Exhibit F

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California Department of Transportation

CALTRANS DISTRICT 5
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December 6, 2022

Mr. Phil Angelo, Associate Planner
Monterey County Housing and Community Development Department (HCD)
1441 Schilling Place, South 2nd Floor
Salinas, CA 93901
Submitted via email to angelop@co.monterey.ca.us

Subject: Response to County Questions Raised in Historic Resources Review Board Staff Report, dated December 1, 2022
Reference: Garrapata Creek Bridge Railing Replacement Project (PLN220090)

Dear Mr. Angelo:

We appreciate County staff's time and effort in reviewing Caltrans' application material for the above referenced project. We understand that there is a large volume of information that Caltrans has prepared for the project in addition to the State law governing the development and programming of the project and Caltrans' authority to repair and maintain the State Highway System to ensure public safety. We would urge County staff, decision-makers and interested members of the public to review all of the submitted information to ensure that evaluation of the project is based upon accurate and complete information.

As stated in our application material, the proposed project is funded through Caltrans' State Highway Operation and Protection Program (SHOPP), not "grant funding." The SHOPP is for the expenditure of transportation funds for major capital improvements that are necessary to preserve and protect the State Highway System. Projects included in the program are for improvements relative to the maintenance, safety, operation, and rehabilitation of state highways and bridges.

Prior to the item being heard by the Historic Resources Review Board (HRRB) on January 5, 2022, we would like to clarify and answer the questions raised in the staff report as well as additional questions raised by members of the HRRB on December 1, 2022, to avoid any confusion during the HRRB's consideration of the project. Below are responses to staff's questions on the project contained in Exhibit A (Discussion) of the HRRB staff report and the main body of the staff report (in bold)(also contained in Enclosure 1) and additional questions raised by the HRRB on December 1, 2022.

Staff Report Main Body Comment 1. Clarification of the historic structure impact assessment.

It is inferred from the EIR and historic reports, but not clearly stated in these documents, that the bridge rails are character defining features and that their replacement is consistent with the Secretary of the Interior Standards for Rehabilitation.

and

Staff Report Exhibit A Comment 1. Big Sur Coast Land Use Plan

CIP section 20.145.110.B. indicates that a historical site survey shall be required for all development on known or suspected historical sites. A survey report was prepared October 2020 by Cal Trans District 5 Principal Architectural Historian, Daniel Leckie. The report is divided into two sections, a "Tier 2" report specific to the Garrapata bridge rail replacement project, and a "Tier 1" historical report discussing the potential replacement of bridge rails on the five other historic open spandrel concrete bridges in Big Sur. Attached to the Tier 1 report is also the Department of Parks and Recreation (DPR) forms which provide a historical evaluation and context for the Carmel-San Simeon Highway Historic District.

While the report does outline several inter-related procedural requirements for federal and state historical review, it does not contain certain details necessary to make a finding of consistency with the development standards in the CIP. Specifically:

- **Significance. The report does not specify what the sites primary (historically defining) features are, pursuant to CIP section 20.145.110.B.4.b. This is important as it will allow us to evaluate whether the proposed rail is keeping with the historically defining features of the existing bridge. Per CIP section 20.145.110.C.1, "Where development is proposed on parcels with an identified historical site, such development shall be compatible with the site through incorporation of appropriate design, structural and architectural features, siting, location, and other techniques as recommended in the historical survey prepared for the project.".**
- **Impact. While the supplemental letter, EIR, and historic assessment indicate that there are impacts to cultural (historical) resources, with Cal Trans certified EIR indicating that those impacts will be mitigated to a less than significant level, the report does not assess what the specific impacts to the historical site will be, as required by CIP section 20.145.110.B.4.c. This is not possible without first establishing the bridges historically defining characteristics, however, this would also be essential to the project analysis. Once the project is complete, would the resulting bridge still be eligible for**

listing on CRHR or NRHR? Would the different historic criteria be affected differently? How would the CSSHD be effected?

- **Recommendations. In accordance with CIP section 20.145.110.B.4.d, the historic assessment should contemplate the relative impact of alternatives (discussed in the CEQA section below) to historical resources, and include recommendations to mitigate any impacts (additional to those included in the MOU with the State Historic Preservation Officer). Consider including recommendations for the concrete texture and color that would minimize impact to the historic bridge.**

Response: The Finding of Adverse Effect (FAE) that was prepared for Section 106 Consultation with the SHPO for the project is incorporated herein by reference as Enclosure 2 and contains the requested information. This FAE as well as the Memorandum of Agreement from the SHPO are contained in appendices to the Final Historic Property Survey Report (HPSR) for the project dated December 2020 and included in the Final Tier 1 and Tier 2 EIR for the project. The December 2020 HPSR was transmitted to the County on our FTP site on December 2, 2022.

Concrete color and texture were discussed during the ADAC meetings held for the project; Caltrans intends to match the existing bridge rail as closely as possible per the ADAC's recommendations.

Staff Report Exhibit A Comment 2. California Environmental Quality Act

Comment on Objectives.

Pg 1 of the supplemental application information packet submitted August 15, 2022 describes the project purpose as "This project proposes to upgrade the existing nonstandard bridge railing to current standards in order to ensure the safety and reliability of Highway 1." This purpose is similar to that detailed in section 1.2.1 of the EIR. Please list the objectives of the project in more detail, per CEQA Guidelines section 15124(b). Defining the sole purpose of the project to be the preferred alternative, replacement of an existing rail with a new compliant rail, forecloses evaluation of a reasonable range of project alternatives as required by CEQA.

Response: The "purpose" in Caltrans' environmental documentation comprises the "project objectives" required in CEQA. The purpose and need in the Tier 1 and Tier 2 EIR for the project (Staff Report Exhibit E) are as follows:

> "*<u>Purpose</u>*
>
> *The purpose of the Tier 1 Big Sur Bridge Rail Replacement Program and Tier 2 Garrapata Creek Bridge Rail Replacement project is to replace the*

existing nonstandard concrete baluster bridge rails and approach rails with rails that meet current state and federal traffic safety standards to ensure the reliability of State Route 1.

Need

The Tier 1 Big Sur Bridge Rail Replacement Program is needed because the existing rails do not meet current traffic safety standards.

The Tier 2 Garrapata Creek Bridge Rail Replacement project is needed because the existing rails do not meet current traffic safety standards, and as stated in the 2015 Bridge Inspection Report, portions of the existing Garrapata Creek Bridge rails have developed severe cracking caused by deterioration of concrete and reinforcing steel.

The upcoming projects are necessary due to various levels of deterioration of the existing railing on all six bridges, and the railing no longer meets current traffic safety standards. Caltrans Structure Maintenance and Investigations crews inspected all six bridges in 2019, and the bridge rails on all six bridges were given a poor rating in the Bridge Inventory Status Report.

The Manual for Assessing Safety Hardware, which was implemented as an agreement between the Federal Highway Administration and the American Association of State Highway Transportation Officials in 2009 (updated in 2016), sets the standards for highway safety equipment. Newly adopted Manual for Assessing Safety Hardware standards have mandated that all new installations of roadside safety devices on high-speed roadways, including bridge railing, must meet a new higher standard for crash testing for all projects advertised as of December 31, 2019, without exception.

Manual for Assessing Safety Hardware standards dictate both the structural performance as well as the height and width dimensions of new railing. The existing railings are insufficient by current Manual for Assessing Safety Hardware standards for the posted speed limits on this stretch of State Route 1, so it is not possible to accomplish the purpose of the project and replace the existing railing in-kind moving forward. Portions of the existing Garrapata Creek Bridge rail are in an accelerated state of deterioration, including the concrete spalling and exposed steel reinforcing bar. This deterioration may pose a hazard to public health and safety moving forward if allowed to continue unaddressed."

As specified in CEQA Guidelines Section 15124(b), the lead agency has the discretion to develop its own project description as well as the project objectives. Aside from the preferred alternative, the environmental document analyzed three additional alternatives. However, they did not meet the purpose and need of the project and therefore were eliminated from consideration.

The Tier 1 and Tier 2 EIR has already been circulated for public comment and has been certified. Public comment was not received from Monterey County HCD. Caltrans is not electing to revise the objectives of the project. Furthermore, the EIR prepared for the project contains an evaluation of a reasonable range of alternatives as discussed under the following question and response.

Comments on Alternatives

Comment on Repair. As assessed by a qualified architectural historian and structural engineer, and notwithstanding compliance with Cal Trans standards, is repair of the existing rails possible? The 2021 Division of Maintenance report attached to the supplemental letter dated August 15, 2022 indicates that conditions had not significantly changed since a previous report in 2015, and indicates that the 2009 work recommendation to rehabilitate the rails is still valid, "Remove any unsound concrete from the delaminated and spalled areas throughout both bridge rails. Clean and paint any exposed steel and patch or recast the resulting spalled areas."

Response: Below is a description provided by Kelly McClain the District Chief of Maintenance and Caltrans' Structures Maintenance & Investigations (SM&I) of how projects are identified and developed from inspection reports:

- With respect to bridge inspection reports, the Area Bridge Maintenance Engineer provides a condition assessment based on field observations only. It is intended to highlight that action is needed. The work recommendation does not speak to the feasibility of any one course of action. Generally, work recommendations remain in the system until addressed.
- The Garrapata Creek Bridge rail is rated as Poor in the Bridge Rail Replacement and Upgrade asset category of the SHOPP. The Good-Fair-Poor assessment is mandated by FHWA as part of Moving Ahead for Progress in the 21st Century Act (MAP-21) legislation. MAP-21 requires States to adopt national asset management performance measures to establish nationwide consistency for pavement and bridge condition reporting (2021 State Highway System Management Plan [SHSMP], page 1-3)
- Poor Bridge Rail is based on rail type and rail deemed to not be crash-worthy **regardless of speed**.

- Once a project is initiated, the design effort begins which includes studies, models and in-depth analysis. This engineering analysis for the Garrapata Creek Bridge railing has led to the development of the Type 86H.
- Because the bridge rail is a safety feature, it must be brought up to current MASH standards. **Therefore, replacement is the only repair strategy.**
- Ongoing deterioration has been documented in the historical bridge inspection reports.

The 2009 Bridge Inspection Report is attached in Enclosure 3. Page 2 of the 2009 Bridge Inspection Report states "However, the railing needs replacement. An e-mail was sent to Roger Hunter 2/24/11 requesting the rail replacement be expedited."

Comment on Replacement with a Non-Standard Alternative. The conclusion of section 4 of the supplemental letter submitted August 15, 2022 indicates that "The Caltrans District 5 Traffic Safety Engineer has made the determination that he will not be recommending an exception to the MASH standard for the new bridge railing for the Garrapata Creek Bridge." (Pg. 7) Other areas of the document indicate that exceptions to MASH are simply not possible, "As of December 31st, 2019, Caltrans requires that bridge rails comply with MASH standards without exception." (Pg. 6) The Cal Trans Highway design manual referenced in the letter appears to contemplate non-standard designs for certain highway elements. Is replacement with a non-standard rail precluded from consideration by a specific statutory requirement? If not precluded by statute, would an exception to the standards require a specific approval within Cal Trans, and the appropriate authority to make that determination in Cal Trans would not be able to support such an exception?

Response: The statement that "The Caltrans District 5 Traffic Safety Engineer has made the determination that he will not be recommending an exception to the MASH standard for the new bridge railing for the Garrapata Creek Bridge." is meant to reiterate that the Caltrans District 5 Traffic Safety Engineer is responsible for ensuring that the bridge rail selection follows the Traffic Safety Systems Guidance (TSSG) and other Caltrans MASH implementation policy. Design exceptions for the non-MASH compliant bridge rail designs are not allowed by Caltrans per the "2019 MASH Implementation Memo" discussed in the supplemental application information submitted on August 15, 2022 (see "4. Applicable Design Standards, starting on page 7 of the pdf file for Exhibit D of the staff report) and re-attached herein as Enclosure 4. The applicable and relevant sections of the memorandum below are underlined.

> *"On December 23, 2016, the California Department of Transportation (Caltrans) established a timeline for implementation of roadside safety*

> *hardware and evaluation of new products under the Manual for Assessing Safety Hardware (MASH). The plan set specific dates when* ***Caltrans will no longer allow the installation of non-MASH compliant safety devices.***
>
> ***If one or more Caltrans approved MASH compliant safety devices are available for a specific need, Caltrans must use the safety device(s)****…*
>
> …
>
> ***These requirements apply to all projects and work done on the State highway system."***

Section 82.1(2) of the Highway Design Manual regarding *Application of Standards* define "absolute requirements" of the design standards as follows: "Design guidance related to requirements of law, policy, or statute that do not allow exception are phrased by the use of 'must,' 'is required,', 'without exception,' 'are to be,' 'is to be,' 'in no event,' or a combination of these terms." (page 87)

Staff Report Main Body Comment No. 2: Project Justification

The County and the public have questions the need for replacement of the bridge rails. Questions have been raised about:

a. The ability to reduce the speed limit, which affects the replacement rail design requirements. - Staff analysis is that this issue has been addressed by CalTrans and the speed cannot/should not be reduced.

Response: Lowering the speed limit was evaluated as an alternative in the EIR and was rejected as further discussed in the supplemental application information submitted on August 15, 2022 (on page 10 of the pdf file for Exhibit D of the staff report). Furthermore, Assembly Bill (AB)1938 prohibits reductions of the speed limit by more than 7.4 mph below the 85th percentile speed on the State Highway System. The 85th percentile speed near the Garrapata Creek Bridge was spot surveyed at 58 mph.

b. Is it possible to apply exceptions to current safety standards for preservation of Historic Resources? - Staffs analysis is that this question has not been adequately addressed and there may still be opportunity to repair the existing rails or to replace the rails in kind.

Response: The supplemental application information submitted on August 15, 2022 includes a response to this question (under "4. Applicable Design Standards, starting on page 7 of the pdf file for Exhibit D of the staff report). Also,

please see the above response to Staff Report Exhibit A Comment No. 2 on Alternatives. Design exceptions are not allowed for this project.

Staff Report Main Body Comment No. 3: Cumulative Effects

Will the decision on the Garrapata bridge rails have a cumulative effect on all seven historic concrete arch bridges? - Staffs analysis is that this issue is not clearly explained by CalTrans. It is staff's opinion that the decision on the Garrapta bridge rails can and will influence future decisions on bridge rails on the six other historic concrete bridges.

and

Exhibit A Comment on Cumulative Impacts

As this project is a pilot for the replacement of the rails on the other five historic bridges in Big Sur, an analysis of potential cumulative impacts to historical resources. Examples to address include:

- **If these rails are replaced, will it affect the continuity of the Carmel-San Simeon Highway Historic District?**
- **For future projects, would other rails need to be designed to match to maintain historic district integrity?**
- **If each rail goes through a "Tier 2" EIR review and design process, could the resulting bridge rail replacements be incongruous?**
- **Would not being able to consider non-standard alternatives also affect the other engineering features within the CSSHD, such as the retaining or parapet walls?**

Response: Caltrans prepared a Tier 1 Programmatic EIR for the Big Sur Bridge Rail Replacement Program which would upgrade the existing nonstandard bridge railings on the following six historic bridges along the Big Sur Coast to bring facilities up to current MASH standards to ensure the safety and reliability of Highway 1:

- Garrapata Creek Bridge (1931)—post mile 63.0, Bridge Number 44-0018
- Rocky Creek Bridge (1932)—post mile 60.0, Bridge Number 44-0036
- Granite Canyon Bridge (1932)—post mile 64.3, Bridge Number 44-0012
- Bixby Creek Bridge (1932)—post mile 59.4, Bridge Number 44-0019
- Malpaso Creek Bridge (1935)—post mile 67.9, Bridge Number 44-0017
- Big Creek Bridge (1938)—post mile 28.1, Bridge Number 44-0056

Tier 1 of the analysis in the EIR evaluates cumulative impacts associated with implementation of the entire Program. However, the analysis of the Tier 1

program cumulative impacts presents a "snapshot" of information currently available at the corridor level. Because the Tier 1 program improvements would be constructed over a multi-year time frame, potential cumulative impacts, as well as other resource impacts, could change over time. As projects for the other five bridges are programmed as Tier 2 construction-level projects, they will be subject to separate environmental review, including the consideration of cumulative impacts.

In the Tier 2 analysis of the Garrapata Creek Bridge Railing Replacement Project in the EIR, direct and indirect impacts to cultural resources were determined to contribute to cumulative impacts but were determined to be mitigated below the level of significance with implementation of measures required in the Memorandum of Agreement with the State Historic Preservation Officer (SHPO) for the Garrapata Creek Bridge Railing Replacement Project.

Cumulative effects to the Carmel San Simeon Highway Historic District (CSSHHD) are discussed in the Finding of Adverse Effect (FAE) prepared for the Garrapata Creek Bridge Railing Replacement Project as well. The FAE concludes that:

> "Though the project will adversely affect one individually eligible contributing resource, the Garrapata Creek Bridge, the project does not impact the CSSHHD in its entirety in such a way that would impede its ability to convey its significance. Many of the features of this district have been modified over time but remain as contributors to the district, continuing to convey its significant historical themes. Therefore, after the project, the CSSHHD will remain a discontinuous historic district comprising 241 discrete elements (five (5) water fountains, ten (10) retaining walls, 61 parapets, 158 culvert head walls, and seven (7) individually eligible concrete arch bridges). Its ability to convey its significance under Criteria A and C, as a distinctive example of a rural coastal highway built with rustic handcrafted masonry features that harmonize with their dramatic natural environments, will not be diminished by this project. None of the other criteria of adverse effects apply to this project, and the project does not constitute any other examples of adverse potential effects not included in the seven (7) examples found in 36 CFR 800.5.2.
>
> Cumulatively, the rail replacement of the six bridges will not affect the characteristics of the CSSHHD in a manner that would diminish the district's overall integrity of design, materials, workmanship, location, setting, feeling, or association. The bridges will retain their status as individually eligible properties and as contributing resources in the district, and the effect to the historic district as a whole will be minimal and would not hinder the CSSHHD's ability to convey its historical significance.

