ERDC/ITL TR-19-7

US Army Corps
of Engineers®
Engineer Research and
Development Center

The CAD/BIM Technology Center
for Facilities, Infrastructure, and Environment

A/E/C Computer-Aided Design (CAD) Standard

Release 6.1

August 2019

Information Technology Laboratory

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Environment

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U.S. Army Engineer Research and Development Center (ERDC)
Information Technology Laboratory (ITL)
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

Final Report

Prepared for Headquarters, U.S. Army Corps of Engineers
Washington, DC 20314-1000

Under Work Unit

Abstract

The A/E/C Computer-Aided Design (CAD) Standard has been developed by the CAD/Building Information Modeling (BIM) Technology Center for Facilities, Infrastructure, and Environment to eliminate redundant CAD standardization efforts within the Department of Defense (DoD) and the Federal Government. This manual is part of an initiative to develop a nonproprietary CAD standard that incorporates existing industry, national, and international standards and to develop data standards that address the entire life cycle of facilities within the DoD.

The material addressed in the A/E/C CAD Standard include level/layer assignments, electronic file naming, and standard symbology. The CAD/BIM Center's primary goal is to develop a CAD standard that is generic enough to operate under various CAD software packages (such as Bentley's MicroStation and Autodesk's AutoCAD) while incorporating existing industry standards when possible.

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Preface

This study was conducted for HQ USACE. The technical monitor was Jason Fairchild, Headquarters, U.S. Army Corps of Engineers.

The work was performed by the CAD/BIM Technology Center of the Software Engineering and Informatics Division (SEID), U.S. Army Engineer Research and Development Center, Information Technology Laboratory (ERDC-ITL). At the time of publication, Mr. Edward L. Huell was Chief, CEERD-IS-C; Mr. Ken Pathak was Chief, CEERD-IS; and Dr. Robert M. Wallace, was the Technical Director, CEERD-IZ-T. The Deputy Director of ERDC-ITL was Ms. Patti Duett and the Director of ITL was Dr. David A. Horner.

The CAD/BIM Technology Center acknowledges the support of the USACE CAD/BIM Community of Practice (CoP), especially Mr. Jason Fairchild, Headquarters, U.S. Army Corps of Engineers. Special thanks go to Mr. Roger Fujan, U.S. Army Engineer District, Walla Walla; Mr. Gerald Piotrowski, U.S. Army Engineer District, Louisville; Mr. Carl Broyles, U.S. Army Engineer District, Kansas City, and Mr. Brian Baker, U.S. Army Engineer District, Pittsburgh for serving on a committee that assisted in reviewing/evaluating recommended changes to the standard.

COL Ivan P. Beckman was Commander of ERDC, and Dr. David W. Pittman was the Director.

Acronyms and Abbreviations

Acronym	Meaning
AIA	American Institute of Architects
BIM	Building Information Modeling
CAD	Computer-Aided Design
CADD	Computer-Aided Design and Drafting
CSI	Construction Specifications Institute
DoD	Department of Defense
ERDC	Engineer Research and Development Center
FAQ	Frequently Asked Questions
fp	Floor plan
ft	foot
GSA	General Services Administration
in	inch
ITL	Information Technology Laboratory
m	meter
NAVFAC	Naval Facilities Engineering Command
NCS	National CAD Standard
NIBS	National Institute of Building Sciences
O&M	operations and maintenance
RGB	red-green-blue
SEID	Software Engineering and Informatics Division
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association
UDS	Uniform Drawing System
USACE	U.S. Army Corps of Engineers
xd	Existing/Demolition plan
xref	Reference files
2D	Two-dimensional
3D	Three-dimensional

1 Introduction

1.1 Background

The A/E/C Computer-Aided Design (CAD) Standard has been developed by the CAD/ Building Information Modeling (BIM) Technology Center (hereafter referred to as the Center) for Facilities, Infrastructure, and Environment to eliminate redundant standardization efforts within the Department of Defense (DoD) and the Federal Government. This manual is part of an initiative to develop a nonproprietary CAD standard that incorporates existing industry, national, and international standards and to develop data standards that address the entire life-cycle of facilities within the DoD. This report supersedes *A/E/C CAD Standard, Release 6.0* (ERDC/ITL TR-12-6).

The immediate benefits of CAD standards are the following:

- Consistent CAD products for customers
- Uniform requirements for A-E deliverables
- Sharing of products and expertise.

Recognizing such potential benefits, each of the DoD agencies independently initiated efforts to establish CAD standards in the late 1980s. In 1989, the Air Force Logistics Command released the *Architectural and Engineering Services for Computer-Aided Design and Drafting (CADD) Implementation within Air Force Logistics Command*. Headquarters, U.S. Army Corps of Engineers (USACE), in 1990 published Engineer Manual 1110-1-1807, *Standards Manual for U.S. Army Corps of Engineers Computer-Aided Design and Drafting (CADD) Systems*. In 1993, the Naval Facilities Engineering Command (NAVFAC) distributed its *Policy and Procedures for Electronic Deliverables of Facilities Computer-Aided Design and Drafting (CADD) Systems*.

To consolidate these efforts into a single standard, the Center was tasked to develop standards for the A/E/C disciplines. This manual presents the Center's continuing effort at standardizing CAD requirements for A/E/C design and construction documents.

1.2 United States National CAD Standard®

In 1995, the combined resources of the Center, the American Institute of Architects (AIA), the Construction Specifications Institute (CSI), the United States Coast Guard, the Sheet Metal and Air Conditioning Contractors National Association (SMACNA), the General Services Administration (GSA), and the National Institute of Building Sciences (NIBS) Facility Information Council began an effort to develop a single CAD standard for the United States. Working together, these organizations agreed to develop an integrated set of documents that collectively would represent the United States National CAD Standard (NCS).

The two main NCS documents referenced within the A/E/C CAD Standard are the following:

Uniform Drawing System
The Construction Specifications Institute
110 South Union Street, Suite 100
Alexandria, VA 22314-3351

AIA CAD Layer Guidelines
The American Institute of Architects
1735 New York Avenue, NW
Washington, DC 20006-5292

Each of these documents is available as part of the NCS. Additional information on the NCS, as well as how to purchase a copy, can be obtained from

National Institute of Building Sciences
1090 Vermont Avenue NW, Suite 700
Washington, DC 20005-4905
http://www.nibs.org

1.3 Objectives

The objective of the A/E/C Standards is to ensure design intent is consistently, efficiently, and effectively transmitted through the construction phase to operations and maintenance (O&M) and back to design for future work.

1.4 Approach

The approach chosen to respond to A/E/C community comments and feedback entailed reviewing the concerns and recommendations. If the comment was from a purely personal preference standpoint, it was disregarded. If the comment made a valid point, a workaround was determined on how to best resolve the issue while still maintaining the intent of industry standards. A Frequently Asked Questions (FAQ) page was established to document the interim solutions. This document updates the A/E/C Standards to incorporate those solutions.

1.5 Scope

This manual provides guidance and procedures for preparing CAD products within the DoD. Chapters 2–5 of this manual address topics such as presentation graphics, level/layer assignments, electronic file naming, and standard symbology. Appendix A contains tables on model file level/layer names.

1.6 Target systems

This standard does not target any specific CAD system or software, but does specifically target CAD workflows. To ensure successful translations among CAD applications, certain system-specific characteristics were considered and the standard adjusted accordingly. During the preparation of the standard, several baseline decisions were made:

- The standard must be applicable to the latest release of commercially available CAD packages. AutoCAD and MicroStation were chosen based on their prevalence within the DoD.
- The standard is based on CAD applications that utilize layer/level names and reference files.
- The standard requires every final plotted drawing sheet to have its own separate electronic drawing file.

1.7 Design applications and other applications

Numerous design applications have been developed to run on top of basic CAD engines. These applications can be used by designers to generate graphics inside CAD files. Most notable are design software packages for CIM and BIM.

Document management systems that contain attributes or metadata for individual files and have such features as title block integration are becoming standard tools for management of electronic files. Use of these systems to store searchable metadata for files is encouraged.

1.8 Coordination with design agent

With all the complexity and options currently available in the world of CAD, it becomes important to coordinate fundamental aspects of design work. The previously mentioned issues of basic platform, design applications, and document management are three of the issues that can affect the success of a project and the future usefulness of the final documents. As such, each project should have at its initiation discussions and agreements on such issues as these. Each software package being used should be approved, and a determination made on how many of the supporting electronic files should be provided to the customer as a part of the end product.

1.9 Additions/revisions

This Standard is intended to be neither static nor all inclusive, and thus, will be updated as appropriate. Suggestions for improvements are strongly encouraged so that subsequent updates will reflect the input and needs of CAD users.

Recommendations or suggested additions should be sent to the following:

U.S. Army Engineer Research and Development Center
ATTN: CEERD-IS-C/CAD/BIM Technology Center
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

or by e-mail to CADBIM@usace.army.mil.

2 Drawing File Organization

2.1 Design area

2.1.1 Available drawing area

The two most extensively used CAD applications within the DoD, AutoCAD and MicroStation, both provide for a drawing area with nearly infinite range in each positive and negative axis (*x,y,z*).

2.1.2 File accuracy (units)

CAD systems allow the designer to work in *real-world* units. The most common units are feet:inches, survey feet:hundredths (or thousandths) of feet, and meters:millimeters.

MicroStation's approach to file accuracy allows the user to set the working units (i.e., real-world units) as the following:

- Master Units = The largest unit that may be referred to when working in the design file (e.g., feet, meters)
- Sub Units = Subdivisions of Master Units (e.g., inches, millimeters).

In AutoCAD, the basic drawing unit for any file is the distance between two fixed Cartesian coordinates. For example, the distance between coordinates (1,1,1) and (1,1,2) is one drawing unit. A drawing unit can correspond to any measurement (e.g., foot, inch, meter, mile, fathom). AutoCAD users may enter the **Units** display option to set the desired drawing units.

The **Units** command of AutoCAD does not have a direct metric system setup. For metric designs, the recommended procedure is to choose the **Decimal** option in the **Drawing Units** dialog box. This will allow each drawing unit to represent decimal meters, millimeters, and so forth, at the discretion of the user.

2.1.3 International Feet versus Survey Feet

Many sites have to contend with the initial question as to whether a particular project is designed using International Feet or Survey Feet. In some states, it is specified by statute that units of measure for grid

coordinates have to be either International Feet or Survey Feet. The two units are defined as follows:

- International Feet: 1 foot (ft) = 0.3048000 meters (m)
- U.S. Survey Feet: 1 ft = 0.3048006 m.

Looking at this comparison, the difference between the two (0.0000006 m) may seem insignificant; however, ultimately this difference may cause coordinate values to be off by several feet, resulting in inaccurate design files. In MicroStation, the **units.def** file does contain a definition for Survey Feet (usually stored in **c:\Program Files\Bentley\Workspace\System\data**), but it is disabled by default in some earlier versions. To enable, scroll down the **units.def** file to the section **English units (based on U.S. Survey Foot**) and delete the **#** in front of **#sf,ft,** which will allow for the selection of Survey Feet from the Working Units box the next time MicroStation is started.

Note: *If a drawing has already been created using International Feet, changing the Master Units to Survey Feet will not automatically scale all elements in the drawing to Survey Feet.*

2.1.4 Origin (global origin)

Positioned within every electronic drawing file is an origin ("global origin" in MicroStation and "origin" in AutoCAD). The origin of a drawing file is important because it serves as the point of reference from which all other elements are located. Origins are typically defined in a drawing file by the Cartesian coordinate system of *x*, *y*, and *z*.

The benefit of standardizing the location of the origin of a drawing is most notable in the use of reference files (see section Reference Files (XREF) in Chapter 2). A standardized origin is also helpful when translating files between CAD applications. The recommended global origin for two-dimensional (2D) files in both AutoCAD and MicroStation drawings is x = 0 and y=0. When three-dimensional (3D) files are used, the z-origin should be set to allow for elevations below 0.

2.2 Design, drawing, and sheet models

Inside each CAD file can exist Design/Drawing Models (or Model Space for AutoCAD users) and Sheet Models (or Layout for AutoCAD users).

2.2.1 Model files and sheet files

Two distinct types of CAD files are addressed in this standard: model files and sheet files.

2.2.1.1 Model files

Note: *This model files section contains definitions for both Design Models and Drawing Models.*

A model file contains the physical components of a building (e.g., columns, walls, windows, ductwork, piping). Model files are drawn at full scale and typically represent plans, elevations, sections, etc. Model files can be generated either by placing graphics, or from BIM model extractions/views. Model files are used as components in creating plotted sheet files. The information contained within a model file for a discipline may be referenced by other disciplines to create the particular model files or sheet files for that discipline.

A model file can be considered a work in progress. For instance, a mechanical engineer may reference the architect's floor plan model file to begin development of the HVAC ductwork layout model file. Meanwhile, the architect can continue developing the floor plan to meet new requirements. Any changes to the floor plan would be immediately accessible to the mechanical engineer. The viewing of real-time updates eliminates a great deal of frustration for other disciplines because it allows for on-the-spot rather than after-the-fact modifications.

Design Models are models that are developed, or possibly assembled prior to creation of the Sheet Model (see section 2.3, Drawing Sheet Assembly). Design Models contain graphic information in a model file format. For example, it may contain the entire Architectural Floor Plan model file for a building. It is this model file that is used as a reference for creating individual sheet files. Adding annotation to the Design Model should be avoided (annotation should be placed in the Drawing Model).

A Drawing Model is a 2D view/representation with annotation of a 3D Design Model. Drawing Models include items such as plans, sections, elevations, and details referenced to the Sheet Model.

2.2.1.2 Sheet files

A sheet file is synonymous with a plotted CAD drawing file. A sheet file is a selected view or portion of referenced model file(s) within a 1:1 border sheet. The addition of sheet-specific information (e.g., text, dimensions, symbols) completes the construction of the document. In other words, a sheet file is a *ready-to-plot* CAD file. A design model inside the sheet file contains the model information assembled as it would be displayed on a sheet. This model would have real-world spatial alignment and would be used as the primary model for graphical information to be displayed and presented in the sheet model.

A useful generalization for differentiating between model files and sheet files is stated in Module 1 *Drawing Set Organization* of the *Uniform Drawing System* (UDS) (NIBS 2014): "Model files are always referenced by other files, while sheet files are never referenced by other files."

A Sheet Model shows the presentation of model file graphics as they would appear on an individual sheet. This assembly area would contain referenced files, one of which would be the border sheet.

2.2.2 Border model files

Borders are model files referenced by all disciplines to create sheet files. This model file contains border linework, the title block, and project-specific symbols and text. Each discipline shall use the same border (for more information on Borders, see the *A/E/C Graphics Standard*).

2.2.3 Reference files (XREF)

Reference files (external references or XREF) enable designers to share drawing information electronically, eliminating the need to exchange hard-copy drawings among the design disciplines.

With the use of reference files, the structural engineer need not wait for the architect to complete the architectural floor plans before beginning the structural framing plan model file.

Referencing electronic drawing information makes any changes made later by the architect apparent to the structural designer. This real-time access

to the work of others ensures accuracy and consistency within a set of drawings and helps promote concurrent design efforts. No longer does one discipline have to wait until another discipline is nearly finished before they begin their drawings.

Note: *Never bind references.*

Note: *Each reference file shall have a unique, logical name/reference describing what is being referenced (e.g., Floor 1 Plan, Site Plan – Area A).*

2.2.4 Raster references

For interoperability, the only raster file types allowed to be referenced are TIF, JPG, and PDF. Raster file names shall conform to the model file naming convention with a model file type of "IG" (e.g., *C-IGXXXX.tif/jpg).

Raster File Type uses:

- GeoReferenced TIF: best for aerial photographic imagery, maps, and drawings where the image is referenced under line work to add more clarity.
- JPG: best for non-aerial photographic imagery used for depicting existing conditions referenced to sheets.
- PDF: best for drafted drawings used as background images.

Note: *MrSID files are NOT to be directly referenced. The files are extremely large and unwieldy to manage in a CAD/BIM/CIM environment. It is recommended that the MrSID image be clipped, resampled, and saved as a GeoReferenced TIF file. The smaller file size allows the software to open faster and plot more effectively.*

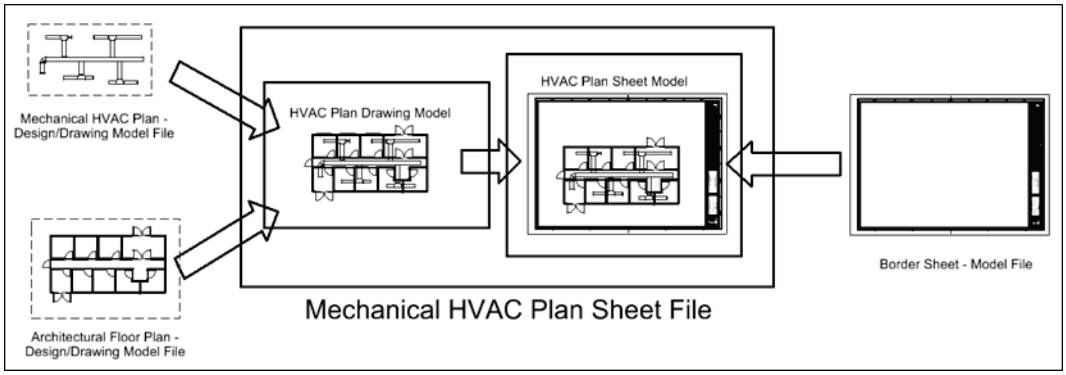
2.3 Drawing sheet assembly–use of Design Model and Sheet Model (1:1 border sheet)

The following method for drawing sheet assembly should be used. It involves assembling individual model files and a border sheet model file to create final plotted sheets.

Note: *Borders shall not be placed in a Sheet Model as a cell or block. The border shall be an individual, un-nested reference file in the Sheet Model.*

This method consists of using a sheet file that contains a Design Model and a Sheet Model. The Design/Drawing Model is used to assemble all the individual reference files necessary to display the graphics. This may include references to individual views of Design Models in other files, or even coincident references. The Design Model should also contain real-world graphics such as northing and easting coordinate values of points. The Sheet Model contains a reference to the project border sheet model file (at 1:1), plus a reference to the Drawing Model in the active sheet file, scaled to fit into the Sheet Model (Figure 2-1).

Figure 2-1. Sheet file composition using Design Model and Sheet Model.



Note: *With Bentley software, when using Drawing Models, never reference Drawing Models to Design Models, since resymbolization problems occur.*

2.4 Electronic drawing file naming conventions

Naming conventions for electronic drawing files (both model files and sheet files) allow CAD users to determine the contents of a drawing without actually displaying the file. They also provide a convenient and clear structure for organizing drawing files within project directories.

2.4.1 Project code

The Model File naming convention and the Sheet File naming convention both require a Project Code (1 to 20 characters) at the beginning of the file name. The Project Code shall be identified at the start of each project to ensure consistent file names within that project. Some examples of Project Codes follow:

- the official agency project number

- the project number defined by the contract issuing agency CAD manager for their record system.

The use of Project Codes in file names prevents the same file name from existing in different directories.

When deciding on a standard file naming convention, the user should consider the use of a special character such as an underscore (_) for all reference/master files so that file sorting places like file types together.

When a project includes multiple structures, features, or options, it is important to identify each file with the appropriate feature. This should be done as a part of the Project Code. For example, a model file for project P123, building 2, could possibly use a Project Code of _P123-Bldg2.

2.4.2 Model file naming convention

The model file naming convention (Figure 2-2) has four mandatory fields. All fields must be used and in the correct sequence.

Following the Project Code field, the first two-character field represents the Discipline Designator. The allowable characters for the first character in the Discipline Designator are listed in Table 2-1. The second character of the Discipline Designator field is always a hyphen (-). The next two-character field represents the Model File Type (Table 2-2). The final field is User Definable, and all four characters shall be used.

Note: *The NCS states that a Discipline Designator "denotes the category of subject matter contained on the specified layer." However, this denotation leaves this type of Designator open ended, resulting in Discipline Designators that are usually subsets of other disciplines. For example, Distributed Energy (which has the Discipline Designator "W" in the NCS) is typically shown in disciplines such as Mechanical or Electrical. To prevent the use of Discipline Designators where it is unclear what should be included within the "category of subject matter," only the Discipline Designators shown in Table 2-1 shall be used.*

Figure 2-2. Model file naming convention.

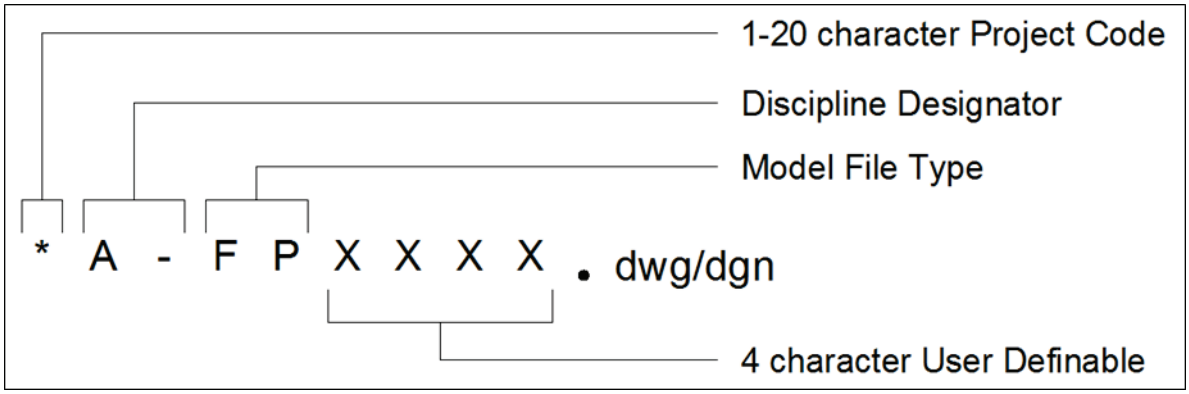


Table 2-1. Discipline designators.

Discipline	Designator
General	G
Hazardous materials	H
Survey/Mapping	V
Geotechnical	B
Civil	C
Landscape	L
Structural	S
Architectural	A
Interiors	I
Fire protection	F
Plumbing	P
Mechanical	M
Electrical	E
Telecommunications	T
Resource	R
Other disciplines	X
Operations	O

Table 2-2. Model file types.

Discipline	Code	Definition
General	BS	Border sheet
	CS	Cover sheet
	IG*	Raster imagery (scanned and photographic)
	KP	Key plan
Hazardous materials	DT	Detail
	EL*	Elevation
	IG*	Raster imagery (scanned and photographic)
	LG*	Legend
	PP	Pollution prevention plan
	PR	Profile
	QP*	Equipment plan
	SC	Existing section
	XD*	Existing/Demolition plan
Survey/Mapping	AL	Existing airfield lighting plan
	CP	Existing communication system plan
	EU	Existing electrical utilities plan
	HP	Existing hydrographic survey and mapping plan
	HT	Existing HTCW Utilities Plan
	IG*	Raster imagery (scanned and photographic)
	LG*	Legend
	PB	Property boundary
	PP*	Plan and profile
	PR	Existing profile
	SC	Existing section
	SV	Survey and mapping plan
	UP	Existing utilities plan
Geotechnical	DT	Detail
	IG*	Raster imagery (scanned and photographic)
	JP	Joint layout plan
	LB	Boring log
	LG*	Legend
	PV	Pavement site plan
	SC	Existing section
	SH*	Schedule
	SI	Subsurface investigation plan

Discipline	Code	Definition
Civil	AF	Airfield plan
	BR	Beach renourishment plan
	DT	Detail
	EL	Elevation
	ER	Eco-restoration plan
	FC	Flood control plan
	GP	Grading plan
	IG*	Raster imagery (scanned and photographic)
	IP*	Installation plan/Base map
	JP	Joint layout plan
	KP*	Staking plan
	LG*	Legend
	NG	Navigation/Dredging plan
	PL*	Project location map
	PP*	Plan and profile
	PR	Profile
	SC	Section
	SH*	Schedule
	SP	Site plan
	TS	Transportation site plan
	UP	Utilities plan
	XD*	Existing/Demolition plan
Landscape	DT	Detail
	EL*	Elevation
	IG*	Raster imagery (scanned and photographic)
	IP	Irrigation plan
	LG*	Legend
	LP	Landscape plan
	SC*	Section
	SH*	Schedule
	XD*	Existing/Demolition plan
Structural	3D	Isometric/3D
	BP	Bridge plan
	CP*	Column plan
	CW	Misc. Small civil works structures
	DT	Detail

Discipline	Code	Definition
	EL	Elevation
	EP	Enlarged plan
	FC	Flood control structures
	FN	Foundation plan
	FR	Framing plan
	IG*	Raster imagery (scanned and photographic)
	LD	Locks and dams plan
	LG	Legend
	SC	Section
	SH*	Schedule
	XD*	Existing/Demolition plan
Architectural	3D*	Isometric/3D
	AC	Area calculations/Occupancy plan
	CP	Reflected ceiling plan
	DT	Detail
	EL	Elevation
	EP*	Enlarged plan
	FP	Floor plan
	IG*	Raster imagery (scanned and photographic)
	LG*	Legend
	QP	Equipment plan
	RP	Roof plan
	SC	Section
	SH*	Schedule
	XD*	Existing/Demolition plan
Interiors	3D*	Isometric/3D
	DT	Detail
	EL	Elevation
	EP*	Enlarged plan
	FL	Floor patterns
	IG*	Raster imagery (scanned and photographic)
	LG*	Legend
	QP*	Equipment plan
	RP	Furniture plan
	SC*	Section
	SH*	Schedule

Discipline	Code	Definition
	SP	Signage placement plan
	WP	System furniture plan
	XD*	Existing/Demolition plan
Fire protection	3D*	Isometric/3D
	DG*	Diagram
	DT	Detail
	FA	Fire alarm/Detection plan
	FP	Fire suppression plan
	IG*	Raster imagery (scanned and photographic)
	LG*	Legend
	LP	Life safety plan
	SC*	Section
	SH*	Schedule
	XD*	Existing/Demolition plan
Plumbing	3D*	Isometric/3D
	DG	Diagram
	DT	Detail
	EL*	Elevation
	EP*	Enlarged plan
	IG*	Raster imagery (scanned and photographic)
	LG*	Legend
	PP	Piping plan
	QP*	Equipment plan
	SH*	Schedule
	XD*	Existing/Demolition plan
Mechanical	3D*	Isometric/3D
	DG	Diagram
	DT	Detail
	EL	Elevation
	EP*	Enlarged plan
	HP	HVAC plan
	HS	Hydraulic systems
	HT	HTCW utilities plan
	IG*	Raster imagery (scanned and photographic)
	LG*	Legend

Discipline	Code	Definition
	MD	Machine design plan
	MH	Material handling plan
	QP*	Equipment plan
	SC	Section
	SH*	Schedule
	SP	Specialty piping plan
	XD*	Existing/Demolition plan
Electrical	AL	Airfield lighting plan
	AP*	Auxiliary power plan
	CP	Exterior communication systems plan
	DG	Diagram
	DT	Detail
	EU	Electrical utilities plan
	GP	Grounding system plan
	IG*	Raster imagery (scanned and photographic)
	LG*	Legend
	LP	Lighting plan
	PP	Power plan
	PS*	Panel schedule
	QP*	Equipment plan
	SH*	Schedule
	SS	Special systems plan
	XD*	Existing/Demolition plan
Telecommunications	DG	Diagram
	DT	Detail
	IG*	Raster imagery (scanned and photographic)
	LG*	Legend
	QP*	Equipment plan
	SH*	Schedule
	TP	Telephone/Data plan
	XD*	Existing/Demolition plan

* = No Model File Table available in Appendix A

Example. The model file name for a project at the U.S. Army Engineer Research and Development Center (ERDC), Building 8000, first floor, Architectural Floor Plan could be

ERDC8000A-FPF1XX.dgn/dwg

where, ERDC8000 is the Project Code, A- is the Discipline Designator, FP is the Model File Type (Floor Plan), and F1 is a user-definable set of characters for Floor 1. Since not all of the user-definable characters were used, the characters XX were used as placeholders.

Existing/Demolition model file naming. There are instances when a facility is being renovated and the as-built designs need to be revised to show demolition and new items. These revisions would not be made on existing as-built model files, but on copies to ensure the original as-builts are not modified.

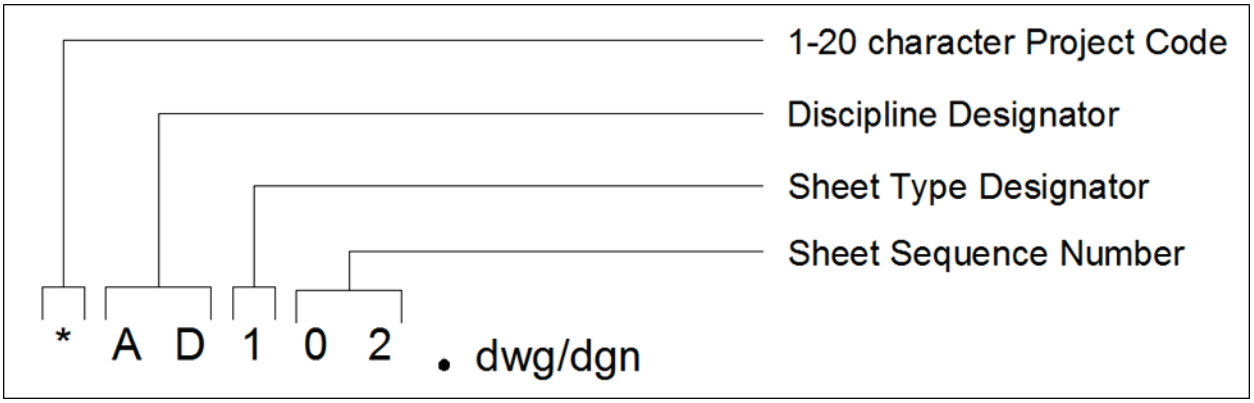
A model file type, Existing/Demolition (XD), has been added to the standard to allow users to make revisions to as-built files. This model file type is used to aid users in separating existing-to-remain items from items that will be demolished.

Example. An architect has an existing as-built floor plan model file for Building 1000, second floor. For the current project, walls will be demolished and new walls constructed on the second floor. First, a copy would be made of the original as-built file (B1000A-FPF2XX.dgn/dwg), and the copy would be named B1000RENA-XDF2XX.dgn/dwg (B1000REN is the Project Code, A- is the Discipline Designator, XD is the Model File Type (Existing/Demolition Plan), and F2XX are user-definable characters (F2=Floor 2)). The architect would open this file and move all demolition items to demolition levels/layers (see Chapter 4, Status (phase) levels/layers). When the new items in the Floor Plan are drawn, the architect would open a new model file, perhaps called B1000RENA-FPF2XX.dgn/dwg (B1000REN is the Project Code, A- is the Discipline Designator, FP is the Model File Type (Floor Plan), and F2XX are user-definable characters (F2=Floor 2)). The fileB1000RENA-XDF2XX.dgn/dwg would be referenced in with the demolition levels/layers turned off. The architect would then use the Floor Plan active levels/layers to construct the new items for that project.

2.4.3 Sheet file naming convention

The sheet file naming convention (Figure 2-3) also contains four mandatory fields. Similar to the format for model file naming, all fields must be used and in the correct sequence.

Figure 2-3. Sheet file naming convention.



The first field is used for a 1–20 character Project Code (see section 2.4.1, "Project code"). The next two characters are the Discipline Designator with either a hyphen or an alphabetical Designator (Table 2-3). The next character is the Sheet Type Designator (Table 2-4) followed by a two-character Sheet Sequence Number (01–99).

For example, the sheet file name for a project at ERDC, Building 8000, Architectural Floor Plan, sheet sequence 02 could be

ERDC8000A-102.dgn/dwg

where, ERDC8000 is the Project Code, A- is the Discipline Designator, 1 is the Sheet Type Designator (Plan), and 02 is the Sheet Sequence Number.

Table 2-3. Sheet file discipline designators.

Discipline	Designator	Description	Content
General	G-	All general	All or any portion of subjects in the following Discipline Designators
	GI	General information	Drawing index, code summary, symbol legend, orientation maps
	GC	General contract	Phasing, schedules, contractor staging areas, fencing, haul routes, erosion control, temporary and special requirements
	GR	General resource	Photographs, soil borings
Hazardous Materials	H-	All hazardous materials	All or any portion of subjects in the following Discipline Designators
	HA	Asbestos	Asbestos abatement, identification, containment
	HC	Chemicals	Toxic chemicals handling, removal, storage
	HL	Lead	Lead piping, paint removal
	HP	PCB	PCB containment and removal

Discipline	Designator	Description	Content
	HR	Refrigerants	Ozone depleting refrigerants
Survey/Mapping	V-	All Survey/Mapping	All or any portion of subjects in the following Discipline Designators
	VA	Aerial survey	Aerial surveyed points and features
	VB	Boundary	Boundary survey
	VC	Computated points	Computated points and features
	VF	Field survey	Field surveyed points and features
	VH*	Hydrographic survey	Hydrographic surveyed points and features
	VI	Digital survey	Digitized points and features
	VN	Node points	Node points and features
	VS	Staked points	Staked points and features
	VU	Combined utilities	
	VL	Land	Land/property/American Land Title Assoc. (ALTA) survey
Geotechnical	B-	All geotechnical	All or any portion of subjects in the following Discipline Designators
	BB*	Boring logs	Boring logs
	BS*	Stratigraphy	Stratigraphy profiles
Civil	CD	Civil demolition	Structure removal and site clearing
	C-	All Civil	All or any portion of subjects in the following Discipline Designators
	CS	Civil site	Plats, topographic, dimension control
	CG	Civil grading	Excavation, grading, drainage, erosion control, retention ponds
	CT	Civil transportation	Waterways, wharves, docks, trams, railways, airfields, people movers
	CP	Civil paving	Roads, driveways, parking lots
	CU	Civil utilities	Water, sanitary sewer, storm sewer, power, communications, natural gas, steam systems
	CI	Civil improvements	Pavers, flagstone, exterior tile, furnishings, retaining walls, water features
	CB*	Civil beach renourishment	Beach disposal and renourishment
	CE*	Civil ecosystem restoration	Environmental restoration
	CF*	Civil flood control	Levees, spillways, pump stations
	CH*	Civil shore protection	Erosion protection structures on shoreline
	CN*	Civil navigation	Navigation, harbors, dredging
	CO*	Civil operation and maintenance	Repair and upgrade to O&M structures

Discipline	Designator	Description	Content
	CR*	Civil recreation	Recreation facilities
	CX*	Civil security	Security-related work
Landscape	LD	Landscape demolition	Protection and removal of existing landscape
	L-	All Landscape	All or any portion of subjects in the following Discipline Designators
	LS	Landscape site	All site hardscape and callouts
	LG	Landscape grading	Proposed contours and spot grades
	LI	Landscape irrigation	Mainlines, valves, controllers, pumps, etc.
	LL	Landscape lighting	
	LP	Landscape planting	Landscape planting
	LR	Landscape relocation	Vegetation relocation information
Structural	SD	Structural demolition	Protection and removal
	S-	All Structural	All or any portion of subjects in the following Discipline Designators
	SS	Structural site	
	SB	Structural substructure	Foundations, piers, slabs, retaining walls
	SF	Structural framing	Floors and roofs
	SC*	Structural components	Gates, armor, bulkheads, railings
	SR*	Structural reinforcement	Concrete reinforcement and anchors
	ST*	Structural superstructure	Walls, decks, abutments, gates, weirs
Architectural	AD	Architectural demolition	Protection and removal
	A-	All Architectural	All or any portion of subjects in the following Discipline Designators
	AS	Architectural site	
	AE	Architectural elements	General architectural
	AI	Architectural interiors	
	AG	Architectural graphics	
	AF	Architectural finishes	
Interiors	ID	Interior demolition	Protection and removal
	I-	All Interiors	All or any portion of subjects in the following Discipline Designators
	IN	Interior design	

Discipline	Designator	Description	Content
	IF	Interior furnishings	
	IG	Interior graphics	Murals and visuals
Fire Protection	FD*	Fire protection demolition	Protection and removal
	F-	All Fire protection	All or any portion of subjects in the following Discipline Designators
	FA	Fire protection detection and alarm	
	FX	Fire protection suppression	Fire extinguishing systems and equipment
Plumbing	PD	Plumbing demolition	Protection, termination, removal
	P-	All Plumbing	All or any portion of subjects in the following Discipline Designators
	PS	Plumbing site	Extensions and connections to Civil Utilities
	PL	Plumbing fixtures	Domestic water, sanitary and storm drainage, fixtures
	PP	Plumbing piping	Piping, valves, insulation
	PQ	Plumbing equipment	Pumps and tanks
Mechanical	MD	Mechanical demolition	Protection, termination, removal
	M-	All Mechanical	All or any portion of subjects in the following Discipline Designators
	MS	Mechanical site	Utility tunnels and piping between facilities
	MH	Mechanical HVAC	Ductwork, air devices, equipment
	MI	Mechanical instrumentation	Instrumentation and controls
	MP	Mechanical piping	Chilled and heating water, steam
	MY*	Mechanical hydraulic systems	Pump stations, spillways, slide gates
	MW*	Mechanical distributed energy	
Electrical	ED	Electrical demolition	Protection, termination, removal
	E-	All Electrical	All or any portion of subjects in the following Discipline Designators
	ES	Electrical site	Exterior electrical systems (power, lighting, auxiliary)
	EI	Electrical instrumentation	Controls, relays, instrumentation, measurement devices
	EL	Electrical interior lighting	Interior lighting
	EP	Electrical interior power	Interior power

Discipline	Designator	Description	Content
	ET	Electrical telecommunications	Telephone, network, voice, and data cables
	EY	Electrical interior auxiliary systems	Alarms, nurse call, security, CCTV, PA, music, clock, program
	EA*	Electrical airfield lighting and navaids	Visual air navigation systems
	EC*	Electrical cathodic protection	Cathodic protection systems
	EG*	Electrical grounding	Grounding, lightning protection devices
	EW*	Electrical distributed energy	
Telecommunications	TD*	Telecommunications demolition	Protection, termination, removal
	T-	All Telecommunications	All or any portion of subjects in the following Discipline Designators
	TA	Audio visual	Cable, music, CCTV systems
	TC	Clock and program	Time generators and bell program systems
	TI	Intercom	Intercom and public address systems
	TM	Monitoring	Monitoring and alarm systems
	TN	Data networks	Network cabling and equipment
	TT	Telephone	Telephone systems, wiring, equipment
	TY	Security	Access controls and alarm systems
	TS*	SCADA	Supervisory control and data acquisition (SCADA) systems and equipment
Resource	R-	All resource	All or any portion of subjects in the following Designators
	RC	Resource civil	Surveyor's information and existing civil drawings
	RS	Resource structural	Existing facility structural drawings
	RA	Resource architectural	Existing facility architectural drawings
	RM	Resource mechanical	Existing facility mechanical drawings
	RE	Resource electrical	Existing facility electrical drawings
	RR	Resource real estate	Real estate drawings
	RG*	Resource green	LEED drawings
Other disciplines	X		
Operations	O		

* = Not in NCS 6.0

Table 2-4. Sheet type designators.

