

**U.S. Coast
Guard Bridge
Program –
The Plan Sheet
Puzzle**

PRO TIP

**CONSULT THE PLANS
BEFORE CONSTRUCTION**

**U.S. COAST GUARD
BRIDGE PROGRAM**

Good morning everyone. For those of you who might have missed my introduction yesterday my name is Crystal Tucker and I'm another member of the Permits and Policy Division at Coast Guard Headquarters. We'll next be reviewing the plan sheet requirements for a Coast Guard Bridge Permit. We often find this to be one of the more time-consuming exercises during the permit process, and it often has the most questions. Today we will go through the Coast Guard plan sheet job aid and walk through several examples. For those of you in the room please feel free to ask questions during the presentation as we go along and we'll try to answer them. For those of you with questions online, please raise your hand and we'll get to you as soon as we can. As you've already learned throughout these last two days any mention of the Coast Guard District Bridge Office relates to either the East District Bridge Office in Portsmouth headed up by Mr. Hal Pitts and his staff.

Let's start with a quick show of hands for those both in the room and those online, does anyone have experience with the development of plan sheets for a Coast Guard Bridge Permit?



Objectives

- Where do our requirements come from?
- Plan sheet walk thru
- Review plan sheet examples
- Discuss common plan sheet issues

Let's start by taking a look at the objectives for today's presentation. We'll first learn where you can find the plan sheet requirements. We will next walk through our plan sheet job aid. We'll then look at various plan sheet examples. And finally, throughout the presentation I'll mention some of the most common issues we see with plan sheets for a Coast Guard permit.

Where do I look first?

BRIDGE PROGRAMS HOME
ENVIRONMENTAL WEBSITES
LAWS & REGULATIONS
BRIDGE PERMITS
GUIDE CLEARANCES
RADIOTELEPHONES
BRIDGE LIGHTING MANUAL
PUBLIC NOTICES
DISTRICT BRIDGE CONTACTS
CONTACT BRIDGE HQ
E-READING ROOM
EMAIL SUBSCRIPTION

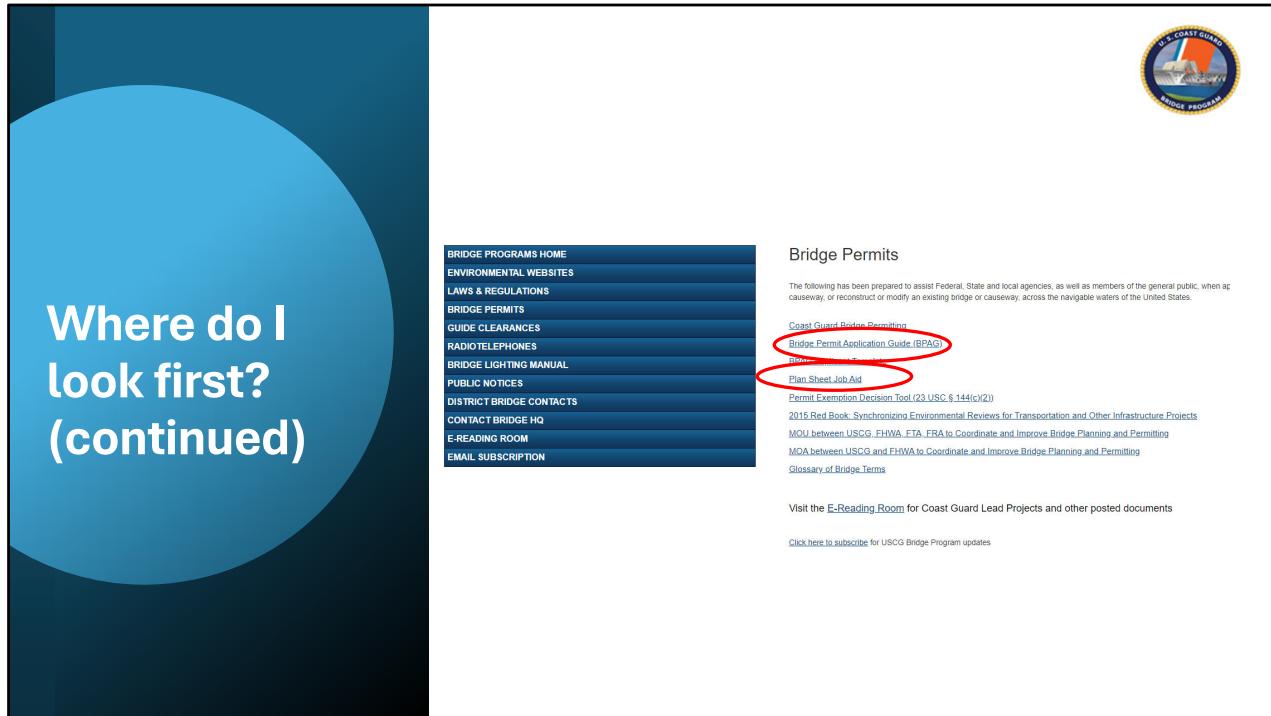
U.S. Coast Guard Maritime Commons Blog
Notice of upcoming cancellation of CVC-WI-014(1) and CG-CVC Policy Letter 21-01 (Change 1), regarding enforcement of MARPOL Annex VI Regulation 13.6.1.2.
Information on delays in the production of merchant mariner credentials
Federal Register Notice: National Commercial Fishing Safety Advisory Committee; May 2023 meetings

Office of Bridge Programs
"Intermodal Mobility, Safety & Security"
Mission Statement
Background
Goals

The Coast Guard monitors and assesses approximately 20,000 bridges crossing navigable waters of the United States. The Coast Guard is responsible for the location and plans of bridges and causeways constructed across navigable waters of the United States. The Coast Guard also monitors and assesses the location and plans of structures and the alteration of bridges found to be unreasonable obstructions to navigation. Authority for these actions is found in the following laws: 33 U.S.C. 401, 491, 494, 511-534, 525 and 535a, 535c, 535e, 535f, 535g, and 535h (here these are all separate sections, not subsections of 535). Section 535 and following is popularly known as the International Bridge Act of 1972. The implementing regulations are found in Title 33, Code of Federal Regulations Parts 114 through 118.

By now you've seen the location of our website a few times, but a quick internet search for the Coast Guard Office of Bridge Programs will take you to this homepage. Once you get to our Program website you'll then click on the Bridge Permits tab as indicated here.

Where do I look first? (continued)



The following has been prepared to assist Federal, State and local agencies, as well as members of the general public, when ap causeway, or reconstruct or modify an existing bridge or causeway, across the navigable waters of the United States.

[Coast Guard Bridge Permitting](#)

[Bridge Permit Application Guide \(BPAG\)](#) (Red circle)

[Bridge Permit Application Guide \(BPAG\) \(Red circle\)](#)

[Plan Sheet Job Aid](#) (Red circle)

[Plan Sheet Job Aid](#)

[Permit Exemption Decision Tool \(23 USC § 144\(c\)\(2\)\)](#)

[2015 Red Book: Synchronizing Environmental Reviews for Transportation and Other Infrastructure Projects](#)

[MOU between USCG, FHWA, FTA, FRA to Coordinate and Improve Bridge Planning and Permitting](#)

[MOA between USCG and FHWA to Coordinate and Improve Bridge Planning and Permitting](#)

[Glossary of Bridge Terms](#)

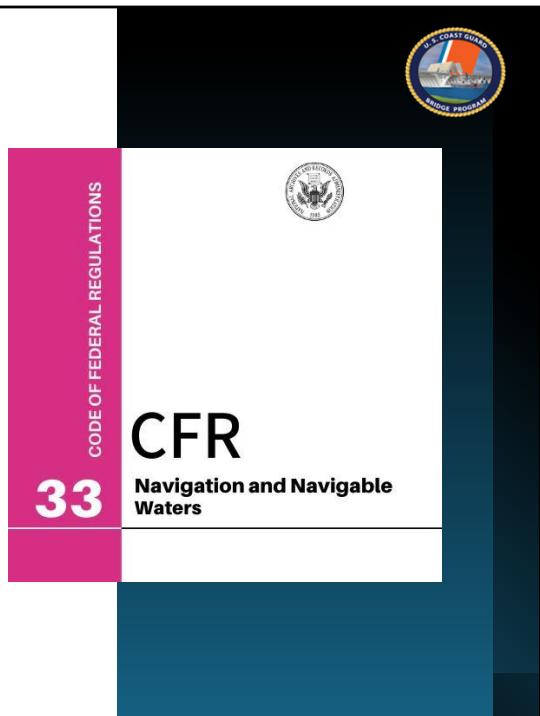
Visit the [E-Reading Room](#) for Coast Guard Lead Projects and other posted documents

[Click here to subscribe](#) for USCG Bridge Program updates

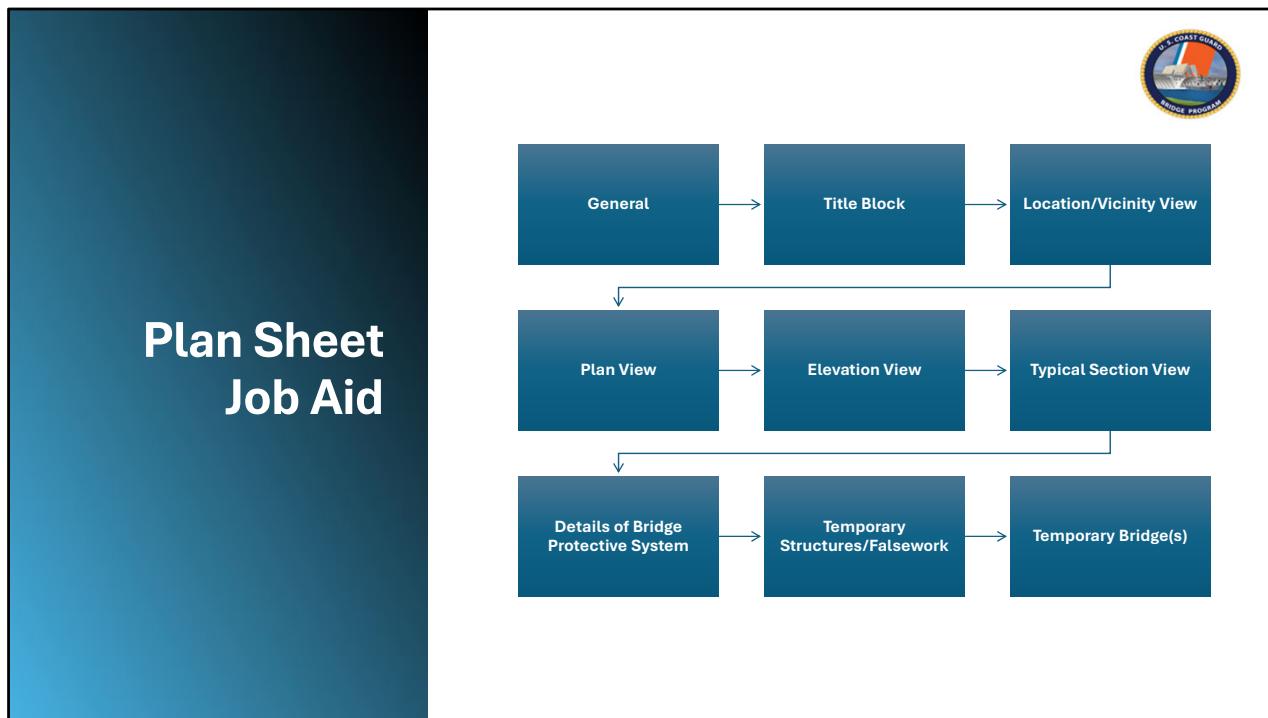
Our plan sheet requirements are easily found in two places. They are included as an appendix to the Bridge Permit Application Guide, or as you've already heard several times, the BPAG. We've also pulled them out and have them listed as an individual document identified as the Plan sheet Job aid. Here on the screen you can see where you'll find links to both the BPAG and the plan sheet job aid on under the Bridge Permits tab on the Bridge Program website. Clicking on the plan sheet job aid takes you to a fillable word template. If you have any trouble downloading the document please reach out to Carl's office for assistance.

