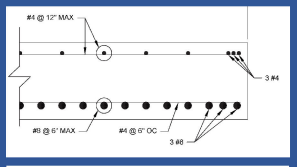

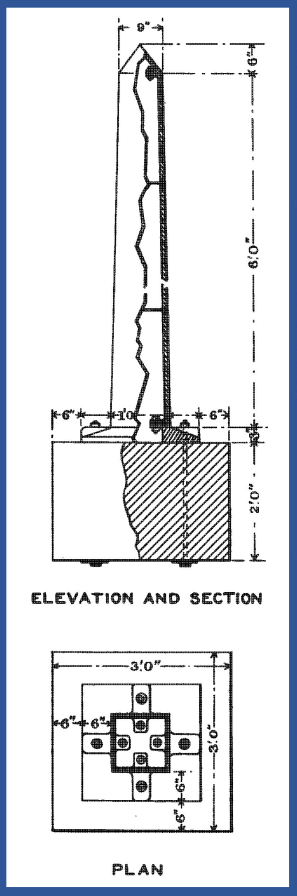

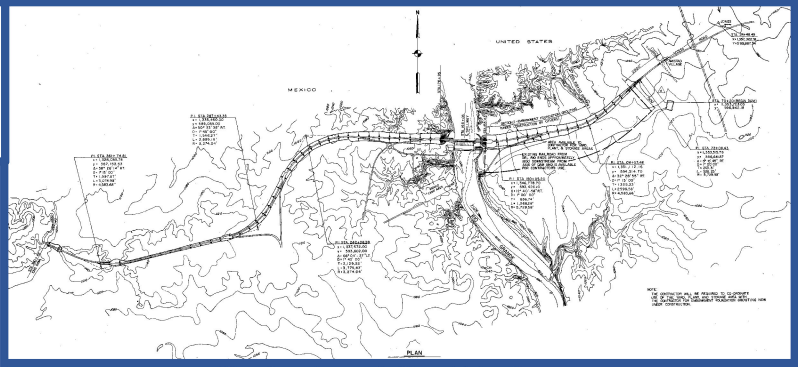

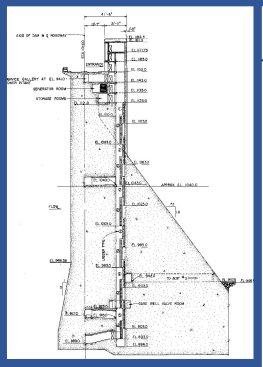

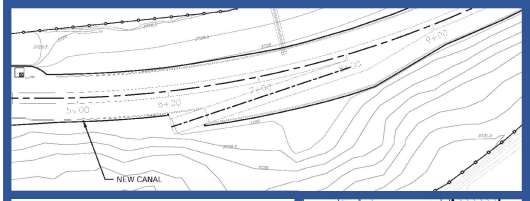

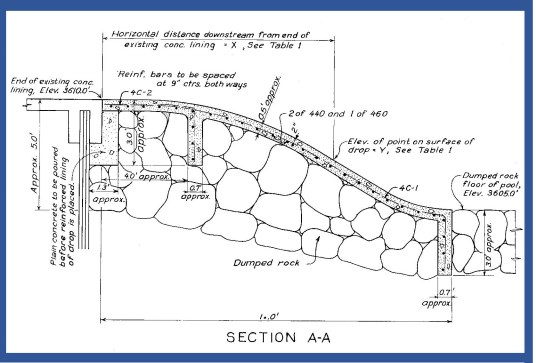

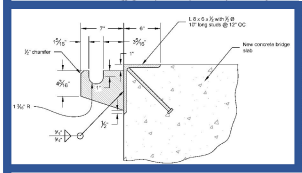

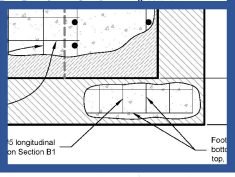

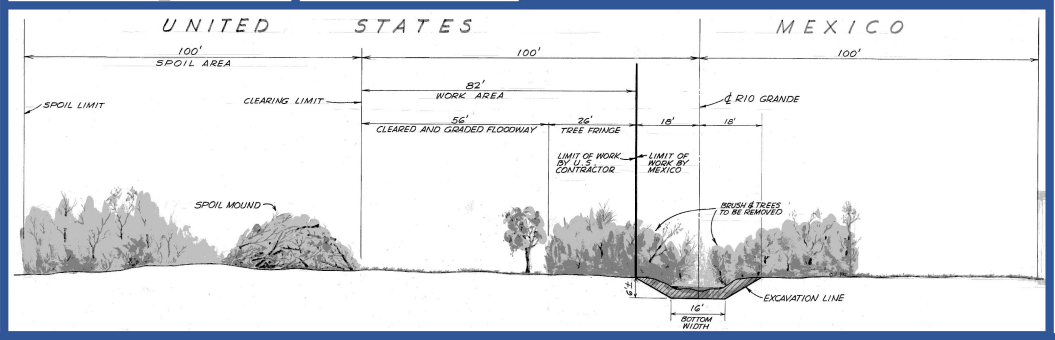

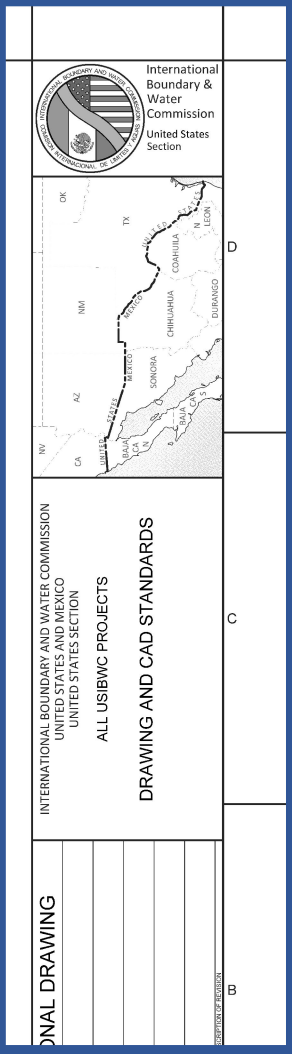

International Boundary and Water Commission

United States and Mexico

United States Section

Drawing and CAD Standards

November 22, 2022

International Boundary and Water Commission
United States Section
Construction Management Division
El Paso, Texas

This document has been formatted for double sided printing.

Table of Contents

LIST OF TABLES

LIST OF FIGURES

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Log of Changes

Date Changed	Section Updated	Description of Change
Originally Issued October 25, 2019		
9/21/2021	1.15, 2.1, 2.14, 2.15, 2.22, 2.23, 3.1, 3.2, 3.3, 4.4, 4.5, 4.7, 6.2, 6.4, Figure 12 to Figure 17, Figure 21, Figure 25 to Figure 28	Updated sections to current USIBWC drawing number format and added additional data to many sections. Minor revisions made throughout document, but not listed in the "Sections Updated."
11/22/2022	2.3, 2.6, 4.3, 4.5, 4.6, 4.9, 4.11	Added clarifications to sections noted. Added figure numbers to images that were missing them before so Figure 37 to Figure 42 were renumbered.

1.1. RECOMMENDED CHANGES AND/OR CORRECTIONS

A written document is never without errors and typos. If you find any errors or have a recommendation for additional content or changes, please email andrea.glover@ibwc.gov with your recommendation. This Standard is a living document that is meant to describe the procedures that USIBWC uses to create and produce drawings.

1.1.A. Location of Files

The most current version of this standard and all associated files can be found at:

1. IBWC Network
   W:_Templates & Information\Std Drawings
   Z:_Templates & Information\Std Drawings
   P:\ESD\Title Block Template
2. Website
   Download a zip file containing this standard and all associated files at:
   www.ibwc.gov/Organization/Engineering/construction.html

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SECTION 1 - GENERAL INSTRUCTIONS

1.1. SCOPE AND PURPOSE

These Standards provide the procedures for preparing electronic drawing files, figures, maps, and associated Computer-Aided Design (CAD) products within and for the United States Section of the International Boundary and Water Commission (USIBWC). These drafting standards are for the purpose of standardizing the preparation of drawings, simplifying various details of work, and securing the greatest possible uniformity in appearance, size, and style consistent with the subjects and purpose involved. All work shall be done in conformity with these guidelines and with those contained in the United States National CAD Standard (NCS).

1.2. DOCUMENT ORGANIZATION

This document is separated into different sections depending upon your needs. Section 1 contains a general overview and guidance of the files provided to produce drawings for USIBWC. Section 2 contains the actual drafting standards outlining how items should be completed. While Contractor's need to follow all of the standards provided in this document, Section 3 provides additional instructions for Contractor provided drawings; these are items that apply only to Contractors. Section 4 explains, through figures and text, all of the facets of USIBWC's ANSI D border including what data to enter where. Section 5 is technical data to enable recreation of USIBWC's standardized items. Of specific interest is Subsection 5.8. which provides instructions on how to set up your DWG To PDF.pc3 AutoCAD plotter file to ensure that drawings meet USIBWC requirements. Finally, Section 6 includes miscellaneous information covering this document and drawing creation.

1.3. GENERAL DRAFTING REQUIREMENTS

Since a drawing is a means of conveying and recording information, the information shall not only be correct, but shall be arranged and referenced making the drawing easily and clearly interpreted. Construction drawings shall be completed in a manner so that the use of scales or reference to the specifications is not needed to determine sizes or dimensions. Finished drawings shall be prepared so that electronic versions, contact prints, and reductions to smaller scales commonly in use will be clear and legible. Careful consideration shall be given to lineweights, and to accuracy, style, size, and position of all notations.

1.4. POLICY

All engineering drawings created by officials, employees, or Contractors for USIBWC are the property of the Federal Government and are not transferable with the feature/structure. These Standards contain official guidelines for the creation of engineering drawings.

1.5. FILES INCLUDED

1.5.A. There are two zip files: one for black and white (B&W) and one for color. Each file contains the same basic items. Table 1 provides a list of all files contained in these zip files.

1.5.B. Since it will quickly become tiresome to write two different filenames to indicate B&W and color, "xx" will be used as a placeholder for either B&W or color as appropriate in the filename.

1.5.C. Many AutoCAD files must be placed in specific locations for AutoCAD to find them. Throughout this document, the locations will be listed. However, every computer setup is slightly different. Since Windows names these directories by the username, "*username*" is used instead of an actual name in any listed directories. Within the required directories, AutoCAD stores files by version of AutoCAD. This document uses "####" as the placeholder for your version of AutoCAD. Examples include: C3D 2018, C3D 2020, C3D 2021, etc.

Table 1-Zip File Contents List and Descriptions

IBWC Packet-B&W.zip	IBWC Packet-Color.zip	Description
Blocks.zip	Blocks.zip	All USIBWC symbols are shown on Standard Drawing 26465
DWG To PDF.pc3	DWG To PDF.pc3	Printer setup for PDF
IBWC ANSI A-H Border B&W.dwg	IBWC ANSI A-H Border Color.dwg	Standard 8.5"x11" horizontal border for inserting into existing file
IBWC ANSI A-V Border B&W.dwg	IBWC ANSI A-V Border Color.dwg	Standard 8.5"x11" vertical border for inserting into existing file
IBWC ANSI D Border B&W.dwg	IBWC ANSI D Border Color.dwg	Standard 22"x34" border for inserting into existing file
IBWC Blank Drawing B&W.dwg	IBWC Blank Drawing Color.dwg	Standard border for new drawings
IBWC Drawing B&W.dwt	IBWC Drawing Color.dwt	AutoCAD template for new drawings with standard border
IBWC.lin	IBWC.lin	IBWC linetypes as shown on Standard Drawing 26441
IBWC_B&W.ctb	IBWC_Color.ctb	IBWC plot style
IBWC_Patterns.pat	IBWC_Patterns.pat	IBWC patterns as shown on Standard Drawing 26442
IBWC-Shapes.shx	IBWC-Shapes.shx	IBWC shapes
Patterns.zip	Patterns.zip	IBWC pattern individual files

1.5.D. Why so many files?

There is a method to this madness. People will require the use of USIBWC's border in one of two ways: in an existing file or for a new file. The way that AutoCAD operates requires that two files be available for use. One file (IBWC ANSI ?? Border xx.dwg) has all of the information set in model space so that it can be seamlessly inserted into an existing file; AutoCAD will not inset information from a layout. Therefore to use the border in an existing file, the border must be inserted into a template or a new layout must be created from a template.

1. If you are starting a new drawing, create one from either IBWC Blank Drawing xx.dwg or the appropriate template.
2. Three borders are provided. The ANSI D border covers both 22"x34" full sized drawings and 11"x17" half sized drawings. The other two borders are for 8.5"x11" (ANSI A) drawings. Since drawings in this size are often details or figures, they may need to be presented in a vertical orientation. One file is available with a horizontal border and one file with a vertical border.
3. Since files are available in ANSI A-H, ANSI A-V, and ANSI D, the nomenclature to reference these drawings within this document is "ANSI ??".

1.5.E. Border File Explanation

IBWC ANSI ?? Border xx.dwg, IBWC Blank Drawing xx.dwg, and the templates all have IBWC linetypes, dimension styles, and color dependent pen tables (plot styles) pre-loaded as well as USIBWC standard blocks.

1.6. BASE USIBWC BORDER FILES

1.6.A. Please note that unless color is required in the drawing, black and white drawings are always preferred. Black and white drawings allow the drawings to be printed on any printer and still be fully legible. The color borders may be used in the black and white files at the user's discretion. The only visual difference will be that the IBWC logo prints in color instead of black and white.

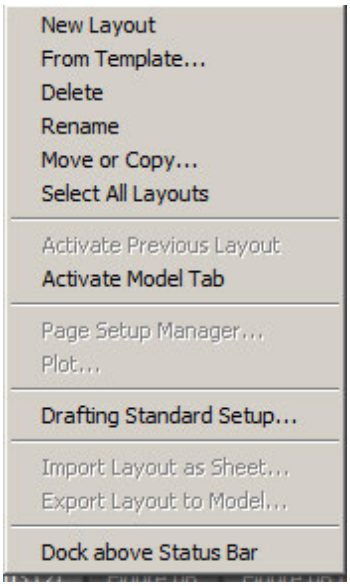
1.6.B. See Subsections 5.5 and 5.7 for additional information about the use of color in drawings.

1.6.C. New Files
The basic USIBWC drawing is provided in both black and white and color versions as dwg files and as templates. The templates are based upon the dwg files, so use whichever you feel more comfortable with.

1. Dwg Files
   Normal AutoCAD dwg files may be stored in whichever directory you normally use for your projects.
2. Template (dwt) Files
   AutoCAD templates are usually copied to the following directory for use:
   C:\Users*username*\AppData\Local\Autodesk\####\enu\Template

1.6.D. USIBWC Border for Existing Files
Insert the border into an existing file from IBWC ANSI ?? Border xx.dwg or create a new template from one of the two templates. Using either method will also load the IBWC page setups for plotting (See Subsection 5.8. for information about layout page setup), but creating layouts from a template does not load linetypes, dimension styles, nor unused blocks.

1. Dwg Files
   On an existing layout tab, insert IBWC ANSI ?? Border xx.dwg. After the insert is completed, explode once.
2. Template (dwt) Files
   a. Right click on an existing layout tab. Menu at right pops up.
   b. Choose "From Template..."
   c. Using the window that pops up, choose the appropriate template file.
   d. AutoCAD will partially load the template and then show a list of available layouts to import.
      (1) Layout-ANSI D or B
      (2) Layout-ANSI A-H
      (3) Layout-ANSI A-V
   e. Choose the appropriate layout.
   f. A new layout will be created based upon the template.



1.6.E. Filing Out the Border Information

1.6.F. Contractors are allowed to make minor changes to the border provided. Specific details about the changes allowed are detailed in Subsection 4.2.

1.6.G. The border data shall be modified for the project. See Section 4 for details on how to properly fill out the border data.

1.7. UNITS

1.7.A. All units noted in this document are US Standard Imperial. Lineweights and text sizes are shown in inches.

1.7.B. Drawings shall be set to US Standard Imperial unless the Contract/Scope of Work requires the use of metric. Features of work involving our Mexican Section are often in metric.

1.8. DRAWING SIZE

Drawing borders are provided in ANSI D size (22"x34") and ANSI A (8.5"x11"). The ANSI D border is used to produce half sized drawings in ANSI B (11"x17"). No other drawing sizes shall be used.

1.9. TEXT STYLES

Four text styles are preset within IBWC Blank Drawing xx.dwg and in IBWC Drawing xx.dwt. they are Standard, Standard_Bold, Standard_Italic, and Legend. Details about these are provided in Subsection 2.8. while specific AutoCAD settings for these styles are provided in Subsection 5.2.

1.10. LINETYPES AND SHAPES

1.10.A. IBWC.lin and IBWC_Shapes.shx are provided for Agency dependent styles in IBWC Blank Drawing xx.dwg and in IBWC Drawing xx.dwt.

1.10.B. Also, when IBWC ANSI ?? Border xx.dwg is inserted into a layout tab, USIBWC linetypes will automatically load. They will not load when a layout is created from a template.

1.10.C. If a USIBWC linetype exists for the feature being drawn, it shall be used. Other linetypes may be used in drawings as appropriate for the features being shown.

1. Linetypes
   The following linetypes are pre-loaded. They are detailed in USIBWC Standard Drawing 26441 (Figure 18). If they need to be reloaded, they are contained in file IBWC.lin. For IBWC.lin to work correctly, IBWC-Shapes.shx must also be present.
   a. Both IBWC.lin and IBWC-Shapes.shx must be placed in directory C:\Users*username*\AppData\Roaming\Autodesk\####\enu\Support to be accessible via AutoCAD to load the linetypes individually.
      (1) BARBED-WIRE
      (2) CANAL
      (3) CANAL-PROPOSED
      (4) COUNTY
      (5) ELEC-LVL-B
      (6) ELEC-LVL-C & D
      (7) ELEC-OVERHEAD
      (8) FENCELINE-ALT1
      (9) FENCELINE-ALT2
      (10) FORCEMAIN-LVL-B
      (11) FORCEMAIN-LVL-C
      (12) GAS-1-LVL-B
      (13) GAS-1-LVL-C & D
      (14) GAS-BURIED
      (15) GAS-LVL-B
      (16) GAS-LVL-C & D
      (17) GUARDRAIL

(18) INTERNATIONAL
(19) RAILROAD
(20) ROW
(21) SEWER-LVL-B
(22) SEWER-LVL-C & D
(23) STATE
(24) STORMSEWER-LVL-B
(25) STORMSEWER-LVL-C & D
(26) TELECOM-1-LVL-B
(27) TELECOM-1-LVL-C & D
(28) TELECOM-2-LVL-B
(29) TELECOM-2-LVL-C & D
(30) TELECOM-3-LVL-B
(31) TELECOM-3-LVL-C & D
(32) TELECOM-4-LVL-B
(33) TELECOM-4-LVL-C & D
(34) WASTEWATER-LVL-B
(35) WASTEWATER-LVL-C & D
(36) WATER-1-LVL-B
(37) WATER-1-LVL-C & D
(38) WATER-2-LVL-B
(39) WATER-2-LVL-C & D
(40) WATER-3-LVL-B
(41) WATER-3-LVL-C & D
(42) WATER-LVL-B
(43) WATER-LVL-C & D

1.11. DIMENSION STYLES

1.11.A. Three dimension styles are pre-loaded; two for normal dimensions (IBWC_Std_Arch and IBWC_Std_Eng) and one for callouts (IBWC_Std). Specifics on how the dimensions are used are noted in Subsection 2.10. Details about how to setup the dimension styles within AutoCAD are provided in Subsection 5.3.

1.11.B. When IBWC ANSI ?? Border xx.dwg is inserted into a layout tab, these dimension styles will automatically load. They will not load when a layout is created from a template.

1.12. PATTERNS

1.12.A. Patterns cannot be pre-loaded. For them to work correctly, they must be placed in the AutoCAD support directory. Depending upon your comfort level with modifying AutoCAD support files, loading the patterns can be achieved two different ways (see 1.12.C. and 1.12.D. below).

1.12.B. The hatch patterns used by IBWC are detailed in USIBWC Standard Drawing 26442 (Figure 19). If a USIBWC hatch pattern exists for the feature being drawn, it shall be used. Other patterns may be used in drawings as appropriate to the features being shown. If other hatch patterns are used that are not found in acad.pat, the pat file must be provided.

1.12.C. Simple Method of Adding Patterns
Unzip the file Patterns.zip to:
C:\Users*username*\AppData\Roaming\Autodesk\####\enu\Support. The patterns will be available for use the next time you open the hatch command in AutoCAD.

1.12.D. Cleaner, but More Complex Method of Adding Patterns
Instead of copying 54 pattern files into your AutoCAD support directory, you can modify a single file to contain this data. Standard AutoCAD patterns are stored in the file acad.pat. Since many companies already have specialized acad.pat files, it was decided to provide IBWC's data as a separate file instead of providing a new acad.pat fil to use.

1. You can edit acad.pat using Notepad in Windows. All of the pat files are simply text files stored with a pat file extension. To add USIBWC's patterns to your acad.pat file follow the directions below.
   a. Open acad.pat.
      At the end of the file you will see:
      ;;
      ;; User Defined Hatch Patterns
      ;; Add any hatch patterns that you define to this section of
      ;; the file to ensure that they migrate properly when
      ;; upgrading to a future AutoCAD version. If duplicate hatch
      ;; patterns are found in this file, items in the User Defined
      ;; Hatch Patterns section take precedence over patterns that
      ;; appear earlier in the file.
      ;;
   b. Open IBWC_Patterns.pat.
   c. Select all text in this file (Ctrl^A) and then copy it (Ctrl^C).
   d. Switch back to acad.pat.
   e. Paste (Ctrl^P) all of IBWC_Patterns.pat after the last line of text in acad.pat.
   f. Save acad.pat.

1.13. PLOT STYLES

1.13.A. Two color dependent pen tables are provided to ensure that items print correctly in AutoCAD. They are IBWC_Color.ctb and IBWC_B&W.ctb. Which ctb file you use can easily be changed in the Plot-Layout window.

1.13.B. These plot styles are set to force lineweight and linestyles to be set within the layers. Specifics on how the plot styles are used are described in Subsection 2.20. Details about how to setup the plot styles within AutoCAD are provided in Subsection 5.7.

1.13.C. Plot styles are directly related to color which is discussed in Subsection 2.5. and Subsection 5.5.

1.14. USIBWC BLOCKS

1.14.A. All symbols are shown on USIBWC Standard Drawing 26465 (Figure 20) and are provided in the Blocks.zip file.

1.14.B. Drawings produced by or for USIBWC shall use the provided blocks. The blocks include:

1. 010000-06 Centerline (See Figure 20)
2. 014200-20 Detail Reference (See Subsection 2.11. and Figure 6 for more information)
3. 014200-26 Section-Detail Title (See Subsection 2.11. and Figure 5 for more information)
4. 014200-78 Section Down (See Subsection 2.11. and Figure 4 for more information)
5. 014200-78 Section Left (See Subsection 2.11. and Figure 4 for more information)
6. 014200-78 Section Right (See Subsection 2.11. and Figure 4 for more information)

7. 014200-78 Section Up (See Subsection 2.11. and Figure 4 for more information)
8. Break (See Figure 20)
9. Draft (See Figure 20)
10. Flow_Direction (See Figure 20)
11. IBWC Signature Block-Contractor (See Subsection 4.5. and Figure 26 for more information)
12. IBWC Signature Block-In House (See Subsection 4.5. and Figure 27) for more information)
13. IBWC Logo B&W (See Figure 20)
14. IBWC Logo Color (See Figure 20)
15. North Arrow1 (See Subsection 2.15.C. and Figure 7 for more information)
16. North Arrow2 (See Subsection 2.15.C. and Figure 7 for more information)
17. North Rose1 (See Subsection 2.15.C. and Figure 8 for more information)
18. North Rose2 (See Subsection 2.15.C. and Figure 8 for more information)
19. Revision Block (See Subsection 4.4. and Figure 24 for more information)
20. SBU-Cover (See Subsection 2.19. and Figure 9 for more information)
21. SBU-Page (See Subsection 2.19. and Figure 10 more information)
22. Scale_B2 (See Figure 20)
23. Scale_B3 (See Figure 20)
24. Scale_B4 (See Figure 20)
25. Scale_B5 (See Figure 20)
26. Scale_L2 (See Figure 20)
27. Scale_L3 (See Figure 20)
28. Scale_L4 (See Figure 20)
29. Scale_L5 (See Figure 20)
30. Weld (See Figure 20)

1.15. USIBWC DRAWING NUMBER

1.15.A. All finalized drawings will be assigned a USIBWC drawing number.

1.15.B. When Contractors create drawings from scratch, they may assign any drawing number they choose to the document.

1.15.C. Record drawings shall use the same number as the original construction drawing.

1.15.D. See Subsection 4.7.B. for additional details on assignment of numbers and placement within the drawing border.

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SECTION 2 - DRAFTING STANDARDS

2.1. DRAFTING SOFTWARE

2.1.A. All drawings shall be produced and provided in AutoCAD Civil 3D. Any references to AutoCAD refer to AutoCAD Civil 3D version.

