

City Utilities Design Standards Manual

CADD Standards

Discipline: Civil Survey/Mapping
Model File Layers/Levels

Chapter CADD 6

Layers

Level/Layer Naming		Graphic Defaults				User-Defined Data Fields	Model File Types						
		Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #		Survey and Mapping Plan	Property Boundary	Existing Electrical Utilities Plan	Existing Communication System Plan	Existing Utilities Plan	Existing Profiles	Existing X-Sections
AIA Format	Level/Layer Description												
General Information													
V-ANNO-DIMS	Witness/extension lines, dimension terminators, dimension text	Continuous	0.13	4	7		X	X	X	X	X	X	X
V-ANNO-KEYN	Reference keynotes with associated leaders	Continuous	Varies	Varies	Varies		X	X	X	X	X	X	X
V-ANNO-LEGN	Legends and symbol keys	Continuous	Varies	Varies	Varies		X	X	X	X	X	X	X
V-ANNO-MASK	Text/shape mask for use with photo backgrounds	Continuous	0.13	255	24		X	X	X	X	X	X	X
V-ANNO-MATC	Match lines	Continuous	0.70	7	0		X		X	X	X	X	X
V-ANNO-NOTE	General notes and general remarks	Continuous	0.13	8	9		X	X	X	X	X	X	X
V-ANNO-NPLT	Non-plotting graphic information	Continuous	0.13	5	1		X	X	X	X	X	X	X
V-ANNO-PATT	Patterning, poche, shading, and hatching	Varies	0.13	8	9		X	X	X	X	X	X	X
V-ANNO-RDME	Read-me information	Continuous	0.13	8	9		X	X	X	X	X	X	X
V-ANNO-REFR	Reference files and raster attachments	Continuous	0.13	7	0		X	X	X	X	X	X	X
V-ANNO-SYMB	Reference symbols	Varies	0.13	8	9		X	X	X	X	X	X	X
V-ANNO-TEXT	Miscellaneous text and callouts with associated leaders	Continuous	0.13	8	9		X	X	X	X	X	X	X
V-SECT-PATT	Textures and hatch patterns	Continuous	0.13	8	9								
Aerial Survey													
V-AERI-BNDY	Aerial photography boundaries	Continuous	0.18	1	3		X						
V-AERI-IDEN	Aerial annotation	Continuous	0.13	8	9		X						
V-AERI-PHOT-1201	Aerial Photo First 2 numbers = year, second 2 = arial number	Continuous	0.18	1	3								
V-AERI-PHOT-1202	Aerial Photo First 2 numbers = year, second 2 = arial number	Continuous	0.18	1	3								
V-AERI-PHOT-1203	Aerial Photo First 2 numbers = year, second 2 = arial number	Continuous	0.18	1	3								
V-AERI-PHOT-1204	Aerial Photo First 2 numbers = year, second 2 = arial number	Continuous	0.18	1	3								
V-AERI-PHOT-1501	Aerial Photo First 2 numbers = year, second 2 = arial number	Continuous	0.18	1	3								
V-AERI-PHOT-1502	Aerial Photo First 2 numbers = year, second 2 = arial number	Continuous	0.18	1	3								
V-AERI-PHOT-1503	Aerial Photo First 2 numbers = year, second 2 = arial number	Continuous	0.18	1	3								
Alarms													
V-ALRM-EQPM	Alarm: Equipment	Varies	0.13	1	3		X				X	X	X
Alignments													
V-ALGN-DATA	Alignment coordinates and curve data	Varies	0.20	7	0		X				X	X	X
V-ALGN-IDEN	Alignment text, annotation with associated leaders	Continuous	0.20	7	0		X				X	X	X
V-ALGN-LINE	Alignments	Continuous	0.30	7	0		X				X	X	X
Borings													
V-BORE-IDEN	Bore Hole Annotation	Continuous	0.25	7	0		X						
VN-BORE-HOLE	Bore Hole X,Y Location Point	Continuous	0.25	7	0		X						
VN-BORE-HOLE-IDEN	Bore Hole X,Y Location Point Annotation	Continuous	0.25	7	0		X						
Buildings and Primary Structures													
V-BLDG-DECK	Outdoor decks (attached, no roof overhead)	Continuous	0.13	8	9		X	X					
V-BLDG-DOCK	Loading docks	Continuous	0.13	8	9		X	X					
V-BLDG-FTPT	Building footprints	HIDDEN	0.13	8	9		X	X					
V-BLDG-IDEN	Building and other structure annotation	Continuous	0.13	8	9		X	X					
V-BLDG-OVHD	Building overhangs	Continuous	0.13	8	9		X	X					
V-BLDG-PATT	Building Hatch	Continuous	0.13	8	9		X	X					
V-BLDG-PRCH	Porches (attached, roof overhead)	Continuous	0.13	8	9		X	X					
VN-BLDG	Building Points	Continuous	0.13	8	9		X	X					
VN-BLDG-IDEN	Building Points annotation	Continuous	0.13	8	9		X	X					

