GENERAL AUTOCAD STANDARDS Document/Sheet Layout

Sheet Sizes

The table of sheet sizes shown here represents a reference according to the NCS.

Compatibility between English and metric sizes is preferred.

Defined Sizes

	Imperial	
Туре	Size	Inches
Α	Arch A	9x12
	Ansi A	8.5x11
В	Arch B	12x18
_	Ansi B	11x17
С	Arch C	18x24
_	Ansi C	17x22
D	Arch D	24x36
_	Ansi D	22x34
E	Arch E	36x48
_	Ansi E	34x44
ustom1	Arch F	30x42

Sheet Margins

Margins	INCH	Decimal
Top, Bottom, Right	3⁄4"	.75
Left	1 – ½"	1.50

Model Space & Model Definitions

The Model Space or Design Model refers to areas within CAD files that contain vector objects representing the main design data or a portion of design data. This is commonly referred to as master data and is generally separated and stored within individual files, or within the model space or design models within a file.

Master Data Creation

Master data should be created and maintained from one location (file and model space) and referenced as necessary by other models, or from drawing layouts. All master data should be created at true size, and at true position, which may be defined by the project as a state plane coordinate system (preferred) or a plant/facility/area coordinate system.

Drawing Sheet Composition

CAD files also commonly include separate storage areas for drawing layout or sheet models that are intended to represent the construction drawing as it will be printed. The following guidelines represent the standard for composing construction drawings in the most common platforms.

AutoCAD Workflow

Layout/Paper Space:

• Include information such as title blocks (referenced), key plans, notes, revision triangles and clouds, north arrow

- Reference or insert the lower left corner of the border/title block at (0, 0)
- Reference or insert the border/title block at a scale of 1:1
- Create the viewport and set the appropriate drawing scale

Model Space:

• Reference external master data at a scale of 1

MicroStation Workflow

Layout/Sheet Model:

- Include information such as title blocks (referenced), key plans, notes, revision triangles and clouds, north arrow
- Reference or insert the lower left corner of the border/title block at (0, 0)
- Reference or insert the border/title block at a scale of 1:1
- Reference the design model at the appropriate drawing scale

Default/Design Model:

- Reference external master data at a scale of 1
- Apply appropriate clipping boundaries to each attachment

Referencing

Common CAD applications support file/model referencing, and the guidelines below enable useful and streamlined referencing.

- Keep reference data portable. Do not reference files using a saved full path specification, regardless of the location of the file.
- Position reference data within the model space or design model at real world coordinates.
- Position reference data within the drawing by moving the main reference (design model to sheet model in MicroStation, or view port within the layout in AutoCAD) to align within the border.
- Position multiple views to be shown on the same sheet by creating additional references between the sheet model and the design model (MicroStation) or by creating multiple view ports (AutoCAD).
- Use clip boundary (MicroStation) or a view port (AutoCAD) for limiting the amount of master data required for display within a drawing.

Raster Data

Raster data is defined as files that are scans or images that represent either pictures of engineering documents, aerial photos, or other representative images of engineering information. These Raster data files can be in a variety of file formats in either black and white line art style or a full color photograph, and can be either completely scalable or not at all to scale. The mix of these characteristics depends on the specific information requirement necessary to represent the concept on the deliverable documents.

Typically these raster data files are attached or inserted as references to the deliverable documentation, then sized or scaled to adequately represent the content. It is then possible to overlay what is called vector graphics or line art over the raster data to better describe the condition or trace over information represented in the raster data for clarity.

In some cases, the raster data is then removed, leaving only the vector graphics.

In some cases, the raster data and vector graphics will be worked as one unit, typically called a hybrid drawing.

Units

The unit of measure determines the format in which design information will be entered and displayed within the application.

AutoCAD Units

Within AutoCAD the unit definitions imply a system of measurement by inferring a base unit according to the chart shown below. Engineering or Architectural units shall be selected based on the readout differences shown in the chart below. Civil projects requiring a base unit of foot will use decimal units.

