

TD5451S - Attachment 1(A), Uniform Symbols for Electric Estimating and Mapping - (Devices / Structures)

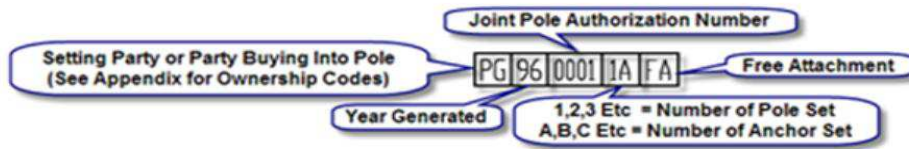
CAD Symbol	GIS Symbol	Definition	Revised
		Existing Transformer	
		Proposed Transformer installation (CAD - EST Only)	
	N/A	Transformer to be removed (EST)	
		Future Transformer	
		Transformer, Primary Voltage Step Down/ Step up - show Operating Number (GIS), size and primary voltages	
		Transformer, Single Phase - show size, abbreviated CGC Coordinates and label as "ISO" (CAD only) if isolated from secondary	
		Equipment/Potential Transformer - Label as "PT" (CAD only) GIS: Show size (0.5), Abbreviated CGC Coordinates - GIS Attributes will indicate Subtype = "Equipment" and Transformer Type = "77 Equipment Transformer"	
		Two Single Phase Transformer Bank - show size , abbreviated CGC Coordinates and voltage if other than 120/240	
		Three Single Phase Transformer Bank - show size, abbreviated CGC Coordinates and voltage if other than 120/240	
		Three Phase Transformer - show size, abbreviated CGC Coordinates and secondary voltage if other than 120/240	
		Three Single Phase Transformer Bank, Stabilizes Phase Voltage - show size, abbreviated CGC Coordinates and "STB" for stabilizing bank and Voltage if other than 120/240	
		Three Single Phase Transformer Bank, Grounding - show size, abbreviated CGC Coordinates and "GRD" for stabilizing bank and Voltage if other than 120/240	
		Transformer Used For Streetlights - show size and "R.O." for Regulated Output	
		Transformer - Booster (Single Unit), Fixed/ Manual - show Operating Number, size in amps & direction of boost (Tie to Primary)	02/16
		Transformer - Booster (Two Units), Fixed/ Manual - show Operating Number, size in amps & direction of boost (Tie to Primary)	02/16
		Transformer - Booster (Three Units), Fixed/ Manual - show Operating Number, size in amps & direction of boost (Tie to Primary)	02/16
		Transformer, Bi-Directional Booster, Automatic - show Operating Number, size in amps (A = Auto booster)	
		Transformer, Bi-Directional Booster, Automatic - show Operating Number, size in amps (A = Auto booster)	
		Proposed Regulator - show Operating Number, size and total number of regulators (EST)	
		Regulator - show Operating Number, size and total number of regulators, show normal flow (Single Potential shown)	
		Regulator w/ Reverse Flow Capability - show Operating Number, size and total number of regulators (Double Potential shown)	
		(CAD) Substation - show name, transmission and distribution voltages, bank and circuit numbers (GIS) Substation - show name and circuit numbers Note: Separate, detailed single-line diagrams of each Substation are available in GIS- Refer to GIS Substation Symbology Section for GIS Single -Line Substation Symbology.	

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CAD Symbol	GIS Symbol	Definition	Revised
	N/A	Head Guy, Existing (EST)	
	N/A	Head Guy, Proposed, with rating in thousands of pounds (EST)	

Breakdown of Joint Pole Authorization Number (1996 & Newer)