2.1.B. AutoCAD 2018 Civil 3D or newer shall be used for drawing files.

2.1.C. At this time, USIBWC will not accept drawings in Revit.

2.2. DRAWING SIZE

2.2.A. All USIBWC design and construction drawings shall be drawn in a layout tab at ANSI D (22"x34") paper size. These drawings shall be provided in final pdfs in both ANSI B (11"x17") and ANSI D (22"x34").

2.2.B. Supplemental drawings or drawings for reports and studies may be produced in ANSI A (8.5"x11") as appropriate although half size (ANSI B) drawings at 11"x17" may also be used in these instances.

2.2.C. See Figure 1 for representations of all ANSI drawing sizes.

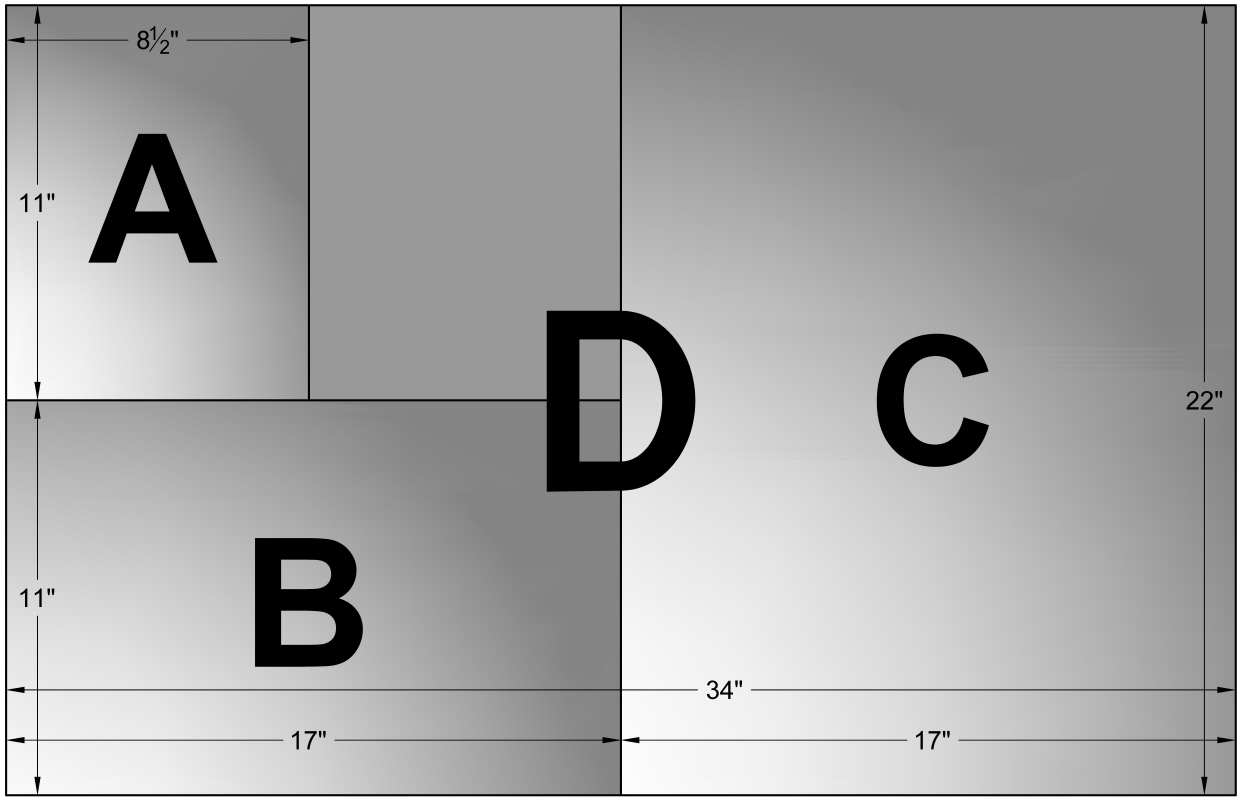


Figure 1-ANSI Drawing Sizes

2.2.D. Available Area with each Border

1. The ANSI D border provides a drafting area of 20.5 " x 29" when printed at full size. See Figure 16 for example.
2. The ANSI A-H border provides a drafting area of 6.5" x 10.5" while the ANSI A-V border provides an area of 8" x 9". See Figure 12 and Figure 14 for examples.

2.3. DRAWING SETUP

Colors, lineweights, linetypes, transparency, etc. shall be layer dependent instead of plot style dependent.

2.3.A. Layer Names

Drawing items shall be associated to the correct layers. Layers shall have meaningful names or shall have a document provided that details what each layer contains. Use of National CAD Standard (NCS) or USACE standard drawing layer names is acceptable.

2.3.B. Units

Drawing settings shall include the correct units of either US survey or international feet. Drawings produced for USIBWC projects in California, New Mexico, and Texas shall use US survey feet while projects in Arizona shall use international survey feet. The distinction shall be set within AutoCAD's drawing settings. The choice is under 'Imperial to Metric conversion' in the top center of the AutoCAD window (see Figure 2).

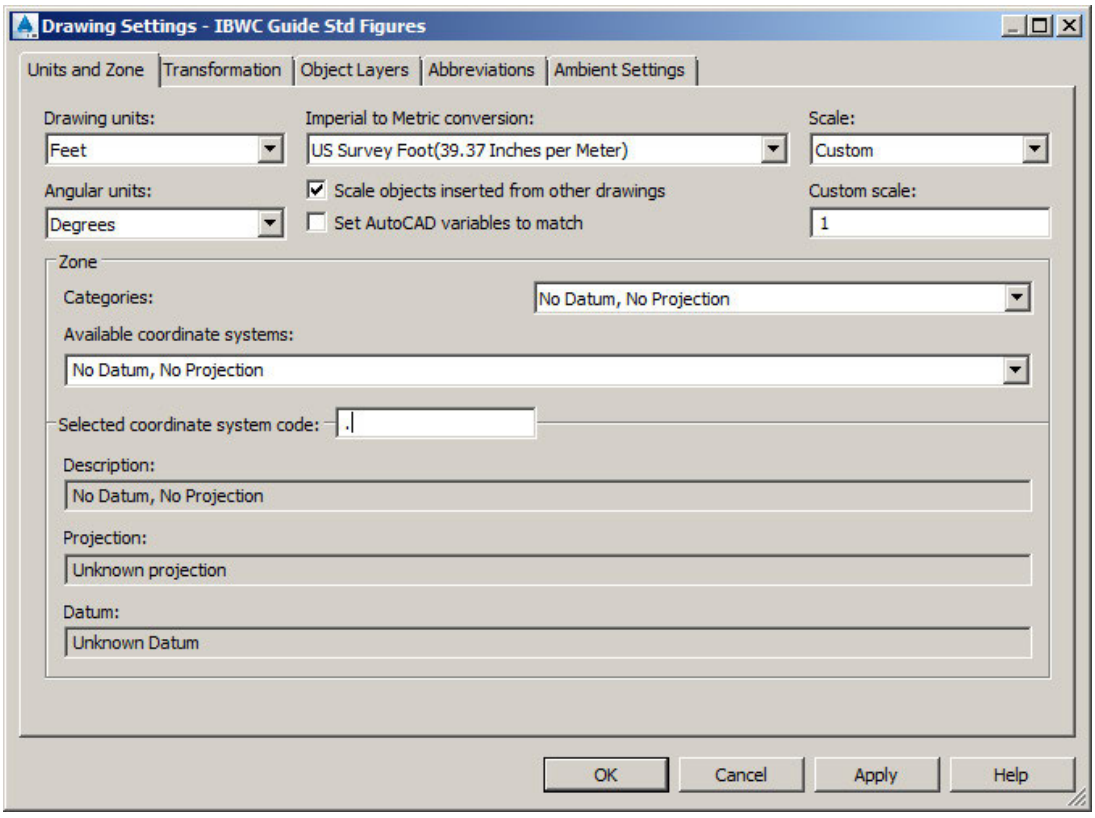


Figure 2-AutoCAD Drawing Settings Window

2.3.C. Coordinates
When a drawing is set to state plane coordinates, the correct coordinate system shall be set in the AutoCAD drawing settings. When the datum zone is set, the 'Imperial to Metric conversion' automatically sets to the correct unit.

2.3.D. Xrefs
Drawings and images attached to AutoCAD files via cross referencing shall be saved with **relative paths**. AutoCAD refers to cross referenced files as xrefs.

1. Do not nest xrefs. This means that xref file DATA shall not contain an xref. All xref files shall standalone.
2. Do not apply different names xrefs with the same data. For example if the project has two phases, do not name one xref DATA PHASE 1 and then name another DATA PHASE 2 when they are the same file.
3. When AutoCAD files are provided to USIBWC, the file structure shall be preserved so that these xrefs load automatically.
4. Once drawings have been finalized and accepted by USIBWC, two copies of the drawings shall be made. One copy shall contain all of the files and xrefs in their set file structures. The other copy shall have all of the xrefs bound to the files using XREFBIND or Insert Ribbon commands; these bound files shall be able to stand alone without any supporting files.

2.4. AUTOCAD MODEL AND LAYOUT VIEWS

All data shall exist in model space (AutoCAD model tab). The border, seals, and appropriate annotations shall be in paper space (AutoCAD layout tab).

2.5. COLORS

2.5.A. While most drawings are produced and printed in black and white, items are not drawn in AutoCAD in black and white. Color is used to improve clarity of the drawing on the computer monitor. There are 255 standard colors available in AutoCAD. All of the standard colors are shown on USIBWC Standard Drawing 26441 (Figure 18).

2.5.B. Remember that with rare exceptions, the color of items shall be set to "ByLayer" allowing easy control of the presentation of the drawing.

2.5.C. Regardless of the color of an item, it will plot black and white if the black and white plot style is used. This allows great flexibility in drafting since colors can be chosen based upon their computer screen contrast. However, be aware that when the color plot style is used, that whatever color an item is, that is the color that it will plot With color drawings, drafters often make most layers white (printing black) in AutoCAD which makes it extremely difficult to separate and view items on the computer screen. Besides this, black and white printers are much more common and requiring color on a drawing to separate items can lead to confusion. Having drawings that always print correctly, whether on a color or black and white printer means that black and white drawings are always preferred.

2.5.D. The color borders may be used in the black and white files at the user's discretion. The only visual difference will be that the IBWC logo prints in color instead of black and white when printed on a color printer.

2.5.E. USIBWC's provided ctb files are almost a clean version with no tweaks. This was done intentionally since ctb files are almost always lost and AutoCAD files need to be able to be

printed correctly years down the road. All items that can be placed in a ctb file, such as lineweight, shall be placed in the layers instead.

2.5.F. USIBWC's ctb files do offer six screened colors. It is still preferred that screening be applied to layers to ensure that the data is not lost, but Paragraph 5.5.D. provides details on the screening available in the ctb files.

2.6. LAYERS

2.6.A. IBWC Blank Drawing ??.dwg and the associated templates are preloaded with common layers already set. Table 2 lists these layers as well as their preset colors and lineweights.

Table 2-Common Layers in Blank Drawings

LAYER NAME	COLOR in Model Space	PLOT COLOR	LINEWEIGHT	DESCRIPTION
G-ANNO-CL	Magenta	White	0.024	Centerlines
G-ANNO-DIMS	White	White	0.010	Dimensions
G-ANNO-GRID	8	White	0.012	Table Grid
G-ANNO-NOTE	Yellow	White	0.014	Notes, etc.
G-ANNO-NPLT	Magenta	---	0.000	No Plot
G-ANNO-SYMB	Red	White	0.024	Scales, north arrows, section cuts, detail bubbles, etc.
G-ANNO-TEXT-080	Magenta	White	0.008	Text Size 0.080
G-ANNO-TEXT-100	Blue	White	0.010	Text Size 0.100
G-ANNO-TEXT-120	Yellow	White	0.010	Text Size 0.120
G-ANNO-TEXT-140	White	White	0.014	Text Size 0.140
G-ANNO-TEXT-175	Red	White	0.020	Text Size 0.175
G-ANNO-TEXT-200	Green	White	0.024	Text Size 0.200
G-ANNO-TEXT-240	30	White	0.028	Text Size 0.240
G-ANNO-TTLB	White	White	0.028	Border
G-ANNO-TTLB-DATA	Cyan	White	0.010	Border Data (Text that changes)
G-ANNO-TTLB-LOGO	White	White	0.000	IBWC Logo Linework
G-ANNO-TTLB-LOGO-HTCH	White	White	0.000	IBWC Logo Hatching
G-ANNO-TTLB-NPLT	Red	---	0.010	Border No Plot

2.6.B. Do not place any data on the AutoCAD layer "defpoints." AutoCAD uses this layer and data placed there cannot be printed or handled independently from AutoCAD's data.

2.7. LINEWEIGHTS

USIBWC Standard Drawing 26441 (Figure 18) provides examples of different lineweights. Table 3 lists common lineweights for items on drawings.

Table 3-Examples of Lineweights

PURPOSE	LINEWEIGHT
Section cutting plane lines	0.024"
Drawing match lines	0.028"
Concrete Reinforcement	0.020"
Main power circuits	0.028"
Auxiliary power and field circuits	0.020"
Cable and instrument transformer circuits, small wiring	0.014"
Panel and device outlines, non-current carrying parts	0.007"

2.8. DRAWING LETTERING

Text on all AutoCAD drawings shall be per USIBWC styles. The title sheet lettering is not required to meet this requirement. Any legible font may be used on the title sheet. See Subsection 5.2. for details of USIBWC text style settings.
Section and detail titles shall use Standard_Bold. Drawing notes shall use Standard. The other text styles may be used as appropriate to produce a clear, readable drawing.

2.8.A. Text Sizes

Lettering on drawings must be legible when drawings are reduced to half size. This applies to concept and design development drawings as well as construction documents. In no case shall text be smaller than .080".

1. USIBWC Standard Drawing 26441 (Figure 18) and Table 4 provide examples of text sizes.

Table 4-Examples of Text Sizes

PURPOSE	CAPITALIZATION	HEIGHT	LINEWEIGHT
Notes	Sentence case	0.120"	0.120"
Dimensions	Sentence case	0.120"	0.120"
Titles	ALL CAPS	0.175"	0.020"
Detail Numbers	N/A	0.175"	0.020"
Section Letters	ALL CAPS	0.175"	0.020"
Subtitles	ALL CAPS	0.140" or .120"	0.160"
Stations	N/A	0.100"	0.010"
Elevations	N/A	0.100"	0.010"

2.9. DRAWING SCALE

Items within drawings **shall be drawn to scale** although the scale does not always need to be indicated. Architectural floor plan drawings should be plotted at the same scale as structural and civil floor plan drawings.

2.9.A. Scales

1. When scales are provided on drawings, graphic scales (e.g. bar scales or line scales) shall always be used.

2. In no case shall numeric scales be provided without graphic scales. Graphic scales may be provided without numeric scales.
3. The scale selected shall be appropriate for high resolution and legibility to include reduced copies (half sized).

2.9.B. Exaggerated Scale
In cases where it is necessary to show the vertical scale differently from the horizontal scale of the view (often in profiles), the vertical scale or exaggeration shall be clearly shown alongside the exaggerated view.

1. Vertical exaggeration shall be only enough to clearly show the required details.

2.10. DIMENSIONING

2.10.A. All drawings shall be dimensioned using USIBWC standard dimension styles.

2.10.B. Dimensions lines shall be broken and whenever possible, the text shall be centered in the dimension. Dimensions should be placed with the text parallel to the drawing border. Vertical dimensions can be placed with the text running vertically or horizontally, depending upon the amount of space available and the readability of the text alignment.

2.10.C. Foot and inch marks shall be shown on dimensions. The precision of the dimensions (i.e., to the nearest ½ inch or nearest 0.001 foot) shall be as appropriate for the project and the work being performed.

2.10.D. Angles shall be shown using decimal degrees when showing structural or layout angles. Angles for surveys and bearings shall be shown using degrees-minutes-seconds by the appropriate quadrant.

2.10.E. See Subsections 1.11. and 5.3. for information on the USIBWC standard dimension styles and the AutoCAD settings used. See Subsection 1.7. for appropriate drawing units.

2.11. TYPES OF VIEWS

2.11.A. Views and cutting planes shown on drawings shall be labeled to clearly identify how the view was developed. Different views include sections, details, elevations, plan views, and profiles.

2.11.B. Sections
A section is a vertical plane adjacent to or cut through an object or structure.

1. Sections shall always be drawn to scale although the scale does not need to be noted.
2. Sections shall be identified by **letter** using the symbols indicated in Figure 4.
    a. The only exception to using letters to define sections are when typical sections are used to show general work requirements. Typical sections may be identified with Roman numerals instead of alphabetically generated letters.
3. No two sections within a set of drawings shall contain the same letter identification. Sections shall be labeled consecutively alphabetically, excluding the letters I, O, and Q. If the alphabet is exhausted, additional sections shall be indicated by double letters such as AA, AB, etc.

4. AutoCAD Block 014200-78 Section
Sections shall be identified within a drawing using Blocks 014200-78 Section. The four variants of Block 014200-78 of down, up, left, and right are shown in Figure 4.
Unless it makes the drawing less readable, a line shall be drawn between each section symbol as indicated in Figure 3. This line shall be placed on the same layer as the section symbol (G-ANNO-SYMB see Table 2) and shall have a lineweight of at least 0.024" (see Table 3).

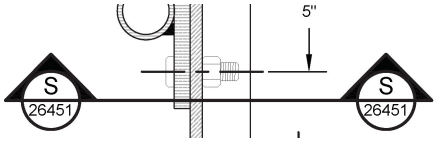


Figure 3-Example of Section in a Drawing

In Blocks 014200-78, the section letter shall be in the top half of the circle while the drawing number where the actual section is shown shall be in the bottom half of the circle. The blocks for the section symbols are included in the base border drawings as well as in Blocks.zip (Subsection 1.14.). Scale is preset for insertion directly into layout.

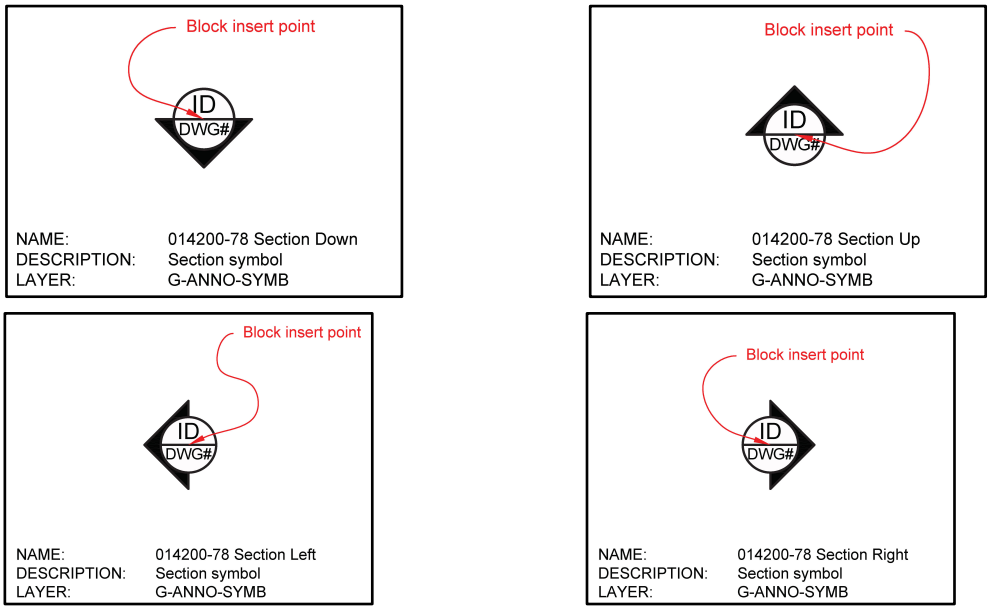


Figure 4-Block 014200-78 Section Cut Reference
Two non-printing points are provided within the circle as a guide for placing text at the correct locations if block is not used or if text must be redone.

5. AutoCAD Block 014200-26 Section-Detail Title
The same block is used to title sections and details. This block may also be used to title views, figures, etc.
   a. Section and detail titles may be as simple as "Section B" or "Detail 5" or may be more descriptive such as "Typical Levee Section" or "Guardrail Connection Detail."
   b. The section letter shall be in the top half of the circle while the drawing number where the section reference is shown (Block 014200-78) shall be in the bottom half of the

circle. If this block is only used as a title and there is no referring drawing, leave the bottom half of the circle blank.

c. Please ensure that sections are called via only a single letter. For example, in Figure 3, the section would be identified as Section S, not Section SS or Section S-S. If geological cross sections are provided in a drawing, this requirement can be ignored since a geological cross section will identify both the starting point and the ending point.

d. This block is included in the base border drawings as well as in Blocks.zip (Subsection 1.14.). Ensure that the line under the title is extended as necessary for the full title. Scale is preset for insertion directly into layout.

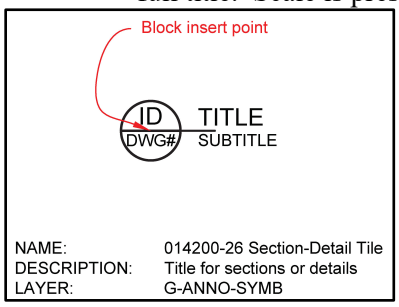


Figure 5-Block 014200-26 Section-Detail Title
Two non-printing points are provided within the circle as a guide for placing text at the correct locations if block is not used or if text must be redone.

2.11.C. Details

A detail is a special drawing that shows a small part of the construction at a larger scale to indicate how the components fit together.

1. Details shall always be drawn to scale although the scale does not need to be noted.
2. Details shall be identified by **number** using the symbols indicated in Figure 6.
3. Details shall be labeled by Arabic numerals increasing sequentially from 1. No two details within a set of drawings shall contain the same identification number.
4. AutoCAD Block 014200-20 Detail Reference
   Unlike other blocks that are usable without exploding, explode Block 014200 (Figure 6) after it is inserted. Resize the dashed circle as needed to identify area of detail. Adjust linetype scale to ensure that circle shows as dashed in layout. Adjust the line connecting the detail circle to the dashed circle as needed on the drawing. The lineweights of both the line and the circle shall be at least 0.024" (see Table 3). A heavier lineweight may be required to ensure that line is visible.
   a. If a circle does not fit well with what needs to be identified as being detailed, change the geometry, but ensure that the linetype and lineweight remains the same. For example, ovals or rounded rectangles can be used.
   b. The detail number shall be in the top half of the circle while the drawing number where the actual detail is shown shall be in the bottom half of the circle.
   c. This block is included in the base border drawings as well as in Blocks.zip (Subsection 1.14.). Scale is preset for insertion directly into layout.

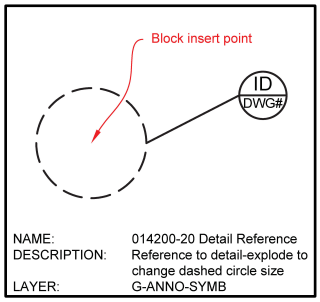


Figure 6-Block 014200-20 Detail Reference

Two non-printing points are provided within the circle as a guide for placing text at the correct locations if block is not used or if text must be redone.

2.11.D. Elevation

An elevation is a view of building from one side. In essence, it is an external section of a building although section symbols (Figure 4) are not used. Elevations are usually identified as Front Elevation, West Elevation, North Elevation, SE Elevation, etc. Identification of elevations shall use Block 014200 (Figure 5).

1. Use of elevations instead of sections is only appropriate with buildings and some structures.

2.11.E. Profiles

Profiles are a linear representation of a structure, feature, or water surface. Profiles shall be shown on a grid indicating both horizontal and vertical coordinates. In cases where it is necessary to show the vertical scale differently from the horizontal scale, the vertical scale or exaggeration shall be clearly shown alongside the exaggerated view. Vertical exaggeration shall be only enough to clearly show the required details.

1. Profiles shall show all utilities and structures that intersect the project as well as their elevation and stationing.
2. For flood control projects, profiles shall include lines indicating the existing top of levee/structure, to be constructed top of levee/structure, and the 100 year water surface elevations. All items shown in profile shall have their elevation in text format along the bottom of the profile. These elevations shall be provided at each station and at any beginning or ending point of construction.
3. The 'to be constructed' top of levee/structure line shall include slopes between vertical change points. The station of each vertical change point shall be identified.

2.11.F. Plan View

A plan view is a horizontal view such as a map or the view from above a structure.

1. Plan views shall, at a minimum, include current site topography, USIBWC's ROW, existing levee/structure centerline with stationing, all utilities within USIBWC's ROW, any drains, pipes, canals, culverts, or other water conveyance structures within USIBWC's ROW, any structures within or adjacent to USIBWC's ROW, boreholes, encroachments, and to be constructed topography.
2. If the drawing becomes too cluttered, the to be constructed topography may be shown on a separated plan view.