AutoCAD Unit Definitions

Unit	Example	Description
Decimal	15.50	Displays measurements in decimal notation.
Engineering	1'-3.50"	Displays measurements in feet and decimal inches.
Architectural	1' -3 ½"	Displays measurements in feet, inches, and fractional inches.
Fractional	15 ½	Displays measurements in mixed-number (integer and fractional) notation.

MicroStation Units

Within MicroStation the unit of measure is defined using a unit label and a numeric definition. Standard units are supported by default and the following list describes available options.

Dimensions shall be displayed in alternative unit labels and shall use the standard tick marks for feet and inches for both survey feet and international feet.

MicroStation Unit Definitions

English U	English Units (based on International Foot)					
Label	Name					
in. ii, ", IN, II	inch					
ft, if, ', FT, IF	foot					
th, it, TH, IT	tenth					
Mi	mile					
English	Units (based on US Survey Foot)					
Label	Name					
sf, SF	survey foot					
si, SI	survey inch					
st, ST	survey tenth					
sm, mi	survey mile					

Scales

The drawing scale is the ratio of measuring units expressing a proportional relationship between a drawing and the true size of the item it represents. The selection of the proper scale determines the readability of the drawing. The scale chosen should be large enough to allow the drawing to display its graphic, dimensional, and textual content clearly, without congestion or ambiguity

(reference NCS UDS-04.11).

Concepts

- Drawings shall be created at full size and plotted at the appropriate size for the project.
- Selection of the proper scale shall determine readability of all objects contained in the drawings. Refer to the chart at the right to establish the closest match to a standard common scale for project drawings.
- Graphic elements within the drawings, such as notes, leaders, dimensions, reference indicators, and other scaledependent symbols must be sized according to the scale of the final plot.
- Use of multiple scales on a single drawing should be avoided wherever possible. If not possible, then the scale for each object shall be indicated. This shall be noted within the title of the view/detail or object name

Graphic Scales

The use of a graphical scale bar, or scale text accompanying a detail title, is intended to denote distance and specify varying scales of a single drawing.

Arch.	Value	Eng.	Value	Typical Uses
-	-	-	-	Site Plan
-	-	-	-	Site Plan
-	-	1"=5000'	60000	Site Plan
-	-	-	-	Site Plan
-	-	1"=2500'	30000	Site Plan
-	-	-	-	Site Plan
-	-	1"=1250'	15000	Site Plan
-	-	1"=1000'	12000	Site Plan
-	-	-	-	Site Plan
-	-	1"=500'	6000	Site Plan
-	-	1"=400'	4800	Site Plan
-	-	-	-	Site Plan
-	-	-	-	Site Plan
-	-	1"=200'	2400	Site Plan
-	-	-	-	Site Plan
-	-	1"=100'	1200	Site Plan
-	-	1"=60'	720	Site Plan
-	-	1"=50'	600	Site Plan
-	-	-	-	Site Plan
-	-	1"=40'	480	Site Plan
-	-	-	-	Site Plan
1/32"=1'- 0"	384	1"=30'	360	Site Plan
-	-	1"=25'	300	Site Plan
-	-	•	-	Site Plan
1/16"=1'- 0"	192	1"=20'	240	Floor Plans, Exterior Elevations, Building Sections, Overall Plans
3/32"=1'- 0"	128	-	-	
-	-	-	-	
 -	-	-	-	