> Cumulatively, the six bridge rail replacement projects (five of which have not yet been proposed) will not have an adverse effect on the CSSHHD. Potential effects of each project will be assessed individually in separate Findings of Effect for each project as they are proposed in the future." (page 18 of the Finding of Adverse Effect dated December 2020).

HRRB Comment

Would Caltrans consider seeking legislation to allow a design exception from MASH standards to allow for replacement in kind of the railing on the Garrapata Creek Bridge and the other 5 historic bridges under the Big Sur Bridge Rail Replacement Program?

Response: The proposed dimensions of each design feature of the bridge railing for the Garrapata Creek Bridge have a very distinct and important role to ensure the safety of the traveling public and the movement of goods and essential services coupled with the reliability of the highway. Caltrans would not seek legislation to reduce the safety or reliability of the railing.

The proposed dimensions of the bridge railing for the Garrapata Creek Bridge meet the requirements of the MASH Standard while replicating the existing railing design aesthetic to the maximum extent possible allowing for consistency with the existing aesthetics.

The design of the railing for the remaining 5 bridges will be completed individually for each bridge as the work is programmed. Stand-alone environmental analysis and public outreach, including Aesthetics Design Advisory Committee meetings, will be completed for each individual bridge.

HRRB Comment

Are bike rails proposed on top of the bridge railing?

Response: No, bike rails are not proposed at this time. The Structural Details in the Plan Set have been corrected and attached herein in Enclosure 5 to remove the note and detail for the bike rail.

HRRB Comment

Can the speed study be expanded to include other historic bridge locations or be conducted on another day?

Individual speed studies will be performed for each future bridge rail replacement project. The EIR for the project, the supplemental application

information submitted by Caltrans on August 15, 2022 (under "5. Alternatives Analysis, starting on page 9 of the pdf file for Exhibit D of the staff report), and the *Frequently Asked Questions (FAQs) on Setting Speed Limits* in Attachment 9 of the supplemental application information submitted by Caltrans on August 15, 2022, describe the requirements and restrictions for lowering the speed limit.

In order to ensure that complete and accurate information is relayed to the public and to the Historic Resources Review Board in the staff report prior to the meeting, we are also able to meet in person as well, to ensure that our answers are clear and to ensure that there are no further questions or information required from staff prior to the meeting. Please let me or Michelle Wilson know if you have further questions. I can be reached at mitch.dallas@dot.ca.gov or at (805) 748-7004 and Michelle can be reached at michelle.wilson@dot.ca.gov or (805) 305-3635.

Sincerely,

Michelle Wil for

Mitch Dallas
Senior Coastal Resources Specialist

cc: Craig Spencer, Chief of Planning, Monterey County HCD
Erik Lundquist, Director, Monterey County HCD

Enclosures:

1. December 1, 2022 HRRB Staff Report with Exhibit A, Discussion
2. Finding of Adverse Effect for the Garrapata Creek Bridge Railing Replacement Project (submitted with December 2020 Historic Properties Survey Report on FTP site on 12/1/22)
3. 2009 Bridge Inspection Report
4. 2019 MASH Implementation Memo
5. Revised Structural Details with Bike Rail Removed

Finding of Adverse Effect Separately transmitted and not in this PDF.

Introduced: 11/9/2022
Version: 1

Current Status: Agenda Ready
Matter Type: General Agenda Item

PLN220090 - CALIFORNIA DEPARTMENT OF TRANSPORTATION (GARRAPATA CREEK BRIDGE)

Public hearing to consider a recommendation to the Monterey County Planning Commission on a Combined Development Permit to allow replacement of the bridge rails on the Garrapata Creek Bridge.

Project Location: Garrapata Creek Bridge near post mile 63.0 on HWY 1, 35681 HWY 1, Carmel, CA 93923 (Assessor's Parcel Number 000-000-000-000 and 243-301-029-000), Big Sur Coast Land Use Plan.

RECOMMENDATION:

Staff recommends that the Monterey County Historic Resources Review Board (HRRB) continue the hearing on the project to a date certain of January 5, 2023, with direction that the additional information requested in the staff report be provided.

SUMMARY:

The California Department of Transportation (Cal Trans) proposes to replace the bridge rails on the Garrapata Creek Bridge. The bridge is individually eligible for listing on the National Register of Historic Places (NRHP), the California Register of Historic Resources (CRHR), and is a contributing resource to the Carmel San Simeon Historic District (CSSHD). Named after the rural state highway constructed between 1922 and 1938, CSSHD stretches along Highway 1 for approximately 75 miles from the San Carpoforo Creek in San Luis Obispo County to the Carmel River in Monterey County. The district includes 241 contributing elements, primarily engineering features which are a part of or adjacent to the Highway: rubble masonry road side water fountains (5), retaining walls (10), parapet walls (61), culvert headwalls (158), and concrete arch bridges (7).

The bridge is one of the seven concrete arch bridges in the CSSHD. Cal Trans intends to replace the bridge rails on six of these bridges. The historical report prepared for the project (LIB220303, Exhibit D) is a “Tier 2” report, focusing on the Garrapta Bridge rail replacement. A “Tier 1” programmatic analysis evaluating the replacement of the rails on all six bridges is included as an attachment to that report, as well as the Department of Parks and Recreation (DPR) 523 forms for the CSSHD. The EIR prepared for the project (Exhibit F) also utilizes this Tier 1 / 2 approach, with the Tier 1 EIR being a programmatic analysis of replacing the bridge rails on all six bridges, and the Tier II analysis being specifically focused on the Garrapata Creek bridge rail replacement. Cal Trans also submitted a supplemental letter addressing frequently asked questions and providing additional analysis of the project, Exhibit E.

The rails are in a state of physical deterioration, with concrete spawling and visible damage, and Cal Trans is proposing to replace them with new rails compliant with current safety standards to address this. Comments on the EIR, the County's previous Section 106 Consolation comments (Exhibit H), and feedback from the LUAC (Exhibit G) focus on the project justification and whether other alternatives to address public safety would be more appropriate given the historic context of the bridge, such as: repair of the existing rails, replacement of the rails with those of the same design, a reduction of the speed limit near the bridge, or a combination of these alternatives.

Cal Trans has addressed these contentions in various forms and in varying levels of detail in the above referenced documents. Staff have reviewed these materials, and don't believe they provide all the necessary detail for staff to draft findings to recommend approval of the project. The main issues that need additional explanation or justification include:

1. Clarification of the historic structure impact assessment.
   It is inferred from the EIR and historic reports, but not clearly stated in these documents, that the bridge rails are character defining features and that their replacement is consistent with the Secretary of the Interior Standards for Rehabilitation.
2. Project Justification.
   The County and the public have questions the need for replacement of the bridge rails. Questions have been raised about:
   a. The ability to reduce the speed limit, which affects the replacement rail design requirements. - Staff analysis is that this issue has been addressed by CalTrans and the speed cannot/should not be reduced.
   b. Is it possible to apply exceptions to current safety standards for preservation of Historic Resources? - Staffs analysis is that this question has not been adequately addressed and there may still be opportunity to repair the existing rails or to replace the rails in kind.
3. Cumulative Effects.
   Will the decision on the Garrapata bridge rails have a cumulative effect on all seven historic concrete arch bridges? - Staffs analysis is that this issue is not clearly explained by CalTrans. It is staff's opinion that the decision on the Garrapta bridge rails can and will influence future decisions on bridge rails on the six other historic concrete bridges.

Therefore, staff are recommending the HRRB continue the project to the next regular meeting with direction to provide the additional requested information. These points are detailed further in the discussion **Exhibit A**.

Prepared by: Phil Angelo, Associate Planner
Reviewed by: Craig Spencer, Chief of Planning

The following attachments are on file with Housing and Community Development:

- Exhibit A - Discussion
- Exhibit B - Project Plans
- Exhibit C - Historic Property Survey Report (LIB220303)
- Exhibit D - Supplemental Letter prepared by Cal Trans
- Exhibit E - Tier I & II EIR

- Exhibit F - Draft Big Sur Land Use Advisory Committee (LUAC) Meeting Minutes
- Exhibit G - Previous HRRB Comments on the Project dated October 29, 2020

cc: Mitch Dallas (Applicant); Michelle Wilson (Applicant); Craig Spencer, HCD Chief of Planning; Project File PLN220090

Exhibit A

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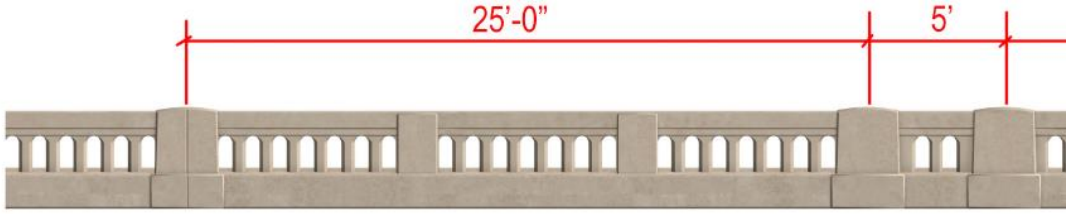
EXHIBIT A
DISCUSSION

INTRODUCTION

The California Department of Transportation (Cal Trans) proposes to remove and replace the bridge rails on the Garrapata Creek bridge. This bridge is one of seven historic bridges in Big Sur, six of which have open spandrel designs. All seven bridges are part of the Carmel San Simeon Historic District (CSSHD), a non-contiguous district named after the rural state highway constructed between 1922 and 1938, which stretches approximately 75 miles from the San Carpoforo Creek in San Luis Obispo County to the Carmel River in Monterey County. The district includes 241 contributing elements, primarily engineering features which are a part of or adjacent to the highway: rubble masonry roadside water fountains (5), retaining walls (10), parapet walls (61), culvert headwalls (158), and concrete arch bridges (7). The Garrapata Creek Bridge is also individually eligible for listing on the National Register of Historic Places (NRHP) and the California Register of Historic Resources (CRHR).



86H WITH TOP BEAM GROOVE LINE BACK ELEVATION

Exhibit 1: Proposed and Existing Rail Looking Toward Bridge

86H WITH TOP BEAM GROOVE LINE FRONT ELEVATION

Exhibit 2: Proposed and Existing Rail Away from Bridge

BIG SUR COAST LAND USE PLAN

The project would need to be found consistent with the Monterey County Local Coastal Program, which includes the Big Sur Coastal Land Use Plan, and implementing regulations in the Monterey County Coastal Implementation Plan (CIP). CIP, Part 3, Regulations for Development in the Big Sur Coast Land Use Plan contains regulations intended for the protection of historical resources within the Big Sur coastal planning area.

CIP section 20.145.110.B. indicates that a historical site survey shall be required for all development on known or suspected historical sites. A survey report was prepared October 2020 by Cal Trans District 5 Principal Architectural Historian, Daniel Leckie. The report is divided into two sections, a "Tier 2" report specific to the Garrapata bridge rail replacement project, and a "Tier 1" historical report discussing the potential replacement of bridge rails on the five other historic open spandrel concrete bridges in Big Sur. Attached to the Tier 1 report is also the Department of Parks and Recreation (DPR) forms which provide a historical evaluation and context for the Carmel-San Simeon Highway Historic District.

While the report does outline several inter-related procedural requirements for federal and state historical review, it does not contain certain details necessary to make a finding of consistency with the development standards in the CIP. Specifically:

- Significance. The report does not specify what the sites primary (historically defining) features are, pursuant to CIP section 20.145.110.B.4.b. This is important as it will allow us to evaluate whether the proposed rail is keeping with the historically defining features of the existing bridge. Per CIP section 20.145.110.C.1, "Where development is proposed on parcels with an identified historical site, such development shall be compatible with the site through incorporation of appropriate design, structural and architectural features, siting, location, and other techniques as recommended in the historical survey prepared for the project."

- Impact. While the supplemental letter, EIR, and historic assessment indicate that there are impacts to cultural (historical) resources, with Cal Trans certified EIR indicating that those impacts will be mitigated to a less than significant level, the report does not assess what the specific impacts to the historical site will be, as required by CIP section 20.145.110.B.4.c. This is not possible without first establishing the bridges historically defining characteristics, however, this would also be essential to the project analysis. Once the project is complete, would the resulting bridge still be eligible for listing on CRHR or NRHR? Would the different historic criteria be affected differently? How would the CSSHD be effected?

- Recommendations. In accordance with CIP section 20.145.110.B.4.d, the historic assessment should contemplate the relative impact of alternatives (discussed in the CEQA section below) to historical resources, and include recommendations to mitigate any impacts (additional to those included in the MOU with the State Historic Preservation Officer). Consider including recommendations for the concrete texture and color that would minimize impact to the historic bridge.

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

Pursuant to State CEQA Guidelines section 15051(a), as Cal Trans is carrying out the bridge rail replacement project, they're the lead agency on the project, with the County acting as a "Responsible Agency" under CEQA. Responsible Agencies are those public agencies with discretionary approval power over a project other than the lead agency.

While the Responsible Agencies role in the project is more limited, in accordance with CEQA Guidelines section 15096(f) and (g), as a Responsible Agency the County must consider the EIR prior to acting on the project, and make required findings required by CEQA guidelines sections 15091 and 15093, if applicable. The following clarifying and amplifying information is requested in order to allow County staff to draft appropriate findings for recommending and decision making bodies to consider.

Objectives

Pg 1 of the supplemental application information packet submitted August 15, 2022 describes the project purpose as "*This project proposes to upgrade the existing nonstandard bridge railing to current standards in order to ensure the safety and reliability of Highway 1."* This purpose is similar to that detailed in section 1.2.1 of the EIR. Please list the objectives of the project in more detail, per CEQA Guidelines section 15124(b). Defining the sole purpose of the project to be the preferred alternative, replacement of an existing rail with a new compliant rail, forecloses evaluation of a reasonable range of project alternatives as required by CEQA.

Alternatives

In accordance with CEQA Guidelines section 15126.6, a range of reasonable alternatives to the project should be evaluated which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects relative to the other alternatives. Within the EIR, supplemental package, and supporting documentation: the no project alternative, proposed replacement (86-H), alternative replacement (C412), reducing the speed limit, installation of a façade in front of a compliant rail, repair, widening the bridge two feet, or constructing of a new bridge to re-route traffic are mentioned and discussed in different levels of detail. Staff had the following questions regarding repair of the existing rails or replacement of the rails with a non-standard alternative:

- Repair. As assessed by a qualified architectural historian and structural engineer, and notwithstanding compliance with Cal Trans standards, is repair of the existing rails possible? The 2021 Division of Maintenance report attached to the supplemental letter dated August 15, 2022 indicates that conditions had not significantly changed since a previous report in 2015, and indicates that the 2009 work recommendation to rehabilitate the rails is still valid, "Remove any unsound concrete from the delaminated and spalled areas throughout both bridge rails. Clean and paint any exposed steel and patch or recast the resulting spalled areas."

- Replacement with a Non-standard Alternative. The conclusion of section 4 of the supplemental letter submitted August 15, 2022 indicates that *"The Caltrans District 5 Traffic Safety Engineer has made the determination that he will not be recommending an*

exception to the MASH standard for the new bridge railing for the Garrapata Creek Bridge." (Pg. 7) Other areas of the document indicate that exceptions to MASH are simply not possible, *"As of December 31st, 2019, Caltrans requires that bridge rails comply with MASH standards without exception."* (Pg. 6) The Cal Trans Highway design manual referenced in the letter appears to contemplate non-standard designs for certain highway elements. Is replacement with a non-standard rail precluded from consideration by a specific statutory requirement? If not precluded by statute, would an exception to the standards require a specific approval within Cal Trans, and the appropriate authority to make that determination in Cal Trans would not be able to support such an exception?

Cumulative Impacts

As this project is a pilot for the replacement of the rails on the other five historic bridges in Big Sur, an analysis of potential cumulative impacts to historical resources. Examples to address include:

- If these rails are replaced, will it affect the continuity of the Carmel-San Simeon Highway Historic District?
- For future projects, would other rails need to be designed to match to maintain historic district integrity?
- If each rail goes through a "Tier 2" EIR review and design process, could the resulting bridge rail replacements be incongruous?
- Would not being able to consider non-standard alternatives for also affect the other engineering features within the CSSHD, such as the retaining or parapet walls?

DEPARTMENT OF TRANSPORTATION
Structure Maintenance & Investigations

Bridge Number : 44 0018
Facility Carried: STATE ROUTE 1
Location : 05-MON-001-62.97
City :
Inspection Date : 09/25/2009

Bridge Inspection Report

Inspection Type

Routine	FC	Underwater	Special	Other
X				

STRUCTURE NAME: GARRAPATA CREEK

CONSTRUCTION INFORMATION

Year Built : 1931
Year Widened: N/A
Length (m) : 87
Skew (degrees): 0
No. of Joints : 0
No. of Hinges : 0

Structure Description: RC open-spandrel arch and RC girder (2) approach spans on RC column (2) bents all founded on spread footings.