33 CFR § 115.50

- Title 33 – Navigation and Navigable Waters
- Chapter I – Coast Guard, Department of Homeland Security
- Subchapter J – Bridges
- Part 115 – Bridge Locations and Clearances; Administrative Procedures
- § 115.50 - Application for bridge permits
- Subparts (f) – (i) detail the requirements for the bridge permit application



As I'm sure has already been mentioned, the requirements for plan sheets are codified in regulation, so if you want some light reading, I can recommend you open up Title 33 of the Code of Federal Regulations, flip to Chapter 1, Subchapter J, Part 115, section 50. Here you'll find the requirements for an application for a bridge permit, to include the basic plan sheet requirements. Subparts (f) – (i) details the requirements for the bridge permit application, to include the plan sheets. Again, to facilitate a smooth application process we do ask that you please use the plan sheet job aid for creating your plans.



Let's take a quick look at the format of the Plan Sheet Job Aid once opened. There are 9 different sections in the plan sheet job aid. They are:

The General section which discusses the general requirements for the plan sheets

The Title Block section

You have a section that discusses the Location and Vicinity View

There's a Plan View section

Then an Elevation View section

Followed by a Typical Section View section

Then there's a section for Details of a Bridge Protective System, more commonly known as a fender system

There's a section for identifying any Temporary Structures or Falsework that will be used during construction of the bridge

And finally there's a section for Temporary Bridge(s) which would be required for a Coast Guard public notice and for final permit approval. Temporary bridges must be part of the plan sheet set submitted for permit approval, otherwise a permit amendment will later be needed.

Sometimes certain required details aren't available at the time of the Coast Guard permit, but these items must still be submitted to CG District Bridge Office prior to commencing construction on any bridge project. They include:

Details of the Bridge Protection System

Details for Temporary Structures/Falsework, which as mentioned on the last slide are different from temporary bridges. Think temp work platforms or cofferdams here. And details for Bridge Lighting Plans. These are separate and are normally decided upon much later in the design and construction process.

A helpful hint...

Plans submitted with the bridge permit application become an official, and permanent, part of the issued permit or permit amendment. To minimize application processing delays, applicants should avoid placing extraneous information on the plan sheets not requested by the Coast Guard. Including extraneous information creates unnecessary issues when the bridge owner wants to deviate from the approved plan sheets. Please [ensure this checklist is completed for all application submissions.](#)

1. General

- Provide all plans in standard 8 1/2 X 11" size, providing the fewest sheets possible that still show significant project structural details. Plan sheets may be submitted electronically.

NOTE: Do not show bridge navigational lighting plans on bridge plan and elevation views.

- Show all dimensions and distances in U.S. linear feet in decimal form (versus feet and inches). For international bridges show all dimensions in both linear feet and meters.

- Include the datum used in the plan and elevation view. Use the same datum for all submitted drawings (e.g. NAVD, NGVD). For replacement and modification projects, the datum used may differ between the new plans and the previously approved plans for the existing structure. If this situation occurs, please be sure to show all necessary conversions to demonstrate any change in approved clearances.

31 AUG 23: IGLD85 noted

11 AUG 23: Plan sheets correctly reference IGLD §

- Prior to permit issuance and plan sheet approval, all plan sheets must bear the date, signature and stamp of a professional engineer.

NOTE: the engineer stamp date must either match or be dated later than the title block date before the permit and plans can be approved by the Coast Guard. For projects involving FHWA Office of Federal Lands, please contact CG-BRG for further direction.

If desired, it is acceptable for the engineer to add the following statement to the plan: "Conceptual plans utilized to obtain Coast Guard bridge permit".

- Plan sheets properly depict the proposed project in a manner that allows the [general public](#) to thoroughly understand the project and permit action.

- Plan sheets properly depict the proposed permit action, specifically taking into consideration any existing plan sheets. Consider whether existing plan sheets will be supplemented or superseded for permit amendment actions.

2

5/22



We find it best if applicants submit a filled-out copy of the plan sheet job aid when submitting plans to the district bridge office to show it was used while developing the plans. The Coast Guard will then also utilize the plan sheet job aid when we review the plans. After Coast Guard review, it is common for the District Bridge Office to send a copy of the filled-out plan sheet checklist directly back to the applicant with any comments and updates that might be required.

Ver. JUNE 2025

Bridge Permit Application Plan Sheet Job Aid



Project Name:
CLICK TO ADD PROJECT NAME

1 625

Ver. JUNE 2025

Plans submitted with the bridge permit application become an official, permanent part of the issued permit or permit amendment. To minimize application processing delays, applicants should avoid placing extraneous information on the plan sheets not requested in the application. The Coast Guard reserves the right to issue necessary issues when the bridge owner wants to deviate from the approved plan sheets. Please answer questions 1-6 on page 1 is completed for all application submissions.

1. General

- Provide all plans in standard 8 1/2" X 11" size, providing the fewest sheets possible that still show significant project structural details. Plan sheets may be submitted electronically.
- NOTE:** Do not show bridge navigational lighting plans on bridge plan and elevation views.
- Show all dimensions and distances in U.S. linear feet in decimal form (versus feet and inches). For international bridges show all dimensions in both linear feet and meters.
- Include the datum used in the plan and elevation view. Use the same datum for all submitted drawings (e.g. NAVD, NGVD). For replacement and modification projects, if the project is to be built on a different datum than the previously approved plans for the existing structure. If this situation occurs, please be sure to show all necessary conversions to demonstrate any change in approved clearances.
- Prior to permit issuance and plan sheet approval, all plan sheets must bear the date, signature and stamp of a professional engineer.
- NOTE:** Do not show bridge navigational lighting plans on bridge plan and elevation views.
- If desired, it is acceptable for the engineer to add the following statement to the plans, "Conceptual plans utilized to obtain Coast Guard bridge permit".
- Plan sheets properly depict the proposed project in a manner that allows the general public to thoroughly understand the project and permit action.
- Plan sheets properly depict the proposed permit action, specifically taking into consideration any existing plan sheets. Consider whether existing plan sheets will

2 625

Job aid walk-thru - Overview

Let's start by taking a quick look at the main components of the job aid, then we'll discuss each in greater detail. The checklist was developed as a tool to facilitate proper plan sheet development for Coast Guard bridge permitting. If you ever have any questions, please be sure to reach out to Coast Guard District Bridge Office. When an item is not applicable, please be sure to check the N/A box which should be provided wherever necessary. Looking here at pages 1 and 2 you'll see page 1 is just the cover page and the job aid starts with the General Requirements section on the top of page 2.



Ver. JUNE 2015

be supplemented or superseded for permit amendment actions.

2. Title Blocks - Include the following items in the title blocks (lower right-hand corner on each sheet):

- Applicant Name;
- Consultant Name;
- N/A
- Name of Bridge(s);
- Name of Waterway;
- Mile point of bridge(s) location (from confluence of mouth of waterway) in statute miles;
- City, county, parish, and state (state whether the bridge(s) is at, near, or between – as appropriate);
- Date of plan (i.e., mm dd yyyy, must either match or be dated prior to the engineer's date stamp); and
- The total number of plan sheets identified in the title block must match the number of plan sheets submitted for approval. Each sheet should be identified by the sheet number and total number of sheets in set to be approved (i.e., Sheet 1 of 2).

3. Location/Vicinity Map

- Show graphic scale and north arrow;
- Show location of bridge(s) on waterway;
- Identify the name of the waterway;

3 6/25

Ver. JUNE 2015

- Show course of waterway (i.e. ebb/flood, or direction of flow for non-tidal waters);
- Show structures immediately adjacent to the proposed bridge(s) and their relation to the proposed bridge(s);
- N/A
- Insert a small map of the state in which the project is located with an arrow showing the location of the proposed project.

4. Plan View

- Show graphic bar scale and north arrow;
- Show existing shorelines (may be defined or established by local or state regulation);
- Show ebb and flood in tidal waters and direction of flow in non-tidal waterway;
- Show mean high and low waterlines in tidal areas or ordinary high water and ordinary low water elevation if proposed activity is in a non-tidal waterway. Only water elevation is required in instances where the waterway is tidal and the low water elevation is minimal relative to the slope of the waterway banks. Waterlines are not required when bulkheads or other artificial banks are present;
- Not Required
- Identify all portions of existing bridge(s) that will remain in place;
- N/A
- Identify all portions of existing bridge(s) that will be removed by using a discernable method (e.g. graycale, dashed lines, etc.);
- N/A

4 6/25

Job aid walk-thru - Overview

Here's a quick look at pages 3-4 of the plan sheet job aid. The title block section starts of the top left of page 3, we then move to the requirements for location and vicinity map. After that is Section 4 which addresses the plan view requirements which continues through page 5.

<div style="text-align: right; margin-bottom: 5px;">Ver. JUNE 2015</div> <div style="border: 1px solid black; padding: 5px;"> <p><input type="checkbox"/> Show principal dimensions of structure(s) from grade-to-grade. Show length, width, etc.</p> <p><input type="checkbox"/> Show location of dredging, excavation, fill or piping, when it presents potential improved markers. Note: The Coast Guard does not approve these activities or items. Contact the U.S. Army Corps of Engineers for approval.</p> <p><input type="checkbox"/> N/A</p> <p><input type="checkbox"/> Show location of the bridge protective system, piles, cables, etc. existing or to be constructed in the waterway. When available, identify type of material to be used.</p> <p><input type="checkbox"/> N/A</p> <p><input type="checkbox"/> Show limits of <u>navigational channel</u>.</p> <p><input type="checkbox"/> Show axis (centerline) of <u>channel</u>.</p> <p><input type="checkbox"/> Show horizontal clearances, normal to the axis (centerline) of the channel between the bridge protective system, pilings, or abutments; and</p> <p><input type="checkbox"/> On waterways where water depths may restrict vessel movements, show water depth at mean low (or ordinary low if non-tidal) at various locations in the channel, under, upstream and downstream of the bridge(s).</p> <p><input type="checkbox"/> N/A</p> <p>3. Elevation View</p> <p><input type="checkbox"/> Show graphic bar scale.</p> <p><input type="checkbox"/> Show mean high and mean low water elevations in tidal areas or ordinary high and low water elevations in non-tidal areas.</p> <p><input type="checkbox"/> Show amount of fill material in cubic yards below mean high water.</p> </div> <div style="text-align: center; margin-top: 5px;">5</div>	<div style="text-align: right; margin-bottom: 5px;">Ver. JUNE 2015</div> <div style="border: 1px solid black; padding: 5px;"> <p><input type="checkbox"/> Show proposed navigational opening (i.e., the box that depicts the minimum horizontal and vertical clearances through which vessels will transit).</p> <p><input type="checkbox"/> Show horizontal clearance normal to the axis (centerline) of the navigational channel between the bridge protective fender system, pilings, or abutments, as appropriate.</p> <p><input type="checkbox"/> Show vertical clearance between the low steel member of the navigation span and the appropriate high water stage (Mean High Water (MHW), Ordinary High Water (OHW), etc.). Include the low steel skirt.</p> <p><input type="checkbox"/> If a Federally maintained navigational channel is present and the most restrictive vertical clearance is not over the channel, show vertical clearance of the center of the channel between the low steel member and the high water limits of the navigational channel, referenced to the appropriate high water stage (Mean High Water (MHW), Ordinary High Water (OHW), etc.).</p> <p><input type="checkbox"/> N/A</p> <p><input type="checkbox"/> If the bridge(s) will have a draw, show the draw in the open and closed positions. Vertical clearances in the open position might not be unlimited, especially for center lift bridges and bascule bridges. For bascule bridges, specify which part of the navigation channel has an unlimited clearance in the open position i.e. the center 50 feet of the channel. Open</p> <p><input type="checkbox"/> N/A</p> <p><input type="checkbox"/> Show proposed and existing contour of waterway bottom.</p> <p><input type="checkbox"/> Show 100-year flood elevation; and</p> <p><input type="checkbox"/> If the bridge(s) will have a permanent traveler system installed for inspection/maintenance, show the reduction in vertical clearance (traveler height below low steel) and the location of traveler storage when not in use.</p> <p><input type="checkbox"/> N/A</p> </div> <div style="text-align: center; margin-top: 5px;">6</div>
---	---

Job aid walk-thru - Overview

On page 5 and 6 we next find the elevation view requirements.

