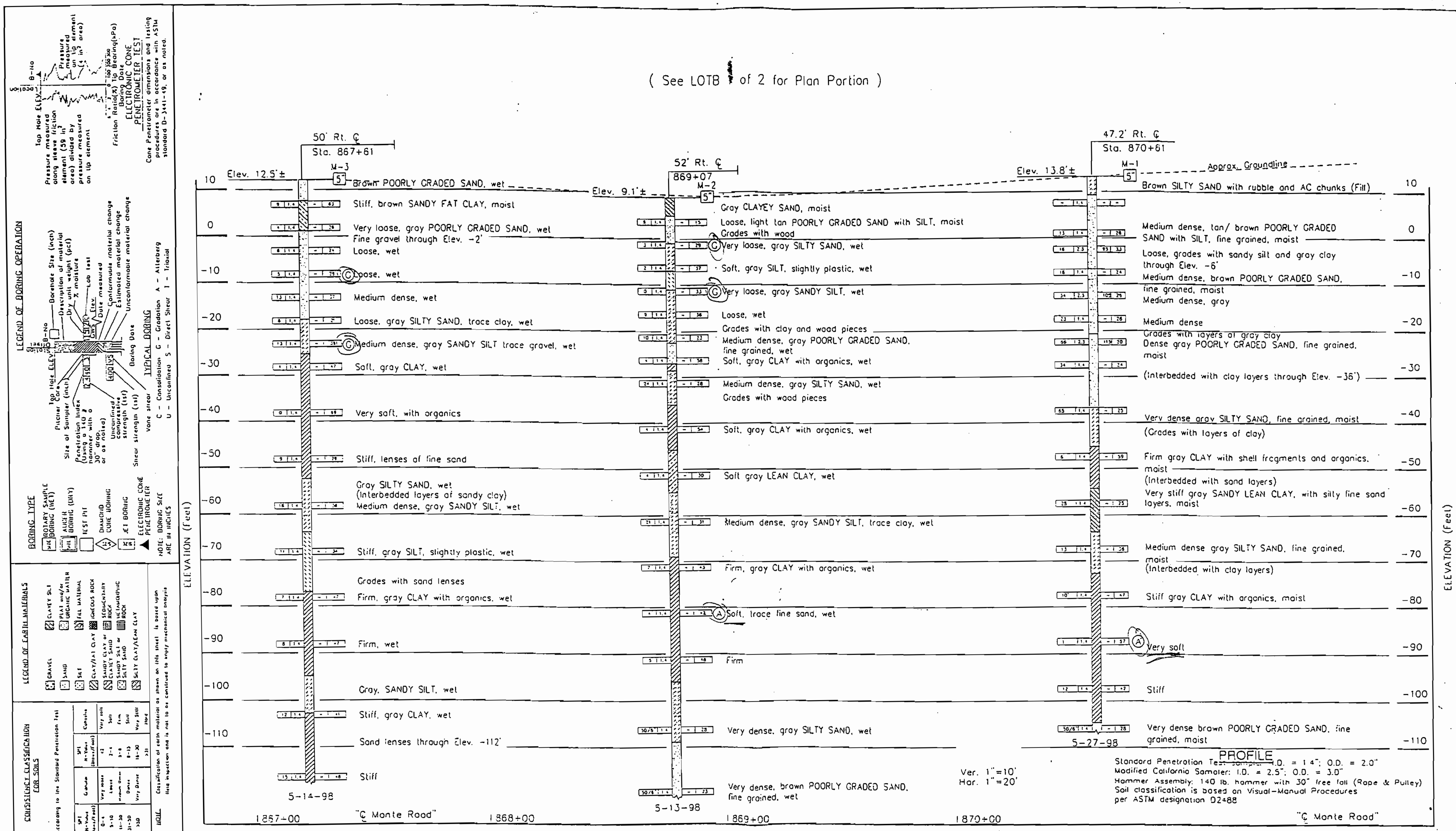
PARIKH CONSULTANTS, INC.
481 VALLEY WAY
MILPITAS CA 95035

GARY PARIKH No. C.E. 566 Exp. 12/31/01 GEOTECHNICAL

MONTEREY COUNTY PUBLIC WORKS
BRIDGE DESIGN
312 EAST ALISAL STREET
SALINAS, CALIFORNIA 93901
(408) 755-4888/FAX 755-4958

LOG OF TEST BORINGS 1 of 2
MONTE ROAD AT SALINAS RIVER
County Bridge No. 135 State No. 44C-93

DATE	DWG. NO.	JOB No	SHEET
12/21/2000	M-458	97112-13	8
SCALE	PROJECT NO.		OF
AS NOTED	01-220765		20



Submitted by DOKKEN ENGINEERING
3054 Gold Canal Drive
Rancho Cordova, CA 95670

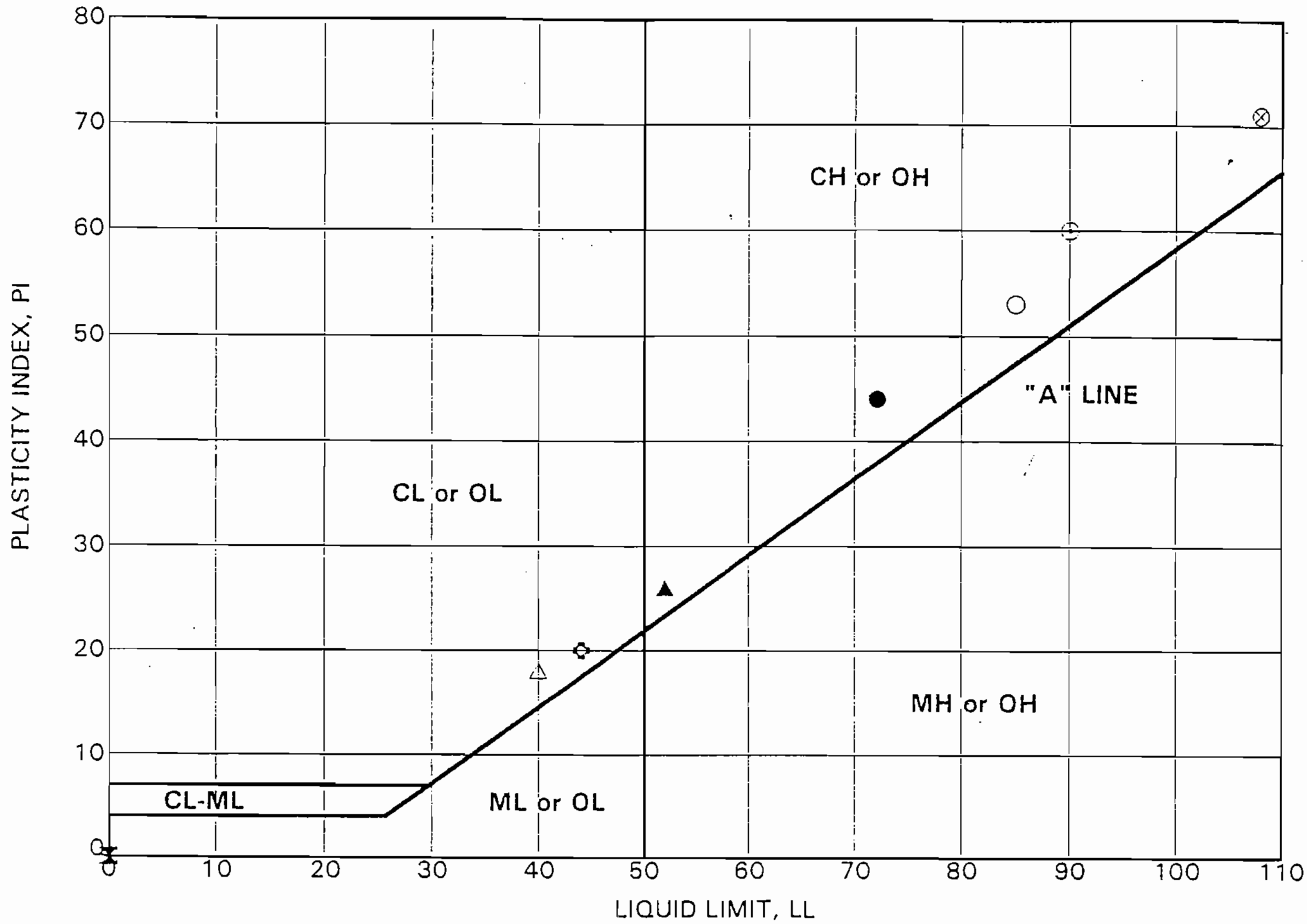
FIELD INVESTIGATOR GREG BLOOM
DRAWN BY TONIA DEAN
CHECKED BY Y. DAVID WANG
Y. DAVID WANG
PROJECT ENGINEER
DATE SEPT. 1998

PARIKH CONSULTANTS, INC.
481 VALLEY WAY
MILPITAS CA 95035

MONTEREY COUNTY PUBLIC WORKS
BRIDGE DESIGN
312 EAST ALISAL STREET
SALINAS, CALIFORNIA 93901
(408) 755-4888/FAX 755-4958

LOG OF TEST BORINGS 2 of 2
MONTE ROAD AT SALINAS RIVER
County Bridge No. 135 State No. 44C-93

DATE	DWG NO	JOB No.	SHEET
12/21/2000	M-123	97112-13	9
SCALE	PROJECT NO		OF
AS NOTED	01-220765		20



PLASTICITY CHART

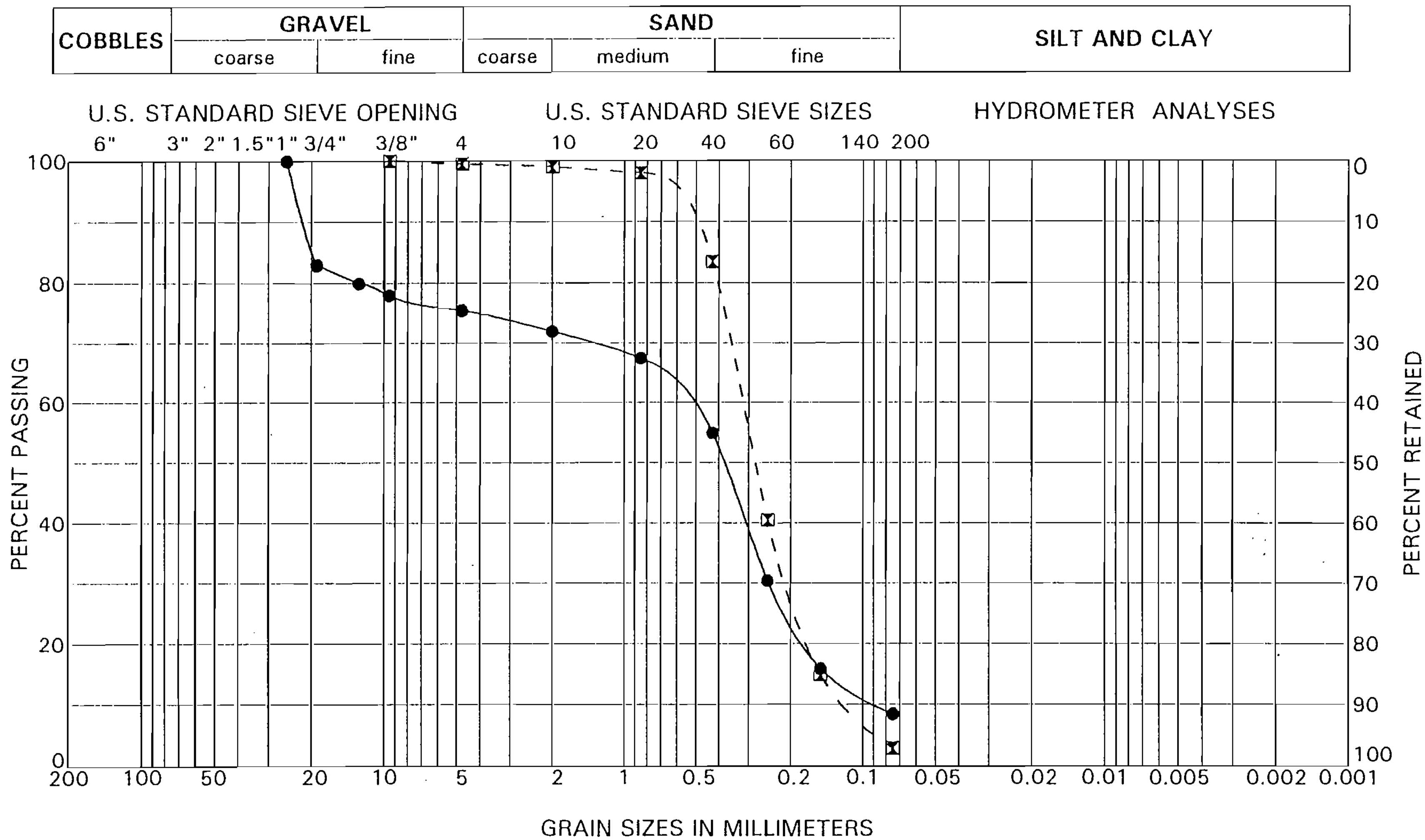
Boring Number	Sample Number	Depth (feet)	Test Symbol	Moisture Content (%)	LL	PL	PI	Description
M-1	14	101.0	●	67	72	28	44	GRAY CLAY WITH ORGANICS
M-2	11	71.0	⧗	31	NP	NP	NP	NON-PLASTIC
M-2	13	91.0	▲	42	52	26	26	GRAY CLAY WITH ORGANICS
M-3	12	81.0	★	34	NP	NP	NP	NON-PLASTIC
M-4	4	26.0	⊙	51	90	30	60	GRAY CLAY WITH ORGANICS
M-4	7	41.0	✪	30	44	24	20	LEAN CLAY
M-4	9	61.0	○	68	85	32	53	GRAY CLAY WITH ORGANICS
M-5	10	78.0	△	39	40	22	18	LEAN CLAY
M-6	7	40.0	⊗	73	108	37	71	GRAY CLAY WITH ORGANICS

PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS ENGINEERING

MONTE ROAD AT SALINAS RIVER
MOTEREY COUNTY, CA

JOB NO: 97112.13 | PLATE NO: B-2

GRAIN SIZE DISTRIBUTION CURVES



Boring Number	Sample Number	Depth (feet)	Symbol	LL	PI	Description
M-5	4	28.0	●			WELL-GRADED SAND WITH SILT AND GRAVEL
M-6	3	20.0	⊠			POORLY GRADED SAND

PARIKH CONSULTANTS, INC.
GEOTECHNICAL CONSULTANTS
MATERIALS ENGINEERING

MONTE ROAD AT SALINAS RIVER
MOTEREY COUNTY, CA

JOB NO: 97112.13

PLATE NO: B-3B

AnaCon Testing Laboratories, Inc.

415 Fairchild Drive **Mountain View, California 94043**
Telephone: (650) 335-1233 **Facsimile: (650) 335-1076**

June 18, 1998 / ld

Parikh Consultants, Inc.
481 Valley Way
Milpitas, California 95035

ATL No.: 0036.01
Lab No.: 37385.1.6

Service: CHLORIDE & SULFATE TESTS

Job No.: 97112.14 - (Monte Road Composite M1 + M2 + M3 + M4)

Date Received: June 16, 1998

Sample Identification:	Water Soluble Chloride* Found	Water Soluble Sulfate** Found
97112.14 (Monte Road)	315	418

*Water Soluble Chloride, mg Cl/Kg Soil: Requirement - 500 max. Calif. Test Method 422

**Water Soluble Sulfate, mg SO_4/Kg Soil: Requirement - 2000 max. Calif. Test Method 417

Respectfully submitted,
AnaCon Testing Laboratories, Inc.

Louis Davis
Chemistry Laboratory

RECEIVED

APR 1 3 2001

009112

NORMAN S. BRAITHWAITE, INCORPORATED
1050 WEST STREET
REDDING, CA 96001
PH: 530.245.0864 FAX: 530.245.0867

April 11, 2001

Ray Miller
Dokken Engineering
3054 Gold Canal Drive
Rancho Cordova, CA 95670-6116

Re: Monte Road over Salinas River, Monterey County.

Dear Ray:

Hydraulic analysis related to the proposed seismic retrofit measures at Monte Road over the Salinas River has been completed. Results and conclusions of the analysis are described below.

Introduction:

The Monte Road Bridge over the Salinas River was identified as being deficient under the Seismic Retrofit (SR) program. The selected SR strategy selected for this bridge consists of placement of new 6-foot diameter CISS piles and cap beams straddling existing pier walls. Hydraulic analysis is required to identify impacts of this strategy on flood risk and to estimate the depth of potential scour for the new piers.

Hydraulic Impacts:

Probably no
reduction in channel
for our piles. Existing
Piers large.

Since the proposed piers are larger in diameter than the existing piers, assuming fixed channel geometry, there will be a slight reduction of conveyance area. This reduction is approximately 40-square feet under the 100-year flood water surface elevation. Still assuming fixed channel geometry, this represents a reduction of less than 1-percent of the existing effective conveyance area under the 100-year flood water surface elevation. The Salinas River channel, however, does not maintain a fixed channel geometry. The river banks and bed are very highly erodible and capable of responding rapidly to hydraulic requirements. Flood water surface elevations at Monte Road are more related to conditions of tide, sediment transport and loss of flow from the channel than to the specific channel geometry at the bridge. Given the ability of the Salinas River channel to

The Salinas River channel, however, does not maintain a fixed channel geometry. The river banks and bed are very highly erodible and capable of responding rapidly to hydraulic requirements. Flood water surface elevations at Davis Road are related to conditions of sediment transport and substantial overbank conveyance than to the specific channel geometry at the bridge. Given these factors the proposed SR measures are not expected to have a quantifiable impact to the water surface elevation during the most probable 100-year flood and therefore not expected to increase the risk of damage to structures during the most probable 100-year flood.

Potential Scour:

Assuming an effective pier width of 2.0-meters to account for accumulation of debris the potential local pier scour estimated using the CSU equation presented in FHWA HEC-18 is 2.4-meters. Given a current bottom of channel elevation of 4.0-meters NGVD and a potential channel deepening of 1.5-meters, total estimated potential scour at the piers is to an elevation of 0.5-meters NGVD. Both the abutments of the bridge and piers should be designed considering this potential scour.

Sincerely,

Norman S. Braithwaite, P.E.
Civil Engineer

PRELIMINARY BRIDGE REPORT
"EXCERPT"
JANUARY 1970

8

21-1-09294-001
RCD 7/9/01
Monterey County LL

05-Mon-1-89.2
Salinas River
Bridges Nos. 44-216 R/L

IV. HYDROGRAPHY

General

A comprehensive hydraulic study for the Salinas River is included with the September, 1962 Preliminary Report for the Salinas River Bridges Nos. 44-40 R and L on Road 05-Mon-68-17.7 (old V-Mon-117-A). For additional data refer to the above report.

Basin

The Salinas River basin above Route 1 consists of about 4250 sq mi of level valley, rolling foothills, and steep mountain slopes ranging from about sea level to peaks at about El 5000. The valley area is extensively cultivated, the foothills support a moderate grass cover, and the upper rockly slopes support a moderate growth of brush and trees. Due to the large basin area and long stream length, the Salinas River basin drains many different climatic, topographic, and land use areas.

The Salinas River discharges into Monterey Bay about 2 miles downstream from Route 1 and is considered navigable from Monterey Bay to about 3 miles upstream from Route 1. Stage and Velocity at Route 1 are affected by tidal action as well as by basin runoff.

Of the major upstream regulatory devices, those which might affect basin runoff include Nacimiento and San Antonio Reservoirs. The Nacimiento Dam is located near the mouth of the Nacimiento River and began water storage in 1956. The San Antonio Dam is located near the mouth of the San Antonio River and began water storage in 1965. Both of these reservoirs plus other reservoirs within the basin are primarily for water development and not for flood control. Therefore, for this report, it will be assumed that none of the reservoirs within the basin will materially affect discharges with frequencies in excess of once in ten years.

Discharge

A stream gaging station with a 4160 sq mi basin has been located about 11 miles upstream from Route 1 since 1929. In addition to the recorded discharges, a historical record of estimated discharges from 1900 to 1929 has been compiled. Together this data represents nearly 70 years of records and is considered adequate to be used to estimate a 30-yr design discharge of about 80,000 sec-ft at Route 1.

The greatest discharge at the gage occurred in 1914 of 85,000 sec-ft (estimated) and the second greatest was in 1969 of 82,600 sec-ft (estimated). There are no major tributaries to the Salinas River between the gage and Route 1.

Stage

During the December, 1969 field investigation, a painted high water mark (February 1969) was found at about El 12 on the existing Bridge No. 44-72. It is anticipated that this stage can also be considered the 30-yr design discharge stage at this site.

The 1941 report for Bridge No. 44-72 gives the following approximate peak stages:

1914	El 13.5
1941	El 11.0
1938	El 10.0

It is noted that the stage - discharge relationship will be variable due mainly to tidal action.

Discounting the effect of stream flow and the sand spit at the mouth, the tidal relationship at the site is estimated to be about as follows:

Highest tide	El 5.0 MSL
MHHW	El 2.3 MSL
MLLW	El -3.0 MSL
Lowest tide	El -5.5 MSL

Velocity

Based on the existing waterway area below the 1969 painted stage and a discharge of about 80,000 sec-ft, it is anticipated that an average velocity of less than 15 fps will occur within the main channel and an average velocity of about 5 fps will occur within the overflow area.

Stream Bed

The existing channel consists of a sandy stream bed with relatively stable, silty banks and overflow area. Considerable stream bed scour can be anticipated adjacent to piers during periods of heavy stream flow. Pier footings within or immediately adjacent to the main channel should be at or below El -20.

Drift

A heavy volume of large drift can be expected during periods of peak discharge. Span lengths approximately equal to the existing structure should be provided within the main channel. 50-ft span lengths within the overflow area should be adequate. Wall piers and R/L pier connections are suggested within the high velocity main channel.to eliminate a drift trap. Pile bents should be satisfactory within the overflow area.

Required Waterway

The existing Bridge No. 44-72 (built 1943) provides an effective waterway area of about 6,000 sq ft below El 12. Of this total area, about 800 sq ft is relatively inefficient, shallow, low-velocity, overflow area. However, the total effective area appears adequate to pass the 30-yr design discharge without problems and it is suggested that the proposed structures provide an equivalent waterway area. Based on the "L.O" line profile and a skew of 22°, the suggested waterway area can be provided by open end type structures beginning at Sta 810+10 and ending at Sta 816+45. This length of 635 ft is 150 ft less than the existing bridge. However, the reduced length is within the overflow area and is also partially compensated by less skew.

Bank Protection

It does not appear that bank protection will be required. However, District should determine and handle any required bank protection.

SALINAS RIVER BRIDGES 44-40 R/L · MON-68 - PM 17.7 7
SEPTEMBER 1962

PRELIM BR DOC 95
(PRELIMINARY BRIDGE REPORT)
"EXCERPT"

IV. HYDROGRAPHY

Basin: The Salinas River basin consists of about 4,230 sq mi of level valley, rolling foothills, and steep mountain slopes ranging from about El 5000 to about El 25. The valley area is extensively cultivated, the foothills support a moderate grass cover, and the upper slopes support a moderate growth of brush and trees. Due to the large basin area and long stream length, the Salinas River basin drains many different climatic, topographic, and land use areas.

The Salinas River discharges into Monterey Bay about 15 miles downstream from the site and tides affect stage and velocities o f peak discharges at the site.

There are several regulating devices located within this basin. However the only one which might be considered to affect flow at the site is the Nacimiento Reservoir, located about 90 miles upstream and near the mouhh of the Nacimiento River, a major tributary. Other major tributaries include the San Antonio River, Estrella River, San Lorenzo Creek, and Arroyo Seco.

Additional hydraulic studies on the Salinas River which have been made in the past and which might supplement the following data include:

Salinas River, King City to Soledad, August 3, 1949, by RR Rowe and E F Hamlin.

Preliminary Report for Salinas River Bridge No. 44-72 on Road V-Mon-56-I, July, 1941 by W. H. Jacobson.

Preliminary Report for Salinas River Bridge No. 44-02 on Road V-Mon-2-D, dated 1936.

District Memorandum dated February 27, 1962 by R. R. Pederson.

8

PRELIM BR DOC 95

Memorandum dated April 24, 1962 by T. C. Royce.

Discharge: A stream gaging station has been located adjacent to the site since 1929. This station is located at the existing Route 117 Bridge No. 44-22 about 0.4 mile downstream from the proposed crossing.

In addition to the gaging station records, a historical record of estimated discharges from 1900 to 1929 has been compiled. Together this data represents 60 years of records and can be considered adequate to be used in determining a design discharge.

A summation of this data follows:

Peak Annual Discharge (Sec-Ft)	Year	Stage (Staff Gage)	Remarks
85,000	1914		est. Q
80,000	1911	266	est. Q based on highwater marks
75,000	1938	250	
60,000	1916		est. Q
49,400	1917		est. Q
48,500	1927		est. Q
46,800	1926		est. Q
45,400	1941	199	
44,800	1945	214	
42,800	1943	190	
42,100	1932	204	
38,000	1909		est. Q
37,000	1922		est. Q
35,600-	1958	232	
35,100	1901	*156	gage at unknown datum
31,600-	1952	2685	highest known stage
30,500	1906		est. Q
30,000	1942	160	
29,500	1915		est. Q
27,100	1937	232	
25,500	1944	150	
25,000	1903		est. Q
23,600-	1956	245	
21,500	1919		est. Q
20,500	1936	206	
19,000	1902		est. Q
16,900	1935	187	
16,000	1907		est. Q
12,800	1921		est. Q
12,000	1923		est. Q

11,000	1905		est. Q
10,900	1946	117	
9,000	1928		est. Q
8,900-	1953	185	
8,400	1929		
8,060	1934		
7,500	1908		est Q.
5,550	1949	158	
5,300	1950	177	

In addition to the above list there are 20 more discharges ranging from a low of 50 sec-ft to a high of 5000 sec-ft with known stages ranging from 70 to 135. Also, the report on the Salinas River, King City to Soldad, August 3, 1949, by R. R. Rowe and C. F. Hamlin gives the following information: "Of all floods which have occurred on the Salinas River in the past 100 years, that of 1862 was the greatest. Its estimated stage is said to correspond to 31 feet on the present gage at Spreckels, or 5 feet higher than any other known stage at that station. Other large floods" (prior to 1900) "occurred in 1868, 1881, 1890."

*Based on Water Supply Paper No. 51. Gage reading of about 3.5 was bottom of channel and gage was located at a bridge about 3.75 miles south of Salinas.

It should also be noted that only one major peak discharge has occurred since the Nacimiento Reservoir has been in operation (November, 1956) and therefore no reasonable estimate of the effect of this reservoir on peak flows at the site can be made. For this report, it is assumed that the Nacimiento Reservoir does not affect discharges with frequencies in excess of once in ten years.

Based on the above data and considering that only one of the four greatest peak discharges is an actual recorded discharge and that the second greatest is based on an observed high stage, it is believed that a design discharge of about 75,000 sec-ft with an estimated frequency of once in thirty years should be used.

Stage: As can be seen from the relation between staff gage readings and peak discharges (see preceding "Discharge" section), high stages vary considerably and are relatively independent of discharge. This variation can not be explained by any one factor, but is probably due to a combination of factors. Of these, it is believed that the three most important, or common, factors affecting stage are as follows:

Natural growth within and adjacent to the channel which quite likely follows a pattern based on frequency of large annual discharges and man-made changes within overflow areas.

Tidal effect which can change highwater slope and therefore affect velocities of peak discharges.

Streambed characteristics including the sandy stream bed material, the wide shallow overflow areas, and the tendency to shift or meander, deposit or scour within the wide, shallow, unconfined channel.

During the May, 1962 field investigation at this site, stream slope was found to be about 0.75 foot per 1000 feet based on low water surface and recent drift. Also the unconfined channel was found to be between 250 and 300 feet wide and about 12 feet below the overflow areas. Both overflow areas varied between 200 and 500 feet wide and supported a very dense growth of brush, vines, and trees. The channel supported a moderate to sparse growth of brush and tules.

From the condition of the channel at the present time it is believed that peak discharges occurring under existing conditions would result in high stages. Therefore the relationship of the 1952 and 1956 discharge to stage is believed to most nearly represent the near future relationship. However, it should be noted that the 1940 to 1949 period would be more representative of conditions where a series of reasonably large discharges followed an extreme discharge.

For this report, it is assumed that the 1958 discharge-stage relationship represents existing average conditions and that the 1952 relationship represents the worst possible combination of factors.

During the 1962 field investigation, a direct tie between survey datum (USC &GS-MSL-1961 adjustment) and the staff gage at Bridge No. 44-22 was made. This tie indicated that the datum of the staff gage is 19.9 feet above mean sea level. Since Water Supply Papers indicate that the datum of the gage is 22.64 feet above mean sea level (1912 adjustment) verification of datum is being obtained from the USGS. However, a 1950 recorded highwater foundd in Bridge Book No. 398 and compared with the maximum November, 1950 stage from the Water Supply Paper supports the 19.9-foot datum relationship. Therefore, for this report, add 19.9 feet to staff gage stage readings to obtain survey datum elevations. In addition, add about 1.5 feet to these elevations to obtain comparable stage elevations at the proposed structure site.

At existing Bridge No. 44-22 in 1958, the peak discharge of 35,600 sec-ft reached El 43. Assuming spans 3 and 4 fully effective and spans 1, 2, and 5 only 50% effective due to dense growth, this discharge is estimated to have an average velocity of about 6 fps under the two main spans and an/average velocity of about 2 fps under the other three spans.

Using the above stage, discharge, and velocities as a base and adjusting velocities and areas due to scour and stage, the following table of discharge-stage relationships are estimated at the existing Bridge No. 44-22.

Stage (MSL Elev)	Overflow A	Overflow V	Overflow Q	Main Channel A	Main Channel V	Main Channel Q	Es Q (Sec-Ft)	Remarks
50	4300	2	4300	9400	8.5	80000	84000)	General scour to El 22 under spans 3 & 4
49	4000	2	4000	9000	8	72000	76000)	
48	3700	2	3700	8200	7.5	61500	66000	General scour to El 24 under spans 3 & 4
47	3400	2	3400	7500	7.5	56000	60000	Assume general scour to El 25 under spans 3 & 4
45	2800	2	2800	6200	7	43000	46000	minor scour
43	2200	2	2200	5400	6	32000	35000	Assume only minor scour

Adjusting the above stage (for the estimated design discharge) upstream to the site, it is estimated that design highwater will peak at about El 50.5. However, El 51 at the upstream structure will probably be a reasonable estimate following construction. Minor flow occurs all year with normal low water at about El 27 between May and October.

Velocity: As noted in the preceding section (Stage) estimated velocities will vary from about 2 fps within the overflow areas to about 8 to 9 fps within the main channel. It is anticipated that maximum velocities of 10 fps can be used for design purposes.

Streambed: As noted previously, the main channel consists of loose sand and is relatively free of growth whereas the overflow areas support a very dense growth. Extensive scour can be expected within the main channel as well as lateral erosion and undercutting of overflow areas.

Between the proposed site and existing Bridge No. 44-22, the main evidence of recent movement.

Between a bend about 1000 feet upstream and the proposed site, the main channel is reasonably straight but gradually decreases in width as it approaches the site. Upstream from this bend, the main channel is considerably wider and overflow areas correspondingly more narrow than at the site. At the bend, which is a long gradual turn to the left, impinging currents on the outside or right bank restrict the overflow area to a very narrow strip.

At the site, the effect of the bend results in a stable, well protected right bank overflow area and a less stable left bank overflow area. Immediately upstream from the site, a wide, loose, sand bar has been deposited adjacent to the left overflow area. Downstream from the site, the left overflow area becomes more stable and better protected by natural growth. ?

Drift: During the 1962 field investigation, only a small volume of light drift and no drift larger than 20 feet in length was observed adjacent to the site. However, due to the heavy growth of large trees within the channel and the known ability of the streambed to shift, drift up to about 80 feet can be expected to pass the site during peak stages. Since this drift will be trees with large stub branches and heavy root systems, a minimum of 3 feet and preferably 5 feet of vertical clearance above design stage should be provided for driftway.

Required Waterway: As noted in a preceding section (Stage), the existing Route 117 structure is estimated to have required about 9000 sq ft of fully effective waterway area plus about 4000 sq ft of very inefficient overflow area to pass the design discharge below El 49. At the proposed site, this equivalent waterway area should be provided below El 50.5.

However, due to the extreme skew and slightly different channel at the proposed site it is believed that less overflow area would not affect peak discharge capacity to any great extent, possibly resulting only in a small additional head through the structures, a small increase in velocities, and some additional scour within the main channel. But it should be noted that sufficient overflow area should be provided to adequately protect approach fills from high velocities and prevent extensive undercutting of overflow areas. In addition, the District may wish to use structures in place of fill within some of the overflow area if economics indicate this is more advisable.

At the proposed site the existing well protected, low-velocity, overflow area on the left bank ends at about Sta 762+50. Following construction, it is believed that this low velocity area will end between Sta 761+50 and 762. With respect to the right bank, the low velocity overflow area now begins at about Sta 767. Following construction, it is believed that this low velocity area will begin at about Sta 767+50. To provide adequate protection, at least one span should be located within these low velocity overflow areas. However full 80-foot normal spans and 5-foot vertical clearance need not be provided within these areas.

Since it is anticipated that the major possibility of overflow ~~areas~~ area undercutting exists along the left bank, it is believed that the proposed structure locations should be picked to provide a greater overflow area opening within this left bank overflow area, rather than centered about the anticipated main channel centerline.

For design considerations, the following conditions are anticipated to be the controlling factors governing structure locations, waterway area, etc.

a. Structure length should not be less than 875 feet and beginning of bridge should not be located ahead of Sta 760.

b. Minimum thickness wall piers should be used to reduce turbulence, tend to channel high velocity flow, and to pass drift with less probability of drift pile-up. Piers of right and left structures should be connected.

c. 80-foot minimum clear normal spans should be used between Stas 761 and 767+50. Outside of these limits, 60-foot spans are satisfactory.

d. 5-foot minimum vertical clearances above El 50 should be provided between Stas 762+50 and 766. Outside of these limits, 4-foot minimum clearance above El 50 is satisfactory.

e. 45° left skew is suggested, however it should be noted that location and direction of high velocity currents will not necessarily be the same at various discharges and stages.

f. Scour is anticipated to at least El 23 with respect to usable waterway. However, scour action will extend well below El 20. The Engineering Geology Section will furnish estimated scour depth for safe footing locations following field investigation. Major scour is anticipated to occur between Sta 763 and 766. Minor scour is anticipated outside of above limits and between Stas 761+50 and 767+50.

g. The design highwater stage is estimated to be at about El 50.5 at the site. However, it is anticipated that the proposed structures may develop a head during peak discharges.

Therefore it is believed that El 51 at or adjacent to the upstream structure may more nearly be considered the design stage. It is noted that the discharge-stage relationship undoubtedly will vary considerably from year to year and that the above stage should be considered only a reasonable estimate based on average existing conditions.

Bank Protection: Based on the belief that the end spans of the proposed structures will be located within the overflow areas where average velocities are estimated to be under 3 fps, no bank protection is believed necessary under existing conditions. However, District may anticipate that fill will require light protection from turbulence and eddies adjacent to ends of structures due to type of fill material, clearing operations, or other factors and should handle all bank protection requirements.

In the future, conditions may require training devices or other channel stabilization work. Also, local or governmental interests may attempt channel improvement or stabilization. However, no conditions or proposals are known at this time which might require State participation.

PRELIM BR DOC 95

APPENDIX D

VERTICAL MOVEMENT DETECTOR

APPENDIX D

VERTICAL MOVEMENT DETECTOR

Shannon & Wilson has developed a liquid-level vertical-movement-detector (VMD). The VMD is intended for use on transportation corridors to trigger an alarm when a prescribed threshold value of vertical movement is exceeded. More than 85 of these detectors are currently installed at 4 locations on the Burlington Northern Santa Railway (BNSF) system in Washington and Missouri. These installations have been in use for up to 5 years to monitor for track settlement in landslide prone areas. Eight detectors were also used on a temporary basis to monitor a landslide that Union Pacific Railroad (UP) tracks cross near Santa Barbara, California and six detectors are proposed to be installed at another UP location near Santa Barbara, California. A VMD based system is well suited to monitoring the Salinas River Bridge piers and abutments for settlement because it is (1) developed specifically for detecting vertical movements, (2) robust and relatively maintenance free, (3) simple to use and install, and (4) proven in railroad applications.

The VMD consists of a series of float switches connected by wiring to form a circuit. The switches are installed inside small fluid chambers that are connected to each other and a reservoir by liquid filled tubing. The reservoir provides the reference level for the system. When the device is installed, the liquid level in the reservoir seeks a common level across the system and the fluid chambers are adjusted up or down as needed to put the liquid level at the same relative position. Vertical movement, up or down, at one or more of the fluid chambers causes the liquid level in the chamber to fall or rise, respectively. A float switch in the chamber is set to activate when the liquid level changes a preset amount, generally one to two inches. Activation of the float switch opens the circuit much like what occurs when a slide fence wire is broken or when a pull-plug switch is activated. (Slide fence wires and pull-plug switches are commonly used on railroad warning systems.) When the circuit is broken, it closes a magnetic switch that in turn activates an alarm circuit.

If a VMD system is used, we recommend that two VMD float chambers be installed on the bridge structure over each abutment and pier. One float chamber would be located on the east side of the bridge and one on the west side. Because the bridge length exceeds the maximum length over which a single level line can accurately be operated, a reservoir would need to be installed near each end of the bridge. The reservoirs, float chambers, tubing, and wire should be installed in protective housings and pipes to reduce the potential for vandalism.

In addition to installing VMDs on the bridge, signal controllers and signals would need to be installed and connected to the alarm circuit to warn approaching trains. The VMD system would include (1) VMDs and associated tubing and fluid chambers, (2) protective piping and enclosures, (3) power system, (4) signals, (5) backup batteries, and (6) labor and equipment to install, calibrate, and test the system components. Shannon & Wilson could purchase and install VMDs in contractor mounted piping and enclosures and provide electrical leads for others to connect power and signal control systems. Signal work to connect with VMD instrument instrumentation should be performed by qualified personnel; Shannon & Wilson is not qualified to perform signal work.

The above-described liquid-level instruments are proposed to monitor for pier settlement, whether the settlement is triggered by a seismic event, foundation failure, or occurs for some other reason. Based on our experience with installation of VMD systems, the probable cost for the VMD instruments and their installation by Shannon & Wilson personnel would be about $40,000 to $50,000. These costs do not include vandal protective components or mounting of these components on the bridge, signal and power systems, or other instruments (e.g., strong motion detectors).

APPENDIX E

IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL REPORT

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

Attachment to and part of Report 21-1-09294-001

Date: December 18, 2001
To: Mr. Richard D. Walker
STV Incorporated

Important Information About Your Geotechnical/Environmental Report

CONSULTING SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES AND FOR SPECIFIC CLIENTS.

Consultants prepare reports to meet the specific needs of specific individuals. A report prepared for a civil engineer may not be adequate for a construction contractor or even another civil engineer. Unless indicated otherwise, your consultant prepared your report expressly for you and expressly for the purposes you indicated. No one other than you should apply this report for its intended purpose without first conferring with the consultant. No party should apply this report for any purpose other than that originally contemplated without first conferring with the consultant.

THE CONSULTANT'S REPORT IS BASED ON PROJECT-SPECIFIC FACTORS.

A geotechnical/environmental report is based on a subsurface exploration plan designed to consider a unique set of project-specific factors. Depending on the project, these may include: the general nature of the structure and property involved; its size and configuration; its historical use and practice; the location of the structure on the site and its orientation; other improvements such as access roads, parking lots, and underground utilities; and the additional risk created by scope-of-service limitations imposed by the client. To help avoid costly problems, ask the consultant to evaluate how any factors that change subsequent to the date of the report may affect the recommendations. Unless your consultant indicates otherwise, your report should not be used: (1) when the nature of the proposed project is changed (for example, if an office building will be erected instead of a parking garage, or if a refrigerated warehouse will be built instead of an unrefrigerated one, or chemicals are discovered on or near the site); (2) when the size, elevation, or configuration of the proposed project is altered; (3) when the location or orientation of the proposed project is modified; (4) when there is a change of ownership; or (5) for application to an adjacent site. Consultants cannot accept responsibility for problems that may occur if they are not consulted after factors which were considered in the development of the report have changed.

SUBSURFACE CONDITIONS CAN CHANGE.

Subsurface conditions may be affected as a result of natural processes or human activity. Because a geotechnical/environmental report is based on conditions that existed at the time of subsurface exploration, construction decisions should not be based on a report whose adequacy may have been affected by time. Ask the consultant to advise if additional tests are desirable before construction starts; for example, groundwater conditions commonly vary seasonally.

Construction operations at or adjacent to the site and natural events such as floods, earthquakes, or groundwater fluctuations may also affect subsurface conditions and, thus, the continuing adequacy of a geotechnical/environmental report. The consultant should be kept apprised of any such events, and should be consulted to determine if additional tests are necessary.

MOST RECOMMENDATIONS ARE PROFESSIONAL JUDGMENTS.

Site exploration and testing identifies actual surface and subsurface conditions only at those points where samples are taken. The data were extrapolated by your consultant, who then applied judgment to render an opinion about overall subsurface conditions. The actual interface between materials may be far more gradual or abrupt than your report indicates. Actual conditions in areas not sampled may differ from those predicted in your report. While nothing can be done to prevent such situations, you and your consultant can work together to help reduce their impacts. Retaining your consultant to observe subsurface construction operations can be particularly beneficial in this respect.

A REPORT'S CONCLUSIONS ARE PRELIMINARY.

The conclusions contained in your consultant's report are preliminary because they must be based on the assumption that conditions revealed through selective exploratory sampling are indicative of actual conditions throughout a site. Actual subsurface conditions can be discerned only during earthwork; therefore, you should retain your consultant to observe actual conditions and to provide conclusions. Only the consultant who prepared the report is fully familiar with the background information needed to determine whether or not the report's recommendations based on those conclusions are valid and whether or not the contractor is abiding by applicable recommendations. The consultant who developed your report cannot assume responsibility or liability for the adequacy of the report's recommendations if another party is retained to observe construction.

THE CONSULTANT'S REPORT IS SUBJECT TO MISINTERPRETATION.

Costly problems can occur when other design professionals develop their plans based on misinterpretation of a geotechnical/environmental report. To help avoid these problems, the consultant should be retained to work with other project design professionals to explain relevant geotechnical, geological, hydrogeological, and environmental findings, and to review the adequacy of their plans and specifications relative to these issues.

BORING LOGS AND/OR MONITORING WELL DATA SHOULD NOT BE SEPARATED FROM THE REPORT.

Final boring logs developed by the consultant are based upon interpretation of field logs (assembled by site personnel), field test results, and laboratory and/or office evaluation of field samples and data. Only final boring logs and data are customarily included in geotechnical/environmental reports. These final logs should not, under any circumstances, be redrawn for inclusion in architectural or other design drawings, because drafters may commit errors or omissions in the transfer process.

To reduce the likelihood of boring log or monitoring well misinterpretation, contractors should be given ready access to the complete geotechnical engineering/environmental report prepared or authorized for their use. If access is provided only to the report prepared for you, you should advise contractors of the report's limitations, assuming that a contractor was not one of the specific persons for whom the report was prepared, and that developing construction cost estimates was not one of the specific purposes for which it was prepared. While a contractor may gain important knowledge from a report prepared for another party, the contractor should discuss the report with your consultant and perform the additional or alternative work believed necessary to obtain the data specifically appropriate for construction cost estimating purposes. Some clients hold the mistaken impression that simply disclaiming responsibility for the accuracy of subsurface information always insulates them from attendant liability. Providing the best available information to contractors helps prevent costly construction problems and the adversarial attitudes that aggravate them to a disproportionate scale.

READ RESPONSIBILITY CLAUSES CLOSELY.

Because geotechnical/environmental engineering is based extensively on judgment and opinion, it is far less exact than other design disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, consultants have developed a number of clauses for use in their contracts, reports and other documents. These responsibility clauses are not exculpatory clauses designed to transfer the consultant's liabilities to other parties; rather, they are definitive clauses that identify where the consultant's responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses are likely to appear in your report, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to your questions.

The preceding paragraphs are based on information provided by the
ASFE/Association of Engineering Firms Practicing in the Geosciences, Silver Spring, Maryland

APPENDIX D

Excerpts Related to Monterey Branch Line Bridge Structures

Monterey Intercity Passenger Rail Project

Submitted to the

Transportation Agency for Monterey County

Final Report

March 2003

Prepared by
STV Incorporated
100 Spear Street, Suite 505, San Francisco, CA 94105
Contact: Bruce Bernhard, (415) 777-9206

Table of Contents

ELEMENT FROM SCOPE OF WORK

ELEMENT FROM SCOPE OF WORK

MIPR Monterey Branch Drainage and Hydraulic Engineering

After investigation of requirements for subsurface explorations involving the Salinas River Railroad Bridge it was determined that due to existing and current information available from the Caltrans Bridge construction immediately downstream of the Salinas River Railroad Bridge further information was not needed in completing the current Intercity Rail Project. This determination was made and reviewed with TAMC consistent with the following reasons.

1. It was determined that the Salinas River Railroad Bridge could be rehabilitated and not replaced as originally thought by TAMC.
2. The existing Salinas River Bridge is nearly 15' higher than any of the highway structures it precedes in the river channel.
3. The existing river embankments are roughly 20' high on either side of the river creating a defined channel. This was learned to be a determining factor in the downstream Caltrans bridge design.
4. The hydraulic bridge studies used for the downstream Caltrans bridge actually used the Salinas River Bridge to define the channel and based that design on the width of the Salinas River Bridge.
5. The Caltrans bridge design further defined the river channel based on their design, which was based on the Salinas River Bridge width. Therefore the bridges are defining the channel.

Subject to the above information TAMC, early on in the project, agreed that STV should not pursue any further drainage and hydraulic engineering efforts during this project. Information as relates to the above items has been included the Geotechnical Report already provided to TAMC as a project deliverable (see page 5).

MIPR Monterey Branch Bridge Type Selection Study for Salinas River Bridge

The inspection and evaluation report for the Salinas River Bridge is provided separately. It recommends rehabilitation rather than replacement of this structure. The following assessment of the environmental status of the bridge indicates filing with Caltrans and TAMC simultaneously of an Historic Property Survey Report and Determination of Effect based on the recommendation to rehabilitate the bridge will occur by December 20, 2002.

MIPR Monterey Branch Salinas River Bridge Environmental Assessment

The contract scope of work provides: "The consultant shall determine the historical significance of the (Salinas River) bridge. If the bridge is deemed to be of historic significance, the consultant shall identify the requirements of the State Historic Preservation Officer and the federal Advisory Council on Historic Preservation in order for the project to proceed. The consultant shall provide detailed information on the steps required to secure clearance of the potentially historically-significant bridge and recommend a preferred alternative. The analysis shall include archeological studies, if required. Upon approval from TAMC, the consultation shall prepare preliminary designs for the bridge superstructure and foundations;"

MFA's position is that the bridge is not historic because it is a Warren Truss, which is a very common bridge type. Common bridge types are typically not found eligible for the National Register of Historic Places. The provision of federal grade crossing funds makes the project subject to Section 106 of the National Historic Preservation Act.

MFA has drafted the following Historic Property Survey Report (HPSR) and Determination of Effect for submittal to Caltrans District 5 (and subsequently to FHWA and the State Historic Preservation Officer). The Determination of Effect indicates that the proposed project will not have an adverse effect on the historic designation of the bridge since the proposed rehabilitation work will be in compliance with the Secretary of Interior's Standards:

The Secretary of the Interior's Standards for the Treatment of Historic Properties, U.S. Department of Interior, 1995. section: Standards for Rehabilitation:

1. A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.
2. The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.
3. Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.
4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.
5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.

6. Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.

7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.

8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.

9. New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work will be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.

10. New additions and adjacent or related new construction will be undertaken in a such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

MFA *Myra L. Frank & Associates, Inc.*

Memorandum

To: Steve Brooks

From: Jessica B. Feldman

Subject: Salinas River Bridge Evaluation (Bridge No. 113.46) – Monterey Branch Line
Job # 303

Date: December 17, 2002

Steve:

Pursuant to our discussion last week, please find attached to this memo an original copy of the California State Department of Parks and Recreation 523 form (DPR-523), which evaluates the significance and integrity of the Salinas River Bridge on the Monterey Branch Line.

Project Description:

The Transportation Agency of Monterey County (TAMC) is proposing to rehabilitate and reactivate the railroad line linking Castroville and Fort Ord in Monterey County, to accommodate passenger service for commuter and tourists along this increasingly important route. If FTA and FHWA are cooperating lead agencies, compliance with Section 106 of the National Historic Preservation Act as well as CEQA would be required. The tracks will be lifted and the existing wooden railroad ties will be replaced with concrete ties. The rehabilitation of the tracks will include the restoration of the Salinas River Bridge. The truss bridge at the Salinas River crossing will undergo renovation, including rust removal and repainting. In addition, a new platform will be constructed at the Fort Ord terminus of the line, with parking accommodated in existing parking lots adjacent to the line in Fort Ord. All work, including construction of the new platform, will be conducted within the existing right-of-way (ROW) and existing staging areas.

Resources Identified:

The Salinas River Bridge was erected for the Southern Pacific Railroad by the Phoenix Bridge Company in 1903. The original four southern spans were constructed in accordance with common standard plans for steel through Warren trusses, as published by the railroad. This single track railroad bridge was a vital feature of the Monterey Branch Line, a spur of the Southern Pacific Railroad, which ran between Castroville (north) and Monterey (south), connecting those communities to San Francisco and points south and east.

In the winter of 1913-1914, the Salinas River experienced severe flooding, which appears to have eroded the northern shore of the river at the bridge. This necessitated the construction of a fifth span, which was completed by the American Bridge Company in 1914. The fifth (or northern) span was built to the same specification as the earlier four spans. Each span is approximately 140 feet long. The original concrete northern abutment was cut and carved to resemble the other piers, while a new northern abutment was constructed.

811 West 7th Street, Suite 800, Los Angeles, CA 90017
Phone: (213) 627-5376 Fax: (213) 627-6853

The bridge was damaged during the 1989 Loma Prieta earthquake, causing some of the piers to be displaced and some of the spans were therefore shifted out of alignment. According to information in the Modjeski and Masters, Inc. report, "Salinas River Bridge Inspection and Evaluation" (2002), no known repairs were made at that time, as the bridge was not in service.

In September 2002, MFA Senior Architectural Historian Carson Anderson requested a records search from the Northwest Information Center in Rohnert Park, CA for the proposed project area[1]. According to their response on September 18, 2002, the proposed project area contains no record Native American cultural resources, three recorded historic sites, and one recorded historic linear feature. The Information Center identified this project area as potentially sensitive for historic cultural resources and as having a moderate to high possibility for the identification of Native American resources as well.

Conclusions:

The Salinas River Bridge has no known association with important persons or events and is therefore not eligible for the National Register of Historic Places under Criterion A or B. Furthermore, the Salinas River Bridge is an example of a common standard plan used by the Southern Pacific Railroad for Warren through truss spans, and is identical to numerous bridges built for the railroad company throughout the country. With respect to the design or the bridge, it does not represent a distinctive type, period, or method of construction, or the work of a master. It is therefore not eligible for the National Register of Historic Places under Criterion C.

If FTA and FHWA conduct Section 106 compliance with the California State Historic Preservation Officer they should request concurrence with the finding of No Historic Properties Affected.

[1] This report assesses the Salinas River Bridge, and nothing further. Therefore, the results of the records search are included in this section, but do not directly impact the review of the potential historical character of the bridge itself, as it was not identified during the records search as having previously been evaluated.

State of California -- The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HR #
Trinomial
NRHP Status Code 6Y2 Pending SHPO concur

Other Listings
Review Code Reviewer Date

* Resource Name or #: Salinas River Bridge near Neponset

P1. Other Identifier: Bridge No. 113.46

* P2. Location: ☐ Not for Publication ☑ Unrestricted a. County Monterey

b. USGS 7.5' Quad Date T ; R ; 1/4 of 1/4 of Sec ; B.M.

c. Address City Neponset Zip

d. UTM: (Give more than one for large and/or linear feature) Zone , mE/ mN

e. Other Locational Data: (e.g. parcel #, legal description, directions to resource, elevation, additional UTMs, etc. as app

* P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries.)

The Salinas River Bridge is a single-track railroad bridge that crosses the river near Neponset. The bridge consists of five steel Warren through truss spans atop concrete piers and abutments. The original four spans measures 140 feet long and each has six panels. The spans have a 17 foot distance between truss lines and 30 foot vertically between truss chord center, providing a 15.25 foot horizontal clearance and 23 foot vertical clearance above the base of rail. The 1914 span appears to be identical in length with a 15 foot horizontal clearance and 24 foot vertical clearance.

* P3b. Resource Attributes: (List attributes and codes) HP19 Bridge

* P4. Resources Present: ☐ Building ☑ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

P5a. Photograph or Drawing (Photograph required for buildings, structures, and objects)

P5b. Description of Photo: (View, date, etc.)
Looking towards the southern abutment at Spans 4 and 5. May 2002

* P6. Date Constructed/Age and Sources: ☐ Prehistoric ☑ Historic ☐ Both
1903 Original 4 spans
1914 5th Span

* P7. Owner and Address:
Union Pacific Railroad
1416 Dodge Street
Omaga, NE
P--Private

* P8. Recorded by: (Name, affiliation, address)
Jessica B. Feldman
Myra L. Frank & Associates, Inc.
811 W. 7th Street, Suite 800
Los Angeles, CA 90017

* P9. Date Recorded: 12/13/02

* P10. Survey Type: (Describe)
Intensive Survey Effort
Section 106 Compliance
P--Project Review

* P11. Report Citation: (Cite survey report/other sources or "none") Monterey Branchline, Castroville to Fort Ord Transportation Agency of Monterey County

* Attachments: ☐ NONE ☐ Location Map ☐ Sketch Map ☐ Continuation Sheet ☑ Building, Structure, and Object Record ☐ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☐ Other: (List)

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Primary # ____
HRI # ____

BUILDING, STRUCTURE, AND OBJECT RECORD

Page 2 of 2

* NRHP Status Code 6Y2 Pending SHPO concur

* Resource Name or #: Salinas River Bridge near Neponset

B1. Historic Name: Salinas River Bridge near Neponset

B2. Common Name Bridge No. 11346

B3. Original Use: Railroad Bridge   B4. Present Use: Railroad Bridge

* B5. Architectural Style:

* B6. Construction History: (Construction date, alterations, and date of alterations.)
The original four spans (2-5) were constructed in 1903 and a fifth (1) was added in 1914 following a flood that washed away the embankment on the northern (San Francisco) end.