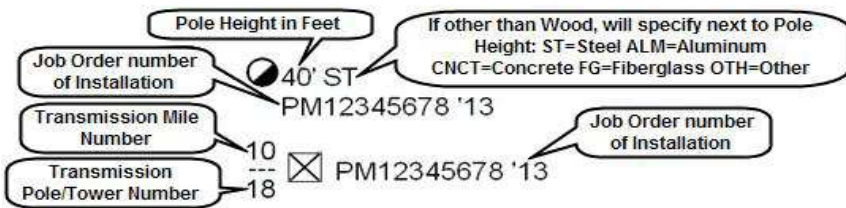
Note: If a Free Attachment (FA) by a member of the Northern California Joint Pole Association exists on a solely owned, jointly owned or customer/foreign owned pole, with foreign contact - List the other utility Form-2 Number, followed by the number of pole set, ending with "FA"



Breakdown of Contact Permit Number (2006 & Newer)




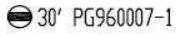

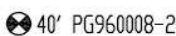















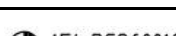

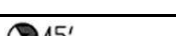

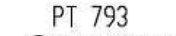



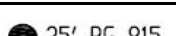




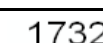

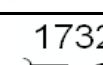










Examples of Standard Annotation for Support Structures





















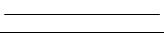
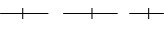




		Anchor & Guy - Jointly Owned	
		Anchor & Guy - Solely (PG&E) Owned (EST)	
		Joint Anchor & Guy, Proposed PG=PG&E to set / PT=SBC (Pac Bell) to set (EST)	
		Anchor & Guy - Solely (PG&E) Owned, Proposed (EST)	
		Proposed Pole Show height in feet and class (EST)	
	N/A	Pole Replacement, set in place - show old and new height and new class (EST)	
		Pole Replacement Show new pole set "Y" feet from old pole and new pole height & class (EST)	
	N/A	Existing Pole to be removed - show height (EST)	
		Future Pole	
		Distribution Pole, Wood, Solely Owned - show height in feet, also can be used for service clearance pole	
		Distribution Pole - show height in feet and "ST" for Steel or "FG" for Fiberglass	
		Distribution Pole, Solely Owned, w/ Contact (Contacted Pole) - show height in feet, contact permit number and add "M" for Multiple Contacts by any single tenant - Contact Permit Number available in GIS attributes	

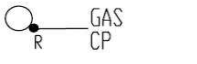
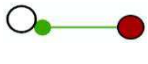
















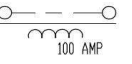
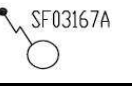










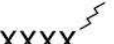









TD5451S - Attachment 1(A), Uniform Symbols for Electric Estimating and Mapping - (Devices / Structures)

CAD Symbol	GIS Symbol	Definition	Revised
 45'H	Under GIS Review	Distribution Pole, Streamline - Show height in feet, gauge (H,M,L,X)	
 30'	 30'	Guy Stub, Solely Owned - show height in feet	
 30' PG960007-1	 30'	Guy Stub, Jointly Owned - show height in feet & JP number - JP Number available in GISattributes	
 40' PG960008-2	 40'	Communication Pole, Jointly Owned - show height in feet & JP number - JP Number available in GISattributes	
 45'	 40'	Communication Pole, Company Owned - show height in feet	
45'  45'	45'  45'	Solely Owned Pole w/ Push Brace - show height in feet	
45'  45' PG960001-1	45'  45'	Jointly Owned Pole w/ Push Brace - show height in feet & JP number - JP Number available in GISattributes	
$\frac{X}{Y}$  60'	X ---  60' Y	Transmission Pole, Wood, Solely Owned - show height in feet & structure number	
PT 76 $\frac{6}{9}$  60'	X ---  60' Y	Transmission Pole, Wood, Solely Owned, Foreign Contact - show height in feet, contact number and structure number - Foreign Contact available in GISattributes	
$\frac{3}{1}$  40' PG960008-1	X ---  60' Y	Transmission Pole, Wood, Jointly Owned - show height in feet, JP number and structure number - JP Number available in GISattributes	
$\frac{10}{5}$ 04-0011-15  60' PG960002-3	X ---  60' Y	Transmission Pole, Wood, Jointly Owned, Foreign Contact - show height in feet, JP number, contact number and structure number - JP Number and contact numbers available in GISattributes	
 45' PG960010-1	 45'	Distribution Pole, Wood, Jointly Owned - show height in feet and JP number - JP Number available in GISattributes	
 45' PG960015-2	 45'	Distribution Pole, Wood, Jointly Owned w/ Three or More Owners - show height in feet and JP number - JP Number available in GISattributes	
PT 793  45' PG960011-1	 45'	Foreign Contact on Joint Pole - show height in feet, JP number and file agreement number in pole number file - JP & contact numbers available in GISattributes	
 PT	 45'	Customer/Foreign Owned Pole - show ownership's name (CAD Only), if known (not in JPA)	
 35' PG 815	 45'	Customer/Foreign Owned Pole - contact by company - show height in feet and contact number - Foreign Contact available in GISattributes	
 #153		Tree Mounted Conductor - show contact number (CAD Only)	
 1722	 1732	Company Owned Streetlight Unit (Lumin) attachment - show streetlight number	
 1102 C	 1732 C	Customer/Foreign Owned Streetlight Unit (Lumin) attachment - show streetlight number and "C" for Customer	
 1058	 1058	Metered Electrolier - Customer Owned and Maintained (e.g. A6, LS3, TC1 rates) - show streetlight number (IF provided by customer)	
 1732	 1732	Customer Owned Electrolier - show streetlight number	
 1742	 1732	Existing Company Owned Electrolier - show streetlight number	
 1752	 1732	Proposed Company Owned Electrolier - show streetlight number	