Sheet Type	Designator
General (symbols legend, notes, etc.)	0
Plans (horizontal views and combination plan and profile)	1
Elevations and profiles (vertical views)	2
Sections (sectional views, cross sections, etc.)	3
Large scale views (Scaled up reproductions of plans, elevations, or sections that are not details)	4
Details	5
Schedules and diagrams	6
User defined	7
User defined	8
3D Representations (isometrics, perspectives, photographs)	9

Note: *If the sheet sequence number goes above 99 sheets for a particular discipline, the user might want to consider using alphabetical Designators in the Discipline Designator to further subdivide the discipline (Table 2-3).*

Note: *In the NCS, user-defined "Level 2 Designators" in the Discipline Designator are allowed "to differentiate among multiple buildings on a 'campus' or among multiple features on a large civil works project." The A/E/C CAD Standard limits the Discipline Designator field to strictly those listed in Table 2-3 for sheets. The Project Code field in conjunction with the title block "BLDG ID" field (see "Border Sheets" section in the A/E/C Graphics Standard) in the file name preempts the need for this functionality (e.g., PN123456_BLDG1_A-FPXXXX.dgn/dwg, PN123456_BLDG2_A-FPXXXX.dgn/dwg).*

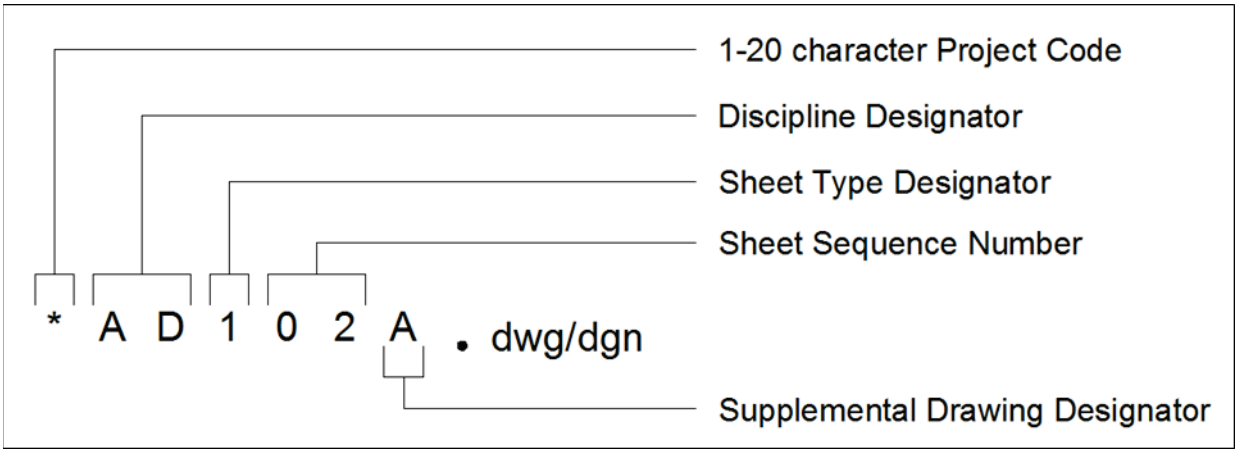
Note: *According to the NCS: "Sheet Sequence Numbers need not be sequential, to permit future insertion of sheets during design."*

Note: *Occasionally, more than one Sheet Type (e.g., plan, elevation, detail) will be represented in one sheet file. If this is the case, the dominant Sheet Type determines the Sheet Type Designator.*

2.4.4 Adding a drawing sheet

If a sheet needs to be added between two sequential sheets, a Supplemental Drawing Designator may be appended to the end of a sheet file name (Figure 2-4). For example, if two sheets need to be added between sheets ERDC8000A-104 and ERDC8000A-105, then the sheet file names for the inserted sheets would be ERDC8000A104A and ERDC8000A104B.

Figure 2-4. Supplemental drawing designator.



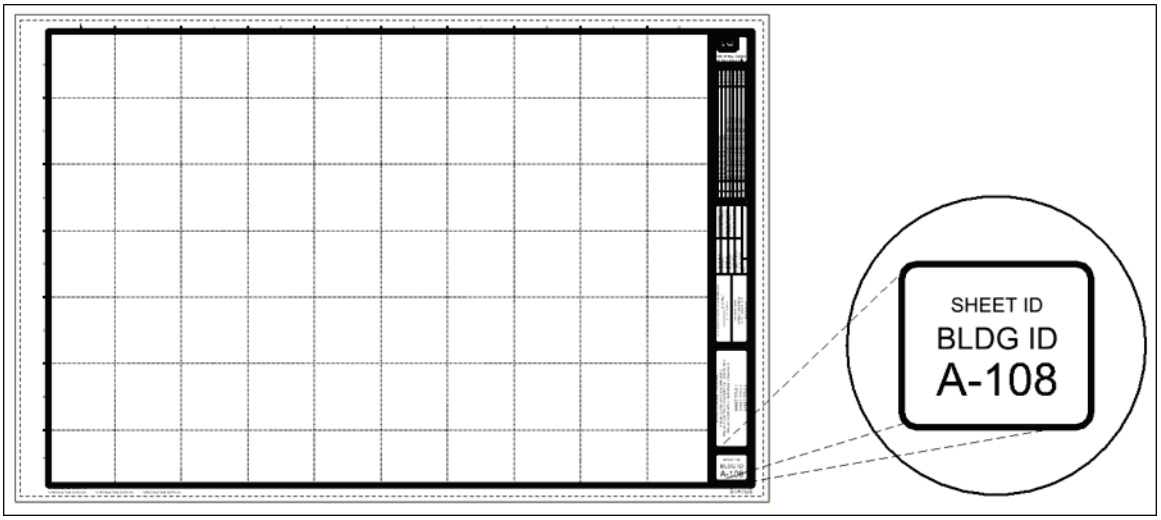
If time permits, sheet files should be re-sequenced and named appropriately before advertisement. After advertisement, all sheet additions and deletions shall be documented as an amendment or modification per contract language. See the *A/E/C Graphics Standards* for more information.

2.5 Coordination between sheet file name and sheet identifier

In assigning a sheet identifier (for use in the sheet identification block, reference bubbles, etc.), the user should coordinate with the name assigned to the electronic sheet file. The sheet identifier shall consist of the discipline designator, sheet type designator, and the sheet sequence number (Figure 2-5).

The sequence of the discipline designators in a drawing set shall follow the order as shown in Table 2-3 (except for general notes, abbreviations, and legends that will precede all other sheets in a discipline).

Figure 2-5. Typical border sheet title block with sheet identification block.



3 Graphic Concepts

3.1 Presentation graphics

The first step in establishing an effective CAD standard is the development of a uniform approach to presentation graphics. Presentation graphics typically consist of drawing elements such as lines, arcs, shapes, text, and their attributes (line color, line width, line style). This chapter presents brief overviews of the characteristics of presentation graphics and the philosophy used to standardize them. For more definition, see the *A/E/C Graphics Standard*.

3.1.1 Line widths

Commercial CAD systems provide an extensive variety of line widths to substantially improve drawing readability. For the majority of A/E/C drawings, the eight line widths defined in Table 3-1 are considered sufficient and should not be expanded unless an appreciable improvement in drawing clarity or contrast can be realized. Table 3-1 lists information about the various allowed line widths.

Table 3-1. Comparison of line widths.

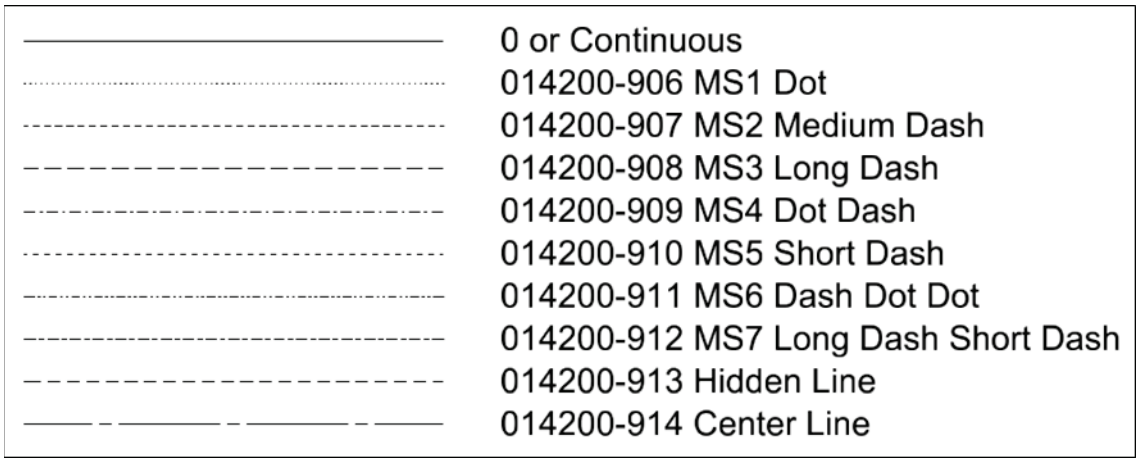
Line Thickness	mm	in.	MicroStation Line Weight	Typical Use
Fine	0.18	0.007	wt = 0	Patterning and material indications
Thin	0.25	0.010	wt = 1	Dimension lines, leaders, extension lines, break lines, grid lines, schedule grid lines, hidden objects, center lines, setback lines
Medium	0.35	0.014	wt = 2	Object lines, text, property lines, terminator marks, schedule grid accent lines
Wide	0.50	0.020	wt = 3	Major object lines, cut lines, section cutting plane lines, property lines, drawing block borders, titles
Extra wide	0.70	0.028	wt = 5	Minor title underlining, footprints, match lines, schedule outlines, sheet borders, large titles, object lines requiring special emphasis
XX Wide	1.00	0.040	wt = 7	Major title underlining and separating portions of drawings
XXX Wide	1.40	0.055	wt = 10	Border sheet outlines and cover sheet line work
XXXX Wide	2.00	0.079	wt = 15	Border sheet outlines and cover sheet line work

Note: *The NCS does offer an Extra Fine (0.13 mm) line width. However, the legibility on printouts becomes more difficult when the line width goes below the Fine (0.18 mm) line width. The NCS even states "Use of Extra Fine line widths should be avoided if the drawing will be plotted half-size."*

3.1.2 Line types/styles

The predominant line types/styles used in this standard are shown in Figure 3-1 and are available as line types/styles for AutoCAD and MicroStation (with the exception of "Continuous"). Additional custom line style files for MicroStation and AutoCAD are available on the Center's web site in the A/E/C Work Structure at https://cadbimcenter.erdc.dren.mil/aeccadstandard.

Figure 3-1. Predominant line types/styles.



Note: *For consistency and interoperability, use of the IGDS default Bentley line styles 1–7 shall be avoided.*

3.1.3 Line color

The primary reason to use color in CAD drawings is to improve the clarity of the drawing on a computer monitor. The variety of colors available in a CAD application depends on the capabilities of the computer monitor and its video card. Today, most systems are capable of displaying up to 16.8 million colors.

In a departure from previous releases of the A/E/C CAD Standard, colors within the model file tables are not listed by their AutoCAD or MicroStation color numbers, but instead by their red-green-blue (RGB) values. Using RGB values instead of CAD package color numbers will allow for universal

representation of colors no matter which (CAD) software application is being used. Table 3-2 lists the basic colors used predominantly throughout the model files. Additionally, the level/layer color standard has been redefined to reflect industry field marking color standards where applicable.

Table 3-2. Basic colors.

	RGB Values		
Color	**Red**	**Green**	**Blue**
Blue	0	0	255
Gray	128	128	128
Green	0	255	0
Red	255	0	0
Yellow	255	255	0
Magenta	255	0	255
Cyan	0	255	255
White	255	255	255

Note: *For AutoCAD, use color "White" for all colors set to 255,255,255 to enable white/black color switching based on background color.*

3.1.4 Plotting

Printers and plotters are controlled by files called pen tables or feature tables. These files (tables) convert thicknesses and/or color in an electronic file to line thicknesses on a paper drawing.

This Standard standardizes presentation graphics as they relate to electronic drawing files (screen display) and not the final printed or plotted paper drawing. By employing pen tables, each agency can ensure that consistent drawings are produced from an electronic file regardless of the type of printer or plotter used. It is the responsibility of each field activity to develop pen tables based on the printer/plotter used at that activity.

Note: *For consistency/interoperability, it is recommended that plots first be sent to a common format, such as PDF, before paper plotting.*

3.1.5 Screening

Screened images are created through a process in which the density and pattern of black and white dots are varied to simulate different shades of

gray (also known as dithering). Varying the intensity of gray scales allows users to distinguish different aspects of a drawing when it is plotted. For example, on a demolition plan the existing items not designated for demolition can be assigned a color that has been assigned a screening percentage. When plotted, those items will be shown at a lighter shade compared with other items slated for demolition in the drawing. This will allow the contractor to immediately identify the demolition items on the drawing.

Table 3-3 lists colors recommended to be used for screening along with a recommended screening percentage. Optionally, when variations in screening are not important, a single screening can be applied to all screened graphics.

Screening can be accomplished with various techniques, but the screen percentages should be the same as Table 3-3. Document any methods used and provide appropriate supporting files.

Note: *The AutoCAD vs. MicroStation color numbers have been combined to avoid confusion when creating a screened effect in either software.*

Table 3-3. Screened colors.

		Gray Scale Ratios (RGB as plotted)		
Color No.	Screen percent	Red	Green	Blue
250	60	102	102	102
251	50	128	128	128
252	40	153	153	153
253	30	179	179	179
254	20	204	204	204

Note: *When plotting in Black and White, all RGB color values plot as Black and screening is performed by using one or more of the following: indexed colors 250-254, display styles, setting the layer plot style to Screened_60(-20)%, and/or a screening parameters (such as setting logicalnames of reference files to "SCRN60(-20)"). See AutoCAD and MicroStation help documentation for more information on how to perform screening.*

3.2 Text

Each of the two major CAD platforms contains sets of fonts that have been designed for use in CAD drawing presentation. MicroStation has various fonts stored in font resource files, with each resource file capable of containing multiple fonts. AutoCAD has individual fonts as shape files. In addition, each platform has the ability to support TrueType fonts that are installed on the individual computer. Each application also has the ability to create additional fonts for its use. Since projects designed in CAD are planned for use many years into the future and files will be used by many different individuals, use of any nonstandard font is not allowed. This includes fonts for symbology, logos, business titles, etc.

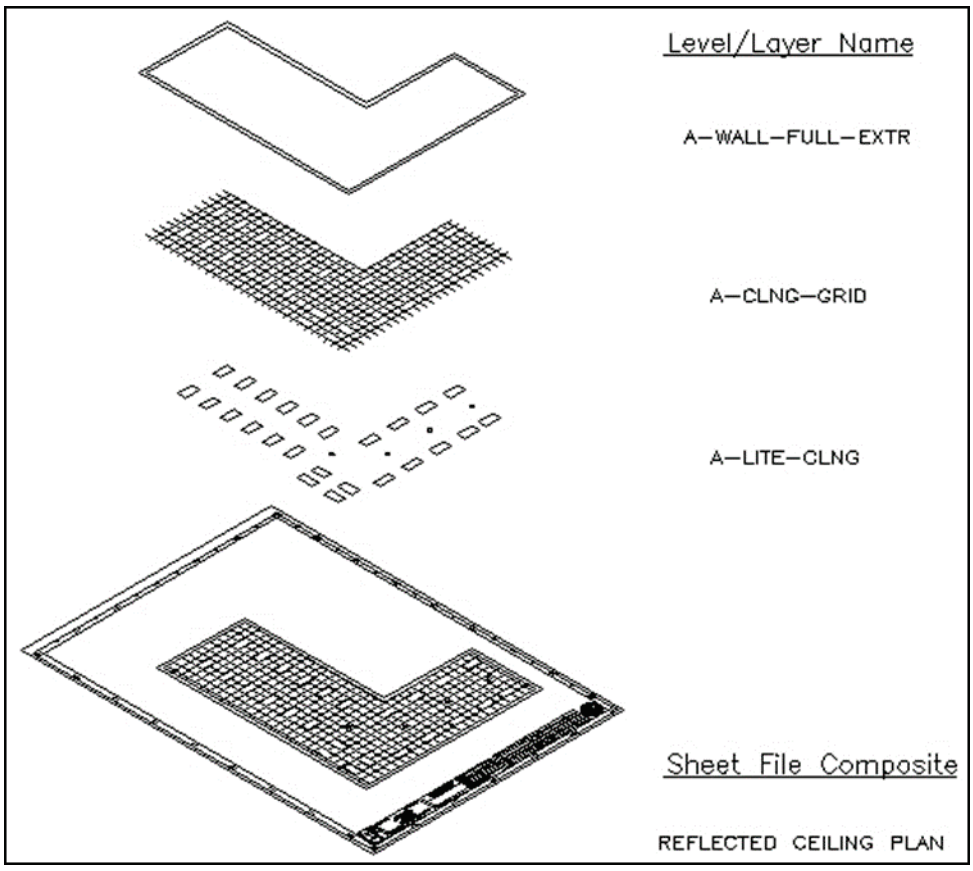
There is not a direct relationship between MicroStation resource files and AutoCAD shape files. Therefore, it is important that font use be reviewed at the start of a project and decisions made on fonts that are then used consistently throughout the project by all disciplines. Previous releases of the *A/E/C CAD Standard* allowed the use of various AutoCAD, MicroStation, and TrueType fonts. To improve the direct translation of fonts between applications, only the TrueType font allowed is Arial in the *A/E/C CAD Standard* (for more information on text, see the *A/E/C Graphics Standard*).

4 Level/Layer Assignments

4.1 Level/Layer naming convention

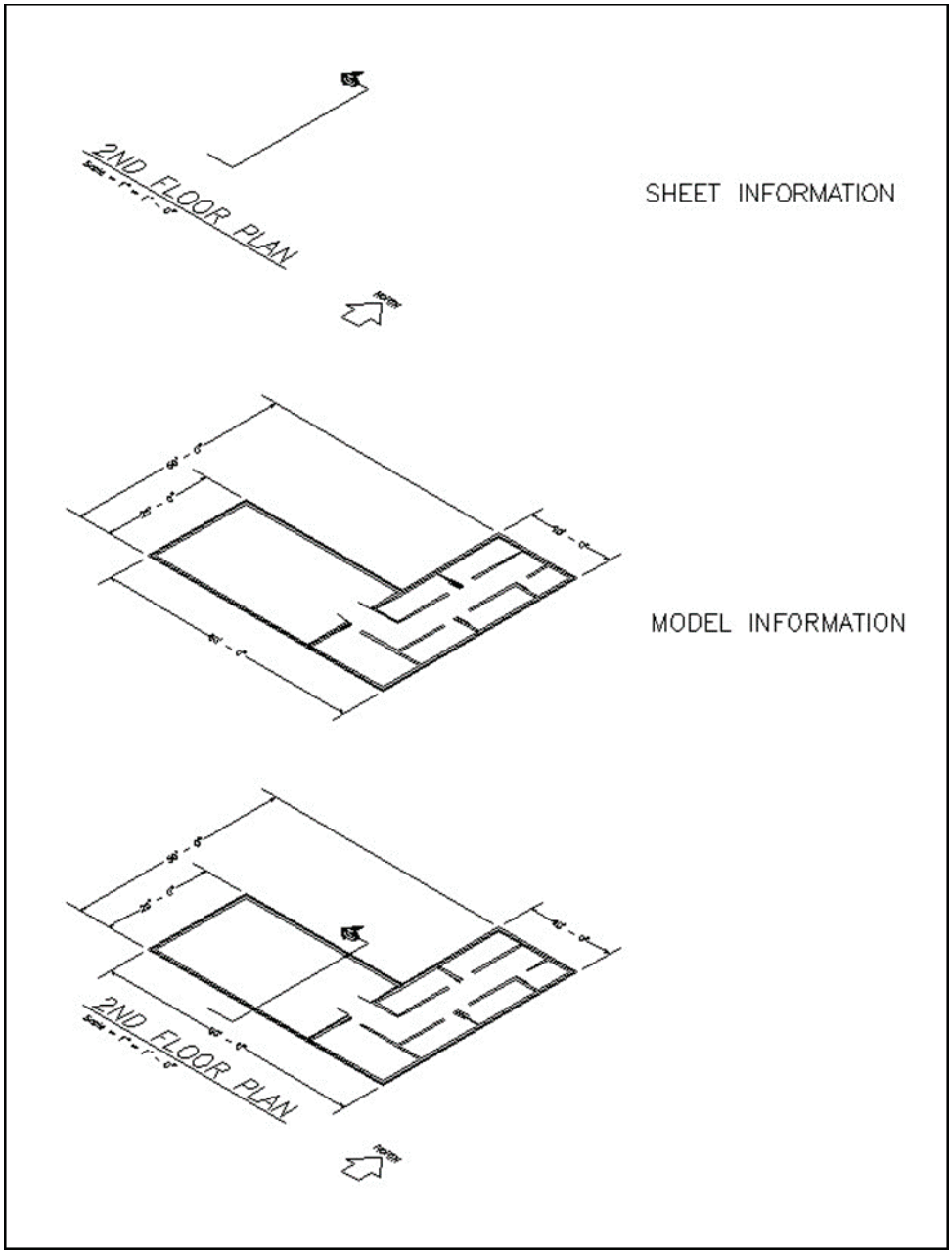
CAD levels or layers are analogous to overlays in manual drafting systems and serve to separate graphic elements (lines, shapes, text) according to the design discipline they represent (Figure 4-1).

Figure 4-1. Typical levels/layers contained in a sheet file.



The types of information represented by individual levels/layers can be grouped into the two following primary types: model file-specific information, and sheet file-specific information (Figure 4-2). Sheet file-specific information can then be broken down into the two following secondary types: design model-specific, and sheet model-specific.

Figure 4-2. Sheet- and model-specific information.



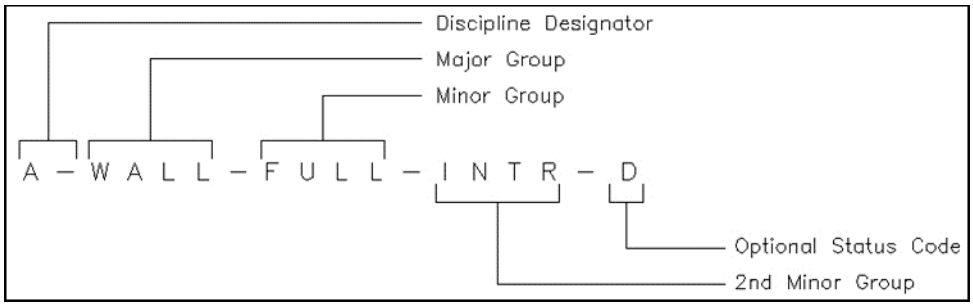
- Model file-specific information represents the physical form of a site, a building, or objects composing a building. This information is often shared between CAD files (drawing model and sheet file) through the use of reference files. Examples include walls, doors, light fixtures, and room numbers. Model file-specific information may be either literal (e.g., walls) or symbolic (e.g., electrical outlets).
- Sheet file-specific information may include notes, annotative symbols, and titles. This type of information is usually not shared between CAD

files or drawings. Drawing models inside a sheet file contain graphic information that would relate to real-world information (e.g., point coordinates) or information that would be sectioned off into multiple sheets (e.g., a floor plan that may take three sheets to present because of its size). Sheet model-specific information would include items specific for the presentation of that sheet. This is one reason that sheet models shall never be used as a reference file to other files.

To use and manipulate model file- and sheet file-specific information effectively, every level/layer must be defined (standardized) by its name and its use.

The reuse of graphic information reduces drawing time and improves project coordination. The level/layer is the basic tool used in CAD for managing graphic information (Figure 4-3). The levels/layers defined within this standard are based on the recommendations set forth in "AIA CAD Layer Guidelines" (NIBS 2014).

Figure 4-3. Level/layer naming format.



A basic level/layer name consists of a two-character Discipline Designator (e.g., A- for Architectural, E- for Electrical), a four-character Major Group (e.g., A-DOOR for Doors, E-LITE for Lighting), and a four-character Minor Group (e.g., A-WALL-CNTR for wall center lines, E-LITE-CLNG for ceiling lights). For further differentiation, another four-character Minor Group may be used (e.g., A-WALL-FULL-EXTR for exterior full-height walls versus A-WALL-FULL-INTR for interior full-height walls). An optional item to indicate Status or Phase can also be added to every level/layer name (see Status (Phase) levels/layers later in this chapter).

Appendix A contains standard layer/level definitions. If additional layers/levels are needed, follow the format above and document the layer/level created with the project submittal as a variance.

4.2 Model files

4.2.1 Level/layer assignment tables

The level/layer assignment tables in Appendix A present the following (Figure 4-4 presents an excerpt):

- the levels/layers assigned to each model file
- an AIA format level/layer name for each level/layer
- a detailed description for each level/layer
- the recommended presentation graphics associated with each level/layer. This includes the line style, line width, and color. (Note: the recommended presentation graphics may be changed to aid in drawing clarity (e.g., to show hidden objects). However, the recommended presentation graphics shall be adhered to as much as possible to maintain drawing consistency).
- the various model files in which levels/layers can be created.

Figure 4-4. Model file level/layer assignment table.

Discipline: Architectural

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Type							
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Floor Plan	Reflected Ceiling Plan	Roof Plan	Equipment Plan	Area Calculations/Occupancy Plan	Elevations	Sections	Details
General Information	**See Discipline: General (page A3) for a list of available Annotation layers/levels**											
Area Information												
A-AREA-IDEN	Room numbers, tenant identifications, area calculations	0	0.35	255,255,0					X			
A-AREA-LINE	Architectural area calculation boundary lines	0	0.50	0,255,255					X			
A-AREA-OCCP	Occupant or employee names	0	0.35	255,255,0					X			
A-AREA-PATT	Area cross hatching	0	0.18	128,128,128					X			
Barrier												
A-BARR-AIR~	Air barrier	0	0.25	0,0,255	X							
Ceiling Information												
A-CLNG-ACCS	Access panels	0	0.35	255,0,255		X						
A-CLNG-CTLJ	Ceiling control joints	0	0.35	255,255,0		X						
A-CLNG-GRID	Ceiling grid	0	0.25	255,0,0		X						
A-CLNG-LITE	Specialty ceiling lights not shown on the Electrical Lighting Plan	0	0.50	0,255,255		X						
A-CLNG-OPNG	Openings, ceiling/roof penetrations (see also A-FLOR-OVHD in Floor Plan model file)	0	0.18	128,128,128		X						
A-CLNG-PATT	Ceiling patterns	0	0.18	128,128,128		X						
A-CLNG-SFFT	Soffits	0	0.25	255,255,0		X						
A-CLNG-SUSP	Suspended elements, ceiling mounted specialties (e.g., clocks, fans, etc.)	0	0.18	0,0,255		X						
A-CLNG-TEES	Main tees	0	0.18	0,0,255		X						

4.2.1 General levels/layers

At the beginning of Appendix A is a list of levels/layers that are applicable to all disciplines. These General levels/layers are available for use in any model or sheet file. Prior to Release 6.0, these levels/layers were repeated in each discipline's model file level/layer assignment table with the appropriate Discipline Designator (e.g., A-ANNO-****, C-ANNO-****). Since these are considered General levels/layers, they shall always have

the Discipline Designator of G-, regardless of the discipline in which they are used (e.g., G-ANNO-DIMS, G-ANNO-TEXT).

Status (Phase) levels/layers. In some cases, levels/layers may be modified to show the status of a particular item in the drawing (e.g., to be demolished, to be moved, future work). In these cases, levels/layers may have a Status code appended to them as shown in Figure 4-3. See Table 4-1 for the Status (Phase) codes.

Table 4-1. Status (Phase) codes.

Code	Description
A	Abandoned
D	Existing to demolish
E	Existing to remain
F	Future work
M	Items to be moved
N	New work
T	Temporary work
X	Not in contract
1-9	Phase numbers
QA	Subsurface Utility Engineering (SUE) Quality Level A: Precise
QB	SUE Quality Level B: Approximate
QC	SUE Quality Level C: Educated guess
QD	SUE Quality Level D: Possible existence

The use of the Status (Phase) code should be limited, since it can significantly increase the number of levels/layers in a model file. Most items can be shown through referenced model files or changing the line style of items. For instance, in a “New Work” model file, “Existing to Remain” items can be shown through a screened reference file. “Not in Contract” items and “Future Items” could be shown with a dashed line style. Therefore, it is up to the user to determine whether the use of the Status (Phase) code in level/layer names increases the readability of the model file.

5 Standard Symbology

5.1 Introduction

The symbology library contains the following four types of elements: Lines, Patterns, Symbols, and Objects. The use of such symbology enhances CAD productivity and provides an excellent opportunity for CAD standardization.

Previous releases of the *A/E/C CAD Standard* had the symbols limited to six character (maximum) names, due to the limitations of the CAD software at the time. Those naming limitations no longer exist. However, an additional problem with the symbols was that duplicate symbols existed over multiple discipline symbol libraries. Updating symbols became a chore because if changes were made to a symbol that existed in multiple libraries, it was vital that the changes were implemented in all duplicate symbols as well.

To solve this problem for Release 6.0, the *A/E/C CAD Standard* is following the lead of the U.S. National CAD Standard and incorporating Construction Specifications Institute's MasterFormat® numbers into the symbol names. This renaming of the symbols results in symbol libraries where symbols exist only once and are no longer limited to a particular discipline.

5.2 Symbology resources

5.2.1 Cells/blocks

A *cell* in MicroStation and a *block* in AutoCAD are groups of graphical elements that can be manipulated as a single entity. Examples of typical cells/blocks are windows, doors, graphic scale keys, furniture, etc. Symbols are defined as cells/blocks that are representative of objects (e.g., electrical outlets, smoke detectors). Objects are defined as cells/blocks that are placed at the actual size of the item they are representing no matter the scale of the drawing (e.g., 30 in. by 50 in. desk, 3 ft-0 in. door). Within the electronic deliverables available as part of the *A/E/C CAD Standard*, the following symbology is provided:

- MicroStation cells contained in cell libraries (.cel)

- AutoCAD blocks contained in block libraries (.dwg files) with the block's name and description combined into a single name. The block library only contains the definitions and not the graphics. Blocks are best inserted by selecting them from Design Center.

5.2.2 Line styles

Lines are defined as a graphical representation of linear drawing features (e.g., utility lines, fence lines, contours). Patterns are defined as repeated drawing elements (e.g., lines, dots, circles) within a defined area. Line style definitions determine the particular dash-dot sequence and relative length of dashes, blank spaces, and the characteristics of any included text or shapes. Working with line styles provides a means of distinguishing the purpose of one line from another.

AutoCAD and MicroStation both provide a set of standard line styles, as well as allowing the user to define custom line styles. In AutoCAD, these custom line styles are defined in a line type library file (.lin) and a multiline library file (.mln). In MicroStation, custom line styles are contained in resource files (.rsc).

5.3 Downloadable resources

Documentation and files for the entire symbology library are available for download in the A/E/C Work Structure at the Center's website: https://cadbimcenter.erdc.dren.mil/aeccadstandard.

6 Conclusion

Standards have been recognized as a vital tool in the development of CAD drawings for DoD. Without standards, CAD drawings would be hard to review, interpret, and file, resulting in excessive time and monetary costs for DoD. With these factors in mind, the A/E/C CAD Standard has been an important document for DoD since the early 1990's by serving as the go-to for creating CAD drawings.