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		Line Style	Line Width (mm)	AutoCAD Color #	MicroStation Color #		Survey and Mapping Plan	Property Boundary	Existing Electrical Utilities Plan	Existing Communication System Plan	Existing Utilities Plan	Existing Profiles	Existing X-Sections
AIA Format	Level/Layer Description												
Communications													
V-COMM-CATV	Cable TV Communications Points	Continuous	0.13	42	182								
V-COMM-CIRC	Communication: Circuits	Continuous	0.13	42	182		X		X		X		
V-COMM-DATA	Communication: Cable (excluding Fiber optics)	Continuous	0.13	42	182		X		X		X		
V-COMM-EQPM	Misc communications distribution equipment	Continuous	0.13	42	182		X		X	X	X		
V-COMM-IDEN	Identifier tags, symbol modifiers, and text	Continuous	0.13	42	182		X		X		X		
V-COMM-JBOX	Communication junction boxes, pull boxes, handholes, pedestals, and splices	Continuous	0.13	42	182		X		X	X	X		
V-COMM-MHOL	Communication Manholes	Continuous	0.13	42	182		X		X	X	X		
V-COMM-OVHD-CATV	Overhead Cable TV Communications	OHCATV	0.13	42	182		X	X	X	X	X	X	X
V-COMM-OVHD-FIBR	Overhead Fiber Optic Communications	OHFIB	0.13	42	182		X	X		X		X	X
V-COMM-OVHD-IDEN	Identifier tags, symbol modifier and text	Continuous	0.13	42	182		X	X		X		X	X
V-COMM-OVHD-PHON	Overhead Telephone Lines	OHTEL	0.13	42	182		X	X		X		X	X
V-COMM-OVHD-TRAF	Overhead Traffic signal system	OHTRAF	0.13	42	182	X			X				X
V-COMM-POLE	Communication Poles	Continuous	0.13	42	182		X	X		X		X	X
V-COMM-POLE-GUYS	Communication Guying equipment	Continuous	0.13	42	182	X	X	X		X		X	X
V-COMM-POLE-IDEN	Identifier tags, symbol modifiers, and text	Continuous	0.13	42	182		X	X		X		X	X
V-COMM-SWCH	Communications: Switches and Routers	Continuous	0.13	42	182		X	X		X		X	X
V-COMM-TOWR	Communications: Towers and Telemetry	Continuous	0.13	42	182		X	X		X		X	X
V-COMM-UGND-CATV	Underground Cable TV Communications	UGCATV	0.13	42	182		X	X		X		X	X
V-COMM-UGND-FIBR	Underground Fiber Optic Communications	UGFIB	0.13	42	182		X	X		X		X	X
V-COMM-UGND-IDEN	Identifier tags, symbol modifier and text	Continuous	0.13	42	182		X	X		X		X	X
V-COMM-UGND-PHON	Underground Telephone Lines	UGTEL	0.13	42	182		X	X		X		X	X
V-COMM-UGND-TRAF	Underground Traffic signal system	UGTRAF	0.13	42	182	X			X				X
VN-COMM-CATV	Cable TV Communications Points	Continuous	0.13	42	182		X	X		X		X	X
VN-COMM-FIBR	Fiber Optic Communications Points	Continuous	0.13	42	182		X	X		X		X	X
VN-COMM-NPLT	Non-Plotting Graphic Information	Continuous	0.13	5	1								
VN-COMM-PHON	Telephone Communications Points	Continuous	0.13	42	182		X	X		X		X	X
VN-COMM-TRAF	Traffic Communications Points	Continuous	0.13	42	182	X	X		X	X	X	X	X
Control													
V-CTRL-BMRK	Benchmarks	Continuous	0.20	7	1		X						X
V-CTRL-GRID	Control Grid	Continuous	0.20	7	1		X						X
VN-CTRL-BMRK	Benchmark Points	Continuous	0.20	7	1		X						X
VN-CTRL-IDEN	Control Points Annotator	Continuous	0.20	7	1		X						X
VN-CTRL-HVPT	Horizontal/vertical control points	Continuous	0.20	7	1		X						X
VN-CTRL-NPLT	Control No Plot	Continuous	0.13	5	1								
Ditches													
V-DTCH-BOTM	Bottom of Ditch Line	Continuous	0.18	8	9		X				X	X	X
V-DTCH-CNTR	Ditch Centerline	Continuous	0.18	8	9		X				X	X	X
V-DTCH-EWAT	Ditch Edge of Water	Continuous	0.18	8	9		X				X	X	X
V-DTCH-IDEN	Ditch Annotation	Continuous	0.18	8	9		X				X	X	X
V-DTCH-TOP~	Top Of Ditch Or Wash	Dashed	0.18	8	9								
VN-DTCH	Ditch Points	Continuous	0.18	8	9		X				X	X	X
VN-DTCH-IDEN	Ditch Point Annotation	Continuous	0.18	8	9		X				X	X	X
Diagrams													
V-DIAG-BKRS	Diagram: Breakers	Continuous	0.20	7	1		X					X	X