Common Scales used on Construction Documents

1/8"=1'- 0"	96	1"=10'	120	Floor Plans, Exterior Elevations, Building Sections, Sector Plans
3/16"=1'- 0"	64	-	-	
-	-	-	-	
1/4"=1'- 0"	48	1"=5'	60	Floor Plans, Exterior Elevations, Building Sections, Sub-sector Plan
3/8"=1'- 0"	32	-	-	Interior Elevations
-	-	-	-	
1/2"=1'- 0"	24	1"=2'	24	Enlarged Floor Plans, Wall Sections, Foundation, Footing, Others
3/4"=1'- 0"	16	1"=2'	-	Enlarged Floor Plans, Wall Sections, Foundation, Footing, Others
1"=1'-0"	12	1"=1'	12	Wall Sections, Foundations, Footing, Intersections of walls and roo to walls, Connections, Others
1- 1/2"=1'- 0"	8	1"=1'	-	Wall Sections, Foundations, Footing, Intersections of walls and roo to walls, Connections, Others
3"=1'-0"	4	•	-	Door and Window Details, Cabinet Details, Intersections of roof to walls, Others
-	-	-	-	
6"=1'-0"	2	-	-	Door and Window Details, Cabinet Details, Intersections of roof to walls, Others
Full Size	1	-	-	Door and Window Details, Cabinet details, Intersections of roof to walls, Others

Line Work

Description of Use

- The intent of the drawing shall determine which elements of the drawing should receive major emphasis. These elements should stand out compared to items of lesser importance.
- Major construction lines (new work) shall be a medium continuous line, heavy enough to contrast with all other line work.
- Existing work to remain shall be indicated by a fine line, screening, or notation.
- Existing work to be removed shall be indicated using screening, a hatch pattern, or by notation.
- Existing work to be moved shall be indicated by a medium-weight line or notation.
- Existing work to be relocated shall be indicated by a medium-weight line or notation.
- Temporary work shall be indicated by a medium-weight line or notation.
- Confirmed work shall be indicated by a medium-weight line or notation.
- Field-verified work shall be indicated by a medium-weight line or notation
- Future work shall be indicated using a thin phantom line, or by notation.
- Dimension lines, leader lines, arrowheads, etc. shall be simple and sharp, with the point placed so as to avoid misinterpretation. All arrowheads shall be filled.

Styles

The following line style tables are examples. See Appendix for complete list.

Common

Line Style	Description
Continuous	
Hidden2	
Hidden	
Dashed	

Center2	
Dashed2	
Phantomx2	
Centerx2	

Weight

NCS Object Description	NCS Type				
Material Indications, Surface Marks, Hatch Lines, Patterns					
Dimension Lines, Leaders, Extension Lines, Break Lines, Hidden Objects, Dotted Lines, Dashed Lines, Setback Lines, Center lines, Grid Lines, Schedule Grid Lines					
Object Lines, Property Lines, Text, Lettering, Terminator Marks, Door and Window Elevations, Schedule Grid Accent Lines	Medium				
Title, Edges of Interior and Exterior Elevations, Profiling, Cut Lines, Property Lines, Section Cutting Plane Lines, Drawing Borders	Wide				
Match Lines, Large Titles, Footprints, Title Block Borders, Sheet Borders, Schedule Outlines	Extra Wide				
Major Title Underlining, Separating Portions of Design	XX Wide				
Border Sheet Outlines and Cover Sheet Line work	XXX Wide				
Border Sheet Outlines and Cover Sheet Line work	XXXX Wide				

Screening

Screening involves the use of halftones to deemphasize portions of a design. Screening can be applied as necessary to any area or reference information not essential to the current design, and is often used to show:

- Existing site, utility, and surface features.
- Work by other trades or work done under separate contracts

Existing objects or earlier phases of construction

Layers/Levels

NCS/AIA guidelines for Layer/Level naming conventions are shown below.

Layer/Level Naming Conventions¹

Discipline Designator ²	Hyphen	Major Group			Hyphen		Minor Group 1			Hyphen		Minor Cross			Hyphen	Status ³	
Required Optional																	
С	-	Т	0	Ρ	0												
С	-	Т	0	Ρ	0	-	М	А	J	R							
С	-	Т	0	Ρ	0	-	М	А	J	R	-	Т	Е	Х	Т		
С	-	Т	0	Ρ	0	-	М	А	J	R	-	Т	Е	х	Т	-	N

¹ Reference NCS CLG-1 – 93

Description of Modules

Layer/Level names consist of up to 5 components:

- Discipline Designators: Single character code to identify the discipline to be used
 (ex: A = Architectural)
- Major Group: Four character code to identify a major building system type

o (ex: A-WALL = Architectural Wall)

• *Minor Group 1:* Optional four character code to further define the Major Group.

o (ex: A-WALL-FULL = Architectural Full Height Wall)

• *Minor Group 2:* Optional four character code to further define Minor Group 1.