2.12. INCLUSION OF PREVIOUSLY PRODUCED DRAWINGS

2.12.A. Previously produced drawings are drawings completed by a Government agency or other individual/company, containing signatures and/or seals. They may be design, construction, manufacturer's, shop, or as-built drawings. They are not drawings produced by USIBWC's designer or the Contractor during the completion of their Contract/Task Order with USIBWC.

2.12.B. Information Only Drawings
When copies of previously produced drawings that show existing features, equipment, or installations are included, they shall be marked as 'Information Only.'

1. Information Only drawings shall be created from a quality reproduction of the original drawing.
2. The original drawing shall not be modified except to place a line through the original title block and to place the words "INFORMATION ONLY" adjacent to the title block.
3. Information Only drawings shall not be included within the USIBWC drawing border.

2.12.C. Modification of Previously Produced Drawings
If a previously produced drawing is modified in any manner, it shall be included within the USIBWC drawing border used for this project and shall have the designer stamp the drawing. Modifications to previously produced drawings shall be clearly delineated from the original drawing.

1. Sometimes a previously produced drawing needs to be modified but the only copy available is not of sufficient quality to ensure that the items noted can be clearly read. In this case, excise the part of the drawing that needs to be modified, insert it into the USIBWC drawing border, mark the changes, etc. but provide clear notes of the source of the drawing. Also include the full drawing as an Information Only copy.

2.12.D. Inclusion for Construction

1. When copies of previously produced drawings are used to detail required construction for this project with no modifications, they shall simply be attached to the drawings created for the project.
   a. Examples of such drawings include DOT drawings for roadway items or USIBWC Standard Drawings.
   b. Construction drawings shall be created from a quality reproduction of the original drawing.
   c. The original drawing shall not be modified in any manner, including insertion into the USIBWC drawing border.
2. USIBWC Standard Drawings
   Standard drawings are those that represent items common across all of USIBWC or common across a USIBWC project. Items within standard drawings shall not be reproduced within another drawing unless a project specific revision is required. At this time, the following represents all of USIBWC's Standard Drawings.
   a. SD-26422 Lower Rio Grande Flood Control Projects, Heavy Duty Vehicular Gate
   b. SD-25084 Levee Ramps
   c. SD-26409 Rio Grande Canalization Project and Rio Grande Rectification Project, Heavy Duty Vehicular Gate
   d. SD-26424 Rio Grande Canalization Project, New Mexico Project Signs
   e. SD-26441 Drawing Layouts: Colors, Lines, and Text (Figure 18)

f. SD-26442 Drawing Layouts: Hatch Patterns (Figure 19)
g. SD-26465 Drawing Layouts: Symbols (Figure 20)

3. Minor changes can be indicated to standard drawings without modifying them. For example a construction drawing may state to build a vehicular gate per SD-26409 but to paint it red instead of yellow or reference SD-25084 but require a reduced landing area. When the directions for construction are clear, do not modify standard drawings; only attach them to the drawing set.

2.13. SEALS

Each drawing must bear the seal and signature of the responsible design professional. Pdf plans may have digital signatures and seals depending upon the regulations of the state within which the work is being performed. AutoCAD files shall not contain official engineer's seals/stamps. The xref for seals and signatures may be left "hanging" or "not found" within AutoCAD files (this is the only situation where a hanging xref is allowed); the seals/stamps do not need to be deleted from the files.

2.14. COVER/INDEX SHEET

1. Provide code certification statement for compliance with specified codes and standards by each discipline with the professional seal and signature. The intent is to formally recognize the responsibility for compliance.
2. The title/cover sheet, if used, for the drawings shall not contain a space for signatures of USIBWC personnel.

2.15. NOTES, GENERAL NOTES, TEXT, ETC.

2.15.A. Notes ***shall not*** be printed in all capital letters. This is extremely hard to read.

1. In order to avoid confusion in the capitalization on drawings and to ensure uniform practice, all descriptive statements, notations, explanations, etc. on drawings shall be in accordance with the same grammatical rules used in writing a letter. No word should be started with a capital letter unless it begins a sentence, is abbreviated, or is a proper noun.

2.15.B. On sheets dedicated to notes (e.g., General Notes or Structural Notes), instead of numbering each group of notes starting with 1, number the first group of notes as 1.x, the next group as 2.x, etc. *(example below)*. This eliminates confusion when someone mentions Note 5 on Drawing XXX.

GENERAL NOTES	CONCRETE NOTES
1.1	3.1
1.2	3.2
1.3	
SURVEY NOTES	
2.1	
2.2	

2.15.C. Except for rare exceptions, abbreviations shall be shown without periods.

2.15.D. Titles, subtitles, and items that require additional attention shall be in all capital letters.

2.15.E. On plan and profile drawings, existing information shall be depicted in accordance with English grammatical rules whereas information for new or proposed features may be depicted with all capital letters.

2.16. NORTH ARROW

A north arrow must be included on all site drawings and plan view drawings. Four arrows are provided for use on USIBWC drawings. Two are true arrows (Figure 7) while two are compass roses (Figure 8). These blocks are included in the base border drawings as well as in Blocks.zip (Subsection 1.14.).

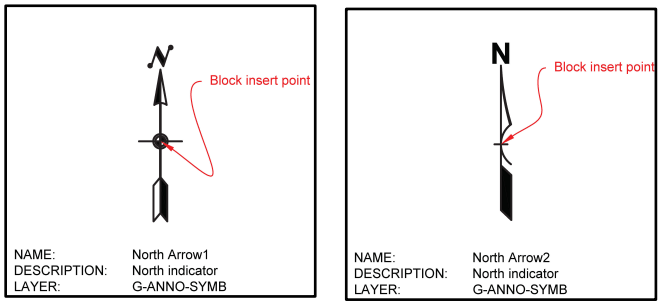


Figure 7-North Arrow Blocks

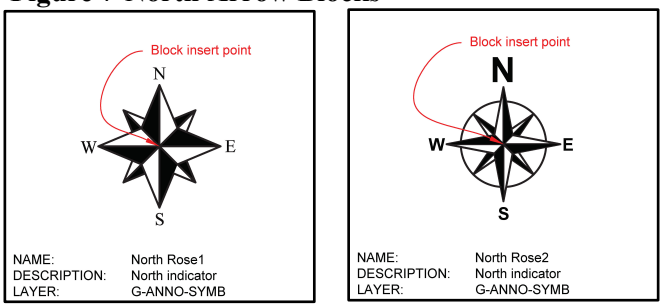


Figure 8-North Rose Blocks

2.17. LEGEND

Ensure that all symbols and abbreviations are explained in a legend in the drawings. If a general legends drawing is used, do not add legends on individual drawings; the general legend sheet covers all drawings within the set.

2.18. ORIENTATION

2.18.A. General Plan and Layout Drawings

Detail maps, plans, and layout drawings for dams, reservoirs, and other water conveyance structures shall be oriented so that the direction of the stream flow is toward the top or toward the right side of the drawing.

2.18.B. Elevations, Vertical and Horizontal Sections

All sections and elevation paralleling the direction of stream flow shall be drawn with the direction of flow from left to right. Vertical sections and elevation normal to the direction of flow of a stream of canal shall be looking downstream

2.18.C. Bank Identification

River, canal, and stream banks are always identified as left and right when looking downstream.

2.18.D. Cross Sections

When multiple cross sections are shown on one drawing, they shall continue from the top of the drawing to bottom and left to right with their stationing increasing.

2.19. DRAWING SECURITY REQUIREMENTS

2.19.A. The two statements below must be prominently labeled in Standard_Bold type style in a size appropriate for the document or portable electronic data storage device or both, if applicable. On a set of construction drawings, for example, the statements must be in a minimum of 14 point or equivalent. Use of these blocks on the layout meet this requirement.

1. The sensitive but unclassified (SBU) markings must be used regardless of the medium through which the information appears or is conveyed.
2. The construction drawings/plans are to be disseminated only to those requiring the information necessary for design, construction bidding, construction coordination, or other design-build processes.

2.19.B. Block SBU-Cover

Figure 9 or equivalent text must be affixed to the cover or first page of any document (such as the cover page on a set of construction drawings) containing SBU pages. This block is included in the base border drawings as well as in Blocks.zip (Subsection 1.14.).

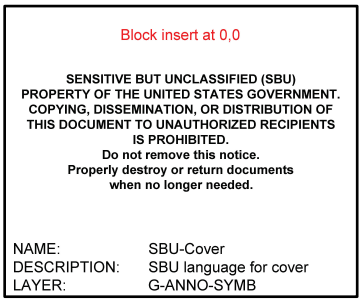


Figure 9-Block SBU-Cover

2.19.C. Block SBU-Page

Each page containing SBU information must have Figure 10 or equivalent text imprinted or affixed. This block is included in the base border drawings as well as in Blocks.zip (Subsection 1.14.).

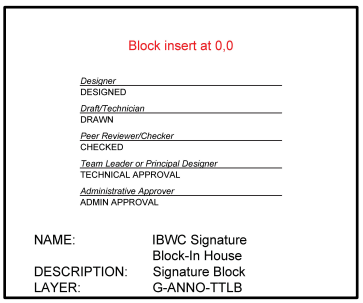


Figure 10-Block SBU-Page

2.20. PLOT STYLES

2.20.A. Color dependent plot styles, also known as ctb files, detail how AutoCAD presents each of its 255 colors to a printer. Common plot properties are incorporated into plot style tables. USIBWC's ctb files can support plotting to all devices.

2.20.B. If you wish to plot your drawing in color, use IBWC_Color.ctb. If you wish to plot the drawing in black and white, use IBWC_B&W.ctb. Which ctb file you use can easily be changed in the Plot-Layout window.

2.20.C. When providing a dwg file to anyone, ensure that they have the proper ctb file to print it. If not, the drawing will not match what was previously produced.

2.20.D. See Subsection 2.5. for a discussion on whether to create color or black and white drawings.

2.21. PLOTTING

2.21.A. IBWC Blank Drawing xx.dwg and associated templates contain four preset "Page Setup" configurations. These configurations can be viewed in the Page Setup Manager or in the Plot windows. The four preset layout configurations are:

1. IBWC pdf 11x17 Half Size-xx
2. IBWC pdf 22x34 Full Size-xx
3. IBWC pdf 8.5x11-H-xx
4. IBWC pdf 8.5x11-V-xx

2.21.B. The appropriate IBWC layout page configuration shall be used to print all drawings. Each configuration is preset to AutoCAD DWG to PDF.pc3 as the plotter and the associated ANSI full bleed page size. Also set is the ctb plot style and the plotting resolution.

1. To open the Page Setup Manager, click on any layout tab. Next, right click on the layout tab and choose "Page Setup Manager…" Figure 11 will open.
2. In the Page Setup Manager, you can assign any of the configurations to the current layout.

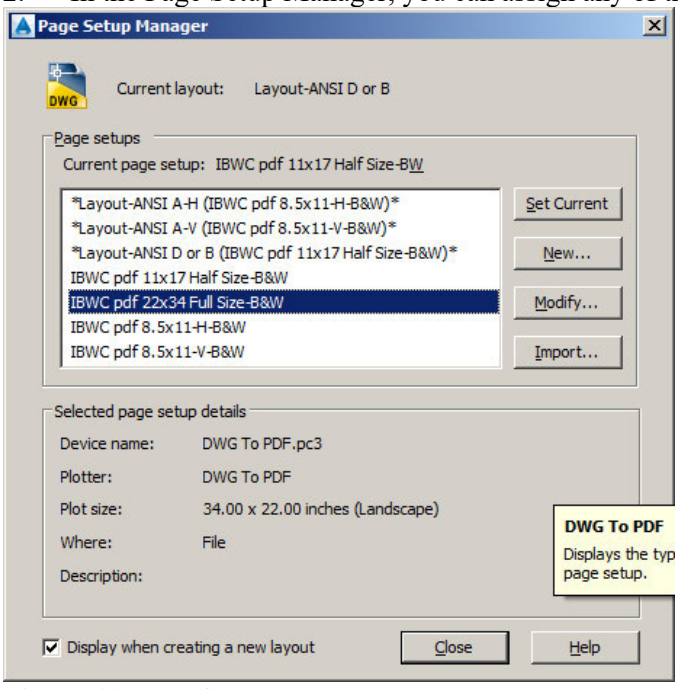


Figure 11-Page Setup Manager

3. The Page Setup Manager allows you to import configurations from other files. This is handy if one of the preset IBWC configurations is lost.

4. For full details on how each IBWC layout page configuration is setup, see Paragraphs 5.8.D., 5.8.E., 5.8.F., and 5.8.G.

2.22. RELATIONSHIP BETWEEN DRAWINGS AND SPECIFICATIONS

2.22.A. In preparing drawings and specifications, the question often arises as to whether a particular instruction should be placed in the specifications, shown in the form of notes on the drawings, or both.

1. As a rule, information should not be included in both the specifications and the drawings. Covering requirements in multiple places often leads to ambiguities or conflicts, especially if information is changed in one location but not the other.
2. Drawing notes should be used when it is necessary to communicate and clarify information that cannot be represented by a particular drawing or detail alone, and the information cannot be highlighted advantageously in a specification.
3. If the instructions apply to only one particular item, drawing notes may be appropriate. For example, if only one connection requires a high strength bolt, a note to that effect should be placed beside the detail for that connection. If instead, all field connections are to be high strength bolts tightened to a specific tension; this information would be better suited to a specification, as it would then be unnecessary to repeat this information on all affected drawings.
4. Drawing notes may also be appropriate if it is necessary to highlight specific information (e.g., references to existing underground utilities, dimensional clarifications, work zone limitations related to noise or dust, locations of suitable soil, etc.) that could otherwise go unnoticed in a specification.
5. Drawing notes are not a specification and should not be used to revise or in lieu of the specifications. Drawing notes may refer a Contractor to the appropriate specification section.

2.22.B. Please note that many USIBWC Standard Drawings do not meet the requirements of this Subsection. USIBWC Standard Drawings are often provided as their own standalone document and therefore must contain all data required. Therefore do not use them as an example of information that should be placed on drawings versus information that should be within the specifications.

2.22.C. Drawing

1. Drawings shall show the following types of information, as appropriate:
   a. Location of the work
   b. Details and dimensions
   c. Number or quantities
   d. Plan notes
2. Exceptions for Placing Specification Type Information on Drawings
   a. The exception for placing type/quality of materials, design requirements, and other items that are normally specification only information is on a "note" drawing (general or structural) whereby critical data for the design is presented with the assumption that the specifications are no longer with the as-built drawings. Contractor should list strengths of materials, types of materials, design standards, codes used, design requirements, etc. so that others may review drawings years later and know exactly

what the design basis or requirements were. Special care shall be taken to ensure that these data are consistent with the specifications.

b. Therefore, on a General Notes or Structural Notes drawing, place the project's design criteria. It is preferred that all design criteria be grouped together.

2.22.D. Specifications

1. Specifications shall describe the following types of information, as appropriate:
   a. Type and quality of materials
   b. Quality of workmanship,
   c. Methods of fabrication, installation, and construction
   d. Testing requirements
   e. Alternates and options
   f. Method of measurement and payment

2.23. BRAND NAME

2.23.A. The use of brand name products anywhere within the technical specifications or construction drawings is not allowed unless a sole source justification is provided.

1. This includes statements such as: Simpson Strong-Bolt 2 or equal.
2. This also includes listing multiple brand name products. The product requirements, performance characteristics, physical functions, or salient characteristics shall be listed, not their brand names.

2.23.B. Since Federal procurement must be open to all available items, without preference, the Contractor shall provide detailed technical requirements instead of simply calling out a brand name item.

1. Technical requirements include, but are not limited to: material composition, material strength, bonding capacity, and ASTM standards.
2. Performance requirements are allowable if they can reasonably be tested during construction. Examples of acceptable performance requirements include, but are not limited to: compaction, ACI code compliance, compressive strength of concrete, and paint thickness. Examples of unacceptable performance requirements include, but are not limited to: ACI code compliance or ICC code compliance..

2.23.C. The Contractor shall take care that during the writing of the product requirements that they become so narrow that only one brand name product can fulfill them. This backdoor method of choosing a brand name (sole source) product is not allowed.

2.23.D. Sole Source Justification

The Contractor shall include in their Design Report a section which addresses why a specific brand name product shall be used. The section must include details as to why this is the only product to be used and why no other item will satisfy the project requirements.

1. The justification should indicate that the use of such item is essential to the Government's requirements, thereby precluding consideration of a product manufactured by another company.
2. Each justification shall contain sufficient facts and rationale to justify the use while ensuring that that the anticipated cost to the Government will be fair and reasonable.
3. A description of the market research conducted and the results shall be provided.

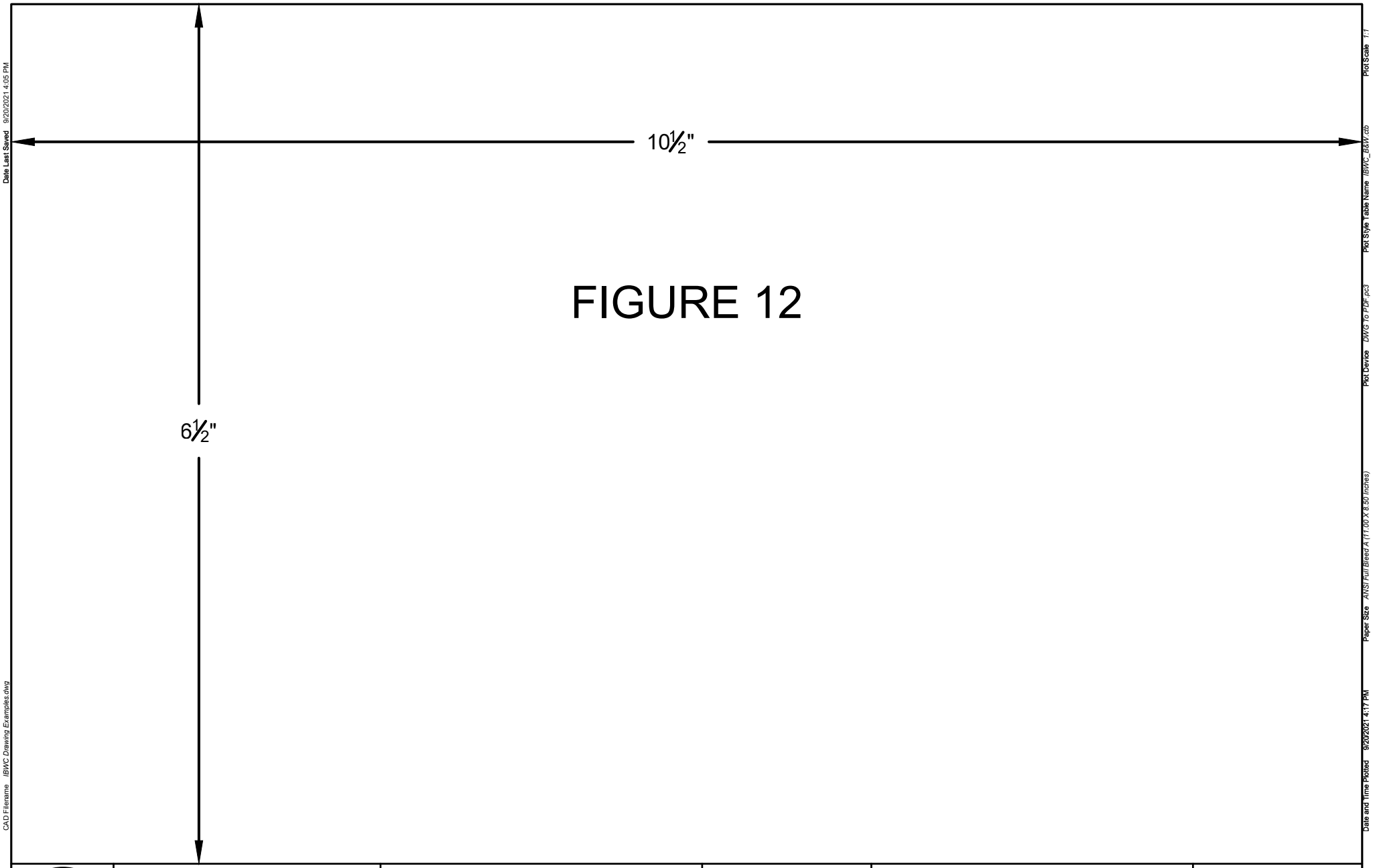


FIGURE 12

International Boundary & Water Commission
United States Section

ABC Excavation & Construction, Inc.

1234 Main St
Any Town, TX 79999

INFORMATIONAL DRAWING

REV NO	SIGNATURE OF DESIGNER AND DATE	DESCRIPTION OF REVISION

Design Contractor's Firm Name
IBWC CONTRACTOR NAME

191BWCxxDxxxx / 191BWCxxTxxxx
IBWC CONTRACT/TASK ORDER

Designer or Subcontractor's Firm Name
DESIGNED BY

IFB/RFP NUMBER
191BWCxxBxxxx

CONTRACT NUMBER
191BWCxxCxxxx

USIBWC HQ-ESD MM-DD-YYYY

INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO
UNITED STATES SECTION

LOWER RIO GRANDE FLOOD CONTROL PROJECT

GEOTECHNICAL ANALYSIS AND ENGINEERING EVALUATION

MAKE BELIEVE LEVEE PROJECT

PRELIMINARY BOREHOLE LOCATION MAP

CONTRACTOR/DESIGNER DRAWING NUMBER
FIGURE 1
SHEET # of ##

USIBWC DRAWING NUMBER
99999-000-00
SHEET # of ##

IBWC Border V20190809 AutoCAD Version 22.0s (LMS Tech)

Date Last Saved 9/20/2021 4:05 PM
CAD Filename IBWC Drawing Examples.dwg
Plot Scale 1:1
Plot Style Table Name IBWC_B&W.ctb
Plot Device DWG to PDF.pc3
Paper Size ANSI Full Bleed A (11.00 X 8.50 Inches)
Date and Time Plotted 9/20/2021 4:17 PM

11"

10½"

8½"

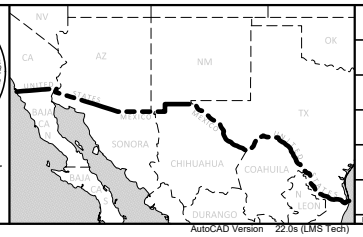
8"

FIGURE 13

0.795" | 2.075" | 2.5" | 1.315" | 2.5" | 1.315"

1½"

International Boundary & Water Commission
United States Section



DESIGN DRAWING

REV NO	SIGNATURE OF DESIGNER AND DATE	DESCRIPTION OF REVISION

Designer
DESIGNED
Draft/Technician
DRAWN
Peer Reviewer/Checker
CHECKED
Team Leader or Principal Designer
TECHNICAL APPROVAL
Administrative Approver
ADMIN APPROVAL
IFB/RFP NUMBER
191BWCxxBxxxx
CONTRACT NUMBER
USIBWC HQ-ESD MM-DD-YYYY

INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO
UNITED STATES SECTION

NOGALES WASTEWATER TREATMENT PLANT

CONCEPUTAL LAYOUT OF
TREATMENT PLANT EXPANSION

CLARIFIER 1

LOCATION MAP

CONTRACTOR/DESIGNER DRAWING NUMBER

USIBWC DRAWING NUMBER
99999-000-00
SHEET x of xx

IBWC Border V20210903 AutoCAD Version 22.0s (LMS Tech)

Date Last Saved 9/20/2021 4:36 PM
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Date and time Plotted 9/21/2021 10:28 AM
Paper Size ANSI Full Bleed A (11.00 X 8.50 Inches)
Plot Device DWG To PDF.pcs
Plot Style table Name IBWC_B&W.ctb
Plot Scale 0.6667:1

8"

FIGURE 14

9"

Contractor may place name and logo anywhere on drawing that does not interfere with presented information.

