Government of Northwest Territories
Gouvernement des Territoires du Nord-Ouest

ENGINEERING DRAFTING GUIDELINES FOR BRIDGE PROJECTS (DRAFTING GUIDELINES)

Version 1.0

October 2024

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ENGINEERING DRAFTING GUIDELINES FOR BRIDGE PROJECTS

(DRAFTING GUIDELINES)

Department of Infrastructure

Government of Northwest Territories

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PREFACE

The Government of Northwest Territories (GNWT) Engineering Drafting Guidelines for Bridge Projects (Drafting Guidelines) documents the drafting standards followed by the GNWT Department of Infrastructure (Department) with respect to bridge projects and related structures.

LIST OF CHANGES

The table below documents the timeline of changes to the Structure Design Criteria.

When changes are made to the document, the following actions will be completed:

- The version number of the document will be updated.
- A revision triangle will be placed next to the change in the document (for minor revisions following the initial issue of the document).
- A basic description and the date of the change will be summarized in the table below.

VERSION NUMBER	DATE	DESCRIPTION

Table of Contents

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1. GENERAL

1.1 Scope

These Drafting Guidelines describe the general appearance, content and organization of the contract drawings required for the construction of bridges and related structures.

The Drafting Guidelines reflect the purpose of the drawings being produced: a complete, clear and readable contract drawing set. The layering will be discussed in this document while line types should be kept simple and adhere to AutoCAD supplied line type references. No custom line types or fonts shall be used for any contract drawing to avoid confusion.

The Drafting Guidelines shall be subject to further development, periodic review and amendments to meet industry standards.

1.2 Software

Contract drawings for the Department shall be produced using the latest version of AutoCAD and the only acceptable file formats are dwg.

No third party's software package will be accepted unless written approval is obtained from the Department.

1.3 Paper Space / Model Space in AutoCAD

It is recommended and preferred, that the Paper Space feature in AutoCAD is used for Bridge Projects. The bridge layout can be easily coordinated with the roadwork design and minimize errors.

1.4 Numbering of Drawings

It is recommended that the Department issue a designation number for the structure. This will help their inventory control and maintenance in the future. The drawing number will be made up of two parts, NNNNN-nnn (NNNNN is the Asset ID number and nnn is the sheet number within that series). Drawing numbers shall not be duplicated in order to maintain a good record of structure inventories.

1.5 Drawing Size

Drawings shall be 560 mm x 864 mm (22" X 34" ANSI D) such that true half-size prints correspond to 11" X 17" sheets.

1.6 Cover Sheet & Border Sheet

The standard cover sheet is shown in Figure 1-1 and the standard border sheet title block in Figure 1-2.

