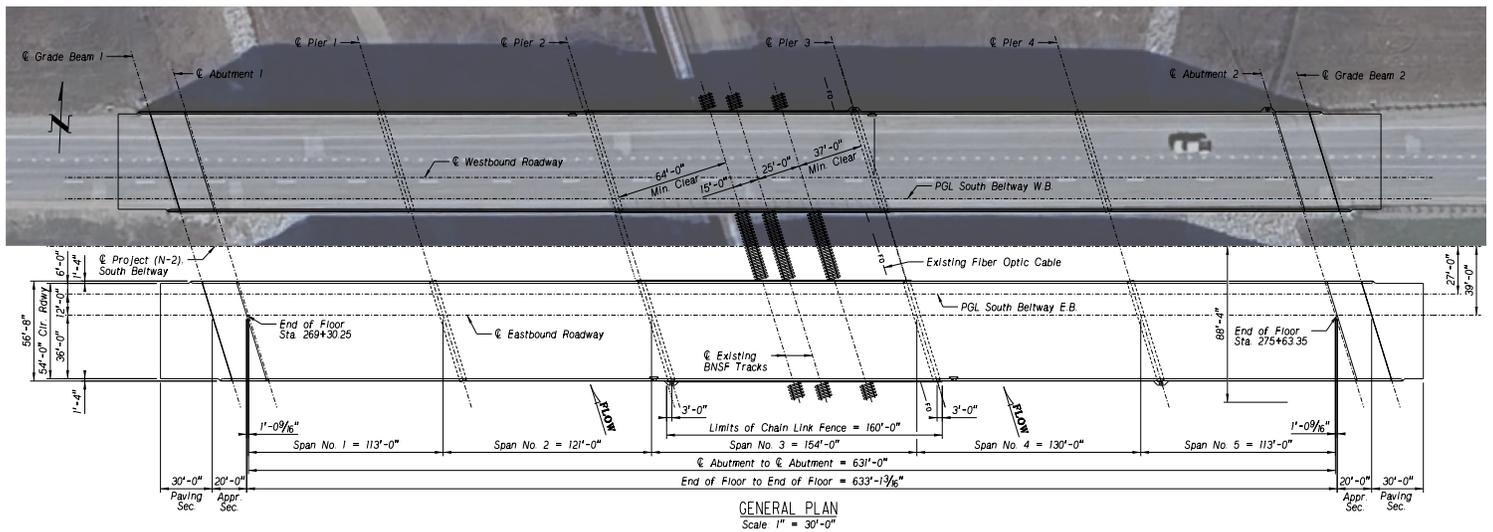


Bridge Detailing Guide



NEBRASKA

Good Life. Great Journey.

DEPARTMENT OF TRANSPORTATION
BRIDGE DIVISION

February 13, 2026

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Foreword

I am pleased to present the *NDOT Bridge Detailing Guide*, created to support current and future designers and detailers in preparing consistent, high-quality bridge plans for the State of Nebraska.

This guide establishes common drafting and detailing practices so that our plans are clear, accurate, and easy to interpret in the field. When our foundational practices are uniform, designers can devote more time to the engineering content of the plans, resulting in better designs and improved constructibility.

I extend my sincere thanks to Pat Haecker, our Bridge Design Supervisor, for his expertise and leadership in shaping this guide. His experience ensured that the content reflects NDOT's expectations for quality bridge plan development.

By applying the practices outlined here, bridge designers and detailers can produce plans that meet the highest standards of quality, efficiency, and constructibility—continuing NDOT's mission of providing safe and reliable infrastructure for the citizens of Nebraska.



Emilie Hudon, Ph. D., PE
Bridge Policy and Quality Assurance Engineer

This *Bridge Detailing Guide* brings together NDOT's established practices to help designers and detailers produce clear, constructible, and consistent plan sets.

This guide reflects lessons learned from decades of plan development, highlighting details and drafting approaches that have proven effective across NDOT projects. Its purpose is to support designers in communicating intent accurately so that construction proceeds smoothly and efficiently.

Included are examples of common plan sheets, guidance on drafting standards, and checklists that serve as practical quality-control tools. These resources are intended for both new and experienced staff, ensuring all plans meet NDOT's expectations for clarity and completeness.

Accurate detailing is essential to connecting design intent with successful construction. I hope this guide serves as a reliable reference and contributes to NDOT's continued commitment to producing high-quality bridge plans.



Pat Haecker,
Bridge Design Supervisor

Acknowledgments

This Bridge Detailing Guide was developed to assist in the preparation of bridge plans for the Nebraska Department of Transportation. The following individuals generously contributed their time, expertise, and resources to enhance the quality of transportation engineering in Nebraska:

- Patrick Haecker – NDOT
- Steve Ferguson – NDOT
- Megan Rodgers – NDOT

Revisions

This document will be updated as needed to correct errors, incorporate new programs, reflect changes in software or software enhancements, or as policy and management changes dictate. As with any set of guidelines or documentation, continuous improvement is encouraged. This document is not intended to be a comprehensive instructional manual.

The latest version of this document is available at: <https://dot.nebraska.gov/business-center/bridge/>
Please send constructive comments to pat.haecker@nebraska.gov.

Disclaimer

In the profession of plan detailing, artistic creativity is required to produce clear and concise plans, which inherently involves some subjectivity. Therefore, the guidelines in this document are intended for reference purposes only. The material is provided “as is,” without warranty or liability of any kind to the department. While every effort has been made to ensure the accuracy and completeness of the documentation, addressing the most common plan presentation scenarios, it may still contain errors or omissions. Engineers, designers, and detailers are expected to follow these guidelines while exercising professional judgment and discretion in unique situations or those not explicitly covered by the document. It is the responsibility of all engineers, designers, and detailers to ensure that these guidelines are implemented accurately while allowing for subjective differences. They must also ensure that all drawings are clear, complete, and legible, fully reflecting the necessary information.

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Chapter 1 — Overview

1.1—VISION STATEMENT

The Bridge Detail Guide (BDG) aims to establish a comprehensive and practical Computer Aided Design (CAD) guideline that enhances the consistency, accuracy, and efficiency of bridge plan development. This guide will provide clear, standardized detailing practices and conventions that align with the principles of the Bridge Design Manual, while avoiding unnecessary duplication. Our vision is to create a resource that empowers designers, detailers, and engineers by streamlining the production of high-quality bridge plans, improving communication across disciplines, and supporting the delivery of safe, reliable, and cost-effective infrastructure.

1.2—ORGANIZATION OF THE BRIDGE DETAILING GUIDE

This guide covers a range of topics concerning the detailing of plans for NDOT structural elements and systems. Information in this manual is organized into the following sections.

Chapter 2 provides guidance on the system used by NDOT for Computer Aided Design (CAD).

Chapters 3 to 5 provide general guidance on plan preparation, including preferred detailing styles, sheet order and border information, and revision preparation.

Chapters 6 to 19 provide examples, specific guidance, and checklists for the preparation of individual sheets.

1.3—DESIGN TO CONSTRUCTION PROCESS

The engineering process from initial design to final construction can be divided into 3 key stages. A general understanding of these stages is crucial for detailers to produce high-quality plans. The stages are as follows:

1. PRELIMINARY DESIGN

During this phase, the type of structure to be constructed is selected. Typically, two or more alternative designs are evaluated for each site, with economy being a primary consideration. However, other factors must also be carefully assessed, including:

- Aesthetic appearance
- Maintenance costs
- Construction details
- Traffic management during construction
- Construction timeline
- Consistency with nearby structures
- Availability of materials
- Site-specific features
- Span lengths and vertical clearance

The incorporation of Accelerated Bridge Construction (ABC) methods, if applicable, is also determined at this stage. Decisions made here are critical, as they provide the foundation for the rest of the structure's design and planning. Deliverables for this phase typically include a General Plan sheet and Typical Sections.

During this stage, the following plans are produced and approved:

- Concept plan – a basic plan for review by the Railroad or the Hydraulics section.
- TS&L (Type, Size, and Location) plan – receives final approval by Bridge management.

2. FINAL DESIGN

This phase involves a detailed analysis and the preparation of drawings and sketches that convey the designer's intent. These documents outline the general arrangement of the structure, member dimensions, and any other essential details required for interpretation and further detailing. These drawings must be detailed and checked as explained below.

DETAILING

Detailing is part of the final design process. The detailing stage involves transforming the designer's notes into comprehensive drawings. These drawings must be sufficiently clear to enable suppliers to create fabrication drawings and support quantity calculations.

During this process, final bridge plans are produced, quantities are calculated and a summary of quantities table is prepared.

Attention to accuracy and clarity in detailing ensures the feasibility and efficiency of subsequent stages.

CHECKING

This stage involves verifying the design and quantity calculations using the detailed drawings. Rigorous checks ensure the drawings meet design standards and provide accurate data for fabrication and construction.

Potential corrections or additions are typically marked on the PDF drawings in red. The QC Engineer, and the Engineer or Designer must resolve any discrepancies before the corrected set is sent back to the detailer for final adjustments.

MAKING CORRECTIONS

After verifying the redlined corrections, the detailer will proceed to make the necessary changes. Once all corrections are completed, the detailer will generate a new PDF set reflecting the updates and send the new PDF to the designer and QC Engineer. The revised drawings will then be reviewed against the red-lines to ensure all marked corrections have been accurately incorporated.

3. CONSTRUCTION

The final stage involves building the structure based on the prepared drawings. Conscientious effort during the planning and detailing stages significantly enhances the efficiency and quality of construction, minimizing delays and errors. It also includes the fabrication of structural elements, for example cutting and bending of reinforcing steel, manufacturing structural steel components, and casting of precast-prestressed components according to the shop drawings prepared based on the construction drawings.

AS-BUILT PLANS

During construction, NDOT field staff are responsible for documenting field changes and plan adjustments that don't require a plan revision. The documented changes are added to the as-built plans by the district staff for future reference.

MAKING REVISIONS

After plans have been submitted for bidding and during construction, errors may be found in the plans. Any changes to the plans that need to be made after advertising the project shall be performed as a plan revision. See [Chapter 5](#) for information.

1.4—QUALITY CONTROL IN DETAILING

As part of plan production, each detailer and designer shall conduct a thorough Quality Control review of their plans. A typical quality control process will also include another person acting as the reviewer. However, it is the designer and detailer's responsibilities to first correct any errors on the plans.

A quality control review needs to focus on the following items:

- Constructability
 - Verifies that details like rebar layout, splice locations, and connections can be practically and safely constructed.
 - Identifies potential issues that might arise in the field (e.g., tight clearances, complex formwork, or congested reinforcement).
- Confirm Compliance with Standards
 - Checks that the detailing follows applicable design manuals, bridge detailing guide, and CAD standards.
 - Ensures consistency with standard practices for materials, tolerances, and fabrication.
- Identify and Minimize Errors
 - Catches missing dimensions, unclear callouts, incorrect bar shapes/sizes, and inconsistent labeling.
 - Reduces the chance of RFIs, field revisions, or costly construction delays.

All the checklists provided in this documents are also provided in a printer friendly format in ProjectWise for ease of use by designers and detailers. Designers, detailers, and QC engineers are strongly encouraged to use these checklists on all NDOT projects.

1.5—GLOSSARY

Please also refer to NDOT Bridge Design Manual for additional definitions.

- Abutments — Girder Supports at the ends of a bridge.
- Alignment — The geometric design element that defines the horizontal and vertical configuration of the roadways.
- Anchor Bolts — Bolts used to secure structures to concrete foundations.
- Approach slab — A reinforced concrete slab constructed between a bridge abutment and the adjacent roadway.
- Asphaltic concrete pavement — Compacted mixture of mineral aggregate and asphaltic materials providing a supplemental base-pavement or wearing surface.
- Backfill — Material used to replace other material removed during construction or the material placed adjacent to structures.
- Barrier Curbs — Raised edges along roadways or bridges designed for safety and to redirect vehicles.
- Battered Pile — A slanted pile driven into the ground to provide lateral support and stability.
- Bearing Devices — Components, under girder ends, allowing controlled movement and transfer of loads between bridge parts.
- Bearing Piles — Foundation elements driven deep into the ground to support vertical loads.
- Bent — A substructure unit consisting of vertical columns supporting bridge spans.
- Bent Cap — The horizontal beam atop a bent, distributing loads to the columns or wall.
- Bid Item — A unit of work that is specified in the plans to be performed by the contractor on a particular project and as identified in the specifications or special provision.
- Bore Hole — A cylindrical hole drilled downward from the ground surface to identify, sample, and/or test subsurface materials; also called a test hole.
- Box Culvert — A concrete box placed below a roadway. Box culverts can be made from a single box or multiple boxes. Box culverts that measure greater than 20' along the roadway centerline are considered bridge size and are assigned a structure number.
- Bridge Deck — The roadway or driving surface of a bridge.
- Broken Concrete Riprap — This is riprap made from broken pieces of concrete, typically from an existing structure that has been removed, placed along riverbanks or bridge abutments to prevent erosion.
- Camber — The upward curve of prestressed concrete beams and girders due to prestressing. For steel girders, calculations can be made to offset the loads, thereby dictating the actual curve or camber to be used.
- Cantilever — The part of a structure that extends beyond its support.
- Cast-in-place — Concrete poured and cured on-site.
- Column — A vertical supporting pillar.
- Concrete — A composite material consisting of a binding medium within which are embedded aggregates.
- Concrete Rails — Guardrails or barriers made of concrete on bridges or roadways.
- Cross Frames — Bracing or frames placed between girders to maintain separation.
- Cross Section — The view of the vertical plane cutting through the bridge, laterally perpendicular to the center line, showing the relationship of the various components of the roadway.
- Cross Slope — A transverse roadway slope from roadway centerline to roadway crown line.
- Diaphragm — Structural members at Piers/Bents providing lateral stability and load distribution between beams.
- Dowel — Usually, a deformed steel bar that projects from one concrete slab or structure into another.
- Drilled Shafts — Reinforced concrete foundation shafts for bridges that are drilled and then filled with concrete and reinforcing steel.
- Expansion Joints — Gaps, with a joint filler, allowing for thermal expansion and contraction of bridge components.
- Girders — Large beams supporting the bridge deck and distributing loads to piers and abutments.
- Grade Beams — Horizontal concrete beams used to distribute loads from approach slabs to the piling.
- Granular Backfill — Sand/gravel used for foundation support and drainage.
- Groundline — The surface level of the ground around a structure.
- Haunch — The area, typically filled with concrete, between the top of the girder(s) and the deck; depth of haunch may be constant or variable over the length of a bridge, and serves to adapt girder geometry to the profile of the bridge deck
- Highwater — The maximum water level during floods or high flow conditions.
- Horizontal Curve — A circular arc joining two straight lines known as tangents and are visible in the plan view.

- Nose Angle — A steel angle on the upstream edge of a bridge pier or bent designed to deflect water or debris.
- Phasing — A width limit dividing a project into stages or steps for synchronized completion.
- Pier Cap — A horizontal beam atop a pier, distributing loads from the bridge to the pier wall or columns.
- Piers — Vertical supports between abutments or spans, carrying bridge loads to the ground.
- Piling — A column of steel or concrete that is driven into the ground to provide support for a structure. Some older structures had or have piling made of wood.
- Plan Set — The sum of all the sheets for one structure.
- Post-tensioned — Reinforced concrete tensioned after the concrete has cured to increase strength.
- PPF — Pre-compressed polyurethane foam joint.
- Precast — Concrete components manufactured off-site and transported to the construction site.
- Preformed Joint Filler — Material inserted in expansion joints to prevent debris intrusion and allow movement.
- Prestressed — Concrete reinforced with tensioned steel strands for added strength and reduced cracking.
- Rebar — Steel reinforcement bars embedded in concrete to increase tensile strength.
- Riprap — Large stones or broken concrete placed along riverbanks or bridge abutments to prevent erosion.
- Rock Riprap — Large stones placed along riverbanks or bridge abutments to prevent erosion.
- Separators — Spacers or materials placed between girders to maintain separation.
- Sheet Pile — Thin, interlocking steel sheets driven into the ground to form retaining walls.
- Single Slope Rail — A safety barrier with a uniform sloped face used on bridges and roadways.
- Skew — The angle formed by a line perpendicular to the roadway centerline and the line drawn parallel to the Abutments, Grade Beams, and Piers or Bents.
- Slope — The steepness of a grade or soil surface that is normally expressed as a vertical distance divided by a horizontal distance of one foot.
- Slope Protection — A concrete, broken concrete, or rock riprap applied over a soil slope to prevent soil erosion. Slope protection is commonly used between Abutments and Roadways or Waterways.
- Station — A unit of measurement along an alignment, consisting of 100-foot increments in horizontal distance, used to identify a particular location along a roadway or bridge.
- Structure Number — A number assigned to a structure that is derived from the highway number and reference post.
- Substructure — The lower part of a bridge, including abutments, piers, and foundations, supporting the superstructure.
- Superelevation — The method of banking the roadway by attaining a vertical difference between the inner and outer edges of pavement
- Superstructure — The upper part of a bridge, including the deck and supporting beams, which carries traffic.
- Test Hole — A cylindrical hole drilled downward from the ground surface to identify, sample, and/or test subsurface materials; also called a bore hole.
- Tie Rods— Steel rods connecting structural abutment components to resist tension forces.
- Turndown — A downward projection of the slab at the abutment.
- Vertical Curve — A parabolic curve drawn tangent to two intersecting grade lines to provide a smooth transition from one grade to another. Vertical curves are visible in elevation views.
- Waterproofing Membrane — A protective layer applied to surfaces to prevent water penetration.
- Welded Wire Reinforcement — Also known as welded wire fabric or WWF. A two-way reinforcement system for rigid slabs, fabricated from cold-drawn steel wire, having parallel longitudinal wires welded at regular intervals to parallel transverse wires; the wires may be either smooth or deformed.
- Wingwall — Retaining walls extending from abutments to contain granular backfill.

Chapter 2 — Bridge Division CAD Information

2.1— INTRODUCTION

This chapter summarizes the setup and use of CAD systems and files in Bridge Division. This information is provided to help users understand how NDOT has set up its CAD system configuration, ProjectWise file management, file naming expectations, seed files, and plan printing. Adhering to these procedures promotes standardization, efficiency, consistency, and compliance while enhancing project collaboration. As file locations are changing, this guide does not include links to ProjectWise. Contact Bridge Division for help in navigating Project Wise or finding file locations.

2.2—CAD CONFIGURATION

All CAD files for the Nebraska Department of Transportation must be in Bentley MicroStation (.dgn) format. Use MicroStation OBM 2023, OBD 2023, or newer versions to produce all electronic drawings.

Use the config. file from ProjectWise: Active Workspace Version.cfg

2.3—WORKING UNITS

NDOT is currently using master units of either US Survey Feet or International Feet. The user is responsible for determining the appropriate surveyed units used.

For all future projects, the Project Working Units are listed in ProjectWise. If the working units are not listed, the user can obtain this information from the Roadway Designer.

Document Properties	Work Area Properties	Folder Properties	Photo Preview	Dependency Viewer	Access Control	Components
Properties (Work Area Type - NDOR CADD)						
Control Number	71236					
Project Number	NH-6-3(132)					
Project Location	Holbrook - Arapahoe					
Project Working Units						
District	7					
County	Furnas					
Highway	006					
Reference Post Begin	120.63					
Reference Post End	130.50					
Project Description	3R with ROW: Urban and Rural Segments: Bridge Work					
Project Close Date						
Home Folder Properties						
Folder Name	71236					
Folder Description						
Environment Name	NDOT_CADD					

Figure 2.1— Finding Project Working Units

The seed file is configured with an accuracy of four decimal places, and the Coordinate Readout will match the working units setting. Working units can be modified in the Design File Settings. Do not modify the Advanced Working Units Settings or the Grid Settings; changing these settings may distort the file when referenced into a MicroStation file using the NDOT standard settings.

2.4—SEED FILES

In MicroStation, seed files serve as templates for new design files. They establish default settings and standards, ensuring consistency across projects. When you create a new file in MicroStation, it is based on a seed file, which defines key elements such as:

- Units (Metric/Imperial)
- Grid and scale settings
- Levels and symbology
- Starting set of models
- Text styles, dimension styles, and line styles
- Reference attachments
- View configurations
- Working units and coordinate systems

- Bridge division uses seed files to save time and maintain standardization across multiple design files in a project. See our main seed files below.

A crosshair is centered at coordinate (0,0) in the seed file. When a new DGN is created from one of the seed files, borders are automatically placed in the Model folder.

2.4.1—2D Seed Files

The 2D seed files can be found in ProjectWise under the names shown:

- International Feet - NDOT_2D_Bridge Seed_Int_FT.dgn
- Survey Feet - NDOT_2D_Bridge Seed_US_FT.dgn

All 2D seed files contain the following models:

- Default – Location to draw full size plans.
- Sheet Views – Ready for scaled plan details with the bridge border referenced in – this is the model you will copy to produce new sheet models.
- Title Views– This is where the title block text is edited for use in sheet model

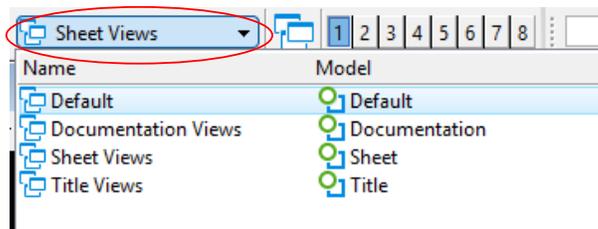


Figure 2.2— Preset Models

2.4.2— 3D Seed Files

The 3D seed files can be found in ProjectWise under the names shown:

- International Feet - NDOT_3D_OBM_Seed_Int_FT.dgn
- Survey Feet - NDOT_3D_OBM_Seed_US_FT.dgn

2.4.3—Sheet Seed Files

The Sheet seed files can be found in ProjectWise under the names shown:

- International Feet - Sheets\NDOT_2D_BR Sheet Seed_Int_FT.dgn
- Survey Feet - Sheets\NDOT_Bridge_Sheet_Seed_US_FT.dgn

2.5—FILE ORGANIZATION IN PROJECTWISE

In-house and consultant files must be saved in ProjectWise, under the correct district number, control number, and Bridge folder, as shown below.

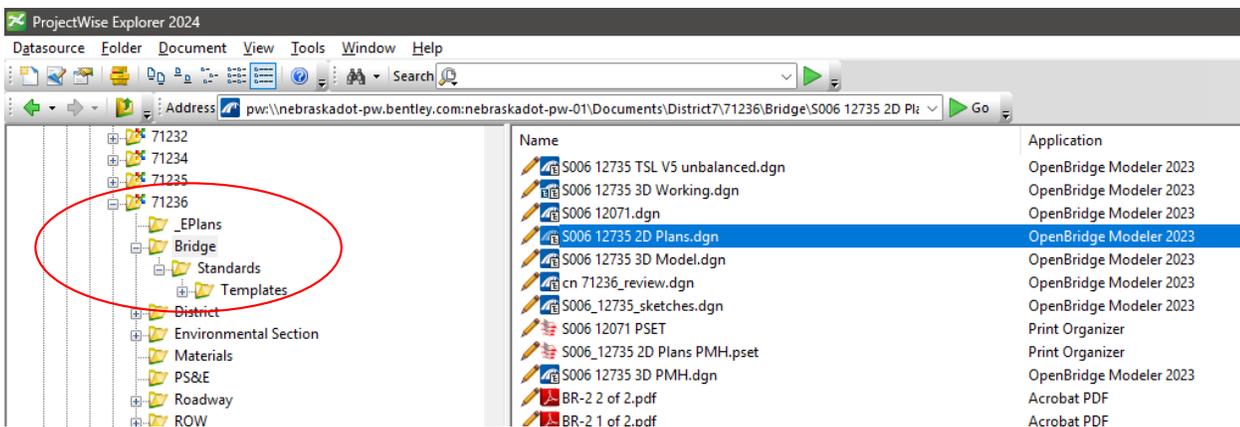


Figure 2.3— ProjectWise Bridge Folder Location

2.6—FILE NAMING

Using a common file naming convention is essential to ensure CAD files are easily identifiable and accessible. NDOT Bridge employs a structure number and control number format to link files to specific projects within ProjectWise.

For projects with multiple bridge locations, a separate DGN file shall be created for each structure.

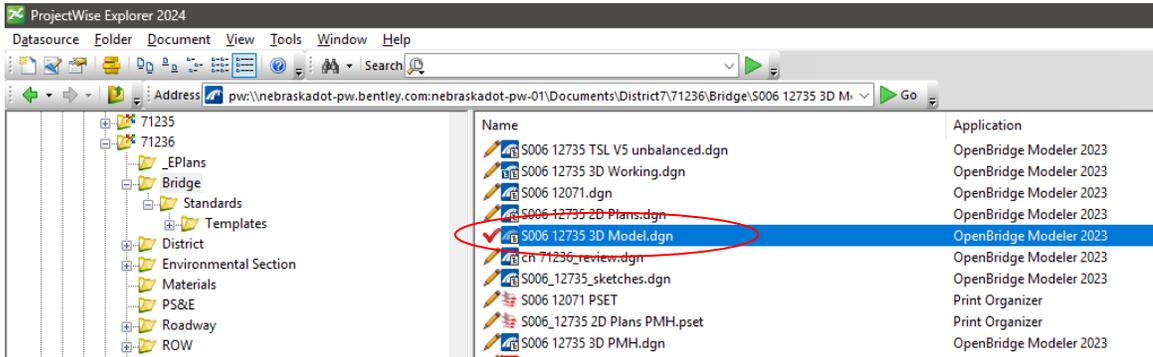


Figure 2.4— ProjectWise File Naming Example

2.6.1—File Naming Convention For 2D Plans

For 2D plans, a single .dgn file shall be created for each structure, with models within the file representing individual plan sheets. Per Bridge Division policy, the file name shall consist of the structure number, followed by a descriptor, if necessary, as demonstrated below:

- (Structure Number) (Location Descriptor).dgn
- Some examples follow:
- For most bridges without grade separation: S002 46260.dgn
 - For bridges with Left (L) or right (R) structures: S080 18181 L.dgn
 - For twin structures included in the same set of plans: S080 20100 LR.dgn

This convention ensures proper organization and consistency in managing files for 2D bridge projects.

2.6.2—File Naming Convention For 3D Plans

As of this publication, the final format for 3D plans is still under development. The following file naming convention serves as a preliminary guideline and may be subject to change. For 3D projects, multiple files shall be used. The file name shall begin with the structure number, followed by a location descriptor and a file type descriptor, as shown below:

- (Structure Number) (Location Descriptor) (File Type Descriptor).dgn

Some examples follow:

- Design Model File (OBM)
 - Example: S002 20100 Design.dgn
 - This is the primary source file and should only be modified using tools in the “OpenBridge Modeler” ribbon.
 - Restrictions: Do not add extra lines or solids.
 - Storage Location: Bridge root folder.
- Preliminary File (OBM)
 - Example: S002 20100 Prelim.dgn
 - This is an edited copy or reference of the Model file, with additional lines and solids for preliminary plans such as TS&L or concept plans.
 - Usage: 2D views can be cut and saved in this file.
 - Sheet Models for TS&Ls or Concept plans will reside in this file.
 - Storage Location: Bridge/Preliminary/Model folder.

- 3D Plan File (OBM)
 - Example: S002 20100 Plan.dgn
 - An edited copy or reference of the Model file, used to develop the full 3D model for use in Plans and Rebar files.
 - Storage Location: Bridge/Final/Model folder.
- Rebar File (OBM)
 - Example: S002 20100 Rebar.dgn
 - An edited copy or reference of the Working file with only rebar added.
 - Storage Location: Bridge/Final/Model folder.
- Plan File (OBM)
 - Example: S002 20100 Sheets.dgn
 - A container file that references both the “Working” and “Rebar” files.
 - Usage: 2D views cut and saved as sheet models in this file for PDF printing.
 - Storage Location: Bridge/Final/Plans folder.

Additional Notes

- Live Nesting Required: This system requires “LIVE NESTING” of reference files.
- Twin Structures: If preparing plans for a twin structure, append L, R, or LR after the structure number and before the file type descriptor.
 - Example: S080 20100 LR Model.dgn

2.7—MODEL NAMING

CAD users may define model names in a format that best suits their needs; however, it is recommended to place the sheet number before the description. The description shall align with the sheet description on the plan sheet. Refer to Section 4.2 for the recommended drawing order. Proper organization of models enhances the efficiency of the print organizer and overall sheet management.

An example is listed below:

```

Default      (This is the model for full size plans)
Title        (This is the model for the title Block information)
001 GENERAL NOTES, QUANTITIES, AND INDEX
002 BRIDGE PLAN AND ELEVATION
003 CONSTRUCTION PHASING
004 COORDINATES
  
```

The number placed in front of the model description will determine the print order.

2.8—PRINTED FILES

2.8.1—PDF File Format

NDOT only accepts final plans in PDF format. To ensure consistency, all PDFs must be submitted following the guidelines outlined in the PDF File Format section.

All 2D PDF plan sheets must be in Architectural Drawing Size D (24" x 36"), with dimensions to the outside borders measuring 22" x 34".

2.8.2—Printing With The Organizer

The following information describes the batch printing process in MicroStation when using the print organizer.

Open a MicroStation or OpenBridge Modeler file. In the left top corner of the file, Select “File”

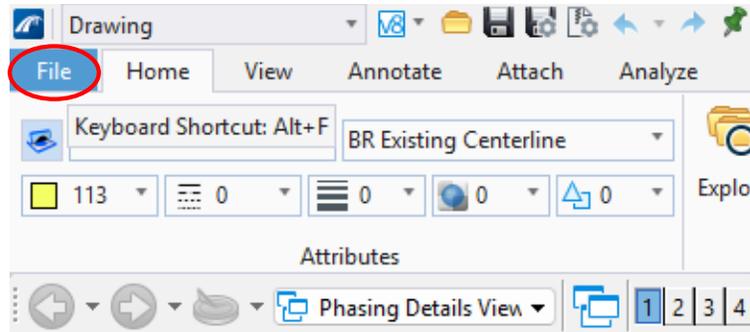


Figure 2.5— Finding The Print Organizer

Select “Print” and “Print Organizer”.

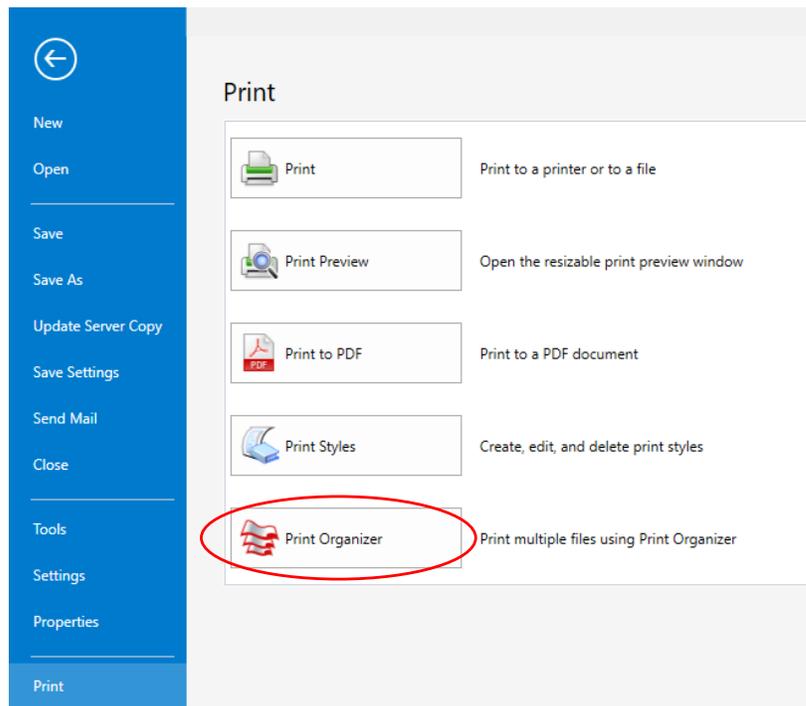


Figure 2.6— Opening The Print Organizer

Select "Add files to set".

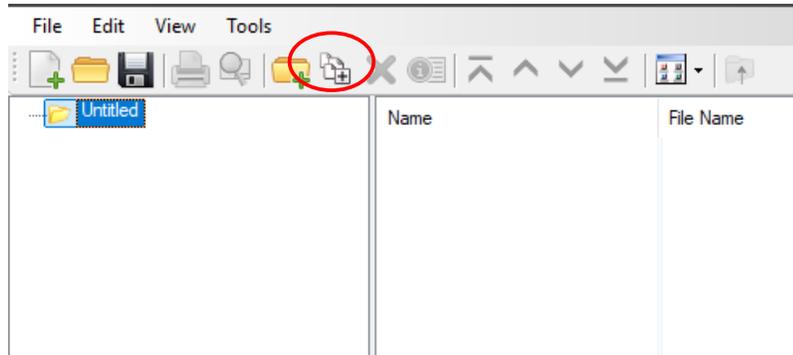


Figure 2.7– Add Files to Set

Select "Add"

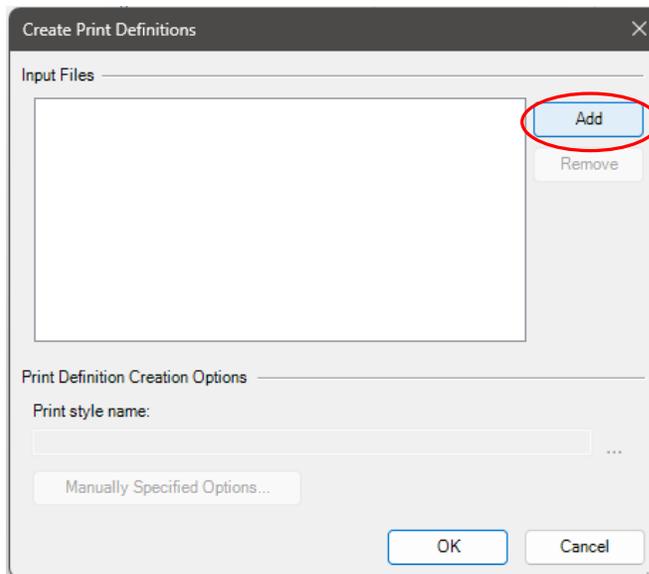


Figure 2.8– Add Files

Select the file you want to print. After the file(s) has been selected, press "OK"

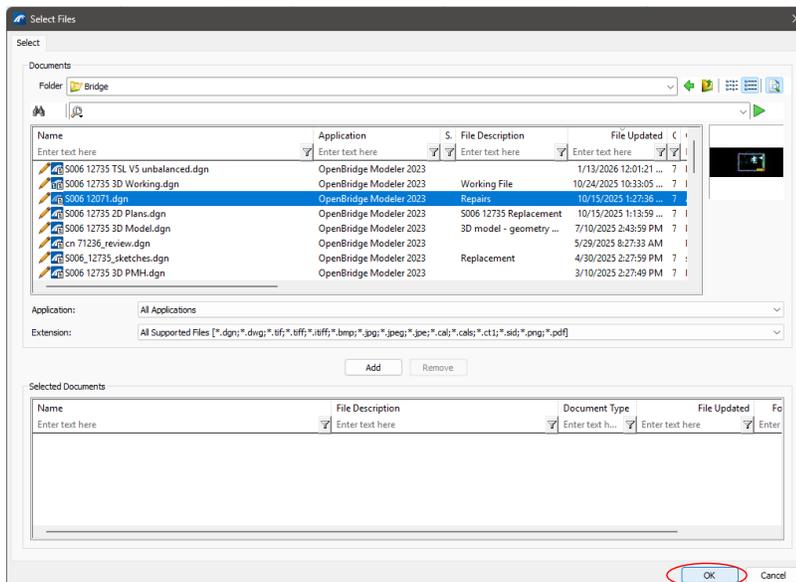


Figure 2.9– Select Files to Print

Select the three dots next to the print style name.

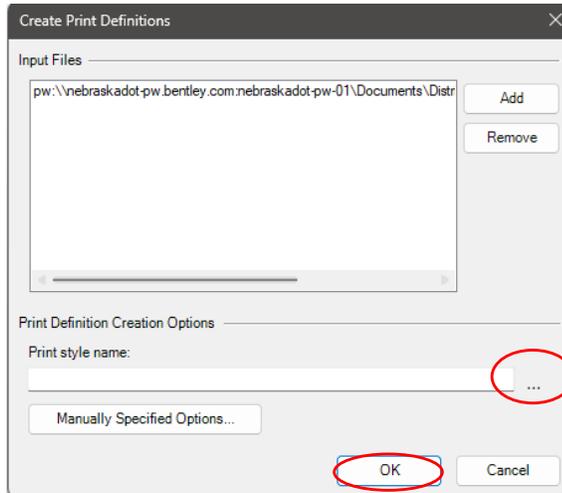


Figure 2.10– Print Definitions

Select “NDOT Bridge Design D Size”, then press “OK”.The Create Print Definitions menu will return. Press “OK”.

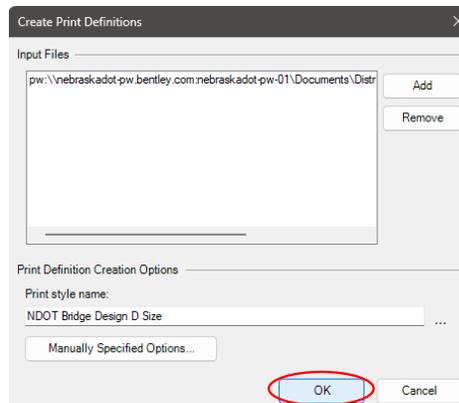


Figure 2.11– Print Definitions

Print Organizer will process the models of the selected file and create a list of printable sheets. The sheets may need organized if they are out of order. Some sheets may need to be deleted if they are not part of the Final PDF set.

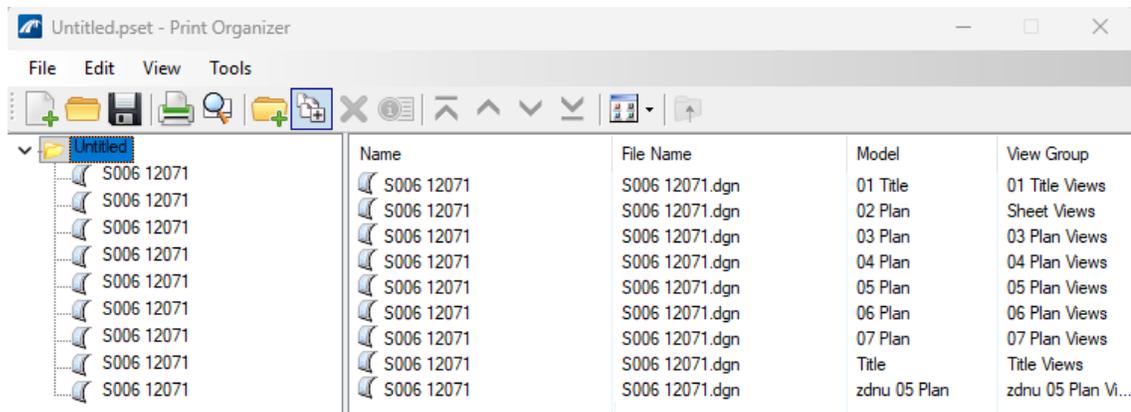


Figure 2.12– Print List

To delete an unneeded sheet, click on the sheet or sheets that need deleted and click the red X.

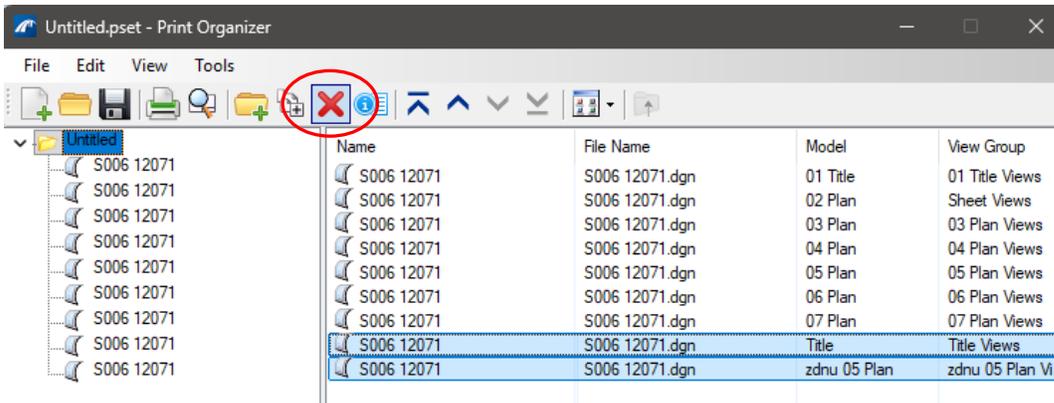


Figure 2.13— Deleting Sheets That Are Not Needed

If the sheets are out of order, select the sheet you want to move, and click the desired arrow to reorganize the sheet order.

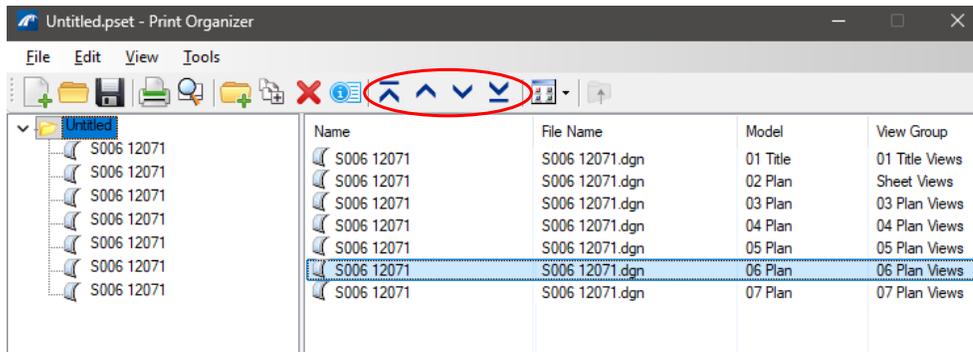


Figure 2.14— Organizing Sheets

When you have the sheets in the order you want, select the printer icon.

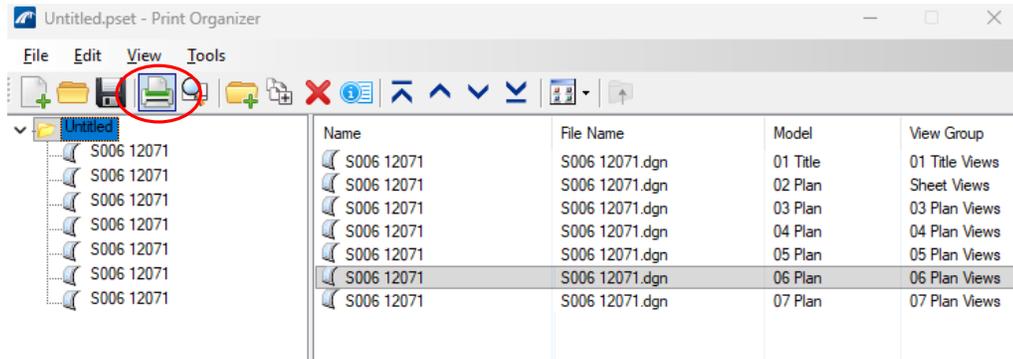


Figure 2.15— Print

The print dialog will appear. Select the three dots next to the Destination box, choose the folder for the print file, create a name for the print file.

NOTE: If needed, change the submittal option to Submit as: Single Print Job using the dropdown menu. This will combine all the separate sheets into one .pdf file. If it is set to Submit as: Separate Print Jobs, each sheet will be saved as its own .pdf, and you will need to combine them manually afterward.

Select “Open print file after creation”, if you want the file to open automatically.

After selecting OK, your PDF plan set will be created.

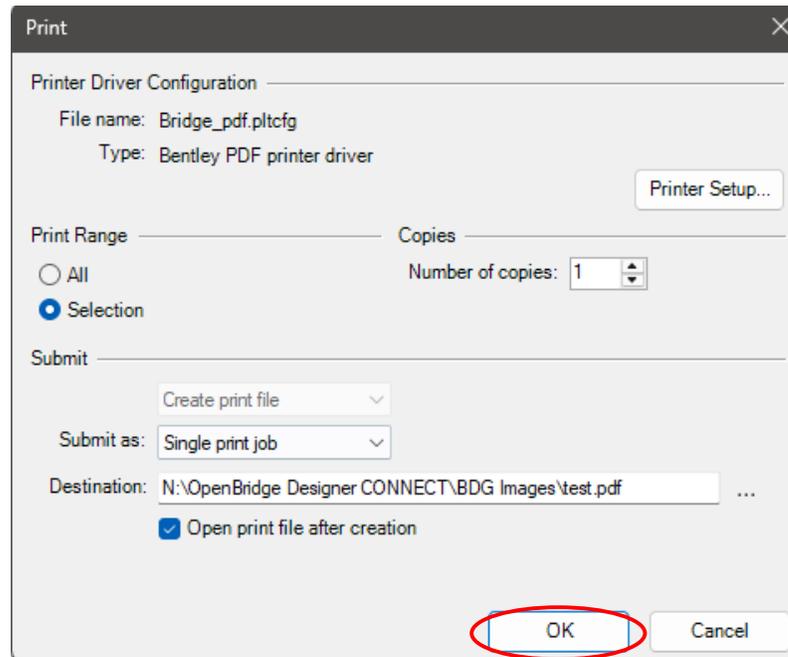


Figure 2.16— PDF Setup and Save Location

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Chapter 3 — General Detailing Guidance

3.1—INTRODUCTION

This chapter summarizes Bridge Division's general detailing guidance. This detailing guide is an essential tool for achieving clarity, precision, and uniformity in technical drawings, ultimately supporting the successful execution of projects.

3.2—GENERAL

3.2.1—Drawing Orientation

Orient all details in the plans consistently, with all views looking up-station (upstation = ahead station), except for Abutment 1, which shall be drawn looking down-station (downstation = back station). The drawings will typically include a top view, a front view, and a right-side view or section. Additional sections may be included as needed for clarity and cross-referenced accordingly.

Arrange views in a way that avoids overcrowding or disorganized placement on the drawing. Do not use an enlarged scale to fill space on a sheet.

When placing an elevation view below the corresponding plan view, orient the plan normally to the elevation view to facilitate orthographic projection. This practice is commonly seen in abutment, pier, and wing wall sheets. To ensure legibility, avoid crossing dimension lines, leaders, or overlapping elements.

3.2.2—Detail Layout

Maintaining adequate spacing between different details creates a clean and professional appearance while enhancing the clarity of bridge plans. Proper spacing helps to prevent overcrowding of information, making it easier for reviewers and stakeholders to interpret the plans accurately and efficiently. This practice not only reflects attention to detail but also ensures that critical elements of the design are presented clearly and effectively.

As a general guideline, maintain approximately 1" of space between sections and/or details, and 1/2" from the sheet margin. While this clearance can be reduced to make better use of the sheet, always prioritize clarity of the plan over minimizing the number of sheets.

3.2.3—Drawing Scales

Using accepted scales maintain proportional relationships between the actual dimensions and the representation on the drawing, ensuring measurements are precise and reliable. Standard scales are compatible with commonly used measuring tools, such as scales, making it straightforward for professionals to extract accurate dimensions from the drawings.

Selecting the appropriate scale is crucial for maintaining clarity, precision, and ensuring the content fits appropriately on the page.

Draw bridge plan details in full size in the default MicroStation model. Reference and scale them into a model with the NDOT border.

- Preferred Scales:
 - Architectural scales are generally preferred for most bridge plan sheets, as they provide the appropriate level of detail and fit for typical bridge designs.
 - Engineering scales may be used, when necessary, particularly if the plan or detail requires better fit or legibility, such as for larger or more complex drawings.
- Scale Requirement:
 - If the detail is to scale, it is not necessary to explicitly provide a scale. The detail will naturally represent the proportions accurately.
 - If the designer chooses to add a scale for clarity or reference, present the scale as shown in [Figure 3.2](#) and [Figure 3.3](#) (these figures illustrate the correct format for scale notation).
- No Scale Condition:
 - Only in special cases should the term Not to Scale be placed below the title of the detail. These situations include standard drawings that are meant to apply to large number of bridge plans, or cases where it is appropriate to exaggerate either the X or Y scale of a drawing for clarity

- If the detail is not drawn to scale, the phrase "Not to Scale" must be clearly placed below the title of the detail. This ensures there is no confusion regarding the accuracy of the drawing's dimensions.
- Refer to Figure 3.4 for the correct placement of the "Not to Scale" label.

By following these guidelines, you ensure that all details are presented in a way that maintains both clarity and proper technical communication, especially in complex plans or drawings.

PLAN SHEET SCALES			
Architectural		Engineering	
Detail Scale	Master : Ref.	Detail Scale	Master : Ref.
Full Size 1:1	1 : 1	1" = 5'-0"	1 : 60
6" = 1'-0"	1 : 2	1" = 10'-0"	1 : 120
3" = 1'-0"	1 : 4	1" = 20'-0"	1 : 240
1 1/2" = 1'-0"	1 : 8	1" = 30'-0"	1 : 360
1" = 1'-0"	1 : 12	1" = 40'-0"	1 : 480
3/4" = 1'-0"	1 : 16	1" = 50'-0"	1 : 600
1/2" = 1'-0"	1 : 24	1" = 60'-0"	1 : 720
3/8" = 1'-0"	1 : 32	1" = 100'-0"	1 : 1200
1/4" = 1'-0"	1 : 48	1" = 200'-0"	1 : 2400
3/16" = 1'-0"	1 : 64		
1/8" = 1'-0"	1 : 96		
1/16" = 1'-0"	1 : 192		
1/32" = 1'-0"	1 : 384		

Figure 3.1— NDOT Bridge Division Scales

3.2.4—Scale Labeling

ELEVATION OF TURNDOWN AT ABUTMENT NO. 2 WESTBOUND

Scale: 1/2" = 1'-0"

*Eastbound Abutment 1 is Similar by Rotation.
Shown Perpendicular to C of Roadway*

Figure 3.2— Architectural Scale

GENERAL PLAN

Scale: 1" = 30'-0"

Figure 3.3— Engineering Scale

ELEVATION OF CHAIN LINK FENCE

Not to Scale

Figure 3.4— Not to Scale

3.3—BRIDGE BASE SHEETS

NDOT uses Base Sheets to improve efficiency by saving frequently reproduced sheets that can be quickly incorporated into the plans.

Use the Base Sheets as provided in the base sheet folder on ProjectWise. Modify these files only when necessary to accommodate a specific situation.

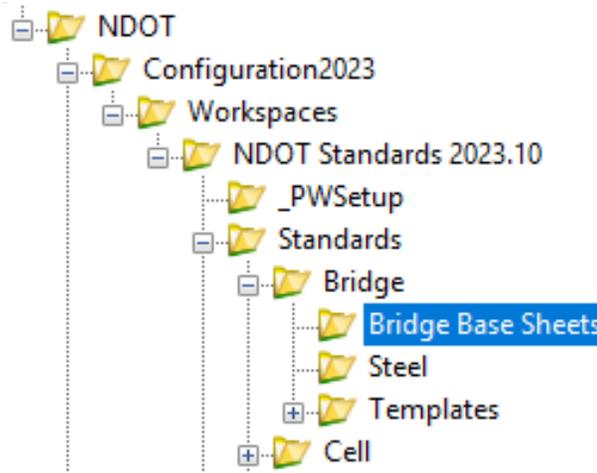


Figure 3.5— ProjectWise Base Sheet Folder

PDF examples of the Base Sheets are also available as shown in Figure 3.6.

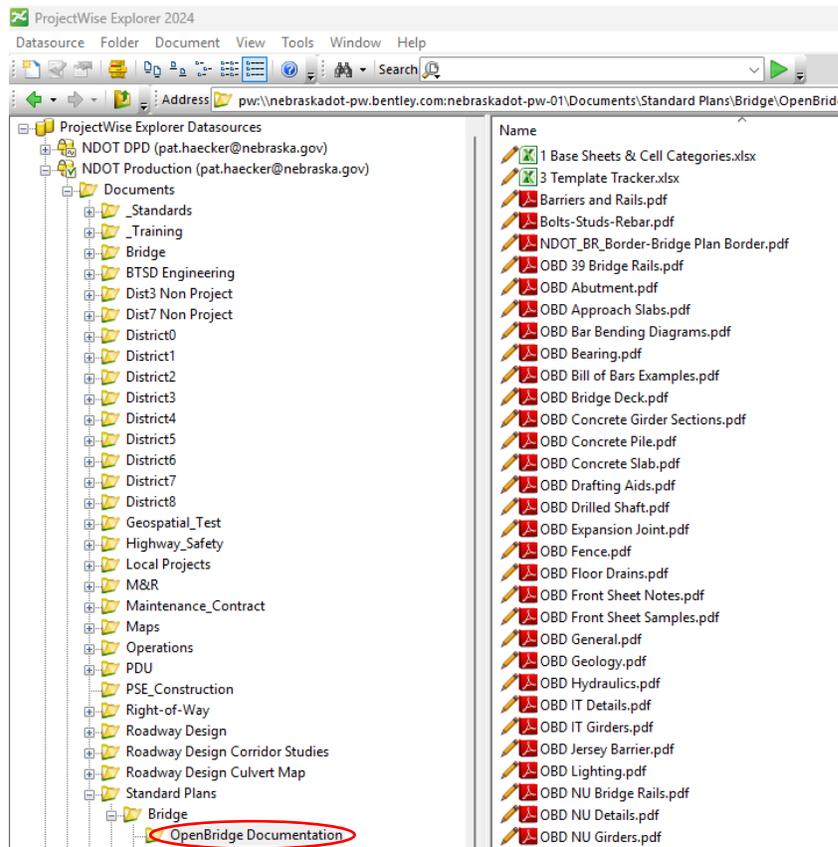


Figure 3.6— Base Sheet PDFs

3.4—BRIDGE CELLS

NDOT uses cells to improve efficiency by saving frequently reproduced details that can be quickly placed on the plans. The use of cells from the NDOT library also enhances consistency across the plans. When contractors encounter consistent elements, they are less likely to misinterpret the drawings, ensuring smoother construction and reducing the potential for errors.

Use the cells as provided in the bridge cell libraries. Modify cells only when necessary to accommodate a specific situation. Avoid altering the cell's scale.

The NDOT Bridge cell libraries are located on ProjectWise.

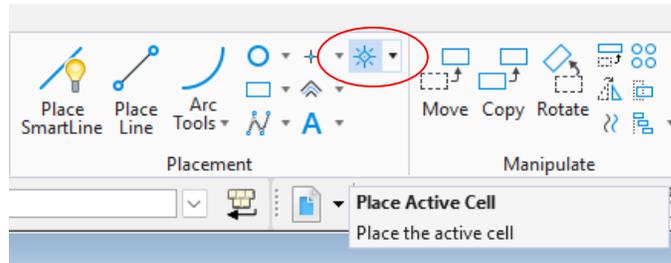


Figure 3.7— Place Active Cell

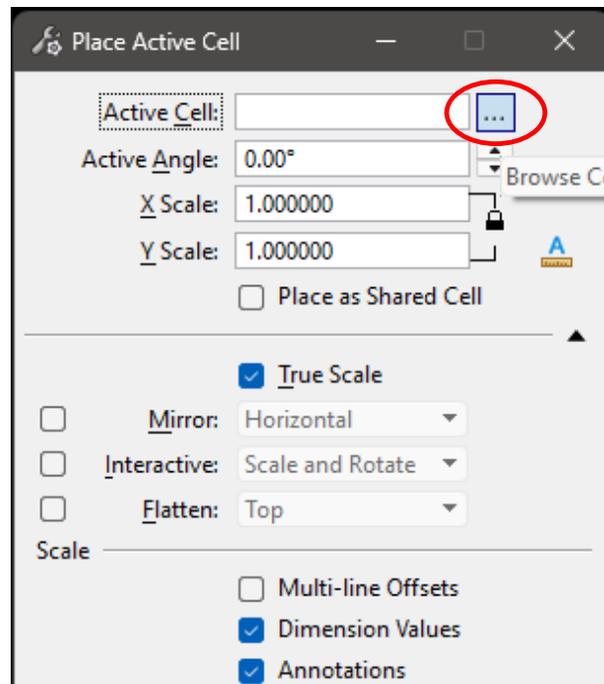


Figure 3.8— Browse Cell Libraries

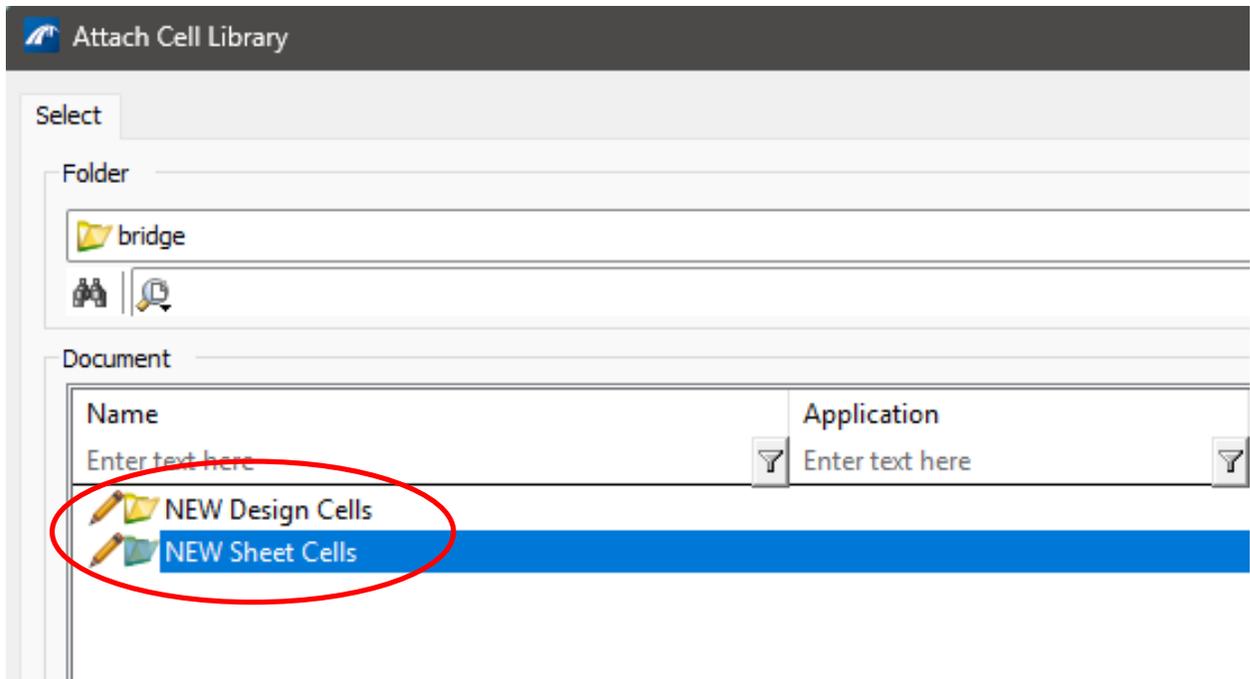


Figure 3.9— Attach Cell Library

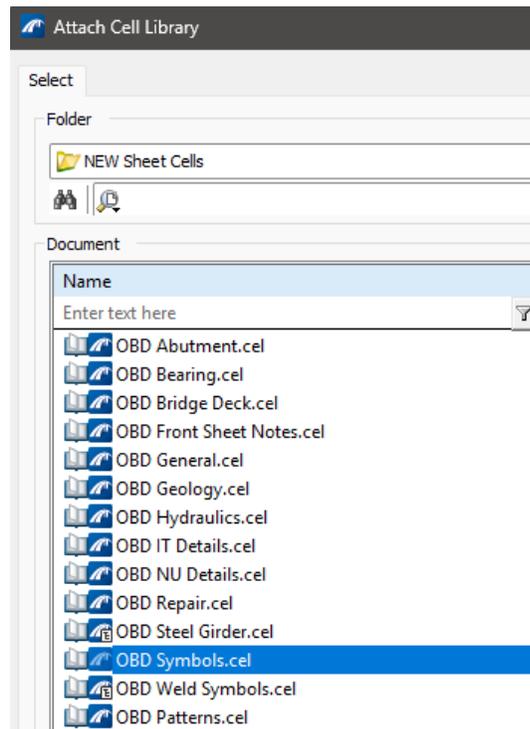


Figure 3.10— Bridge Cell Library

3.4.1—Approved Plan Symbols

Common Bridge Division symbols are available on ProjectWise in the OBD Symbols cell library.