* B7. Moved? ☑ No ☐ Yes ☐ Unknown   Date: ____ Original Location: ____

* B8. Related Features:

B9a. Architect: Southern Pacific Railroad   b. Builder: Phoenix Bridge Co/American Bridge Co

* B10. Significance: Theme Transportation   Area Monterey County
Period of Significance 1903, 1914   Property Type Railroad Bridge   Applicable Criteria N/A
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The Salinas River Bridge was originally constructed in 1903 by the Phoenix Bridge Company for Southern Pacific Railroad, using common standard plans published by the railroad. The bridge consisted of four Warren steel through truss spans. During the severe flooding of the Salinas River in the winter of 1913-14, the shoreline on the north side of the river was eroded, thereby necessitating the construction of a fifth span. The original north abutment was resized to match the existing concrete piers and a new abutment was constructed. The American Bridge Company erected the fifth span in 1914. The Union Pacific Railroad (which merged with the Southern Pacific Railroad in the 1998) has not run trains along this alignment since that year. There are no known important persons or events associated with this structure; therefore it is not eligible for the National Register of Historic Places under Criterion A or B. The design of all five spans follow directly from the Southern Pacific Railroad common standard plans, identical to numerous bridges constructed for the railroad throughout the country. Therefore, it does not represent a distinctive type, period or method of construction or the work of a master and is not eligible for the National Register of Historic Places under Criterion C.

B11. Additional Resource Attributes: (List attributes and codes): AH7

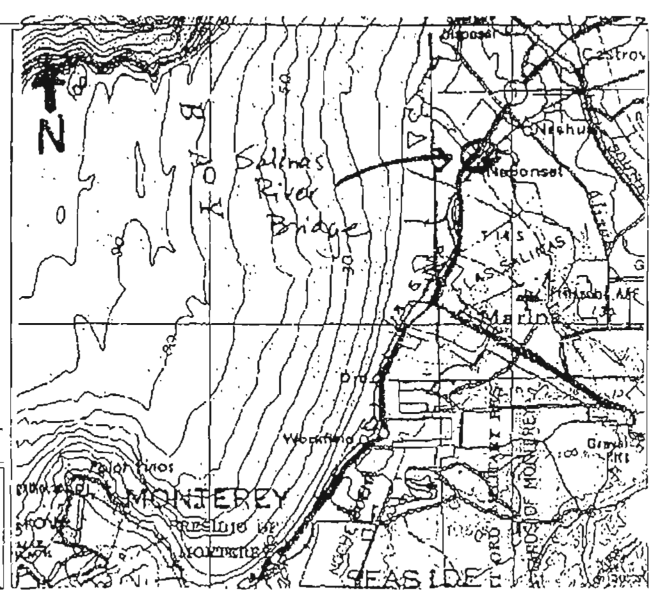
* B12. References:
Modjeski and Masters, Inc., "Salinas River Bridge Inspection and Evaluation Report",
Southern Pacific Railroad Common Standard Plans

Original Drawings

B13. Remarks:

* B14. Evaluator: Jessica B. Feldman
Date of Evaluation: 12/13/02

(This space reserved for official comments.)



MIPR Monterey Branch Other Existing Structures

This section identifies all other existing structures and contains recommendations for rehabilitating or replacing them as appropriate. Typical bridge cross-sections and details are included separately.

Bridge 111.05

Bridge 111.05 is a 150-foot long pile trestle, ballast deck Timber Bridge spanning Tembladero Slough and is on a 1-degree curve. Piles, stringers, and deck are all 1909 timber. It is on driven timber pile depth unknown. It has about 14" of ballast on the 3" timber deck. The stringers are 8" x17" and the caps are 14.5" x17.75" x 16ft. The bents have five timber piles each. The abutments are acting as a headwall only as there is a driven bent directly adjacent to each abutment. The handrail is mostly missing. The abutments are concrete and have moved longitudinally towards the center of the bridge. This movement has caused horizontal cracks in the headwall portion of the abutment. This movement appears to have been caused by surcharge of either ground movement behind the abutment or live load surcharge.

Many of the pile have large vertical splits. Pile 3, bent 6 has been spliced using 3"x12" timbers bolted to the upper and lower member of the splice. . Pile 3, bent 7 has been spliced using 3"x12" timbers bolted to the upper and lower member of the splice. Pile 1 and 2, bent 9 have been posted. These inadequately repaired pilings reduce the ability of the bridge to resist lateral forces caused by large water flows, drift build up and live loads.

This bridge would probably be adequate for passenger only traffic for 3 to 4 years, at which time replacement under traffic would be required. It is recommended that this bridge be replaced with pre-cast concrete spans on a foundation to be determined by soil investigations. Using standard public Agency Bridge plans for this type of bridge and assuming that a pile depth of not more than 100 ft would be required for concrete piles, the replacement cost for this bridge would be between $400,000 and $600,000. If the bridge is replaced after service is started, thus requiring work hours around a passenger schedule this cost can be expected to be 40% to 60% higher.

Bridge 111.93

Bridge 111.93 is a 45ft. long pile trestle, ballast deck Timber over a low area that holds water and is in tangent track. Piles, stringers, and deck are all 1926 timber. It is on driven timber pile, depth unknown. It has about 16" of ballast on the 3" timber deck. The stringers are 7.75" x16.75" and the caps are 13.5" x13.5" x 16ft. The bents have five timber piles each. The abutments are acting as a headwall only as there is a driven bent directly adjacent to each abutment. The handrail has been removed.

The center two bents appear to be sinking. There is a vertical fracture in the west abutment. There is standing water and vegetation under and around the bridge.

This bridge would probably be adequate for passenger only traffic for one or two years, at which time replacement under traffic would be required. It is recommended that this bridge be replaced with pre-cast concrete spans on a foundation to be determined by soil investigations. Using standard public Agency Bridge plans for this type of bridge and assuming that a pile depth of not more than 100 ft would be required for concrete piles, the replacement cost for this bridge would be between $~~150~~130,000 and $~~250~~150,000. If the bridge is replaced after service is started, thus requiring work hours around a passenger schedule this cost can be expected to be 40% to 60% higher.

Bridge 112.54

Bridge 112.54 is a 45ft. long pile trestle, ballast deck Timber over a low area that holds water and is in tangent track. Piles, stringers, and deck are all 1926 timber. It is on driven timber pile depth unknown. It has about 12" of ballast on the 3" timber deck. The stringers are 7.75" x16.5" and the caps are 13.5" x13.5" x 16ft. The bents have five timber piles each. The handrail is in disrepair.

This bridge is Ok for traffic for 8 to 10 years. The handrail will need to be repaired and it is recommended that the bridge retreated to extended the life. Handrail costs should be about $5000 to $6000. Retreating costs will be dependent upon waiting until a bridge repair crew is in the area to avoid mobilization costs for only one bridge.

Bridge 112.80

Bridge 112.80 is a 225ft.long timber bridge on concrete piers and abutments. The detail for Southern Pacific bridges built in this time frame would indicate that the concrete piers are on spread footing about 8 ft deep. Stringers and deck are all 1926 timber. It has about 18" of ballast on the 3" timber deck. The stringers are 8" x16" and the caps are 13.5"x 13.5" x 16ft. The handrail is missing.

Piers 4, 7 and 10 are sinking. There have been jacking/helper bents placed at this location, but it appears that there is still settlement. Visual observation of the surrounding area indicates the bridge is no longer needed. There is no standing water, a small tree that will have to be removed even if the bridge stays to comply with Federal railway Administration rules.

It is recommended that the bridge, from the caps up, be removed and the area be filled as soon as a project is started. This will allow for natural settlement of the surrounding ground caused by additional overburden weight to occur before the permanent roadbed for the railroad is constructed.

Bridge 113.04

Bridge 113.04 is a 90ft.long timber bridge on concrete piers and abutments. The detail for Southern Pacific bridges built in this time frame would indicate that the concrete piers are on spread footing about 8 ft deep. Stringers and deck are all 1926 timber. It has about 13" of ballast on the 3" timber deck. The stringers are 8" x16" and the caps are 17"X8" x 16ft. The handrail is in disrepair.

The bridge is no longer needed for drainage in the area. It could be removed or kept in service with only repair to the handrail. The dry vegetation around the bridge must be removed if it is kept in service. This bridge can be expected to perform as designed for 10 or more years.

Bridge # 113.46 Salinas River Bridge

See page 7.

Drainage Structures

The two types of the drainage structures along the Monterey Branchline vary from corrugated metal pipe (CMP) to cast iron pipe (CIP). In general, the drainage structures are in good condition and appear to be recently put into place. Table one below gives a complete listing of the entire existing drainage within the study.

Table 1 Existing Drainage Structures

MP	*Type of Structure*	*Diameter (in)*
110.76	Cast Iron Pipe	12
111.01	Cast Iron Pipe	16
116.49	Corrugated Metal Pipe	36
117.29	Corrugated Metal Pipe	12
117.47	Corrugated Metal Pipe	18
117.67	Corrugated Metal Pipe	6
118.83	Manholes (Pipe Unknown)	
120.98	Corrugated Metal Pipe	18

Utilities

Based on research of existing atlas maps and "as-built" documents, there are numerous utility lines that cross under or are parallel to the existing track alignment. Most of the electrical facilities are overhead. Agency and utility companies researched and provided documents are:

1) Pacific Gas & Electric
2) County of Monterey Public Works Department
3) City of Marina
4) Marina Coast Water District
5) Castroville County Water District

MIPR Monterey Branch Conceptual Cost Estimate

Below are the key assumptions used in preparation of the following cost estimates:

- No changes are to be made to the existing track alignment or profile.
- No curve modifications.
- FRA Class 4 standards are basis for track rehabilitation.
- Maximum operating speed to be 60 MPH.
- Length of project is 8.3 Track Miles and excludes 2 miles of track to remain at Fort Ord. Total track miles for rehabilitation is 6.3 Track Miles.
- Existing track (rail, ties, OTM) to be salvaged and removed from the property except for approximately 2 miles of 119# rail and ties near Fort Ord. This 2-mile track section meets FRA Class 4 Standards.
- All rehabilitation and/or construction assumed to be prior to start of operation by an outside contractor.
- Existing ballast and subgrade to be spread/leveled in place to create new roadbed surface.
- Track structure to be replaced using new 115# CWR and Fast Clip Concrete Ties.
- No track construction or rehabilitation beyond the limits of Monterey Bay Station and any trains that will layover will do so at station.
- Mainline turnout (#20) at Castroville to the UPRR mainline to be installed by the UPRR and includes a consideration for signal control.
- At-grade road crossings to be replaced with precast concrete crossing panels.
- At-grade road crossings not to be modified for length or location.
- At-grade road crossings through the City of Marina to have an Automated Horn System.
- Until further determination for location and specifications for a sound-wall in the City of Marina we have included a lump-sum cost only.
- Bridge replacement to be precast concrete with standard bridge design.
- Salinas River Bridge estimate includes structural repair, water blasting and overcoating as recommended in the Modjeski and Masters Report
- Monterey Bay Station cost estimate taken from earlier submittal to TAMC and includes the platform, station access, fencing, basic utilities, minimum storage, and parking.
- No consideration has been included for the cost of insurance, permitting, relocation, property acquisition, or agency costs.
- No consideration has been included for the purchase of equipment.
- No consideration has been included for environmental or hazmat mitigation.

Conceptual Cost Estimate				
Work Description	Quantity	Unit	Unit/Price	Total Price
Monterey Branchline Rehabilitation				
Mobilization and Demobilization				
Mobilization	1	LS	376,502	$ 376,502
Demobilization	1	LS	282,376	$ 282,376
		Administrative subtotal		$ 658,878
Site Work				
Miscellaneous Removal and disposal	1	LS	10,000	$ 10,000
Cut	0	CY	20	$ -
Fill	0	CY	20	$ -
Ballast	36,000	CY	25	$ 900,000
Sub-Ballast (6")	31,000	CY	21	$ 651,000
		Site Work subtotal		$ 1,561,000
Railroad Work				
New 115 RE CWR on Main Track	85,000	LF	17	$ 1,445,000
New Fast Clip Concrete Ties Complete	17,160	EA	75	$ 1,287,000
Disposal of Existing Rail, Ties, and OTM	42,500	TF	3	$ 127,500
Labor and Equipment	42,250	TF	50	$ 2,112,500
Construct Concrete Grade Crossing	454	TF	300	$ 136,200
Crossing Warning Systems	1	LS	1,511,743	$ 1,511,743
Line and Surface Track	55,440	TF	15	$ 831,600
Install No. 20 Turnout, UPRR Mainline	1	EA	250,000	$ 250,000
Signage	1	LS	150,000	$ 150,000
		Railroad subtotal		$ 7,851,543
Structural Work				
Replace Bridge, MP 111.05, Tembladero Slough	150	TF	3,000	$ 450,000
Replace Bridge, MP 111.93	45	TF	3,000	$ 135,000
Repair Handrail, Bridge, MP 112.54	45	TF	135	$ 6,075
Remove Bridge, MP 112.8	225	TF	100	$ 22,500
Remove Bridge, MP 113.04	90	TF	100	$ 9,000
Rehabilitate Bridge, MP 113.46, Salinas River, and Seismic Retrofit	1	LS	1,500,000	$ 1,500,000
		Structural subtotal		$ 2,122,575
Drainage				
Restore Right of Way Ditches	42,500	TF	20	$ 850,000
Repair Drainage Structures	8	EA	3,000	$ 24,000
		Drainage subtotal		$ 874,000
Station				
Monterey Bay Station, Platform, Parking, and Site Work	1	LS	$ 3,506,648	$ 3,506,648
				$ -
		Station subtotal		$ 3,506,648
Landscaping				
City of Marina, property treatment	1	LS	250,000	$ 250,000
City of Marina, sound wall	1	LS	500,000	$ 500,000
		Landscaping subtotal		$ 750,000
Civil				
Final Design			10%	$ 1,732,464
Construction Management			7%	$ 1,212,725
		Civil subtotal		$ 2,945,189
Sub-Total				$ 20,269,833
Contingency			25%	$ 5,067,458
Total Conceptual Cost Estimate:				$ 25,337,292
note: - actural structural cost should be determined during final design.				
- estimate does not include permitting, relocation, or agency costs.				

4. Comment: On Page 3 of 3, why use wood ties under the concrete panels? U. P. standards show concrete ties under these panels. [Robert MacDonald, TAMC]

Response: *The use of wood ties under the concrete panels provides more options for procurement and construction to TAMC. You will find that only a limited number of vendors provide a crossing system using concrete for both ties and crossing surface. Concrete surfaces on concrete ties tend to cause abrasion between the two surfaces and deterioration can result. However, the total concrete system is becoming more popular and could be used if TAMC so chooses.*

Base Mapping and Surveys, page 4

1. Comment: The aerial photographs have a ground line profile plotted above the photograph. For railroad work, one uses the "top-of-rail" elevation not the ground line. The photographs are too dark, and many of the notes are not readable. A number of physical features are not identified. The photos will be returned marked with requested corrections. [Robert MacDonald, TAMC]

Response: *We agree that "top-of-rail" is the preferred point of elevation for railroad work, however, the aerial photography used provides only ground contour data and should be adequate for advanced planning. The ground line as referred to on the plans has been changed to read "top-of-tie" to clarify the issue. During final design "top-of-rail" elevations should then be used.*

STV is providing two original prints plus electronic files of the aerial photographs with this final submittal. The plotted files are much easier to read and normally much less dark in contrast than copies which you may have been viewing. The enclosed prints incorporate the requested corrections.

2. Comment: Base mapping and survey not reviewed as they were not in report (provided separately previously). [Mike Chan, S&C]

Response: *Base mapping was reviewed by Robert MacDonald for TAMC. A survey was not included as it was earlier agreed that the aerial photography would replace any field survey effort.*

Geotechnical Investigation and Engineering, page 5

1. Comment: Geotechnical recommendations not reviewed as they were not in report (provided separately previously). [Mike Chan, S&C]

Response: *Geotechnical recommendations were prepared by our sub-consultant Shannon and Wilson and provided in a separate submittal.*

2. Comment: According to the scope, "consultant shall perform all subsurface explorations required for the Salinas River Bridge and other construction as

required." The geotechnical report discusses bridges at MP 111.03 (Tembladero Sough), MP 111.93, MP 112.54, MP 112.80, MP 113.04 and MP 113.46 (Salinas River Bridge). However, subsurface explorations were only done on the Salinas River Bridge. STV is recommending replacement of bridges at MP 111.05 (geotechnical report uses MP 111.03 for this bridge) and MP 111.93. Subsurface soil investigations are needed for both of these bridge replacements.

STV is recommending some of these bridges be replaced with embankments. Soil borings will be needed at these locations as well.

The scope of work also states, "A separate foundation report for the Salinas River Bridge shall be prepared." Page 19 of the geotechnical report states, "...foundations of the Salinas River Bridge was not evaluated as part of the preliminary engineering for this project." A foundation report is needed in order for TAMC to make a decision regarding the strategy for rehabilitation.

For any of these recommended bridge replacements (whether replacing the structure or removing the structure and installing embankments), environmental studies will need to be performed. Since the majority of these bridges were not included in the project description for the preliminary environmental studies (PES) form, a field review is needed to determine the environmental impacts of these changes. [Reinie Jones, Caltrans]

Response: *STV agrees with the above statements; however it was not necessary to prepare the foundation report for the Salinas River Bridge or investigate subsoil conditions at the other bridge sites to prepare the PE cost estimate. These investigations should be conducted as an element of final design. As indicated above, environmental studies of the other bridge sites will need to be undertaken in a subsequent phase of the project.*

Drainage and Hydraulic Engineering, page 6

1. Comment: TAMC staff discussed the possibility that we would not need further information, subject to review and concurrence by Caltrans. [Walt Allen, TAMC]

   Response: *Drainage and Hydraulic Engineering will be required during final design, but was not necessary during the advanced planning phase as noted in this section.*

Bridge Type Selection Study for Salinas River Br., pages 7-13

1. Comment: The documents provided to date regarding the Section 106 study for the Monterey Branch Line include three pages that describe the potential significance of the Salinas River Bridge and a statement that promises an Historic Property Survey Report (HPSR) and Determination of Effect for the Salinas River Bridge to be completed by December 20, 2002.

   In a discussion this week with Jessica Feldman of Myra Frank, it appears that they intend to complete that study of only the Salinas River Bridge. I informed her that the HPSR for the project should include studies of all of the cultural resources in the project area in addition to the bridge. The following documents are required:

   Historic Property Survey Report, which is a summary document to which the following documents are appended:

   Area of Potential Effect (APE) Map – The APE map will include both an archaeological and an architectural APE. This map depicts the area that will be impacted by the project, including staging and construction access areas. The map should be plotted on an aerial photographic or other base at a scale of approximately 1"=100' or 1"=200'. The map should depict existing and proposed right-of-way, as well as the locations of any cultural resources identified. Roads should be clearly labeled. The APE map will be approved by Caltrans and FHWA prior to completion of the HPSR.

   Consultation with interested parties – Native American groups, the Native American Heritage Commission, historical interest groups/societies/museums, and other consulting parties should be contacted. The consultation record should be included in the HPSR.

   Archaeological Survey Report (ASR) or **Negative Archaeological Survey Report** (NASR)-- This report documents a record search at the Northwest Information Center as well as a field survey of the archaeological APE.

   Historical Resources Evaluation Report (HRER) – This document evaluates all built-environment resources within the APE, including all bridges, structures, the railroad, and buildings.

   The preparation of the Section 106 Study should follow the guidelines of the Caltrans Draft Environmental Handbook Volume 2, Cultural Resources (July 2001), that is available on the internet. [Kelda Wilson, Caltrans]

   Response: *Further consultation with the Caltrans Environmental Branch indicates no further studies are required to document the environmental clearance in the form of a statutory exemption (NEPA) and categorical exclusion (CEQA) for the acquisition of the Monterey Branch line from the Union Pacific Railroad*

2. Comment: The documentation on cultural resources states that "because the proposed rehabilitation of the Salinas River Bridge would meet Secretary of Interior Standards, impacts to the bridge should not be adverse." There is no documentation of what "Secretary of Interior standards" is being referred to. The documentation also states that "formal consultation" with the State Historic Preservation Officer (SHPO) is required. Such formal consultation is only necessary when a project will have an adverse effect on a historic property. The documentation also concludes that no permits or approvals are required....what about the "formal consultation" with SHPO? [Gary Ruggerone, Caltrans]

   Response: *The applicable standards are now documented in the report. The consultation occurs between TAMC and SHPO. The reports necessary to facilitate the consultation are included in the report.*

Other Existing Structures, pages 14-17

1. Comment: There are now six bridges identified along the branch line that may be rehabilitated and/or replaced as part of the Monterey Branch Line Project. [Reinie Jones, Caltrans]

   Response: *At the on-set of this project the only structure that TAMC identified in the RFP for replacement was the Salinas River Bridge. Through STV's efforts it has been determined that the Salinas River Bridge can be rehabilitated, saving considerable cost to the project. However, during the course of STV's advanced planning effort it was determined that additional structural work would be required at other identified railroad bridge locations as noted in this report. These other locations are timber structures and much less complicated to deal with than the Salinas River Bridge. STV has provided recommendations for repair and replacement at these locations, including cost estimates, so that during final design more complete engineering can be accomplished along with the necessary geotechnical exploration.*

2. Comment: The drawings for concrete bridges would have to be reviewed by licensed engineer with railroad bridge knowledge. A note on the drawing makes reference to ATSF 2944A. The ATSF Railroad has been the BNSF for a number of years. What is the actual date of these plans? Do they meet the current AREMA standard for concrete bridges? Most of the text reference in the "Draft Report" referenced Union Pacific Railroad standards. [Robert MacDonald, TAMC]

   Response: *The reference to ATSF has been corrected; however, for advanced planning these plans are adequate and typical for use on Class I mainline and passenger rail systems. During final design exact plans and specifications must be defined by the designer and reviewed by a licensed engineer prior to procurement and construction.*

3. Comment: This section (page 4 of 4) refers to attached drawings C-01 to C-13 which are not included. I did have and reviewed a set of plans for the various street crossings that consist of sheets C-01 to C-23. Perhaps these are the sheets being referred to as being attached. [Mike Chan, S&C]

   Response: *You would be correct in your assumption. The reference of C-01 to C-13 is corrected in the final report to read C-01 to C-23.*

4. Comment: According to the scope, "...consultant shall inspect and analyze existing timber structures and develop plans and details suitable for replacement and upgrade..." STV did not include any engineering analysis on the existing timber structures. I also did not see any plans and details suitable for replacement. [Reinie Jones, Caltrans]

   Response: *STV inspected the bridges and made recommendations for repair or replacement. Where replacement was recommended STV provided typical sections that were used for estimating purposes. The final design consultant will be responsible for providing additional detail and specifications for procurement and construction purposes when the final project scope is determined by TAMC based on the advanced planning report provided under STV's contract.*

5. Comment: Agree with the recommendation that the bridges needing renewal should be rebuilt prior to the laying of the new roadbed and track. Field inspections show that several of the bridges can be replaced by pipes. What size? [Robert MacDonald, TAMC]

   Response: *Size should be determined during final design after more studies are conducted.*

Track Alignment and Profile, pages 18-27

1. Comment: Track charts are upside-down. [Walt Allen, TAMC]

   Response: *The charts are omitted from the final report as noted in response 4 below.*

2. Comment: This section provides two alternatives for rail replacement, three for tie replacement, and two for turnouts, but there is no recommended alternative given for rail, ties, and turnouts. Either a recommended alternative should be specified or/and cost estimates for alternatives should also be provided for comparison. [Mike Chan, S&C]

   Response: *The recommendation is shown on page 2. STV did evaluate different alternatives along with cost estimation as described in Design Criteria section.*

3. Comment: Take exception to the comment: "Although some minor curve reductions may be possible they do not serve to increase or improve operations." I had suggested

construction. The Design Criteria section only refers to AREMA Engineering Standards. A few typical sections indicative of the right of way would be desirable. Also, this section states that bridge footings will not be changed, and all bridge rehabilitation work would occur from the bridge deck, therefore no hydrology impacts are expected. Is this the case for bridges that are to be replaced? Additionally, the cost estimate includes costs to seismically retrofit the Salinas River Bridge. This may include additional footings or expansion of existing footings. [Mike Chan, S&C]

Response: *STV did not feel that for advanced planning typical sections of the right of way were necessary and therefore did not include any.*

Capital improvements to the Salinas River Bridge were the only structural work identified at the on-set of this project. However, now that STV has identified and recommended additional structural work at other bridge locations there most likely will be additional engineering required for final design at these locations.

Mojeski and Masters are recognized bridge experts in the rail industry and served as our sub-consultant on this project for the evaluation of the Salinas River Bridge. Previously they performed similar services on this bridge for the Southern Pacific and currently for the Union Pacific railroads and have a thorough knowledge of this structure. I can only conclude that if they felt additional footings or expansion of the existing footings were required they would have so advised in their report for this project.

2. Comment: Unless I'm missing something, I couldn't find profiles, typical sections and details for all required construction. [Reinie Jones, Caltrans]

   Response: *STV provided typical specifications which reference AREMA standard plans which provides preferred sections and construction details. Advanced planning should not include all details required for construction, rather, that level of specificity should be accomplished during final design.*

Quantity Takeoff and Cost Estimate, pages 120-122

1. Comment: Show back-up for cost development. [Walt Allen, TAMC]

   Response: *Normally back-up data at the conceptual estimating level is not required and is the reason it was not provided. STV did use recent similar project cost data for cost calculation from Metrolink projects that have been awarded for construction in the Los Angeles area.*

2. Comment: The Monterey Bay Station cost estimate uses a contingency of 20% vs 25% for the conceptual cost estimate. From a program standpoint, unless there are specific reasons for it, a consistent percentage should be used for both estimates. The existing ballast and subgrade are assumed to be left on the property to be reused.

APPENDIX E

Updated Inspection and Re-Evaluation Report
Salinas River Bridge No. 113.46

Parsons Transportation Group
May 3, 2010

SALINAS RIVER BRIDGE

UPDATED INSPECTION AND RE-EVALUATION REPORT

SALINAS RIVER BRIDGE NO. 113.46

Monterey Branch Line
Castroville to Seaside, CA

May 2010

Prepared for

Transportation Agency
for Monterey County

Prepared By
Parsons Transportation Group

TABLE OF CONTENTS

SALINAS RIVER BRIDGE
UPDATED INSPECTION AND RE-EVALUATION REPORT

EXECUTIVE SUMMARY

This Report covers the updated inspection and re-evaluation of Bridge No. 113.46 crossing the Salinas River near Neponset, CA.

A detailed inspection and evaluation was performed by Modjeski and Masters, Inc. in September of 2001 and can be referenced in Appendix B of the Bridge Strategy Report. Parsons Transportation Group performed an additional inspection and re-evaluation of this bridge in February of 2010. The purpose of the updated inspection and re-evaluation was to document additional bridge deterioration and increased member section loss that occurred after the 2001 inspection and determine the current costs of rehabilitation and repair of the bridge sufficient for a minimum 30-year life. This inspection and re-evaluation report should be used as a supplement to the 2001 Modjeski and Masters inspection and evaluation report.

Parsons used the same inspection process and format used in the 2001 Modjeski and Masters, Inc. evaluation report to record and update increased metalwork losses required for the rating of the bridge, and to determine the updated live load carrying capacity of the bridge. New repair recommendations are included in this re-evaluation report.

The Salinas River Bridge No. 113.64 was re-inspected and found to have significant increased corrosion and section loss on Span 1 and a fair amount of increased section loss on Spans 2-5. Many of the truss members of Span 1, including bottom chords and diagonals, have severe deterioration occurring along the flanges and will require a significant amount of repair work. All upper truss bracing members of Spans 2-5 have significant damage and need replacement.

The bridge rating provided in the 2001 Modjeski and Masters, Inc. report was revised based on the updated section loss estimates to determine a minimum member rating. The minimum Normal Rated capacity for the bridge is Cooper E-28.4 controlled by a truss bottom chord on Span 1 with significant loss of metal work in the member flanges. All other truss members rate at E-33.4 or greater. The controlling Normal Rated capacity for the floor system is Cooper E-69.2. The 2001 Modjeski and Masters, Inc. report determined that an equivalent Cooper E rating required for a common commuter type train is E-26.6 for truss bottom chords and E-37.0 for the floor system. Parsons has calculated that lower values of E-22.3 for truss bottom chords and E-32.0 for the floor system are required for the currently proposed compliant DMU equipment (Colorado Railcar). We have also determined that Cooper E-14.9 for truss bottom chords and E-24.1 for the floor system are required for non-compliant DMU equipment (Stadler GTW or Siemens AG).

SALINAS RIVER BRIDGE
UPDATED INSPECTION AND RE-EVALUATION REPORT

Seismic rehabilitation and recommendations are not covered in this updated inspection and re-evaluation report.

Even though the rated capacity of all primary truss members exceed the equivalent Coopers E-Rating required to carry common commuter or DMU rail traffic, repairs to the Salinas River Bridge will be required to extend the bridge to a 30-year minimum life, and to restore proper function of the deteriorated bracing systems. Some of these repairs include: realigning the trusses, replacement of truss bearings, replacement of bracing members and their connections, replacement of chord cover plates, repairing flanges of Span 1 bottom chords and diagonals, patch plating where there are significant losses in primary members, replacing the timber deck, and the cleaning and preservation of the metalwork. Structural repair costs were updated and are included in Appendix F of the Bridge Strategy Report.

SALINAS RIVER BRIDGE
UPDATED INSPECTION AND RE-EVALUATION REPORT

INSPECTION OF BRIDGE 113.46

The Salinas River Bridge was visually re-inspected during the period of February 1-5, 2010 by Dale Bartholomew, Ram Mothe, and Nathan Stout of Parsons Transportation Group. The purpose of this detailed inspection was to re-evaluate and update the physical condition of each structural component with respect to the Modjeski and Masters, Inc. inspection performed in July of 2001. Each truss and floor system member was inspected to estimate the updated section loss as needed to determine the current load rating and the extent of repair work required to adequately repair the bridge sufficient for a minimum 30-year lifespan.

This re-evaluation report uses the same pier, abutment, and span numbering system and designations as defined in the 2001 Modjeski and Masters, Inc. inspection report.

To develop the 2010 load rating of the bridge as mentioned above, the updated amount of section loss of each portion (top flange, bottom flange, web, etc.) of each major bridge component was visually estimated, and where significant, locations of isolated areas of section loss were measured and referenced from the end or center of the member, as needed for analysis.

GENERAL PHYSICAL CONDITIONS

The Salinas River Bridge is in overall marginal condition due to deterioration of the superstructure metalwork caused by corrosion and failure of the protective paint system. The condition of the paint system is very poor as shown in **Photograph Nos. 1-4**, and in general the condition of the paint system is usually worse in locations that are typically exposed to direct sunlight and wind, such as the top surfaces of top chords, end posts, floorbeam flanges, etc.

SALINAS RIVER BRIDGE
UPDATED INSPECTION AND RE-EVALUATION REPORT

Photograph No. 1 – View of paint loss on various members beginning at Span 5 and looking North.

Photograph No. 2 – View of paint loss at Panel Point L4L of Span 5.

SALINAS RIVER BRIDGE
UPDATED INSPECTION AND RE-EVALUATION REPORT

Photograph No. 3 –View of paint loss on various truss members of Span 1 looking North.

Photograph No. 4 – View of paint deterioration of Diagonal U3-L4 of the right truss of Span 4.

SALINAS RIVER BRIDGE
UPDATED INSPECTION AND RE-EVALUATION REPORT

The following sections of the updated inspection and re-evaluation report will describe portions of the Salinas River Bridge which have notable increases in deterioration occurring after the 2001 Modjeski and Masters, Inc. inspection report was completed. This inspection and re-evaluation report should be used as a supplement to the above mentioned inspection and evaluation report. This report will not repeat the same information found in the 2001 Modjeski and Masters, Inc. report but add to the information documented and provided in Appendix B of this Bridge Strategy Report.

All specific defects noted during the updated inspection, including updated estimated amounts of section loss for each truss member and floor system component, are listed in the data tables of Appendix 2 of this report. The numbering system and directional designations used to locate the defects are shown on the inspection charts of Appendix 1.

A. SUPERSTRUCTURE

The superstructure of the Salinas River Bridge is in marginal condition and has incurred a fair amount of increased deterioration in many of the truss elements, floor system, and much of the bracing system since 2001. Much of the increased deterioration and section loss can be attributed to trees growing through Spans 1 & 2 and providing a corrosive environment for these truss elements. At the time of the updated inspection, the majority of these trees had been removed or trimmed but in most cases the damage prior to removal was severe. The following is a brief summary of areas and elements that show notable increased deterioration after 2001 (for a complete list of defects noted see Appendix 2 – Member Losses).

Truss Members

The condition of truss members throughout the bridge varies from good to very poor. Many truss top cover plates have had a fair amount of increased corrosion leaving cover plates with large areas of deterioration and holes. Span 1 truss members, particularly the bottom chord (**see Photograph No. 5**) and diagonals (**see Photograph No. 6**) are in very poor condition with heavy increased corrosion and section loss on most of the member flanges. Increased corrosion was found on the majority of truss lacing bars on all spans and in many cases produce 100% section loss (**see Photograph Nos. 7-8**).

In addition to increased deterioration conditions noted at the top and bottom chords, small isolated areas of corrosion with increased section loss were noted at several vertical and diagonal truss members (**see Photograph No. 9**) and gusset plates of all spans (**see Photograph No. 10**).

SALINAS RIVER BRIDGE
UPDATED INSPECTION AND RE-EVALUATION REPORT

Photograph No. 5 – View shows corrosion and section loss of flanges of bottom chord in Panel 4 of Span 1, right side.

Photograph No. 6 – View shows corrosion and section loss on flanges of diagonal U1-L2 in Panel 2 of Span 1, right side.

SALINAS RIVER BRIDGE
UPDATED INSPECTION AND RE-EVALUATION REPORT

Photograph No. 7 (right) – View shows corrosion and section loss of truss lacing bars of a post and diagonals of the right truss of Span 1.

Photograph No. 8 – View shows corrosion and section loss of lacing bars on both truss diagonals of Span 2, Panel 3.

SALINAS RIVER BRIDGE
UPDATED INSPECTION AND RE-EVALUATION REPORT

Photograph No. 9 – View shows corrosion and section loss of inboard flanges of diagonal L4-U5 of the left truss of Span 4.

Photograph No. 10 – View shows corrosion and section loss of inboard and outboard gusset plates at Span 4, Panel Point L2L.

SALINAS RIVER BRIDGE
UPDATED INSPECTION AND RE-EVALUATION REPORT

Truss Bracing

The condition of both the top and bottom lateral truss bracing of the Salinas River Bridge has had a moderate amount of increased corrosion and section loss (10% to 20% increase). As noted in the 2001 Modjeski and Masters, Inc. inspection report, much of the Span 2-5 top bracing members, including the portal bracing, lateral bracing, bracing struts, and sway bracing as well as the connection plates have severe deterioration and section loss. This deterioration has increased since the 2001 inspection (**see Photograph Nos. 11-13**). In addition, a significant amount of increased deterioration has occurred in the bottom lateral brace system, primarily in the lateral gusset plates (**see Photograph Nos. 14-15**).

Truss Bearings

As discussed in the 2001 Modjeski and Masters, Inc. inspection report, the truss bearings are in poor condition. The 2010 re-inspection verified the poor condition of these bearings and noted a fair amount of increased deterioration.

Photograph No. 11 – View shows section loss in top lateral brace connection plate at Panel Point L3L of Span 5.

SALINAS RIVER BRIDGE
UPDATED INSPECTION AND RE-EVALUATION REPORT

Photograph No. 12 – View shows section loss in top sway and strut brace at Panel Point L2L of Span 5.

Photograph No. 13 – View shows section loss in top lateral brace & top sway brace at Panel Point L3L of Span 4.

Photograph No. 14 – View shows section loss in bottom lateral brace & gusset plate at Panel Point L3L of Span 1.

Photograph No. 15 – View shows section loss in bottom lateral brace gusset plate at Panel Point L4R of Span 3.

SALINAS RIVER BRIDGE
UPDATED INSPECTION AND RE-EVALUATION REPORT

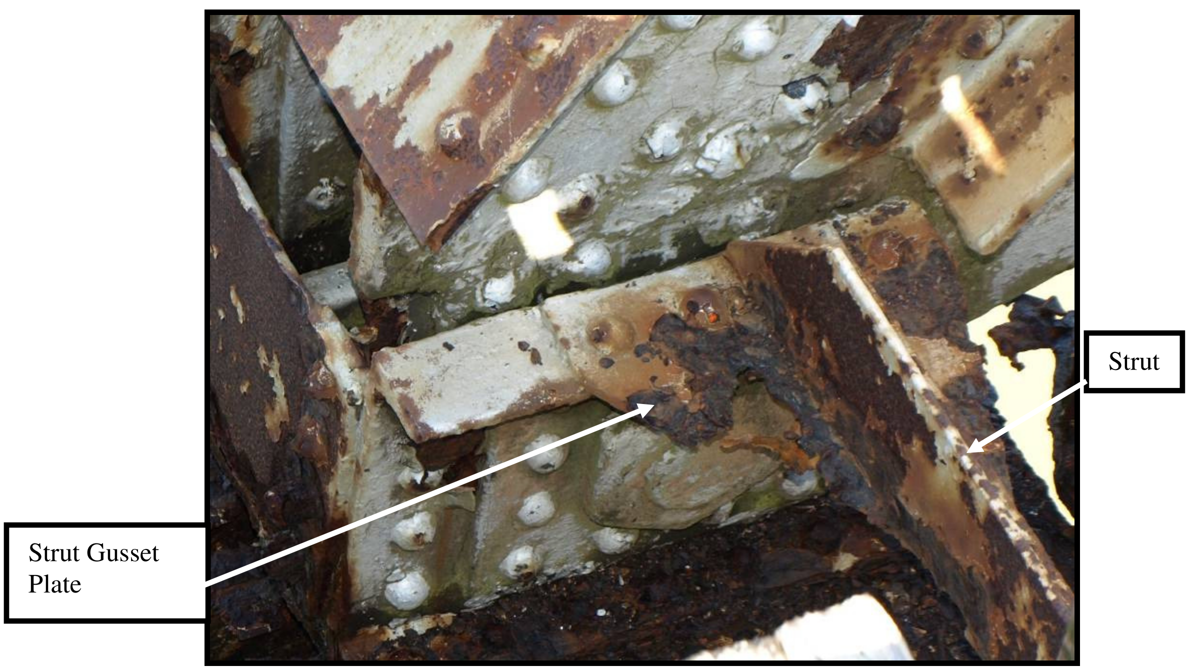
Floor System

The floor system of the Salinas River Bridge has a fair amount of increased deterioration and section loss occurring after the completion of the 2001 Modjeski and Masters, Inc. inspection report (5% to 10% increase). As discussed in the 2001 Modjeski and Masters, Inc. inspection report, most of the floor system deterioration is found in Span 1. The majority of the increased deterioration in Span 1 occurs in secondary members such as connection plates and floorbeam brackets (**see Photograph No. 16-17**), as well as stringer lateral members and stringer lateral gusset plates. An increase of deterioration and section loss was found in the stringer strut and stringer strut gusset plates of Spans 2-5, (**see Photograph No. 18**).

Photograph No. 16 – View of the end post-to-floorbeam connection plate of span 1 at L0L.

SALINAS RIVER BRIDGE
UPDATED INSPECTION AND RE-EVALUATION REPORT

Photograph No. 17 – View shows the right floorbeam bracket of Floorbeam 5 of Span 1



Photograph No. 18 – View shows corrosion and section loss in stringer strut & strut gusset plate at Panel Point L6R of Span 4

SALINAS RIVER BRIDGE
UPDATED INSPECTION AND RE-EVALUATION REPORT

Stringer Bearings

The Parsons' 2010 re-inspection of the Salinas River Bridge verified the conditions noted in the 2001 Modjeski and Masters, Inc. inspection report and documented only minor increased deterioration in the stringer bearings of Span 2-5.

Timber Deck

The Parsons' 2010 re-inspection of the Salinas River Bridge found the deterioration of timber ties had also increased and that the ties were in fair to poor condition. Even the ties noted as fair will have a remaining life of not more than 2-5 years and should not be depended on to support rail equipment. Ties located on Span 5 and portions of Span 4 were found to be soft and in poor condition.

B. SUBSTRUCTURE

The Parsons' 2010 re-inspection of the Salinas River Bridge did not find any pertinent additional deterioration of the piers and abutments over that covered in the 2001 Modjeski and Masters, Inc. inspection report.

SALINAS RIVER BRIDGE
UPDATED INSPECTION AND RE-EVALUATION REPORT

EVALUATION – LOAD CARRYING CAPACITY

A detailed inspection and load carrying evaluation was performed and provided in the 2001 Modjeski and Masters, Inc. Inspection and Evaluation report and can be referenced in Appendix B of the Bridge Strategy Report. Parsons Transportation Group performed an additional inspection and re-evaluation of this bridge in February of 2010. The Parsons' 2010 detailed inspection and re-evaluation report should be used as a supplement to the 2001 Modjeski and Masters, Inc. Inspection and Evaluation report. The purpose of the updated inspection and re-evaluation was to document additional bridge deterioration and member section loss that occurred after the 2001 inspection. The Parsons' 2010 report uses the same inspection process and format used in the 2001 Modjeski and Masters, Inc. evaluation report to record and update increased metalwork losses required for the rating of the bridge, and to determine the updated as-is condition of the bridge for the revised rating values.

SALINAS RIVER BRIDGE
UPDATED INSPECTION AND RE-EVALUATION REPORT

AS-BUILT CONDITION (Minimum Rating Value)

The following As-Built Condition Rating values are calculated using the same capacity and load values used in the 2001 Modjeski and Masters, Inc. As-Built Load Rating tables with the Impact and Rocking Effect (RE) loads modified to match the current AREMA load calculation procedure. All values shown in gray in the As-Built Load Rating tables found in Appendix 3 of this updated report are duplicated from the 2001 Modjeski and Masters, Inc. As Built Load Rating tables.

Trusses	Normal Rating	E-44.6	Bottom Chords	Spans 2-5	Load Case B
	Maximum Rating	E-75.7			
Floor System	Normal Rating	E-72.0	Stringer	Span 1	Load Case A
	Maximum Rating	E-115.3			

AS-INSPECTED CONDITION (Minimum Rating Value)

Given that detailed shop drawings for the existing bridge were not made available, the following as-inspected condition ratings were calculated by Parsons by extrapolating from the as-built condition rating values and the 2001 As-Inspected Condition Rating values as presented in the 2001 Modjeski and Masters, Inc. Inspection and Evaluation Report.

Trusses	Normal Rating	E-28.4	Bottom Chord, Right Truss, L4L6, Span 1
	Maximum Rating	E-52.1	Load Case B
Floor System	Normal Rating	E-69.2	Floorbeam moment, Span 5, Load Case A
	Maximum Rating	E-102.9	Floorbeam moment, Span 5, Load Case A

NOTE: Although the Cooper E ratings shown represent the minimum ratings, there are a number of other bridge members with similar low ratings.

REQUIRED EQUIVALENT COOPER E RATING FOR TYPICAL COMMUTER TRAIN

The following equivalent Cooper E Rating for Typical Commuter Train information is duplicated from the 2001 Modjeski and Masters, Inc. Inspection and Evaluation report found in Appendix B of the Bridge Strategy Report. The DMU equipment equivalent Cooper E Rating was calculated by Parsons.

		Typical Commuter Train	Compliant DMU	Non-Compliant DMU
Truss	Bottom Chords	E-26.6	E-22.3	E-14.9
	Top Chords	E-28.7	--	--
	Hangers	E-37.0	--	--
Floor System	Stringers	E-39.7	E-32.0	E24.1
	Floorbeams	E-37.0	--	--

SALINAS RIVER BRIDGE
UPDATED INSPECTION AND RE-EVALUATION REPORT

EXTENT OF REPAIRS AND COST

Prior to opening the Salinas River Bridge for intercity passenger rail service, various structural repairs should be completed as outlined in **Appendix 4** and as summarized herein. Prior to final design of those repairs, all bridge members should be cleaned of accumulated dirt, debris, and loose corrosion product sufficient for a follow-up inspection for detailing repairs.

Due to the extent of increased damage from the active corrosion, a variety of type and increased amount of structural repairs will be needed. As in the 2001 Modjeski and Masters, Inc. Inspection and Evaluation Report, for primary members with significant metalwork losses in local areas, the repairs will be performed by installing bolted splices or patch plates over zones of section loss sufficient to restore the capacity of the member. The top chord, top cover plates, have increased deep pitting, thin sections, increased number of holes and deteriorated rivet heads. The replacement of nearly all sections of the cover plate, in kind, is the most economical repair method. Rivets that have head losses, but the steel plies remain in full clamping contact, can remain in service. Conversely, at the increased number of locations where there is separation of plies or prying action, the pack rust must be removed and deteriorated rivets should be replaced with bolts on a one-for-one basis.

Where there has been significant increase in flange deterioration, particularly in Span 1 with severe pot holing in the top surface as shown in **Photograph No. 5 and 6**, even though the member rating may be adequate, the channel flanges must be cut off and replaced with new flange angles bolted to the web of the existing members before replacement lacing or other new material can be attached. A smooth sound surface must be provided at member connections to properly seal the connection and prevent rapid deterioration of the existing or new material. These additional repairs are required to obtain a minimum 30 year life.

For lacing and bracing members where there has been an increasing number of missing pieces, including light angles, it will be cost effective to replace the whole member in kind. The same applies for minor member connection plates that have extensive losses. Because of the large increase in deterioration in these members, 100% replacement of the top lateral and sway bracing in Span 2-5 is now proposed. The replacement of all lacing bars in many truss members including; bottom chords, diagonals, posts, and end posts, will be required. The replacement of many bottom lateral gusset plates from all spans will also be required.

Repair costs have been developed and are listed in Appendix F for the various types and increased amount of structural repairs based on previous similar bridge rehabilitation project costs, the following quantities required for these repairs, current material and labor costs, and from general construction experience.

SUMMARY OF STRUCTURAL REPAIR QUANTITIES

1. 158,500 lb structural steel
2. 18,500 new bolts installed
3. 10,500 rivets broken/removed
4. 3,700 field drilled holes
5. 1,900 ft field cut/removal of member flange steel
6. 69,000 board feet of timber tie
7. 3,850 board feet of timber tie spacers

The preservation of the bridge metalwork can be accomplished by two means as described in the 2001 Modjeski and Masters, Inc. Inspection and Evaluation report.

With the repair of the significant metalwork losses in the bridge, and with cleaning and protective coating of the bridge and timber deck replacement on a regular maintenance cycle basis, the bridge should structurally be sufficient for another 30 or more years of service. To extend the life of any existing bridge beyond 15-20 years, to 30 years or indefinitely, replacement of open timber decks and cleaning, minor steel repairs and protective coating must be budgeted and planned for on a 15 year cycle.

SALINAS RIVER BRIDGE
UPDATED INSPECTION AND RE-EVALUATION REPORT

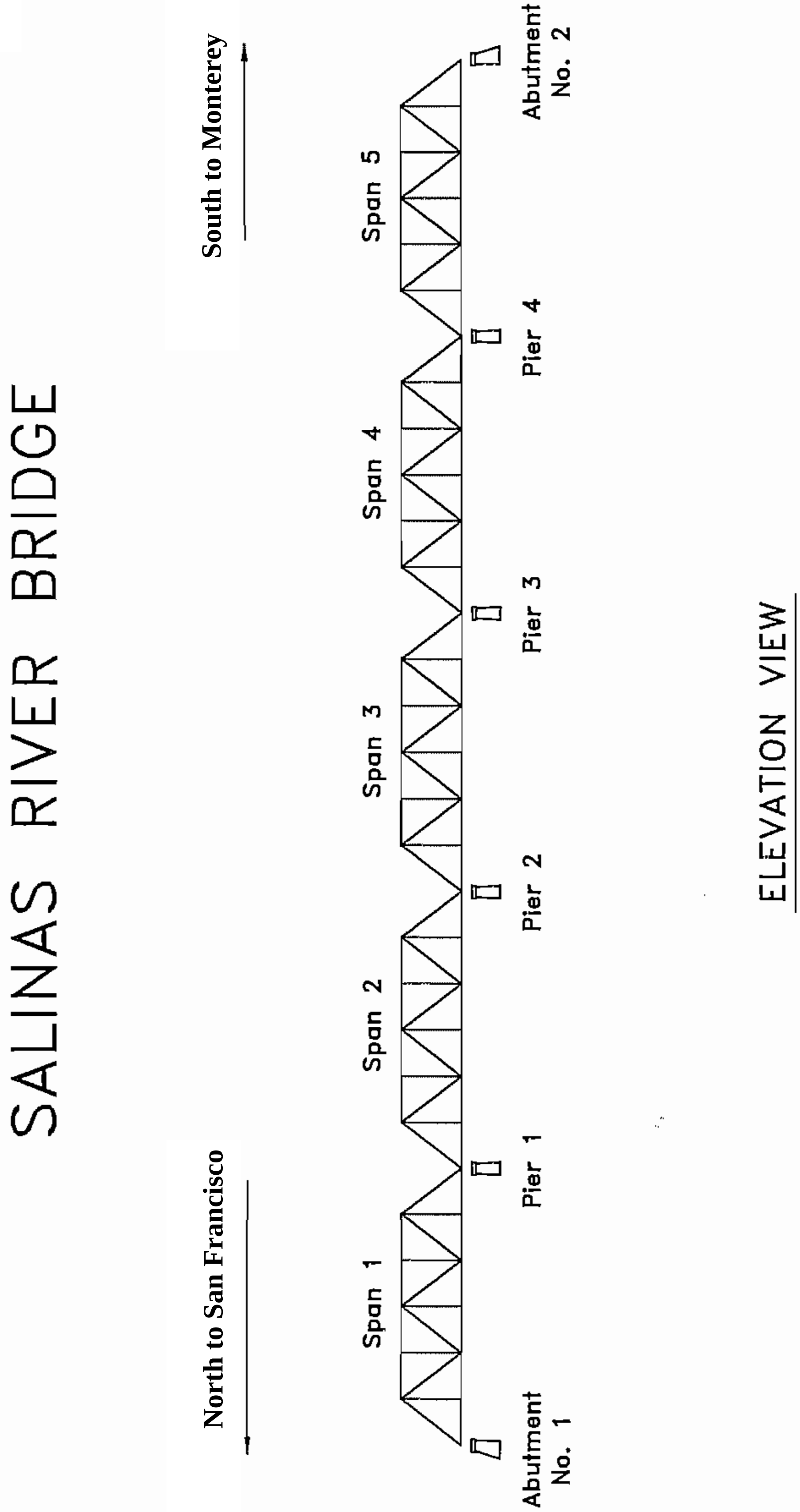
RECOMMENDATIONS

Prior to opening the Salinas River Bridge for commuter rail traffic, structural repairs and the preservation of the bridge metalwork must be performed. The specific defects are shown in the member loss tables in **Appendix 2** and all recommended repairs are shown in **Appendix 4** of this updated inspection and re-evaluation report. A few items included in the 2001 Modjeski and Masters, Inc. Inspection and Evaluation report for repairs, were not confirmed during the Parsons' 2010 inspection and re-evaluation. These items have been lined out in the repair listing of Appendix 4.

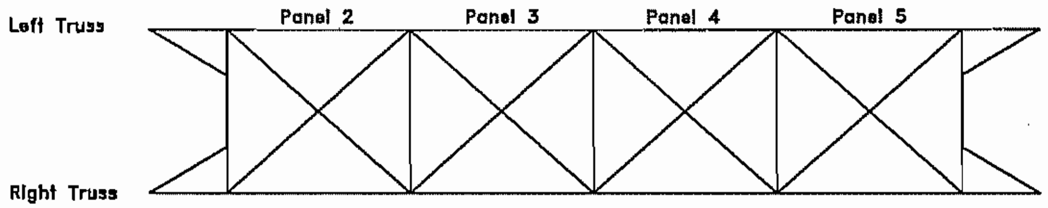
Repair costs associated with the recommended repairs are shown in Appendix F of the Bridge Strategy Report.