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AIA Format	Level/Layer Description												
V-DIAG-BUSS	Diagram: Bus duct	Continuous	0.20	7	1		X					X	X
V-DIAG-COAX	Diagram: Coax cable	Continuous	0.20	7	1		X					X	X
V-DIAG-ENCL	Diagram: Equipment enclosers	Continuous	0.20	7	1		X					X	X
V-DIAG-EQPM	Diagram: Equipment	Continuous	0.20	7	1		X					X	X
V-DIAG-FEED	Diagram: Feeders	Continuous	0.20	7	1		X					X	X
V-DIAG-FLOR	Diagram: Floor	Continuous	0.20	7	1		X					X	X
V-DIAG-GRND	Diagram: Ground	Continuous	0.20	7	1		X					X	X
V-DIAG-JACK	Diagram: Jacks	Continuous	0.20	7	1		X					X	X
V-DIAG-SWCH	Diagram: Switch, Circuit breakers, Contacts, Gang operated disconnects, Reclosers	Continuous	0.20	7	1		X					X	X
V-DIAG-WIRE	Diagram: Wiring	Continuous	0.20	7	1		X					X	X
V-DIAG-XFMR	Diagram: Transformers	Continuous	0.20	7	1		X					X	X
Drives and Sidewalks													
V-DRIV-ASPH	Asphalt Drives	HIDDEN	0.13	8	9		X						
V-DRIV-CONC	Concrete Drives	HIDDEN	0.13	8	9		X						
V-DRIV-GRVL	Gravel or Stone Drives	HIDDEN	0.13	8	9		X						
V-SWLK-ASPH	Asphalt Sidewalks	HIDDEN	0.13	8	9		X						
V-SWLK-BRCK	Brick Sidewalks	HIDDEN	0.13	8	9								
V-SWLK-CONC	Concrete Sidewalks	HIDDEN	0.13	8	9		X						
VN-DRIV-ASPH	Asphalt Drive Points	HIDDEN	0.13	8	9		X						
VN-DRIV-CONC	Concrete Drive Points	HIDDEN	0.13	8	9		X						
VN-DRIV-GRVL	Gravel or Stone Drive Points	HIDDEN	0.13	8	9		X						
VN-SWLK-ASPH	Asphalt Sidewalk Points	HIDDEN	0.13	8	9		X						
VN-SWLK-BRCK	Brick Sidewalk Points	HIDDEN	0.13	8	9								
VN-SWLK-CONC	Concrete Sidewalk Points	HIDDEN	0.13	8	9								
VN-SWLK-NPLT	Sidewalk Points No Plot	Continuous	0.13	5	1		X						
Electrical													
V-ELEC-OVHD	Overhead electrical utility lines	OHEL	0.13	10	10		X	X	X		X	X	X
V-ELEC-OVHD-IDEN	Identifier tags, symbol modifiers, and text	Continuous	0.13	10	10		X	X	X		X	X	X
V-ELEC-UGND	Underground electrical utility lines	UGEL	0.13	10	10		X	X	X		X	X	X
V-ELEC-UGND-IDEN	Identifier tags, symbol modifiers, and text	Continuous	0.13	10	10		X	X	X		X	X	X
VN-ELEC-IDEN	Electric Points Annotation	Continuous	0.13	10	10		X	X	X		X		
VN-ELEC-OVHD	Overhead Electrical Points	Continuous	0.13	10	10		X	X	X		X		
VN-ELEC	Electric Points	Continuous	0.13	10	10		X	X	X		X	X	X
VN-ELEC-JBOX	Electric Junction Box	Continuous	0.13	10	10		X	X	X		X	X	X
VN-ELEC-MHOL	Electric Manhole	Continuous	0.13	10	10		X	X	X		X	X	X
VN-ELEC-NPLT	Electric Points No Plot	Continuous	0.13	5	1								
VN-ELEC-POLE	Electric Pole	Continuous	0.13	10	10		X	X	X		X	X	X
VN-ELEC-UGND	Underground Electrical Points	Continuous	0.13	10	10		X	X	X		X		
Equipment													
V-ALRM-EQPM	Alarm Equipment	Continuous	0.13	1	3								
V-COMM-EQPM	Misc. Communications Distribution Equipment	Continuous	0.13	42	182								
V-DIAG-EQPM	Diagram: Equipment	Continuous	0.20	7	0								
V-GRND-EQPM	Ground System: Equipment	Continuous	0.18	8	9								
V-NGAS-EQPM	Equipment (pumps, motors, etc.)	Continuous	0.13	42	182								
V-POWR-EQPM	Power: Equipment	Continuous	0.13	10	10								
VN-POWR-EQPM	Power: Equipment Points	Continuous	0.13	10	10								