EXAMPLES

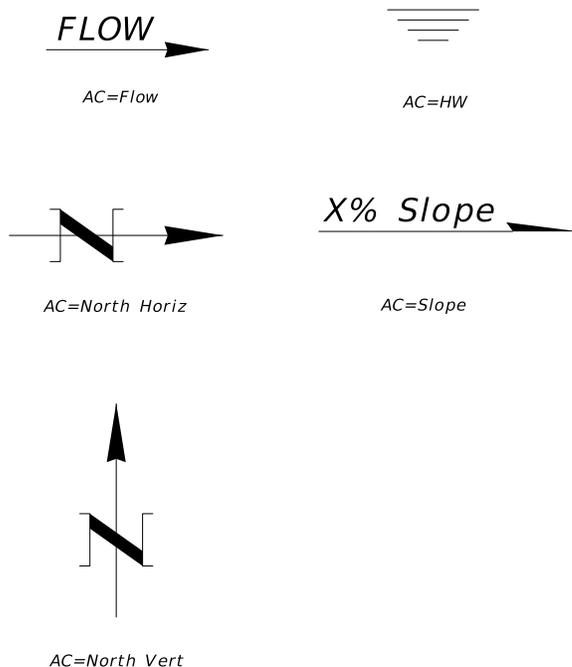


Figure 3.11— Examples of Approved Symbols

3.5—LINES

3.5.1—Line Styles

Using precise line styles, weights, and colors is crucial to clearly distinguish between different elements depicted in various views.

NDOT has predefined the lines used for specific items. All line styles, line weights, and colors used in bridge plans are defined in the Level Manager.

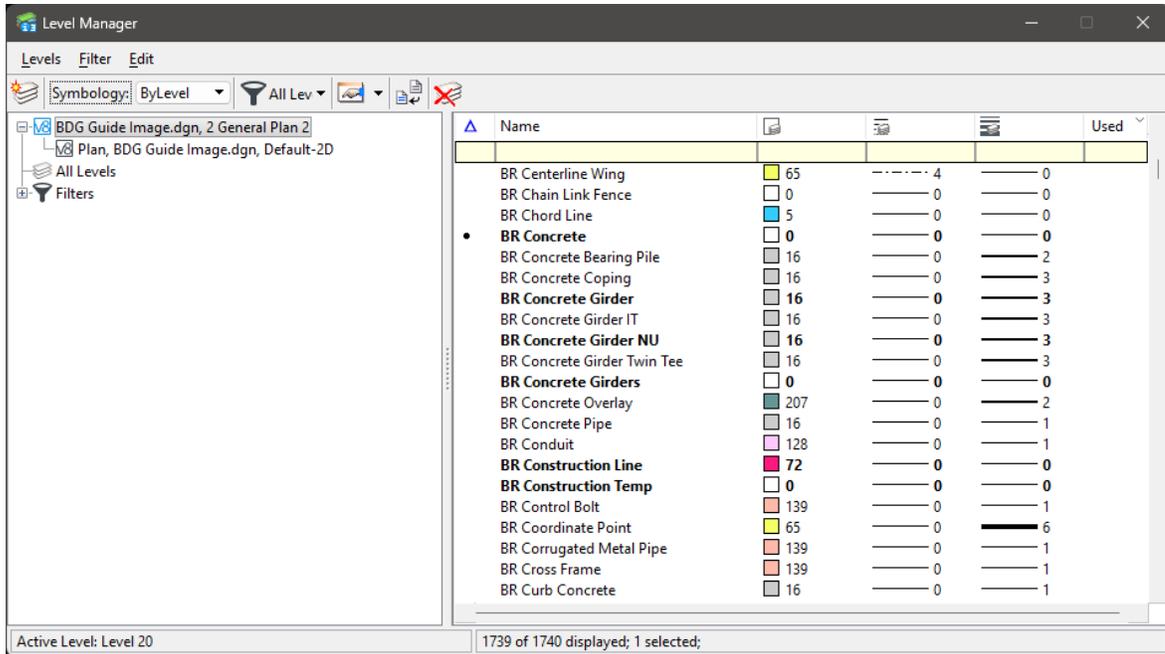


Figure 3.12– Line Attributes by Level

CAD users can use the Element Templates to select levels by identifying the material the lines represent.

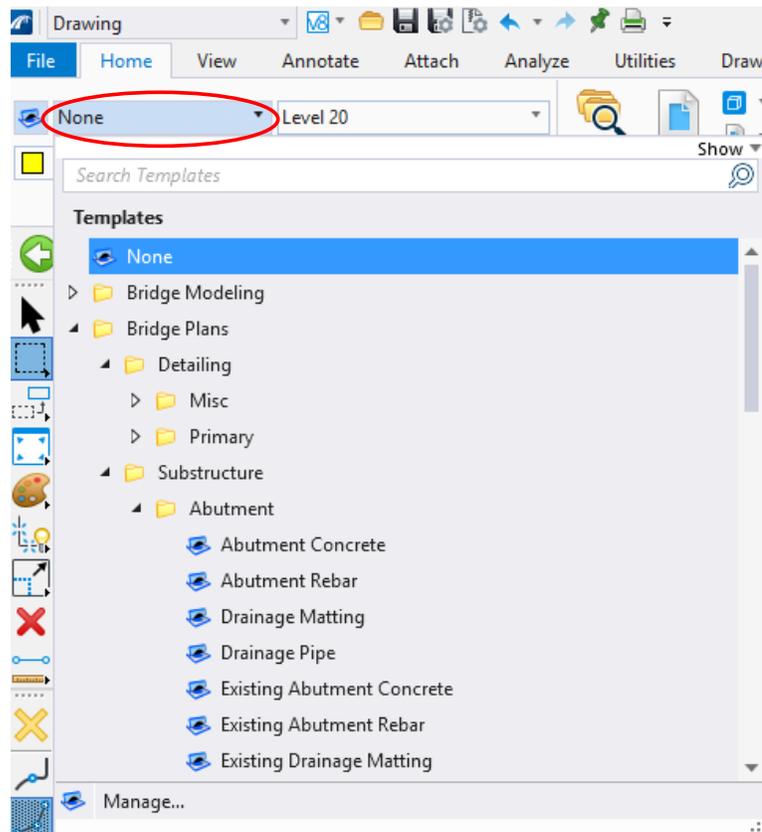


Figure 3.13– Element Templates

Search through the folders or start typing the item you're working on.

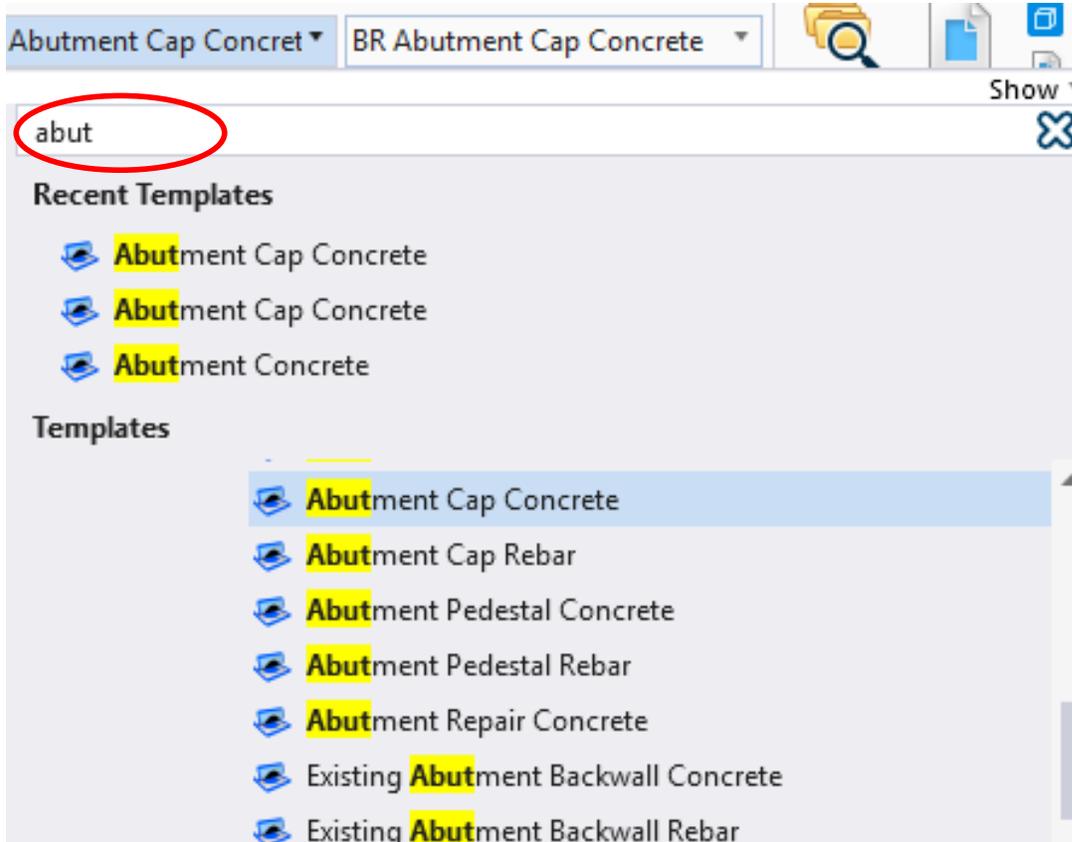


Figure 3.14— Element Template Selection

After selecting the template, the attributes will be set as shown.

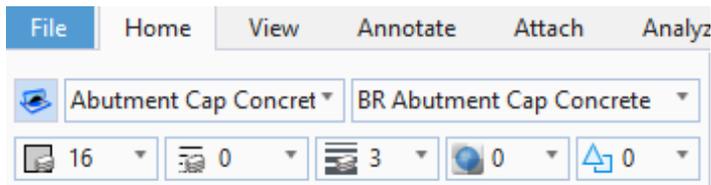


Figure 3.15— Element Attributes

When modifying attributes to use the level styles, ensure the attributes toolbox is configured as shown below.

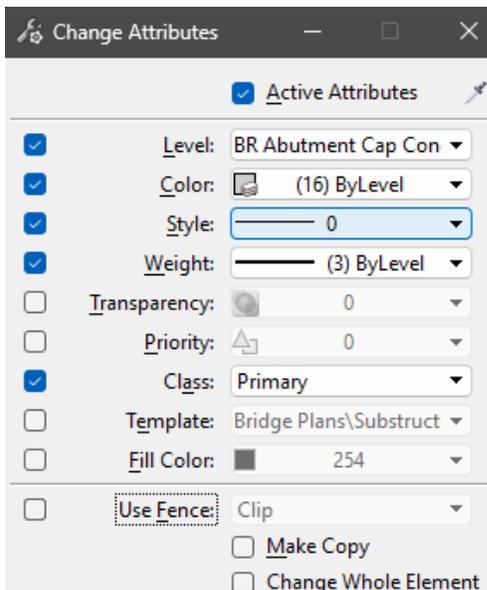


Figure 3.16— Change Attributes

If the line styles do not load properly, open the level manager, and update the levels from the library.

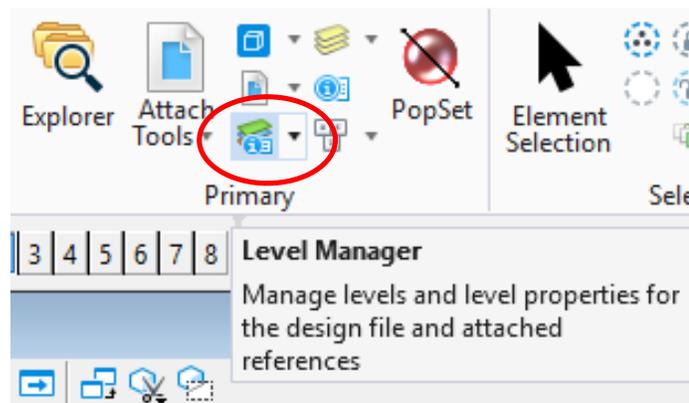


Figure 3.17— Accessing the Level Manager

If your levels are not applying the correct attributes, you might need to update levels from the library as shown below. If you need custom levels for your project (usually only 3D projects) you can create them in the manager.

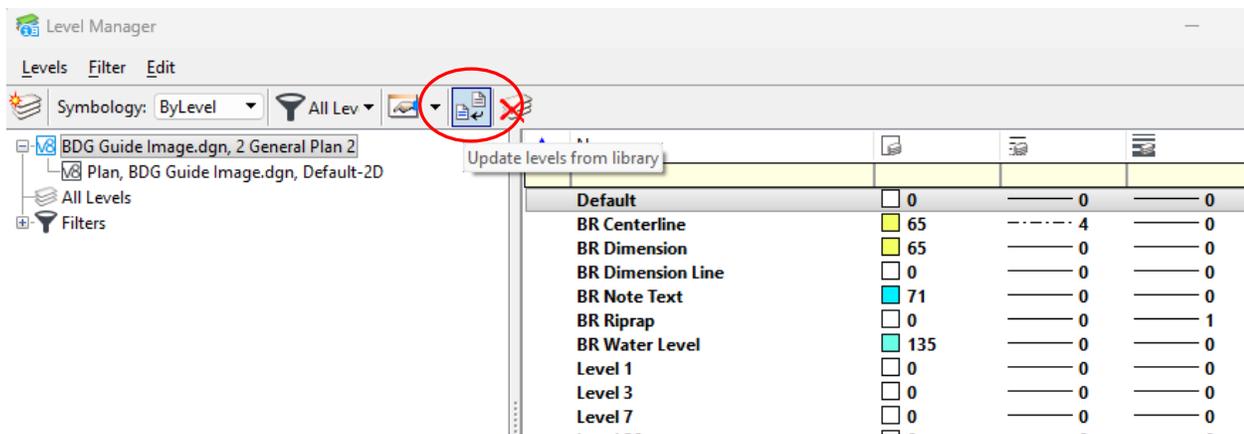


Figure 3.18— Level Manager

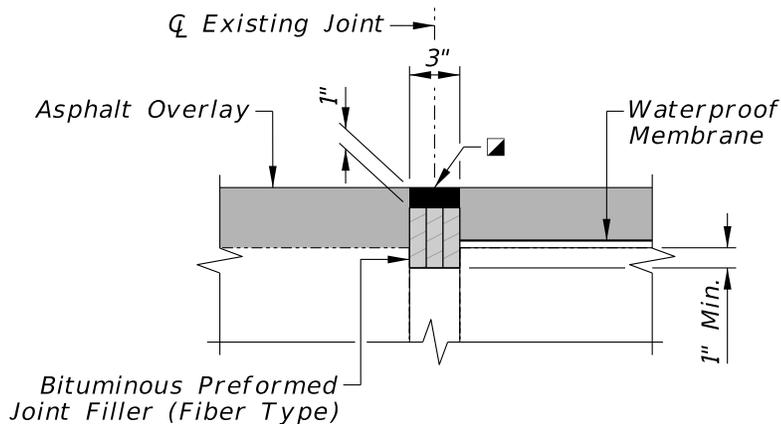
3.5.2—Break Lines

Break lines are used in bridge plans to indicate that only a portion of a detail or object is being shown. The purpose is to avoid cluttering the plan while still providing sufficient information about the object.

Here are the guidelines for using break lines:

- Placement:
 - Extend the break lines 1/8" past the object being broken. This ensures clarity and helps to show that the break is intentional.
- Cell to Use:
 - Use AC=Break in OBD Symbols.cel for break lines. This cell is designed to meet the required size and style for break lines. See Figure 3.19 to see this cell in use.
- Appearance:
 - Ensure that the break lines are clearly visible and appropriately positioned so that they are easy to identify, both in the plan and in the context of the detail being represented.

This ensures that the break is easily recognized without interfering with the rest of the details in the plan.



SAW & SEAL JOINT AT END OF PAVING

Figure 3.19— Break Line Example

3.5.3—Concrete Break Back Lines

Concrete break back lines are used when there is a phased or partial removal of existing concrete. Use OBD Symbols library AC=BrBkLn as shown.

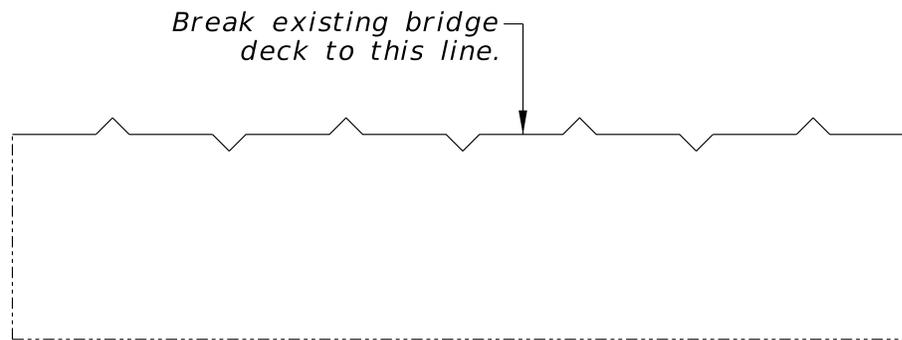


Figure 3.20— Concrete Break Back Example

3.6— SECTION CALLOUTS

Section callouts are symbols used in engineering plans, to indicate where a cross-sectional view of an object or structure is depicted. These callouts help guide the viewer to specific details of the design that are shown in a separate section view.

3.6.1—Preferred Section Callouts

Use the Section callout tool as provided in MicroStation.

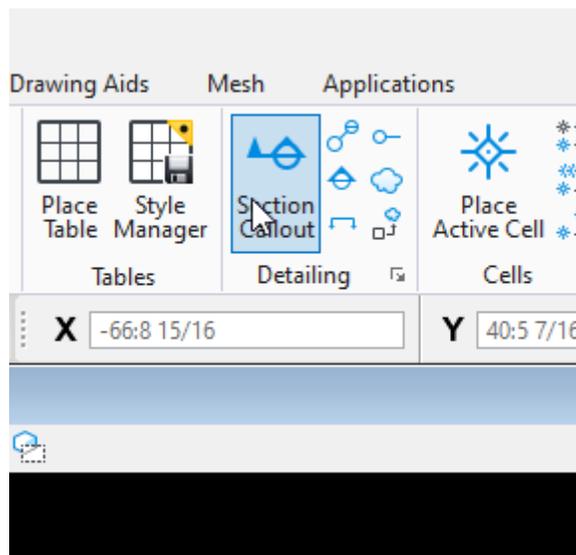


Figure 3.21— Section Callout Tool

Note: Do not repeat section labels in the plan set. Do NOT show Section A1 on any other sheet in the plan set unless it refers to the same section in a different view.

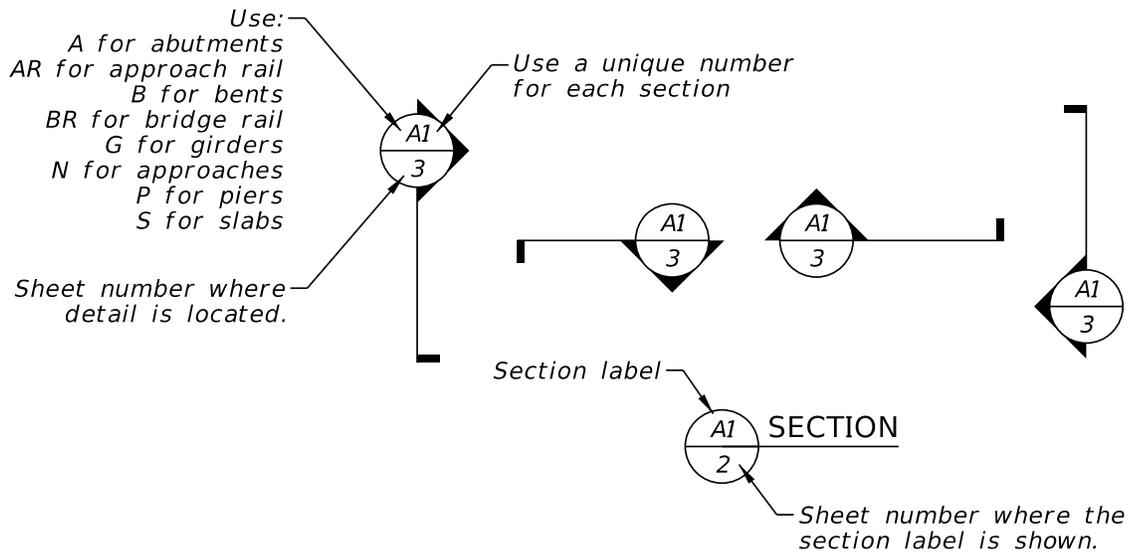


Figure 3.22— Preferred Section Symbol

3.7—SHADING AND AREA PATTERNING

The purpose of using patterns and shading in bridge plans is to visually distinguish different materials, components, or construction features, enhancing the clarity and comprehensibility of the drawings. Shading and patterns can also add a level of professionalism and aesthetics to the drawings, making them more visually appealing and easier to understand.

3.7.1—Shading

Select a transparency level that ensures the details of the item being shaded remain visible, while still providing enough contrast to distinguish between different items. Adjust the settings to maintain clarity while ensuring the highlighted items stand out.

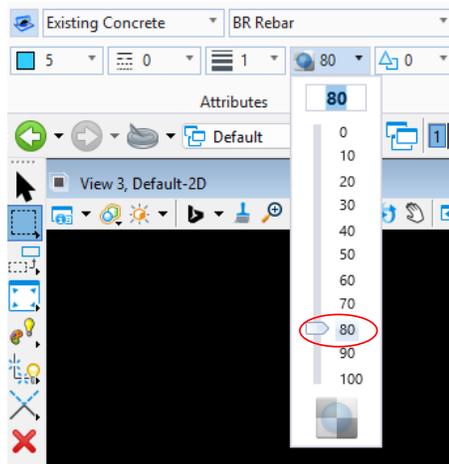


Figure 3.23— Setting Transparency

Place a block, circle, or shape using the placement tools as shown:

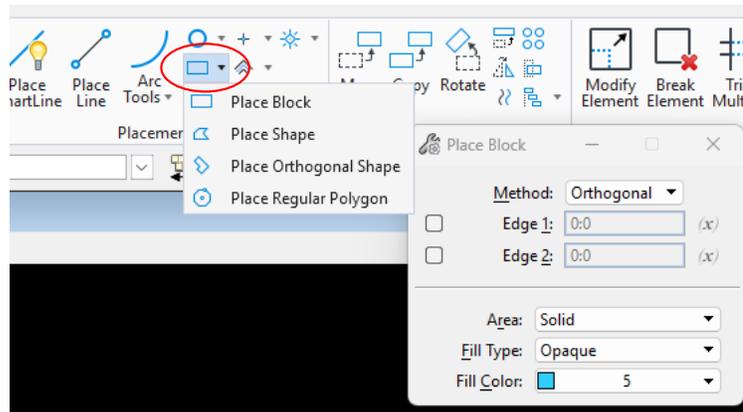


Figure 3.24— Placing a Shading Block

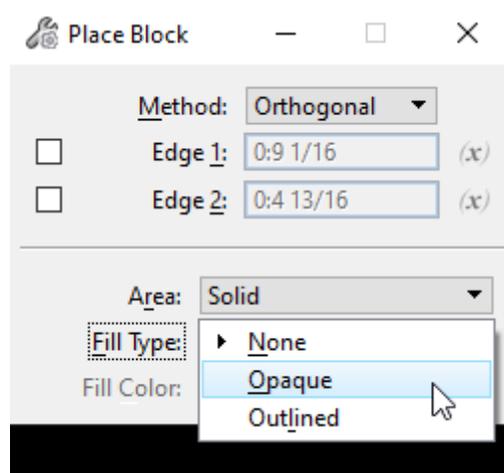


Figure 3.25— Shading

Use the following tools for irregular shapes needing shading.



Figure 3.26— Create Region

The flood tool will make a shaded shape in the area that needs shading.

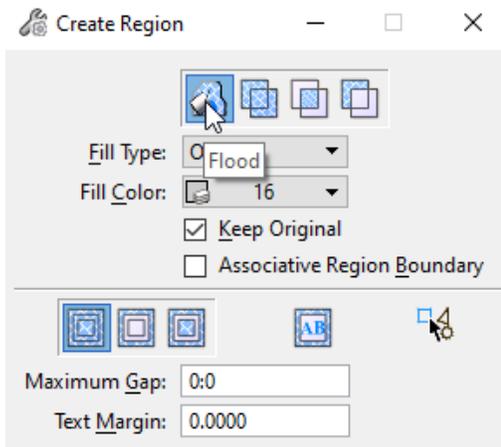


Figure 3.27— Creating a Shading Region

3.7.2—Area Patterning

The pattern tools can be accessed as shown below.

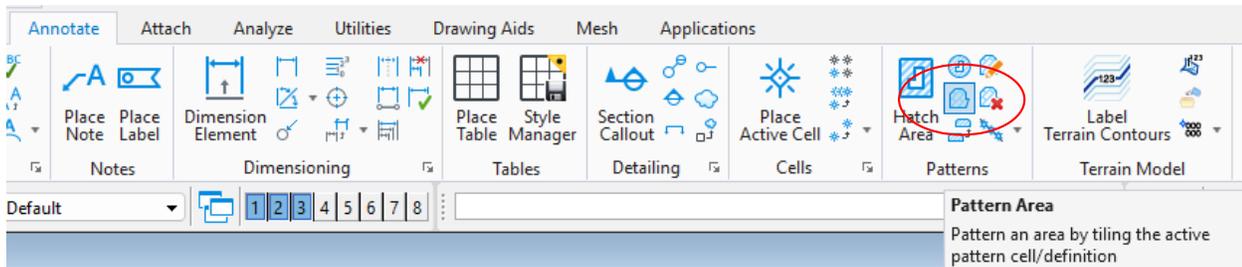


Figure 3.28— Pattern Tools

NDOT has predefined patterns that are found in the OBD Patterns.cel library.



Figure 3.29— Accessing the Libraries

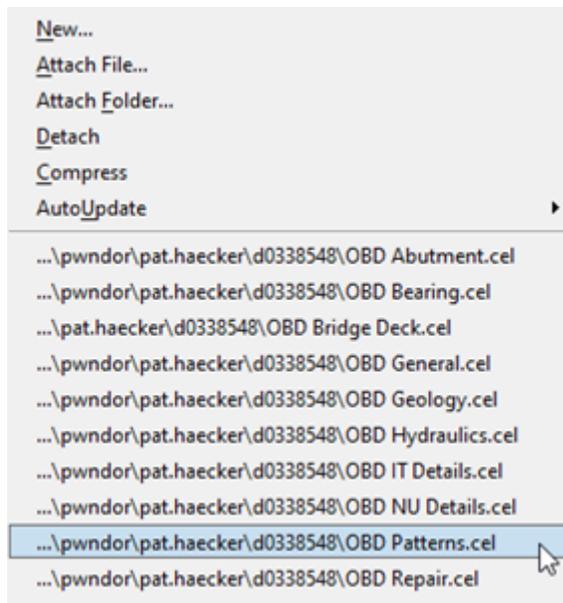


Figure 3.30— Select the Pattern Library

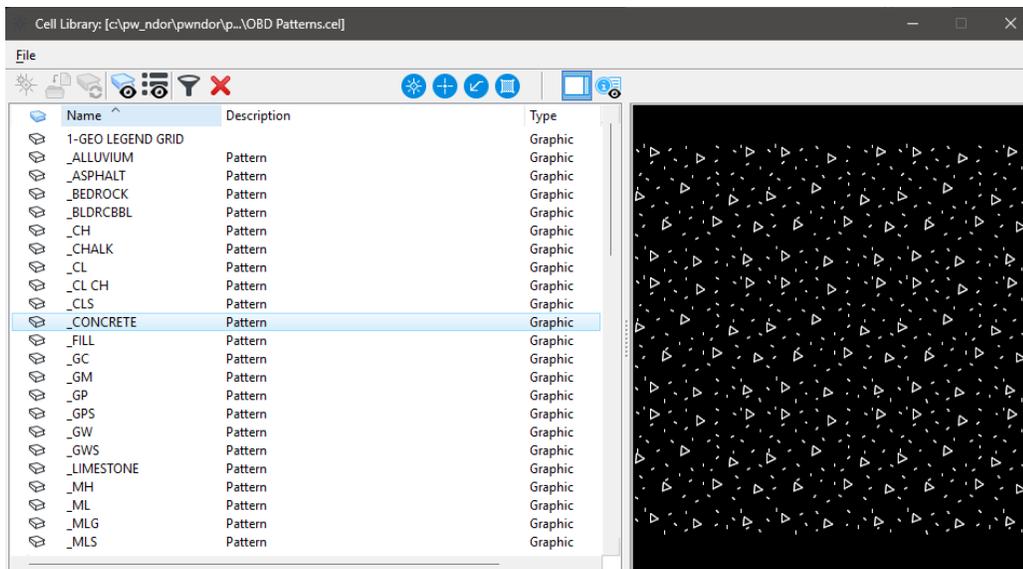


Figure 3.31— Pattern Cell Library

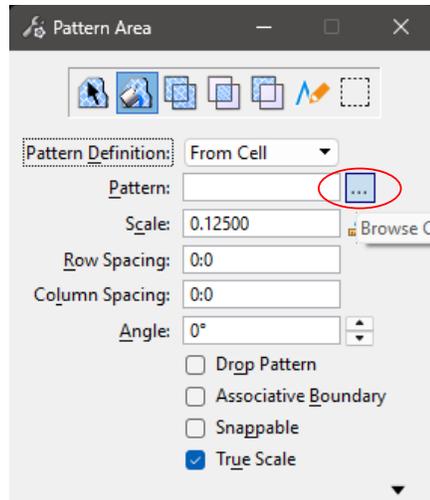


Figure 3.32— Pattern Area

3.8—CONNECTION DETAILING

3.8.1—Welded Connections

This section is devoted to detailing welded connections properly. If welds are not detailed correctly, then the intent of the Engineer is compromised, which could lead to construction problems or the loss of load carrying capacity of the structural member.

Detail welding symbols are shown in American Welding Society (AWS) Standard A2.4-2020 titled “Standard Symbols for Welding, Brazing and Nondestructive Examination.” More current versions of this publication shall be used if they become available. The following will be considered when using welding symbols:

- Dimensions and proportions of weld symbols are given in Appendix A of AWS A2.4.
- No inch designation is given with weld sizes, effective throats and depth of preparation. Angles are shown with the degree symbol.
- There are no curves in welding symbol leader lines.
- The perpendicular leg of the triangle is always drawn on the LEFT SIDE of the symbol, regardless of the weld itself.
- A Weld Symbol library is available on ProjectWise

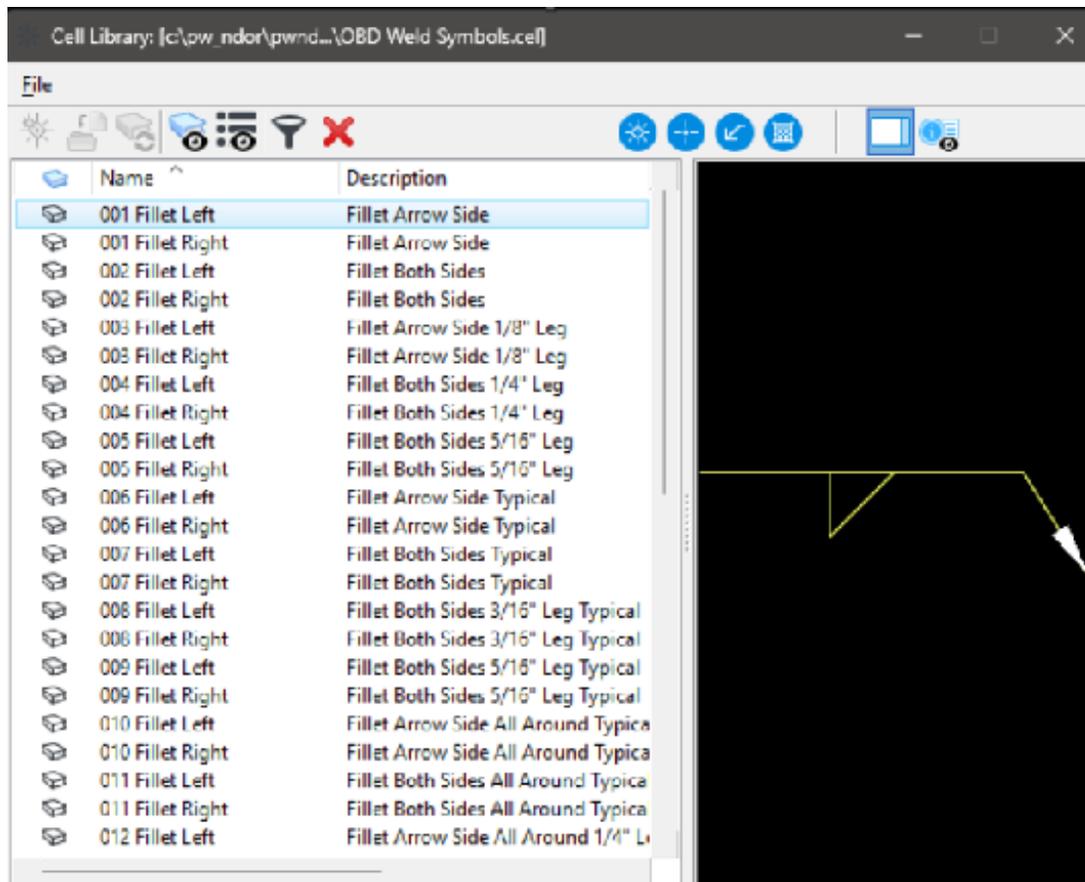


Figure 3.33— ProjectWise Weld Table.png

3.8.2—Bolted Connections

This section is devoted to steel bolted connections. Bolts are a common way to connect two steel members together. Detail bolts to ensure a proper fit as well as to maintain the structural integrity of the member. Adhere to the following guidelines when detailing steel structures with bolted connections:

- See the American Institute for Steel Construction (AISC) Manual of Steel Construction for dimensions of bolt heads and nuts.
- Detail hole size (standard, oversize, short slot, and long slot), Min and Max spacing, and minimum and maximum edge distances in accordance with the AASHTO LRFD Bridge Design Specifications for Highway Bridges.
- Verify entering and tightening clearances as required in AISC Manual of Steel Construction.

3.9—DIMENSIONS

In bridge construction, maintaining clear and consistent dimensions is essential for ensuring accuracy. The provided guidelines outline the proper methods for handling dimensions effectively.

3.9.1—Dimension Styles

Use the NDOT Bridge dimension styles for bridge plans.

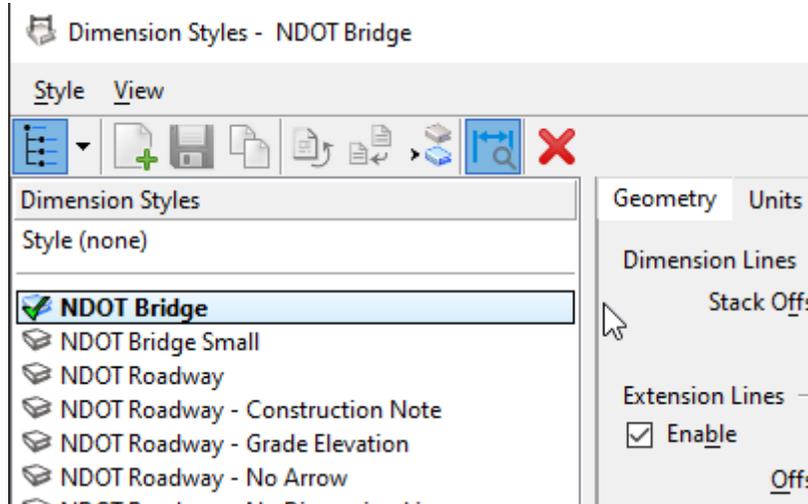


Figure 3.34— Dimension Styles

3.9.2—Accuracy

The degree of accuracy used on the drawings shall be as follows:

- Structural dimensions to the nearest 1/8th inch with the following exceptions:
 - Bearing device dimensions to the nearest 1/16th inch .
 - Girder dimensions to the nearest 1/16th inch

3.9.3—Fractions

When the dimension is less than 1", do NOT use a leading zero in front of the fractions. All dimensions greater than 1" will have the leading zero applied. See Figure 3.37.

To add or remove a leading zero, select the dimension styles dialog box.

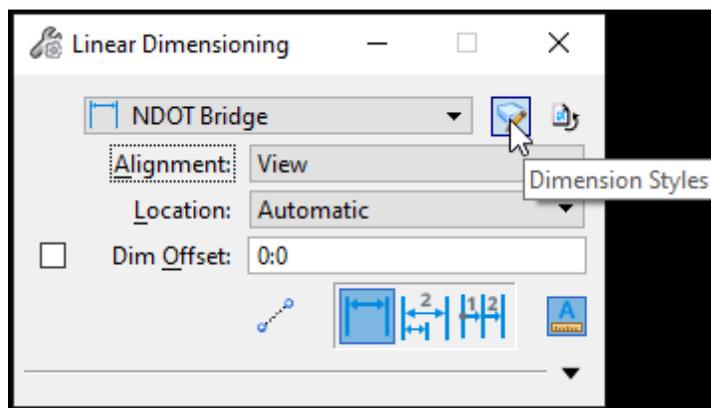


Figure 3.35— Changing the Leading Zero (part 1)

Check the leading zero box to add a "0", Uncheck the box to remove the leading "0".

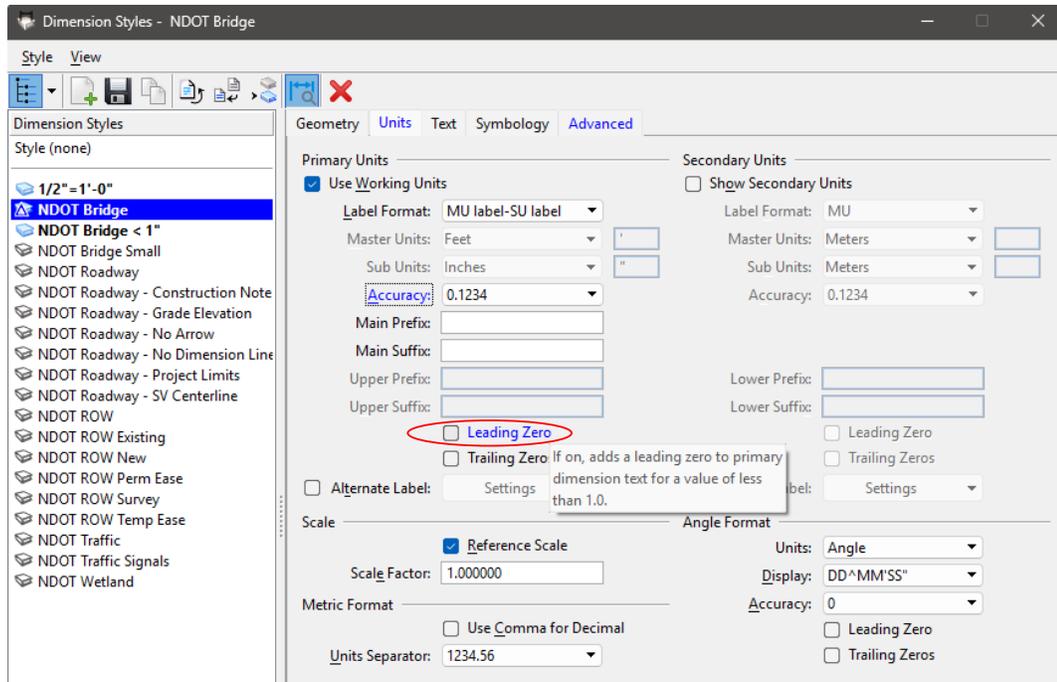


Figure 3.36— Changing the Leading Zero (part 2)

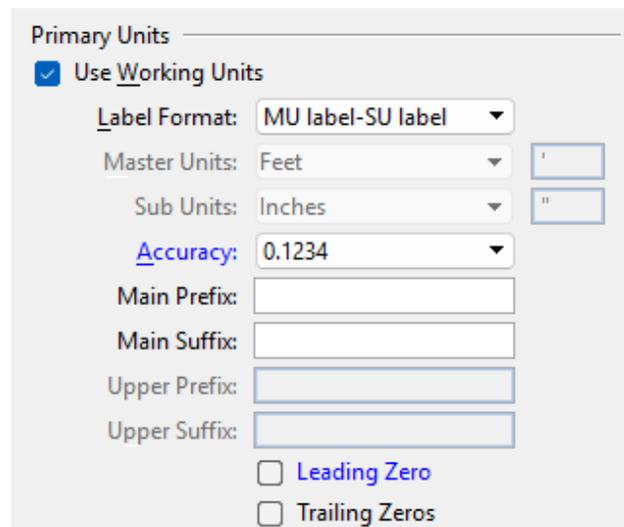


Figure 3.37— Changing the Leading Zero (part 3)

3.9.4—Angles

The format for angles is degrees, minutes, and seconds with the following structure:

- Angles with no degrees: 0°23'34"
- Angles with 1 to 9 minutes: 45°08'34"
- Angles with no minutes: 45°00'34"
- Angles with 1 to 9 seconds: 45°45'07"
- Angles with no seconds: 45°45'00" _____ 45°45' is acceptable.
- Angles with no minutes or seconds: 45°00'00" __45° is acceptable.

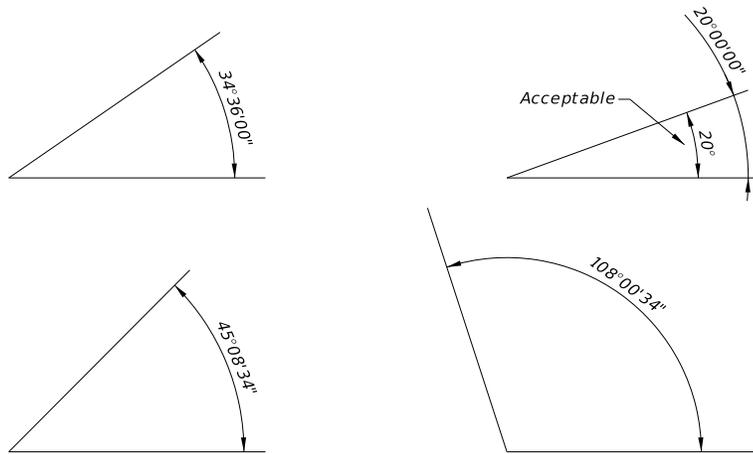


Figure 3.38— Dimensioning Typical Angles

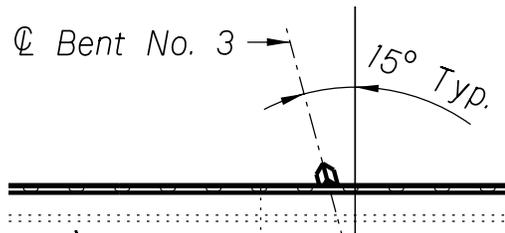


Figure 3.39— Dimensioning Bent Skew Angle

3.9.5—Radii

Radii may be detailed as shown below.

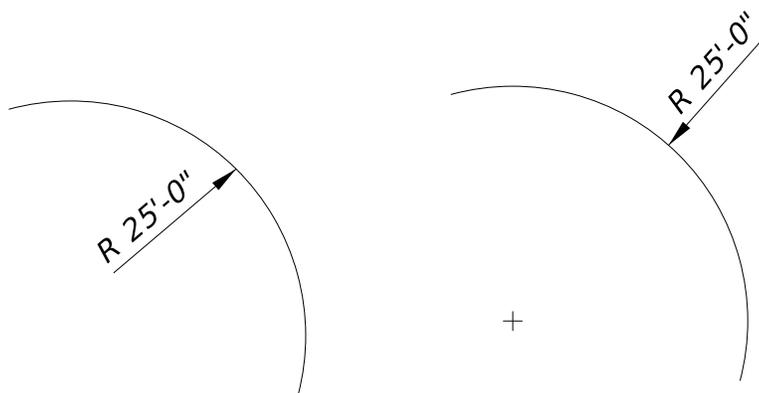


Figure 3.40— Dimensioning a Radius

3.9.6—Placement

- A dimension line includes the dimension above or beside the line and may have additional text either below the line or beside the dimension. NOTE: If the added text causes clutter along the dimension, use a text favorite symbol as shown in Figure 3.64 and move the text into a note block.
- Ensure the dimension line is no closer than $\frac{1}{2}$ " from the detail.
- Place additional Dimension Lines as follows:
 - Position additional dimension lines $\frac{3}{8}$ " from the previous dimension line if text is not placed below it.
 - Position additional dimension lines $\frac{1}{2}$ " from the previous dimension line if text is placed below it.
 - Leave $\frac{1}{8}$ " of space between text blocks if multiple lines of text are present between two-dimension lines.
- An Extension Line extends from the detail and past the dimension line.
 - Start the Extension Line $\frac{1}{16}$ " from the detail.
 - Extend the Extension Line $\frac{1}{8}$ " past the dimension line.

Use the Dimension Guide cell AC=Dimension Guide located in OBD Drafting Aids.cel library to assist in placing dimensions.

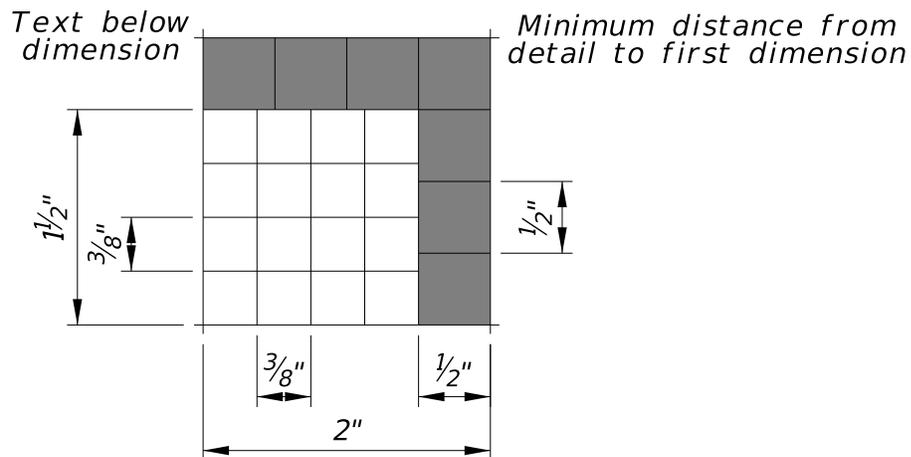


Figure 3.41— Dimension Guide Cell

Include the appropriate leading zeros, arrowhead placement, and follow the format shown below.

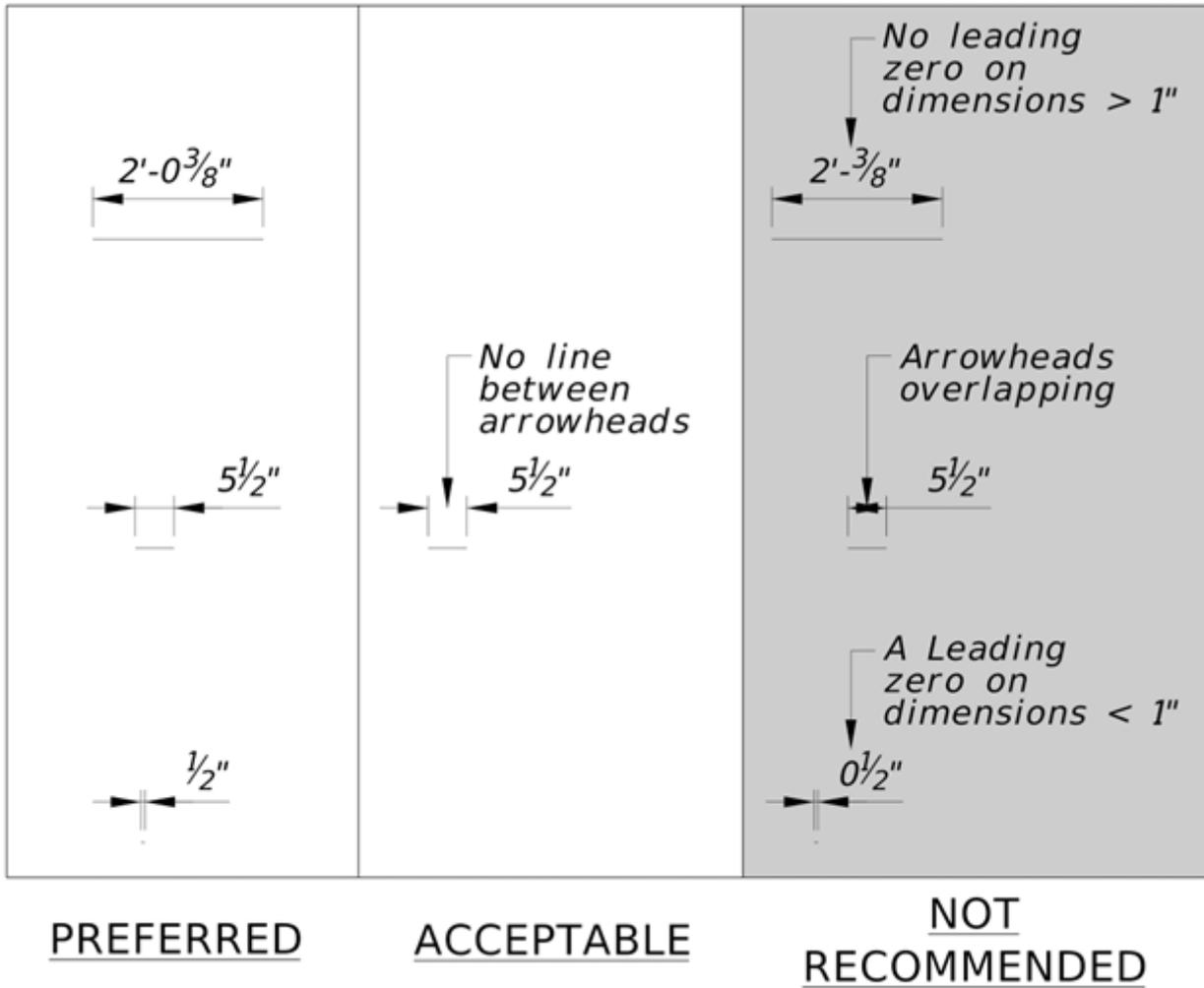


Figure 3.42– Dimension Format Examples

If an Extension Line crosses another dimension line, break the dimension lines where they intersect.

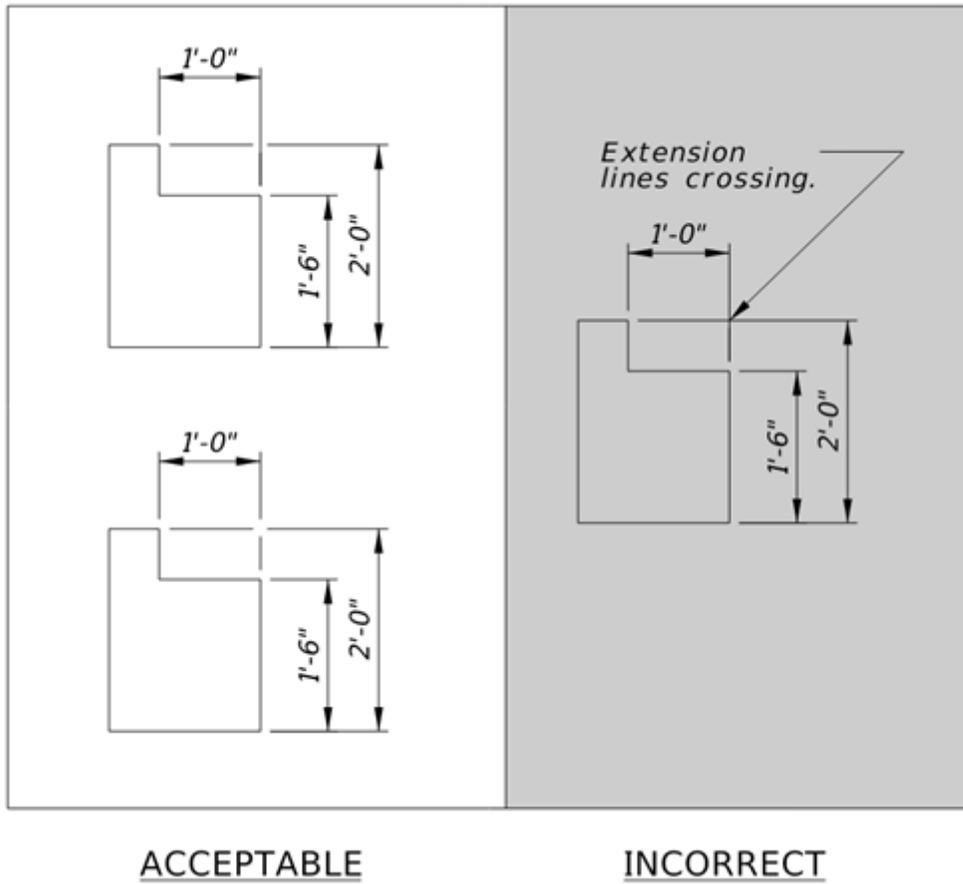


Figure 3.43– Crossing Extension Lines

There is a cell available to mask dimension lines at AC=Dim Mask In the OBD Symbol.cel library.

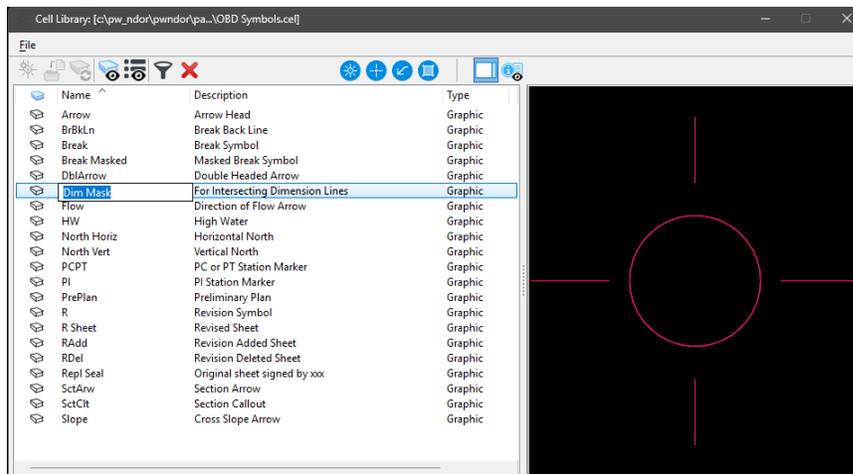


Figure 3.44– Masking tool

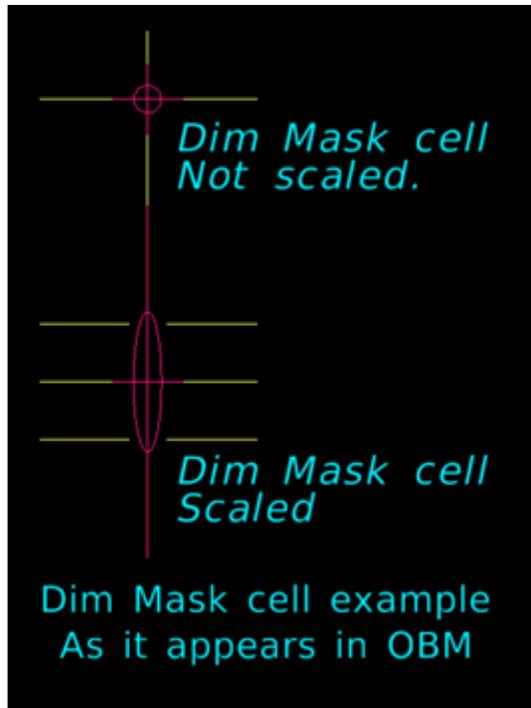


Figure 3.45— Detail Masking Cell Example

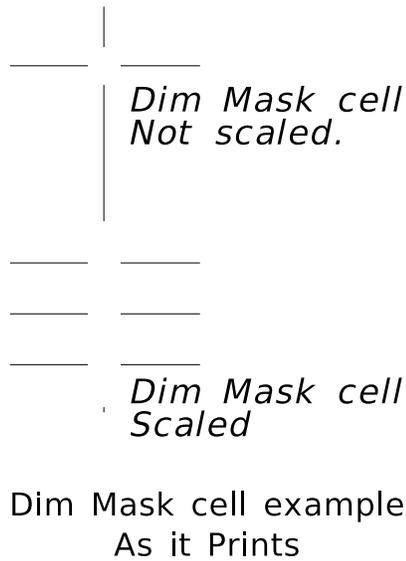


Figure 3.46— Dimension Lines Crossing Text

DO NOT allow dimension lines to cross text. Mask dimension extensions as shown below.

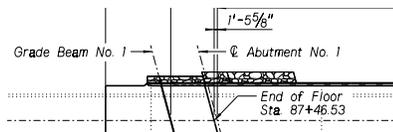


Figure 3.47— Dimensions Crossing Text

DO NOT place dimensions over the top of a detail. Break dimension extension lines where they cross detail lines.