Span Configuration : 4 @ 25', 1 @ 5', 1 @ 150', 1 @ 5', 1 @ 25' (N).

LOAD CAPACITY AND RATINGS

Design Live Load: MS-13.5 OR HS-15
Inventory Rating: 36 metric tonnes Calculation Method: LOAD FACTOR
Operating Rating: 59.6 metric tonnes Calculation Method: LOAD FACTOR
Permit Rating : PPPPP
Posting Load : Type 3: Legal Type 3S2: Legal Type 3-3: Legal

DESCRIPTION ON STRUCTURE

Deck X-Section: 1' br, 0.7' cu, 24', 0.7' cu, 1' br.
Total Width: 8.3 m Net Width: 7.3 m No. of Lanes: 2
Rail Description: Concrete baluster. Rail Code : 0111
Min. Vertical Clearance: Unimpaired

DESCRIPTION UNDER STRUCTURE

Channel Description: Coastal mountain bedrock channel with steep gradient. Sand, gravel, and bedrock in the channel. Narrow section in active channel. Heavy vegetation on high flow sides of channel.

CONDITION TEXT

REVISIONS

The full quantity of Element 331 was down graded to condition state 4 due to the advanced deterioration of the railing.

CONDITION OF STRUCTURE

Access

Due to the height of the bridge, the approaches, railing, deck, joints, and abutments were inspected visually at close range. The soffit and the substructure were inspected with binoculars. The last close up access to the soffit appears to have been during the seismic retrofit in 1998. A UBIT assisted inspection will be scheduled when the 2012 UBIT schedule is released.

Deck & Rail

The rail end posts are covered with fine pattern cracking. See the attached photo. The barrier rail posts are highly deteriorated, with dozens of incipient spalls and five fully spalled posts. No work was recommended since there was an existing STRAIN

CONDITION TEXT

recommendation for a rail upgrade (Fiscal Year 2001). However, the railing needs replacement. An e-mail was sent to Roger Hunter 2/24/11 requesting the rail replacement be expedited.

The deck has a full width transverse crack between 1/64" and 1/16" on the main arch span, between sets of spandrel columns. See the attached photos. Minor deck cracking is common and does not reduce the ultimate capacity of the superstructure.

Superstructure

Efflorescence can be seen in the soffit at the joints. The joints were filled with mortar when the structure was made continuous during the retrofit.

Substructure

Arch:

There is an incipient spall at the top of the west rib at the bottom of SC-6 approximately 2' x 0.7'.

Columns:

The south face of the right column at Bent 3, has a vertical spall approximately 6" x 2" with exposed corroded reinforcing steel. Two smaller spalls are just below the upper spall. See the attached photos. This kind of spalling is common and is due to a combination of inadequate cover over the reinforcing steel and the high chloride content of the marine air. Many spalls were documented through the years and were patched.

Left and right spandrel columns 1 were patched. However, pattern cracking was noted in the patches; indicating the patches will eventually fail. See the attached photo. This was noted with the aid of binoculars.

It was noted through binoculars that in the main span, on the right right side, the first spandrel column appears to have map cracking in most of the column.

There is an incipient spall approximately 3" wide x 2' long at Bent 3, left column, mid height, SW corner. There is also map cracking less than 1/64" wide on the patches on both columns.

There is an incipient spall approximately 6" wide x 2.5' long at Bent 4, left column, base of NW corner.

Transverse Strut:

There is a crack in the SW face of the bottom strut near SC-4. The crack averages 1/8" wide x 1.5' long.

Spalling on the bridge railing and spandrel columns has been documented since the 1956 inspection report. Apparently, the condition will be ongoing unless new material for patching and sealing the concrete can be found.

SAFE LOAD CAPACITY

The spandrel spans and approach spans were rated in 1975 and the arches rated in 1978, the lower and more conservative ratings were for the spandrel spans are used. Rating factors were calculated with the Load Factor method using 0" AC. Based on an operating rating of 2.16, this bridge should sustain the State legal and permit loads.

CONDITION TEXT

HS20-44 design truck: Inventory Rating = 36 metric tons Rating Factor: 1.11
HS20-44 design truck: Operating Rating = 60 metric tons Rating Factor: 1.84

Permit: rating factor = 1.47 PPPPP

MISCELLANEOUS

A request was sent to Mike Lee of Maintenance Design on 2/24/2011 to produce a set of plan and elevation drawings that can be used as a template for noting element deficiencies.

This bridge is NBI labeled "Functionally Obsolete" due to the high ADT / bridge deck width ratio.

ELEMENT INSPECTION RATINGS

Elem No.	Element Description	Env	Total Qty	Units	Qty in each Condition State St. 1	St. 2	St. 3	St. 4	St. 5
12	Concrete Deck - Bare	3	730	sq.m.	730	0	0	0	0
44	Concrete Slab - Protected w/ Thin Overlay	2	750	sq.m.	750	0	0	0	0
110	Reinforced Conc Open Girder/Beam	3	174	m.	90	84	0	0	0
144	Reinforced Conc Arch	3	75	m.	74	1	0	0	
155	Reinforced Conc Floor Beam	2	55	m.	55	0	0	0	0
205	Reinforced Conc Column or Pile Extension	3	26	ea.	22	4	0	0	
215	Reinforced Conc Abutment	2	16	m.	16	0	0	0	0
320	P/S Concrete Approach Slab w/ or w-o/AC Ovly	2	4	ea.	4	0	0	0	0
331	Reinforced Conc Bridge Railing	3	186	m.	12	0	0	174	
358	Deck Cracking	2	1	ea.	0	1	0	0	

WORK RECOMMENDATIONS

RecDate: 09/25/2009
Action : Railing-Rehab
Work By: MAINT. CONTRACT
Status : PROPOSED
EstCost: $2,000
StrTarget: 2 YEARS
DistTarget:
EA:
Remove all unsound concrete and loose rust, then recast the affected areas.

RecDate: 02/10/1984
Action : Railing-Upgrade
Work By: STRAIN
Status : PROPOSED
EstCost: $324,720
StrTarget: 2 YEARS
DistTarget:
EA:
F1-03 / F2-0 / F3-0 / Rail Type-C.WIN

Inspected By : R. Fuentes / Y.Huang

Ricardo Fuentes

Ricardo L. Fuentes (Registered Civil Engineer)

STRUCTURE INVENTORY AND APPRAISAL REPORT

********** IDENTIFICATION **********

(1) STATE NAME- CALIFORNIA 069
(8) STRUCTURE NUMBER **44 0018**
(5) INVENTORY ROUTE(ON/UNDER)- ON 131000010
(2) HIGHWAY AGENCY DISTRICT 05
(3) COUNTY CODE 053 (4) PLACE CODE 00000
(6) FEATURE INTERSECTED- GARRAPATA CREEK
(7) FACILITY CARRIED- STATE ROUTE 1
(9) LOCATION- 05-MON-001-62.97
(11) MILEPOINT/KILOMETERPOINT 62.97
(12) BASE HIGHWAY NETWORK- PART OF NET 1
(13) LRS INVENTORY ROUTE & SUBROUTE 000000000101
(16) LATITUDE 36 DEG 25 MIN 06 SEC
(17) LONGITUDE 121 DEG 54 MIN 42 SEC
(98) BORDER BRIDGE STATE CODE % SHARE %
(99) BORDER BRIDGE STRUCTURE NUMBER

******** STRUCTURE TYPE AND MATERIAL *********

(43) STRUCTURE TYPE MAIN:MATERIAL- CONCRETE
TYPE- ARCH - DECK CODE 111
(44) STRUCTURE TYPE APPR:MATERIAL- CONCRETE CONT
TYPE- TEE BEAM CODE 204
(45) NUMBER OF SPANS IN MAIN UNIT 1
(46) NUMBER OF APPROACH SPANS 7
(107) DECK STRUCTURE TYPE- CIP CONCRETE CODE 1
(108) WEARING SURFACE / PROTECTIVE SYSTEM:
A) TYPE OF WEARING SURFACE- NONE CODE 0
B) TYPE OF MEMBRANE- NONE CODE 0
C) TYPE OF DECK PROTECTION- NONE CODE 0

********** AGE AND SERVICE **********

(27) YEAR BUILT 1931
(106) YEAR RECONSTRUCTED 0000
(42) TYPE OF SERVICE: ON- HIGHWAY 1
UNDER- WATERWAY 5
(28) LANES:ON STRUCTURE 02 UNDER STRUCTURE 00
(29) AVERAGE DAILY TRAFFIC 4500
(30) YEAR OF ADT 2000 (109) TRUCK ADT 3 %
(19) BYPASS, DETOUR LENGTH 199 KM

********** GEOMETRIC DATA **********

(48) LENGTH OF MAXIMUM SPAN 45.7 M
(49) STRUCTURE LENGTH 87.0 M
(50) CURB OR SIDEWALK: LEFT 0.2 M RIGHT 0.2 M
(51) BRIDGE ROADWAY WIDTH CURB TO CURB 7.3 M
(52) DECK WIDTH OUT TO OUT 8.3 M
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 7.3 M
(33) BRIDGE MEDIAN- NO MEDIAN 0
(34) SKEW 0 DEG (35) STRUCTURE FLARED NO
(10) INVENTORY ROUTE MIN VERT CLEAR 99.99 M
(47) INVENTORY ROUTE TOTAL HORIZ CLEAR 7.3 M
(53) MIN VERT CLEAR OVER BRIDGE RDWY 99.99 M
(54) MIN VERT UNDERCLEAR REF- NOT H/RR 0.00 M
(55) MIN LAT UNDERCLEAR RT REF- NOT H/RR 0.0 M
(56) MIN LAT UNDERCLEAR LT 0.0 M

********** NAVIGATION DATA **********

(38) NAVIGATION CONTROL- NO CONTROL CODE 0
(111) PIER PROTECTION- CODE
(39) NAVIGATION VERTICAL CLEARANCE 0.0 M
(116) VERT-LIFT BRIDGE NAV MIN VERT CLEAR M
(40) NAVIGATION HORIZONTAL CLEARANCE 0.0 M

****
SUFFICIENCY RATING = 61.0
STATUS FUNCTIONALLY OBSOLETE
HEALTH INDEX 93.0
PAINT CONDITION INDEX = N/A

********** CLASSIFICATION ********** CODE

(112) NBIS BRIDGE LENGTH- YES Y
(104) HIGHWAY SYSTEM- NOT ON NHS 0
(26) FUNCTIONAL CLASS- MINOR ARTERIAL RURAL 06
(100) DEFENSE HIGHWAY- NOT STRAHNET 0
(101) PARALLEL STRUCTURE- NONE EXISTS N
(102) DIRECTION OF TRAFFIC- 2 WAY 2
(103) TEMPORARY STRUCTURE-
(105) FED.LANDS HWY- NOT APPLICABLE 0
(110) DESIGNATED NATIONAL NETWORK - NOT ON NET 0
(20) TOLL- ON FREE ROAD 3
(21) MAINTAIN- STATE HIGHWAY AGENCY 01
(22) OWNER- STATE HIGHWAY AGENCY 01
(37) HISTORICAL SIGNIFICANCE- ELIGIBLE 2

********** CONDITION ********** CODE

(58) DECK 6
(59) SUPERSTRUCTURE 6
(60) SUBSTRUCTURE 6
(61) CHANNEL & CHANNEL PROTECTION 6
(62) CULVERTS N

********* LOAD RATING AND POSTING ********* CODE

(31) DESIGN LOAD- MS-13.5 OR HS-15 3
(63) OPERATING RATING METHOD- LOAD FACTOR 1
(64) OPERATING RATING- 59.6
(65) INVENTORY RATING METHOD- LOAD FACTOR 1
(66) INVENTORY RATING- 36
(70) BRIDGE POSTING- EQUAL TO OR ABOVE LEGAL LOADS 5
(41) STRUCTURE OPEN, POSTED OR CLOSED- A
DESCRIPTION- OPEN, NO RESTRICTION

********** APPRAISAL ********** CODE

(67) STRUCTURAL EVALUATION 6
(68) DECK GEOMETRY 2
(69) UNDERCLEARANCES, VERTICAL & HORIZONTAL N
(71) WATER ADEQUACY 9
(72) APPROACH ROADWAY ALIGNMENT 8
(36) TRAFFIC SAFETY FEATURES 0111
(113) SCOUR CRITICAL BRIDGES 9

********** PROPOSED IMPROVEMENTS **********

(75) TYPE OF WORK- MISC STRUCTURAL WORK CODE 38
(76) LENGTH OF STRUCTURE IMPROVEMENT 87 M
(94) BRIDGE IMPROVEMENT COST $720,000
(95) ROADWAY IMPROVEMENT COST $144,000
(96) TOTAL PROJECT COST $1,209,600
(97) YEAR OF IMPROVEMENT COST ESTIMATE 2010
(114) FUTURE ADT 7334
(115) YEAR OF FUTURE ADT 2029

********** INSPECTIONS **********

(90) INSPECTION DATE 09/09 (91) FREQUENCY 24 MO
(92) CRITICAL FEATURE INSPECTION: (93) CFI DATE
A) FRACTURE CRIT DETAIL- NO MO A)
B) UNDERWATER INSP- NO MO B)
C) OTHER SPECIAL INSP- NO 96 MO C)

44 0018 GARRAPATA CREEK 05-MON-001-62.97

Sep 25, 2009 [AAAF]

102 - Deck-Damage/Deterioration

Photo #2

Typical deck crack size.

44 0018 GARRAPATA CREEK 05-MON-001-62.97

Sep 25, 2009 [AAAF]

119 - Rail-Damage/Deterioration

Photo #3

Pattern cracking on bridge rail end posts.

44 0018 GARRAPATA CREEK 05-MON-001-62.97

Sep 25, 2009 [AAAF]

119 - Rail-Damage/Deterioration

Photo #4

Gross deterioration of bridge railing.

44 0018 GARRAPATA CREEK 05-MON-001-62.97

Sep 25, 2009 [AAAF]

119 - Rail-Damage/Deterioration

Photo #5

Gross deterioration of bridge railing.

44 0018 GARRAPATA CREEK 05-MON-001-62.97

Sep 25, 2009 [AAAF]

119 - Rail-Damage/Deterioration

Photo #6

Gross deterioration of bridge railing.

44 0018 GARRAPATA CREEK 05-MON-001-62.97

Sep 25, 2009 [AAAF]

119 - Rail-Damage/Deterioration

Photo #7

Gross deterioration of bridge railing.

State of California
DEPARTMENT OF TRANSPORTATION

California State Transportation Agency

Memorandum

Making Conservation a California Way of Life

To: DISTRICT DIRECTORS

Date: November 12, 2019

From: STEVE TAKIGAWA
Deputy Director
Maintenance and Operations

CORY BINNS
Acting Deputy Director
Project Delivery

Subject: **MASH COMPLIANCE PLAN AND POLICY**

On December 23, 2016, the California Department of Transportation (Caltrans) established a timeline for implementation of roadside safety hardware and evaluation of new products under the Manual for Assessing Safety Hardware (MASH). The plan set specific dates when Caltrans will no longer allow the installation of non-MASH compliant safety devices.

If one or more Caltrans approved MASH compliant safety devices are available for a specific need, Caltrans must use the safety device(s) even if it may require a sole source contract. If a situation arises where a MASH compliant safety device is not available to address a specific need, Caltrans must use a National Cooperative Highway Research Program (NCHRP) Report 350 approved safety device. If a NCHRP Report 350 device is not available, Caltrans must use engineering judgement to address the specific need.

For cases when either a NCHRP Report 350 device or engineering judgement is used for traffic safety devices, the engineer must consult with the District Traffic Safety Devices Coordinator. The engineer must then document the decision in the project history file.

These requirements apply to all projects and work done on the State highway system.

