BUREAU OF STRUCTURES

Bridge Technical Committee Meeting Minutes

Date: Thursday, March 12, 2026 **Time:** 1:00 pm-3:30 pm **Location:** HF S149

Introductions 10 *min*

In-Person Attendees: Craig Pringle, Chandler Schreiber, Isaac Groshek, Bill Ryan, Matt Grove, James Luebke, Kyle Busch, Dave Staab, Laura Shadewald, Aaron Bonk, Brad Diener, Dominique Bechle, Tim Borowski, Ann Thielmann

Online Attendees: Bill Bertrand, Brian Boothby, Greg Brecka, Brian Rowekamp, Chad Halverson, Dan Kowalski, David Burt, Josh Dietsche, Ryan Erdmann, Ellyn Subak, Salim Guiro, Stacie Hausserman, Chad Hayes, Jake Gregerson, Jared Marugg, Joel Christopherson, John Hopkins, Julia Zehner, Emily Kuehne, Leslie Ashauer, Luke Haun, Tirupan Mandal, Mike Delemont, Dan Monroe, Preston Moore, Carla Principe, Linette Rizos, Jason Roselle, John Rublein, Scott Stroud, Zach Silbernick, Jonathan Thomas, Krissy VanHout, Mark Zander

Subcommittee Report(s) 0 *min*

0 min	**Design & Construction Subcommittee Update**	Aaron Bonk

Standing Topics 25 *min*

10 min	**Wisconsin Highway Research Program Bridge Items** James gave an update on active projects, recently completed projects, and future research. He also made a call for future topics for consideration by the Structures WHRP Technical Oversight Committee. Any potential topics can be sent to james.luebke@dot.wi.gov. Active structures projects: Investigate WI Bridge Scour, Investigate Removing Existing Abutment Expansion Joints, Vertical and Overhead Concrete Patches, and State of Practice for Specifying and Repairing MSE Walls. Recently completed projects: Bridge Deck Thermography, Investigation of MSE Wall Corrosion in WI. Proposed project: Evaluation of Exposed CIP Concrete Piles in Corrosive Environments in WI.	James Luebke
10 min	**Bridge Manual Updates** James provided updates from both the July 2025 and January 2026 Bridge Manual updates. These updates are presented in the semi-annual Bridge Manual Updates webinars that James puts on as well. Of specific note to this group, James brought forward topics including, but not limited to: false decking updates, pile point detailing requirements for design, pouring sequences for continuous steel girder bridges with HPC,	James Luebke

precast box culverts, and fencing/railing post orientation and anchor bolt lengths.

5 min **Specification Changes/Updates** — Mark Zander

Mark presented changes to the process of publishing standard specs this year and moving forward. Edits in 2026 are being made to the 2025 standard spec via ASP-6. The same will occur in 2027, and subsequently there will be a full republishing of the reorganized specs in 2028 (proposed). There will be pilot projects with the proposed updated spec format happening in 2026 and 2027 to proof out the new specification format (materials all in one location) and to identify any shortcomings of the proposed specification organization. Mark also discussed the timelines for getting spec updates to him/Bureau of Project Development in order to be able to clear the proposed spec language with FHWA for publishing. Related to the CMM, Mark presented the existing and ongoing timelines for updating the CMM. No significant changes to past practice have occurred with relation to the CMM.

Previous Meeting Carryover Topics/Action Item(s) Review — 15 *min*

5 min **IRI Ride Roadway Spec Application to Bridges** — Laura Shadewald/(Dan Kowalski)

This topic is a carryover from a previous meeting in 2024. The initial issue was different projects applying spec requirements differently from project to project. Dan indicated that he has not seen the same issues/problems in the field recently, but he believes that the specs are the same and the lack of clarity still exists. In the past, construction teams were asking the contractors to grind down bridge decks without consulting with BOS.

Mike Delemont stated that it may be good for "contact BOS" references in the specifications be clarified to a more specific reference of who should be contacted.

Brad Diener indicated that clarification on the incentive/ disincentive portion of the spec, along with taking the profile readings, would benefit from a spec review and potential revision.

Action Item(s): Dan Kowalski to provide the spec language to Laura Shadewald and Linette Rizos for consideration and possible language clarifications to eliminate the issue moving forward.

5 min **Girder Deflection/Rebound on Redecks** — Aaron Bonk/(Dan Kowalski)

Aaron indicated that last year numerous discussions were held related to this topic and that other discussions with FHWA occurred related to bridge deck construction practices overall. BOS is looking for contractor thoughts on what level of additional information is functional in terms of trying to

	improve constructability and design verification in the field with that information. Brad Diener indicated that taking survey shots to understand the rebound of girders is useful in helping to confirm assumptions in design, adjust dead load deflections (if necessary), etc. Joel Christopherson indicated that the accuracy of survey data is critical and it can become difficult with stream crossings, crossings over the interstate or high ADT roadways, etc. Isaac Groshek indicated that pour sequences on continuous steel girder bridges need to match original construction, and if pour sequences don't match, then the additional survey information wouldn't be as beneficial. Dan Kowalski indicated that he has had situations where prestressed concrete girders also are not rebounding as much as expected, similar to steel girder bridges. Identifying a few different pilot projects to try getting more survey data on redeck projects would be beneficial to both contractors and designers. **Action Item(s):** BOS to identify potential projects for piloting the use of additional survey requirements and inclusion of tables in the structure plans in the coming year.	
5 min	**Temporary Structures** In past BTC meetings, Mike Ryan inquired about the need for all temporary structures having to meet interstate standards (concrete decks, cast in place parapets, etc.), which is causing costs to increase. The example brought forward is one in which the roadway design speed was 20 mph with gravel approaches leading up to the bridge, so why not allow the bridge deck to follow that same finished surface. Tim indicated that the finished surface situation is the real concern for these structures. Brad Diener also indicated that there is general language in the standard spec for temporary bridges pointing to Section 5 of the spec, which requires QMP/doesn't allow contractors to use their own forces/doesn't include asphalt or gravel/etc. This language limits the ability of contractors to use their own materials and resources to deliver efficient and economical systems, and the contractors would prefer that full designs be provided if the full specs need to be maintained. **Action Item(s):** BOS to review the language in the existing spec to determine whether there is a way to open up some flexibility on the finished surface of temporary structures in certain situations. BOS to also determine if a full review of the spec language is warranted to meet the intent of the temporary bridge spec as originally constituted.	Laura Shadewald/(Mike Ryan/Tim MacLaughlin-Barck)

New Topics — 90 *min*

0 min	**Bridge Removal Operations & Navigation** Craig brought this issue forward but was unable to attend this meeting. This topic was tabled for a future BTC meeting.	Craig Webster
10 min	**Staged Bridge Construction Girder Deflections** Brad brought forward the issue where plan provided dead load deflections in the girder data tables do not reflect staged construction conditions. In staged construction, the tributary areas for girder lines often changes from the construction stage to the final condition. If the department uses the girder data table in the plan (typically based on final cross section) to provide the contractor 'T' values in construction stages 2 and 3, the 'T' values will be inaccurate. This will result in unintended girder deflections that may cause deck profile, deck thickness, and/or vertical clearance issues. This may also induce residual stress in the structure at the construction joint which will present future maintenance issues. Brad's recommendation and request is for the department to provide dead load deflection data in the plans based on staged construction conditions and consider associated constructability issues in the design phase. Brad also recommended stronger consideration of construction joints being placed closer to the middle of girder bays. Kyle Busch stated that this question came up as an RFI on B-44-345 on the IH 41 project in the NER (Brad also indicated that there are two more bridges in Outagamie County with similar situations coming up this construction season – Chad Halverson indicated that the modified deflections were on the order of 1/8" or less due to the overhang being short on the first phase). He indicated that BOS reviewed the situation and provided updated values to the contractor, and the changed conditions were on the order of 1/2" or less. Kyle also indicated that this is on the radar of BOS for consideration and typical design process updating, based on this project issue coming to light. **Action Item(s):** BOS Policy & Standards and Design to review this situation and potentially come up with revisions to typical processes for staged bridge construction.	Brad Diener
10 min	**Removing Formwork** Brad indicated that they've seen multiple situations where field engineers are not allowing the contractor to strip HPC decks until the wet cure is complete (14 days). From his perspective, there isn't any evidence to support this requirement in the HPC SPV or standard specification beyond the requirement for engineer approval as	Brad Diener

specified in 502.3.4.2(1). The contractors would like to strip once the requirements outlined in 502.3.4.2 are met.
From the contractor's perspective, as project schedules become more constrained the need to continue to look for opportunities to reduce construction durations is great.
Laura Shadewald indicated that she thought that the intent of the wet cure specifications was to leave the formwork in place for the timeframe of the wet cure, providing the moisture retention for the bottom of the deck.
Chandler Schreiber and Brad Diener also indicated that the edge form removal timeline is problematic. In some locations around the state, edge forms are requested to be left in place and in other situations where they are allowed to be removed. Joel Christopherson also indicated that this was the case and that it causes schedule concerns/lack of clarity for all contractors.
Action Item(s): BOS Policy & Standards to review these specifications and to consider any clarifications. If no reduction in timing of keeping the formwork in place can be made, then the construction schedules need to ensure that these timelines are taken into account when project schedules are put together prior to PS&E.

10 min	**Concrete Surface Repair on Sidewalks & Medians** Brad indicated that structure plans are inconsistent with regards to repairing unsound concrete on the horizontal top surfaces of concrete sidewalks and medians. Sometimes the "concrete surface repair" bid item is used while on others, the "preparation decks" bid items are used. There are other times where this work isn't called out in the plans at all. All of this causes confusion and differences in how this work is paid for in the field. There is a difference in how materials are paid for between the "concrete surface repair" and "preparation decks" bid items. **Action Item(s):** BOS Policy & Standards to provide guidance to designers in the Bridge Manual and/or Standards to clarify this issue on the design end.	Brad Diener
10 min	**Pre-boring in Rock** Brad indicated that standard spec 550.3.9.3(3) specifies backfilling within the rock or consolidated material with a cement grout. The requirements for the grout are not further defined in 550.2. The requests from field engineers typically call for the use of a non-shrink grout from the WisDOT APL, which can be challenging (the mixing and placing sack-mix grout). Typical contractor practice has been to use a concrete mix as it is more economical and practical to place. The ask is to get more guidance on what type of concrete mix could be used as the use of grout isn't typically done. Laura Shadewald and Dave Staab provided feedback related to the size of the prebored hole compared to the largest dimension of the installed pile and sequencing of concrete placement and installation of the pile	Brad Diener

being critical. If concrete is placed first with the pile being pushed through, then there isn't as big of a concern of lack of clear cover of the pile and the ability of the aggregate to fit outside of that pile. Brad indicated that most contractors are using a larger hole anyways based on their own equipment being larger than the minimum called for.
Action Item(s): BOS and BTS will review this situation and will identify any updates to specifications to clarify this issue.

10 min	**Longitudinal Bridge Deck Grooving** Brad brought this issue forward and indicated that there is very little contractor/subcontractor equipment availability that is able to get within the 18" of the barrier rail/curb line/median that is a requirement in the current SPV. This situation creates issues in the field with penalties, is it a real issue, etc. From Brad's perspective, industry 'standard' allows the grooving to get within 24" of the barrier and other contractors seemed to agree. Laura Shadewald indicated that longitudinal grooving is included because with HPC decks, the desire is to get the concrete curved for wet curing within 10 minutes of placement and there is no time to do tining. Chandler Schreiber and Brad both indicated that they are typically broom dragging the deck before covering with wet burlap. James Luebke stated BOS is aware of the challenges with meeting the longitudinal grooving spec requirements at skewed deck joints and have already discussed longitudinal grooving with MnDOT and IowaDOT. **Action Item(s):** BOS Policy & Standards to review the existing Longitudinal Grooving Bridge Deck spec and consider updates.	Brad Diener
10 min	**WisDOT Grout and CSR Approved Products List** Brad indicated contractor concern that form and pour methodologies for concrete surface repair are no longer able to be used due to the fact that a significant number of commercial products have been removed from the APL. The products on the current list are are mix and tremie applied materials as opposed to form and pour. Brad also indicated that the costs that are exceedingly high for the products that remain on the list, because they are all for OH applications. Joel Christopherson indicated that the additional tests that are being called for are limiting the commercial interest in getting involved. They have been told that the costs to do the tests aren't worth the effort to the material manufacturers. Tirupan Mandal is aware of this issue and BTS is working through the materials requests for inclusion on the APL. He also indicated that there is a WHRP research project that is ongoing and close to wrapping up (as James mentioned earlier), and the hope is that more materials and applications will be able to be added in the near future. James Luebke indicated that the current APL's in place are a stop gap as we work through moving to an updated list based on research.	Brad Diener

	Action Item(s): As the WHRP study concludes, both BOS and BTS to review the existing lists and update accordingly. Also, consideration of modifying the "vertical and overhead" list to be two separate lists can be considered.	
10 min	**Air Loss in Pump** Brad brought this issue up as a specific issue related to bridge projects as roadway paving doesn't happen through pump trucks. His ask is to have WisDOT look into conducting additional research related to air quality and the requirements outlined in 502.3.5.1(11). There has been some research published by the Southern Plains Transportation Center in 2019 that indicates the quality of the air void system in the fresh concrete after pumping is not representative of the hardened concrete for the materials and procedures used. The research results suggest that if a high-quality air void system is present prior to pumping, then the air void system after pumping should be sufficient for freeze-thaw durability. **Action Item(s):** BOS and BTS to consider the research that Brad will send in as a follow up to this meeting to determine if modifications to specifications and project requirements are in order.	Brad Diener
10 min	**Project Schedules** Brad indicated that contractors are continuing to see design schedules that have issues related to cure time, formwork/falsework removal, work sequencing, work duration, and work relationships. Project schedules continue to be increasingly more demanding yet there are less considerations being made for the specific project requirements by the project schedulers. Laura Shadewald indicated that if contractors have specific examples of situations where these issues are present, it would be helpful to get those insights so that BOS staff can work with Region staff to identify potential improvements to the process. **Action Item(s):** BOS needs to go back and review how project schedules are being put together by roadway design engineers, and consider how to add more specific details and guidance on structures construction schedules.	Brad Diener
10 min	**Concrete Surface Repair** Dan brought this topic forward based on a number of project issues they've seen in the last couple of years. On the design end of things, designers are using the "Concrete Surface Repair" bid item when significant removals of elements of the structures are needed. Examples included full-depth removals of parapets and abutments using the bid item "Concrete Surface Repair". Dan did indicate that in most instances, the field staff have been willing to work with the contractors on modifications of payment, but how those adjustments are made vary from project to project. The identification of a process	Dan Kowalski

for applying the modification of price in the field is the ask (a modifier based on depth of removal as one example).
Aaron Bonk indicated that BOS can go back to our in-house designed projects, as well as coordinating with our Consultant Review Unit, to try to identify such use of this bid items in projects based on the information available to use during the design phase. Laura Shadewald also indicated that the updated and improved process for scoping of structures work through the Structures Certification process will hopefully be heading off some of these issues moving forward.
Chandler Schreiber stated that this bid item has units of SF, which doesn't give an indication of what the assumed depth of removal will be, which makes it difficult to bid on. Chad Halverson asked whether there is a way to indicate a maximum depth of removal assumed, with the ability to modify the payment in the field should that be exceeded and James Luebke indicated that seemed reasonable.
Brad Diener also indicated that there is no control over the work and it can become a safety concern. One project referenced included a cantilevered median that failed after the removals went beyond the rebar.
Action Item(s): BOS to take this topic back and discuss options with Region/PDS staff related to spec updates to alleviate this concern.

5 min	**Epoxy for Adhesive Anchors Meeting Buy America** Joel brought up the issue that all of the products that are on the APL are not made domestically. He did indicate that there is one domestic product that isn't on the APL, and it carries a 3x length of cure compared to those on the APL. This issue was brought up on a recent project that his group is working on and he anticipates that it will be coming up on more in the near future. Craig Pringle indicated that he had heard that the de minimis exemptions are becoming harder to obtain (i.e., if there are domestic products available then you have to use them regardless). Joel indicated that he had heard the same thing. **Action Item(s):** BOS to reach out to other North Central States groups to see if this issue is present for the other states and how they are handling it.	Joel Christopherson

BUREAU OF STRUCTURES

Bridge Technical Committee Meeting Sign-In Sheet

Date: Thursday, March 12, 2026 **Time:** 1:00pm-3:30pm **Location:** HF S149

Name	Company	Email
Laura Shadewald	WisDOT BOS	Laura.shadewald@dot.wi.gov
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CHANDLER SCHREIBER	SPS	cschreiber@sheetpilingservices.com
Craig Pringle	WISDOT BPD	Craig.pringle@dot.wi.gov

Wisconsin Highway Research Program (WHRP) Updates

Active Projects:

- S25-02 Investigate WI Bridge Scour in Mobile (Alluvial) Sand-Bed Rivers
- S24-02 Investigate Removing Existing Abutment Expansion Joints
- S24-05 Vertical and Overhead Concrete Patches
- S24-06 State of Practice for Specifying and Repairing MSE Walls

WHRP – Active Projects

- S25-02 Investigate WI Bridge Scour in Mobile (Alluvial) Sand-Bed Rivers
  - October 2025 Kick-off (36-month duration)
  - PI: UW-Milwaukee (WSP & Collins Engineers)
  - This research examines WisDOT's practice of designing new and replacement bridges to withstand predicted scour.

WHRP – Active Projects

S25-02 Investigate Removing Existing Abutment Expansion Joints

- Update Meeting: January 28, 2026
- Schedule (2026 Close-out):
  - July: Draft final report
  - Late Summer: Close-out presentation and Final report

WHRP – Active Projects

S24-05 Vertical and Overhead Concrete Patches

- Schedule (2026 Close-out):
  - March: Draft final report
  - April: Close-out presentation
  - June: Final report
- Recommendations:
  - Repair strategies
  - Guides on materials specs and accepting new repair materials
  - Guidance for installation of VOH patches

WHRP – Active Projects

S24-06 State of Practice for Specifying and Repairing MSE Walls

- Schedule (2026 Close-out):
  - November 2025: Close-out presentation

Wisconsin Highway Research Program (WHRP) Updates

Future WHRP Projects:

- May/June - TOC members rank ideas for FFY2028
- Send ideas to james.luebke@dot.wi.gov

Wisconsin Highway Research Program (WHRP) Updates

Recently Completed Projects:

- S23-04 Bridge Deck Thermography
- G24-02 Investigation of MSE Wall Corrosion in Wisconsin

Proposed Project:

- Evaluation of Exposed CIP Concrete Piles in Corrosive Environments in the State of Wisconsin

Bridge Manual Updates

- July 2025 Updates
- January 2026 Updates

Chapter Update

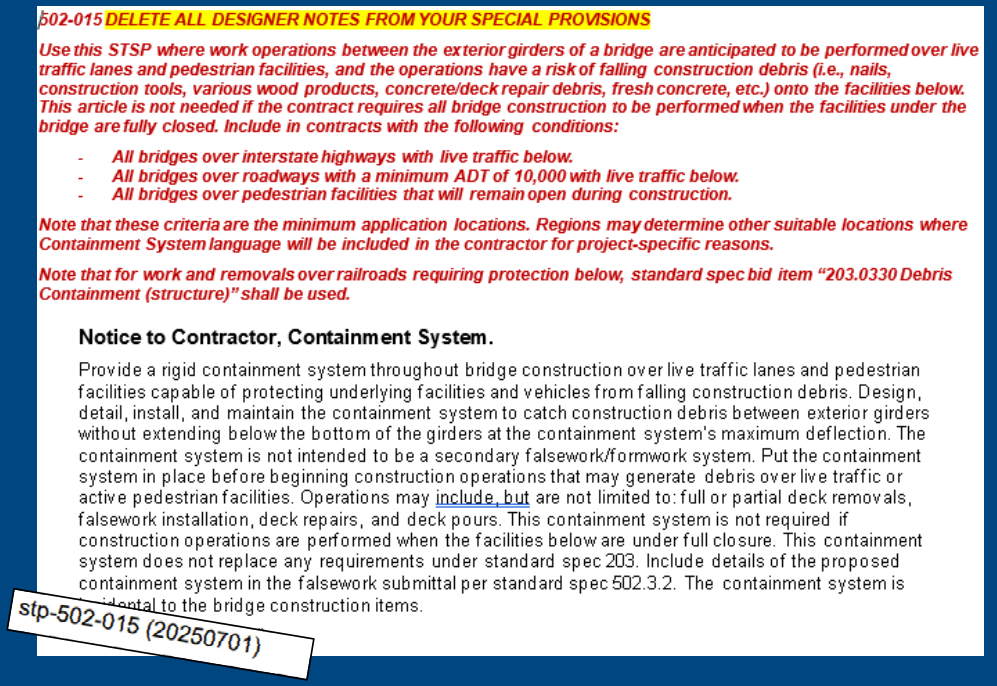
- Chapter 6 – False Decking
  - Rigid containment system
  - Protect against falling construction debris (nails, tools, etc.)

STSP language is to be included (note that these criteria are minimum application locations and that Regions may determine other suitable locations for project-specific reasons):

- All bridges over interstate highways with live traffic below.
- All bridges over roadways with a minimum ADT of 10,000 with live traffic below.
- All bridges over pedestrian facilities that will remain open during construction.