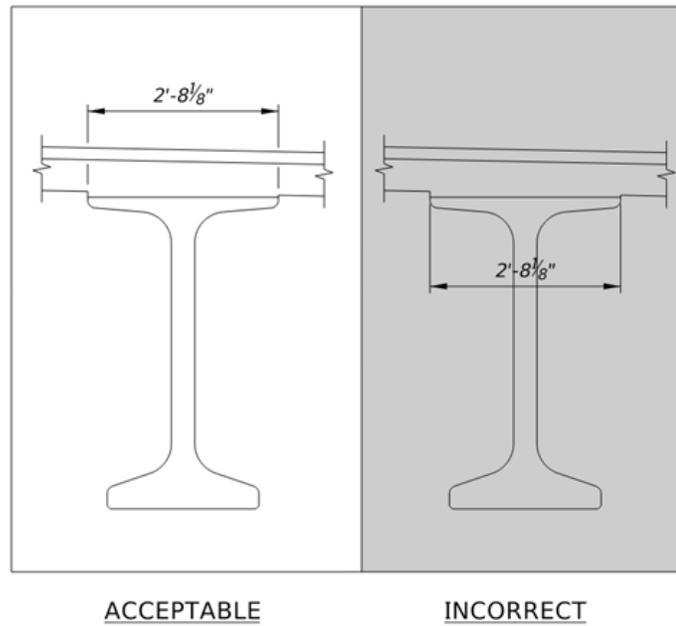


Figure 3.48– Dimension Lines Over Details

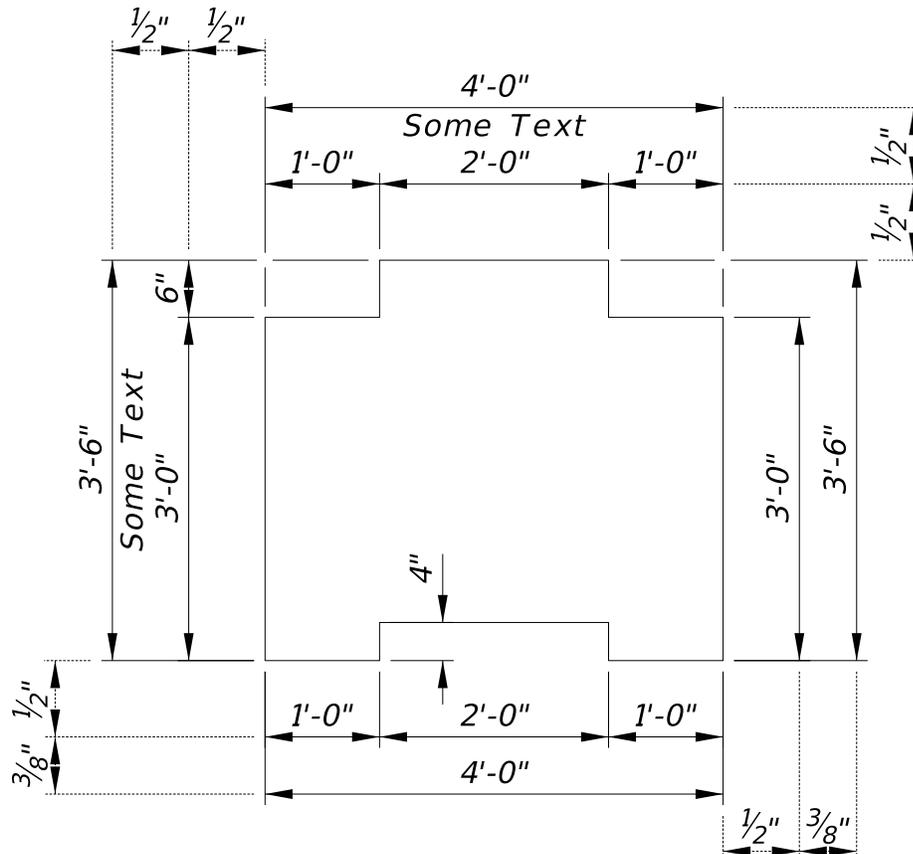


Figure 3.49– Dimension Spacing

3.9.7—Double Arrowheads

Double arrowheads on a dimension line are used in partial views, in congested areas, or when it is not necessary to show the line to its termination.

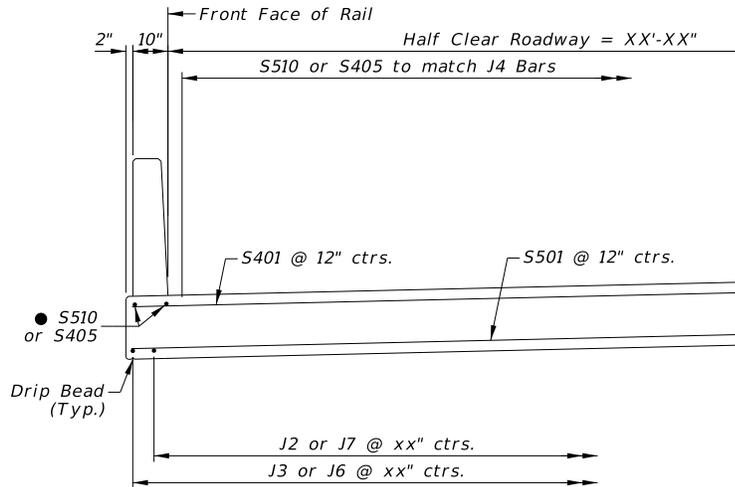


Figure 3.50— Double Arrowheads

3.9.8—Reversed Terminators

When the dimension text does not fit between the arrowheads, use either "Term. Reversed" or "Term. Outside." The preferred option is "Term. Reversed," particularly at the end of a string of dimensions. However, there are instances where "Term. Outside" may provide a clearer representation, see Figure 3.41.



Figure 3.51— Terminator Reversed - Preferred

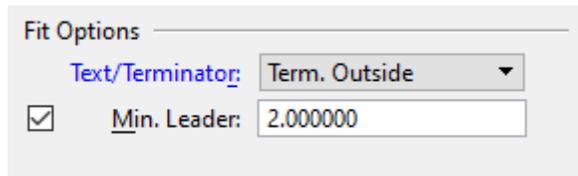


Figure 3.52— Terminator Outside - Acceptable

Optional techniques for situations where the spacing is too tight to fit typical dimensions

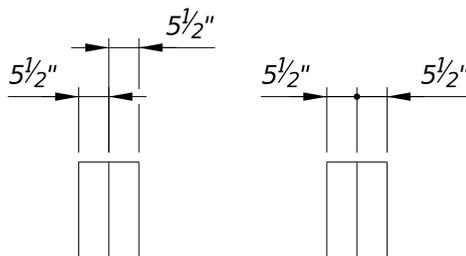


Figure 3.53— Compressed Dimensions (part 1)

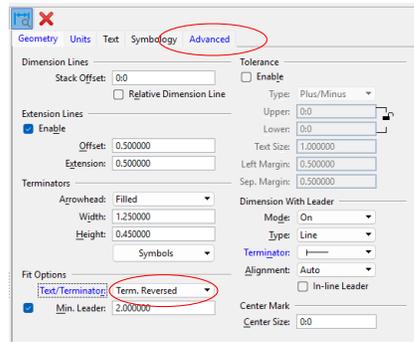


Figure 3.54— Compressed Dimensions (part 2)

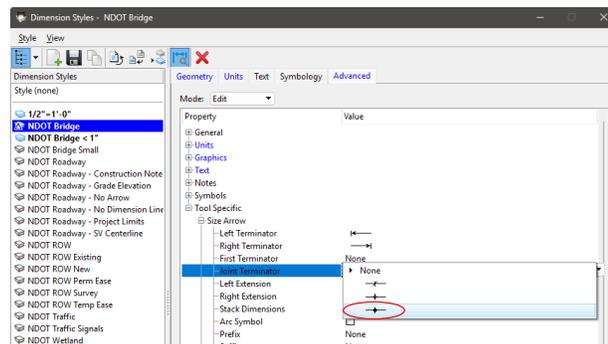


Figure 3.55— Compressed Dimensions (part 3)

3.9.9—Cluttered Dimensions

An optional technique to prevent clutter in plans when adding text to dimensions or notes with leaders is to replace the text with a text favorite symbol, as illustrated in Figure 3.56. Notes corresponding to the symbol are then added separately to the sheet, as demonstrated in Figure 3.57. This approach maintains clarity and readability while avoiding overcrowding in the drawing.

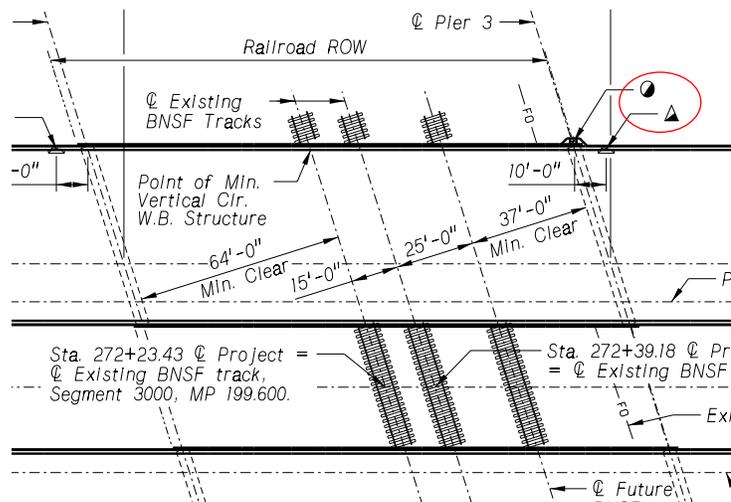


Figure 3.56— Dimension Example

NOTES:

- * Measured Normal to \odot Abutment
- Light Pole Base on Bridge, See sheet 28 of 31.
- ▲ Floor Drain, See sheet 23 of 31.
- See sheet 6 of 31 for Railroad Track Elevations.
- ▲ Limits of "Membrane Waterproofing".

Figure 3.57– Note Example

3.10—TEXT

3.10.1—Title Text For Details

USE TEXT FAVORITES – BR Title – Details

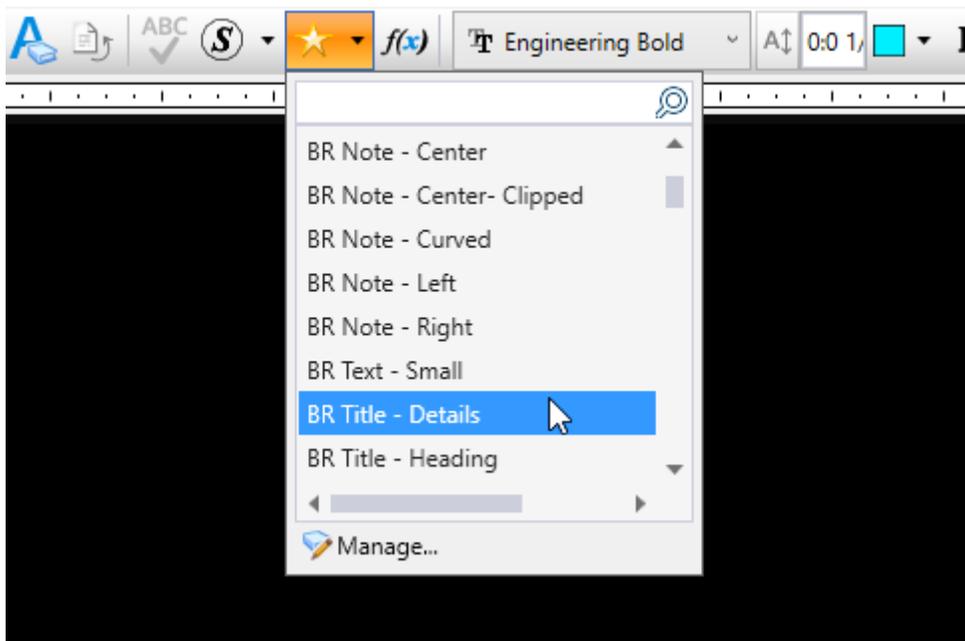


Figure 3.58– Text Favorites for Detail Titles

Use ALL CAPITALIZED letters as shown.

GENERAL PLAN

Figure 3.59– Text for Titles

3.10.2—Notes With Leader Lines

Data Lines and Leader Lines are types of annotations used in technical drawings and plans to provide clarity by connecting labels, dimensions, or notes to specific features in the drawing.

- A Data Line extends between the detail and a Leader Line with a dimension and/or text beside the Leader Line. A Data Line starts with an arrowhead and/or circle in the detail and ends at a Leader Line.
- A Leader Line extends from a Data Line or an arrowhead to a dimension and/or text.
 - The length of a Leader Line extending from a Data Line is $\frac{1}{8}$ ".
- Place the first horizontal Leader Line a minimum of $\frac{1}{2}$ " from the detail.
 - Increase this offset by $\frac{1}{8}$ " for each additional line of text when two or more lines are present.
- Place each additional horizontal Leader Line a minimum of $\frac{3}{8}$ " from the previous horizontal Leader Line.
 - Increase this offset by $\frac{1}{8}$ " for each additional line of text when two or more lines are present.
- Use place note in MicroStation

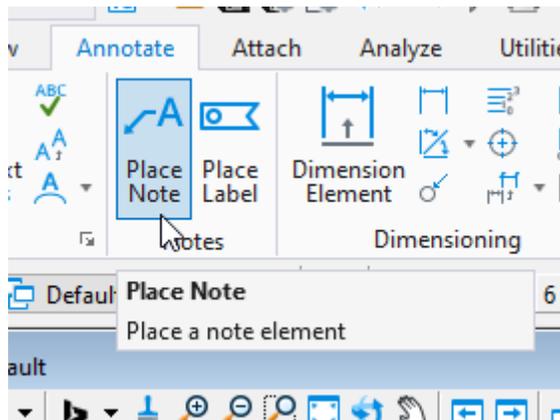


Figure 3.60— Place Note Tool

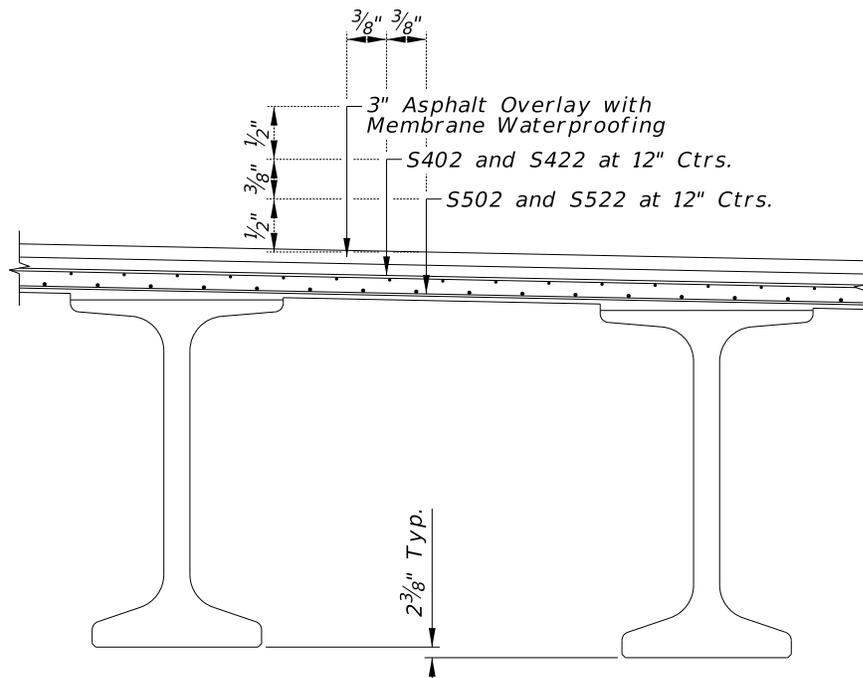


Figure 3.61— Example of Multiple Note Placement

3.10.3—Notes

Plans include notes to provide essential information that supports the interpretation, execution, and compliance of the project. They clarify details that may not be immediately clear from the drawings alone, reducing ambiguity and ensuring the designer’s intent is understood. Notes also specify material requirements, construction methods, and performance criteria critical for the project’s success. They reference applicable codes, regulations, and industry standards that must be followed.

Use the NDOT text favorites for all text in the plans. The font, sizes, colors, weight, and levels are predefined by the NDOT text favorites. For bridge-related text, ensure that the description begins with 'BR'.

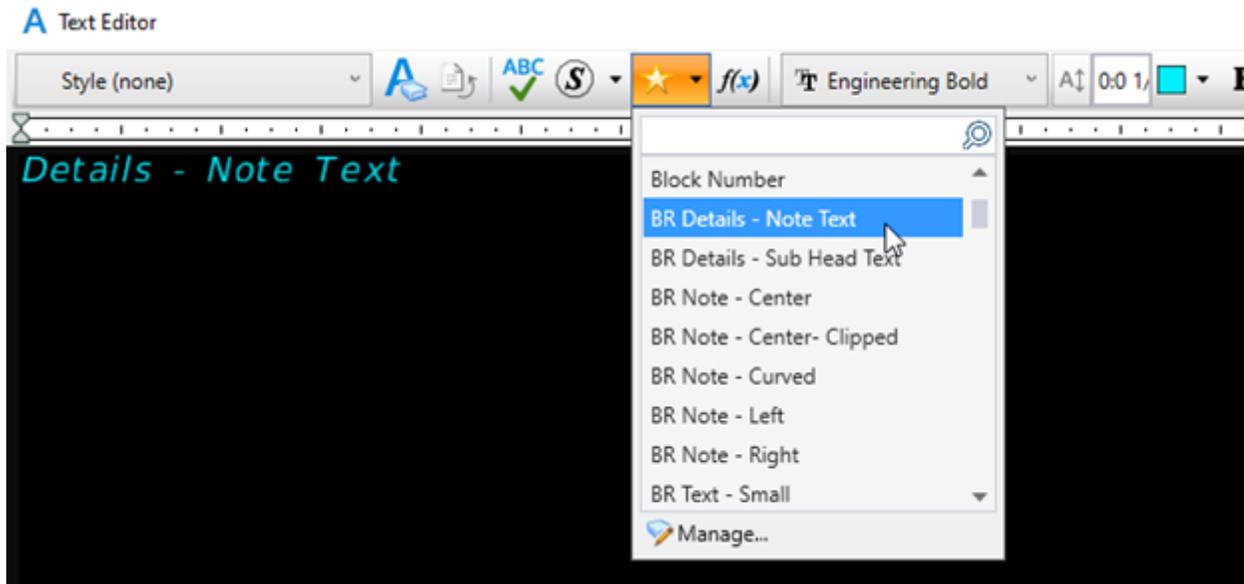


Figure 3.62— Text Editor

See the OBD Front Sheet samples in ProjectWise for basic starter notes, quantities, and the sheet index

3.10.3.1—Note Placement

In general, if there are several notes on a drawing:

- Group all notes on a drawing together.
- Include a NOTES: title . Align the left side of the title with the left side of the note text.
- If a note has a symbol callout, place the symbol outside of the note text. Put notes with a symbol callout last in the list of notes.
- Left center justify note text. Position all lines of text to align on the left side.

3.10.3.2—Notes For Details On Different Sheet

When adding a note to the plans referencing a detail on a different sheet:

- Preferred practice: "See turnout detail on sheet 6."

3.10.4—Text Symbols

NDOT Bridge approved symbols to be used in text are in the Favorite Symbols of the Text Editor.

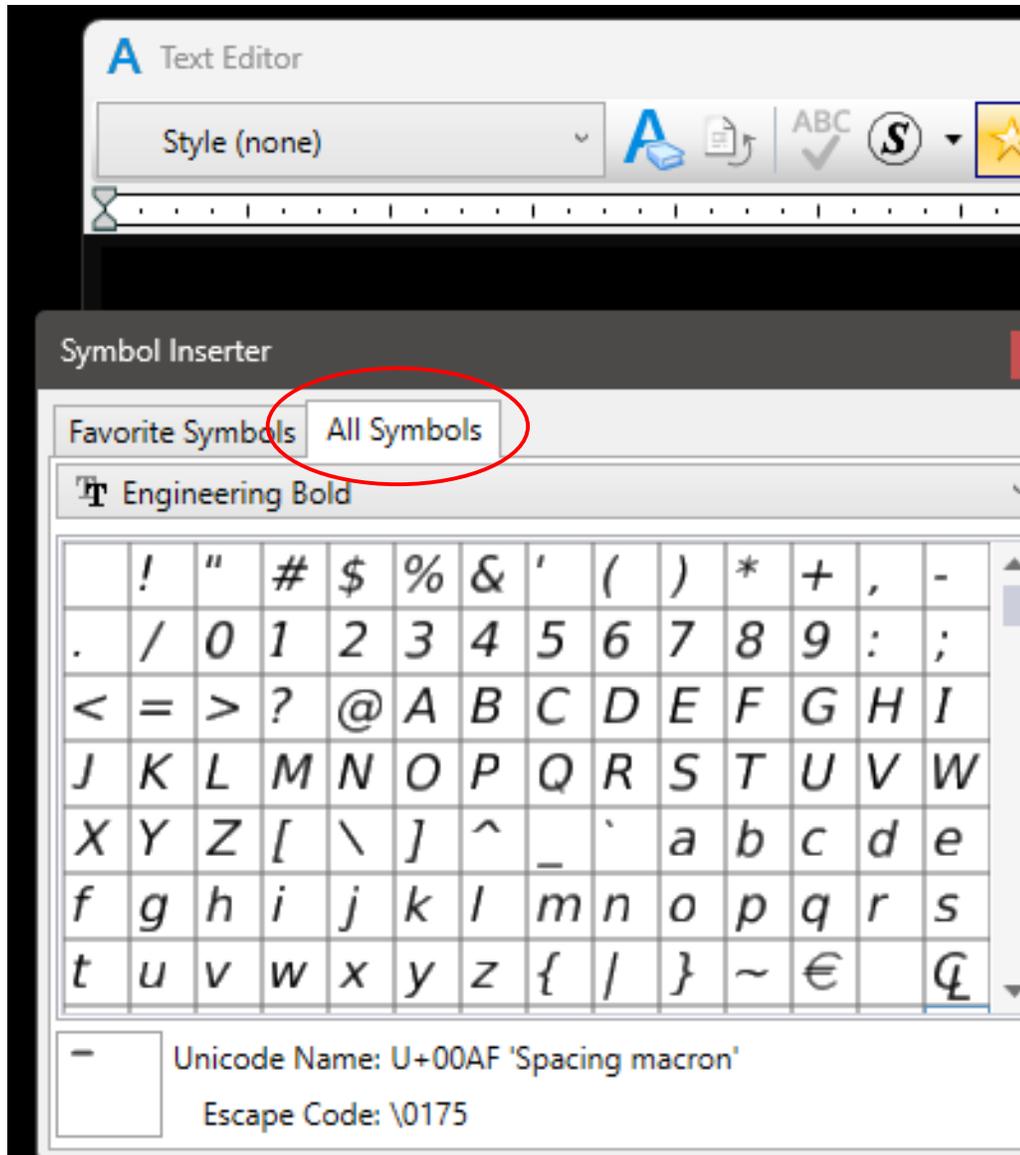


Figure 3.63— Text Symbols

±	<i>Plus / Minus</i>
⊙	<i>Diameter</i>
°	<i>Degree</i>
∠	<i>Angle</i>
℄	<i>Centerline</i>
Δ	<i>Delta</i>
≤	<i>Less than or equal</i>
≥	<i>Greater than or equal</i>
ℙ	<i>Plate</i>
⊕	<i>Boring Hole</i>
●	<i>Basic symbol</i>
◆	<i>Basic symbol</i>
❖	<i>Basic symbol</i>
■	<i>Basic symbol</i>
★	<i>Basic symbol</i>
▲	<i>Basic symbol</i>
◐	<i>Basic symbol</i>
◑	<i>Basic symbol</i>
⊛	<i>Basic symbol</i>
◊	<i>Basic symbol</i>
*	<i>Basic symbol</i>
⬢	<i>Basic symbol</i>
▼	<i>Basic symbol</i>
▣	<i>Basic symbol</i>
▢	<i>Basic symbol</i>
□	<i>Basic symbol</i>
①	<i>Number symbol</i>
②	<i>Number symbol</i>
③	<i>Number symbol</i>
④	<i>Number symbol</i>
⑤	<i>Number symbol</i>
⑥	<i>Number symbol</i>
⑦	<i>Number symbol</i>
⑧	<i>Number symbol</i>
⑨	<i>Number symbol</i>
⑩	<i>Number symbol</i>

Figure 3.64– Symbols

3.10.5—Table Of Approved Bridge Plan Abbreviations

The following abbreviations are preapproved for use on NDOT bridge plans when space is limited.

- Abut. — Abutment
- ALT. — Alternate or alternating
- AASHTO — American Association of State Highway and Transportation Officials
- AREMA — American Railway Engineering & Maintenance-of-Way Association
- ASTM — American Society for Testing and Materials
- ASTM — American Society of Testing and Materials
- AWS — American Welding Society
- AWG — American Wire Gauge
- ADA — Americans with Disabilities Act
- App. Section — Approach Section
- Approx. — Approximate
- ACP — Asphaltic concrete pavement
- Avg. — Average
- ADT — Average Daily Traffic
- B.F. — Back face
- BL — Baseline
- Brg. — Bearing
- B.O.P — Beginning of Paving
- Bent — Bent
- Btwn. — Between
- B.O.B. — Bill of Bars
- B.O. — Blocking Ordinate
- BPF — Blows Per Foot
- Blvd. — Boulevard
- BNSF — Burlington Northern & Santa Fe Railroad
- BUS — Business
- CIP — Cast-in-Place
- Ctr. — Center
- CL or text favorite symbol — Centerline
- Ctrs. or ctrs. — Centers
- Clr. — Clear
- Col. — Column
- CADD — Computer Aided Design and Drafting
- CAD — Computer Aided Design or Computer Aided Drafting
- Conc. — Concrete
- CBC — Concrete Box Culvert
- CRSI — Concrete Reinforcing Steel Institute
- Const. — Construction
- Cont. — Continuous
- CR — County Road
- CF — Cubic Feet
- CFS — Cubic Feet Per Second
- CY — Cubic Yard
- DHW — Design High Water
- DHV — Design Hourly Vehicles
- Dia. — Diameter
- Diaph. — Diaphragm
- Dist. — District
- Div. — Division
- DBL. — Double
- DS — Downstation
- EA. or Ea. — Each
- E.F. — Each Face
- EB — Eastbound
- Elast. — Elastomeric
- EL — Elevation
- E.O.F. — End of Floor
- E.O.P. — End of Paving
- EQ. — Equal
- E.S. — Equal Spaces
- Excav. — Excavation
- Exist. — Existing
- EXP — Expansion
- E — Expansion Bearing
- Exp. Jt. — Expansion Joint
- Ext. — Exterior
- FHWA — Federal Highway Administration
- FT or ' — Feet
- F.P.M. — Feet Per Minute
- F.P.S. — Feet Per Second
- FRP — Fiber-Reinforced Polymer
- Fig. — Figure
- Fin. — Finished
- FIX — Fixed
- F — Fixed Bearing
- FL. — Flow Line
- F.F. — Front Face
- GPM — Gallons Per Minute
- Galv. — Galvanized
- Ga. — Gauge
- GR — Grade (material properties) (e.g. A-709, GR 36)
- G.B. — Grade Beam
- Ht. — Height
- HDPE — High Density Polyethylene
- HDPP — High Density Polypropylene
- HPC — High Performance Concrete
- HPWS — High Performance Weathering Steel
- H.S. — High Strength
- Hwy. — Highway
- Hyd. — Hydraulic
- IN or " — Inch
- Incl. — Included
- Int. — Interior
- IT — Inverted Tee
- JT — Joint
- Jct. — Junction
- JB — Junction Box
- Kips — Kilo-pound or 1000 Lbs.

- LT – Left
- LHB – Left Hand Back
- LF – Linear Feet
- LRFD – Load and Resistance Factor Design
- LFD – Load Factor Design
- Lum. – Luminaire
- LS – Lump Sum
- Maint. – Maintenance
- Mfg. – Manufacturer
- Max. – Maximum
- Mi. – Mile
- MPH – Miles Per Hour
- Min. – Minimum
- Misc. – Miscellaneous
- NF – Near Face
- NE – Nebraska
- NDOT – Nebraska Department of Transportation
- NAD – North American Datum
- NAVD – North American Vertical Datum
- NB – Northbound
- NA – Not Applicable
- No. – Number
- O.C. – On Center
- OHW – Ordinary High Water
- O.G. – Original Ground
- O.D. – Outer Diameter
- Pav. Section – Paving Section
- Pier – Pier
- PS&E – Plans, Specifications and Estimate
- PL – Plate
- PC – Point of Curvature
- PI – Point of Intersection
- PT – Point of Tangency
- PVI – Point of Vertical Intersection
- PSF – Pound Per Square Foot
- Lbs. – Pounds
- PSI – Pounds per Square Inch
- PCBC – Precast Concrete Box Culvert
- PCI – Precast/Prestressed Concrete Institute
- PPF – Pre-compressed Polyurethane Foam
- PSC – Prestressed/Precast Concrete
- PGL – Profile Grade Line
- Proj. – Project
- R – Radius
- Reinf. – Reinforcement
- Repl. – Replace
- REQ'D – Required
- Rev. or R – Revised, Revision
- RT – Right
- RHB – Right Hand Back
- R.O.W. – Right of Way
- Rdwy. – Roadway
- Sht. – Sheet
- SB – Southbound
- Spa. – Space and spaced
- Spl. – Splice
- SQ. – Square
- SF or Sq. Ft. – Square Feet
- SQ MI – Square Miles
- SY – Square Yards
- STD. – Standard
- SL – State Link
- SR – State Route
- SS – State Spur
- Sta. – Station
- SIP – Stay in Place
- SBS – Styrene-Butadiene-Styrene
- S.E. – Superelevation
- Sym. – Symmetrical
- TAN – Tangent
- TC – Tangent to Curve
- Temp. – Temporary
- T – Tons
- TSF – Tons/square foot
- Typ. Typical – See [Figure 3.67](#) for proper use.
- UHPC – Ultra High-Performance Concrete
- UHSS – Ultra-High Strength Steel
- UPRR – Union Pacific Railroad
- US – Upstation
- Util. – Utilities
- Vert. – Vertical
- V.C. – Vertical Curve
- VPC – Vertical Point of Curvature
- VPI – Vertical Point of Intersection
- VPT – Vertical Point of Tangency
- Vol. – Volume
- WT. – Weight
- WWF – Welded Wire Fabric
- WWR – Welded Wire Reinforcement
- WB – Westbound
- Yd. – Yard
- Yds. – Yards
- YR – Year

Format Typical as “, Typ.”, and place the callout at the end of the text block or dimension as shown.

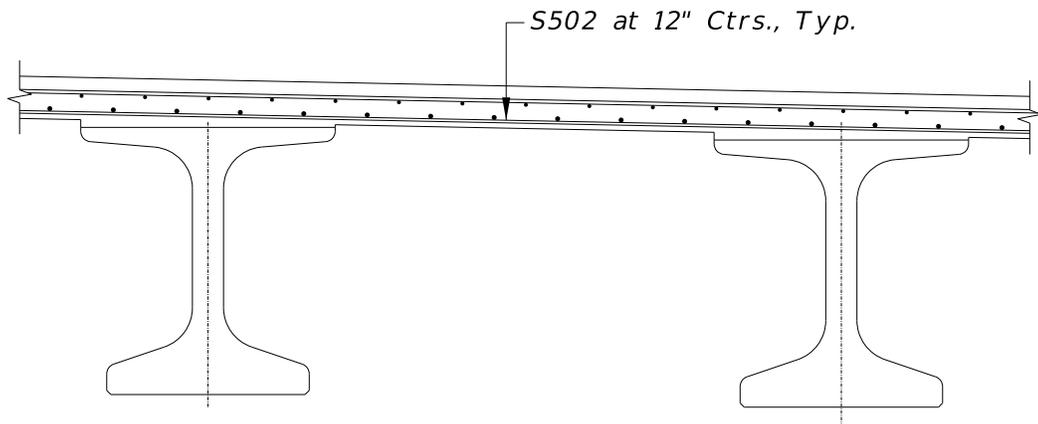


Figure 3.65— Proper Format of Abbreviated Typical

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Chapter 4 — Sheet Order, Borders, and Title Blocks

4.1—INTRODUCTION

This chapter summarizes Bridge Division's requirements for general sheet order, borders and title blocks that are repeated on every sheet. This detailing guide is an essential tool for achieving clarity, precision, and uniformity in technical drawings, ultimately supporting the successful execution of projects.

4.2—RECOMMENDED SHEET ORDER

The following is a list of drawing titles, in sequential order, for the bridge plans. See [Section 2.7](#) for the Model naming convention.

- GENERAL NOTES, QUANTITIES, AND INDEX
- BRIDGE PLAN AND ELEVATION
- CONSTRUCTION PHASING
- REMOVALS (IF NEEDED)
- COORDINATES
- PILE LAYOUT / GEOTECHNICAL DATA
- PILE DETAILS
- BORING LOG SHEET
- ABUTMENTS
- GRANULAR FILL
- PIERS OR BENTS
- BEARINGS
- GIRDER LAYOUT / FRAMING PLAN
- BRIDGE SUPERSTRUCTURE / GIRDER DETAILS / CONCRETE SLAB
- MISCELLANEOUS SUPERSTRUCTURE DETAILS
- TURNDOWNS AND DIAPHRAGMS
- BRIDGE DECK PLANS
- BRIDGE DECK CROSS-SECTION
- DECK DRAINAGE SYSTEM DETAILS (IF NEEDED)
- APPROACH SLABS
- BRIDGE RAILS AND BARRIERS
- LIGHTING DETAILS (IF NEEDED)
- FENCE DETAILS (IF NEEDED)
- EXPANSION JOINTS
- SLOPE PROTECTION
- RR BASE SHEET (IF NEEDED)
- BAR BENDING DIAGRAMS
- OVERLAY PLANS (IF NEEDED)

4.3—SHEET BORDERS

The NDOT_BR_Border sheet on ProjectWise includes all items required by the Nebraska Board of Engineers and Architects to ensure compliance with their standards. Its use is mandatory for all Bridge Division plans. The NDOT Bridge border sheet is already referenced in the seed file, so if you copy the model containing the border sheet, no separate reference is needed.

The bridge seed files contain prepopulated text in the title block, formatted according to the approved style, weight, color, and levels.

The border sheet includes three variations of title blocks, which can be toggled on or off using levels. See the examples below:

PROJECT NUMBER XX-X(XXXX)	
C.N. XXXXX	
LOCATION XXXXX XXXXX XXXXX	
STRUCTURE NUMBER XXXX XXXX	
(LENGTH) (NO. SPANS) (SUPERSTRUCTURE TYPE) BRIDGE - (TYPE OF WORK)	
COUNTY XXXXX HWY. NO. X-XX REF. POST. XXX.XX STA. XXX+XX.XX DESIGN CODE LRFD 9th Edition	SKEW X° ROADWAY XX'-XX" FHWA CONST. TYPE XXXX DESIGN LIVE LOAD XX-KK Q.C. ENGINEER: F.Lastname DATE MONTH 20XX
DESIGNED BY: F.Lastname DETAILED BY: F.Lastname	
NEBRASKA Good Life. Great Journey. DEPARTMENT OF TRANSPORTATION	
BRIDGE DIVISION 1500 Nebraska Parkway Lincoln, NE 68502 Office: 402-479-4701 STATE BRIDGE ENGINEER Ross D. Barron, P.E. State of Nebraska E-1401B	
	
SPECIAL PLAN NO. X	X

Figure 4.1— Typical Bridge Border

		PROJECT NUMBER XX-X(XXXX)
		C.N. XXXXX
		LOCATION XXXXX XXXXX XXXXX
		STRUCTURE NUMBER XXXX XXXX
		(LENGTH) (NO. SPANS) (SUPERSTRUCTURE TYPE) BRIDGE - (TYPE OF WORK)
COUNTY XXXXX HWY. NO. X-XX REF. POST. XXXX.XX STA. XXX+XX.XX DESIGN CODE LRFD 9th Edition	SKEW X° ROADWAY XX'-XX" FHWA CONST. TYPE XXXX STA. XXX+XX.XX DESIGN LIVE LOAD XX-XX	DESIGNED BY: F.Lastname O.C. ENGINEER: F.Lastname DATE MONTH 20XX
<p>NEBRASKA Good Life. Great Journey. DEPARTMENT OF TRANSPORTATION</p> <p>BRIDGE DIVISION 1500 Nebraska Parkway Lincoln, NE 68502 Office: 402-479-4701 STATE BRIDGE ENGINEER Ross D. Barron, P.E. State of Nebraska E-14018</p>		
<p>Minimum required information CONSULTANTS LEGAL NAME Address Line 1 Address Line 2 Office: 000-000-0000 Nebraska C.O.A. OCA-0000</p>		<p>SPECIAL PLAN NO. X / X</p>

Figure 4.2— Consultant Bridge Border

	PROJECT NUMBER XX-X(XXXX)
	C.N. XXXXX
	LOCATION XXXXX XXXXX XXXXX
	STRUCTURE NUMBER XXXX XXXX
COUNTY: XXXXX HWY. NO. X-XX REF. POST. XXX.XX STA. XXX+XX.XX DESIGN CODE LRFD 9th Edition DESIGNED BY: F.Lastname	SKEW X° ROADWAY X'-X" FHWA CONST. TYPE XXXX DESIGN LIVE LOAD X-X Q.C. ENGINEER: F.Lastname DATE MONTH 20XX DETAILED BY: F.Lastname
(LENGTH) (NO. SPANS) (SUPERSTRUCTURE TYPE) BRIDGE - (TYPE OF WORK)	
	
BRIDGE DIVISION 1500 Nebraska Parkway Lincoln, NE 68502 Office: 402-479-4700 STATE BRIDGE ENGINEER Ross D. Barron, P.E. State of Nebraska E-14018	
1. Firstname Lastname, reviewed the geological notes, boring data, pile data, and pile details.	
SPECIAL PLAN NO. X	
X	X

Figure 4.3— Bridge Border With Secondary P.E. Seal

4.4—BRIDGE TITLE BLOCK TEXT

The Title block shows basic information about the bridge, project, and the people responsible for the plans.

The NDOT Bridge border was updated in November 2024. Use of the previous bridge borders will not be permitted on projects submitted for review after January 1, 2025, unless needed on a revision of a previously submitted plan.

Using the preformatted text provided, edit the following fields. NOTE: Much of the information needed for the Title Block can be found in the NDOT73 Planning Document on OnBase under the assigned control number. Readers can also refer to the “NDOT Plan Sheet Borders - Title Block Information” that can be found on the Department’s Website at <https://dot.nebraska.gov/buisness-center/design-consultant/>

4.4.1—Sheet Number – Top Right Corner

Bridge plans are S Sheets. This includes bridges of all types (but not culverts) and sing support structures when supported on the bridge. Their sheet number includes the S prefix followed by a numerical sequence. The numbering begins with S1 on the first sheet of the first special plan and continues sequentially through to the final special plan. For instance, if the sheets for special plan no. 1 are numbered S1–S25, the numbering for special plan no. 2 would begin with S26. This ensures a continuous and logical sequence across all plans.

Bridge Special Plans, typically culverts, large drainage structures, or retaining walls are T sheets. The T section is numbered in a similar fashion as the S section but with a prefix T.

4.4.2—Project Number

Only the number portion of the project number listed in NDOT73 is used. For example, if the project number is listed as NH-6-3(132), the project number appears as 6-3(132) on the bridge plans.

4.4.3—Control Number

The control number is provided prior to starting a project and matches NDOT73.

4.4.4—Location

Copy the location as listed on NDOT73

4.4.5—Structure Number

Structure numbers for new bridges are assigned by the NDOT Asset Management Unit. For existing structures that are being replaced, remodeled, or repaired, the structure number is already assigned. All structures involved in a project are listed in NDOT73 for reference.

For example, in the structure number S006 12961, the S006 portion represents Highway No. 6, and 12961 indicates the reference post 129.61.

4.4.6—County

The county name for a bridge project can be found in NDOT73 or, if there is an existing bridge at the project location, it can be obtained from the as-built plans of the existing structure.

4.4.7—Highway No.

The Highway Number for the project can be found in NDOT73
Examples: US-77, US-6, N-89, I-80, etc.

4.4.8—Reference Post

The reference post represents the distance in miles from the starting point of the highway. For instance, in the structure number S006 12961, the 12961 indicates the reference post 129+61. The number 129.61 is used as the reference post for the bridge location.

4.4.9—Station

The station number is obtained from roadway design or their preliminary plans. If working on a final design, the station number will be shown on the TS&L (Type, Size, and Location) plans.

4.4.10—Design Code

For new structures, the design code is the current AASHTO LRFD Edition used for design. For repair or remodeling projects, the original design code is used, unless the structure has been modified to meet a newer code.

4.4.11—Skew

Skew in bridge design refers to the angle at which the bridge intersects the roadway or waterway it spans. Calculating the skew angle and incorporating it into the design ensures proper alignment. The skew angle is measured between a line perpendicular to the centerline of the roadway and the centerline of the bridge’s abutments or piers, as follows:

- Straight Alignments: The angle between the CL of supports and a line perpendicular to the CL of roadway.
- Curved Alignments: The angle between the CL of supports and a line perpendicular to the chord line, based off the CL of roadway.
- Curved Twin Structures: The angle between the CL of supports and a line perpendicular to the chord line, based off the CL of project. The chord line is from CL abutment to CL abutment.
- If all supports are not parallel, then the skew shown in the title block will indicate "VARIES".

In bridge engineering, the terms "Left-Hand Back" (LHB) and "Right-Hand Back" (RHB) describe the orientation of the skew angle in relation to the centerline of the bridge and the direction of stationing. LHB skews are described as "rotating counterclockwise" from the perpendicular while looking up-station, whereas RHB skews are described as "rotating clockwise while looking up-station."

SKEW 17°30'00" LHB

Figure 4.4– SKEW Example

4.4.12—Roadway

The "Roadway" in the title block refers to the clear roadway of the bridge, measured from the front face of rail to the front face of rail, or from gutter line to gutter line. This measurement defines the usable width of the bridge, excluding any structures like barriers, curbs, or sidewalks.

4.4.13—FHWA Construction Type

The Construction Type can be determined using the spreadsheet - Typical FHWA Codes.xlsx. The file is located on Project Wise in the folder: Documents\Standard Plans\Bridge\OpenBridge Documentation\

4.4.14—Design Live Load

Refer to BDM Section 3.4 for information about the design live load. Typically, it is HL-93 for new structure, and the original loading for repair or remodeling that do not alter the structure capacity.

4.4.15—Bridge Description

The bridge description includes the following details:

- Length of the bridge, measured from the centerline (CL) of abutment to the centerline (CL) of abutment.
- Number of spans (Use the word "simple" for 1 span, use the number of spans form ultiple span).
- Type of superstructure or girder. (Concrete Slab Bridge, Steel Rolled Beam Girder, Steel Welded Plate Girder, Prestressed Concrete Girder).
- Type of work (e.g., NU girder size, new construction, repair, or remodeling).

Examples 631'-0" 5-SPAN PRESTRESSED CONCRETE GIRDER BRIDGE – (NU78). 50'-0" SIMPLE SPAN STEEL ROLLED BEAM GIRDER.

4.4.16—Sheet Description

This is a description of the sheet in the plan set.

4.4.17—Designed By

Place the (First initial).(Last Name) of the structural designer in this portion of the title block to identify the individual responsible for the structural design of the bridge.

4.4.18—Detailed By

Place the (First initial).(Last Name) of the geometric designer/detailer in this portion of the title block to identify the individual responsible for the geometric design and detailing of the bridge.

4.4.19—Q.C. Engineer

Place the (First initial).(Last Name) of the quality control engineer/checker in this portion of the title block to identify the individual responsible for ensuring the accuracy and quality of the bridge design and plans.

4.4.20—Date

The date in the title block is the month and year when the Engineer of Record will seal and sign the plans, ensuring that the plans are officially approved and ready for submission.

<i>S597</i>
PROJECT NUMBER <i>2-6(127)</i>
C.N. <i>12578</i>
LOCATION LINCOLN SOUTH BELTWAY
STRUCTURE NUMBER <i>S002 46750</i>

Figure 4.5— Title Block Information

631'-0" 5-SPAN PRESTRESSED CONCRETE GIRDER BRIDGE - (NU78)
GENERAL NOTES. QUANTITIES & INDEX
Q.C. ENGINEER: <i>B.Ptacek</i> DATE <i>March 2026</i>

Figure 4.6— Title Block Information II

COUNTY	Lancaster	SKEW	10°30'00"	LHB
HWY. NO.	N-2	ROADWAY	2-54'-0"	
REF. POST.	467.50	FHWA CONST. TYPE	X031	
STA.	272+34.50	DESIGN LIVE LOAD	HL-93	
DESIGN CODE	LRFD	9th Edition		
DESIGNED BY:	A.Lechtenberger			
DETAILED BY:	P.Haecker			

Figure 4.7— Title Block Information III

4.4.21—Special Plan Number

Special plan numbers are assigned sequentially, starting with the first structure as special plan no. 1, beginning at the lowest station within the project limits. Each subsequent structure within the project is numbered sequentially, following the order of increasing station values. This method ensures a logical and systematic organization of special plan numbers.

4.4.22—Sheet Number – Lower Right Corner

In the sheet numbering system for special plans, the first number (e.g., 1 in this example) indicates the sheet's position within the special plan set. The second number (e.g., 23 in this example) represents the total number of sheets in the special plan .

SPECIAL PLAN NO.	1
1	23

Figure 4.8— Sheet Number Example

4.5—AVAILABLE CHECKLISTS

The following checklists are available in Appendix B:

- ▣ Title Block Information

Chapter 5 — Plan Revisions

5.1—INTRODUCTION

The purpose of documenting bridge plan revisions is to ensure consistency, transparency, and accuracy throughout the construction project lifecycle. Proper documentation facilitates clear communication among stakeholders, supports quality assurance, and maintains the integrity of official project records. Revisions become part of the permanent project archive and serve as a critical resource for future maintenance, modifications, or evaluations.

All personnel involved in bridge planning and design are required to document and submit revisions through the designated document control system. No field implementation of revised plans shall proceed without proper authorization and distribution of the updated documentation.

5.2—PLAN REVISIONS ON ADVERTISED PROJECTS

Any plan changes during this period must be made through PS&E. A contract addendum will be issued to bidders by the Contracts Section. It is the responsibility of bidders to communicate these addenda to their subcontractors.

Typically, revisions at this stage are limited to changes that impact bidding. The requirements outlined in [Section 3.6— Section Callouts](#) will apply.

5.3—GENERAL REVISION REQUIREMENTS

When preparing a revision, the latest CAD file shall be copied and renamed to reflect the new revision number. For example: S080 39843 R1, S080 39843 R2, etc. Alternatively, the revision number in the existing filename may be updated to reflect the current revision.

The copied file must include all information added to the plans after the Bridge Division submitted them to the Roadway Designer.

A revision log must be included in the plans, using the following format:

(R/1) 15 FEB 24

(R/2) 10 OCT 24

(R/3) 01 JUL 25

All revised sheets must display the revision designation in the top right-hand corner. The date must match the official revision date provided by Roadway Design.

5.3.1—Revision Notations

5.3.1.1—Detail or Text Revisions:

(R/1) 01 JUL 25

5.3.1.2—Added Sheets:

(R/1) ADDED SHEET 01 JUL 25

5.3.1.3—Deleted Sheets:

(R/1) DELETED SHEET 01 JUL 25

Revision symbols (R/1, R/2, etc.) must be assigned in consecutive order based on the contract revision date. The most recent revision must be reflected on the Title Sheet.

A single revision may encompass multiple plan item changes.

5.3.2—Title Sheet Requirements

Revised quantities shall be updated on the Bridge Front Sheet as applicable.

5.4—TEXT AND SMALL DETAIL REVISIONS

For minor revisions:

- Strike through the original text with a single line (do not erase or overwrite).
- Add the revised text near the original, accompanied by the applicable revision number (e.g., (R/1)).
- Each revision must be clearly marked with a revision balloon indicating the change.



Figure 5.1— Revision Balloon Symbol

For deleted details:

- Draw a box around the detail, place an “X” from corner to corner, and insert the revision balloon (R/1) within the box.
- If overlapping text or adjacent sketches prevent clear markup, use discretion to ensure legibility while still indicating the revision clearly.

Original text or details must never be erased or edited directly.



Figure 5.2— Boxed Revision Balloon Symbol

5.5—ADDED SHEETS

If a revision is too extensive to be made legibly on the original sheet, a new sheet shall be added immediately following the original.

Append a letter to the original sheet number (e.g., 13A, 27A), for added sheet numbers.

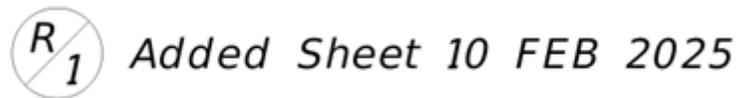


Figure 5.3— Boxed Revision Balloon Symbol Added Sheet

5.6—DELETED SHEETS

Deleted sheets shall remain in their original position in the plan set. A heavy “X” must be drawn across the sheet (without obscuring the sheet number). At the top right-hand corner, include the revision symbol, a “DELETED SHEET” note, and the revision date.

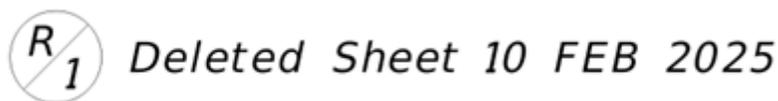


Figure 5.4— Boxed Revision Balloon Symbol Deleted Sheet

Chapter 6 — Preliminary Bridge Plans

6.1—INTRODUCTION

The Preliminary Bridge Plans show the general layout and arrangement of the bridge, including information regarding utilities, staging, hydraulics, and clearances. They are used to check that the bridge meets the overall needs of the project and as a control document for ongoing studies and plan development. They are required for the Preliminary Field Plan Review and used by various NDOT Offices and the Districts to coordinate the work. The plans consist of a Preliminary Layout and, if required, Construction Sequence.

6.2—CONCEPT PLANS

A concept bridge plan serves as an early stage, representation of a proposed bridge design. Its main purposes are:

- A. Define the Design Intent: It communicates the initial vision, scope, and functional requirements of the bridge, including key dimensions, structure type, minimum clearances, and a basic layout.
- B. Support Decision-Making: It helps project stakeholders (owners, engineers, railroad management, environmental specialists, etc.) evaluate options and make informed decisions before investing in detailed design work.
- C. Assess Feasibility: It provides enough information to assess technical, environmental, and constructability feasibility, identifying potential challenges or constraints.
- D. Estimate Costs and Schedule: It supports the development of preliminary cost estimates and project timelines, which are essential for budgeting and funding considerations.
- E. Facilitate Agency and Public Review: It can be used during public meetings or interagency reviews to communicate the proposed design approach in a clear, understandable format.

In short, a concept bridge plan is a planning tool that guides the transition from initial project scoping to detailed design, reducing risk and setting the foundation for a successful project.

6.3—TS&L PLANS

The TS&L plans are approved by Bridge Management. When producing the TS&L plans, include the listed plans below, and follow the guidelines listed for final plans:

- General Plan – Refer to Chapter 8 – General Plan and Elevation Sheet
- General Elevation – Refer to Chapter 8 – General Plan and Elevation Sheet
- Traffic Data – Refer to Chapter 8 – General Plan and Elevation Sheet
- Proposed Cross Section – Refer to Chapter 18 – Details from Base Sheets
- Crown Template – Refer to Chapter 16 – Bridge Decks – a cell is available for traditional cross slopes.
- Profile Grade Data – Refer to Chapter 8 – General Plan and Elevation Sheet
- Hydraulic Info. – Refer to Chapter 8 – General Plan and Elevation Sheet
- Proposed Phasing Plan – Refer to Chapter 9 – Construction Phasing

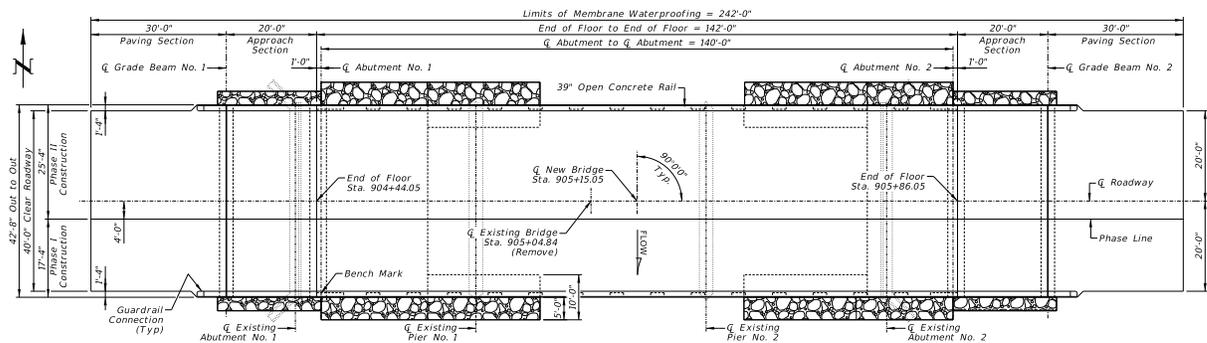


Figure 6.1—TS&L Example 1

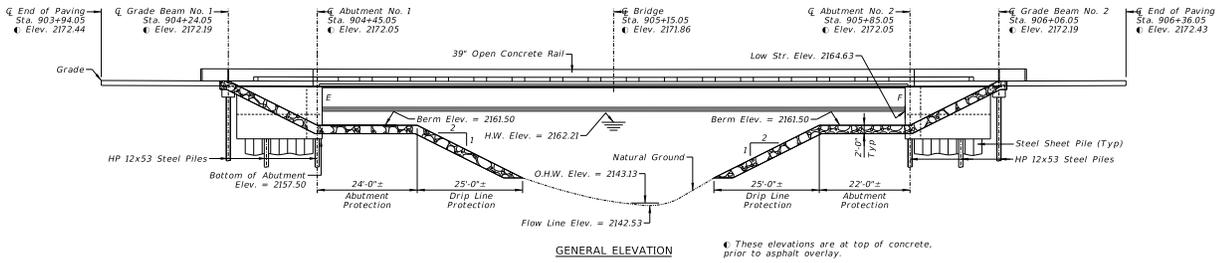


Figure 6.2— TS&L Example 2

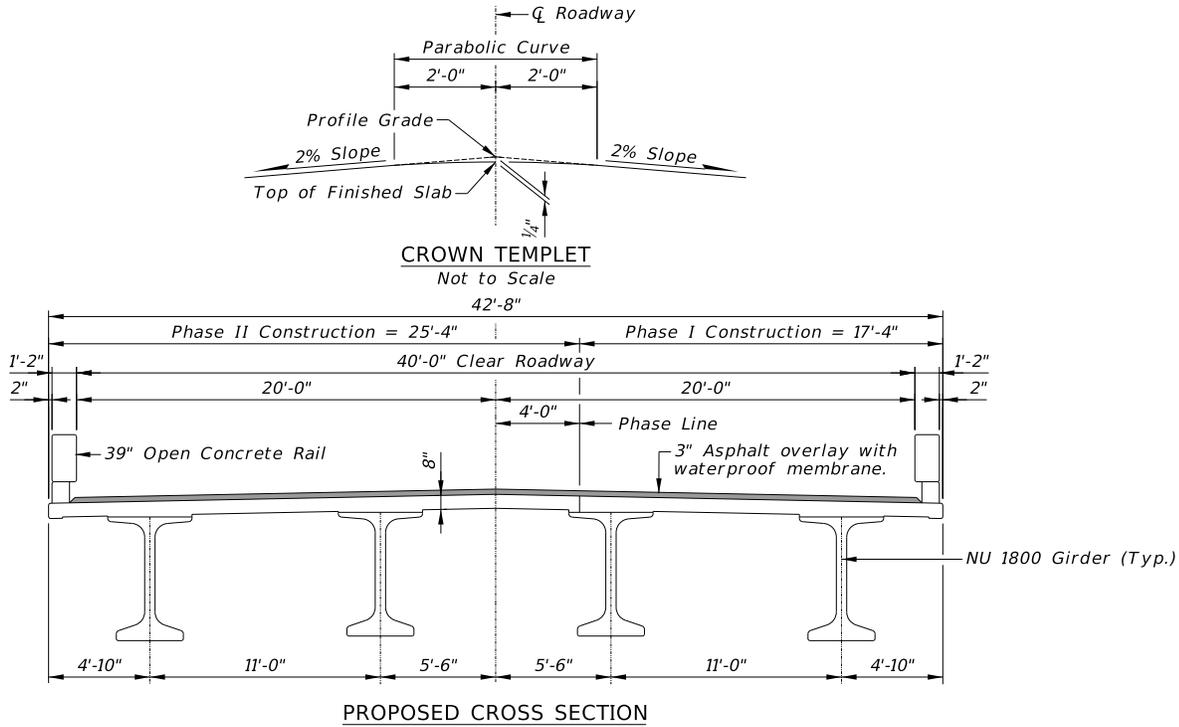


Figure 6.3— TS&L Example 3

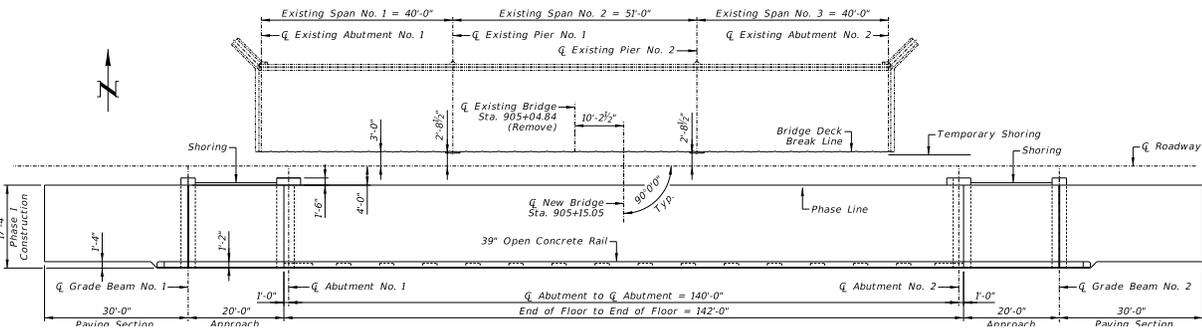


Figure 6.4— TS&L Example 4

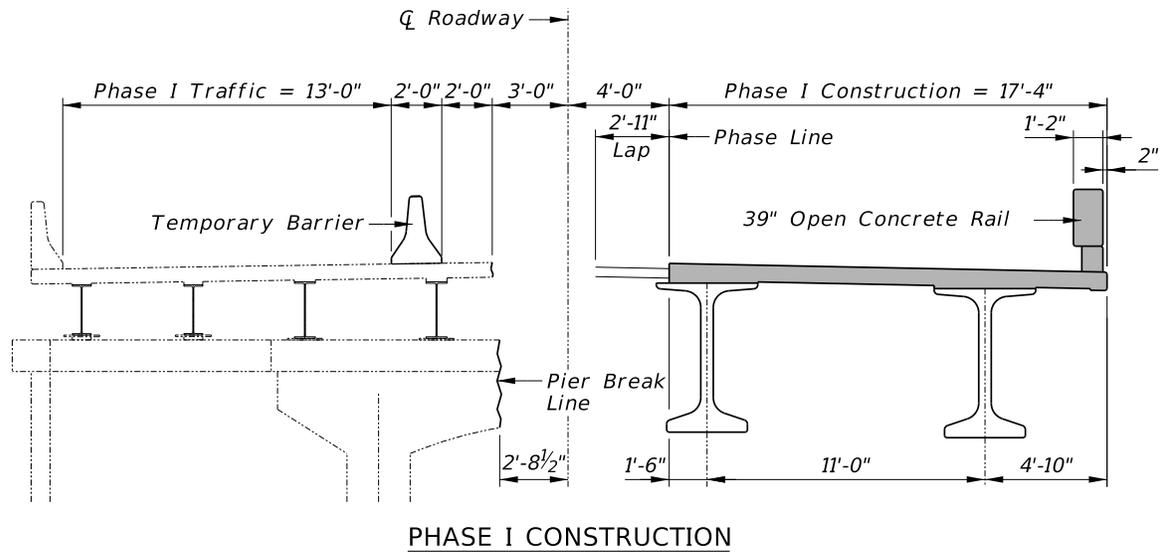


Figure 6.5— TS&L Example 5

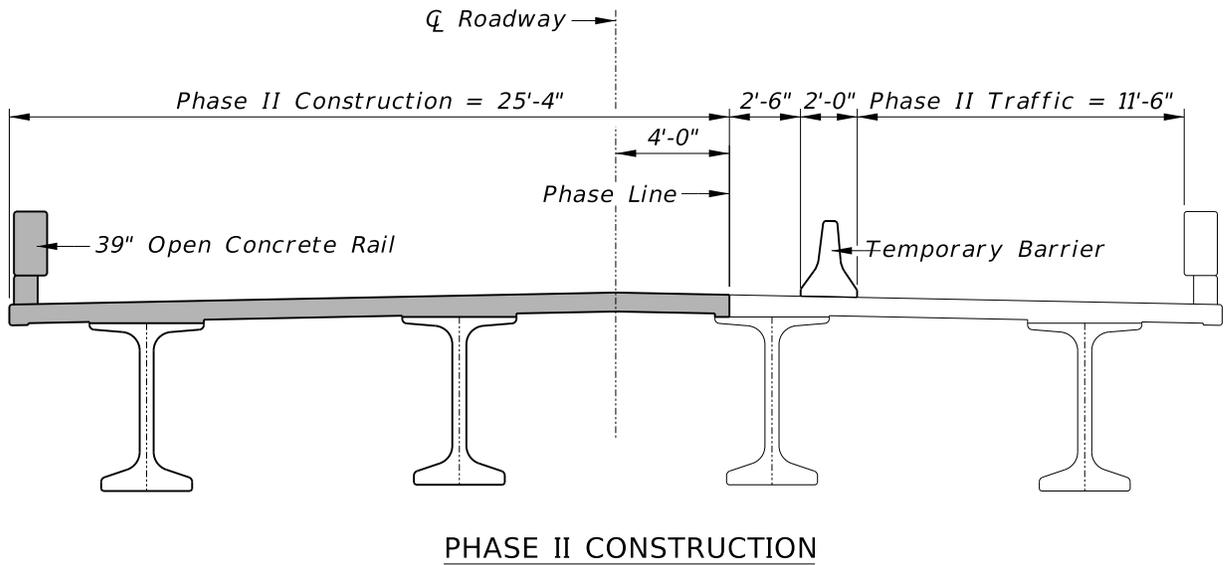


Figure 6.6— TS&L Example 6

6.4—AVAILABLE CHECKLISTS

The Following checklists are available in Appendix B:

- ▣ Concept Plan
- ▣ Concept Elevation

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Chapter 7 – General Notes, Quantities, and Index

7.1—INTRODUCTION

Use the base sheet OBD Front Sheet Samples.dgn as a starting point, ensuring the correct text format is followed. Select the model that best aligns with the type of bridge being designed. Modify notes only as needed to reflect project-specific information.