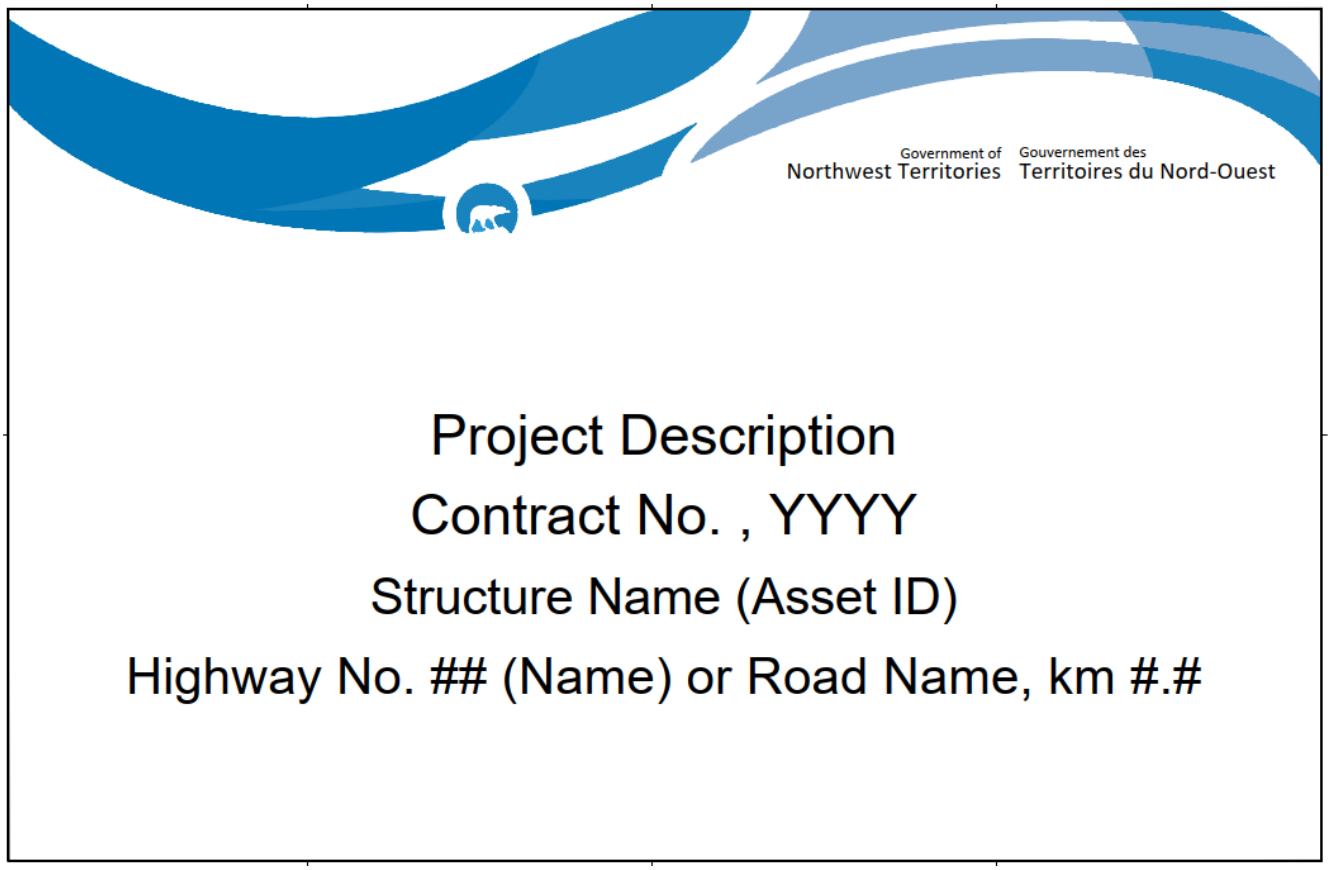

Figure 1-1 Cover Sheet

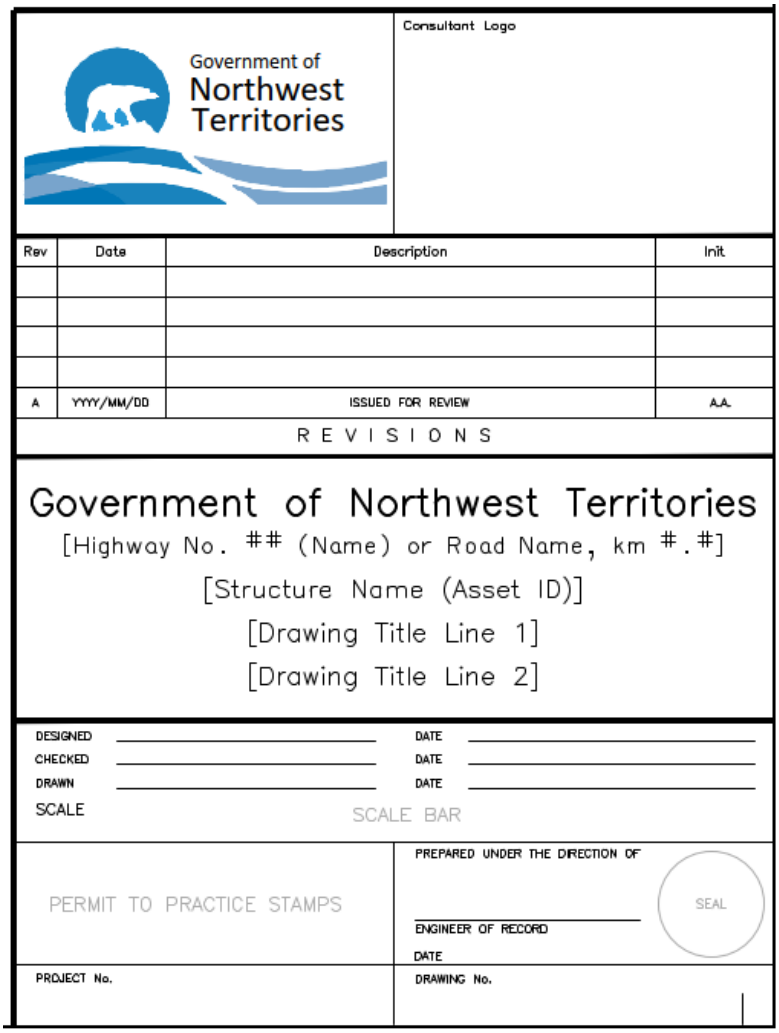

Figure 1-2 Standard Border Sheet Title Block

2. DRAWING PREPARATION

2.1 Layering

The recommended Layering system is described in Table 2-1.

Table 2-1: Recommended Layering System

Name	Color	Plot	Line Type	Line Weight	Description
0	7	Plot	Continuous		
S14C-CNTR-LW18	14	Plot	Centre	Lw .18	Existing Structure Centre Line
S14D-EXST-LW18	14	Plot	Dashed	Lw .18	Dashed - Existing
S14C-EXST-LW18	14	Plot	Continuous	Lw .18	Existing Structure
S16C-ABUT-PATT	16	Plot	Continuous	Hatch	Abutment
S16C-APPR-PATT	16	Plot	Continuous	Hatch	Approach Slab
S16C-BARR-PATT	16	Plot	Continuous	Hatch	Barrier
S16C-BRAC-PATT	16	Plot	Continuous	Hatch	Bracing
S16C-BRNG-PATT	16	Plot	Continuous	Hatch	Bearing
S16C-CONC-PATT	16	Plot	Continuous	Hatch	Concrete
S16C-DECK-PATT	16	Plot	Continuous	Hatch	Deck
S16C-EXST-PATT	16	Plot	Continuous	Hatch	Existing Structure
S16C-FLBM-PATT	16	Plot	Continuous	Hatch	Floor Beam
S16C-FTNG-PATT	16	Plot	Continuous	Hatch	Footing
S16C-FUTR-PATT	16	Plot	Continuous	Hatch	Future Structure
S16C-GRAL-PATT	16	Plot	Continuous	Hatch	Guard Rail
S16C-GRND-PATT	16	Plot	Continuous	Hatch	Ground
S16C-PARA-PATT	16	Plot	Continuous	Hatch	Parapet
S16C-PICP-PATT	16	Plot	Continuous	Hatch	Pier Cap
S16C-PIER-PATT	16	Plot	Continuous	Hatch	Pier
S16C-PILE-PATT	16	Plot	Continuous	Hatch	Pile
S16C-PLCP-PATT	16	Plot	Continuous	Hatch	Pile Cap