• (*ex:* A-WALL-FULL-TEXT = Architectural Full Height Wall, Text)

- Status: Identifies the status or phase of the layer/level
 - (*ex:* A-WALL-FULL-TEXT-N = Architectural Full Height Wall, Text, New)

Use of Layers/Levels

While the list of delivered layers/levels is very comprehensive, there may be a need to create layers/levels to accommodate specific project needs. To maintain compliance with NCS standards, follow the guidelines below:

- Typically only use one character for a Discipline Designator. The use of second level designators, as outlined in NCS, should be decided at the project level.
- A Discipline Designator and Major Group must be used.
- Check delivered layers/levels in the NCS for existing components before creating new ones.
- Major and Minor Groups should contain 4 characters. No more, no less. Codes should be as intuitive as possible.
- Level/Layer components should be applied in the order shown here, however, optional fields may be skipped. For example, A-WALL-N uses the required fields, skips the Minor Group Fields, and uses the Status Field.
- All fields should be separated by hyphens.
- Document all layer/level additions or modifications with the individual leading design automation on the project.

Minor Group Field Codes

Helps further define the Major Groups. A second Minor Group may be used for further delineation. Logically grouped with specific Major Groups but may be used to modify any Major Group provided that the definition of the Minor Group remains unchanged.

Annotation

Font Styles

The Windows True Type font "Arial" shall be used for all annotation.

Text Styles

General Subtitle Title

Standard Text Styles

Style	Definition
General	Used for notes and all common text needs
Subtitle	Used for General and keyed Note Headers
Title	Used for Title Blocks and to call out Objects.

Text Sizes

The following table describes the standard text styles for use on all projects. Text sizes are defined in point values to align with desktop publishing standards and preserve formatting when cutting and pasting to or from other applications such as MS Word or Excel. Point size values were selected to match Corporate publishing while remaining close in size to legacy and NCS recommendations. Designers should use the text styles as defined and avoid setting text sizes by hand. In all cases, the AutoCAD style definition must have the height value set to "0" so that the correct scales and text sizes will be applied as needed.

Standard	Text	Style	Defin	itions
••••••••				

Text Style	Font	Color	Point Sizes (M.S. Office)	English Plotted Height	Width
Standard	Arial	Bylayer	12	0.125 in	1.0
Subtitle	Arial	Bylayer	14	0.1944 in	1.0
Title	Arial	Bylayer	18	0.2500 in	1.0

Notations

Types of Notes

Guidelines presented in NCS.

- 1. **General Notes** Would be on a G- series sheet. (If project is not using G series, use first drawing in set.) These notes apply to entire project. Should not be repeated (or contradicted) by any other note types or in specs.
- 2. General Sheet Notes Applies only to the sheet on which they appear.
- 3. **Sheet Keynotes** Identify, inform and instruct without reference to the specs. Uses sequential numbers and a hexagon. The hexagon symbol should be parallel to top and bottom of sheet.

Note Placement and Hierarchy

Notes shall be located on the right side of the drawing. A column shall be formed at sheet grid tick marks if at all possible. Concessions may be made if drawing layout cannot accommodate this usage of space.

When placing multiple types of notes on a drawing, the various types will appear from top to bottom in the hierarchy listed. For example, if a drawing contained all 3 types of notes, General Notes would be on the top of the column, followed by General Sheet Notes and Sheet Keynotes.

If one column does not provide enough room, additional columns may be added to the right of the first column and aligning with sheet grid ticks. The note hierarchy would shift to the left such that the highest ranking note type would be at the top of the leftmost column.