Chapter Update

- Chapter 6 – False Decking
  - STSP (7/1/2025 ASP-6):



502-015 DELETE ALL DESIGNER NOTES FROM YOUR SPECIAL PROVISIONS

Use this STSP where work operations between the exterior girders of a bridge are anticipated to be performed over live traffic lanes and pedestrian facilities, and the operations have a risk of falling construction debris (i.e., nails, construction tools, various wood products, concrete/deck repair debris, fresh concrete, etc.) onto the facilities below. This article is not needed if the contract requires all bridge construction to be performed when the facilities under the bridge are fully closed. Include in contracts with the following conditions:

- *All bridges over interstate highways with live traffic below.*
- *All bridges over roadways with a minimum ADT of 10,000 with live traffic below.*
- *All bridges over pedestrian facilities that will remain open during construction.*

Note that these criteria are the minimum application locations. Regions may determine other suitable locations where Containment System language will be included in the contractor for project-specific reasons.

Note that for work and removals over railroads requiring protection below, standard spec bid item "203.0330 Debris Containment (structure)" shall be used.

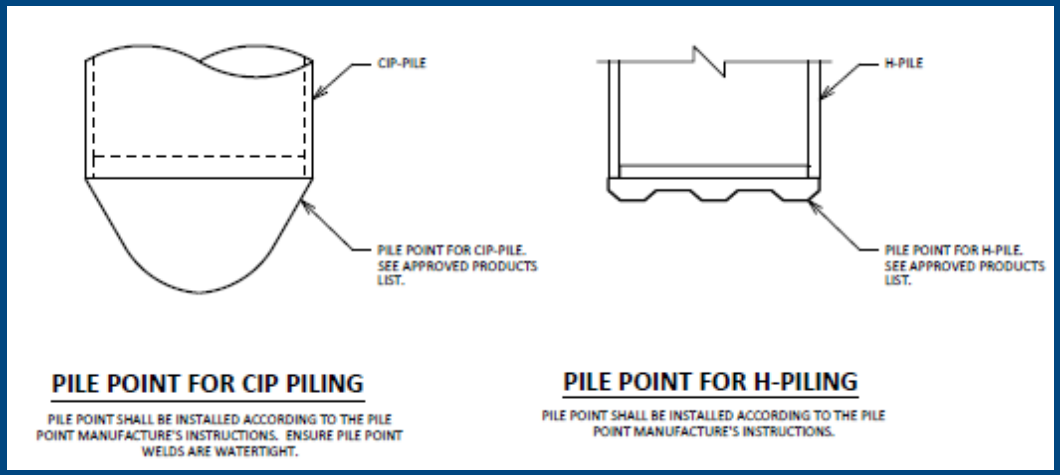
Notice to Contractor, Containment System.

Provide a rigid containment system throughout bridge construction over live traffic lanes and pedestrian facilities capable of protecting underlying facilities and vehicles from falling construction debris. Design, detail, install, and maintain the containment system to catch construction debris between exterior girders without extending below the bottom of the girders at the containment system's maximum deflection. The containment system is not intended to be a secondary falsework/formwork system. Put the containment system in place before beginning construction operations that may generate debris over live traffic or active pedestrian facilities. Operations may include, but are not limited to: full or partial deck removals, falsework installation, deck repairs, and deck pours. This containment system is not required if construction operations are performed when the facilities below are under full closure. This containment system does not replace any requirements under standard spec 203. Include details of the proposed containment system in the falsework submittal per standard spec 502.3.2. The containment system is incidental to the bridge construction items.

stp-502-015 (20250701)

Standard Update

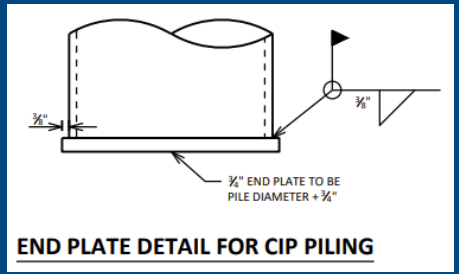
- Std. 11.01 – Pile Details



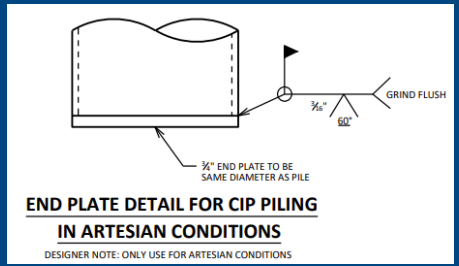
Pile Point Detail (See “Pile Points” APL)

DESIGNER NOTES

WHEN RECOMMENDED IN THE SOILS REPORT, USE BID ITEM "PILE POINTS" AND PROVIDE THE APPROPRIATE PILE POINT DETAIL.



Standard Detail



Artesian Condition Detail

Standard Update

- Std. 24.11 – Pour Sequence (Continuous Steel Girder)

NOTES

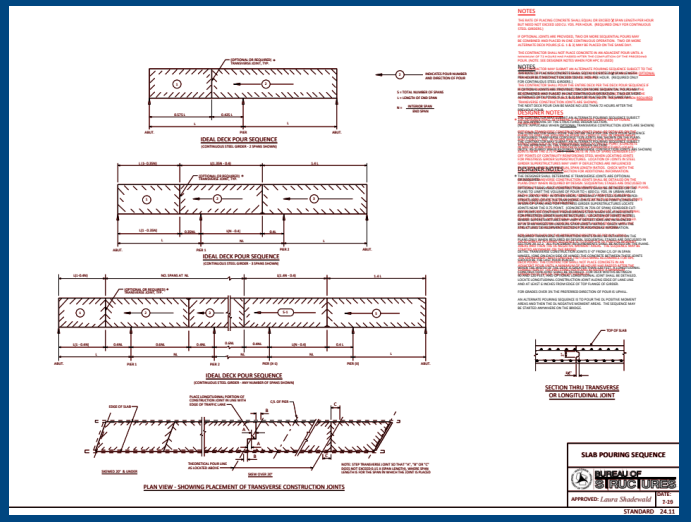
THE RATE OF PLACING CONCRETE SHALL EQUAL OR EXCEED ½ SPAN LENGTH PER HOUR BUT NEED NOT EXCEED 100 CU. YDS. PER HOUR. (REQUIRED ONLY FOR CONTINUOUS STEEL GIRDERS.)

IF OPTIONAL JOINTS ARE PROVIDED, TWO OR MORE SEQUENTIAL POURS MAY BE COMBINED AND PLACED IN ONE CONTINUOUS OPERATION. TWO OR MORE ALTERNATE DECK POURS (E.G. 1 & 3) MAY BE PLACED ON THE SAME DAY.

THE CONTRACTOR SHALL NOT PLACE CONCRETE IN AN ADJACENT POUR UNTIL A MINIMUM OF 72 HOURS HAS PASSED AFTER THE COMPLETION OF THE PRECEDING POUR. (NOTE: SEE DESIGNER NOTES WHEN FOR HPC IS USED)

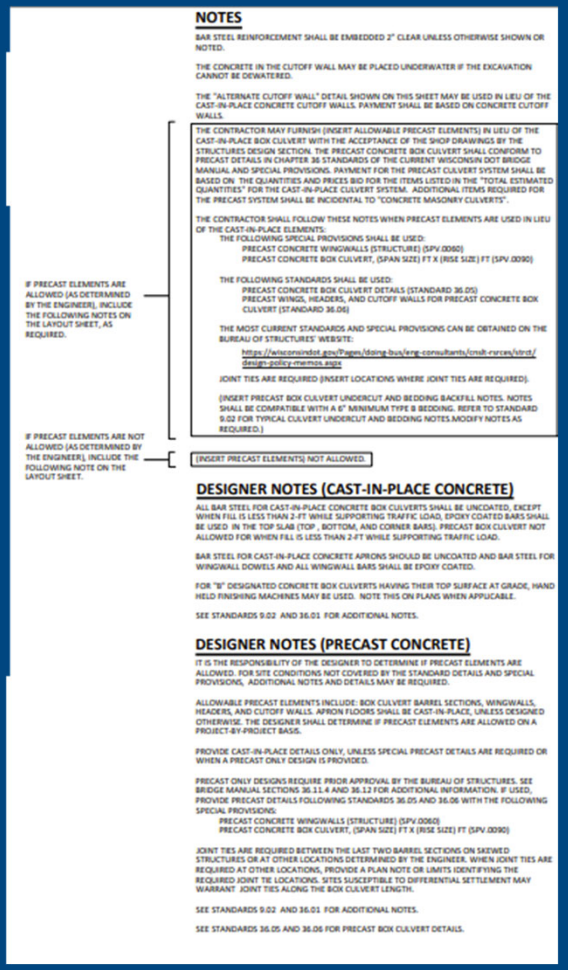
DESIGNER NOTES

THE DEPARTMENT MAY CONSIDER THE FOLLOWING ALLOWANCE FOR HPC DECK POURS: THE CONTRACTOR SHALL NOT PLACE CONCRETE IN AN ADJACENT POUR UNTIL A MINIMUM OF 48 HOURS HAS PASSED AFTER THE COMPLETION OF THE PRECEDING POUR AND ACHIEVED A MINIMUM STRENGTH OF 75% OF THE 28-DAY STRENGTH.



Standard Update

- Precast Box Culverts (Stds. 36.02, 36.05 & 36.06)
  - Reiterated: Designer to determine precast usage allowances and suppling required details.
  - Consolidated Notes on Std. 36.02:
    - Precast element allowed or not allowed
    - Special Provisions (STSP ➔ SPV)
    - Bedding requirements
    - Joint tie locations



NOTES

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

THE CONCRETE IN THE CUTOFF WALL MAY BE PLACED UNDERWATER IF THE EXCAVATION CANNOT BE DEWATERED.

THE "ALTERNATE CUTOFF WALL" DETAIL SHOWN ON THIS SHEET MAY BE USED IN LIEU OF THE CAST-IN-PLACE CONCRETE CUTOFF WALLS. PAYMENT SHALL BE BASED ON CONCRETE CUTOFF WALLS.

IF PRECAST ELEMENTS ARE ALLOWED (AS DETERMINED BY THE ENGINEER), INCLUDE THE FOLLOWING NOTES ON THE LAYOUT SHEET, AS REQUIRED.

THE CONTRACTOR MAY FURNISH (INSERT ALLOWABLE PRECAST ELEMENTS) IN LIEU OF THE CAST-IN-PLACE BOX CULVERT WITH THE ACCEPTANCE OF THE SHOP DRAWINGS BY THE STRUCTURES DESIGN SECTION. THE PRECAST CONCRETE BOX CULVERT SHALL CONFORM TO PRECAST DETAILS IN CHAPTER 36 STANDARDS OF THE CURRENT WISCONSIN DOT BRIDGE MANUAL AND SPECIAL PROVISIONS. PAYMENT FOR THE PRECAST CULVERT SYSTEM SHALL BE BASED ON THE QUANTITIES AND PRICES BID FOR THE ITEMS LISTED IN THE "TOTAL ESTIMATED QUANTITIES" FOR THE CAST-IN-PLACE CULVERT SYSTEM. ADDITIONAL ITEMS REQUIRED FOR THE PRECAST SYSTEM SHALL BE INCIDENTAL TO "CONCRETE MASONRY CULVERTS".

THE CONTRACTOR SHALL FOLLOW THESE NOTES WHEN PRECAST ELEMENTS ARE USED IN LIEU OF THE CAST-IN-PLACE ELEMENTS:

THE FOLLOWING SPECIAL PROVISIONS SHALL BE USED:
PRECAST CONCRETE WINGWALLS (STRUCTURE) (SPV.0060)
PRECAST CONCRETE BOX CULVERT, (SPAN SIZE) FT X (RISE SIZE) FT (SPV.0090)

THE FOLLOWING STANDARDS SHALL BE USED:
PRECAST CONCRETE BOX CULVERT DETAILS (STANDARD 36.05)
PRECAST WINGS, HEADERS, AND CUTOFF WALLS FOR PRECAST CONCRETE BOX CULVERT (STANDARD 36.06)

THE MOST CURRENT STANDARDS AND SPECIAL PROVISIONS CAN BE OBTAINED ON THE BUREAU OF STRUCTURES' WEBSITE:
https://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/strct/design-policy-memos.aspx

JOINT TIES ARE REQUIRED (INSERT LOCATIONS WHERE JOINT TIES ARE REQUIRED).

(INSERT PRECAST BOX CULVERT UNDERCUT AND BEDDING BACKFILL NOTES. NOTES SHALL BE COMPATIBLE WITH A 6" MINIMUM TYPE B BEDDING. REFER TO STANDARD 9.02 FOR TYPICAL CULVERT UNDERCUT AND BEDDING NOTES.MODIFY NOTES AS REQUIRED.)

IF PRECAST ELEMENTS ARE NOT ALLOWED (AS DETERMINED BY THE ENGINEER), INCLUDE THE FOLLOWING NOTE ON THE LAYOUT SHEET.

(INSERT PRECAST ELEMENTS) NOT ALLOWED.

DESIGNER NOTES (CAST-IN-PLACE CONCRETE)

ALL BAR STEEL FOR CAST-IN-PLACE CONCRETE BOX CULVERTS SHALL BE UNCOATED, EXCEPT WHEN FILL IS LESS THAN 2-FT WHILE SUPPORTING TRAFFIC LOAD, EPOXY COATED BARS SHALL BE USED IN THE TOP SLAB (TOP , BOTTOM, AND CORNER BARS). PRECAST BOX CULVERT NOT ALLOWED FOR WHEN FILL IS LESS THAN 2-FT WHILE SUPPORTING TRAFFIC LOAD.

BAR STEEL FOR CAST-IN-PLACE CONCRETE APRONS SHOULD BE UNCOATED AND BAR STEEL FOR WINGWALL DOWELS AND ALL WINGWALL BARS SHALL BE EPOXY COATED.

FOR "B" DESIGNATED CONCRETE BOX CULVERTS HAVING THEIR TOP SURFACE AT GRADE, HAND HELD FINISHING MACHINES MAY BE USED. NOTE THIS ON PLANS WHEN APPLICABLE.

SEE STANDARDS 9.02 AND 36.01 FOR ADDITIONAL NOTES.

DESIGNER NOTES (PRECAST CONCRETE)

IT IS THE RESPONSIBILITY OF THE DESIGNER TO DETERMINE IF PRECAST ELEMENTS ARE ALLOWED. FOR SITE CONDITIONS NOT COVERED BY THE STANDARD DETAILS AND SPECIAL PROVISIONS, ADDITIONAL NOTES AND DETAILS MAY BE REQUIRED.

ALLOWABLE PRECAST ELEMENTS INCLUDE: BOX CULVERT BARREL SECTIONS, WINGWALLS, HEADERS, AND CUTOFF WALLS. APRON FLOORS SHALL BE CAST-IN-PLACE, UNLESS DESIGNED OTHERWISE. THE DESIGNER SHALL DETERMINE IF PRECAST ELEMENTS ARE ALLOWED ON A PROJECT-BY-PROJECT BASIS.

PROVIDE CAST-IN-PLACE DETAILS ONLY, UNLESS SPECIAL PRECAST DETAILS ARE REQUIRED OR WHEN A PRECAST ONLY DESIGN IS PROVIDED.

PRECAST ONLY DESIGNS REQUIRE PRIOR APPROVAL BY THE BUREAU OF STRUCTURES. SEE BRIDGE MANUAL SECTIONS 36.11.4 AND 36.12 FOR ADDITIONAL INFORMATION. IF USED, PROVIDE PRECAST DETAILS FOLLOWING STANDARDS 36.05 AND 36.06 WITH THE FOLLOWING SPECIAL PROVISIONS:
PRECAST CONCRETE WINGWALLS (STRUCTURE) (SPV.0060)
PRECAST CONCRETE BOX CULVERT, (SPAN SIZE) FT X (RISE SIZE) FT (SPV.0090)

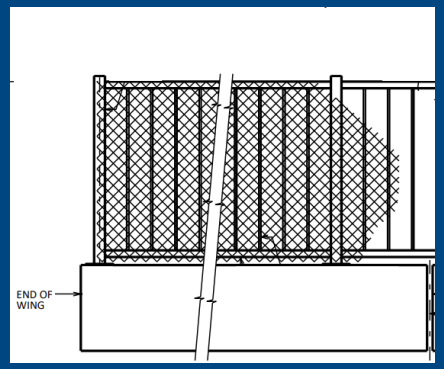
JOINT TIES ARE REQUIRED BETWEEN THE LAST TWO BARREL SECTIONS ON SKEWED STRUCTURES OR AT OTHER LOCATIONS DETERMINED BY THE ENGINEER. WHEN JOINT TIES ARE REQUIRED AT OTHER LOCATIONS, PROVIDE A PLAN NOTE OR LIMITS IDENTIFYING THE REQUIRED JOINT TIE LOCATIONS. SITES SUSCEPTIBLE TO DIFFERENTIAL SETTLEMENT MAY WARRANT JOINT TIES ALONG THE BOX CULVERT LENGTH.

SEE STANDARDS 9.02 AND 36.01 FOR ADDITIONAL NOTES.

SEE STANDARDS 36.05 AND 36.06 FOR PRECAST BOX CULVERT DETAILS.

Standard Update

- Std. 30.15 - Post Orientation (Longitudinally)
  - "Normal to Grade"
    - Railing Posts along PGL (90-deg to base plate long.)
  - "Vertical"
    - Fence Posts on Sloped Wall (Angle TBD to base plate long.)



Std. 30.15

POSTS SHALL BE SET (SELECT AS REQ'D: NORMAL TO GRADE OR VERTICAL) IN THE LONGITUDINAL DIRECTION.

ORIENTATION OF POSTS IN THE LONGITUDINAL DIRECTION ARE TYPICALLY SET NORMAL TO GRADE WHEN FOLLOWING A PROFILE GRADE LINE AND VERTICAL ON STEEP SLOPES (E.G., RETAINING WALL WITH 3:1 SLOPE). CONSIDER AESTHETICS AND CONTRACTIBILITY WHEN DETERMINING POST ORIENTATION AND PROVIDE DETAILS FOR CLARITY.

Designer Note

Standard Update

- Std. 30.16 – Anchor Bolt Lengths
  - July 2025: Standard - Generic Bolt Length Note
  - January 2026: Contract Plans - Specify Actual Bolt Length

~~(3) ASTM A449 - 1⅛" DIA. ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. USE 1'-9" LONG IN ABUTMENT WINGS. AT POSTS ON CONCRETE SLAB SUPERSTRUCTURES WHERE THE SLAB THICKNESS IS > 16" USE 1'-3" LONG. USE 10¾" LONG AT ALL OTHER LOCATIONS. (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTABILITY.)~~

July 2025

10.75" ≤ "T" ≤ 16"	(3A)	ASTM A449 - 1⅛" DIA. X 10¾" LONG ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING.
"T" > 16"	(3B)	ASTM A449 - 1⅛" DIA. X 1'-3" LONG ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING.
WINGS	(3C)	ASTM A449 - 1⅛" DIA. X 1'-9" LONG ANCHOR BOLTS WITH NUT AND HARDENED WASHER (ALL GALVANIZED). 5 REQ'D. PER POST. THREAD 3" AND PLACE NORMAL TO PLATE NO. 2. CHAMFER TOP OF BOLTS BEFORE THREADING. (AN EQUIVALENT THREADED ROD WITH NUTS AND HARDENED WASHERS MAY BE SUBSTITUTED FOR ANCHOR BOLTS IN WINGS IF REQ'D. FOR CONSTRUCTABILITY.)

DESIGNER NOTES

PLANS SHALL SPECIFY ANCHOR BOLT LENGTHS AT EACH LOCATION.

Questions?

Proposed Manual Schedules and Deadlines

Standard Specifications

Edits in 2026 to existing 2025 Specs

- Revisions to specs for 2026 incorporated via ASP-6(s), (https://wisconsindot.gov/hccidocs/contracting-info/asp-6.pdf).
- Developed and published on-line the "2026 Specification Reorganization Pilot Edition" for select pilot projects (https://wisconsindot.gov/rdwy/stndspec/mob-down/spec-reorg-2026.zip).

Edits in 2027 to existing 2025 Specs

- Revisions to specs in 2027 incorporated via ASP-6(s), (https://wisconsindot.gov/hccidocs/contracting-info/asp-6.pdf).
- Revise "2026 Specification Reorganization Pilot Edition" based on feedback from pilot projects, ASP-6 updates, etc.

2028 Standard Specs (Proposed)

- ***Submit edits 02/15/2027.*** *Coordinate with tech team or industry prior to submittal.*
- ***Spec engineer submits information to FHWA 03/15/2027.***
- ***Publish to Spec web page 05/21/2027.*** *This preview provides approximately two months for designers incorporate into August 1, 2027, PS&Es.*
- *Send print book documents May 2027. Printed books should arrive Oct. - Nov. 2027.*
- ***Post to Spec web page 01/01/2028*** *(effective with November 2027 Letting).*

Additional Special Provisions

ASP-6 effective with Nov 2024 Letting

- First ASP-6 edits to 2025 Standard Specs.

ASP-6 effective with Nov 2025 Letting

- Second cumulative ASP-6 edits to 2025 Standard Specs.

ASP-6 effective with Feb 2026 Letting

- Third cumulative ASP-6 edits to 2025 Standard Specs.