Name	Color	Plot	Line Type	Line Weight	Description
S16C-RETW-PATT	16	Plot	Continuous	Hatch	Retaining Wall
S16C-STEL-PATT	16	Plot	Continuous	Hatch	Steel
S16C-STRG-PATT	16	Plot	Continuous	Hatch	Stringer or Girder
S16C-TIMB-PATT	16	Plot	Continuous	Hatch	Timber
S16C-TRUS-PATT	16	Plot	Continuous	Hatch	Truss
SCC-ABUT-LW70	Cyan	Plot	Continuous	Lw .70	Abutment
SCC-ANNO-LW70	Cyan	Plot	Continuous	Lw .70	Annotation Text 5.0 or above
SCC-APPR-LW70	Cyan	Plot	Continuous	Lw .70	Approach Slab
SCC-BARR-LW70	Cyan	Plot	Continuous	Lw .70	Barrier
SCC-BRAC-LW70	Cyan	Plot	Continuous	Lw .70	Bracing
SCC-BRNG-LW70	Cyan	Plot	Continuous	Lw .70	Bearing
SCC-CNTR-LW70	Cyan	Plot	Centre	Lw .70	Centre Line
SCC-CONC-LW70	Cyan	Plot	Continuous	Lw .70	Concrete
SCC-DECK-LW70	Cyan	Plot	Continuous	Lw .70	Deck
SCC-EXST-LW70	Cyan	Plot	Continuous	Lw .70	Existing Structure
SCC-FLBM-LW70	Cyan	Plot	Continuous	Lw .70	Floor Beam
SCC-FTNG-LW70	Cyan	Plot	Continuous	Lw .70	Footing
SCC-FUTR-LW70	Cyan	Plot	Continuous	Lw .70	Future Structure
SCC-GIRD-LW70	Cyan	Plot	Continuous	Lw .70	Girder
SCC-GRAL-LW70	Cyan	Plot	Continuous	Lw .70	Guard Rail
SCC-GRND-LW70	Cyan	Plot	Continuous	Lw .70	Ground
SCC-PARA-LW70	Cyan	Plot	Continuous	Lw .70	Parapet
SCC-PICP-LW70	Cyan	Plot	Continuous	Lw .70	Pier Cap
SCC-PLCP-LW70	Cyan	Plot	Continuous	Lw .70	Pile Cap
SCC-PIER-LW70	Cyan	Plot	Continuous	Lw .70	Pier
SCC-PILE-LW70	Cyan	Plot	Continuous	Lw .70	Pile
SCC-RETW-LW70	Cyan	Plot	Continuous	Lw .70	Retaining Wall

Name	Color	Plot	Line Type	Line Weight	Description
SCC-STEL-LW70	Cyan	Plot	Continuous	Lw .70	Steel
SCC-STRG-LW70	Cyan	Plot	Continuous	Lw .70	Stringer
SCC-TIMB-LW70	Cyan	Plot	Continuous	Lw .70	Timber
SCC-TRUS-LW70	Cyan	Plot	Continuous	Lw .70	Truss
SCP-LEGL-LW70	Cyan	Plot	Phantom	Lw .70	Legal or Property Line
SGC-ABUT-LW50	Green	Plot	Continuous	Lw .50	Abutment
SGC-ANNO-LW50	Green	Plot	Continuous	Lw .50	Annotation Text 3.5 / 4.0
SGC-APPR-LW50	Green	Plot	Continuous	Lw .50	Approach Slab
SGC-BARR-LW50	Green	Plot	Continuous	Lw .50	Barrier
SGC-BRAC-LW50	Green	Plot	Continuous	Lw .50	Bracing
SGC-BRNG-LW50	Green	Plot	Continuous	Lw .50	Bearing
SGC-CNTR-LW50	Green	Plot	Centre	Lw .50	Centre Line
SGC-CONC-LW50	Green	Plot	Continuous	Lw .50	Concrete
SGC-DECK-LW50	Green	Plot	Continuous	Lw .50	Deck
SGC-EXST-LW50	Green	Plot	Continuous	Lw .50	Existing Structure
SGC-FLBM-LW50	Green	Plot	Continuous	Lw .50	Floor Beam
SGC-FTNG-LW50	Green	Plot	Continuous	Lw .50	Footing
SGC-FUTR-LW50	Green	Plot	Continuous	Lw .50	Future Structure
SGC-GIRD-LW50	Green	Plot	Continuous	Lw .50	Girder
SGC-GRAL-LW50	Green	Plot	Continuous	Lw .50	Guard Rail
SGC-GRND-LW50	Green	Plot	Continuous	Lw .50	Ground
SGC-PARA-LW50	Green	Plot	Continuous	Lw .50	Parapet
SGC-PICP-LW50	Green	Plot	Continuous	Lw .50	Pier Cap
SGC-PLCP-LW50	Green	Plot	Continuous	Lw .50	Pile Cap
SGC-PIER-LW50	Green	Plot	Continuous	Lw .50	Pier
SGC-PILE-LW50	Green	Plot	Continuous	Lw .50	Pile
SGC-RBAR-LW50	Green	Plot	Continuous	Lw .50	Rebar