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AIA Format	Level/Layer Description												
Flood Hazard Area													
V-FLHA-025Y	25 year mark	DIVIDE2	0.25	7	0		X						
V-FLHA-050Y	50 year mark	DASHED	0.25	7	0		X						
V-FLHA-100Y	100 year mark	Continuous	0.25	7	0		X						
V-FLHA-200Y	200 year mark	HIDDEN	0.25	7	0		X						
V-FLHA-500Y	500 year mark	CENTER	0.25	7	0		X						
V-FLHA-FDPL	Flood Plain Line	DIVIDE2	0.25	7	0								
V-FLHA-IDEN	Flood hazard area annotation	Continuous	0.25	7	0		X						
Floodwalls													
V-FLOD-BASE	Floodwall base of wall	Continuous	0.18	8	9	X	X						
V-FLOD-BASE-IDEN	Floodwall base of wall annotation	Continuous	0.13	8	9	X	X						
V-FLOD-CNTR	Floodwall centerline	CENTER	0.18	8	9	X	X						X
V-FLOD-CNTR-IDEN	Floodwall centerline annotation	Continuous	0.13	8	9	X	X						X
V-FLOD-DRNS	Floodwall toe drain	Continuous	0.13	8	9	X	X					X	X
V-FLOD-DRNS-IDEN	Floodwall toe drain annotation	Continuous	0.13	8	9	X	X					X	X
V-FLOD-PILE	Floodwall sheet piling	Continuous	0.13	8	9	X	X					X	X
V-FLOD-PILE-IDEN	Floodwall sheet piling annotation	Continuous	0.13	8	9	X	X					X	X
V-FLOD-TOE~	Floodwall toe outline	Continuous	0.13	8	9	X	X					X	X
V-FLOD-TOP~	Floodwall top of wall	Continuous	0.13	8	9	X	X					X	X
V-FLOD-TOP~IDEN	Floodwall top of wall annotation	Continuous	0.13	8	9	X	X					X	X
Grade Linework													
V-GRAD-EXST	Existing grade, Original Ground	DASHED	0.20	3	2	X						X	X
V-GRAD-IDEN	Grade annotation	Continuous	0.25	8	9	X						X	X
V-GRAD-PRED	Pre-dredge	Continuous	0.13	8	9	X						X	X
V-GRAD-SCLN	Stability control line	CENTER	0.13	8	9	X						X	X
Grid Lines													
V-GRID-FRAM	Frame	Continuous	0.35	4	7							X	X
V-GRID-MAJR	Major grid lines	Continuous	0.35	4	7							X	X
V-GRID-MINR	Minor grid lines	Continuous	0.13	8	9							X	X
V-GRID-TEXT	Border text, annotation	Continuous	0.35	4	7							X	X
Ground Systems													
V-DIAG-GRND	Diagram: Ground	Continuous	0.20	7	0								
V-GRND-CIRC	Ground system: circuits	Continuous	0.18	8	9								
V-GRND-CNMB	Ground system: circuit number	Continuous	0.13	8	9								
V-GRND-DIAG	Ground system: diagrams	Continuous	0.18	8	9								
V-GRND-EQPM	Ground system: equipment	Continuous	0.18	8	9								
VN-SITE-GRND	Existing Ground Shot Points	Continuous	0.13	8	9								
Joints													
V-JNTS-CNSL	Construction joints - longitudinal	Continuous	0.13	8	9	X	X						
V-JNTS-CNST	Construction joints - transverse	Continuous	0.13	8	9	X	X						
V-JNTS-CNTL	Contraction joints - longitudinal	Continuous	0.13	8	9	X	X						
V-JNTS-CNTT	Contraction joints - transverse	Continuous	0.13	8	9	X	X						
V-JNTS-EDGE	Thickened edges	Continuous	0.18	8	9		X						
V-JNTS-EXPJ	Expansion joints	Continuous	0.18	8	9		X						
V-JNTS-IDEN	Joint annotation	Continuous	0.13	8	9		X						

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AIA Format	Level/Layer Description												
Levees													
V-LEVE-BANK-IDEN	Levee top of bank annotation	Continuous	0.13	8	9	X	X						X
V-LEVE-TOPB	Levee top of bank	Continuous	0.13	8	9		X						X
V-LEVE-BERM	Existing berms	Continuous	0.13	8	9	X	X						X
V-LEVE-BNCH	Levee bench design feature lines (breaklines form DTMs)	Continuous	0.13	8	9	X	X						X
V-LEVE-BNCH-IDEN	Levee bench annotation	Continuous	0.13	8	9	X	X						X
V-LEVE-BRRW	Borrow limits	Continuous	0.13	8	9	X	X						X
V-LEVE-CNTR	Levee centerline	CENTER	0.13	8	9		X						X
V-LEVE-CNTR-IDEN	Levee centerline annotation	Continuous	0.13	8	9		X						X
V-LEVE-IDEN	Levee annotation	Continuous	0.13	8	9		X						X
V-LEVE-OTLN	Levee outline	Continuous	0.13	8	9		X						X
V-LEVE-SLOP	Levee slope indicator with annotation	Continuous	0.13	8	9	X	X						X
V-LEVE-STAN	Levee stationing	Continuous	0.13	8	9		X						X
V-LEVE-TOE-	Levee toe	HIDDEN	0.13	8	9	X	X						X
V-LEVE-TOE--IDEN	Levee toe annotation	Continuous	0.13	8	9	X	X						X
Lights													
V-LITE-OVHD	Overhead Street Lights	OHSL	0.13	10	10			X	X		X		X
V-LITE-UGND	Underground Street Lights	UGSL	0.13	10	10			X	X		X		X
VN-LITE-IDEN	Light Points Annotator	Continuous	0.13	10	10		X	X	X		X		X
VN-LITE-OVHD	Overhead Lights Points	Continuous	0.13	10	10		X	X	X		X		X
VN-LITE-UGND	Underground Lights Points	Continuous	0.13	10	10		X	X	X		X		X
Natural Gas													
V-NGAS-EQPM	Equipment (pumps, motors, etc.)	Continuous	0.13	42	182						X		
V-NGAS-IDEN	Identifier tags, symbol modifier, and text	Continuous	0.13	42	182		X	X			X	X	X
V-NGAS-LINE	Natural Gas Single Line	V_GAS	0.13	42	182								
V-NGAS-NPLT	Non-Plotting Graphic Information	Continuous	0.13	5	1								
V-NGAS-STRC	Manholes, valves and other structures	Continuous	0.13	42	182		X	X			X	X	X
V-NGAS-PIPE	Natural gas piping	Varies	0.13	42	182		X	X			X	X	X
V-NGAS-SIGN	Surface markers/signs	Continuous	0.13	42	182						X		
VN-NGAS	Natural Gas Points	Continuous	0.13	42	182						X		
Parking Lots													
V-PRKG-CNTR	Parking lot centerlines	CENTER	0.13	8	9		X	X					
V-PRKG-CNTR-IDEN	Parking lot centerline annotation	Continuous	0.13	8	9		X	X					
V-PRKG-CURB	Curbs and gutters	Continuous	0.13	1	3		X	X					
V-PRKG-DRAIN	Drainage slope indications	Continuous	0.13	8	9		X	X					
V-PRKG-FIXT	Parking lot fixtures (e.g., wheel stops, parking meters)	Continuous	0.13	8	9		X	X				X	X
V-PRKG-FLNE	Fire lanes	Continuous	0.13	1	3		X	X				X	X
V-PRKG-IDEN	Parking lot annotation	Continuous	0.13	8	9		X	X				X	X
V-PRKG-MRKG	Pavement markings	Continuous	0.13	8	9		X	X					
V-PRKG-OTLN	Parking lot outlines	HIDDEN	0.13	1	3		X	X					
V-PRKG-SIGN	Parking Signs	Continuous	0.13	8	9		X	X					
VN-PRKG-NPLT	Parking No Plot	Continuous	0.13	5	1								
Power													
V-POWER-CIRC	Power: Circuit	Continuous	0.13	10	10		X		X	X	X		
V-POWER-CNMB	Power: Circuit Number	Continuous	0.13	10	10		X		X	X	X		