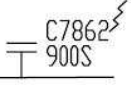

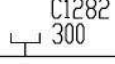
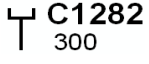

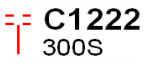
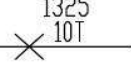
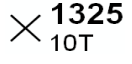


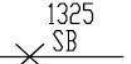
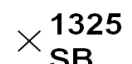
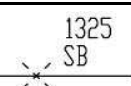
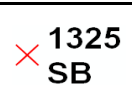
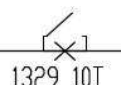



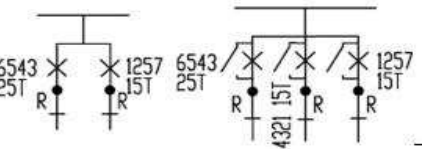
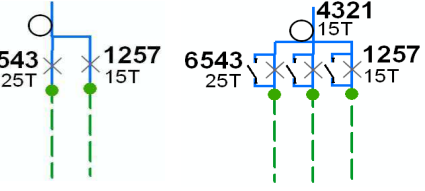
TD5451S - Attachment 1(A), Uniform Symbols for Electric Estimating and Mapping - (Devices / Structures)

CAD Symbol	GIS Symbol	Definition	Revised
		Transmission Tower - Show Mile and Tower Number	
		Transmission Pole, Lattice Steel - Show Mile and Pole Number	
		Transmission Pole, Tubular Steel - Show Mile and Pole Number	
		Transmission Pole, Concrete - Show Mile and Pole Number	
Streetlight Maintenance Map Symbology (Legacy Maps ONLY)			
1534 	N/A	Twin Luminaires - Show Streetlight Number	
1712 	N/A	Streetlight Owned & Maintained by PG&E (LS-1 & OL-1) - Show Streetlight Number	
5723 	N/A	Streetlight Owned & Maintained by PG&E - Installed on Customer Poles (LS-1C) - Show Streetlight Number	
3135 	N/A	Customer Owned, PG&E Maintained (LS-2B & LS-2C) - Show Streetlight Number	
2127 	N/A	Customer Owned & Maintained (LS-2A) - Show Streetlight Number	
1058 	N/A	Metered - Customer Owned & Maintained (e.g. A6, LS-3, TC-1) - Show Streetlight Number (IF Available)	
D1236 	N/A	State Owned Streetlight (LS-2A) - Show Streetlight Number (IF Available)	
MapGuide Streetlight Map Symbology			
1712 	N/A	Streetlight Owned & Maintained by PG&E (LS-1 & OL-1) - Show Streetlight Number	
5723 	N/A	Streetlight Owned & Maintained by PG&E - Installed on Customer Poles (LS-1C) - Show Streetlight Number	
3135 	N/A	Customer Owned, PG&E Maintained (LS-2B & LS-2C) - Show Streetlight Number	
2127 	N/A	Customer Owned & Maintained (LS-2A) - Show Streetlight Number	
60M539-1 	N/A	Metered - Customer Owned & Maintained (e.g. A6, LS-3, TC-1) - Show Streetlight Number (IF Available)	
Transmission Conductor (Legacy Maps Only) - Shown only in the absence of distribution			
	N/A	60 & 70 kV - Show Line Name, Number & Voltage. Show "UG" (IF Applicable)	
	N/A	115 kV - Show Line Name, Number & Voltage. Show "UG" (IF Applicable)	
	N/A	230 kV - Show Line Name, Number & Voltage. Show "UG" (IF Applicable)	
	N/A	500 kV - Show Line Name, Number & Voltage. Show "UG" (IF Applicable)	