Note Appearance

See the notes in the graphic below for information about placing notes. Other considerations are as follows:

- If note type is not required, do not include heading.
- Capital letters shall be used for all notes and titles.
- Keyed notes shall be used on plans whenever possible to avoid repetitive call outs and drawing clutter.
- Do not use keyed notes on sections and details unless specified at the project level.
- Specification information shall not be duplicated by drawing notes, except where the information facilitates interpretation of the drawings. When possible, refer to notes on other drawings to avoid repetition.

G	ENERAL NOTES
1.	GENERAL NOTES APPLY TO ALL DRAWINGS WITHIN A PROJECT.
2.	ALL NOTES ARE INDICATED WITH NUMBERS, NOT LETTERS.
3.	THE TEXT STYLE FOR NOTE TITLES IS "TITLE" AND SHOULD BE 1/4" (6MM), LEFT JUSTIFIED. THE BOX AROUND THE TITLE SHOULD BE 0.5" (12MM) HIGH.
4.	THE TEXT STYLE FOR THE BODY OF THE NOTES SHOULD BE "GEN" AT A SIZE OF.0125 LEFT JUSTIFIED.
5.	 PROVIDE THE FOLLOWING SPACINGS: 1/4" (6MM) FROM EACH SIDE OF BOUNDARIES. SINGLE SPACE BETWEEN CONTINUOUS STRINGS OF TEXT. DOUBLE SPACE BETWEEN NOTES IN MULTILINE TEXT OR 3/16" BETWEEN NOTES IN SINGLE LINE TEXT. TAB BETWEEN NOTE IDENTIFIER AND START OF NOTE.
G	ENERAL
G Al	ENERAL RCHITECTURAL NOTES
G Al	ENERAL RCHITECTURAL NOTES GENERAL DISCIPLE NOTES APPLY TO ALL DRAWINGS WITHIN THAT DISCIPLINE.
A	GENERAL DISCIPLE NOTES APPLY TO ALL
1. 2.	CHITECTURAL NOTES GENERAL DISCIPLE NOTES APPLY TO ALL DRAWINGS WITHIN THAT DISCIPLINE. TWO LINES OF TEXT MAY BE USED FOR HEADER IF NEEDED. INCREASE BOX AROUND
1. 2.	RCHITECTURAL NOTES GENERAL DISCIPLE NOTES APPLY TO ALL DRAWINGS WITHIN THAT DISCIPLINE. TWO LINES OF TEXT MAY BE USED FOR HEADER IF NEEDED. INCREASE BOX AROUND TEXT TO 0.75" (19MM) TALL.
1. 2.	RCHITECTURAL NOTES GENERAL DISCIPLE NOTES APPLY TO ALL DRAWINGS WITHIN THAT DISCIPLINE. TWO LINES OF TEXT MAY BE USED FOR HEADER IF NEEDED, INCREASE BOX AROUND TEXT TO 0.75" (19MM) TALL. ENERAL SHEET NOTES APPLY ONLY TO THE
1. 2.	RCHITECTURAL NOTES GENERAL DISCIPLE NOTES APPLY TO ALL DRAWINGS WITHIN THAT DISCIPLINE. TWO LINES OF TEXT MAY BE USED FOR HEADER IF NEEDED. INCREASE BOX AROUND TEXT TO 0.75" (19MM) TALL. ENERAL SHEET NOTES APPLY ONLY TO THE SHEET ON WHICH THEY APPEAR.

Plotting

Pen Settings in MicroStation

In MicroStation, line weights should be assigned "ByLevel" in the Level Manager. Weight is independent of color but color is used to depict which lines are screened. See table **MicroStation Plotted Weights** for typical black and white settings.