<p>Ver. JUNE 2025</p> <p>6. Typical Section View</p> <ul style="list-style-type: none"> <input type="checkbox"/> Show graphic here. <input type="checkbox"/> Show out-to-out width of the structure(s). (This is the width of the bridge(s) at its widest point); and <input type="checkbox"/> Include location and dimensions of travel lanes, shoulders, sidewalks, railings, etc. <p>7. Details of the Bridge Protective System (if details are known and ready for CG approval as part of the permit decision)</p> <ul style="list-style-type: none"> <input type="checkbox"/> N/A <input type="checkbox"/> Show bridge pier protective system in plan and elevation views with appropriate dimensions (length, diameter of pier protective cells, etc.). Include detail of attachment to pier, counter-sink bolts, and relationship to mean high and low waterlines (on elevations, when available). <p>8. Temporary Structures/Falsework (If it impacts navigation, details must be provided at time of public notice. Submit plan sheets separately, not as part of the plan sheets for review).</p> <ul style="list-style-type: none"> <input type="checkbox"/> N/A <input type="checkbox"/> Show location of temporary structures/falsework; <input type="checkbox"/> Show minimum horizontal and vertical clearances if impacting the navigation span. <input type="checkbox"/> N/A <input type="checkbox"/> Show dimensions for proposed temporary structure(s). <p>9. Temporary Bridge(s) (Required for public notice and permit approval. Must be part of plan sheet set for permit approval)</p>	<p>Ver. JUNE 2025</p> <p></p> <ul style="list-style-type: none"> <input type="checkbox"/> N/A <input type="checkbox"/> Show location of temporary bridge(s); <input type="checkbox"/> Show minimum horizontal and vertical clearances of proposed temporary bridge(s); <input type="checkbox"/> Show length of proposed temporary bridge(s); <input type="checkbox"/> Show width of proposed temporary bridge(s). <p><i>WHEN NOT AVAILABLE AT TIME OF PERMIT APPROVAL, THE BELOW MUST BE SUBMITTED TO THE DISTRICT BRIDGE OFFICE WHEN SO REQUIRED:</i></p> <p>a. Details of the Bridge Protective System (if details and materials are not known at time of CG permit decision)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Provide bridge protective system plan and elevation views including detail of attachment to pier, counter-sink bolts, and relationship to mean high and low waterlines (on elevations, when available). <p>b. Temporary Structures/Falsework (if no information is available to navigation and details and materials are not known at time of CG permit decision)</p> <ul style="list-style-type: none"> <input type="checkbox"/> Show temporary structures/falsework; <input type="checkbox"/> Show existing bridge(s) to be removed using dashed lines; and <input type="checkbox"/> Show minimum horizontal and vertical clearances during construction. <p>c. Bridge Lighting Plan</p> <ul style="list-style-type: none"> <input type="checkbox"/> Submit in electronic format in accordance with 33 CFR Part 118 and bridge lighting guide (see USCG Bridge Program website: Office of Bridge Programs (oobp.mil)). This is a separate application from the bridge permit application. The submission time can vary by District Bridge Office. Applicants should contact their local District Bridge Office.
--	---

Job aid walk-thru - Overview

Page 7 shows the requirements for the typical section view, followed by the bridge protective system section when one is required and details are known at the time of permitting.

Next you'll see the section for temporary structures or falsework, followed by section 9 which is for temporary bridges. Finally, the last page includes the requirements I previously mentioned for when items aren't available nor required at the time of permit approval such as specific details for a bridge protective system, temporary structures or for bridge lighting. You'll work with your District Bridge Office when these items are required.

Before we take a deeper dive into these sections a I'll pause here and ask if there are any questions?

1. General

- Provide all plans in standard 8 1/2 X 11" size, providing the fewest sheets possible that still show significant project structural details. Plan sheets may be submitted electronically.
NOTE: Do not show bridge navigational lighting plans on bridge plan and elevation views.
- Show all dimensions and distances in U.S. linear feet in decimal form (versus feet and inches). For international bridges show all dimensions in both linear feet and meters.
- Include the datum used in the plan and elevation view. Use the same datum for all submitted drawings (e.g. NAVD, NGVD). For replacement and modification projects, the datum used may differ between the new plans and the previously approved plans for the existing structure. If this situation occurs, please be sure to show all necessary conversions to demonstrate any change in approved clearances.
- Prior to permit issuance, all plan sheets must bear the date, signature and stamp of a professional engineer.
NOTE: the engineer stamp date must either match or be dated later than the title block date before the permit and plans can be approved by the Coast Guard. For projects involving FHWA Office of Federal Lands, please contact CG-BRG for further direction.
If desired, it is acceptable for the engineer to add the following statement to the plans, "Conceptual plans utilized to obtain Coast Guard bridge permit".
- Plan sheets properly depict the proposed project in a manner that allows the general public to thoroughly understand the project and permit action.
- Plan sheets properly depict the proposed permit action, specifically taking into consideration any existing plan sheets. Consider whether existing plan sheets will be supplemented or superseded for permit amendment actions.

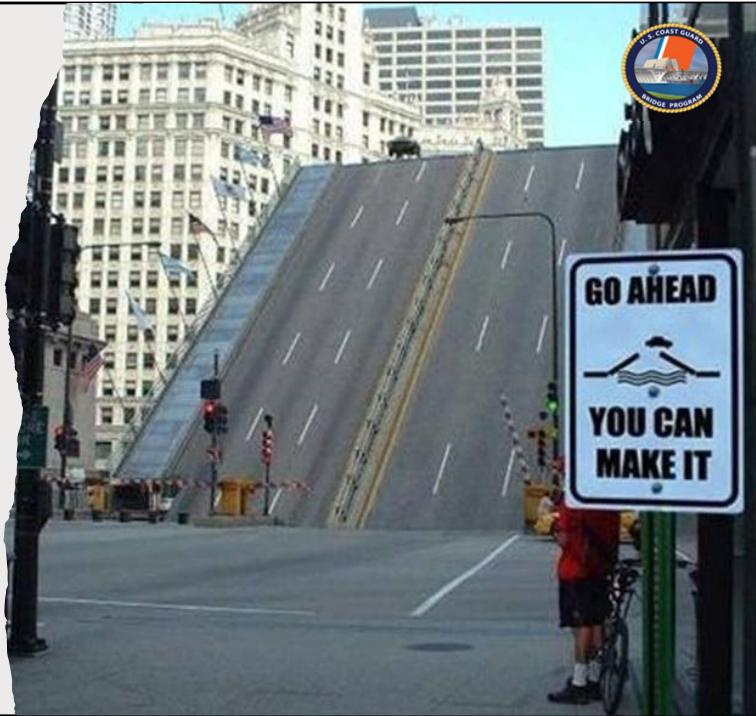


General Requirements

Now that we have identified the different sections of the plan sheet job aid, we'll now go over each section in greater detail. Let's start by taking a look at the General plan sheet requirements which are found in section 1 of the job aid on page 2. These general requirements provide specific requirements for the bridge plans.

General Requirements

- Use the Plan Sheet Job Aid Template
- Standard 8 1/2 X 11 size
- Least amount of plan sheets as possible.
- Written so that the general public can understand them



We start the General Requirements section by asking that all plans be provided in a standard 8 1/2 X 11 letter format. This makes them much easier to use such as when we attach them to a public notice.

We ask that you please provide the least amount of plan sheets as possible. We often see plan sheet sets ranging from 3-5 pages in length that meet all of our requirements, even for complex projects.

The plan sheets will be provided to the public for review and comment through the issuance of a Coast Guard public notice, so plan sheets should be written in a manner so that the general public can understand them. These are conceptual drawings that we use to approve the navigational clearances on the waterway, not construction drawings.

A good rule of thumb here is nothing more, nothing less than what we require in our checklist.



General Requirements

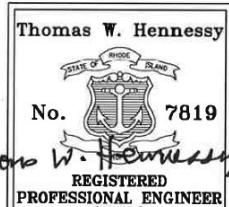
- All plan sheets must bear the date and signature of a professional engineer
- Landscape format
- Navigation lighting plans are submitted separately from the bridge permitting plans

You'll see this when we review the sample plan sheets, but all plan sheets must bear the date and signature of a professional engineer before being approved for final permitting.

While not required, our preference is also that all plan sheets be in landscape format whenever possible, again for ease of use.

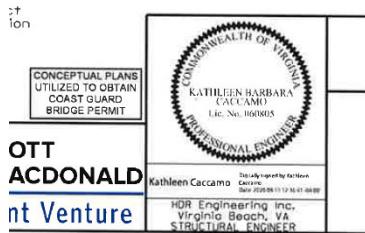
And finally, please remember all navigation lighting plans should be submitted separately to the Coast Guard from the bridge permitting plans. This is normally coordinated after permit approval.

PE signature



Thomas W. Hennessy

1/30/20



OTT
ACDONALD
nt Venture

KATHLEEN BARBARA
CACCAMO
LIC. NO. 1600015

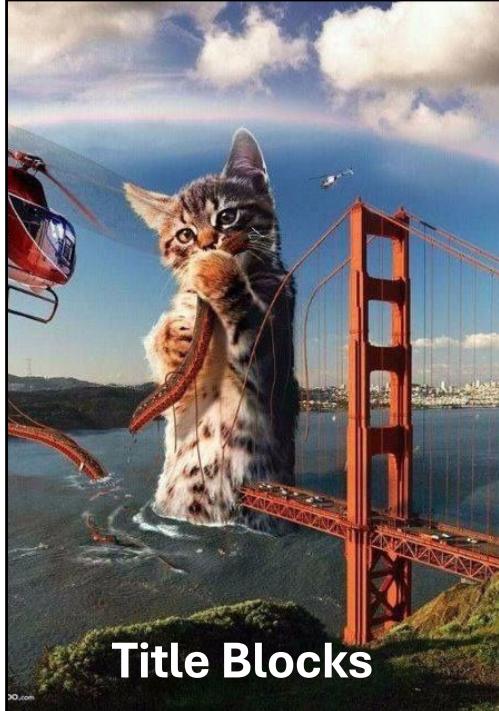
HDR Engineering Inc.
Virginia Beach, VA
STRUCTURAL ENGINEER

Dated and signed by [Signature]
Date 2020-01-30 12:41:04-05:00

- All plan sheets must bear the date, signature and stamp of the PE.
- PE's are encouraged to add "Conceptual plans utilized to obtain Coast Guard Bridge Permit.
- FHWA Office of Federal Lands, contact local CG bridge office for further assistance

As mentioned on the previous slide all plan sheets must bear the date, signature and stamp of a Professional Engineer and here are two examples.

PE's are encouraged to add "Conceptual plans utilized to obtain Coast Guard Bridge Permit" if desired as shown on the bottom example here. The stamp indicates to us that the project has been developed enough to be a viable candidate for permitting, but as Jim mentioned several time yesterday, these are not construction plans. Although rare, if there's ever a project that involves the FHWA Office of Federal Lands, we ask that you coordinate with your District bridge office for specific requirements.



Ver. JUNE 2025



be supplemented or superseded for permit amendment actions.