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Appendix A: Model File Level/Layer Assignment Tables

Appendix A
Model File Level/Layer Assignment Tables

This appendix provides the model file level/layer assignment tables:

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Discipline: General

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults		
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value
General Information				
G-ANNO-DIMS	Witness/extension lines, dimension terminators, dimension tex	0	0.35	255,0,0
G-ANNO-KEYN	Reference keynotes with associated leaders	0	0.35	255,255,255
G-ANNO-LEGN	Legends and symbol keys	0	0.35	255,255,255
G-ANNO-MASK	Text/shape mask for use with photo backgrounds	0	0.18	82,165,124
G-ANNO-MATC	Match lines	014200-914 Center Line	0.70	255,0,255
G-ANNO-NOTE	General notes and general remarks	0	0.35	255,200,0
G-ANNO-NPLT	Non-plotting graphic information	0	0.18	0,0,255
G-ANNO-PATT	Patterning, shading, and hatching	0	0.18	128,128,128
G-ANNO-RDME	Read-me information	0	0.18	0,0,255
G-ANNO-REDL	Redlines	0	0.18	255,0,0
G-ANNO-REFR	Reference files and raster attachments	0	0.35	255,255,255
G-ANNO-REVC	Revision clouds	0	0.35	0,255,255
G-ANNO-REVS	Revision indicators and text	0	0.35	0,255,255
G-ANNO-SCHD	Schedules	0	0.35	255,255,255
G-ANNO-SYMB	Miscellaneous symbols	0	0.35	255,0,255
G-ANNO-TEXT	Miscellaneous text	0	0.35	255,255,255
G-ANNO-TTLB	Border and titleblock linework	0	0.35	255,255,255
G-ANNO-TTLB-GRID	Grid lines inside border	014200-912 MS7 Long Dash Short Dash	0.18	0,0,255
Grid Lines				
G-GRID-COOR	X-Y coordinate grid lines	0	0.25	255,255,255
G-GRID-COOR-IDEN	X-Y coordinate grid lines annotation	0	0.25	255,255,255
G-GRID-EXTR	Column grid outside building	014200-914 Center Line	0.18	0,0,255
G-GRID-IDEN	Column grid tags	0	0.25	255,0,0
Floor Information				
G-PLAN-OTLN	Floor outline/perimeter/building footprint	0	0.35	255,0,255
Coordinate Information				
G-COOR-LALO	Latitude/longitude coordinate grid ticks	0	0.25	255,200,0
G-COOR-LALO-IDEN	Latitude/longitude coordinate text	0	0.25	255,200,0
G-COOR-STAT	State plane coordinate grid ticks	014200-908 MS3 Long Dash	0.25	255,200,0
G-COOR-STAT-IDEN	State plane coordinate text	0	0.25	255,200,0
Site Information				
G-SITE-OTLN	Site plan - key map	0	0.35	255,0,255
Demolition	**(Additional demolition phases may be added as needed)**			
G-DEMO-PHS1	Items to be demolished	024100-901 Demolition Line	0.50	255,120,0

Discipline: Hazardous Materials

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types		
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Pollution Prevention Plan	Sections	Details
General Information	**See Discipline: General (page A3) for a list of available Annotation layers/levels**						
Abatement							
H-ABAT-BARR	Tape barrier	0	0.50	255,200,0	X		
H-ABAT-BARR-STRC	Critical structural barriers	0	0.35	0,0,255	X		
H-ABAT-POLY	Polyethylene sheeting	014200-907 MS2 Medium Dash	0.50	0,255,0	X		
Buildings							
H-BLDG-IDEN	Annotation	0	0.35	255,200,0	X		
H-BLDG-OTLN	Command posts, information centers	0	0.35	255,200,0	X		
Decontamination							
H-DECN-EQPM	Decontamination equipment	0	0.25	255,0,0	X		
H-DECN-IDEN	Annotation	0	0.35	255,0,255	X		
Disposal Areas							
H-DISP-HAZW	Hazardous waste	0	0.18	0,0,255	X		
H-DISP-IDEN	Annotation	0	0.35	255,0,255	X		
H-DISP-MUNT	Munitions	0	0.18	0,0,255	X		
H-DISP-TANK	Spill containment tanks	0	0.35	255,0,255	X		
Emergency Fixtures							
H-FIXT-EYEW	Emergency eyewashes	0	0.25	0,255,0	X		
H-FIXT-SHWR	Emergency showers	0	0.25	0,255,0	X		
Monitoring Stations							
H-MNST-AIRQ	Air quality	0	0.25	0,255,0	X		
H-MNST-GWTR	Ground water	0	0.25	0,255,0	X		
H-MNST-IDEN	Annotation	0	0.25	0,255,0	X		
H-MNST-LAND	Landfill gas	0	0.25	0,255,0	X		
H-MNST-SOIL	Soil gas	0	0.25	0,255,0	X		
H-MNST-SWTR	Surface water	0	0.25	0,255,0	X		
Pollution Areas							
H-POLL-CONC	Polluted area of concern	0	0.35	255,200,0	X		
H-POLL-IDEN	Annotation	0	0.35	255,200,0	X		
H-POLL-ORIG	Point of pollution origin	0	0.35	255,200,0	X		
H-POLL-POTN	Potential spill, emission, or release source	0	0.35	255,200,0	X		
Sample Points							
H-SAMP-AIRS	Air samples	0	0.25	255,0,0	X		
H-SAMP-BIOL	Biological samples	0	0.25	255,0,0	X		
H-SAMP-BLDG	Building material samples (e.g., asbestos, lead, PCBs, etc.)	0	0.25	255,0,0	X		
H-SAMP-GWTR	Ground water samples	0	0.25	255,0,0	X		
H-SAMP-IDEN	Annotation	0	0.25	255,0,0	X		
H-SAMP-MAGN	Magnetometer location points	0	0.25	255,0,0	X		
H-SAMP-SEDI	Sediment samples	0	0.25	255,0,0	X		
H-SAMP-SOIL	Soil samples	0	0.25	255,0,0	X		
H-SAMP-SOLI	Solid material samples	0	0.25	255,0,0	X		
H-SAMP-SWTR	Surface water samples	0	0.25	255,0,0	X		
H-SAMP-WAST	Waste samples	0	0.25	255,0,0	X		
Storage Facilities							
H-STOR-HAZM	Hazardous materials	0	0.35	255,0,255	X		
H-STOR-HAZW	Hazardous waste	0	0.35	255,0,255	X		

Discipline: Hazardous Materials

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types		
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Pollution Prevention Plan	Sections	Details
H-STOR-IDEN	Annotation	0	0.35	255,0,255	X		
Wells							
H-WELL-INJN	Injection well	0	0.25	0,0,255	X		
H-WELL-XTRA	Extraction well	0	0.25	0,0,255	X		
Sections							
H-SECT-IDEN	Component identification numbers	0	0.35	255,200,0		X	
H-SECT-MBND	Material beyond section cut	0	0.18	0,0,255		X	
H-SECT-MCUT	Material cut by section	0	0.50	0,255,255		X	
H-SECT-PATT	Textures and hatch patterns	0	0.18	128,128,128		X	
Detail Information							
H-DETL-GRPH	Graphics, gridlines, non-text items	0	0.35	255,255,255			X

Discipline: Survey/Mapping

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types									
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Survey and Mapping Plan	Existing Hydrographic Survey & Mapping Plan	Property Boundary	Existing Electrical Utilities Plan	Existing Communication System Plan	Existing Utilities Plan	Existing HTCW Utilities Plan	Existing Airfield Lighting Plan	Existing Profiles	Existing X-Sections
General Information	**See Discipline: General (page A3) for a list of available Annotation layers/levels**													
Aerial Survey														
V-AERI-BNDY	Aerial photography boundaries	0	0.35	255,0,255	X									
V-AERI-BNDY-NEAT	Neat model boundary	0	0.35	255,200,0	X									
V-AERI-FLYS	Fly station	0	0.35	255,0,255	X									X
V-AERI-IDEN	Aerial annotation	0	0.35	255,200,0	X									
V-AERI-INDX	Aerial photo index	0	0.70	255,255,255	X									
V-AERI-PATH	Aerial flight lines/paths	014200-911 MS6 Dash Dot Dot	0.35	165,41,0	X									
V-AERI-PHOT	Photo center (exposure station)	0	0.35	165,41,0	X									
V-AERI-PNPT	Panel points	0	0.35	255,0,255	X									X
Airfields														
V-AFLD-CIRC-CTRL	Control and monitoring circuits	0	0.35	145,82,165								X		
V-AFLD-CIRC-IDEN	Circuit identifier tags, symbol modifier, and text	0	0.25	255,200,0								X		
V-AFLD-CIRC-MULT	Multiple circuits	0	0.35	145,82,165								X		
V-AFLD-CIRC-SERS	Series circuits	0	0.35	145,82,165								X		
V-AFLD-DEVC	Capacitors, voltage regulators, motors, buses, generators, meters, grounds, and markers	0	0.35	145,82,165								X		
V-AFLD-DBNK	Ductbanks	337100-909 Duct Bank	0.25	145,82,165								X		
V-AFLD-IDEN	Airfield annotation	0	0.35	255,200,0								X		
V-AFLD-JBOX	Junction boxes, pull boxes, manholes, handholes, pedestals, splices	0	0.35	145,82,165								X		
V-AFLD-LITE-APPR	Approach lights	0	0.35	145,82,165								X		
V-AFLD-LITE-DIST	Distance and arresting gear markers	0	0.35	145,82,165								X		
V-AFLD-LITE-LANE	Hoverlane, taxilane, and helipad lights	0	0.35	145,82,165								X		
V-AFLD-LITE-OBST	Obstruction lights	0	0.35	145,82,165								X		
V-AFLD-LITE-RUNW	Runway lights	0	0.35	145,82,165								X		
V-AFLD-LITE-SIGN	Taxiway guidance signs	0	0.35	145,82,165								X		
V-AFLD-LITE-TAXI	Taxiway lights	0	0.35	145,82,165								X		
V-AFLD-LITE-THRS	Threshold lights	0	0.35	145,82,165								X		
V-AFLD-VALT	Airfield lighting vaults	0	0.35	145,82,165								X		
Alignments														
V-ALGN-DATA	Alignment coordinates and curve data	0	0.25	0,255,0	X	X				X	X		X	X
V-ALGN-LINE	Alignments	014200-909 MS4 Dot Dash	0.25	255,200,0	X	X				X	X		X	X
V-ALGN-MAJR	Alignment major stationing and tick marks	0	0.25	255,0,0	X	X				X	X		X	X
V-ALGN-MARK	Alignment tick marks	0	0.25	0,255,0	X	X				X	X		X	X
V-ALGN-MINR	Alignment minor stationing and tick marks	0	0.18	255,0,255	X	X				X	X		X	X
V-ALGN-STAT	Alignment stationing	0	0.25	0,255,0	X	X				X	X		X	X
V-ALGN-SYMB	Alignment symbols (PIs)	0	0.25	255,0,255	X	X				X	X		X	X
V-ALGN-TEXT	Alignment text, annotation with associated leaders	0	0.25	255,200,0	X	X				X	X		X	X
Aprons														
V-APRN-CNTR	Apron centerlines	014200-914 Center Line	0.18	255,0,0	X									
V-APRN-CNTR-IDEN	Apron centerline annotation	0	0.25	255,200,0	X									
V-APRN-GRND	Grounding points	0	0.25	255,200,0	X									
V-APRN-HOLD	Holding position markings	0	0.18	255,0,0	X									

Discipline: Survey/Mapping

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types									
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Survey and Mapping Plan	Existing Hydrographic Survey & Mapping Plan	Property Boundary	Existing Electrical Utilities Plan	Existing Communication System Plan	Existing Utilities Plan	Existing HTCW Utilities Plan	Existing Airfield Lighting Plan	Existing Profiles	Existing X-Sections
V-APRN-IDEN	Airfield apron - annotation	0	0.25	255,200,0	X								X	X
V-APRN-MOOR	Mooring points	0	0.25	255,200,0	X									
V-APRN-MRKG	Apron markings	0	0.35	0,255,255	X									
V-APRN-OTLN	Airfield apron - outlines	0	0.35	0,255,255	X								X	X
V-APRN-SECU	Security zone markings	0	0.18	255,0,0	X									
V-APRN-SHLD	Shoulders with annotation	0	0.25	255,200,0	X									
V-APRN-SHLD-MRKG	Shoulder stripes	0	0.25	255,200,0	X									
Beacons														
V-BCNS-IDEN	Identifier tags, symbol modifiers, and text	0	0.25	255,200,0								X		
V-BCNS-MISC	Miscellaneous navaids - windcones and beacons	0	0.35	145,82,165								X		
V-BCNS-STRB	Strobe beacons	0	0.35	145,82,165								X		
Beach Renourishment														
V-BECH-BANK-TOP~	Beach top of bank	0	0.18	255,0,255	X									X
V-BECH-BKLN	Beach breakline	014200-907 MS2 Medium Dash	0.25	0,0,255	X									X
V-BECH-BNCH	Beach bench	014200-911 MS6 Dash Dot Dot	0.25	165,41,0	X									X
V-BECH-CNTR	Beach centerline	014200-914 Center Line	0.18	0,0,255	X									X
V-BECH-LIMT	Beach limit lines	0	0.35	0,255,255	X									X
V-BECH-OHWM	Ordinary high water marks	0	0.25	255,200,0	X									X
V-BECH-OTLN	Beach outline	0	0.18	255,200,0	X									X
V-BECH-SLOP-IDEN	Beach slope indicator with annotation	0	0.18	255,255,255	X									X
V-BECH-SLOP-TOP~	Beach top of slope	014200-907 MS2 Medium Dash	0.25	165,41,0	X									X
V-BECH-SYMB	Beach symbols	0	0.18	255,0,255	X									X
V-BECH-TOE~	Beach toe	014200-908 MS3 Long Dash	0.35	0,0,255	X									X
V-BECH-TOE~-IDEN	Beach toe annotation	0	0.18	255,255,255	X									X
Buildings and Primary Structures														
V-BLDG-DECK	Outdoor decks (attached, no roof overhead)	0	0.35	0,255,255	X		X						X	X
V-BLDG-DOCK	Loading docks	0	0.35	0,255,255	X		X						X	X
V-BLDG-FTPT	Building footprints	0	0.50	255,255,255	X		X						X	X
V-BLDG-IDEN	Building and other stucture annotation	0	0.25	255,200,0	X		X						X	X
V-BLDG-OVHD	Building overhangs	0	0.35	0,255,255	X		X						X	X
V-BLDG-PRCH	Porches (attached, roof overhead)	0	0.35	0,255,255	X		X						X	X
Borings														
V-BORE-GENL-LOCN	General boring X,Y location marker	0	0.35	255,0,255	X	X								
V-BORE-GENL-NAME	General boring name	0	0.35	255,0,255	X	X								
V-BORE-GENL-NOTE	General boring notes	0	0.35	255,0,255	X	X								
V-BORE-GPRO-LOCN	GeoProbe X,Y location marker	0	0.35	255,0,255	X	X								
V-BORE-GPRO-NAME	GeoProbe boring name	0	0.35	255,0,255	X	X								
V-BORE-GPRO-NOTE	GeoProbe boring notes	0	0.35	255,0,255	X	X								

Discipline: Survey/Mapping

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types									
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Survey and Mapping Plan	Existing Hydrographic Survey & Mapping Plan	Property Boundary	Existing Electrical Utilities Plan	Existing Communication System Plan	Existing Utilities Plan	Existing HTCW Utilities Plan	Existing Airfield Lighting Plan	Existing Profiles	Existing X-Sections
V-BORE-UNDS-LOCN	Undisturbed boring X,Y location marker	0	0.35	255,0,255	X	X								
V-BORE-UNDS-NAME	Undisturbed boring name	0	0.35	255,0,255	X	X								
V-BORE-UNDS-NOTE	Undisturbed boring notes	0	0.35	255,0,255	X	X								
V-BORE-VCOR-LOCN	Vibra-Core X,Y location marker	0	0.35	255,0,255	X	X								
V-BORE-VCOR-NAME	Vibra-Core name	0	0.35	255,0,255	X	X								
V-BORE-VCOR-NOTE	Vibra-Core notes	0	0.35	255,0,255	X	X								
Borrow Areas														
V-BORW-IDEN	Borrow/spoil area annotation	0	0.25	255,200,0	X	X								
V-BORW-LINE	Borrow/spoil area	014200-907 MS2 Medium Dash	0.25	255,200,0	X	X								
Bridges														
V-BRDG-CHRD-LOW~	Low chord	0	0.35	0,255,255									X	
V-BRDG-CNTR	Bridge centerlines	014200-914 Center Line	0.18	255,0,0	X									
V-BRDG-CTLJ	Control joints	0	0.18	0,255,255	X									
V-BRDG-DECK	Bridge deck	0	0.35	0,255,255	X								X	
V-BRDG-IDEN	Bridge annotation	0	0.25	255,200,0	X									
V-BRDG-OTLN	Bridge outlines	0	0.35	0,255,255	X									
V-BRDG-RLG~	Bridge railing	0	0.18	0,255,255	X								X	
Cathodic Protection System														
V-CATH-ANOD	Sacrificial anode system	0	0.35	105,0,0				X						
V-CATH-CURR	Impress current system	0	0.35	105,0,0				X						
V-CATH-IDEN	Identifier tags, symbol modifier, and text	0	0.25	255,200,0				X						
V-CATH-TEST	Test stations	0	0.35	105,0,0				X						
Channels														
V-CHAN-BANK-IDEN	Channel/canal top of bank annotation	0	0.25	255,200,0		X							X	X
V-CHAN-BANK-TOP~	Channel/canal top of bank	0	0.25	255,200,0		X							X	X
V-CHAN-BNCH	Channel/canal bench design feature lines (breaklines form DTMs)	0	0.25	255,200,0		X							X	X
V-CHAN-BWTR	Breakwaters	0	0.25	255,0,255	X	X								X
V-CHAN-CNTR	Channel centerline and survey report lines	014200-914 Center Line	0.18	0,0,255	X	X								X
V-CHAN-CNTR-IDEN	Channel centerline and survey report lines - annotation	0	0.25	0,0,255	X	X								X
V-CHAN-DACL	De-authorized channel limits, anchorages, etc.	0	0.25	0,255,0	X	X								X
V-CHAN-DACL-IDEN	De-authorized channel limits, anchorages, etc. - annotation	0	0.25	0,255,0	X	X								X
V-CHAN-DOCK	Docks, decks, floats, piers, and mooring facilities	0	0.25	255,0,255	X	X							X	X
V-CHAN-LIMT	Channel limits, anchorages, turning basins, disposal areas, etc.	0	0.25	255,0,255	X	X							X	X
V-CHAN-LIMT-IDEN	Channel limits, anchorages, turning basins, disposal areas, etc. - annotation	0	0.25	255,0,255	X	X							X	X
V-CHAN-NAID	Navigation aids and text	0	0.25	255,200,0	X	X								X
V-CHAN-SLOP-LINE	Channel cut/fill slope (Indicates cut and fill lines)	0	0.25	255,200,0	X	X								X
V-CHAN-SPOL	Spoil limits	0	0.35	0,255,255	X	X								X
V-CHAN-SYMB	Channel/canal symbols	0	0.25	255,0,255	X	X								X
V-CHAN-TEXT	Channel/canal text, annotation with associated leaders	0	0.25	255,200,0	X	X								X
V-CHAN-TOE~	Channel/canal toe	014200-908 MS3 Long Dash	0.35	0,0,255	X	X							X	X
V-CHAN-TOE~-IDEN	Channel/canal toe annotation	0	0.25	255,0,255	X	X								X
V-CHAN-TURN	Turning points	0	0.25	255,200,0	X	X								X

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Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types									
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Survey and Mapping Plan	Existing Hydrographic Survey & Mapping Plan	Property Boundary	Existing Electrical Utilities Plan	Existing Communication System Plan	Existing Utilities Plan	Existing HTCW Utilities Plan	Existing Airfield Lighting Plan	Existing Profiles	Existing X-Sections
V-CHAN-WIDE	Channel/canal widener	014200-908 MS3 Long Dash	0.35	0,255,255	X	X								X
Communications														
V-COMM-ANTN	Antennae	0	0.35	255,63,0	X		X		X				X	X
V-COMM-EQPM	Other communications distribution equipment	0	0.35	255,63,0					X					
V-COMM-JBOX	Communication junction boxes, pull boxes, handholes, pedestals, and splices	0	0.35	255,63,0					X					
V-COMM-MHOL	Manholes	0	0.35	255,63,0					X					
V-COMM-OVHD	Overhead communications/telephone lines	271500-905 Communication	0.35	255,63,0	X		X		X				X	X
V-COMM-OVHD-IDEN	Identifier tags, symbol modifier and text	0	0.25	255,200,0	X		X		X				X	X
V-COMM-POLE	Poles	0	0.35	255,63,0	X		X		X				X	X
V-COMM-POLE-GUYS	Guying equipment	0	0.35	255,63,0	X		X		X				X	X
V-COMM-POLE-IDEN	Identifier tags, symbol modifiers, and text	0	0.25	255,200,0	X		X		X				X	X
V-COMM-UGND	Underground communications/telephone lines	271500-905 Communication	0.35	255,63,0	X		X		X				X	X
V-COMM-UGND-IDEN	Identifier tags, symbol modifier and text	0	0.25	255,200,0	X		X		X				X	X
Control Points														
V-CTRL-BMRK	Benchmarks	0	0.35	255,0,255	X	X								X
V-CTRL-GRID	Grid	0	0.25	0,255,0	X	X								X
V-CTRL-HORZ	Horizontal control points	0	0.35	255,0,255	X	X								X
V-CTRL-HVPT	Horizontal/vertical control points	0	0.35	255,0,255	X	X								X
V-CTRL-IDEN	Control point annotation	0	0.35	255,200,0	X	X								X
V-CTRL-TRAV	Transverse points	0	0.35	255,0,255	X	X								X
V-CTRL-VERT	Vertical control points	0	0.35	255,0,255	X	X								X
Ditches or Washes														
V-DTCH-BOTM	Bottom of ditch or wash	334000-901 Ditch	0.18	0,0,255	X								X	X
V-DTCH-CNTR	Centerline of ditch or wash	014200-914 Center Line	0.18	0,0,255	X								X	X
V-DTCH-EWAT	Edge of water	0	0.18	0,255,255	X								X	X
V-DTCH-IDEN	Ditches and washes annotation	0	0.25	0,255,0	X								X	X
V-DTCH-TOP~	Top of ditch or wash	0	0.18	0,255,0	X								X	X
Underground Ductbanks (to be used when multiple systems are in one ductbank system)														
V-DBNK-MULT	Ductbank	337100-909 Duct Bank	0.35	105,0,0	X		X	X	X				X	X
V-DBNK-MULT-IDEN	Identifier tags, symbol modifier and text	0	0.25	255,200,0	X		X	X	X				X	X
Habitats/Landforms														
V-ECCO-BURR	Burrow	0	0.35	0,255,255	X									
V-ECCO-DENS	Den	0	0.35	0,255,255	X									
V-ECCO-GATR	Gator hole	014200-907 MS2 Medium Dash	0.25	255,0,255	X									
V-ECCO-HUMK	Hummocks	0	0.25	255,0,255	X									
V-ECCO-IDEN	Habitat annotation	0	0.25	255,200,0	X									
V-ECCO-NEST	Nest, nesting tree	0	0.35	0,255,255	X									
V-ECCO-PRCH	Perch/nesting hole	0	0.35	0,255,255	X									

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Fire Protection														
V-FIRE-HYDT	Hydrants and connections	0	0.25	255,0,0	X		X			X				
V-FIRE-PIPE	Piping	331100-907 Fire Protection Water Supply	0.25	255,0,0						X				
Flood Hazard Area														
V-FLHA-025Y	25 year mark	014200-911 MS6 Dash Dot Dot	0.25	255,0,255	X									
V-FLHA-050Y	50 year mark	014200-908 MS3 Long Dash	0.25	255,200,0	X									
V-FLHA-100Y	100 year mark	0	0.25	255,0,255	X									
V-FLHA-200Y	200 year mark	014200-907 MS2 Medium Dash	0.25	255,200,0	X									
V-FLHA-500Y	500 year mark	014200-912 MS7 Long Dash Short Dash	0.25	255,0,255	X									
V-FLHA-IDEN	Flood hazard area annotation	0	0.25	255,200,0	X									
Floodwalls														
V-FLOD-BASE	Floodwall base of wall	0	0.35	255,63,0	X									
V-FLOD-BASE-IDEN	Floodwall base of wall annotation	0	0.25	255,63,0	X									
V-FLOD-CNTR	Floodwall centerline	014200-914 Center Line	0.18	255,63,0	X									X
V-FLOD-CNTR-IDEN	Floodwall centerline annotation	0	0.25	255,63,0	X									X
V-FLOD-DRNS	Floodwall toe drain	0	0.25	255,0,255	X								X	X
V-FLOD-DRNS-IDEN	Floodwall toe drain annotation	0	0.25	255,0,255	X								X	X
V-FLOD-PILE	Floodwall sheet piling	0	0.35	165,41,0	X								X	X
V-FLOD-PILE-IDEN	Floodwall sheet piling annotation	0	0.25	165,41,0	X								X	X
V-FLOD-TOE~	Floodwall toe outline	0	0.25	0,255,255	X								X	X
V-FLOD-TOP~	Floodwall top of wall	0	0.35	255,200,0	X								X	X
V-FLOD-TOP~-IDEN	Floodwall top of wall annotation	0	0.25	255,63,0	X								X	X
Liquid Fuel														
V-FUEL-BERM	Berms for retaining fuel in case of major tank/line rupture	0	0.25	255,200,0						X				
V-FUEL-DEFL-PIPE	Defueling piping	0	0.25	255,200,0						X				
V-FUEL-DEVC	Air eliminators, filter strainers, hydrant fill points, line vents, markers, oil/water separators, reducers, regulators, and valves	0	0.25	255,200,0						X				
V-FUEL-FLOW	Flow direction arrows	0	0.25	255,200,0						X				
V-FUEL-IDEN	Identifier tags, symbol modifier, and text	0	0.25	255,200,0	X		X			X			X	X
V-FUEL-JBOX	Junction boxes, manholes, handholes, test boxes	0	0.25	255,200,0	X		X			X				
V-FUEL-MAIN-PIPE	Main fuel piping	231100-908 Gas - Liquefied Petroleum	0.25	255,200,0	X		X			X			X	X
V-FUEL-METR	Meters	0	0.25	255,200,0						X				

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V-FUEL-SERV-PIPE	Service piping	0	0.25	255,200,0						X				
V-FUEL-STNS-PUMP	Booster pump stations	0	0.25	255,200,0						X				
V-FUEL-TANK	Fuel tanks	0	0.25	255,200,0	X		X			X				
V-FUEL-TRCH	Fuel line trench	0	0.25	255,200,0						X				
V-FUEL-VALT	Hydrant control/vent/valve pits/vaults	0	0.25	255,200,0						X				
Grade Linework														
V-GRAD-AFTR	After dredge depth	0	0.35	255,200,0		X							X	X
V-GRAD-EXST	Existing grade, ground line	014200-908 MS3 Long Dash	0.35	255,0,255									X	X
V-GRAD-EXST-BASE	Base survey	014200-907 MS2 Medium Dash	0.18	165,41,0		X							X	X
V-GRAD-EXST-SYR1	Survey year one or area one	014200-909 MS4 Dot Dash	0.18	255,0,255									X	X
V-GRAD-EXST-SYR2	Survey year two or area two	014200-906 MS1 Dot	0.18	255,200,0									X	X
V-GRAD-EXST-SYR3	Survey year three or area three	014200-911 MS6 Dash Dot Dot	0.18	0,255,0									X	X
V-GRAD-EXST-SYR4	Survey year four or area four	014200-908 MS3 Long Dash	0.18	82,165,124									X	X
V-GRAD-IDEN	Grade annotation	0	0.25	255,200,0		X							X	X
V-GRAD-PRED	Pre-dredge	0	0.35	255,200,0		X							X	X
V-GRAD-SCLN	Stability control line	014200-912 MS7 Long Dash Short Dash	0.35	0,0,255									X	X
Grid Lines														
V-GRID-FRAM	Frame	0	0.35	0,255,255									X	X
V-GRID-MAJR	Major grid lines	014200-906 MS1 Dot	0.25	128,128,128									X	X
V-GRID-MINR	Minor grid lines	014200-906 MS1 Dot	0.18	128,128,128									X	X
V-GRID-TEXT	Border text, annotation	0	0.25	255,200,0									X	X
Geothermal Heat Pump System														
V-GTHP-EQPM	Geothermal heat pump system equipment	0	0.25	0,76,76							X			
V-GTHP-IDEN	Geothermal heat pump annotation	0	0.35	255,200,0							X			
V-GTHP-RETN-PIPE	Geothermal heat pump system return piping	0	0.35	0,76,76							X			
V-GTHP-SUPP-PIPE	Geothermal heat pump system supply piping	0	0.35	0,76,76							X			
High Temperature/Chilled Water System														
V-HTCW-CWTR-MAIN	Main chilled water piping	0	0.25	0,0,255							X			
V-HTCW-CWTR-PLNT	Chilled water plant	0	0.25	0,0,255							X			
V-HTCW-CWTR-SERV	Chilled water service piping	0	0.18	0,0,255							X			
V-HTCW-DEVC	Rigid anchors, anchor guides, rectifiers, reducers, markers, pumps, regulators, tanks, and valves	0	0.25	255,0,255							X			
V-HTCW-HWTR-MAIN	Main high temperature piping	0	0.25	255,0,0							X			
V-HTCW-HWTR-PLNT	High temperature water plant	0	0.25	255,0,0							X			
V-HTCW-HWTR-SERV	High temperature service piping	0	0.18	255,0,0							X			

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V-HTCW-IDEN	Identifier tags, symbol modifier, and text	0	0.25	255,200,0	X		X				X		X	X
V-HTCW-JBOX	Junction boxes, manholes, handholes, test boxes	0	0.18	255,0,255	X		X				X			
V-HTCW-LWTR-MAIN	Main low temperature piping	0	0.25	255,200,0							X			
V-HTCW-LWTR-SERV	Low temperature service piping	0	0.18	255,200,0							X			
V-HTCW-METR	Meters	0	0.25	255,0,255							X			
V-HTCW-RETN-PIPE	Return for all HTCW lines	0	0.18	255,0,255							X			
V-HTCW-STEM-MAIN	Main steam piping	0	0.25	255,127,191	X		X				X		X	X
V-HTCW-STEM-SERV	Steam service piping	0	0.18	255,127,191							X			
V-HTCW-STNS-PUMP	Pump stations	0	0.25	255,0,255							X			
V-HTCW-VALT	Valve pits/vaults, steam pits	0	0.18	255,0,255							X			
Hydrosurveys														
V-HYDS-BKLN	Breaklines	014200-909 MS4 Dot Dash	0.35	255,255,255	X	X								X
V-HYDS-BKLN-COMM	Subsurface utilities communications breakline	271500-905 Communication	0.35	255,255,255	X	X								X
V-HYDS-BKLN-DOMW	Subsurface utilities water breakline	331100-903 Water Line	0.35	255,255,255	X	X								X
V-HYDS-BKLN-ELEC	Subsurface utilities electric breakline	337100-901 Electrical Primary	0.35	255,255,255	X	X								X
V-HYDS-BKLN-FUEL	Subsurface utilities liquid fuel breakline	231100-908 Gas - Liquefied Petroleum	0.35	255,255,255	X	X								X
V-HYDS-BKLN-NGAS	Subsurface utilities natural gas breakline	231100-909 Gas - Low Pressure	0.35	255,255,255	X	X								X
V-HYDS-BKLN-SSWR	Subsurface utilities sanitary sewer breakline	221300-905 Sanitary Waste	0.35	255,255,255	X	X								X
V-HYDS-BKLN-STRM	Subsurface utilities storm sewer breakline	221400-901 Drain - Storm	0.35	255,255,255	X	X								X
V-HYDS-BNDY-EXTR	Surface exterior boundary	0	0.18	0,255,0	X	X								X
V-HYDS-BNDY-INTR	Surface interior boundary	014200-907 MS2 Medium Dash	0.18	255,0,0	X	X								X
V-HYDS-BORE	Boring locations and text	0	0.25	255,0,255	X	X								X
V-HYDS-COOR	Coordinate grid text annotation	0	0.25	0,165,124	X	X								X
V-HYDS-COOR-LALO	Latitude and longitude grid ticks	0	0.18	0,255,0	X	X								X
V-HYDS-COOR-STAT	State Plane coordinate ticks	0	0.18	0,255,0	X	X								X
V-HYDS-COOR-UTM~	UTM coordinate ticks	0	0.18	0,255,0	X	X								X
V-HYDS-DTMO	DTM obscure area boundary	0	0.25	255,0,255	X	X								X
V-HYDS-DTMP	DTM points	0	0.25	255,0,255	X	X								X
V-HYDS-DTMT	DTM triangles	0	0.25	165,41,0	X	X								X
V-HYDS-MAJR	Major contours	0	0.25	255,200,0	X	X								X
V-HYDS-MAJR-IDEN	Major contours - annotation	0	0.25	255,200,0	X	X								X
V-HYDS-MINR	Minor contours	0	0.18	0,255,0	X	X								X
V-HYDS-MINR-IDEN	Minor contours - annotation	0	0.18	0,255,0	X	X								X

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V-HYDS-PERI	Surface perimeter	0	0.18	0,255,0	X	X								X
V-HYDS-SHAP	Inroads generated shapes/lines	0	0.18	255,0,0										X
V-HYDS-SHOR	Shorelines, land features, and references	0	0.25	0,255,255	X	X								X
V-HYDS-SLOP-FILL	Cut/fill slopes	0	0.25	255,200,0	X	X								X
V-HYDS-SLOP-IDEN	Cut/fill slope, top/toe slope annotation	0	0.25	255,200,0	X									X
V-HYDS-SLOP-TOPT	Top/toe slopes	0	0.25	255,0,255	X									X
V-HYDS-SOUN	Soundings and overbanks	0	0.18	255,255,255		X								X
V-HYDS-SPOT	Spot elevations	0	0.25	255,200,0	X	X								X
V-HYDS-VOID	Surface void region	0	0.18	255,0,0	X	X								X
V-HYDS-WATR	Water level reference (e.g., LWRP, after-grading LWRP, SWP, etc.)	0	0.35	255,255,255	X	X								X
Industrial Waste Water														
V-INDW-DEVC	Grit chambers, flumes, neutralizers, oil/water separators, ejectors, tanks, and valves	0	0.25	255,63,0						X				
V-INDW-FLOW	Flow direction arrows	0	0.25	255,63,0						X				
V-INDW-IDEN	Identifier tags, symbol modifier, and text	0	0.25	255,200,0	X		X			X			X	X
V-INDW-JBOX	Junction boxes and manholes	0	0.25	255,63,0	X		X			X				
V-INDW-LAGN	Lagoons	0	0.25	255,63,0	X		X			X				
V-INDW-MAIN-PIPE	Main industrial waste water piping	402300-905 Industrial Waste	0.25	255,63,0	X		X			X			X	X
V-INDW-METR	Meters	0	0.25	255,63,0						X				
V-INDW-PLNT	Treatment plants	0	0.25	255,63,0						X				
V-INDW-SERV-PIPE	Industrial waste water service piping	0	0.25	255,63,0						X				
V-INDW-SIGN	Surface markers/signs	0	0.25	255,63,0						X				
V-INDW-STNS-LIFT	Lift stations	0	0.25	255,63,0	X		X			X				
Irrigation														
V-IRRG-EQPM	Irrigation equipment (e.g., controllers, valves, etc.)	0	0.25	124,0,165	X	X				X				
V-IRRG-IDEN	Irrigation annotation	0	0.25	255,200,0	X	X				X			X	X
V-IRRG-PIPE	Irrigation piping	0	0.25	124,0,165	X	X				X			X	X
V-IRRG-WELL	Irrigation wells	0	0.18	124,0,165						X				
Joints														
V-JNTS-CNSL	Construction joints - longitudinal	0	0.25	255,0,255	X									
V-JNTS-CNST	Construction joints - transverse	0	0.25	255,0,255	X									
V-JNTS-CNTL	Contraction joints - longitudinal	0	0.25	255,200,0	X									
V-JNTS-CNTT	Contraction joints - transverse	0	0.25	255,200,0	X									
V-JNTS-EDGE	Thickened edges	0	0.25	0,255,255	X									
V-JNTS-EXP.	Expansion joints	0	0.25	165,0,0	X									
V-JNTS-IDEN	Joint annotation	0	0.25	255,200,0	X									
Levees														
V-LEVE-BANK-IDEN	Levee top of bank annotation	0	0.25	255,63,0	X									X
V-LEVE-TOPB	Levee top of bank	0	0.25	255,63,0	X									X
V-LEVE-BERM	Existing berms	0	0.25	255,0,255	X									X
V-LEVE-BNCH	Levee bench design feature lines (breaklines form DTMs)	0	0.25	255,63,0	X									X
V-LEVE-BNCH-IDEN	Levee bench annotation	0	0.18	255,200,0	X									X
V-LEVE-BRRW	Borrow limits	0	0.35	0,255,255	X									X
V-LEVE-CNTR	Levee centerline	014200-914 Center Line	0.18	255,63,0	X									X
V-LEVE-CNTR-IDEN	Levee centerline annotation	0	0.25	255,63,0	X									X

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V-LEVE-IDEN	Levee annotation	0	0.25	255,200,0	X									X
V-LEVE-OTLN	Levee outline	0	0.35	0,255,255	X									X
V-LEVE-SLOP	Levee slope indicator with annotation	0	0.25	255,200,0	X									X
V-LEVE-STAN	Levee stationing	0	0.25	255,200,0	X									X
V-LEVE-TOE~	Levee toe	014200-907 MS2 Medium Dash	0.25	255,63,0	X									X
V-LEVE-TOE~-IDEN	Levee toe annotation	0	0.18	255,63,0	X									X
Lights														
V-LITE-EXTR	Exterior lights	0	0.35	255,0,0			X	X						
V-LITE-IDEN	Light identifier tags, symbol modifiers, and text	0	0.25	255,200,0			X	X						
Military Ranges														
V-MILR-BATP	Battle positions	0	0.35	0,255,255	X									
V-MILR-CAMS	Range cameras	0	0.25	255,0,255	X									
V-MILR-FOXH	Fox holes and pits	0	0.25	255,0,255	X									
V-MILR-MATS	Moving army targets	0	0.35	0,255,255	X									
V-MILR-MITS	Moving infantry targets	0	0.35	0,255,255	X									
V-MILR-MITS-IDEN	Moving infantry targets annotation	0	0.25	255,200,0	X									
V-MILR-PUTS	Pop up targets	0	0.35	0,255,255	X									
V-MILR-PUTS-IDEN	Pop up targets annotation	0	0.25	255,200,0	X									
V-MILR-SATS	Stationary army targets	0	0.35	0,255,255	X									
V-MILR-SATS-IDEN	Stationary army targets annotation	0	0.25	255,200,0	X									
V-MILR-SITS	Stationary infantry targets	0	0.35	0,255,255	X									
V-MILR-SITS-IDEN	Stationary infantry targets annotation	0	0.25	255,200,0	X									
Natural Gas														
V-NGAS-EQPM	Equipment (pumps, motors, etc.)	0	0.25	255,200,0						X				
V-NGAS-FLOW	Flow direction arrows	0	0.25	255,200,0						X				
V-NGAS-IDEN	Identifier tags, symbol modifier, and text	0	0.25	255,200,0	X		X			X			X	X
V-NGAS-INST	Instrumentation (valves, etc.)	0	0.25	255,200,0						X				
V-NGAS-METR	Meters	0	0.25	255,200,0						X				
V-NGAS-MHOL	Manholes	0	0.25	255,200,0	X		X			X			X	X
V-NGAS-PIPE	Natural gas piping	231100-909 Gas - Low Pressure	0.25	255,200,0	X		X			X			X	X
V-NGAS-SIGN	Surface markers/signs	0	0.25	255,200,0						X				
V-NGAS-STNS-PUMP	Compressor stations	0	0.25	255,200,0						X				
V-NGAS-STNS-REDC	Reducing stations	0	0.25	255,200,0						X				
V-NGAS-TANK	Tanks	0	0.18	255,200,0	X		X			X				
V-NGAS-VALT	Valve/vent pits/vaults	0	0.25	255,200,0						X				
Obstructions														
V-OBST-AIRS	Airspace obstructions	0	0.25	0,255,0										X
V-OBST-AIRS-IDEN	Airspace obstruction annotation	0	0.25	255,200,0										X
V-OBST-UWTR	Underwater obstructions (e.g., sunken ship, barge, etc.)	014200-907 MS2 Medium Dash	0.25	255,0,0		X								X
V-OBST-UWTR-IDEN	Underwater obstruction annotation	0	0.25	255,200,0		X								X