MicroStation Plotted Weights							
MicroStation	Plotted W	Туре					
Weight	Full scale	Half scale	Type				
0	0.18	0.09	Fine				
1	0.25	0.13	Thin				
2	0.35	0.18	Medium				
3	0.50	0.25	Wide				
4	0.70	0.35	Extra Wide				
5	0.70	0.35	Extra Wide				
6	1.00	0.50	XX Wide				
7	1.00	0.50	XX Wide				
8	1.40	0.70	XXX Wide				
9	1.40	0.70	XXX Wide				
10	1.40	0.70	XXX Wide				
11-31	2.00	1.00	XXXX Wide				
Screened Colors		8, 250-254					

Pen Settings in AutoCAD

In AutoCAD line weights should be assigned "ByLayer" in the Layer Manager. AutoCAD can support two methods for plot styles:

- Color Dependent Each color from 1-255 is assigned a pen weight
- Named Styles that define line widths are created and applied independently of color

The Enterprise Tool Set supports Color Dependent plot styles. See table **AutoCAD Plotted Weights** for typical black and white settings.

	AutoCAD Plotted Weights																						
	/eights nm)																						
Full Scale	Half Scale	Туре										ſ	20101	5									
0.18	0.09	Fine	1	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200
0.10	0.09	Fille	210	220	230	240																	
0.25	0.13	Thin	2	11	21	31	41	51	61	71	81	91	101	111	121	131	141	151	161	171	181	191	201
0.25	0.13	111111	211	221	231	241	250	251															

			3	8	12	18	22	28	32	38	42	48	52	58	62	68	72	78	82	88	92	98	102
0.35	0.18	Medium	108	112	118	122	128	132	138	142	148	152	158	162	168	172	178	182	188	192	198	202	208
			212	218	222	228	232	238	242	248													
0.50	0.25	Wide	4	13	23	33	43	53	63	73	83	93	103	113	123	133	143	153	163	173	183	193	203
0.50	0.23	vviue	213	223	233	243	252																
		- .	5	14	17	24	27	34	37	44	47	54	57	64	67	74	77	84	87	94	97	104	107
0.70	0.35	Extra Wide	114	117	124	127	134	137	144	147	154	157	164	167	174	177	184	187	194	197	204	207	214
			217	224	227	234	237	244	247	253													
1.00	0.50	XX	6	15	25	35	45	55	65	75	85	95	105	115	125	135	145	155	165	175	185	195	205
1.00	0.50	Wide	215	225	235	245	254																
1.40	0.70	XXX	7	16	26	36	46	56	66	76	86	96	106	116	126	136	146	156	166	176	186	196	206
1.40	0.70	Wide	216	226	236	246																	
2.00	1.00	XXXX	9	19	29	39	49	59	69	79	89	99	109	119	129	139	149	159	169	179	189	199	209
2.00	1.00	Wide	219	229	239	249	255																
	The s	shaded bo	oxes	depic	t colo	ors th	at car	ו be ו	used	for sc	reeni	ng.											

Raster Images

Raster images may be included on plots for the purposes of simple illustration or to represent a logo on a border. Raster images cannot be screened back at plot time, and they do not inherit the line weight or color values related to plotted output.

Appropriate image quality and density should be determined for the required use.

Using raster images will certainly increase the relative size of the plot "file" output and may result in a much longer per-plot generating and processing time.

Screening Methodology

Screening or halftoning line work graphics may be necessary to emphasize certain aspects of a design, typically by screening the background objects "behind" or surrounding the desired subject. It will be necessary to reassign the symbology of screened objects to the appropriate color index value defined in the tables for plotting. The values are a close approximation of a halftone that will still produce a first or second generation copy of the original and still retain the desired appearance. This in no way implies a guarantee that the document appearance will survive any combination of reproduction attempts on mixed hardware. The intent of screening is always to produce the appropriate appearance on original drawings. With the advent of the use of PDF and DWF outputs, it is possible to create an electronic representation that may meet the requirements of a later generation of paper originals.

Black and White

The output tables are for reference only, to illustrate the relationships between the content generated in traditional CAD applications and the resulting plotted line thicknesses. For the most part, the user will have no active role in choosing the actual implementation of these values, but may have a role in determining the choice of value used for certain symbols. The actual output will vary somewhat from device to device, and may have slightly different actual values on the printed media.