The MASH compliant safety hardware approved by Caltrans can be found at: <https://dot.ca.gov/programs/traffic-operations/mash>

For further questions regarding this process for traffic safety devices, please contact Duper Tong, Chief, Office of Traffic Engineering at (916) 654-5176 or by e-mail at <Duper.Tong@dot.ca.gov>. For bridge rails, transitions, sign supports and other breakaway hardware, contact Joel Magana, Chief, Office of Design and Technical Services at (916) 227-8018 or by e-mail at <Joel.Magana@dot.ca.gov>.

c: Jasvinderjit S. Bhullar, Chief, Division of Traffic Operations
Dennis T. Agar, Chief, Division of Maintenance
Rachel Falsetti, Chief, Division of Construction
Janice Benton, Chief, Division of Design
Thomas A. Ostrom, Chief, Division of Engineering Services
Dara Wheeler, Chief, Division of Research, Innovation and System Information
Duper Tong, Chief, Office of Traffic Engineering
Joel Magana, Chief, Office of Design and Technical Services

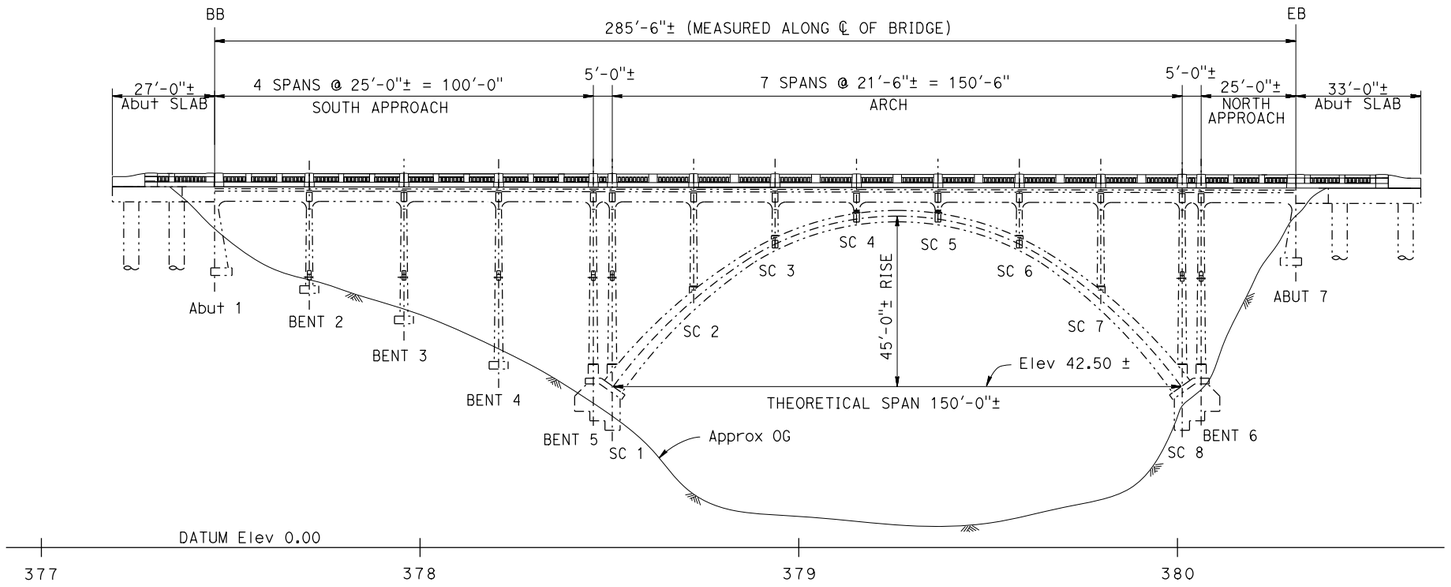
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER _____ DATE X

PLANS APPROVAL DATE _____

REGISTERED PROFESSIONAL ENGINEER — No. X — Exp. X — CIVIL — STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



ELEVATION
1" = 30'

NOTES:

1. Remove existing Overhang, Curb and Barrier, replace with new Overhang and Barrier Type 86H(Mod) extended to end of Abutment slab. Existing bridge rail not shown in "ELEVATION VIEW" for clarity.
2. Barrier Type 86H(Mod) shown.
3. Stage construction with one-way traffic control will be necessary.
4. Paint: "GARRAPATA CREEK BRIDGE 1931"
5. Paint: "Br. No. 44-0018"

LEGEND:

——— INDICATES NEW CONSTRUCTION

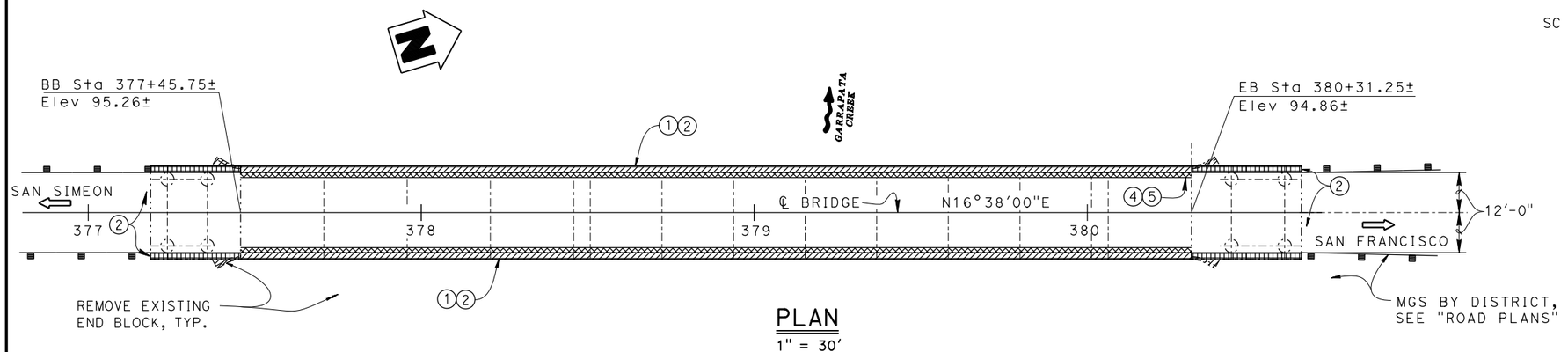
·-·-·-·- INDICATES EXISTING STRUCTURE

▨ INDICATES REMOVAL OF EXISTING CONCRETE BARRIER, END BLOCKS, CURB, 1" POLYESTER OVERLAY AND OVERHANG

▨ PREPARE CONCRETE DECK, FINISH AND PLACE 1" POLYESTER CONCRETE OVERLAY. MATCH EXISTING GRADE

▨ INDICATES REMOVAL OF EXISTING POLYESTER CONCRETE OVERLAY AT LOCATIONS OF NEW CONCRETE BARRIER TYPE 86H(MOD)

SC SPANDREL COLUMN



PLAN
1" = 30'

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

Matt Schott BRANCH CHIEF	DESIGN	BY Rene Coria	CHECKED Jim Gutierrez	SEISMIC ANALYSIS	BY X	CHECKED X	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
	DETAILS	BY Mohammad Sharif	CHECKED Rene Coria	LAYOUT	BY Rene Coria	CHECKED Mohammad Sharif	
	QUANTITIES	BY Rene Coria	CHECKED Mohammad Sharif	SPECIFICATIONS	BY X	PLANS AND SPECS COMPARED X	

DIVISION OF ENGINEERING SERVICES
BRIDGE DESIGN
BRANCH 18

BRIDGE No. 44-0018
POST MILE 63.0

GARRAPATA CREEK BRIDGE
GENERAL PLAN

STRUCTURES DESIGN GENERAL PLAN SHEET (ENGLISH) (REVISION 2/8/2022)

DATE PLOTTED => 15-NOV-2022 TIME PLOTTED => 14:08
FILE => 44-0018-a-gp01.dgn USERNAME => s110279
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3603
PROJECT NUMBER & PHASE: 0516000163
COUNTY/ROUTE: Mon/001
CONTRACT No.: 05-1H800

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES				SHEET	OF
~~9/22/22~~		10/13/22	~~10/06/22~~	1	15

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER — DATE X

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. X — Exp. X — CIVIL — STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

STANDARD PLANS DATED 2022

DETAIL	DESCRIPTION
A3A	ABBREVIATIONS (SHEET 1 OF 3)
A3B	ABBREVIATIONS (SHEET 2 OF 3)
A3C	ABBREVIATIONS (SHEET 3 OF 3)
A10A	LEGEND LINES AND SYMBOLS (SHEET 1 OF 5)
A10B	LEGEND LINES AND SYMBOLS (SHEET 2 OF 5)
A10C	LEGEND LINES AND SYMBOLS (SHEET 3 OF 5)
A10D	LEGEND LINES AND SYMBOLS (SHEET 4 OF 5)
A10E	LEGEND LINES AND SYMBOLS (SHEET 5 OF 5)
B7-8	DECK DRAINAGE DETAIL

GENERAL NOTES:

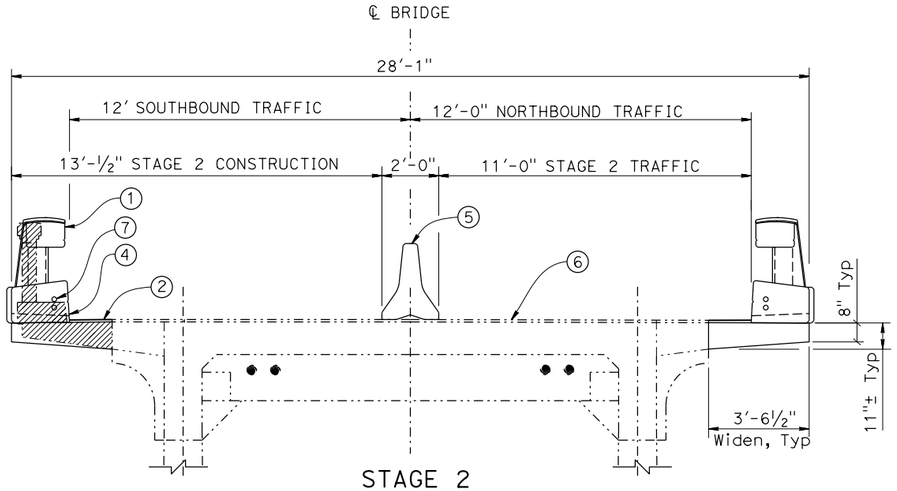
DESIGN: AASHTO LRFD Bridge Design Specifications, 8th Edition with California Amendments

BARRIER LOADING: Test Level 4

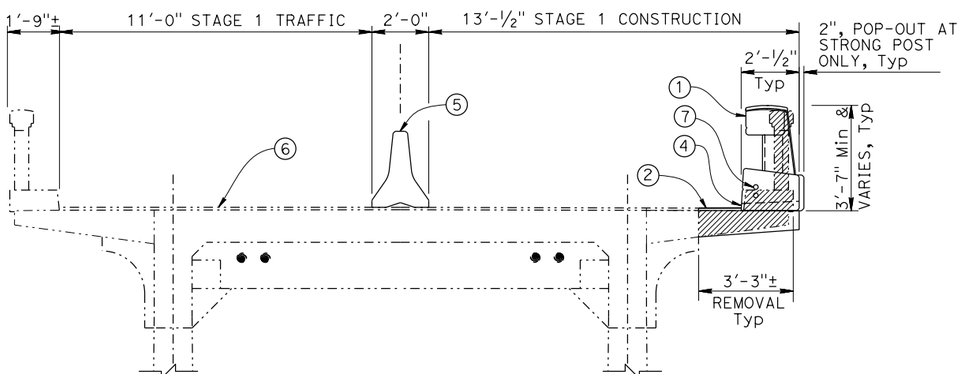
DEAD LOAD: Includes 35 psf for future wearing surface

REINFORCED CONCRETE:

Structural Concrete (Polymer Fiber):	Concrete Barrier, Type 86(MOD):
fy = 80 ksi	fy = 60 ksi, Epoxy Coated
fy = 33 ksi (Existing Reinf)	f'c = 3.6 ksi
f'c = 4.0 ksi, Polymer Fiber	n = 8
n = 8	



STAGE 2



STAGE 1

TYPICAL SECTION

⅜" = 1'-0"

INDEX TO PLANS

NOTES:

1. Remove existing Overhang, Curb and Barrier, replace with new Overhang and Barrier Type 86H(Mod) extended to end of Abutment slab. Barrier to have integral color to match existing deck color.
2. New 1" polyester overlay to match existing slope and grade.
3. Stage construction with one-way traffic control will be necessary.
4. Scupper or drop-thru Deck Drains to be installed in or near new Barriers. See STANDARD PLANS B7-8 "SCUPPER DETAIL"
5. Temporary K-Rail, see "ROADWAY PLANS".
6. Existing 1" polyester overlay to remain.
7. 2 ea 1-1½ ø Conduit at each Barrier for future utilities.

LEGEND:

——— INDICATES NEW CONSTRUCTION

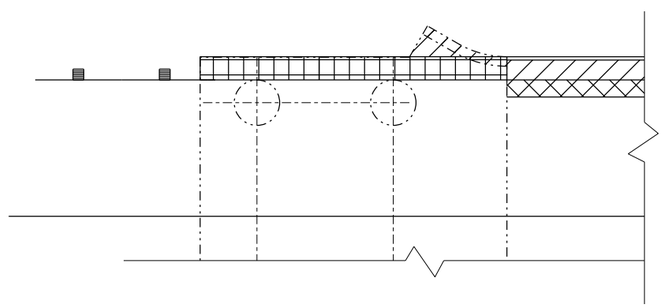
·—·—·— INDICATES EXISTING STRUCTURE

INDICATES REMOVAL OF EXISTING CONCRETE BARRIER, END BLOCKS, CURB, 1" POLYESTER OVERLAY AND OVERHANG

PREPARE CONCRETE DECK, FINISH AND PLACE 1" POLYESTER CONCRETE OVERLAY. MATCH EXISTING GRADE

INDICATES REMOVAL OF EXISTING POLYESTER CONCRETE OVERLAY AT LOCATIONS OF NEW CONCRETE BARRIER TYPE 86H(MOD)

SC SPANDREL COLUMN



DESIGN	BY Rene Coria	CHECKED X	
DETAILS	BY Mohammad Sharif	CHECKED X	
QUANTITIES	BY X	CHECKED X	

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
BRIDGE DESIGN
BRANCH 18

BRIDGE No. 44-0018
POST MILE 63.0

GARRAPATA CREEK BRIDGE
INDEX TO PLAN

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REVISION 3/10/2021)

DATE PLOTTED => 29-NOV-2022 TIME PLOTTED => 15:42
FILE => 44-0018-a-itp.dgn USERNAME => s110279
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3603
PROJECT NUMBER & PHASE: 0516000163
COUNTY/ROUTE: Mon/001
CONTRACT No.: 05-1H800

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES				SHEET	OF
9/22/22		11/29/22	11/18/22	2	15

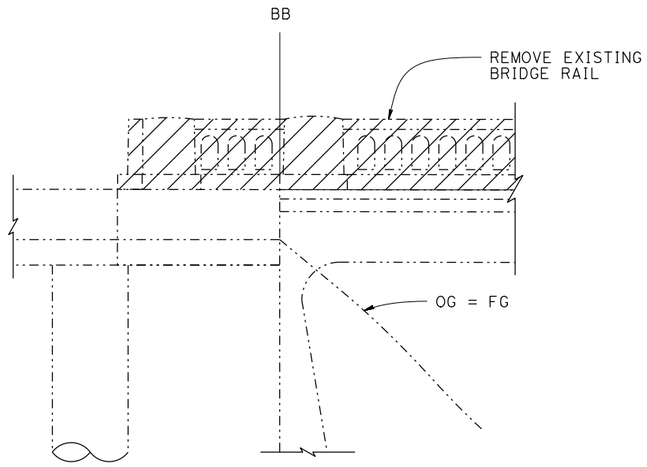
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER _____ DATE X

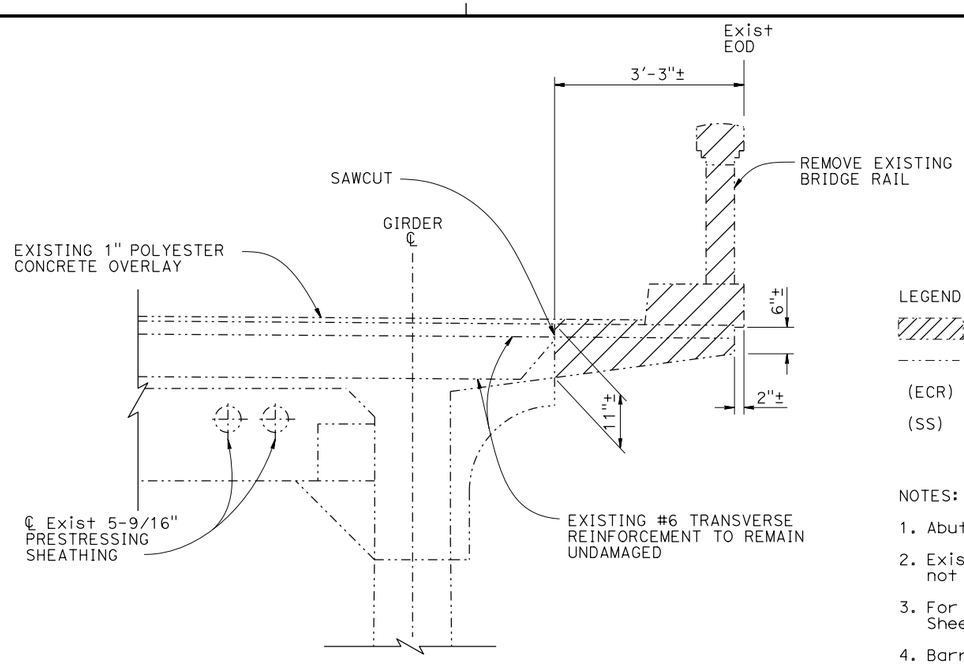
PLANS APPROVAL DATE _____

REGISTERED PROFESSIONAL ENGINEER — No. X — Exp. X — CIVIL — STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



ABUTMENT ELEVATION
1/4" = 1'-0"



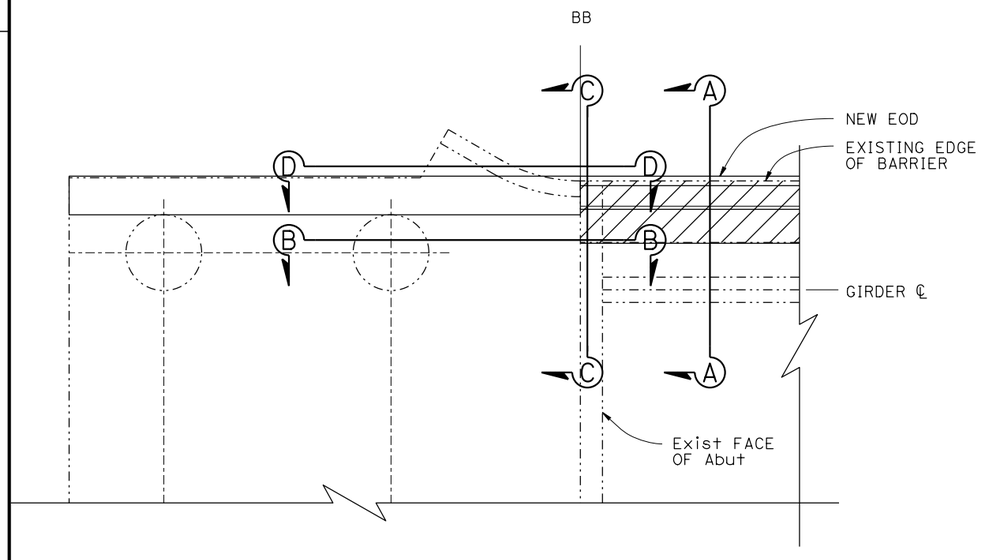
REMOVAL SECTION A-A
3/4" = 1'-0"