7.2—GENERAL SHEET LAYOUT

If the notes will not fit in one column, arrange the notes in two columns as shown.

- STEEL GIRDER BRIDGE -

- NOTES -

- QUANTITIES -

- INDEX -

GENERAL
This structure is designed in accordance with the AASHTO LRFD Bridge Design Specifications, XXXA Edition, including subsequent Interim revisions.
The Contractor may substitute any one of the alternate designs shown on the plans for the original design. All quantities are based on the original design and no deductions or reductions will be allowed for the use of an alternate design.
The concrete bridge deck is designed by the empirical design method.
The superstructure and substructure are designed for a future wearing surface of three inches of asphalt, 35 psf.
The superstructure is designed for the allowance of stay-in-place forms 15 psf between girders.
All dimensions shown are in horizontal plane only. No allowances have been made for vertical curve of roadway cross slope.
Unless noted "NOT TO SCALE", all details are drawn using a constant scale in accordance with NDOT Bridge Scaling Policy.
Girder shims that will be provided to the Contractor account for the dead load deflection due to weight of the slab, rail/barrier, wearing surface (if present), and median (if present) only. The Contractor is responsible for making the necessary adjustments for the specific forming system used to achieve the slab grades and elevations shown on the plans.
The shim shots may be taken before or after the turndowns and diaphragms are poured.

EKACTION
The Pay Item, "EARTHWORK MEASURED IN EMBANKMENT", shall include the channel excavation/riser below the bridge as shown on the plans.
Any excavation required for Rirap below the new channel cross section shall be subsidiary to the respective Rirap Pay Item.

SUBSTRUCTURE
All structural steel shall conform to the requirements of ASTM A709, Grade 36.
The Pay Item, "STRUCTURAL STEEL FOR SUBSTRUCTURE", shall include any of the following applicable items: tie rods, turnbuckles, sheet pile bent plates, nose armor angles, steel channel framing at integral Abutments.
The Rods shall conform to ASTM A709, Grade 36 steel. Turnbuckles shall conform to ASTM A463, Class C.
After fabrication, all structural steel for substructure, except steel channel framing at integral Abutments, shall be galvanized according to ASTM A253.
CONCRETE & REINFORCEMENT
Concrete for slab, approach slabs, diaphragms, turndowns, and rail/barriers shall be Class 4700, with a 28-day strength of 4,000 psi.
All other cast-in-place concrete shall be Class 4700 concrete, with a 28-day strength of 3,000 psi.
Chamfer all exposed edges of concrete.
Unless noted as "Optional", all construction joints shown are mandatory.
All reinforcing steel shall be epoxy coated and conform to the requirements of ASTM A615, Grade 60 steel.
The minimum clearance, measured from the face of the concrete to the surface of any reinforcing bar, shall be 3" for substructure elements and 2" for superstructure elements, except where otherwise noted.
Field bend and/or clip reinforcing bars to maintain minimum clearance. Epoxy coat clipped ends.
Contractor shall maintain a minimum placement and finishing rate of at least XXX feet/hour along G Bridge. Should the Contractor not possess the necessary equipment and facilities to maintain the minimum placement and finishing rate, the slab shall be placed in sections. All Positive moment sections of the slab shall be placed followed by placement of the Negative moment.

STEEL GIRDERS
All structural steel for girder flanges, webs, stiffeners, separators, and splice material shall conform to the requirements of ASTM A709, Grade 50W weathering steel. Bolted flange splices used in the assembly of weathering steel shall be Type 3.
All bearing stiffeners and girder ends, except at field splices, shall be vertical after final erection. All other stiffeners and all field splices shall be normal to the top flanges.
During girder fabrication, the flanges at the splice must line up within 1/8" parallel to the adjacent flanges without applying external force before the splice is drilled.
Where Charpy V-notch testing is required, the impact energy requirements shall be determined using Temperature Zone 2.
The Contractor may eliminate any bolted field splice and/or pier/bent by extending the heavier of the two sections so connected. The Contractor shall make all necessary adjustments in bearings and bearing seat elevations caused by these changes. These changes and a revised blocking diagram shall be shown on the shop plans and will be subject to approval by the Engineer. No change in the contract price or quantities will be made for this change.
As an alternate design, all intermediate stiffener plates may be omitted if X-web plates are used in place of X-web plates shown.
Butt splices will be permitted for flange or web plates exceeding 60 feet in length. The locations of the splices shall be shown on the shop plans and will be subject to approval by the Engineer.
During girder fabrication, the final camber tolerance shall not exceed those in Table 5.3 of AWS D15. "S" is the length of girder between splices.
Where the entire slab is not expected to be placed in one day, the Contractor shall submit an alternate proposed slab pouring sequence to the Bridge Division at the preconstruction conference so that new camber and shims may be calculated.
All fasteners shall be 3/4" high strength bolts, ASTM F325 Gr. A325. Fasteners for flange splices shall be supplied with sufficient grip length to extend beyond from the shear planes. All other fasteners (web splices and separator connections) may be detailed with the threads included in the shear planes.
Field tack welding of form hangers or miscellaneous hardware to any part of the steel girder, except for shear connectors, shall be prohibited.
When assembling the girders, they shall be set according to the blocking diagram before any bolts are tightened to a snug-tight condition.
Field splices shall be clean and free of all foreign matter before field assembly. The plates shall be in full contact when the bolts are tightened to a snug-tight condition.
The Contractor must provide any temporary bracing required to support the girder web and flanges against all torsional or lateral forces until the structure is fully erected. The girders with cross-frames for this bridge are designed to resist torsional and lateral forces caused by temporary construction loads applied to the fully erected steel framework prior to achieving composite action with the deck.
Girders and cross-frames or diaphragms are to be detailed, fabricated and erected for a no load fit (NLF) condition.
Girders and cross-frames or diaphragms are to be detailed, fabricated and erected for a steel dead load fit (SDLF) condition.

MISCELLANEOUS
All materials, equipment, tools, labor, and incidentals necessary to complete the project, not paid for directly, shall be considered subsidiary to other items for which payment is made.
See Roadway Plans and Special Provisions for details and information regarding optional contractor's Access Bridge or Access Crossing.

GROUP 6		
ACCESS BRIDGE		X LS
EARTHWORK MEASURED IN EMBANKMENT		X SY
ABUTMENT NO. 1 EXCAVATION		1 LS
PIER/BENT NO. 1 EXCAVATION		1 LS
PIER/BENT NO. 2 EXCAVATION		1 LS
ABUTMENT NO. 2 EXCAVATION		1 LS
CLASS 47B-3000 CONCRETE FOR BRIDGE		X CY
ABUTMENTS		X CY
PIER/BENT		X CY
CLASS 47BD-4000 CONCRETE FOR BRIDGE		X CY
SLAB		X CY
HAUNCHES		X CY
CONCRETE RAILS		X CY
ABUTMENTS		X LB
PIER/BENT		X LB
STEEL SUPERSTRUCTURE AT STATION XXX+XXX.XX		X LB
GIRDERS		X LB
SEPARATORS & MISC.		X LB
SHEAR CONNECTORS		X LB
BOLTS		X LB
TOTAL		X LB
STRUCTURAL STEEL FOR SUBSTRUCTURE		X LB
HP 12 INCH X 53 LB STEEL PILING		X LF
STEEL SHEET PILING		X SF
EXPANSION BEARING, PTFE TYPE		1 EA
FIXED BEARING		1 EA
GRANULAR BACKFILL		X CY
SUBSURFACE DRAINAGE MATTING		X SY
BROKEN CONCRETE RIRAP		X TON
ROCK RIRAP, TYPE "X"		X TON
CONCRETE FOR PAVEMENT		X CY
APPROACHES CLASS 47BD-4000		X CY
SLABS		X CY
CONCRETE RAILS		X CY
EPOXY COATED REINFORCING STEEL FOR PAVEMENT APPROACHES		X LB
SLABS		X LB
CONCRETE RAILS		X LB
STRIP SEALS		X LF
BRIDGE DECK GROOVING		X LF

DESIGN HISTORY	
PROJECT NO.	CONTR. NO.
X	X
X	X
Existing Plans are available from the Bridge Division upon request.	

GENERAL NOTES, QUANTITIES, & INDEX	1
GENERAL PLAN & ELEVATION	2
COORDINATES	3
GEOLOGICAL PROFILE & PILE LAYOUT	4
PILE DATA & SHEET PILE LAYOUT	5
BORING LOGS	6
PLAN & ELEVATION OF ABUTMENT	7
ABUTMENT DETAILS	8
WING, TIE ROD & GRADE BEAM DETAILS	9
PLAN & ELEVATION OF PIER/BENT	10
PIER/BENT DETAILS	11
GIRDER LAYOUT & ELEVATION	12
GIRDER DETAILS	13
CAMBER & BLOCKING DIAGRAM	14
CROSS SECTION OF ROADWAY	15
SLAB REINFORCEMENT LAYOUT	16
RAIL ON BRIDGE	17
APPROACH SLAB DETAILS	18
EXPANSION JOINT DETAILS	19
RAIL ON APPROACH SLAB	20
BILL OF BARS & BENDING DIAGRAMS	21
SHOP PLANS FOR REVIEW:	
Steel Superstructure	
Substructure Steel (Tie Rods / Steel Channels / Etc.)	
Steel Sheet Piling	
Bearing Devices	
Strip Seals	
SHOP PLANS FOR RECORD:	
Stay-in-Place Forms	

Figure 7.1— General Notes, Quantities & Index

If the notes are split into two columns, the columns containing quantities, and the sheet index must be narrowed to fit. If there is insufficient space to include all the notes, quantities, and the sheet index on a single sheet, the quantities and index may be moved to the next sheet. Do not split GENERAL NOTES across multiple sheets.

7.3—DETAILED NOTE INFORMATION

The General Notes Sheet provides general bridge information, notes related to the overall design and construction of the bridge, and some pay item information.

Present the General Notes on the left side of the General Notes, Quantities, and Index sheet in an organized and easy-to-read manner. It is preferred to group the notes as shown in Figure 7.1, with titles that describe the group.

7.4—QUANTITIES

The referenced sheet, OBD Front Sheet Samples.dgn, includes the expected quantities format. If additional quantities are needed, please verify that the pay item exists by searching in the [Item Master Information located here](#) (available on the NDOT's public website). Contact Bridge Division Consultant Coordinator for any questions about pay items.

Follow the guidelines in the Bridge Design Manual for quantity rounding. Generally, concrete quantities may be rounded to the nearest tenth of a cubic yard, while reinforcing steel and structural steel is rounded to the nearest whole pound.

If the plans include an asphalt overlay, all pay items directly associated with the overlay must be listed under GROUP 9.

7.5—INDEX

The referenced starter base sheet includes the standard sheet index format.

7.6—DESIGN HISTORY

If there is an existing structure at the location of the new or remodeled structure, the following design history cell will need to be added to the sheet.

DESIGN HISTORY			
PROJECT NO.	CONTROL NO.	YEAR	TYPE OF WORK
X	X	X	X
<i>Existing Plans are available from the Bridge Division upon request.</i>			

Figure 7.2— Design History

7.7—SHOP PLAN LIST

Show a list of required shop plans in the bottom right section of the General Notes, Quantities, and Index sheet.

SHOP PLANS FOR REVIEW:
Steel Superstructure
Substructure Steel (Tie Rods / Steel Channels / Etc.)
Steel Sheet Piling
Bearing Devices
Strip Seals

SHOP PLANS FOR RECORD:
Stay-in-Place Forms

Figure 7.3— Shop Plan List Example

7.8—AVAILABLE CHECKLISTS:

The following checklists are available in Appendix B:

- ▣ General Notes, Quantities, and Index

8.2.1—Stationing

In bridge and roadway design, clear and consistent referencing of stations (which indicate location along the project) is critical for accurate construction and alignment.

Stations are calculated to .0001 foot and shown in the plans to the nearest .01 foot.

Format: "Sta."

Example: Sta. 34+45.45

Station and Offset:

Format: "Sta. [station], [offset] [side]". Example: Sta. 34+45.45, 54.45' RT

8.2.1.1—Stations For Straight (Non-Curved) Bridges

All stations are referenced along the centerline of the project with stationing progressing in the direction of construction.

8.2.1.2—Stations For Twin Bridges

The centerline of the project (or the shared centerline of both bridges) serves as the common reference for stations.

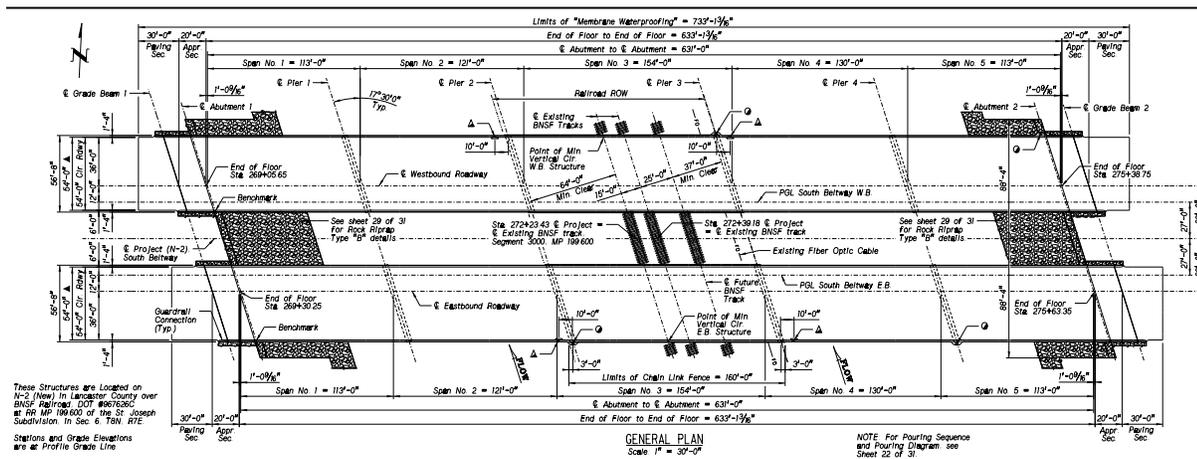


Figure 8.3—Twin Bridge Plan Example

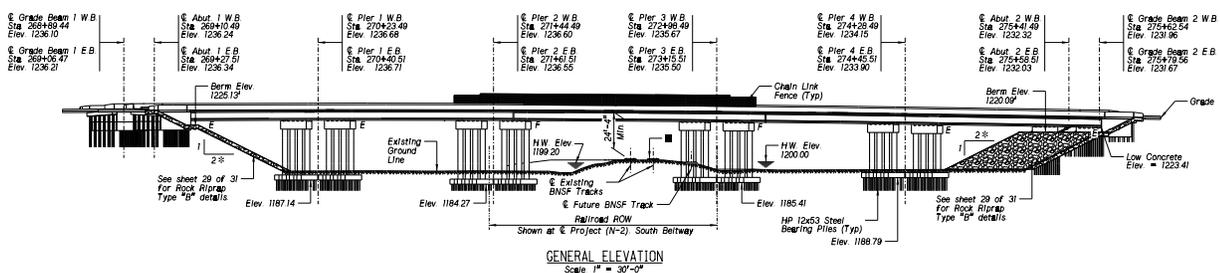


Figure 8.4—Twin Bridge Elevation Example

8.2.1.3—Stations For Curved Bridges

For curved bridges, the handling of stations, and dimensioning follows a slightly different approach due to the changing alignment of the bridge along the curve:

- A chord Line or baseline is used as the reference line for angles and plan dimensions. This chord line is a straight line that intersects the centerline of the bridge and the centerline of the abutments (for most curved bridges) or multiple supports (for extreme curves), providing a simplified alignment for measuring angles and dimensions. See Figure 8.5 and Figure 8.6

It serves as the reference for positioning all bridge elements in the plan view, ensuring that angles and dimensions remain consistent and straightforward despite the curved geometry of the bridge.

- It is acceptable to show dimensions along the centerline of the project, but it is important that this is clearly noted on the plans.

- Stations are referenced from the centerline of the project, following the actual project alignment, even though the chord line is used for dimensioning. This allows stationing to maintain continuity with other project elements, regardless of the curve in the bridge.
- When the design places the bridge on a very shallow horizontal curve, it may be necessary to provide a Bridge Layout, or an Alignment Schematic as shown in Figure 8.7

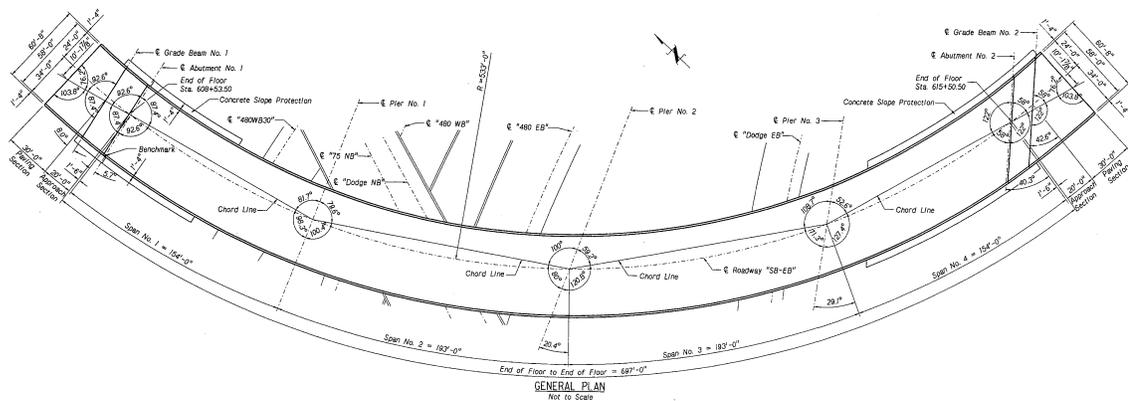


Figure 8.5– Curved Bridge Example 1

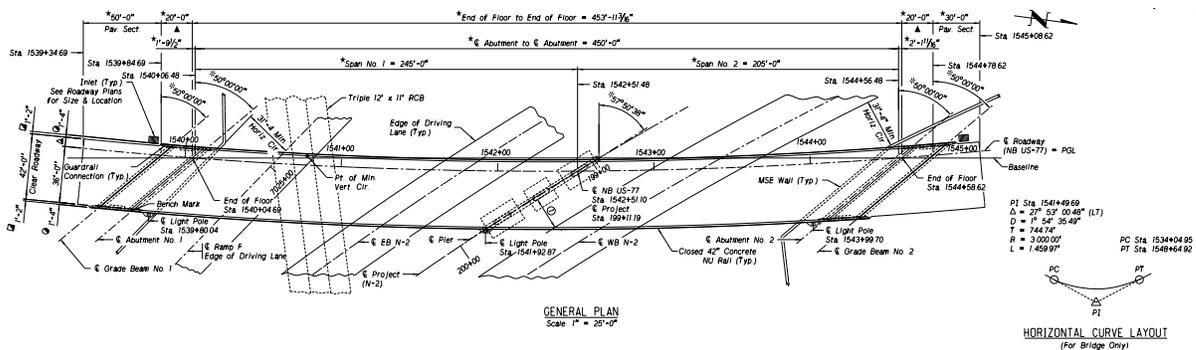


Figure 8.6– Curved Bridge Example 2

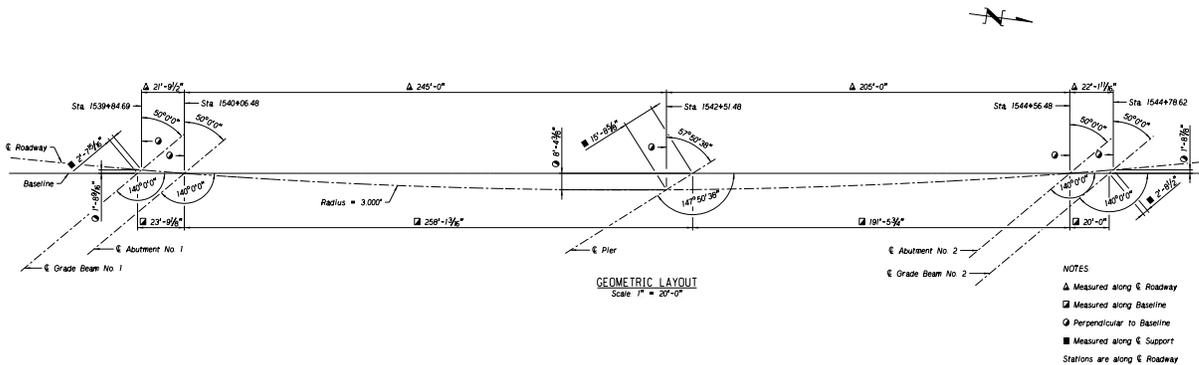


Figure 8.7– Alignment Schematic Example

8.2.2—Utilities

Show only utilities in the plan view that are either:

- Attached to the bridge, or
- Directly affecting the construction of the bridge (e.g., a water supply line between two footings or utilities maintained on an existing structure during new bridge construction). Do not show utilities that are abandoned or relocated away from the bridge.
- All utilities on the project are shown within the Utility Plans (K sheets)

8.3— GENERAL ELEVATION

In bridge and roadway design, clear and consistent referencing elevations (which represent vertical positioning) is critical for accurate construction. The guidelines provided specify how to handle elevation representation.

Place the elevation view directly below the plan view.

8.3.1—Elevations for Different Bridge Types

8.3.1.1—Elevations For Non-Curved Bridges

All elevations are referenced along the centerline of the project or the Profile Grade Line (PGL).

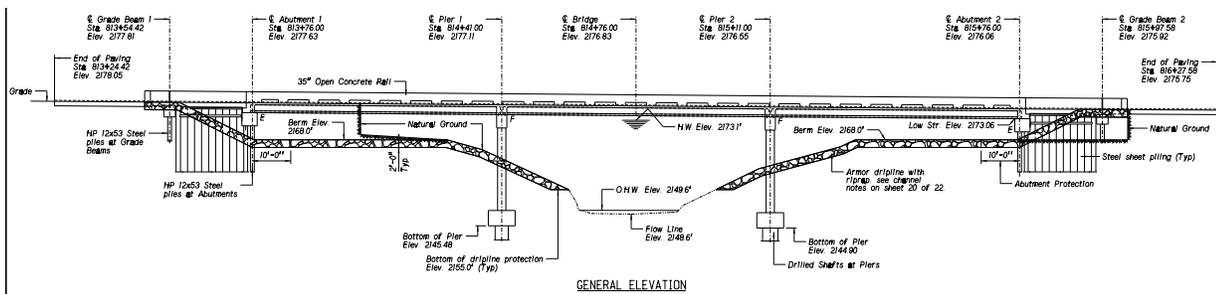


Figure 8.8— Elevations for Non-Curved Bridges

8.3.1.2—Elevations For Twin Bridges

Elevations are derived from the Profile Grade Line (PGL) of each bridge, if provided. The PGL is the preferred reference for vertical positioning along the project. If no Profile Grade Line is provided, then elevations are referenced from the centerline of the project.

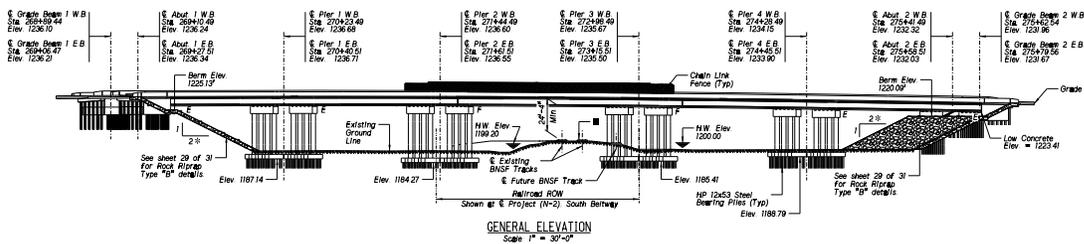


Figure 8.9— Elevations for Twin Bridges

8.3.1.3—ELEVATIONS FOR CURVED BRIDGES

Elevations follow the Profile Grade Line(s), as per standard practice. The Profile Grade Line represents the vertical alignment of the project, and elevations are referenced to this line for consistency.

8.3.2—Elevation Scale

Use the same scale as the plan view.

8.3.3—Elevation Formats

Elevations are calculated to .0001 foot and shown in the plans to the nearest .01 foot.

Example: Elev. 1187.14.

8.3.4—Utilities

Show only utilities in the elevation view that directly affect the construction of the bridge (e.g., water supply lines, sewer lines, gas lines, phone lines, etc. that need to be protected during bridge construction). Do not show utilities that are abandoned or relocated away from the bridge.

8.4—NOTES

8.4.1—Structure Location Note

Locate the structure location note below and to the left of the plan view.

Note: This Structure is located approximately .25 miles West of Arapahoe on Hwy 6, in Furnas County, over Muddy Creek, between Sections 15-T4N-R23W and 22-T4N-R23W.

Figure 8.10— Location Note

8.4.2—Grade Elevation Note

Locate the grade elevation note above and to the left of the elevation view.

Grade elevations are shown along \mathcal{C} of project, at top of concrete, prior to placing 3" Asphalt Overlay.

Figure 8.11— Grade Elevation Note

8.5—TRAFFIC DATA

Provide traffic data as required for the project. Locate on the right side of sheet near the title block. The traffic data can be obtained by emailing the control number to Kaine.McClelland@nebraska.gov. Update the traffic data close to final submittal to ensure up-to-date numbers.

TRAFFIC DATA		
YEAR	2021	2041
ADT	2520	2665
DHV	275	290
HEAVY TRUCKS	16%	16%

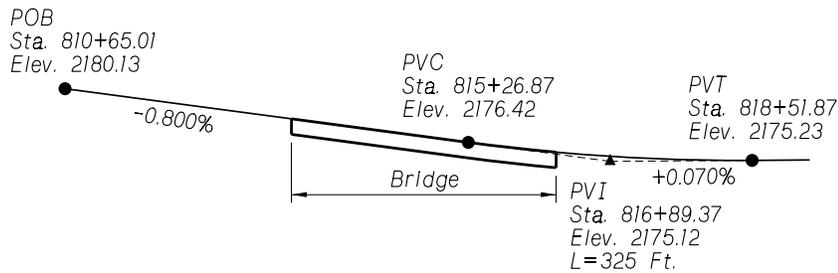
Figure 8.12— Traffic Data Table

AC=TRDATA

8.6—ROADWAY ALIGNMENT INFORMATION

8.6.1—Vertical Curve Or Profile Grade Data

Provide vertical curve or Profile Grade Data as necessary. This information is provided by roadway design. Define where the structure is located on the curve as shown in the image below. Show any curve and tangent section that occur between End of Paving to End of Paving of the bridge. Use the roadway-defined points to describe these curves or tangent sections.



PROFILE GRADE DATA
Not to Scale

Note: Profile Grade Data Is Prior to Placement of Asphalt Overlay.

Figure 8.13— Profile Grade Data

8.6.2—Horizontal Curve Data (If Applicable)

The horizontal curve data is shown on the Bridge Plans only if the structure is located within a curved portion. Only the portion near the structure needs to be shown on the Bridge Plans.

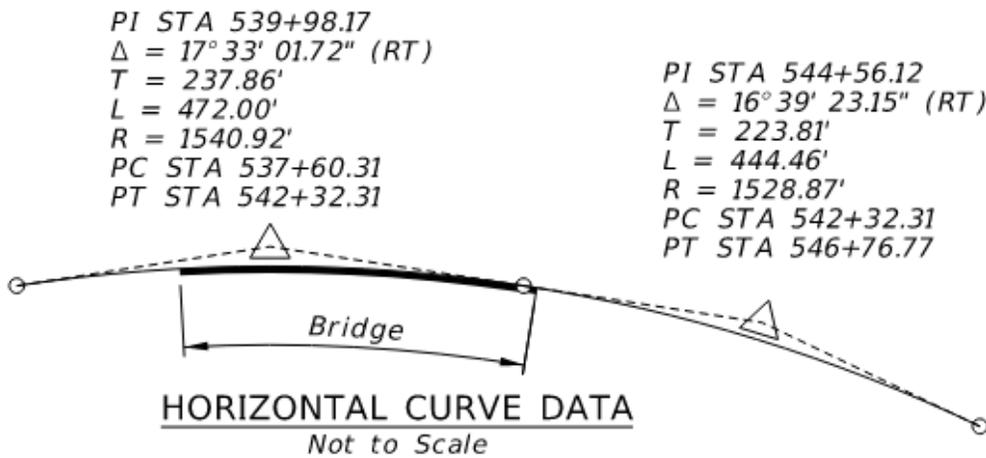


Figure 8.14— Horizontal Curve Date

8.6.3—Super Elevation Transition Data (If Applicable)

Include data for superelevation transitions on the bridge. This information is provided by roadway design.

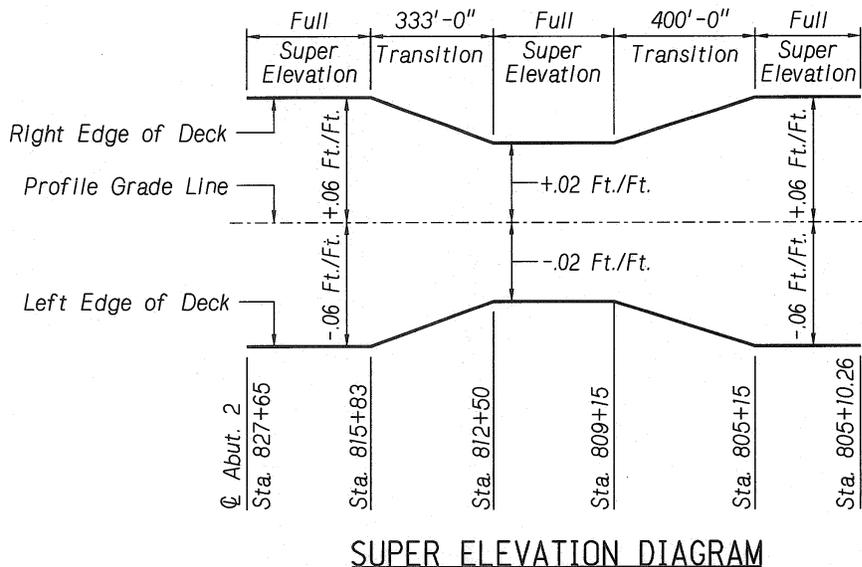


Figure 8.15— Super Elevation

8.7—BRIDGE HYDRAULIC INFORMATION (IF APPLICABLE)

This information is provided by the Bridge Hydraulics Section and can be found on the hydraulics data sheet. Use the appropriate cell from the NDOT library: OBD Hydraulics.cel, AC=HYDRA1, 2, or 3.

Locate on the left side of the plan and elevation sheet.

BRIDGE HYDRAULIC INFORMATION

STREAM: Muddy Creek
 D.A. = 240.8 SQ MI
 Q100 = 14667 CFS (BASE FLOOD)
 Q100 = 14667 CFS (BRIDGE - BASE FLOOD)
 H.W. ELEV. = 2173.1 FT (U.S. SIDE)
 W.W.A. BELOW H. W. = 2031 SQ FT
 Q = N/A CFS (OVERTOPPING FLOOD)
 LOW ROAD ELEV. = 2175.22 FT
 Q (O.H.W.) = 10 CFS
 ORDINARY HIGH WATER ELEV. = 2149.6 FT
 Q100 GENERAL SCOUR = 3 FT
 Q100 LOCAL SCOUR = 8 FT
 Q100 SCOUR ELEV. = 2137 FT
 Q500 SCOUR ELEV. = 2133 FT

Figure 8.16— Bridge Hydraulic Information

8.8—POURING DIAGRAM

This information is provided by the engineer or designer. Use a plan view to depict the required pouring sequences and directions. Locate in the lower right corner of the plan sheet.

- Use the appropriate cell from the NDOT library for skewed or non-skewed structures:
OBD Bridge Deck.cel (AC=POURSQ, POURSQ LHB, or POURSQRHB).

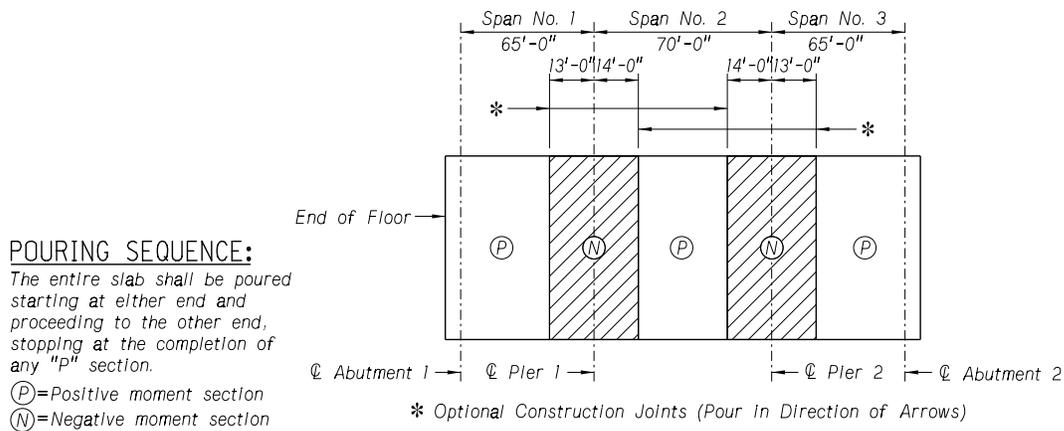


Figure 8.17— Pouring Sequence

8.9—AVAILABLE CHECKLISTS

The following checklists are available in Appendix B:

- General Plan
- General Elevation
- Additional Information
- Final Reviews and verifications

Chapter 9 — Construction Phasing

9.1—INTRODUCTION

The purpose of the construction phasing drawing is to present a graphical and narrative description of the way in which the designer has envisioned the construction of the bridge and staging of traffic. This sequence will control the design of bridge elements as well as the detailing of reinforcing steel.

Use the appropriate existing line style to illustrate the existing bridge. Dimension widths of construction for each phase, including the width of any closure pour.

Detail deck sections for each phase of construction starting with the existing bridge. Dimension the width of the travel lanes. The travel lanes may be dimensioned individually (e.g. Phase I Traffic = 13'-0") or collectively for adjacent lanes. Dimension the widths of medians, barriers, sidewalks, and shoulders, as applicable. Show required temporary barriers and dimension the distance from the edge of the barrier to the edge of the deck.

9.2—GENERAL PHASING GUIDANCE

This information is provided in the TS&L for the project. It may be necessary to modify the phasing to accommodate the current design.

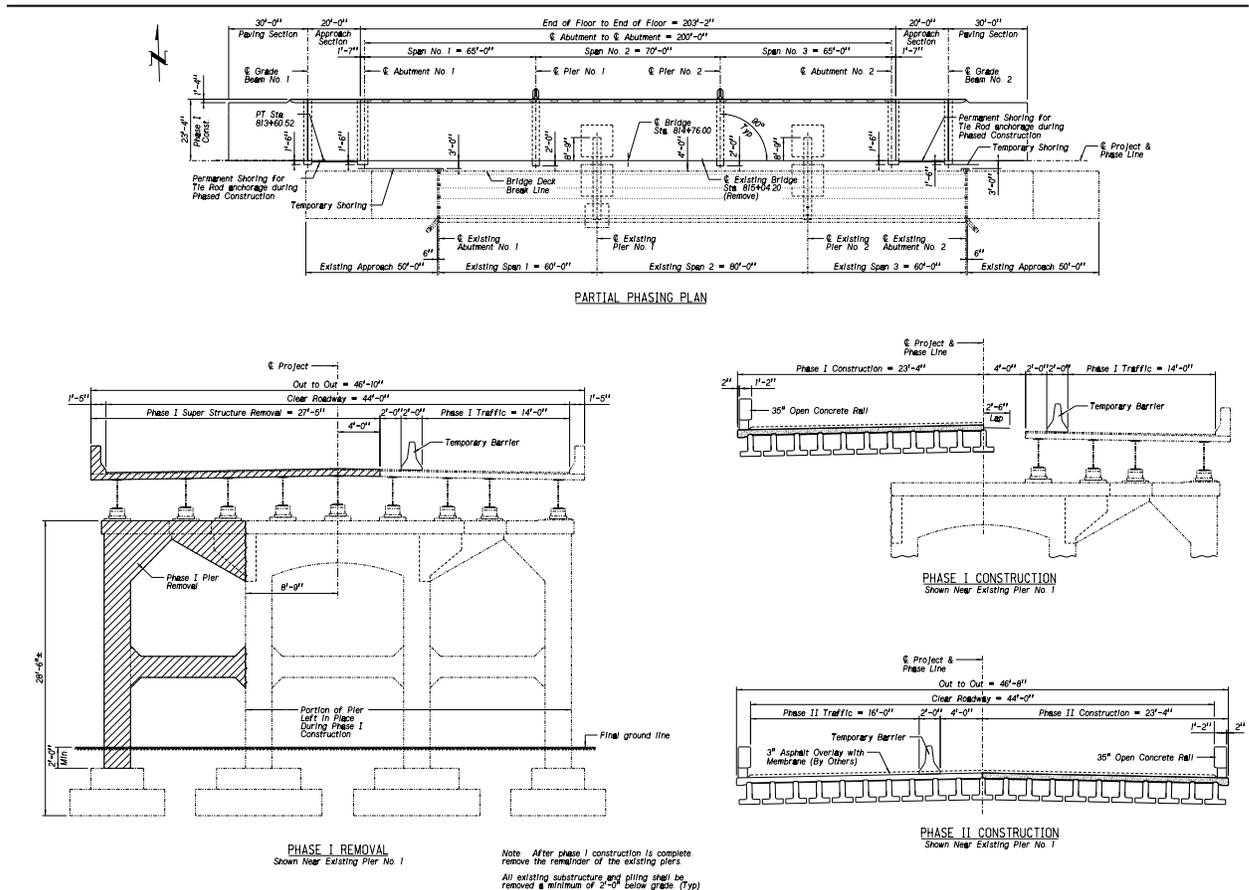


Figure 9.1— Phasing Example

9.3—AVAILABLE CHECKLISTS

The following checklists are available in Appendix B:

- ▣ Phasing Plan
- ▣ Phasing Sections

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Chapter 10 — Coordinates

10.1—INTRODUCTION

The purpose of plan coordinates is to provide a precise and standardized reference system for locating elements within a project. These coordinates ensure accuracy and consistency in design, construction, and maintenance. In bridge plans, plan coordinates are critical for placing features such as piers, abutments, and roadway alignments, ensuring the project adheres to design specifications.

10.2—GENERAL COORDINATE PLAN

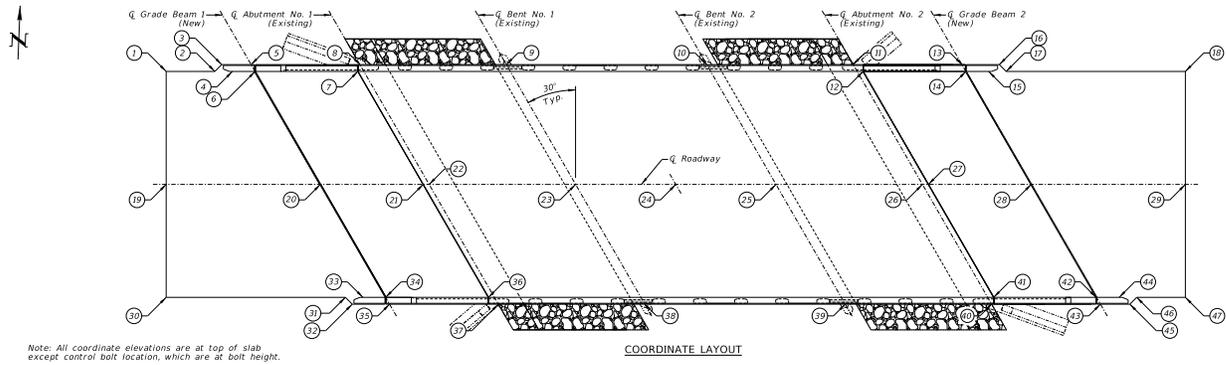


Figure 10.1— Plan Example

10.3—COORDINATE LAYOUT

The figure below illustrates a partial plan showing the coordinate layout. Assign a coordinate reference number at each location where coordinates will be provided in the accompanying table. This ensures clear identification and accurate referencing of each coordinate point in the plan. Point numbers are placed linearly along the left edge, centerline, right edge, and other critical lines such as phasing joints, ensuring consistency and clarity in the layout.

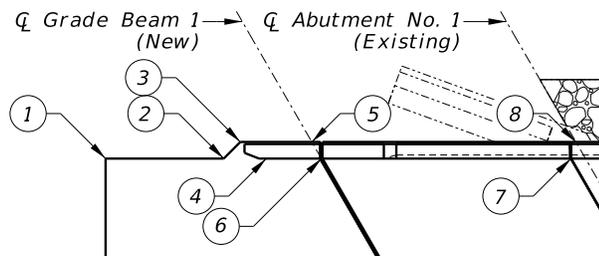


Figure 10.2— Coordinate Layout

10.4—GENERAL COORDINATE TABLES

The following example is recommended for 3D models. It includes columns for X, Y, and Z coordinates, allowing precise spatial definition of points. If you are producing 2D plans, the coordinate table will be similar in layout, but the Elevation (Z) column will be removed, reflecting the planar nature of 2D drawings while maintaining clear horizontal referencing. This ensures consistency and clarity across both presentation styles.

COORDINATES - LEFT EDGE OF BRIDGE						
Point	Station	Offset	X Coordinate	Y Coordinate	Elevation	Point ID
1	810+88.26	-22	2573599.446	608043.218	1228.41	Left Edge of Paving Section
2	810+97.72	-22	2573608.904	608043.589	1228.42	Left Edge - Begin Taper
3	810+99.06	-23.333	2573610.184	608044.974	1228.39	Left Edge - End Taper
4	811+00.81	-22	2573611.985	608043.710	1230.42	Control Bolt
5	811+04.79	-23.333	2573615.909	608045.199	1228.40	Left Edge Paving Section - CL Grade Beam 1
6	811+05.56	-22	2573616.731	608043.897	1228.42	Front Face of Rail - CL Grade Beam 1
7	811+25.56	-22	2573636.716	608044.682	1228.43	Front Face of Rail - End of Floor
8	811+25.95	-23.333	2573637.060	608046.030	1228.40	Left Edge of Deck - CL Abutment 1
9	811+54.45	-23.333	2573665.538	608047.148	1228.39	Left Edge of Deck - CL Bent 1
10	811+93.45	-23.333	2573704.508	608048.679	1228.35	Left Edge of Deck - CL Bent 2
11	812+21.95	-23.333	2573732.986	608049.798	1228.30	Left Edge of Deck - CL Abutment 2
12	812+23.89	-22	2573734.973	608048.542	1228.32	Front Face of Rail - End of Floor
13	812+43.12	-23.333	2573754.136	608050.629	1228.25	Left Edge Approach Section - CL Grade Beam 2
14	812+43.89	-22	2573754.958	608049.327	1228.27	Front Face of Rail - CL Grade Beam 2
15	812+48.64	-22	2573759.704	608049.513	1230.26	Control Bolt
16	812+50.39	-23.333	2573761.400	608050.914	1228.23	Left Edge - Begin Taper
17	812+51.72	-22	2573762.785	608049.634	1228.25	Left Edge - End Taper
18	812+86.59	-22	2573797.626	608051.003	1228.13	Left Edge of Paving Section

Figure 10.3— Coordinate Example- 3D Files Left Edge of Bridge

COORDINATES - CENTER LINE ROADWAY						
Point	Station	Offset	X Coordinate	Y Coordinate	Elevation	Point ID
19	810+88.26	0	2573600.310	608021.235	1228.85	End of Paving Section at CL Roadway
20	811+18.26	0	2573630.287	608022.412	1228.87	CL Grade Beam 1 at CL Roadway
21	811+38.26	0	2573650.271	608023.197	1228.87	End of Floor at CL Roadway
22	811+39.43	0	2573651.437	608023.243	1228.87	CL Abutment 1 at CL Roadway
23	811+67.93	0	2573679.915	608024.362	1228.85	CL Bent 1 at CL Roadway
24	811+87.43	0	2573699.400	608025.127	1228.83	CL Bridge at CL Roadway
25	812+06.93	0	2573718.885	608025.893	1228.80	CL Bent 2 at CL Roadway
26	812+35.43	0	2573747.363	608027.012	1228.73	CL Abutment 2 at CL Roadway
27	812+36.60	0	2573748.532	608027.057	1228.73	End of Floor at CL Roadway
28	812+56.60	0	2573768.513	608027.842	1228.67	CL Grade Beam 2 at CL Roadway
29	812+86.60	0	2573798.492	608029.020	1228.57	End of Paving Section at CL Roadway

Figure 10.4— Coordinate Example- 3D Files Center Line Roadway

COORDINATES - RIGHT EDGE OF BRIDGE						
Point	Station	Offset	X Coordinate	Y Coordinate	Elevation	Point ID
30	810+88.26	22	2573601.173	607999.252	1228.41	Right Edge of Paving Section
31	811+23.13	22	2573636.015	608000.620	1228.43	Right Edge - Begin Taper
32	811+24.46	23.333	2573637.399	607999.340	1228.40	Right Edge - End Taper
33	811+26.21	22	2573639.096	608000.741	1230.43	Control Bolt
34	811+30.96	22	2573643.842	608000.928	1228.43	Front Face of Rail - CL Grade Beam 1
35	811+31.73	23.333	2573644.664	607999.626	1228.40	Right Edge Approach Section - CL Grade Beam 1
36	811+50.96	22	2573663.827	608001.713	1228.42	Front Face of Rail - End of Floor
37	811+52.90	23.333	2573665.814	608000.457	1228.39	Right Edge of Deck - CL Abutment 1
38	811+81.40	23.333	2573694.292	608001.575	1228.37	Right Edge of Deck - CL Bent 1
39	812+20.40	23.333	2573733.262	608003.106	1228.30	Right Edge of Deck - CL Bent 2
40	812+48.90	23.333	2573761.740	608004.225	1228.23	Right Edge of Deck - CL Abutment 2
41	812+49.30	22	2573762.091	608005.573	1228.26	Front Face of Rail - End of Floor
42	812+69.29	22	2573782.069	608006.358	1228.19	Front Face of Rail - CL Grade Beam 2
43	812+70.06	23.333	2573782.890	608005.056	1228.16	Right Edge Paving Section - CL Grade Beam 2
44	812+74.04	22	2573786.815	608006.544	1230.18	Control Bolt
45	812+75.79	23.333	2573788.616	608005.281	1228.14	Right Edge - Begin Taper
46	812+77.13	22	2573789.896	608006.665	1228.17	Right Edge - End Taper
47	812+86.59	22	2573799.354	608007.037	1228.13	Right Edge of Paving Section

Figure 10.5— Coordinate Example- 3D Files Right Edge of Bridge

10.5—AVAILABLE CHECKLISTS

The following checklists are available in Appendix B:

- ▣ Coordinates

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Chapter 11 — Geological Sheets

11.1—INTRODUCTION

The geological sheets show the pile layout, pile details, geological properties, and miscellaneous substructure details of the bridge elements that transfer the loads to the ground. It consists of elements such as bearing piles, sheet piles, granular fill, and boring logs.

11.2—PILE LAYOUT

A pile layout specifies the type, size, number, and arrangement of piles needed to support the bridge structure, distributing loads. Place the pile layout plan in the top-left corner of the sheet.

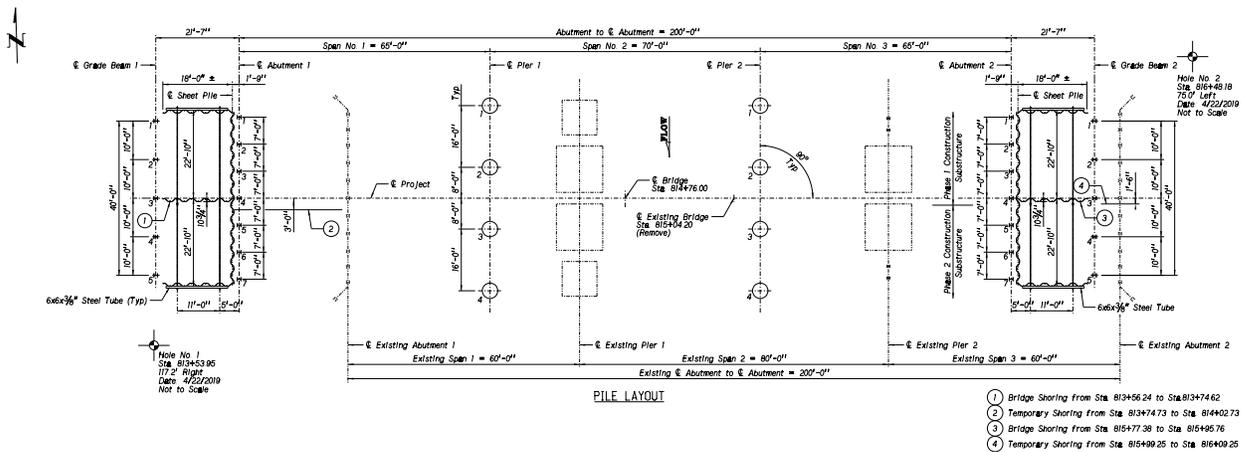


Figure 11.1— Pile Layout

11.3—GEOLOGICAL PROFILE

The purpose of providing geotechnical data in bridge plans is to ensure the foundation design is accurate, efficient, and tailored to the site-specific conditions. Geotechnical data, such as soil profiles, bearing capacities, and groundwater conditions, informs the selection and placement of piles, ensuring stability and preventing settlement or structural failure.

Place the geological profile directly below the plan view.

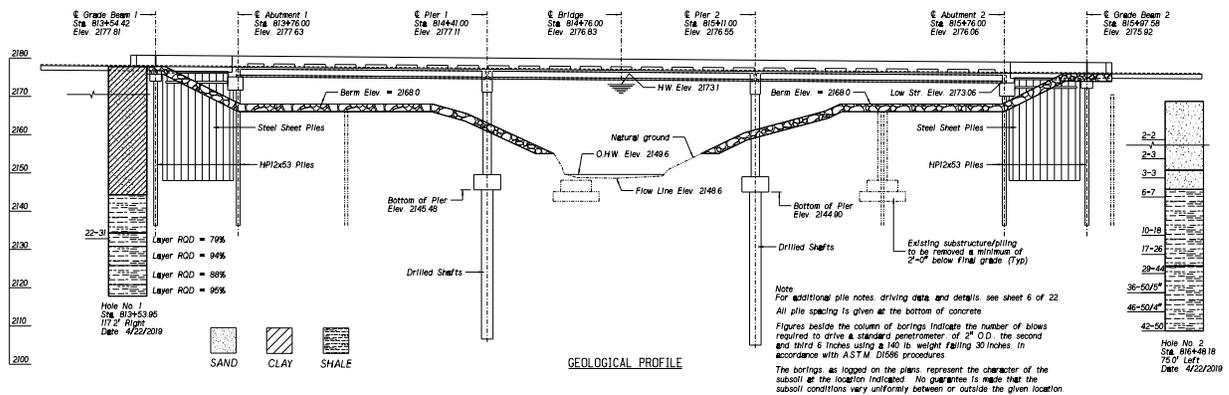


Figure 11.2— Geological Profile

11.4—PILE DATA TABLE

The detailer is responsible for providing critical pile data, including the locations, pile numbers, cut-off elevations, design pile bearing capacities, and pile type, based on information supplied by the engineer or designer. Minimum penetration depths and pile order lengths are obtained from the geological engineer. The pile data table, shown below as an example, is available in the OBD Geology.cel library, along with other standard tables.

PILE DATA						
LOCATION	PILE NUMBER	CUT-OFF ELEVATION	MINIMUM PENETRATION BELOW CUT-OFF (feet)	PILE ORDER LENGTH (feet)	DESIGN PILE BEARING (kips/pile)	PILE TYPE
Grade Beam 1	1-5	2174.98	35	40	150	HP12x53
Abutment 1	1-7	2172.54	40	45	210	HP12x53
Abutment 2	1-7	2170.96	40	45	210	HP12x53
Grade Beam 2	1-5	2173.09	35	40	150	HP12x53

Figure 11.3— Pile Data

11.5—ALTERNATE GEOLOGICAL PLANS

If there is not enough room to fit the entire geological plan and profile on one sheet, the following alternative format can be used.

- Divide the geological plan and profile into two sheets. One sheet can display the plan view (with boring locations and pile placement), while the second sheet shows the profile view (with depth details, stratigraphy, and other vertical information). If there is adequate room, the geological details may be added to these sheets.

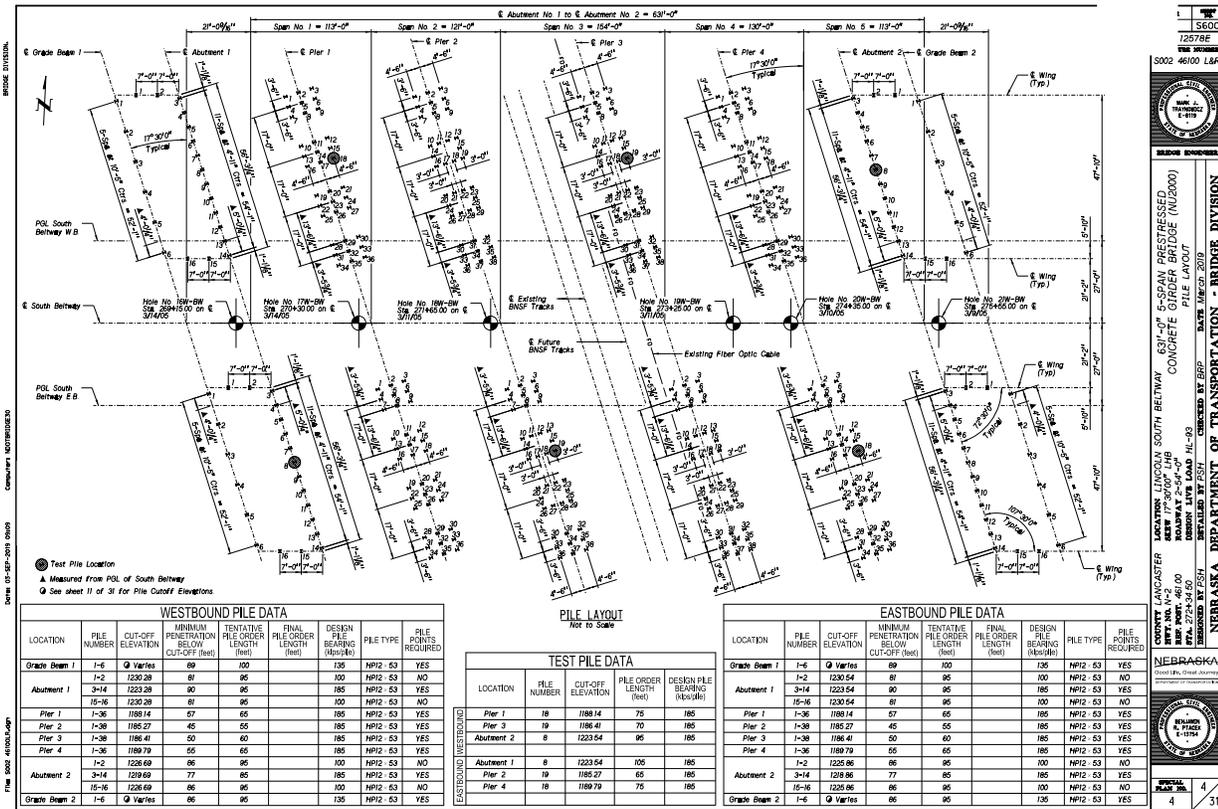


Figure 11.4— Alternate Pile Layout

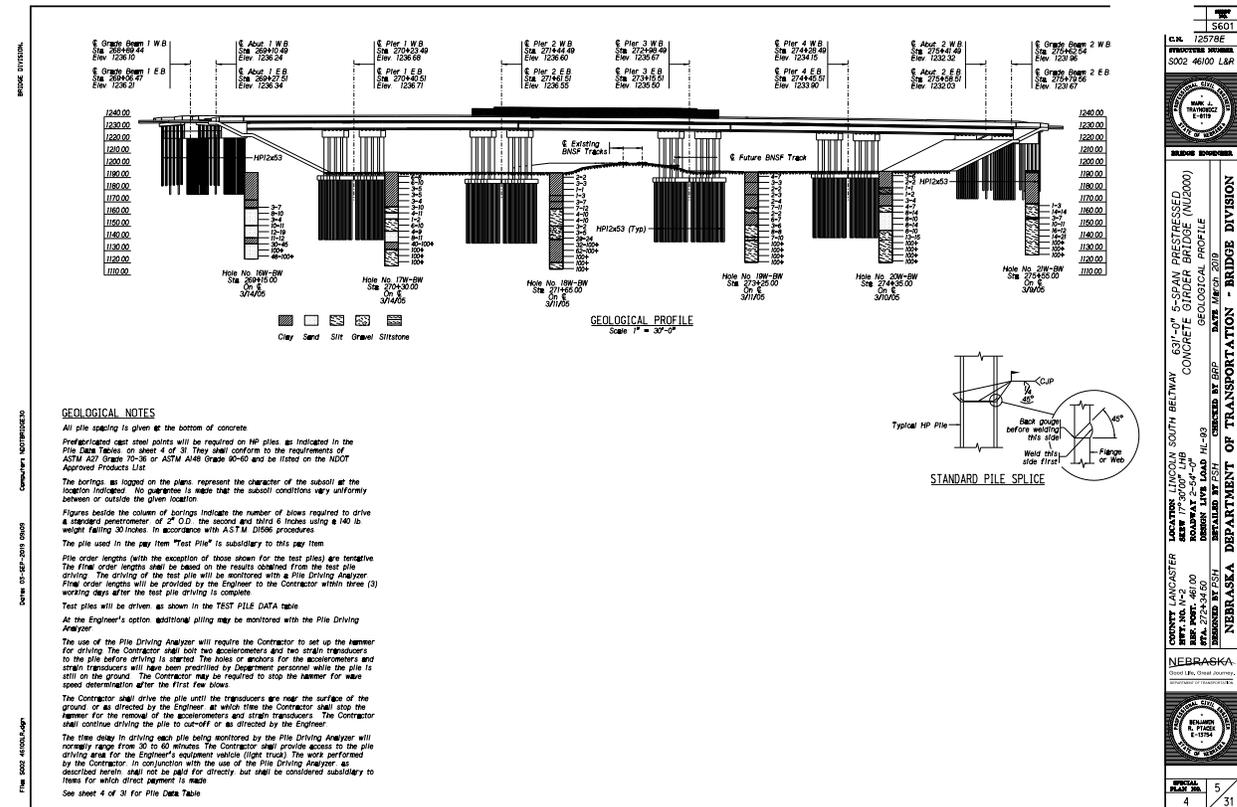


Figure 11.5— Geological Profile Full Plan Sheet

11.5.1—Boring Log Sheet(s)

These sheets provide detailed information about the soil conditions at various depths, which is essential for understanding the ground characteristics at the bridge site. The Boring Log Sheets clearly display the borehole locations, soil types, depth of each layer, and any relevant notes regarding groundwater, rock, or other geological features.