ABC Excavation & Construction, Inc.
1234 Main St
Any Town, TX 79999

CONSTRUCTION DRAWING

REV NO	SIGNATURE OF DESIGNER AND DATE	DESCRIPTION OF REVISION

International Boundary & Water Commission
United States Section

Design Contractor's Firm Name
IBWC CONTRACTOR NAME

191BWCxxDxxxx / 191BWCxxTxxxx
IBWC CONTRACT/TASK ORDER

Designer or Subcontractor's Firm Name
DESIGNED BY

IFB/RFP NUMBER
191BWCxxBxxxx
CONTRACT NUMBER

USIBWC HQ-ESD MM-DD-YYYY

INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO
UNITED STATES SECTION

RIO GRANDE CANALIZATION PROJECT

MAKE BELIEVE LEVEE WORK

EXCAVATION DETAILS

EXAMPLE OF CONTRACTOR DRAWING

CTR/DESIGNER DWG NUMBER
C502-A
SHEET x of xx

USIBWC DRAWING NUMBER
99999-000-00
SHEET x of xx

8½"

8"

11"

10½"

FIGURE 15

0.795" | 2.5" | 1.315" | 2.4" | 1"

1½"

Date Last Saved 9/20/2021 4:36 PM

CAD Filename IBWC Drawing Examples.dwg

Date and Time Plotted 9/21/2021 10:24 AM Paper Size ANSI Full Bleed A (8.50 X 11.00 Inches) Plot Device DWG To PDF.pc3 Plot Style Table Name IBWC_Color.ctb Plot Scale 0.8377:1

International Boundary & Water Commission United States Section	INFORMATIONAL DRAWING	Designer DESIGNED Draft/Technician DRAWN Peer Reviewer/Checker CHECKED Team Leader or Principal Designer TECHNICAL APPROVAL Administrative Approver ADMIN APPROVAL IFB/RFP NUMBER N/A CONTRACT NUMBER N/A USIBWC HQ-ESD MM-DD-YYYY	INTERNATIONAL BOUNDARY AND WATER COMMISSION UNITED STATES AND MEXICO UNITED STATES SECTION AMISTAD RESERVOIR AND DAM GEOLOGIC MAPPING OF MARL SUBSIDENCE FEATURES	FEATURE 53 CTR/DESIGNER DWG NUMBER SHEET # of ## USIBWC DRAWING NUMBER **99999-000-00** SHEET # of ##

REV NO. | SIGNATURE OF DESIGNER AND DATE | DESCRIPTION OF REVISION

IBWC Border V20210903 AutoCAD Version 22.0s (LMS Tech)

29"

20½

FIGURE 16

CAD Filename
IBWC Drawing Examples.dwg

Sheet/Set Name
####

Plot Style Table Name
IBWC_B&W.ctb

Plot Scale
0.5:1

Paper Size
ANSI Full Bleed B (17.00 X 11.00 Inches)

Plot Device
DWG To PDF.pc3

Date and Time Plotted
9/20/2021 3:48 PM

Date Last Saved
9/20/2021 3:47 PM

AutoCAD Version
22.0s (LMS Tech)

IBWC Border V20210903

International Boundary & Water Commission
United States Section

ABC Excavation & Construction, Inc.

1234 Main St
Any Town, TX 79999

INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO
UNITED STATES SECTION

RIO GRANDE RECTIFICATION PROJECT

MAKE BELIEVE LEVEE WORK

PLAN AND PROFILE

RECORD DRAWING

NO.	BY	DATE	DESCRIPTION OF REVISION

Design Contractor's Firm Name
IBWC CONTRACTOR NAME

191BWCxxDxxxx/191BWCxxTxxxx
IBWC CONTRACT/TASK ORDER

Designer's Subcontractor or Designer's Firm Name
DESIGNED BY

USIBWC HQ-ESD MM-DD-YYYY

EXAMPLE OF CONTRACTOR DRAWING

IFB/RFP NUMBER	CONTRACT NUMBER
191BWCxxBxxxx	191BWCxxCxxxx

CONTRACTOR/DESIGNER DRAWING NUMBER

C4592
SHEET x of xx

USIBWC DRAWING NUMBER

99999-000-A0
SHEET x of xx

34"

22"

FIGURE 17

20 30 40 50 60

CAD Filename
IBWC Drawing Examples.dwg

SheetSet Name
default

Plot Style Table Name
IBWC_Color.ctb

Plot Scale
0.4732:1

Paper Size
ANSI Full Bleed B (17.00 X 11.00 Inches)

Plot Device
DWG To PDF.pc3

Date and Time Plotted
9/20/2021 4:30 PM

Date Last Saved
9/20/2021 4:21 PM

AutoCAD Version
22.0s (LMS Tech)

IBWC Border V20210903

1.60"

4.15"

5.00"

1.60"

0.25"

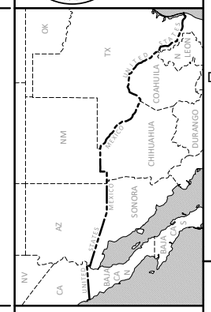
1.00"

0.40"

0.75"

0.75"

International Boundary & Water Commission
United States Section



INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO
UNITED STATES SECTION

RIO GRANDE CANALIZATION PROJECT

MAKE BELIEVE LEVEE WORK

WEST LEVEE

CONSTRUCTION DRAWING

REV NO	SIGNATURE OF DESIGNER AND DATE	DESCRIPTION OF REVISION

Designer
DESIGNED

Draft/Technician
DRAWN

Peer Reviewer/Checker
CHECKED

Team Leader or Principal Designer
TECHNICAL APPROVAL

Administrative Approver
ADMIN APPROVAL

USIBWC HQ-ESD MM-DD-YYYY

EXAMPLE OF IBWC PROVIDED DWG

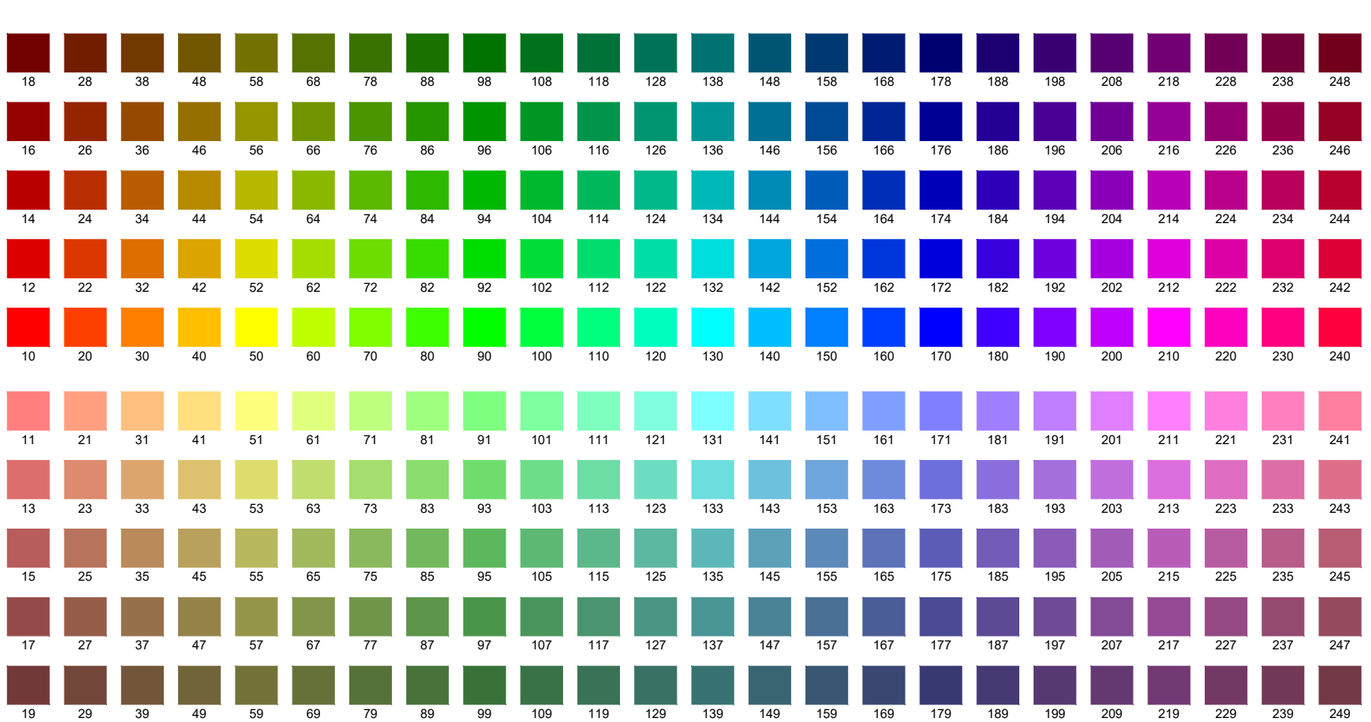
IFB/RFP NUMBER	CONTRACT NUMBER
191BWCxxBxxxx	191BWCxxCxxxx

CONTRACTOR/DESIGNER DRAWING NUMBER

USIBWC DRAWING NUMBER

99999-000-00

2.63"



STANDARD COLORS

GRAY SCALE

TEXT SIZE	STANDARD EXAMPLE	STANDARD BOLD EXAMPLE	STANDARD ITALIC EXAMPLE	LEGEND EXAMPLE
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0.100	AaBbPpSs1256@#&	**AaBbPpSs1256@#&**	*AaBbPpSs1256@#&*	AaBbPpSs1256@#&
0.120	AaBbPpSs1256@#&	**AaBbPpSs1256@#&**	*AaBbPpSs1256@#&*	AaBbPpSs1256@#&
0.140	AaBbPpSs1256@#&	**AaBbPpSs1256@#&**	*AaBbPpSs1256@#&*	AaBbPpSs1256@#&
0.175	AaBbPpSs1256@#&	**AaBbPpSs1256@#&**	*AaBbPpSs1256@#&*	AaBbPpSs1256@#&
0.200	AaBbPpSs1256@#&	**AaBbPpSs1256@#&**	*AaBbPpSs1256@#&*	AaBbPpSs1256@#&
0.240	AaBbPpSs1256@#&	**AaBbPpSs1256@#&**	*AaBbPpSs1256@#&*	AaBbPpSs1256@#&

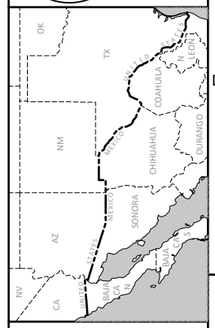
NOTES:

1. These are examples of USIBWC standard color, lines, and text.
2. See USIBWC Drawing and CAD Standards for complete guidelines on creating drawings for USIBWC projects.
3. Linetypes contained in file IBWC.lin with IBWC-Shapers.shx supporting.

LINE THICKNESS	PLOTTED WIDTH mm	PLOTTED WIDTH in	EXAMPLES
Extra Fine	0.13	0.005	
Fine	0.18	0.007	
Thin	0.25	0.010	
Medium	0.35	0.014	
Wide	0.50	0.020	
Extra Wide	0.70	0.028	
XX Wide	1.00	0.039	
XXX Wide	1.40	0.055	
XXXX Wide	2.00	0.079	

LINETYPE DESCRIPTION	LINETYPE NAME	EXAMPLES
Alternate Fence 1	FENCELINE-ALT1	
Alternate Fence 2	FENCELINE-ALT2	
Barbed Wire	BARBED WIRE	
Canal or Ditch	CANAL	
Guardrail	GUARDRAIL	
Proposed Canal or Ditch	CANAL PROPOSED	
Railroad Tracks	RAILROAD	
BORDERS		
County Border	COUNTY	
International Border	INTERNATIONAL	
State Border	STATE	
ROW Border	ROW	
UTILITIES		
Electric Level B	ELEC-LVL-B	
Electric Level C or D	ELEC-LVL-C & D	
Overhead Electric	ELEC-OVERHEAD	
Forcemain Level B	FORCEMAIN-LVL-B	
Forcemain Level C or D	FORCEMAIN-LVL-C & D	
Gasline Level B	GAS-LVL-B	
Gasline Level C or D	GAS-LVL-C & D	
Gasline (1) Level B	GAS-1-LVL-B	
Gasline (1) Level C or D	GAS-1-LVL-C & D	
Sewer Level B	SEWER-LVL-B	
Sewer Level C or D	SEWER-LVL-C & D	
Stormsewer Level B	STORMSEWER-LVL-B	
Stormsewer Level C or D	STORMSEWER-LVL-C & D	
Telecommunications (1) Level B	TELECOM-1-LVL-B	
Telecommunications (1) Level C or D	TELECOM-1-LVL-C & D	
Telecommunications (2) Level B	TELECOM-1-LVL-B	
Telecommunications (2) Level C or D	TELECOM-1-LVL-C & D	
Waterline Level B	WATER-LVL-B	
Waterline Level C or D	WATER-LVL-C & D	

International Boundary & Water Commission
United States Section



INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO
UNITED STATES SECTION

FOR USE ON ALL USIBWC PROJECTS

STANDARD DRAWING

DRAWING LAYOUTS

STANDARD DRAWING

NO.	DESCRIPTION OF REVISION	DATE

Andrea Glover, PE — DESIGNED
Andrea Glover — DRAWN
CHECKED
TECHNICAL APPROVAL
ADMIN APPROVAL
USIBWC HQ-ESD 04-03-2018

COLORS, LINES, AND TEXT

SOLICITATION/RFP NUMBER
N/A
CONTRACT NUMBER
N/A

26441

CAD Filename
SD-26441 USIBWC Dwg Layout Colors.dwg

SheetSet Name
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Plot Style Table Name
IBWC_Color.ctb

Plot Scale
0.5:1

Paper Size
ANSI Full Bleed B (17.00 X 11.00 Inches)

Plot Device
DWG To PDF.pc3

Date and Time Plotted
4/3/2018 10:01 AM

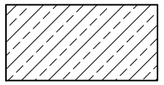
Date Last Saved
4/2/2018 8:46 AM

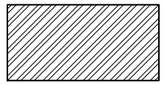
AutoCAD Version
20.0s (LMS Tech)

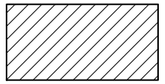
IBWC Border V20170817

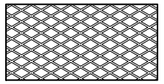
METAL PATTERNS

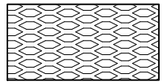

ALUMINUM (IBWC)
Aluminum

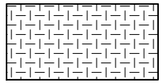

BRASS (AC)
Copper, Brass, or Bronze

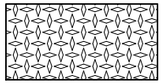

STEEL (AC)
Steel

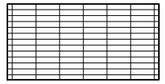

ANSI131 (AC)
Cast Iron, Iron, or Semi-Steel

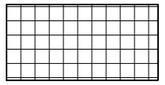

EXPANDED (IBWC)
Expanded Metal Grates or Rungs

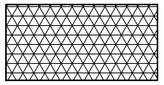

PERFORATED (IBWC)
Perforated Metal Grates or Rungs


D-PLATE (IBWC)
Diamond Plate

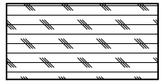

D-TREAD (IBWC)
Diamond Tread

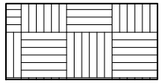

GRATE (AC)
Rectangular Grating

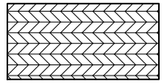

NET (AC)
Wire Mesh

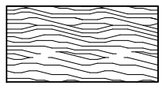

NET3 (AC)
Woven Wire Fencing

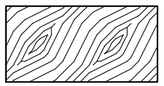
WOOD PATTERNS


CORK (AC)
Cork


AR-PARQ1 (AC)
Wood Flooring

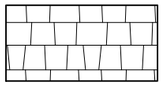

PLYWOOD (IBWC)
Plywood

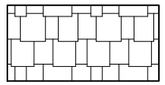

WOOD1 (IBWC)
Finished Wood

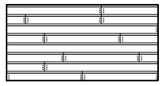

WOOD2 (IBWC)
Finished Wood

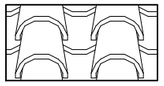
ARCHITECTURAL PATTERNS

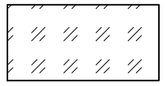

AR-ROOF (AC)
Asphalt Shingles


ROOFING (IBWC)
Shingles

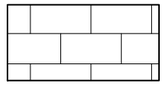

SHAKES (IBWC)
Shake Roof Tiles

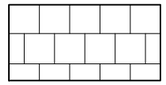

SIDING (IBWC)
Wood Siding

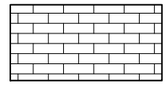

SPANISH (IBWC)
Spanish Roof Tiles

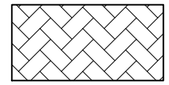

GOST-GLASS (AC)
Glass

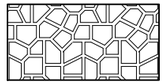
GRAVEL, ROCK, & BRICK PATTERNS


AR-B816 (AC)
8"x16" CMUs

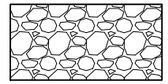

AR-B88 (AC)
8"x8" CMUs

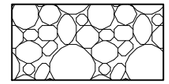

AR-BRSTD (AC)
Standard bricks

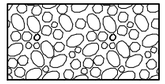

AR-HBONE (AC)
Paving stones


FLAGSTONE (IBWC)
Flagstone


AR-SAND (AC)
Sand

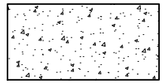

GRAVEL (AC)
Gravel or rock type 1

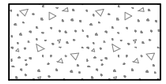

IMPERVIOUS (IBWC)
Gravel or rock type 2


POROUS (IBWC)
Gravel or rock type 3


RIPRAP (IBWC)
Riprap

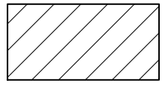
CONCRETE PATTERNS


AR-CONC (AC)
New concrete

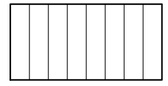

CONCRETE (IBWC)
Existing concrete

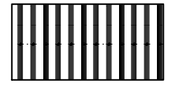

GROUT (IBWC)
Grout or concrete in secondary placement

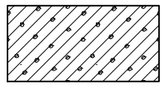
USCS PATTERNS


USCS02 (IBWC)
CL-Low Plasticity Clay


USCS01 (IBWC)
CH-High Plasticity Clay


USCS08 (IBWC)
ML-Low Plasticity Silt


USCS07 (IBWC)
MH-High Plasticity Silt


USCS12 (IBWC)
SC-Clayey Sand

USCS13 (IBWC)
SM-Silty Sand

USCS14 (IBWC)
SP-Poorly Graded Sand

USCS15 (IBWC)
SW-Well Graded Sand

USCS03 (IBWC)
GC-Clayey Gravel

USCS04 (IBWC)
GM-Silty Gravel

USCS05 (IBWC)
GP-Poorly Graded Gravel

USCS06 (IBWC)
GW-Well Graded Gravel

USCS10 (IBWC)
OL-Low Plasticity Organic Silt

USCS09 (IBWC)
OH-High Plasticity Organic Silt

USCS11 (IBWC)
PT-Peat

GEOLOGY PATTERNS

CONGLOMERATE (IBWC)
Conglomerate

SANDSTONE (IBWC)
Sandstone

AR-BRSTD (AC)
Limestone

DOLOMITE (IBWC)
Dolomite

CHERT (IBWC)
Cherty Limestone

CHALK (IBWC)
Chalk or Marl

A-LIMESTONE (IBWC)
Clayey, Shaley, or Argillaceous Limestone

GRAYWACKE (IBWC)
Graywacke

ANSI36 (AC)
Shale

ANSI33 (AC)
Sandy Shale

CLAY (AC)
Clay

MUDST (AC)
Mudstone or Siltstone

COAL (IBWC)
Coal

LINE (AC)
Carbonaceous Shale

BRECCIA (IBWC)
Breccia

SLATE (IBWC)
Slate

SOAPSTONE (IBWC)
Soapstone

GNEISS (IBWC)
Gneiss

SCHIST (IBWC)
Schist

C-SCHIST (IBWC)
Contorted Schist

ANDESITE (IBWC)
Andesite

BASALT (IBWC)
Basalt

DIORITE (IBWC)
Diorite

GABBRO (IBWC)
Gabro

GRANITE (IBWC)
Granite

RHYOLITE (IBWC)
Rhyolite

TUFF (IBWC)
Tuff

NOTES:

1. These are examples of USIBWC standard hatch patterns.
2. See USIBWC Drawing and CAD Standards for complete guidelines on creating drawings for USIBWC projects.
3. IBWC pattern definitions contained in file IBWC_Patterns.pat.

LEGEND

HATCH PATTERN NAME
(AC) = AutoCAD system pattern
(IBWC) = IBWC provided pattern
HATCH DESCRIPTION

International Boundary & Water Commission
United States Section

INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO
UNITED STATES SECTION

FOR USE ON ALL USIBWC PROJECTS

STANDARD DRAWING

DRAWING LAYOUTS

STANDARD DRAWING

NO.	DESCRIPTION OF REVISION	DATE

Andrea Glover, PE
DESIGNED
Andrea Glover
DRAWN
CHECKED
TECHNICAL APPROVAL
ADMIN APPROVAL
USIBWC HQ-ESD 04-03-2018

HATCH PATTERNS

SOLICITATION/RFP NUMBER
N/A
CONTRACT NUMBER
N/A

26442

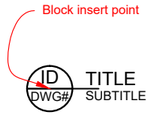
CAD Filename
SD-26442 USIBWC Hatch Patterns.dwg

Plot Style Table Name
IBWC_B&W.ctb
Plot Scale
0.5:1
Paper Size
ANSI Full Bleed B (17.00 X 11.00 Inches)
Plot Device
DWG To PDF.pc3

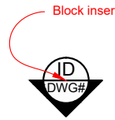
Date and Time Plotted
4/16/2018 11:38 AM
Date Last Saved
4/2/2018 9:38 AM

AutoCAD Version
20.0s (LMS Tech)

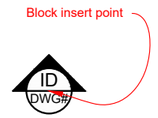
IBWC Border V20170817



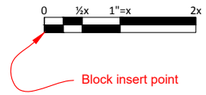
NAME: 014200-26 Section-Detail Tile
DESCRIPTION: Title for sections or details
LAYER: G-ANNO-SYMB
BLOCK UNITS: Inches-Annotative



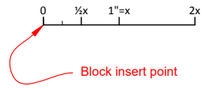
NAME: 014200-78 Section Down
DESCRIPTION: Section symbol
LAYER: G-ANNO-SYMB
BLOCK UNITS: Inches-Annotative



NAME: 014200-78 Section Up
DESCRIPTION: Section symbol
LAYER: G-ANNO-SYMB
BLOCK UNITS: Inches-Annotative



NAME: Scale_B2
DESCRIPTION: Bar scale with 2 subunits
LAYER: G-ANNO-SYMB
BLOCK UNITS: Inches



NAME: Scale_L2
DESCRIPTION: Line scale with 2 subunits
LAYER: G-ANNO-SYMB
BLOCK UNITS: Inches

Block insert at 0,0

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Properly destroy or return documents when no longer needed.

NAME: SBU-Cover
DESCRIPTION: SBU language for cover
LAYER: G-ANNO-SYMB
BLOCK UNITS: Inches

Block insert at 0,0

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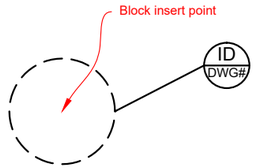
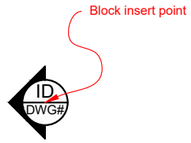
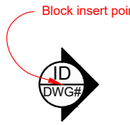
NAME: SBU-Page
DESCRIPTION: SBU language for pages
LAYER: G-ANNO-SYMB
BLOCK UNITS: Inches



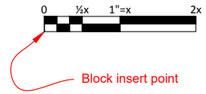
NAME: 014200-20 Detail Reference
DESCRIPTION: Reference to detail-explode to change dashed circle size
LAYER: G-ANNO-SYMB
BLOCK UNITS: Inches-Annotative



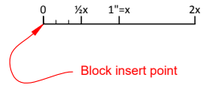
NAME: 014200-78 Section Left
DESCRIPTION: Section symbol
LAYER: G-ANNO-SYMB
BLOCK UNITS: Inches-Annotative



NAME: 014200-78 Section Right
DESCRIPTION: Section symbol
LAYER: G-ANNO-SYMB
BLOCK UNITS: Inches-Annotative



NAME: Scale_B3
DESCRIPTION: Bar scale with 3 subunits
LAYER: G-ANNO-SYMB
BLOCK UNITS: Inches



NAME: Scale_L3
DESCRIPTION: Line scale with 3 subunits
LAYER: G-ANNO-SYMB
BLOCK UNITS: Inches

Block insert at 0,0

Contractor's Name
IBWC CONTRACTOR NAME

Enter Contract & Task Order Number
IBWC CONTRACT/TASK ORDER

Contractor or Manufacturer's Name
DESIGNED BY

NAME: IBWC Signature Block-Contractor
DESCRIPTION: Signature Block
LAYER: G-ANNO-TTLB
BLOCK UNITS: Inches

Block insert at 0,0

Designer
DESIGNED

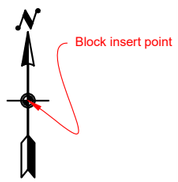
Draft/Technician
DRAWN

Peer Reviewer/Checker
CHECKED

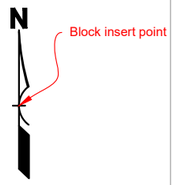
Team Leader or Principal Designer
TECHNICAL APPROVAL

Administrative Approver
ADMIN APPROVAL

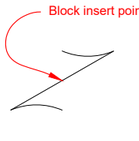
NAME: IBWC Signature Block-In House
DESCRIPTION: Signature Block
LAYER: G-ANNO-TTLB
BLOCK UNITS: Inches



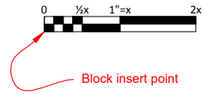
NAME: North Arrow1
DESCRIPTION: North indicator
LAYER: G-ANNO-SYMB
BLOCK UNITS: Inches-Annotative



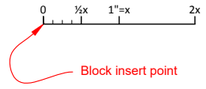
NAME: North Arrow2
DESCRIPTION: North indicator
LAYER: G-ANNO-SYMB
BLOCK UNITS: Inches-Annotative



NAME: Break
DESCRIPTION: Break symbol
LAYER: G-ANNO-DIMS
BLOCK UNITS: Inches-Annotative



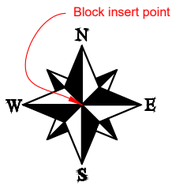
NAME: Scale_B4
DESCRIPTION: Bar scale with 4 subunits
LAYER: G-ANNO-SYMB
BLOCK UNITS: Inches



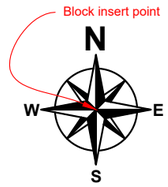
NAME: Scale_L4
DESCRIPTION: Line scale with 4 subunits
LAYER: G-ANNO-SYMB
BLOCK UNITS: Inches

NAME: IBWC Logo B&W
DESCRIPTION: Black & white IBWC logo
LAYER: G-ANNO-TTLB-LOGO
BLOCK UNITS: Inches

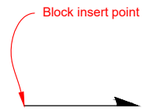
NAME: IBWC Logo Color
DESCRIPTION: Color IBWC logo
LAYER: G-ANNO-TTLB-LOGO
BLOCK UNITS: Inches



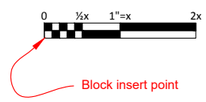
NAME: North Rose1
DESCRIPTION: North indicator
LAYER: G-ANNO-SYMB
BLOCK UNITS: Inches-Annotative



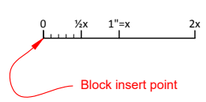
NAME: North Rose2
DESCRIPTION: North indicator
LAYER: G-ANNO-SYMB
BLOCK UNITS: Inches-Annotative



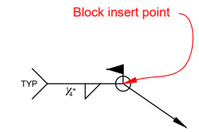
NAME: Flow_Direction
DESCRIPTION: Indicates direction of water flow
LAYER: G-ANNO-NOTE
BLOCK UNITS: Inches-Annotative



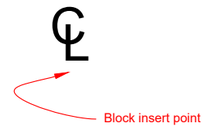
NAME: Scale_B5
DESCRIPTION: Bar scale with 5 subunits
LAYER: G-ANNO-SYMB
BLOCK UNITS: Inches



NAME: Scale_L5
DESCRIPTION: Line scale with 5 subunits
LAYER: G-ANNO-SYMB
BLOCK UNITS: Inches



NAME: Weld
DESCRIPTION: Base symbol-explode and edit to use
LAYER: G-ANNO-NOTE
BLOCK UNITS: Inches-Annotative



NAME: 010000-06 Centerline
DESCRIPTION: Centerline symbol
LAYER: G-ANNO-CL
BLOCK UNITS: Inches-Annotative

Block insert at 0,0

DRAFT
FOR REVIEW
This drawing is for review only.
It has not been released for construction.