Proposed ASP-6 effective with Nov 2026 Letting

- ***Submit edits April 10, 2026.*** *Proposed revisions from sponsoring authors have gone through tech groups and industry prior to submittal*
- ***Spec engineer submits to FHWA April 28, 2026****.*
- ***Post ASP-6 to Spec web page approximately May 22, 2026****. This preview provides approximately 2 months for designers to adjust plans for August PS&E submittal that contains Jan. 12, 2027, letting.*
- ***Publish ASP-6 effective with Nov. 2026 letting to HCCI web site on approximately December 8, 2026*** *(WisDOT project ad date that includes Jan. 12, 2026, letting).*

Construction and Materials Manual (CMM)

CMM - May 2025

- Posted May 20, 2025.

CMM - October 2025

- Posted October 3, 2025.
- Updated domestic material preference provision only (CMM 238.5).

CMM - December 2025

- Posted 12/22/2025.

Proposed CMM - Spring (April) 2026

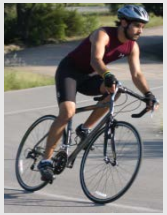
- ***Deadline to submit March 13, 2026.*** *Proposed revisions from sponsoring authors have gone through tech groups and industry prior to submittal.*
- ***Submit to FHWA April 3, 2026****.*
- ***Publish CMM in April - May 2026****.*

Proposed CMM - Fall (October) 2026

- ***Deadline to submit September 15, 2026.*** *Proposed revisions from sponsoring authors have gone through tech groups and industry prior to submittal.*
- ***Submit to FHWA October 2, 2026****.*
- ***Publish CMM in October - November 2026****.*

03/12/2026



PHASING CONSIDERATIONS FOR BRIDGES

Christopher Miller, P.E.

Table of contents

What not to do

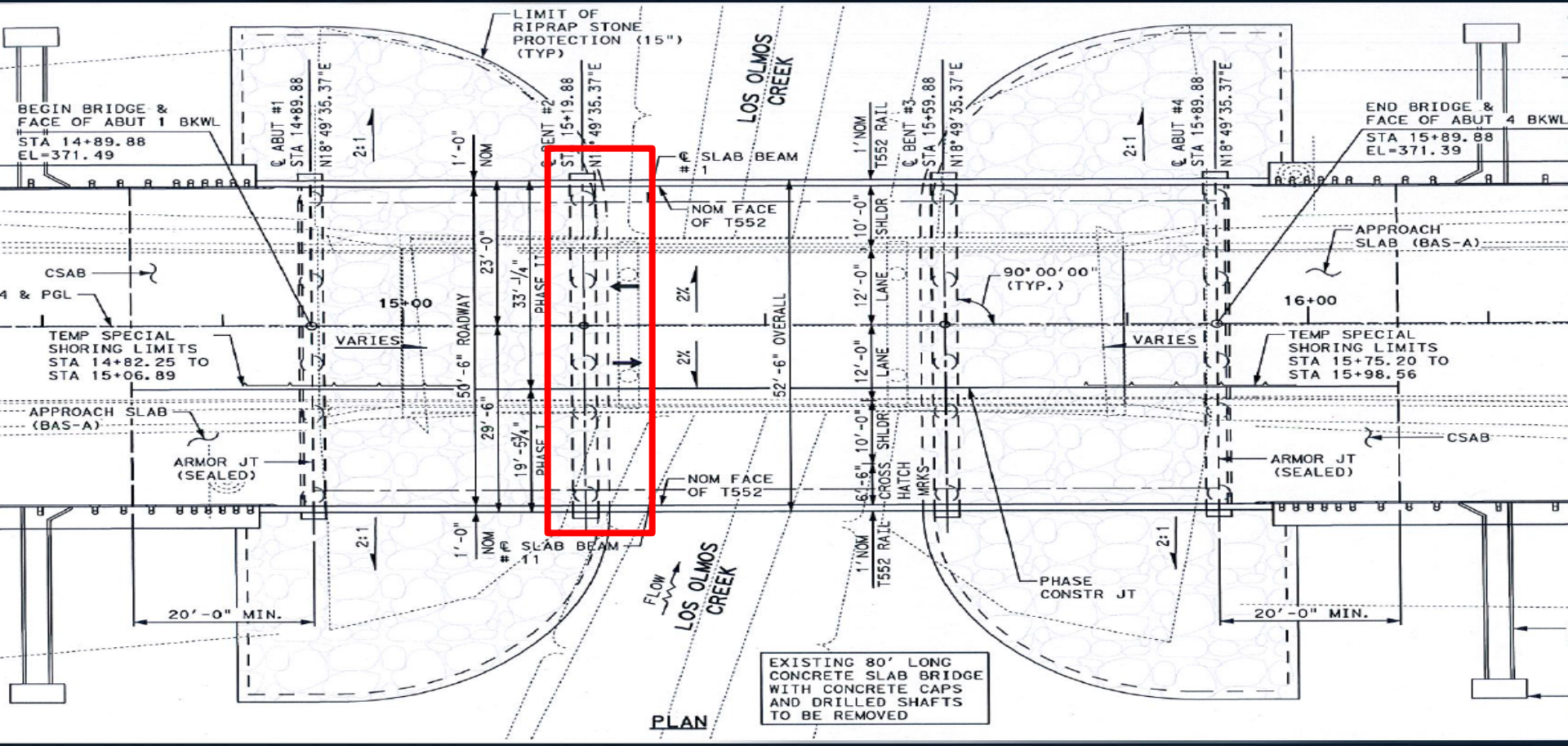
Do not used standard detail sheets for:

- Abutments
- Bents
- Spans

Span Arrangement

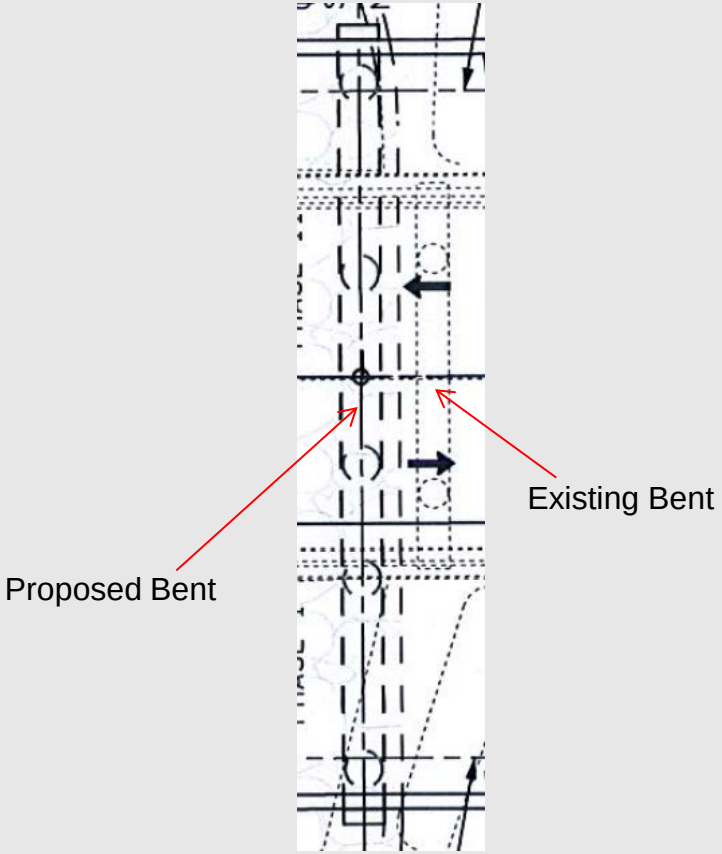
- When laying out spans for bridge replacement, offset old and new bent lines by at least 5 feet, if possible, to avoid fouling existing foundations

Span Arrangement



Span Arrangement

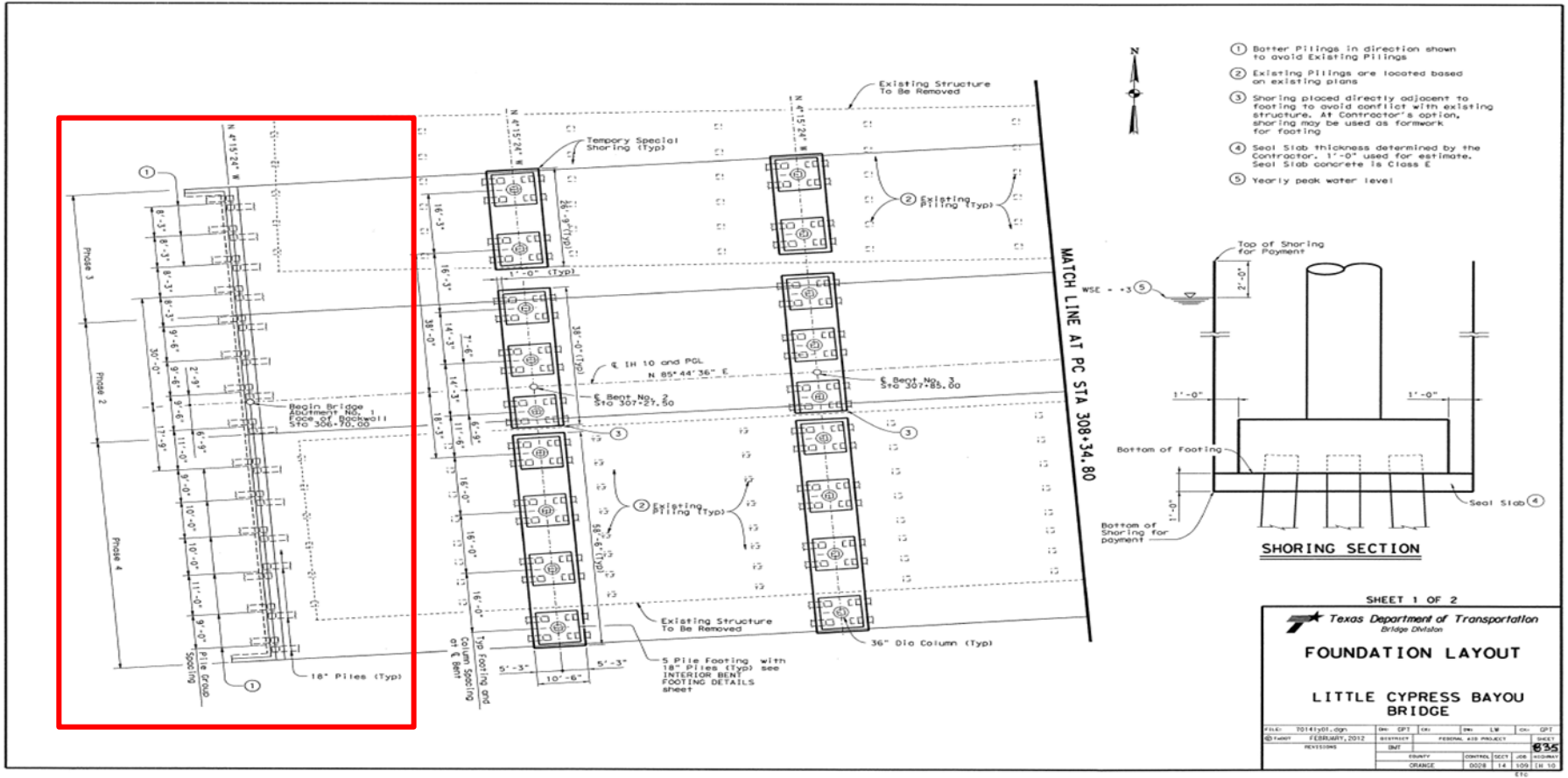
- When laying out spans for bridge replacement, offset old and new bent lines by at least 5 feet, if possible, to avoid fouling existing foundations



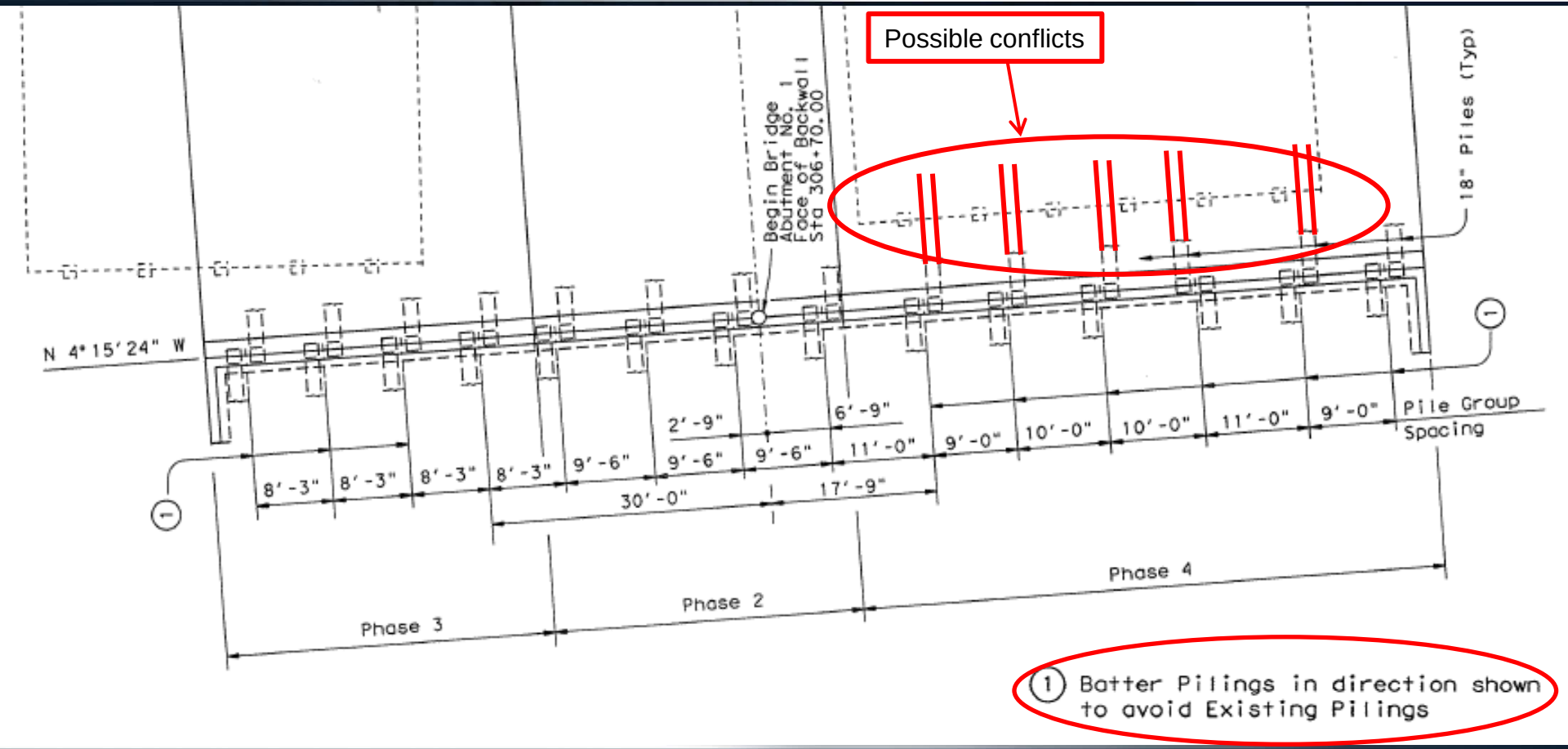
Span Arrangement

- If foundation requires use of battered piles
  - Check proposed pile locations to determine possible conflicts
  - Create foundation layout to warn contractor of potential conflicts
  - Investigate potential conflicts with wingwall foundations when abutments are heavily skewed.

Span Arrangement



Span Arrangement



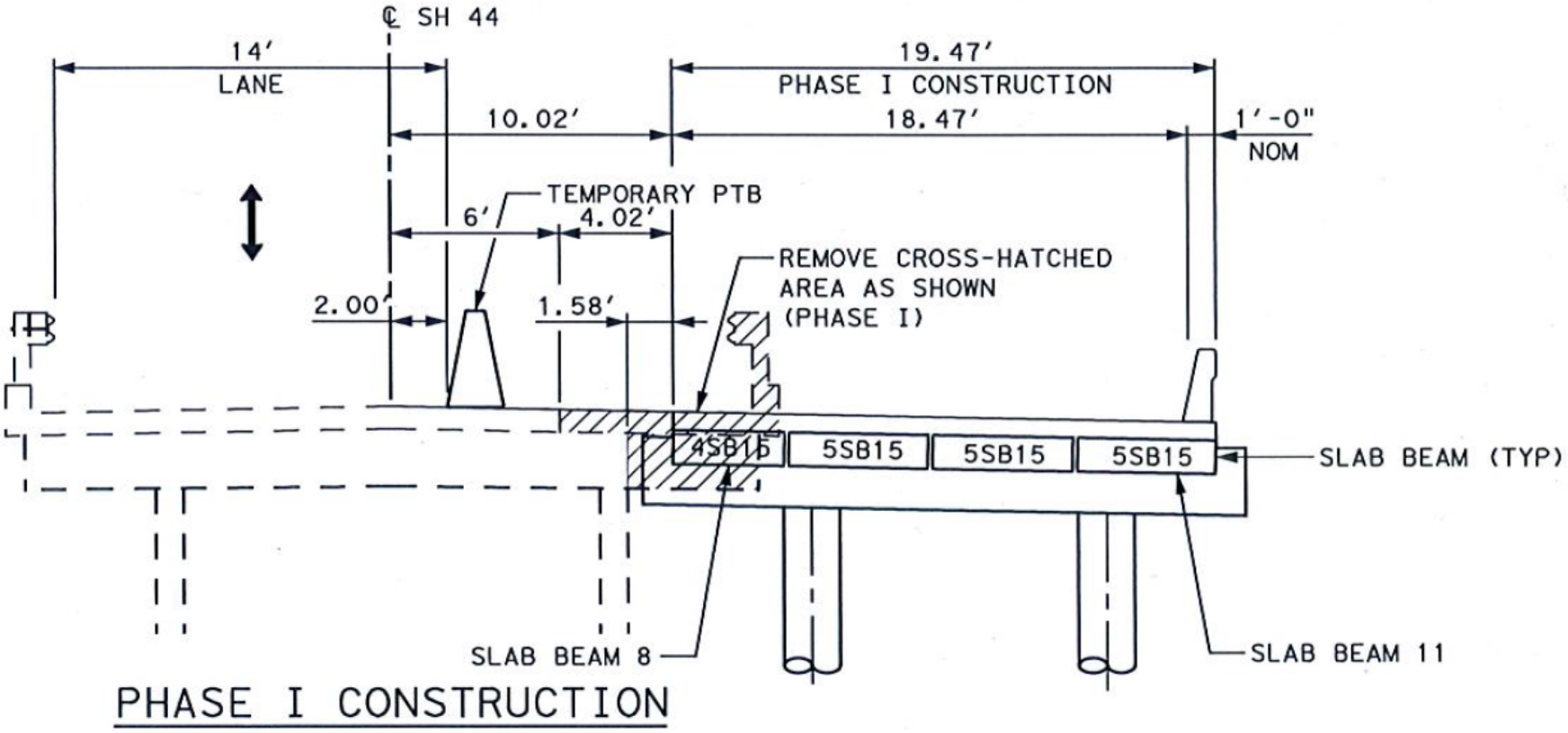
Superstructure – Geometric Considerations

- Things to consider when designing phased superstructure
  - Traffic Needs
  - Placement of temporary barriers
  - Clearance between proposed and existing structures (roadways)
  - Skew
  - Phase Line Placement

Superstructure – Geometric Considerations

- Traffic Needs
  - Ensure phase dimensions are sufficient to carry traffic demands
  - For phase replacement, ensure removal of existing structure provides sufficient space to carry traffic