APPENDIX 1

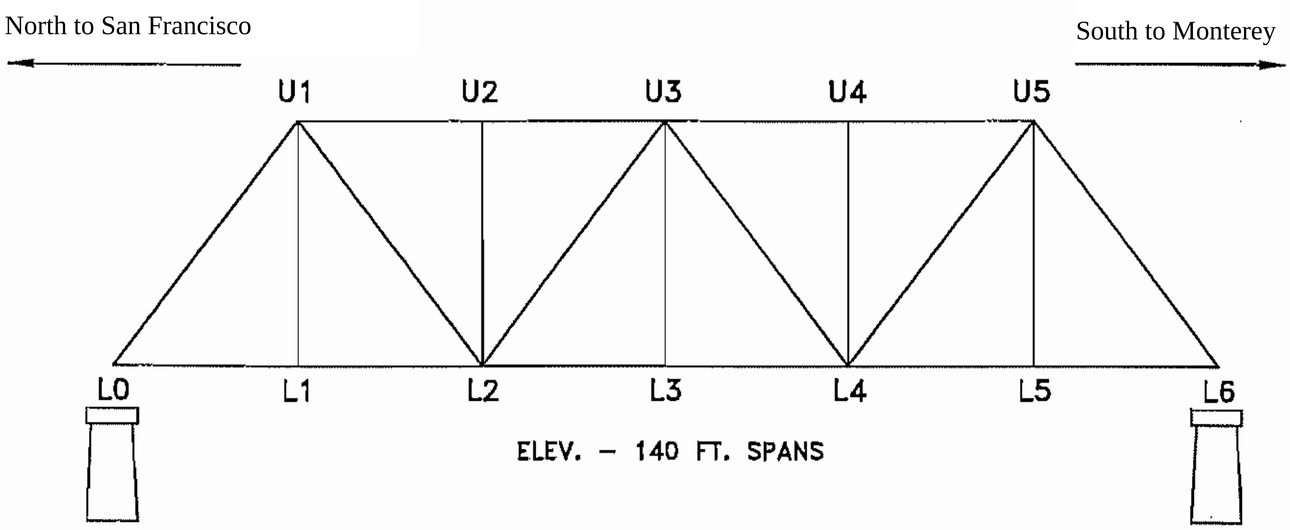
INSPECTION CHARTS


SALINAS RIVER BRIDGE
South to Monterey
North to San Francisco
Span 1
Span 2
Span 3
Span 4
Span 5
Abutment No. 1
Pier 1
Pier 2
Pier 3
Pier 4
Abutment No. 2
ELEVATION VIEW

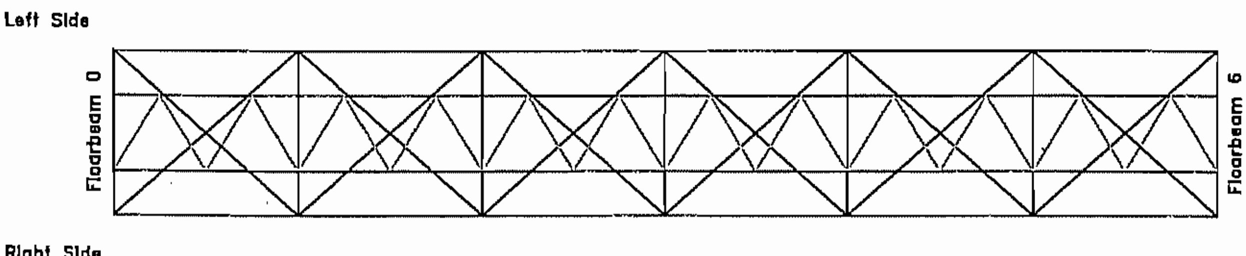
SALINAS RIVER BRIDGE



PLAN – TOP CHORD



ELEV. – 140 FT. SPANS



PLAN – BOTTOM CHORD & FLOOR SYSTEM

TRUSS NUMBERING DIAGRAM

APPENDIX 2

MEMBER LOSSES

LEGEND

BC	- Bottom Chord
BF	- Bottom Flange
Brg	- Bearing
btm	- bottom
btw	- between
Exp	- Expansion
Fl	- Flange
Flbm	- Floorbeam
horiz	- horizontal
Inbd	- Inboard
L	- angle
Lt	- Left
Mty	- Monterey
Outbd	- Outboard
Rt	- Right
SF	- San Francisco
SL	- Section Loss
Str	- Stringer
TC	- Top Chord
TF	- Top Flange

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
1	**1**	**End Post (Lt)**				
		Cover Plate	10%		30%	Many holes through
		Outbd TF			✓	
		Outbd BF			10%	2 or 3 spots, 3 rivet heads gone
		Outbd Web			✓	
		Inbd TF			✓	
		Inbd BF			✓	
		Inbd Web			✓	
		Bottom Lacing				50% SL of 5 top lacing bars
1	**1**	**End Post (Rt)**				
		Cover Plate	15%		20%	Mostly at top
		Outbd TF			✓	
		Outbd BF			5%	Top
		Outbd Web			✓	
		Inbd TF			✓	
		Inbd BF			✓	
		Inbd Web			5%	
		Bottom Lacing				10% SL of 3-4 top bars
1	**1**	**Bottom Chord (Lt)**				
		Outbd TF	20%		✓	
		Outbd BF	10%		✓	
		Outbd Web			✓	
		Inbd TF	20%		✓	
		Inbd BF	5%		✓	
		Inbd Web			✓	
		Top Lacing				50% SL average, 100% of 4
		Bottom Lacing				20% SL average
1	**1**	**Bottom Chord (Rt)**				
		Outbd TF	50%	located 16" from center of bearing pin L0R	✓	
			40%	typical between L0 and L1	✓	
		Outbd BF	90%	located 16" from center of brg pin at L0R	✓	
		Outbd Web			10%	2 spots
		Inbd TF	40%	located 16" from center of bearing pin at L0R	✓	
			40%	typical between L0 and L1	50%	
		Inbd BF			✓	

For abbreviations, see Legend on First page of Appendix 2.
For guide to numbering system and directional designations, see Appendix 1.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Inbd Web			10%	
		Top Lacing				50% SL of 2-3, 30% SL of 50%
		Bottom Lacing				20% SL of 20%
1	**L1L-U1L**	**Hanger (Lt)**				
		Outbd Fl (SF side)	20%	along top of bottom chord	30%	
		Outbd Fl (Mty side)	20%	along top of bottom chord	30%	
		Inbd Fl (SF side)			✓	
		Inbd Fl (Mty side)			✓	
		Web			✓	
1	**L1R-U1R**	**Hanger (Rt)**				
		Outbd Fl (SF side)	10%	along top of bottom chord	✓	
		Outbd Fl (Mty side)	10%	along top of bottom chord	✓	
		Inbd Fl (SF side)			✓	
		Inbd Fl (Mty side)			5%	Top of knee brace
		Web			5%	Top of knee brace
1	**2**	**Bottom Chord (Lt)**		100% SL at 90% of top lacing bars		100% SL at 100% of top lacing bars (Lt side)
		Outbd TF	50%		✓	
		Outbd BF	10%		✓	
		Outbd Web	5%		✓	
		Inbd TF	50%		✓	
		Inbd BF	10%		✓	Average
		Inbd Web	5%		✓	
1	**2**	**Bottom Chord (Rt)**				
		Outbd TF	50%		✓	
		Outbd BF			10%	
		Outbd Web			✓	
		Inbd TF	50%		✓	
		Inbd BF			60%	At L2 end
		Inbd Web			10%	Average
1	**2**	**Top Chord (Lt)**				
		Cover Plate	50%		60%	
		Outbd TF	5%		10%	
		Outbd BF	10%		✓	
		Outbd Web			✓	
		Inbd TF	5%		✓	
		Inbd BF	30%		40%	
		Inbd Web			✓	

For abbreviations, see Legend on First page of Appendix 2.
For guide to numbering system and directional designations, see Appendix 1.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Bottom Lacing				1 @ portal end w/100% SL, 20% SL of 20% lacing
1	**2**	**Top Chord (Rt)**				
		Cover Plate	80%	near U1R	✓	
			90%	near U2R	✓	
			60%	typical along length of member, except as noted above	✓	
		Outbd TF	10%		✓	
		Outbd BF	50%		65%	
		Outbd Web	5%		✓	
		Inbd TF			✓	
		Inbd BF	20%		✓	
		Inbd Web	5%		✓	
		Bottom Lacing				50% SL of 20% of lacing
1	**2**	**Diagonal (Lt)**				
		Outbd TF	20%		50%	
		Outbd BF	5%		✓	
		Outbd Web	5%		✓	
		Inbd TF	20%		50%	
		Inbd BF	20%		40%	
		Inbd Web	5%		✓	
		Bottom Lacing				30% SL of 30%, 10% SL of rest
		Top Lacing				100% SL of 50%, 50% SL of rest
1	**2**	**Diagonal (Rt)**				
		Outbd TF	50%		✓	
		Outbd BF	25%		30%	
		Outbd Web	5%		✓	
		Inbd TF	50%		✓	
		Inbd BF	10%		✓	
		Inbd Web	5%		✓	
		Bottom Lacing				100% SL of 50%, 20% SL of rest
		Top Lacing				100% SL of 40%, 60% SL of 50% SL of rest
1	**L2L-U2L**	**Post (Lt)**				
		Outbd Fl (SF side)			5%	
		Outbd Fl (Mty side)			5%	
		Inbd Fl (SF side)			5%	
		Inbd Fl (Mty side)			10%	

For abbreviations, see Legend on First page of Appendix 2.
For guide to numbering system and directional designations, see Appendix 1.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Web			✓	
		Lacing				100% SL of 80%
1	**L2R-U2R**	**Post (Rt)**				
		Outbd Fl (SF side)			5%	
		Outbd Fl (Mty side)	50%	just below top chord	✓	
			15%	along 10 ft. section at mid-height of post	✓	
		Inbd Fl (SF side)			✓	
		Inbd Fl (Mty side)	25%	above fill plate at flbm connection	✓	
		Web			✓	
		Lacing				100% SL of 50%
1	**3**	**Bottom Chord (Lt)**		100% SL at 30% of top lacing bars; Bottom chord covered with tree limbs		
		Outbd TF	20%		50%	
		Outbd BF	10%		30%	
		Outbd Web	5%		✓	
		Inbd TF	20%		50%	
		Inbd BF	10%		15%	
		Inbd Web	5%		10%	
		Bottom Lacing				100% SL of 70%
		Top Lacing				100% SL of 70%
1	**3**	**Bottom Chord (Rt)**		Bottom chord covered with tree limbs		
		Outbd TF	15%		40%	Mty end
		Outbd BF			5%	
		Outbd Web			5%	
		Inbd TF	15%		50%	Mty end
		Inbd BF			10%	
		Inbd Web			10%	
		Bottom Lacing				70% SL of 1, 20% SL of 50%
		Top Lacing				10% SL of 20%
1	**3**	**Top Chord (Lt)**				
		Cover Plate	50%		70%	
		Outbd TF	5%		✓	
		Outbd BF	10%		20%	
		Outbd Web			✓	
		Inbd TF	20%		✓	
		Inbd BF	30%		50%	
		Inbd Web	5%		✓	

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Bottom Lacing				20% SL of 20%
1	**3**	**Top Chord (Rt)**				
		Cover Plate	50%		80%	
		Outbd TF	15%		20%	
		Outbd BF	50%		65%	
		Outbd Web	5%		5%	
		Inbd TF	5%		10%	
		Inbd BF	40%		40%	
		Inbd Web	5%		5%	
		Bottom Lacing				20% SL of 20%
1	**3**	**Diagonal (Lt)**				
		Outbd TF	10%		15%	
		Outbd BF	10%		20%	
		Outbd Web	5%		✓	
		Inbd TF	10%		✓	
		Inbd BF	10%		✓	
		Inbd Web	5%		✓	
		Bottom Lacing				Bottom lacing ok
		Top Lacing				100% SL of 20%, 20% SL average
1	**3**	**Diagonal (Rt)**		100% SL at upper 12 top lacing bars, and 50% SL at remaining top lacing bars.		
		Outbd TF	50%		30%?	
		Outbd BF	30%		✓	
		Outbd Web	5%		✓	
		Inbd TF	50%		20%?	
		Inbd BF	10%		25%	
		Inbd Web	10%		✓	
		Bottom Lacing				10% SL of 10%
		Top Lacing				100% SL of 50%
1	**L3L-U3L**	**Hanger (Lt)**				
		Outbd Fl (SF side)			✓	
		Outbd Fl (Mty side)			✓	
		Inbd Fl (SF side)	40%	along top of fill plate at flbm connection	10%	10% SL in hanger at top of fill plate, 40% SL in fill plate
		Inbd Fl (Mty side)	25%	along top of fill plate at flbm connection	10%	10% SL in hanger at top of fill plate, 25% SL in fill plate
		Web			✓	
1	**L3R-U3R**	**Hanger (Rt)**				

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For guide to numbering system and directional designations, see Appendix 1.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Outbd Fl (SF side)			✓	
		Outbd Fl (Mty side)			✓	
		Inbd Fl (SF side)	50%	along top of fill plate at flbm connection	✓	in angle 10% SL in fill plate
		Inbd Fl (Mty side)	20%	along top of fill plate at flbm connection	✓	in angle 20% SL in fill plate
		Web			✓	
1	**4**	**Bottom Chord (Lt)**		100% SL at 50% of top lacing bars; Bottom chord covered with tree limbs		
		Outbd TF	50%		✓	
		Outbd BF	25%		40%	
		Outbd Web	5%		10%	
		Inbd TF	50%		60%	2 or 3 spots
		Inbd BF	25%		30%	
		Inbd Web	5%		15%	
		Bottom Lacing				100% SL of 70%
		Top Lacing				100% SL of 100%
1	**4**	**Bottom Chord (Rt)**		Bottom chord covering with tree limbs.		
		Outbd TF	20%		40%	
		Outbd BF	15%		20%	
		Outbd Web	5%		✓	
		Inbd TF	20%		60%	
		Inbd BF	15%		20%	
		Inbd Web	5%		✓	
		Bottom Lacing				20% SL of 50%
		Top Lacing				30% SL of 90%
1	**4**	**Top Chord (Lt)**				
		Cover Plate	40%		60%	
		Outbd TF			10%	
		Outbd BF	15%		20%	
		Outbd Web	5%		✓	
		Inbd TF	5%		✓	
		Inbd BF	30%		50%	
		Inbd Web	10%		✓	
		Bottom Lacing				20% SL of 20%
1	**4**	**Top Chord (Rt)**				
		Cover Plate	80%	at 6ft. section near U3R and at 8ft. Section near U4R	90%	

For abbreviations, see Legend on First page of Appendix 2.
For guide to numbering system and directional designations, see Appendix 1.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
			60%	between section noted above	90%	
		Outbd TF	5%		20%	
		Outbd BF	50%		60%	
		Outbd Web	5%		10%	
		Inbd TF			✓	
		Inbd BF	10%		✓	
		Inbd Web			✓	
		Bottom Lacing				30% SL of 40%
1	**4**	**Diagonal (Lt)**		100% SL at two top lacing bars; 50% SL at remaining top lacing bars		
		Outbd TF	50%		✓	
		Outbd BF	20%		25%	
		Outbd Web	5%		✓	
		Inbd TF	50%		✓	
		Inbd BF	40%		✓	
		Inbd Web	5%		✓	
		Bottom Lacing				100% SL of 70%
		Top Lacing				100% SL of 2, 50% SL of rest
1	**4**	**Diagonal (Rt)**		100% SL at 75% of bottom lacing bars and at 10% of top lacing bars; 50% SL at remaining lacing bars.		
		Outbd TF	50%		✓	
		Outbd BF	25%		40%	
		Outbd Web	5%		✓	
		Inbd TF	25%		✓	
		Inbd BF	5%		✓	
		Inbd Web			✓	
		Bottom Lacing				100% SL of 100%
		Top Lacing				100% SL of 90%
1	**L4L-U4L**	**Post (Lt)**				
		Outbd Fl (SF side)	5%		10%	
		Outbd Fl (Mty side)	5%		10%	
		Inbd Fl (SF side)	20%		30%	
		Inbd Fl (Mty side)	20%		30%	
		Web		80% SL at all lacing bars		
		Lacing				100% SL of 100%

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For guide to numbering system and directional designations, see Appendix 1.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
1	**L4R-U4R**	**Post (Rt)**				
		Outbd Fl (SF side)	10%		20%	
		Outbd Fl (Mty side)	10%		20%	
		Inbd Fl (SF side)	5%		20%	
		Inbd Fl (Mty side)	5%		20%	
		Web		80% SL at all lacing bars		
		Lacing				100% SL of 100%
1	**5**	**Bottom Chord (Lt)**		95% SL at 50% of top lacing bars		
		Outbd TF	70%		✓	
		Outbd BF	10%		30%	
		Outbd Web			5%	
		Inbd TF	70%		✓	
		Inbd BF	10%		✓	
		Inbd Web			✓	
		Bottom Lacing				40% SL of average
		Top Lacing				100% SL of 60%, 30% SL of rest
1	**5**	**Bottom Chord (Rt)**				
		Outbd TF	50%	50% SL at L5R; 20% SL typical	60%	
		Outbd BF	20%		60%	
		Outbd Web	5%		15%	
		Inbd TF	50%	50% SL at L5R; 20% SL typical	60%	
		Inbd BF	20%		30%	
		Inbd Web	5%		20%	
		Bottom Lacing				30% SL of 50%
		Top Lacing				80% SL of 20%, 60% SL of average
1	**5**	**Top Chord (Lt)**				
		Cover Plate	50%		✓	
		Outbd TF			✓	
		Outbd BF	15%		✓	
		Outbd Web			✓	
		Inbd TF	15%		✓	
		Inbd BF	30%		40%	
		Inbd Web	5%		✓	
		Bottom Lacing				30% SL of 30%
1	**5**	**Top Chord (Rt)**				
		Cover Plate	90%	near U4R and at 7 ft. section near U5R	95%	

For abbreviations, see Legend on First page of Appendix 2.
For guide to numbering system and directional designations, see Appendix 1.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
			70%	between sections noted above	90%	
		Outbd TF	10%		20%	
		Outbd BF	70%		✓	
		Outbd Web	5%		✓	
		Inbd TF	5%		✓	
		Inbd BF	10%		✓	
		Inbd Web			✓	
		Bottom Lacing				20% SL of 20%
1	**5**	**Diagonal (Lt)**				
		Outbd TF	50%		✓	
		Outbd BF	15%		✓	
		Outbd Web	5%		10%	
		Inbd TF	40%		50%	
		Inbd BF	20%		✓	
		Inbd Web	5%		✓	
		Bottom Lacing				20% SL of 20%
		Top Lacing				100% SL of 50%, 30% SL of rest
1	**5**	**Diagonal (Rt)**		100% SL at seven top lacing bars		
		Outbd TF	40%		✓	
		Outbd BF	60%		✓	
		Outbd Web	5%		✓	
		Inbd TF	40%		✓	
		Inbd BF	15%		20%	
		Inbd Web	10%		✓	
		Lacing				100% SL of 70%
1	**L5L-U5L**	**Hanger (Lt)**				
		Outbd Fl (SF side)	5%	along top of bottom chord	✓	
		Outbd Fl (Mty side)	20%	along top of bottom chord	✓	
		Inbd Fl (SF side)	5%	near U5L	15%	At top chord
		Inbd Fl (Mty side)	5%	near U5L	✓	
		Web			✓	
1	**L5R-U5R**	**Hanger (Rt)**				
		Outbd Fl (SF side)	10%	along top of bottom chord	15%	
		Outbd Fl (Mty side)	10%	along top of bottom chord	✓	
		Inbd Fl (SF side)			✓	

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For guide to numbering system and directional designations, see Appendix 1.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Inbd Fl (Mty side)	5%	along top of fill plate at flbm connection	✓	
		Web			✓	
1	**6**	**Bottom Chord (Lt)**		95% SL at 50% of top lacing bars		
		Outbd TF	50%		70%	
		Outbd BF	20%		30%	
		Outbd Web			✓	
		Inbd TF	50%		✓	
		Inbd BF	15%		20%	
		Inbd Web			5%	
		Bottom Lacing				30% SL of average
		Top Lacing				100% SL of 50%, 50% SL of rest
1	**6**	**Bottom Chord (Rt)**				
		Outbd TF	50%	50% SL at L5R; 20% SL typical	60%	
		Outbd BF	25%		60%	
		Outbd Web	5%		✓	
		Inbd TF	50%	50% SL at L5R; 20% SL typical	60%	
		Inbd BF	15%		30%	At ends
		Inbd Web	5%		✓	
		Bottom Lacing				40% SL of average
		Top Lacing				80% SL of 10%, 50% SL of rest
1	**6**	**End Post (Lt)**				
		Cover Plate	70%	70% SL at isolated area located approximately 3 ft. above flbm; 5% SL typical	✓	
		Outbd TF			✓	
		Outbd BF	20%		✓	
		Outbd Web			✓	
		Inbd TF			✓	
		Inbd BF	20%		✓	
		Inbd Web			5%	
		Bottom Lacing				10% SL of 10%
1	**6**	**End Post (Rt)**				
		Cover Plate	10%		20%	Many rivet heads gone, some holes through
		Outbd TF			✓	
		Outbd BF	30%		✓	

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For guide to numbering system and directional designations, see Appendix 1.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Outbd Web			✓	
		Inbd TF			✓	
		Inbd BF	5%		✓	
		Inbd Web			✓	
		Bottom Lacing				10% SL of 10%
2	**1**	**End Post (Lt)**				
		Cover Plate			10%	
		Outbd TF			✓	
		Outbd BF			✓	
		Outbd Web			✓	
		Inbd TF	5%		✓	
		Inbd BF	5%		✓	
		Inbd Web	5%		✓	
		Bottom Lacing				10% SL average
2	**1**	**End Post (Rt)**				
		Cover Plate	10%		15%	
		Outbd TF			✓	
		Outbd BF			10%	
		Outbd Web			✓	
		Inbd TF			✓	
		Inbd BF			5%	
		Inbd Web			✓	
		Bottom Lacing				100% SL of top, 50% SL next 3, 10% SL rest
2	**1**	**Bottom Chord (Lt)**		Tree limbs growing into bottom chord		Tree limbs gone
		Outbd Fl (top)	10%	at L1L	✓	
			5%	throughout length of member, except as noted above	✓	
		Outbd Fl (btm)			✓	
		Inbd Fl (top)	5%		✓	
		Inbd Fl (btm)			✓	
		Web		20% SL at 50% of lacing bars		Mid lacing 30% SL of 20%, 10% SL rest
2	**1**	**Bottom Chord (Rt)**				
		Outbd Fl (top)	10%		✓	
		Outbd Fl (btm)			✓	
		Inbd Fl (top)	10%		✓	
		Inbd Fl (btm)			✓	
		Web				Lacing 30% SL of 20%, 10% SL rest
2	**L1L-U1L**	**Hanger (Lt)**				

For abbreviations, see Legend on First page of Appendix 2.
For guide to numbering system and directional designations, see Appendix 1.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Outbd Fl (SF side)			5%	
		Outbd Fl (Mty side)	10%		✓	
		Inbd Fl (SF side)			5%	Mid
		Inbd Fl (Mty side)			✓	Bottom gusset 10% SL both
		Web			✓	
2	**L1R-U1R**	**Hanger (Rt)**				
		Outbd Fl (SF side)	25%	along top of gusset plate at L1R	✓	
		Outbd Fl (Mty side)			5%	
		Inbd Fl (SF side)			5%	
		Inbd Fl (Mty side)			✓	
		Web			✓	
2	**2**	**Bottom Chord (Lt)**		Tree limbs growing into bottom chord		
		Outbd Fl (top)	5%		15%	L2L gusset 10% SL
		Outbd Fl (btm)	5%		✓	
		Inbd Fl (top)	5%		10%	
		Inbd Fl (btm)	5%		✓	
		Web		20% SL at 10% of lacing chord		Lacing 20% SL of 20%
2	**2**	**Bottom Chord (Rt)**				
		Outbd Fl (top)	10%	in area btw gusset plates at L2R (probably due to moisture associated with accumulated of debris/ballast btw gussets plates)	10%	10% SL at L1R & L2R, L2R gusset 15% SL
			5%	throughout length of member, except as noted above	✓	
		Outbd Fl (btm)			✓	
		Inbd Fl (top)	10%	in area btw gusset plates at L2R (probably due to moisture associated with accumulated of debris/ballast btw gussets plates)	✓	10% SL at ends
			5%	throughout length of member, except as noted above	✓	

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For guide to numbering system and directional designations, see Appendix 1.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Inbd Fl (btm)			✓	
		Web				Lacing 1 at 100% SL, 60% of rest
2	**2**	**Top Chord (Lt)**				
		Cover Plate	15%		✓	No holes
		Outbd TF			✓	
		Outbd BF			✓	
		Outbd Web			✓	
		Inbd TF	20%		✓	
		Inbd BF	5%		10%	
		Inbd Web			✓	
		Bottom Lacing				20% SL average
2	**2**	**Top Chord (Rt)**				
		Cover Plate	5%		30%	No holes
		Outbd TF			5%	
		Outbd BF	10%		20%	
		Outbd Web	5%		✓	
		Inbd TF			5%	
		Inbd BF			5%	
		Inbd Web			5%	
		Bottom Lacing				20% SL average, 1 at 60% SL
2	**2**	**Diagonal (Lt)**				
		Outbd Fl (top)	5%	near mid-point btw U1L & L2L	✓	
		Outbd Fl (btm)			5%	
		Inbd Fl (top)			5%	
		Inbd Fl (btm)			5%	
		Web	20%	in horiz leg of both top angles and in section of web plate btw angles, just above connection at L2L	25%	
2	**2**	**Diagonal (Rt)**		debris build-up btw gusset plates at L2R	✓	
		Outbd Fl (top)			5%	
		Outbd Fl (btm)			5%	
		Inbd Fl (top)			5%	
		Inbd Fl (btm)			✓	
		Web	10%	in section of web plate btw angles	20%	
2	**L2L-U2L**	**Post (Lt)**				
		Outbd Fl (SF side)			✓	

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For guide to numbering system and directional designations, see Appendix 1.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Outbd Fl (Mty side)			✓	
		Inbd Fl (SF side)			✓	
		Inbd Fl (Mty side)			✓	
		Web	5%	located 3 ft. above flbm connection	✓	
2	**L2R-U2R**	**Post (Rt)**				
		Outbd Fl (SF side)			✓	
		Outbd Fl (Mty side)			5%	
		Inbd Fl (SF side)	25%	along top of gusset plate at L2R	✓	
		Inbd Fl (Mty side)			✓	
		Web			✓	
2	**3**	**Bottom Chord (Lt)**				
		Outbd Fl Plate			✓	
		Outbd Fl (top L)	5%		10%	
		Outbd Fl (btm L)	5%		✓	
		Inbd Fl Plate			✓	
		Inbd Fl (top L)	5%		10%	
		Inbd Fl (btm L)	5%		✓	
		Web	10%	in horiz leg of both top angles and in section of web plate btw angles	10%	10% SL plate between angle
2	**3**	**Bottom Chord (Rt)**				
		Outbd Fl Plate			✓	
		Outbd Fl (top L)	5%		15%	
		Outbd Fl (btm L)			✓	
		Inbd Fl Plate			✓	
		Inbd Fl (top L)	5%		15%	
		Inbd Fl (btm L)			✓	
		Web	10%	in horiz leg of both top angles and in section of web plate btw angles	20%	20% SL in plate
2	**3**	**Top Chord (Lt)**				
		Cover Plate	25%		50%	Holes after 5-10' each end
		Outbd TF			✓	
		Outbd BF	10%		✓	
		Outbd Web			✓	
		Inbd TF			✓	
		Inbd BF	15%		30%	
		Inbd Web			5%	
		Bottom Lacing				30% SL average, 2 at 60% SL

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For guide to numbering system and directional designations, see Appendix 1.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
2	**3**	**Top Chord (Rt)**				
		Cover Plate	10%		15%	
		Outbd TF			✓	
		Outbd BF	10%		20%	
		Outbd Web	5%		✓	
		Inbd TF			5%	
		Inbd BF	10%		15%	
		Inbd Web			✓	
		Bottom Lacing				20% SL average, 2 at 100% SL
2	**3**	**Diagonal (Lt)**		100% SL at two bottom lacing bars and 20% SL at remaining bottom lacing bars		
		Outbd TF			✓	
		Outbd BF	5%		✓	
		Outbd Web			5%	
		Inbd TF	10%		✓	
		Inbd BF	10%		✓	
		Inbd Web	5%		✓	
		Bottom Lacing				100% SL of 10%, 20% SL average
		Top Lacing				100% SL on 10%, 5% SL average
2	**3**	**Diagonal (Rt)**				
		Outbd TF	5%		✓	
		Outbd BF	5%		✓	
		Outbd Web			✓	
		Inbd TF			✓	
		Inbd BF			✓	
		Inbd Web			✓	
		Bottom Lacing				100% SL of 30%
		Top Lacing				20% SL of 10%, 5% SL average
2	**L3L-U3L**	**Hanger (Lt)**				
		Outbd Fl (SF side)			✓	
		Outbd Fl (Mty side)			✓	
		Inbd Fl (SF side)			✓	
		Inbd Fl (Mty side)	5%	along top of gusset plate at L3L	✓	
		Web	5%		✓	
2	**L3R-U3R**	**Hanger (Rt)**				
		Outbd Fl (SF side)			✓	

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For guide to numbering system and directional designations, see Appendix 1.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Outbd Fl (Mty side)			✓	
		Inbd Fl (SF side)	5%	along top of gusset plate at L3R	10%	
		Inbd Fl (Mty side)			✓	
		Web	5%	in section of web plate btw angles	10%	
2	4	**Bottom Chord (Lt)**				
		Outbd Fl Plate			✓	
		Outbd Fl (top L)	20%		✓	
		Outbd Fl (btm L)	10%		✓	
		Inbd Fl Plate			✓	
		Inbd Fl (top L)	20%		✓	
		Inbd Fl (btm L)	10%		✓	
		Web	20%	in horiz leg of both top angles and in section of web plate btw angles	✓	
2	4	**Bottom Chord (Rt)**				
		Outbd Fl Plate			✓	
		Outbd Fl (top L)	5%		10%	
		Outbd Fl (btm L)			✓	
		Inbd Fl Plate	5%	along gusset plate at L3R	✓	
		Inbd Fl (top L)	10%		✓	
		Inbd Fl (btm L)			✓	
		Web	10%	in horiz leg of both top angles and in section of web plate btw angles	20%	
2	4	**Top Chord (Lt)**				
		Cover Plate	50%		✓	
		Outbd TF			✓	
		Outbd BF			✓	
		Outbd Web			5%	
		Inbd TF	5%		10%	
		Inbd BF	20%		50%	
		Inbd Web	5%		10%	
		Bottom Lacing				10% SL average
2	4	**Top Chord (Rt)**				
		Cover Plate	10%		20%	No holes
		Outbd TF			5%	
		Outbd BF	15%		20%	
		Outbd Web	5%		✓	
		Inbd TF			✓	
		Inbd BF			5%	

For abbreviations, see Legend on First page of Appendix 2.
For guide to numbering system and directional designations, see Appendix 1.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Inbd Web			5%	
		Bottom Lacing				15% SL average, 1 at 80% SL
2	**4**	**Diagonal (Lt)**				
		Outbd TF	10%		✓	
		Outbd BF	5%		✓	
		Outbd Web	5%		✓	
		Inbd TF	5%		✓	
		Inbd BF	10%		✓	
		Inbd Web	5%		✓	
		Bottom Lacing				30% SL average
		Top Lacing				100% SL of 1, 20% SL average
2	**4**	**Diagonal (Rt)**				
		Outbd TF	5%		10%	
		Outbd BF	20%		30%	
		Outbd Web	5%		✓	
		Inbd TF	20%		30%	
		Inbd BF			✓	
		Inbd Web	5%		✓	
		Bottom Lacing				100% SL of 20%, 30% SL average
		Top Lacing				90% SL of 20%, 20% SL average
2	**L4L-U4L**	**Post (Lt)**				
		Outbd Fl (SF side)	10%	along top of gusset plate at L4L	✓	
		Outbd Fl (Mty side)			✓	
		Inbd Fl (SF side)	5%	along top of gusset plate at L4L	✓	
		Inbd Fl (Mty side)	5%	along top of gusset plate at L4L	✓	
		Web	5%		✓	
2	**L4R-U4R**	**Post (Rt)**				
		Outbd Fl (SF side)			✓	
		Outbd Fl (Mty side)			✓	
		Inbd Fl (SF side)			✓	
		Inbd Fl (Mty side)			✓	
		Web			✓	
2	**5**	**Bottom Chord (Lt)**				
		Outbd Fl (top)	10%		✓	
		Outbd Fl (btm)	5%		✓	
		Inbd Fl (top)	10%		✓	

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For guide to numbering system and directional designations, see Appendix 1.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Inbd Fl (btm)	5%		✓	
		Web	20%	in horiz legs of both top angles	✓	Lacing
				50% SL at all lacing bars	✓	Lacing
2	**5**	**Bottom Chord (Rt)**				
		Outbd Fl (top)	5%		10%	
		Outbd Fl (btm)			✓	
		Inbd Fl (top)	5%		10%	
		Inbd Fl (btm)			5%	
		Web	5%	in horiz legs of both top angles	10%	Lacing 60% SL in 30%
2	**5**	**Top Chord (Lt)**				
		Cover Plate	25%		30%	No holes through
		Outbd TF			✓	
		Outbd BF			✓	
		Outbd Web			5%	
		Inbd TF			✓	
		Inbd BF	15%		20%	
		Inbd Web			✓	
		Bottom Lacing				15% SL average
2	**5**	**Top Chord (Rt)**				
		Cover Plate	60%	at 12" length of member adjacent to lateral connection plate at U4R	✓	Holes in 1 area
			15%	throughout length of member, except as noted above	✓	
		Outbd TF			10%	
		Outbd BF	15%		✓	
		Outbd Web	5%		✓	
		Inbd TF			5%	
		Inbd BF			✓	
		Inbd Web			✓	
		Bottom Lacing				15% SL average, 1 at 80% SL
2	**5**	**Diagonal (Lt)**				
		Outbd Fl (top)			20%	20% SL at L4L gusset
		Outbd Fl (btm)			20%	20% SL at L4L gusset
		Inbd Fl (top)			✓	
		Inbd Fl (btm)			✓	

For abbreviations, see Legend on First page of Appendix 2.
For guide to numbering system and directional designations, see Appendix 1.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Web	20%	in horiz leg of both top angles and in section of web plate btw angles (along 5 ft. length starting at L4L)	✓	
2	**5**	**Diagonal (Rt)**				
		Outbd Fl (top)			✓	
		Outbd Fl (btm)	5%	along gusset plate at L4R	✓	Pack rust prying
		Inbd Fl (top)	20%	along gusset plate at L4R	✓	
		Inbd Fl (btm)	15%	along gusset plate at L4R	✓	
		Web	10%	in horiz leg of both top angles and in section of web plate btw angles	20%	
2	**L5L-U5L**	**Hanger (Lt)**				
		Outbd Fl (SF side)			✓	Bottom gusset inside 5% SL
		Outbd Fl (Mty side)			✓	
		Inbd Fl (SF side)			✓	
		Inbd Fl (Mty side)			✓	
		Web	10%	along 3 ft. length of member starting at top of flbm	✓	L5L gusset outside 20% SL
2	**L5R-U5R**	**Hanger (Rt)**				
		Outbd Fl (SF side)			✓	
		Outbd Fl (Mty side)			✓	Bottom gusset inside 10% SL
		Inbd Fl (SF side)			✓	
		Inbd Fl (Mty side)			✓	
		Web			✓	
2	**6**	**Bottom Chord (Lt)**				
		Outbd Fl (top)	10%		✓	
		Outbd Fl (btm)			✓	
		Inbd Fl (top)	10%		✓	
		Inbd Fl (btm)			✓	
		Web		30% SL at all lacing bars	40%	
2	**6**	**Bottom Chord (Rt)**				
		Outbd Fl (top)	5%		✓	
		Outbd Fl (btm)			✓	
		Inbd Fl (top)	5%		✓	

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For guide to numbering system and directional designations, see Appendix 1.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Inbd Fl (btm)			✓	
		Web	10%	in horiz legs of both top angles	✓	Lacing 50% in 30%
2	**6**	**End Post (Lt)**		10% SL at all bottom lacing bars		
		Cover Plate	10%		✓	
		Outbd TF			✓	
		Outbd BF			✓	
		Outbd Web			5%	
		Inbd TF			✓	
		Inbd BF	10%		15%	
		Inbd Web			5%	
		Bottom Lacing				20% SL of 50%
2	**6**	**End Post (Rt)**				
		Cover Plate			5%	
		Outbd TF			✓	
		Outbd BF	5%		✓	
		Outbd Web			✓	
		Inbd TF			✓	
		Inbd BF			✓	
		Inbd Web			✓	
		Bottom Lacing				20% SL of 50%
3	**1**	**End Post (Lt)**		50% SL at 50% of the bottom lacing bars		
		Cover Plate			5%	
		Outbd TF	5%		✓	
		Outbd BF	5%		✓	
		Outbd Web	5%		✓	
		Inbd TF	10%		✓	
		Inbd BF	5%		10%	
		Inbd Web			5%	
		Bottom Lacing				100% SL of 20%, 30% SL rest
3	**1**	**End Post (Rt)**		100% SL at ten bottom lacing bars; remainder of lacing bars in poor condition		
		Cover Plate	10%		✓	
		Outbd TF			✓	
		Outbd BF	5%		✓	
		Outbd Web			✓	
		Inbd TF			✓	
		Inbd BF			5%	

For abbreviations, see Legend on First page of Appendix 2.
For guide to numbering system and directional designations, see Appendix 1.

Salinas River Bridge
Updated Inspection Report

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Inbd Web			✓	
		Bottom Lacing				100% SL of 50%, 30% SL rest
3	**1**	**Bottom Chord (Lt)**				
		Outbd Fl (top)	10%		✓	
		Outbd Fl (btm)	15%		✓	
		Inbd Fl (top)			5%	
		Inbd Fl (btm)	15%		✓	
		Web	20%	in horiz leg of both top angles	✓	
				20% SL of all lacing bars	✓	
3	**1**	**Bottom Chord (Rt)**		Tree limbs growing into bottom chord.		
		Outbd Fl (top)	5%		10%	
		Outbd Fl (btm)			✓	
		Inbd Fl (top)	5%		10%	
		Inbd Fl (btm)			✓	
		Web	10%	in horiz leg of both top angles	✓	Lacing 20% SL average, 50% SL at L1 end
3	**L1L-U1L**	**Hanger (Lt)**		50% SL of Inbd gusset plate at L1L, above floorbeam		
		Outbd Fl (SF side)	15%	along top of gusset plate at L1L	✓	
		Outbd Fl (Mty side)	15%	along top of gusset plate at L1L	✓	
		Inbd Fl (SF side)	10%	along top of gusset plate at L1L	15%	
		Inbd Fl (Mty side)	10%	along top of gusset plate at L1L	✓	Bottom gusset above flbm 70% SL
		Web	5%		✓	
3	**L1R-U1R**	**Hanger (Rt)**				
		Outbd Fl (SF side)			✓	Gusset bottom 30% SL
		Outbd Fl (Mty side)			✓	
		Inbd Fl (SF side)	30%	along top of gusset plate at L1L	40%	
		Inbd Fl (Mty side)	30%	along top of gusset plate at L1L	✓	
		Web			✓	
3	**2**	**Bottom Chord (Lt)**				
		Outbd Fl (top)	5%		10%	
		Outbd Fl (btm)			5%	

For abbreviations, see Legend on First page of Appendix 2.
For guide to numbering system and directional designations, see Appendix 1.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Inbd Fl (top)			10%	
		Inbd Fl (btm)	5%		✓	
		Web	10%	in horiz leg of both top angles		Lacing 30% SL average
3	**2**	**Bottom Chord (Rt)**				
		Outbd Fl (top)			5%	
		Outbd Fl (btm)			✓	
		Inbd Fl (top)	5%		10%	
		Inbd Fl (btm)			✓	
		Web	10%	in horiz leg of Inbd top angle	✓	Lacing 30% SL average, 100% SL of 2 at L2 end web, Plate 10% SL
			5%	in horiz leg of Outbd top angle	✓	
3	**2**	**Top Chord (Lt)**				
		Cover Plate	15%		20%	No holes
		Outbd TF			✓	
		Outbd BF			5%	
		Outbd Web			✓	
		Inbd TF	5%		✓	
		Inbd BF	15%		✓	
		Inbd Web			✓	
3	**2**	**Top Chord (Rt)**				
		Cover Plate	10%		20%	No holes
		Outbd TF			✓	
		Outbd BF	15%		✓	
		Outbd Web			✓	
		Inbd TF			✓	
		Inbd BF	10%		✓	
		Inbd Web			✓	
3	**2**	**Diagonal (Lt)**				
		Outbd Fl (top)	10%	along top of gusset plate at L2L	✓	Outbd member L2 gusset 70% SL
		Outbd Fl (btm)	5%		✓	
		Inbd Fl (top)	10%	along top of gusset plate at L2L	25%	1/2 inside
		Inbd Fl (btm)	5%		✓	
		Web	20%	in horiz leg of both top angles and in section of web plate between angles, along 4 ft. length of member starting from L2L	30%	

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For guide to numbering system and directional designations, see Appendix 1.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
3	**2**	**Diagonal (Rt)**				
		Outbd Fl (top)	5%		✓	
		Outbd Fl (btm)			✓	
		Inbd Fl (top)	30%	along gusset plate at L2R	✓	
		Inbd Fl (btm)	5%	along gusset plate at L2R	✓	
		Web	5%	lin horiz leg of both top angles and in section of web plate between angles	10%	
3	**L2L-U2L**	**Post (Lt)**				
		Outbd Fl (SF side)			✓	
		Outbd Fl (Mty side)			✓	
		Inbd Fl (SF side)	5%	along top of gusset plate at L2L	✓	
		Inbd Fl (Mty side)	5%	along top of gusset plate at L2L	✓	
		Web	5%		✓	
3	**L2R-U2R**	**Post (Rt)**				
		Outbd Fl (SF side)			✓	
		Outbd Fl (Mty side)			✓	
		Inbd Fl (SF side)	5%	along top of gusset plate at L2R	✓	Main L2 gusset 10% SL
		Inbd Fl (Mty side)			✓	
		Web			✓	
3	**3**	**Bottom Chord (Lt)**				
		Outbd Fl Plate			✓	
		Outbd Fl (top L)			10%	
		Outbd Fl (btm L)			✓	
		Inbd Fl Plate			✓	
		Inbd Fl (top L)			10%	
		Inbd Fl (btm L)			✓	
		Web	20%	in horiz leg of both top angles and in section of web plate btw angles	20%	20% all
3	**3**	**Bottom Chord (Rt)**				
		Outbd Fl Plate			✓	
		Outbd Fl (top L)	10%		✓	
		Outbd Fl (btm L)			✓	
		Inbd Fl Plate			✓	
		Inbd Fl (top L)	10%		✓	
		Inbd Fl (btm L)			✓	

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Web	10%	in horiz leg of both top angles and in section of web plate btw angles	30%	30% of plate
3	**3**	**Top Chord (Lt)**				
		Cover Plate	50%		70%	Many holes
		Outbd TF			✓	
		Outbd BF			15%	
		Outbd Web			✓	
		Inbd TF	5%		✓	
		Inbd BF	10%		✓	
		Inbd Web			✓	
3	**3**	**Top Chord (Rt)**				
		Cover Plate	70%	along 2 ft. length of member adjacent to lateral connection plate at U2R	80%	Many holes
			15%	Typical SL along length of member, except as noted above	20%	
		Outbd TF			✓	
		Outbd BF	10%		15%	
		Outbd Web			5%	
		Inbd TF			✓	
		Inbd BF	5%		✓	
		Inbd Web			✓	
3	**3**	**Diagonal (Lt)**		20% SL at 30% of the bottom lacing bars		
		Outbd TF			✓	
		Outbd BF			✓	
		Outbd Web			✓	
		Inbd TF			✓	
		Inbd BF			5%	
		Inbd Web			✓	
		Bottom Lacing				100% SL of 40%, 30% SL average
		Top Lacing				5% SL average
3	**3**	**Diagonal (Rt)**				
		Outbd TF	5%		✓	
		Outbd BF	5%		✓	
		Outbd Web	5%		✓	
		Inbd TF	20%	along edges of top lacing bars	30%	
		Inbd BF			5%	

For abbreviations, see Legend on First page of Appendix 2.
For guide to numbering system and directional designations, see Appendix 1.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Inbd Web	5%		✓	
		Bottom Lacing				100% SL of 30%, 30% SL average, 10% SL at bottom
		Top Lacing				100% SL of 30%, 30% SL average
3	**L3L-U3L**	**Hanger (Lt)**				
		Outbd Fl (SF side)			✓	
		Outbd Fl (Mty side)			✓	
		Inbd Fl (SF side)			5%	
		Inbd Fl (Mty side)			5%	
		Web	5%		✓	
3	**L3R-U3R**	**Hanger (Rt)**				
		Outbd Fl (SF side)			✓	
		Outbd Fl (Mty side)			✓	
		Inbd Fl (SF side)			✓	
		Inbd Fl (Mty side)	5%		✓	Inbd bottom gusset 10% SL
		Web	5%	only in section of web plate between angles	✓	
3	**4**	**Bottom Chord (Lt)**				
		Outbd Fl Plate			✓	
		Outbd Fl (top L)			10%	
		Outbd Fl (btm L)			✓	
		Inbd Fl Plate			✓	
		Inbd Fl (top L)			10%	
		Inbd Fl (btm L)			✓	
		Web	20%	in horiz leg of both top angles and in section of web plate btw angles	✓	
3	**4**	**Bottom Chord (Rt)**		minor spreading at Inbd and Outbd flange angles and cover plates due to crevice corrosion		Moderate pack rust
		Outbd Fl Plate			10%	
		Outbd Fl (top L)	5%		10%	
		Outbd Fl (btm L)			✓	
		Inbd Fl Plate			✓	
		Inbd Fl (top L)	10%		✓	
		Inbd Fl (btm L)			✓	
		Web	10%	in horiz leg of both top angles and in section of web plate btw angles	✓	

For abbreviations, see Legend on First page of Appendix 2.
For guide to numbering system and directional designations, see Appendix 1.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
3	**4**	**Top Chord (Lt)**				
		Cover Plate	50%		✓	No holes
		Outbd TF			✓	
		Outbd BF			10%	
		Outbd Web			✓	
		Inbd TF			5%	
		Inbd BF	15%		✓	
		Inbd Web			✓	
3	**4**	**Top Chord (Rt)**				
		Cover Plate	10%		25%	No holes
		Outbd TF			✓	
		Outbd BF	5%		✓	
		Outbd Web	5%		✓	
		Inbd TF			5%	
		Inbd BF	5%		10%	
		Inbd Web			✓	
3	**4**	**Diagonal (Lt)**				
		Outbd TF	5%		✓	Gusset bottom 30% SL
		Outbd BF	5%		✓	
		Outbd Web	5%		✓	
		Inbd TF	5%		✓	10% SL at L4 end
		Inbd BF	5%		✓	15% SL at L4 end
		Inbd Web	5%		✓	
		Bottom Lacing				30% SL average
		Top Lacing				50% SL of 30%, 10% SL average
3	**4**	**Diagonal (Rt)**				
		Outbd TF	30%		10%	Maybe at top
		Outbd BF	20%		✓	
		Outbd Web	5%		✓	
		Inbd TF	50%		✓	
		Inbd BF	5%		✓	10% SL at L4
		Inbd Web	10%		✓	
		Bottom Lacing				100% SL of 40%, 30% SL rest
		Top Lacing				100% SL of 20%, 40% SL average
3	**L4L-U4L**	**Post (Lt)**				
		Outbd Fl (SF side)	30%	along top of gusset plate at L4L	✓	
		Outbd Fl (Mty side)			✓	
		Inbd Fl (SF side)			✓	
		Inbd Fl (Mty side)			✓	

For abbreviations, see Legend on First page of Appendix 2.
For guide to numbering system and directional designations, see Appendix 1.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Web			5%	
3	**L4R-U4R**	**Post (Rt)**				
		Outbd Fl (SF side)			5%	
		Outbd Fl (Mty side)			✓	
		Inbd Fl (SF side)	15%	along gusset plate at L4R	30%	L4 Gusset inside 20% SL
		Inbd Fl (Mty side)	5%	along gusset plate at L4R	10%	
		Web			✓	
3	**5**	**Bottom Chord (Lt)**				
		Outbd Fl (top)			5%	
		Outbd Fl (btm)			5%	
		Inbd Fl (top)			5%	
		Inbd Fl (btm)			10%	
		Web	15%	in horiz leg of both top angles	✓	
		Lacing		30% SL of all lacing bars	✓	
3	**5**	**Bottom Chord (Rt)**				
		Outbd Fl (top)	5%		10%	
		Outbd Fl (btm)			✓	
		Inbd Fl (top)	5%		✓	
		Inbd Fl (btm)			✓	
		Web	5%	in horiz leg of both top angles	✓	Lacing 50% SL of 20%, 40% SL average
3	**5**	**Top Chord (Lt)**				
		Cover Plate	50%		✓	No holes
		Outbd TF			✓	
		Outbd BF			5%	
		Outbd Web			✓	
		Inbd TF	5%		✓	
		Inbd BF	15%		✓	
		Inbd Web			5%	
3	**5**	**Top Chord (Rt)**				
		Cover Plate	10%		30%	Small holes
		Outbd TF			✓	
		Outbd BF	10%		✓	
		Outbd Web			✓	
		Inbd TF			5%	
		Inbd BF	10%		✓	
		Inbd Web			✓	
3	**5**	**Diagonal (Lt)**				

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For guide to numbering system and directional designations, see Appendix 1.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Outbd Fl (top)	10%	along gusset plate at L4L	40%	
		Outbd Fl (btm)			✓	
		Inbd Fl (top)			✓	
		Inbd Fl (btm)			✓	
		Web			5%	
3	**5**	**Diagonal (Rt)**				
		Outbd Fl (top)	5%	along gusset plate at L4L	10%	
		Outbd Fl (btm)	5%	along gusset plate at L4L	10%	
		Inbd Fl (top)	20%	along gusset plate at L4L	30%	
		Inbd Fl (btm)	10%	along gusset plate at L4L	20%	
		Web			10%	At bottom
3	**L5L-U5L**	**Hanger (Lt)**				
		Outbd Fl (SF side)			✓	
		Outbd Fl (Mty side)			5%	
		Inbd Fl (SF side)	10%	at two isolated locations: 1.5 ft. from top of gusset plate at L5L, and 3 ft. from top of gusset plate at L5L	✓	Inbd gusset 25% SL at bottom, outside 10% SL
		Inbd Fl (Mty side)			✓	
		Web			5%	
3	**L5R-U5R**	**Hanger (Rt)**				
		Outbd Fl (SF side)			✓	
		Outbd Fl (Mty side)			✓	Inbd gusset 20% SL above flbm
		Inbd Fl (SF side)			✓	Outbd gusset 10% SL
		Inbd Fl (Mty side)			✓	
		Web			✓	
3	**6**	**Bottom Chord (Lt)**				
		Outbd Fl (top)			5%	
		Outbd Fl (btm)			10%	
		Inbd Fl (top)			5%	Bend 3' from L6 end
		Inbd Fl (btm)			5%	
		Web		30% SL at 90% of the lacing bars		50% SL at 90% of the lacing bars
3	**6**	**Bottom Chord (Rt)**				
		Outbd Fl (top)	5%		✓	
		Outbd Fl (btm)			✓	

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Inbd Fl (top)	5%		✓	
		Inbd Fl (btm)			✓	
		Web	5%	in horiz leg of both top angles	✓	Lacing 30% SL average
3	**6**	**End Post (Lt)**				
		Cover Plate			✓	10% SL near bottom
		Outbd TF			✓	
		Outbd BF			✓	
		Outbd Web			✓	
		Inbd TF	10%		✓	
		Inbd BF	10%		✓	
		Inbd Web			5%	
3	**6**	**End Post (Rt)**				
		Cover Plate			✓	5% SL near bottom
		Outbd TF			✓	
		Outbd BF	5%		✓	
		Outbd Web		5% SL in vertical leg of bottom angle	✓	
		Inbd TF			✓	
		Inbd BF			5%	At bottom
		Inbd Web			✓	
4	**1**	**End Post (Lt)**		50% SL at 75% of the bottom lacing bars		
		Cover Plate	5%		✓	
		Outbd TF			5%	
		Outbd BF			5%	
		Outbd Web			5%	
		Inbd TF	5%		✓	
		Inbd BF	10%		15%	
		Inbd Web			5%	
4	**1**	**End Post (Rt)**		100% SL at six of the bottom lacing bars		
		Cover Plate	5%		10%	
		Outbd TF			✓	
		Outbd BF	5%		✓	
		Outbd Web	5%		✓	
		Inbd TF			✓	
		Inbd BF			✓	
		Inbd Web			✓	
4	**1**	**Bottom Chord (Lt)**				
		Outbd Fl (top)	10%		✓	
		Outbd Fl (btm)			10%	
		Inbd Fl (top)	10%		✓	

For abbreviations, see Legend on First page of Appendix 2.
For guide to numbering system and directional designations, see Appendix 1.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Inbd Fl (btm)			5%	
		Web	30%	in horiz leg of both top angles	✓	
				50% SL at 75% of lacing bars		Lacing 100% SL of 6, 75% SL of rest
4	**1**	**Bottom Chord (Rt)**				
		Outbd Fl (top)			✓	
		Outbd Fl (btm)			✓	
		Inbd Fl (top)	5%		✓	
		Inbd Fl (btm)			✓	
		Web	10%	in horiz leg in Inbd top angle	✓	Lacing 80% SL of 10%, 30% SL average
4	**L1L-U1L**	**Hanger (Lt)**				
		Outbd Fl (SF side)			✓	
		Outbd Fl (Mty side)	20%	along 2 ft. length of member starting from top of gusset plate at L1L	30%	2 holes
		Inbd Fl (SF side)			✓	
		Inbd Fl (Mty side)			✓	
		Web			5%	
4	**L1R-U1R**	**Hanger (Rt)**				
		Outbd Fl (SF side)			✓	
		Outbd Fl (Mty side)			✓	
		Inbd Fl (SF side)			✓	
		Inbd Fl (Mty side)			✓	
		Web	5%	in section of web plate between angles	10%	
4	**2**	**Bottom Chord (Lt)**				
		Outbd Fl (top)	10%		✓	
		Outbd Fl (btm)			✓	
		Inbd Fl (top)	10%		✓	
		Inbd Fl (btm)			✓	
		Web	15%	in horiz leg of both top angles	✓	
				50% SL at all lacing bars		Lacing 80% SL of 50%, 30% average rest
4	**2**	**Bottom Chord (Rt)**				
		Outbd Fl (top)	5%		✓	
		Outbd Fl (btm)			✓	
		Inbd Fl (top)	5%		10%	
		Inbd Fl (btm)			✓	