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Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types									
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Survey and Mapping Plan	Existing Hydrographic Survey & Mapping Plan	Property Boundary	Existing Electrical Utilities Plan	Existing Communication System Plan	Existing Utilities Plan	Existing HTCW Utilities Plan	Existing Airfield Lighting Plan	Existing Profiles	Existing X-Sections
Overrun Areas														
V-OVRN-CNTR	Centerlines	014200-914 Center Line	0.18	255,0,0										X
V-OVRN-CNTR-IDEN	Centerline annotation	0	0.25	255,200,0										X
V-OVRN-IDEN	Airfield overrun area - annotation	0	0.25	255,200,0									X	X
V-OVRN-OTLN	Airfield overrun area - outlines	0	0.25	0,255,255									X	X
V-OVRN-SHLD-MRKG	Shoulder markings	0	0.25	0,255,255										X
Pads (Arm/Disarm/Calibration, etc.)														
V-PADS-CNTR	Centerlines	014200-914 Center Line	0.18	255,0,0										X
V-PADS-CNTR-IDEN	Centerline annotation	0	0.25	255,200,0										X
V-PADS-IDEN	Pads - annotation	0	0.25	255,200,0									X	X
V-PADS-OTLN	Pad - outlines	0	0.25	0,255,255									X	X
V-PADS-SHLD	Shoulders with annotation	0	0.18	255,200,0										X
Power														
V-POWR-DEVC	Capacitors, voltage regulators, motors, buses, grounds, and markers	0	0.35	105,0,0				X						
V-POWR-GENR	Generators	0	0.35	105,0,0				X						
V-POWR-IDEN	Power annotation	0	0.25	255,200,0	X		X	X						
V-POWR-JBOX	Junction boxes, pull boxes, manholes, handholes, pedestals, splices	0	0.35	105,0,0				X						
V-POWR-METR	Meters	0	0.35	105,0,0				X						
V-POWR-POLE	Power poles	0	0.35	105,0,0	X		X	X						
V-POWR-POLE-GUYS	Guying equipment	0	0.35	105,0,0				X						
V-POWR-SBST	Substation equipment	0	0.35	105,0,0				X						
V-POWR-SWCH	Fuse cutouts, pole mounted switches, circuit breakers, gang operated disconnects, reclosers, cubicle	0	0.35	105,0,0				X						
V-POWR-XFMR-PADM	Pad mounted transformers	0	0.35	105,0,0				X						
V-POWR-XFMR-POLM	Pole mounted transformers	0	0.35	105,0,0				X						
Primary Electrical Cables														
V-PRIM-OVHD	Overhead electrical utility lines	337100-901 Electrical Primary	0.35	105,0,0	X		X	X					X	X
V-PRIM-OVHD-IDEN	Identifier tags, symbol modifiers, and text	0	0.25	255,200,0	X		X	X					X	X
V-PRIM-UGND	Underground electrical utility lines	337100-901 Electrical Primary	0.35	105,0,0	X		X	X					X	X
V-PRIM-UGND-IDEN	Identifier tags, symbol modifiers, and text	0	0.25	255,200,0	X		X	X					X	X
Parking Lots														
V-PRKG-CNTR	Parking lot centerlines	014200-914 Center Line	0.18	255,0,0	X		X							
V-PRKG-CNTR-IDEN	Parking lot centerline annotation	0	0.18	255,0,0	X		X							
V-PRKG-CURB	Curbs and gutters	0	0.25	0,255,0	X		X							
V-PRKG-DRAN	Drainage slope indications	0	0.25	255,0,0	X		X							
V-PRKG-FIXT	Parking lot fixtures (e.g., wheel stops, parking meters)	0	0.25	127,255,127	X		X						X	X
V-PRKG-FLNE	Fire lanes	0	0.18	255,0,0	X		X						X	X
V-PRKG-IDEN	Parking lot annotation	0	0.25	255,0,255	X		X						X	X
V-PRKG-MRKG	Pavement markings	0	0.25	255,200,0	X		X							
V-PRKG-OTLN	Parking lot outlines	0	0.35	0,255,255	X		X							

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Model File Layers/Levels

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V-PRKG-SIGN	Signs	0	0.25	255,200,0	X		X							
Property														
V-PROP-BRNG	Bearings and distance labels	0	0.35	255,0,255	X		X							X
V-PROP-ESMT	Easements	014200-903 Construction Easement	0.50	255,255,255	X		X							X
V-PROP-IDEN	Property annotation	0	0.25	255,0,255	X		X							X
V-PROP-LINE	Property lines (Existing recorded plats)	014200-905 Property Line	0.35	255,200,0	X		X							X
V-PROP-QTRS	Quarter lines	014200-906 MS1 Dot	0.35	255,0,255	X		X							X
V-PROP-RWAY	Right of ways	011400-901 Right of Way	0.50	255,255,255	X		X							X
V-PROP-SBCK	Setback lines	014200-908 MS3 Long Dash	0.18	255,255,255	X		X							X
V-PROP-SECT	Section lines	014200-912 MS7 Long Dash Short Dash	0.35	255,0,255	X		X							X
V-PROP-SECT-IDEN	Section lines annotation	0	0.25	255,0,255	X		X							X
V-PROP-SUBD	Subdivision (interior) lines	0	0.25	255,0,0	X		X							X
V-PROP-SXTS	Sixteenth lines (40 lines)	014200-915 Phantom Line	0.35	255,0,255	X		X							X
V-PROP-TSHP	Township/range lines	014200-909 MS4 Dot Dash	0.35	255,0,255	X		X							X
V-PROP-TSHP-IDEN	Township/range lines annotation	0	0.25	255,0,255	X		X							X
Pavements														
V-PVMT-ASPH	Pavement pattern - asphalt	0	0.18	128,128,128	X									
V-PVMT-CONC	Pavement pattern - concrete	0	0.18	128,128,128	X									
V-PVMT-GRVL	Pavement pattern - gravel	0	0.18	128,128,128	X									
V-PVMT-IDEN	Road, parking lot, railroad, airfield pavement annotation	0	0.25	255,200,0	X								X	X
V-PVMT-MRKG	Pavement markings	0	0.35	255,200,0	X									
V-PVMT-PATT	Joint patterns, text and dimensions	0	0.18	128,128,128	X									
Railroads														
V-RAIL-CNTR	Railroad track centerlines	014200-914 Center Line	0.18	255,0,0	X		X						X	X
V-RAIL-CNTR-IDEN	Railroad track centerline annotation	0	0.25	255,0,0	X		X						X	X
V-RAIL-EQPM	Railroad equipment (e.g., gates, signals)	0	0.25	127,255,127	X		X						X	X
V-RAIL-IDEN	Railroad - annotation	0	0.25	255,200,0	X		X						X	X
V-RAIL-TRAK	Railroad tracks	347200-901 Railroad	0.25	255,200,0	X		X						X	X
Rivers														
V-RIVR-BOTM	River bottom	0	0.25	0,0,255	X	X							X	X

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Model File Layers/Levels

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V-RIVR-CNTR	Centerline of river	014200-914 Center Line	0.18	255,0,0	X	X							X	X
V-RIVR-EDGE	River edge	0	0.35	0,0,255	X	X							X	X
V-RIVR-IDEN	Identifier tags, symbol modifiers, and text	0	0.25	255,200,0	X	X							X	X
V-RIVR-TOPB	Top of river bank	0	0.25	0,0,255	X	X							X	X
Roads, Streets, and Highways														
V-ROAD-ASPH	Road outlines - asphalt surface	0	0.18	128,128,128	X		X							X
V-ROAD-CNTR	Road centerlines	014200-914 Center Line	0.18	255,0,0	X		X							X
V-ROAD-CNTR-IDEN	Road centerline annotation	0	0.18	255,0,0	X		X							X
V-ROAD-CONC	Road outlines - concrete surface	0	0.18	255,255,255	X		X							X
V-ROAD-CURB	Curbs and gutters	0	0.25	255,0,255	X		X							X
V-ROAD-GRAL	Guard rails	347100-901 Guardrail	0.25	255,0,255	X		X							X
V-ROAD-GRVL	Road outlines - gravel surface	0	0.18	255,63,0	X		X							X
V-ROAD-IDEN	Road, street, highway annotation	0	0.25	255,0,255	X		X						X	X
V-ROAD-MRKG	Pavement markings	0	0.25	255,200,0	X		X							X
V-ROAD-OTLN	Road outlines	0	0.25	0,255,255	X		X							X
V-ROAD-PATT	Joint patterns, text and dimensions	0	0.18	128,128,128	X									X
V-ROAD-SHLD	Roadway shoulders	0	0.25	255,0,255	X		X							X
V-ROAD-SIGN	Signs	0	0.18	255,0,0	X									X
V-ROAD-UPVD	Road outlines - unpaved surface	0	0.18	0,255,0	X									X
Riprap and Other Permanent Erosion Control Items														
V-RRAP-BLKT	Natural/synthetic mats, blankets, textiles, and grids used for slope stabilization	0	0.18	255,0,0	X	X								
V-RRAP-GABN	Gabions	0	0.18	255,0,0	X	X								
V-RRAP-MATS	Articulated concrete mats	0	0.18	0,255,0	X	X								
V-RRAP-RVMT	Revetments	0	0.18	255,0,0	X	X								
V-RRAP-TRET	Soil cement, fiber reinforced soil, and chemical erosion control treatments	0	0.18	0,255,0	X	X								
V-RRAP-VEGE	Erosion control aquatic vegetation and planted riparian buffers	014200-911 MS6 Dash Dot Dot	0.18	255,0,0	X	X								
V-RRAP-WEIR	Weirs	0	0.18	0,255,0	X	X								
Runways														
V-RUNW-BLST	Blast pad and stopway markings	0	0.25	255,0,0	X								X	X
V-RUNW-CNTR	Centerlines	014200-914 Center Line	0.18	255,0,0	X									
V-RUNW-CNTR-MRKG	Centerline markings	0	0.25	255,0,0	X									
V-RUNW-DISP	Displaced threshold markings	0	0.25	255,0,0	X									
V-RUNW-DIST	Fixed distance markings	0	0.25	255,0,0	X									
V-RUNW-EDGE	Airfield runway edges	0	0.25	255,0,255	X									
V-RUNW-IDEN	Airfield runway annotation	0	0.25	255,200,0	X								X	X
V-RUNW-SHLD	Shoulder markings	0	0.25	255,0,255	X									
V-RUNW-SIDE	Side stripes	0	0.25	0,255,255	X									
V-RUNW-TDZM	Touchdown zone markers	0	0.25	255,0,255	X									
V-RUNW-THRS	Threshold markers	0	0.25	255,0,255	X									
Secondary Electrical Cables														

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Model File Layers/Levels

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V-SECD-OVHD	Overhead electrical utility lines	337100-902 Electrical Secondary	0.35	105,0,0	X		X	X					X	X
V-SECD-OVHD-IDEN	Identifier tags, symbol modifiers, and text	0	0.25	255,200,0	X		X	X					X	X
V-SECD-UGND	Underground electrical utility lines	337100-902 Electrical Secondary	0.35	105,0,0	X		X	X					X	X
V-SECD-UGND-IDEN	Identifier tags, symbol modifiers, and text	0	0.25	255,200,0	X		X	X					X	X
Site Features														
V-SITE-EWAT	Edge of water	0	0.35	0,41,165	X		X							
V-SITE-FENC	Fences and handrails	323100-901 Fence	0.25	255,0,255	X		X							
V-SITE-FLDS	Stump fields	0	0.25	255,0,0		X								
V-SITE-IDEN	Existing site feature/structure annotation	0	0.25	255,0,255	X	X	X						X	X
V-SITE-OTLN	Existing site features (play structures, bike racks, benches, recreational equipment)	0	0.50	0,255,255	X		X						X	X
V-SITE-ROCK	Rock and rock outcroppings, boulders and cobble	0	0.25	255,0,0	X		X							
V-SITE-SOIL	In-situ areas of bare, denuded, or eroded soil	0	0.25	255,0,0	X	X								
V-SITE-STRC	Structures (bridges, sheds, foundation pads, footings, etc.)	0	0.25	165,41,0	X		X						X	X
V-SITE-STRS	Stairs and ramps	0	0.25	255,0,255	X		X							
V-SITE-VEGE	Existing treelines and vegetation	329300-901 Tree Line	0.35	41,165,0	X		X							
V-SITE-VEGE-IDEN	Existing treelines and vegetation - identification	0	0.35	41,165,0	X		X							
V-SITE-WALK	Walks, trails, and bicycle paths	0	0.25	255,200,0	X		X							
V-SITE-WATR	Water features	0	0.35	0,41,165	X		X							
Special Systems														
V-SPCL-SYST	Special systems (UMCS, EMCS, etc.)	0	0.35	105,0,0				X						X
V-SPCL-SYST-IDEN	Special systems (UMCS, EMCS, etc.) identifier tags, symbol modifier, and text	0	0.25	255,200,0				X						X
V-SPCL-TRAF	Traffic signal system	0	0.35	105,0,0				X						X
V-SPCL-TRAF-IDEN	Traffic signal identifier tags, symbol modifier, and text	0	0.25	255,200,0				X						X
Sanitary Sewer														
V-SSWR-DEVC	Grease traps, grit chambers, flumes, neutralizers, oil/water separators, ejectors, and valves	0	0.25	0,255,0						X				
V-SSWR-FILT	Filtration beds	0	0.25	0,255,0						X				X
V-SSWR-FLOW	Flow direction arrows	0	0.25	0,255,0						X				X
V-SSWR-IDEN	Identifier tags, symbol modifier, and text	0	0.25	255,200,0	X		X			X			X	X
V-SSWR-JBOX	Junction boxes and manholes	0	0.25	0,255,0	X		X			X				X
V-SSWR-LAGN	Lagoons	0	0.25	0,255,0	X		X			X				X
V-SSWR-LEAC	Leach field	0	0.25	0,255,0						X				X
V-SSWR-MAIN-PIPE	Sanitary sewer piping	221300-905 Sanitary Waste	0.25	0,255,0	X		X			X			X	X
V-SSWR-NITF	Nitrification drain fields	0	0.25	0,255,0	X		X			X				X
V-SSWR-PLNT	Treatment plants	0	0.25	0,255,0	X		X			X				X
V-SSWR-SERV-PIPE	Sanitary sewer service piping	0	0.25	0,255,0						X				X
V-SSWR-SIGN	Surface markers/signs	0	0.25	0,255,0						X				X
V-SSWR-STNS-PUMP	Booster pump stations	0	0.25	0,255,0	X		X			X				X
V-SSWR-TANK	Septic tanks	0	0.25	0,255,0	X		X			X				X

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Model File Layers/Levels

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Storm Sewer														
V-STRM-AFFF	AFFF lagoon/detention pond	0	0.25	0,255,0						X				X
V-STRM-CHUT	Chutes and concrete erosion control structures	0	0.25	0,255,0						X				X
V-STRM-CULV	Culverts	334200-901 Culvert	0.25	0,255,0	X		X			X				X
V-STRM-DEVC	Downspouts, flumes, oil/water separators, and flap gates	0	0.25	0,255,0						X				X
V-STRM-FLOW	Flow direction arrows	0	0.25	0,255,0						X				X
V-STRM-FMON	Flow monitoring station	0	0.25	0,255,0						X				X
V-STRM-HWAL	Headwalls and endwalls	0	0.35	0,255,0	X		X			X				X
V-STRM-IDEN	Identifier tags, symbol modifier, and text	0	0.25	0,255,0	X		X			X			X	X
V-STRM-INLT	Inlets (curb, surface, and catch basins)	0	0.25	0,255,0	X		X			X				X
V-STRM-MAIN-PIPE	Storm sewer piping	221400-901 Drain - Storm	0.25	0,255,0	X		X			X			X	X
V-STRM-MHOL	Manholes	0	0.25	0,255,0	X		X			X				X
V-STRM-POND	Retention ponds, lagoons, watersheds, and basins	0	0.25	0,255,0	X		X			X				X
V-STRM-ROOF	Roof drain line	0	0.25	0,255,0						X				X
V-STRM-SERV-PIPE	Storm sewer service piping	0	0.25	0,255,0	X		X			X				X
V-STRM-SIGN	Surface markers/signs	0	0.25	0,255,0						X				X
V-STRM-STNS-PUMP	Pump stations	0	0.25	0,255,0						X				X
V-STRM-SUBS-PIPE	Subsurface drain piping	0	0.25	0,255,0						X				X
Survey														
V-SURV-DATA	Survey data (benchmarks and horizontal control points or monuments)	0	0.25	255,0,255	X	X	X							X
V-SURV-IDEN	Survey, baseline, and control line annotation	0	0.25	255,0,255	X	X	X							X
V-SURV-LINE	Survey, baseline, and control line	014200-907 MS2 Medium Dash	0.25	0,255,255	X	X	X							X
V-SURV-SYMB	Survey line symbol (PIs)	0	0.35	255,200,0	X	X	X							X
Taxiways														
V-TAXI-CNTR	Centerlines	014200-914 Center Line	0.18	255,0,0	X									
V-TAXI-CNTR-IDEN	Centerline annotation	0	0.25	255,200,0	X									
V-TAXI-CNTR-MRKG	Centerline markings	0	0.18	255,0,0	X									
V-TAXI-EDGE	Edge markings	0	0.25	0,255,255	X									
V-TAXI-HOLD	Holding lines	0	0.25	255,200,0	X									
V-TAXI-IDEN	Taxiway - annotation	0	0.25	255,200,0	X								X	X
V-TAXI-OTLN	Taxiway - outlines	0	0.25	0,255,255	X								X	X
V-TAXI-SHLD	Shoulders with annotation	0	0.25	255,200,0	X									
Topography														
V-TOPO-BKLN	Breaklines	014200-909 MS4 Dot Dash	0.35	255,255,255	X	X								X
V-TOPO-BKLN-COMM	Subsurface utilities communications breakline	271500-905 Communication	0.35	255,255,255	X	X								X
V-TOPO-BKLN-DOMW	Subsurface utilities water breakline	331100-903 Water Line	0.35	255,255,255	X	X								X

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V-TOPO-BKLN-ELEC	Subsurface utilities electric breakline	337100-901 Electrical Primary	0.35	255,255,255	X	X								X
V-TOPO-BKLN-FUEL	Subsurface utilities liquid fuel breakline	231100-908 Gas - Liquefied Petroleum	0.35	255,255,255	X	X								X
V-TOPO-BKLN-NGAS	Subsurface utilities natural gas breakline	231100-909 Gas - Low Pressure	0.35	255,255,255	X	X								X
V-TOPO-BKLN-SSWR	Subsurface utilities sanitary sewer breakline	221300-905 Sanitary Waste	0.35	255,255,255	X	X								X
V-TOPO-BKLN-STRM	Subsurface utilities storm sewer breakline	221400-901 Drain - Storm	0.35	255,255,255	X	X								X
V-TOPO-BNDY-EXTR	Surface exterior boundary	0	0.18	0,255,0	X	X								X
V-TOPO-BNDY-INTR	Surface interior boundary	014200-907 MS2 Medium Dash	0.18	255,0,0	X	X								X
V-TOPO-BORE	Boring locations and text	0	0.25	255,0,255	X	X								X
V-TOPO-COOR	Coordinate grid text annotation	0	0.25	0,165,124	X	X								X
V-TOPO-COOR-LALO	Latitude and longitude grid ticks	0	0.18	0,255,0	X	X								X
V-TOPO-COOR-STAT	State Plane coordinate ticks	0	0.18	0,255,0	X	X								X
V-TOPO-COOR-UTM~	UTM coordinate ticks	0	0.18	0,255,0	X	X								X
V-TOPO-DTMO	DTM obscure area boundary	0	0.25	255,0,255	X	X								X
V-TOPO-DTMP	DTM points	0	0.25	255,0,255	X	X								X
V-TOPO-DTMT	DTM triangles	0	0.25	165,41,0	X	X								X
V-TOPO-MAJR	Major contours	0	0.25	255,200,0	X	X								X
V-TOPO-MAJR-IDEN	Major contours - annotation	0	0.25	255,200,0	X	X								X
V-TOPO-MINR	Minor contours	0	0.18	0,255,0	X	X								X
V-TOPO-MINR-IDEN	Minor contours - annotation	0	0.18	0,255,0	X	X								X
V-TOPO-PERI	Surface perimeter	0	0.18	0,255,0	X	X								X
V-TOPO-SHAP	Application generated shapes/lines	0	0.18	255,0,0										X
V-TOPO-SHOR	Shorelines, land features, and references	0	0.25	0,255,255	X	X								X
V-TOPO-SLOP-FILL	Cut/fill slopes	0	0.25	255,200,0	X	X								X
V-TOPO-SLOP-IDEN	Cut/fill slope, top/toe slope annotation	0	0.25	255,200,0	X									X
V-TOPO-SLOP-TOPT	Top/toe slopes	0	0.25	255,0,255	X									X
V-TOPO-SOUN	Soundings and overbanks	0	0.18	255,255,255		X								X
V-TOPO-SPOT	Spot elevations	0	0.25	255,200,0	X	X								X
V-TOPO-VOID	Surface void region	0	0.18	255,0,0	X	X								X
V-TOPO-WATR	Water level reference (e.g., LWRP, after-grading LWRP, SWP, etc.)	0	0.35	255,255,255	X	X								X
Airfield Traffic Areas														
V-TRAF-IDEN	Airfield traffic area annotation	0	0.25	255,200,0	X									
V-TRAF-TYPA	Type A traffic area	014200-909 MS4 Dot Dash	0.35	0,255,255	X									

Discipline: Survey/Mapping

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types									
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Survey and Mapping Plan	Existing Hydrographic Survey & Mapping Plan	Property Boundary	Existing Electrical Utilities Plan	Existing Communication System Plan	Existing Utilities Plan	Existing HTCW Utilities Plan	Existing Airfield Lighting Plan	Existing Profiles	Existing X-Sections
V-TRAF-TYPB	Type B traffic area	014200-911 MS6 Dash Dot Dot	0.35	0,255,255	X									
V-TRAF-TYPC	Type C traffic area	014200-906 MS1 Dot	0.35	0,255,255	X									
Water Supply														
V-WATR-DEVC	Connectors, faucets, reducers, regulators, vents, intake points, taps, backflow preventers, and valves	0	0.25	0,255,255						X				
V-WATR-HYDT	Flushing hydrants	0	0.25	0,255,255						X				
V-WATR-IDEN	Identifier tags, symbol modifier, and text	0	0.25	255,200,0	X		X			X			X	X
V-WATR-MAIN-PIPE	Main domestic water piping	331100-903 Water Line	0.25	0,255,255	X		X			X				
V-WATR-METR	Meters	0	0.25	0,255,255						X				
V-WATR-NPW~-PIPE	Non-potable water piping	402300-906 Non-Potable Water	0.25	0,255,255						X				
V-WATR-SERV-PIPE	Domestic water service piping	0	0.25	0,255,255						X			X	X
V-WATR-SIGN	Surface markers/signs	0	0.25	0,255,255						X				
V-WATR-STNS-PUMP	Booster pump stations	0	0.25	0,255,255						X				
V-WATR-STNS-REDC	Pressure reducing stations	0	0.25	0,255,255						X				
V-WATR-TANK	Water storage tanks	0	0.25	0,255,255	X		X			X				
V-WATR-VALT	Valve/vent pits/vaults	0	0.25	0,255,255	X		X			X				
V-WATR-WELL	Water well houses	0	0.25	0,255,255						X				
Wetlands														
V-WETL-BOGS	Bogs	0	0.25	255,0,255	X									X
V-WETL-FENS	Fens	0	0.25	255,200,0	X									X
V-WETL-IDEN	Wetland annotation	0	0.25	255,200,0	X									X
V-WETL-MRSH	Fresh water marshes	0	0.25	0,41,165	X									X
V-WETL-MRSH-SALT	Tidal saltwater marshes	0	0.25	0,41,165	X									X
V-WETL-MRSH-TIDL	Tidal freshwater marsh	0	0.25	0,41,165	X									X
V-WETL-PCSN	Pocosins	0	0.25	255,0,255	X									X
V-WETL-PHOL	Vernal pools, playas, prairie potholes, wet meadows, and wet prairies	0	0.25	255,0,255	X									X
V-WETL-RPRN	Riparian forested wetlands	0	0.25	0,41,165	X									X
V-WETL-SLGH	Sloughs	0	0.25	0,41,165	X									X
V-WETL-SWMP	Swamps	0	0.25	0,41,165	X									X
Sections														
V-SECT-IDEN	Component identification numbers	0	0.35	255,200,0										X
V-SECT-MBND	Material beyond section cut	0	0.18	0,0,255										X
V-SECT-MCUT	Material cut by section	0	0.50	0,255,255										X
V-SECT-PATT	Textures and hatch patterns	0	0.18	128,128,128										X

Discipline: Geotechnical

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types					
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Subsurface Investigation Plan	Boring Log	Joint Layout Plan *	Pavement Site Plan	Sections	Details
General Information	**See Discipline: General (page A3) for a list of available Annotation layers/levels**									
Buildings										
B-BLDG-FTPT	Building footprints	0	0.50	255,255,255	X		X	X		
B-BLDG-IDEN	Building and other stucture annotation	0	0.25	255,200,0	X		X	X		
Geophysical Borings										
B-BORE-CONE	Cone penetrometer test location	0	0.35	0,41,165	X					
B-BORE-HOLE	Geophysical boring locations	0	0.35	0,41,165	X					
B-BORE-IDEN	Geophysical location identification	0	0.35	255,200,0	X					
B-BORE-LINE	Geophysical transect lines	0	0.50	0,255,255	X					
B-BORE-PUSH	Direct push test location	0	0.35	0,41,165	X					
B-BORE-STRK	Geophysical strike line	0	0.35	0,41,165	X					
Consolidation Curve										
B-CONS-DATA	Consolidation curve data	0	0.25	255,0,255	X					
B-CONS-DATA-TEXT	Consolidation curve data text	0	0.25	255,0,255	X					
B-CONS-FRAM	Consolidation curve frame	0	0.50	0,255,255	X					
B-CONS-GRID	Consolidation curve grid	0	0.25	255,0,0	X					
B-CONS-GRID-TEXT	Consolidation curve grid text	0	0.25	255,200,0	X					
Excavations										
B-EXCV-EXST	Existing excavation	014200-907 MS2 Medium Dash	0.25	255,0,0	X		X	X		
B-EXCV-FUTR	Future excavation	014200-906 MS1 Dot	0.35	0,0,255	X		X	X		
B-EXCV-PROP	Proposed excavation	0	0.35	0,255,0	X		X	X		
Grouting										
B-GROU-ALGN	Grout hole alignments	014200-909 MS4 Dot Dash	0.25	255,200,0	X					
B-GROU-HOLE	Borehold made specifically for grouting	0	0.35	128,128,128	X					
B-GROU-PRIM	Primary grout holes	0	0.35	0,255,0	X					
B-GROU-QUAT	Quaternary grout holes	0	0.35	0,255,255	X					
B-GROU-SECD	Secondary grout holes	0	0.35	255,0,0	X					
B-GROU-TERT	Tertiary grout holes	0	0.35	0,0,255	X					
Water Content										
B-H2OC-ATTB-DATA	Water content Atterberg limits	0	0.25	0,255,0	X					
B-H2OC-ATTB-TEXT	Water content Atterberg limits text	0	0.25	0,255,0	X					
B-H2OC-GRID-MAJR	Water content major grid	0	0.25	255,0,0	X					
B-H2OC-GRID-MINR	Water content minor grid	014200-906 MS1 Dot	0.18	128,128,128	X					
B-H2OC-GRID-TEXT	Water content grid text	0	0.25	255,200,0	X					
B-H2OC-MOIS-DATA	Water content moisture content points and lines	0	0.25	255,0,255	X					
B-H2OC-MOIS-TEXT	Water content moisture content text	0	0.25	255,0,255	X					
Instrumentation										
B-INST-EXTN	Extensometers	0	0.35	191,0,255	X					
B-INST-EXTN-IDEN	Extensometer identification	0	0.35	191,0,255	X					
B-INST-GAGE	Pressure gages	0	0.35	191,0,255	X					
B-INST-GAGE-IDEN	Pressure gage identification	0	0.35	191,0,255	X					
B-INST-INCL	Inclinometers	0	0.35	191,0,255	X					

Discipline: Geotechnical

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types					
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Subsurface Investigation Plan	Boring Log	Joint Layout Plan *	Pavement Site Plan	Sections	Details
B-INST-INCL-IDEN	Inclinometer identification	0	0.35	191,0,255	X					
B-INST-SETL	Settlement monuments	0	0.35	191,0,255	X					
B-INST-SETL-IDEN	Settlement monument identification	0	0.35	191,0,255	X					
Joints										
B-JNTS-CNTJ-LONG	Construction joints - longitudinal	0	0.35	255,0,255			X			
B-JNTS-CNTJ-TRAV	Construction joints - transverse	0	0.35	255,0,255			X			
B-JNTS-CTRJ-LONG	Contraction joints - longitudinal	0	0.35	255,200,0			X			
B-JNTS-CTRJ-TRAV	Contraction joints - transverse	0	0.35	255,200,0			X			
B-JNTS-EDGE	Thickened edges	0	2.00	0,255,255			X			
B-JNTS-EXPJ	Expansion joints	0	0.35	165,0,0			X			
Logs										
B-LOGS-FDTA	Field data	0	0.25	0,255,0		X				
B-LOGS-FORM	Bore log form	0	0.35	255,255,255		X				
B-LOGS-FRAM	Frame for boring log and associated test data	0	0.50	0,255,255		X				
B-LOGS-FRAM-TEXT	Text associated with boring log frame	0	0.25	255,200,0		X				
B-LOGS-LDTA	Laboratory data	0	0.25	255,0,0		X				
B-LOGS-PATT	Soil/rock patterns	0	0.18	128,128,128		X				
Monitoring Points										
B-MONP-SEEP	Seepage monitoring point	0	0.35	0,0,255	X					
B-MONP-WEIR	Weirs	0	0.35	0,255,255	X					
Normal Stress										
B-NORM-DATA	Normal stress data	0	0.25	255,0,255	X					
B-NORM-DATA-TEXT	Normal stress data text	0	0.25	255,0,255	X					
B-NORM-GRID-MAJR	Normal stress major grid	0	0.25	255,0,0	X					
B-NORM-GRID-MINR	Normal stress minor grid	014200-906 MS1 Dot	0.18	128,128,128	X					
B-NORM-GRID-TEXT	Normal stress grid text	0	0.25	255,200,0	X					
Plasticity Chart										
B-PLAS-DATA	Plasticity chart data	0	0.25	255,0,255	X					
B-PLAS-DATA-TEXT	Plasticity chart data text	0	0.25	255,0,255	X					
B-PLAS-FRAM	Plasticity chart frame	0	0.50	0,255,255	X					
B-PLAS-GRID	Plasticity chart grid	0	0.35	255,255,255	X					
B-PLAS-GRID-TEXT	Plasticity chart grid text	0	0.35	255,255,255	X					
Pavements										
B-PVMT-MISM	Mismatched pavement joint	0	0.35	255,0,255				X		
B-PVMT-OTLN-AGSC	Outline - aggregate surface course and gravel	0	0.35	95,63,127				X		
B-PVMT-OTLN-HMAC	Outline - hot mix, asphaltic concrete	0	0.35	255,0,255				X		
B-PVMT-OTLN-PCCP	Outline - Portland cement, concrete pavement	0	0.35	255,200,0				X		
B-PVMT-PATT-AGSC	Pattern - aggregate surface course and gravel	0	0.18	128,128,128				X		
B-PVMT-PATT-HMAC	Pattern - hot mix, asphaltic concrete	0	0.18	128,128,128				X		
B-PVMT-PATT-PCCP	Pattern - Portland cement, concrete pavement	0	0.18	128,128,128				X		
B-PVMT-REIN	Reinforced pavement	0	0.35	255,0,255				X		
Sample Locations										
B-SAMP-AUGR	Auger sample location	0	0.35	76,38,38	X					
B-SAMP-CORE	Core sample location	0	0.35	76,38,38	X					
B-SAMP-DRVE	Drive sample (shelby split spoon) location	0	0.35	76,38,38	X					
B-SAMP-GRAB	Grab sample location	0	0.35	76,38,38	X					

Discipline: Geotechnical

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types					
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Subsurface Investigation Plan	Boring Log	Joint Layout Plan *	Pavement Site Plan	Sections	Details
B-SAMP-IDEN	Sample location identification	0	0.35	255,200,0	X					
B-SAMP-PERC	Percolation test hole	0	0.50	103,165,82	X					
B-SAMP-PITS	Test pit sample location	0	0.50	103,165,82	X					
B-SAMP-VERT	Vertical core hole location	0	0.35	0,165,124	X					
B-SAMP-WASH	Wash bored hole location	0	0.35	0,165,124	X					
Shear Strength vs. Normal Stress										
B-SSNS-DATA	Shear strength vs. normal stress data	0	0.25	255,0,255	X					
B-SSNS-DATA-TEXT	Shear strength vs. normal stress data text	0	0.25	255,0,255	X					
B-SSNS-FRAM	Shear strength vs. normal stress frame	0	0.50	0,255,255	X					
B-SSNS-GRID	Shear strength vs. normal stress grid	0	0.25	255,0,0	X					
B-SSNS-GRID-TEXT	Shear strength vs. normal stress grid text	0	0.35	255,200,0	X					
Shear Strength										
B-SSTR-1TST-DATA	Shear strength 1 Point Q test data	0	0.25	0,255,255	X					
B-SSTR-1TST-TEXT	Shear strength 1 Point Q test text	0	0.25	0,255,255	X					
B-SSTR-GRID-MAJR	Shear strength major grid	0	0.25	255,0,0	X					
B-SSTR-GRID-MINR	Shear strength minor grid	014200-906 MS1 Dot	0.18	128,128,128	X					
B-SSTR-GRID-TEXT	Shear strength grid text	0	0.25	255,200,0	X					
B-SSTR-QTST-DATA	Shear strength Q test data	0	0.25	255,0,255	X					
B-SSTR-QTST-TEXT	Shear strength Q test text	0	0.25	255,0,255	X					
B-SSTR-RTST-DATA	Shear strength R test data	0	0.25	255,200,0	X					
B-SSTR-RTST-TEXT	Shear strength R test text	0	0.25	255,200,0	X					
B-SSTR-STST-DATA	Shear strength S test data	0	0.25	0,0,255	X					
B-SSTR-STST-TEXT	Shear strength S test text	0	0.25	0,0,255	X					
B-SSTR-UTST-DATA	Shear strength UCT test data	0	0.25	0,255,0	X					
B-SSTR-UTST-TEXT	Shear strength UCT test text	0	0.25	0,255,0	X					
B-SSTR-VTST-DATA	Shear strength Vane shear test data	0	0.25	255,255,255	X					
B-SSTR-VTST-TEXT	Shear strength Vane shear test text	0	0.25	255,255,255	X					
Tabular Test										
B-TABT-DATA	Tabular test data	0	0.25	255,0,255	X					
B-TABT-DATA-TEXT	Tabular test data text	0	0.25	255,0,255	X					
B-TABT-FRAM	Tabular test data frame	0	0.50	0,255,255	X					
B-TABT-GRID	Tabular test data grid	0	0.25	255,0,0	X					
B-TABT-GRID-TEXT	Tabular test data grid text	0	0.35	255,200,0	X					
Wells										
B-WELL-ASR~	ASR wells	0	0.35	41,165,0	X					
B-WELL-HORZ	Horizontal drain	0	0.35	41,165,0	X					
B-WELL-MONT	Monitoring wells	0	0.35	41,165,0	X					
B-WELL-PIZO	Piezometers	0	0.35	41,165,0	X					
B-WELL-VERT	Vertical drain	0	0.35	41,165,0	X					
Wet Density										
B-WETD-DATA	Wet density data	0	0.25	255,0,255	X					
B-WETD-DATA-TEXT	Wet density data text	0	0.25	255,0,255	X					
B-WETD-GRID-MAJR	Wet density major grid	0	0.25	255,0,0	X					
B-WETD-GRID-MINR	Wet density minor grid	014200-906 MS1 Dot	0.18	128,128,128	X					
B-WETD-GRID-TEXT	Wet density grid text	0	0.25	255,200,0	X					