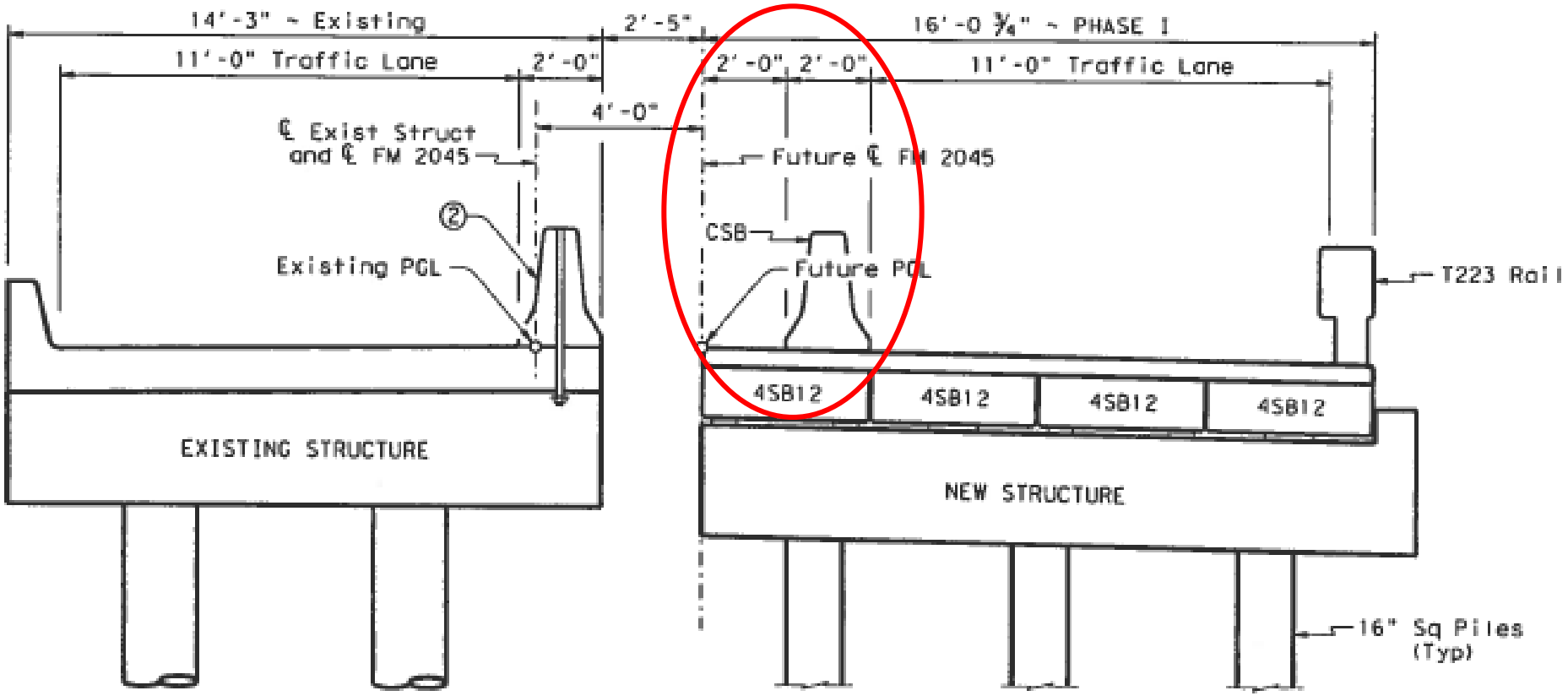
Superstructure – Geometric Considerations



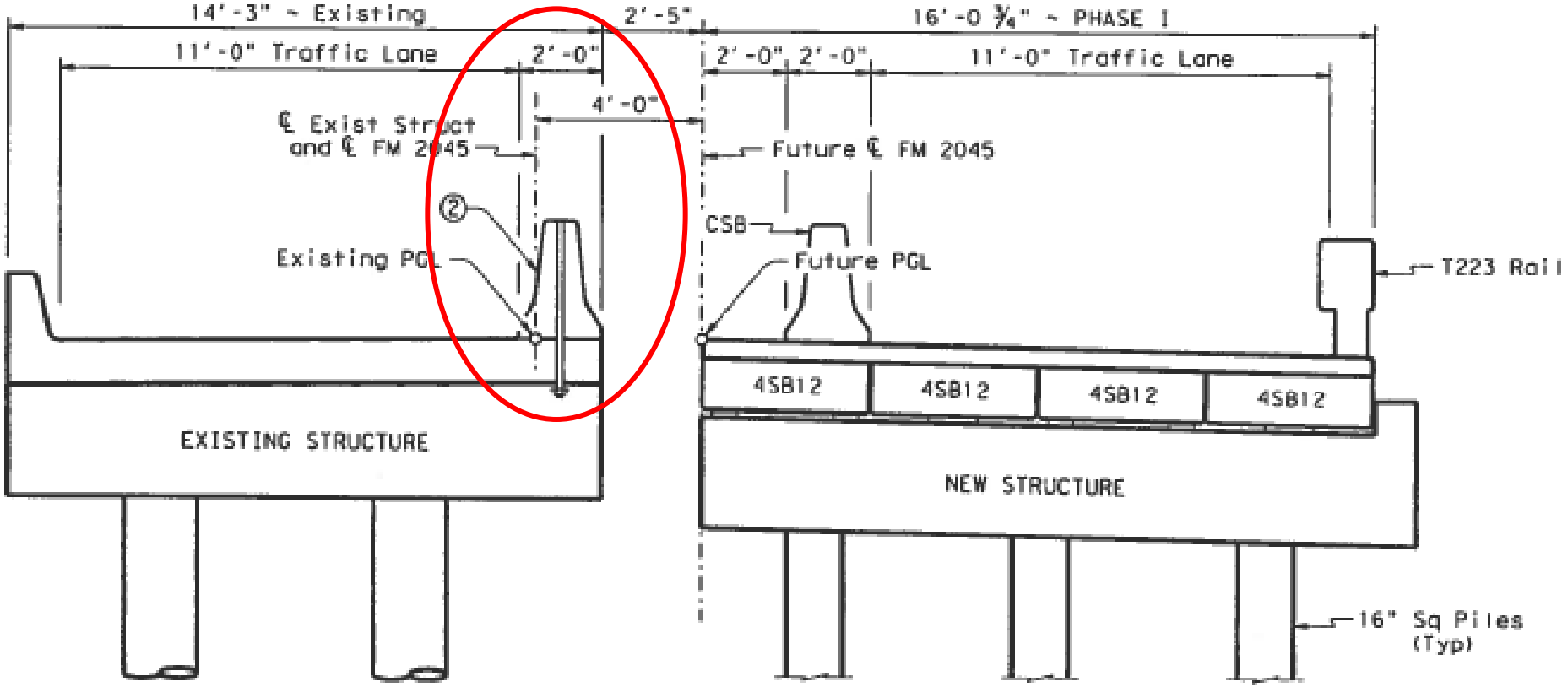
Superstructure – Geometric Considerations

- Placement of Temporary Barriers
  - Determine clear distance from back toe of rail to edge of slab
  - If clear distance < 2 ft, anchor barrier
  - If clear distance ≥ 2 ft, barrier does not need to be anchored

Superstructure – Geometric Considerations



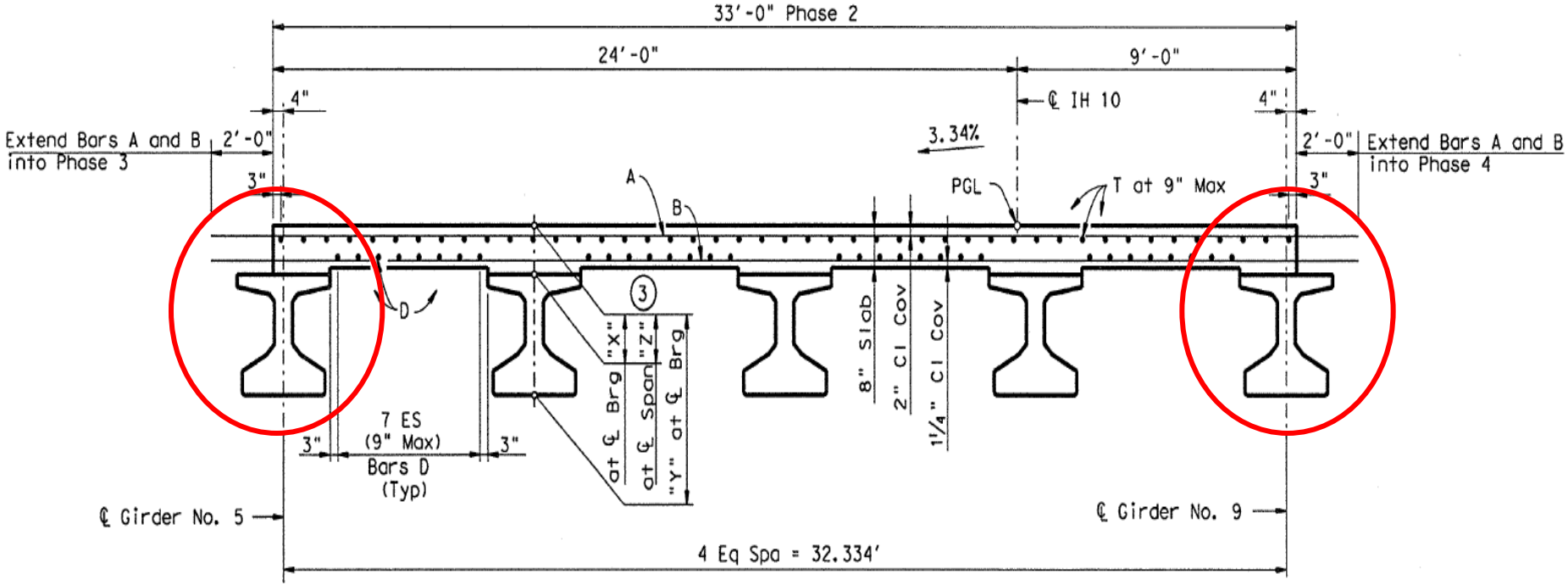
Superstructure – Geometric Considerations



Superstructure – Geometric Considerations

- Clearance
  - When building next to an existing facility (such as for phased replacements), provide enough space between the existing structure and the new construction to accommodate:
    - Splicing of deck reinforcement
    - The portion of the beam that extends beyond the edge of slab
    - The portion of the bent or abutment that extends past the beam edge
    - Any reinforcing of the bent or abutment that extends into the next phase
    - Formwork
    - Temporary Special Shoring

Superstructure – Geometric Considerations



TYPICAL TRANSVERSE SECTION FOR SPAN 1 AND SPAN 2

Superstructure – Geometric Considerations

Superstructure – Geometric Considerations

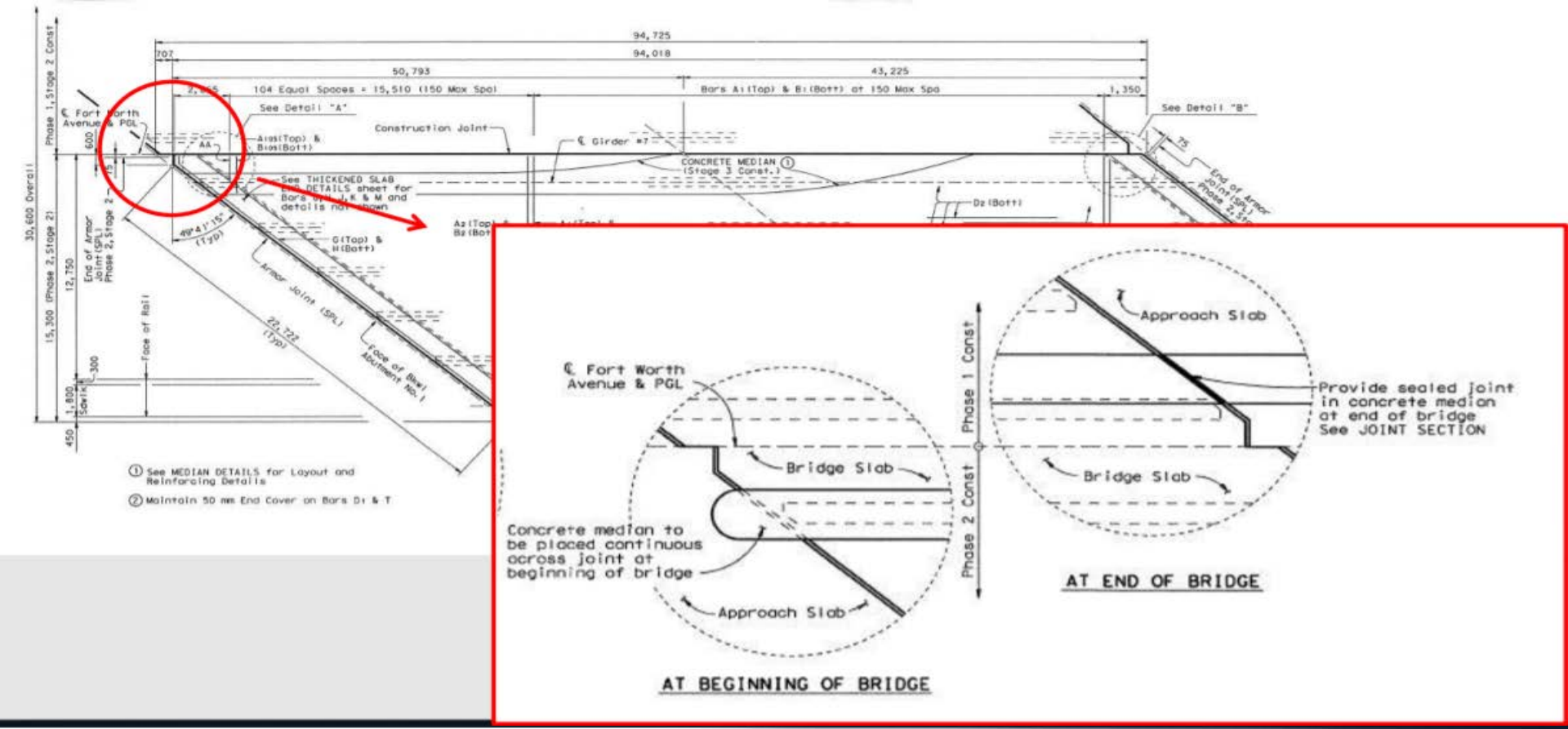
Superstructure – Geometric Considerations

Superstructure – Geometric Considerations

Superstructure – Geometric Considerations

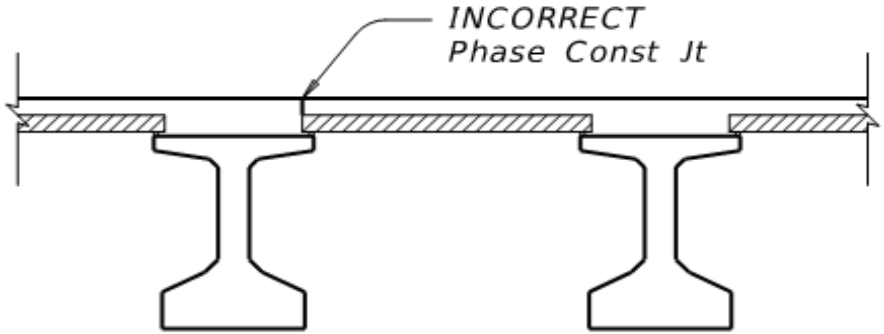
- Skew
  - For large skews where slab corners require a breakback, consider breaking back the corners of the slab at the phase line

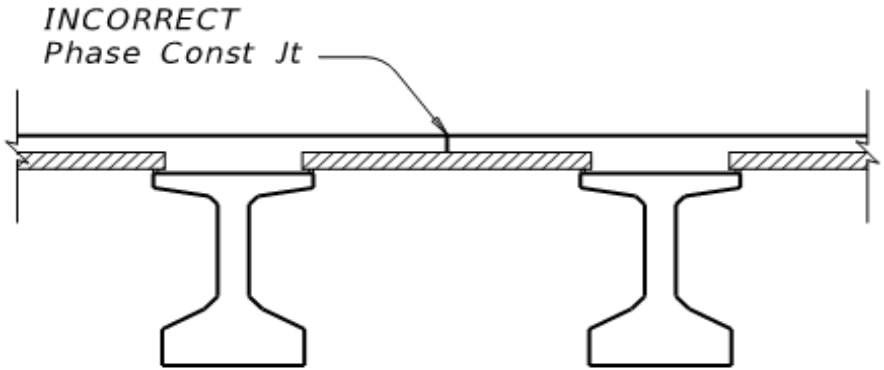
Superstructure – Geometric Considerations



Superstructure – Geometric Considerations

- Phase Line Placement – TxGirders
  - Do not place a phase line in the middle or at the edge of a precast panel
  - Do not place a phase line closer than 7 ½” from beam edge when using precast panels

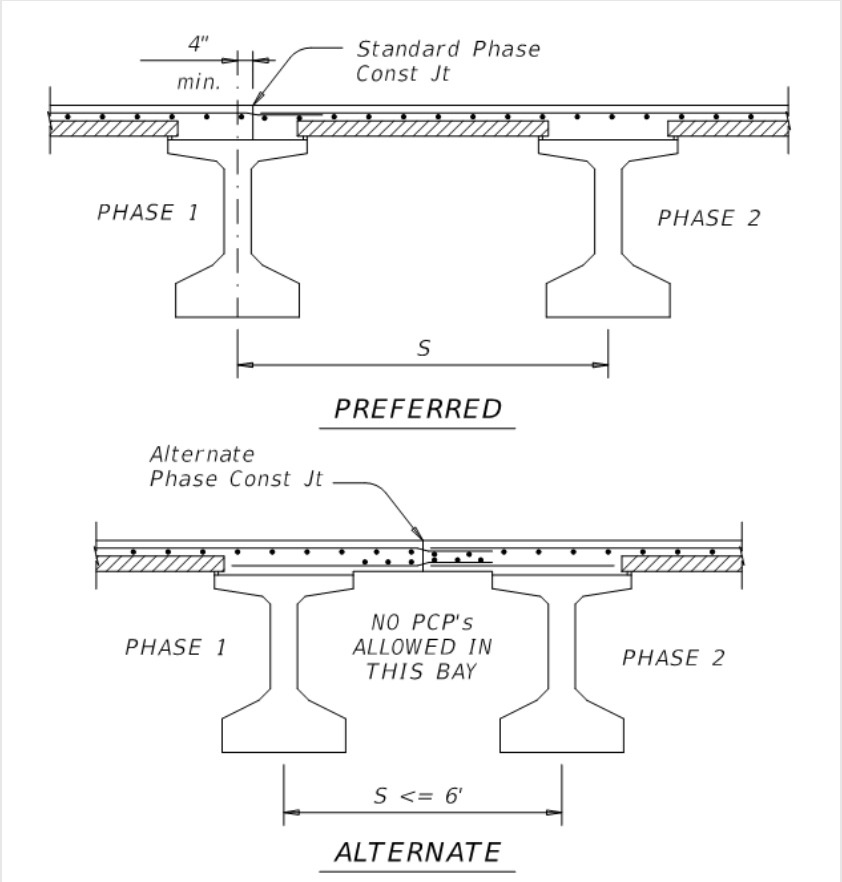




Superstructure – Geometric Considerations

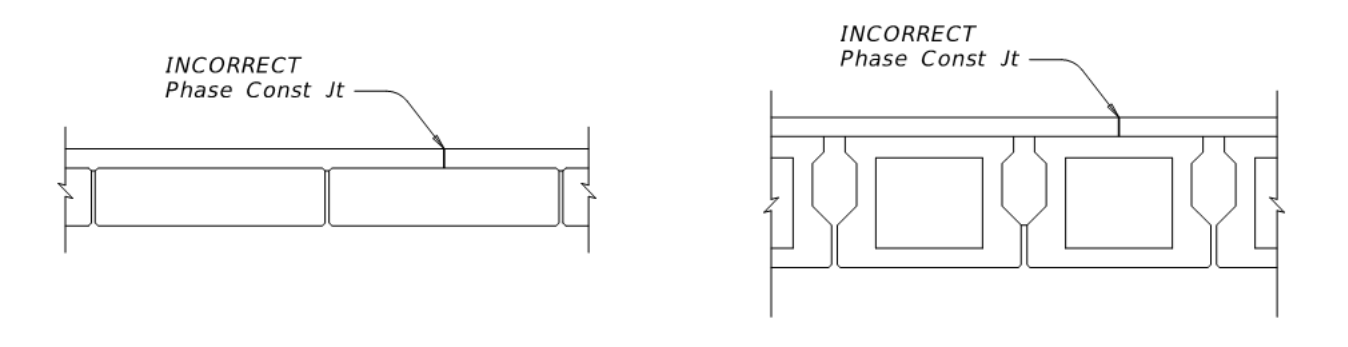
- Phase Line Placement – TxGirders
  - Place phase line a minimum of 4” past CL of girder, so that horizontal interface reinforcement (R Bars) is cast into the initial phase of the slab
  - Alternately, consider placing the phase line between two beams. Treat the slab between the beam and the phase line as an overhang. Do not allow the use of panels in this space
  - PCP standard provides guidance on stage construction limitations for panels

Superstructure – Geometric Considerations



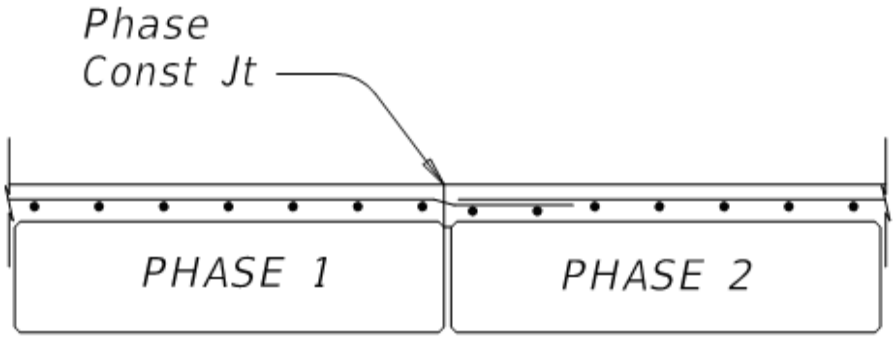
Superstructure – Geometric Considerations