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For guide to numbering system and directional designations, see Appendix 1.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Web	10%	in horiz leg of Inbd top angle	✓	Lacing 60% SL of 30%, 40% SL average rest
			5%	in horiz leg of Outbd top angle	✓	
4	2	**Top Chord (Lt)**				
		Cover Plate	30%		40%	One hole
		Outbd TF			✓	
		Outbd BF			✓	
		Outbd Web			✓	
		Inbd TF	5%		✓	
		Inbd BF	15%		✓	
		Inbd Web	5%		✓	
4	2	**Top Chord (Rt)**				
		Cover Plate	10%		15%	No holes
		Outbd TF			✓	
		Outbd BF	15%		✓	
		Outbd Web			✓	
		Inbd TF			10%	
		Inbd BF	5%		10%	
		Inbd Web			✓	
4	2	**Diagonal (Lt)**				
		Outbd Fl (top)	5%		✓	
		Outbd Fl (btm)	5%		✓	
		Inbd Fl (top)	30%	along gusset plate at L2L	5%	40% SL along gusset plate at L2L, 5% SL general
		Inbd Fl (btm)	5%		✓	
		Web	5%	in horiz leg both top angles and in section of web plate between angles	5%	5% SL general
4	2	**Diagonal (Rt)**				
		Outbd Fl (top)	5%	along gusset plate at L2R	20%	
		Outbd Fl (btm)			✓	
		Inbd Fl (top)	10%	along gusset plate at L2R	5%	20% SL along gusset plate at L2R, 5% SL general
		Inbd Fl (btm)	5%	along gusset plate at L2R	✓	

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Web	5%	in horiz leg both top angles and in section of web plate between angles	5%	5% SL general
4	L2L-U2L	**Post (Lt)**				
		Outbd Fl (SF side)			✓	
		Outbd Fl (Mty side)			✓	Gusset Inbd & Outbd 60% SL wide areas
		Inbd Fl (SF side)			✓	
		Inbd Fl (Mty side)			5%	
		Web			✓	
4	L2R-U2R	**Post (Rt)**				
		Outbd Fl (SF side)			✓	
		Outbd Fl (Mty side)			✓	
		Inbd Fl (SF side)	5%	along gusset plate at L2R	✓	Gusset Inbd & Outbd 15% SL wide areas
		Inbd Fl (Mty side)	5%	along gusset plate at L2R	✓	
		Web			✓	
4	3	**Bottom Chord (Lt)**				
		Outbd Fl Plate			✓	
		Outbd Fl (top L)	10%		✓	
		Outbd Fl (btm L)			✓	
		Inbd Fl Plate			5%	
		Inbd Fl (top L)	10%		✓	
		Inbd Fl (btm L)			✓	
		Web	20%	in horiz leg of both top angles and in section of web plate btw angles	✓	
4	3	**Bottom Chord (Rt)**		minor spreading at Inbd and Outbd flange angles and cover plates due to crevice corrosion	✓	
		Outbd Fl Plate			✓	
		Outbd Fl (top L)	10%		15%	
		Outbd Fl (btm L)			✓	
		Inbd Fl Plate			5%	
		Inbd Fl (top L)	10%		15%	
		Inbd Fl (btm L)			✓	
		Web	10%	in horiz leg of both angles and in section of web plate btw angles	✓	
4	3	**Top Chord (Lt)**				

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For guide to numbering system and directional designations, see Appendix 1.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Cover Plate	50%		60%	Many holes
		Outbd TF			✓	
		Outbd BF			✓	
		Outbd Web			✓	
		Inbd TF			✓	
		Inbd BF			✓	
		Inbd Web			✓	
4	**3**	**Top Chord (Rt)**				
		Cover Plate	30%	along edge of lateral connection plate at U2R	✓	No holes
			10%	throughout length of member, except as noted above	✓	
		Outbd TF			✓	
		Outbd BF	10%		15%	
		Outbd Web			✓	
		Inbd TF			10%	
		Inbd BF	10%		✓	
		Inbd Web			✓	
4	**3**	**Diagonal (Lt)**		50% SL at 10% of bottom lacing bars		
		Outbd TF			✓	
		Outbd BF			✓	
		Outbd Web			✓	
		Inbd TF			✓	
		Inbd BF	5%		✓	
		Inbd Web			✓	
		Bottom Lacing				100% SL of 20%, 40% SL average
		Top Lacing				5% SL average
4	**3**	**Diagonal (Rt)**				
		Outbd TF	5%		✓	
		Outbd BF	20%	at an isolated location	30%	
		Outbd Web	5%		✓	
		Inbd TF	5%		✓	
		Inbd BF			5%	
		Inbd Web			✓	
		Bottom Lacing				100% SL of 40%, 50% SL average
		Top Lacing				60% SL of 20%, 20% SL average
4	**L3L-U3L**	**Hanger (Lt)**				
		Outbd Fl (SF side)			✓	

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For guide to numbering system and directional designations, see Appendix 1.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Outbd Fl (Mty side)			✓	
		Inbd Fl (SF side)			✓	
		Inbd Fl (Mty side)			✓	
		Web			✓	
4	L3R-U3R	**Hanger (Rt)**				
		Outbd Fl (SF side)			✓	Gusset Outbd 15% SL
		Outbd Fl (Mty side)			✓	Gusset Outbd 30% SL
		Inbd Fl (SF side)			✓	
		Inbd Fl (Mty side)			15%	@ bottom
		Web			✓	
4	4	**Bottom Chord (Lt)**				
		Outbd Fl Plate			✓	
		Outbd Fl (top L)	10%		✓	
		Outbd Fl (btm L)			✓	
		Inbd Fl Plate	10%		✓	
		Inbd Fl (top L)			10%	
		Inbd Fl (btm L)			✓	
		Web	20%	in horiz leg of both top angles and in section of web plate btw angles	✓	
4	4	**Bottom Chord (Rt)**		minor spreading at Inbd and Outbd flange angles and cover plates due to crevice corrosion		
		Outbd Fl Plate			✓	
		Outbd Fl (top L)	10%		✓	
		Outbd Fl (btm L)			✓	
		Inbd Fl Plate			5%	
		Inbd Fl (top L)	10%		✓	
		Inbd Fl (btm L)			✓	
		Web	10%	in horiz leg of both top angles and in section of web plate btw angles	15%	
4	4	**Top Chord (Lt)**				
		Cover Plate	40%		70%	Many holes, especially at U4 end
		Outbd TF			✓	
		Outbd BF			✓	
		Outbd Web			✓	
		Inbd TF	5%		✓	
		Inbd BF	20%		✓	
		Inbd Web			5%	
4	4	**Top Chord (Rt)**				

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For guide to numbering system and directional designations, see Appendix 1.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Cover Plate	50%	in 2 ft. length of member adjacent to lateral connection plate at U3R	70%	Many big holes throughout
			50%	in 2 ft. length of member adjacent to lateral connection plate at U4R	70%	
			15%	throughout length of member, except as notes above	50%	
		Outbd TF			✓	
		Outbd BF	10%		15%	
		Outbd Web			✓	
		Inbd TF			5%	
		Inbd BF			✓	
		Inbd Web			✓	
4	**4**	**Diagonal (Lt)**				
		Outbd TF	25%	along edge of lacing bar	✓	
		Outbd BF			✓	
		Outbd Web			✓	
		Inbd TF	25%	along edge of lacing bar	✓	
		Inbd BF	25%		30%	
		Inbd Web			5%	
4	**4**	**Diagonal (Rt)**				
		Outbd TF	15%		20%	
		Outbd BF	20%		30%	
		Outbd Web	10%		✓	
		Inbd TF	25%		30%	
		Inbd BF	15%		✓	
		Inbd Web	15%		✓	
4	**L4L-U4L**	**Post (Lt)**				
		Outbd Fl (SF side)	30%	along top of gusset plate at L4L	35%	Gusset 30% SL with many holes Inbd and Outbd
		Outbd Fl (Mty side)	15%	along top of gusset plate at L4L	35%	
		Inbd Fl (SF side)			✓	
		Inbd Fl (Mty side)			✓	
		Web	5%		✓	
4	**L4R-U4R**	**Post (Rt)**				
		Outbd Fl (SF side)			✓	
		Outbd Fl (Mty side)	5%	along top of gusset plate at L4R	✓	With 2 holes, gusset Inbd 25% SL, Outbd 5% SL

For abbreviations, see Legend on First page of Appendix 2.
For guide to numbering system and directional designations, see Appendix 1.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Inbd Fl (SF side)			✓	
		Inbd Fl (Mty side)			5%	Top of L4R gusset
		Web			✓	
4	5	**Bottom Chord (Lt)**				
		Outbd Fl (top)	10%		✓	
		Outbd Fl (btm)			✓	
		Inbd Fl (top)	10%		✓	
		Inbd Fl (btm)			5%	
		Web	15%	in horiz leg of both top angles	✓	
				25% SL at all lacing bars	40%	
4	5	**Bottom Chord (Rt)**				
		Outbd Fl (top)	5%		✓	
			10%	at L4R & L5R (between gusset plates)	✓	
		Outbd Fl (btm)			✓	
		Inbd Fl (top)	5%		✓	
			10%	at L4R & L5R (between gusset plates)	✓	
		Inbd Fl (btm)			✓	
		Web	5%	in horiz leg of both top angles	✓	Lacing 80% SL of 20%, 30% average
4	5	**Top Chord (Lt)**				
		Cover Plate	40%		✓	No holes
		Outbd TF			✓	
		Outbd BF			✓	
		Outbd Web			✓	
		Inbd TF			5%	
		Inbd BF	10%		✓	
		Inbd Web			✓	
4	5	**Top Chord (Rt)**				
		Cover Plate	50%	in 1 ft. length of member adjacent to lateral connection plate at U4R	60%	Hole
			15%	throughout length of member, except as noted above	20%	No holes in rest
		Outbd TF			✓	
		Outbd BF	15%		20%	
		Outbd Web	5%	in vertical leg of bottom angle (only)	✓	
		Inbd TF			5%	

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For guide to numbering system and directional designations, see Appendix 1.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Inbd BF	5%		✓	
		Inbd Web	5%	in vertical leg of bottom angle (only)	✓	
4	5	**Diagonal (Lt)**		75% SL of Inbd and Outbd gusset plates at L4L in area located between the hanger and the diagonal of Panel 5.	✓	
		Outbd Fl (top)			✓	30% SL @ top L4 gusset
		Outbd Fl (btm)	5%		✓	30% SL @ top L4 gusset
		Inbd Fl (top)				5% SL @ top L4 gusset
		Inbd Fl (btm)				5% SL @ top L4 gusset
		Web			5%	
4	5	**Diagonal (Rt)**				
		Outbd Fl (top)			✓	
		Outbd Fl (btm)			✓	
		Inbd Fl (top)	15%	along gusset plate at L4R	30%	
		Inbd Fl (btm)	10%	along gusset plate at L4R	20%	
		Web			10%	
4	L5L-U5L	**Hanger (Lt)**				
		Outbd Fl (SF side)	20%	along top of gusset plate at L5L	30%	30% SL along top of gusset plate at L5L
		Outbd Fl (Mty side)			✓	10% SL along top of gusset plate at L5L, Gusset Inbd 20% SL, Outbd 5% SL
		Inbd Fl (SF side)			✓	5% SL along top of gusset plate at L5L
		Inbd Fl (Mty side)			✓	5% SL along top of gusset plate at L5L
		Web			5%	
4	L5R-U5R	**Hanger (Rt)**				
		Outbd Fl (SF side)			✓	
		Outbd Fl (Mty side)			✓	Gusset Inbd 10% SL , Outbd 5% SL
		Inbd Fl (SF side)			✓	
		Inbd Fl (Mty side)			✓	
		Web			5%	
4	6	**Bottom Chord (Lt)**				

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TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Outbd Fl (top)	5%		✓	
		Outbd Fl (btm)	5%		✓	
		Inbd Fl (top)	5%		✓	
		Inbd Fl (btm)			5%	
		Web		25% SL at 95% of lacing bars		70% SL of 50%
4	6	**Bottom Chord (Rt)**				
		Outbd Fl (top)	5%		10%	
			10%	at L5R (between gusset plates)	✓	Both ends
		Outbd Fl (btm)			✓	
		Inbd Fl (top)	5%		✓	
			10%	at L5R (between gusset plates)	✓	
		Inbd Fl (btm)			✓	
		Web	10%	in horiz leg of Outbd top angle	✓	Lacing 100% SL of 10%, 25% SL or rest
			5%	in horiz leg of Inbd top angle	✓	
4	6	**End Post (Lt)**				
		Cover Plate			5%	
		Outbd TF			✓	
		Outbd BF			5%	
		Outbd Web			✓	
		Inbd TF	5%		✓	
		Inbd BF			5%	
		Inbd Web			5%	
		Bottom Lacing				20% SL of 30%
4	6	**End Post (Rt)**		80% SL of outside pin plate and 30% SL of gusset plate, at the Outbd side of the bearing pin at L6R (no SL at inside pin plate)		
		Cover Plate			5%	
		Outbd TF			✓	
		Outbd BF	10%		✓	
		Outbd Web			✓	
		Inbd TF			5%	
		Inbd BF			5%	
		Inbd Web			5%	
		Bottom Lacing				20% SL of 20%

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TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
5	**1**	**End Post (Lt)**		20% SL at all bottom lacing bars (1 lacing bar broken)		
		Cover Plate			5%	
		Outbd TF			✓	
		Outbd BF			5%	
		Outbd Web			✓	
		Inbd TF			5%	
		Inbd BF			5%	
		Inbd Web			5%	
		Bottom Lacing				100% SL of 20%, 60% SL of 30%, 40% SL of rest
5	**1**	**End Post (Rt)**		100% SL at four bottom lacing bars at top of end post		
		Cover Plate	20%	at isolated location along edge of bottom horiz angle of portal		5% SL general
		Outbd TF			✓	
		Outbd BF			✓	
		Outbd Web			✓	
		Inbd TF			✓	
		Inbd BF			✓	
		Inbd Web			✓	
		Bottom Lacing				100% SL of 60%
5	**1**	**Bottom Chord (Lt)**				
		Outbd Fl (top)	15%		✓	
		Outbd Fl (btm)			5%	
		Inbd Fl (top)	10%		15%	
		Inbd Fl (btm)			5%	
		Web	10%	in horiz leg of both top angles	✓	
				50% SL at all lacing bars		100% SL of 8 (40%), 30% SL rest
5	**1**	**Bottom Chord (Rt)**				
		Outbd Fl (top)	5%		✓	
		Outbd Fl (btm)			✓	
		Inbd Fl (top)	5%		10%	
		Inbd Fl (btm)			✓	
		Web	10%	in horiz leg of top Inbd angle		Lacing 40% SL average

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
			5%	in horiz leg of top Outbd angle		
5	**L1L-U1L**	**Hanger (Lt)**				
		Outbd Fl (SF side)			✓	
		Outbd Fl (Mty side)			5%	Outbd gusset 10% SL, Inbd gusset 5% SL
		Inbd Fl (SF side)			✓	
		Inbd Fl (Mty side)			✓	
		Web			✓	
5	**L1R-U1R**	**Hanger (Rt)**				
		Outbd Fl (SF side)			✓	Outbd gusset 10% SL, Inbd gusset SL 15%
		Outbd Fl (Mty side)			✓	
		Inbd Fl (SF side)	5%	along top of gusset plate at L1R	✓	
		Inbd Fl (Mty side)	5%	along top of gusset plate at L1R	✓	
		Web			✓	
5	**2**	**Bottom Chord (Lt)**				
		Outbd Fl (top)	5%		10%	
		Outbd Fl (btm)			✓	
		Inbd Fl (top)	5%		✓	
		Inbd Fl (btm)			✓	
		Web	5%	in horiz leg of top Outbd angle	✓	
				50% SL at all lacing bars	✓	
5	**2**	**Bottom Chord (Rt)**				
		Outbd Fl (top)	5%		✓	
		Outbd Fl (btm)			✓	
		Inbd Fl (top)	5%		10%	
		Inbd Fl (btm)			✓	
		Web	10%	in horiz leg of both top angles	✓	60% SL of 4, 40% SL average
5	**2**	**Top Chord (Lt)**				
		Cover Plate	40%		✓	No holes
		Outbd TF			✓	
		Outbd BF			30%	
		Outbd Web			✓	
		Inbd TF			10%	
		Inbd BF			10%	
		Inbd Web	15%		✓	
5	**2**	**Top Chord (Rt)**				

For abbreviations, see Legend on First page of Appendix 2.
For guide to numbering system and directional designations, see Appendix 1.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Cover Plate	20%		30%	No holes
		Outbd TF			✓	
		Outbd BF	10%		30%	
		Outbd Web	10%	in vertical leg of bottom angle (only)	✓	
		Inbd TF			10%	
		Inbd BF	5%		✓	
		Inbd Web			5%	
5	**2**	**Diagonal (Lt)**				
		Outbd Fl (top)	15%		✓	
		Outbd Fl (btm)			✓	
		Inbd Fl (top)			✓	
		Inbd Fl (btm)			✓	
		Web	25%	in horiz leg of Outbd top angle and in section of web between angles	✓	
5	**2**	**Diagonal (Rt)**				
		Outbd Fl (top)			5%	
		Outbd Fl (btm)			✓	
		Inbd Fl (top)	15%	along edge of gusset plate at L2R	25%	
		Inbd Fl (btm)	5%	along edge of gusset plate at L2R	10%	
		Web	5%	in horiz leg of Outbd top angle and in section of web plate between angles	10%	
5	**L2L-U2L**	**Post (Lt)**				
		Outbd Fl (SF side)			✓	Bottom gusset Outbd 5% SL, Inbd 10% SL
		Outbd Fl (Mty side)			✓	
		Inbd Fl (SF side)			✓	
		Inbd Fl (Mty side)			✓	
		Web			✓	
5	**L2R-U2R**	**Post (Rt)**				
		Outbd Fl (SF side)			✓	
		Outbd Fl (Mty side)			✓	
		Inbd Fl (SF side)			✓	Bottom gusset Outbd 10% SL, Inbd 5% SL
		Inbd Fl (Mty side)			✓	
		Web			✓	
5	**3**	**Bottom Chord (Lt)**				
		Outbd Fl Plate			✓	

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TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Outbd Fl (top L)	5%		15%	
		Outbd Fl (btm L)			✓	
		Inbd Fl Plate			✓	
		Inbd Fl (top L)			5%	
		Inbd Fl (btm L)			✓	
		Web	10%	in horiz leg of both to angles and in section of web plate btw angles	✓	
5	**3**	**Bottom Chord (Rt)**		minor spreading at Inbd and Outbd flange plates and angles due to crevice corrosion	✓	
		Outbd Fl Plate			✓	
		Outbd Fl (top L)	5%		10%	
		Outbd Fl (btm L)			✓	
		Inbd Fl Plate			✓	Some pack rust
		Inbd Fl (top L)	5%		10%	
		Inbd Fl (btm L)			✓	
		Web	10%	in horiz leg of both top angles and in section of web plate btw angles	✓	
5	**3**	**Top Chord (Lt)**				
		Cover Plate	75%		80%	Many holes
		Outbd TF			✓	
		Outbd BF			20%	
		Outbd Web			✓	
		Inbd TF	5%		10%	
		Inbd BF	20%		✓	
		Inbd Web			✓	
5	**3**	**Top Chord (Rt)**				
		Cover Plate	50%	near lateral connection plate at U2R	75-80%	Many big holes
			30%	throughout length of member, except as noted above	50%	
		Outbd TF			✓	
		Outbd BF	10%		25%	
		Outbd Web	5%	in vertical leg of bottom angle (only)	✓	
		Inbd TF			5%	
		Inbd BF	5%		10%	
		Inbd Web			5%	
5	**3**	**Diagonal (Lt)**				

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TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Outbd TF			✓	
		Outbd BF			✓	
		Outbd Web			✓	
		Inbd TF			5%	
		Inbd BF			5%	
		Inbd Web			✓	
		Bottom Lacing				100% SL of 10%, 30% SL average
		Top Lacing				10% SL average
5	**3**	**Diagonal (Rt)**		100% SL at five bottom lacing bars		
		Outbd TF	5%		✓	
		Outbd BF	5%		✓	
		Outbd Web	2%		✓	
		Inbd TF	5%		✓	
		Inbd BF			10%	
		Inbd Web			5%	
		Bottom Lacing				100% SL of 70%
		Top Lacing				100% SL of 3, 50% SL of 20%, 20% SL average
5	**L3L-U3L**	**Hanger (Lt)**		25% SL of Inbd gusset plate at L3L, above flbm		
		Outbd Fl (SF side)			✓	Gusset Inbd 10% SL , Outbd 5% SL
		Outbd Fl (Mty side)			✓	
		Inbd Fl (SF side)			✓	
		Inbd Fl (Mty side)			✓	
		Web			5%	
5	**L3R-U3R**	**Hanger (Rt)**				
		Outbd Fl (SF side)			✓	Gusset Inbd 25% SL , Outbd 10% SL
		Outbd Fl (Mty side)			✓	
		Inbd Fl (SF side)			✓	
		Inbd Fl (Mty side)			✓	
		Web			5%	
5	**4**	**Bottom Chord (Lt)**				
		Outbd Fl Plate			✓	
		Outbd Fl (top L)	20%		✓	
		Outbd Fl (btm L)			✓	
		Inbd Fl Plate			✓	
		Inbd Fl (top L)	15%		✓	
		Inbd Fl (btm L)			✓	

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Web	15%	in horiz leg of both top angles and in section of web plate btw angles	20%	
5	**4**	**Bottom Chord (Rt)**		minor spreading at Inbd and Outbd flange plates and angles due to crevice corrosion	✓	
		Outbd Fl Plate			✓	
		Outbd Fl (top L)	5%		10%	
		Outbd Fl (btm L)			✓	
		Inbd Fl Plate			✓	
		Inbd Fl (top L)	5%		10%	
		Inbd Fl (btm L)			✓	
		Web	10%	in horiz leg of both top angles and in section of web plate btw angles	✓	
5	**4**	**Top Chord (Lt)**				
		Cover Plate	50%		✓	No holes
		Outbd TF			✓	
		Outbd BF			10%	
		Outbd Web			✓	
		Inbd TF	5%		✓	
		Inbd BF	15%		20%	
		Inbd Web			✓	
5	**4**	**Top Chord (Rt)**				
		Cover Plate	40%	near lateral connection plate at U3R	50%	Holes at both ends
			20%	throughout length of member, except as notes above	30%	
		Outbd TF			✓	
		Outbd BF	10%		20%	
		Outbd Web	5%	in vertical leg of bottom angle (only)	✓	
		Inbd TF			5%	
		Inbd BF			✓	
		Inbd Web			✓	
5	**4**	**Diagonal (Lt)**		90% SL at 10% of top lacing bars		
		Outbd TF			✓	
		Outbd BF			5%	
		Outbd Web			✓	
		Inbd TF			5%	

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For guide to numbering system and directional designations, see Appendix 1.

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Inbd BF	40%		✓	
		Inbd Web	10%		✓	
		Bottom Lacing				40% SL average
		Top Lacing				100% SL of 30%, 30% SL average
5	**4**	**Diagonal (Rt)**		100% SL at one bottom lacing bar		
				100% SL at three top lacing bars		
		Outbd TF	15%		20%	at lacing
		Outbd BF	10%		✓	
		Outbd Web	2%		✓	
		Inbd TF	15%		20%	
		Inbd BF			✓	
		Inbd Web			✓	
		Bottom Lacing				100% SL of 40%, 50% SL average
		Top Lacing				100% SL of 30%, 50% SL average
5	**L4L-U4L**	**Post (Lt)**				
		Outbd Fl (SF side)	10%	along top of gusset plate at L4L	✓	Bottom gusset Outbd 10% SL, Inbd 20% SL
		Outbd Fl (Mty side)	10%	along top of gusset plate at L4L	✓	
		Inbd Fl (SF side)			✓	5% SL at L4L gusset
		Inbd Fl (Mty side)			✓	5% SL at L4L gusset
		Web			5%	
5	**L4R-U4R**	**Post (Rt)**				
		Outbd Fl (SF side)			✓	
		Outbd Fl (Mty side)			✓	Bottom gusset Inbd 15% SL
		Inbd Fl (SF side)			✓	
		Inbd Fl (Mty side)	5%	along top of gusset plate at L4R	✓	
		Web			5%	
5	**5**	**Bottom Chord (Lt)**				
		Outbd Fl (top)			5%	
		Outbd Fl (btm)			5%	
		Inbd Fl (top)			5%	
		Inbd Fl (btm)			5%	
		Web	20%	in horiz leg of top Inbd angle	✓	

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
				30% SL at all lacing bars	✓	
5	**5**	**Bottom Chord (Rt)**				
		Outbd Fl (top)	5%		10%	
		Outbd Fl (btm)			✓	
		Inbd Fl (top)	5%		10%	
		Inbd Fl (btm)			✓	
		Web	10%	in horiz leg of both angles	✓	Lacing 50% SL average
5	**5**	**Top Chord (Lt)**				
		Cover Plate	50%		✓	No holes
		Outbd TF			✓	
		Outbd BF			✓	
		Outbd Web			✓	
		Inbd TF			✓	
		Inbd BF	10%		✓	
		Inbd Web			✓	
5	**5**	**Top Chord (Rt)**				
		Cover Plate	50%	near lateral connection plate at U4R	✓	No holes
			25%	throughout length of member, except as noted above	✓	
		Outbd TF			✓	
		Outbd BF	10%		✓	
		Outbd Web	10%	in vertical leg bottom angle (only)	✓	
		Inbd TF			10%	
		Inbd BF			5%	
		Inbd Web			5%	
5	**5**	**Diagonal (Lt)**				
		Outbd Fl (top)			✓	20% SL at top gusset L5
		Outbd Fl (btm)			✓	
		Inbd Fl (top)	30%	along edge of gusset plate at L4L	✓	
		Inbd Fl (btm)	20%	along edge of gusset plate at L4L	✓	
		Web			5%	
5	**5**	**Diagonal (Rt)**				
		Outbd Fl (top)	10%	along edge of gusset plate at L4R	30%	

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TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Outbd Fl (btm)	5%	along edge of gusset plate at L4R	10%	
		Inbd Fl (top)	10%	along edge of gusset plate at L4R	20%	
		Inbd Fl (btm)	5%	along edge of gusset plate at L4R	15%	
		Web			✓	
5	**L5L-U5L**	**Hanger (Lt)**		25% SL of Inbd gusset plate at L5L, in area above floorbeam		
		Outbd Fl (SF side)			✓	
		Outbd Fl (Mty side)			✓	
		Inbd Fl (SF side)			✓	Gusset Inbd 15% SL, Outbd 5% SL
		Inbd Fl (Mty side)			✓	
		Web			✓	
5	**L5R-U5R**	**Hanger (Rt)**				
		Outbd Fl (SF side)			✓	
		Outbd Fl (Mty side)			✓	
		Inbd Fl (SF side)	5%	along top of gusset plate at L5R	✓	Gusset Inbd 25% SL, Outbd 5% SL
		Inbd Fl (Mty side)	5%	along top of gusset plate at L5R	10%	
		Web			✓	
5	**6**	**Bottom Chord (Lt)**				
		Outbd Fl (top)	5%		✓	
		Outbd Fl (btm)			5%	
		Inbd Fl (top)			5%	
		Inbd Fl (btm)			5%	
		Web	10%	in horiz leg of both top angles	✓	
				10% SL at all lacing bars	20%	
5	**6**	**Bottom Chord (Rt)**				
		Outbd Fl (top)	5%		✓	
		Outbd Fl (btm)			✓	
		Inbd Fl (top)	5%		✓	
		Inbd Fl (btm)			✓	
		Web	10%	in horiz leg of both top angles		Lacing 40% SL average
5	**6**	**End Post (Lt)**				

TABLE 1
TRUSS MEMBERS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Cover Plate	20%	at isolated location along edge of bottom horiz angle of portal frame	✓	
		Outbd TF			✓	
		Outbd BF			✓	
		Outbd Web			✓	
		Inbd TF	5%		✓	
		Inbd BF	10%		✓	
		Inbd Web			✓	
		Bottom Lacing				20% SL average
5	**6**	**End Post (Rt)**				
		Cover Plate	25%	at isolated location along edge of bottom horiz angle of portal frame	✓	
		Outbd TF			✓	
		Outbd BF			✓	
		Outbd Web			✓	
		Inbd TF			✓	
		Inbd BF			✓	
		Inbd Web			✓	
		Bottom Lacing			✓	20% SL average

Salinas River Bridge
Updated Inspection Report

TABLE 2
TRUSS BRACING

SPAN	MEMBER NUMBER	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
1	L0L-L1R	Bottom Lateral			10%	30% SL of L0 & L1 gusset
1	L0R-L1L	Bottom Lateral			10%	30% SL of L0 & L1 gusset
1	U1L-U1R	Portal Frame	50%	in bottom flange angles of top strut, at center-line of bridge	✓	50% SL on top angles 3' from each end, 80% SL of both diagonal panels
1	L1L-L2R	Bottom Lateral	25%	near L1L	30%	50% SL near L2R, L2R gusset 30% SL
1	L1R-L2L	Bottom Lateral	50%	near L1R	✓	20% SL near midpoint and near L2L, L2R gusset 40% SL
1	U1L-U2R	Top Lateral			✓	
1	U1R-U2L	Top Lateral			✓	
1	U2	Top Strut			✓	
1	U2L	Knee Brace			✓	
1	U2R	Knee Brace			✓	
1	L2L-L3R	Bottom Lateral	50%	near L2L	✓	
			50%	near L3R	✓	50% SL of gusset
1	L2R-L3L	Bottom Lateral	30%	near L3L	50%	near L2, 50% SL of gusset
1	U2L-U3R	Top Lateral			✓	
1	U2R-U3L	Top Lateral			✓	
1	U3	Top Strut			✓	
1	U3L	Knee Brace			✓	
1	U3R	Knee Brace			✓	
1	L3L-L4R	Bottom Lateral	50%	near L3L	60%	50% SL average, 90% SL of Lt L3 gusset, 70% SL of Rt L3 gusset
			50%	near L4R	✓	50% SL gusset
1	L3R-L4L	Bottom Lateral	50%	near L3R	70%	50% SL average
			50%	near L4L	✓	80% SL gusset
1	U3L-U4R	Top Lateral			✓	
1	U3R-U4L	Top Lateral			✓	
1	U4	Top Strut			✓	
1	U4L	Knee Brace			✓	
1	U4R	Knee Brace			✓	
1	L4L-L5R	Bottom Lateral	50%	near L5R	60%	50% SL gusset
			40%	near L4L	50%	Through midpoint
1	L4R-L5L	Bottom Lateral	50%	near L4R	60%	Through midpoint
1	U4L-U5R	Top Lateral			✓	10% SL L4R gusset
1	U4R-U5L	Top Lateral			✓	30% SL gusset

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TABLE 2
TRUSS BRACING

SPAN	MEMBER NUMBER	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
1	L5L-L6R	Bottom Lateral			15%	near L5L & L6R, 70% SL of gusset
1	L5R-L6L	Bottom Lateral	50%	near L5R	5%	near L6L, 60-80% SL of gusset
1	U5L-U5R	Portal Frame	50%	in bottom flange angles of top strut, at center-line of bridge	✓	50% SL on top angles 3' from each end, 80% SL of both diagonal panels
1		L0 Stringer Strut			0-15%	15% SL at Rt, 0% SL at Lt,30% SL Rt. Gusset, 80% SL at Lt. gusset
2	L0L-L1R	Bottom Lateral			10%	at end L0, 10% SL L1R Gusset
2	L0R-L1L	Bottom Lateral			5%	at end L0 & L1, 5% SL L1L Gusset
2	U1L-U1R	Portal Frame			5-10%	
2	L1L-L2R	Bottom Lateral				5% SL at L2R end, 40% SL at L1L gusset, 25% SL at L2R gusset
2	L1R-L2L	Bottom Lateral			5%	70% SL of L1R gusset, 10% SL of L2L gusset
2	U1L-U2R	Top Lateral			5%	100% SL of gussets, 100% SL of 50% lacing
2	U1R-U2L	Top Lateral			5%	100% SL of 50% lacing
2	U2	Top Strut	70%	in bottom angles	✓	100% SL of lacing
2	U2	Sway Bracing	70%	in bottom angles	90%	30% SL of diagonal angle
2	L2L-L3R	Bottom Lateral			5%	20% SL of L2R gusset, 25% SL of L3L gusset
2	L2R-L3L	Bottom Lateral			✓	5% SL at L2L
2	U2L-U3R	Top Lateral		100% SL of top connections plate at U2L	✓	10% SL at L3R, 60% SL of gussets
				50% SL of bottom connection plate at U2L	✓	
2	U2R-U3L	Top Lateral			✓	
2	U3	Top Strut	70%	in bottom angles	✓	100% SL of lacing
2	U3	Sway Bracing	70%	in bottom angles	90%	10% SL of diagonals
2	L3L-L4R	Bottom Lateral			5%	60% SL of L3R gusset, 50% SL of L4R gusset
2	L3R-L4L	Bottom Lateral			5%	15% SL of L3L gusset, 30% SL of L4L gusset
2	U3L-U4R	Top Lateral		90% SL of top connection plate at U3L		

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TABLE 2
TRUSS BRACING

SPAN	MEMBER NUMBER	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
				50% SL of bottom connection plate at U3L		
2	U3R-U4L	Top Lateral				100% SL of 60% lacing
2	U4	Top Strut			40%	top and bottom angles, 100% SL of lacing
2	U4	Sway Bracing	70%	in bottom angles	80%	50% SL of some, 10% SL of diagonal angles
2	L4L-L5R	Bottom Lateral			5%	40% SL of L4R gusset, 30% SL of L5R gusset
2	L4R-L5L	Bottom Lateral			5%	50% SL of L4L gusset, 20% SL of L5L gusset
2	U4L-U5R	Top Lateral				
2	U4R-U5L	Top Lateral		95% SL of top connection plate at U5L	✓	
				25% SL of bottom connection plate at U5L	✓	L6R end
2	L5L-L6R	Bottom Lateral			5%	20% SL of L5R gusset, 30% SL of L6R gusset
2	L5R-L6L	Bottom Lateral			5-10%	5% at L5R end, 10% at L5L end, 30% SL of L5L gusset, 50% SL of L6L gusset
2	U5L-U5R	Portal Frame				
2		L6 Stringer Strut			10%	at Lt & Rt, 90% SL at L6L gusset, 70% SL at L6R gusset
3		L0 Stringer Strut			10-25%	10% SL at Lt, 25% SL at Rt, 40% SL at L0R gusset, 90% SL at L0L gusset
3	L0L-L1R	Bottom Lateral			5%	5% SL at L0L end, 60% SL at L0L gusset, 10% SL at L1L gusset
3	L0R-L1L	Bottom Lateral			5%	15% SL at L0R end, 20% SL at L0R gusset, 15% SL at L1R gusset
3	U1L-U1R	Portal Frame			20%	20% SL average with 50% SL at one spot
3	L1L-L2R	Bottom Lateral			5-10%	15% SL at L1L gusset, 40% SL at L1R gusset
3	L1R-L2L	Bottom Lateral			5-10%	30% SL at L1R gusset, 40% SL at L2L gusset

TABLE 2
TRUSS BRACING

SPAN	MEMBER NUMBER	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
3	U1L-U2R	Top Lateral		95% SL of top connection plate at U1L		100% SL of top connection plate at U1L
3	U1R-U2L	Top Lateral		95% SL of top connection plate at U2L		100% SL of top connection plate at U2L
3	U2	Top Strut	70%	in bottom angles	✓	100% SL of lacing
3	U2	Sway Bracing	50%	in bottom angles	✓	
3	L2L-L3R	Bottom Lateral			5%	30% SL at L2L gusset
3	L2R-L3L	Bottom Lateral			5%	60% SL at L2R gusset, 50% SL at L3R gusset, 10% SL at L3L
3	U2L-U3R	Top Lateral		90% SL of top connection plate at U2L		100% SL of top connection plate at U2L, 80% SL at U3L, 100% SL of 20% lacing, 30% SL average of lacing
3	U2R-U3L	Top Lateral				100% SL at U2R gusset, 30% SL of U2L gusset
3	U3	Top Strut	70%	in bottom angles	✓	100% SL of lacing
3	U3	Sway Bracing	50%	in bottom angles	80%	
3	L3L-L4R	Bottom Lateral			5-10%	30% SL of L3L & L4R gusset, 25% SL at L4L gusset
3	L3R-L4L	Bottom Lateral			5%	20% SL of L4R gusset
3	U3L-U4R	Top Lateral	70%	in top angle near U3L	✓	
				70% SL of top connection plate at U3L	✓	80% SL of top connection plate at U3L, 40% SL at U4R gusset
			50%	in top angle at center connection	80%	of full length at top angle
3	U3R-U4L	Top Lateral		90% SL of top connection plate at U4L	✓	
3	U4	Top Strut			50%	of angles, 100% SL of lacing
3	U4	Sway Bracing			40%	of angles, 20% SL of diagonals
3	L4L-L5R	Bottom Lateral			5%	25% SL of L5R gussets, 15% SL of L4L gusset
3	L4R-L5L	Bottom Lateral		70% SL of connection plate at L4R	5%	90% SL of L4R gusset, 25% SL of L5L gussets
3	U4L-U5R	Top Lateral		90% SL of top connection plate at U4L	✓	20% SL of angles, 100% SL of 20% lacing, 50% SL lacing average

For abbreviations, see Legend on First page of Appendix 2.
For guide to numbering system and directional designations, see Appendix 1.

TABLE 2
TRUSS BRACING

SPAN	MEMBER NUMBER	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
3	U4R-U5L	Top Lateral		100% SL of top connection plate at U5L	✓	100% SL of 70% lacing, 60% SL rest
3	L5L-L6R	Bottom Lateral			5%	15% SL of L6L gusset, 10% SL of L5L gusset
3	L5R-L6L	Bottom Lateral			5%	5% SL of L6R gusset, 50% SL of L5R gusset
3	U5L-U5R	Portal Frame			15%	15% SL average of both angles, 5% SL average
4	L0L-L1R	Bottom Lateral			5%	30% SL of L0L & L0R gusset, 10% SL of L1L gusset
4	L0R-L1L	Bottom Lateral			5%	20% SL of L1R gusset
4	U1L-U1R	Portal Frame				1 angle at 40% SL, 1 gusset at 90% SL, 5% SL general
4	L1L-L2R	Bottom Lateral			5%	20% SL of L1L gusset, 10% SL of L2L gusset
4	L1R-L2L	Bottom Lateral			5%	40% SL of L1R gusset, 10% SL of L2R gusset
4	U1L-U2R	Top Lateral		100% SL of top connection plate at U1L		100% SL of top connection plate at U1L & U1R, 100% SL of 30% lacing
				25% SL of bottom connection plate at U1L	✓	25% SL of bottom connection plate at U1L & U1R, 100% SL of both U1 gussets, 40% SL of both U2 gussets
4	U1R-U2L	Top Lateral				100% SL of 50% lacing
4	U2	Top Strut	70%	in bottom angles	✓	50% SL of top lacing
				lacing bars in poor condition	100%	all
4	U2	Sway Bracing	70%	in bottom angles	✓	10% SL diagonal
4	L2L-L3R	Bottom Lateral			5%	10% SL of L2L gusset, 50% SL of L3L & L3R gusset
4	L2R-L3L	Bottom Lateral			5%	70% SL of L2R gusset
4	U2L-U3R	Top Lateral				100% SL of U3L & U2L gusset
4	U2R-U3L	Top Lateral	100%	in bottom angle at U3L	✓	20% SL of both gussets
4	U3	Top Strut	50%	in bottom angles	60%	100% SL of 80% lacing
4	U3	Sway Bracing	70%	in bottom angles		2 at 60% SL of diagonals

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TABLE 2
TRUSS BRACING

SPAN	MEMBER NUMBER	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
4	L3L-L4R	Bottom Lateral			5%	15% SL of L3L gusset, 50% SL of L4L gusset,
4	L3R-L4L	Bottom Lateral			5%	25% SL of L3R gusset, 25% SL of L4R gusset
4	U3L-U4R	Top Lateral			40%	both angles, 100% SL of 2 lacing, 20% SL average
4	U3R-U4L	Top Lateral	70%	in bottom angle of U3R	100%	70% SL of 2 lacing, 20% SL average
4	U4	Top Strut	40%	in bottom angles		100% SL of 60% lacing
4	U4	Sway Bracing	60%	in bottom angles	70%	40% SL of diagonal
4	L4L-L5R	Bottom Lateral			5%	30% SL of L4L gusset, 10% SL of L5L gusset
4	L4R-L5L	Bottom Lateral			5%	60% SL of L4R gusset, 60% SL of L5R gusset
4	U4L-U5R	Top Lateral		50% SL of top connection plate at U4L	90%	100% SL of U4L
				75% SL of top connection plate at U5R	100%	5% SL of angles, 100% SL of 10% lacing, 20% SL lacing average
4	U4R-U5L	Top Lateral		100% SL of top connection plate at U5L	✓	5% SL of angles, 100% SL of 10% lacing, 20% SL of lacing average
				40% SL of bottom connection plate at U5L	✓	
4	L5L-L6R	Bottom Lateral		50% SL of connection plate at L6R	5%	10% SL of L5L gusset, 50% SL of L6L gusset
4	L5R-L6L	Bottom Lateral			5%	40% SL of L5R gusset, 90% SL of L6L gusset
4	U5L-U5R	Portal Frame				40% SL of bottom angles, 1 hole
5	L0L-L1R	Bottom Lateral				30% SL between stringer & L0L, 40% SL of L0L gusset, 5% SL of L1L gusset
5	L0R-L1L	Bottom Lateral				20% SL between stringer & L0R, 30% SL of L0R gusset, 5% SL of L1R gusset
5	U1L-U1R	Portal Frame				20% SL of bottom angles, 30% SL of both diagonals

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TABLE 2
TRUSS BRACING

SPAN	MEMBER NUMBER	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
5	L1L-L2R	Bottom Lateral			5%	15% SL of L1L gusset, 35% SL L2L gusset
5	L1R-L2L	Bottom Lateral			5%	50% SL of L1R gusset, 25% SL of L2R gusset
5	U1L-U2R	Top Lateral		100% SL of top connection plate at U1L	✓	100% SL of top connection plate at U1L & U1R
				50% SL of bottom connection plate at U1L		
			50%	in top angle between center connection and U2R	100%	50% other end
			30%	in bottom angle between center connection and U2R	80%	3 at 100% SL of lacing
5	U1R-U2L	Top Lateral		95% SL of top connection plate at U2L	100%	50% SL at U2R, 100% SL of 5 lacing bars
5	U2	Top Strut	15%	in bottom angles	30%	100% SL of 90%
5	U2	Sway Bracing	100%	in bottom angles	✓	50% SL of diagonal
5	L2L-L3R	Bottom Lateral			5%	25% SL of L2L gusset, 25% SL of L3L gusset
5	L2R-L3L	Bottom Lateral			5%	50% SL of L2R gusset, 20% SL of L3R gusset
5	U2L-U3R	Top Lateral		95% SL of top connection plate at U2L	✓	25% SL of U2R, 100% of 30% SL lacing
5	U2R-U3L	Top Lateral		90% SL of top connection plate at U3L	100%	100% U3R, 100% of 40% lacing, 30% SL of bottom angle
5	U3	Top Strut	30%	in bottom angles	80%	20% SL of top angle, 100% SL of 90% lacing
5	U3	Sway Bracing	50%	in bottom angles	60%	50% SL of diagonal
5	L3L-L4R	Bottom Lateral			5%	30% SL of L4L & L4R gusset, 25% SL of L3L gusset
5	L3R-L4L	Bottom Lateral			5%	25% SL of L3R gusset, 10% SL of L4R gusset
5	U3L-U4R	Top Lateral		75% SL of top connection plate U3L	90%	70% SL of 2 lacing bars, 50% SL average

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For guide to numbering system and directional designations, see Appendix 1.

Salinas River Bridge
Updated Inspection Report

TABLE 2
TRUSS BRACING

SPAN	MEMBER NUMBER	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
5	U3R-U4L	Top Lateral		50% SL of top connection plate at U4L	90%	50% SL of top connection plate at U4L & U4R, 20% SL of bottom angle, 100% SL of 50% lacing, 70% SL rest
				50% SL of top connection plate at U3R	80%	
5	U4	Top Strut				20% SL of top angle, 30% SL of bottom angle, 100% SL of 60% lacing, 50% SL rest
5	U4	Sway Bracing				20% SL of bottom angle, 30% SL of diagonal
5	L4L-L5R	Bottom Lateral			10%	35% SL of L4L gusset, 30% SL of L5L gusset
5	L4R-L5L	Bottom Lateral			5%	30% SL of L4R gusset, 10% SL of L5R gusset
5	U4L-U5R	Top Lateral				30% SL lacing average, 80% SL of U4L gusset, 50% SL of U5R
5	U4R-U5L	Top Lateral		100% SL of top connection plate U5L	✓	100% SL of 60% lacing, 60% SL rest lacing, 50% SL of U4R
				75% SL of bottom connection plate at U5L	✓	30% SL of both angles
5	L5L-L6R	Bottom Lateral			5%	15% SL of L5L gusset, 20% SL of L6L gusset
5	L5R-L6L	Bottom Lateral			5%	20% SL of L5R, 5% SL of L6R gusset
5	U5L-U5R	Portal Frame				30% SL of bottom angles, 30% SL of portal diagonal Lt, 10% SL of Rt diagonal

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TABLE 3
TRUSS BEARINGS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 COMMENT	2010 CHECK	2010 COMMENT
1	L0L	Truss Fixed Brg. (Lt)			Bearing plate disintegrated, 20% SL on pedestal, 10% SL on bottom flange, 20% SL on bottom plate
1	L0R	Truss Fixed Brg. (Rt)			Bearing plate disintegrated, 30% SL on bottom plate, 20-50% SL on top plate, webs ok
1	L6L	Truss Exp. Brg. (Lt)	Segmental rollers frozen and "working out" (shifted toward Monterey side of bearing)	✓	
			Corrosion at bearing plates above and below rollers with minor SL.		
			3 of 4 anchor bolts broken.	✓	
1	L6R	Truss Exp. Brg. (Rt)	Segmental rollers frozen and "working out" (shifted toward Monterey side of bearing).	✓	
			Corrosion at bearing plates above and below rollers with minor SL.		
2	L0L	Truss Fixed Brg. (Lt)			15% SL on top plate Rt side, 50% SL on bottom plate, 1 anchor bolt missing, broken off
2	L0R	Truss Fixed Brg. (Rt)			15% SL on top plate, bottom plate ok, 10% SL on web total
2	L6L	Truss Exp. Brg (Lt)	Segmental rollers frozen	✓	
			Channels of bearing pedestal have 20% SL (average) in webs along bottom fillets and 30% SL (average) of bottom flanges.		Channels of bearing pedestal have 25% SL (average) in webs along bottom fillets and 35% SL (average) of bottom flanges.
			Inboard anchor bolt missing.	✓	
2	L6R	Truss Exp. Brg (Rt)	Segmental rollers frozen in expanded position.	✓	Outbd anchor bolts broken off
			Channels of bearing pedestal have 20% SL (average) in webs along bottom fillets and 30% SL (average) of bottom flanges.	✓	

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TABLE 3
TRUSS BEARINGS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 COMMENT	2010 CHECK	2010 COMMENT
			Minor section loss at top surface of bed plate (1/8" thick pack rust, outside of bearing area).	✓	
			Minor section loss at bearing plate atop segmental rollers.	✓	
			Both anchor bolts are missing.	✓	
3	L0L	Truss Fixed Brg. (Lt)	I-beams of bearing pedestal have 25% SL (average) in webs along bottom fillets.		I-beams of bearing pedestal have 50% SL on bottom flange
			Minor section loss at bearing plate atop pedestal I-beams (10% reduction in plate thickness outside of bearing area).	✓	
			Minor section loss at top surface of bed plate (20% reduction in plate thickness outside of bearing area)	✓	
3	L0R	Truss Fixed Brg. (Rt)	I-beams of bearing pedestal have 20% SL (average) in webs along bottom flange	✓	
			Minor section loss at bearing plate atop pedestal I-beams (1/2" thick pack rust, plate thickness reduced from 15/16" to 3/4" outside of bearing area).	✓	
			Minor section loss at top surface of bed plate (1/2" thick pack rust located outside of bearing area).	✓	
3	L6L	Truss Exp. Brg. (Lt)	Channels of bearing pedestal have 10% SL (average) in webs along bottom fillets.		Channels of bearing pedestal have 40% SL (average) in webs along bottom fillets, roller nest ok
			Minor pack rust at top flange of pedestal channels.	✓	
			Outboard anchor bolt missing	✓	
3	L6R	Truss Exp. Brg (Rt)	Segmental rollers frozen	✓	

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TABLE 3
TRUSS BEARINGS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 COMMENT	2010 CHECK	2010 COMMENT
			Channels of bearing pedestal have 20% SL (average) in webs along bottom fillets.		Channels of bearing pedestal have 30% SL (average) in webs along bottom fillets.
			Minor section loss at bearing plate atop segmental rollers.		Moderate section loss at bearing plate atop segmental rollers.
			Minor section loss at top surface of bed plate (1/4" thick pack rust).		Moderate section loss at top surface of bed plate (1/4" thick pack rust).
			Outboard anchor bolt missing.	✓	
			50% SL of inboard anchor bolt.	✓	
4	L0L	Truss Fixed Brg. (Lt)	I-beams of bearing pedestal have 20% SL (average) of bottom flanges	✓	Holes in web 50% inside web
4	L0R	Truss Fixed Brg. (Rt)	I-beams of bearing pedestal have 20% SL (average) of webs along bottom fillets	✓	
			1/4" to 1/2" thick pack rust with minor section loss at top surface of bearing plate atop pedestal I-beams, outside of bearing area.	✓	
			1/4" to 1/2" thick pack rust with minor section loss at top surface of bed plate, outside of bearing area.	✓	
4	L6L	Truss Exp. Brg. (Lt)	Segmental rollers frozen.	✓	
			Channels of bearing pedestal have 10% SL (average) in webs along bottom fillets.		Channels of bearing pedestal have 20% SL (average) in webs along bottom fillets.
			15% SL at top surface of bed plate, outside of bearing area.	✓	20% SL at top surface of bed plate, outside of bearing area.
4	L6R	Truss Exp. Brg (Rt)	Segmental rollers frozen.	✓	
			Channels of bearing pedestal have 20% SL (average) of webs along bottom fillets.		Channels of bearing pedestal have 30% SL (average) of webs along bottom fillets. Outside anchor bolt missing.
			1/4" to 1/2" thick rust with minor section loss at top surface of bed plate, outside of bearing area.	✓	

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TABLE 3
TRUSS BEARINGS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 COMMENT	2010 CHECK	2010 COMMENT
5	L0L	Truss Fixed Brg. (Lt)	The two inboard I-beams of bearing pedestal have 15% SL of top flanges and 15% SL of webs along 6" length of beams, at the Monterey side bearing.	✓	
			20% SL at top surface of bed plate, outside of bearing area.		30% SL at top surface of bed plate, outside of bearing area.
5	L0R	Truss Fixed Brg. (Rt)	I-beams of bearing pedestal have minor (less than 5%) SL of webs along bottom fillets.		1 of 4 webs has 25% SL
			1/4" to 1/2" thick pack rust with minor section loss at top surface of bearing plate atop pedestal I-beams, outside of bearing area.	✓	
			1/4" to 1/2" thick pack rust with minor section loss at top surface of bed plate, outside of bearing area.	✓	
5	L6L	Truss Exp. Brg. (Lt)			Inside anchor bolt broken, 10% SL pedestal
5	L6R	Truss Exp. Brg (Rt)	Channels of bearing pedestal have 5% SL (average) of webs along bottom fillets.		Channels of bearing pedestal have 15% SL (average) of webs along bottom fillets, anchor bolt 15% gone

Salinas River Bridge
Updated Inspection Report

TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
1	**L0**	**Floorbeam 0**				
		TF (SF side)	5%	located 30" left of center-line	✓	
		TF (Mty side)	5%	located 30" left of center-line	✓	
		BF (SF side)	15%	located 15" from end, left side	✓	
		BF (Mty side)	15%	located 15" from end, left side	✓	
		Web			✓	
1	**L0L**	**End Post-Flbm TF Connection Plate (Lt)**	30%		50%	Inbd angle
1	**L0R**	**End Post-Flbm TF Connection Plate (Rt)**	70%		✓	
1	**L0**	**Str Bracket (Lt)**				
		TF Outbd	95%		✓	
		TF Inbd	70%	1" x 2" hole	✓	
1	**L0**	**Str Bracket (Rt)**				
		TF Outbd	10%		30%	
		TF Inbd	15%		✓	
1	**Panel 1**	**Stringer LT**				
		TF Outbd			✓	
		TF Inbd			✓	
		BF Outbd			✓	
		BF Inbd			✓	
		Web			✓	
1	**Panel 1**	**Stringer (Rt)**				
		TF Outbd			✓	30% SL of L1 end
		TF Inbd			✓	
		BF Outbd			✓	
		BF Inbd			✓	
		Web			✓	
1	**Panel 1**	**Str Top Laterals**		7" diameter hole in 2nd lateral connection plate from Flbm 0, at Rt stringer.	✓	Lt 3'
1	**L1**	**Floorbeam 1**				
		TF Cover Plate	10%	located 30" left of center-line of flbm	20%	
		TF (SF side)			✓	
		TF (Mty side)			✓	
		BF Cover Plate			✓	
		BF (SF side)			5%	5% SL Lt end

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TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		BF (Mty side)	10%	horiz leg angle, Lt side (between Str & BC)	20%	15% SL Rt
		Web		1" diameter hole in web (at top of Rt Str, Outbd side)		1 1/2" diameter hole
				3/4" diameter hole in web (at top of Lt Str)		1" diameter hole
		Lt Flbm Bracket			5%	
		Rt Flbm Bracket			5%	
1	**Panel 2**	**Stringer (Lt)**				
		TF Outbd			5%	
		TF Inbd			5%	
		BF Outbd			✓	
		BF Inbd			✓	
		Web			✓	
1	**Panel 2**	**Stringer (Rt)**				
		TF Outbd			5%	
		TF Inbd			5%	
		BF Outbd			✓	
		BF Inbd			✓	
		Web			✓	
1	**Panel 2**	**Str Top Laterals**				
1	**L2**	**Floorbeam 2**				
		TF Cover Plate	5%	at various locations including center-line of flbm	30%	30% SL Rt end, 15% SL average
		TF (SF side)			✓	
		TF (Mty side)			✓	
		BF Cover Plate			✓	
		BF (SF side)	5%	horiz leg of angle, Lt side (between Str & BC)	10%	10% SL average, 40% hole/notch at Rt gusset
		BF (Mty side)			10%	
		Web			✓	
		Lt Flbm Bracket			20%	at base
		Rt Flbm Bracket			10%	at base
1	**Panel 3**	**Stringer (Lt)**				
		TF Outbd	5%		✓	
		TF Inbd			5%	
		BF Outbd			✓	
		BF Inbd			✓	
		Web			✓	
1	**Panel 3**	**Stringer (Rt)**				
		TF Outbd			5%	

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TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		TF Inbd			5%	
		BF Outbd			✓	
		BF Inbd			✓	
		Web			✓	
1	**Panel 3**	**Str Top Laterals**			✓	Rt gusset 40% SL Mty end
1	**L3**	**Floorbeam 3**				
		TF Cover Plate	10%	at various locations	25%	at ends
		TF (SF side)			✓	
		TF (Mty side)			✓	
		BF Cover Plate			✓	
		BF (SF side)	25%	horiz leg of angle, Rt side (between Str & BC)	✓	Notch at gusset
			5%	horiz leg of angle, Lt side (between Str & BC)	20%	
		BF (Mty side)	25%	horiz leg of angle, Rt side (between Str & BC)	30%	
			5%	horiz leg of angle, Lt side (between Str & BC)	20%	
		Web		1" diameter hole in web (at top of Rt Str, Outbd side)	✓	1" x 1/2" slot
		Lt Flbm Bracket		50% SL of horiz legs of both connection angles riveted to flbm TF	✓	Fill plate 30% SL fop of bracket
		Rt Flbm Bracket	10%	in top portion of bracket plate	30%	Top 6"
				50% SL of horiz legs of both connection angles riveted to flbm TF	60%	Fill plate 20% SL top of bracket
1	**Panel 4**	**Stringer (Lt)**				
		TF Outbd	5%		✓	
		TF Inbd			5%	
		BF Outbd			5%	
		BF Inbd			✓	
		Web			✓	
1	**Panel 4**	**Stringer (Rt)**				
		TF Outbd			5%	
		TF Inbd			5%	
		BF Outbd			15%	
		BF Inbd			✓	
		Web			✓	
1	**Panel 4**	**Str Top Laterals**			50%	2 diag.