Name	Color	Plot	Line Type	Line Weight	Description
SGC-RETW-LW50	Green	Plot	Continuous	Lw .50	Retaining Wall
SGC-STEL-LW50	Green	Plot	Continuous	Lw .50	Steel
SGC-STRG-LW50	Green	Plot	Continuous	Lw .50	Stringer
SGC-TIMB-LW50	Green	Plot	Continuous	Lw .50	Timber
SGC-TRUS-LW50	Green	Plot	Continuous	Lw .50	Truss
SGD-FUTR-LW50	Green	Plot	Dashed	Lw .50	Future Structure Dashed
SGP-LEGL-LW50	Green	Plot	Phantom	Lw .50	Legal or Property Line
SRC-ABUT-LW25	Red	Plot	Continuous	Lw .25	Abutment
SRC-ANNO-LW25	Red	Plot	Continuous	Lw .25	Annotation Text 2.0
SRC-APPR-LW25	Red	Plot	Continuous	Lw .25	Approach Slab
SRC-BARR-LW25	Red	Plot	Continuous	Lw .25	Barrier
SRC-BRAC-LW25	Red	Plot	Continuous	Lw .25	Bracing
SRC-BRNG-LW25	Red	Plot	Continuous	Lw .25	Bearing
SRC-CNTR-LW25	Red	Plot	Centre	Lw .25	Centre Line
SRC-CONC-LW25	Red	Plot	Continuous	Lw .25	Concrete
SRC-DECK-LW25	Red	Plot	Continuous	Lw .25	Deck
SRC-EXST-LW25	Red	Plot	Continuous	Lw .25	Existing Structure
SRC-FLBM-LW25	Red	Plot	Continuous	Lw .25	Floor Beam
SRC-FTNG-LW25	Red	Plot	Continuous	Lw .25	Footing
SRC-FUTR-LW25	Red	Plot	Continuous	Lw .25	Future structure
SRC-GIRD-LW25	Red	Plot	Continuous	Lw .25	Girder
SRC-GRAL-LW25	Red	Plot	Continuous	Lw .25	Guard Rail
SRC-GRND-LW25	Red	Plot	Continuous	Lw .25	Ground
SRC-PARA-LW25	Red	Plot	Continuous	Lw .25	Parapet
SRC-PICP-LW25	Red	Plot	Continuous	Lw .25	Pier Cap
SRC-PLCP-LW25	Red	Plot	Continuous	Lw .25	Pile Cap
SRC-PIER-LW25	Red	Plot	Continuous	Lw .25	Pier

Name	Color	Plot	Line Type	Line Weight	Description
SRC-PILE-LW25	Red	Plot	Continuous	Lw .25	Pile
SRC-RETW-LW25	Red	Plot	Continuous	Lw .25	Retaining Wall
SRC-STEL-LW25	Red	Plot	Continuous	Lw .25	Steel
SRC-STRG-LW25	Red	Plot	Continuous	Lw .25	Stringer
SRC-TIMB-LW25	Red	Plot	Continuous	Lw .25	Timber
SRC-TRUS-LW25	Red	Plot	Continuous	Lw .25	Truss
SRD-ABUT-LW25	Red	Plot	Dashed	Lw .25	Dashed - Abutment
SRD-APPR-LW25	Red	Plot	Dashed	Lw .25	Dashed - Approach Slab
SRD-BARR-LW25	Red	Plot	Dashed	Lw .25	Dashed - Barrier
SRD-BRAC-LW25	Red	Plot	Dashed	Lw .25	Dashed - Bracing
SRD-BRNG-LW25	Red	Plot	Dashed	Lw .25	Dashed - Bearing
SRD-CONC-LW25	Red	Plot	Dashed	Lw .25	Dashed - Concrete
SRD-DECK-LW25	Red	Plot	Dashed	Lw .25	Dashed - Deck
SRD-EXST-LW25	Red	Plot	Dashed	Lw .25	Dashed - Existing Structure
SRD-FLBM-LW25	Red	Plot	Dashed	Lw .25	Dashed - Floor Beam
SRD-FTNG-LW25	Red	Plot	Dashed	Lw .25	Dashed - Footing
SRD-FUTR-LW25	Red	Plot	Dashed	Lw .25	Dashed - Future Structure
SRD-GIRD-LW25	Red	Plot	Dashed	Lw .25	Dashed - Girder
SRD-GRAL-LW25	Red	Plot	Dashed	Lw .25	Dashed - Guard Rail
SRD-GRND-LW25	Red	Plot	Dashed	Lw .25	Dashed - Ground
SRD-PARA-LW25	Red	Plot	Dashed	Lw .25	Dashed - Parapet
SRD-PICP-LW25	Red	Plot	Dashed	Lw .25	Dashed - Pier Cap
SRD-PLCP-LW25	Red	Plot	Dashed	Lw .25	Dashed - Pile Cap
SRD-PIER-LW25	Red	Plot	Dashed	Lw .25	Dashed - Pier
SRD-PILE-LW25	Red	Plot	Dashed	Lw .25	Dashed - Pile
SRD-RETW-LW25	Red	Plot	Dashed	Lw .25	Dashed - Retaining Wall
SRD-STEL-LW25	Red	Plot	Dashed	Lw .25	Dashed - Steel