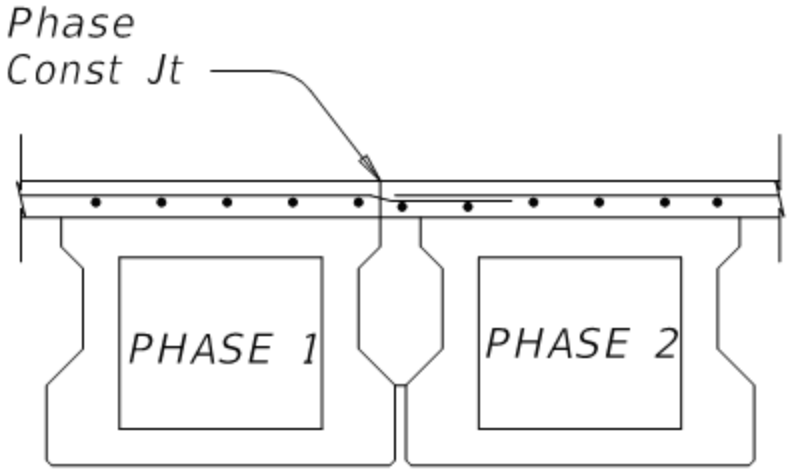
- Phase Line Placement – Adjacent Slab or Box Beams
  - Do not place phase line within the top flange



Superstructure – Geometric Considerations

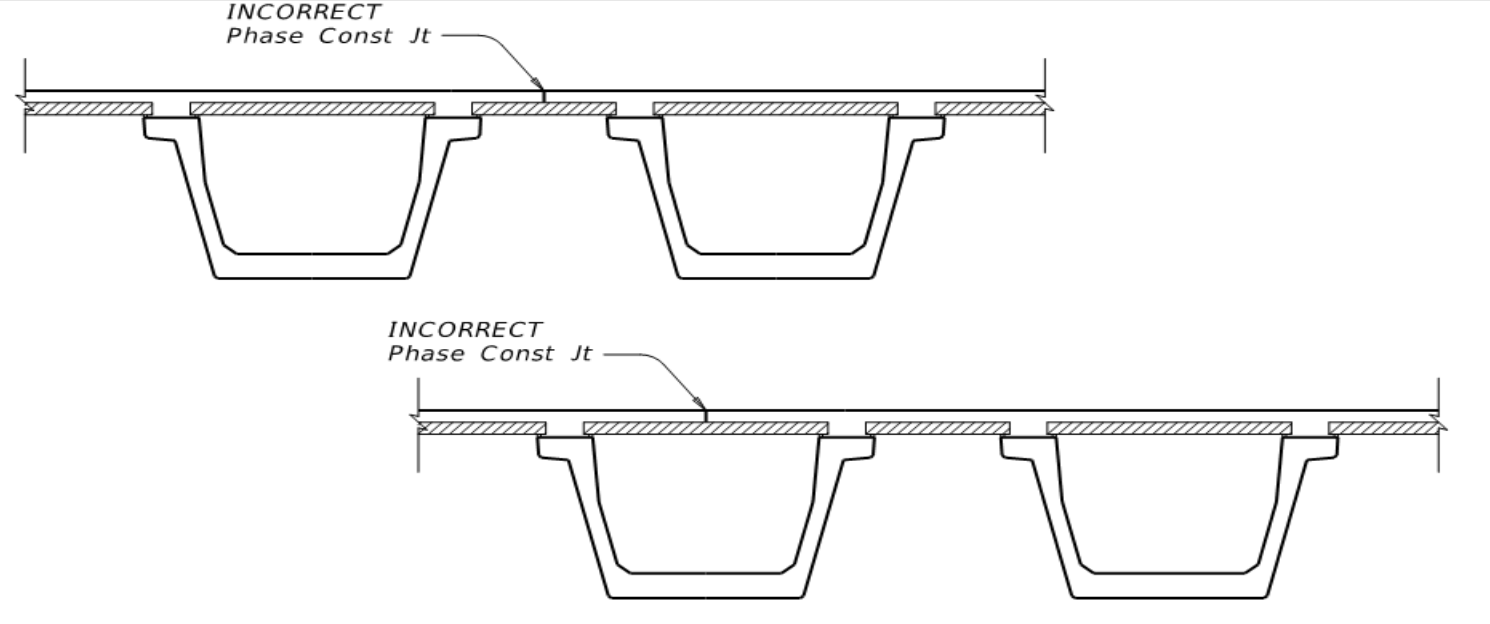
- Phase Line Placement – Adjacent Slab or Box Beams
  - Place phase line at the edge of the beam.





Superstructure – Geometric Considerations

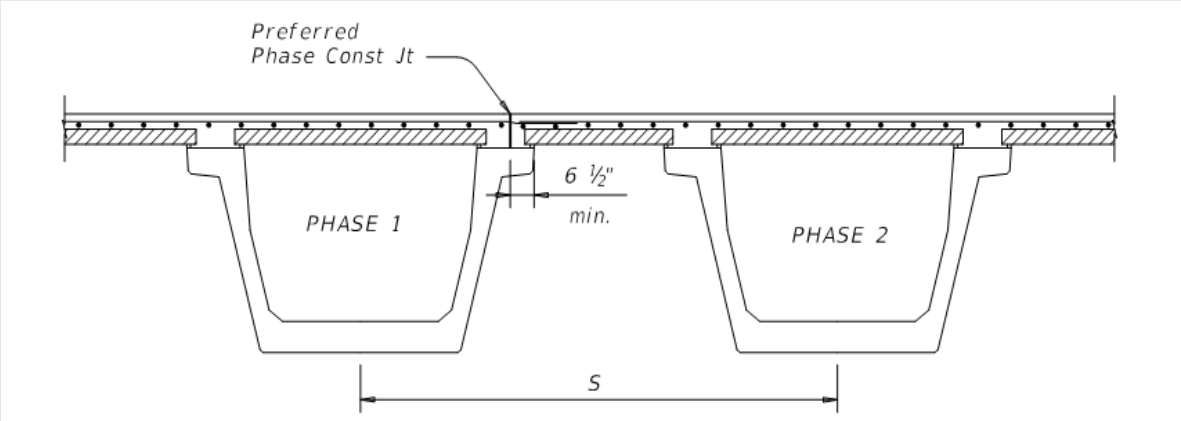
- Phase Line Placement – U-Beams and X-Beams (Spread Box)
  - Do not place a phase line in the middle or at the edge of a precast panel

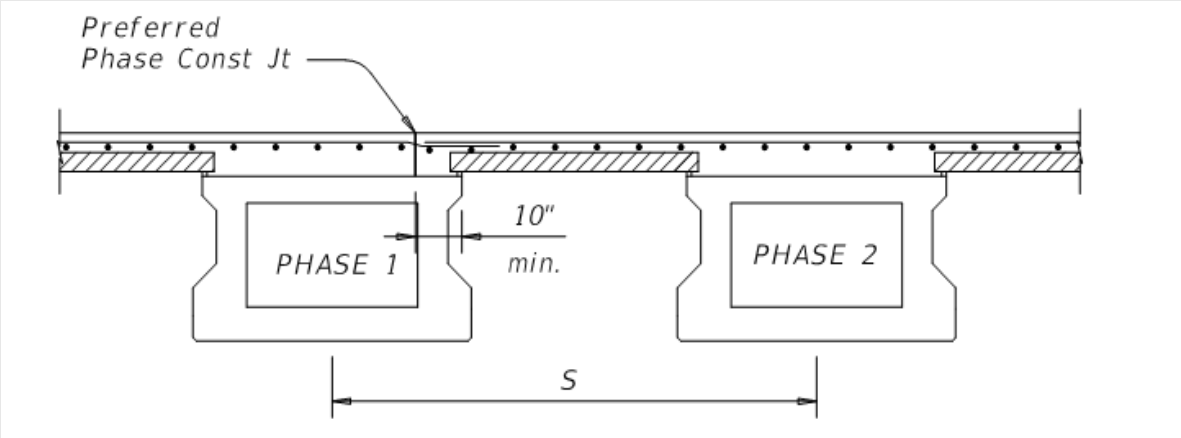


Superstructure – Geometric Considerations

- Phase Line Placement – U-Beams and X-Beams (Spread Box)
  - Place the phase line along the top flange of the beam. If the phase line is located along the top flange of the beam, the majority of the beam will be under the initial phase of construction
  - Do not place the phase line closer than 6 ½” from the beam edge for U-Beams and 10” for X-Beams when using precast panels

Superstructure – Geometric Considerations

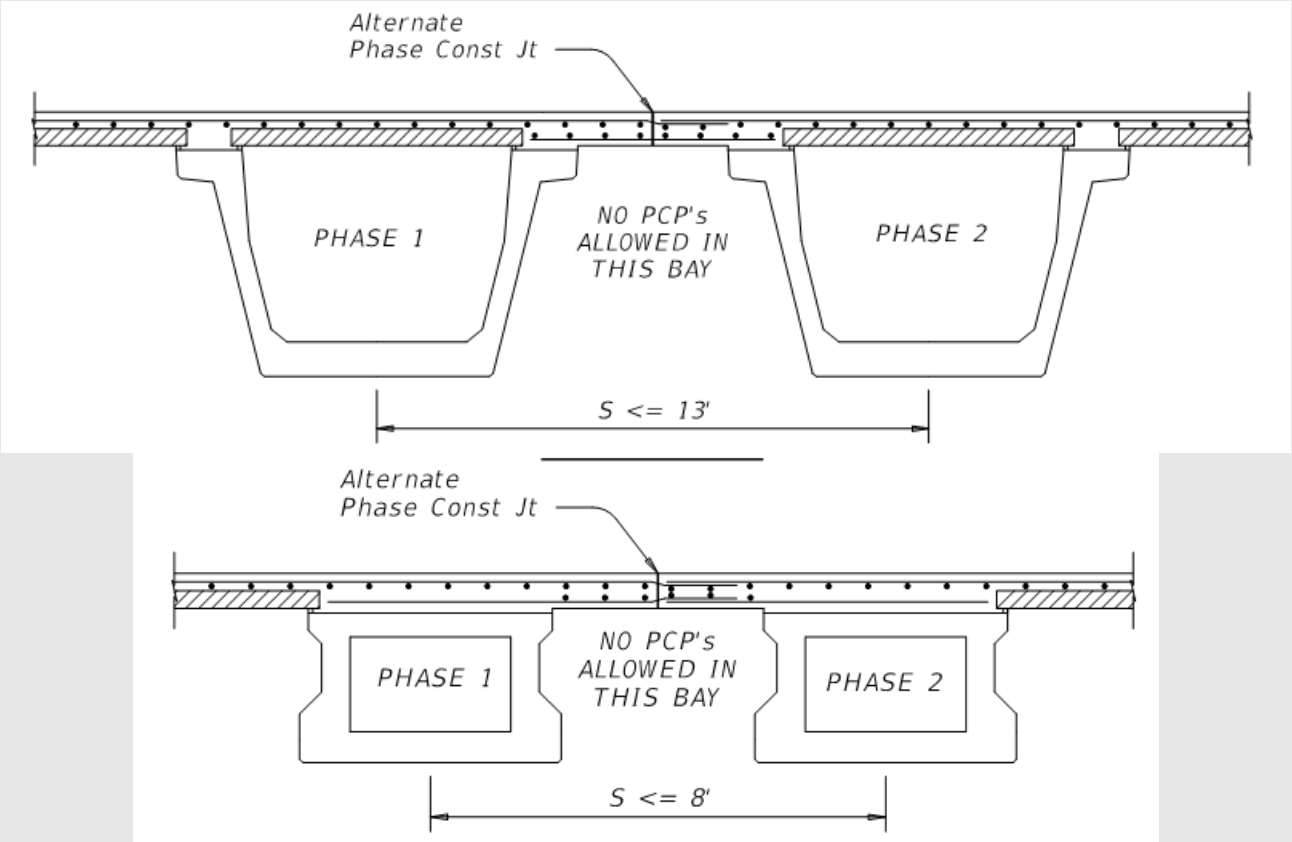




Superstructure – Geometric Considerations

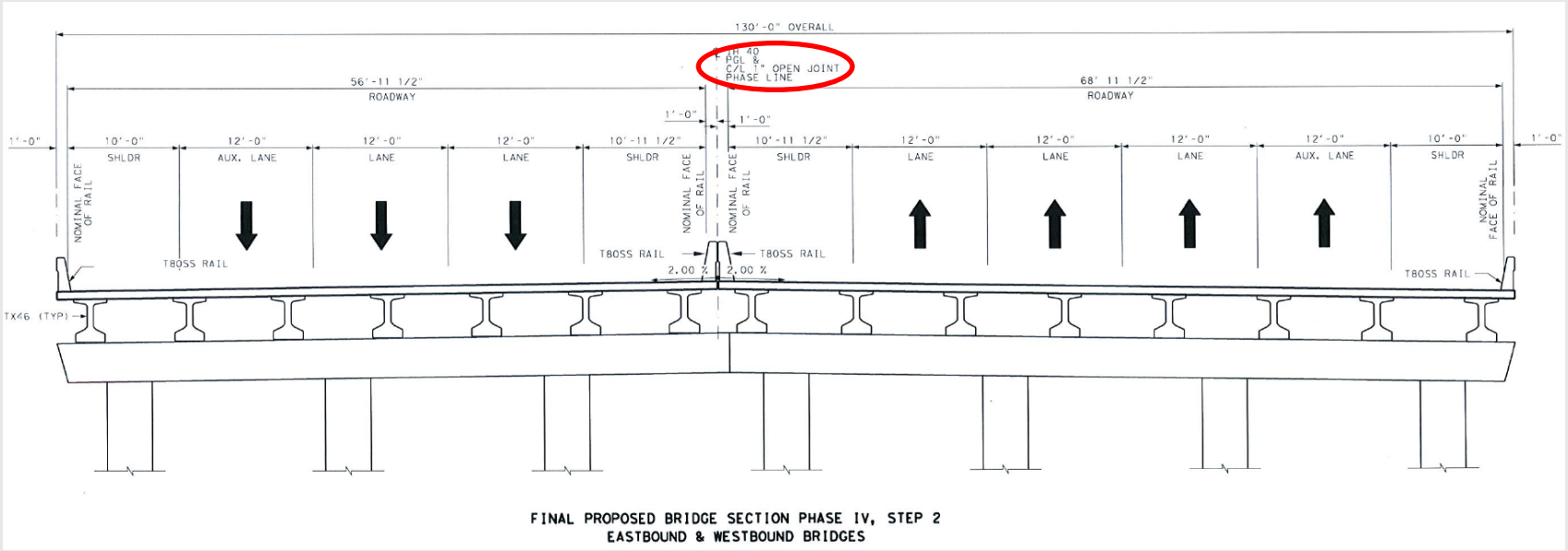
- Phase Line Placement – U-Beams and X-Beams (Spread Box)
  - Alternately, consider placing the phase line between two beams. Treat the slab between the beam and the phase line as an overhang. Do not allow the use of panels in this space

Superstructure – Geometric Considerations



Superstructure – Geometric Considerations

- If a full depth open longitudinal joint is used at the phase line, the bridge is considered two structures and should have 2 NBI Numbers

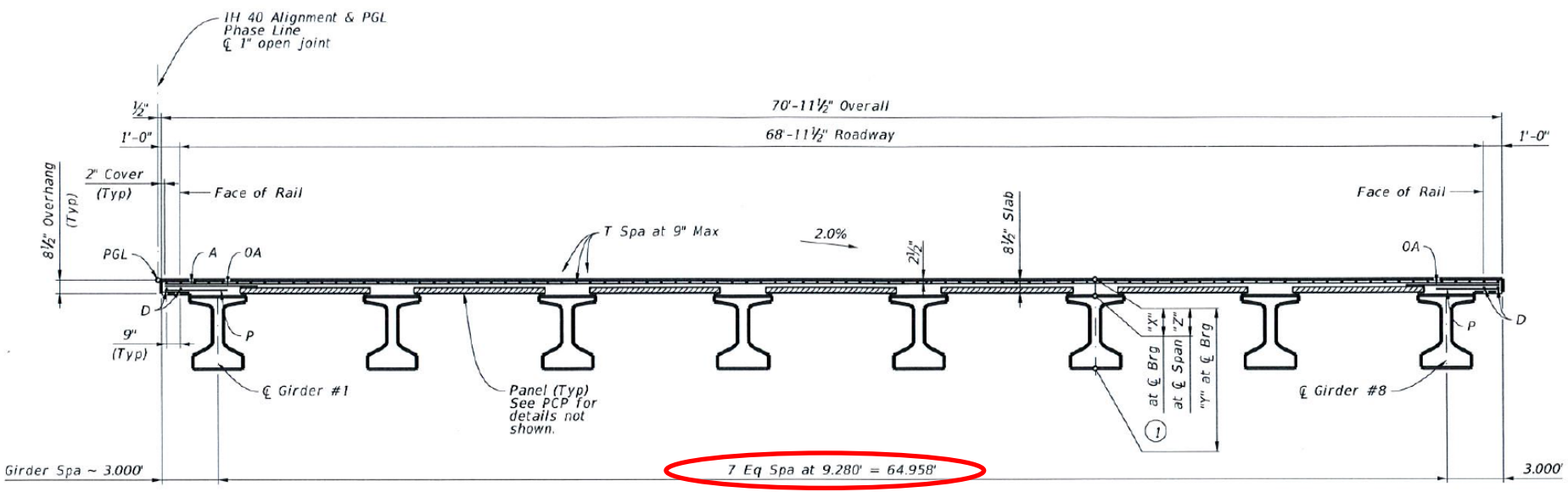


FINAL PROPOSED BRIDGE SECTION PHASE IV, STEP 2
EASTBOUND & WESTBOUND BRIDGES

Superstructure – Geometric Considerations

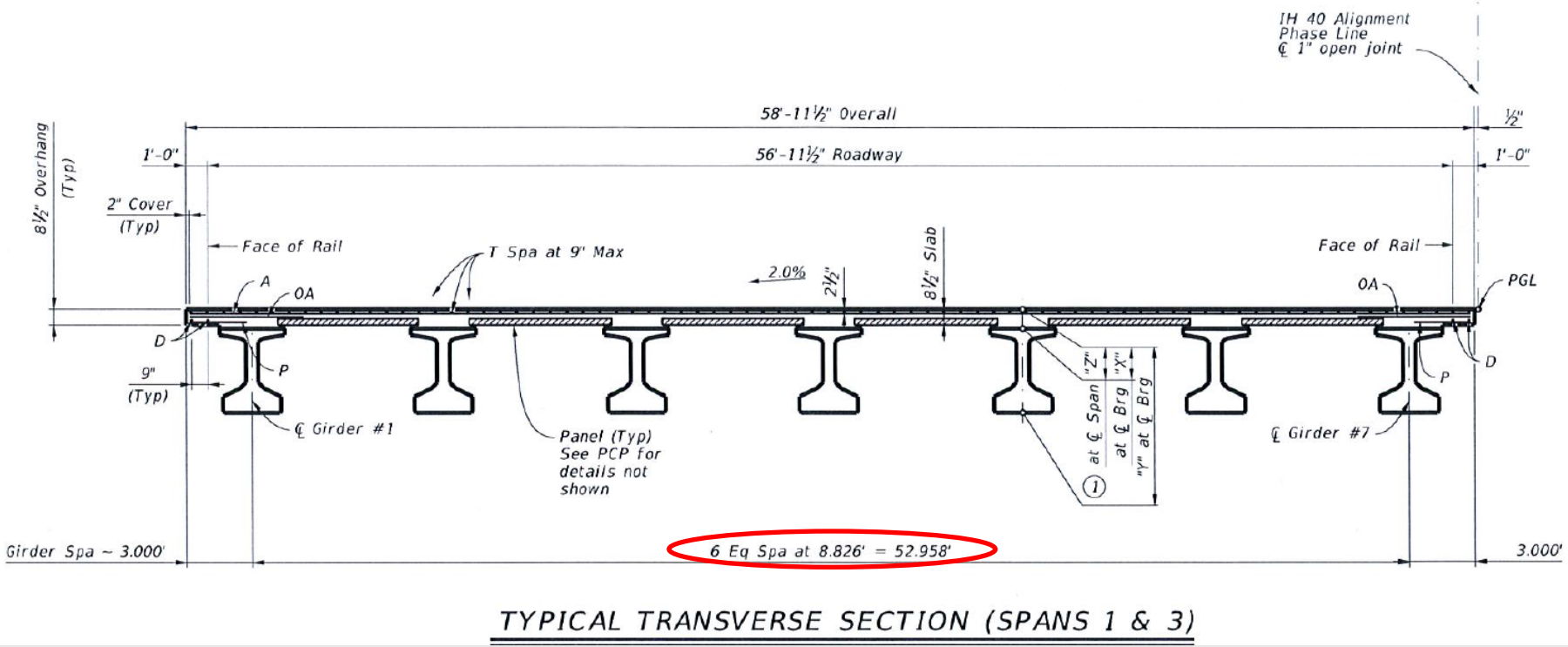
- Phased superstructures may require variable spacing of beams

Superstructure – Geometric Considerations



TYPICAL TRANSVERSE SECTION (SPANS 1 & 3)