Clearly label each Boring Log Sheet with the boring location, reference number, and stationing to help with the identification and correlation with other project documents. Structure the sheet in a way that complements the Geological Profile Sheet and does not cause confusion when cross-referencing.

Provide up to 3 Boring Log Sheets per plan sheet. It has been found that a simple drag of the pdf of the boring log in the OBM reference box (instead of rastering in) will result in a quicker loading file.

Even with the boring log sheets included in the plan set, the boring logs shall be shown on the geological profile sheet. This is to provide the information to field personnel during pile driving.

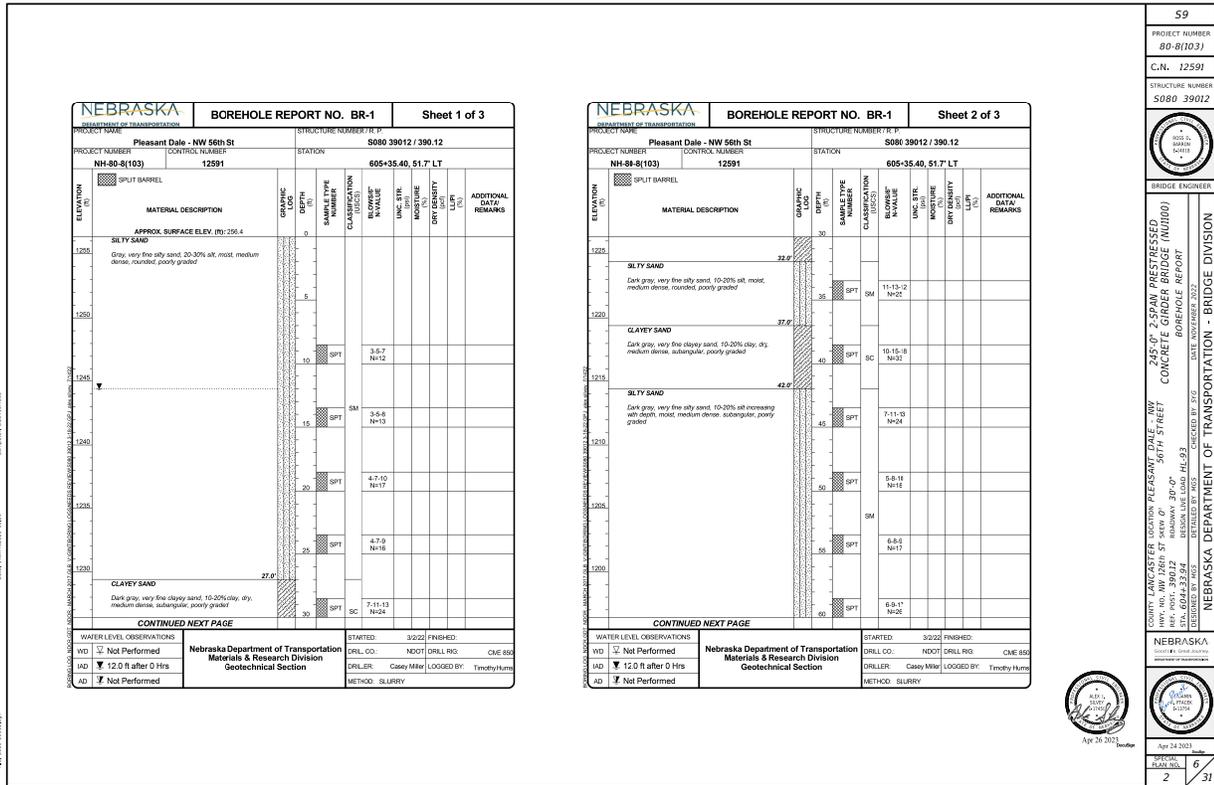


Figure 11.6— Boring Sheet Example

11.6—PILE DETAILS SHEET

The Pile Details sheet serves as a supplementary page when the notes, pile data, and substructure details are too extensive to fit within the Geological Plan and Profile sheet. This sheet provides a dedicated space for including all relevant geological information that supports the construction of the bridge’s substructure. The following figure is an example layout of a Geological Details sheet, showing how the various elements like pile data and substructure details are organized and displayed.

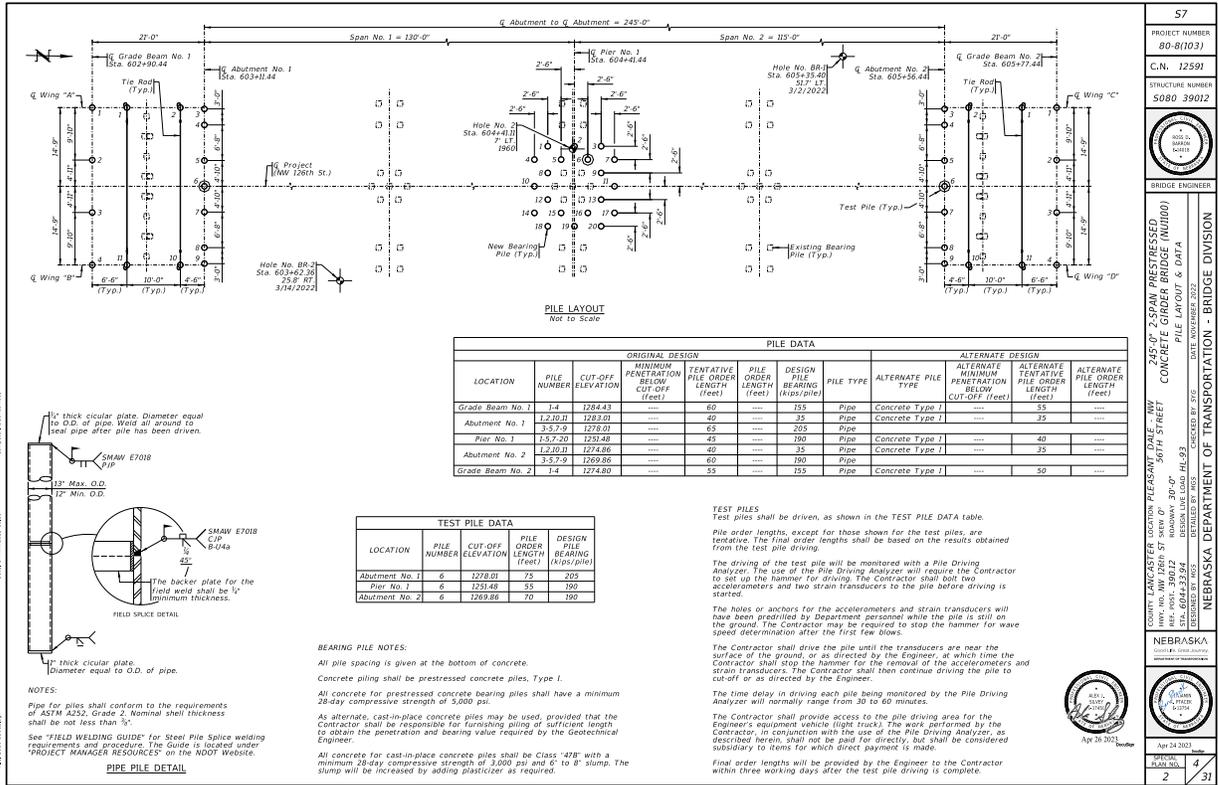


Figure 11.7— Pile Detail Sheet Example

11.7—GEOLOGICAL NOTES

The geological notes, when needed, are placed on one of the geological sheets, and are available in the OBD Geological library. These notes provide essential information on material specifications, payment information, and design information for the substructure, including sheet piles.

GEOLOGICAL NOTES

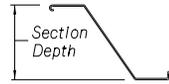
All pile spacing is given at the bottom of concrete.

Piers/Bents are designed for scour to elevation 1940.52 ft. for 100-Year Flood
Piers/Bents are checked for scour to elevation 1938.00 ft. for 500-Year Flood

Pier/Bent piling followed by the letter "B" shall be battered at 1/2 : 12.

As a minimum, all steel sheet piling shall conform to ASTM A328/A328M steel and shall meet the following requirements:

- Section Length _____ 25.0 ft.
- Maximum Section Depth _____ 13.0 in.
- Minimum Section Thickness _____ 0.3125 in.
- Elastic Section Modulus _____ 27.5 in³/ft



The Contractor shall submit for approval a shop plan of the sheet pile layout showing all pertinent dimensions, details, and section properties.

The pay quantity will be based on the sheet pile wall dimensions shown. The constructed wall length will be within ± 2'-0" of the sheet pile wall dimensions shown.

The borings, as logged on the plans, represent the character of the subsoll at the location indicated. No guarantee is made that the subsoll conditions vary uniformly between or outside the given location.

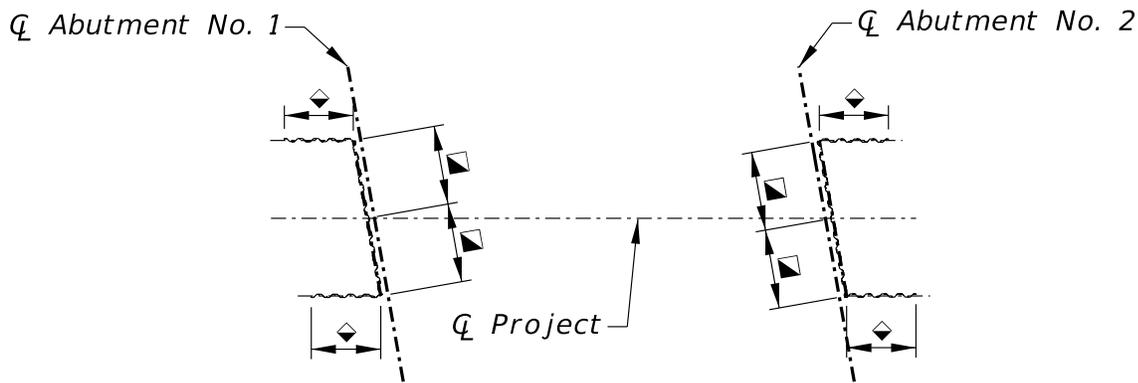
Figures beside the column of borings indicate the number of blows required to drive a standard penetrometer, of 2" O.D., the second and third 6 inches using a 140 lb. weight falling 30 inches, in accordance with A.S.T.M. D1586 procedures.

Figure 11.8— Geological Notes

11.8—SHEET PILE PLAN

The sheet pile layout, when needed, is placed on one of the geology sheets. The sheet pile plan is needed to detail the arrangement of sheet piles for temporary or permanent earth retention, excavation support, or foundation protection, ensuring stability and structural integrity during construction. Since the bridge division specifies only the minimum structural requirements rather than the type of sheet pile to be used, the designer indicates only the outer limits. These limits may be shown in the pile layout, or in a separate detail when the pile layout becomes too cluttered, as shown below.

Note: The fabricator is required to submit shop drawings for review.



LIMITS OF STEEL SHEET PILE

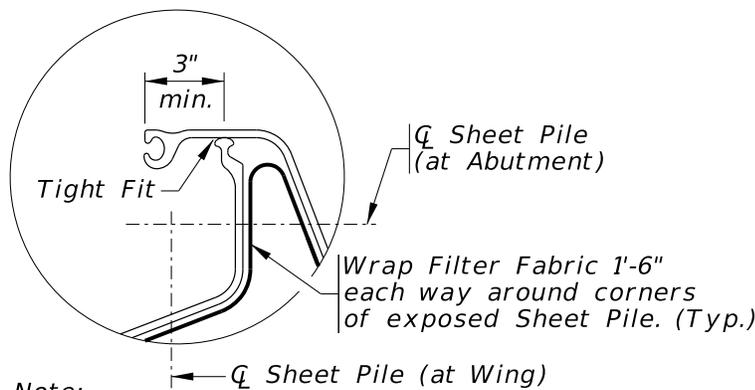
▣ Limits of Steel Sheet Pile = 18'- 4¹¹/₁₆"

◇ Limits of Steel Sheet Pile = 17'- 0"

Figure 11.9— Sheet Pile Plan Example

11.8.1—Sheet Pile Corner Details

The corner detail, when needed, is placed on one of the geology sheets. The following detail is used to prevent granular fill from spilling through the sheet pile corners. The appropriate cell representing this corner detail is available within the OBD Geology.cel library.



Note:
Corner Filter Fabric shall be Subsidiary
to the pay item "STEEL SHEET PILING".

SHEET PILE CORNER DETAIL (TYP)

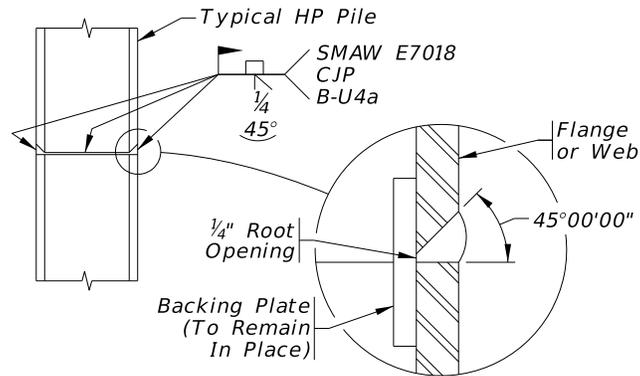
Not to Scale

Figure 11.10— Sheet Pile Corner Detail

11.9—ADDITIONAL GEOLOGICAL AND GRANULAR FILL DETAILS

11.9.1—Pile Splice Details (When Needed)

The Abutment.cel library includes multiple pile splice cells that provide detailed configurations for connecting pile sections. The figure below displays one example of a pile splice for Steel H Pile, illustrating how the connection is made to ensure structural continuity and stability.



NOTE:
See "FIELD WELDING GUIDE" for Steel Pile Splice welding requirements and procedure. The Guide is located under "PROJECT MANAGER RESOURCES" on the NDOT Website.

STANDARD PILE SPLICE

Figure 11.11— H-Pile Splice Detail

11.9.2—Abutment Drainage Details

The Abutment.cel library contains multiple drainage cells designed to address various drainage conditions and requirements at bridge abutments. These cells provide pre-configured details that help manage water flow and prevent water-related damage to the structure. The figure below illustrates one example of a drainage cell, demonstrating how it facilitates proper drainage and protects structural elements.

Drainage Notes:

All miscellaneous drainage items at the abutments shall be considered subsidiary to the pay item "SUBSURFACE DRAINAGE MATTING".

Drainage Matting shall wrap around the sloping drain pipe and extend 3'-0" along the wings.

- NO ADHESIVE CENTERED OVER JOINT

- ① Galvanized wire mesh screen
- ② Remove the matting as required to fold filter fabric over top of matting.
- ③ Subsurface drainage matting. Place fabric side toward backfill.
- ④ Remove the matting as required to wrap filter fabric around drain pipe.
- ⑤ 4" perforated plastic underdrain pipe shall conform to the requirements of Section 1038. The pipe must be continuous between abutment wings. Provide plugs at each end.
- ⑥ 2" plastic pipe shall conform to the requirements of ASTM D 1785 schedule 40. Pipe shall be placed at 10'-0" intervals with a 4% slope.

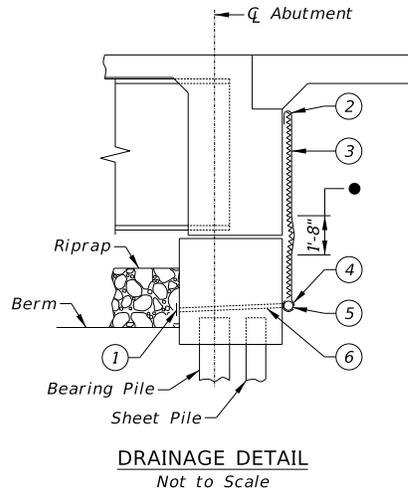
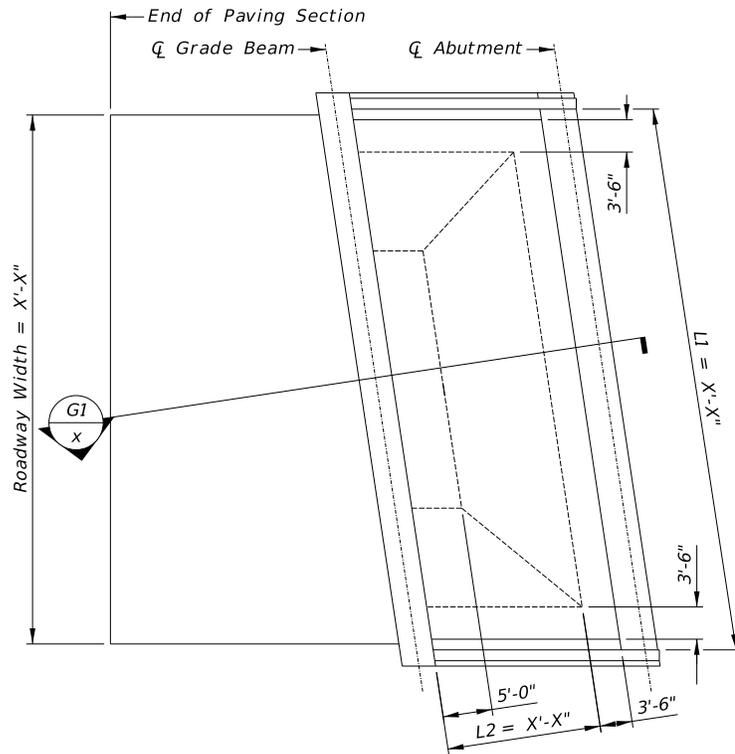


Figure 11.12— Abutment Drainage Example

11.9.3—Plan Of Granular Fill

The Abutment.cel library contains multiple granular fill cells designed to represent standard configurations for placing granular fill material behind abutments. The figure below illustrates one example, demonstrating how granular fill is placed to support proper drainage and prevent soil erosion.

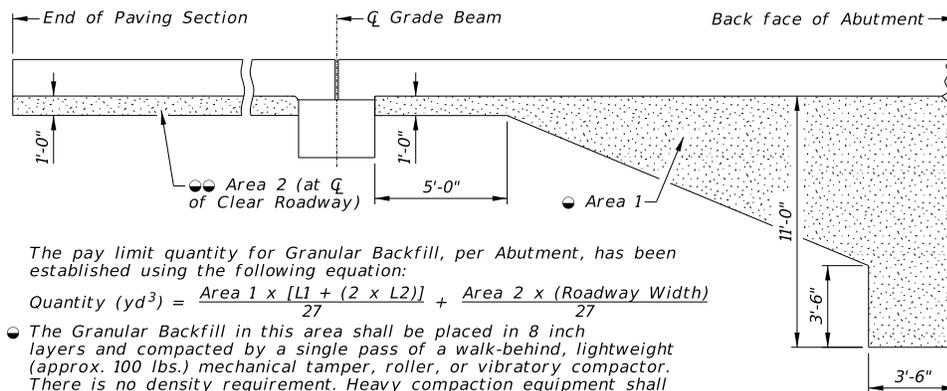


PLAN OF GRANULAR BACKFILL
(LHB, Deep Abutment)
Not to Scale

Figure 11.13— Example of Granular Fill Plan

11.9.4—Section Of Granular Fill

The Abutment.cel library contains multiple granular fill cells designed to represent standard configurations for placing granular fill material behind abutments. The figure below illustrates one example, demonstrating how granular fill is placed to support proper drainage and prevent soil erosion.



The pay limit quantity for Granular Backfill, per Abutment, has been established using the following equation:

$$\text{Quantity (yd}^3\text{)} = \frac{\text{Area 1} \times [L1 + (2 \times L2)]}{27} + \frac{\text{Area 2} \times (\text{Roadway Width})}{27}$$

- The Granular Backfill in this area shall be placed in 8 inch layers and compacted by a single pass of a walk-behind, lightweight (approx. 100 lbs.) mechanical tamper, roller, or vibratory compactor. There is no density requirement. Heavy compaction equipment shall not be used in this area. Flooding the granular backfill with water is not allowed.
- The Granular Backfill in this area shall be compacted in accordance with the Standard Specifications.

SECTION G1
Not to Scale

Figure 11.14— Example of Granular Fill Section

11.10—SECONDARY P.E. STAMP

In cases where a Professional Engineer other than the primary Engineer of Record is responsible for the design and review of geological aspects of the project, a secondary P.E. stamp is required to ensure accountability and clarity of professional responsibility. This secondary stamp must be placed on the relevant Geological plan, profile, and detail sheets, adjacent to the primary Engineer of Record stamp, clearly indicating the division of design responsibilities. The secondary stamp represents the signature and seal of the Geotechnical Engineer or specialist who has reviewed and approved the geological design elements, ensuring they meet all applicable standards and safety requirements. The figure below is part of the border sheet and can be turned on or off by level.

*I, Firstname Lastname,
reviewed the geological
notes, boring data, pile
data, and pile details.*

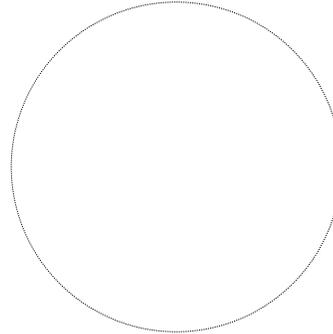


Figure 11.15— Secondary Stamp Example

11.11—AVAILABLE CHECKLISTS

The following checklists are available in Appendix B:

- ▣ Pile Layout
- ▣ Geological Profile
- ▣ Pile Data, Notes, and Details
- ▣ Final Checks

Chapter 12 — Abutments

12.1—INTRODUCTION

Bridge abutments provide structural support and serve as a transition between the bridge and the approaching roadway. They support vertical and horizontal loads, transferring them to the foundation to ensure stability. Abutments anchor the bridge ends, preventing displacement and resisting forces such as wind, water pressure, and vehicle movement. They also act as retaining walls, holding back the soil of the roadway embankment and preventing erosion.

The Abutment Sheet(s) serve to detail the various components and data necessary for construction. These include the Abutment Plan, Abutment Elevation, Wing Elevation, Pedestal Details, Girder Seat Elevation Data, Sectional Details, Grade Beam Elevation and Sections, Anchor Block Details, Tie Rod Details, and Foundation Information. To aid in the preparation of these sheets, many required cells are available in the Abutment.cel library.

12.2—PLAN REQUIREMENTS

12.2.1—Scales

- Use a $1/2" = 1'-0"$ architectural scale to detail the plan and elevation views of the abutment.
- If necessary, use $3/8" = 1'-0"$ or $1/4" = 1'-0"$ scales to fit the plan and elevation views on one sheet.
- If the plan and elevation do not fit on one sheet at $1/4" = 1'-0"$ scale, move the elevation and additional details to subsequent sheets. Ensure the scale of the moved elevation matches the scale of the plan.

12.2.2—Similar Or Mirrored Abutments

- If Abutments No. 1 and No. 2 are nearly identical, provide details for Abutment No. 2 and note the similarity. A separate sheet for Abutment No. 1 is not necessary in such cases.

12.2.3—Plan Layout

- Place the plan view in the top-left corner of the sheet.
- Place the elevation view below the plan view for clarity and consistency.

12.3—ABUTMENT PLAN

Locate Dimension strings below the Plan View of the cap and measure along the Abutment CL.

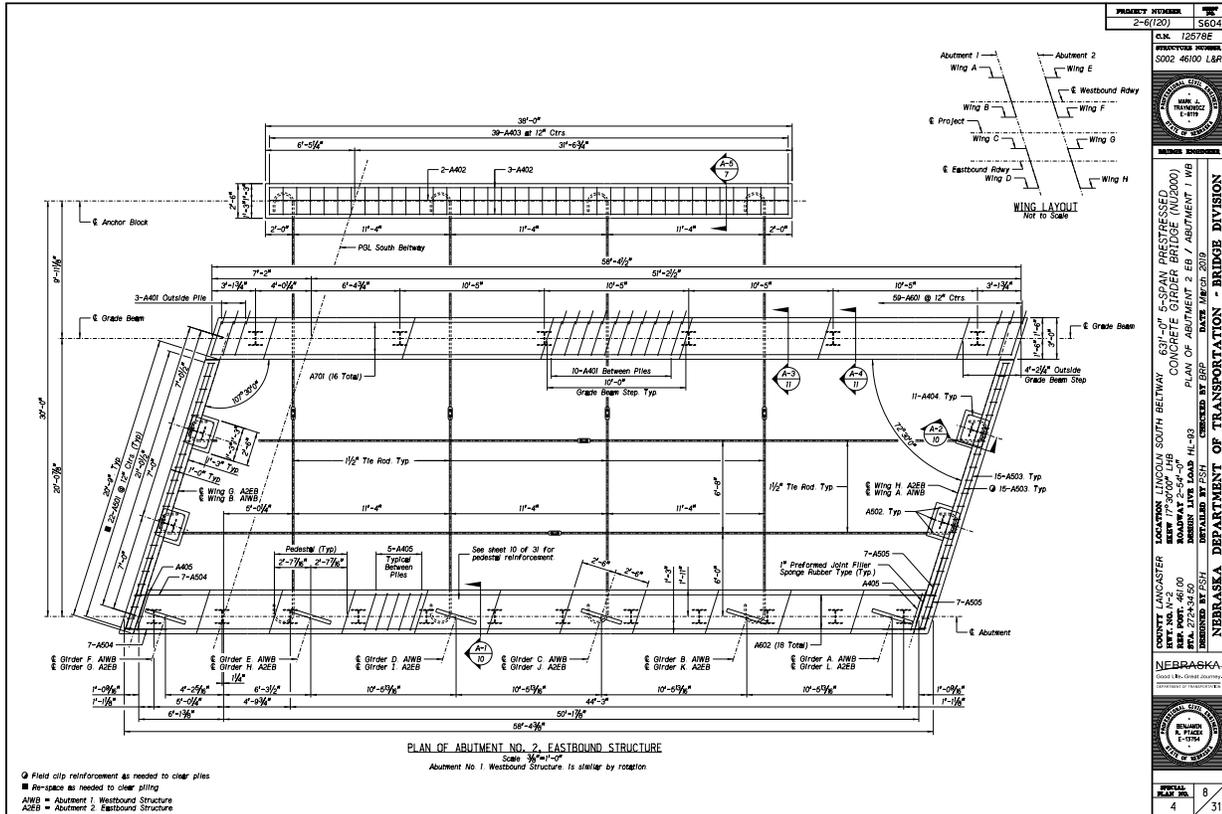


Figure 12.1— Abutment Plan Example

12.4—ABUTMENT ELEVATION

- When depicting the elevation view, it represents a vertical projection directly from the plan view for consistency and clarity.
- For Abutment No. 1, present the elevation view as though looking backward, and include the label (LOOKING BACK) beneath the title to indicate the viewing direction.
- For Abutment No. 2, detail the elevation view as though looking forward (Up Station), but do not include a label indicating the viewing direction.
- If Abutment No. 1 is similar to Abutment No. 2, include only the detailed drawing of Abutment No. 2. Clearly indicate the similarity by adding a note specifying whether Abutment No. 1 is a rotated or mirrored version of Abutment No. 2. This approach streamlines the plan, reduces redundancy, and enhances clarity while maintaining all necessary construction information.
- For skewed abutments, accurately project and illustrate the wingwalls in the elevation view to provide a complete, true-to-scale representation of their geometry and alignment. This approach ensures the drawings are intuitive and minimize potential construction ambiguities.

12.5—ABUTMENT SECTION VIEW

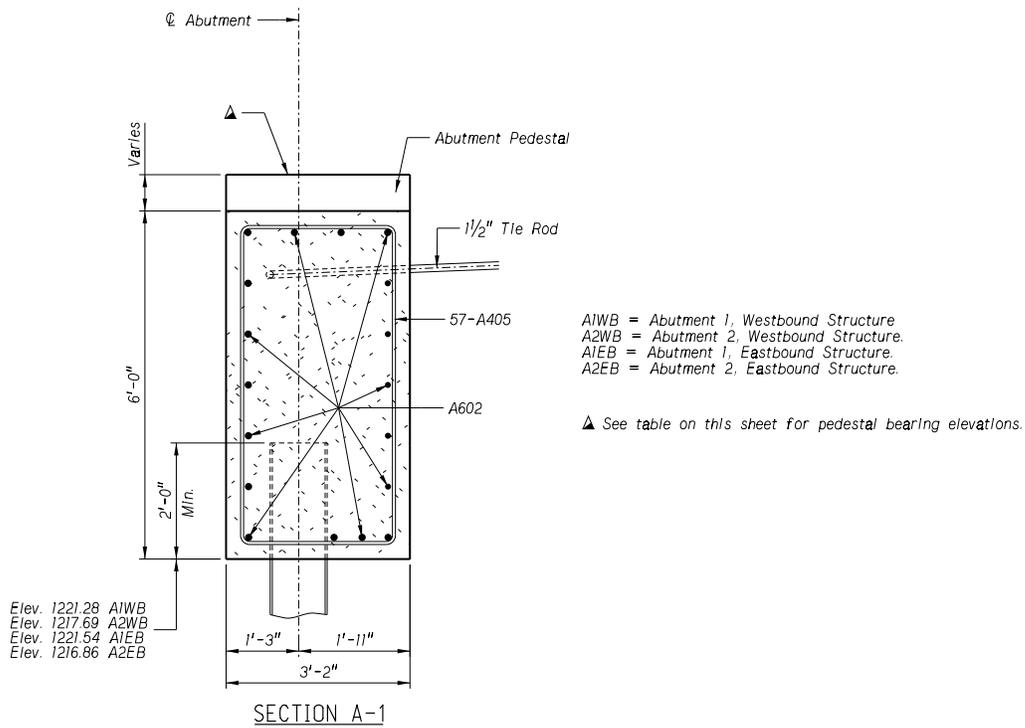


Figure 12.3— Abutment Section Example

12.6—ADDITIONAL ABUTMENT DETAILS

NOTE: Additional sections of abutments, wings, and grade beams may be required for reinforcement arrangements not covered in the other views.

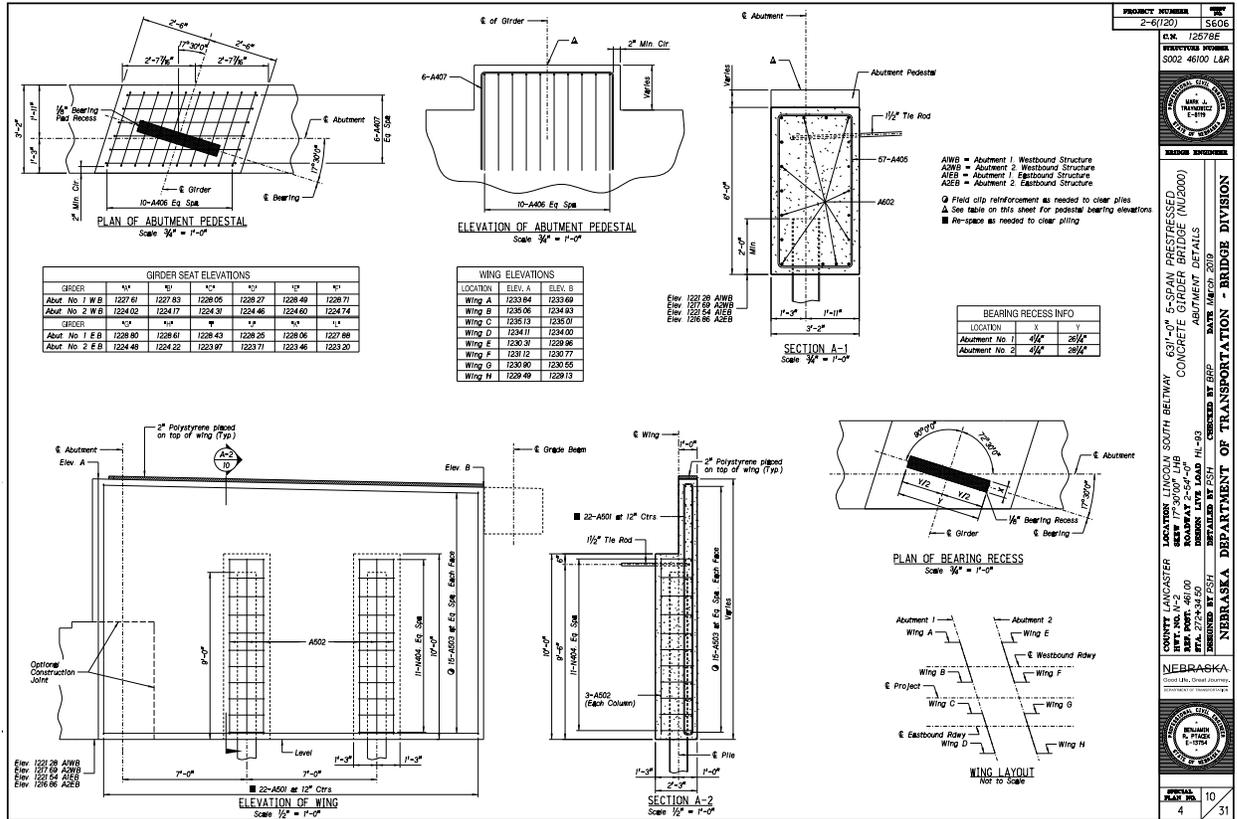


Figure 12.4— Additional Details

GIRDER SEAT ELEVATIONS						
GIRDER	"A"	"B"	"C"	"D"	"E"	"F"
Abut. No. 1 W.B.	1227.61	1227.83	1228.05	1228.27	1228.49	1228.71
Abut. No. 2 W.B.	1224.02	1224.17	1224.31	1224.46	1224.60	1224.74
GIRDER	"G"	"H"	"I"	"J"	"K"	"L"
Abut. No. 1 E.B.	1228.80	1228.61	1228.43	1228.25	1228.06	1227.88
Abut. No. 2 E.B.	1224.48	1224.22	1223.97	1223.71	1223.46	1223.20

Figure 12.5— Girder Seat Elevation Table

The Abutment.cel library contains multiple Tie Rod details.

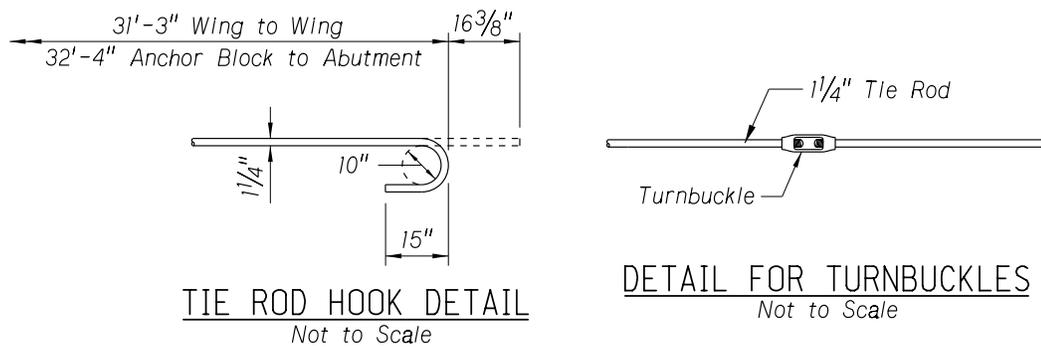


Figure 12.6— Tierods

12.7—GRADE BEAM PLANS

Grade Beams are designed to support the Approach Section and Paving Section. Complicated Grade Beams may need to be placed on a separate sheet, as shown in Figure 12.7.

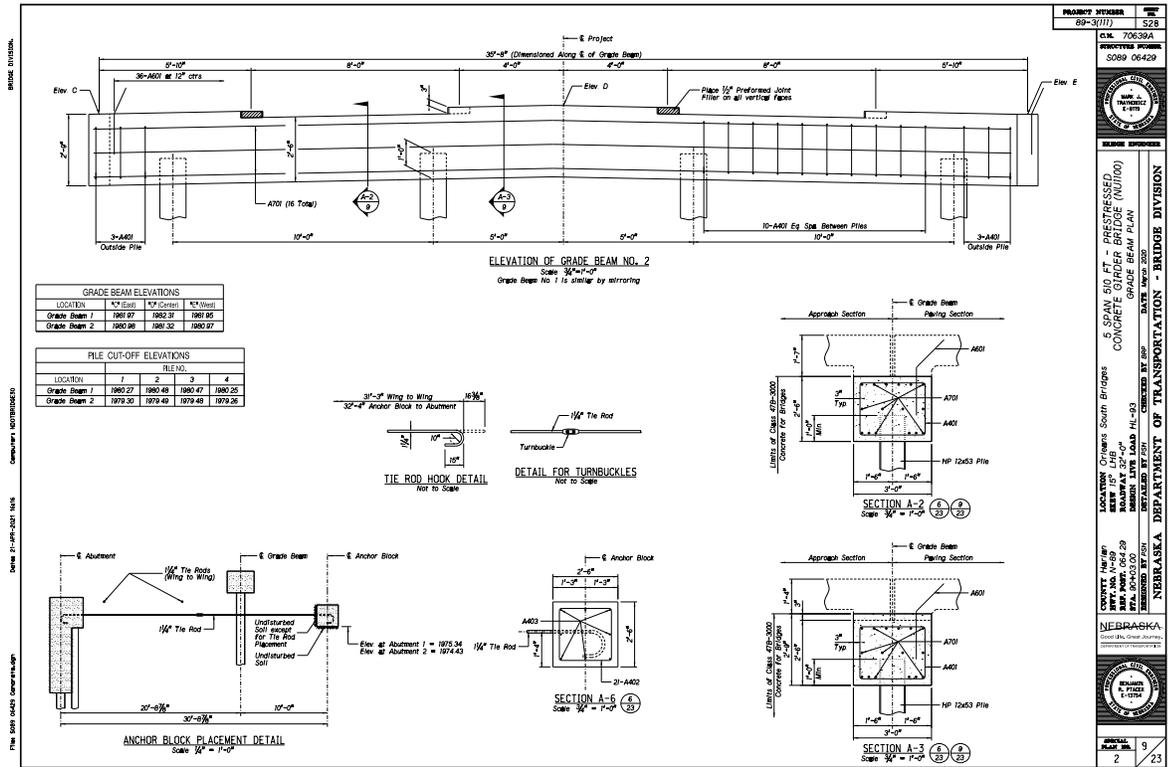


Figure 12.7— Grade Beam Example

See Abutment elevation plan for required dimensions and details.

12.8—GRADE BEAM SECTIONS

GRADE BEAM ELEVATIONS			
LOCATION	"C" (East)	"D" (Center)	"E" (West)
Grade Beam 1	1981.97	1982.31	1981.95
Grade Beam 2	1980.98	1981.32	1980.97

PILE CUT-OFF ELEVATIONS				
LOCATION	PILE NO.			
	1	2	3	4
Grade Beam 1	1980.27	1980.48	1980.47	1980.25
Grade Beam 2	1979.30	1979.49	1979.48	1979.26

Figure 12.8— Grade Beam Tables

12.9—WING PLANS AND DETAILS

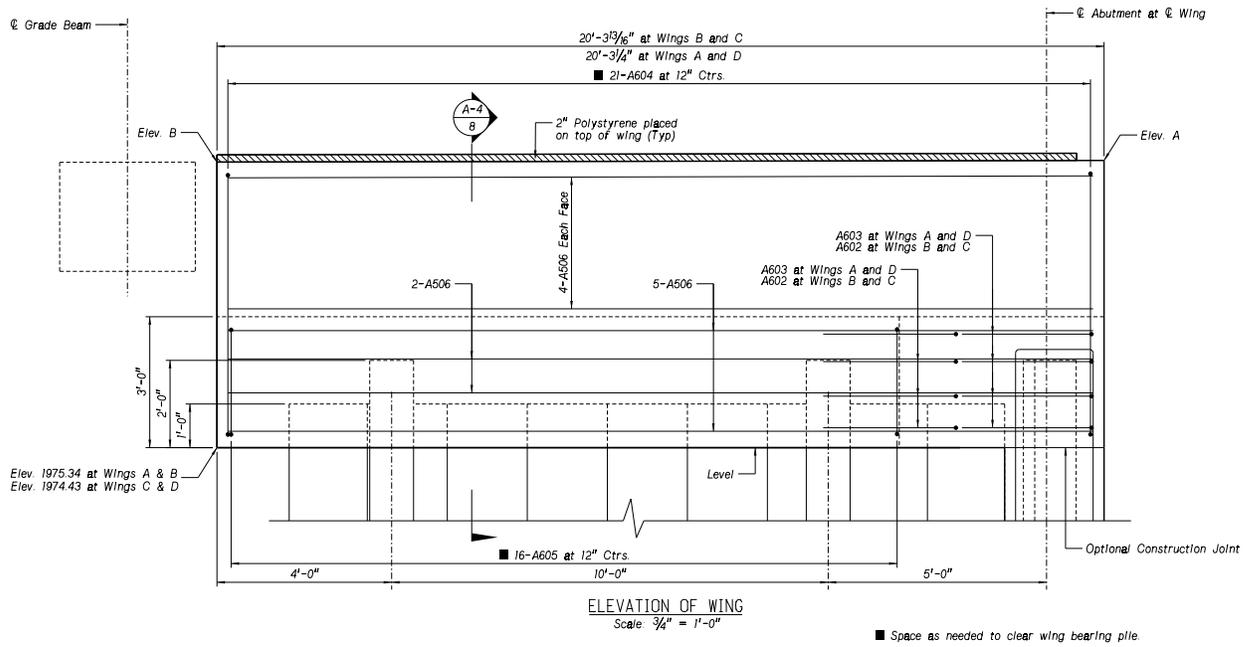
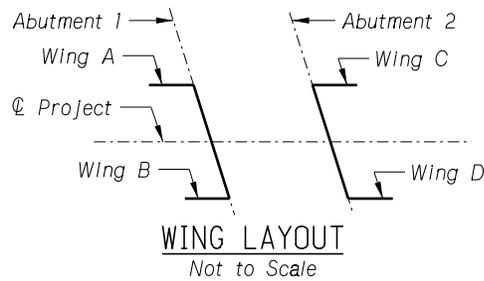


Figure 12.9— Wing Elevation Example

If displaying all elevations directly on the wing elevation view creates clutter, consider using a separate table and wing layout plan. The table can organize the elevation data, while the layout plan provides location context



WING ELEVATIONS		
LOCATION	ELEV. A	ELEV. B
Wing A	1981.93	1981.96
Wing B	1981.91	1981.95
Wing C	1981.01	1980.98
Wing D	1981.03	1980.99

Figure 12.10— Wing Layout and Elevation

12.10—WING SECTIONS

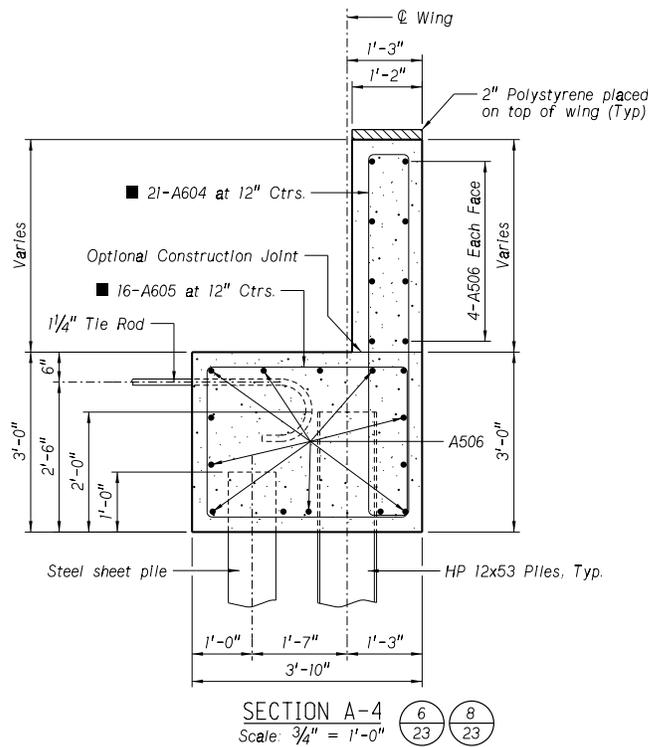


Figure 12.11 – Wing Section

12.11—REMODELED/WIDENED ABUTMENTS

Follow the required practices shown for new abutments. In addition, when incorporating existing abutments into a remodeled or widened structure, the existing portion of the abutment is depicted using existing concrete lines.

12.12—AVAILABLE CHECKLISTS

The following checklists are available in Appendix B:

- Abutment Plan
- Abutment Elevation
- Abutment Section
- Grade Beam Section
- Wing Elevation
- Wing Section
- Remodeled Abutment Plan Details
- Remodeled Abutment Elevation Details

Chapter 13 — Piers and Bents

13.1—INTRODUCTION

Bridge piers or bents provide structural support and stability by transferring loads to the foundation. They support vertical loads, such as the weight of the bridge deck and vehicles, and resist horizontal forces caused by wind, earthquakes, water currents, or vehicle movement. Additionally, they divide the bridge into smaller spans, reducing bending forces on the superstructure, while also providing necessary clearance for waterways, roads, or railways below. The Pier and Bent Sheets consist of the Plan, Elevation, and Sectional details of the supports, including foundation information. Refer to BDM Section 1.7 for definitions of pier and bent.

13.2—PLAN REQUIREMENTS

Separate sheets are unnecessary if the only differences between piers or bents are stations or elevations. Instead, tabulate the variable dimensions to represent multiple piers on a single sheet.

Use a $\frac{3}{8}$ " = 1'-0" architectural scale to detail the plan and elevation views of the piers or bents. If necessary to fit the bent on a single sheet, use a $\frac{1}{4}$ " = 1'-0" scale. If the pier plan consists of multiple piers and cannot fit on one sheet at a $\frac{1}{4}$ " = 1'-0" scale, use a $\frac{3}{8}$ " = 1'-0" scale and split the piers across multiple sheets.

If alternate foundations need to be shown, depict the entire pier with the different foundations on separate sheets.

In the title block, format the drawing name as follows: BENT X, PIER X, BENTS X THROUGH X, or PIERS X THROUGH X. Place the plan view in the top left corner of the drawing and the elevation view below it.

13.3—PIER/BENT PLANS

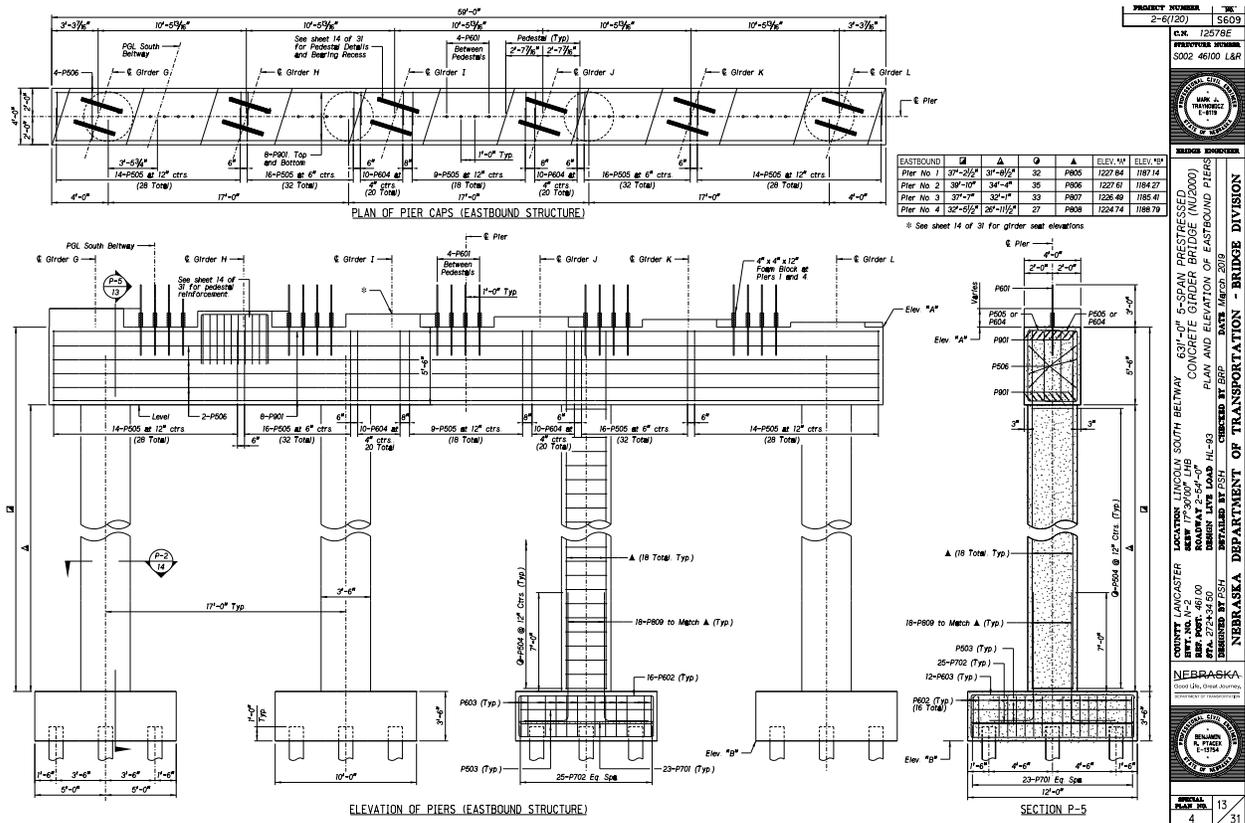


Figure 13.1—Pier & Bent Plans

Detail the station and skew angle (if the plan is for a skewed bridge) at the intersection of the centerline of bent and the CL of project or chord line. Dimension the offset of the centerlines of bearing from the centerline of bent, the distance from the centerline of bent to both edges of cap, and the total width of the bent.

Dimension the angle(s) between the centerline of bearing and beam centerlines. Dimension the distance along the pier/bent from the intersection of the beam centerline and the pier/bent centerline to the intersection of the beam centerline and centerline of bearing.

Dimension the distance from the reference line to the nearest beam centerline at their intersections with the pier/bent centerline. If the CL Project and PGL are different lines, dimension the distance from edge of cap to centerline of column or pile and the distance between columns or piles in one dimension line. Also, dimension the offset between the CL Project and PGL.

Show anchor bars or anchor bolts in the plan view. If beam angles and offsets vary and cannot be clearly dimensioned in the plan view, create a corresponding table.

13.4—PIER/BENT ELEVATION

The elevation view is used to show the relationship between the cap, columns, and foundations (which may or may not include footings). Cap step elevations and reinforcing are also detailed in this view. Show the intermediate bent elevation view as a vertical projection of the plan view looking up-station. See Figure 13.1 for an example.

Show the pier or bent cap, columns, and foundations. For foundations, show piles, footings, and other foundation elements in the elevation view. If footings are present, dimension the footing depth and width. Show reinforcement in the cap, columns, and footings.

Show cap step elevations as EL. XXX.XX. Show bottom of cap elevations at cap ends, column intersections (face of column) for piers, and breaks in the bottom of cap slope. Show only bottom of cap elevations at cap ends for pile bents. If the bottom of cap is level, only show one elevation, followed by Level (e.g. EL. XXX.XX, Level).

Please note, do not put "Looking Upstation" beneath elevation view titles. All elevations are taken looking upstation unless otherwise noted, as listed in Section 3.2.1. Therefore, no note is necessary.

13.5—PIER/BENT SECTION VIEWS

Locate section views of the pier/bent in the upper right of the drawing. Detail section views at a 3/4" = 1'-0" scale. The detail scale may be as small as 3/8" = 1'-0" if needed, as long as the detail remains clear and uncluttered. See Figure 13.1 for an example.

- For pile bents, include a section near the pile. Show the rebar clearances in the section.
- For piers, take the section view through the cap to the bottom of the footing, if present, including all reinforcement.
- For wall piers, show a section of the entire pier (cap, wall, and footing), including all reinforcement.

13.6—PIER FOOTINGS

Different foundations require different details as follows:

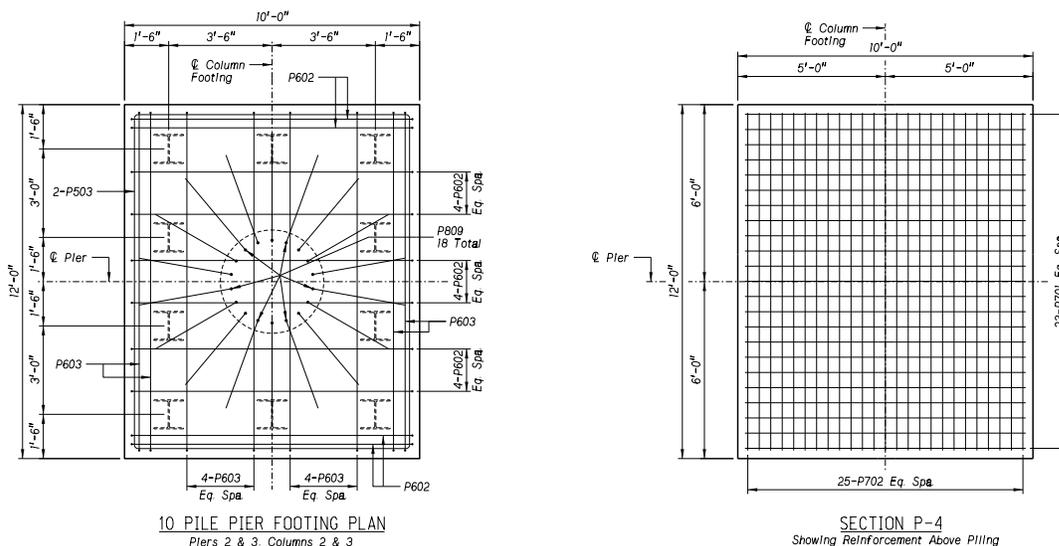


Figure 13.2— Pile Footings

13.7—OTHER DETAILS

NOTE: Additional views may be required for reinforcement arrangements not covered.

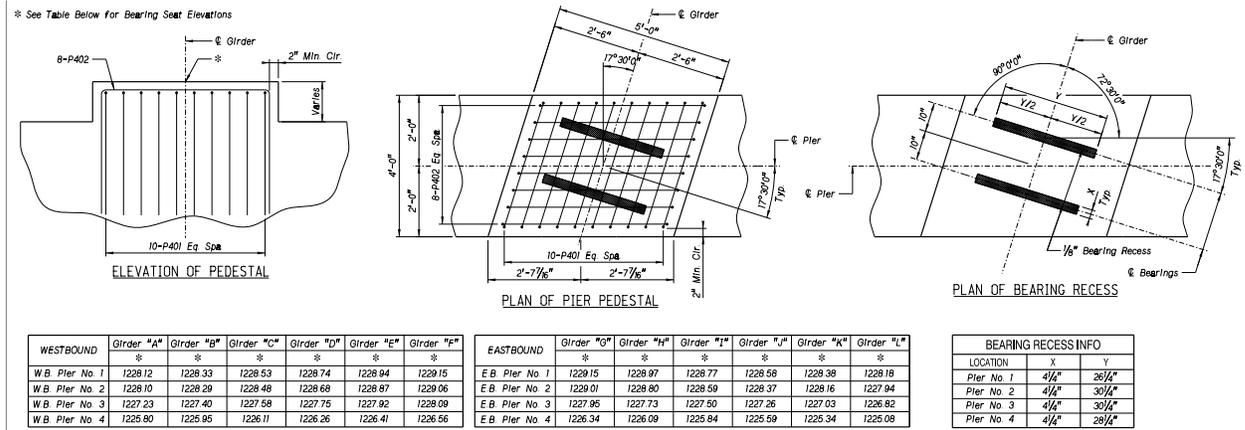


Figure 13.3— Other Details

13.8—REMODELED/WIDENED PIERS OR BENTS

Follow the required practices shown for new piers or bents. In addition, when incorporating existing piers or bents into a remodeled or widened structure, the existing portion of the substructure is depicted using existing concrete lines.

13.9—AVAILABLE CHECKLISTS

The following checklists are available in Appendix B:

- Plan of Pier Cap
- Elevation of Pier
- Plan View of Pier Wall
- Plan View of Pier Column
- Plan of Pier Footing
- Pier Section
- Plan of Bent Cap
- Elevation of Bent
- Plan View of bent Wall
- Bent Section

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Chapter 14 — Bearings and Anchor Bolts

14.1—INTRODUCTION

Bridge bearings play a crucial role in transferring loads between a bridge's superstructure and substructure while accommodating movements and rotations. They effectively distribute vertical loads, resist horizontal forces, and allow for limited translational and rotational movements caused by thermal expansion, contraction, or seismic activity. Traditionally the bearings fix the superstructure to the substructure, but in some cases, we use reinforcing bars between the turndown and the fixed pier. Designer to verify that some form of substructure attachment is provided.