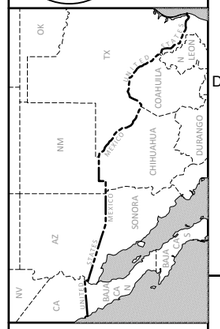
Use of this block is optional

NAME: Draft
DESCRIPTION: Stamp to note draft drawing
LAYER: G-ANNO-NOTE
BLOCK UNITS: Inches

NOTES:

1. These are examples of USIBWC standard symbols. Symbols are shown for reference only and are often not shown to true scale.
2. Use industry standard symbols for items not provided here.
3. See USIBWC Drawing and CAD Standards for complete guidelines on creating drawings for USIBWC projects.
4. IBWC symbols are contained in file Blocks.zip.
5. Welding symbols shall be per American Welding Society (AWS) A2.4, Standard Symbols for Welding, Brazing, and Nondestructive Examination. USIBWC symbol "weld" provides the starting point for creating the required welding symbol.

International Boundary & Water Commission
United States Section



INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO
UNITED STATES SECTION

FOR USE ON ALL USIBWC PROJECTS

STANDARD DRAWING

DRAWING LAYOUTS

STANDARD DRAWING

REV NO	DESCRIPTION OF REVISION	SIGNATURE OF PERSON MAKING CHANGE	DATE

Andrea Glover, PE
DESIGNED

Andrea Glover
DRAWN

CHECKED

TECHNICAL APPROVAL

ADMIN APPROVAL

USIBWC HQ-ESD 04-23-2018

SYMBOLS

SOLICITATION/RFP NUMBER
N/A

CONTRACT NUMBER
N/A

26465

CAD Filename
SD-26465 USIBWC Symbols.dwg

Plot Style Table Name
IBWC_Color.ctb

Plot Scale
0.61

Paper Size
ANSI Full Bleed B (17.00 X 11.00 Inches)

Plot Device
DWG To PDF.pc3

Date and Time Plotted
4/24/2018 7:33 AM

Date Last Saved
4/24/2018 7:31 AM

SheetSet Name
####

AutoCAD Version
20.0s (LMS Tech)

IBWC Border V20170817

SECTION 3 - CONTRACTOR DRAWING DELIVERABLES

3.1. PDF DRAWINGS

3.1.A. Pdfs shall be created directly from AutoCAD using AutoCAD's "DWG To PDF.pc3" plotter.

3.1.B. Paper size shall be set to zero margins (full bleed) and resolution shall be1200 dpi. If drawings contain photos 600 dpi may be used to reduce file size.

1. See Subsection 5.8. for instructions on how to set up your DWG To PDF plotter to produce proper pdf files.
2. The DWG to PDF.pc3 file contained in the provided files is already set to full bleed for ANSI A, B, and D.

3.1.C. Drawings shall be submitted in a single, bookmarked pdf file instead of as separate files for each drawing. Pdf section files shall be fully bookmarked to each drawing section.

3.2. TRANSFER OF AUTOCAD FILES TO USIBWC

3.2.A. To transfer AutoCAD files to USIBWC:

1. Cleanup Files
2. Drawing items shall be associated to correct layers. Layers shall have meaningful names or shall have a document provided that details what each layer contains.
3. Clear all unused layers.
4. Purge files to only include current data.
5. Multiple drawings may be included in each AutoCAD file. Each drawing shall be setup with its own layout. Do not use more than nine (9) layouts per AutoCAD file.

3.2.B. Xref, Support, and Project Files

1. Whenever AutoCAD files are submitted, all cross referenced files (xrefs) shall be provided except that designer seals and signatures should not be provided to USIBWC (see Subsection 2.13.).
   a. All cross referenced files shall be saved with relative paths and files shall be provided with the file structure intact for the relative paths to work.
2. Provide any shx line type files, hatch patterns, etc. used besides the IBWC or AutoCAD standards.
3. Per Subsection 2.3.D., once drawings have been finalized and accepted by USIBWC, two copies of the drawings shall be made.
   a. One copy shall contain all of the files and xrefs in their set file structures.
   b. The other copy shall have all of the xrefs bound to the files using XREFBIND or Insert Ribbon commands; these bound files shall be able to stand alone without any supporting files.

3.2.C. 3D and Survey Data

1. All 3D data and objects shall be fully available.
2. Survey points shall be present as AutoCAD points, not as block references.

3. Once drawings have been finalized, all 3D data shall be exported from the AutoCAD file. This includes, but is not limited to: points, surfaces, profiles, cross sections, and boundaries. Appropriate dxf, xml, cvs, etc. files shall be provided for this data.

3.2.D. All AutoCAD files shall be georeferenced and contain metadata.

3.3. RECORD DRAWINGS

3.3.A. When record drawings (as-builts) are produced, whether the original drawings were created by a Contractor or by USIBWC, they shall meet these requirements plus any requirements noted in the related Contract and/or Task Order.

3.3.B. Logos/Contractor's Name
The Prime Contractor (Contractor that holds Contract with USIBWC) shall be identified on the record drawings. Additionally, the designer's name, logo, etc., shall be removed. Review Subsection 4.2. about placement of logos.

1. On USIBWC created construction drawings, the Contractor may remove the US-Mexico map and place their name/logo in this location or may place their information within the body of the drawing.
2. On Contractor created construction drawings, the Design Contractor's name/logo shall be removed and the Construction Contractor's information shall be placed in this area. At the Construction Contractor's discretion, any company that helped with creation of the record drawings may also place their information in this area.
3. On design-build created drawings, the Design Builder information shall remain in this designated logo area. At the Design Builder's discretion, the Construction Contractor and/or any company that helped with creation of the record drawings may also place their information in this area.

3.3.C. Drawing Purpose
The drawing purpose identified in Figure 24 and described in Subsection 4.4.A. shall be changed to "RECORD DRAWING."

3.3.D. Drawing Revision Block
The revision block identified in Figure 24 shall be cleared. This is described in Subsection 4.4.B. The only revisions that shall be indicated are changes made to the finalized record drawings.

3.3.E. Drawing Date

1. The original drawing date shall be cleared and a new date entered that reflects the date when the record drawing was created. Whenever the record drawing is changed the date shall change until the record drawing is accepted.
   a. Every draft version shall have its own date.
2. The date on the final, finished record drawing shall be the date the drawing is completed and/or signed. After the final date is applied, the record drawing date is no longer updated; the revision block shall show changes made after the final date.

3.3.F. Solicitation and Contract Number
The Solicitation and Contract numbers shown in Figure 28 shall be entered. This is described in Paragraphs 4.6.B. and 4.6.C.

3.3.G. Drawing Number

1. If the drawing contains a contractor/designer drawing number, that number shall remain unchanged.
2. The USIBWC drawing number shall be changed from XXXXX-XXX-XX to XXXXX-XX-A0.
3. Additional information on record drawing numbers are contained in Paragraph 4.7.B.

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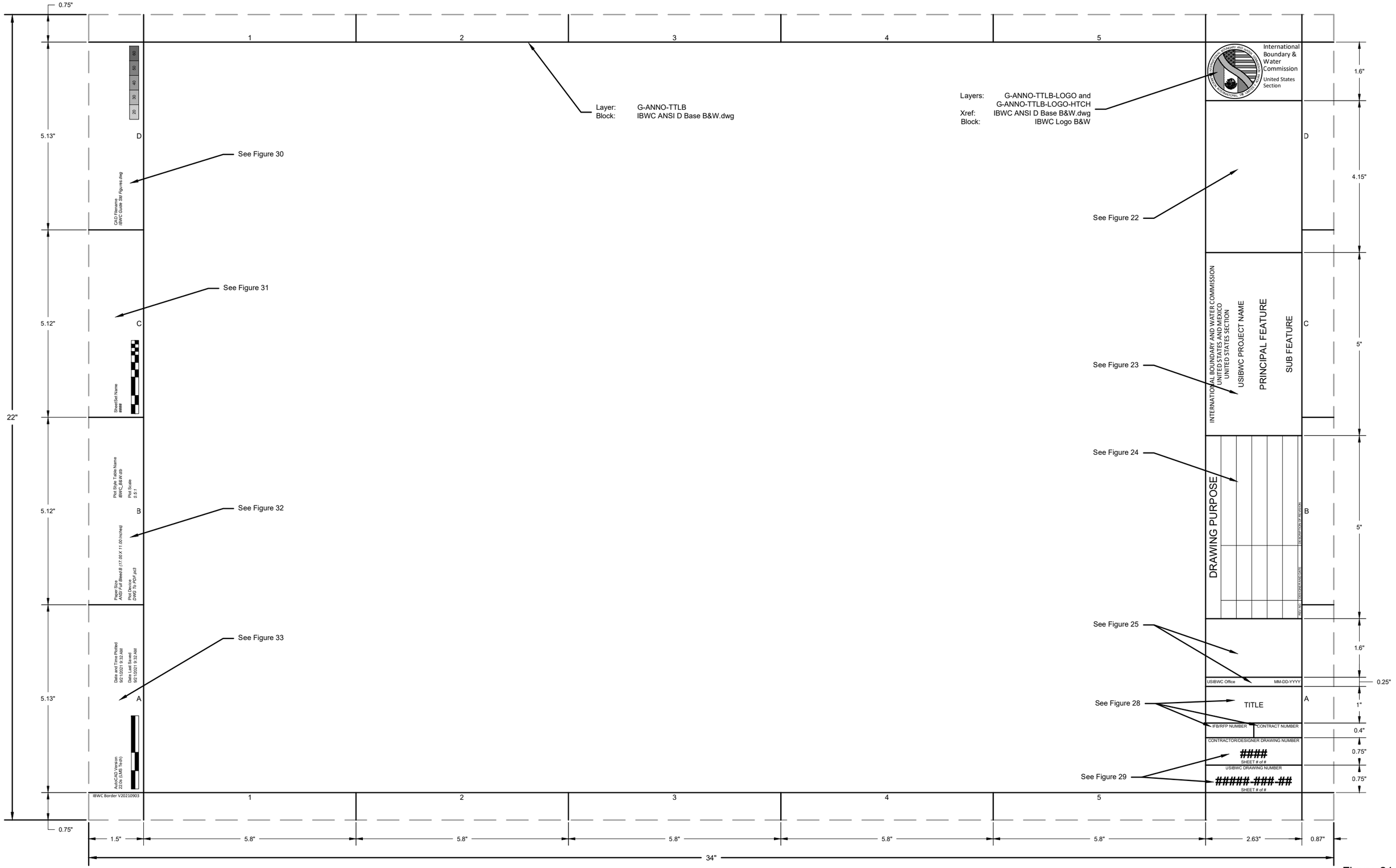

0.75"
1
2
3
4
5
22"
5.13"
5.12"
5.12"
5.13"
0.75"
D
C
B
A
Layer: G-ANNO-TTLB
Block: IBWC ANSI D Base B&W.dwg
Layers: G-ANNO-TTLB-LOGO and G-ANNO-TTLB-LOGO-HTCH
Xref: IBWC ANSI D Base B&W.dwg
Block: IBWC Logo B&W
See Figure 30
See Figure 31
See Figure 32
See Figure 33
See Figure 22
See Figure 23
See Figure 24
See Figure 25
See Figure 28
See Figure 29
International Boundary & Water Commission
United States Section
INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO
UNITED STATES SECTION
USIBWC PROJECT NAME
PRINCIPAL FEATURE
SUB FEATURE
DRAWING PURPOSE
USIBWC Office
MM-DD-YYYY
TITLE
IFB/RFP NUMBER
CONTRACT NUMBER
CONTRACTOR/DESIGNER DRAWING NUMBER
####
SHEET # of #
USIBWC DRAWING NUMBER
##
SHEET # of #
1.6"
4.15"
5"
5"
1.6"
0.25"
1"
0.4"
0.75"
0.75"
CAD Filename
IBWC Guide 3bd Figures.dwg
SheetSet Name
####
Plot Style Table Name
IBWC_A4.ctb
Plot Scale
0.1 = 1
Paper Size
ANSI Full Bleed B (17.00 X 11.00 Inches)
File Name
DWG To PDF.pc3
Date and Time Plotted
9/21/2021 9:32 AM
Date Last Saved
9/21/2021 9:32 AM
AutoCAD Version
22.0s (LMS Tech)
IBWC Border V20210903
1.5"
5.8"
5.8"
5.8"
5.8"
5.8"
2.63"
0.87"
34"

Figure 21

SECTION 4 - ANSI D/B DRAWING BORDER

The items shown in this Section are shown specifically for the ANSI D border, but all of the items detailed are also on the ANSI A borders, just in different locations. Since the ANSI A borders will be used so infrequently, offering specific examples for those borders was determined to not be beneficial. If you have any questions about data as it applies to one of the ANSI A borders, please contact the person referenced on page vii.

4.1. BORDER LAYOUT (FIGURE 21)

The complete drawing border is shown in Figure 21 (see 11"x17" page before this page). Figure 21 identifies nine sections of the border which are further described below.

4.2. US-MEXICO MAP OR CONTRACTOR LOGO (FIGURE 22)

USIBWC produced drawings shall contain the graphic block US-MX whereas Contractors shall use the 2 5/8" by 4.15" area for their title block. Contractor's use of the logo area can be setup either horizontal, vertical, or a combination of both.

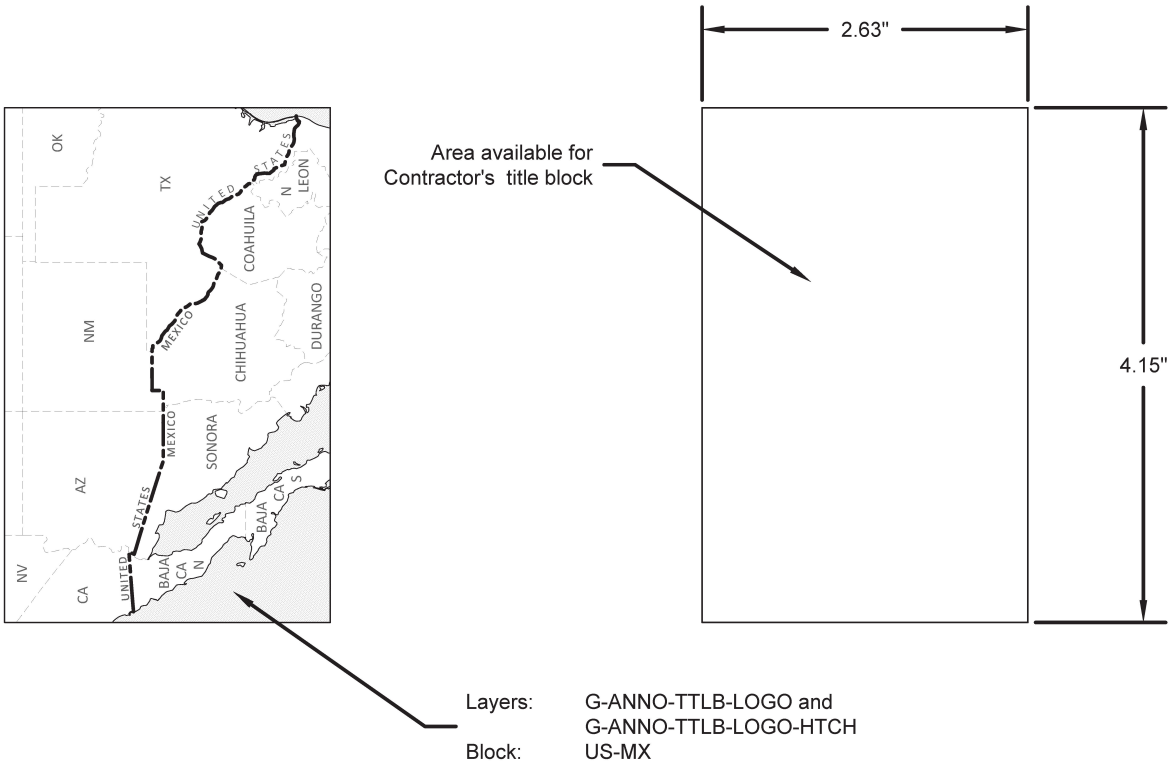


Figure 22-USIBWC Border: US Mexico Map or Contractor Logo Area

4.3. TITLE BLOCK (FIGURE 23)

See paragraphs below for specifics about the text that should be used in this area. Examples are provided for USIBWC projects, drawing principal features, and drawing sub features.

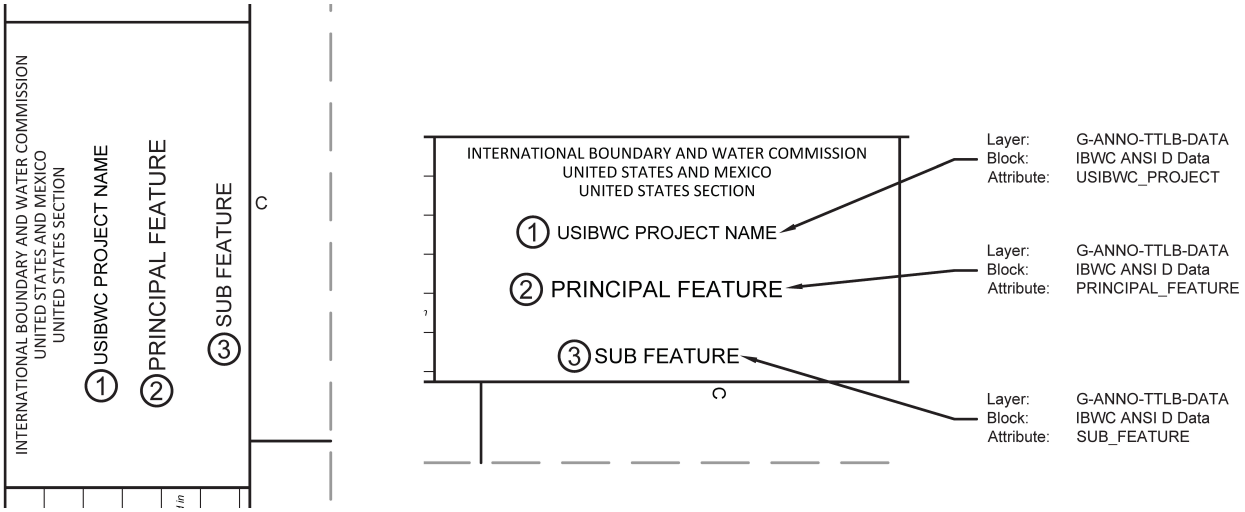


Figure 23-USIBWC Border: Title Block

4.3.A. Figure 23, Item 1 - USIBWC Full Project Name (1 line only)

1. USIBWC project name shall be shown in all capital letters. Do not preface project name with "USIBWC."
2. If AutoCAD sheet sets are used, this field should self-populate. See Subsection 5.1.F. for details about attribute names and associated fields.
3. A non-printing point is provided within the drawing border as a guide for placing text at the correct location if block is not used. The text shall be located as indicated below:

Justification	middle-center
Location	centered upon x = 31.4654 y = 13.00
Text Style	Standard
Text Height	0.140
Block Name	IBWC ANSI ?? Data

4. USIBWC Projects
   USIBWC projects include the following. Use only those project names listed below to retain uniformity among drawings. For wastewater treatment plants, "international" may be ignored to ensure that project name fits in allocated space.
   a. South Bay International Wastewater Treatment Plant
   b. Tijuana River Flood Control Project
   c. New River/Mexicali Sanitation Program
   d. International Salinity Control Project
   e. Morelos Dam
   f. Colorado River Boundary and Capacity Project
   g. Wellton-Mohawk Drain
   h. Nogales Sanitation Project
   i. International Outfall Interceptor
   j. Naco Sewage
   k. Douglas-Aqua Prieta Sanitation Project

l. Rio Grande Canalization Project
m. Chamizal Convention Project
n. Rio Grande American Canal Extension
o. Rectification of Rio Grande Project
p. Presidio Valley Flood Control Project
q. Amistad Reservoir and Dam
r. Falcon Dam and Reservoir
s. Rio Grande Bank Protection Project
t. Rio Grande Boundary Preservation Project
u. Lower Rio Grande Flood Control Project
v. Anzalduas Dam
w. El Morillo Drain
x. Retamal Dam

4.3.B. Figure 23, Item 2 - Principal Feature (2 lines allowed)

1. The principal feature shall be shown in all capital letters.
2. If AutoCAD sheet sets are used, this field should self-populate. See Subsection 5.1.F. for details about attribute names and associated fields.
3. A non-printing point is provided within the drawing border as a guide for placing text at the correct location if block is not used. The text shall be located as indicated below:

Justification	middle-center
Location	centered upon x = 32.0714 y = 13.00
Text Style	Standard
Text Height	0.175
Block Name	IBWC ANSI ?? Data

4. Drawing Principal Feature
   a. This field should be titled based upon the principal feature of the drawing set. In the case of design or construction, it will be the title of the project.
   b. The drawing principal feature should remain the same through all drawings in the set. Additional descriptive items should be noted in drawing sub feature.
   c. Examples of Drawing Principal Feature:
      (1) Treatment Plant Infrastructure Improvements
      (2) San Diego Field Office Administration Building
      (3) Falcon Dam Spillway Repair
      (4) Amistad Dam Riprap Replacement and Repair
      (5) American Dam
      (6) Mesilla Levee Phase I
      (7) American Canal

4.3.C. Figure 23, Item 3 - Sub Feature (2 lines allowed)

1. The sub feature shall be shown in all capital letters.
2. If AutoCAD sheet sets are used, this field should self-populate. See Subsection 5.1.F. for details about attribute names and associated fields.

3. A non-printing point is provided within the drawing border as a guide for placing text at the correct location if block is not used. The text shall be located as indicated below:

Justification	middle-center
Location	centered upon x = 32.7876 y = 13.00
Text Style	Standard
Text Height	0.160
Block Name	IBWC ANSI ?? Data

4. Drawing Sub Feature Examples
The drawing sub feature simply adds additional information to the drawing principal feature. For example, the drawing principal feature: Mesilla Levee may have a drawing sub feature of Stations 6+92 to 8+46, or American Canal may have a sub feature of Upper Reach. The sub feature is not the drawing title.

4.4. DRAWING PURPOSE AND REVISION BLOCK (FIGURE 24)

The drawing purpose identifies how the drawing is intended to be used while the revision block notes any changes made to the completed, accepted drawing. Until drawings are finalized, they are never revised.