Discipline: Geotechnical

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types					
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Subsurface Investigation Plan	Boring Log	Joint Layout Plan *	Pavement Site Plan	Sections	Details
Sections										
B-SECT-IDEN	Component identification numbers	0	0.35	255,200,0					X	
B-SECT-MBND	Material beyond section cut	0	0.18	0,0,255					X	
B-SECT-MCUT	Material cut by section	0	0.35	255,255,255					X	
B-SECT-PATT	Textures and hatch patterns	0	0.18	128,128,128					X	
B-SECT-SLOG	Stick log graphics	0	0.35	0,255,0					X	
B-SECT-STRA	Stratigraphy	0	0.18	128,128,128					X	
Detail Information										
B-DETL-GRPH	Graphics, gridlines, non-text items	0	0.35	255,255,255						X

*** = Check to see if a Civil Joint Layout Plan has been developed, to avoid duplication**

Discipline: Civil

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types													
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Site Plan	Grading Plan	Eco-Restoration Plan	Beach Renourishment Plan	Navigation/Dredging Plan	Flood Control Plan	Transportation Site Plan	Joint Layout Plan	Airfield Plan	Utilities Plan	Profiles	Elevations	X-Sections	Details
General Information	**See Discipline: General (page A3) for a list of available Annotation layers/levels**																	
Alignments																		
C-ALGN-DATA	Alignment coordinates and curve data	0	0.35	0,255,0	X	X			X		X		X	X	X			
C-ALGN-LINE	Alignments	014200-909 MS4 Dot Dash	0.35	255,200,0	X	X	X	X	X	X	X		X	X	X			
C-ALGN-MAJR	Alignment major stationing and tick marks	0	0.35	255,0,0	X	X			X		X		X	X				
C-ALGN-MARK	Alignment tick marks	0	0.35	0,255,0	X	X					X		X	X	X			
C-ALGN-MINR	Alignment minor stationing and tick marks	0	0.18	255,0,255	X	X			X		X		X	X				
C-ALGN-STAT	Alignment stationing and tick marks, alignment PI stations	0	0.35	0,255,0	X	X			X		X		X	X	X			
C-ALGN-SYMB	Alignment symbols (PIs)	0	0.35	255,0,255	X	X			X		X		X	X	X			
C-ALGN-TEXT	Alignment text, annotation with associated leaders	0	0.35	255,200,0	X	X	X	X	X	X	X		X	X	X			
Aprons																		
C-APRN-CNTR	Apron centerlines	014200-914 Center Line	0.25	255,0,0									X					
C-APRN-CNTR-IDEN	Apron centerline annotation	0	0.35	255,200,0									X					
C-APRN-GRND	Grounding points	0	0.35	255,200,0									X					
C-APRN-HOLD	Holding position markings	0	0.25	255,0,0									X					
C-APRN-IDEN	Airfield apron - annotation	0	0.35	255,200,0									X		X		X	
C-APRN-MOOR	Mooring points	0	0.35	255,200,0									X					
C-APRN-MRKG	Apron markings	0	0.50	0,255,255									X					
C-APRN-OTLN	Airfield apron - outlines	0	0.50	0,255,255									X		X		X	
C-APRN-SECU	Security zone markings	0	0.25	255,0,0									X					
C-APRN-SHLD	Shoulders with annotation	0	0.35	255,200,0									X					
C-APRN-SHLD-MRKG	Shoulder stripes	0	0.35	255,200,0									X					
Beach Renourishment																		
C-BECH-BANK-TOP~	Beach top of bank	0	0.25	255,0,255			X	X										
C-BECH-BKLN	Beach breakline	014200-907 MS2 Medium Dash	0.35	0,0,255			X	X										
C-BECH-BLIN	Beach baseline and control line	0	0.50	0,255,255			X	X										
C-BECH-BLIN-IDEN	Beach baseline and control line annotation	0	0.25	0,255,255			X	X										
C-BECH-BNCH	Beach bench	014200-911 MS6 Dash Dot Dot	0.35	165,41,0			X	X										
C-BECH-CNTR	Beach centerline	014200-914 Center Line	0.25	0,0,255			X	X										
C-BECH-CNTR-IDEN	Beach centerline annotation	0	0.25	255,0,255			X	X										
C-BECH-ELIN	Beach erosion control line	0	0.50	0,255,255			X	X										
C-BECH-ELIN-IDEN	Beach erosion control line annotation	0	0.25	255,0,255			X	X										
C-BECH-LIMT	Beach limit lines	0	0.50	0,255,255			X	X										
C-BECH-OHWM	Ordinary high water marks	0	0.35	255,200,0			X	X										
C-BECH-OTLN	Beach outline	0	0.25	255,200,0			X	X										
C-BECH-SLOP-IDEN	Beach slope indicator with annotation	0	0.25	255,255,255			X	X										
C-BECH-SLOP-TOP~	Beach top of slope	014200-907 MS2 Medium Dash	0.35	165,41,0			X	X										
C-BECH-SYMB	Beach symbols	0	0.18	255,0,255			X	X										
C-BECH-TOE~	Beach toe	014200-908 MS3 Long Dash	0.50	0,0,255			X	X										
C-BECH-TOE~-IDEN	Beach toe annotation	0	0.25	255,255,255			X	X										

Discipline: Civil

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types													
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Site Plan	Grading Plan	Eco-Restoration Plan	Beach Renourishment Plan	Navigation/Dredging Plan	Flood Control Plan	Transportation Site Plan	Joint Layout Plan	Airfield Plan	Utilities Plan	Profiles	Elevations	X-Sections	Details
Buildings and Primary Structures																		
C-BLDG-DECK	Outdoor decks (attached, no roof overhead)	0	0.50	0,255,255	X	X	X	X	X	X								
C-BLDG-DOCK	Loading docks	0	0.50	0,255,255	X	X	X	X	X	X								
C-BLDG-FTPT	Building footprints	0	0.70	255,255,255	X	X	X	X	X	X					X		X	
C-BLDG-IDEN	Building and other stucture annotation	0	0.35	255,200,0	X	X	X	X	X	X					X		X	
C-BLDG-OVHD	Building overhangs	0	0.50	0,255,255	X	X	X	X	X	X								
C-BLDG-PRCH	Porches (attached, roof overhead)	0	0.50	0,255,255	X	X	X	X	X	X								
Borrow Areas																		
C-BORW-IDEN	Borrow/spoil area annotation	0	0.35	255,200,0	X	X		X	X	X								
C-BORW-LINE	Borrow/spoil area	014200-907 MS2 Medium Dash	0.35	255,200,0	X	X		X	X	X								
Bridges																		
C-BRDG-CHRD-LOW~	Low chord	0	0.50	0,255,255											X		X	
C-BRDG-CNTR	Bridge centerlines	014200-914 Center Line	0.25	255,0,0	X				X	X	X							
C-BRDG-CTLJ	Control joints	0	0.25	0,255,255	X				X	X	X							
C-BRDG-DECK	Bridge deck	0	0.50	0,255,255	X				X	X	X				X		X	
C-BRDG-IDEN	Bridge annotation	0	0.35	255,200,0	X				X	X	X							
C-BRDG-OTLN	Bridge outlines	0	0.50	0,255,255	X				X	X	X							
C-BRDG-RLG~	Bridge railing	0	0.25	0,255,255	X				X	X	X				X		X	
Channels																		
C-CHAN-BANK-IDEN	Channel/canal top of bank annotation	0	0.35	255,200,0	X				X	X								
C-CHAN-BANK-TOP~	Channel/canal top of bank	0	0.35	255,200,0	X				X	X					X		X	
C-CHAN-BNCH	Channel/canal bench design feature lines (breaklines form DTMs)	0	0.35	255,200,0	X				X	X					X		X	
C-CHAN-BWTR	Breakwaters	0	0.35	255,0,255	X				X	X								
C-CHAN-CNTR	Channel centerline and survey report lines	014200-914 Center Line	0.25	0,0,255	X				X	X					X		X	
C-CHAN-CNTR-IDEN	Channel centerline and survey report lines - annotation	0	0.35	0,0,255	X				X	X								
C-CHAN-DACL	De-authorized channel limits, anchorages, etc.	0	0.35	0,255,0	X				X	X								
C-CHAN-DACL-IDEN	De-authorized channel limits, anchorages, etc. - annotation	0	0.35	0,255,0	X				X	X								
C-CHAN-DOCK	Docks, decks, floats, piers, and mooring facilities	0	0.35	255,0,255	X				X	X								
C-CHAN-LIMT	Channel limits, anchorages, turning basins, disposal areas, etc.	0	0.35	255,0,255	X				X	X								
C-CHAN-LIMT-IDEN	Channel limits, anchorages, turning basins, disposal areas, etc. - annotation	0	0.35	255,0,255	X				X	X								
C-CHAN-NAID	Navigation aids and text	0	0.35	255,255,255	X			X	X	X								
C-CHAN-SLOP-LINE	Channel cut/fill slope (Indicates cut and fill lines)	0	0.35	255,200,0	X				X	X								
C-CHAN-SPOL	Spoil limits	0	0.50	0,255,255	X				X	X								
C-CHAN-SYMB	Channel/canal symbols	0	0.35	255,0,255	X				X	X								
C-CHAN-TEXT	Channel/canal text, annotation with associated leaders	0	0.35	255,200,0	X				X	X								
C-CHAN-TOE~	Channel/canal toe	014200-908 MS3 Long Dash	0.50	0,0,255	X				X	X					X		X	
C-CHAN-TOE~-IDEN	Channel/canal toe annotation	0	0.35	255,0,255	X				X	X								
C-CHAN-TURN	Turning points	0	0.35	255,200,0	X				X	X								
C-CHAN-WIDE	Channel/canal widener	014200-908 MS3 Long Dash	0.50	0,255,255	X				X	X								
Dredging																		
C-DRED-IDEN	Dredging annotation	0	0.35	255,200,0	X			X	X	X								
C-DRED-LIMT	Dredge limit lines	0	0.50	0,255,255	X			X	X	X								
C-DRED-OHWM	Ordinary high water marks	0	0.35	255,200,0	X			X	X	X								
Ditches or Washes																		

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Level/Layer Naming		Graphic Defaults			Model File Types													
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Site Plan	Grading Plan	Eco-Restoration Plan	Beach Renourishment Plan	Navigation/Dredging Plan	Flood Control Plan	Transportation Site Plan	Joint Layout Plan	Airfield Plan	Utilities Plan	Profiles	Elevations	X-Sections	Details
C-DTCH-BOTM	Bottom of ditch or wash	334000-901 Ditch	0.25	0,0,255	X					X								
C-DTCH-CNTR	Centerline of ditch or wash	014200-914 Center Line	0.25	0,0,255	X					X								
C-DTCH-EWAT	Edge of water	0	0.25	0,255,255	X					X								
C-DTCH-IDEN	Ditches and washes annotation	0	0.35	0,255,0	X					X								
C-DTCH-TOP~	Top of ditch or wash	0	0.25	0,255,0	X					X								
Habitats/Landforms																		
C-ECCO-BURR	Burrow	0	0.50	0,255,255			X											
C-ECCO-DENS	Den	0	0.50	0,255,255			X											
C-ECCO-GATR	Gator hole	014200-907 MS2 Medium Dash	0.35	255,0,255			X											
C-ECCO-HUMK	Hummocks	0	0.35	255,0,255			X											
C-ECCO-IDEN	Habitat annotation	0	0.35	255,200,0			X											
C-ECCO-NEST	Nest, nesting tree	0	0.50	0,255,255			X											
C-ECCO-PRCH	Perch/nesting hole	0	0.50	0,255,255			X											
Erosion and Sediment Control (Temporary/Construction)																		
C-EROS-CIPR	Culvert inlet protection	0	0.25	0,255,0	X	X				X								
C-EROS-CNTE	Construction entrance	0	0.35	255,0,255	X	X				X								
C-EROS-DDIV	Drainage divides	0	0.50	0,255,255	X	X				X								
C-EROS-DVDK	Diversion dike	0	0.50	0,255,255	X	X				X								
C-EROS-IDEN	Erosion and sediment control annotation	0	0.35	0,255,0	X	X				X								
C-EROS-INPR	Inlet protection	0	0.25	0,255,0	X	X				X								
C-EROS-SILT	Silt fence	015700-901 Silt Fence	0.35	255,200,0	X	X				X								
C-EROS-SILT-CHCK	Silt check	0	0.35	255,200,0	X	X				X								
C-EROS-SILT-TRAP	Silt trap	0	0.35	255,200,0	X	X				X								
C-EROS-SSLT	Super silt fence	015700-902 Super Silt Fence	0.35	255,200,0	X	X				X								
Fire Protection																		
C-FIRE-HYDT	Hydrants and connections	0	0.35	255,0,0	X				X	X				X	X		X	
C-FIRE-PIPE	Piping	331100-907 Fire Protection Water Supply	0.35	255,0,0					X	X				X				
Flood Hazard Area																		
C-FLHA-025Y	25 year mark	014200-911 MS6 Dash Dot Dot	0.35	255,0,255	X					X								
C-FLHA-050Y	50 year mark	014200-908 MS3 Long Dash	0.35	255,200,0	X					X								
C-FLHA-100Y	100 year mark	0	0.35	255,0,255	X					X								
C-FLHA-200Y	200 year mark	014200-907 MS2 Medium Dash	0.35	255,200,0	X					X								
C-FLHA-500Y	500 year mark	014200-912 MS7 Long Dash Short Dash	0.35	255,0,255	X					X								

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C-FLHA-IDEN	Flood hazard area annotation	0	0.35	255,200,0	X					X								
Floodwalls																		
C-FLOD-BASE	Floodwall base of wall	0	0.50	255,63,0	X					X								
C-FLOD-BASE-IDEN	Floodwall base of wall annotation	0	0.35	255,63,0	X					X								
C-FLOD-CNTR	Floodwall centerline	014200-914 Center Line	0.25	255,63,0	X					X							X	
C-FLOD-CNTR-IDEN	Floodwall centerline annotation	0	0.35	255,63,0	X					X							X	
C-FLOD-DRNS	Floodwall toe drain	0	0.35	255,0,255	X					X					X		X	
C-FLOD-DRNS-IDEN	Floodwall toe drain annotation	0	0.35	255,0,255	X					X					X		X	
C-FLOD-PILE	Floodwall sheet piling	0	0.50	165,41,0	X					X					X		X	
C-FLOD-PILE-IDEN	Floodwall sheet piling annotation	0	0.35	165,41,0	X					X					X		X	
C-FLOD-TOE~	Floodwall toe outline	0	0.35	0,255,255	X					X					X		X	
C-FLOD-TOP~	Floodwall top of wall	0	0.50	255,200,0	X					X					X		X	
C-FLOD-TOP~-IDEN	Floodwall top of wall annotation	0	0.35	255,63,0	X					X					X		X	
Liquid Fuel																		
C-FUEL-BERM	Berms for retaining fuel in case of major tank/line rupture	0	0.35	255,200,0										X				
C-FUEL-DEFL-PIPE	Defueling piping	0	0.35	255,200,0										X				
C-FUEL-DEVC	Air eliminators, filter strainers, hydrant fill points, line vents, markers, oil/water separators, reducers, regulators, and valves	0	0.35	255,200,0										X				
C-FUEL-FLOW	Flow direction arrows	0	0.35	255,200,0										X				
C-FUEL-IDEN	Identifier tags, symbol modifier, and text	0	0.35	255,200,0	X				X					X	X		X	
C-FUEL-JBOX	Junction boxes, manholes, handholes, test boxes	0	0.35	255,200,0										X				
C-FUEL-MAIN-PIPE	Main fuel piping	231100-908 Gas - Liquefied Petroleum	0.35	255,200,0	X				X					X	X		X	
C-FUEL-METR	Meters	0	0.35	255,200,0										X				
C-FUEL-SERV-PIPE	Service piping	0	0.35	255,200,0										X				
C-FUEL-STNS-PUMP	Booster pump stations	0	0.35	255,200,0										X				
C-FUEL-TANK	Fuel tanks	0	0.35	255,200,0	X				X					X	X		X	
C-FUEL-TRCH	Fuel line trench	0	0.35	255,200,0										X				
C-FUEL-VALT	Hydrant control/valve/vent pits/vaults	0	0.35	255,200,0	X				X					X	X		X	
Grade Linework																		
C-GRAD-ALOW	Allowable over depth	0	0.35	255,0,255					X								X	
C-GRAD-BNCH	Bench cut	0	0.35	255,0,255											X		X	
C-GRAD-DSGN	Design grade (proposed)	0	0.35	0,255,0	X		X	X	X	X					X		X	
C-GRAD-EXCV	Excavation grade	0	0.50	0,255,255											X		X	
C-GRAD-EXST	Existing grade, ground line	014200-908 MS3 Long Dash	0.35	255,0,255	X		X	X	X	X					X		X	
C-GRAD-FNSH	Finished grade	0	0.50	0,255,255	X				X	X					X		X	
C-GRAD-FNSH-PRP1	Proposed Surface #1	0	0.35	128,128,128	X				X	X					X		X	
C-GRAD-FNSH-PRP2	Proposed Surface #2	0	0.35	128,128,128	X				X	X					X		X	
C-GRAD-FNSH-PRP3	Proposed Surface #3	0	0.35	128,128,128	X				X	X					X		X	
C-GRAD-FNSH-PRP4	Proposed Surface #4	0	0.35	128,128,128	X				X	X					X		X	
C-GRAD-GTXL	Geotextile placement grade	0	0.25	255,0,0	X				X	X					X		X	
C-GRAD-IDEN	Grade annotation for cross sections and profiles	0	0.35	255,200,0	X				X	X					X		X	
C-GRAD-REQD	Required depth	0	0.35	255,0,255					X								X	
C-GRAD-SCLN	Stability control line	014200-912 MS7 Long Dash Short Dash	0.50	0,0,255	X				X	X					X		X	

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C-GRAD-WATR	Water surface in section view	0	0.35	255,200,0	X				X	X					X		X	
Grid Lines																		
C-GRID-FRAM	Frame	0	0.50	0,255,255											X		X	
C-GRID-MAJR	Major grid lines	014200-906 MS1 Dot	0.35	128,128,128											X		X	
C-GRID-MINR	Minor grid lines	014200-906 MS1 Dot	0.18	128,128,128											X		X	
C-GRID-TEXT	Border text, annotation	014200-906 MS1 Dot	0.35	255,200,0											X		X	
Heliports																		
C-HELI-BLST	Blast pad and stopway markings	0	0.35	255,0,0									X		X		X	
C-HELI-CNTR	Centerline markings	0	0.35	255,0,0									X					
C-HELI-DISP	Displaced threshold markings	0	0.35	255,0,0									X					
C-HELI-DIST	Fixed distance markings	0	0.35	255,0,0									X					
C-HELI-IDEN	Heliport numbers and letters	0	0.35	255,200,0									X		X		X	
C-HELI-SHLD	Shoulder markings	0	0.35	255,0,255									X					
C-HELI-SIDE	Side stripes	0	0.50	0,255,255									X					
C-HELI-TDZM	Touchdown zone markers	0	0.35	255,0,255									X					
C-HELI-THRS	Threshold markers	0	0.35	255,0,255									X					
Industrial Waste Water																		
C-INDW-DEVC	Grit chambers, flumes, neutralizers, oil/water separators, ejectors, tanks, and valves	0	0.35	255,63,0										X				
C-INDW-FLOW	Flow direction arrows	0	0.35	255,63,0										X				
C-INDW-IDEN	Identifier tags, symbol modifier, and text	0	0.35	255,200,0	X				X	X				X	X		X	
C-INDW-JBOX	Junction boxes and manholes	0	0.35	255,63,0										X				
C-INDW-LAGN	Lagoons	0	0.35	255,63,0										X				
C-INDW-MAIN-PIPE	Main industrial waste water piping	402300-905 Industrial Waste	0.35	255,63,0	X				X					X	X		X	
C-INDW-METR	Meters	0	0.35	255,63,0										X				
C-INDW-PLNT	Treatment plants	0	0.35	255,63,0										X				
C-INDW-SERV-PIPE	Industrial waste water service piping	0	0.35	255,63,0										X				
C-INDW-SIGN	Surface markers/signs	0	0.35	255,63,0										X				
C-INDW-STNS-LIFT	Lift stations	0	0.35	255,63,0										X				
Joints																		
C-JNTS-CNSL	Construction joints - longitudinal	0	0.35	255,0,255								X						
C-JNTS-CNST	Construction joints - transverse	0	0.35	255,0,255								X						
C-JNTS-CNTL	Contraction joints - longitudinal	0	0.35	255,200,0								X						
C-JNTS-CNTT	Contraction joints - transverse	0	0.35	255,200,0								X						
C-JNTS-EDGE	Thickened edges	0	0.35	0,255,255								X						
C-JNTS-EXPJ	Expansion joints	0	0.35	165,0,0								X						
C-JNTS-IDEN	Joint annotation	0	0.35	255,200,0								X						
Levees																		
C-LEVE-BANK-IDEN	Levee top of bank annotation	0	0.25	255,63,0	X				X	X								
C-LEVE-TOPB	Levee top of bank	0	0.35	255,200,0	X				X	X					X		X	
C-LEVE-BERM	Levee berm outline	0	0.35	255,0,255	X				X	X					X		X	
C-LEVE-BNCH	Levee bench design feature lines (breaklines form DTMs)	0	0.35	255,63,0	X				X	X					X		X	
C-LEVE-BNCH-IDEN	Levee bench annotation	0	0.25	255,200,0	X				X	X							X	
C-LEVE-BRRW	Borrow limits	0	0.50	0,255,255	X				X	X							X	
C-LEVE-CNTR	Levee centerline	014200-914 Center Line	0.25	255,63,0	X				X	X					X		X	
C-LEVE-CNTR-IDEN	Levee centerline annotation	0	0.35	255,63,0	X				X	X							X	
C-LEVE-IDEN	Levee annotation	0	0.35	255,200,0	X				X	X							X	

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Level/Layer Naming		Graphic Defaults			Model File Types													
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Site Plan	Grading Plan	Eco-Restoration Plan	Beach Renourishment Plan	Navigation/Dredging Plan	Flood Control Plan	Transportation Site Plan	Joint Layout Plan	Airfield Plan	Utilities Plan	Profiles	Elevations	X-Sections	Details
C-LEVE-OTLN	Levee outline	0	0.50	0,255,255	X				X	X							X	
C-LEVE-SLOP	Levee slope indicator with annotation	0	0.35	255,200,0	X				X	X							X	
C-LEVE-STAN	Levee stationing	0	0.35	255,200,0	X				X	X							X	
C-LEVE-TOE~	Levee toe	014200-907 MS2 Medium Dash	0.35	255,63,0	X				X	X					X		X	
C-LEVE-TOE~-IDEN	Levee toe annotation	0	0.25	255,63,0	X				X	X							X	
Military Ranges																		
C-MILR-BATP	Battle positions	0	0.50	0,255,255	X													
C-MILR-CAMS	Range cameras	0	0.35	255,0,255	X													
C-MILR-FOXH	Fox holes and pits	0	0.35	255,0,255	X													
C-MILR-MATS	Moving army targets	0	0.50	0,255,255	X													
C-MILR-MITS	Moving infantry targets	0	0.50	0,255,255	X													
C-MILR-MITS-IDEN	Moving infantry targets annotation	0	0.35	255,200,0	X													
C-MILR-PUTS	Pop up targets	0	0.50	0,255,255	X													
C-MILR-PUTS-IDEN	Pop up targets annotation	0	0.35	255,200,0	X													
C-MILR-SATS	Stationary army targets	0	0.50	0,255,255	X													
C-MILR-SATS-IDEN	Stationary army targets annotation	0	0.35	255,200,0	X													
C-MILR-SITS	Stationary infantry targets	0	0.50	0,255,255	X													
C-MILR-SITS-IDEN	Stationary infantry targets annotation	0	0.35	255,200,0	X													
Natural Gas																		
C-NGAS-EQPM	Equipment (pumps, motors, etc.)	0	0.35	255,200,0										X				
C-NGAS-FLOW	Flow direction arrows	0	0.35	255,200,0										X				
C-NGAS-IDEN	Identifier tags, symbol modifier, and text	0	0.35	255,200,0	X				X					X	X		X	
C-NGAS-INST	Instrumentation (valves, etc.)	0	0.35	255,200,0										X				
C-NGAS-METR	Meters	0	0.35	255,200,0										X				
C-NGAS-MHOL	Manholes	0	0.35	255,200,0	X				X					X	X		X	
C-NGAS-PIPE	Natural gas piping	231100-909 Gas - Low Pressure	0.35	255,200,0	X				X					X	X		X	
C-NGAS-SIGN	Surface markers/signs	0	0.35	255,200,0										X				
C-NGAS-STNS-PUMP	Compressor stations	0	0.35	255,200,0										X				
C-NGAS-STNS-REDC	Reducing stations	0	0.35	255,200,0										X				
C-NGAS-TANK	Tanks	0	0.25	255,200,0	X									X				
C-NGAS-VALT	Valve/vent pits/vaults	0	0.35	255,200,0	X				X					X	X		X	
Obstructions																		
C-OBST-AIRS	Airspace obstructions	0	0.35	0,255,0									X					
C-OBST-AIRS-IDEN	Obstruction annotation	0	0.35	255,200,0									X					
Overrun Areas																		
C-OVRN-CNTR	Centerlines	014200-914 Center Line	0.25	255,0,0									X					
C-OVRN-CNTR-IDEN	Centerline annotation	0	0.35	255,200,0									X					
C-OVRN-IDEN	Airfield overrun area - annotation	0	0.35	255,200,0									X		X		X	
C-OVRN-OTLN	Airfield overrun area - outlines	0	0.35	0,255,255									X		X		X	
C-OVRN-SHLD-MRKG	Shoulder markings	0	0.35	0,255,255									X					
Pads (Arm/Disarm/Calibration, etc.)																		
C-PADS-CNTR	Centerlines	014200-914 Center Line	0.25	255,0,0									X					
C-PADS-CNTR-IDEN	Centerline annotation	0	0.35	255,200,0									X					
C-PADS-IDEN	Pads - annotation	0	0.35	255,200,0									X		X		X	
C-PADS-OTLN	Pad - outlines	0	0.35	0,255,255									X		X		X	
C-PADS-SHLD	Shoulders with annotation	0	0.25	255,200,0									X					

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Parking Lots																		
C-PRKG-CARS	Graphic illustration of cars	0	0.35	255,200,0	X					X	X							
C-PRKG-CNTR	Parking lot centerlines	014200-914 Center Line	0.25	255,0,0	X					X	X							
C-PRKG-CNTR-IDEN	Parking lot centerline annotation	0	0.25	255,0,0	X					X	X							
C-PRKG-CURB	Curbs and gutters	0	0.35	0,255,0	X					X	X							
C-PRKG-DRAN	Drainage slope indications	0	0.35	255,0,0	X					X	X							
C-PRKG-FIXT	Parking lot fixtures (e.g., wheel stops, parking meters)	0	0.35	127,255,127	X					X	X							
C-PRKG-FLNE	Fire lanes	0	0.25	255,0,0	X					X	X							
C-PRKG-IDEN	Parking lot annotation	0	0.35	255,0,255	X					X	X				X		X	
C-PRKG-MRKG	Pavement markings	0	0.35	255,200,0	X					X	X							
C-PRKG-OTLN	Parking lot outlines	0	0.50	0,255,255	X					X	X				X		X	
C-PRKG-SIGN	Signs	0	0.35	255,200,0	X					X	X							
Property																		
C-PROP-CONS	Construction limits/controls, staging area	014200-902 Construction Contract Limit	0.70	255,255,255	X				X	X							X	
C-PROP-ESMT	Easements	014200-903 Construction Easement	0.70	255,255,255	X				X	X							X	
C-PROP-IDEN	Property annotation	0	0.35	255,0,255	X				X	X							X	
C-PROP-LINE	Property lines	014200-905 Property Line	0.50	255,200,0	X				X	X							X	
C-PROP-RWAY	Right of ways	011400-901 Right of Way	0.70	255,255,255	X				X	X							X	
C-PROP-RWAY-ACQU	Right of way to be acquired in perpetuity	0	0.70	255,255,255	X				X	X							X	
C-PROP-SBCK	Setback lines	014200-908 MS3 Long Dash	0.25	255,255,255	X				X	X							X	
C-PROP-SECT	Section lines	014200-912 MS7 Long Dash Short Dash	0.50	255,0,255	X				X	X							X	
C-PROP-SECT-IDEN	Section lines annotation	0	0.35	255,0,255	X				X	X							X	
C-PROP-TSHP	Township/range lines	014200-909 MS4 Dot Dash	0.50	255,0,255	X				X	X								
C-PROP-TSHP-IDEN	Township/range lines annotation	0	0.35	255,0,255	X				X	X								
Pavements																		
C-PVMT-ASPH	Pavement pattern - asphalt	0	0.18	128,128,128	X				X	X	X		X					
C-PVMT-CONC	Pavement pattern - concrete	0	0.18	128,128,128	X				X	X	X		X					
C-PVMT-GRVL	Pavement pattern - gravel	0	0.18	128,128,128	X				X	X	X		X					
C-PVMT-IDEN	Road, parking lot, railroad, airfield pavement annotation	0	0.25	255,200,0	X				X	X			X		X		X	
C-PVMT-MRKG	Pavement markings	0	0.35	255,200,0	X				X	X	X							
C-PVMT-PATT	Joint patterns, text and dimensions	0	0.18	128,128,128	X				X	X		X						
Railroads																		
C-RAIL-CNTR	Railroad track centerlines	014200-914 Center Line	0.25	255,0,0							X							
C-RAIL-CNTR-IDEN	Railroad track centerline annotation	0	0.35	255,0,0							X							
C-RAIL-EQPM	Railroad equipment (e.g., gates, signals)	0	0.35	127,255,127							X							
C-RAIL-IDEN	Railroad - annotation	0	0.35	255,0,255							X				X		X	

Discipline: Civil

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types													
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Site Plan	Grading Plan	Eco-Restoration Plan	Beach Renourishment Plan	Navigation/Dredging Plan	Flood Control Plan	Transportation Site Plan	Joint Layout Plan	Airfield Plan	Utilities Plan	Profiles	Elevations	X-Sections	Details
C-RAIL-TRAK	Railroad tracks	347200-901 Railroad	0.35	255,200,0							X				X		X	
Rivers																		
C-RIVR-BOTM	River bottom	0	0.35	0,0,255	X				X	X					X	X	X	
C-RIVR-CNTR	Centerline of river	014200-914 Center Line	0.25	255,0,0	X				X	X					X	X	X	
C-RIVR-EDGE	River edge	0	0.50	0,0,255	X				X	X					X	X	X	
C-RIVR-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	255,200,0	X				X	X					X	X	X	
C-RIVR-TOPB	Top of river bank	0	0.35	0,0,255	X				X	X					X	X	X	
Roads, Streets, and Highways																		
C-ROAD-ASPH	Road outlines - asphalt surface	0	0.25	128,128,128	X					X	X				X		X	
C-ROAD-CNTR	Road centerlines	014200-914 Center Line	0.25	255,0,0	X					X	X						X	
C-ROAD-CNTR-IDEN	Road centerline annotation	0	0.25	255,0,0	X					X	X				X		X	
C-ROAD-CONC	Road outlines - concrete surface	0	0.25	255,255,255	X					X	X				X		X	
C-ROAD-CURB	Curbs and gutters	0	0.35	255,0,255	X					X	X				X		X	
C-ROAD-GRAL	Guard rails	347100-901 Guardrail	0.35	255,0,255	X					X	X				X		X	
C-ROAD-GRVL	Road outlines - gravel surface	0	0.25	255,63,0	X					X	X				X		X	
C-ROAD-IDEN	Road, street, highway annotation	0	0.35	255,0,255	X					X	X				X		X	
C-ROAD-MRKG	Pavement markings	0	0.35	255,200,0	X					X	X							
C-ROAD-PATT	Joint patterns, text and dimensions	0	0.18	128,128,128	X					X	X							
C-ROAD-SHLD	Roadway shoulder	0	0.35	255,0,255	X					X	X							
C-ROAD-SIGN	Signs	0	0.25	255,0,0	X					X	X							
C-ROAD-UPVD	Road outlines - unpaved surface	0	0.25	0,255,0	X					X	X				X		X	
Riprap and Other Permanent Erosion Control Items																		
C-RRAP-GABN	Gabions	0	0.25	255,0,0	X			X	X	X								
C-RRAP-MATS	Articulated concrete mats	0	0.25	0,255,0	X			X	X	X								
C-RRAP-RVMT	Revetments	0	0.25	255,0,0	X			X	X	X								
C-RRAP-WEIR	Weirs	0	0.25	0,255,0	X			X	X	X								
Runways																		
C-RUNW-BLST	Blast pad and stopway markings	0	0.35	255,0,0									X		X		X	
C-RUNW-CNTR	Centerlines	014200-914 Center Line	0.25	255,0,0									X					
C-RUNW-CNTR-MRKG	Centerline markings	0	0.35	255,0,0									X					
C-RUNW-DISP	Displaced threshold markings	0	0.35	255,0,0									X					
C-RUNW-DIST	Fixed distance markings	0	0.35	255,0,0									X					
C-RUNW-EDGE	Airfield runway edges	0	0.35	255,0,255									X					
C-RUNW-IDEN	Airfield runway annotation	0	0.35	255,200,0									X		X		X	
C-RUNW-SHLD	Shoulder markings	0	0.35	255,0,255									X					
C-RUNW-SIDE	Side stripes	0	0.35	0,255,255									X					
C-RUNW-TDZM	Touchdown zone markers	0	0.35	255,0,255									X					
C-RUNW-THRS	Threshold markers	0	0.35	255,0,255									X					
Site Features																		
C-SITE-BLIN	Site breakline	014200-907 MS2 Medium Dash	0.35	0,255,0	X					X								
C-SITE-FENC	Fences and handrails	323100-901 Fence	0.35	255,0,255	X					X								
C-SITE-IDEN	Site feature annotation	0	0.35	255,0,255	X					X					X		X	
C-SITE-STRC	Structures (bridges, sheds, foundation pads, footings, etc.)	0	0.35	165,41,0	X					X								
C-SITE-STRS	Stairs and ramps	0	0.35	255,0,255	X					X								