Superstructure – Geometric Considerations

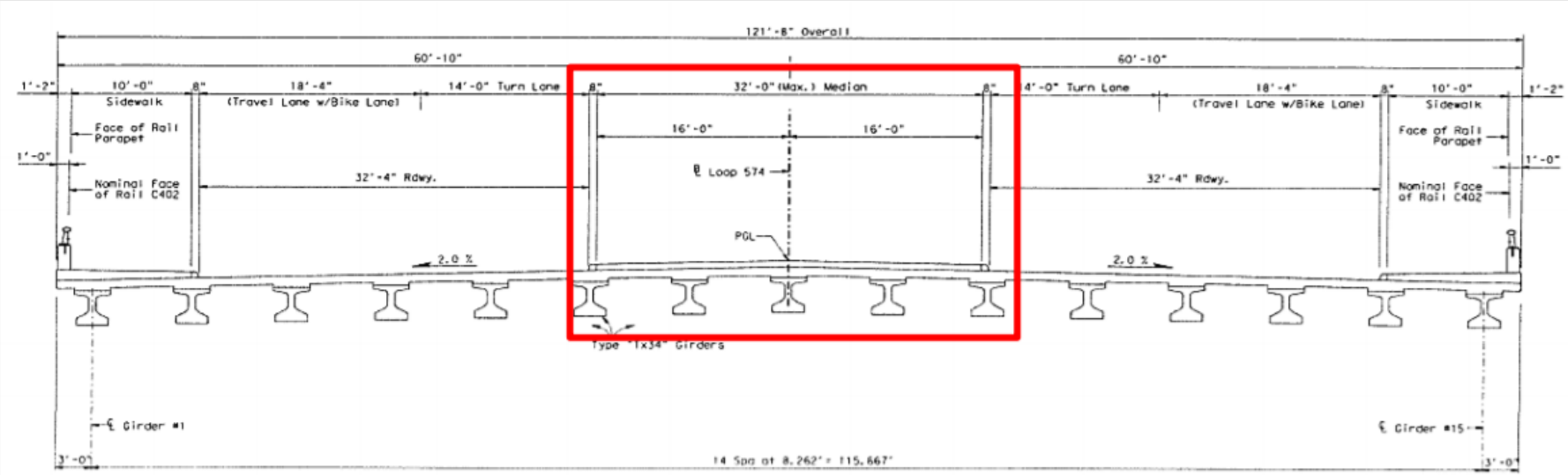


TYPICAL TRANSVERSE SECTION (SPANS 1 & 3)

Superstructure – Structural Analysis

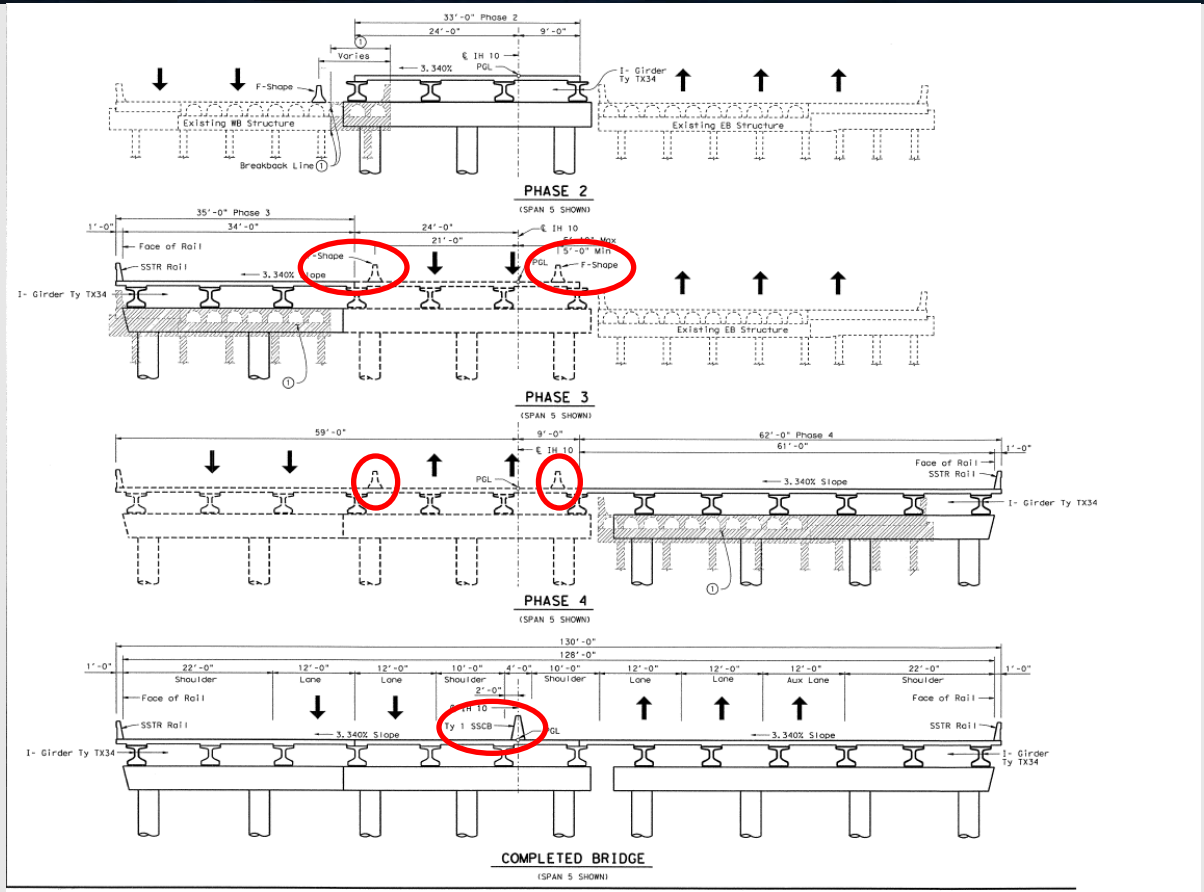
- When designing the beams, consider all temporary loading such as temporary rails as permanent loads for that phase.
- Design beams to meet all requirements for all phases of construction

Superstructure – Structural Analysis



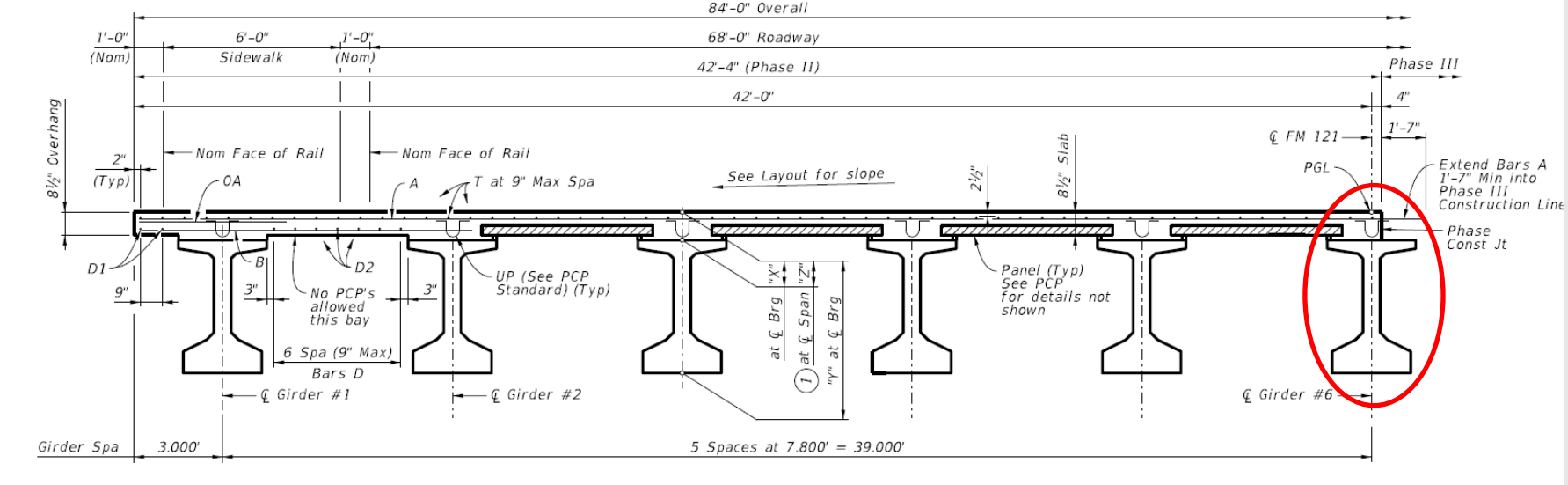
TYPICAL BRIDGE SECTION

Superstructure – Structural Analysis



- The beam located under the phase line will have less dead load deflection than the other beams constructed at the same time. This beam will not deflect additionally when the remainder of the slab is cast, due to the added stiffness of the cured slab. **When calculating haunch for the beam along the phase line, use the dead load deflection from the initial slab weight. Do not use the full dead load deflection due to the full slab weight (initial and final).**

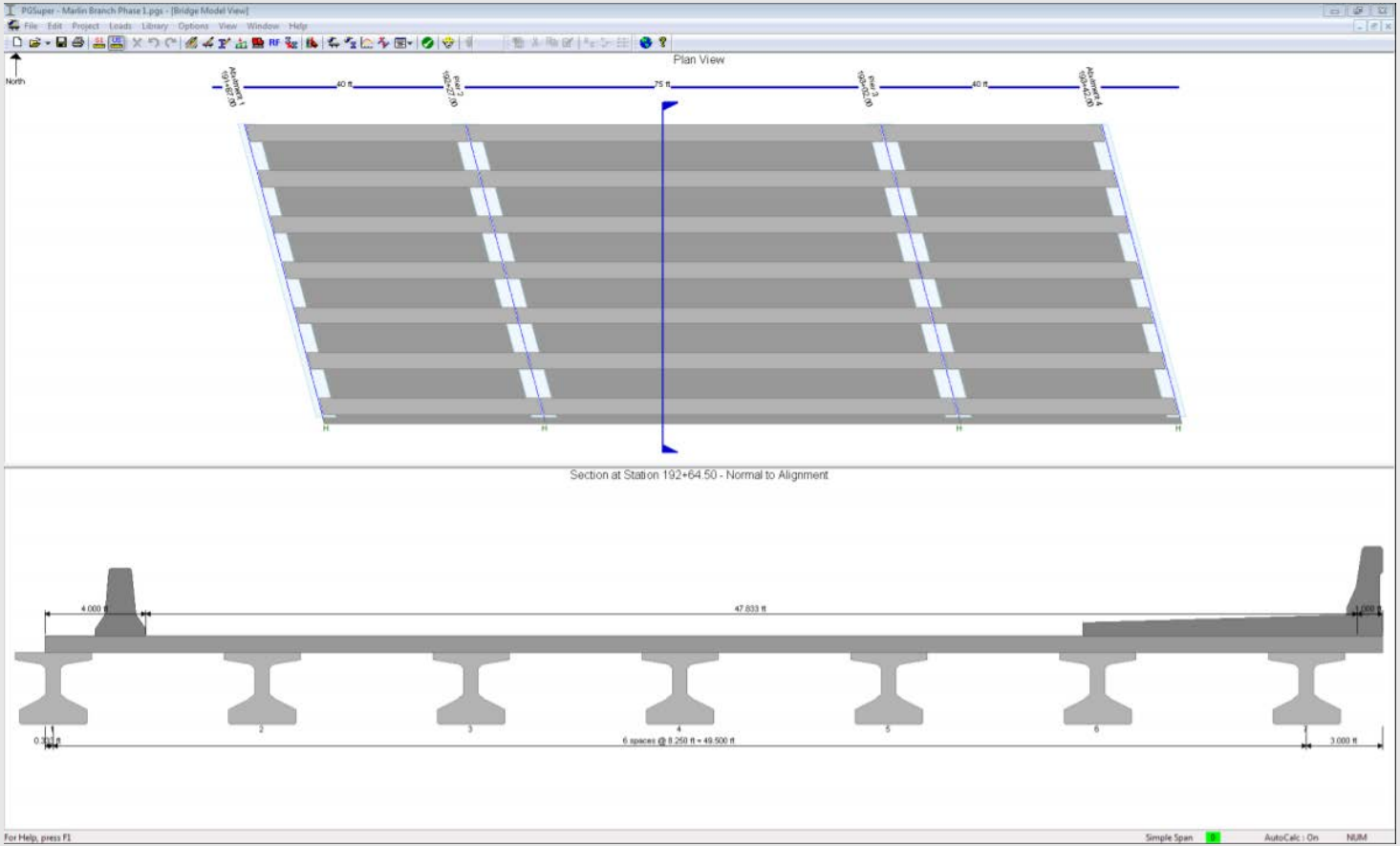
Superstructure – Structural Analysis



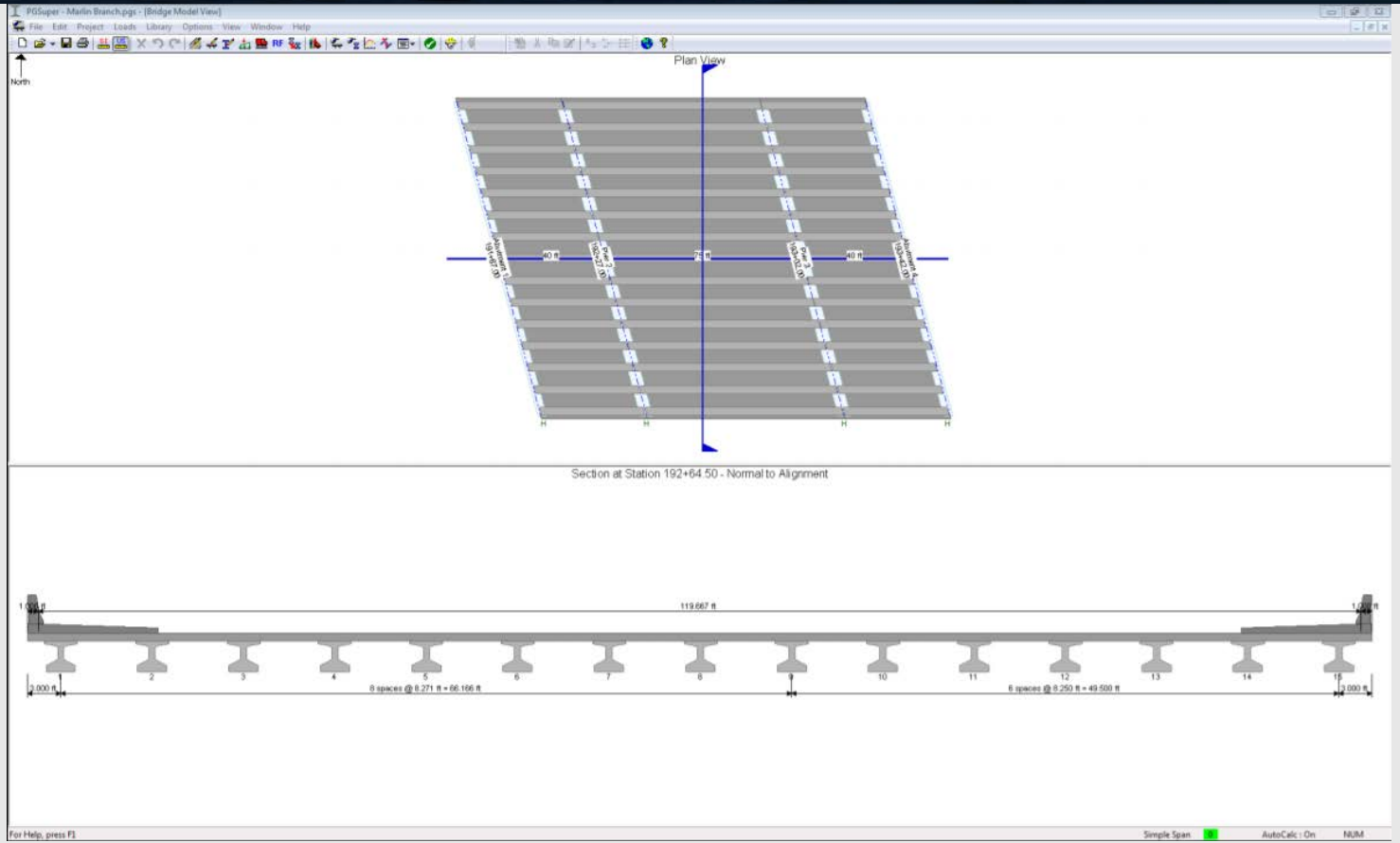
Superstructure – Structural Analysis

- It is recommended to use PGSuper for beam design. Model phasing in PGSuper by using separate files for each phase and the completed structure.

Superstructure – Structural Analysis



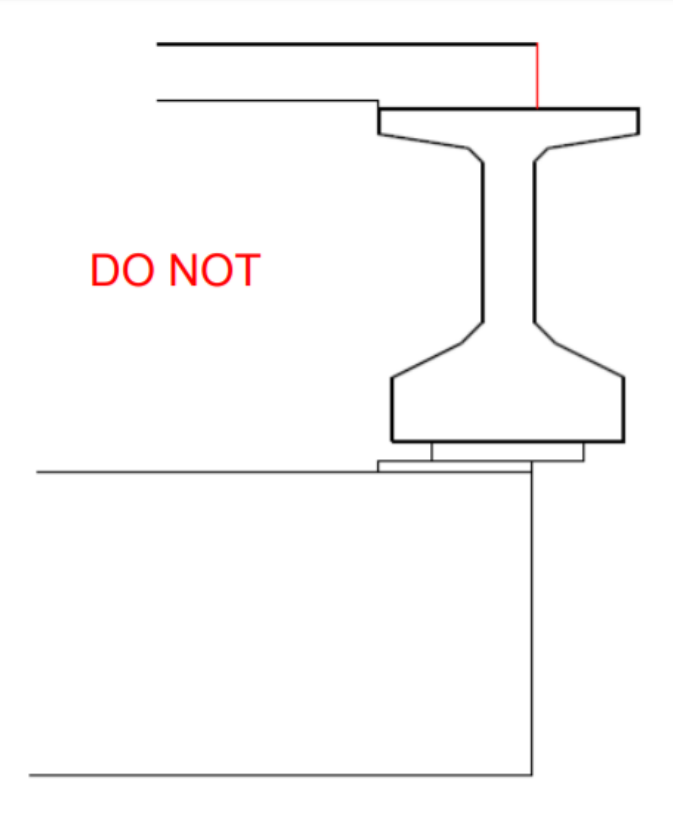
Superstructure – Structural Analysis

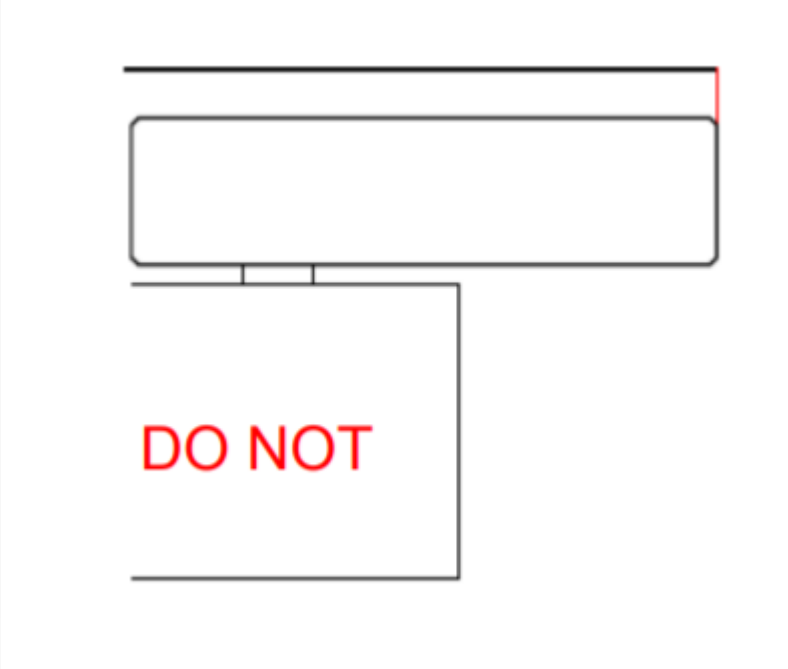


Superstructure – Structural Analysis

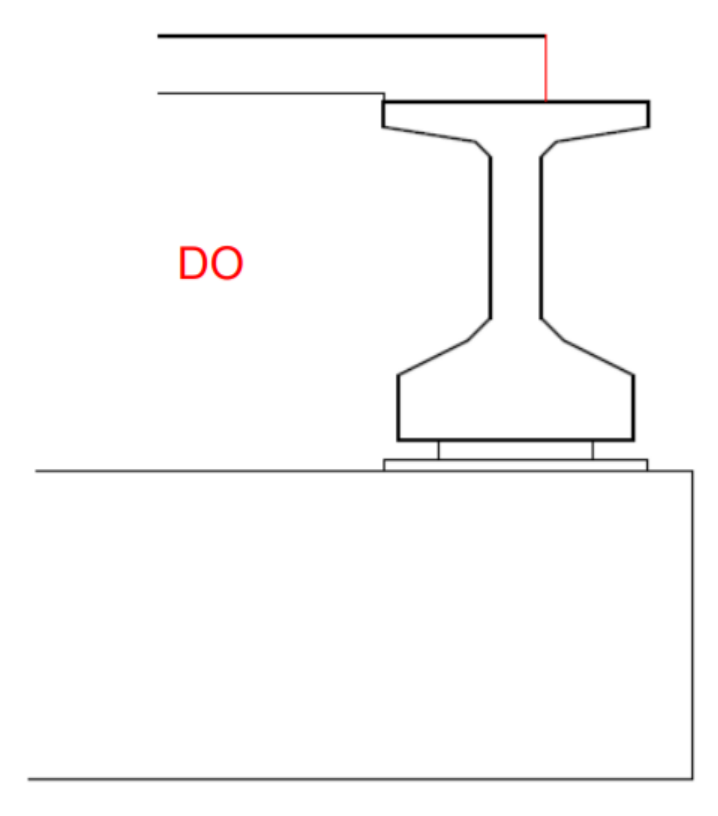
- Load rating of the existing structure is required if the phasing scheme removes portions of the existing structure. Acceptable load rating limits for phased construction of existing structures should be discussed with the District where the work is performed.