14.2—ANCHOR BOLTS

When used in place of tie bars, anchor bolts are used to anchor superstructure to substructure. The Bearing.cel library includes predesigned layouts for various bearing anchor bolt configurations. Select the appropriate layout based on the bearing type and design requirements (see Figure 14.1). To ensure consistency in documentation, include a section view similar to Figure 14.6, which represents a fixed bearing location. This will clearly illustrate the placement and specifications of the anchor bolts in the final plan set.

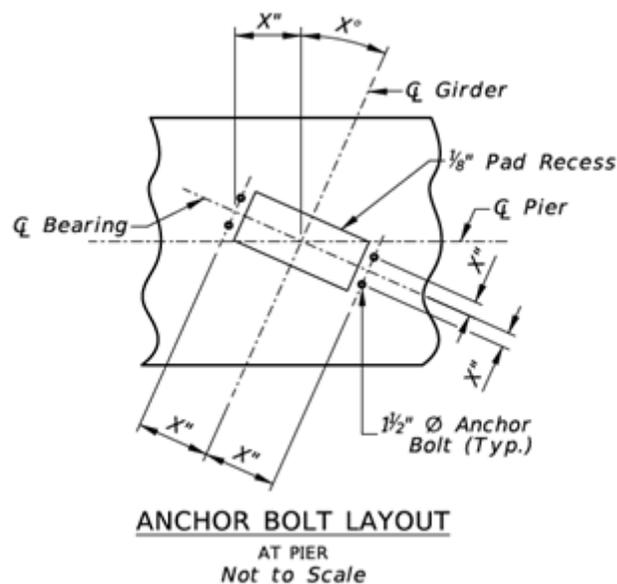


Figure 14.1— Anchor Bolt Layout

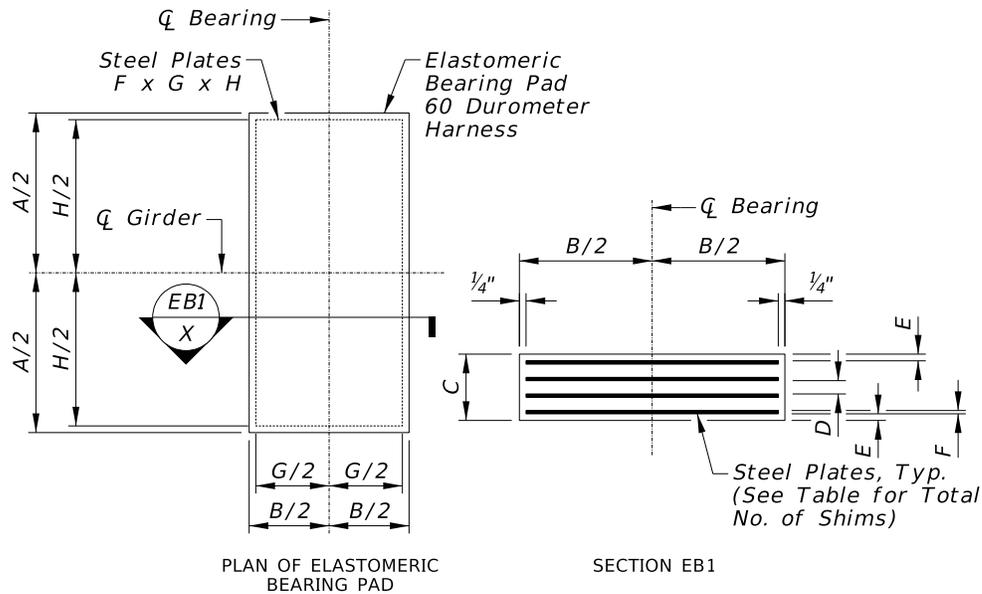
14.3—DISC BEARINGS

Use the appropriate Disc Bearing Details basic drawing based on freedom of movement required. Bearings of same type but different dimensions may be defined on the same sheet by adding a table of dimensions.

Note: The fabricator is required to submit shop drawings for review.

14.4—ELASTOMERIC BEARING DETAILS

Use the cells available in the Bearing.cel library, which include the bearing pad details (see Figure 14.2) and the bearing dimension table (see Figure 14.3). The Elastomeric bearing pad plan describes characteristics, dimensions, and any shim plates (if required) of the bearing used in the design.



ELASTOMERIC BEARING PAD DETAIL
Not to Scale

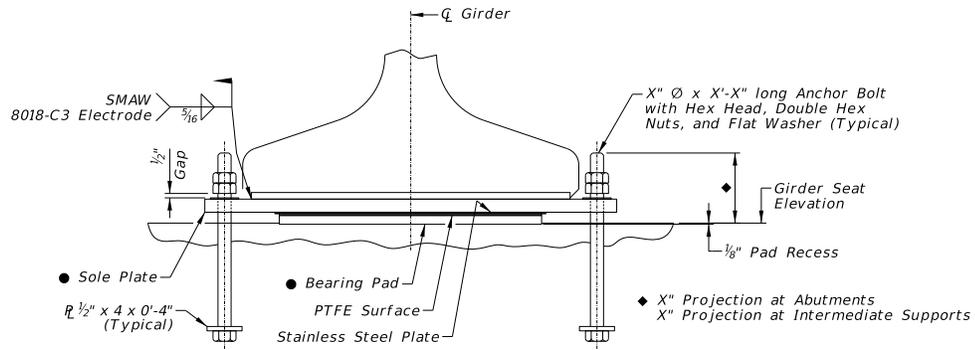
Figure 14.2— Elastomeric Bearing Pad Plans

DIMENSIONS FOR ELASTOMERIC BEARING PAD									
LOCATION	GENERAL ELASTOMERIC DIMENSIONS					STEEL PLATE DIMENSIONS			
	A	B	C	D	E	NO. SHIMS	F	G	H
Abutment No. 1									
Pier No. 1									
Abutment No. 2									

Figure 14.3— Elastomeric Bearing Pad Dimension Table

14.5—FABRIC BEARING PAD DETAILS

Use the cells available in the Bearing.cel library, which include various bearing pad details for fixed, expansion, sole plates, and sole plate bearing types, as shown in Figure 14.4, Figure 14.5, and Figure 14.6. The bearing dimension table, shown in Figure 14.7, provides the corresponding bearing dimensions. These pre-configured cells are designed to assist in managing fabricators' requirements and should only be modified to incorporate project-specific details.

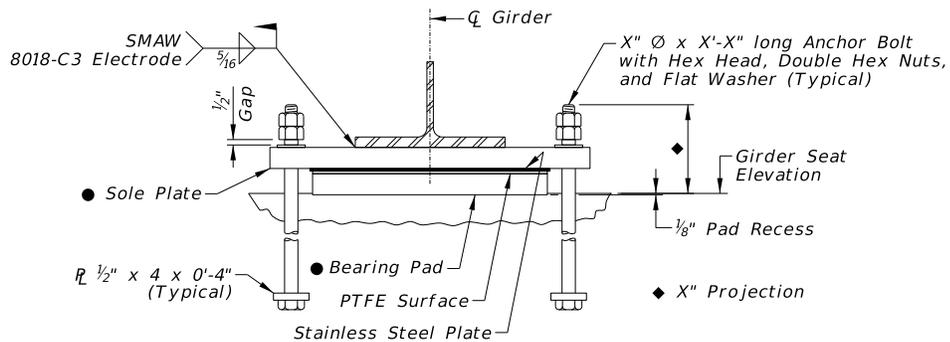


● Sole Plates and Fabric Pads need to be inspected prior to installation. Please contact the Bridge Office a minimum of three weeks before contractor's scheduled installation for inspection.

SECTION AT EXPANSION BEARING (PTFE TYPE)

Not to Scale

Figure 14.4— Fabric Pad Detail Section

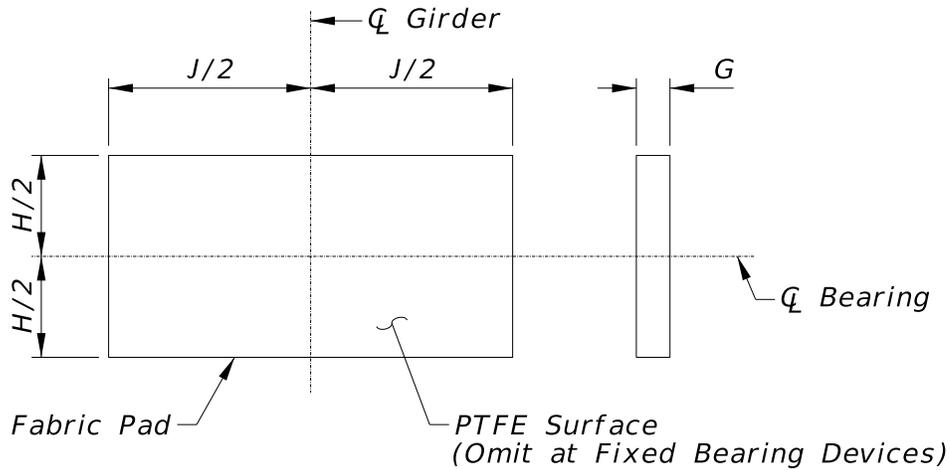


● Sole Plates and Fabric Pads need to be inspected prior to installation. Please contact the Bridge Office a minimum of three weeks before contractor's scheduled installation for inspection.

SECTION AT EXPANSION BEARING (PTFE TYPE)

Not to Scale

Figure 14.5— Fixed Bearing Section



FABRIC PAD
Not to Scale

Figure 14.6— Fabric Pad Plan

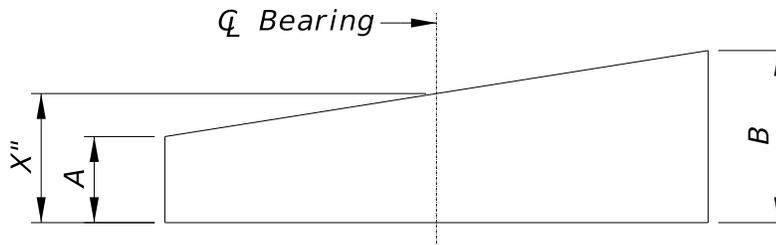
DIMENSIONS FOR BEARING DEVICES									
LOCATION	SOLE PLATE				STAINLESS STEEL		FABRIC PAD		
	A	B	C	D	E	F	G	H	J
Abutment No. 1									
Pier No. 1									
Abutment No. 2									

Figure 14.7— Fabric Pad Dimension Table

14.6—SOLE PLATES

The primary purpose of sole plates is to distribute loads from the superstructure to the bearings, ensuring efficient force transfer without overstressing the bearings. The Bearing.cel library provides pre-detailed layouts for various sole plate configurations, allowing you to select the appropriate design based on the bearing type, girder type, and expansion requirements. To ensure consistency in documentation, include a section view similar to Figure 14.8, which represents a beveled sole plate.

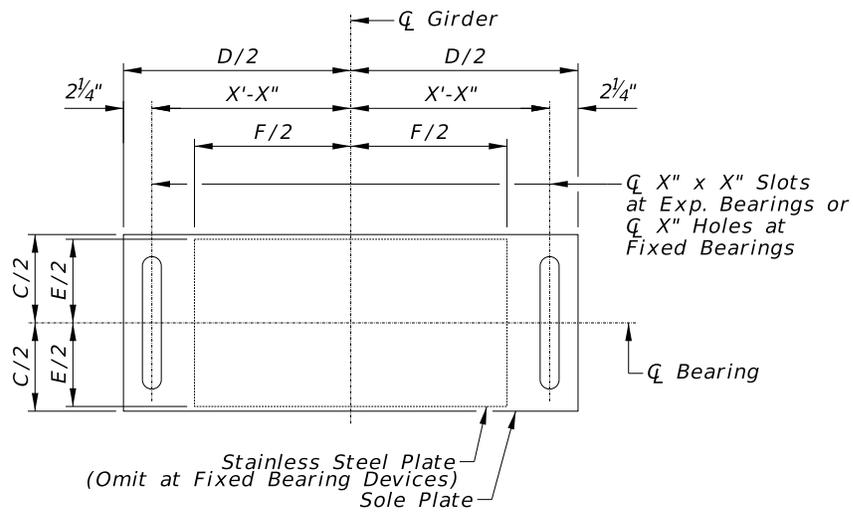
Note: Beveled sole plates help minimize extreme slopes, preventing excessive stress on the bearing edges.



SECTION OF BEVELED SOLE PLATE
Not to Scale

Figure 14.8— Beveled Sole Plate

Note: The fabricator is required to submit shop drawings for review.



SOLE PLATE
Not to Scale

Figure 14.9— Sole Plate Plan

14.7—AVAILABLE CHECKLISTS

The following checklists are available in Appendix B:

- ▣ Anchor Bolts
- ▣ Elastometric Pads
- ▣ Fabric Pads
- ▣ Sole Plates

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Chapter 15 — Superstructure

15.1—INTRODUCTION

The purpose of a bridge superstructure is to support and distribute loads, including vehicular, pedestrian, and environmental forces, while safely transferring them to the substructure. It consists of components such as girders, decks, and railings, which work together to provide a stable and durable passage over obstacles like roads, rivers, or railroad tracks. The superstructure is designed to accommodate movements due to thermal expansion, contraction, and dynamic loads while ensuring the overall integrity and longevity of the bridge.

15.2—GIRDER LAYOUT OR FRAMING PLAN

The purpose of a girder layout plan for bridges is to provide a detailed design and arrangement of girders, ensuring proper load distribution, structural stability, and construction accuracy. It specifies the location, orientation, and spacing of girders to effectively support the bridge deck. Additionally, the plan serves as a plan for contractors, guiding accurate fabrication, alignment, and installation during construction. It also coordinates the girder design with other bridge components, such as cross frames, bearings, piers, and abutments.

Include a Framing Plan or Beam Layout sheet in the plan set for all bridges that have girders. Use an acceptable scale that fits the framing plan on a single sheet. Refer to Section 3.2.3 for acceptable scales. If the framing plan cannot fit legibly in a single group from CL Abutment No. 1 to Abutment No. 2, it may be split, using a match line as shown in Figure 15.1.

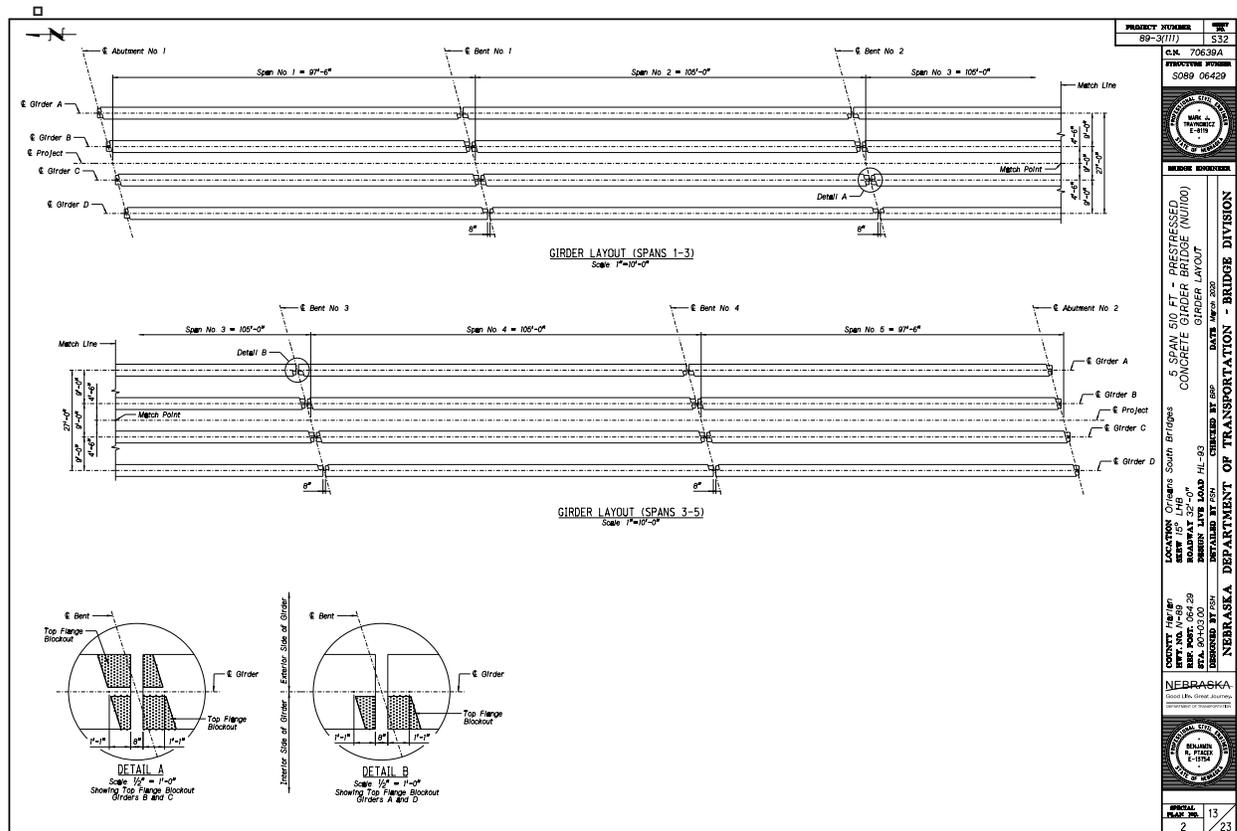


Figure 15.1— Match Line

15.3—GIRDER DETAILS - PRESTRESSED PRECAST CONCRETE

The prestressed concrete girder sheet is used to define beam details, dimensions, reinforcement, and material properties. NU concrete girders are the most widely used superstructure type in Nebraska. The NU girders were developed by the University of Nebraska, these girders have a wide bottom flange to enhance stability and optimize prestressing. This type of girder is used for medium to long spans.

IT (Inverted Tee) girders are also used on smaller spans. Developed at NDOT, these girders have a wide bottom flange and the reinforced cast in place concrete deck acts as the top flange.

15.3.1—Dimensions

IT and NU girder dimensions are listed in the table below.

Girder		Height (in)	Web Width (in)	Flange Thickness (in)	Flange Width (in)
New	Old				
IT13	IT 300	13.31	6.375	5.50	23.625
IT17	IT 400	17.25	6.375	5.50	23.625
IT21	IT 500	21.19	6.375	5.50	23.625
IT25	IT 600	25.13	6.375	5.50	23.625
IT29	IT 700	29.06	6.375	5.50	23.625
IT33	IT 800	33.00	6.375	5.50	23.625
IT36	IT 900	36.94	6.375	5.50	23.625

Girder		Height (in)	Web Width (in)	Top Flange Width (in)	Bottom Flange Width (in)
New	Old				
NU35	NU 900	35.44	5.9375	48.25	38.375
NU43	NU 1100	43.31	5.9375	48.25	38.375
NU53	NU 1350	53.13	5.9375	48.25	38.375
NU63	NU 1600	63.00	5.9375	48.25	38.375
NU70	NU 1800	70.88	5.9375	48.25	38.375
NU78	NU 2000	78.75	5.9375	48.25	38.375

Figure 15.2— Prestressed Concrete Girder Dimensions

15.3.2—Base Sheets

Base sheets are available for both girder types. Use the Base Sheets for the appropriate girder size. Do not modify the base sheets unless required by a unique situation. Use OBD IT Girders or OBD NU Girders base sheets on Project Wise.

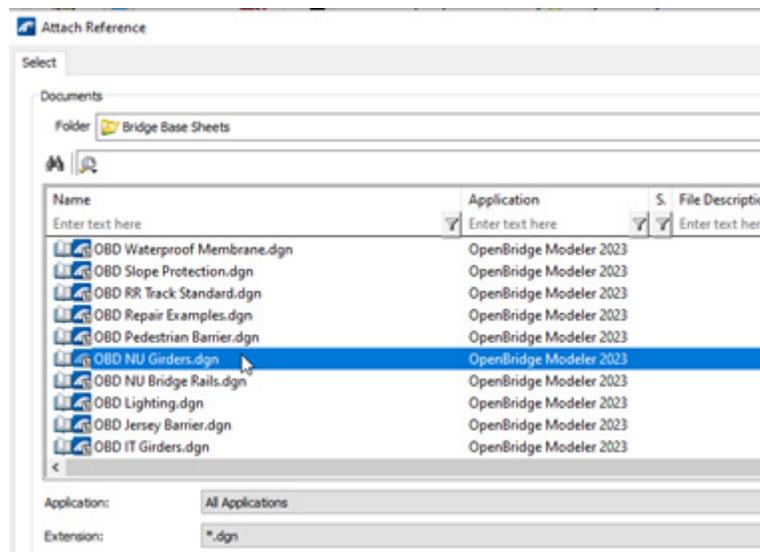


Figure 15.3— Base Sheets Attach Reference

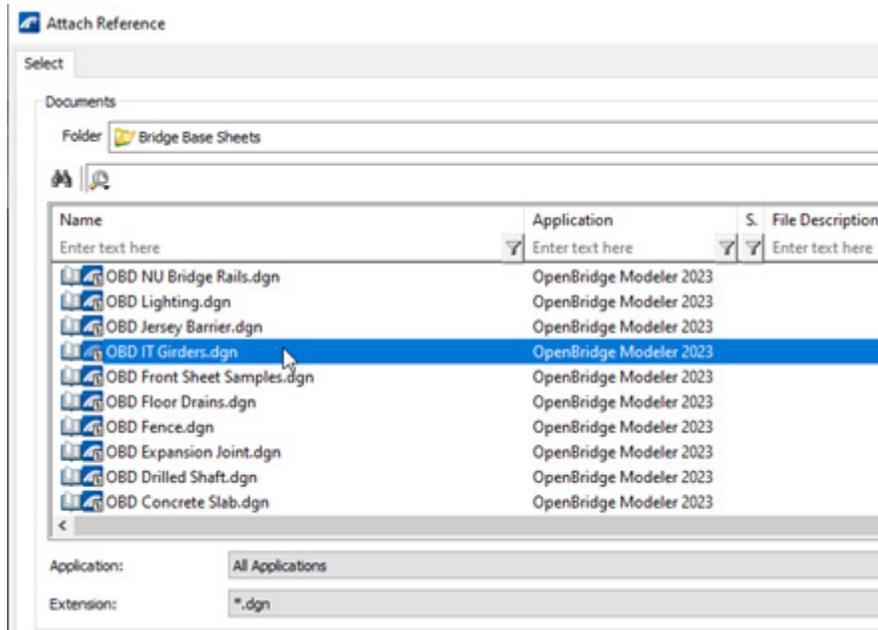


Figure 15.4— Attach Base Sheets

15.3.3—Separators (If Applicable)

The fabricator is required to submit shop drawings for review.

15.3.3.1—NU Girders

The Bent Plate type is used for NU girders. Bolted girder connections, usually steel angles, are detailed with full specifications. Clearly define the bent plate thickness, length, height, and flange dimensions. Provide bolt and bolt hole sizes, angle sizes, and any necessary construction details. Separator cells can be found in the OBD NU Details.cel library. See the examples below.

Note:

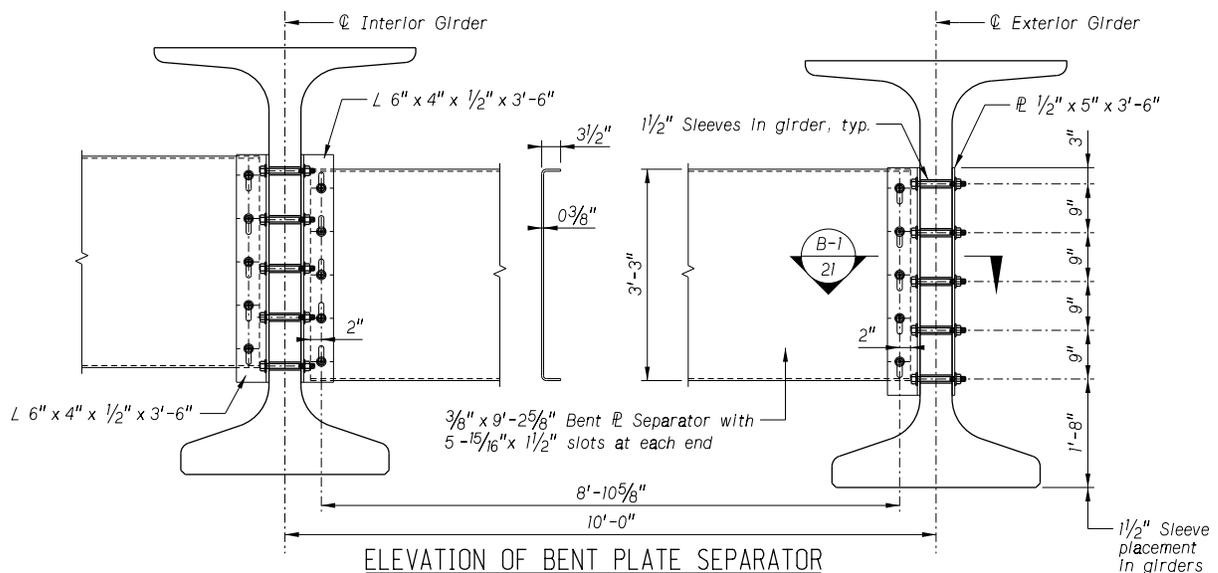


Figure 15.5— Bent Plate Separator

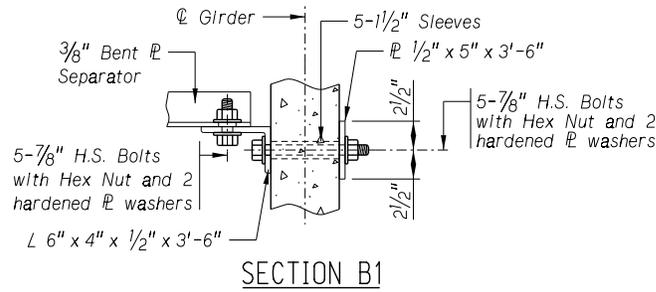


Figure 15.6— Bolted Girder Connection

15.3.3.2—IT Concrete Girders

Cells are available for the steel intermediate diaphragms. See the example below.

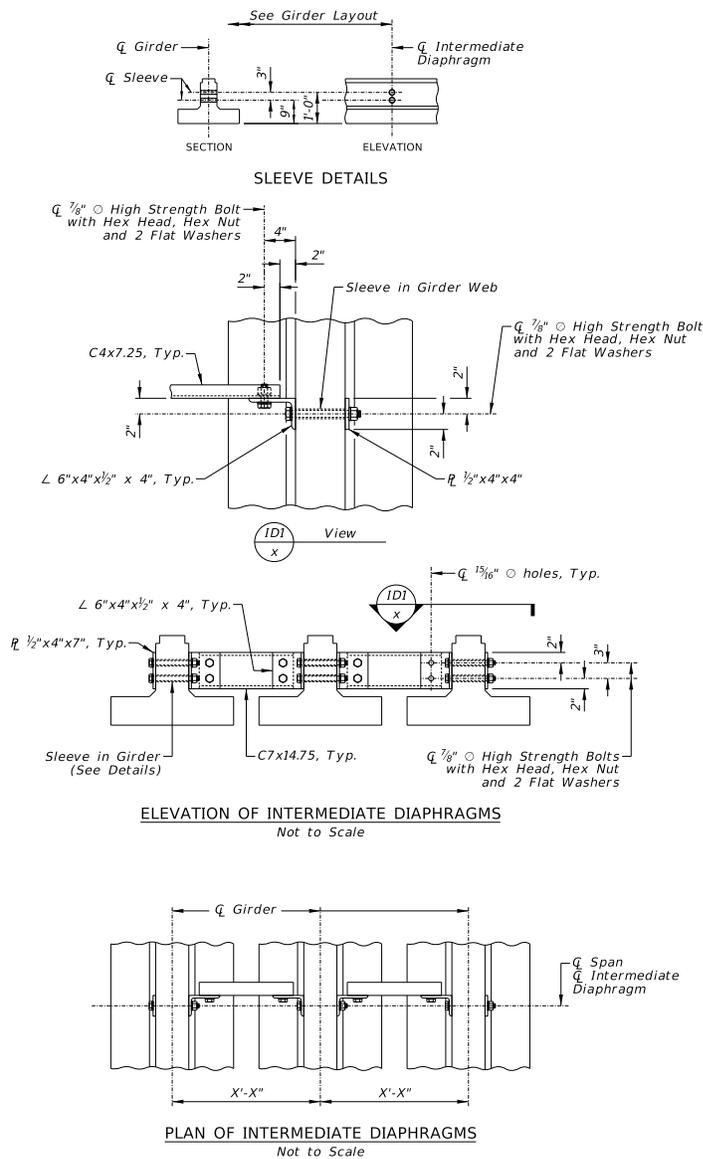


Figure 15.7— Intermediate Diaphragm Cell Example

15.4—GIRDER DETAILS - STEEL GIRDERS

The steel girder plans are used to define girder details, dimensions, and material properties for simple span and continuous bridges where the superstructure consists of steel beams with a reinforced concrete deck. There are 3 main types of steel superstructures as listed below. The common items for all steel superstructure types are listed first, details applicable to a certain type of superstructure are then listed in their own subsection. The 3 main types of superstructures are:

- A. Welded Plate Girder Bridges – Simple span or multiple continuous span bridges utilizing beams fabricated by welding steel plates to the desired shape. The term “Welded Plate Girder” refers to the fabrication method.
- B. Rolled Beam Bridges – Simple spans or multiple continuous span bridges constructed using multiple standard “W” section rolled beams as the primary longitudinal load-carrying elements.
- C. Steel Box Girder Bridges – Simple span or multiple continuous span bridges constructed using steel box girders or “tub” girders (steel box sections with a concrete top flange). These are used for specialized applications and are not common to Nebraska. No details are shown here for this type of girder.

15.4.1—Common Details

15.4.1.1—Skewed Or Curved Girder Issues

For skewed or curved bridges, as well as cases where individual beam dimensions vary, draw the elevation at nominal length and use a reference ID with a table of dimensions to provide full measurements for all girders in the span. The dimension table may be placed on the steel girder sheet or on a subsequent sheet following the steel girder sheets.

If additional clarification is needed, top and bottom flange plan views may be included above and below the elevation view.

15.4.1.2—Web Stiffeners

Stiffeners are structural reinforcements used in steel and composite beams to enhance their load-carrying capacity and prevent various forms of failure.

1. Web or Intermediate Stiffeners:

- ▣ Used to reinforce the web of a beam or girder.
- ▣ Prevents web buckling due to shear forces.
- ▣ Commonly found in plate girders, steel I-beams, and box girders.

2. Bearing Stiffeners:

- ▣ Placed near points of high concentrated loads (e.g., supports or heavy load applications).
- ▣ Helps prevent local web buckling due to large reactions.
- ▣ Typically positioned at beam supports or beneath heavy loads.

3. Separator Stiffeners:

- ▣ Used as an attachment location for separators

Each type of stiffener plays a crucial role in ensuring the stability and strength of structural elements under different loading conditions.

Stiffener cells are available in the Steel Girder.cel library.

15.4.1.3—Girder Separators

Separators help maintain the separation between plates or girders and prevent distortions. They ensure structural integrity under various load conditions.

Separator cells are available in the Steel Girder.cel library.

Detail frame members or bent plates and connection details including all welded and bolted connections. Fully define member sizes but member lengths are better left for the fabricator to calculate and submit in the Shop Drawing Review process. Show bolts, bolt hole sizes and locations, weld types and sizes, separator connection plates and any required construction details.

Girder separators are typically Bent Plate, K-Type, or X-Type. Typical details for separators are available in the OBD Steel Girder.cel library on ProjectWise and may be modified if necessary.

Note: The fabricator is required to submit shop drawings for review.

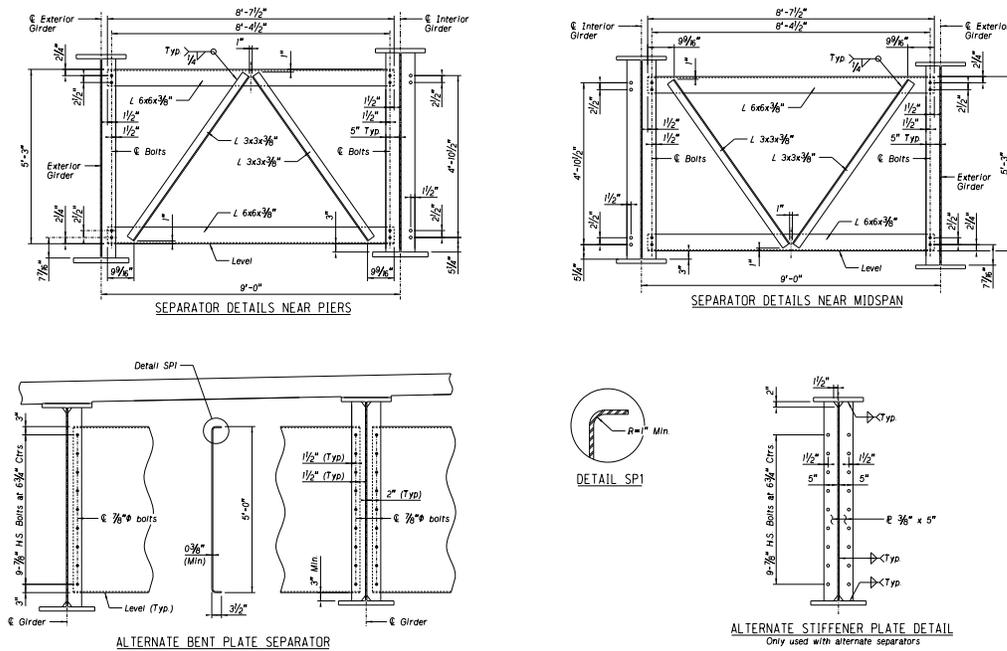
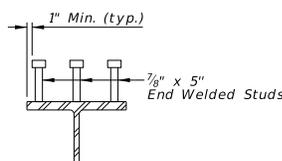


Figure 15.8— Separator Examples

15.4.1.4—Shear Studs

Shear studs help bond the steel girder to the concrete deck, allowing them to work together as a composite section. Shear studs increase the overall stiffness and strength of the bridge.

Show the longitudinal spacing or pitch of the shear studs as shown in the Girder Elevation, Figure 15.16. The plans will also need a detail showing the shear stud size, length, and a reference for transverse spacing as shown below.



When Shear Connectors are field applied, the following notes shall apply:

The Bridge Office shall be notified a minimum of one week prior to the application of the field welded studs.

Stud welding shall be accomplished in accordance with the AWS D1.5 Standard Specifications, Section 7.

All stud welding shall be done by a certified stud welder. At the time of stud welding, the studs and base metal shall be free from rust, rust pits, scale, oil, moisture, falling rain or snow, and any other foreign material. Areas must be wire brushed or cleaned by grinding before any welding can occur.

Any studs that do not exhibit a 360° collar must be repaired by a SMAW fillet weld (E8018-C3 Electrode) and the repair shall extend 3/8" beyond each end of the missing collar.

Mill Certification for the studs shall be submitted to the Engineer.

SHEAR CONNECTOR DETAIL
Not to Scale

Figure 15.9— Shear Connector Detail

15.4.1.5—Field Splices

Field splices serve a crucial role in bridge construction by enabling the connection of multiple girder segments at the construction site. One of their primary purposes is to facilitate transportation and handling, as steel girders for long-span bridges are often too large to be transported as a single piece.

Field splices are designed to ensure structural continuity by allowing the girder to behave as a single, continuous element. They are typically placed near points of contraflexure—areas of low bending moments—to minimize stress concentrations.

Field splices may be drawn as shown below or placed as a generic cell with a table as shown in Figure 15.10 and Figure 15.11.

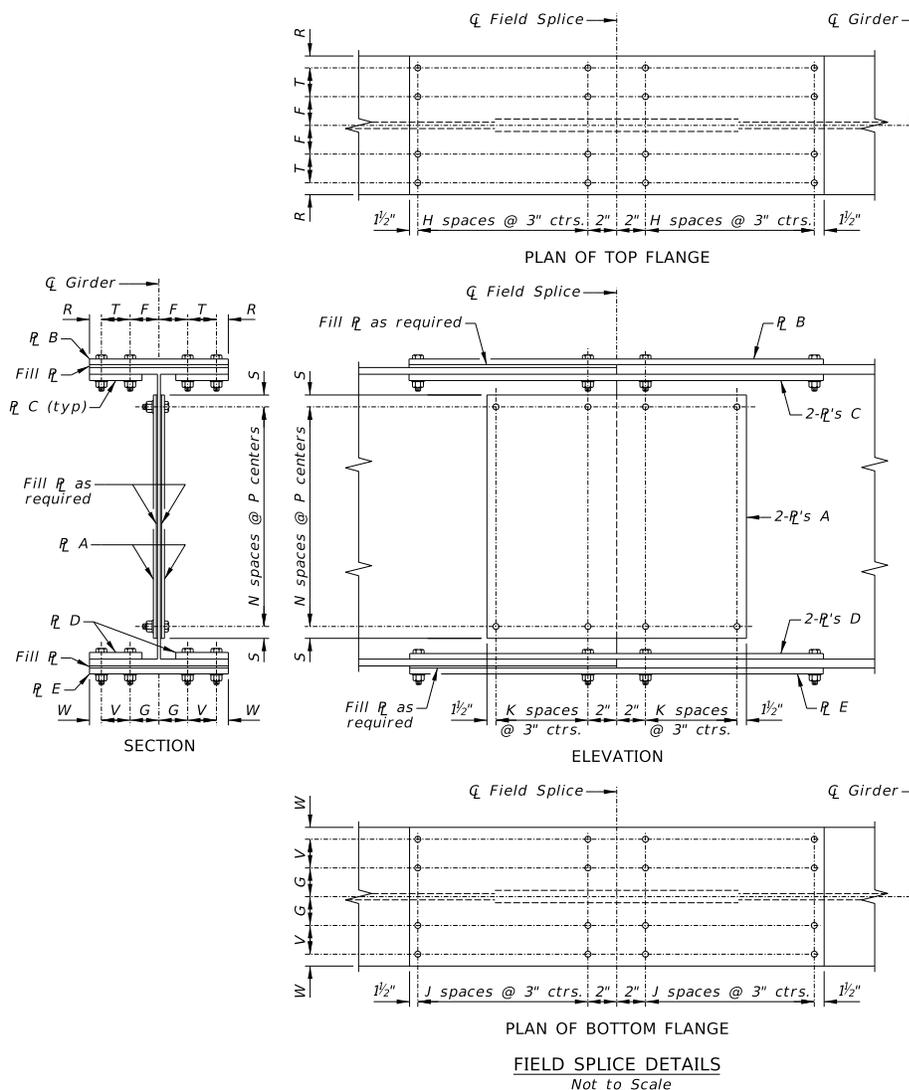


Figure 15.10— Field Splice Example

The following cells, and more, are available in the Steel Girder.cel library.
 Example of one of the field splice cells:

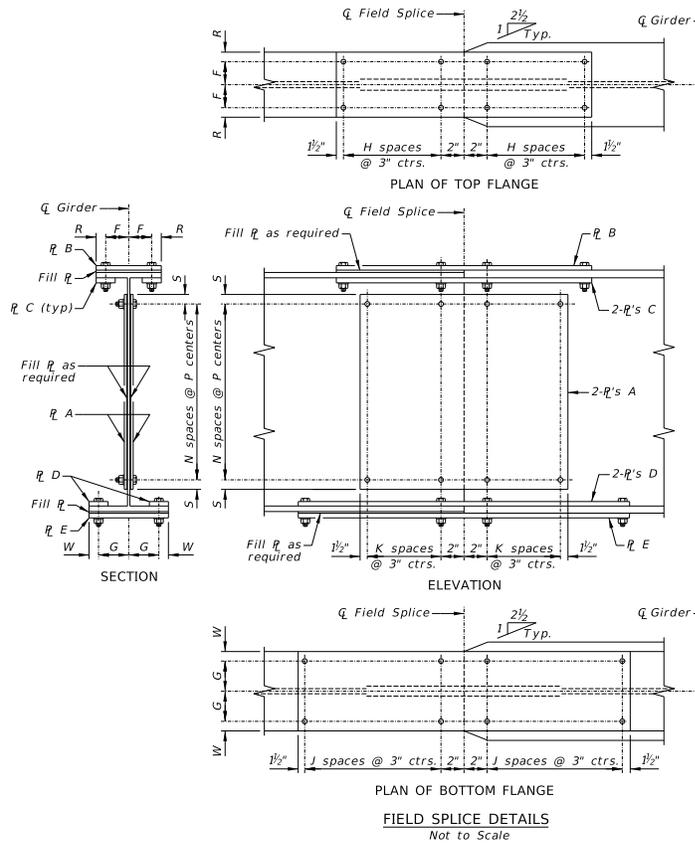


Figure 15.11— Field Splice Cell

Field splice tables:

FIELD SPICE DATA																												
FIELD SPICE	PLATE A			PLATE B			PLATE C			PLATE D			PLATE E			NO. OF BOLT SPACES				BOLT SPACING								
	THK.	WDTH.	LGTH.	H	J	K	N	P	S	F	T	R	G	V	W													

Figure 15.12— Field Splice Tables

FIELD SPICE DATA												
FIELD SPICE NO.												
			THICKNESS	WIDTH	LENGTH							
PLATE A												
PLATE B												
PLATE C												
PLATE D												
PLATE E												
NO. OF BOLT SPACES				BOLT SPACING								
H	J	K	N	P	S	F	T	R	G	V	W	

Figure 15.13— Field Splice Data Table

15.4.1.6—Drip Plate Details

Drip plates direct water away from the girder to prevent concrete staining and water infiltration on abutment or pier surfaces.

Drip plates are required for steel girder bridges. Place the available cell as shown below on one of the girder sheets.

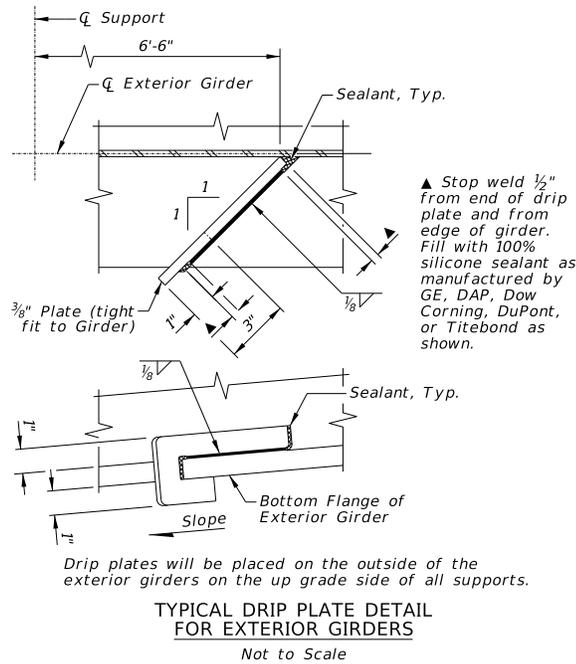


Figure 15.14— Drip Plate Details

15.4.1.7—Charpy Impact Test

The primary purpose of the Charpy Impact Test is to assess a material's fracture resistance by evaluating its ability to withstand impact without breaking.

- Add a note regarding the Charpy Impact Test (See Figure 15.15)
- Define steel properties for all elements
- This cell will be updated by the Engineer based on the specific requirements of the structure.

<p>CHARPY IMPACT TEST REQUIREMENTS FOR MAIN TENSION MEMBERS</p> <p><i>For the purpose of impact test the following material shall be classified as main tension members:</i></p> <p><i>All flange plates marked thus: ★</i></p> <p><i>All web plates</i></p> <p><i>All field splice plates</i></p>

Figure 15.15— Charpy Impact Test

15.4.2—Welded Steel Plate Girders

15.4.2.1—Girder Elevation

The purpose of a detailed elevation view of a steel girder is to provide a comprehensive representation of the girder's geometry, dimensions, and key structural details. This view is essential for fabrication, assembly, and construction, ensuring accuracy and consistency in design and installation.

Show the girder's length, depth, and shape, including any variations along the span. Define web height, flange width, and the thickness of each. Show the bearing locations & support points. Identify the field splice locations and the position of stiffeners, diaphragms, and cross-frame or separator stiffeners. Provides details on steel grades, coatings, and protection methods. Bolted & Welded Connections – Indicates splice plates, bolted/welded connections, and hole patterns for assembly.

A properly detailed elevation view helps engineers, fabricators, and contractors streamline construction, ensure load-bearing capacity, and maintain design accuracy throughout the project.

Draw the details to an engineering scale that horizontally best fits the span or unit to the full width of the sheet. Use an exaggerated scale vertically to depict elevation details as clearly as is possible.

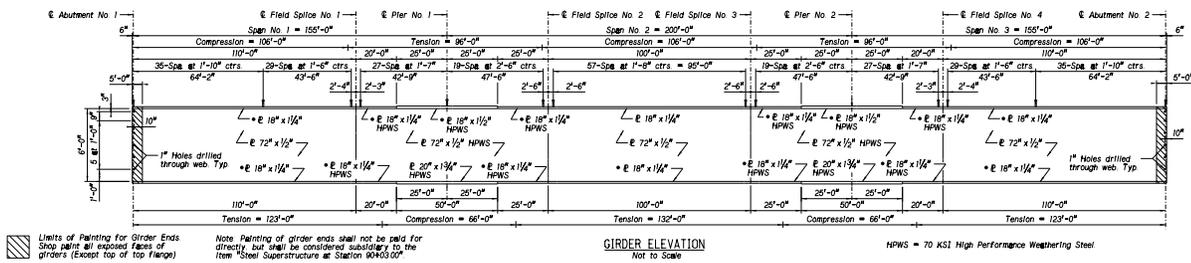


Figure 15.16— Girder Elevation

Additional required details on the elevation sheet, or the following sheet, include the weld sizes and locations, bending radius for bottom flange plates at web depth transition points, sizes of the bearing stiffeners, separator stiffeners, and intermediate stiffeners, as well as the designation of fracture-critical elements marked with a Charpy Impact symbol.

15.4.2.2—Girder Deflection, Camber, And Blocking Ordinates

A steel girder blocking diagram and camber ordinates serves as a critical reference for fabricators and contractors, providing necessary details to ensure the proper cambering and alignment of girders during bridge construction.

Girder grade and connection details must be provided. This information can be included on the girder sheet if space allows or on a separate sheet following the girder sheets. The engineer or Structural designer is responsible for providing these details, which must include anticipated deflections at every 1/10th point along the girder due to:

- Self-weight deflection (from all steel erected as a continuous unit).
- Dead load deflection (from concrete deck pours).
- Superimposed dead load deflection (from sidewalks and barriers placed on the completed composite bridge).
- Total deflection due to all effects throughout the bridge erection cycle.

This predicted information must be presented in both a Blocking Diagram and a Deflection, Camber, and Blocking Ordinates Table (See Figure 15.17). Place the Deflection, Camber, and Blocking Ordinates Table on the same sheet as the Blocking Diagram.

DEFLECTION, CAMBER, AND BLOCKING ORDINATES FOR GIRDERS			
Tenth Point	DL Deflection for Shims (in.)	Camber Ordinate (in.)	Blocking Ordinate (in.)
1	0.000	0.000	10.937
1.1	0.810	0.902	
1.2	1.485	1.620	
1.3	1.931	2.024	
1.4	2.096	2.048	
1.5	1.976	1.625	
1.6	1.611	1.001	
1.7	1.086	0.077	
FS1	---	0.000	9.921
1.8	0.531	-0.928	
1.9	0.115	-1.582	
2	0.000	-1.842	7.613
2.1	0.478	-1.596	
2.2	1.376	-0.696	
FS2	---	0.000	8.937
2.3	2.327	0.665	
2.4	3.022	1.552	
2.5	3.275	1.848	
2.6	3.022	1.552	
2.7	2.327	0.665	
FS3	---	0.000	6.792
2.8	1.376	-0.696	
2.9	0.477	-1.596	
3	0.000	-1.842	3.324
3.1	0.115	-1.582	
3.2	0.531	-0.928	
FS4	---	0.000	3.702
3.3	1.086	0.077	
3.4	1.611	1.001	
3.5	1.976	1.625	
3.6	2.096	2.048	
3.7	1.931	2.024	
3.8	1.486	1.620	
3.9	0.810	0.902	
4	0.000	0.000	0

Figure 15.17– Blocking Ordinates Table

15.4.2.3—Blocking Diagram

The Blocking Diagram illustrates the camber profile (pre-set curvature) required to compensate for dead load deflections. It adjusts the data to show the necessary shape of each individual shop-length girder, accounting for shop and field splice points.

Use a horizontal scale that maximizes the size of the Blocking Diagram for clarity. Exaggerate the vertical scale to help visualization of the cambers.

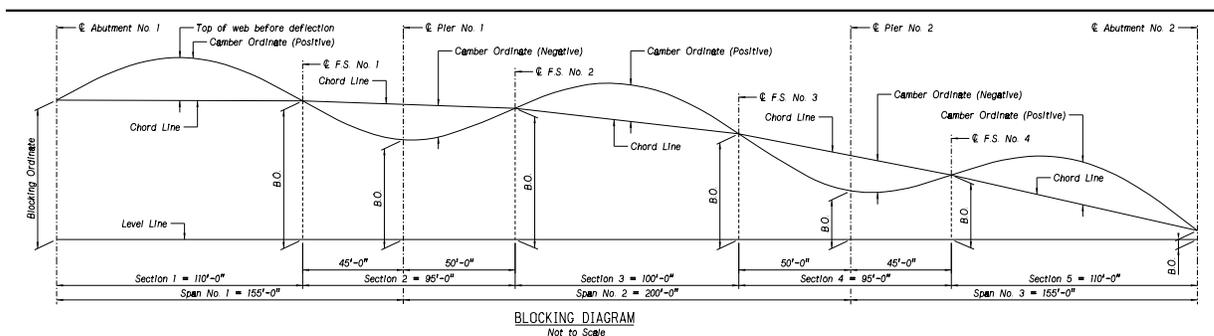


Figure 15.18– Blocking Diagram

15.4.3—Rolled Beam Girders

15.4.3.1—Girder Elevation

The purpose of a detailed elevation view of a steel girder is to provide a comprehensive representation of the girder's geometry, dimensions, and key structural details. This view is essential for fabrication, assembly, and construction, ensuring accuracy and consistency in design and installation.

Show the girder's length, and W Sections, including any variations along the span. Show the bearing locations & support points. Identify the field splice locations and the position of stiffeners, diaphragms, and cross-frame or separator stiffeners. Provides details on steel grades, coatings, and protection methods. Bolted & Welded Connections – Indicates splice plates, bolted/welded connections, and hole patterns for assembly.

Draw the details to an engineering scale that horizontally best fits the span or unit to the full width of the sheet. Use an exaggerated scale vertically to depict elevation details as clearly as is possible.

15.4.3.2—Girder Deflection Table

The engineer or Structural designer is responsible for providing the anticipated deflections at every 1/10th point along the girder due to:

- Self-weight deflection (from all steel erected as a continuous unit).
- Dead load deflection (from concrete deck pours).
- Superimposed dead load deflection (from sidewalks and barriers placed on the completed composite bridge).
- Total deflection due to all effects throughout the bridge erection cycle.

This predicted information must be presented in a Deflection Table (See Figure 15.19). For skewed or curved bridges, a table must be provided for all beams. Place the Deflection Table on the Girder Elevation sheet.

15.5—CONCRETE SLAB BRIDGES

This Guide is specific to the detailing of cast in place concrete slab bridge superstructures. Base sheets for concrete slab bridges are available on ProjectWise:

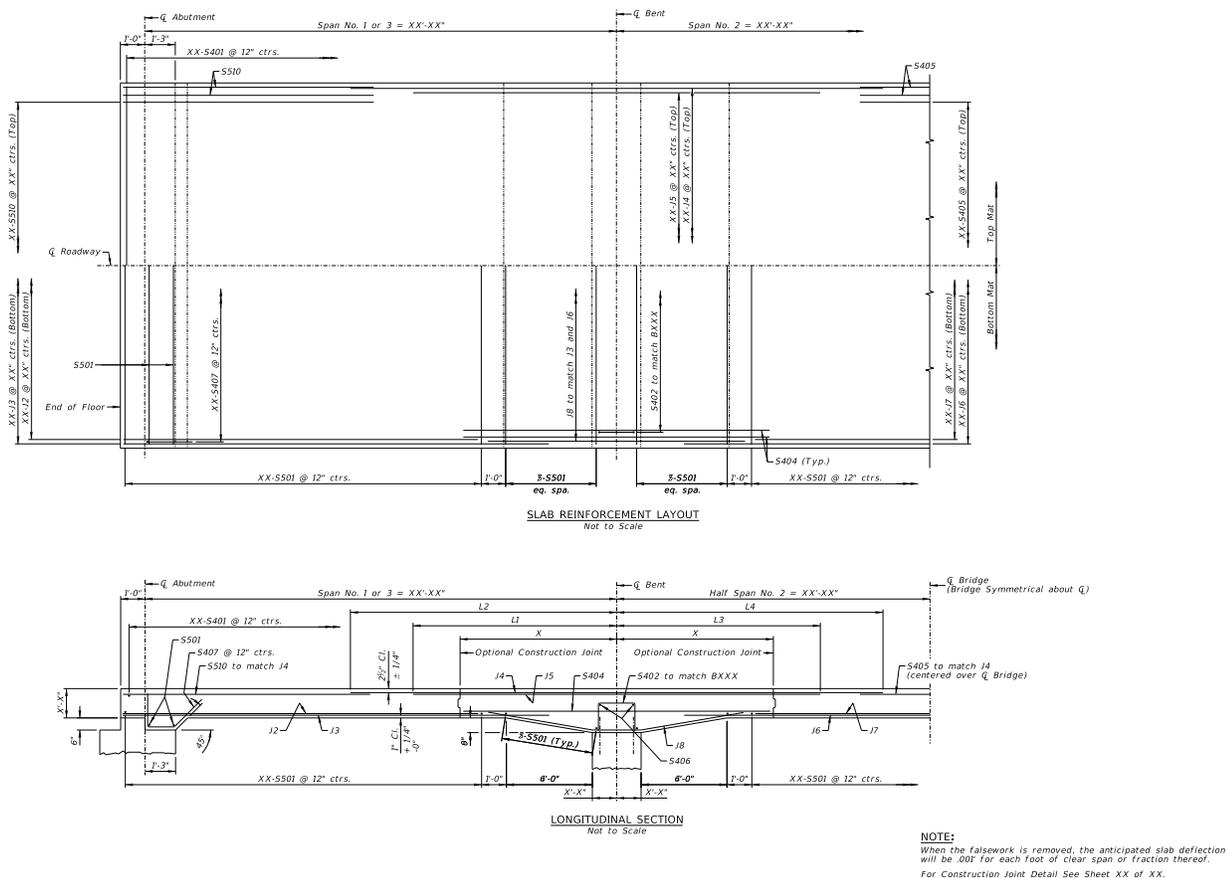


Figure 15.19— Concrete Slab Base Sheet Design

- S510 (Span No. 1 and Span No. 3)
- S405 (Span No. 2)

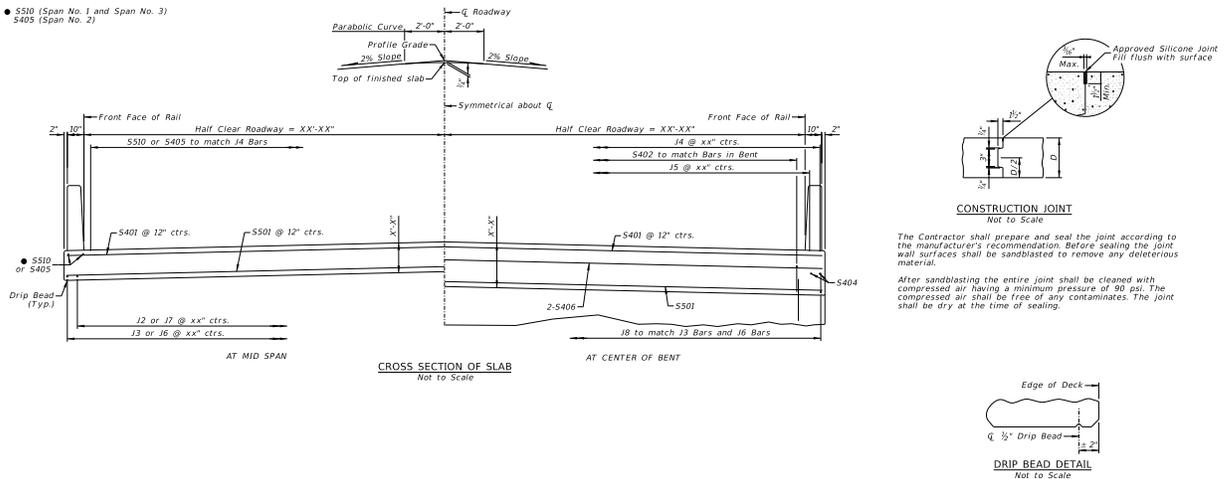


Figure 15.20— Concrete Slab Base Sheet Section

15.6—MISCELLANEOUS SUPERSTRUCTURE DETAILS

The Miscellaneous Superstructure Details sheet is used only if there is not sufficient space on the Deck Plan and Deck Sections sheets for the complete detailing of the superstructure. Many of these details are in the Bridge Cell Libraries. If additional details are needed, detail all the outlines, dimensions, reinforcement, and notes needed for construction.

Place details in groups of similar details. For example, Separator Details, Blocking Diagram, Field Splices, web stiffeners, etc.

15.7—AVAILABLE CHECKLISTS

The following checklists are available in Appendix B:

- Welded Plate Steel Girders
 - WP Girder Framing Plans
 - WP Steel Girder Elevation
 - Steel Girder Blocking Diagram
 - WP Steel Girder Details
- Rolled Steel Girders
 - Rolled Girder Framing Plan
 - Rolled Steel Girder Elevation
 - Steel Girder Blocking Diagram
 - Rolled Steel Girder Details
- Prestressed NU Girders
 - Girder Layout
 - Girder Base Sheet
 - Additional Girder Details
- Prestressed Inverted Tee Girders
 - Girder Layout
 - Girder Base Sheet
 - Additional Girder Details
- Concrete Slab Bridge
 - Slab Bridge Plan and Section

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Chapter 16 — Bridge Decks

16.1—DIAPHRAGMS AND TURNDOWNS

16.1.1—Introduction

The purpose of a concrete diaphragm in bridges is to provide lateral stability and load distribution across the bridge structure. In Nebraska, diaphragms are typically located above the piers and bents and below the deck. A special type of diaphragm, known as a turndown, is located at abutments. In addition to stabilizing girders, turndowns also support approach slabs while allowing for thermal expansion.