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AIA Format	Level/Layer Description												
V-POWR-CNDDT	Power: Conduit	Continuous	0.13	10	10		X		X	X	X		
V-POWR-DEVC	Capacitors, voltage regulators, motors, buses, generators, meters, grounds, and markers	Continuous	0.13	10	10		X		X	X	X		
V-POWR-EQPM	Power: Equipment	Continuous	0.13	10	10		X		X	X	X		
V-POWR-IDEN	Power annotation	Continuous	0.13	8	9		X	X	X				
V-POWR-PANL	Power: panels	Continuous	0.13	10	10				X				
V-POWR-POLE-IDEN	Identifier tags, symbol modifiers, and text	Continuous	0.13	8	9				X				
V-POWR-SBST	Substation equipment	Continuous	0.13	10	10				X				
V-POWR-SWCH	Fuse cutouts, pole mounted switches, circuit breakers, gang operated disconnects, reclosers,	Continuous	0.13	10	10				X				
V-POWR-XFMR-PADM	Pad mounted transformers	Continuous	0.13	10	10				X				
V-POWR-XFMR-POLM	Pole mounted transformers	Continuous	0.13	10	10				X				
VN-POWR-EQPM	Power: Equipment Points	Continuous	0.13	10	10								
VN-POWR-NPLT	Power No Plot	Continuous	0.13	5	1								
Property													
V-PROP-BRNG	Bearings and distance labels	Continuous	0.13	8	9		X	X					X
V-PROP-PERM-ESMT	Property Permanent Easements	ESMT	0.13	8	9		X	X					X
V-PROP-IDEN	Property annotation	Continuous	0.13	8	9		X	X					X
V-PROP-PRCL-A	Abandoned (Original) Parcel Lines	OPLATL	0.13	8	9		X	X					X
V-PROP-PRCL	Current Parcel Lines	PROPL	0.13	8	9		X	X					X
V-PROP-QTRS	Quarter Section lines	DASHED	0.13	8	9		X	X					X
V-PROP-SBCK	Setback lines	DASHED	0.13	8	9		X	X					X
V-PROP-SECT	Section lines	Continuous	0.13	8	9		X	X					X
V-PROP-SECT-IDEN	Section lines annotation	Continuous	0.13	8	9		X	X					X
V-PROP-SUBD	Subdivision (interior) lines	Continuous	0.25	8	9		X	X					X
V-PROP-TEMP-ESMT	Property Temporary Easements	TESMT	0.13	8	9		X	X					X
V-PROP-TSHP	Township/range lines	DASHDOT	0.18	8	9		X	X					X
V-PROP-TSHP-IDEN	Township/range lines annotation	Continuous	0.13	8	9		X	X					X
VC-PROP-MNMT	Calculated Property Monument Points	Continuous	0.13	7	0								
VN-PROP-MNMT	Property Monument Points	Continuous	0.13	7	0								
VN-PROP-NPLT	Property No Plot	Continuous	0.13	5	1								
VN-PROP-PRCL	Property Parcel Points	Continuous	0.13	8	9		X	X					X
Riprap and Other Permanent Erosion Control Items													
V-RRAP-GABN	Gabions	Continuous	0.13	45	222		X						
V-RRAP-MATS	Articulated concrete mats	Continuous	0.13	45	222		X						
V-RRAP-RVMT	Revetments	Continuous	0.13	45	222		X						
V-RRAP-WEIR	Weirs	Continuous	0.13	45	222		X						
Rivers													
V-RIVR-BOTM	River bottom	DASHED	0.13	4	7		X					X	X
V-RIVR-CNTR	Centerline of river	CENTER	0.18	4	7		X					X	X
V-RIVR-EDGE	River edge	Continuous	0.18	4	7		X					X	X
V-RIVR-IDEN	Identifier tags, symbol modifiers, and text	Continuous	0.13	4	7		X					X	X
V-RIVR-TOPB	Top of river bank	Continuous	0.13	4	7		X					X	X
Roads, Railroads, Streets, and Highways													
V-RAIL-TRAK	Railroad Tracks	RAILRD	0.13	8	9								
V-RAIL-RWAY	Railroad Right of ways	RTOFWY	0.13	8	9		X	X					X
V-ROAD-ASPH	Road outlines - asphalt surface	Continuous	0.13	8	9		X	X					X