LEGEND:

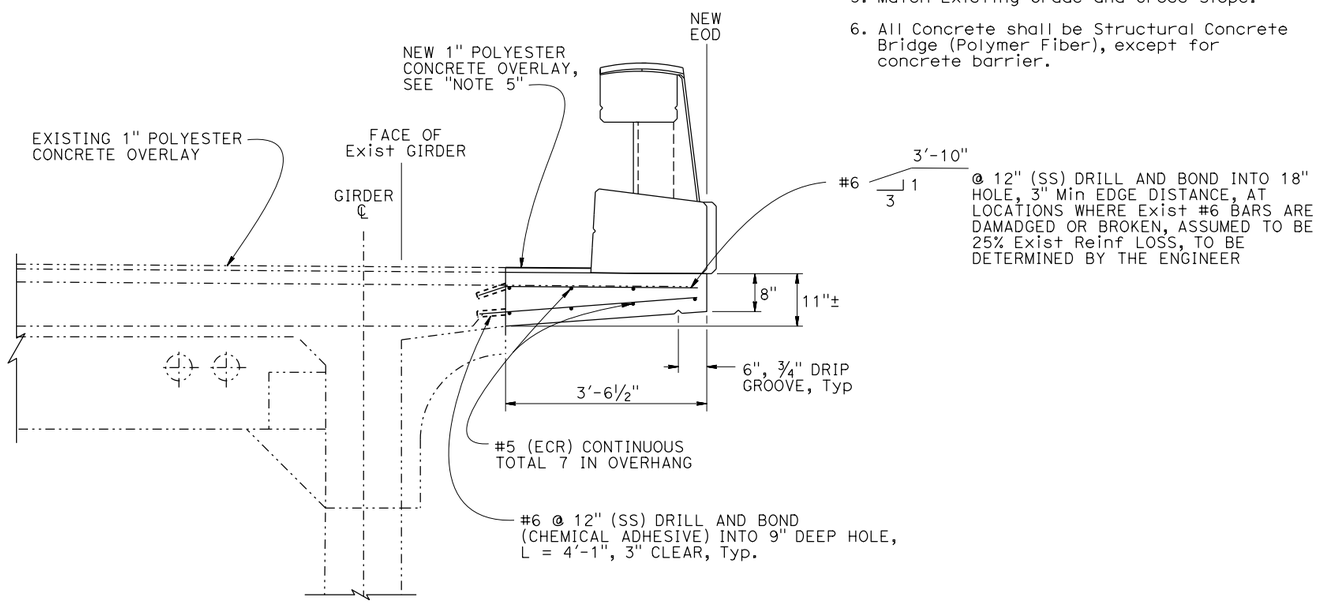
- Bridge Removal (Portion)
- Existing Structure
- (ECR) Epoxy coated reinforcement bar
- (SS) Stainless steel reinforcement bar

NOTES:

1. Abutment 1 shown, Abutment 7 similar.
2. Exist Concrete Barrier Rail not shown in Plan View for Clarity.
3. For Section B-B, C-C and D-D, see Sheet "OVERHANG DETAILS NO. 2".
4. Barrier Reinforcement not shown for Clarity, see "CONCRETE BARRIER TYPE 86H(MOD) DETAILS No. 7, 8, 9, AND 10" sheets for details.
5. Match Existing Grade and Cross Slope.
6. All Concrete shall be Structural Concrete Bridge (Polymer Fiber), except for concrete barrier.



ABUTMENT PART PLAN
1/4" = 1'-0"



RECONSTRUCTION SECTION A-A
3/4" = 1'-0"

DESIGN	BY Rene Coria	CHECKED X	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES BRIDGE DESIGN BRANCH 18	BRIDGE No. 44-0018
DETAILS	BY Mohammad Sharif	CHECKED X			POST MILE 63.0
QUANTITIES	BY X	CHECKED X			

GARRAPATA CREEK BRIDGE
OVERHANG DETAILS NO. 1

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REVISION 3/10/2021)

DATE PLOTTED => 15-NOV-2022 TIME PLOTTED => 14:09
FILE => 44-0018-t-brdt01.dgn USERNAME => s110279

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3603
PROJECT NUMBER & PHASE: 0516000163

COUNTY/ROUTE: Mon/001
CONTRACT No.: 05-1H800

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES: 9/12/22 9/20/22 10/05/22

SHEET 3 OF 15

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER — DATE X

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. X — Exp. X — CIVIL — STATE OF CALIFORNIA

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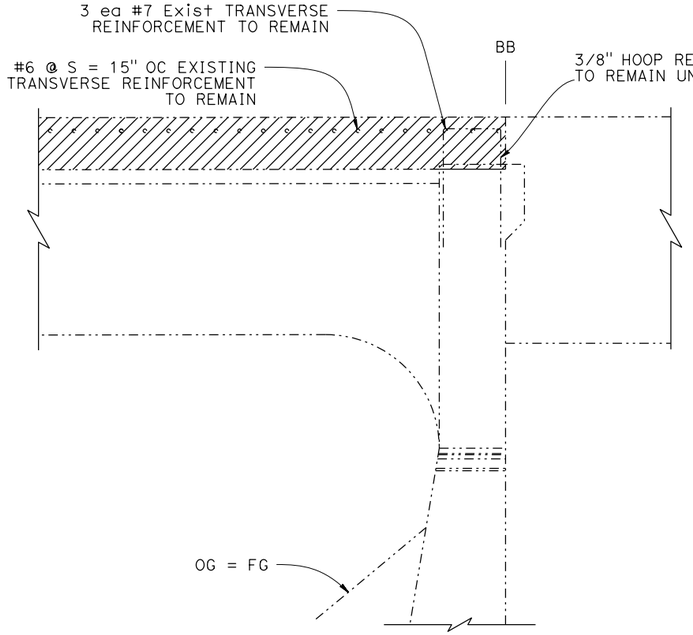
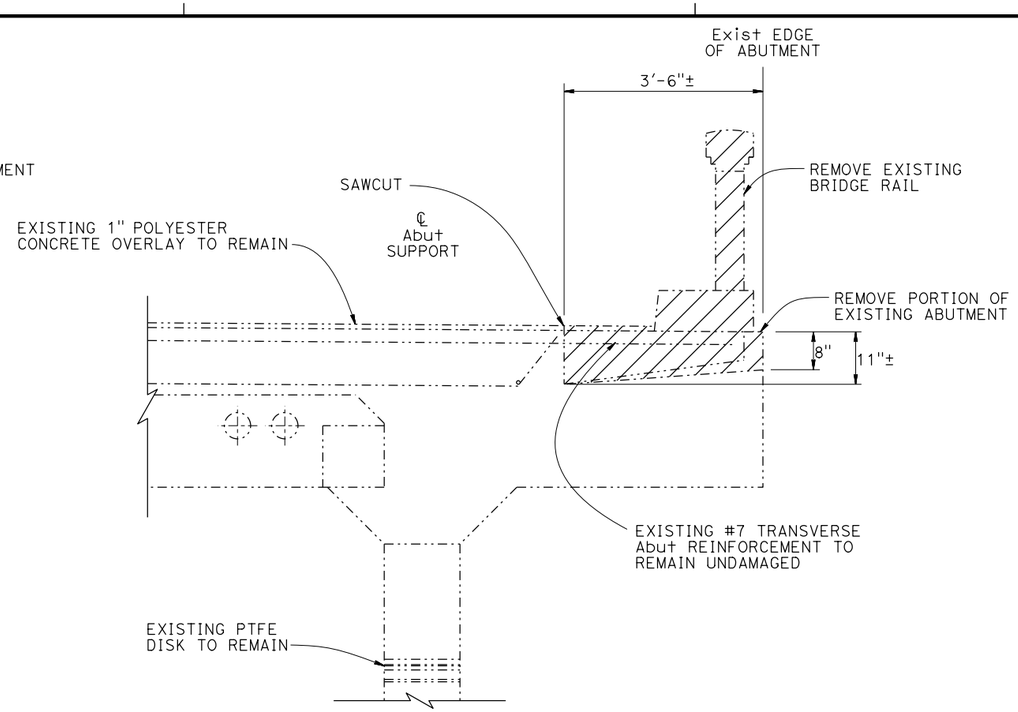


REMOVAL SECTION B-B
3/4" = 1'-0"



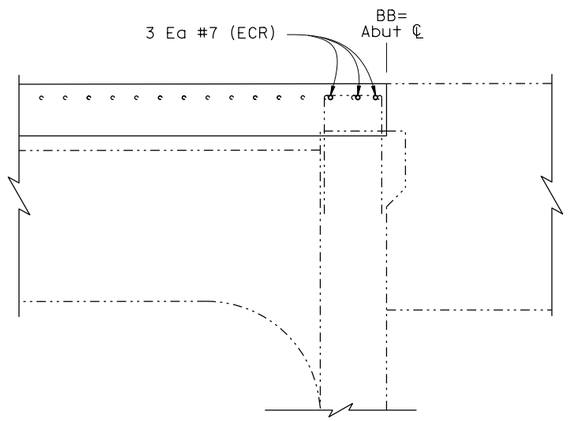
REMOVAL SECTION C-C
3/4" = 1'-0"

NOTES:

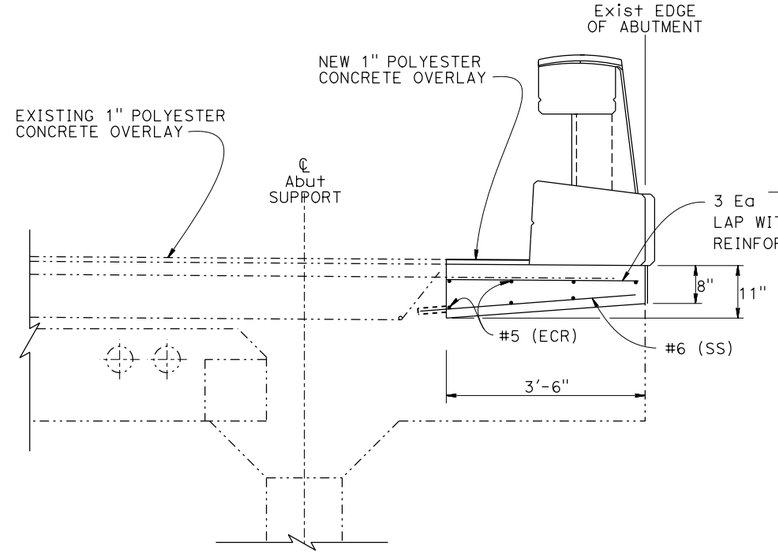
1. For Location of Section B-B and C-C, see Sheet "OVERHANG DETAILS NO. 1".
2. Abut 1 shown, Abut 7 similar.
3. Barrier Reinforcement not shown for Clarity, see "CONCRETE BARRIER TYPE 86H(MOD) DETAILS No. 7, 8, 9, AND 10" sheets for details.
4. Match Existing Grade and Cross Slope.
5. New Deck Reinforcement, see "OVERHANG DETAILS NO. 1" and "BARRIER TYPE 86H(Mod)" Sheets.
6. Overhang Concrete shall be Structural Concrete, Bridge (Polymer Fiber).

LEGEND:

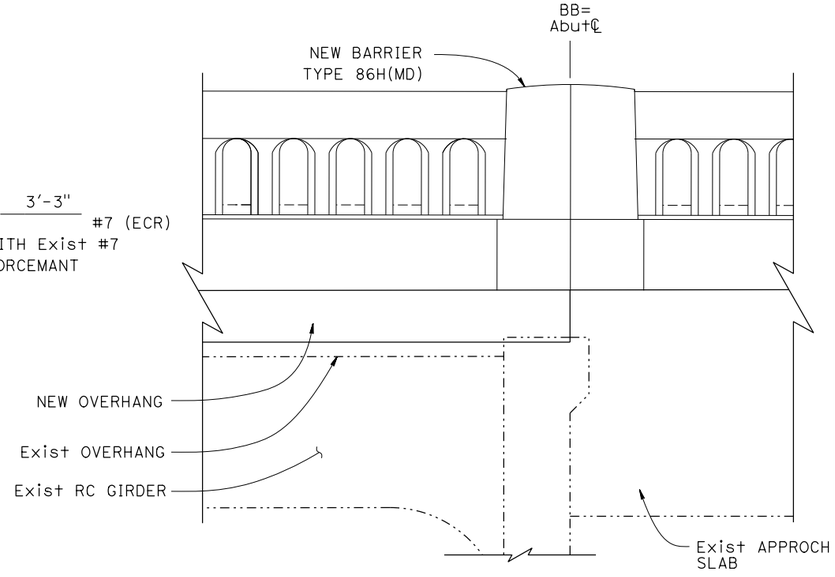
- Bridge Removal (Portion)
- Existing Structure
- (ECR) Epoxy coated reinforcement bar
- (SS) Stainless steel reinforcement bar



RECONSTRUCTION SECTION B-B
3/4" = 1'-0"



RECONSTRUCTION SECTION C-C
3/4" = 1'-0"



SECTION D-D
3/4" = 1'-0"

DESIGN	BY Rene Coria	CHECKED X	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES BRIDGE DESIGN BRANCH 18	BRIDGE No. 44-0018	GARRAPATA CREEK BRIDGE	
DETAILS	BY Mohammad Sharif	CHECKED X			POST MILE 63.0	OVERHANG DETAILS NO. 2	
QUANTITIES	BY X	CHECKED X					

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REVISION 3/10/2021)

DATE PLOTTED => 15-NOV-2022 TIME PLOTTED => 14:09 ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3
FILE => 44-0018-t-brdt02.dgn USERNAME => s110279

UNIT: 3603 PROJECT NUMBER & PHASE: 0516000163 COUNTY/ROUTE: Mon/001 CONTRACT No.: 05-1H880

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES				SHEET	OF
9/12/22	9/28/22	10/05/22		4	15

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER — DATE X

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. X — Exp. X — CIVIL — STATE OF CALIFORNIA

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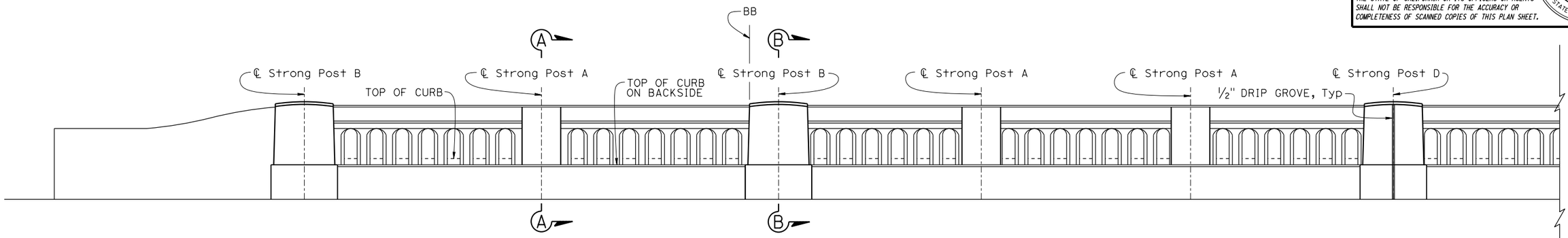
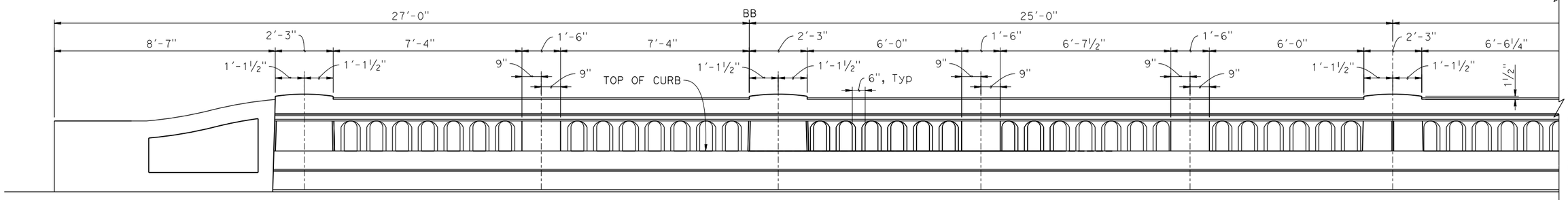


BACKSIDE ELEVATION

½" = 1'-0"