More specifically, concrete diaphragms and turndowns serve the following functions:

- Distribute lateral loads: They help transfer lateral forces—such as wind, seismic activity, or braking loads—across the girders and into the substructure (piers and abutments), enhancing the bridge’s ability to resist these forces.
- Maintain alignment of girders: By connecting girders laterally, diaphragms help keep them in place during construction and under load, preventing unwanted twisting or shifting.
- Enhance torsional rigidity: Diaphragms increase the torsional stiffness of the superstructure, which is especially important in skewed or curved bridge designs.
- Improve load sharing: As vehicles travel over the deck, diaphragms help distribute vertical loads more evenly among adjacent girders, improving overall performance.
- Provide construction support: During the construction phase, temporary or permanent diaphragms stabilize girders until the concrete deck is poured and cured.

NOTE: For reinforcement purposes, the turndowns and diaphragms are considered part of the bridge deck.

16.1.2—Plans

The Turndown and Diaphragm plans includes all the needed dimensions, reinforcement placement and descriptions, and joint filler material as shown below.

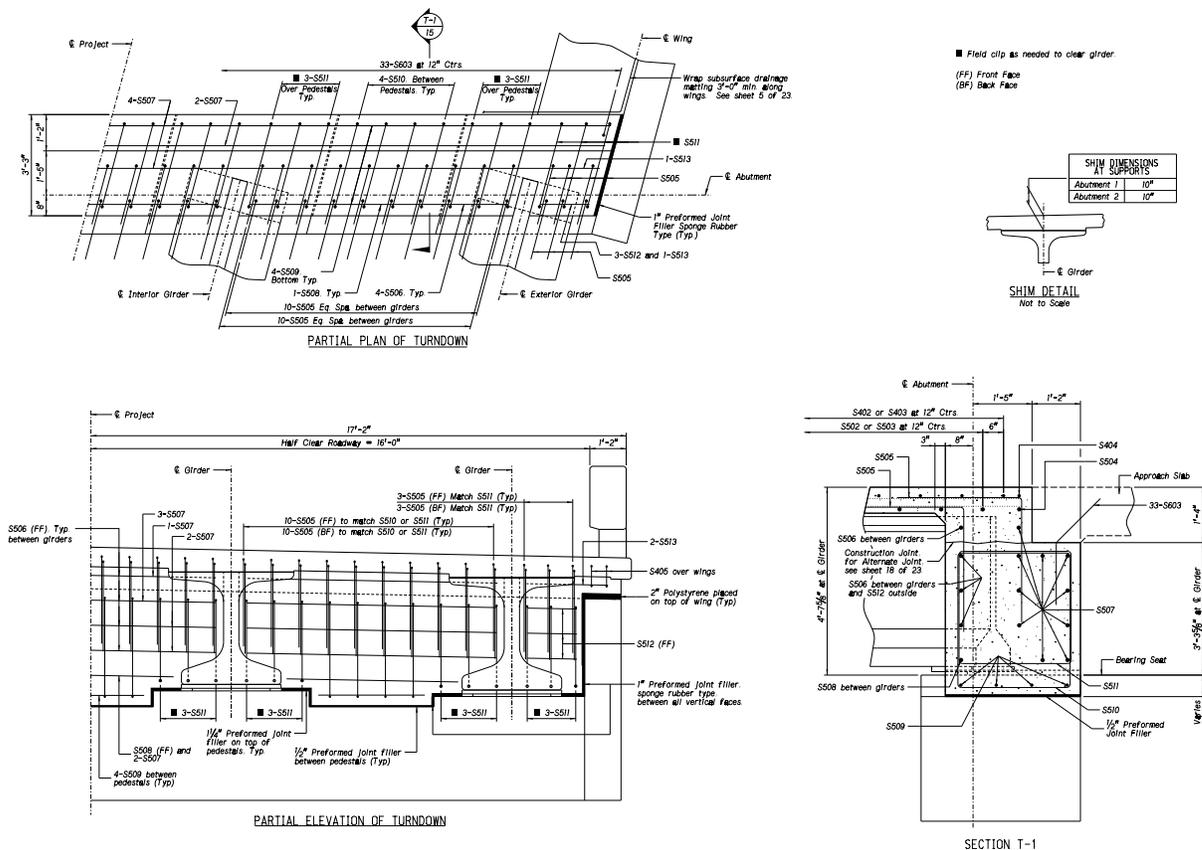


Figure 16.1—Turndowns

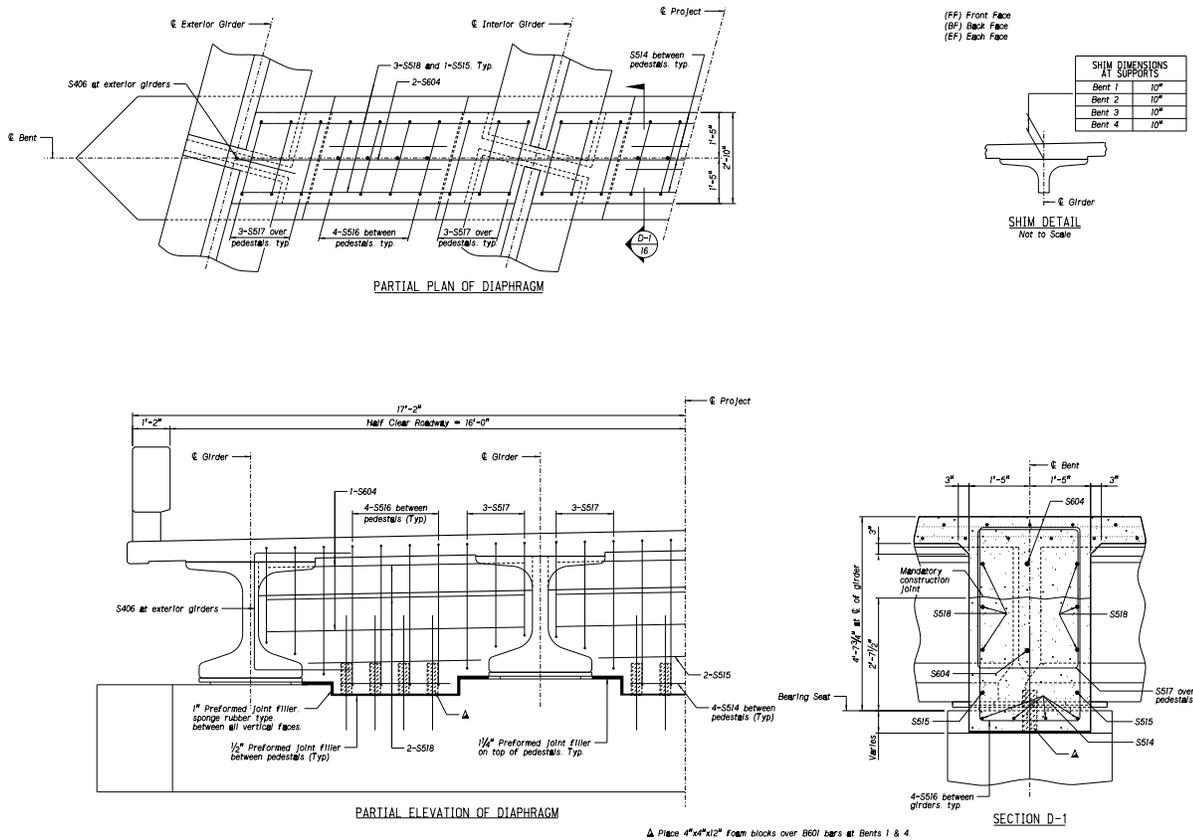


Figure 16.2— Diaphragms

16.2—DECKS ON GIRDERS

16.2.1—Introduction

This sheet provides detailed drawings for the top surface (deck) of the bridge where vehicles or pedestrians' travel. This is one of the most critical parts of the bridge because it directly supports live loads. A properly designed, detailed, and construction of a bridge deck ensures proper load distribution and long-term durability.

16.2.2—Plan View

Use an acceptable scale that fits the bridge deck plan on a single sheet. Refer to "3.2.3—Drawing Scales" for acceptable scales. If the bridge cannot fit legibly on one sheet, it may be split, using a match line. The detailer may also shrink the spans and label "Not to Scale".

16.2.3—Typical Cross Section

Use an acceptable scale that fits the bridge deck section on a single sheet, preferably 3/4" = 1'-0". Refer to "3.2.3—Drawing Scales" for acceptable scales. If the section and required details will not fit on the Deck Plan sheet(s), add the remaining details to an additional sheet that immediately follows. Prioritize placing details on the sheet that contains the bridge element it portrays.

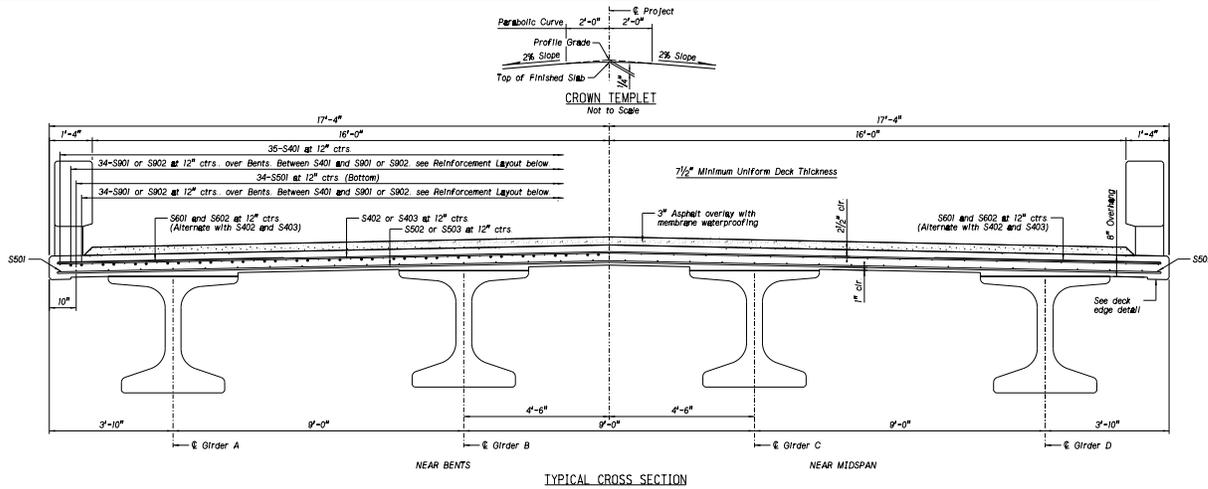


Figure 16.3— Typical Cross Section

16.3—DECK DRAINAGE

16.3.1—Introduction

When drainage of the deck is required and cannot be accommodated by conventional barrier openings, or if dictated by environmental considerations, details of a deck drainage system are required to be shown in the plans.

16.3.2—Deck Drain Location

Include the Floor Drains in the General Plan, along with the necessary placement dimensions.

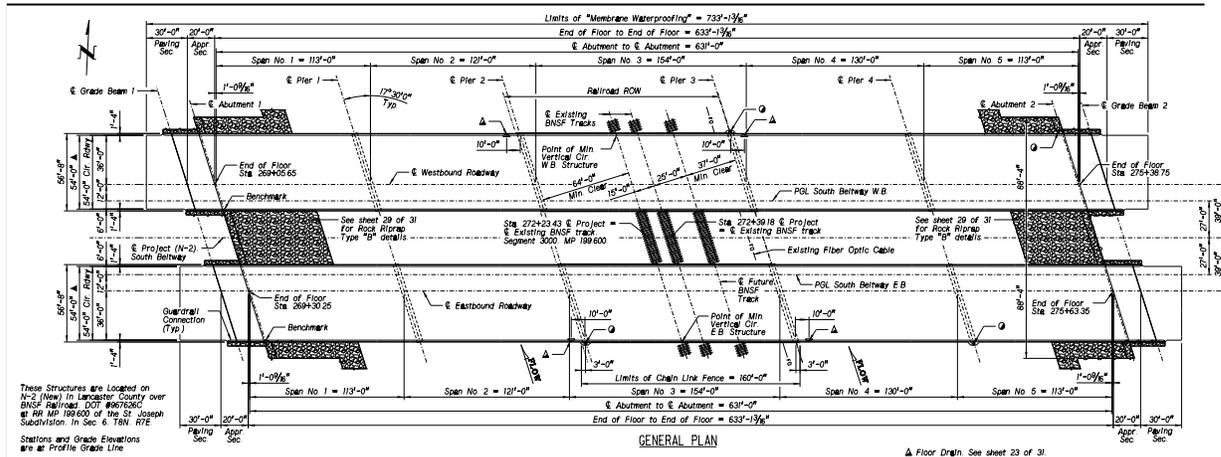


Figure 16.4— General Plan with Deck Drains

16.3.3—Deck Drain Details

Use the floor drain base sheet available on ProjectWise:

16.3.4—Deck Drainage System

When the drainage system includes piping down a pier, provide a detail similar to the one below.

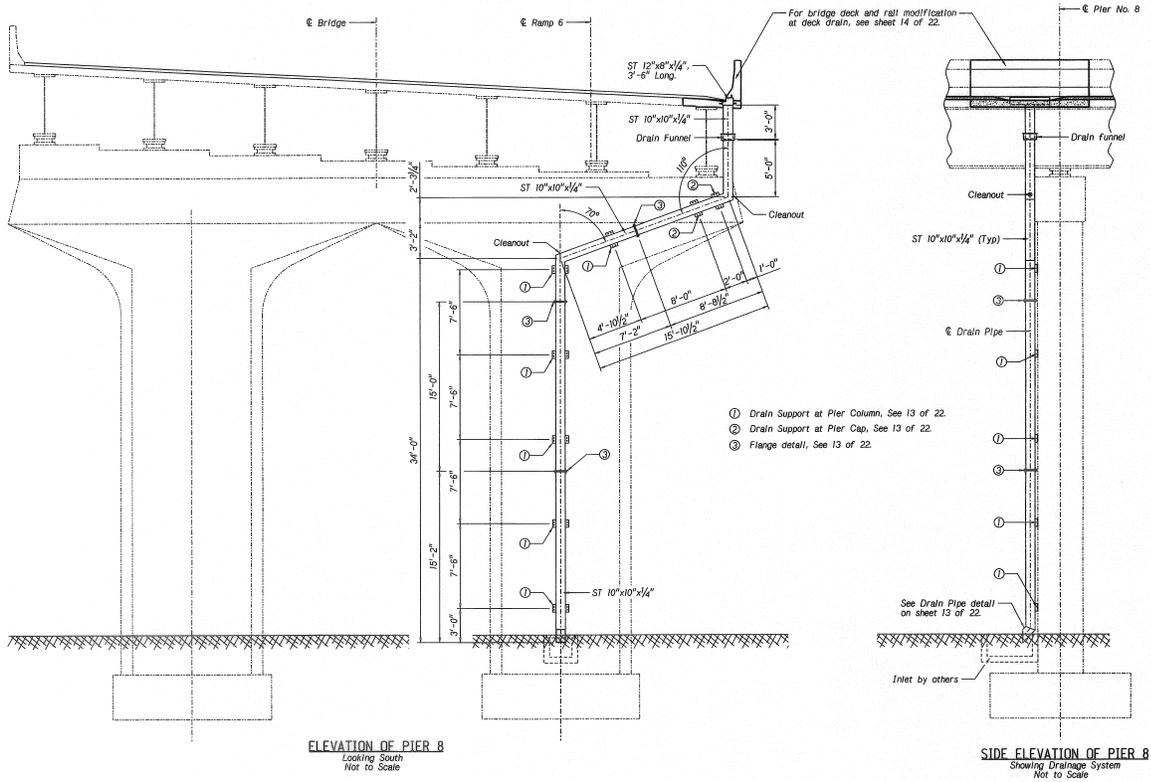


Figure 16.5— Drainage Down Pipe Plan

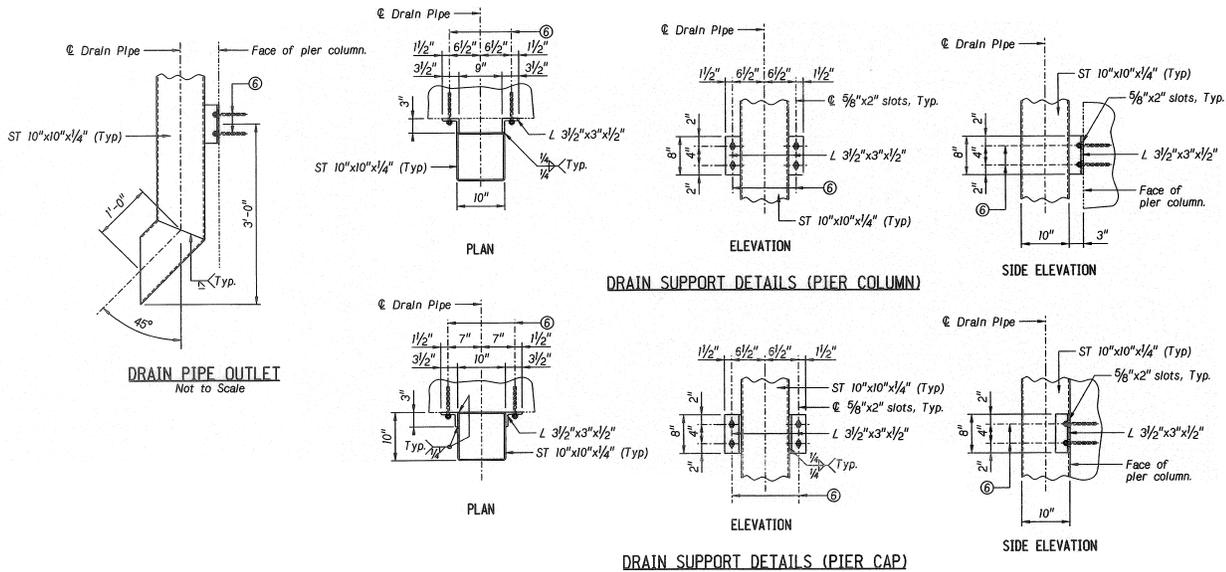


Figure 16.6— Addition Drainage Details

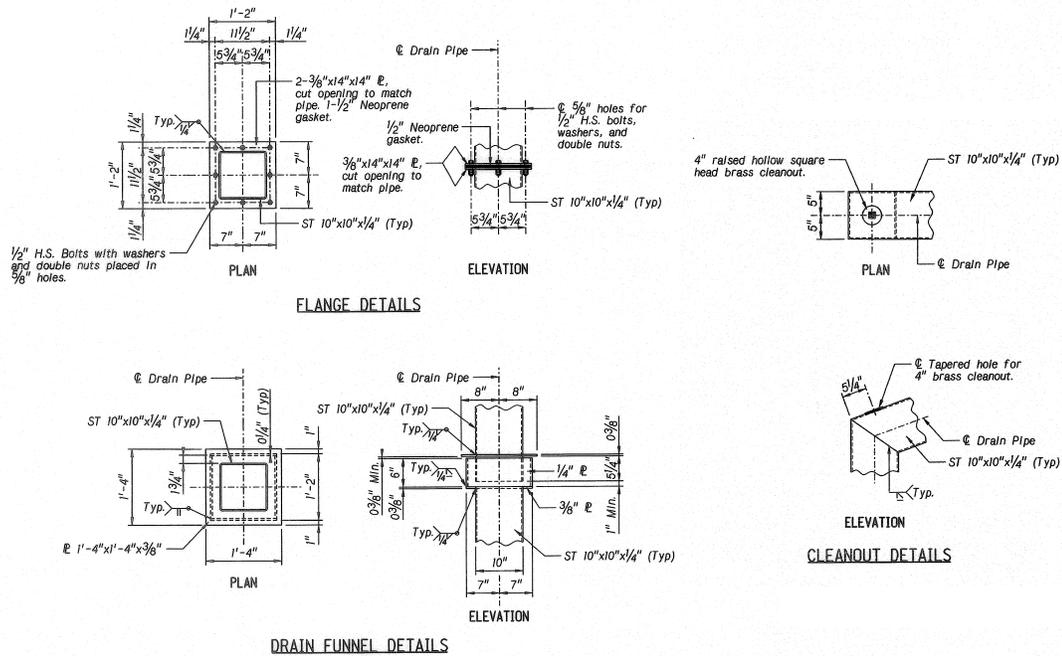


Figure 16.7— Addition Drainage Details Part II

16.4—AVAILABLE CHECKLISTS

The following checklists are available in Appendix B:

- ▣ Turndowns (Concrete and Steel Girder Bridges)
 - Full or Partial Plan of Turndown
 - Elevation of Turndown
 - Section of Turndown
- ▣ Diaphragms (Concrete Girder Bridges Only)
 - Full or Partial Plan of Diaphragm
 - Elevation of Diaphragm
 - Section of Diaphragm
- ▣ Typical Cross Section
- ▣ Bridge Deck Plans
 - Reinforcement Layout
 - Additional Information
- ▣ Deck Drainage System
- ▣ Deck Drain Details
- ▣ Deck Drain Locations
- ▣ Floor Drain Base Sheet

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Chapter 17 — Approach Slabs and Bridge Rails

17.1—APPROACH SLABS

17.1.1—Introduction

The bridge approach section provides a gradual and stable transition for vehicles moving from the flexible pavement of the roadway to the rigid structure of the bridge, minimizing the bump that often forms at the bridge ends due to soil settlement—particularly when embankment fill is used. This section helps mitigate the effects of differential settlement, often using special materials or pile-supported grade beams.

17.1.2—Approach Slab Base Sheets

Approach Slab Base Sheets are available on ProjectWise. These base sheets are intended to be modified to suit specific site conditions. While the “General Plan of Approach Slab” is provided with no skew, as well as for LHB and RHB skews, please note that the plan is not to scale. It is recommended to draft the approach slab plan to scale—using the correct skew, accurately scaled reinforcement, and clearly defined phasing lines (when applicable).

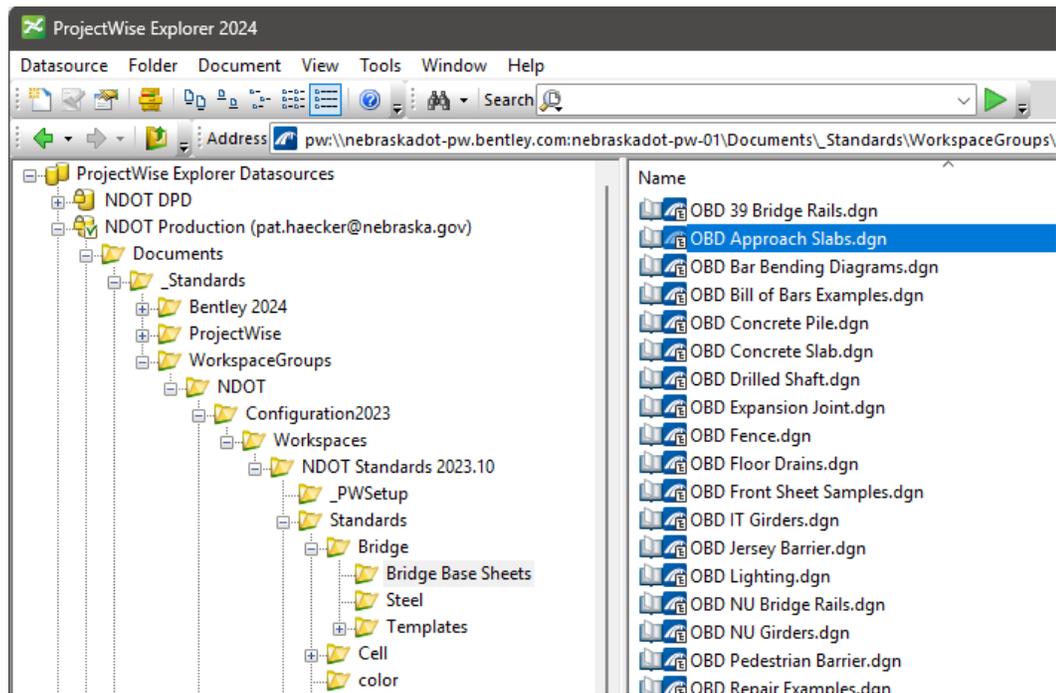


Figure 17.1— Approach Slab Base Sheet

17.2—BRIDGE RAILS AND BARRIERS

17.2.1—Introduction

The purpose of bridge rails or barrier curbs is to enhance safety by preventing vehicles, pedestrians, or cyclists from accidentally leaving the bridge deck. They act as a protective boundary between traffic and the edge of the bridge structure.

- Prevent vehicles from departing the bridge in the event of an impact.
- Designed to absorb or deflect the energy of a crash to reduce damage and injury.
- Clearly mark the edge of the roadway or path
- Must meet safety standards (AASHTO LRFD Bridge Design Specs).
- Height, strength, and geometry vary depending on:
 - Roadway classification
 - Traffic speed and volume
 - Whether the bridge carries pedestrians or cyclists
 - Aesthetic or architectural requirements

17.2.2—Bridge Rail Base Sheets

Bridge Rail Base Sheets are available on ProjectWise. These base sheets are intended to be modified to suit specific site conditions. There are three files for bridge rails and barriers.

- OBD 39 Bridge Rails.dgn
- OBD NU Bridge Rails.dgn
- OBD Jersey Barrier.dgn

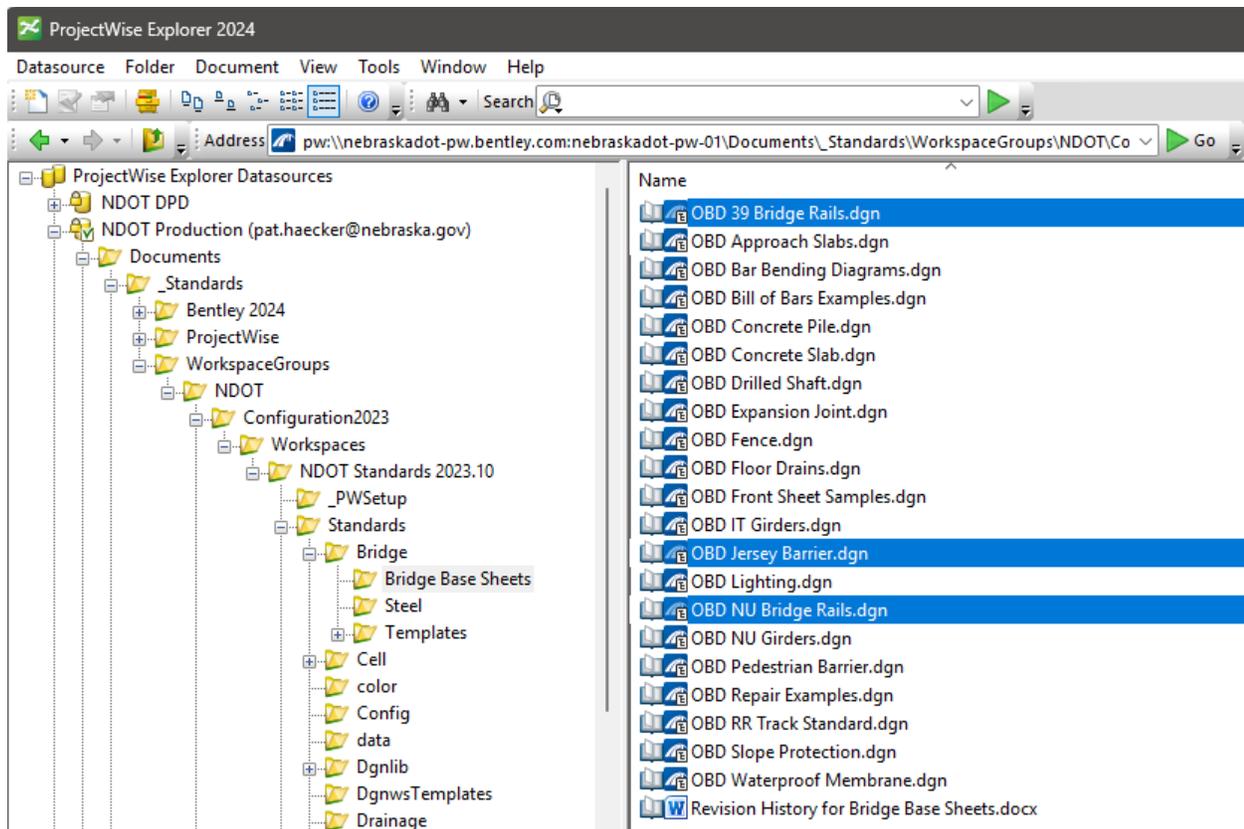


Figure 17.2— Base Sheet File Location

17.2.3—Approach Slab Rails Base Sheets

See “17.2.2—Bridge Rail Base Sheets” for the base sheet location

17.3—AVAILABLE CHECKLISTS

The following checklists are available in Appendix B:

- Approach Slabs
 - Base Sheet
 - General Plan
- Bridge Rail Base Sheet
- Approach Rail Base Sheet
- Pedestrian Barrier Base Sheet

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Chapter 18 — Details from Base Sheets

18.1—BRIDGE LIGHTING

18.1.1—Introduction

Bridge Lighting improves visibility for drivers, cyclists, and pedestrians at night or during poor weather, helping to prevent accidents by clearly outlining the path and structure of the bridge.

18.1.2—Base Sheet

A lighting base sheet is available on ProjectWise.

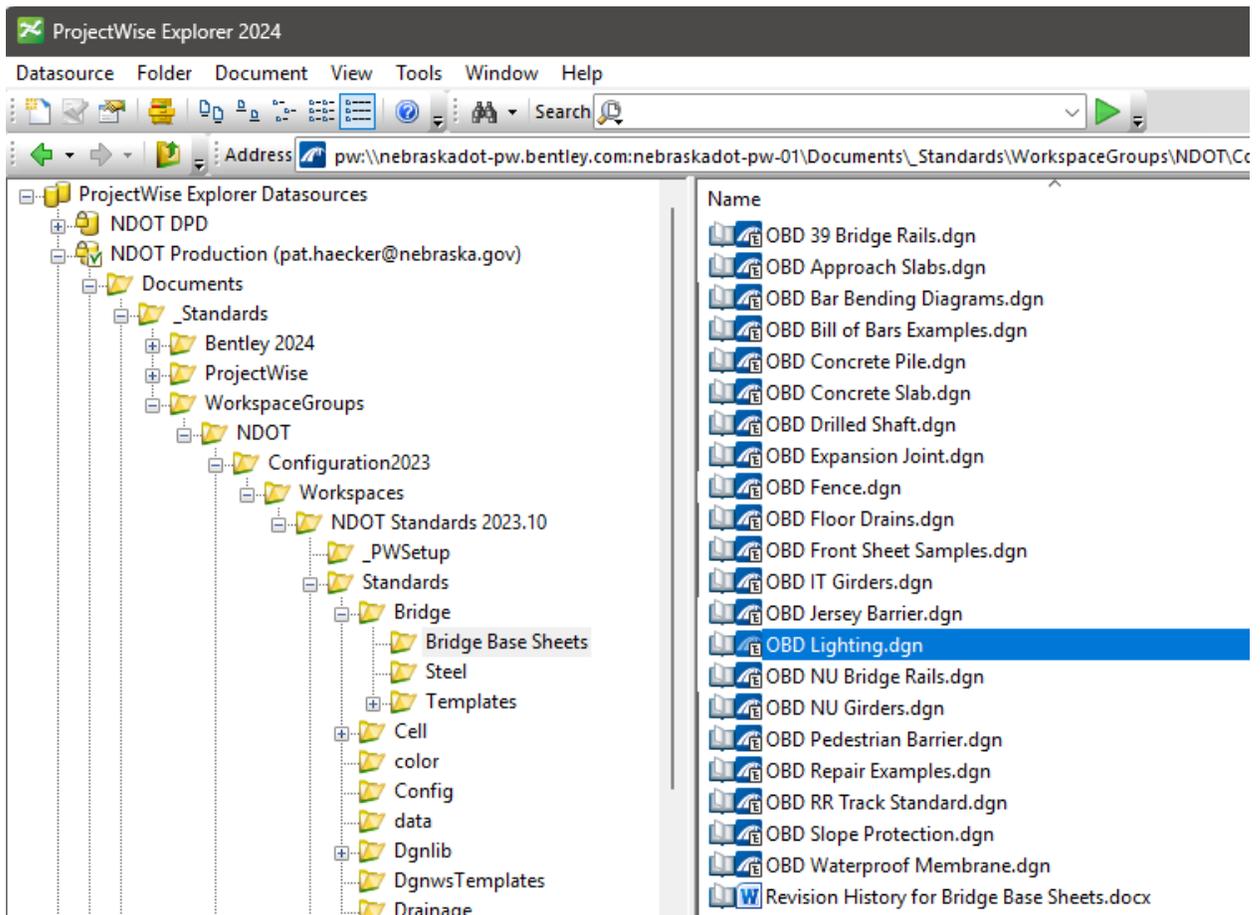


Figure 18.1— Base Sheet File Location

18.2—FENCES

18.2.1—Introduction

Bridge fences are placed on bridges primarily for safety and security reasons. Fences act as a barrier to stop cyclists and pedestrians from accidentally falling off the bridge. Fences also help prevent people from throwing objects off the bridge onto traffic, water, or railways below, which can be extremely dangerous.

18.2.2—Base Sheets

There is a bridge fence base sheet available on ProjectWise.

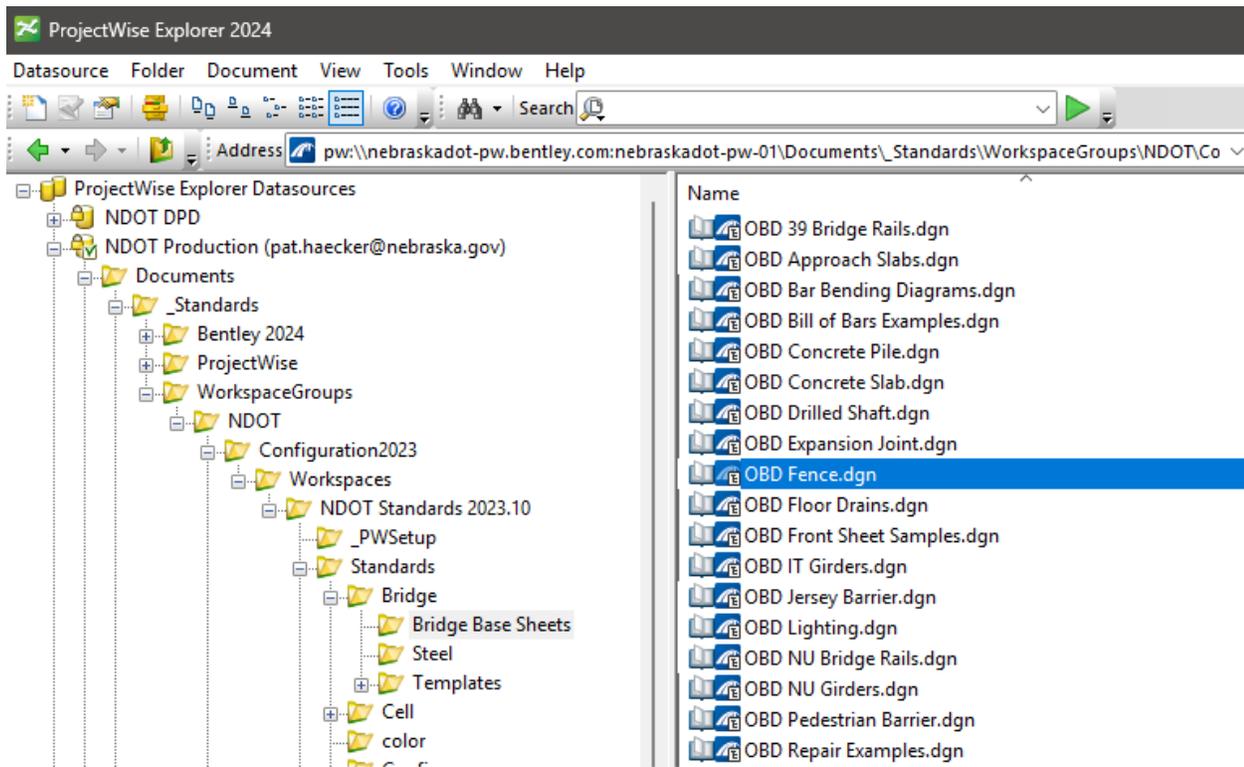


Figure 18.2— Base Sheet File Location

18.3—OVERLAY PLANS

18.3.1—Introduction

The purpose of a waterproof membrane is to protect the structural integrity of the bridge by preventing water and deicing chemicals from penetrating into the deck.

18.3.2—Base Sheet

There is a waterproof membrane base sheet available on ProjectWise.

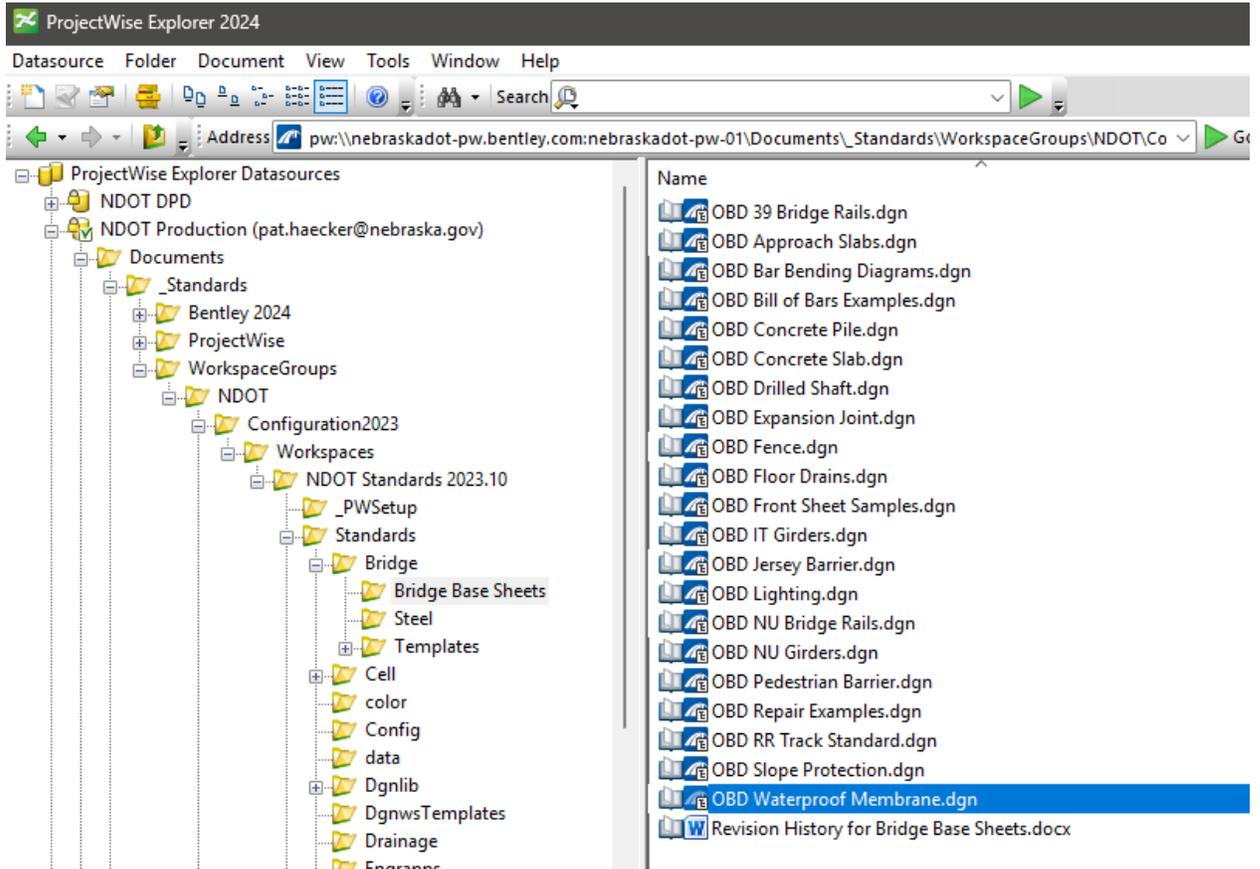


Figure 18.3— Base Sheet File Location

18.4—EXPANSION JOINTS

18.4.1—Introduction

The purpose of bridge expansion joints is to allow for controlled movement of the bridge structure due to thermal expansion and contraction. Expansion joints provide the necessary space for these movements without causing cracks or structural damage. Expansion joints are designed to prevent water and chemicals from reaching the superstructure and substructure to prevent costly damage. Properly designed joints ensure a smooth and safe transition for vehicles between bridge segments or from the bridge to the roadway.

18.4.2—Base Sheets

There is an Expansion Joint base sheet available on ProjectWise.

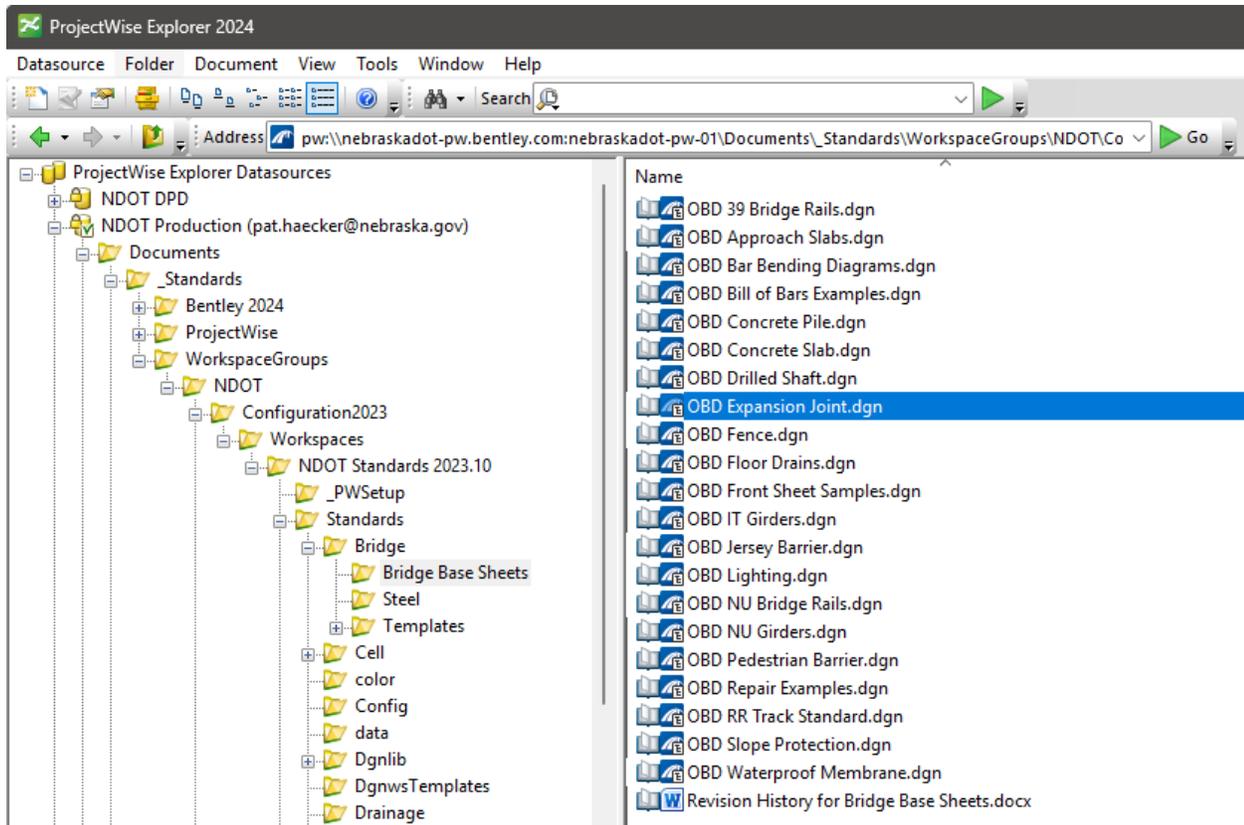


Figure 18.4— Expansion Joint Base Sheet Location

18.5—RIPRAP AND SLOPE PROTECTION

18.5.1—Introduction

Riprap and slope protection keeps water from washing away soil, which helps preserve the bridge's stability and safety over time.

18.5.2—Base Sheets

Slope protection base sheets are available on ProjectWise.

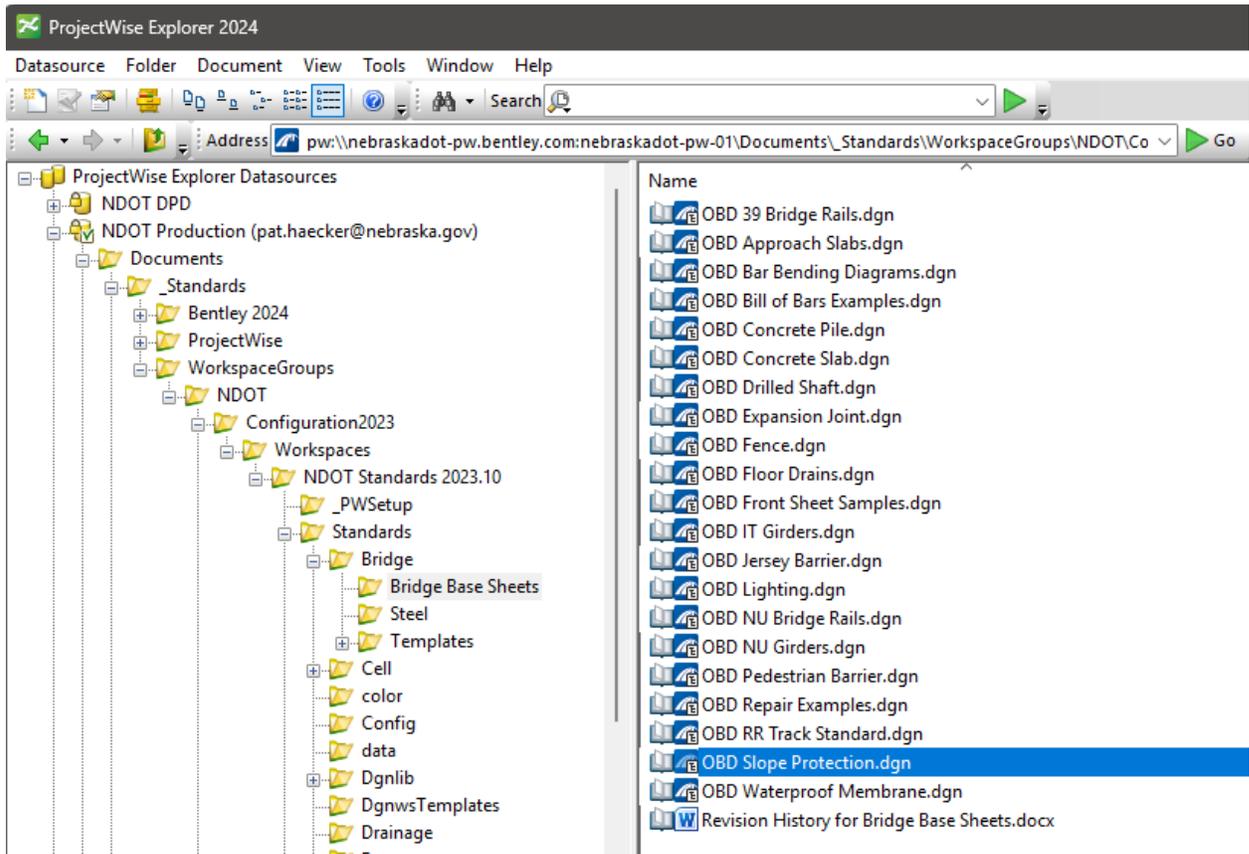


Figure 18.5— Slope Protection Base Sheet Location

18.5.3—Riprap Details

Reserved for future use

18.6—RAILROAD BASE SHEET

Reserved for future use

18.7—AVAILABLE CHECKLISTS

The following checklists are available in Appendix B:

- ▣ Lighting Base Sheet
- ▣ Fence Base Sheet
- ▣ RR Track Base Sheet
- ▣ Riprap or Slope Protection Base Sheet
- ▣ Expansion Joint Base Sheets

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Chapter 19 — Bill of Bars

19.1—INTRODUCTION

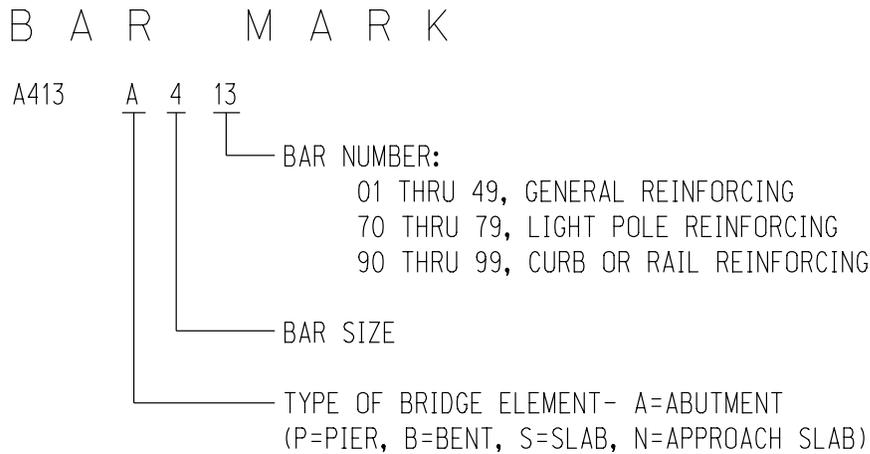
The purpose of a Bill of Bars (sometimes called a bar list or rebar schedule) in bridge plans is to provide a detailed summary of the reinforcing steel used in the structure. It plays a crucial role in both construction planning and material procurement. The bill of bars sheet is used to detail the dimensions and shapes of steel reinforcement bars used in bridges.

Bill of bars serve the following purposes:

- MATERIAL QUANTITIES
 - Lists the total number, size, length, and type of reinforcing bars needed for the project.
 - Helps contractors order the correct quantity of rebar, minimizing waste and shortages.
- BAR IDENTIFICATION
 - Assigns bar marks (e.g., S401, S402, etc.) that correspond with callouts on the plan sheets.
 - Simplifies field identification and ensures the right bar is placed in the correct location.
- FABRICATION GUIDANCE
 - Provides bar shapes, dimensions, and bend details (often referencing standard shapes).
 - Ensures that bars are cut and bent to the correct specifications before delivery to the site.
- CONSTRUCTION EFFICIENCY
 - Speeds up rebar placement in the field by clearly indicating what goes where.
 - Reduces errors and rework during construction.
- QUALITY CONTROL & INSPECTION
 - Assists inspectors in verifying that correct materials are used as per design.
 - Serves as a checklist for both material delivery and installation.
- COST ESTIMATING & BIDDING
 - Useful during the bidding process for contractors to estimate labor and material costs.
 - Provides transparency in project scope and helps manage budgets.

19.2—BAR LABELS

Group bars by the element types then list bar marks in sequential order. Follow the example below for labeling.



THE NUMBER OF LAP SPLICES ARE CALCULATED BASED ON 60'-0" LENGTHS OF REINFORCING STEEL BARS.
SPLICES ON BARS SHORTER THAN 60'-0" WILL REQUIRE ADDITIONAL LAP SPLICES AT NO ADDITIONAL EXPENSE TO NDOT.

Figure 19.1— Bar Labeling

19.3—CALCULATING BAR QUANTITIES

A Master Bill of Bars spreadsheet is available internally at:

N:\OpenBridge Designer CONNECT\OBD Documentation\Bill of Bars Resources (CONNECT BOB Template).

Please copy and save the spreadsheet to your local drive before use. The CONNECT BOB Template includes two tabs: one for non-phased bridges and one for phased bridges. It is designed to generate a Bill of Bars table that can be easily imported into a MicroStation table.

B I L L O F B A R S												
MARK	NO.	LENGTH	TYPE	"A"	"B"	"C"	"D"	"E"	"F"	PIN	HOOK	WEIGHT LB
A402	42	8'-9"	107	2'-0"	2'-0"					2"	4 1/2"	245
A403	16	19'-6"	Str.									208
A404	80	8'-6"	103	2'-6"	3'-6"	2'-6"				2"		454
A405	64	9'-8"	103	2'-6"	4'-8"	2'-6"				2"		413
A501	64	14'-8"	108	2'-0"	3'-4"	2'-0"	1'-6"			2 1/2"		979
A502	72	23'-5"	107	9'-6"	1'-9"					2 1/2"	5 1/2"	1758
A503	32	34'-7"	Str.									1154
A504	16	8'-4 3/4"	136	2'-0"	1'-5"	10"	1'-2"	1'-4 1/2"	1'-7 1/4"	2 1/2"		140
A505	16	5'-8"	133	2'-0"	1'-8"	2'-0"	5"			2 1/2"		95
A506	88	19'-9"	Str.									1813
A601	72	3'-6"	101	2'-0"	1'-6"	1'-0"				4 1/2"		379
A602	16	6'-0"	127	3'-0"	3'-0"	9 1/2"				4 1/2"		144
A603	16	6'-0"	105	3'-0"	3'-0"	9 1/2"				4 1/2"		144
A604	84	17'-4"	108	4'-0"	8"	4'-0"	Varies			4 1/2"		2187
A605	64	14'-8"	108	2'-0"	3'-4"	2'-0"	1'-6"			4 1/2"		1410
A701	32	35'-2"	Str.									2300
A702	28	34'-8"	Str.									1984
SUBTOTAL =												16384

Figure 19.2— Non-Phased Bar Examples

B I L L O F B A R S														
MARK	NUMBER OF BARS		LENGTH	TYPE	"A"	"B"	"C"	"D"	"E"	"F"	PIN	HOOK	WEIGHT — LB	
	PHASE I	PHASE II											PHASE I	PHASE II
A401	50	46	9'-9"	107	2'-0"	2'-6"					2"	4 1/2"	326	300
A501	50	46	17'-0"	108	2'-6"	3'-6"	2'-6"	Varies			2 1/2"		887	816
A601	52	44	3'-6"	Str.									273	231
A602	52	44	3'-0"	101	1'-6"	1'-6"	1'-0 3/4"				4 1/2"		234	198
A701	24		25'-7"	Str.									1255	
A702		24	20'-7"	Str.										1010
A703	32		25'-7"	Str.									1673	
A704		32	20'-7"	Str.										1346
SUBTOTAL =												4648	3901	

Figure 19.3— Phased Bar Examples

19.4—BAR BENDING DIAGRAM

A bar bending/bill of bars base sheet is available on ProjectWise.

BENDING DIAGRAMS

ALL DIMENSIONS ARE OUT TO OUT & NOT TO SCALE
ALL REINFORCING STEEL SHALL BE EPOXY COATED

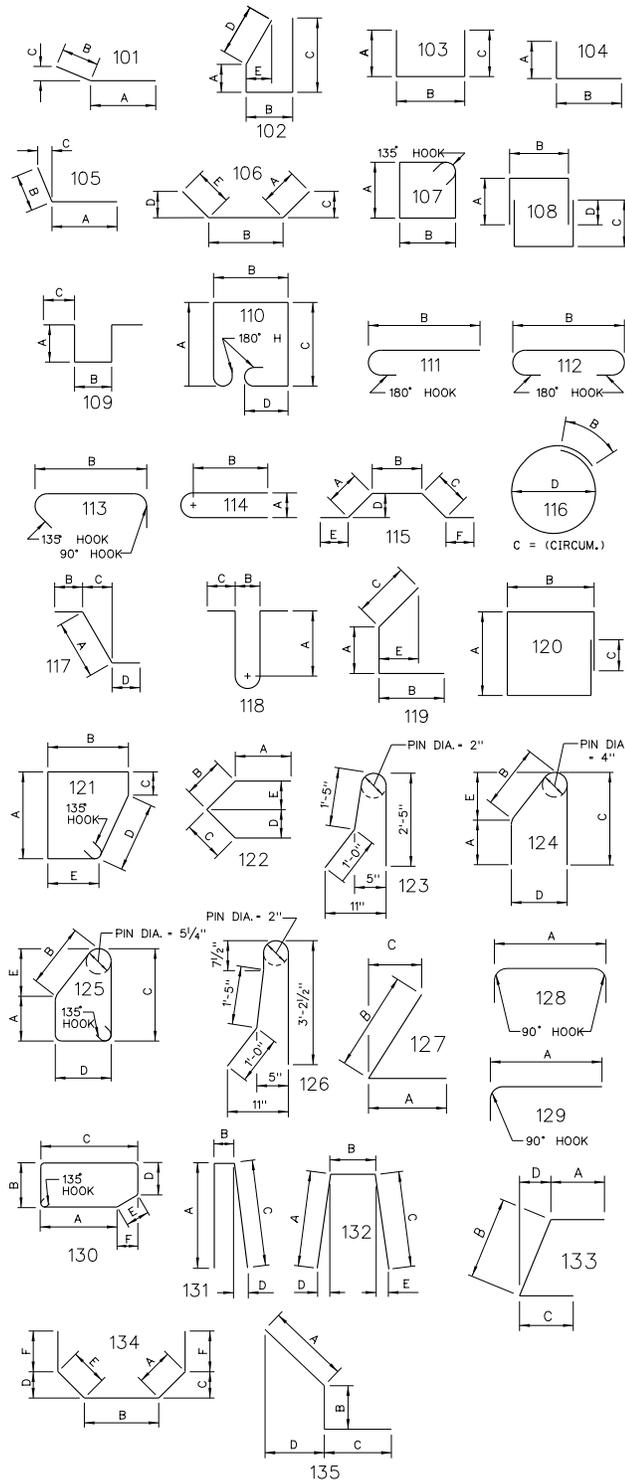


Figure 19.4— Bar Bending Example

19.5—AVAILABLE CHECKLISTS

The following checklists are available in Appendix B:

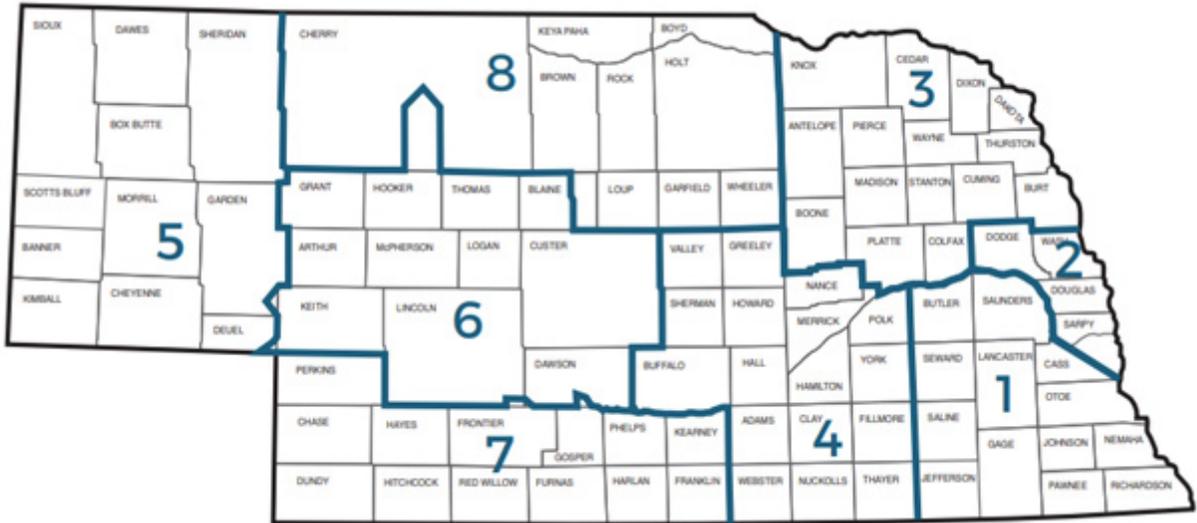
- Bill of Bars

Appendix A — References

A.1—INTRODUCTION

This chapter includes a map showing our 8 districts, fraction conversion table, and other reference information.