Discipline: Civil

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types													
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Site Plan	Grading Plan	Eco-Restoration Plan	Beach Renourishment Plan	Navigation/Dredging Plan	Flood Control Plan	Transportation Site Plan	Joint Layout Plan	Airfield Plan	Utilities Plan	Profiles	Elevations	X-Sections	Details
C-SITE-WALK	Walks, trails and bicycle paths	0	0.35	255,200,0	X					X								
Sanitary Sewer																		
C-SSWR-DEVC	Grease traps, grit chambers, flumes, neutralizers, oil/water separators, ejectors, and valves	0	0.35	0,255,0	X									X	X		X	
C-SSWR-FILT	Filtration beds	0	0.35	0,255,0										X	X		X	
C-SSWR-FLOW	Flow direction arrows	0	0.35	0,255,0										X	X		X	
C-SSWR-IDEN	Identifier tags, symbol modifier, and text	0	0.35	255,200,0	X				X	X				X	X		X	
C-SSWR-JBOX	Junction boxes and manholes	0	0.35	0,255,0	X									X	X		X	
C-SSWR-LAGN	Lagoons	0	0.35	0,255,0										X	X		X	
C-SSWR-LEAC	Leach field	0	0.35	0,255,0										X	X		X	
C-SSWR-MAIN-PIPE	Sanitary sewer piping	221300-905 Sanitary Waste	0.35	0,255,0	X				X	X				X	X		X	
C-SSWR-NITF	Nitrification drain fields	0	0.35	0,255,0										X	X		X	
C-SSWR-PLNT	Treatment plants	0	0.35	0,255,0										X	X		X	
C-SSWR-SERV-PIPE	Sanitary sewer service piping	0	0.35	0,255,0										X	X		X	
C-SSWR-SIGN	Surface markers/signs	0	0.35	0,255,0										X	X		X	
C-SSWR-STNS-PUMP	Booster pump stations	0	0.35	0,255,0										X	X		X	
C-SSWR-TANK	Septic tanks	0	0.35	0,255,0	X				X	X				X	X		X	
Storm Sewer																		
C-STRM-AFFF	AFFF lagoon/detention pond	0	0.35	0,255,0										X	X		X	
C-STRM-CHUT	Chutes and concrete erosion control structures	0	0.35	0,255,0										X	X		X	
C-STRM-CULV	Culverts	334200-901 Culvert	0.35	0,255,0	X			X	X	X				X	X		X	
C-STRM-DEVC	Downspouts, flumes, oil/water separators, and flap gates	0	0.35	0,255,0	X			X	X	X				X	X		X	
C-STRM-FLOW	Flow direction arrows	0	0.35	0,255,0										X	X		X	
C-STRM-FMON	Flow monitoring station	0	0.35	0,255,0										X	X		X	
C-STRM-HWAL	Headwalls and endwalls	0	0.50	0,255,0	X			X	X	X				X	X		X	
C-STRM-IDEN	Identifier tags, symbol modifier, and text	0	0.35	255,200,0	X			X	X	X				X	X		X	
C-STRM-INLT	Inlets (curb, surface, and catch basins)	0	0.35	0,255,0										X	X		X	
C-STRM-MAIN-PIPE	Storm sewer piping	221400-901 Drain - Storm	0.35	0,255,0	X			X	X	X				X	X		X	
C-STRM-MHOL	Manholes	0	0.35	0,255,0	X									X	X		X	
C-STRM-POND	Retention ponds, lagoons, watersheds, and basins	0	0.35	0,255,0										X	X		X	
C-STRM-ROOF	Roof drain line	0	0.35	0,255,0										X	X		X	
C-STRM-SERV-PIPE	Storm sewer service piping	0	0.35	0,255,0										X	X		X	
C-STRM-SIGN	Surface markers/signs	0	0.35	0,255,0										X	X		X	
C-STRM-STNS-PUMP	Pump stations	0	0.35	0,255,0	X					X				X	X		X	
Sub-Surface Drainage																		
C-STRM-SUBS-CHIM	Subsurface chimney drain	0	0.35	0,255,0	X									X	X		X	
C-STRM-SUBS-COLL	Subsurface drain collector	0	0.35	0,255,0	X									X	X		X	
C-STRM-SUBS-DRAN	Subsurface drainage layer	0	0.35	0,255,0	X									X	X		X	
C-STRM-SUBS-FILT	Subsurface drain filter	0	0.25	0,255,0	X									X	X		X	
C-STRM-SUBS-INCP	Subsurface interceptor drain	0	0.35	0,255,0	X									X	X		X	
C-STRM-SUBS-GEOX	Subsurface drain geotextile material and filter fabric	0	0.50	0,255,0	X									X	X		X	
C-STRM-SUBS-PIPE	Subsurface drain piping	0	0.35	0,255,0	X									X	X		X	
C-STRM-SUBS-SEPR	Subsurface drain separation layer	0	0.35	0,255,0	X									X	X		X	
Survey																		
C-SURV-DATA	Survey data (benchmarks and horizontal control points or monuments)	0	0.35	255,0,255	X			X	X	X								
C-SURV-IDEN	Survey, baseline, and control line annotation	0	0.35	255,0,255	X			X	X	X								
C-SURV-LINE	Survey, baseline, and control lines	014200-907 MS2 Medium Dash	0.35	0,255,255	X			X	X	X								

Discipline: Civil

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types													
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Site Plan	Grading Plan	Eco-Restoration Plan	Beach Renourishment Plan	Navigation/Dredging Plan	Flood Control Plan	Transportation Site Plan	Joint Layout Plan	Airfield Plan	Utilities Plan	Profiles	Elevations	X-Sections	Details
Taxiways																		
C-TAXI-CNTR	Centerlines	014200-914 Center Line	0.25	255,0,0									X					
C-TAXI-CNTR-IDEN	Centerline annotation	0	0.35	255,200,0									X					
C-TAXI-CNTR-MRKG	Centerline markings	0	0.25	255,0,0									X					
C-TAXI-EDGE	Edge markings	0	0.35	0,255,255									X					
C-TAXI-HOLD	Holding lines	0	0.35	255,200,0									X					
C-TAXI-IDEN	Taxiway - annotation	0	0.35	255,200,0									X		X		X	
C-TAXI-OTLN	Taxiway - outlines	0	0.35	0,255,255									X		X		X	
C-TAXI-SHLD	Shoulders with annotation	0	0.35	255,200,0									X					
Topography																		
C-TOPO-BNDY-EXTR	Surface exterior boundary	0	0.18	0,255,0	X	X	X		X	X	X		X					
C-TOPO-BNDY-INTR	Surface interior boundary	014200-907 MS2 Medium Dash	0.18	255,0,0	X	X	X		X	X	X		X					
C-TOPO-BKLN	Breaklines	014200-909 MS4 Dot Dash	0.50	255,255,255	X	X		X	X	X								
C-TOPO-BKLN-COMM	Subsurface utilities communications breakline	271500-905 Communicatio n	0.50	255,255,255	X			X	X	X								
C-TOPO-BKLN-DOMW	Subsurface utilities water breakline	331100-903 Water Line	0.50	255,255,255	X			X	X	X								
C-TOPO-BKLN-ELEC	Subsurface utilities electric breakline	337100-901 Electrical Primary	0.50	255,255,255	X			X	X	X								
C-TOPO-BKLN-FUEL	Subsurface utilities liquid fuel breakline	231100-908 Gas - Liquefied Petroleum	0.50	255,255,255	X			X	X	X								
C-TOPO-BKLN-NGAS	Subsurface utilities natural gas breakline	231100-909 Gas - Low Pressure	0.50	255,255,255	X			X	X	X								
C-TOPO-BKLN-SSWR	Subsurface utilities sanitary sewer breakline	221300-905 Sanitary Waste	0.50	255,255,255	X			X	X	X								
C-TOPO-BKLN-STRM	Subsurface utilities storm sewer breakline	221400-901 Drain - Storm	0.50	255,255,255	X			X	X	X								
C-TOPO-BORE	Boring locations and text	0	0.35	255,0,255	X	X	X	X	X	X								
C-TOPO-COOR	Coordinate grid text annotation	0	0.35	0,165,124	X	X			X	X								
C-TOPO-COOR-LALO	Latitude and longitude grid ticks	0	0.25	0,255,0	X	X			X	X								
C-TOPO-COOR-STAT	State Plane coordinate ticks	0	0.25	0,255,0	X	X			X	X								
C-TOPO-COOR-UTM~	UTM coordinate ticks	0	0.25	0,255,0	X	X			X	X								
C-TOPO-DTMO	DTM obscure area boundary	0	0.35	255,0,255	X	X	X		X	X	X		X					
C-TOPO-DTMP	DTM points	0	0.35	255,0,255	X	X	X		X	X	X		X					
C-TOPO-DTMT	DTM triangles	0	0.35	165,41,0	X	X	X		X	X	X		X					
C-TOPO-MAJR	Major contours	0	0.35	255,200,0	X	X	X	X	X	X								
C-TOPO-MAJR-IDEN	Major contours - annotation	0	0.35	255,200,0	X	X	X	X	X	X								
C-TOPO-MINR	Minor contours	0	0.25	0,255,0	X	X	X	X	X	X								
C-TOPO-MINR-IDEN	Minor contours - annotation	0	0.25	0,255,0	X	X	X	X	X	X								
C-TOPO-SHAP	Application generated shapes/lines	0	0.25	255,0,0	X	X	X	X	X	X	X	X	X	X				
C-TOPO-SHOR	Shorelines, land features, and references	0	0.35	0,255,255	X			X	X	X								

Discipline: Civil

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types													
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Site Plan	Grading Plan	Eco-Restoration Plan	Beach Renourishment Plan	Navigation/Dredging Plan	Flood Control Plan	Transportation Site Plan	Joint Layout Plan	Airfield Plan	Utilities Plan	Profiles	Elevations	X-Sections	Details
C-TOPO-SLOP-FILL	Cut/fill slopes	0	0.35	255,200,0	X	X		X	X	X								
C-TOPO-SLOP-IDEN	Cut/fill slope, top/toe slope annotation	0	0.35	255,200,0	X	X		X	X	X								
C-TOPO-SLOP-TOPT	Top/toe slopes	0	0.35	255,0,255	X	X	X	X	X	X								
C-TOPO-SOUN	Soundings and overbanks	0	0.18	255,255,255	X			X	X	X								
C-TOPO-SPOT	Spot elevations	0	0.35	255,200,0	X	X	X	X				X						
C-TOPO-SURF-PERI	Surface perimeter	0	0.18	0,255,0	X	X	X		X	X	X		X					
C-TOPO-SURF-PONT	Surface feature points	0	0.25	255,255,255	X	X	X		X	X	X		X					
C-TOPO-SURF-VOID	Surface void region	0	0.18	255,0,0	X	X	X	X	X	X	X		X					
C-TOPO-WATR	Water level reference (LWRP, after-grading LWRP, SWL, etc.)	014200-908 MS3 Long Dash	0.50	255,255,255	X			X	X	X								
Airfield Traffic Areas																		
C-TRAF-IDEN	Airfield traffic area annotation	0	0.35	255,200,0									X					
C-TRAF-TYPA	Type A traffic area	014200-909 MS4 Dot Dash	0.50	0,255,255									X					
C-TRAF-TYPB	Type B traffic area	014200-911 MS6 Dash Dot Dot	0.50	0,255,255									X					
C-TRAF-TYPC	Type C traffic area	014200-906 MS1 Dot	0.50	0,255,255									X					
Water Supply																		
C-WATR-DEVC	Connectors, faucets, reducers, regulators, vents, intake points, taps, backflow preventers, and valves	0	0.35	0,255,255					X	X				X				
C-WATR-HYDT	Flushing hydrants	0	0.35	0,255,255					X	X				X				
C-WATR-IDEN	Identifier tags, symbol modifier, and text	0	0.35	255,200,0	X				X	X				X	X		X	
C-WATR-MAIN-PIPE	Main domestic water piping	331100-903 Water Line	0.35	0,255,255	X				X	X				X	X		X	
C-WATR-METR	Meters	0	0.35	0,255,255					X	X				X				
C-WATR-NPW~-PIPE	Non-potable water piping	402300-906 Non-Potable Water	0.35	0,255,255					X	X				X				
C-WATR-SERV-PIPE	Domestic water service piping	0	0.35	0,255,255					X	X				X				
C-WATR-SIGN	Surface markers/signs	0	0.35	0,255,255					X	X				X				
C-WATR-STNS-PUMP	Booster pump stations	0	0.35	0,255,255	X					X				X				
C-WATR-STNS-REDC	Pressure reducing stations	0	0.35	0,255,255	X					X				X				
C-WATR-TANK	Water storage tanks	0	0.35	0,255,255	X					X				X				
C-WATR-VALT	Valve/vent pits/vaults	0	0.35	0,255,255	X				X	X				X	X		X	
C-WATR-WELL	Water well houses	0	0.35	0,255,255	X					X				X				
Wetlands																		
C-WETL-BOGS	Bogs	0	0.35	255,0,255			X											
C-WETL-FENS	Fens	0	0.35	255,200,0			X											
C-WETL-IDEN	Wetland annotation	0	0.35	255,200,0			X											
C-WETL-MRSH	Fresh water marshes	0	0.35	0,41,165			X											
C-WETL-MRSH-SALT	Tidal saltwater marshes	0	0.35	0,41,165			X											
C-WETL-MRSH-TIDL	Tidal freshwater marsh	0	0.35	0,41,165			X											
C-WETL-PCSN	Pocosins	0	0.35	255,0,255			X											
C-WETL-PHOL	Vernal pools, playas, prairie potholes, wet meadows, and wet prairies	0	0.35	255,0,255			X											
C-WETL-RPRN	Riparian forested wetlands	0	0.35	0,41,165			X											
C-WETL-SLGH	Sloughs	0	0.35	0,41,165			X											
C-WETL-SWMP	Swamps	0	0.35	0,41,165			X											
Elevations																		
C-ELEV-IDEN	Component identification numbers	0	0.35	255,200,0	X			X		X						X		
C-ELEV-OTLN	Outlines	0	0.35	255,0,255	X			X		X						X		

Discipline: Civil

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types													
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Site Plan	Grading Plan	Eco-Restoration Plan	Beach Renourishment Plan	Navigation/Dredging Plan	Flood Control Plan	Transportation Site Plan	Joint Layout Plan	Airfield Plan	Utilities Plan	Profiles	Elevations	X-Sections	Details
C-ELEV-PATT	Textures and hatch patterns	0	0.18	128,128,128	X			X		X						X		
C-ELEV-SIGN	Signage	0	0.35	255,0,0	X			X		X						X		
Sections																		
C-SECT-IDEN	Component identification numbers	0	0.35	255,200,0													X	
C-SECT-MBND	Material beyond section cut	0	0.18	0,0,255													X	
C-SECT-MCUT	Cuts through road surfaces, buildings, structures, fence lines, etc.	0	0.35	255,255,255													X	
C-SECT-PATT	Textures and hatch patterns	0	0.18	128,128,128													X	
Details																		
C-DETL-GRPH	Graphics, gridlines, non-text items	0	0.35	255,255,255														X

Discipline: Landscape

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types		
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Landscape Plan	Irrigation Plan	Details
General Information	**See Discipline: General (page A3) for a list of available Annotation layers/levels**						
Irrigation System							
L-IRRG-COVR	Irrigation coverage, spray distribution patterns	0	0.18	124,0,165		X	
L-IRRG-EQPM	Equipment (e.g., controllers, valves, RPBPs, etc.)	0	0.35	124,0,165		X	
L-IRRG-HEAD	Irrigation heads, bubblers, and drip irrigation emitters	0	0.25	124,0,165		X	
L-IRRG-IDEN	Annotation	0	0.35	255,200,0		X	
L-IRRG-PIPE	Piping	328100-901 Lawn Sprinkler	0.35	124,0,165		X	
L-IRRG-SPKL	Sprinklers	0	0.35	124,0,165		X	
Plant and Landscape Material							
L-PLNT-BEDS	Planting beds (perennial and annual beds)	0	0.35	255,0,255	X		
L-PLNT-BUSH	Bushes and shrubs (e.g., evergreen, deciduous, etc.)	0	0.50	103,165,82	X		
L-PLNT-BUSH-LINE	Bush and shrub line	0	0.50	103,165,82	X		
L-PLNT-CTNR	Containers or planters	0	0.25	255,0,0	X		
L-PLNT-GCVR	Groundcover and vines	0	0.35	41,165,0	X		
L-PLNT-IDEN	Annotation	0	0.35	255,0,255	X		
L-PLNT-MLCH	Mulches - organic and inorganic	0	0.25	0,255,0	X		
L-PLNT-PLNT	Planting plants (e.g., ornamental annuals and perennials)	0	0.50	103,165,82	X		
L-PLNT-SHAD	Shadow areas	0	0.18	0,0,255	X		
L-PLNT-SPRG	Sprigs	0	0.25	0,255,0	X		
L-PLNT-TREE	Trees (e.g., evergreen, deciduous, etc.)	0	0.50	103,165,82	X		
L-PLNT-TREE-LINE	Tree line	329300-901 Tree Line	0.50	103,165,82	X		
L-PLNT-TURF	Lawn areas (turfing limits)	0	0.50	165,103,82	X		
Site Improvements							
L-SITE-BRDG	Bridges (pedestrian)	0	0.35	165,41,0	X		
L-SITE-DECK	Decks	0	0.35	165,0,82	X		
L-SITE-FENC	Fencing	323100-901 Fence	0.35	255,200,0	X		
L-SITE-FURN	Furnishings	0	0.50	0,255,255	X		
L-SITE-IDEN	Annotation	0	0.35	255,0,255	X		
L-SITE-PLAY	Play structures	0	0.35	255,200,0	X		
L-SITE-POOL	Pools and spas	0	0.35	0,41,165	X		
L-SITE-ROCK	Boulders and cobble	0	0.25	255,0,0	X		
L-SITE-RTWL	Retaining walls	0	0.50	0,255,255	X		
L-SITE-SPRT	Sports fields	0	0.35	255,200,0	X		
L-SITE-SWLK	Sidewalks and steps	0	0.35	255,255,255	X		
Detail Information							
L-DETL-GRPH	Graphics, gridlines, non-text items	0	0.35	255,255,255			X

Discipline: Structural

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types												
					Vertical Const			Bridges			Hydraulic Structures						
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Foundation Plan	Framing Plan	Column Plan	Substructure	Decks	Superstructure	Locks	Dams	Hydraulic Steel Structures	Flood Control/Misc. Small Civil Works Structures	Sections	Details
General Information	**See Discipline: General (page A3) for a list of available Annotation layers/levels**																
Access																	
S-ACCS-ADIT	Adits in galleries and passages	0	0.35	255,159,127							X	X		X		
S-ACCS-CHAM	Chambers	0	0.35	165,41,0							X	X		X		
S-ACCS-EVTR	Elevators	0	0.35	0,165,165		X										
S-ACCS-GLRY	Galleries, cross overs, trenches, etc.	0	0.35	255,127,0	X						X			X		
S-ACCS-HTCH	Hatches	0	0.25	165,82,0	X				X				X	X		
S-ACCS-LADD	Ladders and ladder safety devices	0	0.35	0,41,165	X	X		X	X	X	X	X		X		
S-ACCS-MHOL	Manholes	0	0.35	103,165,82				X	X					X		
S-ACCS-MISC	Miscellaneous access	0	0.35	103,165,82				X	X					X		
S-ACCS-STRS	Stairs	0	0.35	82,165,165	X			X		X	X	X		X		
S-ACCS-STRS-FRMG	Stair framing	0	0.35	63,127,127		X		X		X	X	X		X		
S-ACCS-TUNL	Tunnels	0	0.35	165,124,0	X			X			X	X		X		
Armor																	
S-ARMR-CRNR	Corner protection, corner cap casting	0	0.25	82,145,165							X					
S-ARMR-LINR	Protective liner (used for walls, culverts, etc.)	0	0.25	0,165,124							X					
S-ARMR-MISC	Miscellaneous armor	0	0.25	82,145,165							X					
S-ARMR-WALL	Wall armor	0	0.25	82,145,165							X					
Beams																	
S-BEAM-CNTR	Beam centerlines	014200-914 Center Line	0.25	127,0,127		X				X	X	X	X	X		
S-BEAM-PRIM	Continuous beam or primary beam of two-way beam system	0	0.50	255,127,255		X				X	X	X	X	X		
S-BEAM-RBAR	Beam rebar	0	0.70	0,0,255		X				X	X	X	X	X		
S-BEAM-SECD	Girders or secondary beams of two-way beam system	0	0.35	165,0,165		X				X	X	X	X	X		
Bracing																	
S-BRCG-DIA~	Diagonal bracing	0	0.35	127,159,255		X				X		X	X			
S-BRCG-HORZ	Horizontal bracing	0	0.35	127,159,255		X				X		X	X			
S-BRCG-VERT	Vertical bracing	0	0.35	0,95,127		X				X		X	X			
Bridges																	
S-BRDG-ABUT	Abutments	0	0.50	103,165,82				X								
S-BRDG-ABUT-RBAR	Abutment rebar	0	0.70	0,0,255				X								
S-BRDG-BEAR	Bridge bearing	0	0.35	0,82,165				X		X						
S-BRDG-BEAR-CNTR	Bridge bearing centerlines	014200-914 Center Line	0.25	127,0,127				X		X						
S-BRDG-BENT	Bent cap	0	0.35	0,255,0				X								
S-BRDG-BENT-CNTR	Centerline of bents	014200-914 Center Line	0.25	127,0,127				X								
S-BRDG-BENT-RBAR	Bent cap rebar	0	0.70	0,0,255				X								
S-BRDG-CURB	Curbs/sidewalks on structure	0	0.35	255,200,0						X						
S-BRDG-DIAP	Diaphragms	0	0.35	0,0,255						X						
S-BRDG-DIAP-RBAR	Diaphragm rebar	0	0.70	0,0,255						X						
S-BRDG-DRNS	Drains	0	0.25	165,41,0					X	X						
S-BRDG-FENC	Fencing rails, fabric, supports, and gates	0	0.25	0,255,0						X						
S-BRDG-FEND	Fenders	0	0.35	95,127,63						X						
S-BRDG-GIRD	Girders	0	0.35	127,255,0						X						

Discipline: Structural

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types												
					Vertical Const			Bridges			Hydraulic Structures						
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Foundation Plan	Framing Plan	Column Plan	Substructure	Decks	Superstructure	Locks	Dams	Hydraulic Steel Structures	Flood Control/Misc. Small Civil Works Structures	Sections	Details
S-BRDG-GIRD-CNTR	Girder centerline	014200-914 Center Line	0.25	127,0,127						X						
S-BRDG-HEAD	Headers	0	0.35	0,165,82						X						
S-BRDG-PIER	Piers	0	0.50	103,165,82				X								
S-BRDG-STRG	Stringers	0	0.35	165,0,165						X						
Columns																
S-COLS-CNTR	Column centerlines/working lines	014200-914 Center Line	0.25	255,191,0			X	X								
S-COLS-POST	Short columns	0	0.35	47,76,38			X									
S-COLS-PRIM	Primary columns	0	0.35	0,255,0			X	X								
S-COLS-RBAR	Column rebar	0	0.70	0,0,255			X	X								
S-COLS-SECD	Secondary columns	0	0.35	31,127,0			X	X								
Decking																
S-DECK-BRDG	Bridge deck	0	0.35	165,41,0					X							
S-DECK-BRDG-RBAR	Bridge deck rebar	0	0.70	0,0,255					X							
S-DECK-FLOR	Floor deck	0	0.25	127,255,159		X										
S-DECK-FLOR-OPNG	Floor deck openings	014200-907 MS2 Medium Dash	0.25	255,0,0		X										
S-DECK-RBAR	Deck rebar	0	0.70	0,0,255		X										
S-DECK-ROOF	Roof deck	0	0.25	124,165,0		X										
S-DECK-ROOF-OPNG	Roof deck openings	0	0.25	255,0,0		X										
Equipment Pads and Foundations																
S-PADS-EQPM	Equipment pads	0	0.35	255,159,127	X						X	X				
Erosion Control																
S-EROS-BARR	Vapor/capillary water barriers	0	0.25	165,82,124	X						X	X		X		
S-EROS-GABN	Gabions	0	0.25	255,127,159							X	X		X		
S-EROS-PVMT	Slope paving	0	0.25	255,127,159							X	X		X		
S-EROS-RRAP	Riprap, stone protection, jetties, breakwaters	0	0.25	165,0,82							X	X		X		
Fasteners & Connections																
S-FSTN-ABLT	Anchor bolts	0	0.25	255,127,0	X	X		X	X	X	X	X	X	X		
S-FSTN-MISC	Fasteners and connections (non-specific)	0	0.25	165,82,82		X		X	X	X	X	X	X	X		
S-FSTN-PL~~	Connection plates (shear plates, gusset plates, etc.	0	0.25	165,82,82		X		X	X	X	X	X	X	X		
Foundation																
S-FNDN-ANCH	Anchor piles, blocks, strands, deadmen, soil/rock anchors	0	0.35	165,124,0	X			X			X	X		X		
S-FNDN-BLRD	Bollards, bollard foundations	0	0.35	165,124,0	X			X			X	X		X		
S-FNDN-CNTR	Foundation centerlines	014200-914 Center Line	0.25	127,95,0	X			X			X	X		X		
S-FNDN-DRNS	Foundation drainage features and objects	0	0.25	165,145,82	X			X			X	X		X		
S-FNDN-FTNG	Footings	0	0.35	165,124,0	X			X			X	X		X		
S-FNDN-FTNG-RBAR	Footing rebar	0	0.70	0,0,255	X			X			X	X		X		
S-FNDN-GRBM	Grade beams	0	0.50	165,165,0	X											
S-FNDN-PCAP	Pile caps	0	0.35	165,165,0							X	X		X		
S-FNDN-PEDS	Foundation pedestals/pads	0	0.35	255,223,127	X			X			X	X		X		
S-FNDN-PIER	Piers, drilled shafts, caissons	0	0.50	82,165,0	X							X		X		
S-FNDN-PILE	Piles	0	0.35	255,191,0	X			X			X	X		X		

Discipline: Structural

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types											
					Vertical Const			Bridges			Hydraulic Structures					
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Foundation Plan	Framing Plan	Column Plan	Substructure	Decks	Superstructure	Locks	Dams	Hydraulic Steel Structures	Flood Control/Misc. Small Civil Works Structures	Sections	Details
S-FNDN-PL~~	Column base plates	0	0.25	165,82,82	X			X			X	X		X		
S-FNDN-RIBS	Ribbed mat foundation	0	0.35	165,165,0	X						X	X		X		
S-FNDN-TRMT	Foundation treatment (grouting)	0	0.35	255,255,127	X			X			X	X		X		
S-FNDN-TUNL	Service tunnel/duct banks	0	0.35	165,124,0	X						X	X		X		
Gates																
S-GATE-ANCH	Gate anchorages	0	0.25	255,127,0									X	X		
S-GATE-ANCH-DEAD	Dead man anchorage	0	0.25	255,127,0									X			
S-GATE-ARMS	Arm	0	0.35	127,159,255									X			
S-GATE-AXIS	Gate axis and centerlines	014200-914 Center Line	0.25	127,0,127		X				X	X	X	X	X		
S-GATE-BLKH	Bulkhead	0	0.35	0,0,255									X			
S-GATE-BLKH-NDLB	Bulkhead needles beam	0	0.35	165,0,165									X			
S-GATE-BLKH-NDLS	Bulkhead needles	0	0.35	165,82,82									X			
S-GATE-CONN	Gate connects, links	0	0.35	255,127,0									X	X		
S-GATE-DIA~	Diagonals, gussets, sleeve nut	0	0.35	165,82,82									X			
S-GATE-DIA~-CHAN	Diagonal channels	0	0.35	165,82,82									X			
S-GATE-DIA~-GUST	Diagonal gusset plate	0	0.35	165,82,82									X			
S-GATE-DIA~-SUPT	Diagonal gusset plate support	0	0.35	165,82,82									X			
S-GATE-DIAP	Diaphragms	0	0.35	0,0,255									X			
S-GATE-FEND	Gate fenders	0	0.35	95,127,63									X			
S-GATE-FLNG	Flange	0	0.35	0,0,255									X			
S-GATE-FLNG-DNST	Downstream flange	0	0.35	0,0,255									X			
S-GATE-FLNG-GIRD	Girder flange	0	0.35	255,127,0									X			
S-GATE-FLNG-UPST	Upstream flange	0	0.35	0,0,255									X			
S-GATE-GIRD-WEB~	Girder web plates	0	0.35	0,41,165									X			
S-GATE-GUDG	Gudgeon	0	0.35	255,0,255									X			
S-GATE-GUDG-HOOD	Gudgeon hood	0	0.35	255,0,255									X			
S-GATE-GUDG-HUB~	Gudgeon hub	0	0.35	255,0,255									X			
S-GATE-GUDG-PIN~	Gudgeon pin	0	0.35	255,0,255									X			
S-GATE-GUDG-STIF	Gudgeon (hood) stiffener	0	0.35	255,0,255									X			
S-GATE-GUDG-SUPT	Gudgeon (pin) support	0	0.35	255,0,255									X			
S-GATE-HORZ	Horizontal rolled shapes	0	0.35	255,127,255									X			
S-GATE-ICST	Intercostals	0	0.35	0,165,165									X			
S-GATE-JACK	Gate jack	0	0.35	0,0,255									X			
S-GATE-JACK-HORZ	Gate jack - horizontal	0	0.35	0,0,255									X			
S-GATE-JACK-VERT	Gate jack - vertical	0	0.35	0,0,255									X			
S-GATE-LIFT	Lifting mechanism	0	0.35	0,124,165									X	X		
S-GATE-LTCH	Latching device	0	0.35	0,0,255									X			
S-GATE-LTCH-BOTM	Latching device - bottom	0	0.35	0,0,255									X			
S-GATE-LTCH-TOP~	Latching device - top	0	0.35	0,0,255									X			
S-GATE-LUBE	Lubrication system	0	0.25	0,0,255									X			
S-GATE-MISC	Gates incidental to structure	0	0.25	0,0,255							X	X		X		
S-GATE-MITR-ASSY	Miter guide assembly	0	0.35	0,82,165									X			
S-GATE-PIN~	Gate pins	0	0.25	255,127,0									X			
S-GATE-PNTL	Pintle ball, bushing & base	0	0.35	255,127,0									X			
S-GATE-PNTL-CAST	Pintle casting	0	0.35	124,165,0									X			
S-GATE-QOIN	Quoin	0	0.35	0,82,165									X			

Discipline: Structural

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types											
					Vertical Const			Bridges			Hydraulic Structures					
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Foundation Plan	Framing Plan	Column Plan	Substructure	Decks	Superstructure	Locks	Dams	Hydraulic Steel Structures	Flood Control/Misc. Small Civil Works Structures	Sections	Details
S-GATE-QOIN-FLNG	Quoin flange	0	0.35	0,82,165									X			
S-GATE-QOIN-MITR	Quion, miter	0	0.35	0,82,165									X			
S-GATE-QOIN-STIF	Quoin stiffener	0	0.35	0,82,165									X			
S-GATE-QOIN-TRST	Quoin thrust plate	0	0.35	0,82,165									X			
S-GATE-QOIN-WALL	Quoin, wall	0	0.35	0,82,165									X			
S-GATE-QOIN-WEB~	Quoin web	0	0.35	0,82,165									X			
S-GATE-RAIL	Rails and guides	0	0.35	0,82,165									X	X		
S-GATE-SEAL	Gate seal	0	0.35	165,0,82										X		
S-GATE-SEAL-HORZ	Gate seal - horizontal	0	0.35	165,0,82									X			
S-GATE-SEAL-VERT	Gate seal - vertical	0	0.35	165,0,82									X			
S-GATE-SHOE	Gate shoe	0	0.35	0,124,165									X			
S-GATE-SKIN	Skin plates	0	0.25	0,124,165									X			
S-GATE-STIF	Stiffener	0	0.35	0,0,255									X			
S-GATE-STIF-LONG	Stiffener - longitudinal	0	0.35	0,0,255									X			
S-GATE-STIF-TRAN	Stiffener - transverse	0	0.35	0,0,255									X			
S-GATE-STOP	Stoplogs	0	0.35	165,124,0									X	X		
S-GATE-THBL	Thimble	0	0.25	255,127,159									X	X		
S-GATE-TRST	Thrust plate	0	0.25	0,165,124									X			
S-GATE-TRUN	Trunion	0	0.35	255,0,255									X			
S-GATE-VALV	Valves (general shape)	0	0.35	124,0,165									X			
S-GATE-VERT	Rolled vertical shapes	0	0.35	0,95,127									X			
S-GATE-WALK	Walkway	0	0.35	0,165,165									X			
S-GATE-WALK-FRMG	Walkway - framing	0	0.35	0,165,165									X			
S-GATE-WALK-GRTG	Walkway - grating	0	0.35	0,165,165									X			
S-GATE-WALK-SUPT	Walkway - support	0	0.35	0,165,165									X			
S-GATE-WEB~	Web	0	0.35	0,41,165									X			
Grade Lines																
S-GRLN-SURF-E	Existing ground	014200-908 MS3 Long Dash	0.25	255,191,127	X			X			X	X		X		
S-GRLN-SURF-N	Finished grade	0	0.35	165,82,0	X			X			X	X		X		
S-WATR-SURF	Water surface	0	0.25	127,159,255	X			X			X	X		X		
Grids																
S-GRID-HORZ	Grid lines (horizontal)	014200-912 MS7 Long Dash Short Dash	0.18	255,0,255			X		X	X	X	X	X	X		
S-GRID-HORZ-IDEN	Column I.D. tags (horizontal)	0	0.25	255,0,255			X		X	X	X	X	X			
S-GRID-VERT	Grid lines (vertical)	014200-912 MS7 Long Dash Short Dash	0.18	255,0,255			X		X	X	X	X	X	X		
S-GRID-VERT-IDEN	Column I.D. tags (vertical)	0	0.25	255,0,255			X		X	X	X	X	X			
Hydraulic Features																
S-HYDR-AXIS	Axis of structure	014200-909 MS4 Dot Dash	0.18	124,0,165								X				

Discipline: Structural

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types											
					Vertical Const			Bridges			Hydraulic Structures					
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Foundation Plan	Framing Plan	Column Plan	Substructure	Decks	Superstructure	Locks	Dams	Hydraulic Steel Structures	Flood Control/Misc. Small Civil Works Structures	Sections	Details
S-HYDR-BAFL	Baffle blocks, splash pads	0	0.35	0,165,124							X	X		X		
S-HYDR-BASN	Stilling and settling basins	0	0.35	0,165,124								X		X		
S-HYDR-CHAN	Channel (Does not include earthen structures)	0	0.35	0,165,124										X		
S-HYDR-COFF	Cofferdam	0	0.35	165,124,0							X	X		X		
S-HYDR-COND	Diversionary/bypass conduits and culverts	0	0.35	0,165,124							X	X		X		
S-HYDR-DAM~	Dam	0	0.35	0,165,124								X		X		
S-HYDR-FISH	Fish ladder or passage	0	0.35	0,165,124								X		X		
S-HYDR-FLUM	Flume	0	0.35	0,165,124								X		X		
S-HYDR-INTK	Intake, outlet	0	0.35	0,165,124							X	X		X		
S-HYDR-NOVR	Non-overflow structures	0	0.35	0,165,124								X		X		
S-HYDR-PENS	Penstock outline and features	0	0.35	0,165,124								X				
S-HYDR-STRC-POWR	Powerhouse	0	0.35	0,127,95							X	X				
S-HYDR-SWAY	Spillway	0	0.35	0,165,124								X		X		
S-HYDR-WEIR	Weirs and sluiceways	0	0.35	0,165,124								X		X		
Joints																
S-JNTS-CNTJ	Construction/lift joints	0	0.25	0,165,124	X	X			X	X	X	X		X		
S-JNTS-CTLJ	Control/contraction joints (saw cut)	0	0.25	0,165,124	X	X			X		X	X		X		
S-JNTS-EXPJ	Expansion joints, joint materials (e.g., felt	0	0.25	0,127,95	X	X			X	X	X	X		X		
S-JNTS-STUC	Stucco joints	0	0.25	127,255,191		X										
S-JNTS-WTRS	Waterstops	0	0.25	255,127,223	X				X		X	X		X		
Joists																
S-JOIS-BRGX	Bridging	0	0.35	41,165,0		X										
S-JOIS-GIRD	Joist girders	0	0.50	0,165,124		X										
S-JOIS-PERI	Perimeter channel or rim joist	0	0.35	0,124,165		X										
S-JOIS-PRIM	Primary joists	0	0.35	0,165,165		X										
S-JOIS-SECD	Secondary joists	0	0.35	0,127,127		X										
S-JOIS-TRIM	Partial length or trimmer floor joist	0	0.35	0,127,127		X										
Fabrications (metal or other specialty)																
S-FABR-EMBD	Embedded metals (framing around openings)	0	0.35	103,82,165	X	X		X	X	X	X	X	X	X		
S-FABR-HOIS	Hoist structures	0	0.25	0,124,165						X	X	X	X	X		
S-FABR-HOOK	Line hooks, lifting hooks, check posts etc.	0	0.25	0,124,165							X	X		X		
S-FABR-MOOR	Mooring bits, chocks, rings	0	0.35	0,124,165							X	X		X		
S-FABR-PL~~	Plates	0	0.35	0,124,165	X	X		X	X	X	X	X	X	X		
S-FABR-TRSH	Trash racks, intake screens	0	0.35	0,124,165								X		X		
Pipes and Culverts																
S-PIPE-CULV	Precast/manufactured culverts	0	0.35	191,0,255										X		
Platforms																
S-PLAT-FRMG	Platform frame/stringers	0	0.35	165,0,165				X	X	X	X	X	X	X		
S-PLAT-GRTG	Platform grating (add a second minor group to indicate platform # or elev)	0	0.25	127,255,223		X		X	X		X	X	X	X		
S-PLAT-WALK	Platform walkway	0	0.35	165,124,82				X	X	X	X	X	X	X		
Reinforcement																
S-REIN-RBAR	Steel reinforcing, welded wire fabric	0	0.70	0,0,255	X	X	X	X	X	X	X	X		X		
S-REIN-TEND-HORZ	Horizontal Tendons	0	0.50	159,127,255					X	X			X			
S-REIN-TEND-VERT	Vertical Tendons	0	0.50	159,127,255					X	X			X			
Reference Outlines																