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TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
1	**L4**	**Floorbeam 4**				
		TF Cover Plate	15%	throughout entire length	40%	
		TF (SF side)			✓	
		TF (Mty side)			5%	
		BF Cover Plate			✓	
		BF (SF side)	5%	horiz leg of angle, Lt side (between Str & BC)	10%	
			15%	horiz leg of angle, Rt side (between Str & BC)	25%	Notch at gusset
		BF (Mty side)	15%	horiz leg of angle, Lt side (between Str & BC)	30%	
			15%	horiz leg of angle, Rt side (between Str & BC)	30%	Hole near gusset
		Web		2" diameter hole in web (at top of Rt Str, Outbd. Side)	✓	5% SL Mty side
		Lt Flbm Bracket				Base 40% SL, fill plate 40% SL at top bracket
		Rt Flbm Bracket				Base 40% SL, fill plate 10% SL at top bracket
1	**Panel 5**	**Stringer (Lt)**				
		TF Outbd	5%	at mid-panel	5%	
		TF Inbd			5%	
		BF Outbd			5%	
		BF Inbd			✓	
		Web			✓	
1	**Panel 5**	**Stringer (Rt)**				
		TF Outbd			5%	
		TF Inbd			5%	
		BF Outbd	10%		15%	
		BF Inbd			5%	
		Web			✓	
1	**Panel 5**	**Str Top Laterals**			20%	
1	**L5**	**Floorbeam 5**				
		TF Cover Plate	15%	throughout entire length	30%	30% SL at ends
		TF (SF side)			✓	
		TF (Mty side)			✓	
		BF Cover Plate			✓	
		BF (SF side)	25%	horiz leg of angle, Rt side (between Str & BC)	✓	
		BF (Mty side)	15%	horiz leg of angle, Lt side (between Str & BC)	✓	

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For guide to numbering system and directional designations, see Appendix 1.

Salinas River Bridge
Updated Inspection Report

TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
			25%	horiz leg of angle, Rt side (between Str & BC)	✓	
		Web		1/2" x 2" hole in web (at top of Rt Str, Outbd side)	✓	1" x 1/2" angle hole
		Lt Flbm Bracket	40%	in bracket plate		in bracket plate (fill plate)
				75% SL of horiz legs of both connection angles riveted to flbm TF	✓	
		Rt Flbm Bracket	30%	in bracket plate, along bottom connection angles	✓	15% SL at fill plate
				90% SL of horiz legs of both connection angles riveted to flbm TF	✓	
1	**Panel 6**	**Stringer (Lt)**				
		TF Outbd	5%		✓	
		TF Inbd			✓	
		BF Outbd			✓	
		BF Inbd			✓	
		Web			✓	
1	**Panel 6**	**Stringer (Rt)**				
		TF Outbd			5%	
		TF Inbd			✓	
		BF Outbd	10%		15%	
		BF Inbd			✓	
		Web			✓	
1	**Panel 6**	**Str Top Laterals**			✓	
1	**L6**	**Floorbeam 6**				
		TF (SF side)			10%	
		TF (Mty side)			10%	
		BF (SF side)	70%	located 15" from end of flbm, Rt side	? 40%	
			10%	located 31" from end of flbm, Rt side	✓	
			15%	located 15" from end of flbm, Lt side	40%	
		BF (Mty side)	70%	located 15" from end of flbm, Rt side	✓	
			40%	located 31" from end of flbm, Rt side	✓	

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TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
			10%	located 15" from end of flbm, Lt side	15%	
			15%	located at center section of floorbeam (btw stringers)	20%	
		Web		5% SL in vertical leg BF angle on Mty side, at center section of floorbeam (btw. Stringers)	✓	
1	**L6L**	**End Post-Flbm TF Connection Plate (Lt)**	70%		80%	
1	**L6R**	**End Post-Flbm TF Connection Plate (Rt)**	90%		100%	
1	**L6**	**Str Bracket (Lt)**				
		TR Outbd	70%	1" x 2" hole	✓	
		TF Inbd	80%	1" x 2" hole	✓	
1	**L6**	**Str Bracket (Rt)**				
		TF Outbd	100%		✓	Outstanding leg
		TF Inbd	80%	1" x 2" hole	✓	
2	**Panel 1**	**Stringer (Lt)**				
		TF Outbd	10%	at Flbm 1	✓	
		TF Inbd			5%	
		BF Outbd			✓	
		BF Inbd			✓	
		Web			✓	
		L0 cross frame			15%	
2	**Panel 1**	**Stringer (Rt)**				
		TF Outbd	5%		✓	
		TF Inbd	5%		✓	
		BF Outbd	10%		✓	
		BF Inbd			✓	
		Web			5%	
2	**Panel 1**	**Str Top Laterals**				
2	**L1**	**Floorbeam 1**				
		TF (SF side)	10%	at 30" to Lt and Rt of center (under rails)	✓	
			10%	at 50" to Lt and Rt of center (under guard timbers)	✓	
		TF (Mty side)	10%	at 30" to Lt and Rt of center (under rails)	✓	

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TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
			10%	at 50" to Lt and Rt of center (under guard timbers)	✓	
		BF (SF side)	5%	Lt side (btw Str & BC)	✓	
			10%	Rt side (btw Str & BC)	✓	
			5%	center (btw stringers)	✓	
		BF (Mty side)	10%	Lt side (btw Str & BC)	✓	
			10%	Rt side (btw Str & BC)	✓	
			5%	center (btw stringers)	✓	
		Web			✓	
2	**Panel 2**	**Stringer (Lt)**				
		TF Outbd	10%	at Flbms 1 & 2	✓	
		TF Inbd			5%	
		BF Outbd			✓	
		BF Inbd			5%	
		Web			✓	
2	**Panel 2**	**Stringer (Rt)**				
		TF Outbd	5%		✓	
		TF Inbd	5%		✓	
		BF Outbd	10%		✓	
		BF Inbd			5%	
		Web			✓	
2	**Panel 2**	**Str Top Laterals**			✓	
2	**L2**	**Floorbeam 2**				
		TF (SF side)	15%	at 30" to Lt and Rt of center (under rails)	✓	
			15%	at 50" to Lt and Rt of center (under guard timbers)	✓	
		TF (Mty side)	15%	at 30" to Lt and Rt of center (under rails)	✓	
			15%	at 50" to Lt and Rt of center (under guard timbers)	✓	
		BF (SF side)	10%	Lt side (btw Str & BC)	✓	
			10%	Rt side (btw Str & BC)	✓	
			5%	center (btw stringers)	✓	
		BF (Mty side)	15%	Lt side (btw Str & BC)	✓	
			10%	Rt side (btw Str & BC)	15%	
			15%	center (btw stringers)	✓	
		Web			✓	
2	**Panel 3**	**Stringer (Lt)**				
		TF Outbd	10%	at Flbm 2	✓	at Flbm 2 end

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TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		TF Inbd			5%	
		BF Outbd			5%	
		BF Inbd			5%	
		Web			✓	
2	**Panel 3**	**Stringer (Rt)**				
		TF Outbd	5%		✓	
		TF Inbd			5%	
		BF Outbd	5%		10%	at end
		BF Inbd			5%	
		Web			✓	
2	**Panel 3**	**Str Top Laterals**			5%	
2	**L3**	**Floorbeam 3**				
		TF (SF side)	10%	at 30" to Lt and Rt of center (under rails)	✓	
			10%	at 50" to Lt and Rt of center (under guard timbers)	✓	
		TF (Mty side)	10%	at 30" to Lt and Rt of center (under rails)	✓	
			10%	at 50" to Lt and Rt of center (under guard timbers)	25%	
		BF (SF side)	10%	Lt side (btw Str & BC)	15%	
			15%	Rt side (btw Str & BC)	✓	
			10%	center (btw stringers)	✓	
		BF (Mty side)	15%	Lt side (btw Str & BC)	✓	
			10%	Rt side (btw Str & BD)	✓	
			5%	center (btw stringers)	✓	
		Web		3/4" diameter hole in web at top of Rt Str, Outbd side		1" diameter hole
2	**Panel 4**	**Stringer (Lt)**				
		TF Outbd	15%	at Flbms 3 & 4	20%	2' from L3 end
		TF Inbd			10%	average
		BF Outbd	5%		✓	
		BF Inbd			✓	
		Web			✓	
2	**Panel 4**	**Stringer (Rt)**				
		TF Outbd	5%		✓	
		TF Inbd	5%		✓	
		BF Outbd	10%		✓	
		BF Inbd			✓	
		Web			✓	

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TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
2	**Panel 4**	**Str Top Laterals**			10%	in spots
2	**L4**	**Floorbeam 4**				
		TF (SF side)	10%	at 30" to Lt and Rt of center (under rails)	✓	
			10%	at 50" to Lt and Rt of center (under guard timbers)	✓	
		TF (Mty side)	10%	at 30" to Lt and Rt of center (under rails)	✓	
			10%	at 50" to Lt and Rt of center (under guard timbers)	15%	
		BF (SF side)	10%	Lt side (btw Str & BC)	15%	
			10%	Rt side (btw Str & BC)	✓	
		BF (Mty side)	15%	Lt side (btw Str & BC)	20%	
			15%	Rt side (btw Str & BC)	✓	
			5%	center (btw stringer)	✓	
		Web	5%	Lt side (btw Str & BC)	5%	both sides
2	**Panel 5**	**Stringer (Lt)**				
		TF Outbd	10%	along 7 ft length of member starting from L4L	20%	
		TF Inbd			10%	along 7 ft length of member starting from L4L
		BF Outbd			5%	
		BF Inbd			✓	
		Web			✓	
2	**Panel 5**	**Stringer (Rt)**				
		TF Outbd	5%		✓	
		TF Inbd	5%		✓	
		BF Outbd	15%		✓	horiz only
		BF Inbd			✓	
		Web			✓	
2	**Panel 5**	**Str. Top Laterals**			5%	
2	**L5**	**Floorbeam 5**				
		TF (SF side)	10%	at 30" to Lt and Rt of center (under rails)	✓	
			10%	at 50" to Lt and Rt of center (under guard timbers)	✓	
		TF (Mty side)	10%	at 30" to Lt and Rt of center (under rails)	✓	

TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
			10%	at 50" to Lt and Rt of center (under guard timbers)	15%	Rt
		BF (SF side)	5%	Lt side (btw Str & BC)	✓	
			15%	Rt side (btw Str & BC)	✓	
			10%	center (btw stringers)	✓	
		BF (Mty side)	15%	Lt side (btw Str & BC)	20%	
			15%	Rt side (btw Str & BC)	20%	small hole Rt, 5% SL L5L end
		Web			✓	
2	**Panel 6**	**Stringer (Lt)**				
		TF Outbd			5%	
		TF Inbd			5%	
		BF Outbd	30%	at bearing at Pier 2	5%	usual
		BF Inbd			✓	
		Web			✓	
		End cross frame			10%	
2	**Panel 6**	**Stringer (Rt)**				
		TF Outbd	5%		✓	
		TF Inbd	5%		✓	
		BF Outbd	10%		✓	
		BF Inbd			5%	
		Web			✓	
2	**Panel 6**	**Str. Top Laterals**			✓	
3	**Panel 1**	**Stringer (Lt)**				
		TF Outbd			5%	
		TF Inbd			5%	
		BF Outbd	20%	at the bearing at Pier 2	✓	
			10%	along 3 ft. length of member starting from the bearing	✓	
		BF Inbd			✓	
		Web			✓	
		End cross frame			15%	
3	**Panel 1**	**Stringer (Rt)**				
		TF Outbd	5%		✓	
		TF Inbd	5%		✓	
		BF Outbd	10%		✓	
		BF Inbd			✓	
		Web			✓	
3	**Panel 1**	**Str. Top Laterals**			5%	
3	**L1**	**Floorbeam 1**				

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TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		TF (SF side)	10%	at 30" to Lt and Rt of center (under rails)	✓	
			10%	at 50" to Lt and Rt of center (under guard timbers)	✓	
		TF (Mty side)	10%	at 30" to Lt and Rt of center (under rails)	✓	
			10%	at 50" to Lt and Rt of center (under guard timbers)	✓	
		BF (SF side)	15%	Rt side (btw Str & BC)	✓	5% SL angle & middle
		BF (Mty side)	10%	Rt side (btw Str & BC)	✓	5% SL angle & middle
		Web			✓	
3	**Panel 2**	**Stringer (Lt)**				
		TF Outbd	10%		✓	
		TF Inbd			5%	
		BF Outbd			5%	
		BF Inbd			5%	
		Web			✓	
3	**Panel 2**	**Stringer (Rt)**				
		TF Outbd	10%		✓	
		TF Inbd	10%		✓	
		BF Outbd	10%		✓	
		BF Inbd			5%	
		Web			✓	
3	**Panel 2**	**Str Top Laterals**			5%	
3	**L2**	**Floorbeam 2**				
		TF (SF side)	10%	at 30" to Lt and Rt of center (under rails)	20%	15% SL at Lt end
			10%	at 50" to Lt and Rt of center (under guard timbers)	✓	to Rt end
		TF (Mty side)	10%	at 30" to Lt and Rt of center (under rails)	✓	
			10%	at 50" to Lt and Rt of center (under guard timbers)	✓	
		BF (SF side)	10%	Lt side (btw Str & BC)	✓	
			10%	Rt side (btw Str & BC)	✓	
			5%	center (btw stringers)	10%	
		BF (Mty side)	15%	Lt side (btw Str & BC)	✓	
			10%	Rt side (btw Str & BC)	✓	
			5%	center (btw stringers)	10%	

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TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Web	5%	Lt side (btw Str & BC)	10%	
				1-1/2" x 13" hole in web at top of Lt Str	✓	
				1" x 13" hole in web at top of Rt Str	✓	2" x 13" hole in web at top of Rt Str
3	**Panel 3**	**Stringer (Lt)**				
		TF Outbd	10%	along 3 ft. length at both ends of stringer	✓	
		TF Inbd			10%	L3 end
		BF Outbd			5%	L2 end only
		BF Inbd			✓	
		Web			5%	
3	**Panel 3**	**Stringer (Rt)**				
		TF Outbd	10%		✓	
		TF Inbd	10%		✓	
		BF Outbd	10%	at horiz leg of angle	✓	
			5%	at vertical leg of angle	✓	
		BF Inbd			✓	
		Web			✓	
3	**Panel 3**	**Str Top Laterals**			5%	
3	**L3**	**Floorbeam 3**				
		TF (SF side)	10%	at 30" to Lt and Rt of center (under rails)	✓	
			10%	at 50" to Lt and Rt of center (under guard timbers)	✓	
		TF (Mty side)	10%	at 30" to Lt and Rt of center (under rails)	✓	
			10%	at 50" to Lt and Rt of center (under guard timbers)	✓	to Rt end
		BF (SF side)	10%	Lt side (btw Str & BC)	✓	
			10%	Rt side (btw Str & BC)	✓	
			5%	center (btw stringers)	✓	
		BF (Mty side)	5%	Lt side (btw Str & BC)	10%	
			15%	Rt side (btw Str & BC)	✓	
			10%	center (btw stringers)	✓	
		Web		1" x 13" hole in web at top of Rt Str	✓	
3	**Panel 4**	**Stringer (Lt)**				
		TF Outbd			5%	
		TF Inbd			5%	
		BF Outbd			5%	

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For guide to numbering system and directional designations, see Appendix 1.

TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		BF Inbd			✓	
		Web			✓	
3	**Panel 4**	**Stringer (Rt)**				
		TF Outbd	10%		✓	
		TF Inbd	10%		✓	
		BF Outbd	15%		✓	
		BF Inbd			✓	
		Web			✓	
3	**Panel 4**	**Str Top Laterals**			5%	
3	**L4**	**Floorbeam 4**				
		TF (SF side)	15%	at 30" to Lt and Rt of center (under rails)	✓	
			15%	at 50" to Lt and Rt of center (under guard timbers)	✓	to end Lt & Rt
		TF (Mty side)	15%	at 30" to Lt and Rt of center (under rails)	✓	
			15%	at 50" to Lt and Rt of center (under guard timbers)	✓	
		BF (SF side)	5%	Lt side (btw Str & BC)	10%	
			5%	Rt side (btw Str & BC)	✓	
		BF (Mty side)	10%	Lt side (btw Str & BC)	25%	
			15%	Rt side (btw Str & BC)	20%	
			10%	center (btw stringers)	30%	
		Web	25%	Lt side (btw Str & BC) along top of bottom flange angle	✓	5% SL average
				1" x 4" hole in web at Lt side, at btm lateral connection angle	✓	2 holes, 1" x 4" hole and 1" diameter hole
				1-1/2" x 13" hole in web at top of Lt Str	✓	30% SL of 1 1/2" wide strip above btm angle on Mty side, Lt end
3	**Panel 5**	**Stringer (Lt)**				
		TF Outbd			5%	
		TF Inbd			5%	
		BF Outbd			5%	
		BF Inbd			5%	
		Web			✓	
3	**Panel 5**	**Stringer (Rt)**				
		TF Outbd	10%		✓	
		TF Inbd	10%		✓	

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TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		BF Outbd	15%		✓	
		BF Inbd			5%	
		Web			✓	10% SL in 12' strip at btm both ends
3	**Panel 5**	**Str Top Laterals**			5%	
3	**L5**	**Floorbeam 5**				
		TF (SF side)	10%	at 30" to Lt and Rt of center (under rails)	✓	
			10%	at 50" to Lt and Rt of center (under guard timbers)	✓	20% SL Rt end both SF & Mty, 10% SL to Rt end
		TF (Mty side)	10%	at 30" to Lt and Rt of center (under rails)	✓	
			10%	at 50" to Lt and Rt of center (under guard timbers)	✓	both SF & Mty, 5% SL to Lt end
		BF (SF side)	5%	Lt side (btw Str & BC)	✓	
			10%	Rt side (btw Str & BC)	✓	
			5%	center (btw stringers)	✓	
		BF (Mty side)	10%	Lt side (btw Str & BC)	15%	
			10%	Rt side (btw Str & BC)	✓	
			5%	center (btw stringers)	✓	
		Web			✓	1/2" slot x 30" at top, BF Rt, 5% SL general
3	**Panel 6**	**Stringer (Lt)**				
		TF Outbd			5%	
		TF Inbd			5%	
		BF Outbd			5%	
		BF Inbd			✓	
		Web			✓	
		Strut			5%	strut 5% SL, gusset 40% SL at truss
		Strut Gusset			40%	
3	**Panel 6**	**Stringer (Rt)**				
		TF Outbd	5%		✓	
		TF Inbd	5%		✓	
		BF Outbd	10%		✓	
		BF Inbd			✓	
		Web			✓	
		End cross frame			10%	
		Strut			10%	strut 10% SL, gusset 60% SL at truss
		Strut Gusset			60%	

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TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
3	**Panel 6**	**Str. Top Laterals**			5%	
4	**Panel 1**	**Stringer (Lt)**				
		TF Outbd			5%	
		TF Inbd			5%	
		BF Outbd	10%		✓	
		BF Inbd			10%	
		Web			✓	
		End cross frame			10%	
		Strut			5%	strut 5% SL, gusset 90% SL at truss
		Strut Gusset			90%	
4	**Panel 1**	**Stringer (Rt)**				
		TF Outbd	10%		✓	
		TF Inbd	10%		✓	
		BF Outbd	10%		✓	
		BF Inbd			5%	
		Web			5%	
		Strut			30%	strut 30% SL, gusset 50% SL at truss, vertical gusset 30% SL at stringer
		Strut Gusset			50%	
4	**Panel 1**	**Str Top Laterals**			10%	L0 gusset 100% SL
4	**L1**	**Floorbeam 1**				
		TF (SF side)	15%	at 30" to Lt and Rt of center (under rails)	✓	
			15%	at 50" to Lt and Rt of center (under guard timbers)	✓	5% SL Lt, to both ends
		TF (Mty side)	15%	at 30" to Lt and Rt of center (under rails)	✓	
			15%	at 50" to Lt and Rt of center (under guard timbers)	✓	10% SL Rt, to both ends
		BF (SF side)	10%	Lt side (btw Str & BC)	✓	
			15%	Rt side (btw Str & BC)		both legs
			5%	center (btw stringers)	✓	
		BF (Mty side)	10%	Lt side (btw Str & BC)	✓	
			15%	Rt side (btw Str & BC)	✓	
			10%	center (btw stringers)	✓	

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TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Web		1/2" x 13" hole in web at top of Rt stringer	✓	1 1/2" x 13" hole in web at top of Rt stringer, 30% SL of strip 1" x 30" at BF, 5% general
4	Panel 2	**Stringer (Lt)**				
		TF Outbd			5%	
		TF Inbd			5%	
		BF Outbd			5%	
		BF Inbd			✓	
		Web			✓	
4	Panel 2	**Stringer (Rt)**				
		TF Outbd	10%		✓	middle
		TF Inbd	10%		✓	middle
		BF Outbd	15%		✓	
		BF Inbd			✓	
		Web			✓	
4	Panel 2	**Str Top Laterals**			5%	
4	L2	**Floorbeam 2**				
		TF (SF side)	15%	at 30" to Lt and Rt of center (under rails)	✓	
			15%	at 50" to Lt and Rt of center (under guard timbers)	✓	5% to both end, both flanges
		TF (Mty side)	15%	at 30" to Lt and Rt of center (under rails)	✓	
			15%	at 50" to Lt and Rt of center (under guard timbers)	✓	
		BF (SF side)	15%	Lt side (btw Str & BC)	✓	
			10%	Rt side (btw Str & BC)	✓	
			5%	center (btw stringers)	10%	
		BF (Mty side)	15%	Lt side (btw Str & BC)	✓	
			15%	Rt side (btw Str & BC)	✓	
			10%	center (btw stringers)	✓	
		Web	5%	Lt side (btw Str & BC)	✓	
				1" diameter hole in web at top of Lt stringer	✓	at top of BF Rt side, 3" x 1/2" hole near stringer, 30% SL over 18" Rt side
4	Panel 3	**Stringer (Lt)**				
		TF Outbd			5%	
		TF Inbd			5%	
		BF Outbd			5%	
		BF Inbd			5%	

For abbreviations, see Legend on First page of Appendix 2.
For guide to numbering system and directional designations, see Appendix 1.

TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Web			✓	
4	**Panel 3**	**Stringer (Rt)**				
		TF Outbd			10%	
		TF Inbd			10%	
		BF Outbd	15%		✓	
		BF Inbd			5%	
		Web			✓	10% SL, 6' at L3 end
4	**Panel 3**	**Str Top Laterals**			5%	
4	**L3**	**Floorbeam 3**				
		TF (SF side)	10%	at 30" to Lt of center (under rail)	✓	
			15%	at 30" to Rt of center (under rail)	✓	
			10%	at 50" to Lt of center (under guard timber)	15%	
			15%	at 50" to Rt of center (under guard timber)	✓	
		TF (Mty side)	10%	at 30" to Lt of center (under rail)	✓	
			15%	at 30" to Rt of center (under rail)	✓	
			10%	at 50" to Lt of center (under guard timber)	15%	5% SL to ends, all
			15%	at 50" to Rt of center (under guard timber)	✓	
		BF (SF side)	5%	Lt side (btw Str & BC)	10%	
			10%	Rt side (btw Str & BC)	✓	
			10%	center (btw stringers)	✓	
		BF (Mty side)	10%	Lt side (btw Str & BC)	✓	
			10%	Rt side (btw Str & BC)	✓	
			5%	center (btw stringers)	10%	
		Web			✓	5% SL Rt at BF
4	**Panel 4**	**Stringer (Lt)**				
		TF Outbd			10%	
		TF Inbd			10%	
		BF Outbd			5%	
		BF Inbd			✓	
		Web			✓	
4	**Panel 4**	**Stringer (Rt)**				
		TF Outbd	5%		✓	
		TF Inbd	5%		✓	
		BF Outbd	10%		✓	
		BF Inbd			✓	

For abbreviations, see Legend on First page of Appendix 2.
For guide to numbering system and directional designations, see Appendix 1.

TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Web			✓	
4	**Panel 4**	**Str Top Laterals**			5%	
4	**L4**	**Floorbeam 4**				
		TF (SF side)	20%	at 30" to Lt of center (under rail)	✓	
			15%	at 30" to Rt of center (under rail)	20%	
			20%	at 50" to Lt of center (under guard timber)	✓	
			15%	at 50" to Rt of center (under guard timber)	✓	
		TF (Mty side)	20%	at 30" to Lt of center (under rail)	✓	
			15%	at 30" to Rt of center (under rail)	20%	
			20%	at 50" to Lt of center (under guard timber)	✓	
			15%	at 50" to Rt of center (under guard timber)	✓	
		BF (SF side)	20%	Lt side (btw Str & BC)	✓	
			10%	Rt side (btw Str & BC)	15%	
			5%	center (btw stringers)	10%	
		BF (Mty side)	20%	Lt side (btw Str & BC)	✓	
			10%	Rt side (btw Str & BC)	✓	
			5%	center (btw stringers)	10%	
		Web		web plate thickness reduced 50% along 1 ft. length of bottom flange angle, starting 1.5 ft. from left end of floorbeam		Rt side: 1/2" x 30" strip at top of bottom flange, 80% SL of 50% of strip, 100% SL of 50% of strip Lt side: 35% SL of 1" x 12" strip at top of bottom flange, 10% SL of rest
4	**Panel 5**	**Stringer (Lt)**				
		TF Outbd			5%	
		TF Inbd			5%	
		BF Outbd	5%		10%	
		BF Inbd			✓	
		Web			✓	
4	**Panel 5**	**Stringer (Rt)**				
		TF Outbd	10%		✓	5% under
		TF Inbd	10%		✓	
		BF Outbd	10%		15%	

For abbreviations, see Legend on First page of Appendix 2.
For guide to numbering system and directional designations, see Appendix 1.

TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		BF Inbd			✓	
		Web			5%	
4	**Panel 5**	**Str Top Laterals**			5%	
4	**L5**	**Floorbeam 5**				
		TF (SF side)	20%	at 30" to Lt of center (under rail)	✓	
			15%	at 30" to Rt of center (under rail)	20%	
			20%	at 50" to Lt of center (under guard timber)	✓	
			15%	at 50" to Rt of center (under guard timber)	20%	
		TF (Mty side)	20%	at 30" to Lt of center (under rail)	✓	5% to ends all
			15%	at 30" to Rt of center (under rail)	20%	24" Lt & Rt of centerline 20% SL
			20%	at 50" to Lt of center (under guard timber)	✓	
			15%	at 50" to Rt of center (under guard timber)	20%	
		BF (SF side)	10%	Lt side (btw Str & BC)	✓	
			10%	Rt side (btw Str & BC)	✓	5% SL at center
		BF (Mty side)	10%	Lt side (btw Str & BC)	20%	
			15%	Rt side (btw Str & BC)	✓	
		Web		1" x 13" hole in web at top of Rt stringer	✓	10% SL above BF Rt & Lt
4	**Panel 6**	**Stringer (Lt)**				
		TF Outbd			5%	
		TF Inbd			5%	
		BF Outbd	10%	at bearing, at Pier 4	5%	
		BF Inbd			✓	
		Web			✓	
		Strut			5%	strut 5% SL, gusset 80% SL
		Strut Gusset			80%	
4	**Panel 6**	**Stringer (Rt)**				
		TF Outbd	5%		✓	
		TF Inbd	5%		✓	
		BF Outbd	10%		✓	
		BF Inbd			✓	
		Web			✓	10% SL over 3" at L5 end

For abbreviations, see Legend on First page of Appendix 2.
For guide to numbering system and directional designations, see Appendix 1.

Salinas River Bridge
Updated Inspection Report

TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Strut			10%	strut 10% SL, gusset 60% SL, vertical gusset 65% SL
		Strut Gusset			60%	
4	**Panel 6**	**Str. Top Laterals**			5%	
5	**Panel 1**	**Stringer (Lt)**				
		TF Outbd			✓	
		TF Inbd			✓	
		BF Outbd			5%	
		BF Inbd			✓	
		Web			✓	
		Strut			5%	strut 5% SL, gusset 90% SL
		Strut Gusset			90%	
5	**Panel 1**	**Stringer (Rt)**				
		TF Outbd	5%		✓	
		TF Inbd	5%		✓	
		BF Outbd	30%	notch in edge of BF at an isolated location just past the sole plate at the fixed bearing	✓	
			15%	throughout length of member, except as noted above	✓	
		BF Inbd			✓	
		Web			✓	
		Strut			40%	strut 40% SL, gusset 40% SL, vertical gusset 5% SL
		Strut Gusset			40%	
5	**Panel 1**	**Str Top Laterals**			5%	
5	**L1**	**Floorbeam 1**				
		TF (SF side)	10%	at 30" to Lt and Rt of center (under rails)	✓	
			10%	at 50" to Lt and Rt of center (under guard timbers)	15%	
		TF (Mty side)	10%	at 30" to Lt and Rt of center (under rails)	✓	
			10%	at 50" to Lt and Rt of center (under guard timbers)	15%	
		BF (SF side)	10%	Rt side (btw Str & BC)	✓	Lt ok, center 5% SL

For abbreviations, see Legend on First page of Appendix 2.
For guide to numbering system and directional designations, see Appendix 1.

TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		BF (Mty side)	10%	Lt side (btw Str & BC)	✓	
			10%	Rt side (btw Str & BC)	✓	
			5%	center (btw stringers)	✓	
		Web			5%	15% SL strip at BF
5	**Panel 2**	**Stringer (Lt)**				
		TF Outbd			10%	
		TF Inbd			10%	
		BF Outbd			5%	
		BF Inbd			✓	
		Web			✓	
5	**Panel 2**	**Stringer (Rt)**				
		TF Outbd	10%		✓	
		TF Inbd	10%		✓	
		BF Outbd	5%		✓	
		BF Inbd			✓	
		Web			✓	
5	**Panel 2**	**Str Top Laterals**			5%	
5	**L2**	**Floorbeam 2**				
		TF (SF side)	10%	at 30" to Lt of center (under rail)	✓	
			15%	at 30" to Rt of center (under rail)	✓	
			10%	at 50" to Lt of center (under guard timber)	15%	
			15%	at 50" to Rt of center (under guard timber)	✓	
		TF (Mty side)	10%	at 30" to Lt of center (under rail)	✓	
			15%	at 30" to Rt of center (under rail)	✓	
			10%	at 50" to Lt of center (under guard timber)	15%	
			15%	at 50" to Rt of center (under guard timber)	✓	
		BF (SF side)	10%	Lt side (btw Str & BC)	✓	
			15%	Rt side (btw Str & BC)	✓	
			5%	center (btw stringers)	✓	
		BF (Mty side)	20%	Lt side (btw Str & BC)	✓	
			15%	Rt side (btw Str & BC)	✓	
			5%	center (btw stringers)	10%	

For abbreviations, see Legend on First page of Appendix 2.
For guide to numbering system and directional designations, see Appendix 1.

Salinas River Bridge
Updated Inspection Report

TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		Web		web plate thickness reduced 50% along edge of bottom flange angle, Lt side (btw Str & BC)	✓	Lt & Rt side
5	**Panel 3**	**Stringer (Lt)**				
		TF Outbd			5%	
		TF Inbd			5%	
		BF Outbd			5%	
		BF Inbd			✓	
		Web			✓	
5	**Panel 3**	**Stringer (Rt)**				
		TF Outbd	10%		✓	
		TF Inbd	10%		✓	
		BF Outbd	10%		✓	
		BF Inbd			✓	
		Web			✓	
5	**Panel 3**	**Str Top Laterals**			5%	
5	**L3**	**Floorbeam 3**				
		TF (SF side)	15%	at 30" to Lt and Rt of center (under rails)	✓	
			15%	at 50" to Lt and Rt of center (under guard timbers)	✓	5% SL to end
			30%	at 20" to Lt of center	✓	
		TF (Mty side)	15%	at 30" to Lt and Rt of center (under rails)	✓	
			15%	at 50" to Lt and Rt of center (under guard timbers)	✓	10% SL to end both
			30%	at 20" to Lt of center		
		BF (SF side)	10%	Lt side (btw Str & BC)	✓	
			10%	Rt side (btw Str & BC)	✓	
			5%	center (btw stringers)		
		BF (Mty side)	5%	Lt side (btw Str & BC)	10%	
			10%	Rt side (btw Str & BC)	✓	
			10%	center (btw stringers)	✓	
		Web		web plate thickness reduced by 20% along edge of bottom flange angle, Lt side (btw Str & BC)	5%	Rt side 10" hole at bottom flange near stringer, 50% SL along rest, 5% SL web general
5	**Panel 4**	**Stringer (Lt)**				

For abbreviations, see Legend on First page of Appendix 2.
For guide to numbering system and directional designations, see Appendix 1.

TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		TF Outbd			5%	
		TF Inbd			5%	
		BF Outbd			5%	
		BF Inbd			✓	
		Web			✓	
5	**Panel 4**	**Stringer (Rt)**				
		TF Outbd	10%		✓	
		TF Inbd	10%		✓	
		BF Outbd	10%		✓	
		BF Inbd			✓	
		Web			✓	
		End cross frame			5%	
5	**Panel 4**	**Str Top Laterals**				
5	**L4**	**Floorbeam 4**				
		TF (SF side)	10%	at 30" to Lt of center (under rail)	✓	
			5%	at 30" to Rt of center (under rail)	✓	
			10%	at 50" to Lt of center (under guard timber)	15%	
			5%	at 50" to Rt of center (under guard timber)	20%	10% SL to end
		TF (Mty side)	10%	at 30" to Lt of center (under rail)	✓	
			5%	at 30" to Rt of center (under rail)	✓	
			10%	at 50" to Lt of center (under guard timber)	15%	
			5%	at 50" to Rt of center (under guard timber)	20%	60" of 20% SL, 10% SL to end
		BF (SF side)	5%	Rt side (btw Str & BC)	10%	Lt
		BF (Mty side)	5%	Lt side (btw Str & BC)	15%	
			10%	Rt side (btw Str & BC)	✓	
			5%	center (btw stringers)	✓	
		Web		1" x 13" hole in web at top of Lt stringer	5%	Lt end
5	**Panel 5**	**Stringer (Lt)**				
		TF Outbd			10%	
		TF Inbd			10%	
		BF Outbd			5%	
		BF Inbd			✓	
		Web			✓	
5	**Panel 5**	**Stringer (Rt)**				

For abbreviations, see Legend on First page of Appendix 2.
For guide to numbering system and directional designations, see Appendix 1.

TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		TF Outbd	10%		✓	
		TF Inbd	10%		✓	
		BF Outbd	15%		✓	
		BF Inbd			✓	
		Web			✓	
5	**Panel 5**	**Str Top Laterals**			5%	
5	**L5**	**Floorbeam 5**				
		TF (SF side)	10%	at 30" to Lt of center (under rail)	✓	
			15%	at 30" to Rt of center (under rail)	✓	
			10%	at 50" to Lt of center (under guard timber)	✓	
			15%	at 50" to Rt of center (under guard timber)	✓	
		TF (Mty side)	10%	at 30" to Lt of center (under rail)	✓	
			15%	at 30" to Rt of center (under rail)	✓	
			10%	at 50" to Lt of center (under guard timber)	✓	
			15%	at 50" to Rt of center (under guard timber)	✓	
		BF (SF side)	5%	Lt side (btw Str & BC)	✓	
			15%	Rt side (btw Str & BC)	✓	
			10%	center (btw stringers)	✓	
		BF (Mty side)	15%	Lt side (btw Str & BC)	20%	
			10%	Rt side (btw Str & BC)	✓	
			10%	center (btw stringers)	10%	
		Web			✓	30% SL spot 6" at end one Lt gusset
5	**Panel 6**	**Stringer (Lt)**				
		TF Outbd			✓	
		TF Inbd			✓	
		BF Outbd			✓	
		BF Inbd			✓	
		Web			✓	
		Strut				strut ok, gusset 10% SL
		Strut Gusset			10%	
5	**Panel 6**	**Stringer (Rt)**				
		TF Outbd	10%		✓	
		TF Inbd	10%		✓	
		BF Outbd	5%		✓	

For abbreviations, see Legend on First page of Appendix 2.
For guide to numbering system and directional designations, see Appendix 1.

TABLE 4
FLOOR SYSTEM

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 SECTION LOSS	2001 COMMENT	2010 SECTION LOSS	2010 COMMENT
		BF Inbd			5%	
		Web			✓	
		Strut				strut ok, gusset 5% SL, vertical gusset 5% SL
		Strut Gusset			5%	
5	**Panel 6**	**Str Top Laterals**			✓	

For abbreviations, see Legend on First page of Appendix 2.
For guide to numbering system and directional designations, see Appendix 1.

Salinas River Bridge
Updated Inspection Report

TABLE 5
STRINGER BEARINGS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 COMMENT	2010 CHECK	2010 COMMENT
2	L0	Str. Fixed Brg. (Lt)			5% SL
2	L0	Str. Fixed Brg. (Rt)			5% SL
2	L6	Str. Exp. Brg. (Lt)	Corrosion at stringer BF, sole plate, shim plate and bed plate, with no visible signs of expansion and contraction (30% SL in stringer BF, outboard side).	✓	(40% SL in stringer BF, outboard side)
2	L6	Str. Exp. Brg. (Rt)	Corrosion at stringer BF, sole plate, shim plate and bed plate, with no visible signs of expansion and contraction.	✓	
			End of stringer in contact with stringer of Span 3, Panel 1 (probably due to previously documented movement of substructure caused by an earthquake).	✓	Rt side in contact, Lt side has a 1" gap
3	L0	Str. Fixed Brg. (Lt)	Corrosion at stringer BF, sole plate, shim plate and bed plate.	✓	
3	L0	Str. Fixed Brg. (Rt)	Corrosion at stringer BF, sole plate, shim plate and bed plate.	✓	
			End of stringer in contact with stringer of Span 2, Panel 6 (probably due to previously documented movement of substructure caused by an earthquake).	✓	
3	L6	Str. Exp. Brg. (Lt)	Minor corrosion at shim plate and bed plate.	✓	
3	L6	Str. Exp. Brg. (Rt)	Corrosion at stringer BF, sole plate, shim plate and bed plate with SL along edges of plates and btm flange.	✓	
4	L0	Str. Fixed Brg. (Lt)	Minor corrosion at shim plate and bed plate.	✓	
4	L0	Str. Fixed Brg. (Rt)	Corrosion at stringer BF, sole plate, shim plate and bed plate with minor section loss in Str BF and along edges of plates.	✓	

For abbreviations, see Legend on First page of Appendix 2.
For guide to numbering system and directional designations, see Appendix 1.

TABLE 5
STRINGER BEARINGS

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 COMMENT	2010 CHECK	2010 COMMENT
			10% SL of the end bearing stiffener, outboard side.	✓	
4	L6	Str. Exp. Brg. (Lt)	Corrosion at stringer BF, sole plate, shim plate and bed plate with minor section loss in Str BF and along edges of plates.	✓	
4	L6	Str. Exp. Brg. (Rt)	Corrosion at stringer BF, sole plate, shim plate and bed plate with minor section loss in Str BF and along edges of plates.	✓	
			20% SL of the end bearing stiffener, outboard side.	✓	
5	L0	Str. Fixed Brg. (Lt)	Corrosion at sole plate, shim plate and bed plate with minor section loss along edges of plates.	✓	
5	L0	Str. Fixed Brg. (Rt)	Corrosion at stringer BF, sole plate, shim plate and bed plate with minor section loss along edges of plates.	✓	
5	L6	Str. Exp. Brg. (Lt)		✓	Anchor bolt broken
5	L6	Str. Exp. Brg. (Rt)	Minor corrosion on top surfaces of stringer bottom flange and sole plate.	✓	Outbd anchor bolt bent

For abbreviations, see Legend on First page of Appendix 2.
For guide to numbering system and directional designations, see Appendix 1.

TABLE 6
RAIL TIES

SPAN	PANEL OR PANEL PT.	COMPONENT	2001 COMMENT	2010 COMMENT
1	1	Panel Ties	N/A	Fair
1	2	Panel Ties	N/A	Fair
1	3	Panel Ties	N/A	Fair
1	4	Panel Ties	N/A	Fair
1	5	Panel Ties	N/A	Fair
1	6	Panel Ties	N/A	Fair
2	1	Panel Ties	N/A	Fair
2	2	Panel Ties	N/A	Fair
2	3	Panel Ties	N/A	Fair
2	4	Panel Ties	N/A	Fair
2	5	Panel Ties	N/A	Fair
2	6	Panel Ties	N/A	Fair
3	1	Panel Ties	N/A	Fair
3	2	Panel Ties	N/A	Fair
3	3	Panel Ties	N/A	Fair
3	4	Panel Ties	N/A	Fair
3	5	Panel Ties	N/A	Fair
3	6	Panel Ties	N/A	Fair
4	1	Panel Ties	N/A	Fair
4	2	Panel Ties	N/A	Fair
4	3	Panel Ties	N/A	Fair
4	4	Panel Ties	N/A	Fair
4	5	Panel Ties	N/A	Poor
4	6	Panel Ties	N/A	Poor
5	1	Panel Ties	N/A	Poor
5	2	Panel Ties	N/A	Poor
5	3	Panel Ties	N/A	Poor
5	4	Panel Ties	N/A	Poor
5	5	Panel Ties	N/A	Poor
5	6	Panel Ties	N/A	Poor

For abbreviations, see Legend on First page of Appendix 2.
For guide to numbering system and directional designations, see Appendix 1.

APPENDIX 3

LOAD RATINGS

SALINAS RIVER BRIDGE

AS-BUILT LOAD RATING - 30 FT. DEEP TRUSS

TRUSS MEMBERS - LOAD CASE A

NORMAL RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	RF	E-RATING
End Post	651.90	91.53	775.9	0.5	21.5	5.882	494.0	1.13	90.7
Bottom Chord (BC1)	309.21	56.19	476.3	0.5	21.5	5.882	303.3	0.83	66.7
Bottom Chord (BC2)	558.69	102.46	826.5	0.5	21.5	5.882	526.2	0.87	69.4
Top Chord	589.20	90.99	738.6	0.5	21.5	5.882	470.3	1.06	84.8
Diagonal (T) ten.	379.83	56.69	514.8	0.5	21.5	5.882	327.8	0.99	78.9
Diagonal (D) comp.	380.30	18.69	299.3	0.5	21.5	5.882	190.6	1.90	151.8
Hanger (center)	217.39	19.50	290.8	0.5	39.0	5.882	210.6	0.94	75.2

MAXIMUM RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	RF	E-RATING
End Post	952.80	91.53	775.9	0.5	21.5	5.882	494.0	1.74	139.5
Bottom Chord (BC1)	449.76	56.19	476.3	0.5	21.5	5.882	303.3	1.30	103.8
Bottom Chord (BC2)	812.64	102.46	826.5	0.5	21.5	5.882	526.2	1.35	108.0
Top Chord	855.70	90.99	738.6	0.5	21.5	5.882	470.3	1.63	130.1
Diagonal (T) ten.	552.48	56.69	514.8	0.5	21.5	5.882	327.8	1.51	121.0
Diagonal (D) comp.	553.40	18.69	299.3	0.5	21.5	5.882	190.6	2.81	224.5
Hanger (center)	316.20	19.50	290.8	0.5	39.0	5.882	210.6	1.41	112.7

SALINAS RIVER BRIDGE

AS-BUILT LOAD RATING - 30 FT. DEEP TRUSS

TRUSS MEMBERS - LOAD CASE B

NORMAL RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	RF	E-RATING
End Post	814.90	91.53	775.9	0.5	21.5	5.882	494.0	9.5	0.0	2.89	1.44	115.1
Bottom Chord (BC1)	386.50	56.19	476.3	0.5	21.5	5.882	303.3	49.2	148.0	29.2	0.56	44.6
Bottom Chord (BC2)	698.40	102.46	826.5	0.5	21.5	5.882	526.2	65.5	148.0	37.5	0.73	58.5
Top Chord	736.50	90.99	738.6	0.5	21.5	5.882	470.3	16.7	0.0	2.8	1.33	106.5
Diagonal (T) ten.	474.80	56.69	514.8	0.5	21.5	5.882	327.8	5.7	0.0	2.3	1.25	100.1
Diagonal (D) comp.	475.40	18.69	299.3	0.5	21.5	5.882	190.6	1.9	0.0	1.7	2.38	190.2
Hanger (center)	271.70	19.50	290.8	0.5	39.0	5.882	210.6	3.0	0.0	2.74	1.17	93.6

MAXIMUM RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	RF	E-RATING
End Post	1191.00	91.53	775.9	0.5	21.5	5.882	494.0	9.5	0.0	2.89	2.20	176.0
Bottom Chord (BC1)	562.20	56.19	476.3	0.5	21.5	5.882	303.3	49.2	148.0	29.2	0.95	75.7
Bottom Chord (BC2)	1015.80	102.46	826.5	0.5	21.5	5.882	526.2	65.5	148.0	37.5	1.20	96.2
Top Chord	1069.60	90.99	738.6	0.5	21.5	5.882	470.3	16.7	0.0	2.8	2.04	163.2
Diagonal (T) ten.	690.60	56.69	514.8	0.5	21.5	5.882	327.8	5.7	0.0	2.3	1.91	152.8
Diagonal (D) comp.	691.80	18.69	299.3	0.5	21.5	5.882	190.6	1.9	0.0	1.7	3.51	281.1
Hanger (center)	395.30	19.50	290.8	0.5	39.0	5.882	210.6	3.0	0.0	2.74	1.76	140.6

SALINAS RIVER BRIDGE

AS-BUILT LOAD RATING - 30 FT. DEEP TRUSS

FLOOR SYSTEM - LOAD CASE A

NORMAL RATING

MEMBER	CAPACITY (KSI)	DL (KSI)	LL (E80-KSI)	DIST.	IMPACT %	RE %	LL+I (KSI)	RF	E-RATING
Stringer (moment)	16.5	0.686	10.55	1.0	39.0	14.286	16.2	0.98	78.2
Floorbeam (moment)	16.5	0.872	9.89	1.0	39.0	5.882	14.3	1.09	87.3
Stringer (shear)	10.5	0.322	5.92	1.0	39.0	14.286	9.1	1.12	89.7
Floorbeam (shear)	10.5	0.576	6.4	1.0	39.0	5.882	9.3	1.07	85.6

MAXIMUM RATING

MEMBER	CAPACITY (KSI)	DL (KSI)	LL (E80-KSI)	DIST.	IMPACT %	RE %	LL+I (KSI)	RF	E-RATING
Stringer (moment)	24.0	0.686	10.55	1.0	39.0	14.286	16.2	1.44	115.3
Floorbeam (moment)	24.0	0.872	9.89	1.0	39.0	5.882	14.3	1.61	129.1
Stringer (shear)	18.0	0.322	5.92	1.0	39.0	14.286	9.1	1.95	155.9
Floorbeam (shear)	18.0	0.576	6.4	1.0	39.0	5.882	9.3	1.88	150.4

SALINAS RIVER BRIDGE

AS-BUILT LOAD RATING - 30 FT. DEEP TRUSS

PINS - LOAD CASE A

NORMAL RATING

MEMBER	CAPACITY (KSI)	DL (KSI)	LL+I (E80-KSI)	RF	E-RATING
Shear in Pin	12.6	0.79	4.05	2.92	233.3
Bearing on Pin & PL's	22.5	3.96	20.23	0.92	73.3
*Bearing on Pin & PL's	22.5	4.27	21.79	0.84	66.9
Bending in Pin	24.9	3.75	19.10	1.11	88.6

MAXIMUM RATING

MEMBER	CAPACITY (KSI)	DL (KSI)	LL (E80-KSI)	RF	E-RATING
Shear in Pin	21.6	0.79	4.05	5.14	411.1
Bearing on Pin & PL's	n/a	n/a	n/a	n/a	n/a
*Bearing on Pin & PL's	n/a	n/a	n/a	n/a	n/a
Bending in Pin	48.0	3.75	19.10	2.32	185.3

*-indicates stress check at double angles located beneath the pin, midway between gusset plates.