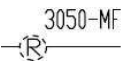
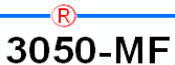
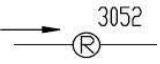
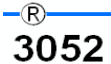
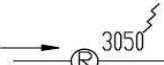

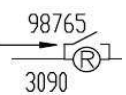
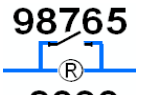
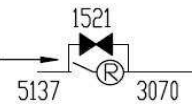
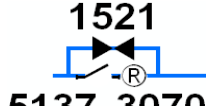
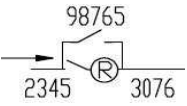
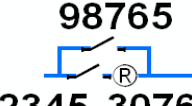
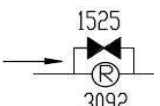

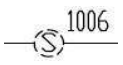

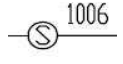
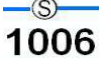
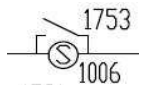
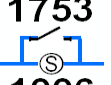
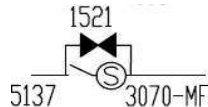
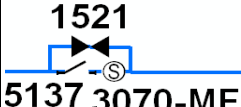
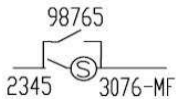
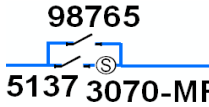
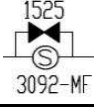
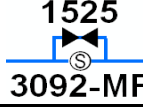
TD5451S - Attachment 1(A), Uniform Symbols for Electric Estimating and Mapping - (Devices / Structures)

CAD Symbol	GIS Symbol	Definition	Revised
		CAD: Cathodic Protection = CP GIS: Cathodic Protection captured as a Delivery Point feature (Customer Type = PGE / Comments = Cathodic Protection)	
N/A		Delivery Point - Customer tie-in point for an unmetered load	
		Riser - Show "R" (CAD ONLY)	
	N/A	Riser Quadrant Detail (EST Only)	
		CAD: Proposed Service Meter (EST Only) GIS: Proposed Service Location (Meter Panel)	
N/A		Existing Service Location (Meter Panel)	
		Primary Meter Installation	
		Co-Generation (Primary or Secondary) - Show Generator, Capacity and Name of Co-Generator	
		Generator on Primary (NOT Co-Generation Projects) - Show Size (IF Available)	
		Generator on Secondary (NOT Co-Generation Projects) - Distribution Plat Maps Only	
N/A		Backup Generator (Primary or Secondary)	
	N/A	Radio Interference Coil with "AMP" (Ampere) Rating	
		Non-PG&E Owned Antenna (attached to pole) - Label with external company provided Antenna Number (CAD Only) - Antenna Number identified in GISattributes	
		Photovoltaic Cell controlling street light - Show IF installed on other pole than transformer	
	N/A	Inverter / Converter	
	N/A	SCADA Radio Repeater (Show on ALL Maps) - Show Name of repeater and label "E" (Electric) or "G" (Gas)	
<p>Note: There has never been a requirement to map underground/ Padmount Fault Indicators. Some areas established a local practice of identifying Fault Indicators on UG/ PM equipment, using the Overhead Fault Indicator symbol. This improperly mapped legacy data was converted in GIS. Future Underground/ Padmount Fault Indicators will not be symbolized in GIS.</p>			
		Overhead Fault Indicator - No designation for Automatic, Label "M" if Manual Reset	5/15
		Overhead Fault Indicator (Proposed) (EST) - No designation for Automatic, Label "M" if Manual Reset	5/15
N/A		Overhead or Underground Line Sensor (GIS ONLY)	
		Supervisory Controlled (SCADA) - Show Lightning Bolt after number of equipment that has the control(CAD) - Shown connected to device(GIS)	
		Supervisory Control w/ FLISR (Fault Location Isolation & Service Restoration)	
		Smart Meter Data Collection Unit (CAD-Proposed Only)(GIS-Proposed/Existing)	
		Proposed Smart Meter Access Point(CAD-Proposed Only)(GISProposed/Existing)	
		Proposed Smart Meter Relay (CAD-Proposed Only)(GIS-Proposed/Existing)	