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AIA Format	Level/Layer Description												
V-ROAD-BARR	Road Barrier Walls, K-Rails, Jersey Barriers, etc.	Continuous	0.13	8	9								
V-ROAD-CNTR	Road centerlines	CENTER	0.13	8	9		X	X					X
V-ROAD-CONC	Road outlines - concrete surface	Continuous	0.13	8	9		X	X					X
V-ROAD-CURB	Curbs and gutters	Continuous	0.13	8	9		X	X					X
V-ROAD-GRAL	Guard rails	GUARD	0.13	8	9		X	X					X
V-ROAD-GRVL	Road outlines - gravel surface	Continuous	0.13	8	9		X	X					X
V-ROAD-IDEN	Road, street, highway annotation	Continuous	0.13	1	3		X	X				X	X
V-ROAD-MRKG	Pavement markings	Continuous	0.13	8	9		X	X					X
V-ROAD-PATT	Joint patterns, text and dimensions	Continuous	0.13	8	9		X						X
V-ROAD-RWAY	Road Right of ways	RTOFWY	0.25	8	9		X	X					X
VN-ROAD-ASPH	Road Asphalt Surface Points	Continuous	0.13	5	1								
VN-ROAD-CNTR	Road centerline Points	Continuous	0.13	8	9		X	X					X
VN-ROAD-CONC	Road Concrete Surface Points	Continuous	0.13	8	9		X	X					X
VN-ROAD-CURB	Road Curb and Gutter Points	Continuous	0.13	8	9		X						X
VN-ROAD-GRAL	Guard Rails Points	Continuous	0.13	8	9		X	X					X
VN-ROAD-GRVL	Road Gravel surface Points	Continuous	0.13	8	9		X	X					X
VN-ROAD-IDEN	Road Points Annotation	Continuous	0.13	8	9		X	X					X
VN-ROAD-NPLT	Existing Points No Plot	Continuous	0.13	5	1								
VN-ROAD-SIGN	Sign Points	Continuous	0.13	8	9		X						X
Sanitary Sewer													
V-SSWR-FILT	Filtration beds	Continuous	0.13	80	11	X					X		X
V-SSWR-FTTG	Caps and cleanouts	Continuous	0.18	80	11						X		X
V-SSWR-LAGN	Lagoons	Continuous	0.18	80	11	X	X	X			X		X
V-SSWR-LEAC	Leach field	Continuous	0.13	80	11	X					X		X
V-SSWR-MAIN-LINE	Sanitary Sewer Main Single Line	SAN	0.13	80	11								
V-SSWR-MAIN-PIPE	Sanitary sewer piping	Varies	0.18	80	11		X	X			X	X	X
V-SSWR-NITF	Nitrification drain fields	Continuous	0.13	80	11	X	X	X			X		X
V-SSWR-PIPE-IDEN	Identifier tags, symbol modifier, and text	Continuous	0.13	80	11		X	X			X	X	X
V-SSWR-PIPE-PROF	Sanitary Sewer Pipes in Profile	HIDDEN	0.18	80	11		X	X			X	X	X
V-SSWR-PLNT	Treatment plants	Continuous	0.13	80	11		X	X			X		X
V-SSWR-LATL-LINE	Sanitary Sewer Lateral Service Single Line	SAN	0.13	80	11								
V-SSWR-LATL-PIPE	Sanitary Sewer Lateral Service Piping	Varies	0.13	80	11						X		X
V-SSWR-NPLT	Sanitary Sewer No Plot	Continuous	0.13	5	1								
V-SSWR-SECT	Sanitary Sewer Pipes in Sector	Continuous	0.18	80	11						X		X
V-SSWR-STNS-PUMP	Booster pump stations	Continuous	0.18	80	11	X	X	X			X		X
V-SSWR-STRC	Sanitary Sewer Structures	Continuous	0.18	80	11		X	X			X		X
V-SSWR-STRC-IDEN	Sanitary Sewer Structures Annotation	Continuous	0.13	80	11		X	X			X		X
V-SSWR-STRC-PROF	Sanitary Sewer Structures in Profile	HIDDEN	0.18	80	11		X	X			X		X
V-SSWR-TANK	Septic tanks	Continuous	0.18	80	11		X	X			X		X
VN-SSWR	Sanitary Points	Continuous	0.13	80	11		X	X			X		X
VN-SSWR-IDEN	Sanitary Sewer Points Annotator	Continuous	0.13	80	11		X	X			X		X
VN-SSWR-NPLT	Existing Sanitary Points No Plot	Continuous	0.13	5	1								
Sections													
V-SECT-IDEN	Component identification numbers	Continuous	0.13	8	9								X
V-SECT-MBND	Material beyond section cut	Continuous	0.13	8	9								X