2. **Title Blocks** - Include the following items in the title blocks (lower right-hand corner on all of the plan sheets):

- [Applicant/Owner](#):
- [Consultant/Agent](#):
- N/A
- [Name of Bridge\(s\)](#):
- [Name of Waterway](#):
- Mile point of bridge(s) location (from confluence of mouth of waterway) in statute [miles](#):
- City, county/parish, and state (state whether the bridge(s) is at, near, or between – as appropriate):
- Date of plans (i.e., mm dd [yyyy](#), must either match or be dated prior to the engineer's date stamp); and
- The total number of plan sheets identified in the title block must match the number of plan sheets submitted for approval. Each sheet should be identified by the sheet number and total number of sheets in set to be approved (i.e., Sheet 1 of 5).

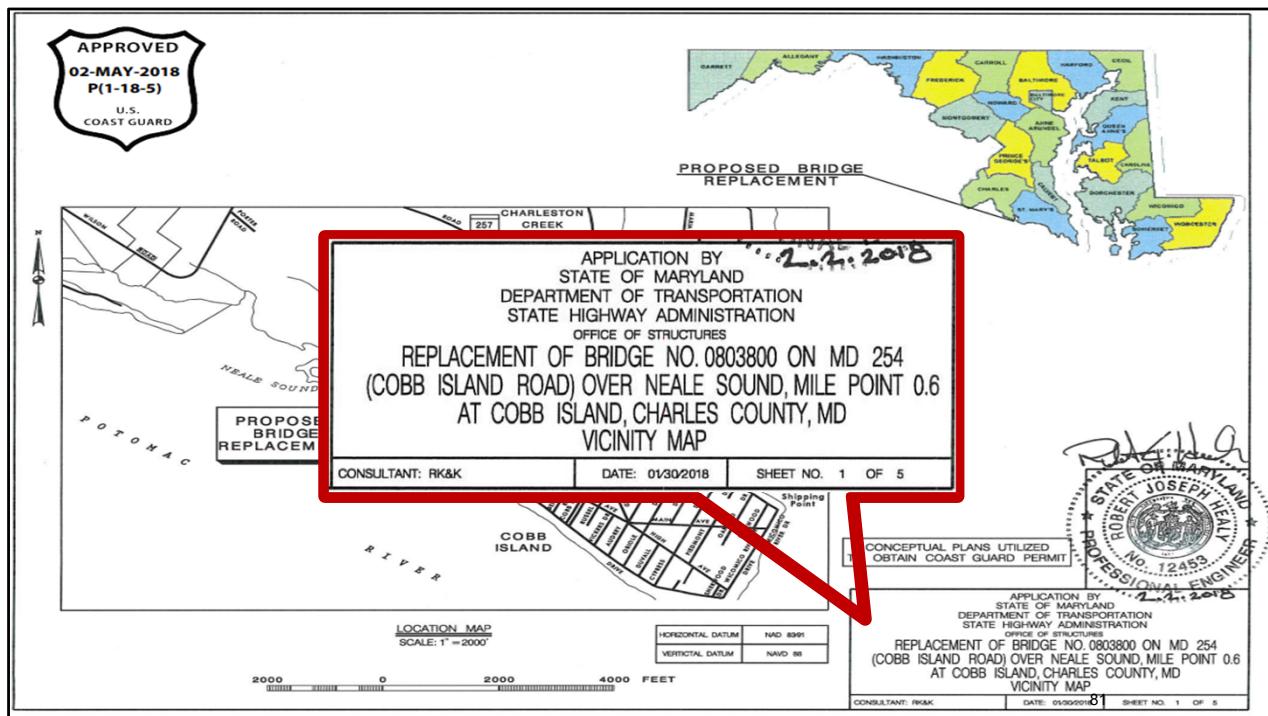
3. **Location/Vicinity Map**

- Show graphic scale and north [arrow](#):
- Show location of bridge(s) on [waterway](#):
- Identify the name of [waterway](#):

3

6/25

We're now going to be review some sample plans sheets and as I do I'll be identifying the components of the checklist by identifying them on each sample since you don't have the checklist in front of you. We'll start by taking a closer look at the Title Block Requirements which starts on page 2. I'll apologize in advance that some of this may be a bit hard to read for those of you in the conference room trying to see these slides on the monitor.



Here's an example of the title box for a plan sheet from a past permit down issued in Maryland. I've expanded the title box located down at the bottom right corner of the plan sheet to show it easier here in the red box. Let's review the requirements as found on the plan sheet checklist.

The Applicant/Owner is identified as the Maryland Department of transportation, State Highway Division

RK & K is listed as a consultant in the bottom left. If there's no consultant this can be omitted from the title block

The name of the bridge is shown as the State Route 254 Bridge, also known as the Cobb Island Road Bridge.

The Waterway name is identified Neale Sound at milepoint 0.6

The City, county, and state are included as near Cobb Island, Charles County, Maryland

The plans are dated January 30th 2018, and were stamped and signed by a professional engineer on February 2nd of 2018.

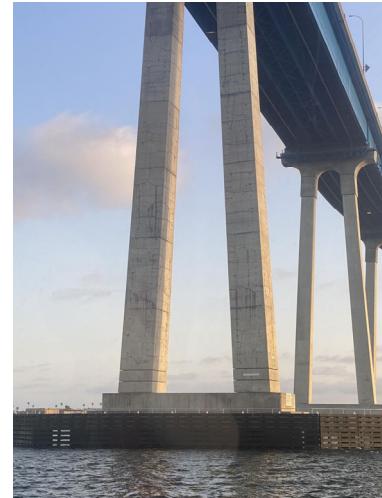
This title block example is for a location and vicinity view plan sheet. You can see they've labeled it as the vicinity map. I'll show what specific requirements are needed for that type of plan sheet in the next slides. As you can see this plan sheet is labeled as plan sheet 1 of 5 so this is the first plan sheet out of a total of five. Other than changing the vicinity map descriptor and the page number, the title block normally remains the same on each page of the plans.

Location and Vicinity Map



3. Location/Vicinity Map

- Show graphic scale and north arrow;
- Show location of bridge(s) on waterway;
- Identify the name of the waterway;
- Show course of waterway (i.e. ebb/flood, or direction of flow for non-tidal waters);
- Show structures immediately adjacent to the proposed bridge(s) and their relation to the proposed bridge(s);
- N/A
- Insert a small map of the state in which the project is located with an arrow showing the location of the proposed project.



We'll start by taking a look at the requirements for the location and vicinity map plan sheet. This plan sheet is intended to provide an overview of the location of the proposed project.

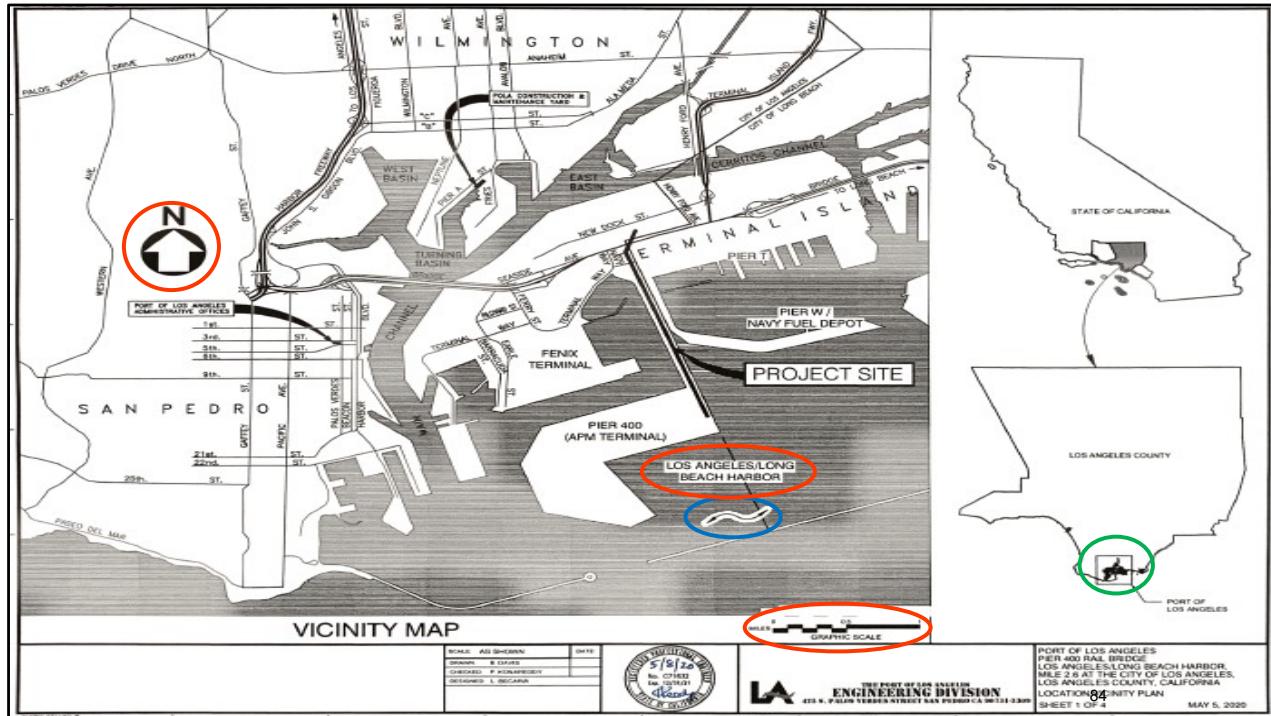
I hate to say it, but this plan sheet is a great example of a bad example of a location and vicinity plan sheet. This plan sheet was actually an initial submission for a bridge replacement project, not one that received Coast Guard approval. You can see how busy and difficult it is to read. This goes back to our previous comments, nothing less nothing more. Remember, the purpose of Coast Guard plan sheets isn't for construction purposes, they're informational and are intended to clearly depict the project and its proposed clearances in a manner the general public can understand.

Running through the checklist we do see some of the required items such as a graphic bar scale and a north arrow which are both circled in red.

If you squint real hard you can identify what body of water this bridge is located on, which is the Magothy River circled in blue along with the ebb and flood icon, however the location map is much smaller than we'd like, barely showing anything in the middle of the plan sheet.

Lastly, hunting around on this plan sheet you figure out this is actually in the state of Maryland if you look down in the title block down on the bottom right in green, but there is no small map of the state, which is a requirement. Not having the map of the state on this plan sheet makes it difficult to actually determine the project location at a quick glance.

With all that said, there are too many unnecessary notes on the plan sheet, if deleted the location map could be enlarged for easier viewing. Take one last look at this one.