A.2—DISTRICT MAP WITH HEADQUARTER INFORMATION



Central Headquarters 1500 Nebraska Parkway Lincoln, NE 68509-4759 402-479-4615	District 1 Headquarters 302 Superior St. Lincoln, NE 68521 402-471-0850	District 2 Headquarters 4425 South 108th St. Omaha, NE 68145-0461 402-595-2534
District 3 Headquarters 408 North 13th St. Norfolk, NE 68701 402-370-3470	District 4 Headquarters 211 North Tilden St. Grand Island, NE 68802-1488 308-385-6265	District 5 Headquarters 140375 Rundell Rd. Gering, NE 69341-0220 308-436-6587
District 6 Headquarters 1321 North Jeffers St. North Platte, NE 69103-1108 308-535-8031	District 7 Headquarters 619 Auditorium Dr. McCook, NE 69001 308-345-8490	District 8 Headquarters 736 East 4th St Ainsworth, NE 69210 402-387-2471

A.3—DECIMAL CONVERSION TABLE

Inches to Feet Conversion													
0	0.0000	1	0.0833	2	0.1667	3	0.2500	4	0.3333	5	0.4167	6	0.5000
	1/16 0.0052		1/16 0.0885		1/16 0.1719		1/16 0.2552		1/16 0.3385		1/16 0.4219		1/16 0.5052
	1/8 0.0104		1/8 0.0938		1/8 0.1771		1/8 0.2604		1/8 0.3438		1/8 0.4271		1/8 0.5104
	3/16 0.0156		3/16 0.0990		3/16 0.1823		3/16 0.2656		3/16 0.3490		3/16 0.4323		3/16 0.5156
	1/4 0.0208		1/4 0.1042		1/4 0.1875		1/4 0.2708		1/4 0.3542		1/4 0.4375		1/4 0.5208
	5/16 0.0260		5/16 0.1094		5/16 0.1927		5/16 0.2760		5/16 0.3594		5/16 0.4427		5/16 0.5260
	3/8 0.0313		3/8 0.1146		3/8 0.1979		3/8 0.2813		3/8 0.3646		3/8 0.4479		3/8 0.5313
	7/16 0.0365		7/16 0.1198		7/16 0.2031		7/16 0.2865		7/16 0.3698		7/16 0.4531		7/16 0.5365
	1/2 0.0417		1/2 0.1250		1/2 0.2083		1/2 0.2917		1/2 0.3750		1/2 0.4583		1/2 0.5417
	9/16 0.0469		9/16 0.1302		9/16 0.2135		9/16 0.2969		9/16 0.3802		9/16 0.4635		9/16 0.5469
	5/8 0.0521		5/8 0.1354		5/8 0.2188		5/8 0.3021		5/8 0.3854		5/8 0.4688		5/8 0.5521
	11/16 0.0573		11/16 0.1406		11/16 0.2240		11/16 0.3073		11/16 0.3906		11/16 0.4740		11/16 0.5573
	3/4 0.0625		3/4 0.1458		3/4 0.2292		3/4 0.3125		3/4 0.3958		3/4 0.4792		3/4 0.5625
	13/16 0.0677		13/16 0.1510		13/16 0.2344		13/16 0.3177		13/16 0.4010		13/16 0.4844		13/16 0.5677
	7/8 0.0729		7/8 0.1563		7/8 0.2396		7/8 0.3229		7/8 0.4063		7/8 0.4896		7/8 0.5729
	15/16 0.0781		15/16 0.1615		15/16 0.2448		15/16 0.3281		15/16 0.4115		15/16 0.4948		15/16 0.5781
7	0.5833	8	0.6667	9	0.7500	10	0.8333	11	0.9167				
	1/16 0.5885		1/16 0.6719		1/16 0.7552		1/16 0.8385		1/16 0.9219				
	1/8 0.5938		1/8 0.6771		1/8 0.7604		1/8 0.8438		1/8 0.9271				
	3/16 0.5990		3/16 0.6823		3/16 0.7656		3/16 0.8490		3/16 0.9323				
	1/4 0.6042		1/4 0.6875		1/4 0.7708		1/4 0.8542		1/4 0.9375				
	5/16 0.6094		5/16 0.6927		5/16 0.7760		5/16 0.8594		5/16 0.9427				
	3/8 0.6146		3/8 0.6979		3/8 0.7813		3/8 0.8646		3/8 0.9479				
	7/16 0.6198		7/16 0.7031		7/16 0.7865		7/16 0.8698		7/16 0.9531				
	1/2 0.6250		1/2 0.7083		1/2 0.7917		1/2 0.8750		1/2 0.9583				
	9/16 0.6302		9/16 0.7135		9/16 0.7969		9/16 0.8802		9/16 0.9635				
	5/8 0.6354		5/8 0.7188		5/8 0.8021		5/8 0.8854		5/8 0.9688				
	11/16 0.6406		11/16 0.7240		11/16 0.8073		11/16 0.8906		11/16 0.9740				
	3/4 0.6458		3/4 0.7292		3/4 0.8125		3/4 0.8958		3/4 0.9792				
	13/16 0.6510		13/16 0.7344		13/16 0.8177		13/16 0.9010		13/16 0.9844				
	7/8 0.6563		7/8 0.7396		7/8 0.8229		7/8 0.9063		7/8 0.9896				
	15/16 0.6615		15/16 0.7448		15/16 0.8281		15/16 0.9115		15/16 0.9948				
										Inches to Decimal			
										Fraction	Decimal		
										1/16	0.0625		
										1/8	0.1250		
										3/16	0.1875		
										1/4	0.2500		
										5/16	0.3125		
										3/8	0.3750		
										7/16	0.4375		
										1/2	0.5000		
										9/16	0.5625		
										5/8	0.6250		
										11/16	0.6875		
										3/4	0.7500		
										13/16	0.8125		
										7/8	0.8750		
										15/16	0.9375		

Figure A.1— Decimal Conversion Table

A.4—MATH FORMULAS

A.4.1—Angle And Circle Formulas

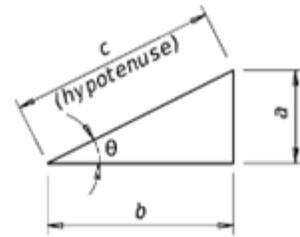
Trigometric Formulas

$$c^2 = a^2 + b^2$$

$$\sin(\theta) = \frac{a}{c}$$

$$\cos(\theta) = \frac{b}{c}$$

$$\tan(\theta) = \frac{a}{b}$$



Properties of Circles

$$1 \text{ radian} = \frac{180^\circ}{\pi} = 57.29578^\circ$$

$$1 \text{ degree} = \frac{\pi}{180^\circ} = 0.01745329 \text{ radians}$$

Properties of Circular Sectors

$$L = \pi r \left(\frac{\Phi}{180^\circ} \right)$$

$$= 0.017453 r \Phi^\circ$$

$$\Phi^\circ = \frac{180^\circ(L)}{\pi r}$$

$$= (57.29578)(L) \div r$$

$$\text{Sector Area} = \frac{Lr}{2}$$

$$= 0.0087267(\Phi^\circ)(r^2)$$

$$r = \sqrt{\frac{2 \text{ Area}}{\Phi^\circ}}$$

Properties of Circular Segments

$$\text{chord length } c = (2r) \sin(\Phi/2)$$

$$\text{Segment height, } b = r - \frac{1}{2} \sqrt{4r^2 - c^2}$$

$$= (c/2) \tan(\Phi/4)$$

$$= (2r) \sin^2(\Phi/4)$$

$$= r + y - \sqrt{r^2 - x^2}$$

$$y = b - r + \sqrt{r^2 - x^2}$$

$$x = \sqrt{r^2 - (r + y - b)^2}$$

$$\text{Segment area} = \frac{\pi(r^2)(\Phi^\circ)}{360} - \frac{(r^2)\sin(\Phi^\circ)}{2}$$

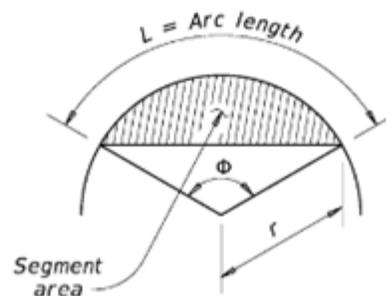
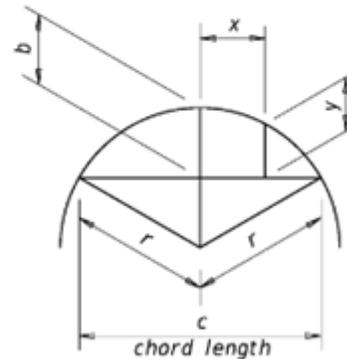
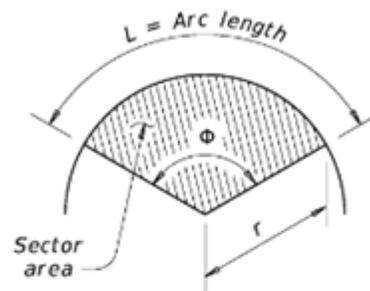
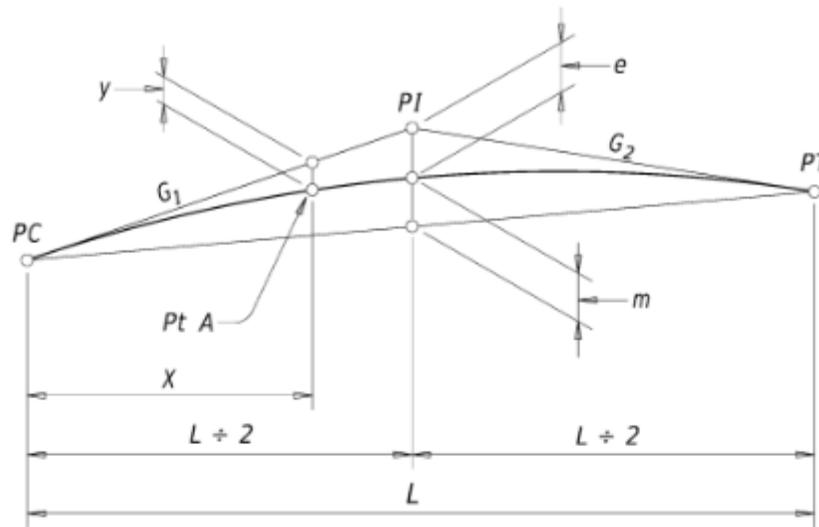


Figure A.2— Angle and Circle Formulas

A.4.2—Vertical Curves



L = length of vertical parabolic curve PC-PT measured along the horizontal projection (station change)

PI = point of intersection

PC = point of curvature

PT = point of tangency

m = mid-ordinate (m = e)

G₁ & G₂ = tangent grades (G₁ ≠ G₂)

$$m = e = (L) \left[\frac{G_1 - G_2}{8} \right]$$

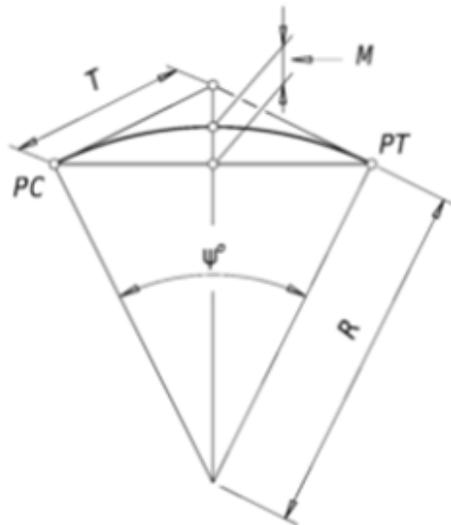
$$y = F X^2 = \frac{X^2 m}{(L \div 2)^2}$$

$$F = \frac{m}{(L \div 2)^2} = \frac{(L)G_1 - G_2}{8(L \div 2)^2} = \frac{G_1 - G_2}{2L}$$

$$\text{Elevation at Pt A} = \text{Elev}_{PC} + (G_1)(X) - (F)(X^2)$$

Figure A.3— Vertical Curves

A.4.3—Horizontal Curves



L = length of circular arc PC-PT
(Sta change)

R = radius

D° = degree of curve ($^\circ$)

ψ° = central angle ($^\circ$)

M = mid-ordinate

LC = length of chord PC-PT

T = tangent length

$$R \text{ (arc definition)} = \frac{(180^\circ)(100') \div \pi}{D^\circ} = \frac{5729.5780}{D^\circ}$$

$$R \text{ (chord definition)} = \frac{50}{\sin(D^\circ/2)}$$

$$T = (R) \tan (\psi^\circ/2)$$

$$L = (0.01745293)(R)(\psi^\circ) = \frac{(100')(R)(\psi^\circ)}{5729.5780}$$

$$LC = (2R) \sin (\psi^\circ/2)$$

$$M = R [1 - \cos(\psi^\circ/2)]$$

Figure A.4— Horizontal Curves

A.5—REBAR INFORMATION

This tables provides information on reinforcing bar sizes, diameters, Area, and Weights.

English			
Mark	Dia. (in.)	Area (in.²)	Weight (lb. / ft.)
# 3	0.375	0.11	0.376
# 4	0.500	0.20	0.668
# 5	0.625	0.31	1.043
# 6	0.750	0.44	1.502
# 7	0.875	0.60	2.044
# 8	1.000	0.79	2.670
# 9	1.125	1.00	3.400
# 10	1.270	1.27	4.303
# 11	1.410	1.56	5.313
# 14	1.693	2.25	7.650
# 18	2.257	4.00	13.60

Figure A.5— Rebar Sizes, Diameters, Area, and Weight

Appendix B — Checklists

2.1—INTRODUCTION

The Following pages list the various checklists referenced within the previous chapters. The checklists can also be found on ProjectWise:

PROJECT INFORMATION			
Control #		Designer	
Project #		Engineer	
Structure #		QC Engineer	
Date			

Control #	
Project #	

ALL SHEETS				
TITLE BLOCK INFORMATION	N/A	Designer	Engineer	QC Engineer
Control Number	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Project Number	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Structure Number	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Location Note	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sheet Number (Top Right Corner)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sheet Numbers (Lower Right Corner)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Special Plan Numbers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
County Name	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Highway Number	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reference Post	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Station	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Design Code	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Skew	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Roadway Width	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FHWA Const Type	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Design Live Load	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bridge Description	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sheet Description	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Designer, Detailer, and QC Engineer names	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Date	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Control #	
Project #	

GENERAL NOTES, QUANTITIES, AND INDEX				
GENERAL	N/A	Designer	Engineer	QC Engineer
All Plan Quantities Listed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Design History Table	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
List of Required Shop Plans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Project Name at Top of Sheet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Review All Notes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The Index has Sheet Names that Match the Actual Sheet Names	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Verify that the Page Numbers Match the Sheet Numbers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Control #	
Project #	

PRELIMINARY BRIDGE PLANS				
CONCEPT PLAN	N/A	Designer	Engineer	QC Engineer
General Plan of Bridge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
North Arrow (Placed Above and Left of the Plan View)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
End of Floors Shown	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CL Project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CL of Supports and and Support Angles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Visible Edges of Barriers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Paving and Approach Sections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Out-To-Out Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clear Roadway Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Span Numbers and Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CL Abutment to CL Abutment Dimension	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pipes/Utilities Influencing Construction (Not on Bridge)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Don't Show the Drawing Scale Unless Detail is Not to Scale	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Outline of Existing Bridge, Including CL of Abutments, Piers, Bents, and Grade Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pedestrian or RR Protection Fence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Utilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Railroad Crossing Information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stream Crossing and Flow Direction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Intersecting Roadways	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sidewalks or Raised Median Edges and Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Concept Elevation	N/A	Designer	Engineer	QC Engineer
Visible Edges of Barriers, Decks, Piers or Bents, Abutment, Approaches, Girders, Etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Grade Separations: Roadway, Railroad, Channel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Points of Minimum Vertical Clearance (For Intersecting Roadways of Railroads)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Riprap, Slope Protection, or MSE Wall Plans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Low Structure Elevation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Don't Show the Drawing Scale Unless Detail is Not to Scale	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Existing/Natural Ground Line and New Channel Grade Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flow Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Utilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Roadways Below the Bridge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Railroad Crossing Information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pedestrian or RR Protection Fence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Control #	
Project #	

GENERAL PLAN AND ELEVATION				
GENERAL PLAN	N/A	Designer	Engineer	QC Engineer
Show Riprap, Slope Protection, or MSE wall	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show North Arrow (placed above and left of the plan view)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Grade Separations: Roadway, Railroad, Channel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show General Plan of Bridge (All visible lines)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show End of Floor Stations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL Project, Roadway, and/or PGL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL of Supports, Show Labels and Support Angles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show and Label Center Bridge Station	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show and Label Benchmark	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Rails or Barriers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Guardrail Connection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Grade Beam, Abutment, and Pier or Bent Numbers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Don't Show Drawing Scale Unless Not to Scale	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Spans and Label Span Numbers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Paving and Approach Sections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Out-to-Out Bridge Width	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension End of Floor to End of Floor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension End of Floor to CL Abutment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Clear Roadway	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension CL Abutment to CL Abutment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Show Utilities Attached to Structure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Stream Crossing and Flow Direction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Intersecting Roadways	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Raised Median Edges and Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Pipes/Utilities Influencing Construction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Lighting Bases and Stations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Floor Drain Locations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Existing Centerlines of Piers or Bents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Existing Centerlines of Grade Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Existing Centerlines of Abutments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Outline of Existing Bridge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Horizontal Clearance to RR or Obstruction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Bridge Deck Break Line	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Baseline or Chord Line	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Anchor blocks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Sidewalks, Fencing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label the Railroad Name	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Sidewalks and Medians	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Limits of Waterproofing Membrane	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Construction and Traffic Phasing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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GENERAL ELEVATION	N/A	Designer	Engineer	QC Engineer
Show Riprap/Slope Protection Elevations and Slope Angle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Riprap, Slope Protection, or MSE Wall	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Low Structure Elevation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Grade Separations: Roadway, Railroad, or Channel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Existing/Natural Ground Line and New Grade Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Centerline of Supports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Bottom of Pier/Bent Elevations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Bearing and Sheet Piles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show and Label Rails or Barriers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show and Label Paving and Approach Sections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show and Label Center Bridge Station	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show All Visible Lines in General Elevation of Bridge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stations, Elevations, and Identifying Numbers of Supports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Guardrail Connection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Grade Line	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Drawing as Not to Scale if it's Not	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Bearing Type at Supports (F=Fixed or E=Expansion)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Beam or Girder Type	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Show Points of Minimum Vertical Clearance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Pipes/Utilities Influencing Construction (not on the bridge)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Pedestrian or RR Protection Fence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Ordinary High Water (OHW) and High-Water Elevations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Lighting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Flow Line	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Anchor blocks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ADDITIONAL INFORMATION	N/A	Designer	Engineer	QC Engineer
Show Vertical or Profile Grade Data	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Traffic Data (Cell Available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Utilities Notes (If Needed)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Super Elevation Data	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Pouring Diagram and Direction of Pour (Cell Available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Location Note	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Horizontal Curve Data	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Grade Elevations Note	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Bridge Hydraulic Data (Cell Available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

FINAL REVIEWS AND VERIFICATIONS	N/A	Designer	Engineer	QC Engineer
Has the information in the Bridge Design Data Sheet and TS&L been properly incorporated into the bridge plans?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does the horizontal and vertical curve data, the stationing, and the cross-section on the bridge plans match the TS&L sheets?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do the channel and riprap details match the hydraulic data?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If there is lighting on this structure, have the bridge plans been reviewed by the Lighting Section in Roadway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If there are utilities on this structure, have the bridge plans been reviewed by the Utility Section in Planning and Project Development?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Verify that the freeboard available is >= to freeboard required.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Verify that the horizontal and vertical clearances are acceptable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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COORDINATES				
COORDINATE LAYOUT	N/A	Designer	Engineer	QC Engineer
Show Plan View	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Paving and Approach Sections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show North Arrow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Locations of Coordinate Points	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL Project or Roadway	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL Bridge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Centerline of Supports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Plan of Rip Rap or Slope Protection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TABLES				
Span Dimenstions and Numbers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Locations of Coordinate Points	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label X and Y Coordinates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Point Identifications	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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CONSTRUCTION PHASING				
PHASING PLAN	N/A	Designer	Engineer	QC Engineer
Show Permanent and Temporary Shoring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Paving and Approach Sections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show North arrow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show General Plan of Bridge (All visible lines)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Existing Support Centerlines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Existing Bridge CL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Edges of Barriers, Deck, Approaches	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL Project or Roadway	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL Bridge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Centerline of New Supports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Bridge Break Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimensions Phase 1 Construction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension from CL or PGL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Existing Structure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension End of Floor to End of Floor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension End of Floor to CL Abutment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension CL Abutment to CL Abutment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PHASING SECTIONS	N/A	Designer	Engineer	QC Engineer
Show Phase line	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL Project and Roadway	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Bridge Break Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Locate Temporary Barrier	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Span Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Span Numbers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Phase 2 Traffic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Phase 2 Construction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Phase 1 Traffic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Phase 1 Construction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Out to Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Clear Roadway	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Phase 3 Traffic Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Phase 3 Construction Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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GEOLOGICAL SHEETS				
PILE LAYOUT	N/A	Designer	Engineer	QC Engineer
Show Tie Rod Locations with Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Sheet Pile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Pile Numbers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show General Plan of Pile Layout	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show North Arrow (Placed Above and Left of the Plan View)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Existing Support Centerlines and Labels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Existing Pile CL and Dimension	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL Project or Roadway	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL Bridge Station	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL Bridge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Centerline of Supports and Support Angles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Grade Beam, Abutment, Pier, and Bent Numbers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Span Length and Include Span Numbers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL of Abutments, Piers or Bents, Wings, and Grade Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Pile Locations, Identification Numbers, and Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension CL Abutment-to-CL Abutment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Show Stream Crossing and Flow Direction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Railroad Crossing Information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Pipes/Utilities Influencing Construction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Phase Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Flowline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Location and Limits of Shoring and or Temporary Shoring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Intersecting Roadways	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Baseline or Chord Line	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Outline of New Anchor Blocks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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GEOLOGICAL PROFILE	N/A	Designer	Engineer	QC Engineer
Show Stations, Elevations, and Identifying Numbers of Supports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Secondary PE Seal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Rip Rap, Slope Protection, or MSE Walls	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Visible Edges of Barriers, Deck, Piers, or bents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Visible Edges of Abutments, Approaches, Girders, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show General Elevation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Existing/Natural Ground Line	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Elevation of Rip Rap or Slope Protection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Edges of Piers or Bents and Abutments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Edges of Barriers, Deck, Approaches, Girders, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL Bridge Station	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Centerline of Bridge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Top of Berm/Slope Protection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Berm Elevation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Bearing and Sheet Piles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Slope Angle of Rip Rap or Slope Protection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Bottom of Pier or Bent Elevations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Barriers, Approaches, Girders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Show Pipes/Utilities Influencing Construction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show New Channel Grade Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show High Water Elevation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Grade Separation – Roadway	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Grade Separation – Railroad	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Flow line	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Utilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Boring Hole Water Level, Unless Shown in Separate Sheet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Boring Hole Elevation Table	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Boring Hole Soil Data, Unless Shown in Separate Sheet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Boring Hole Blow Count, Unless Shown in Separate Sheet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PILE DATA, NOTES, AND DETAILS	N/A	Designer	Engineer	QC Engineer
Show Pile Splice Data (Geology.cel)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Sheet Pile Corner Data (Geology.cel)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Section of Granular Backfill (Abutment.cel)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Plan of Granular Backfill (Abutment.cel)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Pile Data Table (Geology.cel)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Drainage Detail (Geology.cel)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Secondary PE Seal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Additional Notes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

FINAL CHECKS	N/A	Designer	Engineer	QC Engineer
Have you given a copy of the bridge plans to the Geotechnical Section for their review and comment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have the Geotechnical Section's comments been incorporated into the plan set?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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ABUTMENTS				
ABUTMENT PLAN	N/A	Designer	Engineer	QC Engineer
Dimension Overall Abutment Length	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Girder Spacing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Wings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimensions of Pile Spacing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimensions from CL Project or PGL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Girder Centerlines and Labels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Bearing Pile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Bearing Recess Information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Abutment dimensions from CL of Abutment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL of Sheet Pile and Abutment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL of Wings and Grade Beam	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Tie Rod Labels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Reinforcement Including Dimensions and Labels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Section Locations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Detail Tile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Skew Angle(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Grade Beam Tie Rods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Show Abutment Pedestals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Anchor blocks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Break or Phase Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL of Anchor Blocks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Dowel Bars, Laps, and/or Mechanical Splices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Sheet Pile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Phasing Joints and Break Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ABUTMENT ELEVATION	N/A	Designer	Engineer	QC Engineer
Dimension Overall Abutment Length	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Abutment Elevations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Bearing Pile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Bottom of Abutment Elevations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL of Project or PGL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Detail Tile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Girder Labels and Centerlines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Girder Seat Elevations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Level Note at Bottom of Abutment, if it is Level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Pile Embedment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Reinforcement Including Dimensions and Labels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Section Locations (if not shown in the plan view)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Sheet Pile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Sheet Pile Embedment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Type, Size, and Location of any Preformed Joint Filler	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Vertical Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Dimension to Phase Lines and Break Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Phasing Joints and/or Break Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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ABUTMENT SECTION	N/A	Designer	Engineer	QC Engineer
Dimension Abutment from the Centerline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Abutment Elevations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimensions Sheet Pile Embedment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Pile Embedment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Abutment Centerline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Abutment Pedestals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Bearing Pile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Vertical Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Reinforcement Including Dimensions and Labels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Sheet Pile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Detail Tile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Show Tie Bars Labels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Tie Rods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

GRADE BEAM SECTION	N/A	Designer	Engineer	QC Engineer
Dimensions from CL of Grade Beam	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Vertical Dimension	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL of Grade Beam	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Bearing Pile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Type, Size, and Location of Preformed Joint Filler	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Detail Tile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Pile Embedment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Reinforcement Including Dimensions and Labels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Tie Rods with Labels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

WING ELEVATION	N/A	Designer	Engineer	QC Engineer
Dimension Pile Embedment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Pile Spacing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Level Note at Bottom of Wing, if it is Level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Abutment and Grade Beam Centerlines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Bearing Pile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Bottom of Wing Elevations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Detail Tile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Reinforcement Including Dimensions and Labels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Section Locations (if not shown in the plan view)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Wing Elevations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Type, Size, and Location of any Preformed Joint Filler	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Vertical Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Show Sheet Pile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Sheet Pile Embedment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

WING SECTION	N/A	Designer	Engineer	QC Engineer
Dimension from the Centerline of Wing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pile Embedment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Bearing Pile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Centerline of Wing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Detail Tile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Reinforcement Including Dimensions and Labels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Type, Size, and Location of any Preformed Joint Filler	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Vertical Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Label Tie Rods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Sheet Pile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Sheet Pile Embedment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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REMODELED ABUTMENT PLAN DETAILS	N/A	Designer	Engineer	QC Engineer
Dimension to the Break Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Break Lines Indicating the Transitions Between New and Existing Structure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Bearing Pile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Centerline of Wing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Detail Tile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Reinforcement Including Dimensions and Labels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Type, Size, and Location of any Preformed Joint Filler	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Dowel Bars or Mechanical Splices, if Utilized	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Existing Pile Locations and Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Existing Substructural Elements Left in Place	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Locations of Existing Girder to be Used in Place that Could Impact Construction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Tie Rods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Show Sheet Pile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

REMODELED ABUTMENT ELEVATION DETAILS	N/A	Designer	Engineer	QC Engineer
Dimension to the Break Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Break Lines Indicating the Transitions Between New and Existing Structure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Dowel Bars or Mechanical Splices, if Utilized	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Existing Pile Locations and Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Existing Substructural Elements Left in Place	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Length of Existing Reinforcement That Will be Tied into the New Work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Locations of Existing Girder to be Used in Place that Could Impact Construction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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PIERS				
PLAN OF PIER CAP	N/A	Designer	Engineer	QC Engineer
Dimension Cap Width from CL Pier	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension from CL Project or PGL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Overall Cap Length	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Type, Size, and Location of any Preformed Joint Filler	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Anchor Bolts or Tie Bars and Include Associated Details	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Bearing Pad Recess Plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL of Bearing Pads	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL of Pier	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL of Project, PGL, and/or Chord Line for Curved Bridges	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Girder Labels and Centerlines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Girder Spacing (Excluding IT Girder or Slab Bridges)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Reinforcement Including Spacing, Clear Cover, and Labels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Section Locations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Skew Angle(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Show Phasing Joints and/or Break Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Pier Pedestals and Reinforcement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Break and/or Phase Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Dowel Bars, Laps, and/or Mechanical Splices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Existing Structural Elements if Incorporated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Length of Existing Reinforcement Incorporated in Work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ELEVATION OF PIER				
Dimension Bearing Pile Embedment	N/A	Designer	Engineer	QC Engineer
Dimension New Bearing Pile Locations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimensions from CL Project or PGL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Girders and Centerlines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Bearing Pile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL of Project or PGL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Columns or Walls	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Elevation of Bottom and Top of Footing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Girder Seat Elevations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Horizontal Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Level Note at Bottom of Wall and Cap, if it is Level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Pier Looking Up Station or Label Otherwise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Needed Pier Elevations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Reinforcement Including Spacing, Clear Cover, and Labels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Vertical Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Wall/Column Width or Radius	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Dimension Existing Pile Locations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension to Phase Lines and Break Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Type, Size, and Location of any Preformed Joint Filler	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Additional Pier Elevation Views (if Substantially Different)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Dowel Bars, Laps, and/or Mechanical Splices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Existing Pile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Existing Structural Elements if Incorporated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Foam Block Over Tie Bar at Expansion Piers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Nose Angle and Detail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Phasing Joints and/or Break Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Pier Pedestals and Reinforcement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Reinforcement Tie Bars for Pier Walls	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Section Locations (if not shown in the plan view)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Slope of Leading and Exiting Edges of Wall Piers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show the Mechanical Splice Detail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Tie Bars Between Cap and Diaphragm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Top Slope	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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PLAN VIEW OF PIER WALL	N/A	Designer	Engineer	QC Engineer
Dimension Out to Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Wall Width	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimensions from CL Project or PGL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL of Pier	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL of Project or PGL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Reinforcement Including Spacing, Clear Cover, and Labels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Dimension to Phase Lines and Break Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Dowel Bars, Laps, and/or Mechanical Splices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Existing Structural Elements if Incorporated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Nose Angle and Detail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Phasing Joints and/or Break Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Section Locations if not Shown in Other Locations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show the Mechanical Splice Detail (only show once in plan set)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PLAN VIEW OF PIER COLUMN	N/A	Designer	Engineer	QC Engineer
Dimension Column Width or Radius	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL of Pier	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Reinforcement Including Spacing, Clear Cover, and Labels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PLAN OF PIER FOOTING	N/A	Designer	Engineer	QC Engineer
Dimension Footing Width and Length	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension New Pile Locations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Bearing Pile Layout	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL of Footing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL of Pier	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Reinforcement Including Spacing, Clear Cover, and Labels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Dimension Existing Pile Locations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Phasing Joints and/or Break Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Existing Pile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Existing Structural Elements if Incorporated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PIER SECTION	N/A	Designer	Engineer	QC Engineer
Dimension Bearing Pile Embedment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Cap Width	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Footing Width and Height	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension New Bearing Pile Locations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimensions from Centerline of Pier	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Bearing Pile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Cap Overhang Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL of Pier	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Diaphragm Tie Bar Foam Block at Expansion Piers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Girder Seat Elevations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Pier Elevations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Reinforcement Including Spacing, Clear Cover, and Labels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Tie Bars Between Cap and Diaphragm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Wall or Column Width/Radius	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vertical Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Dimension Existing Pile Locations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Cap Pedestals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Dowel Bars, Laps, and/or Mechanical Splices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Existing Pile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Existing Structural Elements if Incorporated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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BENTS				
PLAN OF BENT CAP	N/A	Designer	Engineer	QC Engineer
Dimension Cap Width from CL of Bent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension from CL Project or PGL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Overall Cap Length	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Anchor Bolts or Tie Bars	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL of Bent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL of Project, PGL, and/or Chord Line for Curved Bridges	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Reinforcement Including Spacing, Clear Cover, and Labels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Section Locations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Skew Angle(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Dimension Break and/or Phase Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Length of Existing Reinforcement Incorporated in Work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dowel Bars, Rebar Laps, or Mechanical Splices, if Utilized	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Type, Size, and Location of any Preformed Joint Filler	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Bearing Pad Recess Plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Bent Pedestals and Reinforcement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL of Bearing Pads	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Dowel Bars, Laps, and/or Mechanical Splices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Existing Structural Elements if Incorporated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Girder Labels and Centerlines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Girder Spacing (Excluding IT Girder or Slab Bridges)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Phasing Joints and/or Break Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ELEVATION OF BENT	N/A	Designer	Engineer	QC Engineer
Dimension Bearing Pile Embedment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension from CL Project or PGL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension New Bearing Pile Locations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension the Size or Limits of Wall	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Girders and Centerlines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Size of Bearing Piles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Additional Bent Elevation Views (if Substantially Different)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Bearing Pile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Bearing Pile Embedment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Bent Walls	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL of Project or PGL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Girder Seat Elevations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Horizontal Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Level Note at Bottom of Wall and Cap, if it is Level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Bent Looking Up Station or Label Otherwise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Needed Bent Elevations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Reinforcement Including Spacing, Clear Cover, and Labels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Section Locations if not Shown in Other Locations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Vertical Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Additional Bent Elevations (Only if Substantially Different)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Existing Pile Locations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension to Phase Lines and Break Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Type, Size, and Location of any Preformed Joint Filler	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Dowel Bars, Laps, and/or Mechanical Splices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Existing Pile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Existing Structural Elements if Incorporated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Foam Block Over Tie Bar at Expansion Bents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Nose Angle and Detail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Phasing Joints and/or Break Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Pier Pedestals and Reinforcement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Reinforcement Tie Bars for Bent Walls	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Section Locations (if not shown in the plan view)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Slope of Leading and Exiting Edges of Bents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show the Mechanical Splice Detail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Tie Bars Between Cap and Diaphragm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Top Slope	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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PLAN VIEW OF BENT WALL	N/A	Designer	Engineer	QC Engineer
Dimension New Pile Locations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Out to Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Wall Width	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimensions from CL Project or PGL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Bearing Pile for Bents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL of Bent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Nose Angle and Detail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Reinforcement Including Spacing, Clear Cover, and Labels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Tie Bars Between Cap and Diaphragm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Skew Angle(s)				
IF APPLICABLE				
Dimension Existing Pile Locations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension to Phase Lines and Break Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Dowel Bars, Laps, and/or Mechanical Splices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Existing Pile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Existing Substructural Elements if Incorporated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Foam Block Over Tie Bar at Expansion Bents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Phasing Joints and/or Break Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Section Locations if not Shown in Other Locations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

BENT SECTION	N/A	Designer	Engineer	QC Engineer
Show Bearing Pile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Bearing Pile Embedment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Cap Width	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL of Bent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Foam Block Over Tie Bar at Expansion Bents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension from Centerline of Bent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Cap Overhang Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Wall Width	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Bent Cap and Wall Elevations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Reinforcement Including Spacing, Clear Cover, and Labels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Tie Bar Foam Block at Expansion Bents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Tie Bars Between Cap and Diaphragm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Vertical Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Show Cap Pedestals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Girder Seat Elevations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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BEARINGS AND ANCHOR BOLTS				
ANCHOR BOLTS	N/A	Designer	Engineer	QC Engineer
Use NDOT Cells	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Anchor Bolt Dimension and Projection from the Cap	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anchor Bolt Size	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anchor Bolt Washer Size and Nut Type	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Centerline Bearing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Details of Bearing Placement and Connection to the Superstructure and Substructure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Notes or Callouts for Nuts, Washers, Dimensions of Gaps, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Offset Dimensions from CL of Abutments, Piers, or Bents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pad Recess Information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimensions Added to the Cells	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ELASTOMERIC PADS	N/A	Designer	Engineer	QC Engineer
Use NDOT Cells	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Number of Internal Plates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thickness of the Cover Material	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thickness of the Elastomer Between the Plates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shim Plate Dimensions (If Applicable)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimensions Added to the Table and Cells	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

FABRIC PADS	N/A	Designer	Engineer	QC Engineer
Use NDOT Cells	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sole Plate Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stainless Steel Plates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fabric Pad Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimensions Added to the Table and Cells	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SOLE PLATES	N/A	Designer	Engineer	QC Engineer
Use NDOT Cells	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Offset Dimensions from CL of Girders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sole Plate Length, Width, and Thickness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Slot or Bolt Hole Dimensions and Placement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bearing Placement Information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sole Plate Bevel Information, if Needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Details of Bearing Placement and Connection to the Superstructure and Substructure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stainless Steel Placement for Expansion Bearing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimensions Added to the Table and Cells	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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WELDED PLATE STEEL GIRDERS				
WP GIRDER FRAMING PLAN	N/A	Designer	Engineer	QC Engineer
Show the North Arrow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Skew Angles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Girder Layout	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Girder Center Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL of Project or PGL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Centerline of Supports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Drawing as Not to Scale if it's Not	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label and Dimension Spans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label and Dimension Separators or Cross Frames	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label and Dimension Field Splice Locations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label and Dimension Bearing Stiffeners	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Include Framing Notes as Needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Separator Locations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Intermediate Stiffeners	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension from CL Project, PGL, or Chord Line.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Center to Center Girder Spacing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Show Chord Line	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Match Point Location for Long Structures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Phase Line	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

WP STEEL GIRDER ELEVATION	N/A	Designer	Engineer	QC Engineer
Dimension and Label Girder Lengths	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Web Height and Thickness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Top Flange Plate Widths and Thickness's	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Bottom Flange Plate Widths and Thickness's	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show and Label Centerlines of Bearings and Supports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show and Dimension Shop and Field Splices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Drawing as Not to Scale if it's Not	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label and Dimension Shear Studs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension to Plate Size change Location, Transition in Depth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Tension and Compression Zones	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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STEEL GIRDER BLOCKING DIAGRAM	N/A	Designer	Engineer	QC Engineer
Show Top of Girder Before Deflection (Positive and Negative Camber)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Other Longitudinal Dimensions Including Splice Locations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Locations of Shop and Field Splices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Centerlines of Supports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Blocking Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show and Label the Level Line	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Drawing as Not to Scale if it's Not	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Girder Length (CL of Support to CL of Support)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Chord Line	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

WP STEEL GIRDER DETAILS	N/A	Designer	Engineer	QC Engineer
Show Zone Paint Details (If Needed with Weathering Steel)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Stiffener Weld Detail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Stiffener Plates at Separators Detail (Cells Available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Shear Connector Detail (Cell Available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Separator Details (Cells Available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Intermediate Stiffener Detail (Cells Available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Field Splice Details (Cells Available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Field Splice Data Table (Cells Available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Drip Plate Detail at Exterior Girders (Cell Available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Deflection, Camber, and Blocking Table (Cell Available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Bearing Stiffeners at Piers or Bents (Cells Available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Abutment Stiffener Detail (Cells Available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Include Charpy Impact Test Note (Cell Available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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ROLLED STEEL GIRDERS				
ROLLED GIRDER FRAMING PLAN	N/A	Designer	Engineer	QC Engineer
Show the North Arrow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Skew Angles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Girder Layout	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Girder Center Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL of Project or PGL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Centerline of Supports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Drawing as Not to Scale if it's Not	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label and Dimension Spans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label and Dimension Separators or Cross Frames	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label and Dimension Field Splice Locations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label and Dimension Bearing Stiffeners	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Include Framing Notes as Needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Separator Locations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension from CL Project, PGL, or Chord Line.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Center to Center Girder Spacing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Show Phase Line	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Match Point Location for Long Structures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Chord Line	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Intermediate Stiffeners (Rarely Needed)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ROLLED STEEL GIRDER ELEVATION	N/A	Designer	Engineer	QC Engineer
Dimensions to Section Changes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show and Label Centerlines of Bearings and Supports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show and Dimension Locations of Slope and Field Splices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label the W Section Information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Drawing as Not to Scale if it's Not	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label and Dimension Shear Studs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension the Girder Length (CL of support to CL of support)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Tension and Compression Zones	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

STEEL GIRDER BLOCKING DIAGRAM	N/A	Designer	Engineer	QC Engineer
Show Top of Girder Before Deflection (Positive and Negative Camber)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Other Longitudinal Dimensions Including Splice Locations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Locations of Shop and Field Splices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Centerlines of Supports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Blocking Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show and Label the Level Line	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Drawing as Not to Scale if it's Not	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Girder Length (CL of Support to CL of Support)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Chord Line	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ROLLED STEEL GIRDER DETAILS	N/A	Designer	Engineer	QC Engineer
Show Zone Paint Details (If Needed with Weathering Steel)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Stiffener Weld Detail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Stiffener Plates at Separators Detail (Cells Available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Shear Connector Detail (Cell Available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Separator Details (Cells Available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Field Splice Details (Cells Available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Field Splice Data Table (Cells Available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Drip Plate Detail at Exterior Girders (Cell Available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Deflection, Camber, and Blocking Table (Edit Cell for Rolled Beams)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Bearing Stiffeners at Piers or Bents (Cells Available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Abutment Stiffener Detail (Cells Available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Include Charpy Impact Test Note (Cell Available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Show Intermediate Stiffener Detail (Rarely Needed)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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PRESTRESSED NU GIRDERS				
GIRDER LAYOUT	N/A	Designer	Engineer	QC Engineer
Show Top Flange Block Out Detail at Abutments and Piers (Cells Available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show the North Arrow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Skew Angles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Girder Layout	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Girder Center Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL of Project or PGL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Centerline of Supports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label the Girders (ie: CL Girder A)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Drawing as Not to Scale if it's Not	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label and Dimension Spans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label and Dimension Separators or Cross Frames	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension from CL Project, PGL, or Chord Line.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Center to Center Girder Spacing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Show Phase Line	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Match Point Location for Long Structures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Chord Line	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label and Dimension Separators or Cross Frames	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

GIRDER BASE SHEET	N/A	Designer	Engineer	QC Engineer
Use the Approved Base Sheet for NU Girders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fill out the Tables in the Base Sheet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Add a Sleeve Layout when needed for Separators or Signs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ADDITIONAL GIRDER DETAILS	N/A	Designer	Engineer	QC Engineer
Show Separator Details (Cells Available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Exterior Strand Splay Detail (Cell Available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Add a Intermediate Diaphragm Cells when Needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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PRESTRESSED INVERTED TEE GIRDERS				
GIRDER LAYOUT	N/A	Designer	Engineer	QC Engineer
Show the North Arrow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Skew Angles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Shim Shot Location	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Locations of Intermediate Diaphragms	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Girder Layout	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Girder Center Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL of Project or PGL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Centerline of Supports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label the Girders (ie: CL Girder A)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Drawing as Not to Scale if it's Not	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label and Dimension Spans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label and Dimension Intermediate Diaphragm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Girder Spacing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension from CL Project, PGL, or Chord Line	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Show Chord Line	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Phase Line	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

GIRDER BASE SHEET	N/A	Designer	Engineer	QC Engineer
Fill out the Tables in the Base Sheet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use the Approved Base Sheet for IT Girders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ADDITIONAL GIRDER DETAILS	N/A	Designer	Engineer	QC Engineer
Show Details for Concrete Intermediate Diaphragms	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Add a Intermediate Diaphragm Details (Cells available for Steel Diaphragms)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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CONCRETE SLAB BRIDGE				
SLAB BRIDGE PLAN AND SECTION	N/A	Designer	Engineer	QC Engineer
Use the Appropriate Concrete Slab Base Sheet (Layout and Section)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use the Appropriate Concrete Slab Base Sheet (Cross Section of Slab)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show the North Arrow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Skew Angles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL of Project or PGL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Centerline of Supports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Drawing as Not to Scale if it's Not	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label and Dimension Spans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fill Out all Reinforcement Information on Base Sheets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension from CL Project, PGL, or Chord Line	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Show Phase Line	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Chord Line (Layout Only)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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TURNDOWNS (CONCRETE AND STEEL GIRDER BRIDGES)				
FULL OR PARTIAL PLAN OF TURNDOWN	N/A	Designer	Engineer	QC Engineer
Dimension All Appropriate Turndown Elements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Girder Spacing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimensions from Centerline of Abutment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimensions from CL Project or PGL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Girder Centerlines (Excluding IT Girders)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Type, Size, and Location of any Preformed Joint Filler	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Abutment Wing when Turndown is Between Them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Anchor Bolts, Bearings, or Tie Bars (Hidden Lines)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL of Abutment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL of Project, PGL, and/or Chord Line for Curved Bridges	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL of Wings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Full or Partial Turndown Plan at Abutment 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Girder Centerlines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Granular Fill Retaining Corner Detail (3' drainage matting)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Reinforcement Including Spacing, Clear Cover, and Labels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Section Locations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Skew Angle(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Show Mechanical Splices or Laps at Phase Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Length of Existing Reinforcement Incorp. in Work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Location of Existing Girders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimensions to Break and/or Phase Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Abutment Pedestals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Blockouts at Girder Flanges	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Phasing Joints and/or Break Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Tie Bars from Abutment or Bearings and Anchor Bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Foam Blocks Over Tie Bars at Expansion Abutments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Turndown 1 Plan (If Substantially Different from No. 2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Utilities Influencing Construction of Turndowns	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ELEVATION OF TURNDOWN	N/A	Designer	Engineer	QC Engineer
Dimension All Appropriate Turndown Elements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Clear Roadway and Out to Out Deck Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension from CL Project or PGL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Girder Spacing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Girder Centerlines (Excluding IT Girders)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Type, Size, and Location of any Preformed Joint Filler	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Abutment Pedestals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Abutment Wing when Turndown is Between Them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Appropriate Vertical Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL of Project and/or PGL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Full or Partial Turndown Elevation at Abutment 2 (Include Bridge Deck)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Girder Centerlines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Optional or Mandatory Construction Joints	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Reinforcement Including Spacing, Clear Cover, and Labels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Section Locations (if not shown in the plan view)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Shim Detail at Supports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Turndown Perpendicular to CL Project or PGL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Verify Subsurface Drainage at Turndowns in Included in Plan Set	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Dimension to Phase Lines and Break Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Blockouts at Girder Flanges	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Mechanical Splices or Laps at Phase Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Phasing Joints and/or Break Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Tie Bars from Abutment or Bearings and Anchor Bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Foam Blocks Over Tie Bars at Expansion Abutments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Turndown 1 Elevation (If Substantially Different from No. 2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Utilities Influencing Construction of Turndowns	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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SECTION OF TURNDOWN	N/A	Designer	Engineer	QC Engineer
Dimension All Appropriate Turndown Elements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Approach Slab Seat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension at CL Girders from Bearing Seat to Top of Deck	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimensions from Centerline of Abutment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Type, Size, and Location of any Preformed Joint Filler	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Abutment Centerline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show and Label Bearing Seat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show and Label Optional or Mandatory Construction Joints	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Appropriate Vertical Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Chamfer Between Deck and Turndown	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Horizontal Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Reinforcement Including Spacing, Clear Cover, and Labels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Turndown Section between Beams/Girders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Vertical Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Show Blockouts at Girder Flanges	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Tie Bars from Abutment or Bearings and Anchor Bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Foam Blocks Over Tie Bars at Expansion Abutments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Utilities Influencing Construction of Turndowns	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

DIAPHRAGMS (CONCRETE GIRDER BRIDGES ONLY)				
FULL OR PARTIAL PLAN OF DIAPHRAGM	N/A	Designer	Engineer	QC Engineer
Show Skew Angle(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Section Locations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Reinforcement Including Spacing, Clear Cover, and Labels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Girder Centerlines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Full or Partial Diaphragm Plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL of Project, PGL, and/or Chord Line for Curved Bridges	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL of Pier/Bent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Anchor Bolts, Bearings, or Tie Bars (Hidden Lines)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Type, Size, and Location of any Preformed Joint Filler	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Girder Centerlines (Excluding IT Girders)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimensions from CL Project or PGL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimensions from Centerline of Pier/Bent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Girder Spacing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension All Appropriate Diaphragm Elements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Show Mechanical Splices or Laps at Phase Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Utilities Influencing Construction of Diaphragms	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Tie Bars from Pier/Bent or Bearings and Anchor Bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Pier/Bent Pedestals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Phasing Joints and/or Break Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Foam Blocks Over Tie Bars at Expansion Piers/Bents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Blockouts at Girder Flanges	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimensions to Break and/or Phase Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Location of Existing Girders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Length of Existing Reinforcement Incorp. in Work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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ELEVATION OF DIAPHRAGM	N/A	Designer	Engineer	QC Engineer
Show Shim Detail at Supports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Section Locations (if not shown in the plan view)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Reinforcement Including Spacing, Clear Cover, and Labels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Pier/Bent Pedestals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Optional or Mandatory Construction Joints	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Girder Centerlines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Full or Partial Diaphragm Elevation (Include Bridge Deck)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Diaphragm Perpendicular to CL Project or PGL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL of Project and/or PGL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Appropriate Vertical Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Type, Size, and Location of any Preformed Joint Filler	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Girder Centerlines (Excluding IT Girders)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Girder Spacing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension from CL Project or PGL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Clear Roadway and Out to Out Deck Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension All Appropriate Diaphragm Elements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Show Utilities Influencing Construction of Diaphragms	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Tie Bars from Pier/Bent or Bearings and Anchor Bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Phasing Joints and/or Break Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Mechanical Splices or Laps at Phase Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Foam Blocks Over Tie Bars at Expansion Piers/Bents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Blockouts at Girder Flanges	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension to Phase Lines and Break Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION OF DIAPHRAGM	N/A	Designer	Engineer	QC Engineer
Show Vertical Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Reinforcement Including Spacing, Clear Cover, and Labels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Pier/Bent Centerline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Horizontal Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Diaphragm Section between Beams/Girders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Chamfer Between Deck and Diaphragm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Appropriate Vertical Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show and Label Optional or Mandatory Construction Joints	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show and Label Bearing Seat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Type, Size, and Location of any Preformed Joint Filler	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimensions from Centerline of Pier/Bent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension All Appropriate Diaphragm Elements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Show Utilities Influencing Construction of Diaphragms	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Tie Bars from Pier/Bent or Bearings and Anchor Bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Foam Blocks Over Tie Bars at Expansion Piers/Bents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Blockouts at Girder Flanges	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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TYPICAL SECTION				
TYPICAL CROSS SECTION	N/A	Designer	Engineer	QC Engineer
Show Drip Edge/Bead Detail (Cell Available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL of Project and/or Roadway	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Scale	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Unusual Deck Features on Plan Sheet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show and Label Negative Moment Reinforcement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show and Label all Transverse and Longitudinal Reinforcement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Out-to-Out Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Crown Template (Cell Available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension to CL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Reinforcement Clearances	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Overhang Thickness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Girder Spacing and Include Deck Overhang	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Clear Roadway, Rail/Barriers, Sidewalk, and Median	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension and Show Deck Thickness and Cross Slope	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Show Utilities and Hangers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Phasing Joints and/or Break Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show and Label Fencing and/or Pedestrian Rails	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show and Label Asphalt Overlay	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show and Label Additional Edge of Deck Reinforcement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension to Phase Lines and Break Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Rail/Barriers, Sidewalk, and Median Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

BRIDGE DECK PLANS				
REINFORCEMENT LAYOUT	N/A	Designer	Engineer	QC Engineer
Show General Plan of Bridge Deck	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL Project, Roadway, and/or PGL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL Abutments, Piers, and/or Bent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show and Label Negative Moment Reinforcement Over Piers/Bents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Scale	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show and Label all Transverse and Longitudinal Reinforcement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Abutments, Piers, and/or Bent Numbers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Out-to-Out Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Spans and Label Span Numbers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Negative Moment Reinforcement Placement from CL Piers/Bents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Show Phase lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Sidewalk or Raised Median Edges and Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show End of Floor or Skewed Corner Detail on Skewed Decks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show and Label Additional Edge of Deck Reinforcement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ADDITIONAL INFORMATION	N/A	Designer	Engineer	QC Engineer
Include Slab Construction Joint Detail (Cell Available)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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DECK DRAINAGE				
DECK DRAINAGE SYSTEM	N/A	Designer	Engineer	QC Engineer
Call Out Materials, Hardware, and Component Sizes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Include Any Required Scour Protection Under the Bridge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Include Additional Notes and Specifications as Needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Include Pipe Hanger Details and Spacing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Integrate Drainage with Bridge Structure (Girders, Piers, Abutments)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Provide Erosion Protection (Riprap, Energy Dissipation)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Underdeck Piping and Drainage Troughs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Specify Corrosion Protection and Material Types	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Add Cleanout Locations and Details	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Add Structural Details	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Include Painting Notes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

DECK DRAIN DETAILS	N/A	Designer	Engineer	QC Engineer
Complete the Floor Drain Locations Table	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Verify Downtube Clearance to the Edge of Girder Flanges	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Modify the Base Sheet Only if Needed for Special Cases	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Add Additional Deck Reinforcement Details if Required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

DECK DRAIN LOCATION	N/A	Designer	Engineer	QC Engineer
Add Location of Deck Drains/Inlets to the General Plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Provide Dimensions to the Inlets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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APPROACH SLABS				
BASE SHEET	N/A	Designer	Engineer	QC Engineer
Verify the Appropriate End of Paving Detail is Shown	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Verify that the Correct Expansion Joint Level is ON	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use the Approved Base Sheet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Turn on the Asphalt Level for Asphalt Projects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Haunch Details	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Construction Joint Detail for Phased Projects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Approach Slab Section (Modify Only if Needed)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Alternate End of Floor Detail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Select the Appropriate Skew Model	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label and Dimension Reinforcing Steel, and Indicate the Required Clearances	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fill in all XX Section Sheet Numbers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fill in all XX Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fill in all XX Bar Numbers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Edit Base Sheet Only if Needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dimension Approach Slab Thickness and Reinforcement Clearances	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

GENERAL PLAN	N/A	Designer	Engineer	QC Engineer
Show Section Labels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show General Plan of Approach Slabs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show End of Paving Elevations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show End of Floor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Clear Roadway Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Expansion Joints	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show all Applicable Rebar Labels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show all Applicable Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show North Arrow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label the Specific Expansion Joint Type at Grade Beams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Out-to-Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Label Drawing as Not to Scale if it's Not	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IF APPLICABLE				
Show Baseline or Chord Line	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show CL Project, Roadway, and/or PGL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Phase Lines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Overlay	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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BASE SHEETS				
APPROACH RAIL BASE SHEET	N/A	Designer	Engineer	QC Engineer
Don't Show the Drawing Scale Unless the Detail is Not to Scale	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fill in the Section Sheet Numbers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is Conduit Required in this Project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pull in Appropriate Bar Table from the Base Sheet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Turn On/Off the Levels that Represent the Bridge Situation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

BILL OF BARS	N/A	Designer	Engineer	QC Engineer
Verify all of the Needed Bar Tables are Imported to Appropriate Locations in this Plan Set	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use the Approved Bar Bending Diagram Base Sheet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Pin Diameters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Phased Bars in Separate Columns (If Needed)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Show Hook Lengths	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Only Modify if Needed for a Specific Project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Import the Needed Bar Tables from Spreadsheet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Complete the Bar Set Table	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

BRIDGE RAIL BASE SHEET	N/A	Designer	Engineer	QC Engineer
Turn On/Off the Levels that Represent the Bridge Situation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pull in the Appropriate Bar Table from the Base Sheet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is Conduit Required for this Project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Limits of Rails and Barriers - From End of Floor to End of Flor (both plan view and elevation)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Don't Show the Drawing Scale Unless the Detail is Not to Scale	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does the Project Require Pier/Bent Protection Curbs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fill in the Section Sheet Numbers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fill in all XX dimensions (both plan view and elevation)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fill in all XX bar numbers, post spaces, and/or bar spaces (both plan view and elevation)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CONCRETE PILE BASE SHEET	N/A	Designer	Engineer	QC Engineer
Use the Approved Base Sheet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Only Modify if Needed for a Specific Project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

DRILLED SHAFT BASE SHEET	N/A	Designer	Engineer	QC Engineer
Use the Approved Base Sheet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Turn ON/OFF the Appropriate Levels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Select the Appropriate Model	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Only Modify if Needed for a Specific Project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fill in the XX Section Sheet Numbers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fill in the Drilled Shaft Data Table	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fill in all XX Bar Numbers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

EXPANSION JOINT BASE SHEET	N/A	Designer	Engineer	QC Engineer
Use the Approved Base Sheet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Turn ON/OFF the Appropriate Levels for the Joint Type	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Select the Appropriate Model	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Only Modify if Needed for a Specific Project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fill in the XX Section Sheet Numbers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fill in the Expansion Gap Table	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fill in all XX, X, and/or B Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fill in all XX Bar Numbers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

FENCE BASE SHEET	N/A	Designer	Engineer	QC Engineer
Use the Approved Base Sheet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Turn ON/OFF the Appropriate Levels for the Fence and Rail Type	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Select the Appropriate Model	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Only Modify if Needed for a Specific Project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fill in the XX Section Sheet Numbers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fill in all XX Post Spacing and Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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FLOOR DRAIN BASE SHEET	N/A	Designer	Engineer	QC Engineer
Use the Approved Base Sheet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Turn ON/OFF the Appropriate Levels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Select the Appropriate Model	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Only Modify if Needed for a Specific Project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fill in the XX Section Sheet Numbers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fill in the Floor Drain Locations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

LIGHTING BASE SHEET	N/A	Designer	Engineer	QC Engineer
Use the Approved Base Sheet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Turn ON/OFF the Appropriate Levels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Select the Appropriate Model	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Only Modify if Needed for a Specific Project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

MEMBRANE BASE SHEET	N/A	Designer	Engineer	QC Engineer
Use the Approved Base Sheet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Turn ON/OFF the Appropriate Levels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Select the Appropriate Model	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Only Modify if Needed for a Specific Project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fill in all X Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PEDESTRIAN BARRIER BASE SHEET	N/A	Designer	Engineer	QC Engineer
Use the Approved Base Sheet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Turn ON/OFF the Appropriate Levels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Select the Appropriate Model	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Only Modify if Needed for a Specific Project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fill in the XX Section Sheet Numbers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fill in all XXX Number of Post Spaces and Dimensions				

RR TRACK STANDARD	N/A	Designer	Engineer	QC Engineer
Use the Approved Base Sheet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Select the Appropriate Model	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Only Modify if Needed for a Specific Project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fill in the Top of Rail Elevations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

RIPRAP OR SLOPE PROTECTION BASE SHEET	N/A	Designer	Engineer	QC Engineer
Use the Approved Base Sheet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Select the Appropriate Model	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Only Modify if Needed for a Specific Project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fill in the XX Dimensions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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NEBRASKA



Good Life. Great Journey.

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