SALINAS RIVER BRIDGE
AS-BUILT LOAD RATING - 31 FT. DEEP TRUSS

TRUSS MEMBERS - LOAD CASE A

NORMAL RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	RF	E-RATING
End Post	636.50	84.17	766.62	0.5	21.5	5.882	488.1	1.13	90.5
Bottom Chord (LC1)	343.20	50.61	460.85	0.5	21.5	5.882	293.4	1.00	79.8
Bottom Chord (LC2)	601.90	91.63	799.53	0.5	21.5	5.882	509.0	1.00	80.2
Top Chord	568.30	80.90	715.06	0.5	21.5	5.882	455.3	1.07	85.6
Diagonal (D1) ten.	394.00	50.38	508.6	0.5	21.5	5.882	323.8	1.06	84.9
Diagonal (D2) comp.	379.50	17.84	296.01	0.5	21.5	5.882	188.5	1.92	153.5
Hanger (center)	332.10	18.00	290.8	0.5	39.0	5.882	210.6	1.49	119.3

MAXIMUM RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	RF	E-RATING
End Post	923.80	84.17	766.62	0.5	21.5	5.882	488.1	1.72	137.6
Bottom Chord (LC1)	499.20	50.61	460.85	0.5	21.5	5.882	293.4	1.53	122.3
Bottom Chord (LC2)	875.50	91.63	799.53	0.5	21.5	5.882	509.0	1.54	123.2
Top Chord	829.00	80.90	715.06	0.5	21.5	5.882	455.3	1.64	131.5
Diagonal (D1) ten.	573.10	50.38	508.6	0.5	21.5	5.882	323.8	1.61	129.1
Diagonal (D2) comp.	550.20	17.84	296.01	0.5	21.5	5.882	188.5	2.82	226.0
Hanger (center)	483.10	18.00	290.8	0.5	39.0	5.882	210.6	2.21	176.7

SALINAS RIVER BRIDGE
AS-BUILT LOAD RATING - 31 FT. DEEP TRUSS

TRUSS MEMBERS - LOAD CASE B

NORMAL RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	RF	E-RATING
End Post	795.63	84.17	766.62	0.5	21.5	5.882	488.1	10.8	0.0	5.00	1.43	114.0
Bottom Chord (LC1)	429.00	50.61	460.85	0.5	21.5	5.882	293.4	49.8	148.0	30.4	0.68	54.1
Bottom Chord (LC2)	752.38	91.63	799.53	0.5	21.5	5.882	509.0	66.6	148.0	39.7	0.84	67.6
Top Chord	710.38	80.90	715.06	0.5	21.5	5.882	455.3	17.7	0.0	4.8	1.33	106.7
Diagonal (D1) ten.	492.50	50.38	508.6	0.5	21.5	5.882	323.8	6.5	0.0	4.0	1.33	106.6
Diagonal (D2) comp.	474.38	17.84	296.01	0.5	21.5	5.882	188.5	2.2	0.0	3.0	2.39	191.6
Hanger (center)	415.13	18.00	290.8	0.5	39.0	5.882	210.6	3.5	0.0	4.80	1.85	147.7

MAXIMUM RATING

MEMBER	CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	RF	E-RATING
End Post	1154.75	84.17	766.62	0.5	21.5	5.882	488.1	10.8	0.0	5.00	2.16	172.9
Bottom Chord (LC1)	624.00	50.61	460.85	0.5	21.5	5.882	293.4	49.8	148.0	30.4	1.18	94.1
Bottom Chord (LC2)	1094.38	91.63	799.53	0.5	21.5	5.882	509.0	66.6	148.0	39.7	1.47	117.6
Top Chord	1036.25	80.90	715.06	0.5	21.5	5.882	455.3	17.7	0.0	4.8	2.05	163.9
Diagonal (D1) ten.	716.38	50.38	508.6	0.5	21.5	5.882	323.8	6.5	0.0	4.0	2.02	161.9
Diagonal (D2) comp.	687.75	17.84	296.01	0.5	21.5	5.882	188.5	2.2	0.0	3.0	3.53	282.2
Hanger (center)	603.88	18.00	290.8	0.5	39.0	5.882	210.6	3.5	0.0	4.80	2.74	219.4

SALINAS RIVER BRIDGE

AS-BUILT LOAD RATING - 31 FT. DEEP TRUSS

FLOOR SYSTEM - LOAD CASE A

NORMAL RATING

MEMBER	CAPACITY (KSI)	DL (KSI)	LL (E80-KSI)	DIST.	IMPACT %	RE %	LL+I (KSI)	RF	E-RATING
Stringer (moment)	16.5	0.621	10.51	1.0	39.0	14.286	16.1	0.99	78.9
Floorbeam (moment)	16.5	0.777	9.33	1.0	39.0	5.882	13.5	1.16	93.1
Stringer (shear)	10.5	0.364	7.35	1.0	39.0	14.286	11.3	0.90	72.0
Floorbeam (shear)	10.5	0.530	6.3	1.0	39.0	5.882	9.1	1.09	87.4

MAXIMUM RATING

MEMBER	CAPACITY (KSI)	DL (KSI)	LL (E80-KSI)	DIST.	IMPACT %	RE %	LL+I (KSI)	RF	E-RATING
Stringer (moment)	24.0	0.621	10.51	1.0	39.0	14.286	16.1	1.45	116.1
Floorbeam (moment)	24.0	0.777	9.33	1.0	39.0	5.882	13.5	1.72	137.5
Stringer (shear)	18.0	0.364	7.35	1.0	39.0	14.286	11.3	1.57	125.2
Floorbeam (shear)	18.0	0.530	6.3	1.0	39.0	5.882	9.1	1.91	153.1

SALINAS RIVER BRIDGE

AS-BUILT LOAD RATING - 31 FT. DEEP TRUSS

PINS - LOAD CASE A

NORMAL RATING

MEMBER	CAPACITY (KSI)	DL (KSI)	LL+I (E80-KSI)	RF	E-RATING
Shear in Pin	12.6	1.41	8.93	1.25	100.2
Bearing on Pin & PL's	22.5	3.29	20.83	0.92	73.8
Bending in Pin	24.9	3.17	20.10	1.08	86.5

MAXIMUM RATING

MEMBER	CAPACITY (KSI)	DL (KSI)	LL (E80-KSI)	RF	E-RATING
Shear in Pin	21.6	1.41	8.93	2.26	180.9
Bearing on Pin & PL's	n/a	n/a	n/a	n/a	n/a
Bending in Pin	48.0	3.17	20.10	2.23	178.4

SALINAS RIVER

RAILROAD BRIDGE

AS-INSPECTED
LOAD RATING

CALCULATIONS

SPAN 1

SALINAS RIVER BRIDGE

AS-INSPECTED LOAD RATING - 31 FT. DEEP TRUSS

SPAN 1

LEFT TRUSS MEMBERS - LOAD CASE A

NORMAL RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	2010 RF	2010 E-RATING
End Post L0U1	594	84.17	766.62	0.5	21.5	5.882	488.1	1.04	83.6
Bottom Chord (LC1) L0L2	285	50.61	460.85	0.5	21.5	5.882	293.4	0.80	63.9
Bottom Chord (LC2) L2L4	440	91.63	799.53	0.5	21.5	5.882	509.0	0.68	54.7
Bottom Chord (LC1) L4L6	270	50.61	460.85	0.5	21.5	5.882	293.4	0.75	59.8
Top Chord U1U2	464	80.90	715.06	0.5	21.5	5.882	455.3	0.84	67.3
Top Chord U2U3	429	80.90	715.06	0.5	21.5	5.882	455.3	0.77	61.2
Top Chord U3U4	436	80.90	715.06	0.5	21.5	5.882	455.3	0.78	62.4
Top Chord U4U5	466	80.90	715.06	0.5	21.5	5.882	455.3	0.85	67.7
U1L2 Diag. (D1) (ten.)	320	50.38	508.60	0.5	21.5	5.882	323.8	0.83	66.5
L2U3 Diag. (D2) (comp.)	346	17.84	296.01	0.5	21.5	5.882	188.5	1.74	139.2
U3L4 Diag. (D2) (comp.)	300	17.84	296.01	0.5	21.5	5.882	188.5	1.49	119.6
L4U5 Diag. (D1) (ten.)	319	50.38	508.60	0.5	21.5	5.882	323.8	0.83	66.3
L3U3 Hanger (center)	302	18.00	290.80	0.5	39.0	5.882	210.6	1.35	107.9
L1U1	281	16.50	291.20	0.5	39.0	5.882	210.9	1.25	100.3
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L5U5	284	16.50	291.20	0.5	39.0	5.882	210.9	1.27	101.5
End Post U5L6	520	84.17	766.62	0.5	21.5	5.882	488.1	0.89	71.4

MAXIMUM RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	2010 RF	2010 E-RATING
End Post L0U1	862	84.17	766.62	0.5	21.5	5.882	488.1	1.59	127.5
Bottom Chord (LC1) L0L2	415	50.61	460.85	0.5	21.5	5.882	293.4	1.24	99.2
Bottom Chord (LC2) L2L4	640	91.63	799.53	0.5	21.5	5.882	509.0	1.08	86.2
Bottom Chord (LC1) L4L6	393	50.61	460.85	0.5	21.5	5.882	293.4	1.17	93.3
Top Chord U1U2	677	80.90	715.06	0.5	21.5	5.882	455.3	1.31	104.8
Top Chord U2U3	626	80.90	715.06	0.5	21.5	5.882	455.3	1.20	95.9
Top Chord U3U4	636	80.90	715.06	0.5	21.5	5.882	455.3	1.22	97.5
Top Chord U4U5	680	80.90	715.06	0.5	21.5	5.882	455.3	1.32	105.3
U1L2 Diag. (D1) (ten.)	465	50.38	508.60	0.5	21.5	5.882	323.8	1.28	102.4
L2U3 Diag. (D2) (comp.)	501	17.84	296.01	0.5	21.5	5.882	188.5	2.57	205.2
U3L4 Diag. (D2) (comp.)	434	17.84	296.01	0.5	21.5	5.882	188.5	2.21	176.8
L4U5 Diag. (D1) (ten.)	463	50.38	508.60	0.5	21.5	5.882	323.8	1.28	102.0
L3U3 Hanger (center)	439	18.00	290.80	0.5	39.0	5.882	210.6	2.00	160.0
L1U1	409	16.50	291.20	0.5	39.0	5.882	210.9	1.86	148.8
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L5U5	413	16.50	291.20	0.5	39.0	5.882	210.9	1.88	150.4
End Post U5L6	755	84.17	766.62	0.5	21.5	5.882	488.1	1.37	109.9

SALINAS RIVER BRIDGE
AS-INSPECTED LOAD RATING - 31 FT. DEEP TRUSS
SPAN 1
RIGHT TRUSS MEMBERS - LOAD CASE A

NORMAL RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	2010 RF	2010 E-RATING
End Post L0U1	604	84.17	766.62	0.5	21.5	5.882	488.1	1.06	85.1
Bottom Chord (LC1) L0L2	252	50.61	460.85	0.5	21.5	5.882	293.4	0.69	54.9
Bottom Chord (LC2) L2L4	492	91.63	799.53	0.5	21.5	5.882	509.0	0.79	62.9
Bottom Chord (LC1) L4L6	230	50.61	460.85	0.5	21.5	5.882	293.4	0.61	48.9
Top Chord U1U2	403	80.90	715.06	0.5	21.5	5.882	455.3	0.71	56.6
Top Chord U2U3	388	80.90	715.06	0.5	21.5	5.882	455.3	0.68	54.0
Top Chord U3U4	406	80.90	715.06	0.5	21.5	5.882	455.3	0.71	57.2
Top Chord U4U5	397	80.90	715.06	0.5	21.5	5.882	455.3	0.69	55.5
U1L2 Diag. (D1) (ten.)	322	50.38	508.60	0.5	21.5	5.882	323.8	0.84	67.1
L2U3 Diag. (D2) (comp.)	298	17.84	296.01	0.5	21.5	5.882	188.5	1.49	119.1
U3L4 Diag. (D2) (comp.)	324	17.84	296.01	0.5	21.5	5.882	188.5	1.62	129.8
L4U5 Diag. (D1) (ten.)	308	50.38	508.60	0.5	21.5	5.882	323.8	0.79	63.6
L3U3 Hanger (center)	267	18.00	290.80	0.5	39.0	5.882	210.6	1.18	94.6
L1U1	291	16.50	291.20	0.5	39.0	5.882	210.9	1.30	104.1
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L5U5	288	16.50	291.20	0.5	39.0	5.882	210.9	1.29	103.0
End Post U5L6	588	84.17	766.62	0.5	21.5	5.882	488.1	1.03	82.6

MAXIMUM RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	2010 RF	2010 E-RATING
End Post L0U1	876	84.17	766.62	0.5	21.5	5.882	488.1	1.62	129.8
Bottom Chord (LC1) L0L2	366	50.61	460.85	0.5	21.5	5.882	293.4	1.08	86.1
Bottom Chord (LC2) L2L4	715	91.63	799.53	0.5	21.5	5.882	509.0	1.23	98.0
Bottom Chord (LC1) L4L6	334	50.61	460.85	0.5	21.5	5.882	293.4	0.97	77.4
Top Chord U1U2	588	80.90	715.06	0.5	21.5	5.882	455.3	1.11	89.1
Top Chord U2U3	566	80.90	715.06	0.5	21.5	5.882	455.3	1.07	85.3
Top Chord U3U4	593	80.90	715.06	0.5	21.5	5.882	455.3	1.12	89.9
Top Chord U4U5	579	80.90	715.06	0.5	21.5	5.882	455.3	1.09	87.5
U1L2 Diag. (D1) (ten.)	468	50.38	508.60	0.5	21.5	5.882	323.8	1.29	103.2
L2U3 Diag. (D2) (comp.)	433	17.84	296.01	0.5	21.5	5.882	188.5	2.20	176.1
U3L4 Diag. (D2) (comp.)	469	17.84	296.01	0.5	21.5	5.882	188.5	2.40	191.7
L4U5 Diag. (D1) (ten.)	448	50.38	508.60	0.5	21.5	5.882	323.8	1.23	98.1
L3U3 Hanger (center)	388	18.00	290.80	0.5	39.0	5.882	210.6	1.76	140.7
L1U1	423	16.50	291.20	0.5	39.0	5.882	210.9	1.93	154.3
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L5U5	419	16.50	291.20	0.5	39.0	5.882	210.9	1.91	152.6
End Post U5L6	854	84.17	766.62	0.5	21.5	5.882	488.1	1.58	126.1

SALINAS RIVER BRIDGE
AS-INSPECTED LOAD RATING - 31 FT. DEEP TRUSS
SPAN 1
LEFT TRUSS MEMBERS - LOAD CASE B

NORMAL RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	2010 RF	2010 E-RATING
End Post L0U1	743	84.17	766.62	0.5	21.5	5.882	488.1	10.8	0.0	5.0	1.32	105.3
Bottom Chord (LC1) L0L2	356	50.61	460.85	0.5	21.5	5.882	293.4	49.8	148.0	30.4	0.51	40.9
Bottom Chord (LC2) L2L4	550	91.63	799.53	0.5	21.5	5.882	509.0	66.6	148.0	39.7	0.54	42.9
Bottom Chord (LC1) L4L6	337	50.61	460.85	0.5	21.5	5.882	293.4	49.8	148.0	30.4	0.47	37.4
Top Chord U1U2	580	80.90	715.06	0.5	21.5	5.882	455.3	17.7	0.0	4.8	1.05	83.8
Top Chord U2U3	537	80.90	715.06	0.5	21.5	5.882	455.3	17.7	0.0	4.8	0.95	76.1
Top Chord U3U4	545	80.90	715.06	0.5	21.5	5.882	455.3	17.7	0.0	4.8	0.97	77.5
Top Chord U4U5	583	80.90	715.06	0.5	21.5	5.882	455.3	17.7	0.0	4.8	1.05	84.2
U1L2 Diag. (D1) (ten.)	400	50.38	508.60	0.5	21.5	5.882	323.8	6.5	0.0	4.0	1.05	83.7
L2U3 Diag. (D2) (comp.)	432	17.84	296.01	0.5	21.5	5.882	188.5	2.2	0.0	3.0	2.17	173.7
U3L4 Diag. (D2) (comp.)	374	17.84	296.01	0.5	21.5	5.882	188.5	2.2	0.0	3.0	1.86	149.1
L4U5 Diag. (D1) (ten.)	398	50.38	508.60	0.5	21.5	5.882	323.8	6.5	0.0	4.0	1.04	83.3
L3U3 Hanger (center)	378	18.00	290.80	0.5	39.0	5.882	210.6	3.5	0.0	4.8	1.67	133.4
L1U1	351	16.50	291.20	0.5	39.0	5.882	210.9	3.5	276.0	4.8	0.63	50.5
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.5	276.0	4.8	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.5	276.0	4.8	#VALUE!	#VALUE!
L5U5	355	16.50	291.20	0.5	39.0	5.882	210.9	3.5	276.0	4.8	0.65	52.0
End Post U5L6	650	84.17	766.62	0.5	21.5	5.882	488.1	10.8	0.0	5.0	1.13	90.1

MAXIMUM RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	2010 RF	2010 E-RATING
End Post L0U1	1078	84.17	766.62	0.5	21.5	5.882	488.1	10.8	0.0	5.0	2.00	160.3
Bottom Chord (LC1) L0L2	518	50.61	460.85	0.5	21.5	5.882	293.4	49.8	148.0	30.4	0.88	70.1
Bottom Chord (LC2) L2L4	800	91.63	799.53	0.5	21.5	5.882	509.0	66.6	148.0	39.7	0.92	73.3
Bottom Chord (LC1) L4L6	491	50.61	460.85	0.5	21.5	5.882	293.4	49.8	148.0	30.4	0.82	65.3
Top Chord U1U2	846	80.90	715.06	0.5	21.5	5.882	455.3	17.7	0.0	4.8	1.63	130.5
Top Chord U2U3	783	80.90	715.06	0.5	21.5	5.882	455.3	17.7	0.0	4.8	1.49	119.4
Top Chord U3U4	795	80.90	715.06	0.5	21.5	5.882	455.3	17.7	0.0	4.8	1.52	121.4
Top Chord U4U5	850	80.90	715.06	0.5	21.5	5.882	455.3	17.7	0.0	4.8	1.64	131.2
U1L2 Diag. (D1) (ten.)	581	50.38	508.60	0.5	21.5	5.882	323.8	6.5	0.0	4.0	1.61	128.6
L2U3 Diag. (D2) (comp.)	627	17.84	296.01	0.5	21.5	5.882	188.5	2.2	0.0	3.0	3.20	256.2
U3L4 Diag. (D2) (comp.)	543	17.84	296.01	0.5	21.5	5.882	188.5	2.2	0.0	3.0	2.76	220.6
L4U5 Diag. (D1) (ten.)	579	50.38	508.60	0.5	21.5	5.882	323.8	6.5	0.0	4.0	1.60	128.1
L3U3 Hanger (center)	549	18.00	290.80	0.5	39.0	5.882	210.6	3.5	0.0	4.8	2.48	198.6
L1U1	511	16.50	291.20	0.5	39.0	5.882	210.9	3.5	0.0	4.8	2.30	184.4
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.5	0.0	4.8	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.5	0.0	4.8	#VALUE!	#VALUE!
L5U5	516	16.50	291.20	0.5	39.0	5.882	210.9	3.5	0.0	4.8	2.33	186.5
End Post U5L6	943	84.17	766.62	0.5	21.5	5.882	488.1	10.8	0.0	5.0	1.73	138.2

SALINAS RIVER BRIDGE

AS-INSPECTED LOAD RATING - 31 FT. DEEP TRUSS
SPAN 1
RIGHT TRUSS MEMBERS - LOAD CASE B

NORMAL RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	2010 RF	2010 E-RATING
End Post L0U1	754	84.17	766.62	0.5	21.5	5.882	488.1	10.8	0.0	5.0	1.34	107.3
Bottom Chord (LC1) L0L2	315	50.61	460.85	0.5	21.5	5.882	293.4	49.8	148.0	30.4	0.42	33.4
Bottom Chord (LC2) L2L4	615	91.63	799.53	0.5	21.5	5.882	509.0	66.6	148.0	39.7	0.63	50.7
Bottom Chord (LC1) L4L6	287	50.61	460.85	0.5	21.5	5.882	293.4	49.8	148.0	30.4	0.35	**28.4**
Top Chord U1U2	504	80.90	715.06	0.5	21.5	5.882	455.3	17.7	0.0	4.8	0.88	70.4
Top Chord U2U3	485	80.90	715.06	0.5	21.5	5.882	455.3	17.7	0.0	4.8	0.84	67.1
Top Chord U3U4	508	80.90	715.06	0.5	21.5	5.882	455.3	17.7	0.0	4.8	0.89	71.1
Top Chord U4U5	496	80.90	715.06	0.5	21.5	5.882	455.3	17.7	0.0	4.8	0.86	69.0
U1L2 Diag. (D1) (ten.)	402	50.38	508.60	0.5	21.5	5.882	323.8	6.5	0.0	4.0	1.05	84.4
L2U3 Diag. (D2) (comp.)	373	17.84	296.01	0.5	21.5	5.882	188.5	2.2	0.0	3.0	1.86	148.6
U3L4 Diag. (D2) (comp.)	405	17.84	296.01	0.5	21.5	5.882	188.5	2.2	0.0	3.0	2.02	162.0
L4U5 Diag. (D1) (ten.)	385	50.38	508.60	0.5	21.5	5.882	323.8	6.5	0.0	4.0	1.00	80.0
L3U3 Hanger (center)	334	18.00	290.80	0.5	39.0	5.882	210.6	3.5	0.0	4.8	1.46	116.8
L1U1	364	16.50	291.20	0.5	39.0	5.882	210.9	3.5	276.0	4.8	0.70	55.8
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.5	276.0	4.8	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.5	276.0	4.8	#VALUE!	#VALUE!
L5U5	360	16.50	291.20	0.5	39.0	5.882	210.9	3.5	276.0	4.8	0.69	54.9
End Post U5L6	735	84.17	766.62	0.5	21.5	5.882	488.1	10.8	0.0	5.0	1.30	104.1

MAXIMUM RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	2010 RF	2010 E-RATING
End Post L0U1	1095	84.17	766.62	0.5	21.5	5.882	488.1	10.8	0.0	5.0	2.04	163.1
Bottom Chord (LC1) L0L2	458	50.61	460.85	0.5	21.5	5.882	293.4	49.8	148.0	30.4	0.74	58.9
Bottom Chord (LC2) L2L4	894	91.63	799.53	0.5	21.5	5.882	509.0	66.6	148.0	39.7	1.08	86.1
Bottom Chord (LC1) L4L6	418	50.61	460.85	0.5	21.5	5.882	293.4	49.8	148.0	30.4	0.65	**52.1**
Top Chord U1U2	735	80.90	715.06	0.5	21.5	5.882	455.3	17.7	0.0	4.8	1.39	111.0
Top Chord U2U3	708	80.90	715.06	0.5	21.5	5.882	455.3	17.7	0.0	4.8	1.33	106.2
Top Chord U3U4	741	80.90	715.06	0.5	21.5	5.882	455.3	17.7	0.0	4.8	1.40	112.0
Top Chord U4U5	724	80.90	715.06	0.5	21.5	5.882	455.3	17.7	0.0	4.8	1.36	109.0
U1L2 Diag. (D1) (ten.)	585	50.38	508.60	0.5	21.5	5.882	323.8	6.5	0.0	4.0	1.62	129.6
L2U3 Diag. (D2) (comp.)	541	17.84	296.01	0.5	21.5	5.882	188.5	2.2	0.0	3.0	2.75	219.8
U3L4 Diag. (D2) (comp.)	587	17.84	296.01	0.5	21.5	5.882	188.5	2.2	0.0	3.0	2.99	239.3
L4U5 Diag. (D1) (ten.)	559	50.38	508.60	0.5	21.5	5.882	323.8	6.5	0.0	4.0	1.54	123.2
L3U3 Hanger (center)	486	18.00	290.80	0.5	39.0	5.882	210.6	3.5	0.0	4.8	2.18	174.4
L1U1	529	16.50	291.20	0.5	39.0	5.882	210.9	3.5	0.0	4.8	2.39	191.3
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.5	0.0	4.8	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.5	0.0	4.8	#VALUE!	#VALUE!
L5U5	524	16.50	291.20	0.5	39.0	5.882	210.9	3.5	0.0	4.8	2.37	189.2
End Post U5L6	1067	84.17	766.62	0.5	21.5	5.882	488.1	10.8	0.0	5.0	1.98	158.5

SALINAS RIVER BRIDGE
AS-INSPECTED LOAD RATING - 31 FT. DEEP TRUSS
SPAN 1
FLOOR SYSTEM - LOAD CASE A

NORMAL RATING

MEMBER	2010 CAPACITY (KSI)	DL (KSI)	LL (E80-KSI)	DIST.	IMPACT %	RE %	LL+I (KSI)	2010 RF	2010 E-RATING
Stringer Panel 1 (Lt.) (moment)	16.5	0.62	10.51	1.0	39.0	14.286	16.1	0.99	78.9
Stringer Panel 1 (Rt.) (moment)	16.5	0.62	10.51	1.0	39.0	14.286	16.1	0.99	78.9
Stringer Panel 2 (Lt.) (moment)	16.5	0.62	10.51	1.0	39.0	14.286	16.1	0.99	78.9
Stringer Panel 2 (Rt.) (moment)	16.5	0.62	10.51	1.0	39.0	14.286	16.1	0.99	78.9
Stringer Panel 3 (Lt.) (moment)	16.5	0.62	10.53	1.0	39.0	14.286	16.1	0.98	78.7
Stringer Panel 3 (Rt.) (moment)	16.5	0.62	10.51	1.0	39.0	14.286	16.1	0.99	78.9
Stringer Panel 4 (Lt.) (moment)	16.5	0.62	10.53	1.0	39.0	14.286	16.1	0.98	78.7
Stringer Panel 4 (Rt.) (moment)	16.5	0.62	10.51	1.0	39.0	14.286	16.1	0.99	78.9
Stringer Panel 5 (Lt.) (moment)	16.5	0.62	10.53	1.0	39.0	14.286	16.1	0.98	78.7
Stringer Panel 5 (Rt.) (moment)	16.5	0.62	10.56	1.0	39.0	14.286	16.2	0.98	78.5
Stringer Panel 6 (Lt.) (moment)	16.5	0.62	10.53	1.0	39.0	14.286	16.1	0.98	78.7
Stringer Panel 6 (Rt.) (moment)	16.5	0.64	10.77	1.0	39.0	14.286	16.5	0.96	76.9
Floorbeam L1 (moment)	15.8	0.78	9.55	1.0	39.0	5.882	13.8	1.08	86.7
Floorbeam L2 (moment)	15.7	0.78	9.45	1.0	39.0	5.882	13.7	1.09	87.5
Floorbeam L3 (moment)	15.1	0.84	10.17	1.0	39.0	5.882	14.7	0.97	77.7
Floorbeam L4 (moment)	14.5	0.81	9.83	1.0	39.0	5.882	14.2	0.96	77.1
Floorbeam L5 (moment)	15.2	0.83	10.08	1.0	39.0	5.882	14.6	0.98	78.6
Stringer (shear)	10.5	0.36	7.35	1.0	39.0	14.286	11.3	0.90	72.0
Floorbeam (shear)	10.0	0.53	6.3	1.0	39.0	5.882	9.1	1.03	82.8

SALINAS RIVER BRIDGE

AS-INSPECTED LOAD RATING - 31 FT. DEEP TRUSS
SPAN 1
FLOOR SYSTEM - LOAD CASE A

MAXIMUM RATING

MEMBER	2010 CAPACITY (KSI)	DL (KSI)	LL (E80-KSI)	DIST.	IMPACT %	RE %	LL+I (KSI)	2010 RF	2010 E-RATING
Stringer Panel 1 (Lt.) (moment)	24.0	0.62	10.51	1.0	39.0	14.286	16.1	1.45	116.1
Stringer Panel 1 (Rt.) (moment)	24.0	0.62	10.51	1.0	39.0	14.286	16.1	1.45	116.1
Stringer Panel 2 (Lt.) (moment)	24.0	0.62	10.51	1.0	39.0	14.286	16.1	1.45	116.1
Stringer Panel 2 (Rt.) (moment)	24.0	0.62	10.51	1.0	39.0	14.286	16.1	1.45	116.1
Stringer Panel 3 (Lt.) (moment)	24.0	0.62	10.53	1.0	39.0	14.286	16.1	1.45	115.9
Stringer Panel 3 (Rt.) (moment)	24.0	0.62	10.51	1.0	39.0	14.286	16.1	1.45	116.1
Stringer Panel 4 (Lt.) (moment)	24.0	0.62	10.53	1.0	39.0	14.286	16.1	1.45	115.9
Stringer Panel 4 (Rt.) (moment)	24.0	0.62	10.51	1.0	39.0	14.286	16.1	1.45	116.1
Stringer Panel 5 (Lt.) (moment)	24.0	0.62	10.53	1.0	39.0	14.286	16.1	1.45	115.9
Stringer Panel 5 (Rt.) (moment)	24.0	0.62	10.56	1.0	39.0	14.286	16.2	1.44	115.6
Stringer Panel 6 (Lt.) (moment)	24.0	0.62	10.53	1.0	39.0	14.286	16.1	1.45	115.9
Stringer Panel 6 (Rt.) (moment)	24.0	0.64	10.77	1.0	39.0	14.286	16.5	1.42	113.2
Floorbeam L1 (moment)	22.9	0.78	9.55	1.0	39.0	5.882	13.8	1.60	128.2
Floorbeam L2 (moment)	22.9	0.78	9.45	1.0	39.0	5.882	13.7	1.62	129.3
Floorbeam L3 (moment)	22.0	0.84	10.17	1.0	39.0	5.882	14.7	1.44	115.0
Floorbeam L4 (moment)	21.1	0.81	9.83	1.0	39.0	5.882	14.2	1.43	114.3
Floorbeam L5 (moment)	22.1	0.83	10.08	1.0	39.0	5.882	14.6	1.45	116.4
Stringer (shear)	18.0	0.36	7.35	1.0	39.0	14.286	11.3	1.57	125.2
Floorbeam (shear)	17.1	0.53	6.3	1.0	39.0	5.882	9.1	1.82	145.3

SALINAS RIVER

RAILROAD BRIDGE

AS-INSPECTED
LOAD RATING

CALCULATIONS

SPAN 2

SALINAS RIVER BRIDGE

AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS
SPAN 2
LEFT TRUSS MEMBERS - LOAD CASE A

NORMAL RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	2010 RF	2010 E-RATING
End Post L0U1	627	91.53	775.90	0.5	21.5	5.882	494.0	1.08	86.6
Bottom Chord (BC1) L0L2	282	56.19	476.30	0.5	21.5	5.882	303.3	0.75	59.6
Bottom Chord (BC2) L2L4	485	102.46	826.50	0.5	21.5	5.882	526.2	0.73	58.2
Bottom Chord (BC1) L4L6	271	56.19	476.30	0.5	21.5	5.882	303.3	0.71	56.6
Top Chord U1U2	553	90.99	738.60	0.5	21.5	5.882	470.3	0.98	78.6
Top Chord U2U3	503	90.99	738.60	0.5	21.5	5.882	470.3	0.88	70.1
Top Chord U3U4	479	90.99	738.60	0.5	21.5	5.882	470.3	0.83	66.0
Top Chord U4U5	538	90.99	738.60	0.5	21.5	5.882	470.3	0.95	76.0
U1L2 Diag. (D1) (ten.)	340	56.69	514.80	0.5	21.5	5.882	327.8	0.86	69.2
L2U3 Diag. (D2) (comp.)	359	18.69	299.30	0.5	21.5	5.882	190.6	1.79	142.9
U3L4 Diag. (D2) (comp.)	357	18.69	299.30	0.5	21.5	5.882	190.6	1.78	142.1
L4U5 Diag. (D1) (ten.)	331	56.69	514.80	0.5	21.5	5.882	327.8	0.84	67.1
L3U3 Hanger (center)	212	19.50	290.80	0.5	39.0	5.882	210.6	0.91	73.1
L1U1	209	18.00	291.20	0.5	39.0	5.882	210.9	0.91	72.6
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L5U5	210	18.00	291.20	0.5	39.0	5.882	210.9	0.91	72.8
End Post U5L6	617	91.53	775.90	0.5	21.5	5.882	494.0	1.06	85.1

MAXIMUM RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	2010 RF	2010 E-RATING
End Post L0U1	916	91.53	775.90	0.5	21.5	5.882	494.0	1.67	133.5
Bottom Chord (BC1) L0L2	410	56.19	476.30	0.5	21.5	5.882	303.3	1.17	93.4
Bottom Chord (BC2) L2L4	706	102.46	826.50	0.5	21.5	5.882	526.2	1.15	91.7
Bottom Chord (BC1) L4L6	394	56.19	476.30	0.5	21.5	5.882	303.3	1.11	89.0
Top Chord U1U2	803	90.99	738.60	0.5	21.5	5.882	470.3	1.51	121.2
Top Chord U2U3	731	90.99	738.60	0.5	21.5	5.882	470.3	1.36	108.8
Top Chord U3U4	696	90.99	738.60	0.5	21.5	5.882	470.3	1.29	102.9
Top Chord U4U5	781	90.99	738.60	0.5	21.5	5.882	470.3	1.47	117.4
U1L2 Diag. (D1) (ten.)	495	56.69	514.80	0.5	21.5	5.882	327.8	1.34	106.9
L2U3 Diag. (D2) (comp.)	523	18.69	299.30	0.5	21.5	5.882	190.6	2.64	211.6
U3L4 Diag. (D2) (comp.)	520	18.69	299.30	0.5	21.5	5.882	190.6	2.63	210.3
L4U5 Diag. (D1) (ten.)	482	56.69	514.80	0.5	21.5	5.882	327.8	1.30	103.8
L3U3 Hanger (center)	308	19.50	290.80	0.5	39.0	5.882	210.6	1.37	109.7
L1U1	305	18.00	291.20	0.5	39.0	5.882	210.9	1.36	108.7
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L5U5	305	18.00	291.20	0.5	39.0	5.882	210.9	1.36	109.0
End Post U5L6	902	91.53	775.90	0.5	21.5	5.882	494.0	1.64	131.2

SALINAS RIVER BRIDGE

AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS
SPAN 2
RIGHT TRUSS MEMBERS - LOAD CASE A

NORMAL RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	2010 RF	2010 E-RATING
End Post L0U1	623	91.53	775.90	0.5	21.5	5.882	494.0	1.08	86.1
Bottom Chord (BC1) L0L2	294	56.19	476.30	0.5	21.5	5.882	303.3	0.78	62.7
Bottom Chord (BC2) L2L4	507	102.46	826.50	0.5	21.5	5.882	526.2	0.77	61.5
Bottom Chord (BC1) L4L6	286	56.19	476.30	0.5	21.5	5.882	303.3	0.76	60.6
Top Chord U1U2	523	90.99	738.60	0.5	21.5	5.882	470.3	0.92	73.4
Top Chord U2U3	541	90.99	738.60	0.5	21.5	5.882	470.3	0.96	76.6
Top Chord U3U4	537	90.99	738.60	0.5	21.5	5.882	470.3	0.95	75.8
Top Chord U4U5	499	90.99	738.60	0.5	21.5	5.882	470.3	0.87	69.4
U1L2 Diag. (D1) (ten.)	349	56.69	514.80	0.5	21.5	5.882	327.8	0.89	71.3
L2U3 Diag. (D2) (comp.)	376	18.69	299.30	0.5	21.5	5.882	190.6	1.88	150.0
U3L4 Diag. (D2) (comp.)	340	18.69	299.30	0.5	21.5	5.882	190.6	1.69	135.0
L4U5 Diag. (D1) (ten.)	331	56.69	514.80	0.5	21.5	5.882	327.8	0.84	67.1
L3U3 Hanger (center)	208	19.50	290.80	0.5	39.0	5.882	210.6	0.89	71.4
L1U1	204	18.00	291.20	0.5	39.0	5.882	210.9	0.88	70.4
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L5U5	217	18.00	291.20	0.5	39.0	5.882	210.9	0.94	75.5
End Post U5L6	642	91.53	775.90	0.5	21.5	5.882	494.0	1.11	89.2

MAXIMUM RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	2010 RF	2010 E-RATING
End Post L0U1	910	91.53	775.90	0.5	21.5	5.882	494.0	1.66	132.6
Bottom Chord (BC1) L0L2	427	56.19	476.30	0.5	21.5	5.882	303.3	1.22	97.9
Bottom Chord (BC2) L2L4	738	102.46	826.50	0.5	21.5	5.882	526.2	1.21	96.6
Bottom Chord (BC1) L4L6	416	56.19	476.30	0.5	21.5	5.882	303.3	1.19	94.9
Top Chord U1U2	759	90.99	738.60	0.5	21.5	5.882	470.3	1.42	113.7
Top Chord U2U3	786	90.99	738.60	0.5	21.5	5.882	470.3	1.48	118.2
Top Chord U3U4	780	90.99	738.60	0.5	21.5	5.882	470.3	1.46	117.2
Top Chord U4U5	724	90.99	738.60	0.5	21.5	5.882	470.3	1.35	107.7
U1L2 Diag. (D1) (ten.)	507	56.69	514.80	0.5	21.5	5.882	327.8	1.37	110.0
L2U3 Diag. (D2) (comp.)	547	18.69	299.30	0.5	21.5	5.882	190.6	2.77	221.9
U3L4 Diag. (D2) (comp.)	495	18.69	299.30	0.5	21.5	5.882	190.6	2.50	200.0
L4U5 Diag. (D1) (ten.)	482	56.69	514.80	0.5	21.5	5.882	327.8	1.30	103.8
L3U3 Hanger (center)	302	19.50	290.80	0.5	39.0	5.882	210.6	1.34	107.2
L1U1	296	18.00	291.20	0.5	39.0	5.882	210.9	1.32	105.5
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L5U5	316	18.00	291.20	0.5	39.0	5.882	210.9	1.41	112.9
End Post U5L6	939	91.53	775.90	0.5	21.5	5.882	494.0	1.71	137.2

SALINAS RIVER BRIDGE

AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS
SPAN 2
LEFT TRUSS MEMBERS - LOAD CASE B

NORMAL RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	2010 RF	2010 E-RATING
End Post L0U1	783	91.53	775.90	0.5	21.5	5.882	494.0	9.5	0.0	2.89	1.38	110.0
Bottom Chord (LC1) L0L2	353	56.19	476.30	0.5	21.5	5.882	303.3	49.2	148.0	29.20	0.48	38.8
Bottom Chord (LC2) L2L4	607	102.46	826.50	0.5	21.5	5.882	526.2	65.5	148.0	37.50	0.60	47.6
Bottom Chord (LC1) L4L6	338	56.19	476.30	0.5	21.5	5.882	303.3	49.2	148.0	29.20	0.45	36.1
Top Chord U1U2	691	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.24	98.8
Top Chord U2U3	629	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.10	88.2
Top Chord U3U4	599	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.04	83.1
Top Chord U4U5	672	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.20	95.6
U1L2 Diag. (D1) (ten.)	425	56.69	514.80	0.5	21.5	5.882	327.8	5.7	0.0	2.30	1.10	88.0
L2U3 Diag. (D2) (comp.)	449	18.69	299.30	0.5	21.5	5.882	190.6	1.9	0.0	1.70	2.24	179.1
U3L4 Diag. (D2) (comp.)	446	18.69	299.30	0.5	21.5	5.882	190.6	1.9	0.0	1.70	2.23	178.0
L4U5 Diag. (D1) (ten.)	414	56.69	514.80	0.5	21.5	5.882	327.8	5.7	0.0	2.30	1.07	85.3
L3U3 Hanger (center)	265	19.50	290.80	0.5	39.0	5.882	210.6	3.0	0.0	2.74	1.14	91.1
L1U1	262	18.00	291.20	0.5	39.0	5.882	210.9	3.0	0.0	2.74	1.13	90.3
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.0	0.0	2.74	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.0	0.0	2.74	#VALUE!	#VALUE!
L5U5	262	18.00	291.20	0.5	39.0	5.882	210.9	3.0	0.0	2.74	1.13	90.5
End Post U5L6	771	91.53	775.90	0.5	21.5	5.882	494.0	9.5	0.0	2.89	1.35	108.1

MAXIMUM RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	2010 RF	2010 E-RATING
End Post L0U1	1145	91.53	775.90	0.5	21.5	5.882	494.0	9.5	0.0	2.89	2.11	168.6
Bottom Chord (LC1) L0L2	513	56.19	476.30	0.5	21.5	5.882	303.3	49.2	148.0	29.20	0.84	67.0
Bottom Chord (LC2) L2L4	882	102.46	826.50	0.5	21.5	5.882	526.2	65.5	148.0	37.50	1.01	80.4
Bottom Chord (LC1) L4L6	492	56.19	476.30	0.5	21.5	5.882	303.3	49.2	148.0	29.20	0.79	63.4
Top Chord U1U2	1004	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.90	152.0
Top Chord U2U3	913	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.71	136.6
Top Chord U3U4	870	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.61	129.1
Top Chord U4U5	977	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.84	147.3
U1L2 Diag. (D1) (ten.)	618	56.69	514.80	0.5	21.5	5.882	327.8	5.7	0.0	2.30	1.69	135.1
L2U3 Diag. (D2) (comp.)	653	18.69	299.30	0.5	21.5	5.882	190.6	1.9	0.0	1.70	3.31	264.9
U3L4 Diag. (D2) (comp.)	650	18.69	299.30	0.5	21.5	5.882	190.6	1.9	0.0	1.70	3.29	263.3
L4U5 Diag. (D1) (ten.)	603	56.69	514.80	0.5	21.5	5.882	327.8	5.7	0.0	2.30	1.64	131.3
L3U3 Hanger (center)	385	19.50	290.80	0.5	39.0	5.882	210.6	3.0	0.0	2.74	1.71	136.8
L1U1	381	18.00	291.20	0.5	39.0	5.882	210.9	3.0	0.0	2.74	1.69	135.6
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.0	0.0	2.74	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.0	0.0	2.74	#VALUE!	#VALUE!
L5U5	382	18.00	291.20	0.5	39.0	5.882	210.9	3.0	0.0	2.74	1.70	135.8
End Post U5L6	1127	91.53	775.90	0.5	21.5	5.882	494.0	9.5	0.0	2.89	2.07	165.7

SALINAS RIVER BRIDGE

AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS

SPAN 2

RIGHT TRUSS MEMBERS - LOAD CASE B

NORMAL RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	2010 RF	2010 E-RATING
End Post L0U1	779	91.53	775.90	0.5	21.5	5.882	494.0	9.5	0.0	2.89	1.37	109.3
Bottom Chord (LC1) L0L2	367	56.19	476.30	0.5	21.5	5.882	303.3	49.2	148.0	29.20	0.52	41.3
Bottom Chord (LC2) L2L4	634	102.46	826.50	0.5	21.5	5.882	526.2	65.5	148.0	37.50	0.64	50.9
Bottom Chord (LC1) L4L6	358	56.19	476.30	0.5	21.5	5.882	303.3	49.2	148.0	29.20	0.49	39.5
Top Chord U1U2	653	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.15	92.4
Top Chord U2U3	676	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.20	96.3
Top Chord U3U4	671	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.19	95.4
Top Chord U4U5	623	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.09	87.3
U1L2 Diag. (D1) (ten.)	436	56.69	514.80	0.5	21.5	5.882	327.8	5.7	0.0	2.30	1.13	90.6
L2U3 Diag. (D2) (comp.)	470	18.69	299.30	0.5	21.5	5.882	190.6	1.9	0.0	1.70	2.35	188.0
U3L4 Diag. (D2) (comp.)	425	18.69	299.30	0.5	21.5	5.882	190.6	1.9	0.0	1.70	2.11	169.2
L4U5 Diag. (D1) (ten.)	414	56.69	514.80	0.5	21.5	5.882	327.8	5.7	0.0	2.30	1.07	85.3
L3U3 Hanger (center)	259	19.50	290.80	0.5	39.0	5.882	210.6	3.0	0.0	2.74	1.11	88.9
L1U1	254	18.00	291.20	0.5	39.0	5.882	210.9	3.0	0.0	2.74	1.09	87.5
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.0	0.0	2.74	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.0	0.0	2.74	#VALUE!	#VALUE!
L5U5	271	18.00	291.20	0.5	39.0	5.882	210.9	3.0	0.0	2.74	1.17	93.9
End Post U5L6	803	91.53	775.90	0.5	21.5	5.882	494.0	9.5	0.0	2.89	1.41	113.2

MAXIMUM RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	2010 RF	2010 E-RATING
End Post L0U1	1138	91.53	775.90	0.5	21.5	5.882	494.0	9.5	0.0	2.89	2.09	167.5
Bottom Chord (LC1) L0L2	534	56.19	476.30	0.5	21.5	5.882	303.3	49.2	148.0	29.20	0.89	70.8
Bottom Chord (LC2) L2L4	922	102.46	826.50	0.5	21.5	5.882	526.2	65.5	148.0	37.50	1.08	86.5
Bottom Chord (LC1) L4L6	520	56.19	476.30	0.5	21.5	5.882	303.3	49.2	148.0	29.20	0.85	68.3
Top Chord U1U2	949	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.78	142.6
Top Chord U2U3	982	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.85	148.3
Top Chord U3U4	975	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.84	147.0
Top Chord U4U5	905	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.69	135.2
U1L2 Diag. (D1) (ten.)	634	56.69	514.80	0.5	21.5	5.882	327.8	5.7	0.0	2.30	1.74	139.0
L2U3 Diag. (D2) (comp.)	684	18.69	299.30	0.5	21.5	5.882	190.6	1.9	0.0	1.70	3.47	277.9
U3L4 Diag. (D2) (comp.)	619	18.69	299.30	0.5	21.5	5.882	190.6	1.9	0.0	1.70	3.13	250.5
L4U5 Diag. (D1) (ten.)	603	56.69	514.80	0.5	21.5	5.882	327.8	5.7	0.0	2.30	1.64	131.3
L3U3 Hanger (center)	377	19.50	290.80	0.5	39.0	5.882	210.6	3.0	0.0	2.74	1.67	133.7
L1U1	370	18.00	291.20	0.5	39.0	5.882	210.9	3.0	0.0	2.74	1.64	131.5
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.0	0.0	2.74	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.0	0.0	2.74	#VALUE!	#VALUE!
L5U5	395	18.00	291.20	0.5	39.0	5.882	210.9	3.0	0.0	2.74	1.76	140.7
End Post U5L6	1173	91.53	775.90	0.5	21.5	5.882	494.0	9.5	0.0	2.89	2.16	173.2

SALINAS RIVER BRIDGE

AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS
SPAN 2
FLOOR SYSTEM - LOAD CASE A

NORMAL RATING

MEMBER	2010 CAPACITY (KSI)	DL (KSI)	LL (E80-KSI)	DIST.	IMPACT %	RE %	LL+I (KSI)	2010 RF	2010 E-RATING
Stringer Panel 1 (Lt.) (moment)	16.5	0.659	10.60	1.0	39.0	14.286	16.2	0.98	78.0
Stringer Panel 1 (Rt.) (moment)	16.5	0.675	10.86	1.0	39.0	14.286	16.6	0.95	76.1
Stringer Panel 2 (Lt.) (moment)	16.5	0.659	10.60	1.0	39.0	14.286	16.2	0.98	78.0
Stringer Panel 2 (Rt.) (moment)	16.5	0.675	10.86	1.0	39.0	14.286	16.6	0.95	76.1
Stringer Panel 3 (Lt.) (moment)	16.5	0.659	10.60	1.0	39.0	14.286	16.2	0.98	78.0
Stringer Panel 3 (Rt.) (moment)	16.5	0.665	10.70	1.0	39.0	14.286	16.4	0.97	77.2
Stringer Panel 4 (Lt.) (moment)	16.5	0.665	10.70	1.0	39.0	14.286	16.4	0.97	77.2
Stringer Panel 4 (Rt.) (moment)	16.5	0.675	10.86	1.0	39.0	14.286	16.6	0.95	76.1
Stringer Panel 5 (Lt.) (moment)	16.5	0.659	10.60	1.0	39.0	14.286	16.2	0.98	78.0
Stringer Panel 5 (Rt.) (moment)	16.5	0.683	11.00	1.0	39.0	14.286	16.9	0.94	75.1
Stringer Panel 6 (Lt.) (moment)	16.5	0.706	11.36	1.0	39.0	14.286	17.4	0.91	72.6
Stringer Panel 6 (Rt.) (moment)	16.5	0.675	10.86	1.0	39.0	14.286	16.6	0.95	76.1
Floorbeam L1 (moment)	15.6	0.900	10.21	1.0	39.0	5.882	14.8	0.99	79.5
Floorbeam L2 (moment)	15.3	0.919	10.42	1.0	39.0	5.882	15.1	0.95	76.0
Floorbeam L3 (moment)	15.0	0.915	10.38	1.0	39.0	5.882	15.0	0.94	75.2
Floorbeam L4 (moment)	14.8	0.889	10.08	1.0	39.0	5.882	14.6	0.95	76.1
Floorbeam L5 (moment)	15.2	0.898	10.19	1.0	39.0	5.882	14.8	0.97	77.3
Stringer (shear)	10.0	0.322	5.92	1.0	39.0	14.286	9.1	1.06	85.1
Floorbeam (shear)	10.0	0.576	6.40	1.0	39.0	5.882	9.3	1.01	81.1

SALINAS RIVER BRIDGE

AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS

SPAN 2

FLOOR SYSTEM - LOAD CASE A

MAXIMUM RATING

MEMBER	2010 CAPACITY (KSI)	DL (KSI)	LL (E80-KSI)	DIST.	IMPACT %	RE %	LL+I (KSI)	2010 RF	2010 E-RATING
Stringer Panel 1 (Lt.) (moment)	24.0	0.659	10.60	1.0	39.0	14.286	16.2	1.44	114.9
Stringer Panel 1 (Rt.) (moment)	24.0	0.675	10.86	1.0	39.0	14.286	16.6	1.40	112.1
Stringer Panel 2 (Lt.) (moment)	24.0	0.659	10.60	1.0	39.0	14.286	16.2	1.44	114.9
Stringer Panel 2 (Rt.) (moment)	24.0	0.675	10.86	1.0	39.0	14.286	16.6	1.40	112.1
Stringer Panel 3 (Lt.) (moment)	24.0	0.659	10.60	1.0	39.0	14.286	16.2	1.44	114.9
Stringer Panel 3 (Rt.) (moment)	24.0	0.665	10.70	1.0	39.0	14.286	16.4	1.42	113.8
Stringer Panel 4 (Lt.) (moment)	24.0	0.665	10.70	1.0	39.0	14.286	16.4	1.42	113.8
Stringer Panel 4 (Rt.) (moment)	24.0	0.675	10.86	1.0	39.0	14.286	16.6	1.40	112.1
Stringer Panel 5 (Lt.) (moment)	24.0	0.659	10.60	1.0	39.0	14.286	16.2	1.44	114.9
Stringer Panel 5 (Rt.) (moment)	24.0	0.683	11.00	1.0	39.0	14.286	16.9	1.38	110.6
Stringer Panel 6 (Lt.) (moment)	24.0	0.706	11.36	1.0	39.0	14.286	17.4	1.34	107.0
Stringer Panel 6 (Rt.) (moment)	24.0	0.675	10.86	1.0	39.0	14.286	16.6	1.40	112.1
Floorbeam L1 (moment)	22.7	0.900	10.21	1.0	39.0	5.882	14.8	1.47	117.9
Floorbeam L2 (moment)	22.2	0.919	10.42	1.0	39.0	5.882	15.1	1.41	112.8
Floorbeam L3 (moment)	21.9	0.915	10.38	1.0	39.0	5.882	15.0	1.39	111.6
Floorbeam L4 (moment)	21.5	0.889	10.08	1.0	39.0	5.882	14.6	1.41	112.9
Floorbeam L5 (moment)	22.0	0.898	10.19	1.0	39.0	5.882	14.8	1.43	114.6
Stringer (shear)	17.1	0.322	5.92	1.0	39.0	14.286	9.1	1.85	147.9
Floorbeam (shear)	17.1	0.576	6.40	1.0	39.0	5.882	9.3	1.78	142.6

SALINAS RIVER

RAILROAD BRIDGE

AS-INSPECTED
LOAD RATING

CALCULATIONS

SPAN 3

SALINAS RIVER BRIDGE
AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS
SPAN 3
LEFT TRUSS MEMBERS - LOAD CASE A

NORMAL RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	2010 RF	2010 E-RATING
End Post L0U1	612	91.53	775.90	0.5	21.5	5.882	494.0	1.05	84.3
Bottom Chord (BC1) L0L2	259	56.19	476.30	0.5	21.5	5.882	303.3	0.67	53.5
Bottom Chord (BC2) L2L4	512	102.46	826.50	0.5	21.5	5.882	526.2	0.78	62.3
Bottom Chord (BC1) L4L6	278	56.19	476.30	0.5	21.5	5.882	303.3	0.73	58.6
Top Chord U1U2	551	90.99	738.60	0.5	21.5	5.882	470.3	0.98	78.3
Top Chord U2U3	493	90.99	738.60	0.5	21.5	5.882	470.3	0.86	68.4
Top Chord U3U4	515	90.99	738.60	0.5	21.5	5.882	470.3	0.90	72.1
Top Chord U4U5	513	90.99	738.60	0.5	21.5	5.882	470.3	0.90	71.8
U1L2 Diag. (D1) (ten.)	318	56.69	514.80	0.5	21.5	5.882	327.8	0.80	63.7
L2U3 Diag. (D2) (comp.)	378	18.69	299.30	0.5	21.5	5.882	190.6	1.89	150.9
U3L4 Diag. (D2) (comp.)	355	18.69	299.30	0.5	21.5	5.882	190.6	1.76	141.2
L4U5 Diag. (D1) (ten.)	347	56.69	514.80	0.5	21.5	5.882	327.8	0.89	70.9
L3U3 Hanger (center)	210	19.50	290.80	0.5	39.0	5.882	210.6	0.91	72.5
L1U1	193	18.00	291.20	0.5	39.0	5.882	210.9	0.83	66.3
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L5U5	208	18.00	291.20	0.5	39.0	5.882	210.9	0.90	72.3
End Post U5L6	619	91.53	775.90	0.5	21.5	5.882	494.0	1.07	85.5

MAXIMUM RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	2010 RF	2010 E-RATING
End Post L0U1	895	91.53	775.90	0.5	21.5	5.882	494.0	1.63	130.0
Bottom Chord (BC1) L0L2	377	56.19	476.30	0.5	21.5	5.882	303.3	1.06	84.5
Bottom Chord (BC2) L2L4	745	102.46	826.50	0.5	21.5	5.882	526.2	1.22	97.6
Bottom Chord (BC1) L4L6	405	56.19	476.30	0.5	21.5	5.882	303.3	1.15	92.0
Top Chord U1U2	800	90.99	738.60	0.5	21.5	5.882	470.3	1.51	120.7
Top Chord U2U3	716	90.99	738.60	0.5	21.5	5.882	470.3	1.33	106.4
Top Chord U3U4	748	90.99	738.60	0.5	21.5	5.882	470.3	1.40	111.8
Top Chord U4U5	745	90.99	738.60	0.5	21.5	5.882	470.3	1.39	111.2
U1L2 Diag. (D1) (ten.)	462	56.69	514.80	0.5	21.5	5.882	327.8	1.24	98.9
L2U3 Diag. (D2) (comp.)	550	18.69	299.30	0.5	21.5	5.882	190.6	2.79	223.2
U3L4 Diag. (D2) (comp.)	517	18.69	299.30	0.5	21.5	5.882	190.6	2.61	209.0
L4U5 Diag. (D1) (ten.)	505	56.69	514.80	0.5	21.5	5.882	327.8	1.37	109.4
L3U3 Hanger (center)	306	19.50	290.80	0.5	39.0	5.882	210.6	1.36	108.9
L1U1	280	18.00	291.20	0.5	39.0	5.882	210.9	1.24	99.5
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L5U5	303	18.00	291.20	0.5	39.0	5.882	210.9	1.35	108.2
End Post U5L6	905	91.53	775.90	0.5	21.5	5.882	494.0	1.65	131.8

SALINAS RIVER BRIDGE

AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS

SPAN 3

RIGHT TRUSS MEMBERS - LOAD CASE A

NORMAL RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	2010 RF	2010 E-RATING
End Post L0U1	633	91.53	775.90	0.5	21.5	5.882	494.0	1.10	87.6
Bottom Chord (BC1) L0L2	286	56.19	476.30	0.5	21.5	5.882	303.3	0.76	60.6
Bottom Chord (BC2) L2L4	495	102.46	826.50	0.5	21.5	5.882	526.2	0.75	59.7
Bottom Chord (BC1) L4L6	294	56.19	476.30	0.5	21.5	5.882	303.3	0.78	62.7
Top Chord U1U2	551	90.99	738.60	0.5	21.5	5.882	470.3	0.98	78.3
Top Chord U2U3	484	90.99	738.60	0.5	21.5	5.882	470.3	0.83	66.8
Top Chord U3U4	543	90.99	738.60	0.5	21.5	5.882	470.3	0.96	77.0
Top Chord U4U5	540	90.99	738.60	0.5	21.5	5.882	470.3	0.96	76.4
U1L2 Diag. (D1) (ten.)	342	56.69	514.80	0.5	21.5	5.882	327.8	0.87	69.6
L2U3 Diag. (D2) (comp.)	351	18.69	299.30	0.5	21.5	5.882	190.6	1.74	139.4
U3L4 Diag. (D2) (comp.)	318	18.69	299.30	0.5	21.5	5.882	190.6	1.57	125.7
L4U5 Diag. (D1) (ten.)	321	56.69	514.80	0.5	21.5	5.882	327.8	0.81	64.5
L3U3 Hanger (center)	212	19.50	290.80	0.5	39.0	5.882	210.6	0.91	73.1
L1U1	190	18.00	291.20	0.5	39.0	5.882	210.9	0.81	65.1
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L5U5	217	18.00	291.20	0.5	39.0	5.882	210.9	0.94	75.5
End Post U5L6	633	91.53	775.90	0.5	21.5	5.882	494.0	1.10	87.6