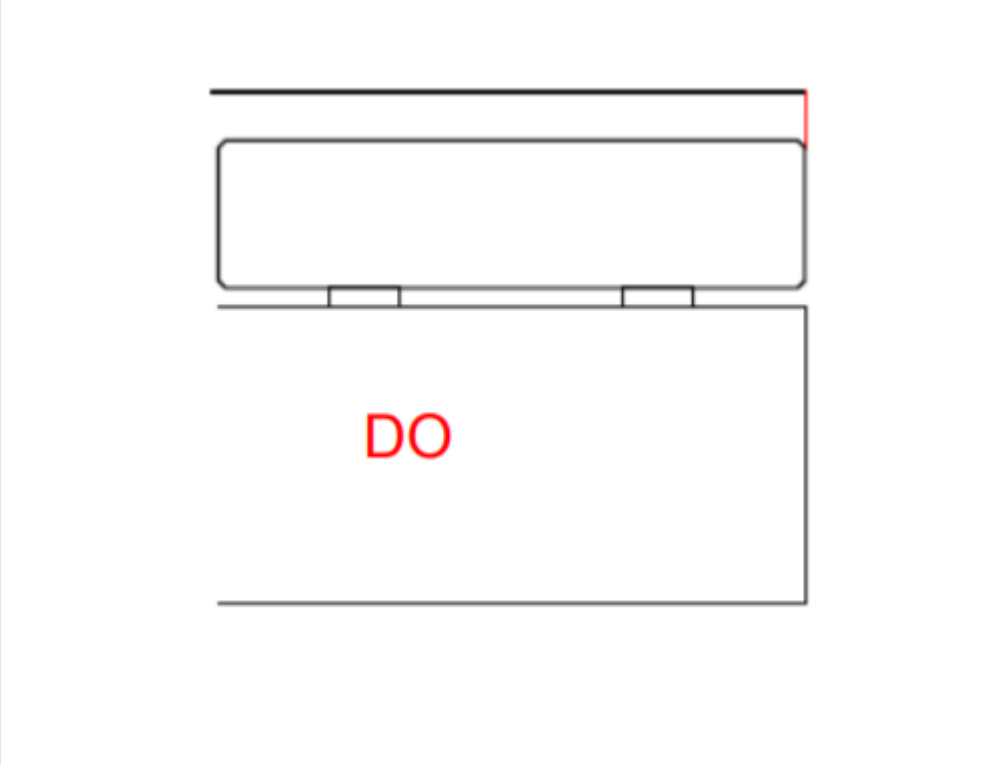
Substructure – Geometric Considerations





Substructure – Geometric Considerations





Substructure – Geometric Considerations

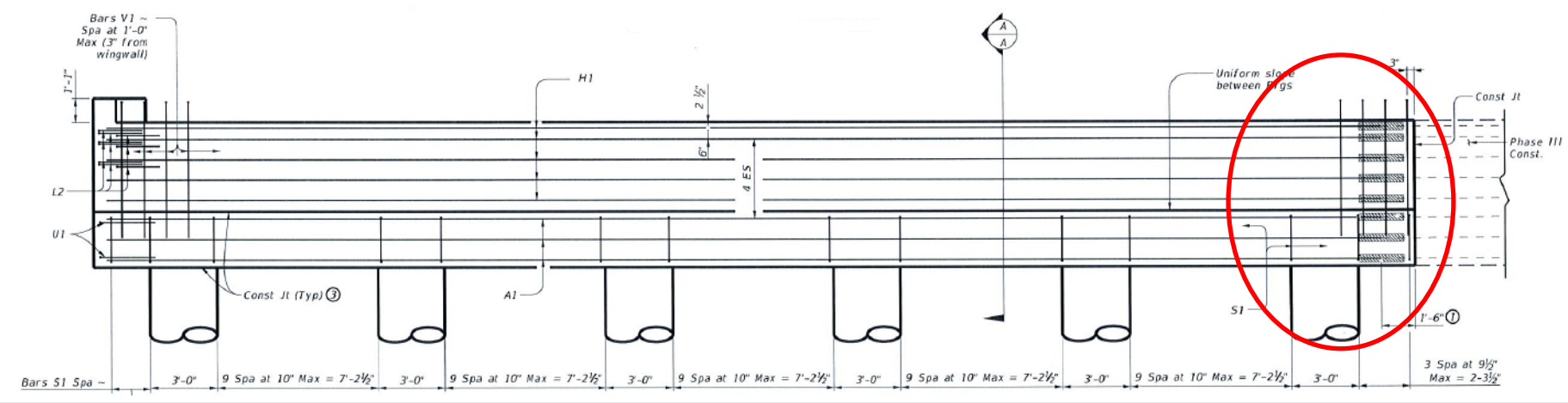
- When phasing an abutment or an interior bent, consider providing enough space between the existing structure and the new construction to accommodate splicing of the reinforcement and formwork.
- Consider how the next phase of construction will be impacted by the placement of phase lines and reinforcement that extends beyond the phase line.

Substructure – Geometric Considerations

Substructure – Geometric Considerations

Substructure – Geometric Considerations

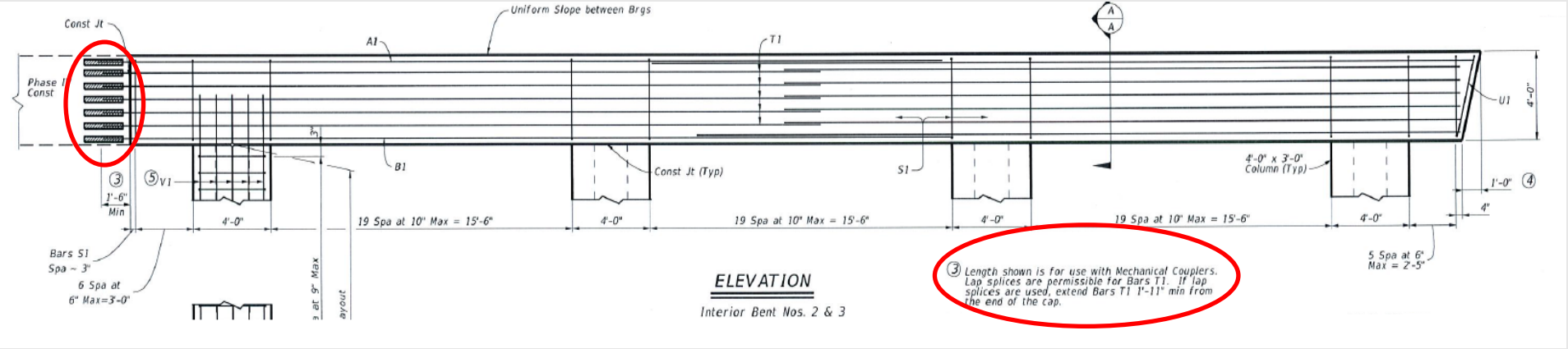
- Avoid having splices that overlap drilled shaft/pile locations
- Consider placing first foundation element of the next phase during previous construction phase.



Substructure – Geometric Considerations

- If unable to provide enough room to splice the reinforcement through traditional overlapping, use welded splices or mechanical couplers. In some cases, a combination of couplers/welded splices and traditional overlapping may be utilized for elements with varying bar sizes. Extend reinforcement that will be spliced by welds or mechanical couplers beyond the end of the cap by at least 1-foot.

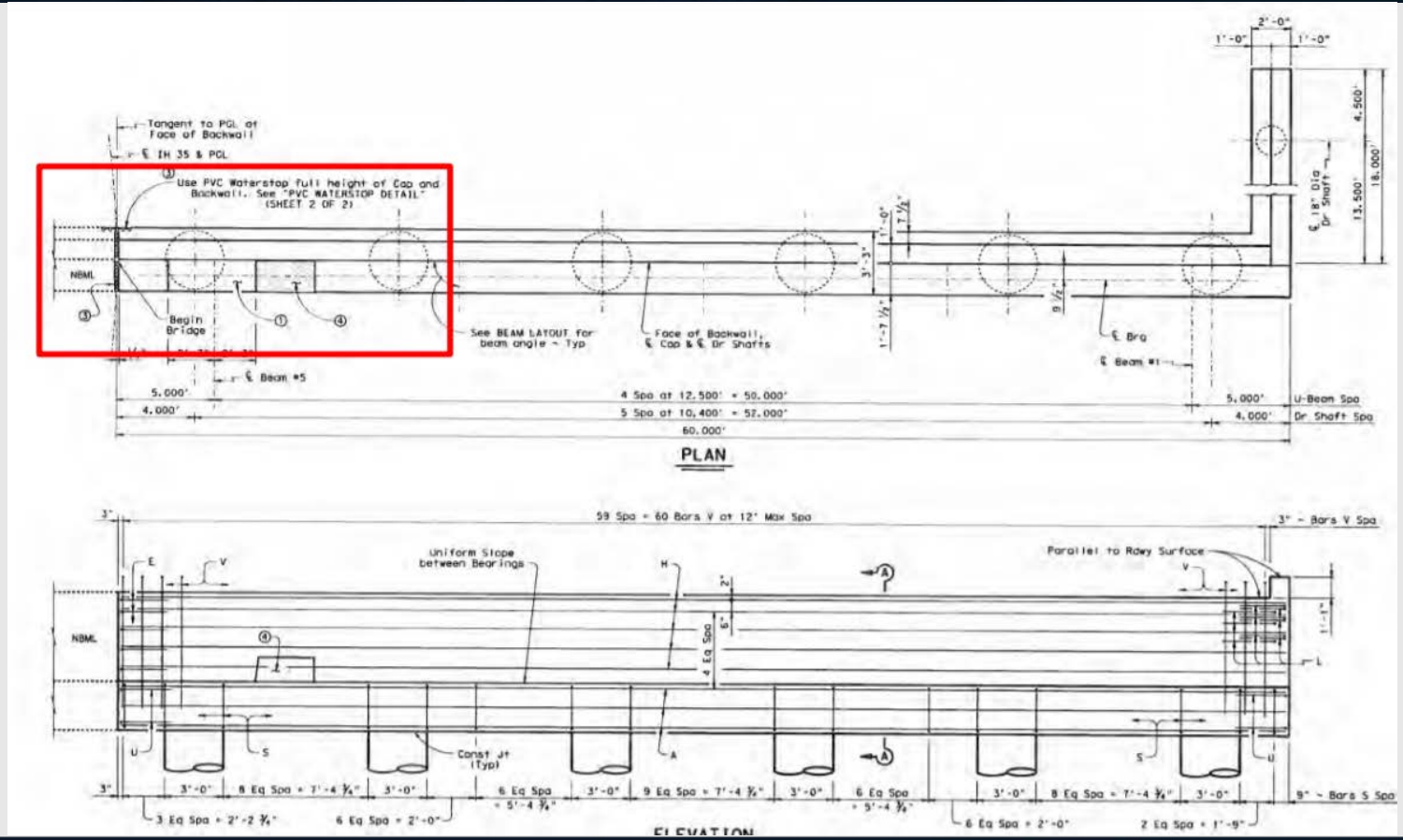
Substructure – Geometric Considerations



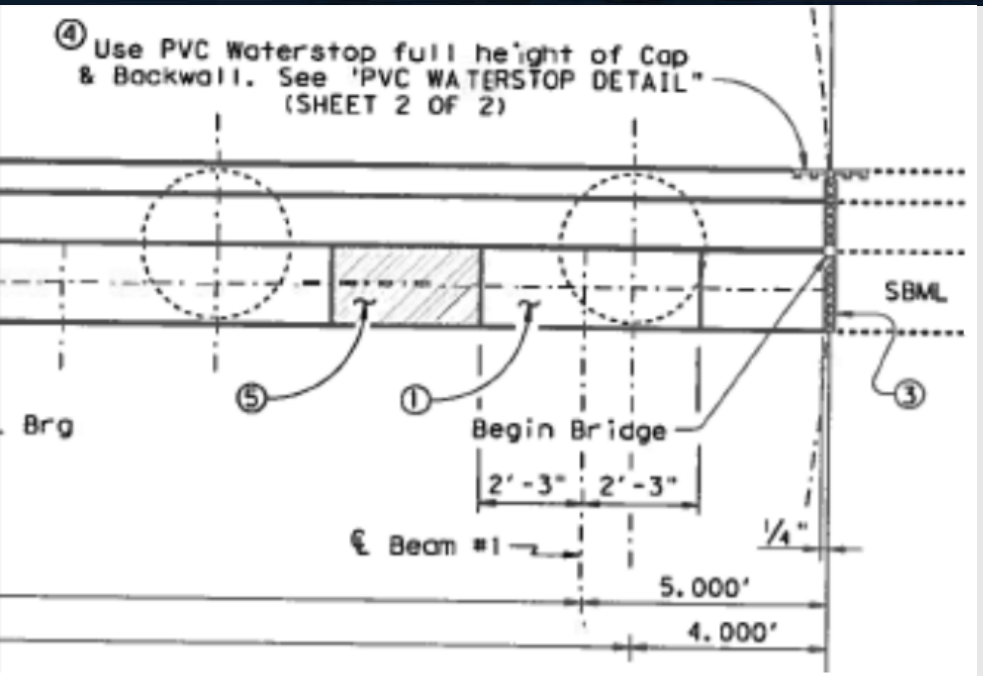
Substructure – Geometric Considerations

- As alternative to splicing or welding the reinforcement, a full depth joint may be used at the phase line. For abutments, if a full depth joint is used, limit the space between abutments to 1-inch. Use bituminous fiber to fill the gap between the phases. Use a PVC waterstop across the space along the full height of the cap and backwall.

Substructure – Geometric Considerations

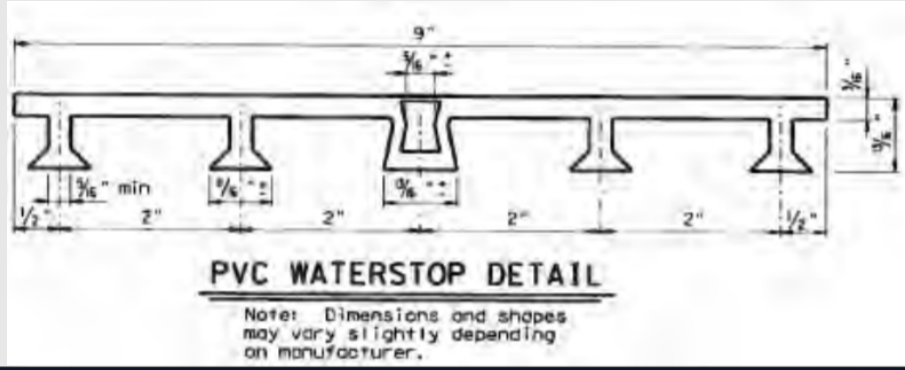


Substructure – Geometric Considerations



③ ½" Premolded Expansion Joint Material. Install in accordance with Item 420.2.E.

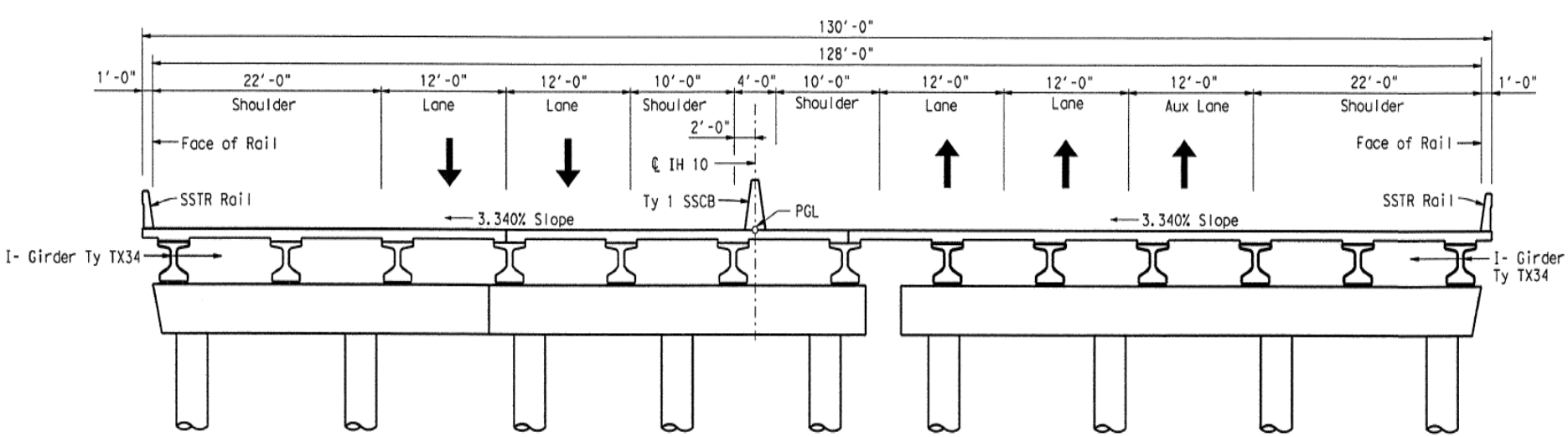
④ PVC Waterstop shall be considered susidiary to Class "C" Concrete. (Abut)



Substructure – Geometric Considerations

- For bent caps, the full depth open joint at the phase line should be at least 1-foot wide to allow for forming of the adjacent phases. Individual bent caps would support each phase.

Substructure – Geometric Considerations

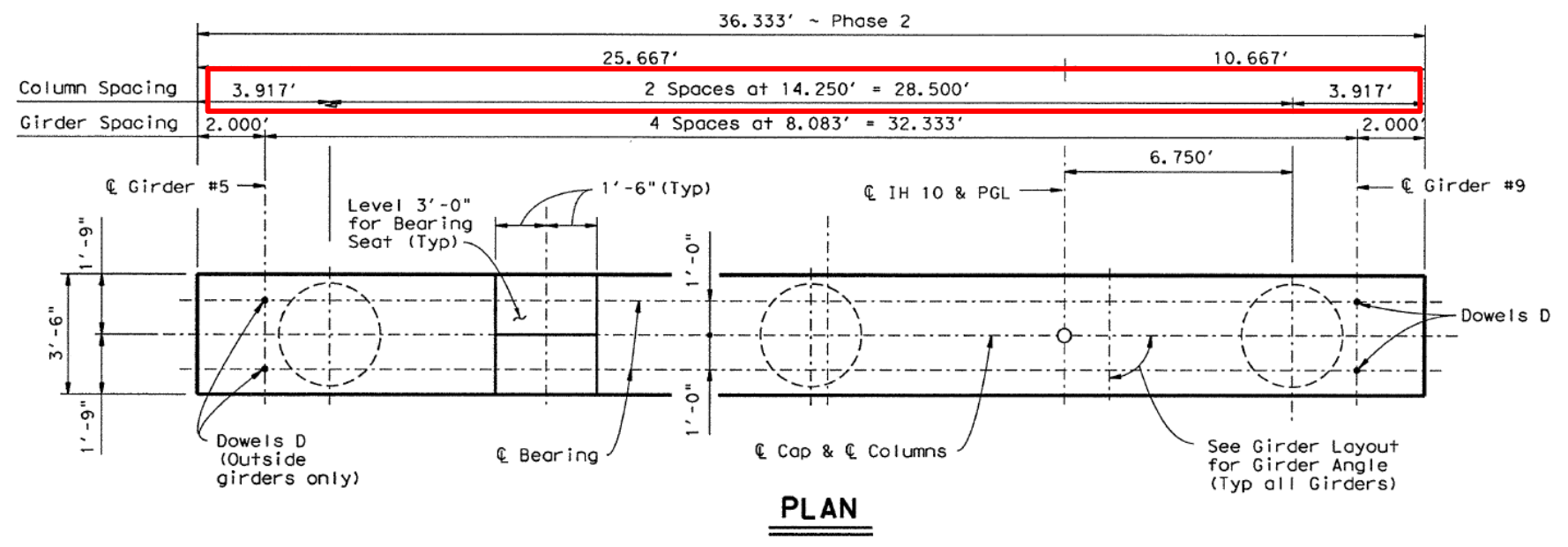


COMPLETED BRIDGE

Substructure – Geometric Considerations

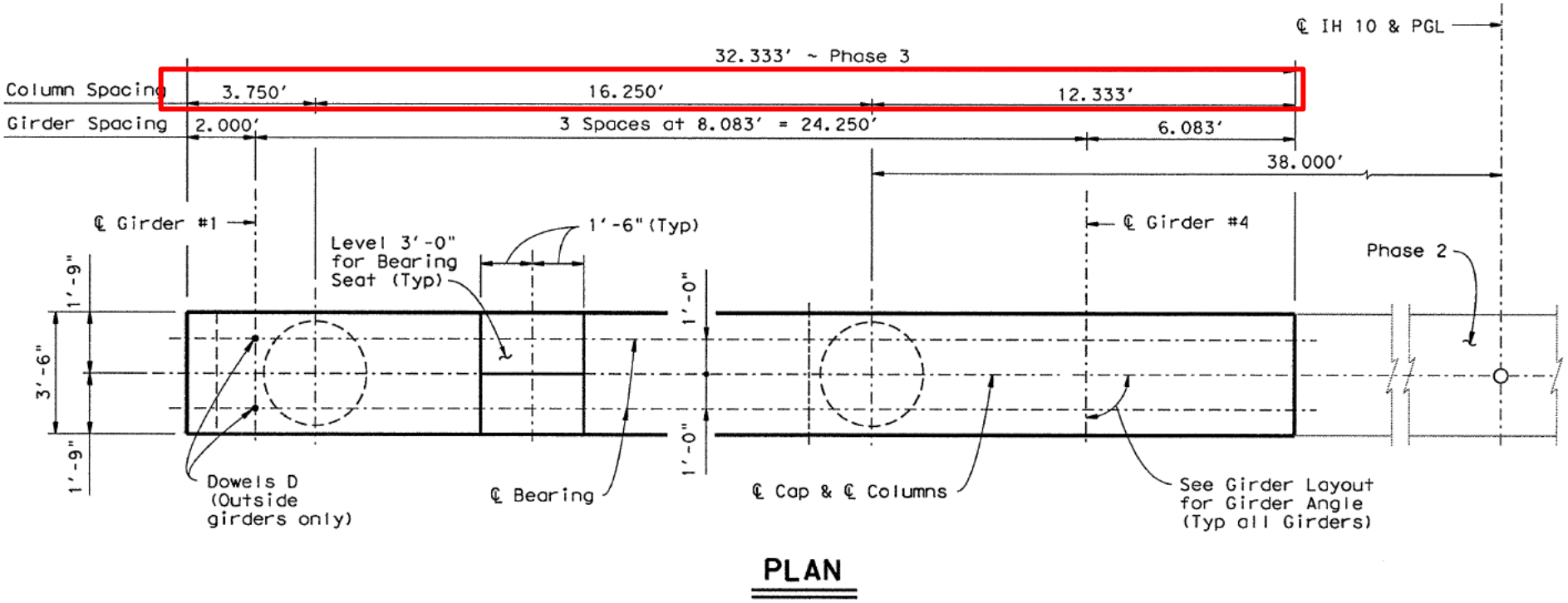
- When selecting column or drilled shaft/pile spacing, try to keep the distance from face of column or drilled shaft/pile to the phase line between 0.5 and 4 feet. Overhangs greater than 4 feet can result in high negative moments and permanent deflection of the overhang under loading. The construction of additional phases will not remove this deflection.
- Phased construction of abutments or bents may require that columns or drilled shafts be spaced at irregular intervals.