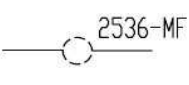
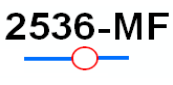
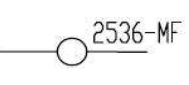

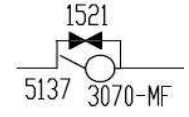
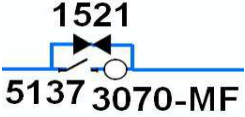
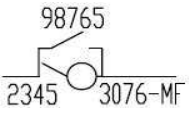
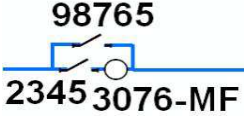
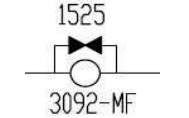

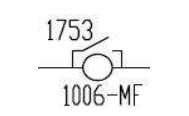
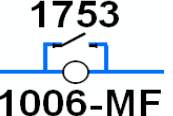
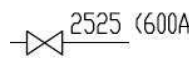


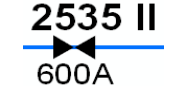
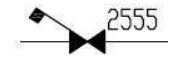

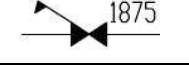


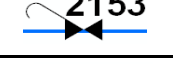

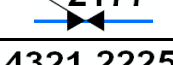
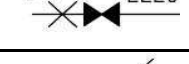





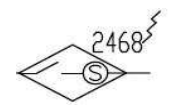



TD5451S - Attachment 1(A), Uniform Symbols for Electric Estimating and Mapping - (Devices / Structures)