MAXIMUM RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	2010 RF	2010 E-RATING
End Post L0U1	925	91.53	775.90	0.5	21.5	5.882	494.0	1.69	134.9
Bottom Chord (BC1) L0L2	416	56.19	476.30	0.5	21.5	5.882	303.3	1.19	94.9
Bottom Chord (BC2) L2L4	720	102.46	826.50	0.5	21.5	5.882	526.2	1.17	94.0
Bottom Chord (BC1) L4L6	427	56.19	476.30	0.5	21.5	5.882	303.3	1.22	97.9
Top Chord U1U2	800	90.99	738.60	0.5	21.5	5.882	470.3	1.51	120.7
Top Chord U2U3	702	90.99	738.60	0.5	21.5	5.882	470.3	1.30	104.0
Top Chord U3U4	789	90.99	738.60	0.5	21.5	5.882	470.3	1.48	118.8
Top Chord U4U5	784	90.99	738.60	0.5	21.5	5.882	470.3	1.47	118.0
U1L2 Diag. (D1) (ten.)	497	56.69	514.80	0.5	21.5	5.882	327.8	1.34	107.5
L2U3 Diag. (D2) (comp.)	510	18.69	299.30	0.5	21.5	5.882	190.6	2.58	206.4
U3L4 Diag. (D2) (comp.)	463	18.69	299.30	0.5	21.5	5.882	190.6	2.33	186.5
L4U5 Diag. (D1) (ten.)	467	56.69	514.80	0.5	21.5	5.882	327.8	1.25	100.2
L3U3 Hanger (center)	308	19.50	290.80	0.5	39.0	5.882	210.6	1.37	109.7
L1U1	276	18.00	291.20	0.5	39.0	5.882	210.9	1.22	97.8
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L5U5	316	18.00	291.20	0.5	39.0	5.882	210.9	1.41	112.9
End Post U5L6	925	91.53	775.90	0.5	21.5	5.882	494.0	1.69	134.9

SALINAS RIVER BRIDGE

AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS

SPAN 3

LEFT TRUSS MEMBERS - LOAD CASE B

NORMAL RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	2010 RF	2010 E-RATING
End Post L0U1	765	91.53	775.90	0.5	21.5	5.882	494.0	9.5	0.0	2.89	1.34	107.1
Bottom Chord (LC1) L0L2	324	56.19	476.30	0.5	21.5	5.882	303.3	49.2	148.0	29.20	0.42	33.5
Bottom Chord (LC2) L2L4	640	102.46	826.50	0.5	21.5	5.882	526.2	65.5	148.0	37.50	0.64	51.6
Bottom Chord (LC1) L4L6	348	56.19	476.30	0.5	21.5	5.882	303.3	49.2	148.0	29.20	0.47	37.9
Top Chord U1U2	689	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.23	98.4
Top Chord U2U3	617	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.08	86.1
Top Chord U3U4	644	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.13	90.7
Top Chord U4U5	641	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.13	90.3
U1L2 Diag. (D1) (ten.)	397	56.69	514.80	0.5	21.5	5.882	327.8	5.7	0.0	2.30	1.01	81.1
L2U3 Diag. (D2) (comp.)	473	18.69	299.30	0.5	21.5	5.882	190.6	1.9	0.0	1.70	2.36	189.1
U3L4 Diag. (D2) (comp.)	444	18.69	299.30	0.5	21.5	5.882	190.6	1.9	0.0	1.70	2.21	176.9
L4U5 Diag. (D1) (ten.)	434	56.69	514.80	0.5	21.5	5.882	327.8	5.7	0.0	2.30	1.13	90.1
L3U3 Hanger (center)	263	19.50	290.80	0.5	39.0	5.882	210.6	3.0	0.0	2.74	1.13	90.3
L1U1	241	18.00	291.20	0.5	39.0	5.882	210.9	3.0	0.0	2.74	1.03	82.3
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.0	0.0	2.74	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.0	0.0	2.74	#VALUE!	#VALUE!
L5U5	261	18.00	291.20	0.5	39.0	5.882	210.9	3.0	0.0	2.74	1.12	89.8
End Post U5L6	774	91.53	775.90	0.5	21.5	5.882	494.0	9.5	0.0	2.89	1.36	108.5

MAXIMUM RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	2010 RF	2010 E-RATING
End Post L0U1	1118	91.53	775.90	0.5	21.5	5.882	494.0	9.5	0.0	2.89	2.05	164.3
Bottom Chord (LC1) L0L2	471	56.19	476.30	0.5	21.5	5.882	303.3	49.2	148.0	29.20	0.75	59.6
Bottom Chord (LC2) L2L4	931	102.46	826.50	0.5	21.5	5.882	526.2	65.5	148.0	37.50	1.10	87.8
Bottom Chord (LC1) L4L6	506	56.19	476.30	0.5	21.5	5.882	303.3	49.2	148.0	29.20	0.82	66.0
Top Chord U1U2	1000	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.89	151.4
Top Chord U2U3	896	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.67	133.6
Top Chord U3U4	935	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.75	140.3
Top Chord U4U5	931	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.75	139.6
U1L2 Diag. (D1) (ten.)	578	56.69	514.80	0.5	21.5	5.882	327.8	5.7	0.0	2.30	1.56	125.2
L2U3 Diag. (D2) (comp.)	688	18.69	299.30	0.5	21.5	5.882	190.6	1.9	0.0	1.70	3.49	279.5
U3L4 Diag. (D2) (comp.)	646	18.69	299.30	0.5	21.5	5.882	190.6	1.9	0.0	1.70	3.27	261.7
L4U5 Diag. (D1) (ten.)	631	56.69	514.80	0.5	21.5	5.882	327.8	5.7	0.0	2.30	1.73	138.2
L3U3 Hanger (center)	383	19.50	290.80	0.5	39.0	5.882	210.6	3.0	0.0	2.74	1.70	135.8
L1U1	351	18.00	291.20	0.5	39.0	5.882	210.9	3.0	0.0	2.74	1.55	124.0
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.0	0.0	2.74	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.0	0.0	2.74	#VALUE!	#VALUE!
L5U5	379	18.00	291.20	0.5	39.0	5.882	210.9	3.0	0.0	2.74	1.68	134.8
End Post U5L6	1131	91.53	775.90	0.5	21.5	5.882	494.0	9.5	0.0	2.89	2.08	166.4

SALINAS RIVER BRIDGE
AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS
SPAN 3
RIGHT TRUSS MEMBERS - LOAD CASE B

NORMAL RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	2010 RF	2010 E-RATING
End Post L0U1	791	91.53	775.90	0.5	21.5	5.882	494.0	9.5	0.0	2.89	1.39	111.2
Bottom Chord (LC1) L0L2	358	56.19	476.30	0.5	21.5	5.882	303.3	49.2	148.0	29.20	0.49	39.5
Bottom Chord (LC2) L2L4	619	102.46	826.50	0.5	21.5	5.882	526.2	65.5	148.0	37.50	0.61	49.1
Bottom Chord (LC1) L4L6	367	56.19	476.30	0.5	21.5	5.882	303.3	49.2	148.0	29.20	0.52	41.3
Top Chord U1U2	689	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.23	98.4
Top Chord U2U3	604	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.05	84.0
Top Chord U3U4	679	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.21	96.8
Top Chord U4U5	675	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.20	96.1
U1L2 Diag. (D1) (ten.)	427	56.69	514.80	0.5	21.5	5.882	327.8	5.7	0.0	2.30	1.11	88.5
L2U3 Diag. (D2) (comp.)	438	18.69	299.30	0.5	21.5	5.882	190.6	1.9	0.0	1.70	2.18	174.7
U3L4 Diag. (D2) (comp.)	398	18.69	299.30	0.5	21.5	5.882	190.6	1.9	0.0	1.70	1.97	157.6
L4U5 Diag. (D1) (ten.)	401	56.69	514.80	0.5	21.5	5.882	327.8	5.7	0.0	2.30	1.03	82.2
L3U3 Hanger (center)	265	19.50	290.80	0.5	39.0	5.882	210.6	3.0	0.0	2.74	1.14	91.1
L1U1	237	18.00	291.20	0.5	39.0	5.882	210.9	3.0	0.0	2.74	1.01	80.9
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.0	0.0	2.74	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.0	0.0	2.74	#VALUE!	#VALUE!
L5U5	271	18.00	291.20	0.5	39.0	5.882	210.9	3.0	0.0	2.74	1.17	93.9
End Post U5L6	791	91.53	775.90	0.5	21.5	5.882	494.0	9.5	0.0	2.89	1.39	111.2

MAXIMUM RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	2010 RF	2010 E-RATING
End Post L0U1	1156	91.53	775.90	0.5	21.5	5.882	494.0	9.5	0.0	2.89	2.13	170.3
Bottom Chord (LC1) L0L2	520	56.19	476.30	0.5	21.5	5.882	303.3	49.2	148.0	29.20	0.85	68.3
Bottom Chord (LC2) L2L4	901	102.46	826.50	0.5	21.5	5.882	526.2	65.5	148.0	37.50	1.04	83.2
Bottom Chord (LC1) L4L6	534	56.19	476.30	0.5	21.5	5.882	303.3	49.2	148.0	29.20	0.89	70.8
Top Chord U1U2	1000	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.89	151.4
Top Chord U2U3	878	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.63	130.5
Top Chord U3U4	986	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.86	149.0
Top Chord U4U5	981	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.85	148.0
U1L2 Diag. (D1) (ten.)	622	56.69	514.80	0.5	21.5	5.882	327.8	5.7	0.0	2.30	1.70	135.9
L2U3 Diag. (D2) (comp.)	638	18.69	299.30	0.5	21.5	5.882	190.6	1.9	0.0	1.70	3.23	258.5
U3L4 Diag. (D2) (comp.)	579	18.69	299.30	0.5	21.5	5.882	190.6	1.9	0.0	1.70	2.92	233.5
L4U5 Diag. (D1) (ten.)	584	56.69	514.80	0.5	21.5	5.882	327.8	5.7	0.0	2.30	1.58	126.7
L3U3 Hanger (center)	385	19.50	290.80	0.5	39.0	5.882	210.6	3.0	0.0	2.74	1.71	136.8
L1U1	345	18.00	291.20	0.5	39.0	5.882	210.9	3.0	0.0	2.74	1.52	121.9
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.0	0.0	2.74	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.0	0.0	2.74	#VALUE!	#VALUE!
L5U5	395	18.00	291.20	0.5	39.0	5.882	210.9	3.0	0.0	2.74	1.76	140.7
End Post U5L6	1156	91.53	775.90	0.5	21.5	5.882	494.0	9.5	0.0	2.89	2.13	170.3

SALINAS RIVER BRIDGE

AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS
SPAN 3
FLOOR SYSTEM - LOAD CASE A

NORMAL RATING

MEMBER	2010 CAPACITY (KSI)	DL (KSI)	LL (E80-KSI)	DIST.	IMPACT %	RE %	LL+I (KSI)	2010 RF	2010 E-RATING
Stringer Panel 1 (Lt.) (moment)	16.5	0.672	10.81	1.0	39.0	14.286	16.6	0.96	76.4
Stringer Panel 1 (Rt.) (moment)	16.5	0.675	10.86	1.0	39.0	14.286	16.6	0.95	76.1
Stringer Panel 2 (Lt.) (moment)	16.5	0.659	10.60	1.0	39.0	14.286	16.2	0.98	78.0
Stringer Panel 2 (Rt.) (moment)	16.5	0.679	10.92	1.0	39.0	14.286	16.7	0.95	75.6
Stringer Panel 3 (Lt.) (moment)	16.5	0.656	10.55	1.0	39.0	14.286	16.2	0.98	78.4
Stringer Panel 3 (Rt.) (moment)	16.5	0.684	11.00	1.0	39.0	14.286	16.9	0.94	75.0
Stringer Panel 4 (Lt.) (moment)	16.5	0.656	10.55	1.0	39.0	14.286	16.2	0.98	78.4
Stringer Panel 4 (Rt.) (moment)	16.5	0.687	11.05	1.0	39.0	14.286	16.9	0.93	74.7
Stringer Panel 5 (Lt.) (moment)	16.5	0.656	10.55	1.0	39.0	14.286	16.2	0.98	78.4
Stringer Panel 5 (Rt.) (moment)	16.5	0.687	11.05	1.0	39.0	14.286	16.9	0.93	74.7
Stringer Panel 6 (Lt.) (moment)	16.5	0.656	10.55	1.0	39.0	14.286	16.2	0.98	78.4
Stringer Panel 6 (Rt.) (moment)	16.5	0.675	10.86	1.0	39.0	14.286	16.6	0.95	76.1
Floorbeam L1 (moment)	15.5	0.881	9.99	1.0	39.0	5.882	14.5	1.01	80.8
Floorbeam L2 (moment)	14.5	0.897	10.17	1.0	39.0	5.882	14.7	0.92	73.9
Floorbeam L3 (moment)	15.5	0.906	10.27	1.0	39.0	5.882	14.9	0.98	78.4
Floorbeam L4 (moment)	14.6	0.920	10.43	1.0	39.0	5.882	15.1	0.90	72.2
Floorbeam L5 (moment)	15.1	0.897	10.17	1.0	39.0	5.882	14.7	0.97	77.2
Stringer (shear)	9.5	0.322	5.92	1.0	39.0	14.286	9.1	1.01	80.5
Floorbeam (shear)	9.5	0.576	6.40	1.0	39.0	5.882	9.3	0.96	76.6

SALINAS RIVER BRIDGE
AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS
SPAN 3
FLOOR SYSTEM - LOAD CASE A

MAXIMUM RATING

MEMBER	2010 CAPACITY (KSI)	DL (KSI)	LL (E80-KSI)	DIST.	IMPACT %	RE %	LL+I (KSI)	2010 RF	2001 E-RATING
Stringer Panel 1 (Lt.) (moment)	24.0	0.672	10.81	1.0	39.0	14.286	16.6	1.41	112.6
Stringer Panel 1 (Rt.) (moment)	24.0	0.675	10.86	1.0	39.0	14.286	16.6	1.40	112.1
Stringer Panel 2 (Lt.) (moment)	24.0	0.659	10.60	1.0	39.0	14.286	16.2	1.44	114.9
Stringer Panel 2 (Rt.) (moment)	24.0	0.679	10.92	1.0	39.0	14.286	16.7	1.39	111.5
Stringer Panel 3 (Lt.) (moment)	24.0	0.656	10.55	1.0	39.0	14.286	16.2	1.44	115.5
Stringer Panel 3 (Rt.) (moment)	24.0	0.684	11.00	1.0	39.0	14.286	16.9	1.38	110.6
Stringer Panel 4 (Lt.) (moment)	24.0	0.656	10.55	1.0	39.0	14.286	16.2	1.44	115.5
Stringer Panel 4 (Rt.) (moment)	24.0	0.687	11.05	1.0	39.0	14.286	16.9	1.38	110.1
Stringer Panel 5 (Lt.) (moment)	24.0	0.656	10.55	1.0	39.0	14.286	16.2	1.44	115.5
Stringer Panel 5 (Rt.) (moment)	24.0	0.687	11.05	1.0	39.0	14.286	16.9	1.38	110.1
Stringer Panel 6 (Lt.) (moment)	24.0	0.656	10.55	1.0	39.0	14.286	16.2	1.44	115.5
Stringer Panel 6 (Rt.) (moment)	24.0	0.675	10.86	1.0	39.0	14.286	16.6	1.40	112.1
Floorbeam L1 (moment)	22.5	0.881	9.99	1.0	39.0	5.882	14.5	1.50	119.7
Floorbeam L2 (moment)	21.1	0.897	10.17	1.0	39.0	5.882	14.7	1.37	109.8
Floorbeam L3 (moment)	22.5	0.906	10.27	1.0	39.0	5.882	14.9	1.45	116.3
Floorbeam L4 (moment)	21.2	0.920	10.43	1.0	39.0	5.882	15.1	1.34	107.2
Floorbeam L5 (moment)	22.0	0.897	10.17	1.0	39.0	5.882	14.7	1.43	114.5
Stringer (shear)	16.2	0.322	5.92	1.0	39.0	14.286	9.1	1.75	140.0
Floorbeam (shear)	16.2	0.576	6.40	1.0	39.0	5.882	9.3	1.69	134.8

SALINAS RIVER

RAILROAD BRIDGE

AS-INSPECTED
LOAD RATING

CALCULATIONS

SPAN 4

SALINAS RIVER BRIDGE

AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS

SPAN 4

LEFT TRUSS MEMBERS - LOAD CASE A

NORMAL RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	2010 RF	2010 E-RATING
End Post L0U1	612	91.53	775.90	0.5	21.5	5.882	494.0	1.05	84.3
Bottom Chord (BC1) L0L2	259	56.19	476.30	0.5	21.5	5.882	303.3	0.67	53.5
Bottom Chord (BC2) L2L4	502	102.46	826.50	0.5	21.5	5.882	526.2	0.76	60.8
Bottom Chord (BC1) L4L6	278	56.19	476.30	0.5	21.5	5.882	303.3	0.73	58.6
Top Chord U1U2	527	90.99	738.60	0.5	21.5	5.882	470.3	0.93	74.2
Top Chord U2U3	524	90.99	738.60	0.5	21.5	5.882	470.3	0.92	73.6
Top Chord U3U4	491	90.99	738.60	0.5	21.5	5.882	470.3	0.85	68.1
Top Chord U4U5	536	90.99	738.60	0.5	21.5	5.882	470.3	0.95	75.7
U1L2 Diag. (D1) (ten.)	340	56.69	514.80	0.5	21.5	5.882	327.8	0.86	69.2
L2U3 Diag. (D2) (comp.)	378	18.69	299.30	0.5	21.5	5.882	190.6	1.89	150.9
U3L4 Diag. (D2) (comp.)	341	18.69	299.30	0.5	21.5	5.882	190.6	1.69	135.4
L4U5 Diag. (D1) (ten.)	326	56.69	514.80	0.5	21.5	5.882	327.8	0.82	65.8
L3U3 Hanger (center)	217	19.50	290.80	0.5	39.0	5.882	210.6	0.94	75.0
L1U1	203	18.00	291.20	0.5	39.0	5.882	210.9	0.88	70.0
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L5U5	203	18.00	291.20	0.5	39.0	5.882	210.9	0.88	70.0
End Post U5L6	629	91.53	775.90	0.5	21.5	5.882	494.0	1.09	87.0

MAXIMUM RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	2010 RF	2010 E-RATING
End Post L0U1	895	91.43	775.90	0.5	21.5	5.882	494.0	1.63	130.1
Bottom Chord (BC1) L0L2	377	56.19	476.30	0.5	21.5	5.882	303.3	1.06	84.5
Bottom Chord (BC2) L2L4	731	102.46	826.50	0.5	21.5	5.882	526.2	1.19	95.5
Bottom Chord (BC1) L4L6	405	56.19	476.30	0.5	21.5	5.882	303.3	1.15	92.0
Top Chord U1U2	765	90.99	738.60	0.5	21.5	5.882	470.3	1.43	114.7
Top Chord U2U3	761	90.99	738.60	0.5	21.5	5.882	470.3	1.42	114.0
Top Chord U3U4	713	90.99	738.60	0.5	21.5	5.882	470.3	1.32	105.9
Top Chord U4U5	778	90.99	738.60	0.5	21.5	5.882	470.3	1.46	116.9
U1L2 Diag. (D1) (ten.)	495	56.69	514.80	0.5	21.5	5.882	327.8	1.34	106.9
L2U3 Diag. (D2) (comp.)	550	18.69	299.30	0.5	21.5	5.882	190.6	2.79	223.2
U3L4 Diag. (D2) (comp.)	497	18.69	299.30	0.5	21.5	5.882	190.6	2.51	200.6
L4U5 Diag. (D1) (ten.)	475	56.69	514.80	0.5	21.5	5.882	327.8	1.28	102.0
L3U3 Hanger (center)	316	19.50	290.80	0.5	39.0	5.882	210.6	1.41	112.5
L1U1	295	18.00	291.20	0.5	39.0	5.882	210.9	1.31	104.9
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L5U5	295	18.00	291.20	0.5	39.0	5.882	210.9	1.31	104.9
End Post U5L6	919	91.53	775.90	0.5	21.5	5.882	494.0	1.68	134.0

SALINAS RIVER BRIDGE

AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS
SPAN 4
RIGHT TRUSS MEMBERS - LOAD CASE A

NORMAL RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	2010 RF	2010 E-RATING
End Post L0U1	630	91.53	775.90	0.5	21.5	5.882	494.0	1.09	87.2
Bottom Chord (BC1) L0L2	292	56.19	476.30	0.5	21.5	5.882	303.3	0.78	62.2
Bottom Chord (BC2) L2L4	516	102.46	826.50	0.5	21.5	5.882	526.2	0.78	62.8
Bottom Chord (BC1) L4L6	288	56.19	476.30	0.5	21.5	5.882	303.3	0.76	61.1
Top Chord U1U2	550	90.99	738.60	0.5	21.5	5.882	470.3	0.98	78.1
Top Chord U2U3	534	90.99	738.60	0.5	21.5	5.882	470.3	0.94	75.3
Top Chord U3U4	500	90.99	738.60	0.5	21.5	5.882	470.3	0.87	69.6
Top Chord U4U5	493	90.99	738.60	0.5	21.5	5.882	470.3	0.86	68.4
U1L2 Diag. (D1) (ten.)	340	56.69	514.80	0.5	21.5	5.882	327.8	0.86	69.2
L2U3 Diag. (D2) (comp.)	356	18.69	299.30	0.5	21.5	5.882	190.6	1.77	141.6
U3L4 Diag. (D2) (comp.)	314	18.69	299.30	0.5	21.5	5.882	190.6	1.55	123.9
L4U5 Diag. (D1) (ten.)	335	56.69	514.80	0.5	21.5	5.882	327.8	0.85	67.9
L3U3 Hanger (center)	211	19.50	290.80	0.5	39.0	5.882	210.6	0.91	72.9
L1U1	211	18.00	291.20	0.5	39.0	5.882	210.9	0.92	73.4
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L5U5	214	18.00	291.20	0.5	39.0	5.882	210.9	0.93	74.5
End Post U5L6	625	91.53	775.90	0.5	21.5	5.882	494.0	1.08	86.4

MAXIMUM RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	2010 RF	2010 E-RATING
End Post L0U1	921	91.53	775.90	0.5	21.5	5.882	494.0	1.68	134.3
Bottom Chord (BC1) L0L2	424	56.19	476.30	0.5	21.5	5.882	303.3	1.21	97.2
Bottom Chord (BC2) L2L4	750	102.46	826.50	0.5	21.5	5.882	526.2	1.23	98.4
Bottom Chord (BC1) L4L6	419	56.19	476.30	0.5	21.5	5.882	303.3	1.20	95.7
Top Chord U1U2	799	90.99	738.60	0.5	21.5	5.882	470.3	1.50	120.4
Top Chord U2U3	775	90.99	738.60	0.5	21.5	5.882	470.3	1.45	116.3
Top Chord U3U4	726	90.99	738.60	0.5	21.5	5.882	470.3	1.35	108.0
Top Chord U4U5	716	90.99	738.60	0.5	21.5	5.882	470.3	1.33	106.4
U1L2 Diag. (D1) (ten.)	495	56.69	514.80	0.5	21.5	5.882	327.8	1.34	106.9
L2U3 Diag. (D2) (comp.)	518	18.69	299.30	0.5	21.5	5.882	190.6	2.62	209.7
U3L4 Diag. (D2) (comp.)	457	18.69	299.30	0.5	21.5	5.882	190.6	2.30	183.8
L4U5 Diag. (D1) (ten.)	487	56.69	514.80	0.5	21.5	5.882	327.8	1.31	105.1
L3U3 Hanger (center)	308	19.50	290.80	0.5	39.0	5.882	210.6	1.37	109.4
L1U1	308	18.00	291.20	0.5	39.0	5.882	210.9	1.37	109.8
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L5U5	312	18.00	291.20	0.5	39.0	5.882	210.9	1.39	111.5
End Post U5L6	914	91.53	775.90	0.5	21.5	5.882	494.0	1.66	133.2

SALINAS RIVER BRIDGE
AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS
SPAN 4
LEFT TRUSS MEMBERS - LOAD CASE B

NORMAL RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	2010 RF	2010 E-RATING
End Post L0U1	765	91.53	775.90	0.5	21.5	5.882	494.0	9.5	0.0	2.89	1.34	107.1
Bottom Chord (LC1) L0L2	324	56.19	476.30	0.5	21.5	5.882	303.3	49.2	148.0	29.20	0.42	33.5
Bottom Chord (LC2) L2L4	628	102.46	826.50	0.5	21.5	5.882	526.2	65.5	148.0	37.50	0.63	50.1
Bottom Chord (LC1) L4L6	348	56.19	476.30	0.5	21.5	5.882	303.3	49.2	148.0	29.20	0.47	37.9
Top Chord U1U2	659	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.17	93.3
Top Chord U2U3	655	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.16	92.6
Top Chord U3U4	614	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.07	85.6
Top Chord U4U5	670	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.19	95.1
U1L2 Diag. (D1) (ten.)	425	56.69	514.80	0.5	21.5	5.882	327.8	5.7	0.0	2.30	1.10	88.0
L2U3 Diag. (D2) (comp.)	473	18.69	299.30	0.5	21.5	5.882	190.6	1.9	0.0	1.70	2.36	189.1
U3L4 Diag. (D2) (comp.)	427	18.69	299.30	0.5	21.5	5.882	190.6	1.9	0.0	1.70	2.12	169.7
L4U5 Diag. (D1) (ten.)	408	56.69	514.80	0.5	21.5	5.882	327.8	5.7	0.0	2.30	1.05	83.8
L3U3 Hanger (center)	271	19.50	290.80	0.5	39.0	5.882	210.6	3.0	0.0	2.74	1.17	93.4
L1U1	253	18.00	291.20	0.5	39.0	5.882	210.9	3.0	0.0	2.74	1.09	87.0
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.0	0.0	2.74	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.0	0.0	2.74	#VALUE!	#VALUE!
L5U5	253	18.00	291.20	0.5	39.0	5.882	210.9	3.0	0.0	2.74	1.09	87.0
End Post U5L6	786	91.53	775.90	0.5	21.5	5.882	494.0	9.5	0.0	2.89	1.38	110.5

MAXIMUM RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	2010 RF	2010 E-RATING
End Post L0U1	1118	91.53	775.90	0.5	21.5	5.882	494.0	9.5	0.0	2.89	2.05	164.3
Bottom Chord (LC1) L0L2	471	56.19	476.30	0.5	21.5	5.882	303.3	49.2	148.0	29.20	0.75	59.6
Bottom Chord (LC2) L2L4	913	102.46	826.50	0.5	21.5	5.882	526.2	65.5	148.0	37.50	1.06	85.1
Bottom Chord (LC1) L4L6	506	56.19	476.30	0.5	21.5	5.882	303.3	49.2	148.0	29.20	0.82	66.0
Top Chord U1U2	957	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.80	144.0
Top Chord U2U3	951	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.79	143.0
Top Chord U3U4	892	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.66	132.9
Top Chord U4U5	973	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.83	146.7
U1L2 Diag. (D1) (ten.)	618	56.69	514.80	0.5	21.5	5.882	327.8	5.7	0.0	2.30	1.69	135.1
L2U3 Diag. (D2) (comp.)	688	18.69	299.30	0.5	21.5	5.882	190.6	1.9	0.0	1.70	3.49	279.5
U3L4 Diag. (D2) (comp.)	621	18.69	299.30	0.5	21.5	5.882	190.6	1.9	0.0	1.70	3.14	251.3
L4U5 Diag. (D1) (ten.)	593	56.69	514.80	0.5	21.5	5.882	327.8	5.7	0.0	2.30	1.61	129.0
L3U3 Hanger (center)	395	19.50	290.80	0.5	39.0	5.882	210.6	3.0	0.0	2.74	1.75	140.3
L1U1	369	18.00	291.20	0.5	39.0	5.882	210.9	3.0	0.0	2.74	1.63	130.8
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.0	0.0	2.74	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.0	0.0	2.74	#VALUE!	#VALUE!
L5U5	368	18.00	291.20	0.5	39.0	5.882	210.9	3.0	0.0	2.74	1.63	130.7
End Post U5L6	1149	91.53	775.90	0.5	21.5	5.882	494.0	9.5	0.0	2.89	2.12	169.3

SALINAS RIVER BRIDGE

AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS

SPAN 4

RIGHT TRUSS MEMBERS - LOAD CASE B

NORMAL RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	2010 RF	2010 E-RATING
End Post L0U1	788	91.53	775.90	0.5	21.5	5.882	494.0	9.5	0.0	2.89	1.38	110.7
Bottom Chord (LC1) L0L2	365	56.19	476.30	0.5	21.5	5.882	303.3	49.2	148.0	29.20	0.51	40.8
Bottom Chord (LC2) L2L4	644	102.46	826.50	0.5	21.5	5.882	526.2	65.5	148.0	37.50	0.65	52.1
Bottom Chord (LC1) L4L6	360	56.19	476.30	0.5	21.5	5.882	303.3	49.2	148.0	29.20	0.50	39.9
Top Chord U1U2	687	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.23	98.1
Top Chord U2U3	667	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.18	94.7
Top Chord U3U4	625	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.09	87.5
Top Chord U4U5	617	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.08	86.1
U1L2 Diag. (D1) (ten.)	425	56.69	514.80	0.5	21.5	5.882	327.8	5.7	0.0	2.30	1.10	88.0
L2U3 Diag. (D2) (comp.)	445	18.69	299.30	0.5	21.5	5.882	190.6	1.9	0.0	1.70	2.22	177.5
U3L4 Diag. (D2) (comp.)	392	18.69	299.30	0.5	21.5	5.882	190.6	1.9	0.0	1.70	1.94	155.3
L4U5 Diag. (D1) (ten.)	419	56.69	514.80	0.5	21.5	5.882	327.8	5.7	0.0	2.30	1.08	86.4
L3U3 Hanger (center)	264	19.50	290.80	0.5	39.0	5.882	210.6	3.0	0.0	2.74	1.13	90.8
L1U1	264	18.00	291.20	0.5	39.0	5.882	210.9	3.0	0.0	2.74	1.14	91.2
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.0	0.0	2.74	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.0	0.0	2.74	#VALUE!	#VALUE!
L5U5	268	18.00	291.20	0.5	39.0	5.882	210.9	3.0	0.0	2.74	1.16	92.6
End Post U5L6	782	91.53	775.90	0.5	21.5	5.882	494.0	9.5	0.0	2.89	1.37	109.8

MAXIMUM RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	2010 RF	2010 E-RATING
End Post L0U1	1151	91.53	775.90	0.5	21.5	5.882	494.0	9.5	0.0	2.89	2.12	169.6
Bottom Chord (LC1) L0L2	531	56.19	476.30	0.5	21.5	5.882	303.3	49.2	148.0	29.20	0.88	70.1
Bottom Chord (LC2) L2L4	937	102.46	826.50	0.5	21.5	5.882	526.2	65.5	148.0	37.50	1.11	88.8
Bottom Chord (LC1) L4L6	524	56.19	476.30	0.5	21.5	5.882	303.3	49.2	148.0	29.20	0.86	69.0
Top Chord U1U2	998	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.89	151.0
Top Chord U2U3	969	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.82	146.0
Top Chord U3U4	907	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.69	135.6
Top Chord U4U5	896	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.67	133.6
U1L2 Diag. (D1) (ten.)	618	56.69	514.80	0.5	21.5	5.882	327.8	5.7	0.0	2.30	1.69	135.1
L2U3 Diag. (D2) (comp.)	648	18.69	299.30	0.5	21.5	5.882	190.6	1.9	0.0	1.70	3.28	262.5
U3L4 Diag. (D2) (comp.)	571	18.69	299.30	0.5	21.5	5.882	190.6	1.9	0.0	1.70	2.88	230.3
L4U5 Diag. (D1) (ten.)	609	56.69	514.80	0.5	21.5	5.882	327.8	5.7	0.0	2.30	1.66	132.8
L3U3 Hanger (center)	385	19.50	290.80	0.5	39.0	5.882	210.6	3.0	0.0	2.74	1.71	136.5
L1U1	385	18.00	291.20	0.5	39.0	5.882	210.9	3.0	0.0	2.74	1.71	136.9
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.0	0.0	2.74	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.0	0.0	2.74	#VALUE!	#VALUE!
L5U5	390	18.00	291.20	0.5	39.0	5.882	210.9	3.0	0.0	2.74	1.74	138.9
End Post U5L6	1142	91.53	775.90	0.5	21.5	5.882	494.0	9.5	0.0	2.89	2.10	168.2

SALINAS RIVER BRIDGE
AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS
SPAN 4
FLOOR SYSTEM - LOAD CASE A

NORMAL RATING

MEMBER	2010 CAPACITY (KSI)	DL (KSI)	LL (E80-KSI)	DIST.	IMPACT %	RE %	LL+I (KSI)	2010 RF	2010 E-RATING
Stringer Panel 1 (Lt.) (moment)	16.5	0.672	10.81	1.0	39.0	14.286	16.6	0.96	76.4
Stringer Panel 1 (Rt.) (moment)	16.5	0.679	10.92	1.0	39.0	14.286	16.7	0.95	75.6
Stringer Panel 2 (Lt.) (moment)	16.5	0.656	10.55	1.0	39.0	14.286	16.2	0.98	78.4
Stringer Panel 2 (Rt.) (moment)	16.5	0.687	11.05	1.0	39.0	14.286	16.9	0.93	74.7
Stringer Panel 3 (Lt.) (moment)	16.5	0.656	10.55	1.0	39.0	14.286	16.2	0.98	78.4
Stringer Panel 3 (Rt.) (moment)	16.5	0.680	10.94	1.0	39.0	14.286	16.8	0.94	75.5
Stringer Panel 4 (Lt.) (moment)	16.5	0.656	10.55	1.0	39.0	14.286	16.2	0.98	78.4
Stringer Panel 4 (Rt.) (moment)	16.5	0.675	10.86	1.0	39.0	14.286	16.6	0.95	76.1
Stringer Panel 5 (Lt.) (moment)	16.5	0.664	10.68	1.0	39.0	14.286	16.4	0.97	77.4
Stringer Panel 5 (Rt.) (moment)	16.5	0.679	10.92	1.0	39.0	14.286	16.7	0.95	75.6
Stringer Panel 6 (Lt.) (moment)	16.5	0.656	10.55	1.0	39.0	14.286	16.2	0.98	78.4
Stringer Panel 6 (Rt.) (moment)	16.5	0.675	10.86	1.0	39.0	14.286	16.6	0.95	76.1
Floorbeam L1 (moment)	14.8	0.915	10.37	1.0	39.0	5.882	15.0	0.92	73.8
Floorbeam L2 (moment)	14.8	0.927	10.51	1.0	39.0	5.882	15.2	0.91	72.8
Floorbeam L3 (moment)	15.0	0.919	10.42	1.0	39.0	5.882	15.1	0.93	74.6
Floorbeam L4 (moment)	14.0	0.904	10.25	1.0	39.0	5.882	14.8	0.88	70.3
Floorbeam L5 (moment)	14.2	0.932	10.57	1.0	39.0	5.882	15.3	0.87	69.2
Stringer (shear)	9.5	0.322	5.92	1.0	39.0	14.286	9.1	1.01	80.5
Floorbeam (shear)	9.5	0.576	6.40	1.0	39.0	5.882	9.3	0.96	76.6

SALINAS RIVER BRIDGE
AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS
SPAN 4
FLOOR SYSTEM - LOAD CASE A

MAXIMUM RATING

MEMBER	2010 CAPACITY (KSI)	DL (KSI)	LL (E80-KSI)	DIST.	IMPACT %	RE %	LL+I (KSI)	2010 RF	2010 E-RATING
Stringer Panel 1 (Lt.) (moment)	24.0	0.672	10.81	1.0	39.0	14.286	16.6	1.41	112.6
Stringer Panel 1 (Rt.) (moment)	24.0	0.679	10.92	1.0	39.0	14.286	16.7	1.39	111.5
Stringer Panel 2 (Lt.) (moment)	24.0	0.656	10.55	1.0	39.0	14.286	16.2	1.44	115.5
Stringer Panel 2 (Rt.) (moment)	24.0	0.687	11.05	1.0	39.0	14.286	16.9	1.38	110.1
Stringer Panel 3 (Lt.) (moment)	24.0	0.656	10.55	1.0	39.0	14.286	16.2	1.44	115.5
Stringer Panel 3 (Rt.) (moment)	24.0	0.680	10.94	1.0	39.0	14.286	16.8	1.39	111.3
Stringer Panel 4 (Lt.) (moment)	24.0	0.656	10.55	1.0	39.0	14.286	16.2	1.44	115.5
Stringer Panel 4 (Rt.) (moment)	24.0	0.675	10.86	1.0	39.0	14.286	16.6	1.40	112.1
Stringer Panel 5 (Lt.) (moment)	24.0	0.664	10.68	1.0	39.0	14.286	16.4	1.43	114.1
Stringer Panel 5 (Rt.) (moment)	24.0	0.679	10.92	1.0	39.0	14.286	16.7	1.39	111.5
Stringer Panel 6 (Lt.) (moment)	24.0	0.656	10.55	1.0	39.0	14.286	16.2	1.44	115.5
Stringer Panel 6 (Rt.) (moment)	24.0	0.675	10.86	1.0	39.0	14.286	16.6	1.40	112.1
Floorbeam L1 (moment)	21.5	0.915	10.37	1.0	39.0	5.882	15.0	1.37	109.6
Floorbeam L2 (moment)	21.5	0.927	10.51	1.0	39.0	5.882	15.2	1.35	108.1
Floorbeam L3 (moment)	21.8	0.919	10.42	1.0	39.0	5.882	15.1	1.38	110.8
Floorbeam L4 (moment)	20.3	0.904	10.25	1.0	39.0	5.882	14.8	1.31	104.5
Floorbeam L5 (moment)	20.6	0.932	10.57	1.0	39.0	5.882	15.3	1.29	102.9
Stringer (shear)	16.2	0.322	5.92	1.0	39.0	14.286	9.1	1.75	140.0
Floorbeam (shear)	16.2	0.576	6.40	1.0	39.0	5.882	9.3	1.69	134.8

SALINAS RIVER

RAILROAD BRIDGE

AS-INSPECTED
LOAD RATING

CALCULATIONS

SPAN 5

SALINAS RIVER BRIDGE

AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS
SPAN 5
LEFT TRUSS MEMBERS - LOAD CASE A

NORMAL RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	2010 RF	2010 E-RATING
End Post L0U1	629	91.53	775.90	0.5	21.5	5.882	494.0	1.09	87.0
Bottom Chord (BC1) L0L2	271	56.19	476.30	0.5	21.5	5.882	303.3	0.71	56.6
Bottom Chord (BC2) L2L4	502	102.46	826.50	0.5	21.5	5.882	526.2	0.76	60.7
Bottom Chord (BC1) L4L6	286	56.19	476.30	0.5	21.5	5.882	303.3	0.76	60.6
Top Chord U1U2	497	90.99	738.60	0.5	21.5	5.882	470.3	0.86	69.0
Top Chord U2U3	469	90.99	738.60	0.5	21.5	5.882	470.3	0.80	64.4
Top Chord U3U4	512	90.99	738.60	0.5	21.5	5.882	470.3	0.89	71.6
Top Chord U4U5	524	90.99	738.60	0.5	21.5	5.882	470.3	0.92	73.7
U1L2 Diag. (D1) (ten.)	337	56.69	514.80	0.5	21.5	5.882	327.8	0.85	68.3
L2U3 Diag. (D2) (comp.)	376	18.69	299.30	0.5	21.5	5.882	190.6	1.88	150.0
U3L4 Diag. (D2) (comp.)	349	18.69	299.30	0.5	21.5	5.882	190.6	1.73	138.5
L4U5 Diag. (D1) (ten.)	340	56.69	514.80	0.5	21.5	5.882	327.8	0.86	69.2
L3U3 Hanger (center)	214	19.50	290.80	0.5	39.0	5.882	210.6	0.93	74.0
L1U1	215	18.00	291.20	0.5	39.0	5.882	210.9	0.94	74.9
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L5U5	217	18.00	291.20	0.5	39.0	5.882	210.9	0.94	75.5
End Post U5L6	617	91.53	775.90	0.5	21.5	5.882	494.0	1.06	85.1

MAXIMUM RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	2010 RF	2010 E-RATING
End Post L0U1	919	91.43	775.90	0.5	21.5	5.882	494.0	1.68	134.1
Bottom Chord (BC1) L0L2	394	56.19	476.30	0.5	21.5	5.882	303.3	1.11	89.0
Bottom Chord (BC2) L2L4	730	102.46	826.50	0.5	21.5	5.882	526.2	1.19	95.4
Bottom Chord (BC1) L4L6	416	56.19	476.30	0.5	21.5	5.882	303.3	1.19	94.9
Top Chord U1U2	721	90.99	738.60	0.5	21.5	5.882	470.3	1.34	107.2
Top Chord U2U3	682	90.99	738.60	0.5	21.5	5.882	470.3	1.26	100.5
Top Chord U3U4	743	90.99	738.60	0.5	21.5	5.882	470.3	1.39	111.0
Top Chord U4U5	761	90.99	738.60	0.5	21.5	5.882	470.3	1.42	114.0
U1L2 Diag. (D1) (ten.)	490	56.69	514.80	0.5	21.5	5.882	327.8	1.32	105.7
L2U3 Diag. (D2) (comp.)	547	18.69	299.30	0.5	21.5	5.882	190.6	2.77	221.9
U3L4 Diag. (D2) (comp.)	507	18.69	299.30	0.5	21.5	5.882	190.6	2.56	205.1
L4U5 Diag. (D1) (ten.)	495	56.69	514.80	0.5	21.5	5.882	327.8	1.34	106.9
L3U3 Hanger (center)	312	19.50	290.80	0.5	39.0	5.882	210.6	1.39	111.1
L1U1	313	18.00	291.20	0.5	39.0	5.882	210.9	1.40	112.0
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L5U5	316	18.00	291.20	0.5	39.0	5.882	210.9	1.41	112.9
End Post U5L6	902	91.53	775.90	0.5	21.5	5.882	494.0	1.64	131.2

SALINAS RIVER BRIDGE

AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS

SPAN 5

RIGHT TRUSS MEMBERS - LOAD CASE A

NORMAL RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	2010 RF	2010 E-RATING
End Post L0U1	626	91.53	775.90	0.5	21.5	5.882	494.0	1.08	86.6
Bottom Chord (BC1) L0L2	290	56.19	476.30	0.5	21.5	5.882	303.3	0.77	61.7
Bottom Chord (BC2) L2L4	529	102.46	826.50	0.5	21.5	5.882	526.2	0.81	64.8
Bottom Chord (BC1) L4L6	286	56.19	476.30	0.5	21.5	5.882	303.3	0.76	60.6
Top Chord U1U2	511	90.99	738.60	0.5	21.5	5.882	470.3	0.89	71.4
Top Chord U2U3	465	90.99	738.60	0.5	21.5	5.882	470.3	0.80	63.6
Top Chord U3U4	513	90.99	738.60	0.5	21.5	5.882	470.3	0.90	71.8
Top Chord U4U5	502	90.99	738.60	0.5	21.5	5.882	470.3	0.87	69.9
U1L2 Diag. (D1) (ten.)	340	56.69	514.80	0.5	21.5	5.882	327.8	0.86	69.2
L2U3 Diag. (D2) (comp.)	362	18.69	299.30	0.5	21.5	5.882	190.6	1.80	144.3
U3L4 Diag. (D2) (comp.)	357	18.69	299.30	0.5	21.5	5.882	190.6	1.78	142.1
L4U5 Diag. (D1) (ten.)	328	56.69	514.80	0.5	21.5	5.882	327.8	0.83	66.2
L3U3 Hanger (center)	214	19.50	290.80	0.5	39.0	5.882	210.6	0.93	74.0
L1U1	213	18.00	291.20	0.5	39.0	5.882	210.9	0.93	74.1
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L5U5	211	18.00	291.20	0.5	39.0	5.882	210.9	0.92	73.4
End Post U5L6	619	91.53	775.90	0.5	21.5	5.882	494.0	1.07	85.4

MAXIMUM RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	2010 RF	2010 E-RATING
End Post L0U1	915	91.53	775.90	0.5	21.5	5.882	494.0	1.67	133.3
Bottom Chord (BC1) L0L2	422	56.19	476.30	0.5	21.5	5.882	303.3	1.21	96.4
Bottom Chord (BC2) L2L4	769	102.46	826.50	0.5	21.5	5.882	526.2	1.27	101.3
Bottom Chord (BC1) L4L6	416	56.19	476.30	0.5	21.5	5.882	303.3	1.19	94.9
Top Chord U1U2	742	90.99	738.60	0.5	21.5	5.882	470.3	1.38	110.7
Top Chord U2U3	675	90.99	738.60	0.5	21.5	5.882	470.3	1.24	99.4
Top Chord U3U4	745	90.99	738.60	0.5	21.5	5.882	470.3	1.39	111.2
Top Chord U4U5	729	90.99	738.60	0.5	21.5	5.882	470.3	1.36	108.6
U1L2 Diag. (D1) (ten.)	495	56.69	514.80	0.5	21.5	5.882	327.8	1.34	106.9
L2U3 Diag. (D2) (comp.)	527	18.69	299.30	0.5	21.5	5.882	190.6	2.67	213.5
U3L4 Diag. (D2) (comp.)	520	18.69	299.30	0.5	21.5	5.882	190.6	2.63	210.3
L4U5 Diag. (D1) (ten.)	477	56.69	514.80	0.5	21.5	5.882	327.8	1.28	102.6
L3U3 Hanger (center)	312	19.50	290.80	0.5	39.0	5.882	210.6	1.39	111.1
L1U1	310	18.00	291.20	0.5	39.0	5.882	210.9	1.39	110.9
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	#VALUE!	#VALUE!
L5U5	308	18.00	291.20	0.5	39.0	5.882	210.9	1.37	109.8
End Post U5L6	905	91.53	775.90	0.5	21.5	5.882	494.0	1.65	131.7

SALINAS RIVER BRIDGE
AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS
SPAN 5
LEFT TRUSS MEMBERS - LOAD CASE B

NORMAL RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	2010 RF	2010 E-RATING
End Post L0U1	786	91.53	775.90	0.5	21.5	5.882	494.0	9.5	0.0	2.89	1.38	110.5
Bottom Chord (LC1) L0L2	338	56.19	476.30	0.5	21.5	5.882	303.3	49.2	148.0	29.20	0.45	36.1
Bottom Chord (LC2) L2L4	628	102.46	826.50	0.5	21.5	5.882	526.2	65.5	148.0	37.50	0.63	50.1
Bottom Chord (LC1) L4L6	358	56.19	476.30	0.5	21.5	5.882	303.3	49.2	148.0	29.20	0.49	39.5
Top Chord U1U2	621	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.08	86.8
Top Chord U2U3	587	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.01	81.0
Top Chord U3U4	640	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.13	90.0
Top Chord U4U5	655	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.16	92.6
U1L2 Diag. (D1) (ten.)	421	56.69	514.80	0.5	21.5	5.882	327.8	5.7	0.0	2.30	1.09	86.9
L2U3 Diag. (D2) (comp.)	470	18.69	299.30	0.5	21.5	5.882	190.6	1.9	0.0	1.70	2.35	188.0
U3L4 Diag. (D2) (comp.)	436	18.69	299.30	0.5	21.5	5.882	190.6	1.9	0.0	1.70	2.17	173.6
L4U5 Diag. (D1) (ten.)	425	56.69	514.80	0.5	21.5	5.882	327.8	5.7	0.0	2.30	1.10	88.0
L3U3 Hanger (center)	268	19.50	290.80	0.5	39.0	5.882	210.6	3.0	0.0	2.74	1.15	92.2
L1U1	269	18.00	291.20	0.5	39.0	5.882	210.9	3.0	0.0	2.74	1.16	93.1
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.0	0.0	2.74	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.0	0.0	2.74	#VALUE!	#VALUE!
L5U5	271	18.00	291.20	0.5	39.0	5.882	210.9	3.0	0.0	2.74	1.17	93.9
End Post U5L6	771	91.53	775.90	0.5	21.5	5.882	494.0	9.5	0.0	2.89	1.35	108.1

MAXIMUM RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	2010 RF	2010 E-RATING
End Post L0U1	1149	91.53	775.90	0.5	21.5	5.882	494.0	9.5	0.0	2.89	2.12	169.3
Bottom Chord (LC1) L0L2	492	56.19	476.30	0.5	21.5	5.882	303.3	49.2	148.0	29.20	0.79	63.3
Bottom Chord (LC2) L2L4	913	102.46	826.50	0.5	21.5	5.882	526.2	65.5	148.0	37.50	1.06	85.0
Bottom Chord (LC1) L4L6	520	56.19	476.30	0.5	21.5	5.882	303.3	49.2	148.0	29.20	0.85	68.3
Top Chord U1U2	901	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.68	134.5
Top Chord U2U3	852	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.58	126.1
Top Chord U3U4	929	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.74	139.3
Top Chord U4U5	951	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.79	143.0
U1L2 Diag. (D1) (ten.)	612	56.69	514.80	0.5	21.5	5.882	327.8	5.7	0.0	2.30	1.67	133.6
L2U3 Diag. (D2) (comp.)	684	18.69	299.30	0.5	21.5	5.882	190.6	1.9	0.0	1.70	3.47	277.9
U3L4 Diag. (D2) (comp.)	634	18.69	299.30	0.5	21.5	5.882	190.6	1.9	0.0	1.70	3.21	256.9
L4U5 Diag. (D1) (ten.)	618	56.69	514.80	0.5	21.5	5.882	327.8	5.7	0.0	2.30	1.69	135.1
L3U3 Hanger (center)	390	19.50	290.80	0.5	39.0	5.882	210.6	3.0	0.0	2.74	1.73	138.5
L1U1	392	18.00	291.20	0.5	39.0	5.882	210.9	3.0	0.0	2.74	1.75	139.6
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.0	0.0	2.74	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.0	0.0	2.74	#VALUE!	#VALUE!
L5U5	395	18.00	291.20	0.5	39.0	5.882	210.9	3.0	0.0	2.74	1.76	140.7
End Post U5L6	1127	91.53	775.90	0.5	21.5	5.882	494.0	9.5	0.0	2.89	2.07	165.7

SALINAS RIVER BRIDGE

AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS

SPAN 5

RIGHT TRUSS MEMBERS - LOAD CASE B

NORMAL RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	2010 RF	2010 E-RATING
End Post L0U1	783	91.53	775.90	0.5	21.5	5.882	494.0	9.5	0.0	2.89	1.37	109.9
Bottom Chord (LC1) L0L2	362	56.19	476.30	0.5	21.5	5.882	303.3	49.2	148.0	29.20	0.50	40.2
Bottom Chord (LC2) L2L4	661	102.46	826.50	0.5	21.5	5.882	526.2	65.5	148.0	37.50	0.68	54.0
Bottom Chord (LC1) L4L6	358	56.19	476.30	0.5	21.5	5.882	303.3	49.2	148.0	29.20	0.49	39.5
Top Chord U1U2	638	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.12	89.8
Top Chord U2U3	581	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.00	80.1
Top Chord U3U4	641	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.13	90.3
Top Chord U4U5	628	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.10	88.0
U1L2 Diag. (D1) (ten.)	425	56.69	514.80	0.5	21.5	5.882	327.8	5.7	0.0	2.30	1.10	88.0
L2U3 Diag. (D2) (comp.)	453	18.69	299.30	0.5	21.5	5.882	190.6	1.9	0.0	1.70	2.26	180.8
U3L4 Diag. (D2) (comp.)	446	18.69	299.30	0.5	21.5	5.882	190.6	1.9	0.0	1.70	2.23	178.0
L4U5 Diag. (D1) (ten.)	410	56.69	514.80	0.5	21.5	5.882	327.8	5.7	0.0	2.30	1.05	84.3
L3U3 Hanger (center)	268	19.50	290.80	0.5	39.0	5.882	210.6	3.0	0.0	2.74	1.15	92.2
L1U1	267	18.00	291.20	0.5	39.0	5.882	210.9	3.0	0.0	2.74	1.15	92.2
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.0	0.0	2.74	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.0	0.0	2.74	#VALUE!	#VALUE!
L5U5	264	18.00	291.20	0.5	39.0	5.882	210.9	3.0	0.0	2.74	1.14	91.2
End Post U5L6	774	91.53	775.90	0.5	21.5	5.882	494.0	9.5	0.0	2.89	1.36	108.5

MAXIMUM RATING

MEMBER	2010 CAPACITY (KIPS)	DL (KIPS)	LL (E80-AXLE-KIPS)	DIST.	IMPACT %	RE %	LL+I (KIPS)	WIND	LONGIT.	LATERAL	2010 RF	2010 E-RATING
End Post L0U1	1144	91.53	775.90	0.5	21.5	5.882	494.0	9.5	0.0	2.89	2.10	168.4
Bottom Chord (LC1) L0L2	527	56.19	476.30	0.5	21.5	5.882	303.3	49.2	148.0	29.20	0.87	69.8
Bottom Chord (LC2) L2L4	961	102.46	826.50	0.5	21.5	5.882	526.2	65.5	148.0	37.50	1.15	92.4
Bottom Chord (LC1) L4L6	520	56.19	476.30	0.5	21.5	5.882	303.3	49.2	148.0	29.20	0.85	68.3
Top Chord U1U2	927	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.74	138.9
Top Chord U2U3	844	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.56	124.8
Top Chord U3U4	931	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.75	139.6
Top Chord U4U5	911	90.99	738.60	0.5	21.5	5.882	470.3	16.7	0.0	2.80	1.70	136.2
U1L2 Diag. (D1) (ten.)	618	56.69	514.80	0.5	21.5	5.882	327.8	5.7	0.0	2.30	1.69	135.1
L2U3 Diag. (D2) (comp.)	659	18.69	299.30	0.5	21.5	5.882	190.6	1.9	0.0	1.70	3.34	267.4
U3L4 Diag. (D2) (comp.)	650	18.69	299.30	0.5	21.5	5.882	190.6	1.9	0.0	1.70	3.29	263.4
L4U5 Diag. (D1) (ten.)	596	56.69	514.80	0.5	21.5	5.882	327.8	5.7	0.0	2.30	1.62	129.8
L3U3 Hanger (center)	390	19.50	290.80	0.5	39.0	5.882	210.6	3.0	0.0	2.74	1.73	138.5
L1U1	388	18.00	291.20	0.5	39.0	5.882	210.9	3.0	0.0	2.74	1.73	138.3
L2U2	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.0	0.0	2.74	#VALUE!	#VALUE!
L4U4	ZERO FORCE MEMBER			0.5	39.0	5.882	0.0	3.0	0.0	2.74	#VALUE!	#VALUE!
L5U5	385	18.00	291.20	0.5	39.0	5.882	210.9	3.0	0.0	2.74	1.71	136.8
End Post U5L6	1131	91.53	775.90	0.5	21.5	5.882	494.0	9.5	0.0	2.89	2.08	166.3