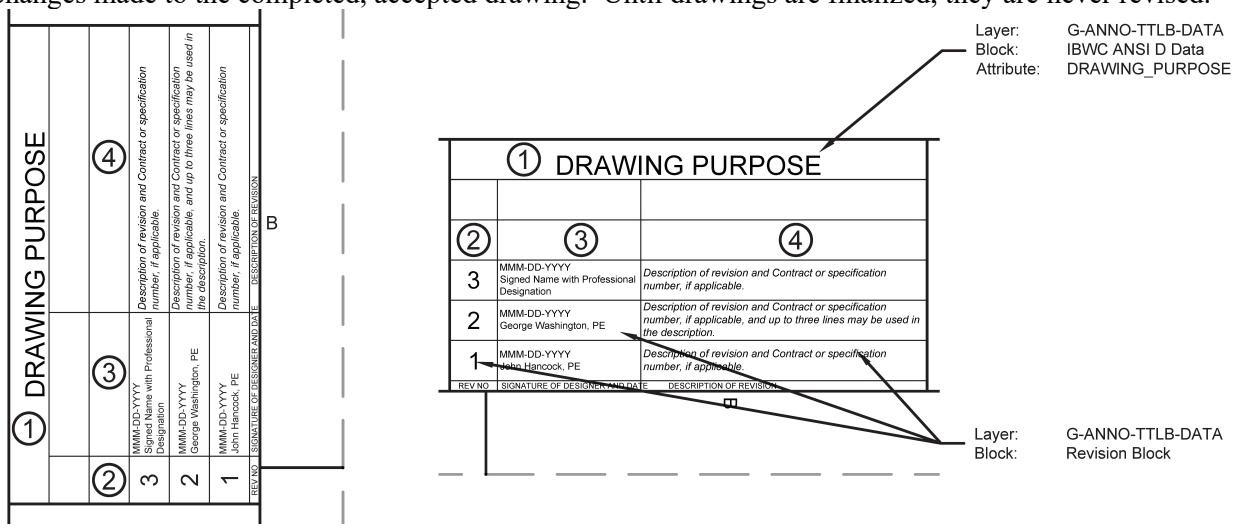


Figure 24-USIBWC Border: Drawing Purpose & Revision Block

4.4.A. Figure 24, Item 1 - Drawing Purpose (1 line only)

1. The drawing purpose shall be shown in all capital letters.
2. If AutoCAD sheet sets are used, this field should self-populate. See Subsection 5.1.F. for details about attribute names and associated fields.
3. A non-printing point is provided within the drawing border as a guide for placing text at the correct location if block is not used. The text shall be located as indicated below:

Justification	middle-center
Location	centered upon x = 30.71 y = 8.00
Text Style	Standard
Text Height	0.200
Block Name	IBWC ANSI ?? Data

4. Drawing Purpose
There are four allowable drawing purposes.
   a. CONSTRUCTION DRAWING
   Drawings produced by USIBWC, by a Design-Builder, or under an A&E contract with the intent that they be used for construction.
   b. RECORD DRAWING
   As built drawings produced by either USIBWC or a Contractor.
   c. STANDARD DRAWING
   This drawing purpose is for USIBWC use only. Contractors never produce standard drawings. Standard drawings provide Agency direction for items or features which are common across the Agency or a project.
   d. INFORMATIONAL DRAWING
      (1) Informational drawings are usually figures in reports but they may also present data collected for record.
      (2) Drawings produced during feasibility studies are informational drawings.
      (3) Figures within reports should be made into drawings when they contain project data that is applicable to stand alone outside of the report they are in. Examples include geologic mapping, borehole data, drainage basins, or surveys.

4.4.B. Figure 24, Items 2, 3, and 4 - Revision Block

1. A template for this data is provided in the block entitled Revision Block. The text shown for Items 2, 3, and 4 in Figure 24 represents the Revision Block. Insert block at x = 0 y = 0.
2. The Revision Block is an AutoCAD table. The table has the following dimensions:

Column 1	Width	0.5000
	Justification	bottom-left
	Text Style	Standard
	Text Height	0.180
Column 2	Width	1.5000
	Justification	middle-left
	Text Style	Standard
	Text Height	0.080
Column 3:	Width	3.0000
	Justification	middle-left
	Text Style	Standard
	Text Height	0.080
Row Height:		0.4200
Horizontal Margin:		0.0300
Vertical Margin:		0.0250
Block Name		Revision Block

3. No Contractor drawing shall be shown as revised until after it is accepted by USIBWC. No IBWC drawing shall be shown as revised until after has been finalized. Corrections while completing drawings are not revisions. Also see guidance on dating drawings in relation to revisions in Paragraph 4.5.C.
4. Figure 24, Items 2 - Area for Revision Number
Each revision shall be applied as one-up number starting with 1.

5. Figure 24, Item 3 - Area for Designer's Name and Revision Date
   The date of the revision as well as the design professional responsible for the revision shall be placed here.
6. Figure 24, Item 4 - Area for Revision Description
   Provide a brief description detailing what was changed.
   a. USIBWC does not like to use bubbles to show revisions because they clutter up the drawing. Only bubble revisions if there is no other way to clarify what was changed.

4.4.C. Revisions and Record Drawings

1. The revision block shall be removed when record drawings are made (see Paragraph 3.3.D.). The revision data is applied to the original drawing, not the record drawing, therefore it is no longer applicable.
2. If the record drawing is revised, then the revision block is again populated.

4.5. SIGNATURE BLOCK, OFFICE, AND DATE (FIGURE 25)

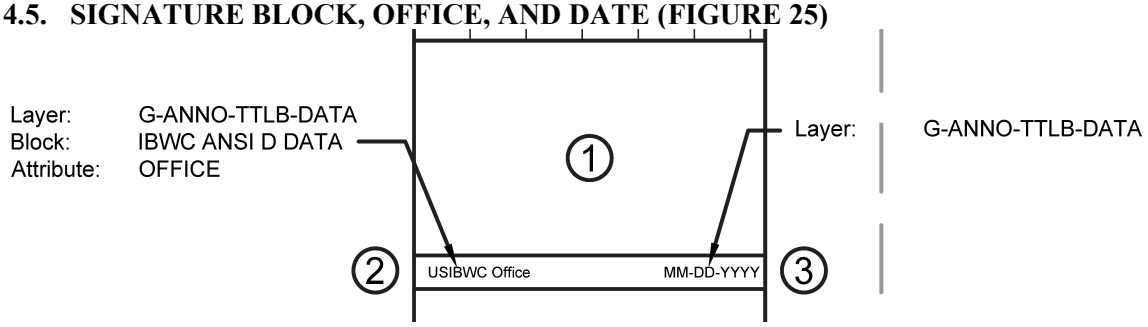


Figure 25-USIBWC Border: Signature Block, Office, and Date

4.5.A. Figure 25, Item 1 - Signature Block (use appropriate block)
For USIBWC drawings produced in-house, use block entitled IBWC Signature Block-In House (Figure 27). For drawings produced by a Contractor, use block entitled IBWC Signature Block-Contractor (Figure 26).

1. Figure 27, USIBWC Signature Block
   a. Designed
      Enter the name (both first and last name, no initials) of the USIBWC employee who has designed the items on this drawing. If they are a professional engineer, ensure that PE follows their name. More than one name may be entered.
   b. Drawn
      Enter the name (both first and last name, no initials) of the USIBWC employee who has performed the drafting to create this drawing. More than one name may be entered.
   c. Checked
      Enter the name (both first and last name, no initials) of the USIBWC employee who has checked or performed design reviews on the items on this drawing. If they are a professional engineer, ensure that PE follows their name. More than one name may be entered.
   d. Technical Approval
      (1) If the items on this drawing were both designed by and checked by professional engineers, no entry is required on this line. If the items on this drawing were

both designed by and checked by individuals who are not professional engineers, this line must be completed by a professional engineer.

(2) Enter the name (both first and last name, no initials) of the USIBWC employee who is approving this drawing. If they are a professional engineer, ensure that PE follows their name. More than one name may be entered.

e. Admin Approval
This line is only used on larger projects where one person is responsible for ensuring that features of the project work together and are not contradictory. This person will also ensure that proper drawing numbers have been used and that cross references are valid. Enter the name (both first and last name, no initials) of the USIBWC employee who has performed that function. If they are a professional engineer, ensure that PE follows their name. More than one name may be entered.

2. Figure 26, Contractor Signature Block
   a. IBWC Contractor Name
   Enter the name of the Prime Contractor who holds the Contract with USIBWC.
   b. IBWC Contract/Task Order
   Enter applicable Contract and/or Task Order number covering production of this drawing.
   c. Designed By
   This shall either be the Prime Contractor or a subcontractor of the Prime. Enter the name of the company that has responsibility for producing this drawing. Do not enter the name of an individual unless they are a sole proprietor.

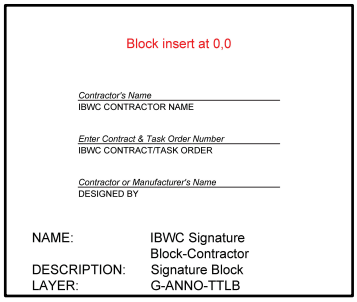


Figure 26-USIBWC Border: Block IBWC Signature-Contractor
For both blocks, insert at x = 0 y = 0.

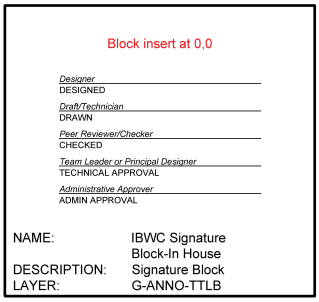


Figure 27-USIBWC Border: Block IBWC Signature-In House

4.5.B. Figure 25, Item 2 - USIBWC Office

1. The USIBWC office shall be shown in all capital letters. Paragraph 4.5.B.4. has a list of USIBWC offices and how they should be entered on the drawing.
2. If AutoCAD sheet sets are used, this field should self-populate. See Subsection 5.1.F. for details about attribute names and associated fields.

3. A non-printing point is provided within the drawing border as a guide for placing text at the correct location if block is not used. The text shall be located as indicated below:

Justification	bottom-left
Location	x = 30.54 y = 3.775
Text Style	Standard
Text Height	0.080
Block Name	IBWC ANSI ?? Data

4. USIBWC Office
See list below for specifics about the text that should be used in this area. All USIBWC Offices are listed.

DRAWING ENTRY	DESCRIPTION
Amistad Dam Field Office	Amistad Dam Field Office
Falcon Dam Field Office	Falcon Dam Field Office
Laredo Field Office	Laredo Field Office
Lower Rio Grande Field Office	Lower Rio Grande Field Office
Nogales Field Office	Nogales Field Office
Presidio Field Office	Presidio Field Office
San Diego Field Office	San Diego Field Office
Upper Rio Grande Field Office	Upper Rio Grande Field Office
USIBWC HQ-COND	Construction Management Division
USIBWC HQ-EMD	Environmental Management Division
USIBWC HQ-ESD	Engineering Services Division
USIBWC HQ-OMD	Operations and Maintenance Division
USIBWC HQ-Realty	Realty Office*
USIBWC HQ-SSD	Safety and Security Division
Yuma Field Office	Yuma Field Office

* The Realty group of USIBWC had been moved around from a subset of O&M to the Boundary and Realty Office (BRO) and now to the Realty and Asset Management Division (RAMD). Because of this, it is impractical to assign any abbreviation to them other than just realty.

4.5.C. Figure 25, Item 3 - Date

1. The drawing date shall be entered and changed as the drawing is updated. Every draft version shall have its own date.
2. The date on the final, finished drawing shall be the date the drawing is completed and/or signed. After the final date is applied, the drawing date is no longer updated; the revision block shall show changes made after the final date.
3. Record drawings (see Paragraph 3.3.E.) shall show their own date of creation.
4. The drawing's date shall be entered in the format of MM-DD-YYYY.

5. A non-printing point is provided within the drawing border as a guide for placing text at the correct location if block is not used. The text shall be located as indicated below:

Justification	bottom-right
Location	x = 33.09 y = 3.775
Text Style	Standard
Text Height	0.080
Block Name	none

4.6. DRAWING TITLE, SOLICITATION, AND CONTRACT NUMBER (FIGURE 28)

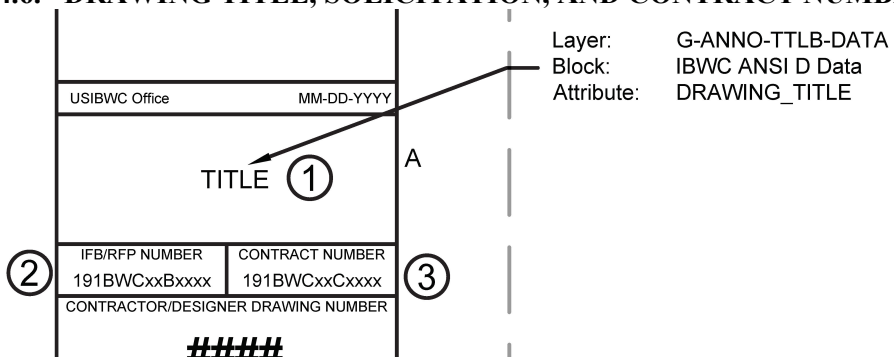


Figure 28-USIBWC Border: Drawing Title and Solicitation/Contract Numbers

4.6.A. Figure 28, Item 1 - Drawing Title

1. The drawing title shall be descriptive and shall not repeat wording from the title block unnecessarily. Four lines of text are allowed.
2. If AutoCAD sheet sets are used, this field should self-populate. See Subsection 5.1.F. for details about attribute names and associated fields.
3. A non-printing point is provided within the drawing border as a guide for placing text at the correct location if block is not used. The text shall be located as indicated below:

Justification	middle-center
Location	centered upon x = 31.815 y = 3.15
Text Style	Standard
Text Height	0.140
Block Name	IBWC ANSI ?? Data

4.6.B. Figure 28, Item 2 - Construction Solicitation Number

1. For most projects, this field will only be completed once the drawing is solicitated for construction. This will usually be entered as text into the issued pdfs using Adobe.
2. For Design-Build contracts, the solicitation number is already established so this field shall be completed with the Design-Build contract number.
3. For Record Drawings, the data shall be entered into the AutoCAD file. A text entry must be added to the drawing for this data.

4. A non-printing point is provided within the drawing border as a guide for placing text at the correct location if block is not used. The text shall be located as indicated below:

Justification	middle-center
Location	x = 31.1575 y = 2.3718
Text Style	Standard
Text Height	0.100
Block Name	none

4.6.C. Figure 28, Item 3 - Construction Contract Number

1. For most projects, this field will only be completed once the drawing is awarded for construction. This will usually be entered as text into the issued pdfs using Adobe.
2. For Design-Build contracts, the contract number is already established so this field shall be completed with the Design-Build contract number.
3. For Record Drawings, the data shall be entered into the AutoCAD file. A text entry must be added to the drawing for this data.
4. A non-printing point is provided within the drawing border as a guide for placing text at the correct location if block is not used. The text shall be located as indicated below:

Justification	middle-center
Location	x = 34.4725 y = 2.3718
Text Style	Standard
Text Height	0.100
Block Name	none

4.7. DRAWING NUMBERS (FIGURE 29)

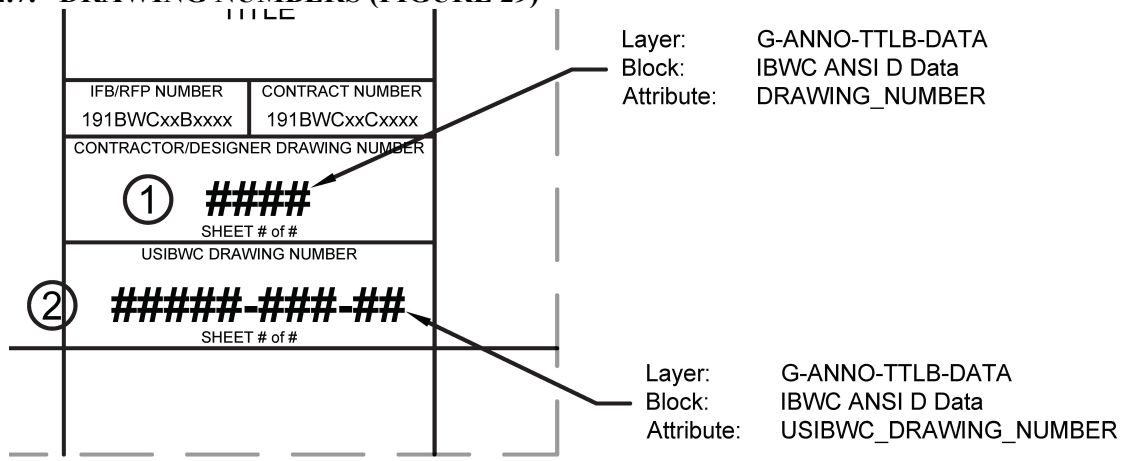


Figure 29-USIBWC Border: Drawing Numbers

4.7.A. Figure 28, Item 1 - Drawing Number

1. This item is for Contractor assigned numbers only. Contractor may identify drawings with any appropriate alpha numeric combination, but each sheet shall have a unique number of at least three digits.

2. If AutoCAD sheet sets are used, this field should self-populate. See Subsection 5.1.F. for details about attribute names and associated fields.
3. A non-printing point is provided within the drawing border as a guide for placing text at the correct location if block is not used. The text shall be located as indicated below:

Justification	middle-center
Location	31.815 y = 1.81
Text Style	Standard Bold
Text Height	0.240
Block Name	IBWC ANSI ?? Data

4.7.B. Figure 28, Item 2 - USIBWC Drawing Number

1. For USIBWC created drawings, the drawing number will be assigned from the current log book. For Contractor created drawings, the Contracting Officer's Representative will provide the drawing numbers upon acceptance of the final drawings.
   a. Drawing numbers are made up of a five digit number, a three digital number, and a two digit number all separated by dashes.
   b. USIBWC prefers for every drawing (construction, standard, and informational) to have a unique five digit number. However there are times when creating a set of drawings under a single number makes more sense. In this case, the three digit values are used to represent sheets 001 to xxx in the set.
      (1) If every drawing has its own unique five digit number, then the three digit number shall be 000.
   c. Record drawings shall use the same five digit and three digit number as the original drawing that is being modified into an as built.
   d. The two digit suffix number refers to the type of drawing and whether it is a revision.
      (1) The base drawing will be 00, with revision 1 as 01, revision 2 as 02, etc.
      (2) Record drawings shall be indicated with A#. The final record drawing will be A0. If it is revised, then it will be A1, etc.
      (3) There are times when supplemental data is added to a drawing set. This could be submittal information, RFIs, or correspondence that explains why changes were made. These documents when added to a drawing set use the five digit-three digit number of the drawing to which the supplemental data is applicable to and then shall use a S# suffix.
      (4) Surveyors sometimes create new drawings with preconstruction or postconstruction data survey data only (not record drawings). If the drawing extents match that of other project drawings, use suffix T# for these survey drawings. If the drawings have new or different extents, assign new drawing numbers.
2. If during performance of a USIBWC project additional drawing numbers are required, they will be provided.
3. No two drawings shall end up with the same complete drawing number (#####-###-##).

4. A non-printing point is provided within the drawing border as a guide for placing text at the correct location if block is not used. The text shall be located as indicated below:

Justification	middle-center
Location	31.815 y = 1.06
Text Style	Standard Bold
Text Height	0.240
Block Name	IBWC ANSI ?? Data

5. Sheet #
   a. The text "SHEET # of ##" directly under the drawing number is available for use but is not required to be used. If not used, ensure that text is deleted.
   b. Sheet numbers are usually used as a subset of drawings, e.g. all electrical drawings, all plumbing drawings, or all cross sections. It is preferred that sheet numbers not be used to encompass the whole group of drawings.
   c. Two non-printing points are provided within the drawing border as a guide for placing text at the correct location. The text shall be located as indicated below:

Justification	middle-center
Contractor Location	31.815 y = 1.58
USIBWC Location	31.815 y = 0.83
Text Style	Standard
Text Height	0.080

4.8. FILENAME (FIGURE 30)

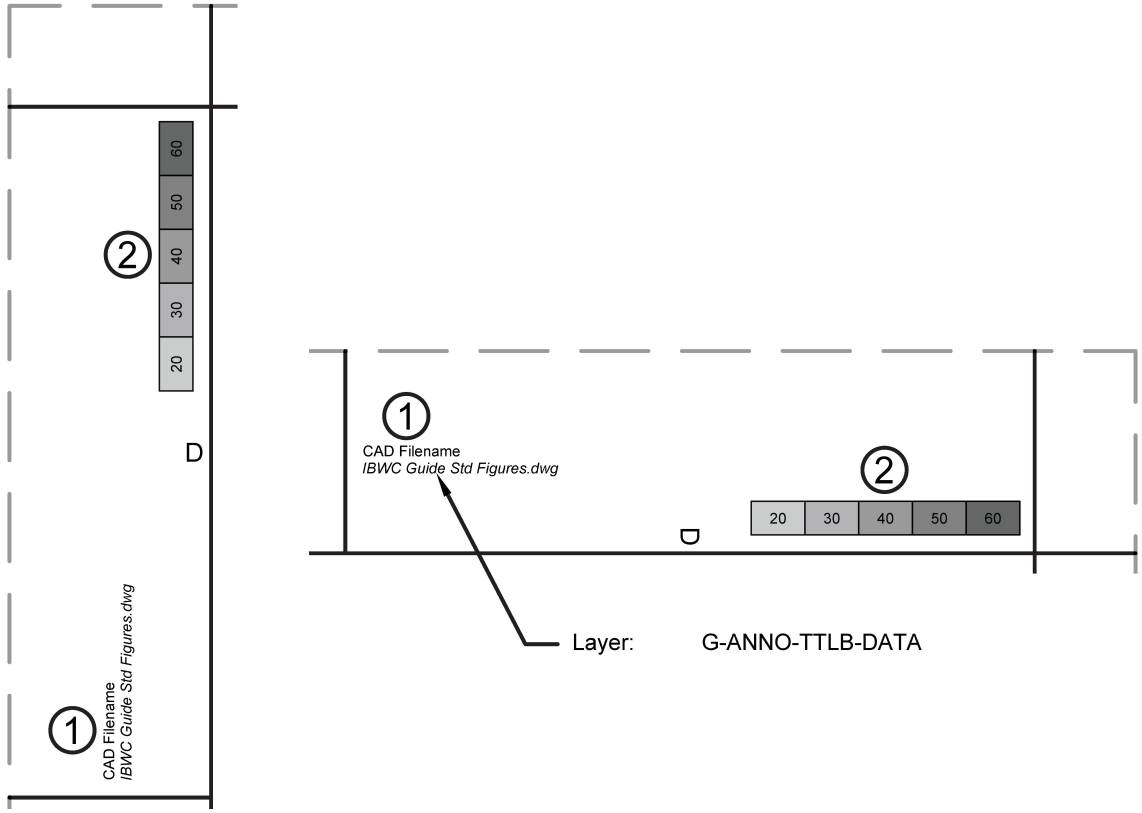


Figure 30-USIBWC Border: AutoCAD Filename

4.8.A. Figure 30, Item 1 - AutoCAD Filename
This area contains the full name of the AutoCAD file. This data is contained in the base drawing cross referenced file. It will automatically update whenever the drawing is saved.

4.8.B. Figure 30, Item 2 - Gradation Scales
When printed at ANSI D, this scale will be two inches long. The screening available with the plot style table used (except for screening of 0%) is shown in each box. This is simply a visual check to resolution and printing clarity.

4.9. SHEETSET NAME (FIGURE 31)

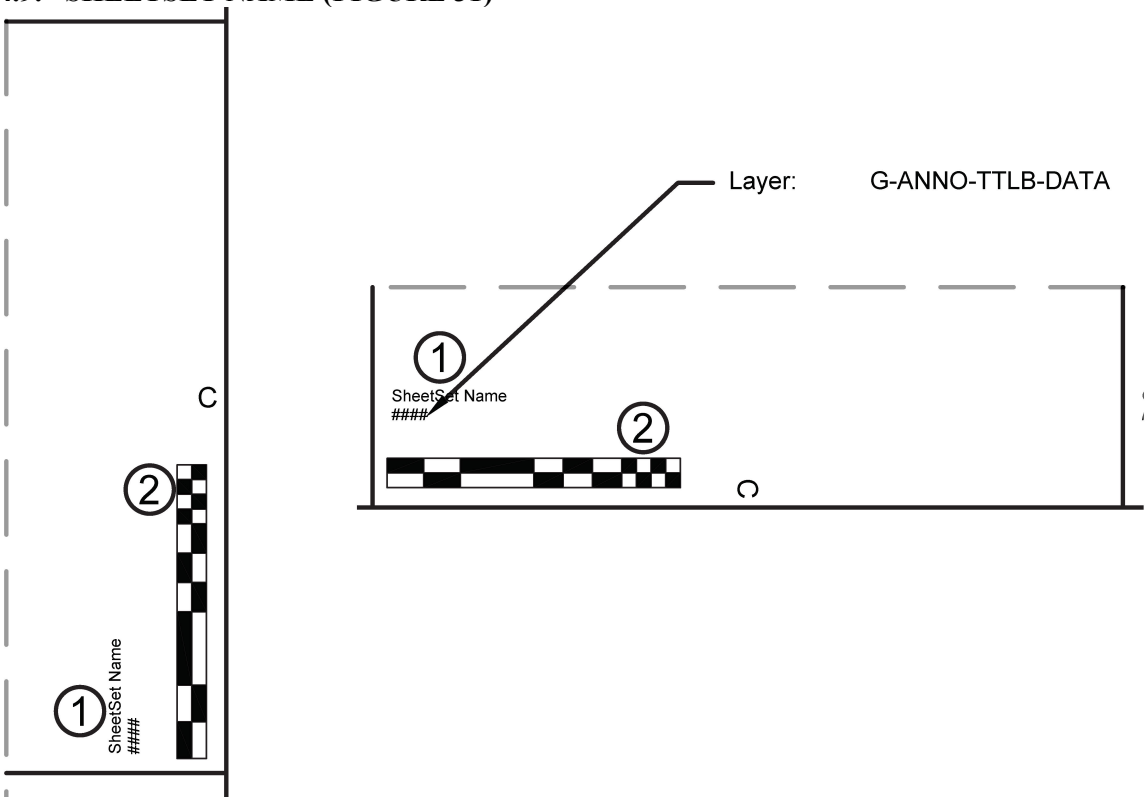


Figure 31-USIBWC Border: AutoCAD SheetSet Name.