Discipline: Structural

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types												
					Vertical Const			Bridges			Hydraulic Structures						
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Foundation Plan	Framing Plan	Column Plan	Substructure	Decks	Superstructure	Locks	Dams	Hydraulic Steel Structures	Flood Control/Misc. Small Civil Works Structures	Sections	Details
S-OTLN-BLDG	Building outline	014200-911 MS6 Dash Dot Dot	0.25	0,0,255	X	X	X				X	X		X		
S-OTLN-FLOR	Floor outline	014200-911 MS6 Dash Dot Dot	0.25	0,0,255	X	X	X				X	X				
S-OTLN-OPNG	Openings	014200-911 MS6 Dash Dot Dot	0.25	0,0,255	X	X	X				X	X	X	X		
S-OTLN-ROOF	Roof	014200-911 MS6 Dash Dot Dot	0.25	0,0,255	X	X	X									
S-OTLN-STRC	Misc. structures	014200-911 MS6 Dash Dot Dot	0.25	0,0,255	X			X	X	X	X	X	X	X		
Safety Features																
S-SAFE-FENC	Fencing rails, fabric, supports, and gates	0	0.25	0,255,0					X		X	X		X		
S-SAFE-GRAL	Guardrails	0	0.35	124,165,0					X	X	X	X		X		
S-SAFE-HRAL	Handrails, railings	0	0.25	0,255,0					X	X	X	X	X	X		
S-SAFE-PRPT	Parapet/jersey barrier	0	0.50	0,255,0					X	X	X			X		
S-SAFE-PRPT-RBAR	Parapet/jersey barrier rebar	0	0.70	0,0,255					X	X	X			X		
S-SAFE-WATR	Waterway safety barriers	0	0.35	0,255,0					X		X	X		X		
Signs																
S-SIGN-BUOY	Sign buoys	0	0.35	165,0,41								X				
S-SIGN-EXTN	Extrusions	0	0.35	165,0,165		X										
S-SIGN-FRMG	Framing and connections	0	0.35	0,255,0		X										
S-SIGN-GAGE	Staff gages	0	0.35	165,0,82							X	X				
S-SIGN-PANL	Sign panels	0	0.35	165,0,82		X				X	X					
S-SIGN-SPRT	Supports	0	0.35	0,0,255		X										
S-SIGN-TEXT	Signage text	0	0.35	165,0,124		X										
Slabs																
S-SLAB-APPR	Approach slab	0	0.35	255,223,127						X						
S-SLAB-APPR-RBAR	Approach slab rebar	0	0.70	0,0,255						X						
S-SLAB-EDGE	Edge of slab	0	0.35	255,223,127	X				X	X	X	X		X		
S-SLAB-OPNG	Openings (and depressions)	014200-907 MS2 Medium Dash	0.25	255,0,0	X				X	X	X	X		X		
S-SLAB-RBAR	Slab rebar	0	0.70	0,0,255	X				X	X	X	X		X		
S-SLAB-SECD	Second pour, slab cap	0	0.35	255,223,127	X				X	X	X	X		X		
S-SLAB-SILL	Sill	0	0.35	255,223,127	X				X	X	X	X		X		
Stiffeners																
S-STIF-LONG	Stiffeners - longitudinal	0	0.35	0,255,0		X				X			X			
S-STIF-TRAV	Stiffeners - transverse	0	0.35	0,255,0		X				X			X			
Trusses																
S-TRUS-BRGX	Truss bridging	0	0.35	41,165,0		X				X		X				
S-TRUS-PRIM	Primary trusses	0	0.50	0,255,255		X				X		X				

Discipline: Structural

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types											
					Vertical Const			Bridges			Hydraulic Structures					
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Foundation Plan	Framing Plan	Column Plan	Substructure	Decks	Superstructure	Locks	Dams	Hydraulic Steel Structures	Flood Control/Misc. Small Civil Works Structures	Sections	Details
S-TRUS-SECD	Secondary trusses	0	0.35	255,0,255		X				X		X				
Walls																
S-WALL-ABUT	Abutments	0	0.35	103,165,82				X				X		X		
S-WALL-CELL	Cell	0	0.35	165,165,82							X					
S-WALL-COFF	Cutoff wall	0	0.35	255,127,0				X			X	X		X		
S-WALL-CURT	Curtain/breast wall	0	0.35	82,165,0				X				X		X		
S-WALL-FULL	Wall going to the top of the structure	0	0.35	0,255,0		X					X			X		
S-WALL-GARD	Guard/guide walls	0	0.35	82,165,0							X	X		X		
S-WALL-LOAD	Load bearing walls	0	0.35	0,255,0	X	X										
S-WALL-MONO	Wall monoliths	0	0.35	0,255,0							X	X				
S-WALL-MSE~	Mechanically stabilized earth (MSE) wall	0	0.35	82,165,0				X								
S-WALL-NONL	Non-load bearing walls	0	0.35	82,165,0	X	X										
S-WALL-PCST	Pre-cast concrete walls	0	0.35	0,76,57	X	X										
S-WALL-PRHT	Wall that does not reach to the top of the structure	0	0.35	82,165,0		X					X			X		
S-WALL-RBAR	Wall rebar	0	0.70	0,0,255							X	X		X		
S-WALL-RTWL	Retaining wall (flood walls, wingwalls, etc.)	0	0.35	82,165,0				X				X		X		
S-WALL-SHEA	Shear walls	0	0.35	127,255,159	X	X										
S-WALL-STUD	Stud walls	0	0.35	165,124,0	X	X										
Waterway Specialties																
S-WWAY-DLPH	Dolphins (associated with but not part of bridges, locks and guidewalls)	0	0.35	0,165,124				X			X	X		X		
S-WWAY-FEND	Fenders	0	0.35	95,127,63				X			X	X		X		
S-WWAY-MOOR	Mooring cells	0	0.35	0,124,165				X			X	X		X		
Sections																
S-SECT-IDEN	Component identification numbers	0	0.35	255,200,0											X	
S-SECT-MBND	Material beyond section cut	0	0.18	0,0,255											X	
S-SECT-MCUT	Material cut by section	0	0.35	255,255,255											X	
S-SECT-PATT	Textures and hatch patterns	0	0.18	128,128,128											X	
Details																
S-DETL-GRPH	Graphics, gridlines, non-text items	0	0.35	255,255,255												X

Discipline: Architectural

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types							
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Floor Plan	Reflected Ceiling Plan	Roof Plan	Equipment Plan	Area Calculations/Occupancy Plan	Elevations	Sections	Details
General Information	**See Discipline: General (page A3) for a list of available Annotation layers/levels**											
Area Information												
A-AREA-IDEN	Room numbers, tenant identifications, area calculations	0	0.35	255,200,0					X			
A-AREA-LINE	Architectural area calculation boundary lines	0	0.50	0,255,255					X			
A-AREA-OCCP	Occupant or employee names	0	0.35	255,200,0					X			
A-AREA-PATT	Area cross hatching	0	0.18	128,128,128					X			
Barrier												
A-BARR-AIR~	Air barrier	0	0.25	0,0,255	X							
Ceiling Information												
A-CLNG-ACCS	Access panels	0	0.35	255,0,255		X						
A-CLNG-CTLJ	Ceiling control joints	0	0.35	255,200,0		X						
A-CLNG-GRID	Ceiling grid	0	0.25	255,0,0		X						
A-CLNG-LITE	Specialty ceiling lights not shown on the Electrical Lighting Plan	0	0.50	0,255,255		X						
A-CLNG-OPNG	Openings, ceiling/roof penetrations (see also A-FLOR-OVHD in Floor Plan model file)	0	0.18	128,128,128		X						
A-CLNG-PATT	Ceiling patterns	0	0.18	128,128,128		X						
A-CLNG-SFFT	Soffits	0	0.25	255,200,0		X						
A-CLNG-SUSP	Suspended elements, ceiling mounted specialties (e.g., clocks, fans, etc.)	0	0.18	0,0,255		X						
A-CLNG-TEES	Main tees	0	0.18	0,0,255		X						
Columns												
A-COLS-ENCL	Column enclosures/fire protection	0	0.50	0,255,255	X							
Doors												
A-DOOR-FULL	Full height (to ceiling) door: swing and leaf	0	0.25	0,255,0	X							
A-DOOR-IDEN	Door number and symbol, hardware group, etc.	0	0.25	0,255,0	X							
A-DOOR-PRHT	Partial height door: swing and leaf	0	0.35	255,0,255	X							
A-DOOR-SYMB	Miscellaneous door symbols (e.g., overhead, bifold, pocket, etc.)	0	0.25	255,0,0	X							
Equipment												
A-EQPM-ACCS	Equipment access	0	0.35	255,0,255				X				
A-EQPM-FIXD	Fixed equipment	0	0.50	0,255,255				X				
A-EQPM-IDEN	Equipment identification numbers	0	0.35	255,0,255				X				
A-EQPM-MOVE	Moveable equipment	0	0.35	255,0,255				X				
A-EQPM-OVHD	Overhead, ceiling mounted, or suspended equipment	0	0.35	255,0,255				X				
Floor Information												
A-FLOR-CSWK	Casework (manufactured cabinets)	0	0.25	0,255,0	X							
A-FLOR-EVTR	Elevator cars and equipment	0	0.35	255,200,0	X							
A-FLOR-FIXT	Plumbing fixtures	0	0.25	223,127,255	X							
A-FLOR-FTPT	Floor/building footprint	0	0.70	0,255,255	X							
A-FLOR-HRAL	Stair and balcony handrails, guard rails	0	0.25	255,0,0	X							
A-FLOR-IDEN	Room name, space identification text	0	0.35	0,255,0	X							
A-FLOR-LEVL	Level changes, shafts, ramps, pits, breaks in construction, and depressions	0	0.35	255,0,255	X							
A-FLOR-NUMB	Room/space identification number and symbol	0	0.35	0,255,0	X							
A-FLOR-OVHD	Overhead items (overhangs, etc.)	014200-907 MS2 Medium Dash	0.18	128,128,128	X							
A-FLOR-PATT	Paving, tile, carpet patterns	0	0.18	128,128,128	X							
A-FLOR-PERI	Room perimeter shape (interior walls)	0	0.35	255,200,0	X							
A-FLOR-RAIS	Access (raised) flooring	0	0.25	0,255,0	X							
A-FLOR-SIGN	Signage	0	0.25	255,0,0	X							

Discipline: Architectural

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types							
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Floor Plan	Reflected Ceiling Plan	Roof Plan	Equipment Plan	Area Calculations/Occupancy Plan	Elevations	Sections	Details
A-FLOR-SPCL	Architectural specialties (e.g., toilet room accessories, display cases)	0	0.25	0,255,0	X							
A-FLOR-STRS	Stair risers/treads, escalators, ladders	0	0.25	255,0,0	X							
A-FLOR-TPTN	Toilet partitions	0	0.25	255,0,0	X							
A-FLOR-WDWK	Architectural woodwork (field built cabinets and counters)	0	0.25	0,255,0	X							
Windows												
A-GLAZ-FULL	Full height glazed walls and partitions (see A-WALL-CURT for curtain walls)	0	0.25	255,0,0	X							
A-GLAZ-IDEN	Window number and symbol	0	0.35	0,255,0	X							
A-GLAZ-PRHT	Windows and partial height glazed partitions	0	0.25	255,0,0	X							
A-GLAZ-SILL	Window sills	0	0.18	0,0,255	X							
Roof Information												
A-ROOF-CRKT	Crickets flow arrows flow info	0	0.25	255,0,0			X					
A-ROOF-DRNS	Roof drains	0	0.25	255,0,0			X					
A-ROOF-EXPJ	Expansion joints	0	0.18	0,0,255			X					
A-ROOF-GUTR	Roof internal gutters	0	0.18	128,128,128			X					
A-ROOF-HRAL	Stair handrails, nosings, guard rails	0	0.18	0,0,255			X					
A-ROOF-LEVL	Level changes	0	0.18	0,0,255			X					
A-ROOF-OTLN	Roof perimeter/edge, roof geometry	0	0.35	255,0,255			X					
A-ROOF-PATT	Roof surface patterns, hatching	0	0.18	128,128,128			X					
A-ROOF-PRPT	Parapet walls and wall caps	0	0.35	255,200,0			X					
A-ROOF-SKLT	Skylights	014200-907 MS2 Medium Dash	0.18	128,128,128			X					
A-ROOF-SPCL	Roof specialties, accessories, access hatches, dormers	0	0.25	0,255,0			X					
A-ROOF-STRS	Stair risers/treads, ladders	0	0.18	0,0,255			X					
A-ROOF-WALK	Roof walkways	0	0.25	0,255,0			X					
Walls												
A-WALL-CAVI	Cavity wall lines	0	0.18	128,128,128	X							
A-WALL-CNTR	Wall centerlines	014200-914 Center Line	0.25	0,0,255	X							
A-WALL-CURT	Curtain wall mullions and glass	0	0.25	255,0,0	X							
A-WALL-FIRE	Fire wall designators (patterning)	0	0.35	255,200,0	X							
A-WALL-FULL-EXTR	Exterior full height walls	0	0.35	255,200,0	X							
A-WALL-FULL-INTR	Interior full height walls	0	0.25	0,255,0	X							
A-WALL-HEAD	Door and window headers	0	0.25	255,0,0	X							
A-WALL-IDEN	Wall identification/type text or tags	0	0.35	0,255,0	X							
A-WALL-JAMB	Door and window jambs	0	0.25	255,0,0	X							
A-WALL-MESH	Mesh or wire wall	0	0.18	0,0,255	X							
A-WALL-MOVE	Moveable walls/partitions	0	0.18	0,0,255	X							
A-WALL-OPNG-LVRS	Louvers	0	0.25	255,0,0	X							
A-WALL-PATT	Wall insulation, hatching, and fill	0	0.18	128,128,128	X							
A-WALL-PRHT	Partial height walls (do not appear on Reflected Ceiling Plan)	0	0.25	255,0,0	X							
A-WALL-SPCL	Wall-hung/attached specialties (e.g., fixtures, grab bars (incl. handicap), telephone booths)	0	0.25	255,0,0	X							
Elevations												
A-ELEV-IDEN	Component identification numbers	0	0.35	255,200,0						X		
A-ELEV-OTLN	Outlines	0	0.50	0,255,255						X		
A-ELEV-PATT	Textures and hatch patterns	0	0.18	128,128,128						X		
Sections												

Discipline: Architectural

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types							
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Floor Plan	Reflected Ceiling Plan	Roof Plan	Equipment Plan	Area Calculations/Occupancy Plan	Elevations	Sections	Details
A-SECT-IDEN	Component identification numbers	0	0.35	255,200,0							X	
A-SECT-MBND	Material beyond section cut	0	0.18	0,0,255							X	
A-SECT-MCUT	Material cut by section	0	0.35	255,255,255							X	
A-SECT-PATT	Textures and hatch patterns	0	0.18	128,128,128							X	
Detail Information												
A-DETL-GRPH	Graphics, gridlines, non-text items	0	0.35	255,255,255								X

Discipline: Interiors

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types					
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Furniture Plan	System Furniture Plan	Signage Placement Plan	Floor Patterns	Elevations	Details
General Information	**See Discipline: General (page A3) for a list of available Annotation layers/levels**									
Carpet/Carpet Tile										
I-CRPT-ROLL-ACNT	Carpet (roll goods) - accent color	0	0.35	255,0,0				X		
I-CRPT-ROLL-FILD	Carpet (roll goods) - field color	0	0.35	191,255,0				X		
I-CRPT-TILE-ACN1	Carpet tile - accent color	0	0.35	28,0,38				X		
I-CRPT-TILE-ACN2	Carpet tile - accent color	0	0.35	76,0,38				X		
I-CRPT-TILE-FILD	Carpet tile - field color	0	0.35	95,0,127				X		
Equipment										
I-EQPM-ACCS	Equipment access	014200-907 MS2 Medium Dash	0.18	128,128,128	X					
I-EQPM-CHLD	Child development (play toys, teaching rugs, play forms)	0	0.35	255,200,0	X					
I-EQPM-COPY	Copiers, fax machines, office equipment	0	0.35	255,200,0	X					
I-EQPM-FIXD	Fixed equipment	0	0.18	0,0,255	X					
I-EQPM-IDEN	Equipment identification numbers	0	0.25	255,0,0	X					
I-EQPM-MEDI	Medical (exam beds, dental chairs, etc.)	0	0.35	255,200,0	X					
I-EQPM-MOVE	Moveable equipment	014200-907 MS2 Medium Dash	0.18	0,0,255	X					
I-EQPM-OVHD	Overhead, ceiling mounted, and suspended equipment	0	0.25	0,255,0	X					
I-EQPM-STOR	Storage equipment	0	0.35	255,200,0	X					
Signage										
I-FLOR-SIGN	Signage	0	0.35	255,0,255			X			
Flooring Items and Materials										
I-FLRG-CONC	Concrete flooring	0	0.35	128,128,128				X		
I-FLRG-MATS	Entrance mat components and frames	0	0.35	0,255,255				X		
I-FLRG-STON	Stone flooring	0	0.35	82,124,165				X		
I-FLRG-TRAN	All floor thresholds and transition moldings	0	0.35	0,0,255				X		
I-FLRG-WOOD	Wood parquet tile or planks	0	0.35	165,41,0				X		
Furnishings										
I-FURN-ACCS	Accessories (vestibule matts, partitions, draperies, clocks, trash cans, lecturns, lamps, etc.)	0	0.25	255,0,0	X					
I-FURN-ADPC	Automated Data Processing Components	0	0.35	255,200,0	X					
I-FURN-ARTW	Artwork	0	0.35	255,200,0	X					
I-FURN-FLOR	Flooring (carpet, rugs, etc.)	0	0.35	255,200,0	X					
I-FURN-FREE	Free-standing furnishings (desks, beds, tables, dressers, credenzas, casegoods)	0	0.35	255,0,255	X					
I-FURN-GRID	Planning grid/modular outline	0	0.50	0,255,255	X					
I-FURN-IDEN	Furniture code identification	0	0.25	0,255,0	X					
I-FURN-PLNT	Plants	0	0.25	0,255,0	X					
I-FURN-SEAT	Seating (chairs, sofas, etc.)	0	0.35	255,200,0	X					
I-FURN-STOR	File cabinets, high density storage, shelving, storage cabinets	0	0.35	255,200,0	X					
Monolithic (Poured or Broadcast) Flooring										
I-MONO-SRFL-ACNT	Seamless resinous flooring - accent color	0	0.35	145,82,165				X		
I-MONO-SRFL-FILD	Seamless resinous flooring - field color	0	0.35	192,192,192				X		
I-MONO-TERR-ACN1	Terrazzo - accent color	0	0.35	0,95,127				X		
I-MONO-TERR-ACN2	Terrazzo - accent color	0	0.35	66,76,38				X		
I-MONO-TERR-FILD	Terrazzo - field color	0	0.35	88,19,28				X		
Resilient Flooring										
I-SHTP-ACNT	Sheet product (vinyl/rubber/linoleum) - accent color	0	0.35	127,0,255				X		

Discipline: Interiors

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types					
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Furniture Plan	System Furniture Plan	Signage Placement Plan	Floor Patterns	Elevations	Details
I-SHTP-FILD	Sheet product (vinyl/rubber/linoleum) - field color	0	0.35	255,127,159				X		
System Furniture										
I-SYST-FURN	Furniture	0	0.35	255,200,0		X				
I-SYST-IDEN	Code identification components	0	0.25	255,0,0		X				
I-SYST-IDPL	Code identification panels	0	0.25	255,0,0		X				
I-SYST-LITE	Lighting components	0	0.50	0,255,255		X				
I-SYST-PATT	Patterns	0	0.18	128,128,128		X				
I-SYST-PNLS	Panels	0	0.35	255,200,0		X				
I-SYST-POWR	Power, communication components	0	0.50	0,255,255		X				
I-SYST-STOR	Storage components	0	0.35	255,200,0		X				
I-SYST-WALL	System furniture partition walls	0	0.35	255,200,0		X				
I-SYST-WKSF	Work surface components	0	0.35	255,200,0		X				
Tile										
I-TILE-CERM-ACNT	Ceramic mosaic tile - accent color	0	0.35	82,124,165				X		
I-TILE-CERM-FILD	Ceramic mosaic tile - field color	0	0.35	0,127,95				X		
I-TILE-LINO-ACNT	Linoleum tile - accent color	0	0.35	76,0,38				X		
I-TILE-LINO-FILD	Linoleum tile - field color	0	0.35	191,255,0				X		
I-TILE-PORC-ACN1	Porcelain tile - accent color	0	0.35	19,38,0				X		
I-TILE-PORC-ACN2	Porcelain tile - accent color	0	0.35	192,192,192				X		
I-TILE-PORC-FILD	Porcelain tile - field color	0	0.35	0,38,28				X		
I-TILE-QUAR-ACNT	Quarry tile - accent color	0	0.35	255,200,0				X		
I-TILE-QUAR-FILD	Quarry tile - field color	0	0.35	255,127,0				X		
I-TILE-RUBB-ACNT	Rubber tile - accent color	0	0.35	88,19,88				X		
I-TILE-RUBB-FILD	Rubber tile - field color	0	0.35	255,63,0				X		
I-TILE-TERR-ACN1	Terrazzo tile - accent color	0	0.35	0,95,127				X		
I-TILE-TERR-ACN2	Terrazzo tile - accent color	0	0.35	66,76,38				X		
I-TILE-TERR-ACN3	Terrazzo tile - accent color	0	0.35	255,127,223				X		
I-TILE-TERR-FILD	Terrazzo tile - field color	0	0.35	88,19,28				X		
I-TILE-VNYL-ACN1	Vinyl or Vinyl composition tile - accent color	0	0.35	145,82,165				X		
I-TILE-VNYL-ACN2	Vinyl or Vinyl composition tile - accent color	0	0.35	63,127,95				X		
I-TILE-VNYL-FILD	Vinyl or Vinyl composition tile - field color	0	0.35	23,38,19				X		
Elevations										
I-ELEV-IDEN	Component identification numbers	0	0.25	255,0,0					X	
I-ELEV-OTLN	Outlines	0	0.50	0,255,255					X	
I-ELEV-PATT	Textures and hatch patterns	0	0.18	0,0,255					X	
Detail Information										
I-DETL-GRPH	Graphics, gridlines, non-text items	0	0.35	255,255,255						X

Patterning used within each material to differentiate colors shall match the color and level of the material.

Discipline: Fire Protection

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types			
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Life Safety Plan	Fire Suppression Plan	Fire Alarm/Detection Plan	Details
General Information	**See Discipline: General (page A3) for a list of available Annotation layers/levels**							
Aqueous Film Forming Foam System								
F-AFFF-EQPM	Equipment	0	0.35	255,0,0		X		
F-AFFF-PIPE	Piping	0	0.35	255,0,0		X		
CO2 Sprinkler System								
F-CO2S-EQPM	Equipment	0	0.35	255,0,0		X		
F-CO2S-PIPE	CO2 piping or CO2 discharge nozzle piping	0	0.35	255,0,0		X		
Control Panels								
F-CTRL-PANL	Control panels	0	0.50	165,103,82	X		X	
Floor Information								
F-FLOR-IDEN	Room name, space identification text (copied from Architectural - Floor Plan model file)	0	0.25	0,255,0	X	X	X	
F-FLOR-NUMB	Room/space identification number and symbol (copied from Architectural - Floor Plan model file)	0	0.25	0,255,0	X	X	X	
Halon System								
F-HALN-EQPM	Equipment	0	0.35	255,0,0		X		
F-HALN-PIPE	Piping	0	0.35	255,0,0		X		
Inert Gas								
F-IGAS-EQPM	Equipment	0	0.35	255,0,0		X		
F-IGAS-PIPE	Piping	0	0.35	255,0,0		X		
Means of Egress Lighting								
F-LITE-EMER	Emergency fixtures	0	0.50	165,103,82	X			
F-LITE-EXIT	Exit fixtures	0	0.50	145,82,165	X			
Egress Requirements								
F-LSFT-EGRE	Egress requirements designator	0	0.35	255,0,255	X			
F-LSFT-OCCP	Occupant load for egress capacity	0	0.35	255,0,255	X			
F-LSFT-TRVL	Maximum travel distances	0	0.35	255,0,255	X			
Fire Protection System								
F-PROT-ALRM-INDC	Indicating appliances	0	0.50	103,165,82			X	
F-PROT-ALRM-MANL	Manual fire alarm pull stations	0	0.50	165,103,82	X		X	
F-PROT-EXTI	Fire extinguishers	0	0.35	255,200,0	X			
F-PROT-EXTI-CABN	Fire extinguisher cabinets	0	0.35	255,200,0	X			
F-PROT-HOSE	Fire hoses	0	0.35	255,200,0	X			
F-PROT-HOSE-CABN	Fire hose cabinets	0	0.35	255,200,0	X			
F-PROT-RATE-DOOR	Door fire ratings	0	0.50	0,255,255	X			
F-PROT-RATE-WALL	Wall fire ratings	0	0.50	0,255,255	X			
F-PROT-SMOK	Smoke detectors and heat sensors	0	0.50	165,103,82			X	
Smoke/Pressurization Control								
F-SMOK-DMPR	Dampers	0	0.35	165,41,0	X		X	
Sprinkler System								
F-SPKL-CLHD	Sprinkler - ceiling heads	0	0.35	255,0,0		X		
F-SPKL-OTHD	Sprinkler - other heads	0	0.35	255,0,0		X		
F-SPKL-PIPE	Sprinkler piping	211300-901 Fire Protection - Supply	0.50	255,0,0		X		
F-SPKL-STAN	Standpipe system	0	0.35	255,0,0		X		
Water Supply and Distribution								
F-WATR-HYDT	Hydrants and connections	0	0.35	255,0,0		X		

Discipline: Fire Protection

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types			
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Life Safety Plan	Fire Suppression Plan	Fire Alarm/Detection Plan	Details
F-WATR-PIPE	Piping	331100-907 Fire Protection Water Supply	0.50	255,0,0		X		
F-WATR-PUMP	Fire pumps	0	0.35	255,0,0		X		
Detail Information								
F-DETL-GRPH	Graphics, gridlines, non-text items	0	0.35	255,255,255				X

Discipline: Plumbing

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types		
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Piping Plan	Riser Diagrams	Details
General Information	**See Discipline: General (page A3) for a list of available Annotation layers/levels**						
Domestic Water System							
P-DOMW-CPIP	Cold water piping	221100-901 Domestic Water - Cold	0.50	0,255,255	X		
P-DOMW-EQPM	Hot and cold water equipment	0	0.70	0,255,255	X		
P-DOMW-EQPM-ACCS	Equipment access doors	0	0.35	0,255,255	X		
P-DOMW-FPIP	Domestic filtered water piping	0	0.50	0,255,255	X		
P-DOMW-HPIP	Hot water piping	221100-905 Domestic Water - Hot - Supply	0.50	0,255,255	X		
P-DOMW-RISR	Hot and cold water risers	014200-907 MS2 Medium Dash	0.25	0,255,255	X		
Floor Information							
P-FLOR-IDEN	Room name, space identification text (copied from Architectural - Floor Plan model file)	0	0.25	0,255,0	X		
P-FLOR-NUMB	Room/space identification number and symbol (copied from Architectural - Floor Plan model file)	0	0.25	0,255,0	X		
Graywater System							
P-GRAY-EQPM	Equipment	0	0.70	124,0,165	X		
P-GRAY-PIPE	Graywater piping	221300-903 Gray Water	0.50	124,0,165	X		
Laboratory Gas Piping							
P-LGAS-DH2O	Distilled water piping	226700-902 Water - Distilled	0.50	255,63,0	X		
P-LGAS-DIS~	Deionized water piping	226700-901 Water - Deionized	0.50	255,63,0	X		
P-LGAS-EQPM	Equipment	0	0.70	255,63,0	X		
P-LGAS-H2~~	Hydrogen piping	401600-905 Hydrogen	0.50	255,63,0	X		
P-LGAS-HE~~	Helium piping	401600-902 Helium	0.50	255,63,0	X		
P-LGAS-NITG	Nitrogen piping	401600-907 Nitrogen	0.50	255,63,0	X		
P-LGAS-OXYG	Pure O2 piping	401600-906 Oxygen	0.50	255,63,0	X		
Medical/Dental Gas Piping							
P-MDGS-CAIR	Compressed air	221500-901 Air - Compressed	0.50	0,0,255	X		
P-MDGS-EQPM	Equipment	0	0.70	255,200,0	X		
P-MDGS-NITG	Nitrogen piping	401600-907 Nitrogen	0.50	255,200,0	X		

Discipline: Plumbing

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types		
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Piping Plan	Riser Diagrams	Details
P-MDGS-NOXG	Nitrous oxide piping	401600-904 Nitrous Oxide	0.50	255,200,0	X		
P-MDGS-OXYG	Pure O2 piping	401600-906 Oxygen	0.50	255,200,0	X		
P-MDGS-SAIR	Scavenge air	0	0.50	255,200,0	X		
P-MDGS-VACU	Medical vacuum piping	226200-901 Vacuum - Air	0.50	0,0,255	X		
Penetrations							
P-FLOR-PENE	Floor penetrations	014200-907 MS2 Medium Dash	0.25	0,255,0	X		
P-ROOF-PENE	Roof penetrations	014200-907 MS2 Medium Dash	0.25	255,0,0	X		
P-WALL-PENE	Wall penetrations	014200-907 MS2 Medium Dash	0.25	255,200,0	X		
Sanitary Sewer							
P-SSWR-CNDS	Condensate piping	0	0.50	255,127,191	X		
P-SSWR-EQPM	Equipment (e.g., sand/oil/water separators)	0	0.70	0,255,0	X		
P-SSWR-DRNS	Floor drains, sinks, and cleanouts	0	0.35	0,255,0	X		
P-SSWR-PIPE	Piping	221300-905 Sanitary Waste	0.50	0,255,0	X		
P-SSWR-RISR	Sanitary risers	014200-907 MS2 Medium Dash	0.50	0,255,0	X		
P-SSWR-VENT	Vent piping	221300-904 Vent	0.50	0,255,0	X		
Storm Drainage System							
P-STRM-PIPE	Storm drain piping	221400-901 Drain - Storm	0.50	0,255,0	X		
P-STRM-DRNS	Roof drains	0	0.50	0,255,0	X		
P-STRM-RISR	Storm drain risers	014200-907 MS2 Medium Dash	0.50	0,255,0	X		
Diagram Information							
P-DIAG-GRPH	Graphics, gridlines, non-text items	0	0.35	255,255,255		X	
Detail Information							
P-DETL-GRPH	Graphics, gridlines, non-text items	0	0.35	255,255,255			X

Discipline: Mechanical

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types									
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	HVAC Plan	Specialty Piping and Equipment	Hydraulic Systems	HTCW Utilities Plan	Material Handling	Machine Design	Control Diagrams	Elevations	Sections	Details
General Information	**See Discipline: General (page A3) for a list of available Annotation layers/levels**													
Industrial Waste Piping														
M-ACID-EQPM	Acid, alkaline, and oil waste equipment	0	0.35	255,63,0		X								
M-ACID-PIPE	Acid, alkaline, and oil waste piping	402500-901 Waste - Acid	0.50	255,63,0		X								
M-ACID-VENT	Acid, alkaline, and oil waste vent piping	014200-907 MS2 Medium Dash	0.50	255,63,0		X								
Anti-Freeze														
M-AFRZ-EQPM	Anti-freeze equipment	0	0.35	255,63,0		X	X							
M-AFRZ-SPLY-PIPE	Anti-freeze supply piping	0	0.50	255,63,0		X	X							
M-AFRZ-WAST-PIPE	Anti-freeze waste piping	0	0.50	255,63,0		X	X							
Brine System														
M-BRIN-EQPM	Brine system equipment	0	0.35	0,255,0		X								
M-BRIN-RETN-PIPE	Brine system return piping	232100-901 Brine - Return	0.50	0,255,0		X								
M-BRIN-SPLY-PIPE	Brine system supply piping	232100-902 Brine - Supply	0.50	0,255,0		X								
Chemical Treatment System														
M-CHEM-EQPM	Chemical treatment system equipment	0	0.35	255,63,0	X									
M-CHEM-RETN-PIPE	Chemical treatment system return piping	0	0.50	255,63,0	X									
M-CHEM-SPLY-PIPE	Chemical treatment system supply piping	0	0.50	255,63,0	X									
Compressed Air														
M-CMPA-EQPM	Equipment	0	0.70	0,0,255		X								
M-CMPA-PIPE	Piping	221500-901 Air - Compressed	0.50	0,0,255		X								
Condenser Water System														
M-CNDW-EQPM	Condenser water system equipment	0	0.35	0,255,0	X									
M-CNDW-RETN-PIPE	Condenser water system return piping	232200-901 Condenser Water - Return	0.50	0,255,0	X									
M-CNDW-SPLY-PIPE	Condenser water system supply piping	232200-902 Condenser Water - Supply	0.50	0,255,0	X									
Controls														
M-CONT-THER	Thermostats	0	0.25	255,0,0	X		X							
M-CONT-WIRE	Low voltage wiring	014200-907 MS2 Medium Dash	0.25	255,0,0	X									
Chilled Water System														
M-CWTR-CNDS	Condensate piping	232200-904 Condensate - Drain	0.50	255,127,191	X									
M-CWTR-EQPM	Chilled water equipment	0	0.35	0,0,255	X									

Discipline: Mechanical

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types									
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	HVAC Plan	Specialty Piping and Equipment	Hydraulic Systems	HTCW Utilities Plan	Material Handling	Machine Design	Control Diagrams	Elevations	Sections	Details
M-CWTR-RETN-PIPE	Chilled water return piping	331100-901 Chilled Water - Return	0.50	0,0,255	X									
M-CWTR-SPLY-PIPE	Chilled water supply piping	331100-902 Chilled Water - Supply	0.50	0,0,255	X									
Culvert Valves														
M-CVAL-BASE	Culvert valve machinery base	0	0.35	255,200,0			X							
M-CVAL-BEAM	Culvert valve beams	0	0.35	255,200,0			X							
M-CVAL-CYLD	Culvert valve machinery cylinder (outline not for details)	0	0.35	63,255,0			X							
M-CVAL-SEAL	Culvert valve seals	0	0.35	0,255,0			X							
M-CVAL-SKIN	Culvert valve skin plate	0	0.35	255,0,0			X							
M-CVAL-STIF	Stiffener plates, angles, etc.	0	0.35	0,255,255			X							
M-CVAL-TRUN	Culvert valve trunnion beam	0	0.35	255,0,255			X							
Dual Temperature System														
M-DUAL-EQPM	Dual temperature system equipment	0	0.35	255,0,255	X									
M-DUAL-RETN-PIPE	Dual temperature system return piping	232100-903 Dual Temperature - Return	0.50	255,0,255	X									
M-DUAL-SPLY-PIPE	Dual temperature system supply piping	232100-904 Dual Temperature - Supply	0.50	255,0,255	X									
Dust and Fume Collection Systems														
M-DUST-DUCT	Dust and fume ductwork	0	0.50	145,82,165	X									
M-DUST-DUCT-CNTR	Dust and fume ductwork centerlines	014200-914 Center Line	0.25	0,0,255	X									
M-DUST-EQPM	Dust and fume equipment	0	0.35	145,82,165	X									
M-DUST-GRIL	Dust and fume grilles	0	0.35	145,82,165	X									
Exhaust Air System														
M-EXHS-DUCT	Exhaust ductwork	0	0.50	103,165,82	X		X							
M-EXHS-DUCT-CNTR	Exhaust ductwork centerlines	014200-914 Center Line	0.25	0,0,255	X		X							
M-EXHS-EQPM	Exhaust equipment	0	0.35	103,165,82	X		X							
M-EXHS-GRIL	Grilles	0	0.35	103,165,82	X		X							
Floor Information														
M-FLOR-IDEN	Room name, space identification text (copied from Architectural - Floor Plan model file)	0	0.25	0,255,0	X	X	X							
M-FLOR-NUMB	Room/space identification number and symbol (copied from Architectural - Floor Plan model file)	0	0.25	0,255,0	X	X	X							
Fuel Systems														
M-FUEL-DIES-RETN	Diesel fuel return piping	0	0.50	255,200,0			X							
M-FUEL-DIES-SPLY	Diesel fuel supply piping	0	0.50	255,200,0			X							
M-FUEL-DIES-VENT	Diesel fuel vent piping	0	0.50	255,200,0			X							
M-FUEL-EQPM	Equipment	0	0.70	255,200,0		X	X							