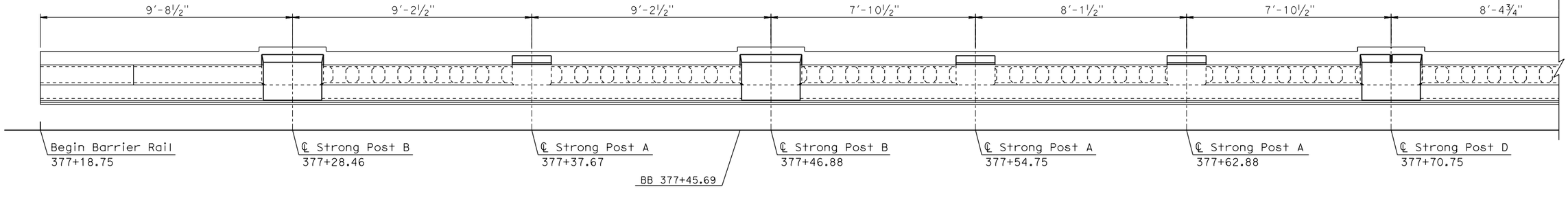
NOTE: Backside View (from ocean side) 6" Balusters



TRAFFIC SIDE ELEVATION

½" = 1'-0"

NOTE: Front View (from traffic side) 6" Balusters



PLAN

½" = 1'-0"

DESIGN	BY Kimberly Mori	CHECKED X	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES OFFICE OF DESIGN AND TECHNICAL SERVICES SPECIAL DESIGN BRANCH B	BRIDGE No. 44-0018
DETAILS	BY David Elliott	CHECKED X			POST MILE 63.0
QUANTITIES	BY X	CHECKED X			

GARRAPATA CREEK BRIDGE

CONCRETE BARRIER TYPE 86H DETAILS No. 1

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REVISION 3/10/2021)

DATE PLOTTED => 7-SEP-2022 TIME PLOTTED => 08:31
FILE => 44-0018-c-sp01.dgn USERNAME => s123982

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3619
PROJECT NUMBER & PHASE: 05160001631

COUNTY/ROUTE: Mon/1
CONTRACT No.: 05-1H8004

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES				SHEET	OF
8-1-22	9-1-22			X	X

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER — DATE X

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. X — Exp. X — CIVIL — STATE OF CALIFORNIA

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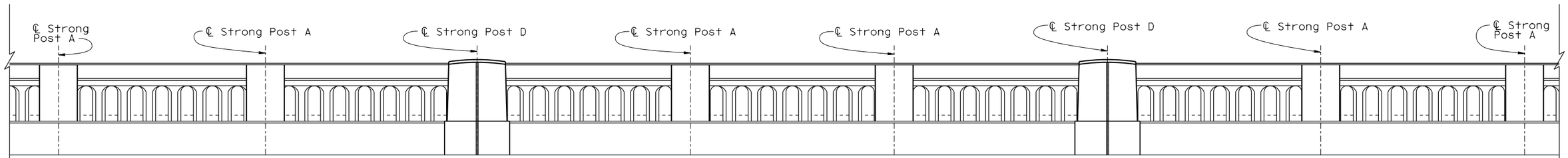
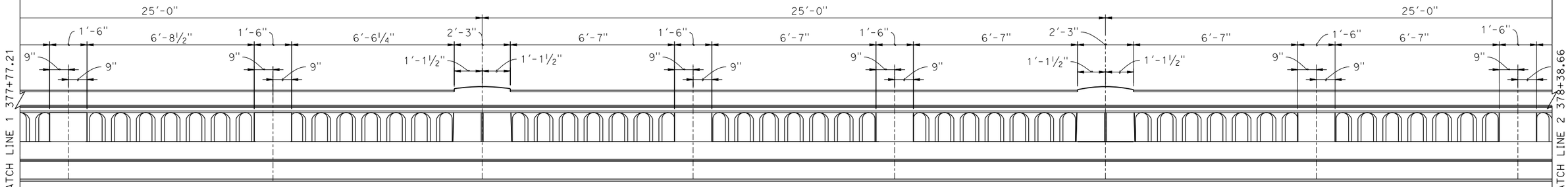
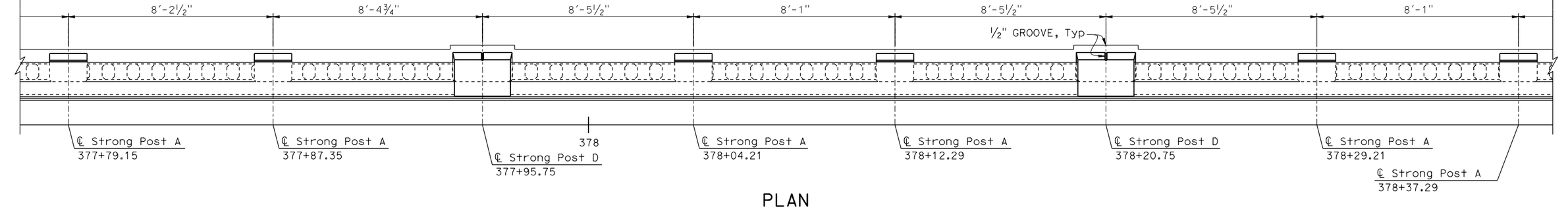


BACKSIDE ELEVATION
½" = 1'-0"



TRAFFIC SIDE ELEVATION
½" = 1'-0"



PLAN
½" = 1'-0"

	BY	CHECKED
DESIGN	Kimberly Mori	X
DETAILS	David Elliott	X
QUANTITIES	X	X

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
OFFICE OF DESIGN AND TECHNICAL SERVICES
SPECIAL DESIGN BRANCH B

BRIDGE No. 44-0018
POST MILE 63.0

GARRAPATA CREEK BRIDGE

CONCRETE BARRIER TYPE 86H DETAILS No. 2

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REVISION 3/10/2021)

DATE PLOTTED => 7-SEP-2022 TIME PLOTTED => 08:31
FILE => 44-0018-c-sp02.dgn USERNAME => s123982

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3619
PROJECT NUMBER & PHASE: 05160001631

COUNTY/ROUTE: Mon/1
CONTRACT No.: 05-1H8004

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES				SHEET	OF
8-1-22	9-1-22			X	X

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER _____ DATE X

PLANS APPROVAL DATE _____

REGISTERED PROFESSIONAL ENGINEER — No. X — Exp. X — CIVIL — STATE OF CALIFORNIA

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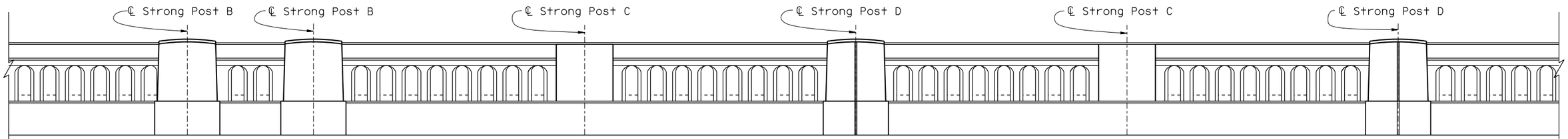
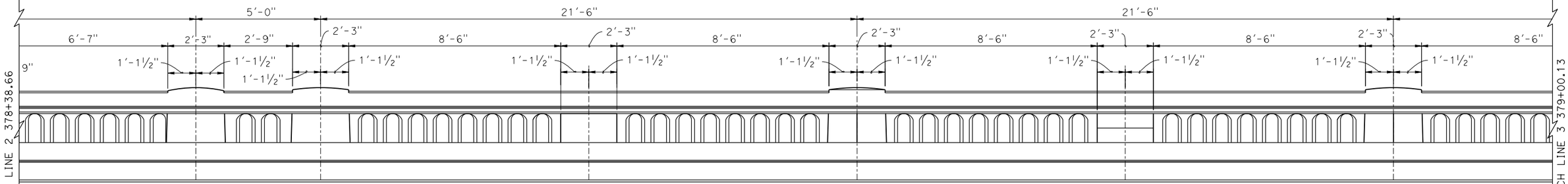
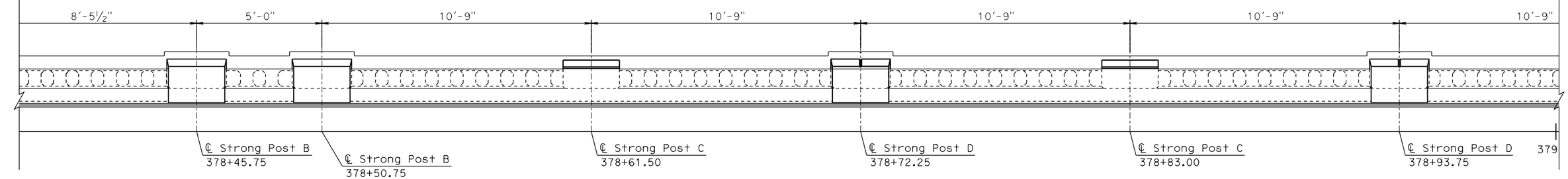


BACKSIDE ELEVATION
½" = 1'-0"



TRAFFIC SIDE ELEVATION
½" = 1'-0"



PLAN
½" = 1'-0"

DESIGN	BY X	CHECKED X	
DETAILS	BY X	CHECKED X	
QUANTITIES	BY X	CHECKED X	

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
OFFICE OF DESIGN AND TECHNICAL SERVICES
SPECIAL DESIGN BRANCH **B**

BRIDGE No. 44-0018
POST MILE 63.0

GARRAPATA CREEK BRIDGE
CONCRETE BARRIER TYPE 86H DETAILS No. 3

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REVISION 3/10/2021)

DATE PLOTTED => 7-SEP-2022 TIME PLOTTED => 08:31
FILE => 44-0018-c-sp03.dgn USERNAME => s123982
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3619
PROJECT NUMBER & PHASE: 05160001631

COUNTY/ROUTE: Mon/1
CONTRACT No.: 05-1H8004

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES				SHEET	OF
8-5-22	9-1-22			X	X

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER _____ DATE X

PLANS APPROVAL DATE _____

REGISTERED PROFESSIONAL ENGINEER — No. X — Exp. X — CIVIL — STATE OF CALIFORNIA

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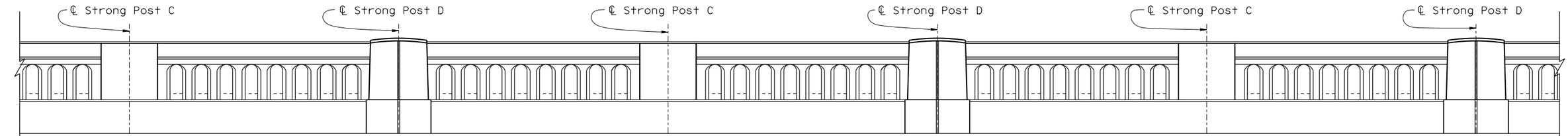
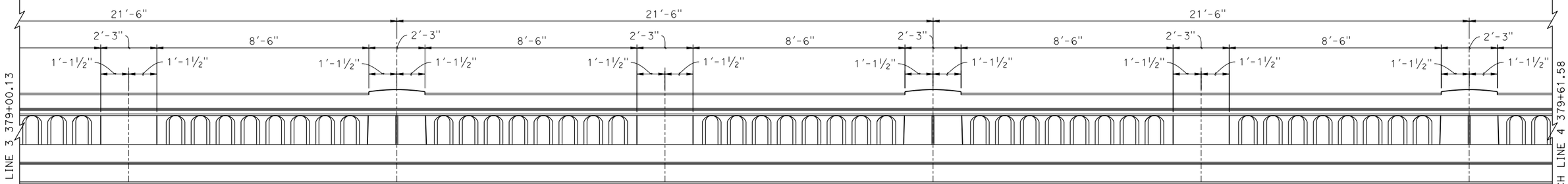
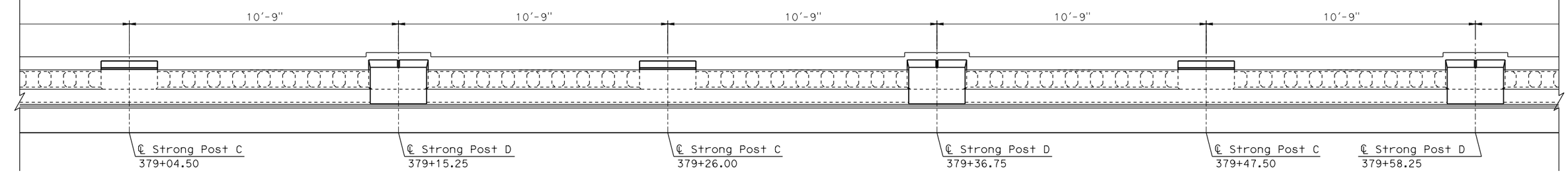


BACKSIDE ELEVATION
½" = 1'-0"



TRAFFIC SIDE ELEVATION
½" = 1'-0"



PLAN
½" = 1'-0"

DESIGN	BY Kimberly Mori	CHECKED X	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES OFFICE OF DESIGN AND TECHNICAL SERVICES SPECIAL DESIGN BRANCH B	BRIDGE No. 44-0018
DETAILS	BY David Elliott	CHECKED X			POST MILE 63.0
QUANTITIES	BY X	CHECKED X			

GARRAPATA CREEK BRIDGE

CONCRETE BARRIER TYPE 86H DETAILS No. 4

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REVISION 3/10/2021)

DATE PLOTTED => 7-SEP-2022 TIME PLOTTED => 08:31
FILE => 44-0018-c-sp04.dgn USERNAME => s123982
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3619
PROJECT NUMBER & PHASE: 05160001631

COUNTY/ROUTE: Mon/1
CONTRACT No.: 05-1H8004

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES				SHEET	OF
8-5-22	9-1-22			X	X

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER _____ DATE X

PLANS APPROVAL DATE _____

REGISTERED PROFESSIONAL ENGINEER
X
No. X
Exp. X
CIVIL
STATE OF CALIFORNIA

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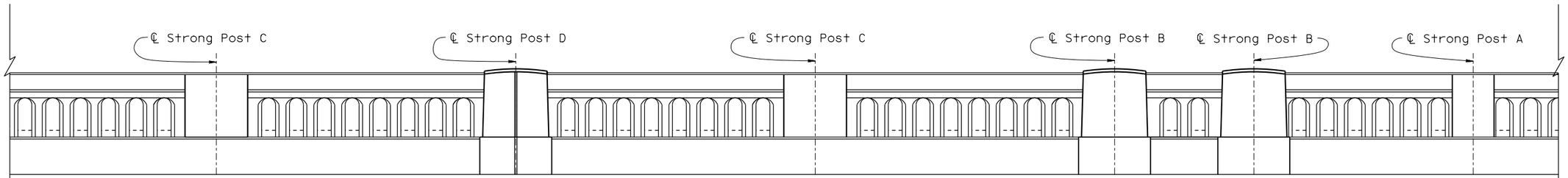
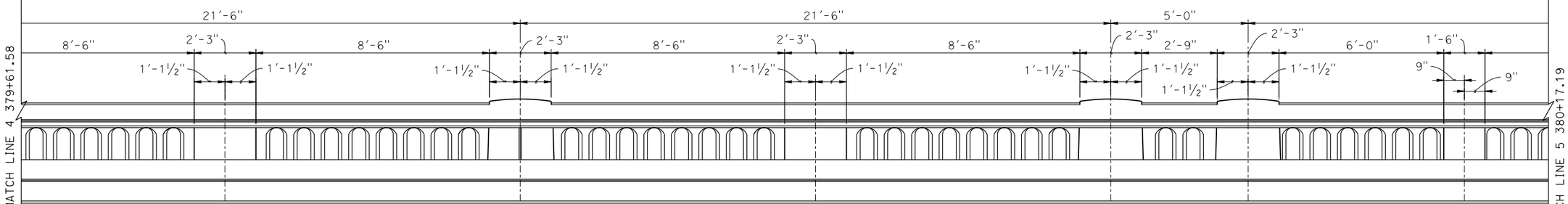
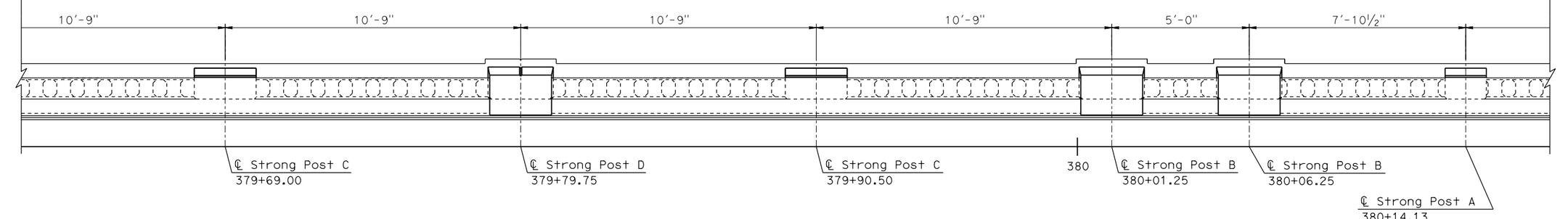


BACKSIDE ELEVATION
½" = 1'-0"



TRAFFIC SIDE ELEVATION
½" = 1'-0"



PLAN
½" = 1'-0"

	BY	CHECKED
DESIGN	Kimberly Mori	X
DETAILS	David Elliott	X
QUANTITIES	X	X

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
OFFICE OF DESIGN AND TECHNICAL SERVICES
SPECIAL DESIGN BRANCH B

BRIDGE No. 44-0018
POST MILE 63.0

GARRAPATA CREEK BRIDGE
CONCRETE BARRIER TYPE 86H DETAILS No. 5

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REVISION 3/10/2021)

DATE PLOTTED => 7-SEP-2022 TIME PLOTTED => 08:31
FILE => 44-0018-c-sp05.dgn USERNAME => s123982
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3619
PROJECT NUMBER & PHASE: 05160001631