Name	Color	Plot	Line Type	Line Weight	Description
SRD-STRG-LW25	Red	Plot	Dashed	Lw .25	Dashed - Stringer
SRD-TIMB-LW25	Red	Plot	Dashed	Lw .25	Dashed - Timber
SRD-TRUS-LW25	Red	Plot	Dashed	Lw .25	Dashed - Truss
SRP-LEGL-LW25	Cyan	Plot	Phantom	Lw .25	Legal or Property Line
SYC-ABUT-LW35	Yellow	Plot	Continuous	Lw .35	Abutment
SYC-ANNO-LW35	Yellow	Plot	Continuous	Lw .35	Annotation Text 2.5 / 3.0
SYC-APPR-LW35	Yellow	Plot	Continuous	Lw .35	Approach Slab
SYC-BARR-LW35	Yellow	Plot	Continuous	Lw .35	Barrier
SYC-BRAC-LW35	Yellow	Plot	Continuous	Lw .35	Bracing
SYC-BRNG-LW35	Yellow	Plot	Continuous	Lw .35	Bearing
SYC-CNTR-LW35	Yellow	Plot	Centre	Lw .35	Centre Line
SYC-CONC-LW35	Yellow	Plot	Continuous	Lw .35	Concrete
SYC-DECK-LW35	Yellow	Plot	Continuous	Lw .35	Deck
SYC-EXST-LW35	Yellow	Plot	Continuous	Lw .35	Existing Structure
SYC-FLBM-LW35	Yellow	Plot	Continuous	Lw .35	Floor Beam
SYC-FTNG-LW35	Yellow	Plot	Continuous	Lw .35	Footing
SYC-FUTR-LW35	Yellow	Plot	Continuous	Lw .35	Future Structure
SYC-GIRD-LW35	Yellow	Plot	Continuous	Lw .35	Girder
SYC-GRAL-LW35	Yellow	Plot	Continuous	Lw .35	Guard Rail
SYC-GRND-LW35	Yellow	Plot	Continuous	Lw .35	Ground
SYC-PARA-LW35	Yellow	Plot	Continuous	Lw .35	Parapet
SYC-PICP-LW35	Yellow	Plot	Continuous	Lw .35	Pier Cap
SYC-PLCP-LW35	Yellow	Plot	Continuous	Lw .35	Pile Cap
SYC-PIER-LW35	Yellow	Plot	Continuous	Lw .35	Pier
SYC-PILE-LW35	Yellow	Plot	Continuous	Lw .35	Pile
SYC-RETW-LW35	Yellow	Plot	Continuous	Lw .35	Retaining Wall
SYC-STEL-LW35	Yellow	Plot	Continuous	Lw .35	Steel

Name	Color	Plot	Line Type	Line Weight	Description
SYC-STRG-LW35	Yellow	Plot	Continuous	Lw .35	Stringer
SYC-TIMB-LW35	Yellow	Plot	Continuous	Lw .35	Timber
SYC-TRUS-LW35	Yellow	Plot	Continuous	Lw .35	Truss
SYD-ABUT-LW35	Yellow	Plot	Dashed	Lw .35	Dashed - Abutment
SYD-APPR-LW35	Yellow	Plot	Dashed	Lw .35	Dashed - Approach Slab
SYD-BARR-LW35	Yellow	Plot	Dashed	Lw .35	Dashed - Barrier
SYD-BRAC-LW35	Yellow	Plot	Dashed	Lw .35	Dashed - Bracing
SYD-BRNG-LW35	Yellow	Plot	Dashed	Lw .35	Dashed - Bearing
SYD-CONC-LW35	Yellow	Plot	Dashed	Lw .35	Dashed - Concrete
SYD-DECK-LW35	Yellow	Plot	Dashed	Lw .35	Dashed - Deck
SYD-EXST-LW35	Yellow	Plot	Dashed	Lw .35	Dashed - Existing Structure
SYD-FLBM-LW35	Yellow	Plot	Dashed	Lw .35	Dashed - Floor Beam
SYD-FTNG-LW35	Yellow	Plot	Dashed	Lw .35	Dashed - Footing
SYD-FUTR-LW35	Yellow	Plot	Dashed	Lw .35	Dashed - Future structure
SYD-GIRD-LW35	Yellow	Plot	Dashed	Lw .35	Dashed - Girder
SYD-GRAL-LW35	Yellow	Plot	Dashed	Lw .35	Dashed - Guard Rail
SYD-GRND-LW35	Yellow	Plot	Dashed	Lw .35	Dashed - Ground
SYD-PARA-LW35	Yellow	Plot	Dashed	Lw .35	Dashed - Parapet
SYD-PICP-LW35	Yellow	Plot	Dashed	Lw .35	Dashed - Pier Cap
SYD-PLCP-LW35	Yellow	Plot	Dashed	Lw .35	Dashed - Pile Cap
SYD-PIER-LW35	Yellow	Plot	Dashed	Lw .35	Dashed - Pier
SYD-PILE-LW35	Yellow	Plot	Dashed	Lw .35	Dashed - Pile
SYD-RETW-LW35	Yellow	Plot	Dashed	Lw .35	Dashed - Retaining Wall
SYD-STEL-LW35	Yellow	Plot	Dashed	Lw .35	Dashed - Steel
SYD-STRG-LW35	Yellow	Plot	Dashed	Lw .35	Dashed - Stringer
SYD-TIMB-LW35	Yellow	Plot	Dashed	Lw .35	Dashed - Timber
SYD-TRUS-LW35	Yellow	Plot	Dashed	Lw .35	Dashed - Truss

Name	Color	Plot	Line Type	Line Weight	Description
SYP-LEGL-LW35	Cyan	Plot	Phantom	Lw .35	Legal or Property Line
DEFPOINTS	181	No Plot	Continuous		
TITLEBLOCK	7	Plot	Continuous		Title Block Information (Attribute)
VIEWPORTS	201	No Plot	Continuous		Vports in PaperSpace
XREF	7	Plot	Continuous		X-Reference drawing including Title Block

For example, “SYC-ABUT-LW35”,

SYC Structural Yellow Continuous (“S” denotes Structural Group, “Y” denotes color Yellow and “C” denotes line type Continuous)
ABUT Structural component “Abutment”
LW35 Line weight 0.35mm when plotted full size

2.2 Line Types

It is recommended to use the file acad.lin provided by AutoDESK without any customization. This will avoid any confusion with different line types provided by different service providers.