Discipline: Mechanical

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types									
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	HVAC Plan	Specialty Piping and Equipment	Hydraulic Systems	HTCW Utilities Plan	Material Handling	Machine Design	Control Diagrams	Elevations	Sections	Details
M-FUEL-GGEP-LQPG	Liquid petroleum gas	231100-908 Gas - Liquefied Petroleum	0.50	255,200,0		X	X							
M-FUEL-OGEP-RETN	Return oil piping	231100-904 Fuel Oil Return	0.50	255,200,0		X	X							
M-FUEL-OGEP-SPLY	Supply oil piping	231100-905 Fuel Oil Supply	0.50	255,200,0		X	X							
M-FUEL-OGEP-VENT	Oil piping vent	231100-906 Fuel Oil Tank	0.50	255,200,0		X								
Glycol System														
M-GLYC-EQPM	Glycol system equipment	0	0.35	165,165,0	X	X								
M-GLYC-RETN-PIPE	Glycol system return piping	232100-905 Glycol Return	0.50	165,165,0	X	X								
M-GLYC-SPLY-PIPE	Glycol system supply piping	232100-906 Glycol - Supply	0.50	165,165,0	X	X								
Geothermal Heat Pump System														
M-GTHP-EQPM	Geothermal heat pump system equipment	0	0.35	0,76,76	X			X						
M-GTHP-RETN-PIPE	Geothermal heat pump system return piping	0	0.50	0,76,76	X			X						
M-GTHP-SPLY-PIPE	Geothermal heat pump system supply piping	0	0.50	0,76,76	X			X						
Hydraulic Control Systems (Hydraulic Fluid)														
M-HCSF-CYLD	Hydraulic cylinders	0	0.35	255,63,0			X							
M-HCSF-CYLD-PSTN	Hydraulic cylinder pistons	0	0.35	255,63,0			X							
M-HCSF-CYLD-WEAR	Wear rings	0	0.35	255,63,0			X							
M-HCSF-EQPM	Hydraulic system equipment	0	0.35	255,63,0		X	X							
M-HCSF-FTTG	Hose and pipe fittings	0	0.35	255,63,0			X							
M-HCSF-HOSE	Hydraulic hoses	0	0.35	255,63,0			X							
M-HCSF-MOTR	Hydraulic motors and actuators	0	0.35	255,63,0			X							
M-HCSF-OTLN	Outlines of machinery, etc. in the vicinity of the hydraulic components	0	0.35	255,63,0			X							
M-HCSF-PUMP	Hydraulic pumps and pump motors	0	0.35	255,63,0			X							
M-HCSF-RETN-PIPE	Hydraulic system return piping	0	0.50	255,63,0		X	X							
M-HCSF-ROOM	Floor, walls, etc. that hydraulic system attaches to	0	0.35	255,63,0			X							
M-HCSF-SCHM-MISC	Miscellaneous schematic figures (i.e., common location lines)	0	0.35	255,63,0			X							
M-HCSF-SUPT	Pipe supports, hangers, etc.	0	0.35	255,63,0			X							
M-HCSF-SPLY-PIPE	Hydraulic system supply piping	0	0.50	255,63,0		X	X							
M-HCSF-VALV	Hydraulic valves	0	0.35	255,63,0			X							
M-HCSF-VALV-CONT	Hydraulic directional control valves	0	0.35	255,63,0			X							
M-HCSF-VALV-FLOW	Flow control valves, check valves, etc.	0	0.35	255,63,0			X							
M-HCSF-VALV-PRES	Pressure control valves: relief valves, counterbalance valves, etc.	0	0.35	255,63,0			X							
M-HCSF-VALV-SOFF	Hydraulic shutoff type valves (ball, gate, etc.)	0	0.35	255,63,0			X							
Hydraulic Control Systems (Water)														
M-HCSW-DEVC	Stilling wells, rigid anchors, anchor guides, rectifiers, reducers, markers, meters, regulators, and tanks	0	0.35	0,0,255			X							
M-HCSW-EQPM-ACCS	Equipment access doors	0	0.25	0,0,255			X							
M-HCSW-IDEN	Identifier tags, symbol modifiers, and text	0	0.25	255,200,0			X							
M-HCSW-PUMP	Pump station equipment	0	0.35	0,0,255			X							
M-HCSW-PUMP-PIPE	Pump piping (includes fittings and valves)	0	0.50	0,0,255			X							
High Temperature/Chilled Water System														

Discipline: Mechanical

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types									
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	HVAC Plan	Specialty Piping and Equipment	Hydraulic Systems	HTCW Utilities Plan	Material Handling	Machine Design	Control Diagrams	Elevations	Sections	Details
M-HTCW-CWTR-MAIN	Main chilled water piping	0	0.35	0,0,255	X			X						
M-HTCW-CWTR-PLNT	Chilled water plant	0	0.35	0,0,255	X			X						
M-HTCW-CWTR-SERV	Chilled water service piping	0	0.25	0,0,255	X		X	X						
M-HTCW-DEVC	Rigid anchors, anchor guides, rectifiers, reducers, markers, pumps, regulators, tanks, and valves	0	0.35	255,0,255	X			X						
M-HTCW-HWTR-MAIN	Main high temperature piping	0	0.35	255,0,0	X			X						
M-HTCW-HWTR-PLNT	High temperature water plant	0	0.35	255,0,0	X			X						
M-HTCW-HWTR-SERV	High temperature service piping	0	0.25	255,0,0	X			X						
M-HTCW-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	255,200,0	X			X						
M-HTCW-JBOX	Junction boxes, manholes, handholes, test boxes	0	0.25	255,0,255	X			X						
M-HTCW-LWTR-MAIN	Main low temperature piping	0	0.35	255,200,0	X			X						
M-HTCW-LWTR-SERV	Low temperature service piping	0	0.25	255,200,0	X		X	X						
M-HTCW-METR	Meters	0	0.35	255,0,255	X			X						
M-HTCW-RETN-PIPE	Return for all HTCW lines	0	0.18	255,0,255	X			X						
M-HTCW-STEM-MAIN	Main steam piping	0	0.35	255,127,191	X			X						
M-HTCW-STEM-SERV	Steam service piping	0	0.25	255,127,191	X		X	X						
M-HTCW-STNS-PUMP	Pump stations	0	0.35	255,0,255	X			X						
M-HTCW-VALT	Valve pits/vaults, steam pits	0	0.25	255,0,255	X			X						
HVAC System														
M-HVAC-ACCS	Equipment access doors	0	0.25	0,255,0	X		X							
M-HVAC-CDFF	Ceiling diffusers, registers, and grilles	0	0.35	255,63,0	X		X							
M-HVAC-DMPR	Fire, smoke, volume dampers	0	0.25	255,0,0	X		X							
M-HVAC-EQPM	Equipment (non-powered)	0	0.35	255,200,0	X		X							
M-HVAC-EQPM-EFAN	Equipment with electric fans or motors	0	0.35	255,200,0	X		X							
M-HVAC-EQPM-EPIP	Equipment with piping and electricity	0	0.35	255,200,0	X		X							
M-HVAC-EQPM-FLOR	Equipment - floor mounted	0	0.35	255,200,0	X		X							
M-HVAC-EQPM-SUSP	Equipment - suspended	0	0.35	255,200,0	X		X							
M-HVAC-FDFF	Floor diffusers, registers, and grilles	0	0.35	0,41,165	X		X							
M-HVAC-IDEN	Duct sizes and pressure classes	0	0.35	255,0,255	X		X							
M-HVAC-RDFF	Return air diffusers	0	0.35	165,103,82	X		X							
M-HVAC-RETN	Return ductwork	0	0.50	165,103,82	X		X							
M-HVAC-RETN-CNTR	Return ductwork centerlines	014200-914 Center Line	0.25	0,0,255	X		X							
M-HVAC-ROOF	Roof mounted HVAC equipment	0	0.35	255,200,0	X		X							
M-HVAC-SPLY	Supply ductwork	0	0.50	0,255,255	X		X							
M-HVAC-SPLY-CNTR	Supply ductwork centerlines	014200-914 Center Line	0.25	0,0,255	X		X							
M-HVAC-SPLY-HDUC	Supply ductwork - high pressure	0	0.50	0,255,255	X		X							
M-HVAC-SPLY-LDUC	Supply ductwork - low pressure	0	0.50	0,255,255	X		X							
M-HVAC-TAGS	Diffuser/register/grille tags and air flow arrows	0	0.35	255,0,255	X		X							
M-HVAC-WDFF	Wall diffusers, registers, and grilles	0	0.35	255,200,0	X		X							
Hot Water Heating System														
M-HWTR-EQPM	Hot water heating system equipment	0	0.35	255,63,0	X		X							
M-HWTR-RETN-PIPE	Hot water heating system return piping	232100-909 Hot Water - Low Temp - Return	0.50	255,63,0	X		X							

Discipline: Mechanical

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types									
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	HVAC Plan	Specialty Piping and Equipment	Hydraulic Systems	HTCW Utilities Plan	Material Handling	Machine Design	Control Diagrams	Elevations	Sections	Details
M-HWTR-SPLY-PIPE	Hot water heating system supply piping	232100-910 Hot Water - Low Temp - Supply	0.50	255,63,0	X		X							
Insulating (Transformer) Oil System														
M-INSL-EQPM	Insulating oil equipment	0	0.35	255,63,0		X								
M-INSL-RETN-PIPE	Insulating oil return piping	0	0.50	255,63,0		X								
M-INSL-SPLY-PIPE	Insulating oil supply piping	0	0.50	255,63,0		X								
Lubrication Oil														
M-LUBE-EQPM	Lubrication oil equipment	0	0.35	255,63,0		X	X							
M-LUBE-RETN-PIPE	Lubrication oil return piping	0	0.50	255,63,0		X	X							
M-LUBE-SPLY-PIPE	Lubrication oil supply piping	0	0.50	255,63,0		X	X							
Machine Design														
M-MACH-AXLE	Shafts and axles	0	0.35	255,200,0			X			X				
M-MACH-BASE	Machinery bases	0	0.35	255,200,0			X			X				
M-MACH-BEAR	Bearings and couplings	0	0.35	255,200,0			X			X				
M-MACH-BELT	Wire rope, chains, and belts	0	0.35	165,41,0			X			X				
M-MACH-BSHG	Bushings, wear plates, shims, and spacers	0	0.35	255,200,0			X			X				
M-MACH-CLEV	Clevises	0	0.35	165,41,0			X			X				
M-MACH-COMP	Miscellaneous machinery parts and components	0	0.35	255,200,0			X			X				
M-MACH-COVR	Machinery covers, cover plates, and guarding	0	0.35	0,255,255			X			X				
M-MACH-FSTN	Fastenters, nuts, and bolts	0	0.35	255,200,0			X			X				
M-MACH-GEAR	Gears	0	0.35	255,0,255			X			X				
M-MACH-KEYS	Keys and keeper plates	0	0.35	165,41,0			X			X				
M-MACH-LROT	Large rotating machinery (turbine and pump outlines)	0	0.35	255,0,255			X			X				
M-MACH-MOTR	Machinery motors	0	0.35	255,0,255			X			X				
M-MACH-PINS	Pins	0	0.35	165,41,0			X			X				
M-MACH-PULL	Pulleys, drums, and sheaves	0	0.35	165,41,0			X			X				
M-MACH-RAIL	Rails (e.g., crane rails, rail hoots, splice plates, etc.)	0	0.35	165,41,0			X			X				
M-MACH-ROLL	Rollers and wheels	0	0.35	165,41,0			X			X				
M-MACH-ROLL-TRAK	Roller tracks	0	0.35	165,41,0			X			X				
M-MACH-SEAL	Seals	0	0.35	165,41,0			X			X				
M-MACH-SHOE	Sliding shoes, skids, etc.	0	0.35	165,41,0			X			X				
M-MACH-SUPT	Support brackets	0	0.35	255,200,0			X			X				
M-MACH-SPRG	Springs	0	0.35	165,41,0			X			X				
Mixed Air System														
M-MAIR-DUCT	Mixed air ductwork	0	0.50	255,255,255	X									
M-MAIR-DUCT-CNTR	Mixed air ductwork centerlines	014200-914 Center Line	0.25	0,0,255	X									
M-MAIR-EQPM	Mixed air equipment	0	0.35	255,255,255	X									
Material Handling Equipment														
M-MATL-CRAN	Cranes	0	0.35	255,200,0			X		X					
M-MATL-CRAN-BOOM	Crane boom	0	0.35	255,200,0			X		X					
M-MATL-HOIS	Hoists	0	0.35	255,200,0			X		X					
M-MATL-HOOK	Hooks, eyes, and other end attachments	0	0.35	255,200,0			X		X					
M-MATL-LIFT	Miscellaneous lifting equipment	0	0.35	255,0,255			X		X					
M-MATL-WIRE	Wire rope, chains, and other hoisting medium	0	0.35	255,0,255			X		X					

Discipline: Mechanical

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types									
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	HVAC Plan	Specialty Piping and Equipment	Hydraulic Systems	HTCW Utilities Plan	Material Handling	Machine Design	Control Diagrams	Elevations	Sections	Details
Miter Gates														
M-MITR-BASE	Miter gate machinery base	0	0.35	255,200,0			X							
M-MITR-CLEV	Clevises	0	0.35	165,41,0			X							
M-MITR-CRNG	Cardanic ring	0	0.35	0,255,0			X							
M-MITR-CYLD	Miter gate machinery cylinder (outline not for details)	0	0.35	63,255,0			X							
M-MITR-TRUN	Miter gate machinery trunnion	0	0.35	255,0,0			X							
Makeup Air System														
M-MKUP-DUCT	Makeup air ductwork	0	0.50	255,200,0	X									
M-MKUP-DUCT-CNTR	Makeup air ductwork centerlines	014200-914 Center Line	0.25	0,0,255	X									
M-MKUP-EQPM	Makeup air equipment	0	0.35	255,200,0	X									
M-MKUP-GRIL	Makeup air grilles	0	0.35	255,200,0	X									
Natural Gas System														
M-NGAS-EQPM	Natural gas equipment	0	0.35	255,200,0		X	X							
M-NGAS-PIPE	Natural gas piping	231100-909 Gas - Low Pressure	0.35	255,200,0		X	X							
Penetrations														
M-FLOR-PENE	Floor penetrations	014200-907 MS2 Medium Dash	0.25	0,255,0	X	X	X							
M-ROOF-PENE	Roof penetrations	014200-907 MS2 Medium Dash	0.25	255,0,0	X	X	X							
M-WALL-PENE	Wall penetrations	014200-907 MS2 Medium Dash	0.25	255,200,0	X	X	X							
Process Piping														
M-PROC-EQPM	Process equipment	0	0.35	255,63,0		X								
M-PROC-RETN-PIPE	Process return piping	0	0.50	255,63,0		X								
M-PROC-SPLY-PIPE	Process supply piping	0	0.50	255,63,0		X								
Relief Air System														
M-RAIR-DUCT	Relief air ductwork	0	0.50	255,0,0	X									
M-RAIR-DUCT-CNTR	Relief air ductwork centerlines	014200-914 Center Line	0.25	0,0,255	X									
M-RAIR-EQPM	Relief air equipment	0	0.35	255,0,0	X									
M-RAIR-GRIL	Relief air grilles	0	0.35	255,0,0	X									
Energy Recovery System														
M-RCOV-EQPM	Energy recovery system equipment	0	0.35	145,82,165	X									
M-RCOV-RETN-PIPE	Energy recovery system return piping	0	0.50	145,82,165	X									
M-RCOV-SPLY-PIPE	Energy recovery system supply piping	0	0.50	145,82,165	X									
Refrigeration System														
M-REFG-DISC	Refrigeration system discharge	232300-902 Refrigerant - Discharge	0.50	255,63,0	X									

Discipline: Mechanical

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types									
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	HVAC Plan	Specialty Piping and Equipment	Hydraulic Systems	HTCW Utilities Plan	Material Handling	Machine Design	Control Diagrams	Elevations	Sections	Details
M-REFG-EQPM	Refrigeration system equipment	0	0.35	255,63,0	X									
M-REFG-RETN-PIPE	Refrigeration system return piping	232300-905 Refrigerant - Suction	0.50	255,63,0	X									
M-REFG-SPLY-PIPE	Refrigeration system supply piping	232300-904 Refrigerant - Liquid	0.50	255,63,0	X									
Raw Water Piping														
M-RWTR-EQPM	Raw water equipment	0	0.35	79,127,63		X	X							
M-RWTR-RETN-PIPE	Raw water return piping	0	0.50	79,127,63		X	X							
M-RWTR-SPLY-PIPE	Raw water supply piping	0	0.50	79,127,63		X	X							
Steam System														
M-STEM-BLBD	Boiler blow down piping	235200-901 Boiler Blow Down	0.50	255,127,191	X									
M-STEM-CNDS	Condensate piping	232200-904 Condensate - Drain	0.50	255,127,191	X									
M-STEM-EQPM	Steam system equipment	0	0.35	255,127,191	X									
M-STEM-HPIP	High pressure steam piping	232200-909 Steam - High Pressure	0.50	255,127,191	X									
M-STEM-LPIP	Low pressure steam piping	232200-910 Steam - Low Pressure	0.50	255,127,191	X									
M-STEM-MPIP	Medium pressure steam piping	232200-911 Steam - Medium Pressure	0.50	255,127,191	X									
Transfer Air System														
M-TAIR-DUCT	Transfer air ductwork	0	0.50	191,0,255	X									
M-TAIR-DUCT-CNTR	Transfer air ductwork centerlines	014200-914 Center Line	0.25	0,0,255	X									
M-TAIR-EQPM	Transfer air equipment	0	0.35	191,0,255	X									
Diagram Information														
M-DIAG-GRPH	Graphics, gridlines, non-text items	0	0.35	255,255,255							X			
Elevations														
M-ELEV-IDEN	Component identification numbers	0	0.35	255,200,0								X		
M-ELEV-OTLN	Outlines	0	0.35	255,0,255								X		
M-ELEV-PATT	Textures and hatch patterns	0	0.18	128,128,128								X		
Sections														
M-SECT-IDEN	Component identification numbers	0	0.35	255,200,0									X	
M-SECT-MBND	Material beyond section cut	0	0.18	0,0,255									X	
M-SECT-MCUT	Material cut by section	0	0.50	0,255,255									X	
M-SECT-PATT	Textures and hatch patterns	0	0.18	128,128,128									X	

Discipline: Mechanical

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types									
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	HVAC Plan	Specialty Piping and Equipment	Hydraulic Systems	HTCW Utilities Plan	Material Handling	Machine Design	Control Diagrams	Elevations	Sections	Details
Detail Information														
M-DETL-GRPH	Graphics, gridlines, non-text items	0	0.35	255,255,255										X

Discipline: Electrical

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types								
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Lighting Plan	Power Plan	Special Systems Plan	Grounding System Plan	Electrical Utilities Plan	Exterior Communication Systems Plan	Airfield Lighting Plan	Details	Riser/One-Line Diagrams
General Information	**See Discipline: General (page A3) for a list of available Annotation layers/levels**												
Airfields													
E-AFLD-CIRC-CTRL	Control and monitoring circuits	0	0.50	145,82,165							X		
E-AFLD-CIRC-IDEN	Circuit identifier tags, symbol modifier, and text	0	0.35	255,200,0							X		
E-AFLD-CIRC-MULT	Multiple circuits	0	0.50	145,82,165							X		
E-AFLD-CIRC-SERS	Series circuits	0	0.50	145,82,165							X		
E-AFLD-DEVC	Capacitors, voltage regulators, motors, buses, generators, meters, grounds, and markers	0	0.50	145,82,165							X		
E-AFLD-DBNK	Ductbanks	337100-909 Duct Bank	0.50	145,82,165							X		
E-AFLD-JBOX	Junction boxes, pull boxes, manholes, handholes, pedestals, splices	0	0.50	145,82,165							X		
E-AFLD-LITE-APPR	Approach lights	0	0.50	145,82,165							X		
E-AFLD-LITE-DIST	Distance and arresting gear markers	0	0.50	145,82,165							X		
E-AFLD-LITE-LANE	Hoverlane, taxilane, and helipad lights	0	0.50	145,82,165							X		
E-AFLD-LITE-OBST	Obstruction lights	0	0.50	145,82,165							X		
E-AFLD-LITE-RUNW	Runway lights	0	0.50	145,82,165							X		
E-AFLD-LITE-SIGN	Taxiway guidance signs	0	0.50	145,82,165							X		
E-AFLD-LITE-TAXI	Taxiway lights	0	0.50	145,82,165							X		
E-AFLD-LITE-THRS	Threshold lights	0	0.50	145,82,165							X		
E-AFLD-VALT	Airfield lighting vaults	0	0.50	145,82,165							X		
Alarm System													
E-ALRM-EQPM	Alarm system equipment	0	0.50	255,63,0			X						
E-ALRM-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	255,200,0			X						
Beacons													
E-BCNS-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	255,200,0							X		
E-BCNS-MISC	Miscellaneous navaids - windcones and beacons	0	0.50	145,82,165							X		
E-BCNS-STRB	Strobe beacons	0	0.50	145,82,165							X		
Bell System													
E-BELL-EQPM	Bell system equipment	0	0.50	255,63,0			X						
E-BELL-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	255,200,0			X						
Cable System													
E-CABL-COAX	Coax cable	014200-907 MS2 Medium Dash	0.50	255,63,0			X						
E-CABL-FIBR	Fiber optics cable	271500-908 Fiberoptics	0.50	255,63,0			X						
E-CABL-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	255,200,0			X						
E-CABL-MULT	Multi-conductor cable	0	0.50	255,63,0			X						
E-CABL-TRAY	Cable trays and wireways	260500-907 Wireway	0.50	255,63,0		X	X						
Cathodic Protection System													
E-CATH-ANOD	Sacrificial anode system	0	0.50	105,0,0					X				
E-CATH-CURR	Impress current system	0	0.50	105,0,0					X				
E-CATH-IDEN	Identifier tags, symbol modifier, and text	0	0.35	255,200,0					X				
E-CATH-TEST	Test stations	0	0.50	105,0,0					X				
Cable TV System													
E-CATV-EQPM	Cable TV system equipment	271500-920 Cable TV	0.50	255,63,0			X						

Discipline: Electrical

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types								
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Lighting Plan	Power Plan	Special Systems Plan	Grounding System Plan	Electrical Utilities Plan	Exterior Communication Systems Plan	Airfield Lighting Plan	Details	Riser/One-Line Diagrams
E-CATV-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	255,200,0			X						
Closed-Circuit Television System													
E-CCTV-EQPM	Closed-circuit television system equipment	271500-921 Closed Circuit TV	0.50	255,63,0			X						
E-CCTV-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	255,200,0			X						
Clock System													
E-CLOK-EQPM	Clock system equipment	0	0.50	255,63,0			X						
E-CLOK-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	255,200,0			X						
Communications													
E-COMM-ANTN	Antennae	0	0.50	255,63,0						X			
E-COMM-CIRC	Circuits	0	0.50	255,63,0						X			
E-COMM-CNMB	Communication circuit numbers (e.g., panel/circuit number, wire/conduit size)	0	0.35	255,200,0						X			
E-COMM-EQPM	Other communications distribution equipment	0	0.50	255,63,0						X			
E-COMM-JBOX	Communication junction boxes, pull boxes, handholes, pedestals, and splices	0	0.50	255,63,0						X			
E-COMM-MHOL	Manholes	0	0.50	255,63,0						X			
E-COMM-OVHD	Overhead communications/telephone lines	271500-905 Communication	0.50	255,63,0						X			
E-COMM-OVHD-IDEN	Identifier tags, symbol modifier and text	0	0.35	255,200,0						X			
E-COMM-POLE	Poles	0	0.50	255,63,0						X			
E-COMM-POLE-GUYS	Guying equipment	0	0.50	255,63,0						X			
E-COMM-POLE-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	255,200,0						X			
E-COMM-UGND	Underground communications/telephone lines	271500-905 Communication	0.50	255,63,0						X			
E-COMM-UGND-IDEN	Identifier tags, symbol modifier and text	0	0.35	255,200,0						X			
Central Dictation System													
E-DICT-EQPM	Central dictation system equipment	0	0.50	255,63,0			X						
E-DICT-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	255,200,0			X						
Underground Ductbanks (to be used when multiple systems are in one ductbank system)													
E-DBNK-MULT	Ductbank	337100-909 Duct Bank	0.50	105,0,0					X	X			
E-DBNK-MULT-IDEN	Identifier tags, symbol modifier and text	0	0.35	255,200,0					X	X			
Energy Monitoring Control Systems													
E-EMCS-EQPM	Energy monitoring control system equipment	0	0.50	105,0,0			X						
E-EMCS-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	255,200,0			X						
Floor Information													
E-FLOR-IDEN	Room name, space identification text (copied from Architectural - Floor Plan model file)	0	0.25	0,255,0	X	X	X						
E-FLOR-NUMB	Room/space identification number and symbol (copied from Architectural - Floor Plan model file)	0	0.25	0,255,0	X	X	X						
Ground System													
E-GRND-CIRC	Circuits	0	0.50	105,0,0				X					
E-GRND-DIAG	Ground system diagram	0	0.50	105,0,0				X					
E-GRND-EQUI	Equipotential ground system	0	0.50	105,0,0				X					
E-GRND-REFR	Reference ground system	0	0.50	105,0,0				X					
Intercom/PA System													
E-INTC-EQPM	Intercom system equipment	0	0.50	255,63,0			X						
E-INTC-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	255,200,0			X						
Lighting													

Discipline: Electrical

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types								
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Lighting Plan	Power Plan	Special Systems Plan	Grounding System Plan	Electrical Utilities Plan	Exterior Communication Systems Plan	Airfield Lighting Plan	Details	Riser/One-Line Diagrams
E-LITE-CIRC	Lighting circuits (including crosslines and homeruns)	0	0.50	255,0,0	X								
E-LITE-CLNG	Ceiling mounted (surface/pendant) fixtures	0	0.50	255,0,0	X								
E-LITE-CNMB	Lighting circuit numbers (e.g., panel/circuit number, wire/conduit size)	0	0.35	255,200,0	X								
E-LITE-EMER	Emergency fixtures (outline of light (if ceiling mounted) should go on E-LITE-CLNG)	0	0.50	255,0,0	X								
E-LITE-EXIT	Exit fixtures (outline of light (if ceiling mounted) should go on E-LITE-CLNG)	0	0.50	255,0,0	X								
E-LITE-EXTR	Exterior lights	0	0.50	255,0,0					X				
E-LITE-FLOR	Floor mounted fixtures (e.g., stage)	0	0.50	255,0,0	X								
E-LITE-IDEN	Light fixture identifier tags	0	0.35	255,200,0	X				X				
E-LITE-JBOX	Junction boxes	0	0.50	255,0,0	X								
E-LITE-PANL	Main distribution panels, switchboards, lighting panels	0	0.50	255,0,0	X								
E-LITE-ROOF	Roof lighting	0	0.50	255,0,0	X								
E-LITE-SPCL	Special fixtures	0	0.50	255,0,0	X								
E-LITE-SWCH	Lighting contactors, photoelectric controls, low-voltage lighting controls, etc.	0	0.50	255,0,0	X								
E-LITE-WALL	Wall mounted fixtures	0	0.50	255,0,0	X								
Lightning Protection System													
E-LTNG-COND	Lightning protection conductors	0	0.50	105,0,0				X					
E-LTNG-TERM	Lightning protection terminals	0	0.35	255,200,0				X					
Nurse Call/Paging System													
E-NURS-EQPM	Nurse call/paging system equipment	0	0.50	255,63,0			X						
E-NURS-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	255,200,0			X						
Power													
E-POWR-BUSW	Busways	260500-901 Busway	0.50	105,0,0		X							
E-POWR-CIRC	Power circuits (including crosslines and homeruns)	0	0.50	105,0,0		X							
E-POWR-CLNG	Ceiling outlets (receptacles and switches)	0	0.50	105,0,0		X							
E-POWR-CNDT	Conduit	0	0.50	105,0,0		X							
E-POWR-CNMB	Power circuit numbers (e.g., panel/circuit number, wire/conduit size)	0	0.35	255,200,0		X							
E-POWR-DEVC	Capacitors, voltage regulators, motors, buses, grounds, and markers	0	0.50	105,0,0					X				
E-POWR-DSCO	Disconnect switches	0	0.50	105,0,0		X			X				
E-POWR-FEED	Feeders	0	0.50	105,0,0		X							
E-POWR-GENR	Generators and auxiliary equipment	0	0.50	105,0,0		X							
E-POWR-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	255,200,0		X			X				
E-POWR-JBOX	Junction boxes, pull boxes, manholes, handholes, pedestals, splices	0	0.50	105,0,0		X	X		X				
E-POWR-METR	Meters	0	0.50	105,0,0		X			X				
E-POWR-MOTR	Motors and utilization equipment	0	0.50	105,0,0		X							
E-POWR-PANL	Panelboards, MCC, backing boards, patch panel racks	0	0.50	105,0,0		X	X						
E-POWR-POLE	Power poles	0	0.50	105,0,0					X				
E-POWR-POLE-GUYS	Guying equipment	0	0.50	105,0,0					X				
E-POWR-SBST	Substation equipment	0	0.50	105,0,0					X				
E-POWR-SWBD	Switchboards	0	0.50	105,0,0		X	X						
E-POWR-SWCH	Fuse cutouts, motor starters, contactors, pole mounted switches, circuit breakers, reclosers, cubicle switches	0	0.50	105,0,0		X			X				
E-POWR-URAC	Underfloor raceways	014200-908 MS3 Long Dash	0.50	105,0,0		X							
E-POWR-WALL	Wall/floor outlets (receptacles and switches)	0	0.50	105,0,0		X							
E-POWR-XFMR-PADM	Pad mounted transformers	0	0.50	105,0,0					X				
E-POWR-XFMR-POLM	Pole mounted transformers	0	0.50	105,0,0					X				
Primary Electrical Cables													

Discipline: Electrical

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types								
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Lighting Plan	Power Plan	Special Systems Plan	Grounding System Plan	Electrical Utilities Plan	Exterior Communication Systems Plan	Airfield Lighting Plan	Details	Riser/One-Line Diagrams
E-PRIM-OVHD	Overhead electrical utility lines	337100-901 Electrical Primary	0.50	105,0,0					X				
E-PRIM-OVHD-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	255,200,0					X				
E-PRIM-UGND	Underground electrical utility lines	337100-901 Electrical Primary	0.50	105,0,0					X				
E-PRIM-UGND-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	0,255,255					X				
Secondary Electrical Cables													
E-SECD-OVHD	Overhead electrical utility lines	337100-902 Electrical Secondary	0.50	105,0,0					X				
E-SECD-OVHD-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	255,200,0					X				
E-SECD-UGND	Underground electrical utility lines	337100-902 Electrical Secondary	0.50	105,0,0					X				
E-SECD-UGND-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	255,200,0					X				
Security System													
E-SERT-ACCS	Access control system	0	0.50	255,63,0			X						
E-SERT-CLNG	Ceiling mounted sensors	0	0.50	255,63,0			X						
E-SERT-FLOR	Floor mounted sensors	0	0.50	255,63,0			X						
E-SERT-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	255,200,0			X						
E-SERT-UNDR	Buried sensors	0	0.50	255,63,0			X						
E-SERT-WALL	Wall mounted sensors	0	0.50	255,63,0			X						
Sound System													
E-SOUN-EQPM	Sound system equipment	0	0.50	255,63,0			X						
E-SOUN-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	255,200,0			X						
Special Systems													
E-SPCL-SYST	Special systems (UMCS, EMCS, etc.)	0	0.50	105,0,0					X				
E-SPCL-SYST-IDEN	Special systems (UMCS, EMCS, etc.) identifier tags, symbol modifier, and text	0	0.35	255,200,0					X				
E-SPCL-TRAF	Traffic signal system	0	0.50	105,0,0					X				
E-SPCL-TRAF-IDEN	Traffic signal identifier tags, symbol modifier, and text	0	0.35	255,200,0					X				
Other Discipline Information													
E-DISC-INFO	Clearances and working space information (NEC code, etc.)	0	0.25	0,255,0	X	X	X		X	X	X	X	X
Detail Information													
E-DETL-GRPH	Graphics, gridlines, non-text items	0	0.35	255,255,255								X	
Diagram Information													
E-DIAG-GRPH	Graphics, gridlines, non-text items	0	0.35	255,255,255									X
E-DIAG-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	255,200,0									X

Discipline: Telecommunications

Model File Layers/Levels

Level/Layer Naming		Graphic Defaults			Model File Types		
AIA Format	Level/Layer Description	Line Style	Line Width (mm)	RGB Value	Telephone/Data Plan	Riser Diagrams	Details
General Information	**See Discipline: General (page A3) for a list of available Annotation layers/levels**						
Cable System							
T-CABL-COAX	Coax cable	014200-907 MS2 Medium Dash	0.50	255,63,0	X		
T-CABL-FIBR	Fiber optics cable	271500-908 Fiberoptics	0.50	255,63,0	X		
T-CABL-IDEN	Cable identifiers	0	0.35	255,200,0	X		
T-CABL-MULT	Multi-conductor cable	0	0.50	255,63,0	X		
T-CABL-TRAY	Cable trays and wireways	0	0.50	255,63,0	X		
Communications							
T-COMM-CIRC	Circuits	0	0.50	255,63,0	X		
T-COMM-CNMB	Circuit numbers	0	0.50	255,63,0	X		
T-COMM-EQPM	Equipment	0	0.50	255,63,0	X		
T-COMM-JBOX	Junction boxes	0	0.50	255,63,0	X		
Equipment							
T-EQPM-COMB	Distribution equipment for both copper and fiber optics	0	0.50	255,63,0	X		
T-EQPM-COPP	Distribution equipment for copper	0	0.50	255,63,0	X		
T-EQPM-FIBR	Distribution equipment for fiber optic	0	0.50	255,63,0	X		
T-EQPM-OTHR	Other telecommunications equipment	0	0.50	255,63,0	X		
T-EQPM-RELA	Relays, resistors, capacitors, and inducers	0	0.50	255,63,0	X		
Floor Information							
T-FLOR-IDEN	Room name, space identification text (copied from Archictural - Floor Plan model file)	0	0.25	0,255,0	X		
T-FLOR-NUMB	Room/space identification number and symbol (copied from Architectural - Floor Plan model file)	0	0.25	0,255,0	X		
Jacks							
T-COMB-JACK	Combination telephone and data/LAN jacks	0	0.50	255,63,0	X		
T-DATA-JACK	Data/LAN jacks	0	0.50	255,63,0	X		
T-PHON-JACK	Telephone jacks	0	0.50	255,63,0	X		
Other Discipline Information							
T-DISC-INFO	Information and notes for other disciplines	0	0.35	255,255,255	X	X	
Diagram Information							
T-DIAG-GRPH	Graphics, gridlines, non-text items	0	0.35	255,255,255		X	
T-DIAG-IDEN	Identifier tags, symbol modifiers, and text	0	0.35	255,200,0		X	
Detail Information							
T-DETL-GRPH	Graphics, gridlines, non-text items	0	0.35	255,255,255			X

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14. ABSTRACT

The A/E/C computer-aided design (CAD) Standard has been developed by the CAD/building information modeling (BIM) Technology Center for Facilities, Infrastructure, and Environment to eliminate redundant CAD standardization efforts within the Department of Defense (DoD) and the Federal Government. This manual is part of an initiative to develop a nonproprietary CAD standard that incorporates existing industry, national, and international standards and to develop data standards that address the entire life cycle of facilities within the DoD.

The material addressed in the A/E/C CAD Standard include level/layer assignments, electronic file naming, and standard symbology. The CAD/BIM Center's primary goal is to develop a CAD standard that is generic enough to operate under various CAD software packages (such as Bentley's MicroStation and Autodesk's AutoCAD) while incorporating existing industry standards when possible.

15. SUBJECT TERMS
Computer-aided design, Computer graphics, Engineering design

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