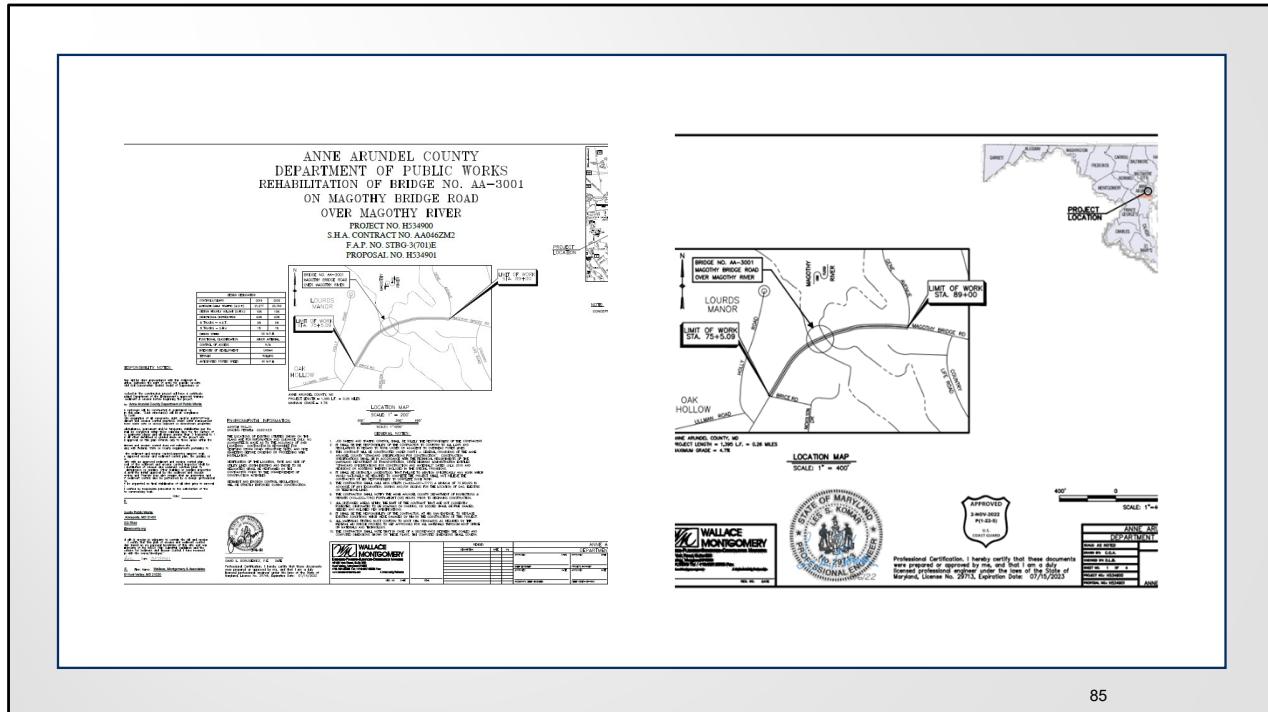
This plan sheet is a much better example of a location and vicinity map. If we review it against the Location and Vicinity plan sheet requirements on the job aid we see the following:

First, looking on the right side of the plan sheet we can clearly see this project is in the State of California, in LA county, and with an arrow showing the location of the proposed project on the bottom right in green.

In red we see both the north arrow and the graphic scale and also see the location of the bridge identified as LA/LB Harbor

Circled in blue we see the direction of the ebb and flood of the waterway.

If the Coast Guard issued this plan sheet in a public notice for review and comment it is easy for readers to determine where this is and how it might impact their waterway usage.



85

So lets go back to that first example we saw on the Magothy River. On the left is the initial plan sheet submission and on the right is the final, modified plan sheet that received CG approval. As you can see the plan sheet was decluttered and now if someone looks at it they can easily determine where this project is and how it might impact their waterway usage.

Again this is a great spot to pause for a moment and ask if there are any questions?

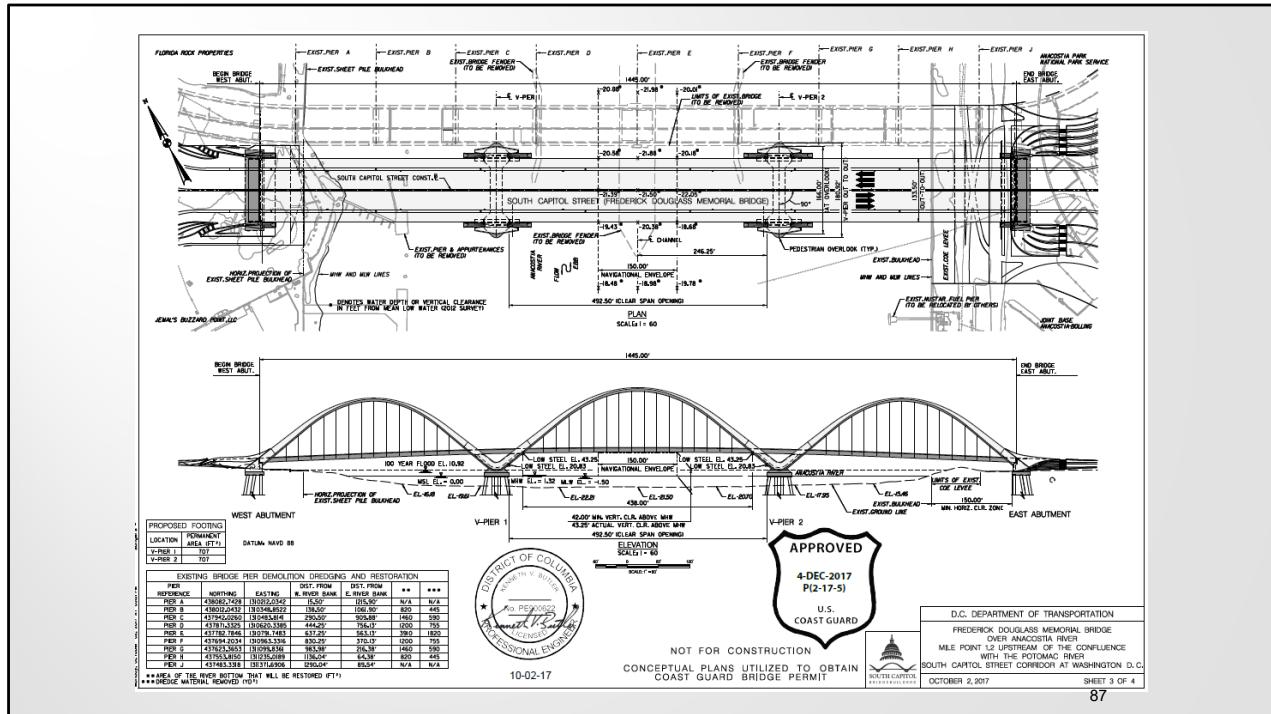
4. Plan View

- Show graphic bar scale and north arrow.
- Show existing shorelines (may be defined or established by local or state regulation).
- Show ebb and flood in tidal waters and direction of flow in non-tidal waterway.
- Show mean high and low waterlines in tidal areas or ordinary high water and ordinary low water elevations if proposed activity is in a non-tidal waterway. Only one waterline is required in instances where the difference in mean high and low water elevation is minimal relative to the slope of the waterway banks. Waterlines are not required when bulkheads or other artificial banks are present.
- Not Required
- Identify all portions of existing bridge(s) that will remain in place.
 - N/A
- Identify all portions of existing bridge(s) that will be removed by using a discernible method (e.g. grayscale, dashed lines, etc.).
 - N/A

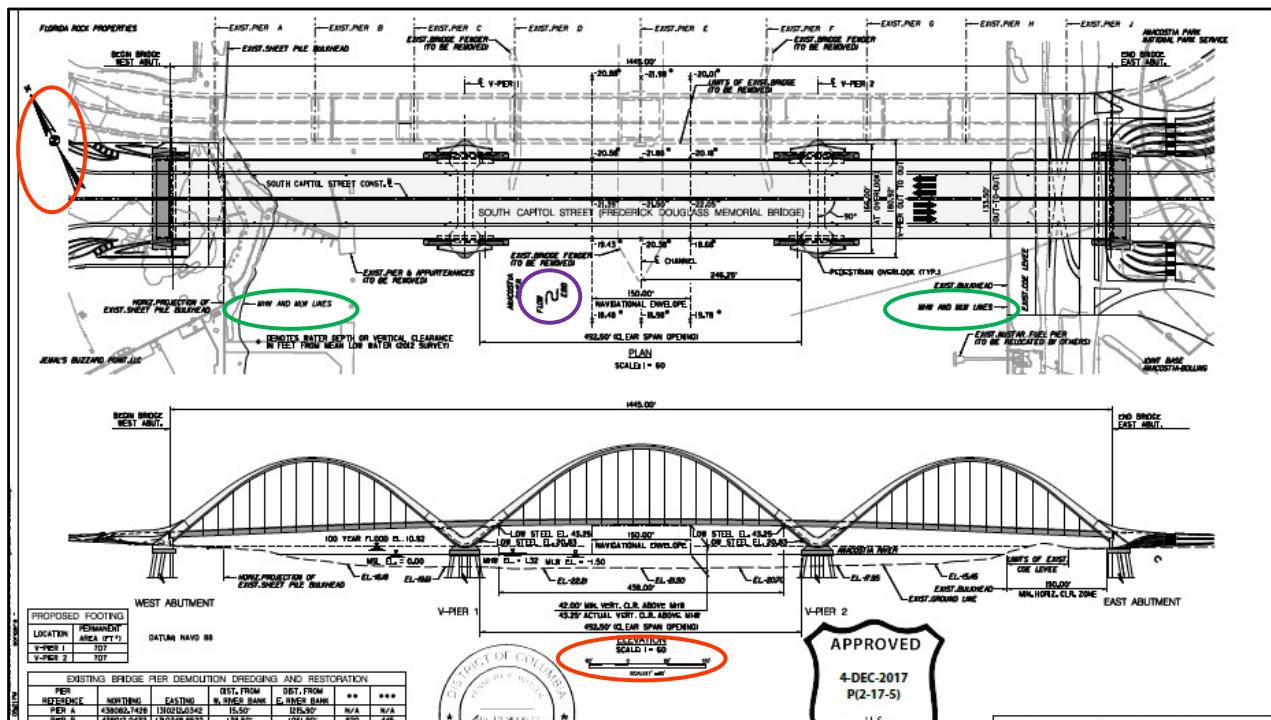


Plan and Elevation views

Now let's take a look at some plan and elevation view examples. The plan view is the top down view of the bridge, as if you are looking down from above the bridge, while the elevation view is the side view of the bridge, as if you were looking at the bridge from the waterway. We recognize that it is common for applicants to combine plan and elevation views on one plan sheet so that they are parallel to each other to depict the navigational openings well. Lets first look at an example where the plan and elevation view were provided on one plan sheet, then move on to take closer look at plan and elevation views separately.

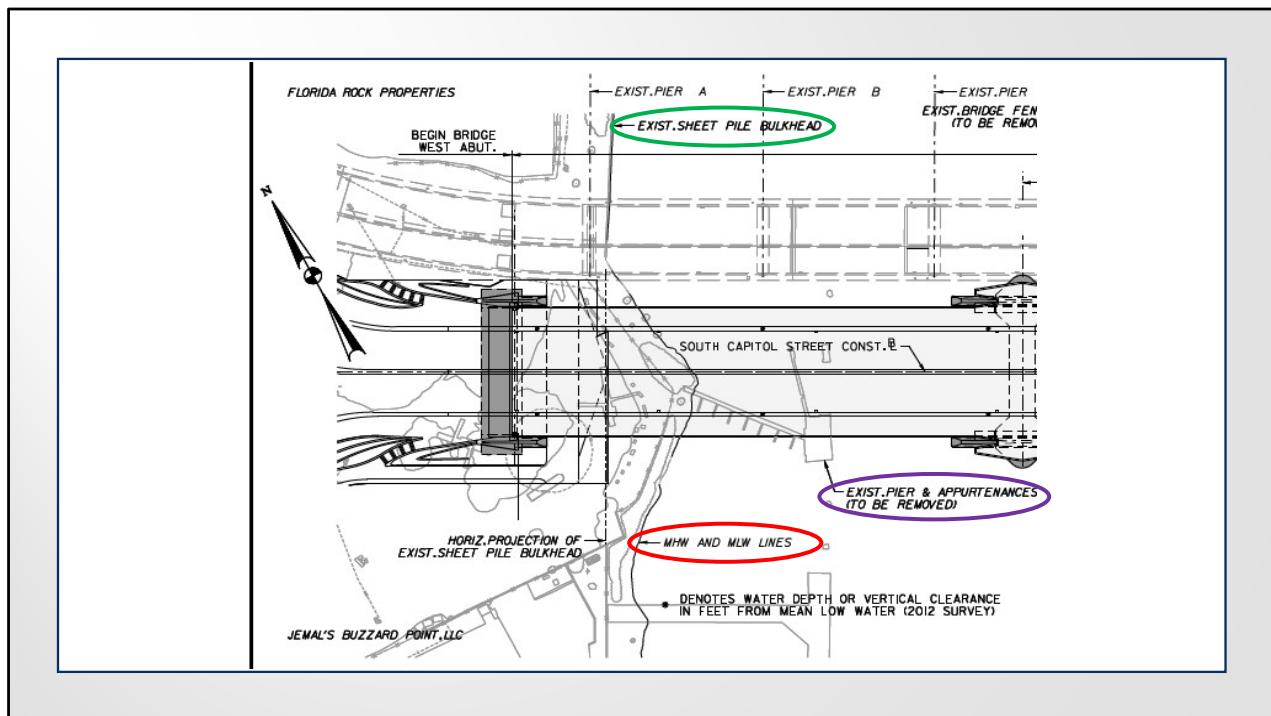


Here we have a plan sheet for the Frederick Douglass Memorial Bridge which we can view from our office windows here in Washington DC. It depicts both the plan and elevation views on a single plan sheet. This project involved replacing the existing drawbridge with a taller fixed bridge. You'll see the plan view on the top half of the sheet and an elevation view on the bottom half.