4.9.A. Figure 31, Item 1 - AutoCAD SheetSet Name
If an AutoCAD sheet set is used, this area will show the SheetSet name. This data is contained in the base drawing cross referenced file. It will automatically update whenever the drawing is saved.

4.9.B. Figure 31, Item 2 - Scale
The scale is part of the drawing border. When printed at ANSI D, this scale will be two inches long with a one inch and two, half inch long segments. It can be used both as a visual check to resolution and printing clarity as well as to verify that the drawing has been printed to the correct scale.

This scale, and the scale shown in 4.11.B., is not a replacement for scales required by 2.9.A. This scale is simply part of the border.

4.10. PLOTTING INFORMATION (FIGURE 32)

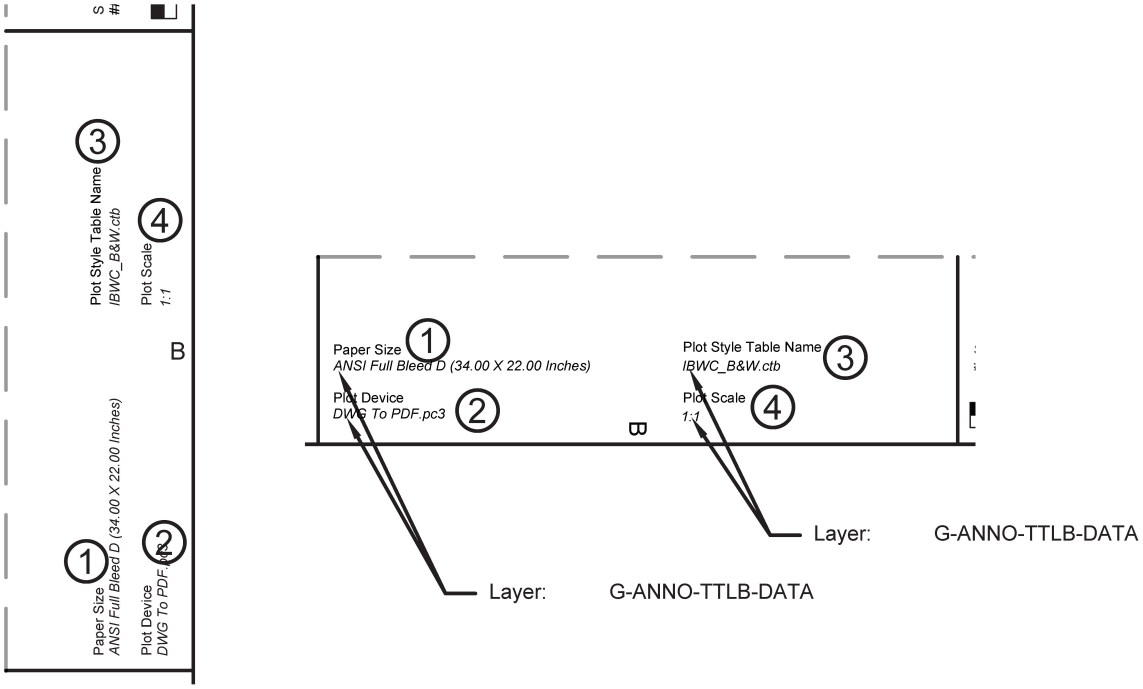


Figure 32-USIBWC Border: Plotting Information

4.10.A. Figure 31, Item 1 - Paper Size

1. The paper size used in the layout to print the drawing will show here. Only ANSI D, ANSI B, and ANSI A are allowable.
2. The data will automatically update whenever the drawing is plotted. It cannot be contained in a cross referenced file as it will then only show the data for the cross referenced file instead of the file that it is in. Therefore, this data is contained in the IBWC blank drawing file, but unlike other data in the border, it is simply provided as text; it is not a block nor is it part of a cross referenced file. The text is located as indicated below:

Justification	bottom-left
Location	x = 0.931 y = 6.00
Text Style	Standard
Text Height	0.080
Block Name	none

4.10.B. Figure 31, Item 2 - Plot Device

1. The AutoCAD plotter name will show here. For drawings provided as pdfs, this shall show as "DWG To PDF.pc3."
2. The data will automatically update whenever the drawing is plotted. It cannot be contained in a cross referenced file as it will then only show the data for the cross referenced file instead of the file that it is in. Therefore, this data is contained in the IBWC blank drawing

file, but unlike other data in the border, it is simply provided as text; it is not a block nor is it part of a cross referenced file. The text is located as indicated below:

Justification	bottom-left
Location	x = 1.315 y = 6.00
Text Style	Standard
Text Height	0.080
Block Name	none

4.10.C. Figure 31, Item 3 - Plot Style Table Name

1. The plot style table name used to generate the drawing will print here. The only two names that should ever be present are IBWC_Color.ctb and IBWC_B&W.ctb.
2. The data will automatically update whenever the drawing is plotted. It cannot be contained in a cross referenced file as it will then only show the data for the cross referenced file instead of the file that it is in. Therefore, this data is contained in the IBWC blank drawing file, but unlike other data in the border, it is simply provided as text; it is not a block nor is it part of a cross referenced file. The text is located as indicated below:

Justification	bottom-left
Location	x = 0.931 y = 8.58
Text Style	Standard
Text Height	0.080
Block Name	none

4.10.D. Figure 31, Item 4 - Plot Scale

1. The scale that the drawing is plotted at will print here. Except for ANSI B drawings, all files should show 1:1. ANSI B drawings should show 0.5:1.
2. The data will automatically update whenever the drawing is plotted. It cannot be contained in a cross referenced file as it will then only show the data for the cross referenced file instead of the file that it is in. Therefore, this data is contained in the IBWC blank drawing file, but unlike other data in the border, it is simply provided as text; it is not a block nor is it part of a cross referenced file. The text is located as indicated below:

Justification	bottom-left
Location	x = 1.315 y = 8.58
Text Style	Standard
Text Height	0.080
Block Name	none

4.11. DATE/TIME PLOTTED AND AUTOCAD VERSION (FIGURE 33)

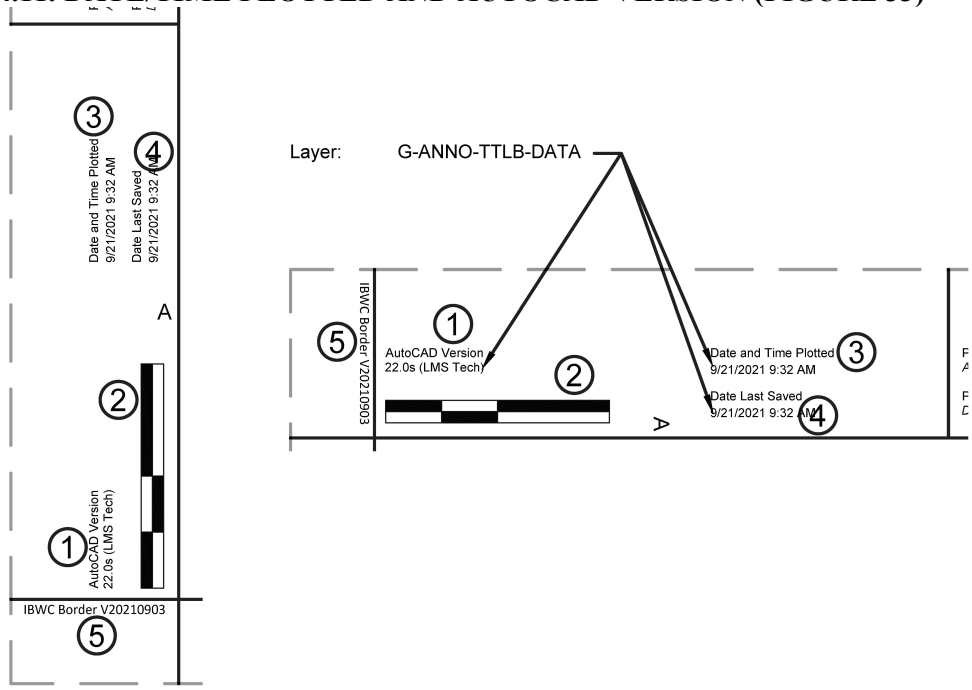


Figure 33-USIBWC Border: AutoCAD Version

4.11.A. Figure 33, Item 1 - AutoCAD Version

This area contains the version of AutoCAD used to create the file. This data is contained in the base drawing cross referenced file. It will automatically update whenever the drawing is saved. Common versions include:

24.0s (LMS Tech)	AutoCAD 2021
23.1s (LMS Tech)	AutoCAD 2020
23.0s (LMS Tech)	AutoCAD 2019
22.0s (LMS Tech)	AutoCAD 2018
21.0s (LMS Tech)	AutoCAD 2017
20.1s (LMS Tech)	AutoCAD 2016
20.0s (LMS Tech)	AutoCAD 2015
19.1s (LMS Tech)	AutoCAD 2014
19.0s (LMS Tech)	AutoCAD 2013
18.2s (LMS Tech)	AutoCAD 2012

4.11.B. Figure 33, Item 2 - Scale

When printed at ANSI D, this scale will be two inches long with a one inch and two, half inch long segments. It can be used both as a visual check to resolution and printing clarity as well as to verify that the drawing has been printed to the correct scale.

This scale, and the scale shown in 4.9.B., is not a replacement for scales required by 2.9.A. This scale is simply part of the border.

4.11.C. Figure 33, Item 3 - Date and Time Plotted
This data is contained in the IBWC blank drawing file. It will automatically update whenever the drawing is plotted. It cannot be contained in a cross referenced file as it will then only show the data for the cross referenced file instead of the file that it is in.

4.11.D. Figure 33, Item 4 - Date Last Saved
This data is contained in the IBWC blank drawing file. It will automatically update whenever the drawing is plotted. It cannot be contained in a cross referenced file as it will then only show the data for the cross referenced file instead of the file that it is in.

4.11.E. Figure 33, Item 5 - Border Version

1. The date of the USIBWC border being used is shown here as YYYYMMDD.
2. Ensure that the most recent drawing border is being used.

SECTION 5 - AUTOCAD SETUP

The items described in this Section are already set in all USIBWC provided drawing files and templates. This data is provided for reference or in case any of these items needs to be replicated.

5.1. IBWC ANSI ?? DATA

5.1.A. Both IBWC ANSI ?? Border xx.dwg and IBWC Blank Drawing xx.dwg include block data for each border named "IBWC ANSI ?? Data." These blocks contain the Title Block, Drawing Title, and Drawing Number. The attributes in this block are set to take advantage of AutoCAD's Sheet Set Manager. To ensure that the data in the Sheet Set Manager loads correctly in the drawing border, note the information below.

5.1.B. If AutoCAD's Sheet Set Manager is not used, simply modify the block attribute data per Subsection 5.1.G. below. Without the Sheet Set Manager data, these fields will show "####."

5.1.C. Most of the drawing border data is a block attribute. This attribute data includes:

1. USIBWC Project
2. Drawing Principal Feature
3. Drawing Sub Feature
4. Drawing Purpose
5. USIBWC Office
6. Drawing Number
7. Drawing Title

5.1.D. Three items are not attributes: drawing date, plot style table name, and plot scale. The date, the plot style table name, and the plot scale will self populate based upon drawing data whenever the layout is printed.

5.1.E. Sheet set fields (fields that were selected from the sheet set category) behave differently than other types of fields. By default, other types of fields update automatically when you save the drawing or when you use REGEN. In contrast, sheet set fields store the last values that were used, and they display these stored values if the information referenced by the sheet set field is not accessible. To update the value in a sheet set field, use UPDATEFIELD command.

5.1.F. Attribute Data Tied to Fields

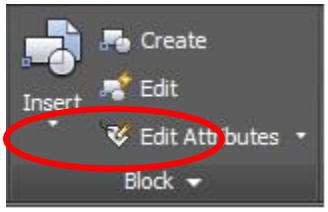
1. Project Name
   Block Tag — USIBWC_PROJECT
   Default Value — CurrentSheetSetProjectName
   %<\AcSm.16.2 SheetSet.ProjectName \f "%tc1">%
2. Principal Feature
   Block Tag — PRINCIPAL_FEATURE
   Default Value — CurrentSheetDescription
   %<\AcSm Sheet.Description \f "%tc4">%
3. Sub Feature
   Block Tag — SUB_FEATURE
   Default Value — CurrentSheetSubSet
   %<\AcSm Subset.Name \f "%tc4">%

4. Drawing Purpose
   Block Tag — DRAWING_PURPOSE
   Default Value — CurrentSheetIssuePurpose
   %<\AcSm.16.2 Sheet.IssuePurpose \f "%tc1">%
5. USIBWC Office
   Block Tag — OFFICE
   Default Value — CurrentSheetDescription
   %<\AcSm.16.2 Sheet.Category \f "%tc4">%
6. Drawing Title
   Block Tag — DRAWING_TITLE
   Default Value — CurrentSheetTitle
   %<\AcSm Sheet.Title \f "%tc4">%
7. Drawing Number
   Block Tag — DRAWING_NUMBER
   Default Value — CurrentSheetNumber
   %<\AcSm Sheet.Number \f "%tc1">%

5.1.G. How to Edit Attribute Data

Block attribute data can be edited one of four ways. All methods produce the same result.

1. Double Click on Data
   Double click on any of the attribute elements. This will cause the Enhanced Attribute Editor to open. Change the value of any or all attributes.
2. AutoCAD Ribbon
   Under Insert Tab, click on Edit Attributes in the Block section of the ribbon. This also causes the Enhanced Attribute Editor to open. Change the value of any or all attributes.



3. Properties Palette
   Open the properties palette for the block attribute. In the bottom of the properties, all of the attributes will be listed with their current values. Change the value of any or all attributes.
4. EATTEDIT
   Type EATTDIT in the command line. This will open the enhanced Attribute Editor. Change the value of any or all attributes.

5.2. TEXT STYLES

The following text styles are pre-loaded in the base drawings: Standard, Standard_Bold, Standard_Italic, and Legend. As noted on USIBWC Standard Drawing 26441 (Figure 18), use these styles as appropriate.

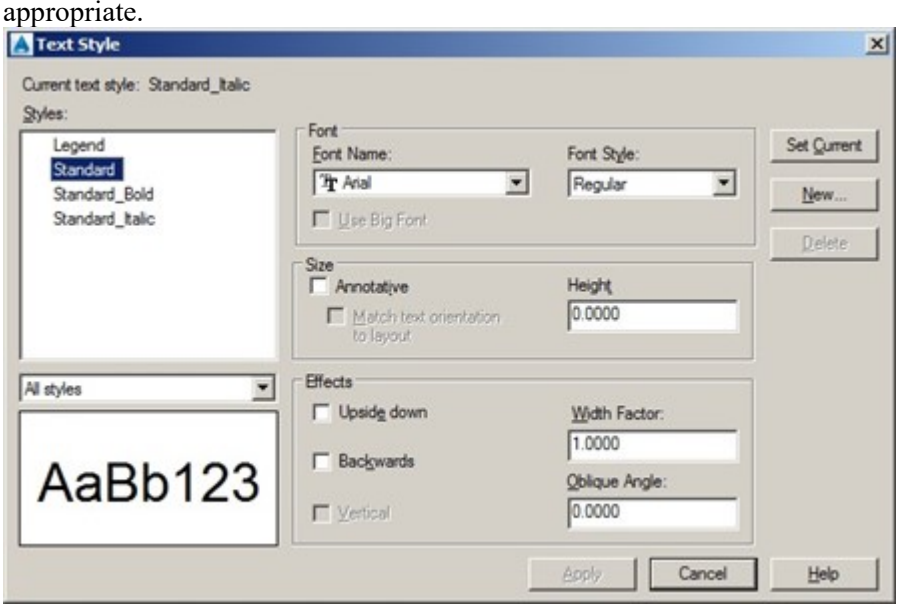


Figure 34-AutoCAD Text Styles

5.2.A. Standard

1. Font
   Font Name: Arial
   Font Style: Regular
2. Size
   Annotative: Leave unchecked
   Height: 0.0000
3. Effects
   Upside down: Leave unchecked
   Backwards: Leave unchecked
   Width Factor: 1.0000
   Oblique Angle: 0.0000

5.2.B. Standard_Bold

1. Font
   Font Name: Arial
   Font Style: Bold
2. Size
   Annotative: Leave unchecked
   Height: 0.0000
3. Effects
   Upside down: Leave unchecked
   Backwards: Leave unchecked
   Width Factor: 1.0000
   Oblique Angle: 0.0000

5.2.C. Standard_Italic

1. Font
   Font Name: Arial
   Font Style: Italic
2. Size
   Annotative: Leave unchecked
   Height: 0.0000
3. Effects
   Upside down: Leave unchecked
   Backwards: Leave unchecked
   Width Factor: 1.0000
   Oblique Angle: 0.0000

5.2.D. Legend

1. Font
   Font Name: Calibri
   Font Style: Regular
2. Size
   Annotative: Leave unchecked
   Height: 0.0000
3. Effects
   Upside down: Leave unchecked
   Backwards: Leave unchecked
   Width Factor: 1.0000
   Oblique Angle: 0.0000

5.3. DIMENSIONS

The default dimension style is IBWC_Std. Two versions are available. IBWC_Std_Arch is set to architectural (0'-0 ½") type units while IBWC_Std_Eng is set to engineering (0'-0.00") units. All settings except those noted in Paragraph 5.3.E. below are the same for both dimension styles.

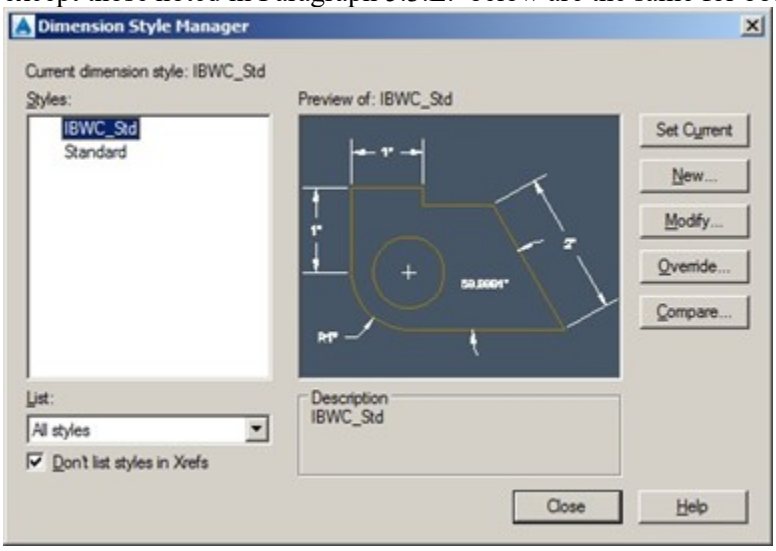


Figure 35-AutoCAD Dimensions Setup

5.3.A. Lines Tab

1. Dimension lines

Color:	ByLayer
Linestype:	ByBlock
Lineweight:	ByLayer
Extend beyond ticks:	*grayed out*
Baseline spacing:	0.2400

a. Suppress:

Dim line 1:	Leave unchecked
Dim line 2:	Leave unchecked

2. Extension lines

Color:	ByLayer
Linetype ext line 1:	ByBlock
Linetype ext line 2:	ByBlock
Lineweight:	ByLayer
Extend beyond dim lines:	0.1800
Offset from origin:	0.0625
Fixed length extension lines:	Leave unchecked
Length:	grayed out

a. Suppress:

Dim line 1:	Leave unchecked
Dim line 2:	Leave unchecked

5.3.B. Symbols and Arrows Tab

1. Arrowheads

First:	Closed filled
Second:	Closed filled
Leader:	Closed filled
Arrow size:	0.1800

2. Center marks:

Choose:	Mark	0.0900

3. Dimension Break

Break size:	0.1250

4. Arc length symbol

Choose:	Preceding dimension text

5. Radius job dimension

Job angle:	45.0000

6. Linear job dimension

Job height factor:	1.5000

5.3.C. Text Tab

1. Text appearance

Text style:	Standard
Text color:	ByLayer
Fill color:	None
Text height:	0.1200

Fraction height scale:	0.7500
Draw frame around text:	Leave unchecked

2. Text placement

Vertical:	Centered
Horizontal:	Centered
View Direction:	Left-to-Right
Offset from dim line:	0.1200

3. Text alignment

Choose:	Horizontal

5.3.D. Fit Tab

1. Fit options

Choose:	Either text or arrows (best fit)
Suppress arrows:	Leave unchecked

2. Text placement

Choose:	Beside the dimension line

3. Scale for dimension features

Annotative: Personal preference whether to check or not, but default is that the dimension is annotative. Either scale dimensions to layout or choose appropriate scale for viewports.

4. Fine tuning

Place text manually:	Leave unchecked
Draw dim line between ext lines:	Leave unchecked

5.3.E. Primary Units Tab

1. Linear dimensions for IBWC_Std_Arch

Unit format:	Architectural
Precision:	0'-0 ½" (can be reduced based upon project)
Fraction format:	Diagonal
Decimal separator:	*grayed out*
Round off:	0.0000
Prefix:	none
Suffix:	none

2. Linear dimensions for IBWC_Std_Eng

Unit format:	Engineering
Precision:	0'-0.00" (can be reduced based upon project)
Fraction format:	*grayed out*
Decimal separator:	*grayed out*
Round off:	0.0000
Prefix:	none
Suffix:	none

3. Measurement scale

Scale factor:	1.0000 (may be changed if needed)
Apply to layout dimensions only:	Check as appropriate for your project

4. Angular dimensions

Units format:	Decimal Degrees
Precision:	0.0000

5. Zero suppression

Leading:	Leave unchecked
Trailing:	Check

5.3.F. Alternate Units Tab — Not used.

5.3.G. Tolerances Tab

1. Tolerance format

Method:	None
Precision:	*grayed out*
Upper value:	*grayed out*
Lower value:	*grayed out*
Scaling for height:	1.0000
Vertical position:	Middle

2. Tolerance alignment — *grayed out*
3. Zero suppression — *grayed out*
4. Alternate unit tolerance — *grayed out*
5. Zero suppression — *grayed out*

5.4. MULTILEADER

The default multileader style is IBWC_Std. The settings for this style are listed below.

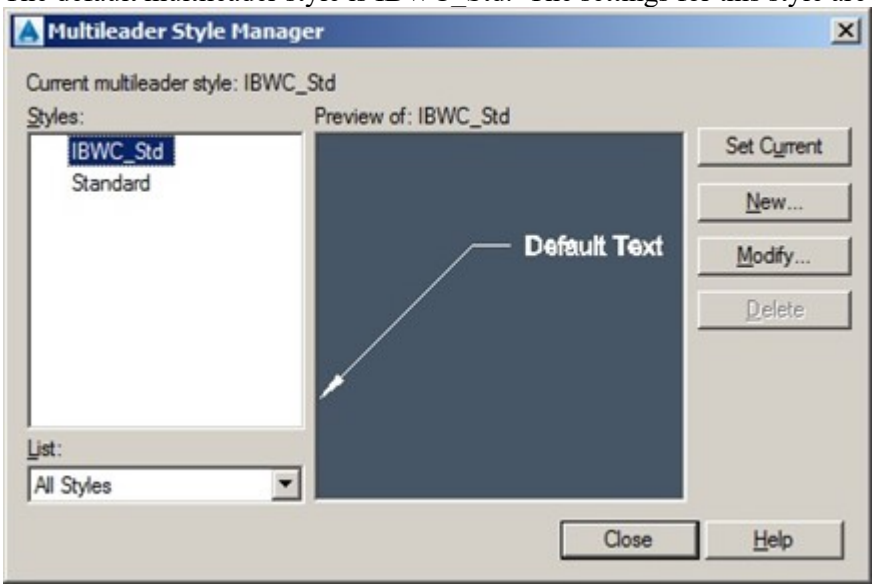


Figure 36-AutoCAD Multileader Setup

5.4.A. Leader Format Tab

1. General

Type:	Straight
Color:	ByLayer
Linetype:	ByBlock
Lineweight:	ByLayer

2. Arrowhead

Symbol:	Closed filled

Size:	0.1800

3. Leader break

Size:	0.1250

5.4.B. Leader Structure Tab

1. Constraints

Maximum leader points:	2
First segment angle:	Leave unchecked
Second segment angle:	Leave unchecked

2. Landing settings

Automatically include landing:	Check
Set landing distance:	0.2400

3. Scale

Annotative: Personal preference whether to check or not, but default is that the dimension is annotative. Either scale dimensions to layout or choose appropriate scale for viewports.