Substructure – Geometric Considerations



PHASE II

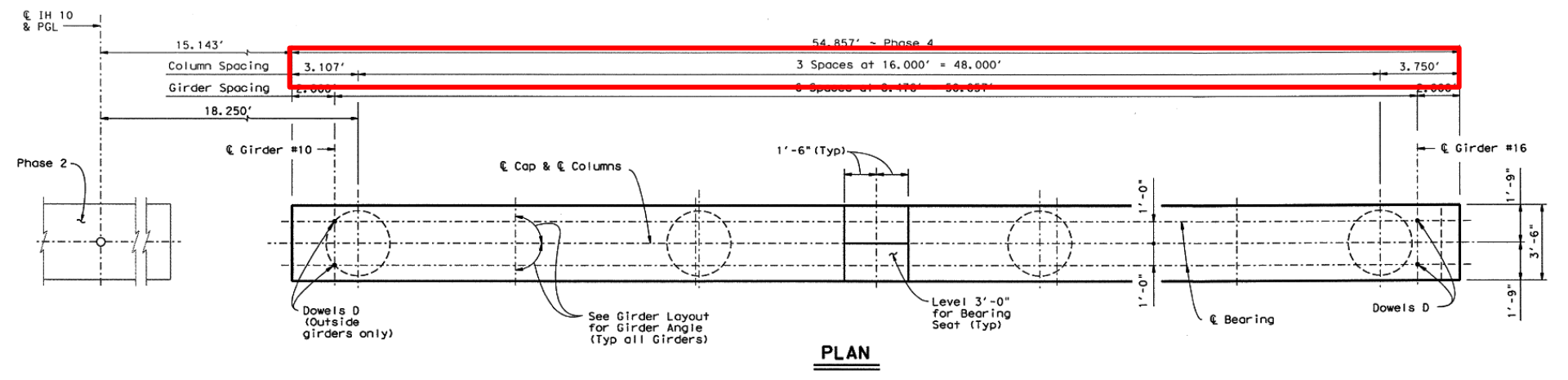
Substructure – Geometric Considerations



PLAN

PHASE III

Substructure – Geometric Considerations

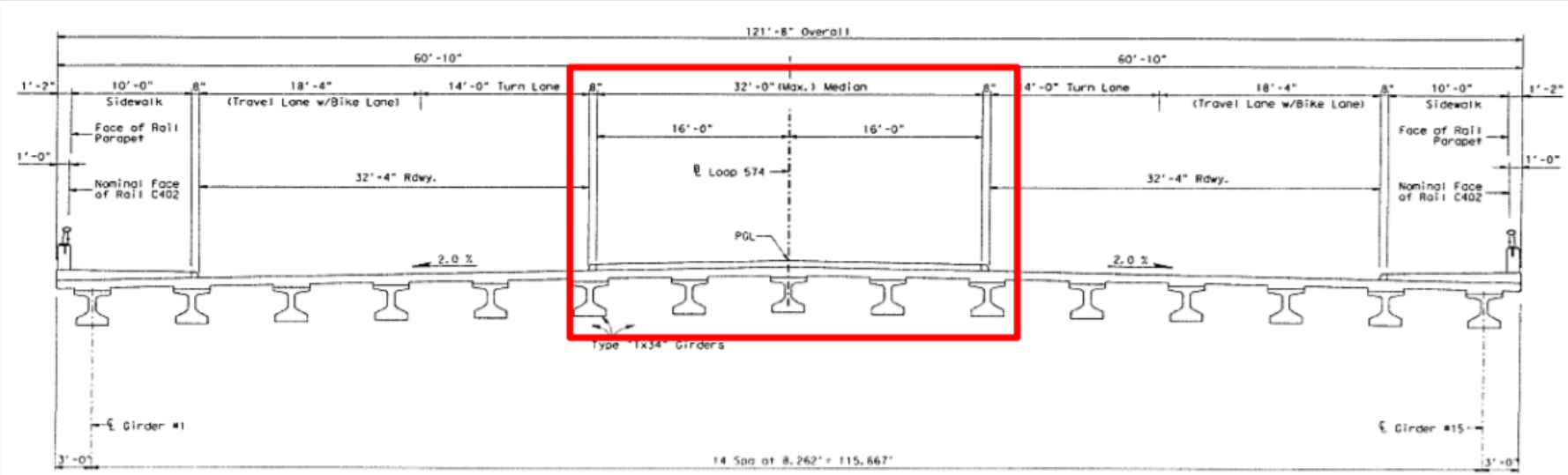


PHASE IV

Substructure – Structural Analysis

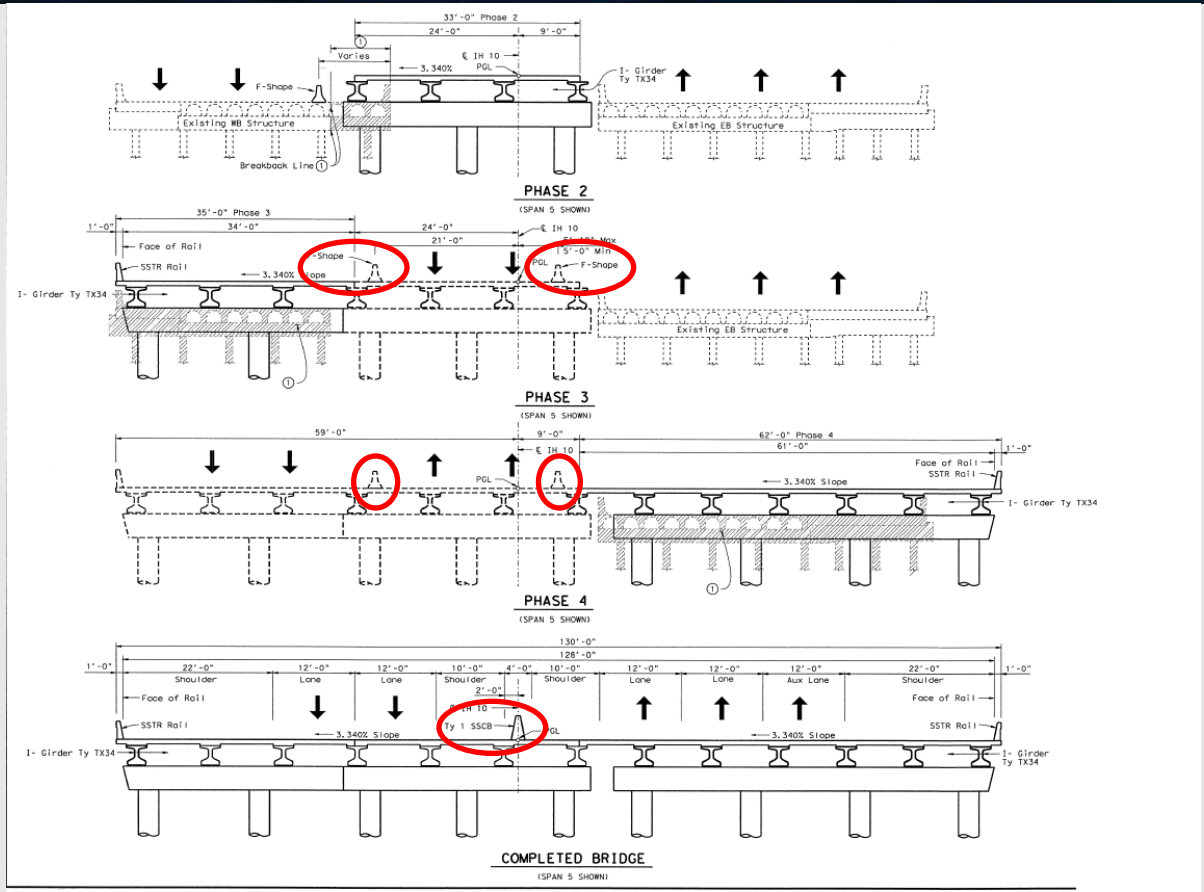
- When designing bents and abutments to be continuous after phasing, consider all stages of construction (including temporary loads) and the final configuration. Select flexural and shear reinforcement so that loading in all phases can be supported.
- Design bents and abutments that have full depth joints at the phase line as individual components.

Substructure – Structural Analysis

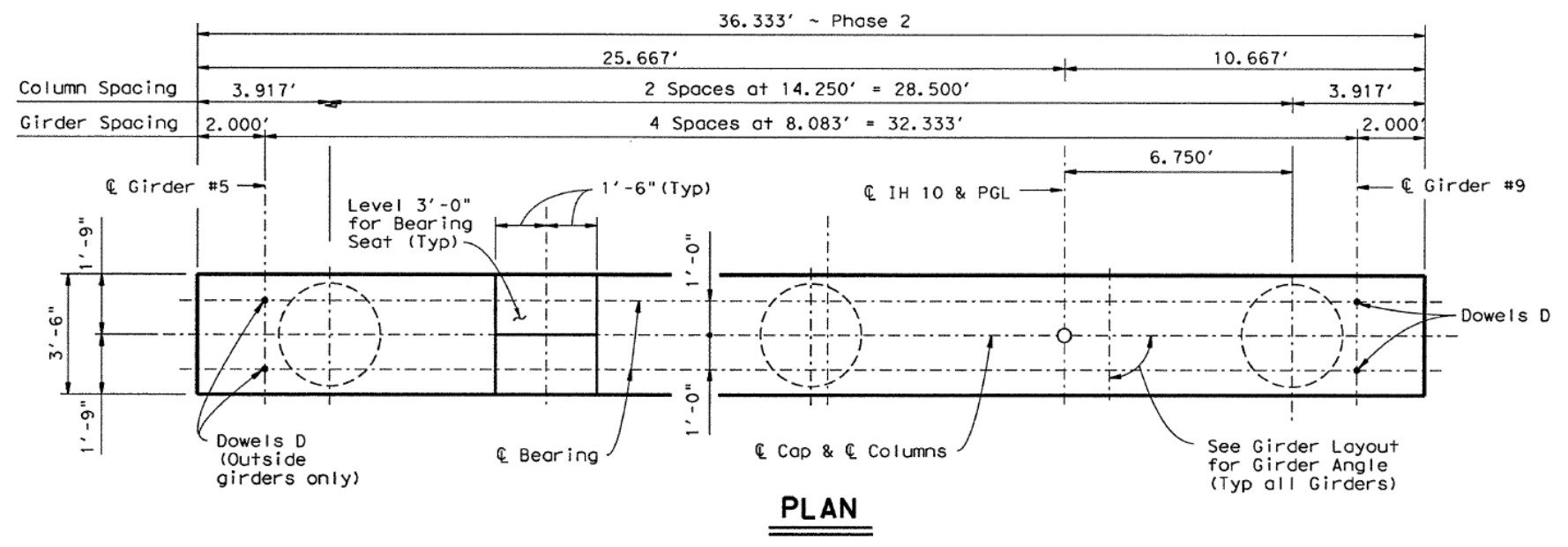


TYPICAL BRIDGE SECTION

Substructure – Structural Analysis

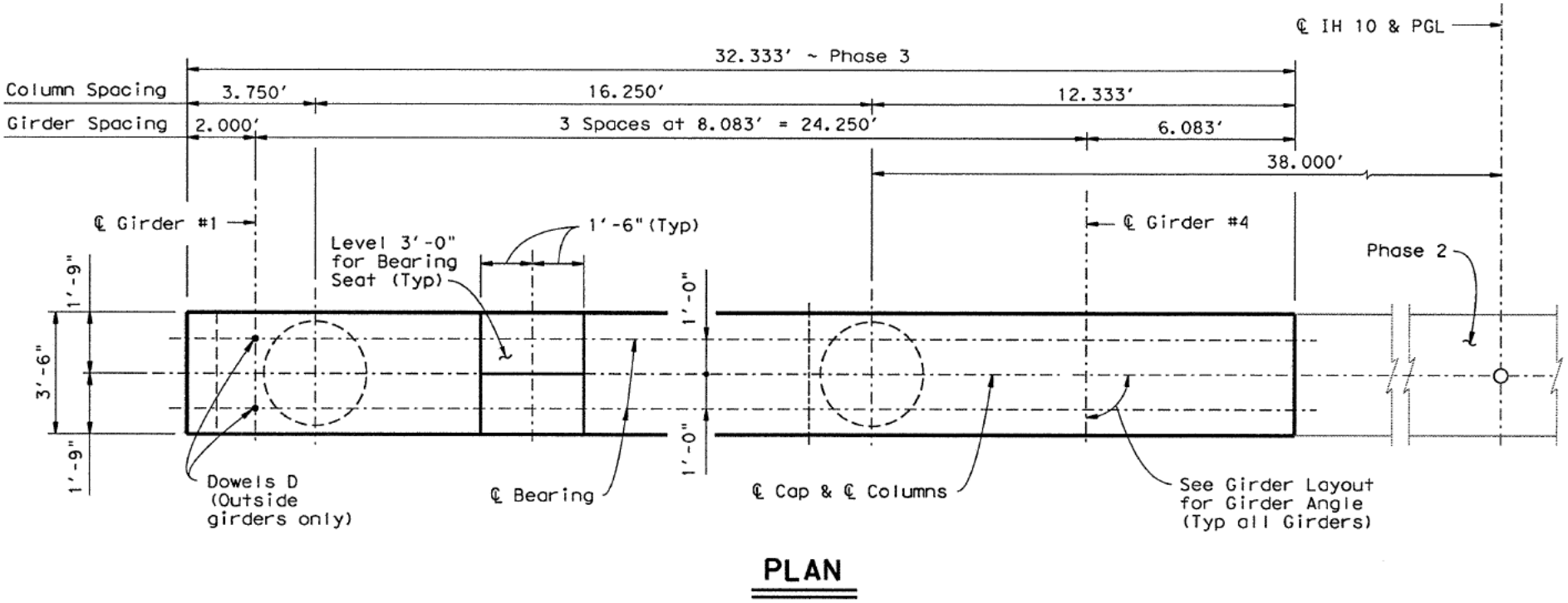


Substructure – Structural Analysis



PHASE II

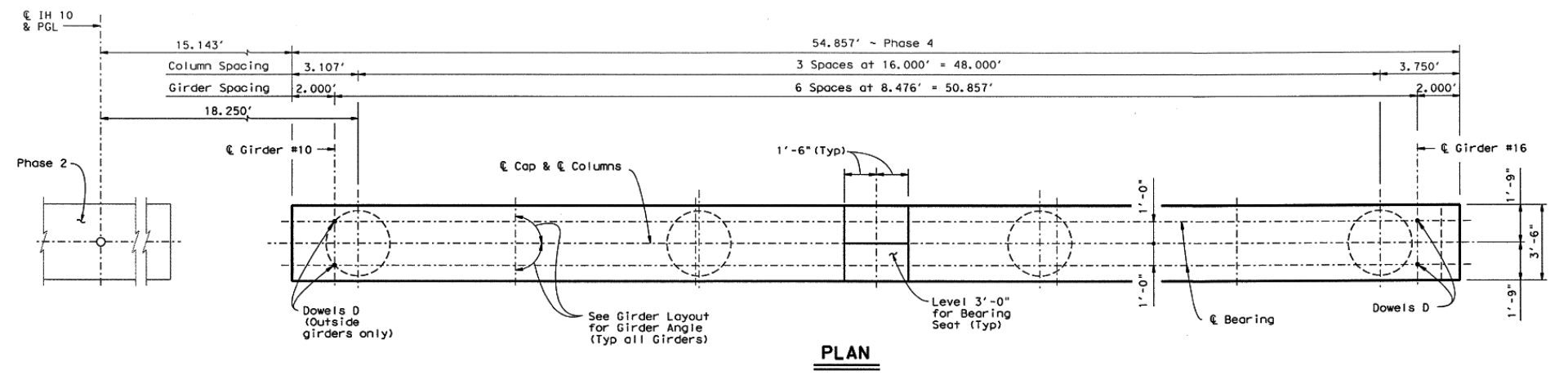
Substructure – Structural Analysis



PLAN

PHASE III

Substructure – Structural Analysis



PHASE IV

Substructure – Structural Analysis

- Load rating of the existing structure is required if the phasing scheme removes portions of the existing structure. Acceptable load rating limits for phased construction of existing structures should be discussed with the District where the work is performed.

Questions?

Are mechanical couplers acceptable at deck widths in lieu of spliced lengths?

They are acceptable, but not recommended because of the large number that would be required.

From the Audience: **As a consideration, keep buffer spacing between rails for adjacent (e.g. back-to-back) new bridge structures,**

When breaking back at the phase line for skewed bridge, how would you design the expansion joint?

Joints should be extended a distance beyond the phase line (typically min 6”) to allow for connection to joint in next phase

At more than what angle should the slab have a break back during phase construction?

Typically 15°, but use engineering judgment.

The recently released Design Guide proposes the use of a 1" joint between phases of abutments in lieu of reinforcement lap splices across a construction joint. Does TXDOT prefer to see the 1" joint or a construction joint?

Follow recommendations in the Design Guide.

Questions?

In some phasing projects, we've considered leaving a portion of the existing bent cap underneath the new beams when sufficient clearance exists. Does TXDOT have a preference for partial demolition of existing bents or is leaving the existing bent acceptable assuming clearances are checked?

You can leave a portion of the existing bent cap, and sometimes you have to. It will depend on structural capacity (analyses) and clear zone.

For slab and box beams that require phase line right at the beam edge, would the projected deck reinforcing cause difficulty to the placement of adjacent beam in the next phase? Why can't the phase line happen within the top of the beam as in X-beam and U-beam?

The projected deck reinforcing is not known to cause any problems.

Column spacing per the bridge standards for bent caps is 5' max from edge of cap to edge of column. Would phased open joint bents be able to follow this, or would they need to follow the 4' recommendation to minimize cantilever stress as mentioned?

Follow the 4' recommendation, and ensure proper fit up with subsequent phases.

Questions?

For bridge design, are there any recommendations for roadway alignments with PC and PTs that may fall within bridge structures at superelevated sections?

Not at this time.

From the Audience: **Substructure phased construction joint at face of support should be intentionally rough to aid in shear transfer.**

At abutment phase joints, can type 10 waterproofing be used instead of a PVC waterstop?

If using full-depth open joint, Type 10 waterproofing is not sufficient. The PVC waterstop is important in preventing the migration of fines from behind the abutment. If using a construction joint, it is not a bad idea to use Type 10 waterproofing.

From the Audience: **The bearing seat elevations for later phases will need to be lowered to account for the potential for camber differences for the later phase girders.**

With a 1" open joint, did you say to not have a wheel path over the joint or no traffic at all on either side of the joint? Why?

Do not have an open joint under a wheel path. The deck on either side can move differentially and can create a small snag, which can drag the wheel, this creates a safety issue.

Questions?

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