2.3 Plot Style

Colors are to be assigned as per standard layers and follow the color list shown in Table 2-2. CTB files can be provided by the Department.

Table 2-2: Color List

Color	Color #	Pen Size	% Screening
Red	1	0.25	100
Yellow	2	0.35	100
Green	3	0.50	100
Cyan	4	0.70	100
Blue	5	0.15	100
Magenta	6	0.15	100
White/Black	7	0.15	100
Dark Grey	8	0.15	100
Light Grey	9	0.15	100

Color	Color #	Pen Size	% Screening
Colors 10 to 19 are to be assigned to user-created layers as required. The purpose of these colors is to allow greater variation in greyscale which will give the drawing more color and depth.	10	0.10	100
	11	0.10	90
	12	0.10	80
	13	0.10	70
	14	0.10	60
	15	0.10	50
	16	0.10	40
	17	0.10	30
	18	0.10	20
	19	0.10	10

Final drawings are to be submitted in monochrome/greyscale. Colors are not recommended due to reprographic and archival limitations.

2.4 Text Styles and Height

It is recommended to use AutoCAD Font ROMANS.SHX (closest to engineering practice in Canada) provided by AutoDESK without any customization.

There are six normal text heights to be used on bridge contract drawings. These heights are associated with specific AutoCAD Colors and pen weight assignments, as above. Text heights smaller than 2.0 mm should not be used as they may be unreadable on a reduced set of drawings.

It is recommended to use an annotation scale for different text heights for different scales, Table 2-3.

Table 2-3: Annotation Scales

Text Style	Plotted Text Height (mm)	Designated Layer
R2	2.0	SRC-ANNO-LW25
R2-5	2.5	SYC-ANNO-LW35
R3	3.0	
R3-5	3.5	SGC-ANNO-LW50
R4	4.0	
R5	5.0	SCC-ANNO-LW70

2.5 Dimensioning

The method of denoting measurements shall be consistent on all drawings. Elevations and stations shall be shown in metres, using a decimal point as a division between metres, e.g.:

- Elevation: 123.456
- Station: 100+234.567

All other dimensions shall be shown in millimetres, e.g.:

- 12 345 or 1 234
- L 150 x 180 x 12 (Angle)
- 25 dia. Bolt
- 10M reinforcing bar

The only exceptions to the above dimensioning rules are:

- Contours shall be shown without decimal place: 180 or 80
- Elevations on the profile scale shall be shown: 100, 105, 110 etc.
- Stations on the profile scale shall be shown: 100+000, 100+025 etc.

Variables for dimension style are provided in Table 2-4.

Table 2-4: Variables for Dimension Style

Component	Standard
Color and Line Type	By Layer
Extension line offset & extension	1mm
Arrowheads	Closed Filled
Arrow size	2.5mm
Centre mark	5mm
Text style	R2-5
Text Color	By Layer
Text height	2.5mm
Text placement Vertical	Above
Text placement Horizontal	Centered
Offset	1.5mm
Text alignment	Aligned with dimension line
Fit Options	Either the text or the arrows
Text Placement	Beside the dimension line

Fine tuning	Always draw dimension line between text line
Linear Unit format	Decimal
Linear Precision	1mm
Decimal separator	Period
Angular Unit format	Degrees, Minutes, Seconds
Angular Precision	0d00'00"

2.6 Drawings Unit and Scale

The base unit for all structural drawings shall be millimetres (mm) except for Site Plan & General Arrangement drawings which can be in metres (m) for the ease of coordination with civil/roadwork drawings.

Recommended drawing scales are provided in Table 2-5.

Table 2-5: Recommended Drawing Scales

Site Plan	Plan	1:250
	Elevation	
	Key Plan	To Suit
General Arrangement	Plan	1:250
	Elevation	
	Section	1:50 or 1:100
Pile Layout & Details	Plan	1:250
	Details	1:50 or 1:25
Sub-Structure (Abutment / Pier)	Plan	1:100 or 1:50
	Elevation	
	Section & Details	1:10, 1:20 or 1:25
Girder	Layout Plan	1:250 or 1:100
	Layout Elevation	
	Girder Plan & Elevation	1:25 or 1:20
	Girder Sections & Details	1:5, 1:10 or 1:20

Deck	Plan	1:250 or 1:200
	Part Plan	1:50 or 1:100
	Elevation, Sections & Details	1:5, 1:10, 1:20 or 1:25

2.7 Work Points

One work point shall be established for each abutment and pier. Plan dimensions shall be to or from a work point. Angles shall be dimensioned from the chord between work points.

Work points shall:

- Always be on the center line of the roadway or highway design control line.
- For abutments, be located at the center line of the bearings or pile cap.
- For piers, be located at the center line of the pier.
- Be numbered and shown on General Arrangement and Abutment/Pier drawings. Work Point numbers should start from the left-hand side abutment on the general arrangement drawing and work towards the right-hand side abutment.
- For a work point schedule, be shown on the general arrangement drawing which includes Coordinates, Station, Offset & Elevation.

2.8 AutoCAD Standard Symbols Library

AutoCAD Standard Symbols will be developed in the future by the Government of Northwest Territories.