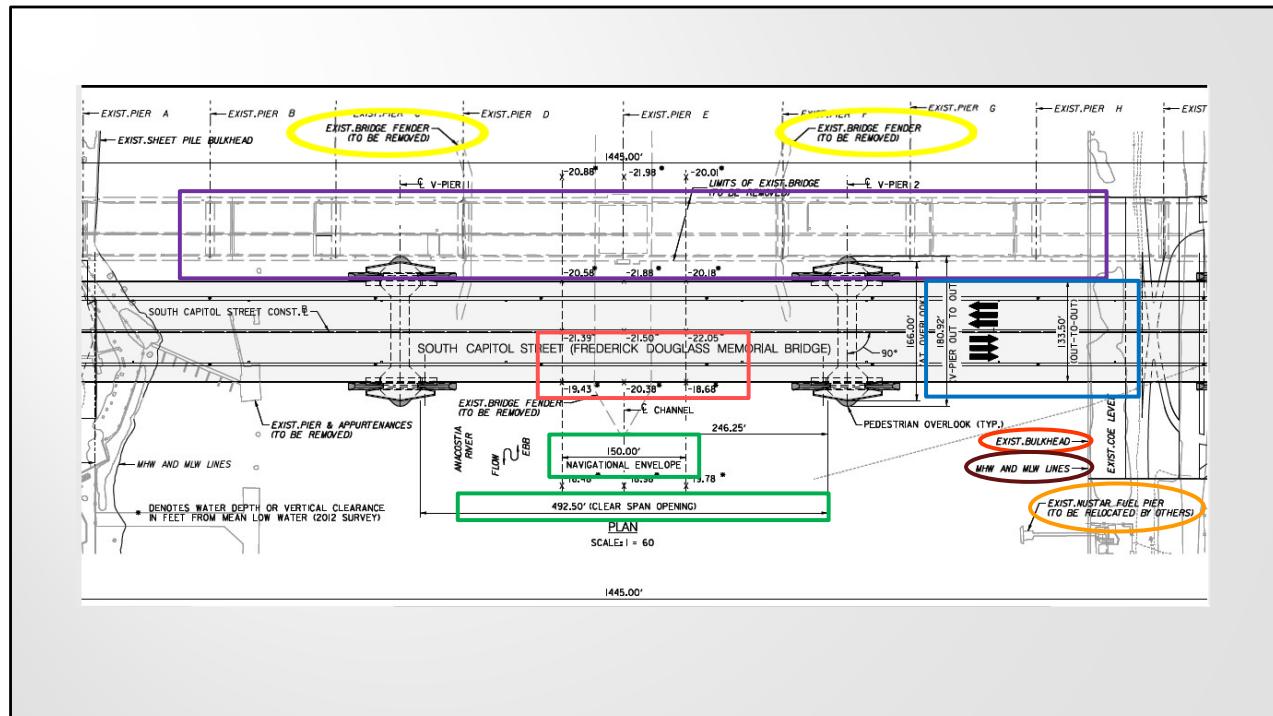


Here I've cropped that same plan sheet just a bit at the bottom to make it easier to read, that is why don't see the entire title block. Let's first review the top which depicts the plan view against the job aid starting on page 3. The first requirements are for the graphic bar scale and north arrow, both shown in red.

We also see the existing shorelines notated in green and the ebb and flood symbol for the waterway in purple.



Here I zoomed in to that corner so you can better see in green how the existing shorelines are identified, in this case as bulkheads. The next requirement from the checklist is for mean high and mean low waterlines. Since this is a bulkhead they're shown as one and the same here in red which is allowed on the checklist. Also note in purple the applicant identified and existing pier that will be removed during construction of the new bridge. This is helpful as it is important for mariners reviewing a public notice to see this.



Again I've cropped this same plan view a bit more to make it easier to see.

Circled in red on the right we can see the east bank of the project labeled existing Bulkhead, and also the existing Army Corps of Engineer's levee on the southeast river bank abutment.

Below that in orange you can also see an existing fuel pier which was to be relocated before the new bridge was built on the bottom right. These items are all valuable information for mariners to see.

In brown we again see the ebb and flood for the channel, and also in brown the mean high and mean low waterlines for both sides of the river.

In this example no portions of the existing bridge will remain in place, so this optional question on the job aid is not applicable, but the purple box towards the top depicts the grayed out dashed lines which represent the existing draw bridge that will be removed. The job aid asks that this be shown in a “discernable method”. This can be accomplished by use of a lighter gray color, use of dashed lines, or like in this case use of a hybrid of the two. All are correct so long as they indicate the existing to-be-removed bridge from the proposed bridge in a discernable way.

The job aid asks for the principle dimensions. The overall length of the bridge is listed at the top center in yellow as 1445.0 ft. Also in yellow at the top the applicant notes where the existing bridge fenders are to be removed.

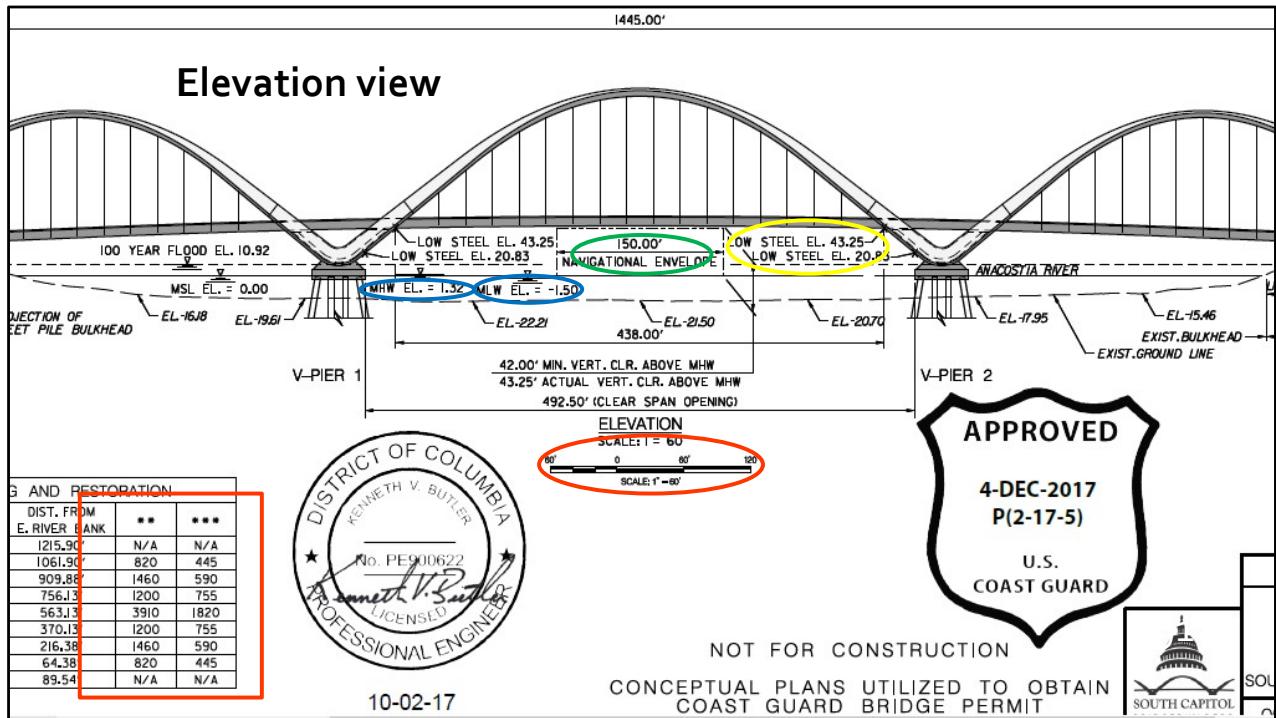
The blue box towards the right indicates where you'll find the width of the bridge, which in this case varies between 133.5 on the right of the blue box to 166.0.

This bridge project will not have a fender system, so identifying the location of the bridge protective system, piles cables, etc., is not applicable for this project, but if it were the location would also need to be shown.

The horizontal clearances are called out in the green box, with 150.00 ft of horizontal clearance in the navigation channel, and 492.50 ft clear span opening (pier to pier)

And lastly, the small red box identifies the varying channel depths between 18 to 22 ft.

As you can see, there's still a lot going on here so simplifying plans as best we can while still meeting the requirements is always preferred.



Lets now take a look at the elevation view requirements for a plan sheet. This elevation view is the bottom portion of that same original combined plan sheet. Here again you can see in red the graphic bar scale is present in the center.

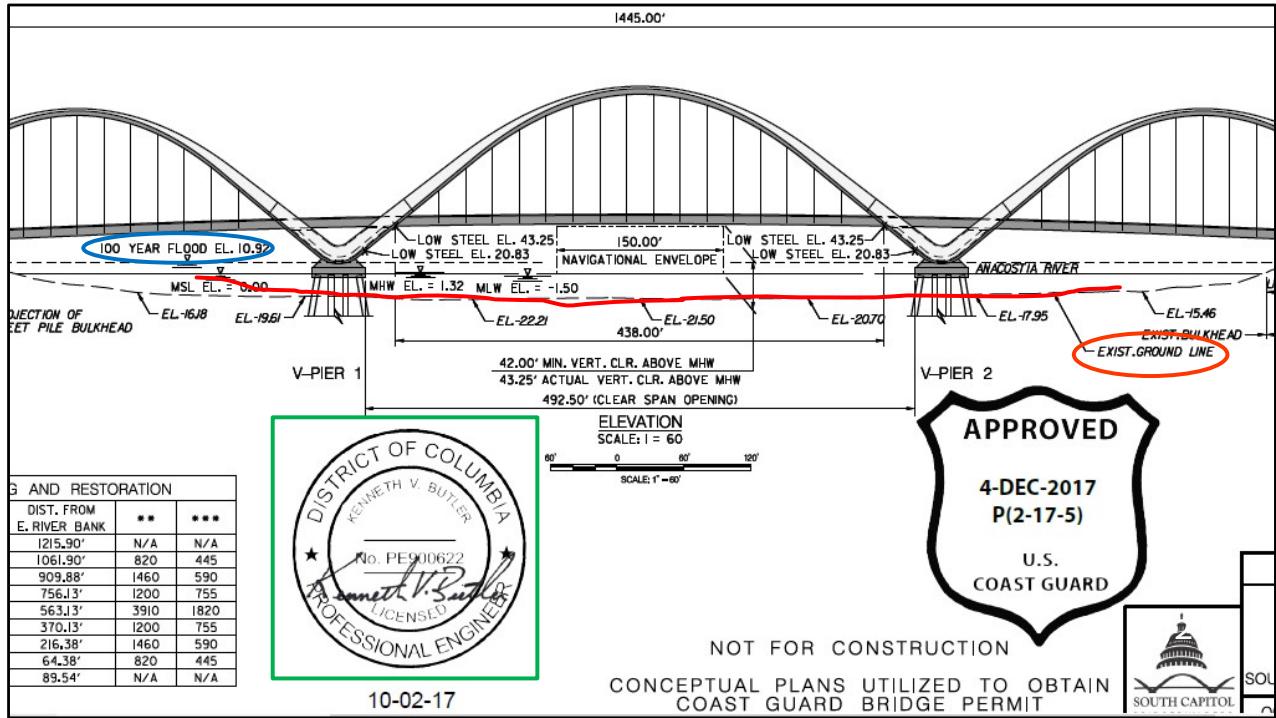
Both bridge piers require fill so the applicant added a table, also indicated here by the red box, with the amounts of fill at the bottom left of the plan sheet. In blue we find the MHW and MLW elevation lines. The difference between the two is almost 3 feet.