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AIA Format	Level/Layer Description												
V-SECT-MCUT	Material cut by section	Continuous	0.13	8	9								X
V-SECT-PATT	Textures and hatch patterns	Continuous	0.13	8	9								X
V-SECT-SAMP	Sample Lines	Continuous	0.15	13	35								
Site Features													
V-SITE-CONC	Concrete Site Features (pads, patios, etc...)	Continuous	0.13	8	9		X	X					
V-SITE-BOTB	Toe of Slope	Continuous	0.13	8	9		X	X					
V-SITE-BRDG	Existing Bridges	Continuous	0.13	8	9		X	X					
V-SITE-FENC-LINK	Chainlink Fence	CHAINLINK	0.13	8	9		X	X					
V-SITE-FENC-IDEN	Fence, handrail, ramp, and trail annotation	Continuous	0.13	8	9		X	X					
V-SITE-FENC-WOOD	Wood Fence	FENCELINE2	0.13	8	9		X	X					
V-SITE-FENC-VINL	Vinyl Fence	FENCELINE2	0.13	8	9		X	X					
V-SITE-FENC-FARM	Farm Field Type Fence	CIRCLEFENCE	0.13	8	9								
V-SITE-GENF	Existing General Site Features	Continuous	0.13	8	9		X	X				X	X
V-SITE-IDEN	Existing site feature/structure annotation	Continuous	0.13	8	9		X	X				X	X
V-SITE-LSCP	Existing Landscaping	Continuous	0.13	8	9		X	X				X	X
V-SITE-SIGN	Site Signs	Continuous	0.13	8	9		X	X				X	X
V-SITE-STRC	Structures (bridges, sheds, foundation pads, footings, Retaining Walls, etc.)	Continuous	0.13	8	9		X	X				X	X
V-SITE-TOPB	Top of Bank	Continuous	0.13	8	9		X	X				X	X
V-SITE-TREE	Trees	Continuous	0.13	8	9		X	X				X	X
V-SITE-VEGE	Existing treelines and vegetation	TREEL	0.13	8	9		X	X					
V-SITE-WWAY	Existing waterways (rivers, canals, etc...)	Continuous	0.13	8	9		X	X					
VN-SITE-CONC	Concrete Site Feature Points (pads, patios, etc)	Continuous	0.13	8	9		X	X					
VN-SITE-FENC	Fence Points	Continuous	0.13	8	9		X	X					
VN-SITE-GENF	Existing General Feature Site Points	Continuous	0.13	8	9		X	X				X	X
VN-SITE-GRND	Existing Ground Shot Points	Continuous	0.13	8	9		X	X				X	X
VN-SITE-IDEN	Existing Site Points Annotator	Continuous	0.13	8	9		X	X				X	X
VN-SITE-NPLT	Existing Points No Plo	Continuous	0.13	5	1		X	X				X	X
VN-SITE-SIGN	Existing Sign Points	Continuous	0.13	8	9		X	X				X	X
VN-SITE-TREE	Existing Tree Points	Continuous	0.13	8	9		X	X				X	X
VN-SITE-TREE-IDEN	Existing Tree Points Annotator	Continuous	0.13	8	9		X	X				X	X
VN-SITE-VEGE	Existing Vegetation Points	Continuous	0.13	8	9		X	X				X	X
VN-SITE-VEGE-IDEN	Existing Site Vegetation Points Annotator	Continuous	0.13	8	9		X	X				X	X
VN-SITE-VEGE-NPLT	Existing Vegetation Points No Plo	Continuous	0.13	5	1								
VS-SITE-MNMT	Site Staking Points	Continuous	0.13	7	0								
Storm Sewer													
V-STRM-CHUT	Chutes and concrete erosion control structures	Continuous	0.18	45	222	X					X		X
V-STRM-CULV	Culverts	Varies	0.18	45	222	X	X	X			X		X
V-STRM-DEVC	Downspouts, flumes, oil/water separators, and flap gates	Continuous	0.18	45	222					X			X
V-STRM-FLOW	Flow direction arrows	Continuous	0.18	45	222					X			X
V-STRM-HWAL	Headwalls and endwalls	Continuous	0.18	45	222		X	X			X		X
V-STRM-MAIN-LINE	Storm sewer Single Line	STORM	0.18	45	222								
V-STRM-MAIN-PIPE	Storm sewer piping	Varies	0.18	45	222		X	X			X	X	X
V-STRM-PIPE-IDEN	Storm Pipe Annotation	Continuous	0.18	45	222		X	X			X	X	X
V-STRM-PIPE-PROF	Storm Pipes in Profile	HIDDEN	0.18	45	222		X	X			X	X	X
V-STRM-POND	Retention ponds, lagoons, watersheds, and basins	Continuous	0.18	45	222		X	X			X		X