Half-Size Plotting

Half-size plots are preferred and are generated by plotting drawings configured with the full-size border at half size using established pen tables that adjust line weights to an equivalent half-size width.

Color

Projects will typically address color plotting needs using a WYSIWYG method, allowing for the use of color as necessary to differentiate designs for specific presentations. Color output may vary between devices.

Color Table

The following considerations for the color table should be followed:

- Begin with a Pantone color palette.
- Include a spectrum of earth tones and pastels.
 - Provide a selection of earth tones to accommodate basic visualization requirements.
 - Provide a range of pastel colors to allow on-screen distinction of objects such as complex piping layouts.
- Select colors that allow an overall color gradation on screen. Avoid expanding each range into colors that are too dark to differentiate.
- Preserve the primary colors.
- Preserve background color (black) and white.
- Support up to eight black lines for black and white plotting plus screening through pen table assignments.
- Use an algorithm to create the color divisions, such as:
 - Start with primary color R255
 - Select the darkest red that is still distinguishable from black by adjusting R settings to approximately R75
 - Interpolate six new gradations in color between R255 and R75
 - Copy eight colors and adjust saturation and intensity to pastel tones that show greatest contrast.
 - Copy columns of the 16 colors above in 30-degree hue increments around the color wheel from -180 to +180
 - Add black and white for background/foreground.
 - Create eight shades of white for grayscales (these appear at 250-254)

Levels/Layers

The following provides a lists all of the Levels/Layers.

Layer Name	Color	Line Style	Description
G-TTLB-OTLN	1	Continuous	Cutline
G-TTLB-PROF-GRDS	1	DOTGRID	Plan and Profile Grids Secondary
G-PATT	1	Continuous	Patterning and Hatching
G-TTLB-LOGO	2	Continuous	Title Block Logo and Copyright
G-DIMS	2	Continuous	Dimensioning
G-NPLT	2	Continuous	Non Print Elements
G-SYMB-CNTR	2	CENTER	Center Lines
G-MARK	2	Continuous	Markers, Break Marks, Leaders
G-TTLB-LABL	3	Continuous	Title Block Text Labels
G-TTLB-TEXT	3	Continuous	Title Block Text
C-NPLT	1	Continuous	Non-plotting graphic information
C-PATT	1	Continuous	Patterning: hatching
C-PVMT-ASPH-PATT	1	Continuous	Pavement: pattern - asphalt
C-PVMT-CONC-PATT	1	Continuous	Pavement: pattern - concrete
C-PVMT-GRVL-PATT	1	Continuous	Pavement: pattern - gravel

Weights

NCS Description	NCS Weight	NCS Type
Hatch Lines	0.18	Fine
Patterns	0.18	Fine
Dimension Lines	0.25	Thin

Leaders	0.25	Thin
Extension Lines	0.25	Thin
Break Lines	0.25	Thin
Hidden Objects	0.25	Thin
Dotted Lines	0.25	Thin
Dashed Lines	0.25	Thin
Setback Lines	0.25	Thin
Center lines	0.25	Thin
Grid Lines	0.25	Thin
Schedule Grid Lines	0.25	Thin
Object Lines	0.35	Medium
Property Lines	0.35	Medium
Text	0.35	Medium
	0.35	Medium
	0.35	Medium
Schedule Grid Accent Lines	0.35	Medium
Title	0.50	Wide
	0.50	Wide
Profiling	0.50	Wide
-	0.50	Wide
Property Lines	0.50	Wide
	0.50	Wide
Drawing Block Borders	0.50	Wide
Match Lines	0.70	Extra Wide
Large Titles	0.70	Extra Wide
Footprints	0.70	Extra Wide
Title Block Borders	0.70	Extra Wide
Sheet Borders	0.70	Extra Wide
Schedule Outlines	0.70	Extra Wide
Major Title Underlining	1.00	XX Wide
Separating Portions of Design	1.00	XX Wide
Border Sheet Outlines	1.40	XXX Wide

Line Styles, Standard Abbreviations and Symbols

See Standard Drawings 3305-300 to 3305-325