The navigational opening is depicted in green as 150.00 ft of horizontal clearance in the channel.

In the purple box the minimum vertical clearance above MHW is shown as 42.0 ft, but its also shown as 43.25' at the actual centerline of the channel. They also labeled in the bottom of the purple box the clear span horizontal clearance at low steel between the piers as 492.5 ft.

In yellow you'll find the low steel elevation in the navigation span for the roadway at 43.25 ft, and again at the base of the pier as 20.83 ft.

The checklist would next ask about drawbridges but since this bridge is no longer a draw bridge that requirement becomes not applicable.



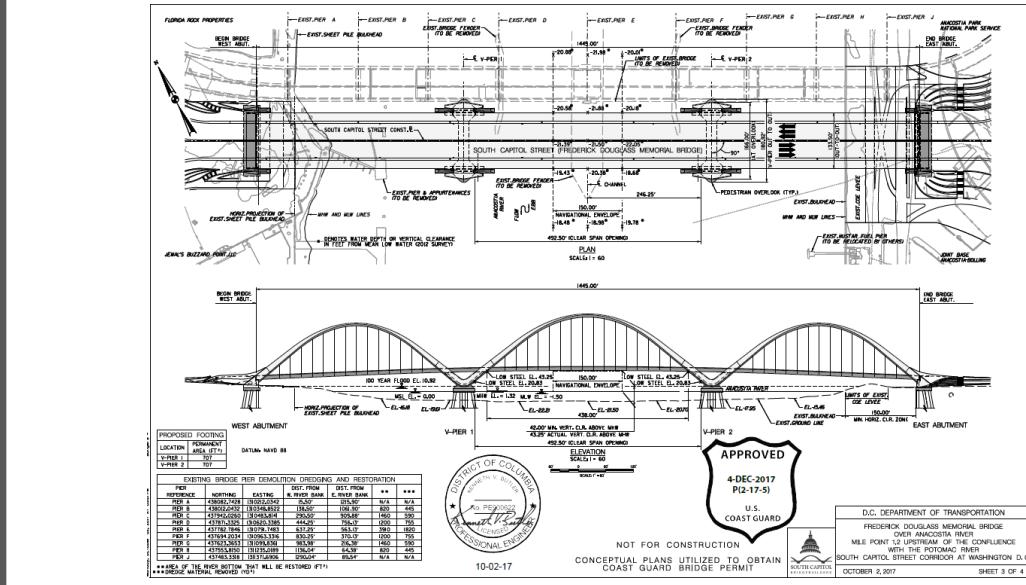
Looking at the same plan sheet we continue with the elevation view requirements and just above the red line here we can clearly see the existing contour of the waterway bottom which is the dashed line and labeled here as the existing ground line.

In blue the 100-year flood elevation is identified on the west side of the structure as 10.92 ft.

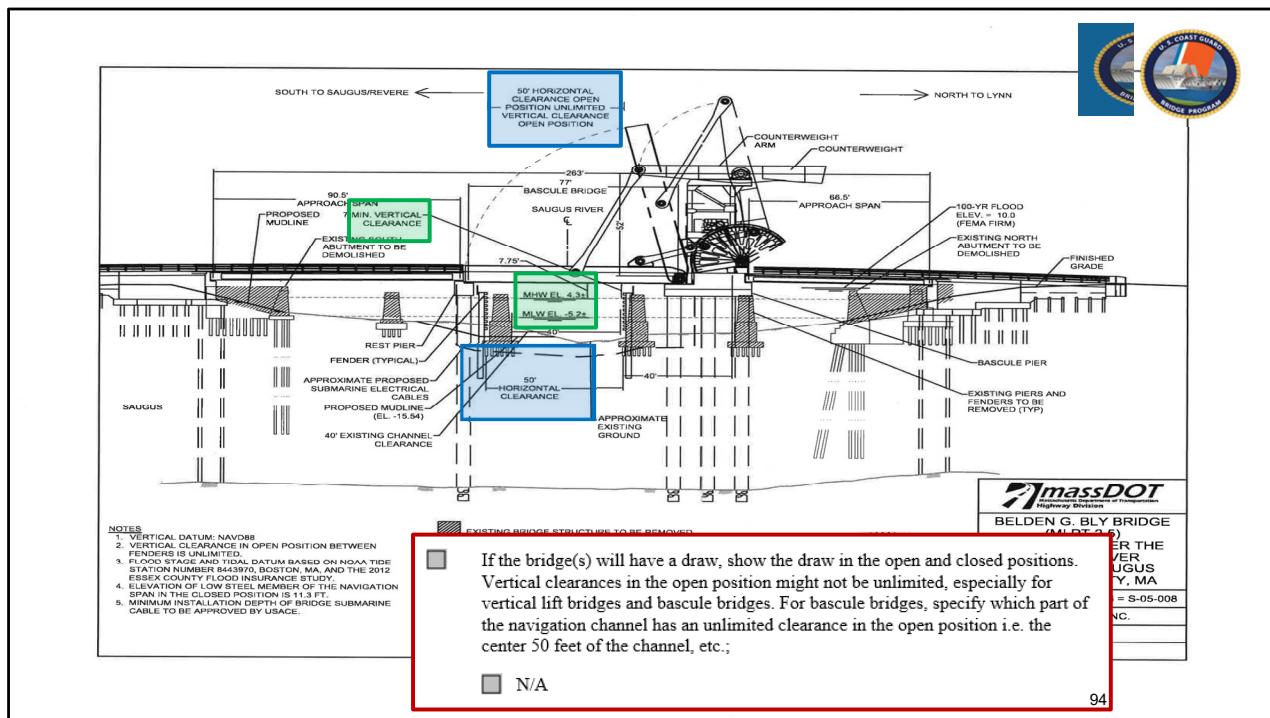
This bridge will not have a permanent traveler system, so that requirement on the job aid is not applicable. If there is one though it must also be depicted.

In green you can also see the required professional engineer stamp and signature on this plan sheet. As mentioned earlier, this is a requirement for all plan sheets prior to Coast Guard approval.

Plan and Elevation view



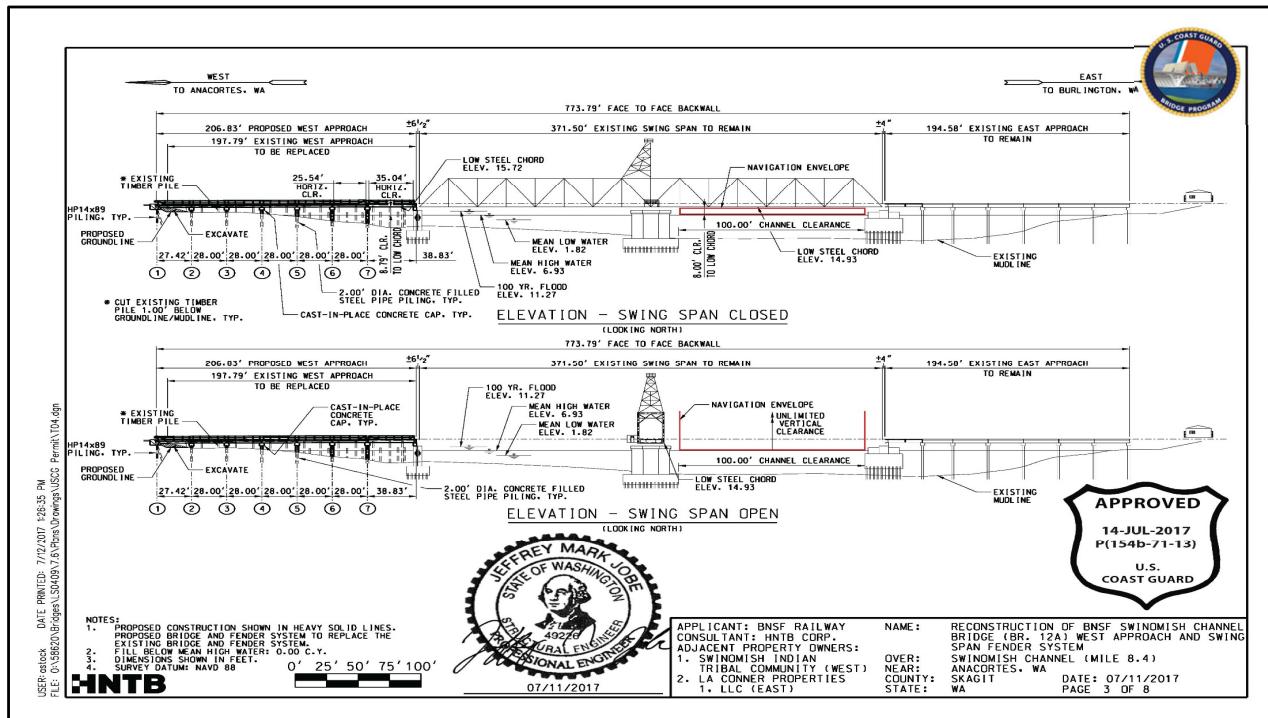
Now that we've looked at each requirement for both plan and elevation views, let's revisit the plan and elevation view parallel to each other. Looking at this plan sheet we see the applicant captured all the requirements needed for both the plan view and elevation view on a single page. There were only four total plan sheets required for this complex project.



Now we'll take a quick look at some of the differences for plan sheets for a moveable span bridge. Here is an example of a plan sheet for a bascule drawbridge. The plan sheet job aid identifies the requirements for moveable span bridges, shown here in the red box, to depict the draw in both the open and closed positions. For bascule bridges, we also ask the applicant to specify which parts of the channel have unlimited clearance in the open position since that is often limited.

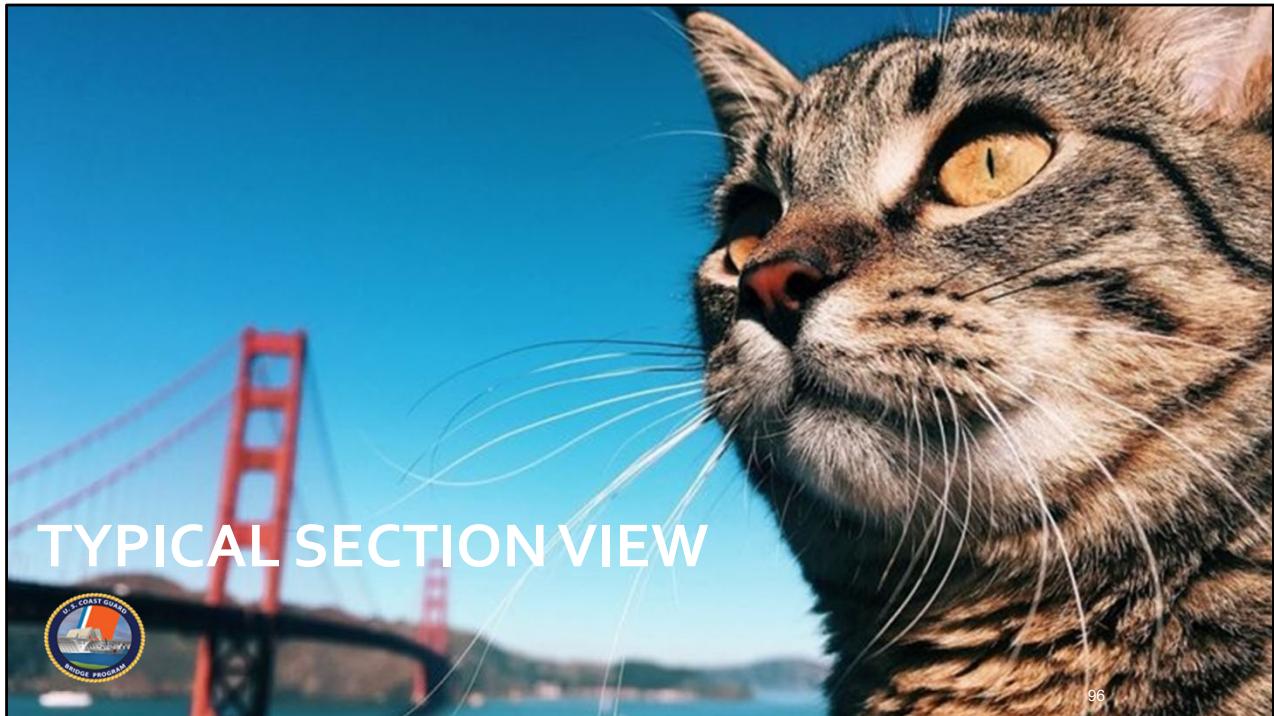
On this plan sheet you can see in the blue boxes there is 50 ft of horizontal clearance and unlimited vertical clearance available when the bascule leaf is in the open position.