CAD Symbol	GIS Symbol	Definition	Revised
Note: Capacitor Type of Control - Show ONLY F = Fixed or S = Switched after size (Example - 300F or 300S)			
Legacy Abbreviations:	TSC = Temperature / TSCV = Temperature with Override / RS = Kilovar / CBVS = Current Biased Voltage / TS = Time Switched / CS = Current / VS = Voltage / VRP = Voltage Reg Position / TSV = Time with Override		
		Existing Capacitor Bank - Show "F" for Fixed or "S" for Switched (except for Series Capacitors), Size in Total KVAR and Operating Number.	
		Existing Supervisory Controlled Capacitor Bank - Show "F" for Fixed or "S" for Switched (except for Series Supervisory Controlled Capacitors), Size in Total KVAR and Operating Number.	
		Existing Series Capacitor - Show Size in Total KVAR and Operating Number.	
		Proposed Capacitor Bank - Show Capacitor Type (i.e. S = Voltage Reg, Position), Size in Total KVAR and Operating Number (EST)	
		Existing Cutout - Show Operating Number on Distribution Map. Show Operating Number, Fuse Size and Type (T, E, N, CL, LFU, FT or ELF) on Circuit Map.	
		Proposed Cutouts - Show Operating Number, Fuse Size and Part Number (EST)	
		Existing Solid-Blade Disconnects (when used by itself) - Show Operating Number on Distribution Maps. Show Operating Number and "SB" on Circuit Maps.	
		Proposed Solid-Blade Disconnects (when used by itself) - Indicate "SB" = Solid-Blades and Operating Number (EST)	
		Existing Combination Cutout Disconnects - Show Operating Number on Distribution Maps. Show Operating Number, Fuse Size and Type on Circuit Maps - Annotation of Generic Bypass Number is not required (GIS)	
		Existing Fuse w/ Bypass Switch - Show Operating Number on Distribution Maps. Show Operating Number, Fuse Size & Type on Circuit Maps. Show Attachments for Switch (if any) - Annotation of Generic Bypass Device Number is not required (GIS)	
Note:	GIS Generic Numbering policy for unnumbered Bypass Devices (Combination Cutout Disconnects & Fuses with Bypass Switch) Bypass Switch or Disconnect = [Fuse Operating Number] + BP (e.g. 6377BP)		
CAD		Overhead Fused Taps & Overhead Fused Taps w/ Bypasses - (2 or 3) 1-Wire, Single Phase System (4kV, 21kV, etc.) - Show Operating Number & Fuse Size for each Cutout. Radial application where each phase goes in a separate direction. Example: Each phase serves a separate tract. Map and Label each single phase leg individually on ALL maps.	
			
GIS			
			




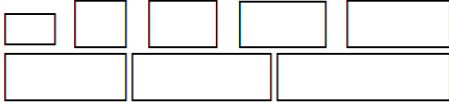






















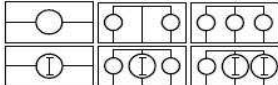
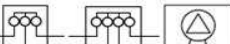
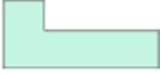

























TD5451S - Attachment 1(A), Uniform Symbols for Electric Estimating and Mapping - (Devices / Structures)

CAD Symbol	GIS Symbol	Definition	Revised
N/A	 13579	TripSaver Cutout-Mounted Recloser - single-phase Recloser, mounted in Part 44 Cutouts w/ Vacuum Interrupter - Non-SCADA operable.	3/16
		Proposed Recloser - Show Operating Number(EST) - If Multi-Functional, Append "MF" to Operating Number	
		Recloser - Show Operating Number (Single or Double Potential Arrows shown on Circuit Maps only - CAD ONLY) - If Multi-Functional, append "MF" to Operating Number on ALL maps.	
		Recloser (Supervisory Controlled) - Show Operating Number (Single or Double Potential Arrows shown on Circuit Maps only - CAD ONLY) - If Multi-Functional, append "MF" to Operating Number on ALL maps.	
		Recloser w/ Bypass Disconnect (Individually Operated) - Show Operating Number for each device (Single or Double Potential Arrows shown on Circuit Maps only - CAD ONLY) - If Multi-Functional, append "MF" to Operating Number on ALL maps.	
		Recloser w/ (Source-Side) Disconnects and Bypass Switch - Show Operating Number for each device (Show Attachments if any) (Single or Double Potential Arrows shown on Circuit Maps only - CAD ONLY) - If Multi-Functional, append "MF" to Operating Number on ALL maps.	
		Recloser w/ (Source-Side) Disconnects and Bypass Disconnects - Show Operating Number for each device (Single or Double Potential Arrows shown on Circuit Maps only - CAD ONLY) - If Multi-Functional, append "MF" to Operating Number on ALL maps.	
		Recloser w/ Bypass Switch - Show Operating Number for each device (Show Attachments if any) (Single or Double Potential Arrows shown on Circuit Maps only - CAD ONLY) - If Multi-Functional, append "MF" to Operating Number on ALL maps.	
Notes:	Form-6 Recloser Controls, formerly designated with "F6" label on Wall M maps are now designated on all maps with "MF" for M ulti-Functional		
	Due to inconsistency of use and meaning, Potential Direction arrows are no longer associated with Reclosers in GIS.		
		Proposed Sectionalizer - Show Operating Number (EST) - If Multi-Functional Recloser (Operating as a Sectionalizer) Append "MF" to the Operating Number	
		Sectionalizer - Show Operating Number - If Multi-Functional Recloser (Operating as a Sectionalizer) Append "MF" to the Operating Number	
		Sectionalizer w/ Bypass - Show Operating Number for each device - If Multi-Functional Recloser (Operating as a Sectionalizer) Append "MF" to the Operating Number	
		Multi-Functional Recloser (Operating as a Sectionalizer) w/ (Source-Side) Disconnects and Bypass Switch - Show Operating Number for each device - (Show Attachments if any) - Append "MF" to the Operating Number to designate Multi-Functional capability, on ALL maps.	
		Multi-Functional Recloser (Operating as a Sectionalizer) w/ (Source-Side) Disconnects and Bypass Disconnects - Show Operating Number for each device - Append "MF" to the Operating Number to designate Multi-Functional capability, on ALL maps.	
		Multi-Functional Recloser (Operating as a Sectionalizer) w/ Bypass Switch - Show Operating Number for each device - (Show Attachments if any) - Append "MF" to the Operating Number to designate Multi-Functional capability, on ALL maps.	