SALINAS RIVER BRIDGE
AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS
SPAN 5
FLOOR SYSTEM - LOAD CASE A

NORMAL RATING

MEMBER	2010 CAPACITY (KSI)	DL (KSI)	LL (E80-KSI)	DIST.	IMPACT %	RE %	LL+I (KSI)	2010 RF	2010 E-RATING
Stringer Panel 1 (Lt.) (moment)	16.5	0.656	10.55	1.0	39.0	14.286	16.2	0.98	78.4
Stringer Panel 1 (Rt.) (moment)	16.5	0.683	11.00	1.0	39.0	14.286	16.9	0.94	75.1
Stringer Panel 2 (Lt.) (moment)	16.5	0.656	10.55	1.0	39.0	14.286	16.2	0.98	78.4
Stringer Panel 2 (Rt.) (moment)	16.5	0.670	10.79	1.0	39.0	14.286	16.5	0.96	76.6
Stringer Panel 3 (Lt.) (moment)	16.5	0.656	10.55	1.0	39.0	14.286	16.2	0.98	78.4
Stringer Panel 3 (Rt.) (moment)	16.5	0.679	10.92	1.0	39.0	14.286	16.7	0.95	75.6
Stringer Panel 4 (Lt.) (moment)	16.5	0.656	10.55	1.0	39.0	14.286	16.2	0.98	78.4
Stringer Panel 4 (Rt.) (moment)	16.5	0.679	10.92	1.0	39.0	14.286	16.7	0.95	75.6
Stringer Panel 5 (Lt.) (moment)	16.5	0.656	10.55	1.0	39.0	14.286	16.2	0.98	78.4
Stringer Panel 5 (Rt.) (moment)	16.5	0.687	11.05	1.0	39.0	14.286	16.9	0.93	74.7
Stringer Panel 6 (Lt.) (moment)	16.5	0.656	10.55	1.0	39.0	14.286	16.2	0.98	78.4
Stringer Panel 6 (Rt.) (moment)	16.5	0.670	10.79	1.0	39.0	14.286	16.5	0.96	76.6
Floorbeam L1 (moment)	15.0	0.919	10.42	1.0	39.0	5.882	15.1	0.93	74.6
Floorbeam L2 (moment)	14.7	0.902	10.23	1.0	39.0	5.882	14.8	0.93	74.3
Floorbeam L3 (moment)	14.3	0.937	10.63	1.0	39.0	5.882	15.4	0.87	**69.6**
Floorbeam L4 (moment)	14.7	0.919	10.42	1.0	39.0	5.882	15.1	0.91	72.9
Floorbeam L5 (moment)	14.7	0.943	10.70	1.0	39.0	5.882	15.5	0.89	70.8
Stringer (shear)	10.5	0.322	5.92	1.0	39.0	14.286	9.1	1.12	89.7
Floorbeam (shear)	10.0	0.576	6.40	1.0	39.0	5.882	9.3	1.01	81.1

SALINAS RIVER BRIDGE
AS-INSPECTED LOAD RATING - 30 FT. DEEP TRUSS
SPAN 5
FLOOR SYSTEM - LOAD CASE A

MAXIMUM RATING

MEMBER	2010 CAPACITY (KSI)	DL (KSI)	LL (E80-KSI)	DIST.	IMPACT %	RE %	LL+I (KSI)	2010 RF	2010 E-RATING
Stringer Panel 1 (Lt.) (moment)	24.0	0.656	10.55	1.0	39.0	14.286	16.2	1.44	115.5
Stringer Panel 1 (Rt.) (moment)	24.0	0.683	11.00	1.0	39.0	14.286	16.9	1.38	110.6
Stringer Panel 2 (Lt.) (moment)	24.0	0.656	10.55	1.0	39.0	14.286	16.2	1.44	115.5
Stringer Panel 2 (Rt.) (moment)	24.0	0.670	10.79	1.0	39.0	14.286	16.5	1.41	112.9
Stringer Panel 3 (Lt.) (moment)	24.0	0.656	10.55	1.0	39.0	14.286	16.2	1.44	115.5
Stringer Panel 3 (Rt.) (moment)	24.0	0.679	10.92	1.0	39.0	14.286	16.7	1.39	111.5
Stringer Panel 4 (Lt.) (moment)	24.0	0.656	10.55	1.0	39.0	14.286	16.2	1.44	115.5
Stringer Panel 4 (Rt.) (moment)	24.0	0.679	10.92	1.0	39.0	14.286	16.7	1.39	111.5
Stringer Panel 5 (Lt.) (moment)	24.0	0.656	10.55	1.0	39.0	14.286	16.2	1.44	115.5
Stringer Panel 5 (Rt.) (moment)	24.0	0.687	11.05	1.0	39.0	14.286	16.9	1.38	110.1
Stringer Panel 6 (Lt.) (moment)	24.0	0.656	10.55	1.0	39.0	14.286	16.2	1.44	115.5
Stringer Panel 6 (Rt.) (moment)	24.0	0.670	10.79	1.0	39.0	14.286	16.5	1.41	112.9
Floorbeam L1 (moment)	21.8	0.919	10.42	1.0	39.0	5.882	15.1	1.38	110.8
Floorbeam L2 (moment)	21.3	0.902	10.23	1.0	39.0	5.882	14.8	1.38	110.3
Floorbeam L3 (moment)	20.8	0.937	10.63	1.0	39.0	5.882	15.4	1.29	**103.4**
Floorbeam L4 (moment)	21.3	0.919	10.42	1.0	39.0	5.882	15.1	1.35	108.2
Floorbeam L5 (moment)	21.3	0.943	10.70	1.0	39.0	5.882	15.5	1.32	105.2
Stringer (shear)	18.0	0.322	5.92	1.0	39.0	14.286	9.1	1.95	155.9
Floorbeam (shear)	17.1	0.576	6.40	1.0	39.0	5.882	9.3	1.78	142.6

COMPARISON OF LOADING FROM PASSENGER TRAIN TO E-80 LOADING
SALINAS-30 FOOT DEEP TRUSS

TRUSS MEMBERS			E-EQUIVALENT
MEMBER	LL (E-80-LOADING-KIPS)	LL (PASSENGER TRAIN-KIPS)	PASSENGER
L0-U1	775.90	257.49	26.55
L0-L2	476.30	158.00	26.54
L2-L4	826.50	272.31	26.36
U1-U3	738.60	251.84	27.28
U1-L2	514.80	184.74	28.71
L2-U3	299.30	107.74	28.80
HANGER	290.80	134.33	36.95

FLOOR SYSTEM			
MOMENTS			E-EQUIVALENT
	LL (E-80-LOADING-FT-KIPS)	LL (PASSENGER TRAIN-FT-KIPS)	PASSENGER
STRINGER	531.00	245.58	37.00
FLOORBEAM	724.00	335.54	37.08

SHEAR			E-EQUIVALENT
	LL (E-80-LOADING-FT-KIPS)	LL (PASSENGER TRAIN-FT-KIPS)	PASSENGER
STRINGER	108.80	54.00	39.71
FLOORBEAM	145.00	67.10	37.02

Appendix 3

COMPARISON OF LOADING FROM PASSENGER TRAIN TO E-80 LOADING
SALINAS-31 FOOT DEEP TRUSS

TRUSS MEMBERS			E-EQUIVALENT
MEMBER	LL (E-80-LOADING-KIPS)	LL (PASSENGER TRAIN-KIPS)	PASSENGER
L0-U1	766.62	254.33	26.54
L0-L2	460.85	152.95	26.55
L2-L4	799.53	263.45	26.36
U1-U3	715.08	243.76	27.27
U1-L2	508.60	182.52	28.71
L2-U3	296.01	106.54	28.79
HANGER	290.80	134.33	36.95

FLOOR SYSTEM			
MOMENTS			E-EQUIVALENT
	LL (E-80-LOADING-FT-KIPS)	LL (PASSENGER TRAIN-FT-KIPS)	PASSENGER
STRINGER	531.00	245.58	37.00
FLOORBEAM	724.00	335.54	37.08

SHEAR			E-EQUIVALENT
	LL (E-80-LOADING-FT-KIPS)	LL (PASSENGER TRAIN-FT-KIPS)	PASSENGER
STRINGER	108.80	54.00	39.71
FLOORBEAM	145.00	67.10	37.02

APPENDIX 4

RECOMMENDED REPAIRS

UPDATED RECOMMENDED REPAIRS

Superstructure

1. Realign truss spans moved during Loma Prieta earthquake.

2. Replace truss expansion roller bearings of Spans 1-5 with PTFE sliding bearings, including replacement of: bearing pedestal, segmental rollers, bearing plate above rollers, and anchor bolts.

3. Replace bearing pedestals of truss fixed bearings of Spans 2, 3 & 4.

4. Replace deteriorated sections of top chord cover plates at the following locations:

   Span 1, Panels 2-5, Left & Right Trusses (50%-95% section loss)
   Span 2, Panels 3-5, Left Trusses (30%-50% section loss)
   Span 2, Panel 2 & 5, Right Truss (30% & 60% section loss)
   Span 3, Panels 3-5, Left Trusses (50%-70% section loss)
   Span 3, Panels 3 & 5, Right Trusses (80% & 30% section loss)
   Span 4, Panels 2-5, Left Trusses (40%-70% section loss)
   Span 4, Panels 3-5, Right Trusses (30%-70% section loss)
   Span 5, Panels 2-5, Left & Right Trusses (30%-80% section loss)

5. Repair areas of section loss at the following truss members:

   Span 1, L6L, End Post (70% section loss of cover plate)
   Span 1 L3L, Hanger (25% & 40% section loss of inboard flange)
   Span 1 L3R, Hanger (20% & 50% section loss of inboard flange)
   ~~Span 1, U2R Post (50% section loss at one side of outboard flange~~)
   Span 1, L2L, Diagonal L2L-U1L (50% section loss of outboard top flange, 40% & 50% section loss of inboard flanges)
   Span 1, L2L, Diagonal L2L-U3L (20% section loss of outboard bottom flange)
   Span 1, L2R, Diagonal L2R-U1R (30% & 50% section loss of outboard flanges, 50% section loss of inboard top flange)
   Span 1, L2R, Diagonal L2R-U3R (30% & 50% section loss of outboard flanges, 25% & 50% section loss of inboard flanges)
   Span 1, L4L, Diagonal L4L-U3L (25% & 50% section loss of outboard flanges, 40% & 50% section loss of inboard flanges)
   Span 1, L4L, Diagonal L4L-U5L (50% section loss of outboard top flange, 20% & 50% section loss of inboard flanges)
   Span 1, L4R, Diagonal L4R-U3R (40% & 50% section loss of outboard flanges, 25% section loss of inboard top flange)
   Span 1, L4R, Diagonal L4R-U5R (40% & 60% section loss of outboard flanges, 20% & 40% section loss of inboard flanges)
   Span 1, Panel 1, Bottom Chord, Left Truss, (20% section loss of outboard top flange, 20% section loss of inboard top flange)
   Span 1, Panel 1, Bottom Chord, Right Truss, (50% & 90% section loss of outboard flanges, 50% section loss of inboard top flange)

Span 1, Panel 2, Bottom Chord, Left Truss, (50% section loss of outboard top flange,
50% section loss of inboard top flange)
Span 1, Panel 2, Bottom Chord, Right Truss, (50% section loss of outboard top flange,
50% & 60% section loss of inboard flanges)
Span 1, Panel 3, Bottom Chord, Left Truss, (30% & 50% section loss of outboard flanges,
50% section loss of inboard top flange)
Span 1, Panel 3, Bottom Chord, Right Truss, (40% section loss of outboard top flange,
50% section loss of inboard top flange)
Span 1, Panel 4, Bottom Chord, Left Truss, (40% & 50% section loss of outboard flanges,
30% & 60% section loss of inboard flanges)
Span 1, Panel 4, Bottom Chord, Right Truss, (20% & 40% section loss of outboard flanges,
20% & 60% section loss of inboard flanges)
Span 1, Panel 5, Bottom Chord, Left Truss, (30% & 70% section loss of outboard flanges,
70% section loss of inboard top flange)
Span 1, Panel 5, Bottom Chord, Right Truss, (60% section loss of outboard flange,
30% & 60% section loss of inboard flanges)
Span 1, Panel 6, Bottom Chord, Left Truss, (30% & 70% section loss of outboard flanges,
20% & 50% section loss of inboard flanges)
Span 1, Panel 6, Bottom Chord, Right Truss, (60% section loss of outboard flange,
30% & 60% section loss of inboard flanges)
~~Span 2 L1R, Hanger (25% section loss at one side of outboard flange)~~
Span 3 L1R, Hanger (30% & 40% section loss of inboard flanges)
Span 4, L6R, End Post (80% section loss of outboard pin plate &
30% section loss of gusset plate at bearing pin)
~~Span 4, U4L Post (35% section loss of outboard flange)~~
Span 5, L4L, Diagonal L4L-U5L (30% & 20% section loss of inboard flanges)

Span 3, Gusset Plate, Hanger L1L-U1L (70% section loss of inboard gusset plate above flbm)
Span 3, Gusset Plate, Diagonal L2L-U1L (70% section loss of outboard gusset plate)
Span 4, Gusset Plate, Post L2L-U2L (60% section loss of inboard & outboard gusset plate)
Span 4, Gusset Plate, Diagonal L4L-U5L (75% section loss of inboard & outboard gusset plate)

6. Repair or replace the following truss bracing components:

Replace all truss top bracing members of Spans 2-5, including replacement of: top lateral bracing, top struts and sway bracing, top connections plates, and top gusset plates for Spans 2-5.

Span 1, Panel 1 & 6, Portal diagonal panels (80% SL)
Span 4, Panel 1, (1) Portal angle (40% SL)
Span 4, Panel 1, (1) Portal gusset (90% SL)
Span 4, Panel 6, (1) Portal bottom angles (40% SL)

Span 1, Panel 2, Bottom Lateral Brace L1L-L2R (50% SL)
Span 1, Panel 2, Bottom Lateral Brace L1R-L2L (50% SL)
Span 1, Panel 3, Bottom Lateral Brace L2L-L3R (50% SL)
Span 1, Panel 3, Bottom Lateral Gusset Plate L3R (50% SL)
Span 1, Panel 3, Bottom Lateral Brace L2R-L3L (50% SL)
Span 1, Panel 3, Bottom Lateral Gusset Plate L2R (50% SL)

Span 1, Panel 4, Bottom Lateral Brace L3L-L4R (60% SL)
Span 1, Panel 4, Bottom Lateral Gusset Plate L3L (90% SL)
Span 1, Panel 4, Bottom Lateral Gusset Plate L3R (70% SL)
Span 1, Panel 4, Bottom Lateral Brace L3R-L4L (70% SL)
Span 1, Panel 4, Bottom Lateral Gusset Plate L4R (50% SL)
Span 1, Panel 4, Bottom Lateral Gusset Plate L4L (80% SL)
Span 1, Panel 5, Bottom Lateral Brace L4L-L5R (60% SL)
Span 1, Panel 5, Bottom Lateral Gusset Plate L4L (60% SL)
Span 1, Panel 5, Bottom Lateral Gusset Plate L4R (60% SL)
Span 1, Panel 5, Bottom Lateral Brace L4R-L5L (60% SL)
Span 1, Panel 6, Bottom Lateral Gusset Plate L5L (70% SL)
Span 1, Panel 6, Bottom Lateral Gusset Plate L5R (70% SL)
Span 1, Panel 6, Bottom Lateral Brace L5R-L6L (50% SL)
Span 1, Panel 6, Bottom Lateral Gusset Plate L6R (70% SL)
Span 1, Panel 6, Bottom Lateral Gusset Plate L6L (80% SL)

Span 2, Panel 2, Bottom Lateral Gusset Plate L1L (40% SL)
Span 2, Panel 2, Bottom Lateral Gusset Plate L1R (70% SL)
Span 2, Panel 4, Bottom Lateral Gusset Plate L3R (60% SL)
Span 2, Panel 4, Bottom Lateral Gusset Plate L4R (50% SL)
Span 2, Panel 5, Bottom Lateral Gusset Plate L4R (40% SL)
Span 2, Panel 5, Bottom Lateral Gusset Plate L4L (50% SL)
Span 2, Panel 6, Bottom Lateral Gusset Plate L6L (50% SL)
Span 2, Panel Point L6, Stringer Strut Gusset Plate L6L (90% SL)
Span 2, Panel Point L6, Stringer Strut Gusset Plate L6R (70% SL)

Span 3, Panel Point L0, Stringer Strut Gusset Plate L0R (40% SL)
Span 3, Panel Point L0, Stringer Strut Gusset Plate L0L (90% SL)
Span 3, Panel 1, Bottom Lateral Gusset Plate L0L (60% SL)
Span 3, Panel 2, Bottom Lateral Gusset Plate L1L (40% SL)
Span 3, Panel 2, Bottom Lateral Gusset Plate L1R (40% SL)
Span 3, Panel 3, Bottom Lateral Gusset Plate L2R (60% SL)
Span 3, Panel 3, Bottom Lateral Gusset Plate L3R (50% SL)
Span 3, Panel 5, Bottom Lateral Gusset Plate L4R (90% SL)
Span 3, Panel 6, Bottom Lateral Gusset Plate L5R (50% SL)

Span 4, Panel 2, Bottom Lateral Gusset Plate L1R (40% SL)
Span 4, Panel 3, Bottom Lateral Gusset Plate L3L (50% SL)
Span 4, Panel 3, Bottom Lateral Gusset Plate L3R (50% SL)
Span 4, Panel 3, Bottom Lateral Gusset Plate L2R (70% SL)
Span 4, Panel 4, Bottom Lateral Gusset Plate L4L (50% SL)
Span 4, Panel 5, Bottom Lateral Gusset Plate L4R (60% SL)
Span 4, Panel 5, Bottom Lateral Gusset Plate L5R (60% SL)
Span 4, Panel 6, Bottom Lateral Gusset Plate L6L (50% SL)
Span 4, Panel 6, Bottom Lateral Gusset Plate L5R (40% SL)
Span 4, Panel 6, Bottom Lateral Gusset Plate L6L (90% SL)

Span 5, Panel 1, Bottom Lateral Gusset Plate L0L (40% SL)
Span 5, Panel 2, Bottom Lateral Gusset Plate L1R (50% SL)
Span 5, Panel 3, Bottom Lateral Gusset Plate L2R (50% SL)

7. Replace deteriorated lacing bars of the following truss members:

Span 1, Panel 1, Left Truss, Bottom Chord
Span 1, Panel 2, Left Truss, Bottom Chord
Span 1, Panel 3, Left Truss, Bottom Chord
Span 1, Panel 4, Left Truss, Bottom Chord
Span 1, Panel 5, Left Truss, Bottom Chord
Span 1, Panel 5, Right Truss, Bottom Chord
Span 1, Panel 6, Left Truss, Bottom Chord
Span 1, Panel 6, Right Truss, Bottom Chord

Span 1, Panel 2, Left Truss, Diagonal
Span 1, Panel 2, Right Truss, Diagonal
Span 1, Panel Point L2, Left Truss, Post
Span 1, Panel Point L2, Right Truss, Post
Span 1, Panel 3, Right Truss, Diagonal
Span 1, Panel 4, Left Truss, Diagonal
Span 1, Panel 4, Right Truss, Diagonal
Span 1, Panel Point L4, Left Truss, Post
Span 1, Panel Point L4, Right Truss, Post
Span 1, Panel 5, Left Truss, Diagonal
Span 1, Panel 5, Right truss, Diagonal

Span 2, Panel 2, Right Truss, Bottom Chord
Span 2, Panel 5, Left Truss, Bottom Chord
Span 2, Panel 3, Left Truss, Diagonal

Span 3, Panel 5, Right Truss, Bottom Chord
Span 3, Panel 6, Left Truss, Bottom Chord
Span 3, Panel 1, Left Truss, End Post
Span 3, Panel 1, Right Truss, End Post
Span 3, Panel 3, Left Truss, Diagonal
Span 3, Panel 3, Right Truss, Diagonal
Span 3, Panel 4, Right Truss, Diagonal

Span 4, Panel 1, Left Truss, Bottom Chord
Span 4, Panel 1, Right Truss, Bottom Chord
Span 4, Panel 2, Left Truss, Bottom Chord
Span 4, Panel 2, Right Truss, Bottom Chord
Span 4, Panel 6, Left Truss, Bottom Chord

Span 4, Panel 1, Left Truss, End Post
Span 4, Panel 1, Right Truss, End Post
Span 4, Panel 3, Left Truss, Diagonal
Span 4, Panel 3, Right Truss, Diagonal

Span 5, Panel 1, Left Truss, Bottom Chord
Span 5, Panel 2, Left Truss, Bottom Chord
Span 5, Panel 2, Right Truss, Bottom Chord

Span 5, Panel 5, Right Truss, Bottom Chord
Span 5, Panel 1, Left Truss, End Post
Span 5, Panel 1, Right Truss, End Post
Span 5, Panel 3, Right Truss, Diagonal
Span 5, Panel 4, Left Truss, Diagonal
Span 5, Panel 4, Right Truss, Diagonal

8. Repair or replace the following floor system components:

Span 1, at L0L, End Post-to Floorbeam connection plate (50% SL)
Span 1, at L0R, End Post-to Floorbeam connection plate (70% SL)
Span 1, at Floorbeam 0, Left Stringer Bracket top flange angles (95% & 70% SL)
Span 1, at Floorbeam 0, Right Stringer Bracket top flange outboard angle (30% SL)
Span 1, Panel 3, Stringer Top Lateral Right Gusset, Mty end (40% SL)
Span 1, at Floorbeam 3, Left Floorbeam Bracket connection angles (50% SL)
Span 1, at Floorbeam 3, Right Floorbeam Bracket connection angles (60% SL)
Span 1, Panel 4, Stringer Top Lateral (2) diagonals (50% SL)
Span 1, at Floorbeam 4, Left Floorbeam Bracket connection angles (40% SL)
Span 1, at Floorbeam 4, Right Floorbeam Bracket connection angles (40% SL)
Span 1, at Floorbeam 5, Left Floorbeam Bracket plate (40% SL)
Span 1, at Floorbeam 5, Left Floorbeam Bracket connection angles (75% SL)
Span 1, at Floorbeam 5, Right Floorbeam Bracket plate (30% SL)
Span 1, at Floorbeam 5, Right Floorbeam Bracket connection angles (90% SL)
Span 1, Floorbeam 6, Floorbeam bottom flange angles (70% & 40% SL)
Span 1, at L6L, End Post-to-Floorbeam connection plate (80%)
Span 1, at L6R, End Post-to-Floorbeam connection plate (100% SL)
Span 1, at Floorbeam 6, Left Stringer Bracket top flange angles (80% & 70% SL)
Span 1, at Floorbeam 6, Right Stringer Bracket top flange (100% & 80% SL)

Span 2, Panel 6, Left Stringer bottom flange (30% SL)

Span 3, Panel 1, Left Stringer bottom flange (20% SL)
Span 3, Panel 6, Left Stringer strut gusset (40% SL)
Span 3, Panel 6, Right Stringer strut gusset (60% SL)

Span 4, Panel 1, Left Stringer strut gusset (90% SL)
Span 4, Panel 1, Right Stringer strut (30% SL)
Span 4, Panel 1, Right Stringer strut gusset (50% SL)
Span 4, Panel 1, Stringer Top Lateral L0 Gusset (100% SL)
Span 4, Panel 6, Left Stringer strut gusset (80% SL)
Span 4, Panel 6, Right Stringer strut gusset (65% SL)

Span 5, Panel 1, Left Stringer strut gusset (90% SL)
Span 5, Panel 1, Right Stringer strut (40% SL)
Span 5, Panel 1, Right Stringer strut gusset (40% SL)
Span 5, Panel 1, Right Stringer bottom flange (30% SL)
Span 5, Floorbeam 3, Floorbeam top flange (30% SL)

9. Rehabilitate stringer expansion bearings at Spans 2, 3, 4, and north end of Span 5 including replacement of sole plates and shim plates, and replacement or re-surfacing bed plates. Replace (2) broken/bent anchor bolts at panel L6 stringer expansion bearing left and right side.

10. Replace all timber ties and spacers. Timber ties will need to be bored and dapped prior to being treated.

11. Clean and overcoat all bridge members and seal corrosion hole pockets

Substructure

12. Repair crack in Abutment No. 1 at right truss bearing

APPENDIX F

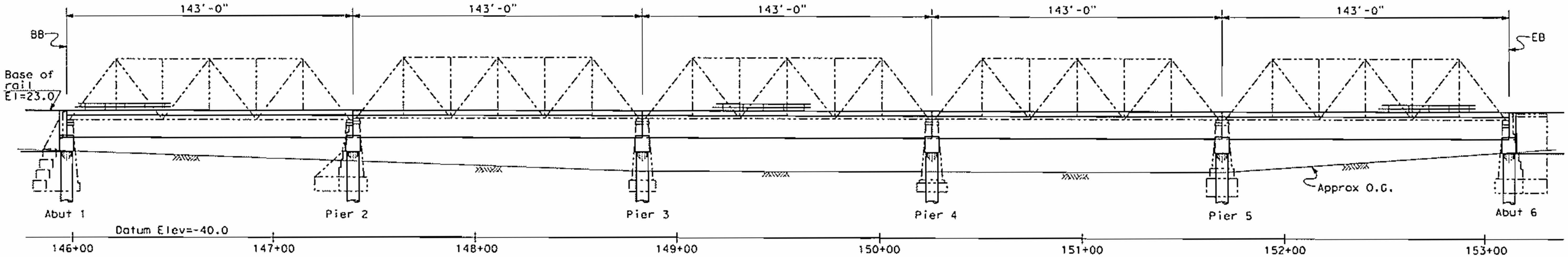
Updated Bridge Rehabilitation & Replacement Cost Estimates Salinas River Bridge No. 113.46

Parsons Transportation Group
May 3, 2010

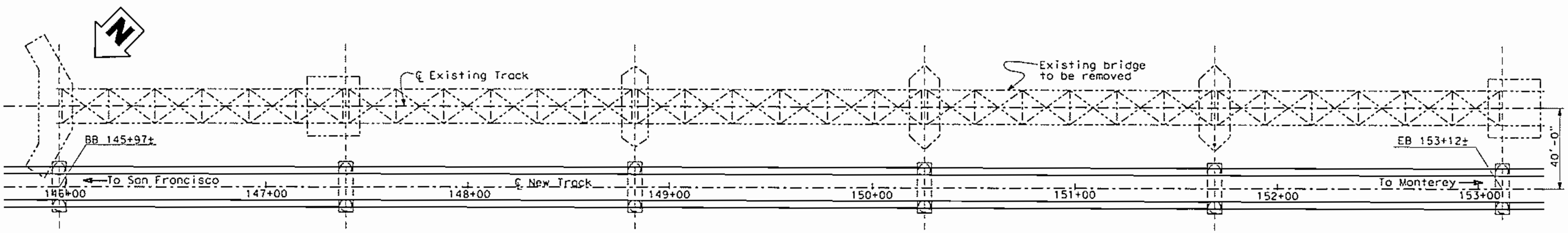
TABLE OF CONTENTS

PREPARED FOR THE TRANSPORTATION AGENCY FOR MONTEREY COUNTY

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT



ELEVATION
1"=50'-0"



PLAN
1"=50'-0"

LEGEND:

------ Indicates existing structure
—— Indicates new structure

Notes:

1. Datum elevation shown taken from the 1904 As-Built Plans.
2. Ground elevation is based on 1997 field inspection report.
3. Bridge is located at M.P.113.46.

DESIGNED BY	S.A/E.M.	DATE	
DRAWN BY	E.M.	DATE	
CHECKED BY		DATE	
APPROVED		DATE	

PARSONS
120 HOWARD STREET, SUITE 850
SAN FRANCISCO, CALIFORNIA 94105

SALINAS RIVER BRIDGE STRATEGY REPORT

GENERAL PLAN

BRIDGE NO.		CU
SCALE:	AS NOTED	EA

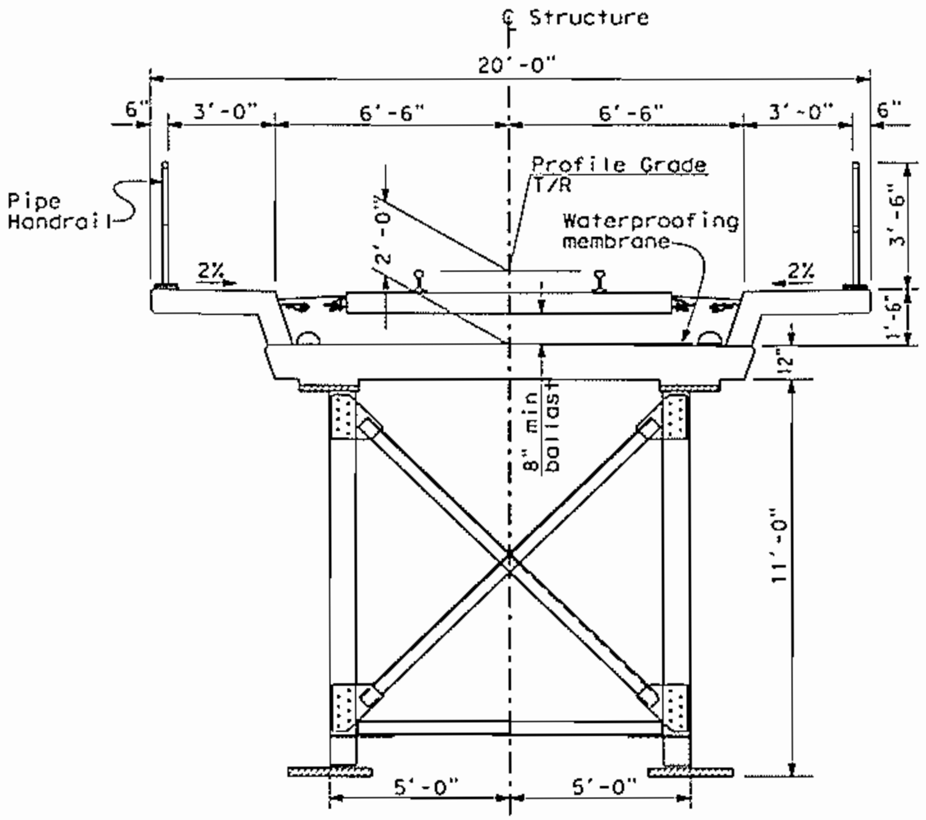
ADVANCE PLANNING STUDY SHEET (METRIC) (REV. 3/1/99)

FILE => q:\646120\120gp1.sht

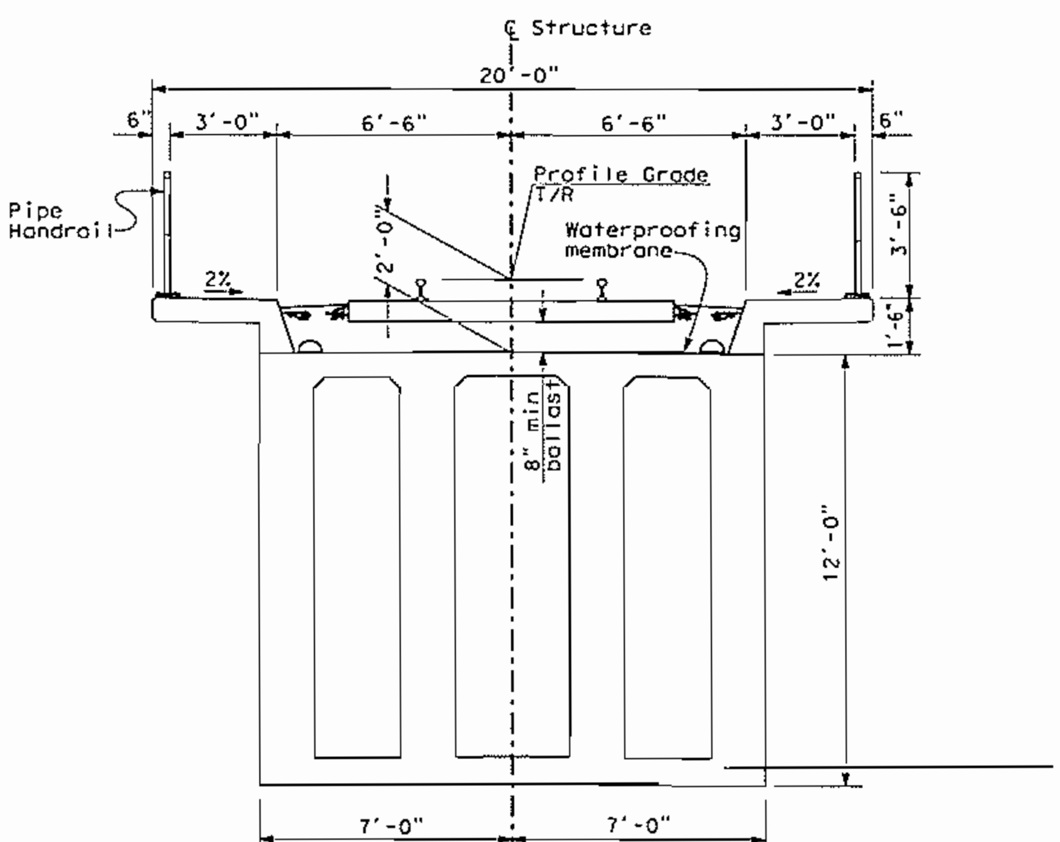
USERNAME => $USER1 DATE PLOTTED => 10/07/2004 TIME PLOTTED => 01:48:11 PM

PREPARED FOR THE TRANSPORTATION AGENCY FOR MONTEREY COUNTY

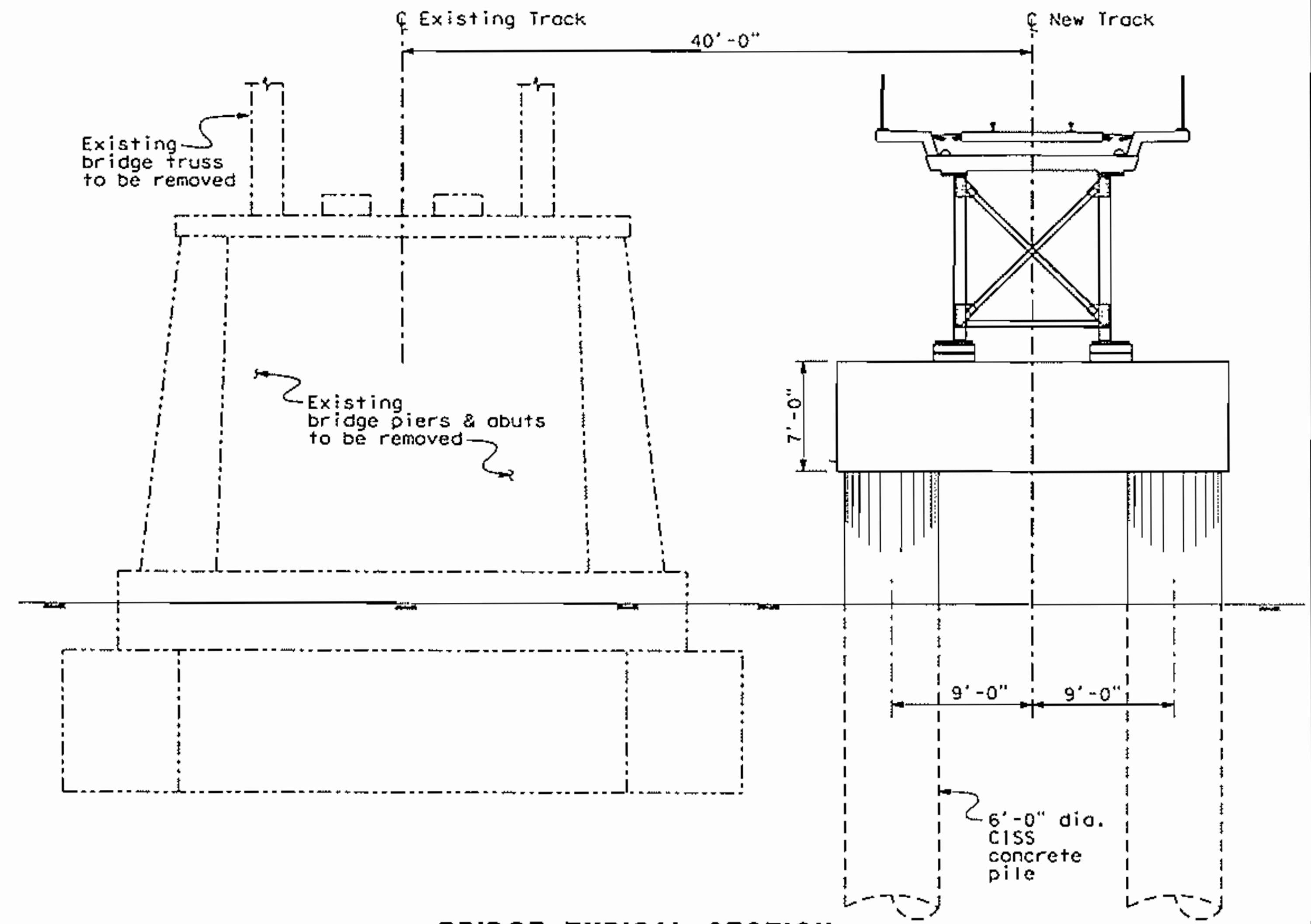
DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT



TYPICAL SECTION
STEEL DECK PLATE GIRDERS
3/16"=1'-0"



TYPICAL SECTION
PS CONCRETE BOX GIRDERS
3/16"=1'-0"



BRIDGE TYPICAL SECTION
1/32"=1'-0"

DESIGNED BY	S.A/E.M.	DATE
DRAWN BY	E.M.	DATE
CHECKED BY		DATE
APPROVED		DATE

PARSONS
120 HOWARD STREET, SUITE 850
SAN FRANCISCO, CALIFORNIA 94105

SALINAS RIVER BRIDGE
STRATEGY REPORT
TYPICAL SECTION

BRIDGE NO.	CU
SCALE: AS NOTED	EA

ADVANCE PLANNING STUDY SHEET (METRIC) (REV. 3/1/99)

FILE => q:\646120\120gp1.sht

USERNAME => $USER$ DATE PLOTTED => 10/14/2004 TIME PLOTTED => 10:29:02 AM

	GENERAL PLAN ESTIMATE	X	ADVANCE PLANNING ESTIMATE

RCVD BY:

IN EST:

OUT EST:

BRIDGE:	SALINAS RIVER BRIDGE (retrofit)	**BR. No.:**	MP 113.46	**DISTRICT:**	
TYPE:	STEEL THROUGH TRUSS			**RTE:**	
CU:				**CO:**	
EA:				**PM:**	
LENGTH:	715.00	**WIDTH:**	20.00	**AREA (SF)=**	14,300

DESIGN SECTION:			
# OF STRUCTURES IN PROJECT :		**EST. NO.**	
PRICES BY :	S. Drees	**COST INDEX:**	
PRICES CHECKED BY :		**DATE:**	
QUANTITIES BY:		**DATE:**	

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	REALIGN TRUSS SPANS		LS			$72,000.00
2	REPLACE ALL TRUSS EXPANSION BEARINGS		LS			$212,000.00
3	REPLACE FIXED BEARING PEDESTALS		LS			$102,000.00
	SPANS 2,3,4					
4	REPLACE DETERIORATED SECTIONS OF TOP		LS			$348,000.00
	CHORD, COVER PLATES, ALL SPANS					
5	REPAIR AREAS OF SIGNIFICANT SECTION LOSS		LS			$374,000.00
	IN PRIMARY TRUSS MEMBERS					
6	REPAIR AND REPLACE TRUSS BRACING		LS			$440,000.00
	COMPONENTS					
7	REPLACE DETERIORATED LACING BARS		LS			$421,000.00
	OF THE TRUSS MEMBERS					
8	REPAIR AND REPLACE FLOOR SYSTEM		LS			$86,000.00
	COMPONENTS					
9	REPAIR STRINGER EXPANSION BEARINGS		LS			$50,000.00
	SPANS 2,3, AND 4					
10	CLEAN AND PAINT ALL BRIDGE MEMBERS		LS			$1,940,000.00
11	REPAIR ABUTMENT 1 CONCRETE CRACK		LS			$12,000.00
12	PIPE HANDRAIL		LF	1,430	$31.00	$44,330.00
13	SEISMIC AND SCOUR MONITORING		LS			$260,000.00
14	REPLACE ALL TIMBER TIES		LS			$211,000.00

SUBTOTAL		$4,572,330
MOBILIZATION (@ 10 %)		$457,233
SUBTOTAL BRIDGE ITEMS		$5,029,563
CONTINGENCIES	(@ 25%)	$1,257,391
BRIDGE TOTAL COST		$6,286,954
COST PER SQ. FOOT		$439.65
BRIDGE REMOVAL (CONTINGENCIES INCL.)		
GRAND TOTAL		$6,286,954
BUDGET ESTIMATE AS OF		**$6,287,000**

	GENERAL PLAN ESTIMATE	X	ADVANCE PLANNING ESTIMATE

RCVD BY:

IN EST:

OUT EST:

BRIDGE:	SALINAS RIVER BRIDGE (retrofit including substructure)	**BR. No.:**	MP 113.46	**DISTRICT:**	
TYPE:	STEEL THROUGH TRUSS			**RTE:**	
CU:				**CO:**	
EA:				**PM:**	
LENGTH:	715.00	**WIDTH:**	20.00	**AREA (SF)=**	14,300

DESIGN SECTION:			
# OF STRUCTURES IN PROJECT :		**EST. NO.**	
PRICES BY :	S. Drees	**COST INDEX:**	
PRICES CHECKED BY :		**DATE:**	
QUANTITIES BY:		**DATE:**	

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	REALIGN TRUSS SPANS		LS			$72,000.00
2	REPLACE ALL TRUSS EXPANSION BEARINGS		LS			$212,000.00
3	REPLACE FIXED BEARING PEDESTALS		LS			$102,000.00
	SPANS 2,3,4					
4	REPLACE DETERIORATED SECTIONS OF TOP		LS			$348,000.00
	CHORD, COVER PLATES, ALL SPANS					
5	REPAIR AREAS OF SIGNIFICANT SECTION LOSS		LS			$374,000.00
	IN PRIMARY TRUSS MEMBERS					
6	REPAIR AND REPLACE TRUSS BRACING		LS			$440,000.00
	COMPONENTS					
7	REPLACE DETERIORATED LACING BARS		LS			$421,000.00
	OF THE TRUSS MEMBERS					
8	REPAIR AND REPLACE FLOOR SYSTEM		LS			$86,000.00
	COMPONENTS					
9	REPAIR STRINGER EXPANSION BEARINGS		LS			$50,000.00
	SPANS 2,3, AND 4					
10	CLEAN AND PAINT ALL BRIDGE MEMBERS		LS			$1,940,000.00
11	PIPE HANDRAIL		LF	1,430	$31.00	$44,330.00
12	REPLACE ALL TIMBER TIES		LS			$211,000.00
13	STRUCTURE EXCAVATION (BRIDGE)		CY	533	$65.00	$34,645.00
14	STRUCTURE BACKFILL (BRIDGE)		CY	213	$90.00	$19,170.00
15	FURNISH AND INSTALL 84" CISSC CONCRETE		LF	1,560	$1,960.00	$3,057,600.00
	PILES					
16	STRUCTURAL CONCRETE BRIDGE		CY	1,908	$1,090.00	$2,079,720.00
17	BAR REINFORCING STEEL (BRIDGE)		LB	547,000	$1.10	$601,700.00

SUBTOTAL		$10,093,165
MOBILIZATION (@ 10 %)		$1,009,317
SUBTOTAL BRIDGE ITEMS		$11,102,482
CONTINGENCIES	(@ 25%)	$2,775,620
BRIDGE TOTAL COST		$13,878,102
COST PER SQ. FOOT		$970.50
BRIDGE REMOVAL (CONTINGENCIES INCL.)		$553,185
GRAND TOTAL		$14,431,287
BUDGET ESTIMATE AS OF		**$14,431,000**

	GENERAL PLAN ESTIMATE	X	ADVANCE PLANNING ESTIMATE

RCVD BY:

IN EST:

OUT EST:

BRIDGE:	SALINAS RIVER BRIDGE (replace span 1)	**BR. No.:**	MP 113.46	**DISTRICT:**	
TYPE:	STEEL THROUGH TRUSS/STEEL DECK PLATE GIRDER			**RTE:**	
CU:				**CO:**	
EA:				**PM:**	
	LENGTH:	715.00	**WIDTH:** 20.00	**AREA (SF)=**	14,300

DESIGN SECTION:			
# OF STRUCTURES IN PROJECT :		**EST. NO.**	
PRICES BY :	S. Drees	**COST INDEX:**	
PRICES CHECKED BY :		**DATE:**	
QUANTITIES BY:		**DATE:**	

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	REALIGN TRUSS SPANS		LS			$72,000.00
2	REPLACE ALL TRUSS EXPANSION BEARINGS		LS			$212,000.00
3	REPLACE FIXED BEARING PEDESTALS		LS			$102,000.00
	SPANS 2,3,4					
4	REPLACE DETERIORATED SECTIONS OF TOP		LS			$263,000.00
	CHORD, COVER PLATES, ALL SPANS					
5	REPAIR ARES OF SIGNIFICANT SECTION LOSS		LS			$44,000.00
	IN PRIMARY TRUSS MEMBERS					
6	REPAIR AND REPLACE TRUSS BRACING		LS			$378,000.00
	COMPONENTS					
7	REPLACE DETERIORATED LACING BARS		LS			$148,000.00
	OF THE TRUSS MEMBERS					
8	REPAIR AND REPLACE FLOOR SYSTEM		LS			$28,000.00
	COMPONENTS					
9	REPAIR STRINGER EXPANSION BEARINGS		LS			$50,000.00
	SPANS 2,3, AND 4					
10	CLEAN AND PAINT ALL BRIDGE MEMBERS		LS			$1,550,000.00
11	PIPE HANDRAIL		LF	286	$31.00	$8,866.00
12	SEISMIC AND SCOURER MONITORING		LS			$260,000.00
13	REPLACE ALL TIMBER TIES		LS			$211,000.00
14	STRUCTURE EXCAVATION (BRIDGE)		CY	266	$65.00	$17,290.00
15	STRUCTURE BACKFILL (BRIDGE)		CY	107	$90.00	$9,630.00
16	FURNISH AND INSTALL 84" CISSC CONCRETE		LF	520	$2,174.00	$1,130,480.00
	PILES					
17	STRUCTURAL CONCRETE BRIDGE		CY	636	$1,090.00	$693,240.00
18	BAR REINFORCING STEEL (BRIDGE)		LB	182,333	$1.10	$200,566.30
19	FURNISH STRUCTURAL STEEL		LB	203,768	$1.33	$271,011.44
20	ERECT STRUCTURAL STEEL		LB	203,768	$0.50	$101,884.00

SUBTOTAL		$5,750,968
MOBILIZATION (@ 10 %)		$575,097
SUBTOTAL BRIDGE ITEMS		$6,326,065
CONTINGENCIES	(@ 25%)	$1,581,516
BRIDGE TOTAL COST		$7,907,581
COST PER SQ. FOOT		$552.98
BRIDGE REMOVAL (CONTINGENCIES INCL.)		$110,000
GRAND TOTAL		$8,017,581
BUDGET ESTIMATE AS OF		**$8,018,000**

	GENERAL PLAN ESTIMATE	X	ADVANCE PLANNING ESTIMATE

RCVD BY:

IN EST:
OUT EST:

BRIDGE:	SALINAS RIVER BRIDGE (new track alignment)	**BR. No.:**	MP 113.46	**DISTRICT:**	
TYPE:	PRESTRESSED CONCRETE BOX GIRDER			**RTE:**	
CU:				**CO:**	
EA:				**PM:**	
LENGTH:	715.00	**WIDTH:**	20.00	**AREA (SF)=**	14,300

DESIGN SECTION:			
# OF STRUCTURES IN PROJECT :		**EST. NO.**	
PRICES BY :	S. Drees	**COST INDEX:**	
PRICES CHECKED BY :		**DATE:**	
QUANTITIES BY:		**DATE:**	

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE)		CY	103	$65.00	$6,695.00
2	STRUCTURE BACKFILL (BRIDGE)		CY	48	$90.00	$4,320.00
3	FURNISH AND INSTALL 84" CISSC CONCRETE		LF	1,560	$1,960.00	$3,057,600.00
4	PILES					
5	STRUCTURAL CONCRETE BRIDGE		CY	2,716	$980.00	$2,661,680.00
6	BAR REINFORCING STEEL (BRIDGE)		LB	760,000	$1.10	$836,000.00
7	PRESTRESSING CONCRETE		LS	1	$417,000.00	$417,000.00
8	JOINT SEAL ASSEMBLY		LF	40	$220.00	$8,800.00
9	PIPE HANDRAIL		LF	1,430	$31.00	$44,330.00
10	EMBANKMENT		LS	1	$470,000.00	$470,000.00
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SUBTOTAL		$7,506,425
MOBILIZATION (@ 10 %)		$750,643
SUBTOTAL BRIDGE ITEMS		$8,257,068
CONTINGENCIES	(@25%)	$2,064,267
BRIDGE TOTAL COST		$10,321,334
COST PER SQ. FOOT		$721.77
BRIDGE REMOVAL (CONTINGENCIES INCL.)		$553,185
GRAND TOTAL		$10,874,519
BUDGET ESTIMATE AS OF		**$10,875,000**

	GENERAL PLAN ESTIMATE	X	ADVANCE PLANNING ESTIMATE

RCVD BY:

IN EST:
OUT EST:

BRIDGE:	SALINAS RIVER BRIDGE (new track alignment)	**BR. No.:**	MP 113.46	**DISTRICT:**	
TYPE:	STEEL DECK PLATE GIRDER			**RTE:**	
CU:				**CO:**	
EA:				**PM:**	
	LENGTH:	715.00	**WIDTH:** 20.00	**AREA (SF)=**	14,300

DESIGN SECTION:			
# OF STRUCTURES IN PROJECT :		**EST. NO.**	
PRICES BY :	S. Drees	**COST INDEX:**	
PRICES CHECKED BY :		**DATE:**	
QUANTITIES BY:		**DATE:**	

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE)		CY	103	$65.00	$6,695.00
2	STRUCTURE BACKFILL (BRIDGE)		CY	48	$90.00	$4,320.00
3	FURNISH AND INSTALL 72" CISSC CONCRETE		LF	1,560	$1,620.00	$2,527,200.00
4	PILES					
5	STRUCTURAL CONCRETE BRIDGE		CY	876	$1,090.00	$954,840.00
6	BAR REINFORCING STEEL (BRIDGE)		LB	302,000	$1.10	$332,200.00
7	FURNISH STEEL STRUCTURE		LB	1,222,605	$1.33	$1,626,064.65
8	ERECT STEEL STRUCTURE		LB	1,222,605	$0.50	$611,302.50
9	PIPE HANDRAIL		LF	1,430	$31.00	$44,330.00
10	EMBANKMENT		LS	1	$470,000.00	$470,000.00
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SUBTOTAL		$6,576,952
MOBILIZATION (@ 10 %)		$657,695
SUBTOTAL BRIDGE ITEMS		$7,234,647
CONTINGENCIES	(@25%)	$1,808,662
BRIDGE TOTAL COST		$9,043,309
COST PER SQ. FOOT		$632.40
BRIDGE REMOVAL (CONTINGENCIES INCL.)		$553,185
GRAND TOTAL		$9,596,494
BUDGET ESTIMATE AS OF		**$9,596,000**

	GENERAL PLAN ESTIMATE	X	ADVANCE PLANNING ESTIMATE

RCVD BY:

IN EST:

OUT EST:

BRIDGE:	SALINAS RIVER BRIDGE (same track alignment)	**BR. No.:**	MP 113.46	**DISTRICT:**	
TYPE:	STEEL DECK PLATE GIRDER			**RTE:**	
CU:				**CO:**	
EA:				**PM:**	
LENGTH:	715.00	**WIDTH:**	20.00	**AREA (SF)=**	14,300

DESIGN SECTION:

 # OF STRUCTURES IN PROJECT : **EST. NO.**

PRICES BY : S. Drees **COST INDEX:**

PRICES CHECKED BY : **DATE:**

QUANTITIES BY: **DATE:**

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	PRICE	AMOUNT
1	STRUCTURE EXCAVATION (BRIDGE)		CY	533	$65.00	$34,645.00
2	STRUCTURE BACKFILL (BRIDGE)		CY	213	$90.00	$19,170.00
3	FURNISH AND INSTALL 84" CISSC CONCRETE		LF	1,560	$1,960.00	$3,057,600.00
4	PILES					
5	STRUCTURAL CONCRETE BRIDGE		CY	1,908	$1,090.00	$2,079,720.00
6	BAR REINFORCING STEEL (BRIDGE)		LB	547,000	$1.10	$601,700.00
7	FURNISH STEEL STRUCTURE		LB	1,222,605	$1.33	$1,626,064.65
8	ERECT STEEL STRUCTURE		LB	1,222,605	$0.50	$611,302.50
9	PIPE HANDRAIL		LF	1,430	$31.00	$44,330.00
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SUBTOTAL		$8,074,532
MOBILIZATION (@ 10 %)		$807,453
SUBTOTAL BRIDGE ITEMS		$8,881,985
CONTINGENCIES	(@25%)	$2,220,496
BRIDGE TOTAL COST		$11,102,482
COST PER SQ. FOOT		$776.40
BRIDGE REMOVAL (CONTINGENCIES INCL.)		$553,185
GRAND TOTAL		$11,655,667
BUDGET ESTIMATE AS OF		**$11,656,000**