COUNTY/ROUTE: Mon/1
CONTRACT No.: 05-1H8004

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES				SHEET	OF
~~8-5-22~~	9-1-22			X	X

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER — DATE X

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. X — Exp. X — CIVIL — STATE OF CALIFORNIA

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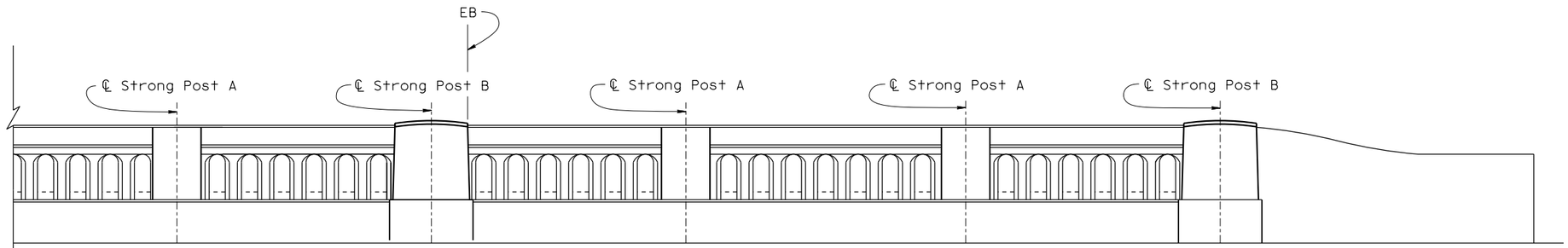
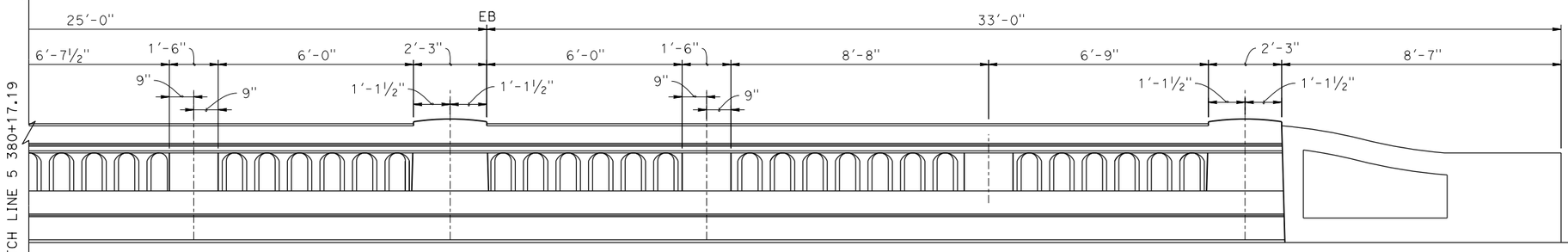
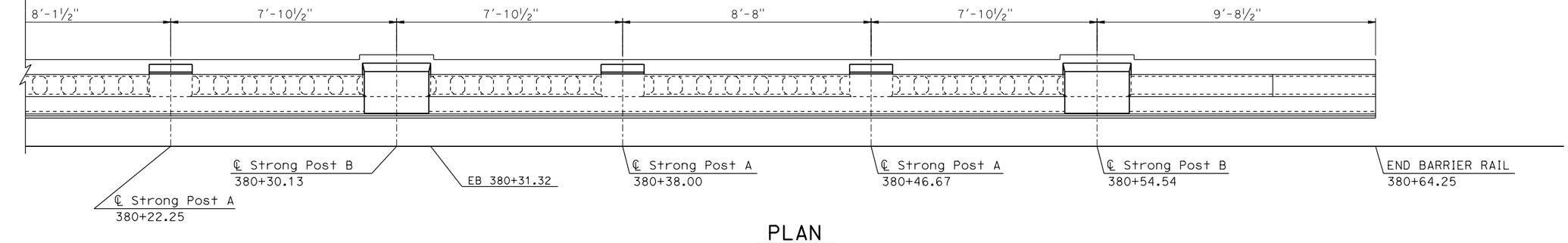


BACKSIDE ELEVATION
½" = 1'-0"



TRAFFIC SIDE ELEVATION
½" = 1'-0"



PLAN
½" = 1'-0"

	BY	CHECKED
DESIGN	Kimberly Mori	X
DETAILS	David Elliott	X
QUANTITIES	X	X

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
OFFICE OF DESIGN AND TECHNICAL SERVICES
SPECIAL DESIGN BRANCH B

BRIDGE No. 44-0018
POST MILE 63.0

GARRAPATA CREEK BRIDGE
CONCRETE BARRIER TYPE 86H DETAILS No. 6

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REVISION 3/10/2021)

DATE PLOTTED => 7-SEP-2022 TIME PLOTTED => 08:32
FILE => 44-0018-c-sp06.dgn USERNAME => s123982

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3619
PROJECT NUMBER & PHASE: 05160001631

COUNTY/ROUTE: Mon/1
CONTRACT No.: 05-1H8004

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES				SHEET	OF
8-5-22	9-1-22			X	X

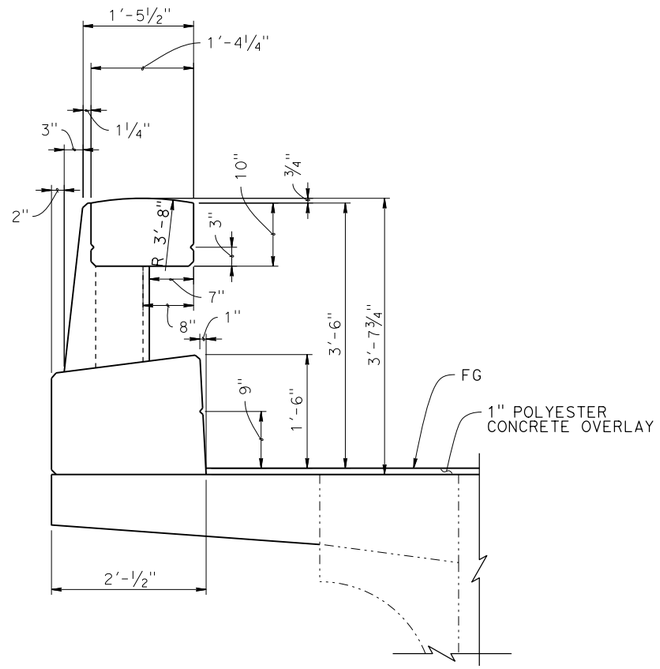
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER _____ DATE X

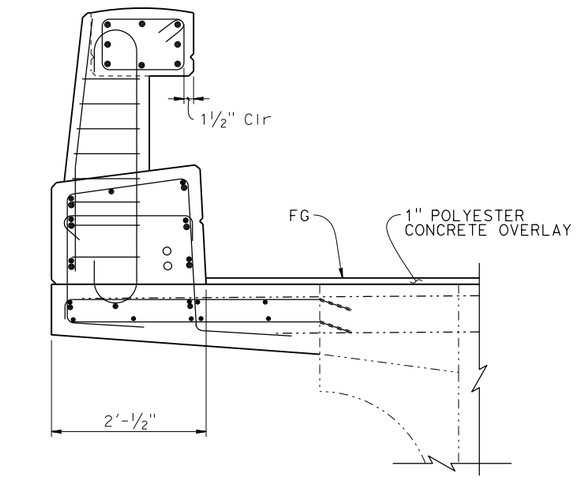
PLANS APPROVAL DATE _____

REGISTERED PROFESSIONAL ENGINEER — No. X — Exp. X — CIVIL — STATE OF CALIFORNIA

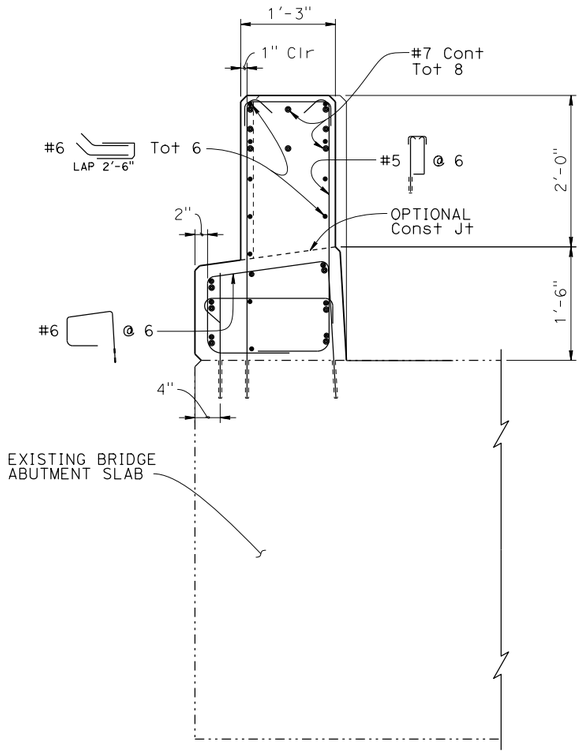
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



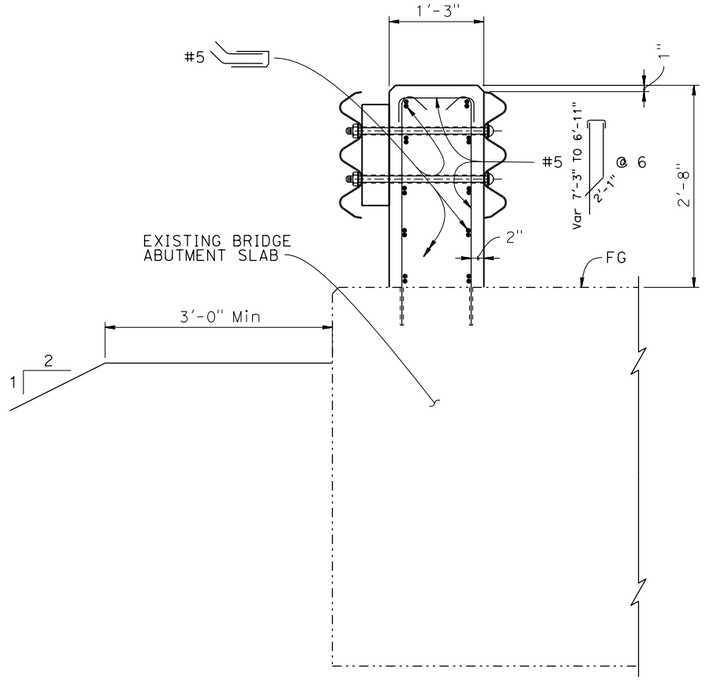
TYPICAL SECTION
1" = 1'-0"



TYPICAL SECTION - TYPE 86H
1" = 1'-0"



SECTION D-D
1" = 1'-0"



SECTION E-E
1" = 1'-0"

DESIGN	BY Kimberly Mori	CHECKED X	
DETAILS	BY David Elliott	CHECKED X	
QUANTITIES	BY X	CHECKED X	

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
OFFICE OF DESIGN AND TECHNICAL SERVICES
SPECIAL DESIGN BRANCH B

BRIDGE No. 44-0018
POST MILE 63.0

GARRAPATA CREEK BRIDGE
CONCRETE BARRIER TYPE 86H DETAILS No. 7

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REVISION 3/10/2021)

DATE PLOTTED => 7-SEP-2022 TIME PLOTTED => 08:32
FILE => 44-0018-c-sp07.dgn USERNAME => s123982

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3619
PROJECT NUMBER & PHASE: 05160001631

COUNTY/ROUTE: Mon/1
CONTRACT No.: 05-1H8004

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES				SHEET	OF
8-1-22	8-9-22	9-2-22		X	X

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER — DATE X

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. X — Exp. X — CIVIL — STATE OF CALIFORNIA

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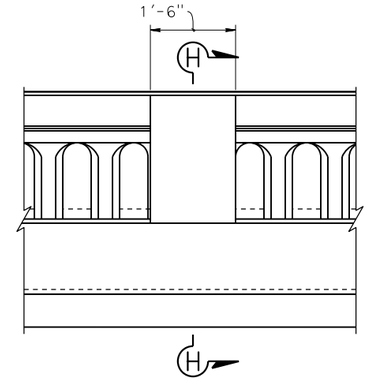
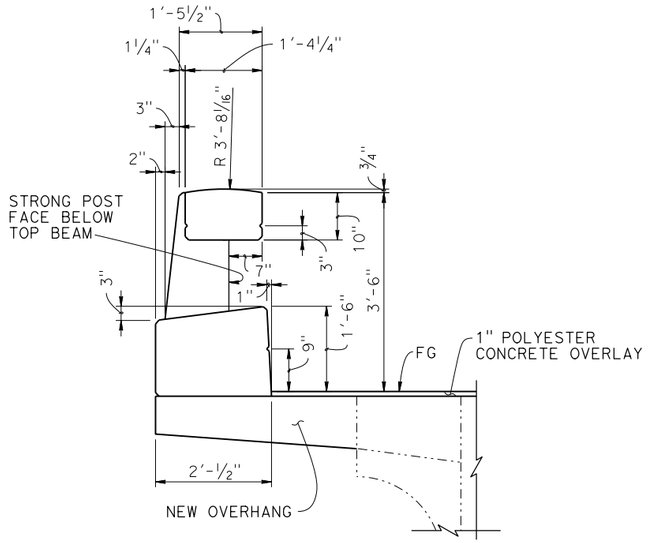


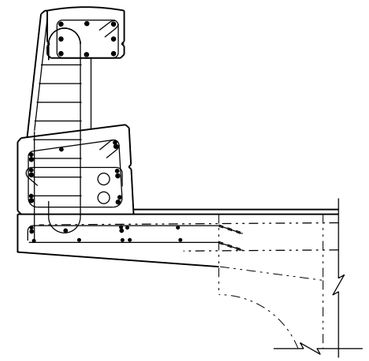
STRONG POST A TYPICAL

3/4" = 1'-0"



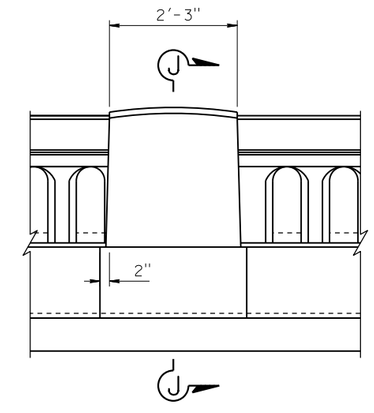
SECTION H-H

NOTE: Strong Post A cross section dimensions shown, Strong Post C similar.



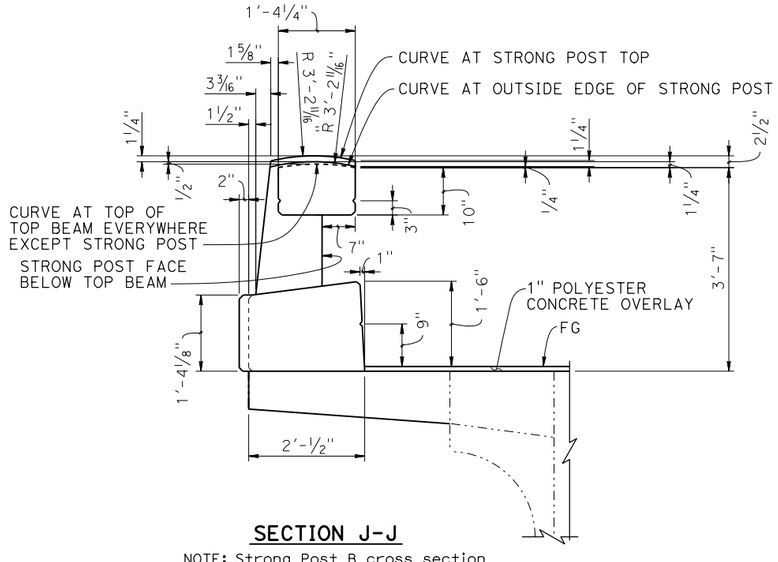
SECTION H-H

NOTE: Strong Post A rebar shown, Strong Post C similar.



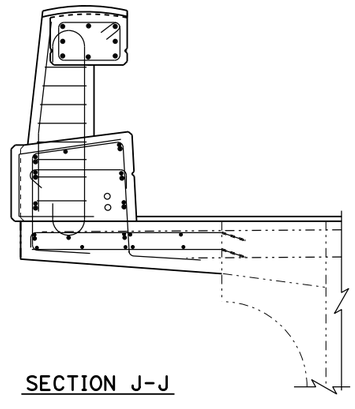
STRONG POST B TYPICAL

3/4" = 1'-0"



SECTION J-J

NOTE: Strong Post B cross section dimensions shown, Strong Post D similar.



SECTION J-J

NOTE: Strong Post B rebar shown, Strong Post D similar.