When closed, in green we see the bridge allows for a minimum vertical clearance of only 7 ft near the pier on the left, and 7.75 ft in the channel at mean high water.

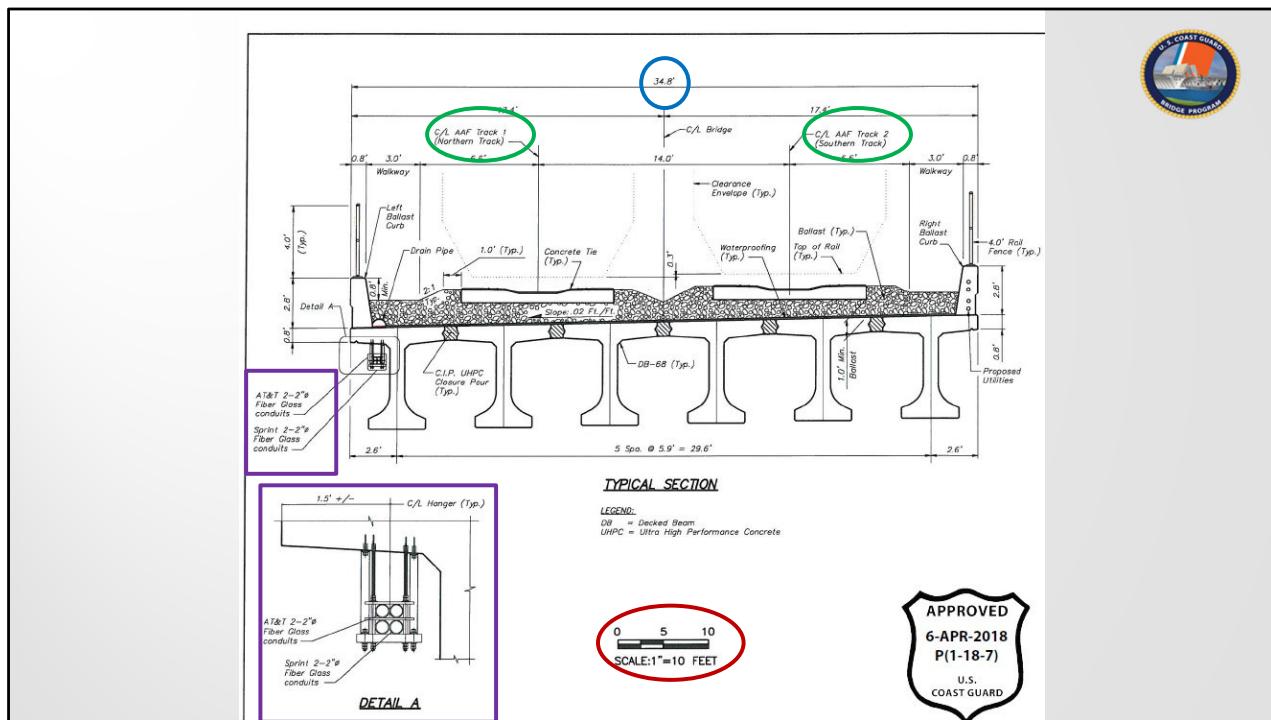


Here's another example of a movable bridge, this time showing a swing bridge in both the closed (top view in red) and open (bottom view in blue) positions. Looking at both you can see how the vertical clearance changes in the navigation channel from 8.0 ft in the closed position on top to unlimited in the open to navigation position on the bottom.

I'll pause here for a second and ask if there are any questions related to plan and elevation views at this point?



We'll now take a look at the typical section view requirements which offers a cross-section view of the proposed bridge.



The requirements for the “Typical Section View” are found on page 5 of the plan sheet job aid.

Similar to other plan sheets, I’ve cropped it a bit for easier viewing. Again we require a graphic bar scale which is shown in red

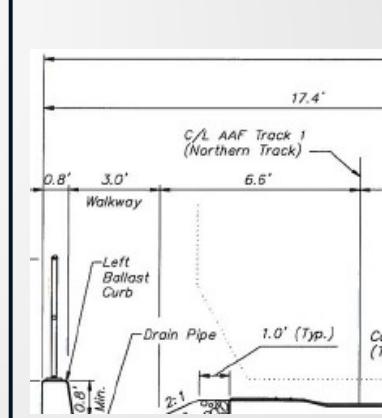
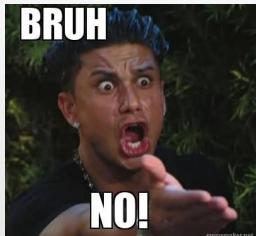
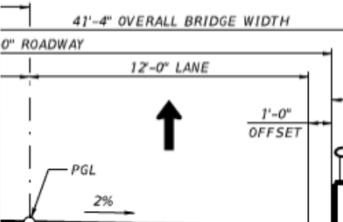
In blue a the top it shows the out to out width of the structure which in this example is 34.8’

This plan sheet is actually for a railroad bridge so in green they depict the center line for the northern track (on the left) and southern track (on the right). In some instances, a bridge may have portions where the bridge is wider at certain spots. An example would be if there’s a pedestrian overlook that is wider on a bridge pier. We ask that you please note and depict such special instances on the plan sheet as well.

This plan sheet also points out in the purple box on the bottom left labeled Detail A an expanded view for utilities on the bridge such as the Fiber Glass Conduits. When we speak to appurtenances to the bridge such as this it is the one area on the plan sheets were we do not require measurements be in decimal form like we do for all other measurements. We allow for normal industry nomenclature such as an eight and a half inch water line, a 2x6 inch

wooden post, or in this case a 2 foot 2 inch conduit line. Otherwise though we require all measurements in decimal format.

Decimal format! Pretty please!



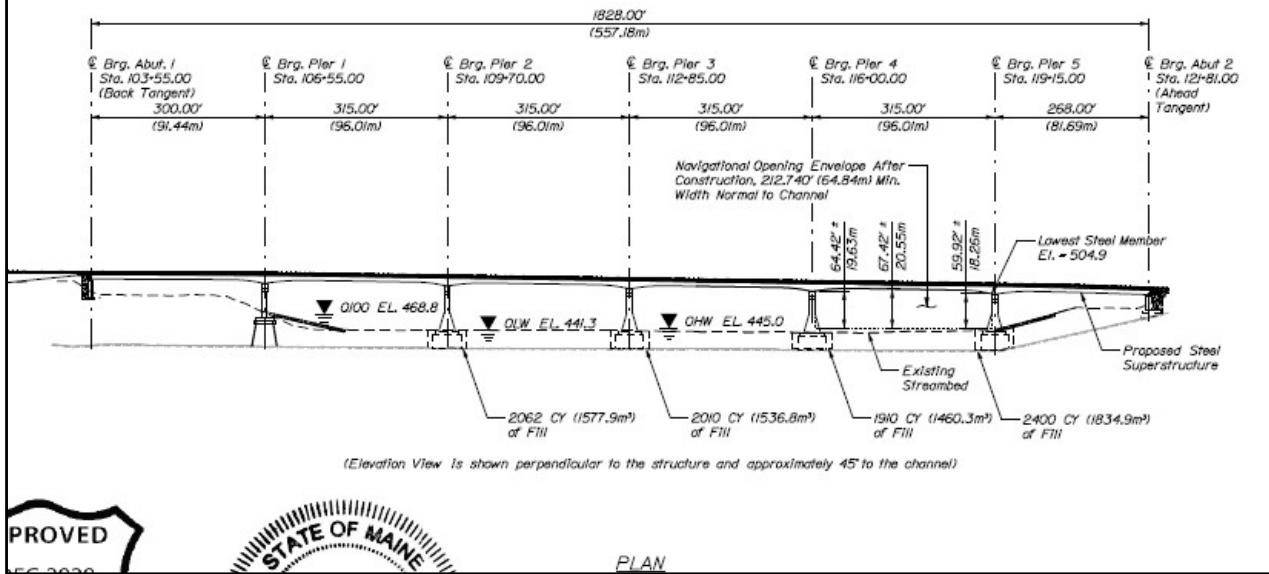
Again, please use decimal format when depicting measurements. Looking to the left we see an example of how not to list the measurements, and on the right we see the required decimal format.



INTERNATIONAL BRIDGES

As Jim discussed during the permit application presentation, international bridges are handled slightly differently as they normally require a Presidential permit from the Department of State. When it comes to the plan sheets though, there are only a few minor changes.

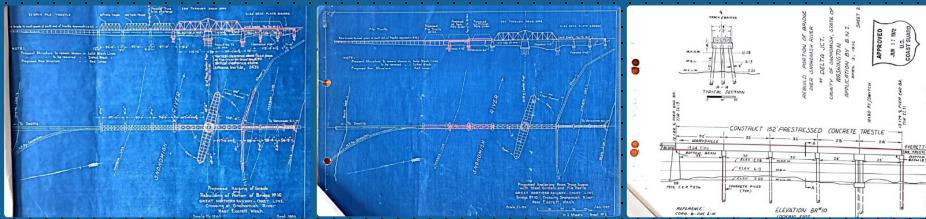
Show all dimensions and distances in U.S. linear feet in decimal form (versus feet and inches). For **international** bridges show all dimensions in both linear feet and meters.



As you can see from this cutout from a plan sheet for an international bridge there are specific requirements for international bridges that all dimensions and distances be depicted in both linear feet and meters. If you look at the dimensions I've circled here in green you see that feet is captured on the top and meters is identified on the bottom. That's actually the only difference required on plan sheets.



Supplementing vs Superseding for Modifications



- Used for modification projects that require amending an existing bridge permit
- Early coordination with the Coast Guard is key

The last thing I'd like to discuss is we ask that you please be sure to reach out to your local Coast Guard District Bridge Office early in your plan sheet development process for modification projects to existing bridges that will result in a permit amendment. The reason being we must ensure that plan sheets properly depict the proposed permit action taking into consideration any existing plan sheets that will either be supplemented or superseded, or a combination of being both supplemented and superseded. Being able to supplement existing plans requires the existing plans to be complete enough to show all necessary attributes in a proper manner. Each modification project is usually unique and the requirements are often complex so early coordination is key to avoiding potential delays. On this slide the plan sheet on the right was used to supplement the two existing plan sheets to its left for a bridge that was built in back in 1921. We could only do this because the plan sheets on the left were available and showed enough detail of what currently exists and how the proposed modification would alter it.