TD5451S - Attachment 1(A), Uniform Symbols for Electric Estimating and Mapping - (Devices / Structures)

CAD Symbol	GIS Symbol	Definition	Revised
		Proposed Multi-Functional Recloser (Operating as a Switch) - Show Operating Number - Append "MF" to the Operating Number	
		Multi-Functional Recloser (Operating as a Switch), Overhead - Show Operating Number (EST) - Append "MF" to the Operating Number to designate Multi-Functional capability, on ALL maps.	
		Multi-Functional Recloser (Operating as a Switch) w/ (Source-Side) Disconnects and Bypass Switch - Show Operating Number for each device - (Show Attachments if any) - Append "MF" to the Operating Number to designate Multi-Functional capability, on ALL maps.	
		Multi-Functional Recloser (Operating as a Switch) w/ (Source-Side) Disconnects and Bypass Disconnects - Show Operating Number for each device - Append "MF" to the Operating Number to designate Multi-Functional capability, on ALL maps.	
		Multi-Functional Recloser (Operating as a Switch) w/ Bypass Switch (Individually Operated) - Show Operating Number for each device - (Show Attachments if any) - Append "MF" to the Operating Number to designate Multi-Functional capability, on ALL maps.	
		Multi-Functional Recloser (Operating as a Switch) w Bypass Disconnects - Show Operating Number for each device - Append "MF" to the Operating Number to designate Multi-Functional capability, on ALL maps.	
		Proposed Switch, Overhead - Show Operating Number & Label if 600A or 800A - Show applicable attachments (i.e. US Air, HQB, ArchHorns) on Estimator Drawings.	
		Switch, Overhead - Show Operating Number, Label if Class-2 Only - Label if 600A or 800A on Circuit Map	
		Air Switch w/ Hooded Quick Breaks - Show Operating Number	
		US (Underarm Sidebreak) Air Switch - Show Operating Number	
		Air Switch w/ Arcing Horns - Show Operating Number	
		Air Switch w/ Quick Breaks - Show Operating Number	
		Air Switch, Fused, w/ Rating shown (CAD) - Show Fuse on load side of Switch - Show Operating Number for each device (GIS)	
		Air Switch, Supervisory Controlled (PDAC or Similar) - Show Operating Number	
		ScadaMate Switch (Supervisory Controlled - w/ Sectionalizing Cut-Out) - Show Operating Number	
		ScadaMate Switch (Supervisory Controlled - w/ Sectionalizing Cut-In) - Show Operating Number	
		CAD: Siren - Show Operating Number GIS: Delivery Point - Customer Type = Siren	

TD5451S - Attachment 1(A), Uniform Symbols for Electric Estimating and Mapping - (Devices / Structures)