5.4.C. Content Tab

Multileader type:	Mtext

1. Text options

Default text:	Blank
Text style:	Standard
Text angle:	Keep horizontal
Text color:	ByLayer
Text height:	0.1200
Always left justify:	Leave unchecked
Frame text:	Leave unchecked

2. Leader connection

Horizontal attachment:	Check
Vertical attachment:	Leave unchecked
Left attachment:	Middle of text
Right attachment:	Middle of text
Landing gap:	0.1200
Extend leader to text:	Check

5.5. COLORS

5.5.A. USIBWC has two color dependent plot style table (ctb) files for use in AutoCAD. There is one file for black and white drawing production and one for color. The files are IBWC_B&W.ctb and IBWC_Color.ctb. Ensure that the files are placed in the directory:

5.5.B. C:\Users*username*\AppData\Roaming\Autodesk\####\enu\Plotters\Plot Styles . If the files are not placed within this directory, AutoCAD will not find them.

5.5.C. USIBWC's ctb files do offer six screened colors. It is still preferred that screening be applied to layers to ensure that the data is not lost, but 5.5.D. below provides details on the screening available in the ctb files.

5.5.D. Screened Colors

1. Colors 250, 251, 252, 253, 254, and 255 are screened in the provided IBWC plot style tables. Table 5 indicates the amount of screening for each of these colors. 100% screening

is normal color whereas 0% screen is transparent. Examples of screened colors are shown on USIBWC Standard Drawing 26441 (Figure 18).

2. Screened colors are excellent for use in hatches in black and white drawings.

Table 5-Color Screening

COLOR	SCREENING
250	60%
251	50%
252	40%
253	30%
254	20%
255	0%-background

5.5.E. Drafting Symbols and Notations

When naming layers, it is recommended that the NCS discipline designator be used to begin the layer name. These designators are listed below.

A	Architectural
B	Geotechnical
C	Civil
D	Process
E	Electrical
F	Fire Protections
G	General
H	Hazardous Materials
I	Interiors
L	Landscape
M	Mechanical
O	Operations
P	Plumbing
Q	Equipment
R	Resource
S	Structural
T	Telecommunications
V	Survey/Mapping
W	Distributed Energy
X	Other Disciplines
Z	Contractor/Shop Drawings

5.6. LINEWEIGHT

The default lineweight is set to 0.010 inches. Other lineweights may be used to allow items to be clearly displayed on the drawings. USIBWC Standard Drawing 26441 (Figure 18) shows examples of different lineweights.

5.7. PLOT STYLES

5.7.A. USIBWC has two color dependent plot style table (ctb) files for use in AutoCAD. There is one file for black and white drawing production and one for color. The files are IBWC_B&W.ctb and IBWC_Color.ctb. Ensure that the files are placed in the directory:

5.7.B. C:\Users*username*\AppData\Roaming\Autodesk\C3D 2015\enu\Plotters\Plot Styles . If the files are not placed within this directory, AutoCAD will not find them.

5.7.C. IBWC_Color.ctb

Color:	Use object color
Dither:	On
Grayscale:	Off
Pen #:	Automatic
Virtual pen #:	Automatic
Screening:	100 *
Linetype:	Use object linetype
Adaptive:	On
Lineweight:	Use object lineweight
Line end style:	Use object end style
Line join style:	Use object join style
Fill style:	Use object fill style

* See Paragraph 5.5.D. and Table 5 for six colors that are screened.

5.7.D. IBWC_B&W.ctb

Color:	Black
Dither:	On
Grayscale:	Off
Pen #:	Automatic
Virtual pen #:	Automatic
Screening:	100 *
Linetype:	Use object linetype
Adaptive:	On
Lineweight:	Use object lineweight
Line end style:	Use object end style
Line join style:	Use object join style
Fill style:	Use object fill style

* See Paragraph 5.5.D. and Table 5 for six colors that are screened.

5.8. PLOTTER AND PRINTER SETUP

5.8.A. To change specific settings associated with a plotter or even the AutoCAD pdf printer, click on Print in the main AutoCAD menu (Figure 37). When the submenu opens, click on Manage Plotters. This opens a Windows Explorer window showing all installed AutoCAD plotters. An example is shown in Figure 38. Double click any of the listed plotters to adjust their configuration.

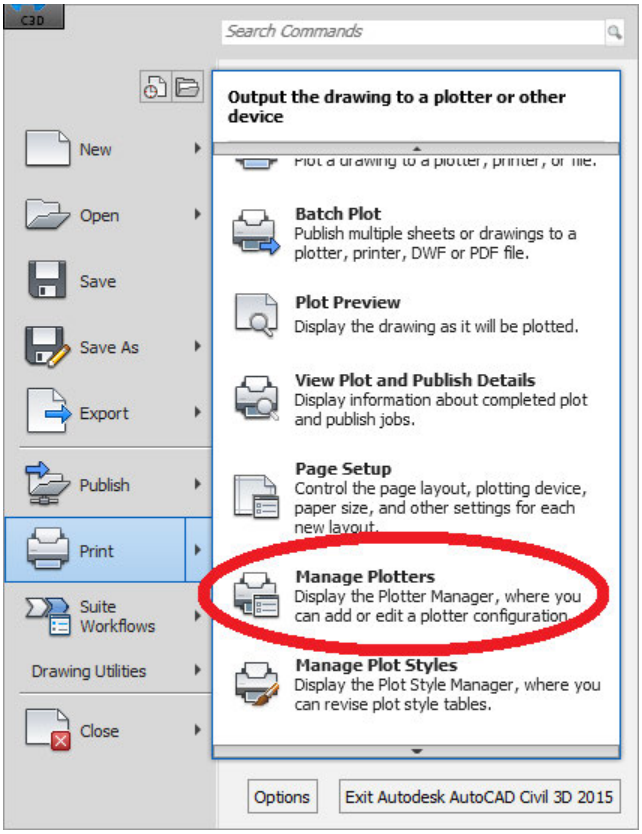


Figure 37-AutoCAD Print Menu

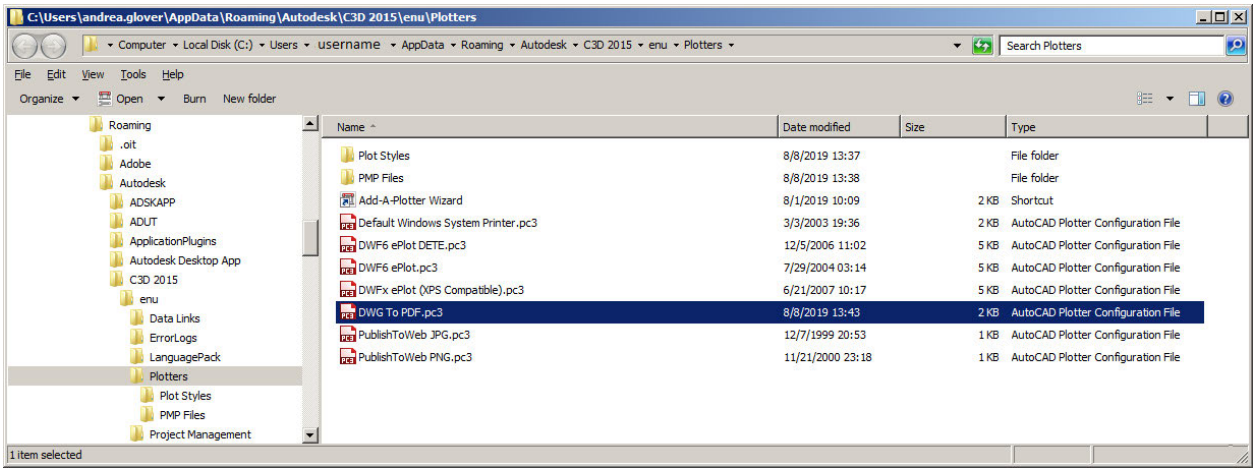


Figure 38-AutoCAD Plotters Available

5.8.B. A copy of DWG To PDF.pc3, which has already been configured per Subsection 5.8.C., is included in the IBWC base files. This file can simply be copied to the directory shown in Figure 38 to overwrite your existing file.

5.8.C. Printer/plotter - DWG To PDF.pc3 Setup

1. Simply choosing the correct printer/plotter and the correct plot style table will not guarantee that your drawing plots correctly. The specific settings for your PDF file must be set. To do that, you must enter AutoCAD's Plotter Configuration Editor (Figure 39). Open this editor one of two ways.
2. Method One - Double click on file "DWG to PDF.pc3" listed in the Windows Explorer window shown in Figure 38.
3. Method Two - Either under Page Setup Manager --> Modify or via the plot screen, click on the Properties button adjacent to DWG To PDF.pc3. This opens the Plotter Configuration Editor.

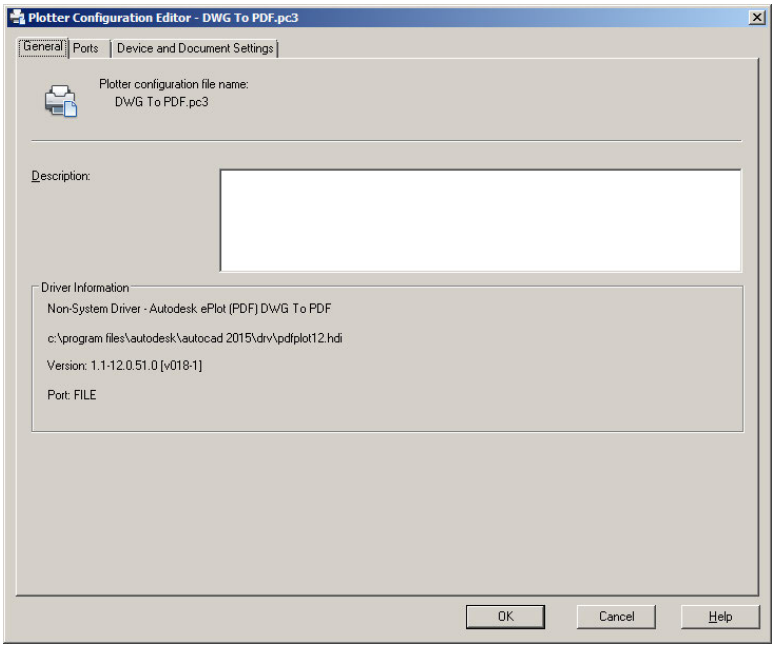


Figure 39-Plotter Configuration Menu-General Tab

4. Set Maximum Resolution of PDF
   a. Click on the "Devices and Document Settings" tab (Figure 40). Click Custom Properties, then click the Custom Properties... button.
   b. Click on Custom Properties. This opens Figure 41.
   c. Change all resolutions to 1200 dpi.
   d. Also change Font Handling to Capture all.
   e. Do NOT include layer information. The pdfs become hard to load and sometimes the filesize greatly expands with the layer information included.
   f. It is the operator's choice whether to open the pdf when plotting is finished.
   g. Once these changes are made, click OK. This returns you to Figure 40.

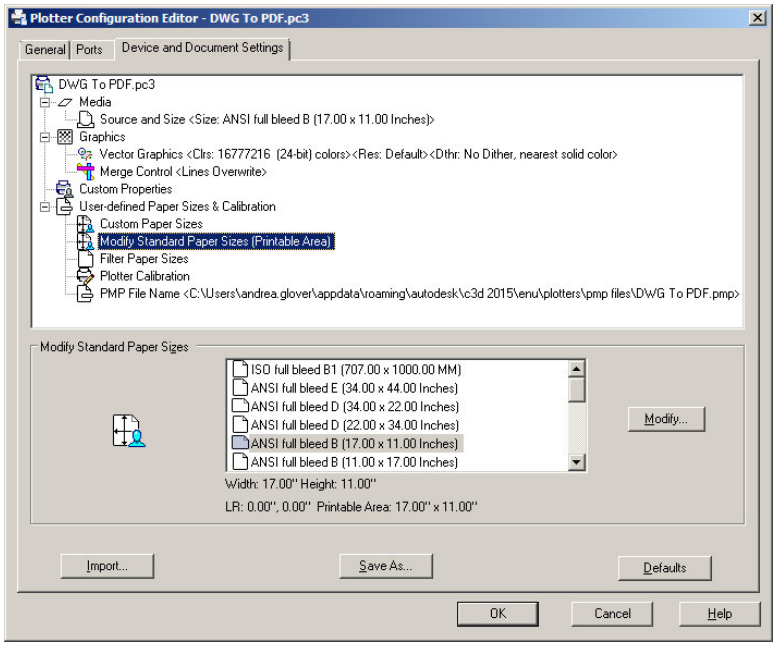


Figure 40-Plotter Configuration Menu-Device and Document Settings Tab

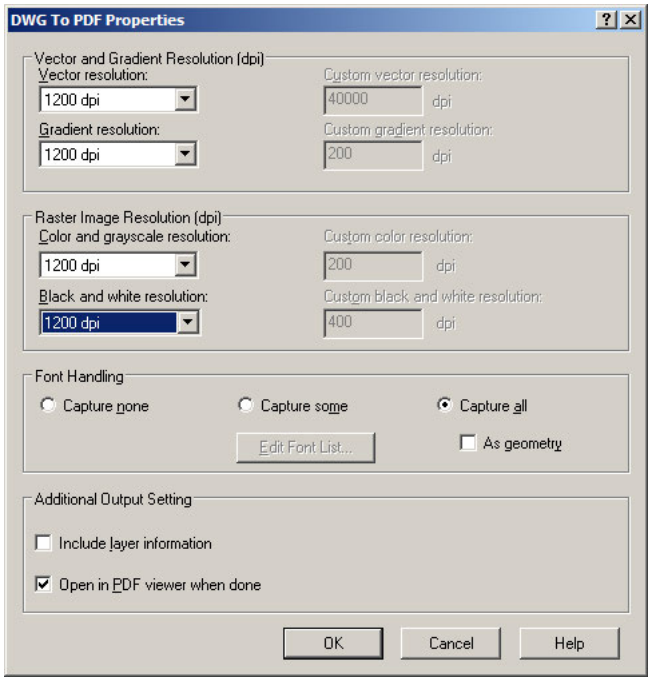


Figure 41-Plotter Custom Properties

5. Set Printable Area to Full Size of Paper
   a. Click Modify Standard Paper Sizes (Printable Area). Scroll down the list until you find ANSI full bleed. There are two listings for each paper size (one landscape and one portrait). Starting with ANSI full bleed D (34.00 x 22.00 Inches), highlight the paper size and click the "Modify" button. This brings up Figure 42. Set all values to 0.00 and click "Next" then click "Finish."

b. Repeat this for both ANSI full bleed D and ANSI full bleed B.

c. Once you have modified all of the ANSI full bleed paper sizes, click "OK" on the Plotter Configuration Editor window (Figure 40).

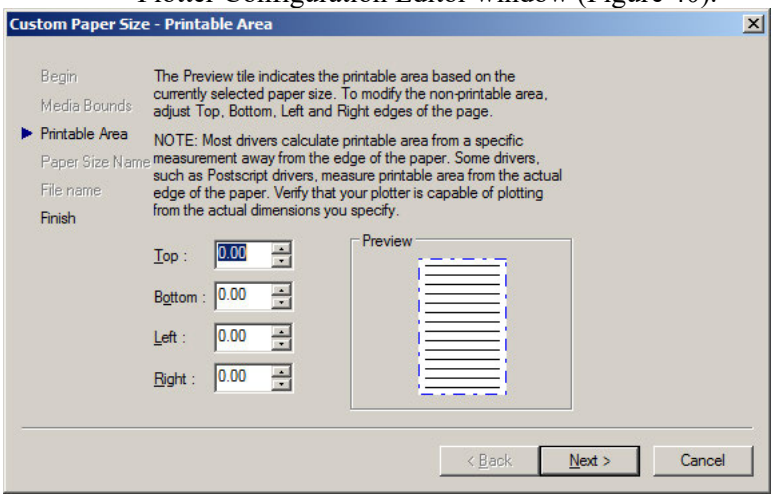


Figure 42-Modify Standard Paper Sizes

5.8.D. IBWC pdf 11x17 Half Size-xx Plot Configuration

1. Printer/plotter
   Name: DWG To PDF.pc3
2. Paper size: ANSI full bleed B (17.00 x 11.00 Inches)
3. Plot area
   What to plot: Layout
4. Plot offset (origin set to layout border)
   X: 0.00000
   Y: 0.00000
5. Plot scale
   Scale: Custom
   0.5 inches
   1
   Scale lineweights: Checked
6. Plot style table (pen assignments): IBWC_xx.ctb
7. Shaded viewport options
   Quality: Custom
   DPI 1200
8. Plot options
   Plot in background: Leave unchecked
   Plot object lineweights: Checked
   Plot transparency: Checked
   Plot with plot styles: Checked
   Plot paperspace last: Checked
   Hide paperspace objects: Leave unchecked

Plot stamp on:	Leave unchecked
Save changes to layout:	Leave unchecked

9. Drawing orientation

Radio button:	Landscape
Plot upside-down	Leave unchecked

5.8.E. IBWC pdf 22x34 Full Size-xx Plot Configuration

1. Printer/plotter

Name:	DWG To PDF.pc3

2. Paper size — ANSI full bleed D (34.00 x 22.00 Inches)

3. Plot area

What to plot:	Layout

4. Plot offset (origin set to layout border)

X:	0.00000
Y:	0.00000

5. Plot scale

Scale:	1:1 1 inches 1
Scale lineweights:	Leave unchecked

6. Plot style table (pen assignments) — IBWC_xx.ctb

7. Shaded viewport options

Quality:	Custom
DPI	1200

8. Plot options

Plot in background:	Leave unchecked
Plot object lineweights:	Checked
Plot transparency:	Checked
Plot with plot styles:	Checked
Plot paperspace last:	Checked
Hide paperspace objects:	Leave unchecked
Plot stamp on:	Leave unchecked
Save changes to layout:	Leave unchecked

9. Drawing orientation

Radio button:	Landscape
Plot upside-down	Leave unchecked

5.8.F. IBWC pdf 8.5x11-H-xx Plot Configuration

1. Printer/plotter

Name:	DWG To PDF.pc3

2. Paper size — ANSI full bleed A (11.00 x 8.50 Inches)

3. Plot area

What to plot:	Layout

4. Plot offset (origin set to layout border)

X:	0.00000
Y:	0.00000

5. Plot scale
   Scale: 1:1
   1 inches
   1
   Scale lineweights: Checked
6. Plot style table (pen assignments) IBWC_xx.ctb
7. Shaded viewport options
   Quality: Custom
   DPI 1200
8. Plot options
   Plot in background: Leave unchecked
   Plot object lineweights: Checked
   Plot transparency: Checked
   Plot with plot styles: Checked
   Plot paperspace last: Checked
   Hide paperspace objects: Leave unchecked
   Plot stamp on: Leave unchecked
   Save changes to layout: Leave unchecked
9. Drawing orientation
   Radio button: Landscape
   Plot upside-down Leave unchecked

5.8.G. IBWC pdf 8.5x11-V-xx Plot Configuration

1. Printer/plotter
   Name: DWG To PDF.pc3
2. Paper size ANSI full bleed A (11.00 x 8.50 Inches)
3. Plot area
   What to plot: Layout
4. Plot offset (origin set to layout border)
   X: 0.00000
   Y: 0.00000
5. Plot scale
   Scale: 1:1
   1 inches
   1
   Scale lineweights: Checked
6. Plot style table (pen assignments) IBWC_xx.ctb
7. Shaded viewport options
   Quality: Custom
   DPI 1200
8. Plot options
   Plot in background: Leave unchecked
   Plot object lineweights: Checked
   Plot transparency: Checked
   Plot with plot styles: Checked
   Plot paperspace last: Checked

Hide paperspace objects: Leave unchecked
Plot stamp on: Leave unchecked
Save changes to layout: Leave unchecked

9. Drawing orientation
   Radio button: Portrait
   Plot upside-down Leave unchecked

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SECTION 6 - CONSTRUCTION TERMS AND ABBREVIATIONS

6.1. ABBREVIATIONS

The following abbreviations are used in this document:

####	Placeholder for version of AutoCAD
??	Placeholder for D, A-H, or A-V in regards to ANSI paper sizes
A&E	Architect-Engineering
ANSI	American National Standards Institute
B&W	Black and white
C3D	AutoCAD Civil 3D
CAD	Computer-Aided Design
CAPS	Capitalized or capitals
dwg	AutoCAD drawing file
IBWC	International Boundary and Water Commission
NCS	US National CAD Standard
SBU	Sensitive but unclassified
USACE	US Army Corps of Engineers
USIBWC	US Section of International Boundary and Water Commission
xref	AutoCAD cross referenced file
xx	Placeholder for B&W or color

6.2. PROPER SPELLING

6.2.A. AutoCAD contains a spellchecker. Ensure that items are checked for proper spelling and grammar prior to finalizing the drawing. Also ensure that terms are used consistently between the drawings and the specifications.

6.2.B. Listed are the proper spelling for common construction terms.

CORRECT	INCORRECT
borehole	bore hole
bypass	by-pass
cutoff	cut off or cut-off
daylight	day-light
earthwork	earth work
eastside	east side or east-side
flap gate	flapgate
floodplain	flood plain
floodwall	flood wall
follow up	follow-up
gatewell	gate well
groundwater	ground water or ground-water
guardrail	guard rail
headwall	head wall
jobsite	job site
landside	land-side or land side
noncompliance	non-compliance
offsite	off site or off-site
onsite	on site or on-site
overchute	over chute

CORRECT	INCORRECT
pinhole	pin hole
preapproved	pre-approved
preconstruction	pre-construction
preexisting	pre-existing
proactive	pro-active
punch list	punchlist
railroad	rail road
riprap	rip rap
riverside	river-side or river side
sidewalk	side walk
stoplog	stop log
stormwater	storm water
subgrade	sub grade
through	thru
topsoil	top soil
overtime	over-time
wastewater	waste water
wasteway	waste way
waterway	water way
waterstop	water stop
wingwall	wing wall
worksite	work site

6.3. USE OF PROPER TERMS

6.3.A. Coarse vs Course

While more often confused due to typographical errors than actual misunderstanding the term, coarse and course are often used incorrectly or interchangeably. So while the base course may be coarse, ensure that the proper word is being used.

1. Coarse
   Coarse is an adjective. It means rough in texture, composed of large grains, designed for less delicate work (coarse saw blade), or not precise.
2. Course
   Course is a noun or a verb. As a noun it means layer (usually gravel or masonry), a route or direction of travel, a normal procedure or action, a class, a series of items in sequence (food, medicine, etc.). As a verb it means to move, to run, or to pursue.

6.3.B. Gage vs Gauge

In science and engineering gage and gauge are often used interchangeably. USGS uses "gage" for water (streamflow and precipitation) measurement. Use of "gage" in relation to water measurement devices is preferred. The different spellings can be used within the same set of documents, but they need to be used consistently. Consistency refers to always stating 'gaging station' but also always stating 'pressure gauge.'

1. Common "Gauge" Terms

Gauge boson	Gauge group	Steel gauge
Gauge invariance	Gauge particle	Wire gauge
Gauge theory	Gauge transformation	Pressure gauge

2. Common "Gage" Terms

Gage block	Gage brick	Rain gage
Gage cock	Gage glass	Stream gage
Gage length	Gage loss	Grind gage
Gage penetration	Gage plate	Gage point
Gage pressure		

6.4. PRONOUNS

The use of "he," "his," "he/she," or "himself" shall be avoided. If pronouns are required, use "they," "their," or "themselves."

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International Boundary and Water Commission

Established in 1889, the International Boundary and Water Commission (IBWC) has responsibility for applying the boundary and water treaties between the United States and Mexico and settling differences that may arise in their application. The IBWC is an international body composed of the United States Section and the Mexican Section, each headed by an Engineer-Commissioner appointed by their respective president. Each Section is administered independently of the other. The United States Section of the International Boundary and Water Commission (USIBWC) is a federal government agency and is headquartered in El Paso, Texas. The IBWC operates under the foreign policy guidance of the Department of State. The Mexican Section is under the administrative supervision of the Mexican Ministry of Foreign Affairs and is headquartered in Ciudad Juarez, Chihuahua, Mexico.

Article 2, 1944 Water Treaty

"The jurisdiction of the Commission shall extend to the limitrophe parts of the Rio Grande (Rio Bravo) and the Colorado River, to the land boundary between the two countries, and to works located upon their common boundary, each Section of the Commission retaining jurisdiction over that part of the works located within the limits of its own country."

Vision

To be recognized as the premier agency that identifies solutions along the United States–Mexico border through local, state, federal, and binational partnerships.

Mission

Provide binational solutions to issues that arise during the application of United States - Mexico treaties regarding boundary demarcation, national ownership of waters, sanitation, water quality, and flood control in the border region.

www.ibwc.gov

International Boundary and Water Commission

United States Section

Construction Management Division
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El Paso, Texas 79902

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