3. DRAWING STANDARDS

3.1 Preliminary Drawings

Preliminary Layout drawings are intended to:

- Acquaint the Government of Northwest Territories with general details of the proposed bridge project.
- Obtain approval for the proposed bridge project from the Government of Northwest Territories.
- Identify and solve general problems connected with the project prior to final design commencing.

The drawing should be generally pictorial with general information showing:

- Approach fills detail including paving, etc.
- Roadways, sidewalks, multi-user lanes, curb widths etc.
- Roadway alignment (horizontal & vertical)
- Right-of-way (existing and additional right-of-way if required)
- Site preparation information including utilities
- Channel and riprap information including environmental impacts
- Clearances of channel
- Location of sub-structures including retaining walls
- Approach curb details
- Railing, barrier and fence types
- Site drainage details
- Span arrangement
- Total length
- Extent of project

3.2 Contract Drawings

A set of Contract Drawings shall contain the following drawings, as applicable, in an order that reflects the trades and sequence of construction.

- Cover Sheet
- General Notes and Drawing List (preference is to have ALL notes on the drawings where the information is considered relevant)
- Site Plan (Drawing List if General Notes and Drawing List is not required)
- General Arrangement
- General Site Preparation Approach Fills and Channelization Riprap (if part of the bridge contract and if too extensive for General Arrangement)
- Piling Layout and Details (if required)
- Abutments
- Piers
- Retaining Walls (if required)
- Girders
- Bearings
- Deck

- Stress Sheets (only required for continuous span or semi-continuous spans)
- Deck Joints
- Utilities Support and Drain Details
- Parapets, Barriers and Fences (including approach details)
- Slope Paving / Riprap Details
- Borehole Logs
- Construction Sequence (if required)
- Future Arrangement (if any)

3.3 Drawing Layout

A typical drawing is shown in Figure 3-1. This format should be consistently used throughout the contract drawing set.

A typical General Layout drawing is provided in Figure 3-2 to include overall plan, profile, site/location map and drawing list.