	BY	CHECKED
DESIGN	Kimberly Mori	X
DETAILS	David Elliott	X
QUANTITIES	X	X

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
OFFICE OF DESIGN AND TECHNICAL SERVICES
SPECIAL DESIGN BRANCH B

BRIDGE No. 44-0018
POST MILE 63.0

GARRAPATA CREEK BRIDGE

CONCRETE BARRIER TYPE 86H DETAILS No. 8

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REVISION 3/10/2021)

DATE PLOTTED => 7-SEP-2022 TIME PLOTTED => 08:32
FILE => 44-0018-c-sp08.dgn USERNAME => s123982
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3619
PROJECT NUMBER & PHASE: 05160001631

COUNTY/ROUTE: Mon/1
CONTRACT No.: 05-1H8004

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES				SHEET	OF
8-1-22	8-8-22	9-2-22		X	X

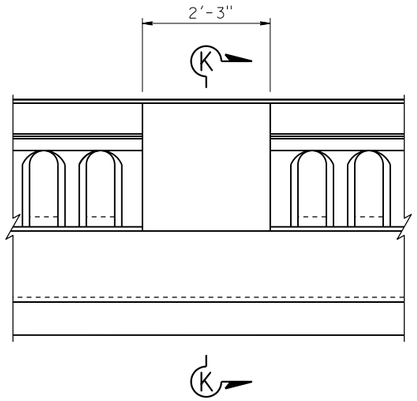
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER _____ DATE X

PLANS APPROVAL DATE _____

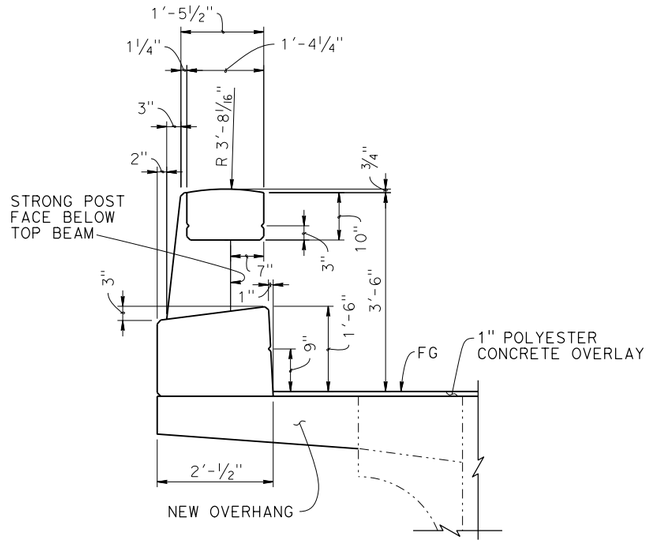
REGISTERED PROFESSIONAL ENGINEER — No. X — Exp. X — CIVIL — STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



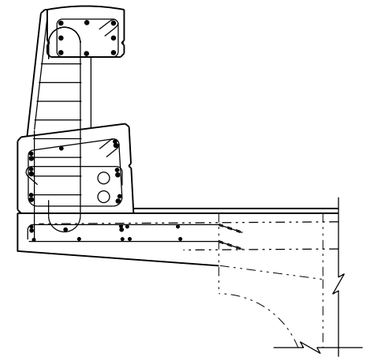
STRONG POST C TYPICAL

3/4" = 1'-0"



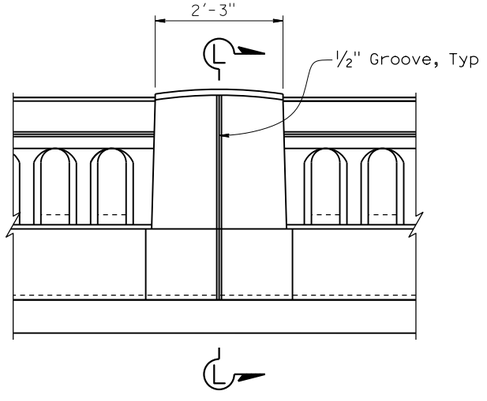
SECTION K-K

NOTE: Strong Post C cross section dimensions shown, Strong Post A similar.



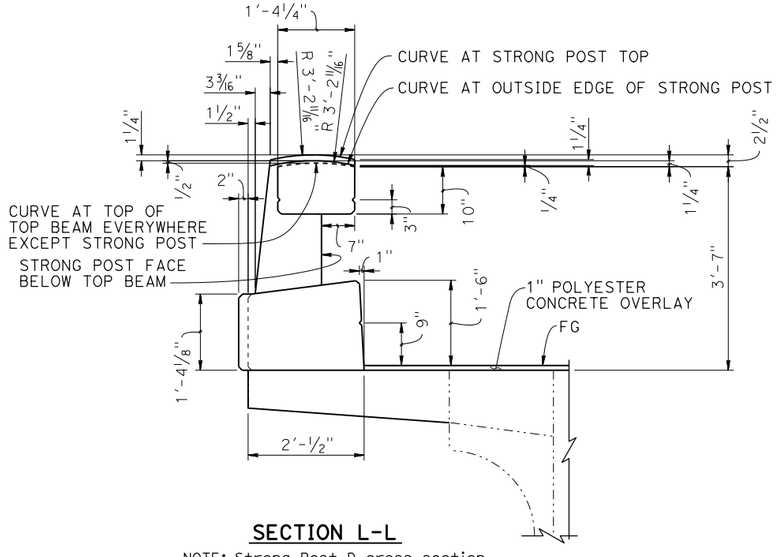
SECTION K-K

NOTE: Strong Post C rebar shown, Strong Post A similar.



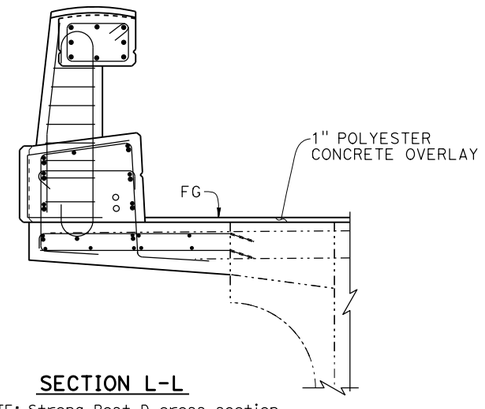
STRONG POST D TYPICAL

3/4" = 1'-0"



SECTION L-L

NOTE: Strong Post D cross section dimensions shown, Strong Post B similar.



SECTION L-L

NOTE: Strong Post D cross section reinforcement shown, Strong Post B similar.

DESIGN	BY Kimberly Mori	CHECKED X	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES OFFICE OF DESIGN AND TECHNICAL SERVICES SPECIAL DESIGN BRANCH B	BRIDGE No. 44-0018
DETAILS	BY David Elliott	CHECKED X			POST MILE 63.0
QUANTITIES	BY X	CHECKED X			

GARRAPATA CREEK BRIDGE

CONCRETE BARRIER TYPE 86H DETAILS No. 9

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REVISION 3/10/2021)

DATE PLOTTED => 7-SEP-2022 TIME PLOTTED => 08:32
FILE => 44-0018-c-sp09.dgn USERNAME => s123982

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3619
PROJECT NUMBER & PHASE: 05160001631

COUNTY/ROUTE: Mon/1
CONTRACT No.: 05-1H8004

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES				SHEET	OF
9-7-22	----	----		X	X

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER — DATE X

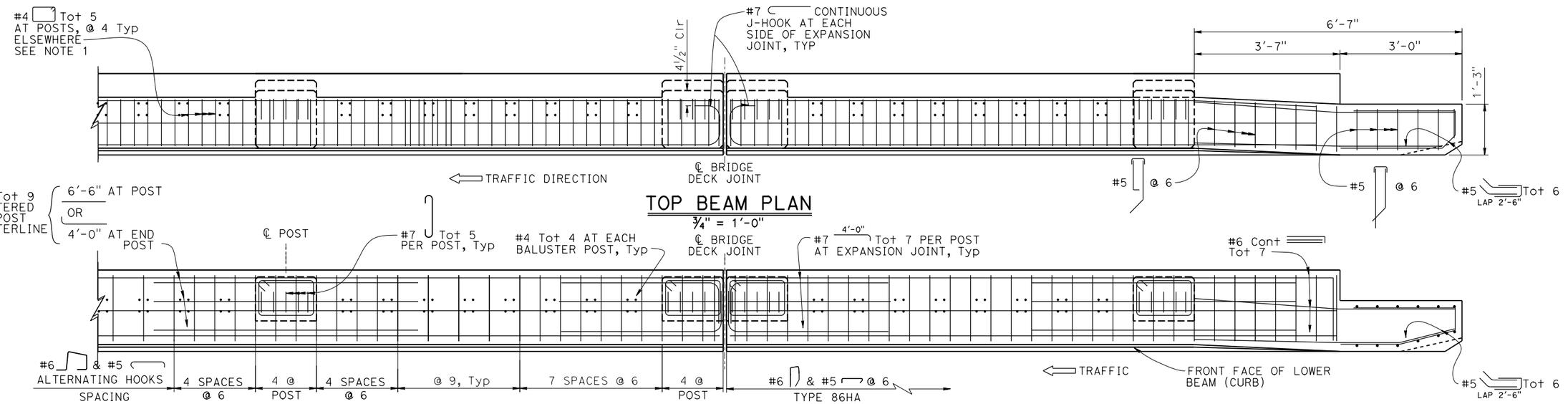
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. X — Exp. X — CIVIL — STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NOTE:

1. Adjust spacing of #4 hoops at post location as necessary to avoid locations of the drill and bond threaded rods attaching the tubular bicycle railing to the top of the top concrete beam. See the "TUBULAR BICYCLE RAILING DETAIL" on the "CONCRETE BARRIER TYPE 86H DETAILS No. 5" sheet.

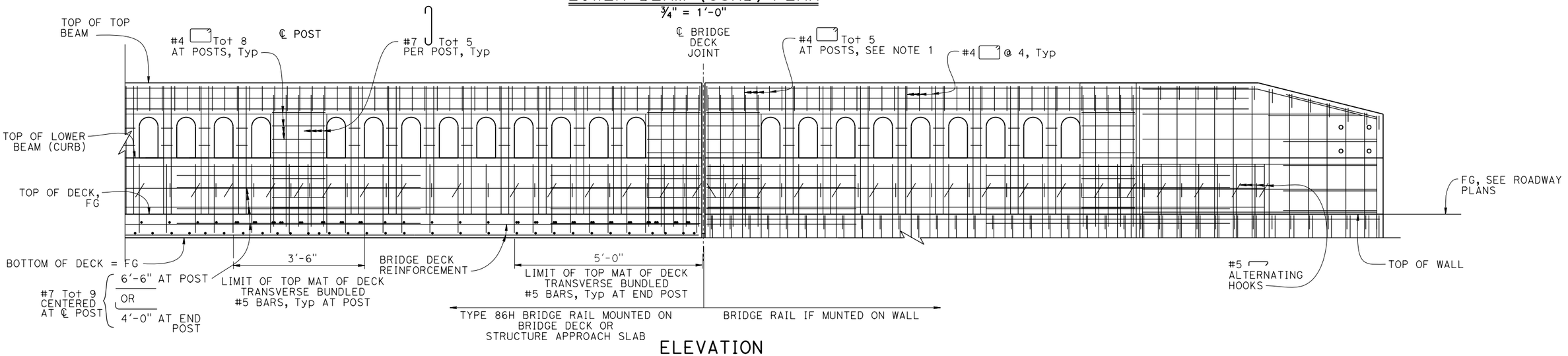


TOP BEAM PLAN

¾" = 1'-0"

LOWER BEAM (CURB) PLAN

¾" = 1'-0"



ELEVATION

¾" = 1'-0"

DESIGN	BY Kimberly Mori	CHECKED X	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES OFFICE OF DESIGN AND TECHNICAL SERVICES SPECIAL DESIGN BRANCH B	BRIDGE No. 44-0018
DETAILS	BY David Elliott	CHECKED X			POST MILE 63.0
QUANTITIES	BY X	CHECKED X			

GARRAPATA CREEK BRIDGE

CONCRETE BARRIER TYPE 86H DETAILS No. 10

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REVISION 3/10/2021)

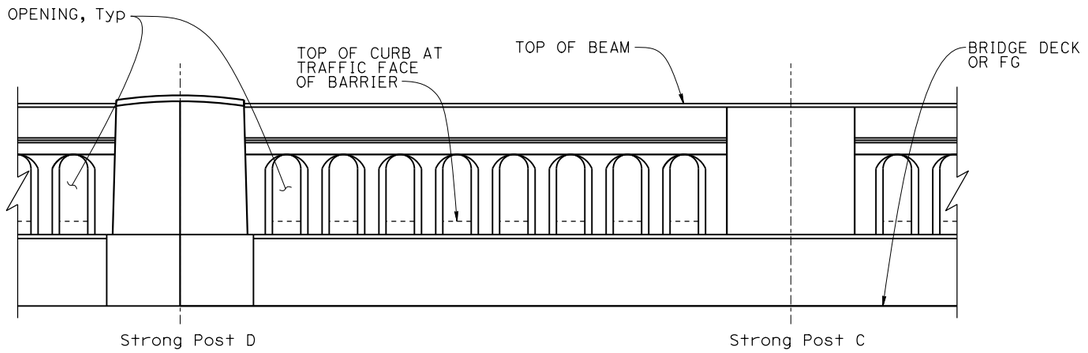
DATE PLOTTED => 7-SEP-2022 TIME PLOTTED => 08:32
FILE => 44-0018-c-sp10.dgn USERNAME => s123982
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3619
PROJECT NUMBER & PHASE: 05160001631

COUNTY/ROUTE: Mon/1
CONTRACT No.: 05-1H8004

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES					SHEET	OF
8-5-22					X	X



ELEVATION WITH CHAMFERED BALUSTERS

CLEAR OPENINGS & BALUSTERS

3/4"= 1'-0"

NOTES:

1. For "SECTION A-A" and " SECTION B-B" location see "CONCRETE BARRIER TYPE 86H No. 1" sheet.
2. For details not shown, see other sheets.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER — X — DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — X — No. X — Exp. X — CIVIL — STATE OF CALIFORNIA

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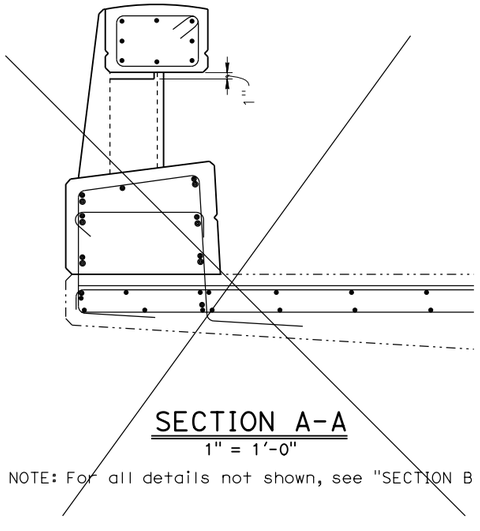
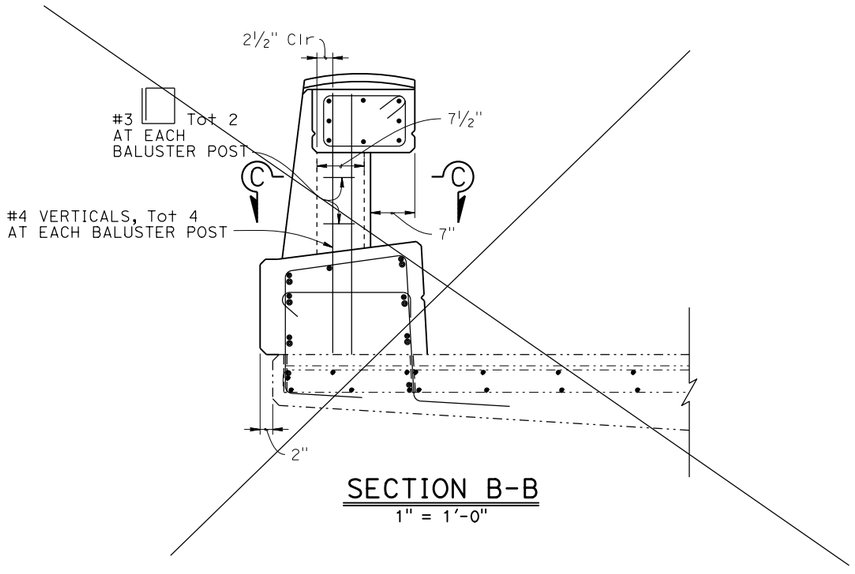


SECTION A-A

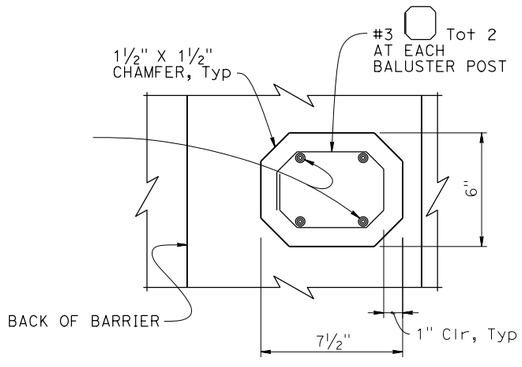
1" = 1'-0"

NOTE: For all details not shown, see "SECTION B



SECTION B-B

1" = 1'-0"



SECTION C-C

3" = 1'-0"

DESIGN	BY Kimberly Mori	CHECKED X	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES OFFICE OF DESIGN AND TECHNICAL SERVICES SPECIAL DESIGN BRANCH B	BRIDGE No. 44-0018
DETAILS	BY David Elliott	CHECKED X			POST MILE 63.0
QUANTITIES	BY X	CHECKED X			

GARRAPATA CREEK BRIDGE

CONCRETE BARRIER TYPE 86H DETAILS No. 11

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REVISION 3/10/2021)

DATE PLOTTED => 7-SEP-2022 TIME PLOTTED => 08:32
FILE => 44-0018-c-sp11.dgn USERNAME => s123982
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3619
PROJECT NUMBER & PHASE: 05160001631
COUNTY/ROUTE: Mon/1
CONTRACT No.: 05-1H8004

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES				SHEET	OF
8-1-22	8-8-22			X	X