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AIA Format	Level/Layer Description												
V-STRM-ROOF	Roof drain line	Continuous	0.18	45	222						X		X
V-STRM-SECT	Storm in Section	Continuous	0.18	45	222		X	X			X		X
V-STRM-NPLT	Storm Sewer No Plot	Continuous	0.13	5	1								
V-STRM-LATL-LINE	Storm sewer lateral Single Line	STORM	0.18	45	222								
V-STRM-LATL-PIPE	Storm sewer lateral service piping	Varies	0.18	45	222		X	X			X		X
V-STRM-STNS-PUMP	Pump stations	Continuous	0.18	45	222	X					X		X
V-STRM-STRC	Storm Structures	Continuous	0.18	45	222		X	X			X		X
V-STRM-STRC-IDEN	Storm Structures Annotator	Continuous	0.18	45	222		X	X			X	X	X
V-STRM-STRC-PROF	Storm Structures in Profile	Continuous	0.18	45	222		X	X			X	X	X
V-STRM-SUBS-PIPE	Subsurface drain piping	Varies	0.18	45	222						X		X
VN-STRM	Storm Points	Continuous	0.13	45	222						X		X
VN-STRM-IDEN	Storm Points Annotator	Continuous	0.13	45	222						X		X
VN-STRM-NPLT	Existing Storm Points No Plot	Continuous	0.13	5	1								
Topography													
V-TOPO-BASN	Watershed	DASHDOT	0.13	8	9		X						X
V-TOPO-BKLN	Breaklines	Continuous	0.18	5	1	X	X						X
V-TOPO-BNDY-EXTR	Surface exterior boundary	Continuous	0.13	5	1		X						X
V-TOPO-BNDY-INTR	Surface interior boundary	Continuous	0.13	5	1		X						X
V-TOPO-COOR	Coordinate grid text annotation	Continuous	0.13	8	9	X	X						X
V-TOPO-COOR-LALO	Latitude and longitude grid ticks	Continuous	0.13	8	9	X	X						X
V-TOPO-COOR-STAT	State Plane coordinate ticks	Continuous	0.13	8	9	X	X						X
V-TOPO-COOR-UTM-	UTM coordinate ticks	Continuous	0.13	8	9	X	X						X
V-TOPO-DTMO	DTM obscure area boundary	Continuous	0.13	8	9	X	X						X
V-TOPO-DTMP	DTM points	Continuous	0.13	8	9	X	X						X
V-TOPO-DTMT	DTM triangles	Continuous	0.13	4	7	X	X						X
V-TOPO-MAJR	Major contours	Dashed	0.13	13	35		X						X
V-TOPO-MAJR-IDEN	Major contours - annotation	Continuous	0.13	13	35		X						X
V-TOPO-MINR	Minor contours	Hidden	0.09	8	9		X						X
V-TOPO-MINR-IDEN	Minor contours - annotation	Continuous	0.13	8	9		X						X
V-TOPO-SHAP	Application generated shapes/lines	Continuous	0.13	8	9	X	X						X
V-TOPO-SLOP-FILL	Cut/fill slopes	Continuous	0.13	8	9	X	X						X
V-TOPO-SLOP-IDEN	Cut/fill slope, top/toe slope annotation	Continuous	0.13	8	9	X	X						X
V-TOPO-SLOP-TOPT	Top/toe slopes	Continuous	0.13	8	9	X	X						X
V-TOPO-SPOT	Spot elevations	Continuous	0.18	8	9		X						X
V-TOPO-SURF	Surface	Continuous	0.13	8	9		X						X
V-TOPO-SURF-IDEN	Surface Annotator	Continuous	0.25	8	9		X						X
V-TOPO-SURF-LEGN	Surface Legend	Continuous	0.25	Varies	Varies		X						X
V-TOPO-SURF-NPLT	Surface No Plot	Continuous	0.13	5	1		X						X
V-TOPO-VOID	Surface void region	Continuous	0.13	5	1		X						X
V-TOPO-WATR	Water level reference (e.g., LWRP, after-grading LWRP, SWP, etc.)	Continuous	0.13	Varies	Varies		X						X
VN-TOPO-NPLT	TOPO No Plot Points	Continuous	0.18	5	1								
Underground Ductbanks (to be used when multiple systems are in one ductbank system)													
V-DBNK-MULT	Ductbank	EUDUCX	0.13	10	10	X	X	X	X	X		X	X
V-DBNK-MULT-IDEN	Identifier tags, symbol modifier and text	Continuous	0.18	10	10	X	X	X	X	X		X	X

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Water													
V-WATR-HYDT	Hydrants	Continuous	0.18	150	40		X	X			X		
V-WATR-LATL-LINE	Water lateral Single Line	V_WATER	0.18	150	40								
V-WATR-LATL-PIPE	Water lateral piping	Varies	0.18	150	40					X	X		X
V-WATR-MAIN-LINE	Water Main Single Line	V_WATER	0.18	150	40								
V-WATR-MAIN-PIPE	Main water piping & fittings	Varies	0.18	150	40		X	X			X		
V-WATR-METR	Meters	Continuous	0.18	150	40	X					X		
V-WATR-MISC-STRC	Miscellaneous Water Structures	Continuous	0.18	150	40		X	X			X		
V-WATR-NPLT	Water No Plot information	Continuous	0.13	5	1								
V-WATR-PIPE-IDEN	Water Pipe Annotation	Continuous	0.13	150	40		X	X			X		
V-WATR-PIPE-PROF	Water Pipe in Profile	HIDDEN	0.18	150	40		X	X			X		
V-WATR-PITS-VENT	Vent pits	Continuous	0.18	150	40	X					X		
V-WATR-PITS-VALV	Valve pits, Valve vaults	Continuous	0.18	150	40	X	X	X			X		
V-WATR-SECT	Water Pipes, Structures, etc... in Sector	HIDDEN	0.18	150	40		X	X			X		
V-WATR-STNS-PUMP	Booster pump stations	Continuous	0.18	150	40						X		
V-WATR-STNS-REDC	Pressure reducing stations	Continuous	0.18	150	40	X					X		
V-WATR-STRC-IDEN	Water Structures Annotation	Continuous	0.13	150	40						X		
V-WATR-STRC-PROF	Water Structures in Profile	Continuous	0.18	150	40		X	X			X		
V-WATR-TANK	Water storage tanks	Continuous	0.18	150	40		X	X			X		
V-WATR-VALV	Water valves	Continuous	0.18	150	40						X		
V-WATR-WELL	Water well houses	Continuous	0.18	150	40						X		
VN-WATR	Water Points	Continuous	0.18	150	40		X				X	X	X
VN-WATR-IDEN	Water Points Annotation	Continuous	0.13	150	40		X				X	X	X
Wetlands													
V-WETL-PATT	Patterning, poche, shading, and hatching	Continuous	0.13	8	9		X	X			X		
V-WETL-OTLN	Wetland Outlines	Continuous	0.13	8	9		X						X
V-WETL-IDEN	Wetland annotation	Continuous	0.13	8	9		X						X
V-WETL-NPLT	Wetland Points No Plot	Continuous	0.13	5	1								
V-WETL-SWMP	Swamps	Continuous	0.13	8	9	X	X						X
VN-WETL	Wetland Points	Continuous	0.13	8	9		X						X
VN-WETL-IDEN	Wetland Points Annotation	Continuous	0.13	8	9		X						X

Note: V = Varies, NA = Not Applicable