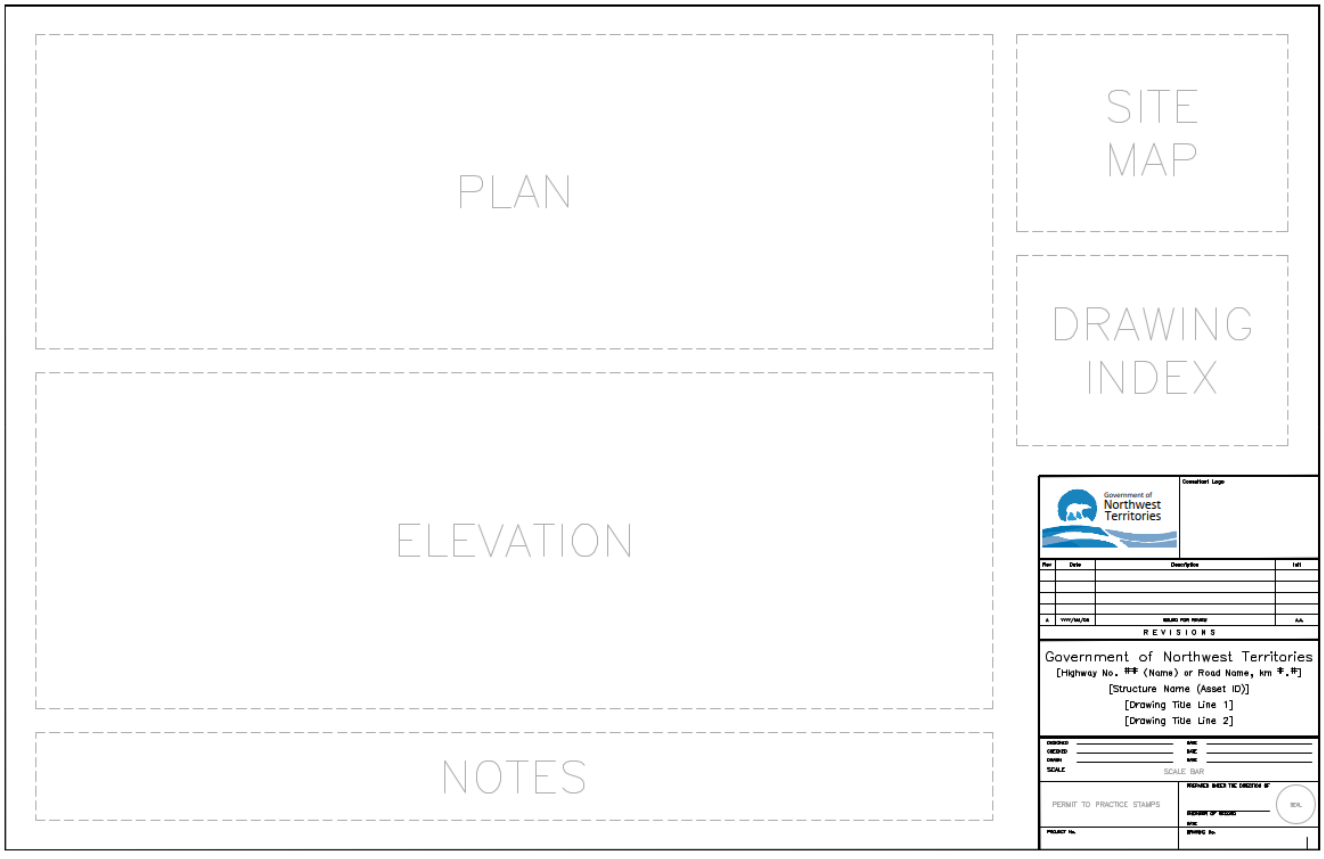

Figure 3-1 Typical Drawing Layout

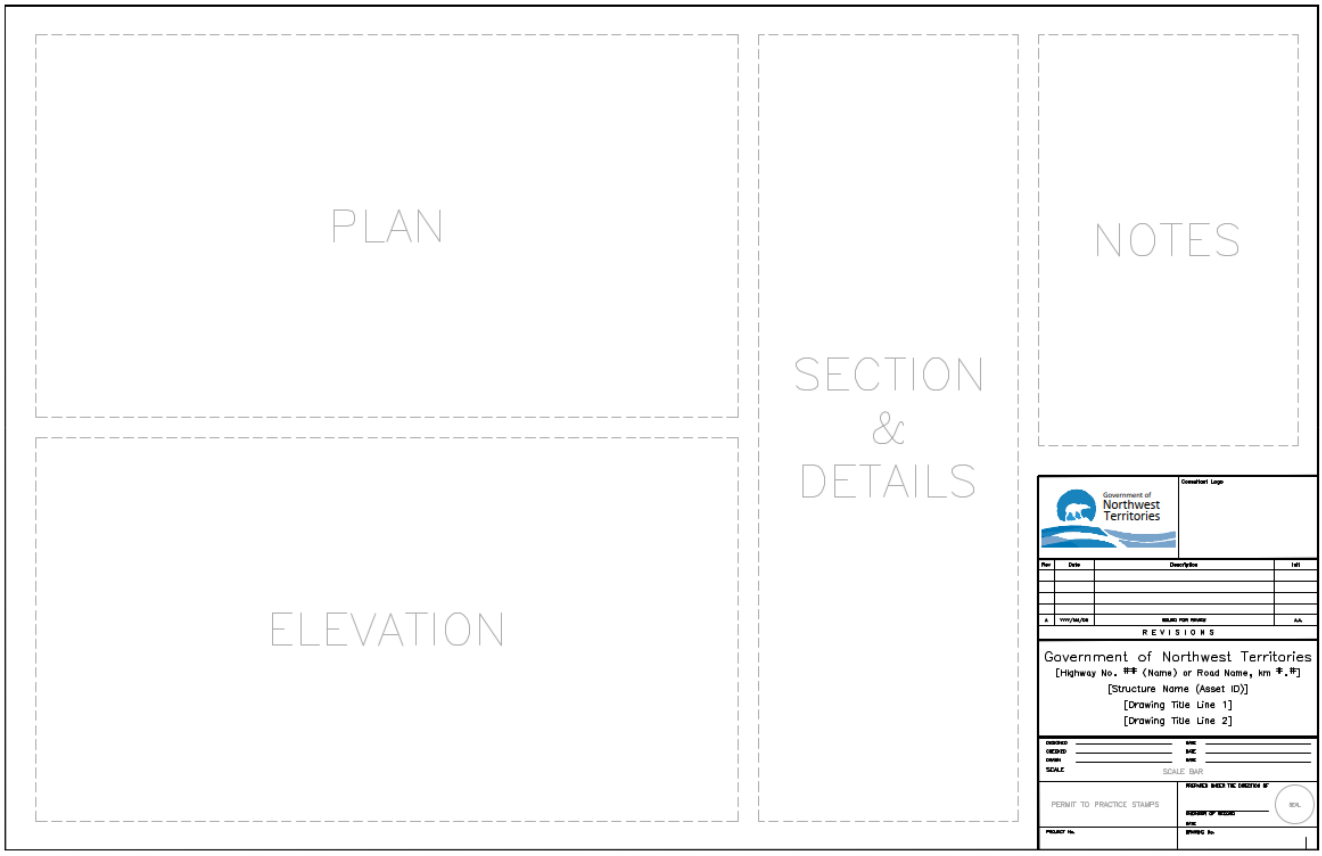

Figure 3-2 Typical General Arrangement Drawing Layout

3.4 Drawing Revisions

Once a project drawing has been approved by the Government of Northwest Territories, any further alterations or amendments must be recorded in the revision space provided. A major revision, which completely alters the intent of the original approved drawing, must be re-approved.

The location of the revised details on the contract drawings shall be indicated by the "revision letter" enclosed within a triangle. Revision letters shall be entered into the revision block on the bottom right corner of the drawing sheet. Revision letters in the design stage shall be assigned sequentially from "A" to "Z" except "I" & "O" which should not be used. Revision letters should be "0" once "issued for tender/construction" and subsequent revisions to be "1" + the last revision letter or number.

If major revisions are required, consideration should be given to deleting the entire drawing and re-issuing it under a new drawing number.

3.4.1 Drawings for Review

Drawings submitted to the Government of Northwest Territories for review, as specified in the Contract (minimum Conceptual, 70% and 100%), shall consist of one full-size hard copy and an electronic copy in *.PDF (Adobe Portable Document Format).

3.4.2 Final Contract Drawings

One completed drawing package in .dwg format and a minimum of one full-size hard copy of the stamped and signed contract drawings, or one full-size copy of the electronically signed contract drawings (by Engineer of Record with a Permit to Practice), shall be submitted to the Government of Northwest Territories. Revision to be “0”.

3.4.3 Record Drawings

One completed drawing package in .dwg format and a minimum of one full size hard copy of the stamped and signed record drawings, or one full-size copy of the electronically signed record drawings (by an Engineer of Record with a Permit to Practice) shall be submitted to the Government of Northwest Territories for record-keeping purposes.

The completed package can be electronically submitted or via a USB storage device.