CAD Symbol	GIS Symbol	Definition	Revised
Note:	GIS: Customer Owned Facilities are captured in the attributes for the structure (Customer Owned = Yes), rather than in the annotation of the facilities.		
	 OR 	Primary Pad. Show around appropriate device or equipment. Label CUST - If customer owned(CAD). Pad or Padmounted Device - Possible variations of Padmounted symbology: 	
		Proposed Equipment Pad (Typical)	
		Primary Subsurface Enclosure. Show around appropriate device or equipment. Label CUST = If customer owned(CAD).	
		Primary Subsurface Enclosure (without equipment).	
		Secondary Subsurface Enclosure - Label CUST-If customer owned(CAD)	
		Primary and Secondary Subsurface Enclosure.	
		10" diameter streelight box. Show SL for Streetlight.	
		Pedestal, label CUST = If customer owned(CAD)	
		Pedestal, Jointly Owned.	
N/A		Primary Subsurface Enclosure (when associated with Subsurface Single Phase Transformers Banked for Open Delta/Delta Wye Operation) 	
6'X 8'X 8' V  6'X 8'X 8' MH 137 	 6'X8'X8' V1234  6'X8'X8' MH137	Vault. Show Number. Show dimensions only if no vault drawing available (Length, Width, Height). Manhole. Show Number. Show dimensions only if no vault drawing available (Length, Width, Height). Vault (in association with Vault Mounted Switches/ Interrupters)  Vault or Manhole (When associated with TGRAM , TGRAL or a Subway Transformer in Manhole) 	
N/A		Vault (Polygon) Note: Polygonal shape may vary. This alternative vault symbol is used to encompass multiple devices or device configurations that would not otherwise fit within the traditional rectangular vault symbols above.	
		Proposed 10" Diameter Streetlight Box. Show Depth. (EST)	
		Proposed 13" X 24" Subsurface Enclosure. Show Depth. (EST)	
		Proposed 17" X 30" Subsurface Enclosure. Show Depth. (EST)	
		Proposed 24" X 36" Subsurface Enclosure. Show Depth. (EST)	
		Proposed 30" X 48" Subsurface Enclosure. Show Depth. (EST)	
		Proposed 3' X 5' Subsurface Enclosure. Show Depth. (EST)	
		Proposed 4' X 6'-6" Subsurface Enclosure. Show Depth. (EST)	
		Proposed 4'-6" X 8'-6" Subsurface Enclosure. Show Depth. (EST)	
		Proposed Secondary Pedestal - 4 Way. (EST)	
		Proposed Secondary Pedestal - 6 Way / 8 Way. (EST)	
	N/A	Proposed 200 Amp Primary Junction Pedestal. (EST)	
10'X 8'X 10' V  10'X 8'X 10' MH 	 10'X8'X10' V1234  10'X8'X10' MH1234	Proposed Vault. Show Number. (EST) Proposed Manhole. Show Number. (EST)	

TD5451S - Attachment 1(A), Uniform Symbols for Electric Estimating and Mapping - (Devices / Structures)

CAD Symbol	GIS Symbol	Definition	Revised
Notes:			
Only Transformers without Load Break Elbows - Label as (LF) if Live Front or (DF) if Dead Front.			
All Transformers with secondary voltage other than 120/ 240 should be labeled with the applicable voltage and 3-phase.			
T5151 	T5151 	Subsurface Transformer - Show Transformer Number and Size in KVA. (This symbol is to be used regardless of transformer's physical shape)	
T6151 	T5151 	Subsurface Single-Phase Transformers banked for open delta/ delta wye operation. Show Transformer Number and Size in KVA.	
T2151 	T2151 	Subsurface Duplex Transformer - Show Transformer Number and Size in KVA.	
T3711 	T3711 	Subway Transformer in Manhole - Show Manhole (MH) Number, Transformer Number and Size in KVA.	
T2543 	T2543 	Padmounted Transformer - Show Transformer Number and Size in KVA.	
T1212 	T1212 	Padmounted Transformer with Load Break Elbows - Show Transformer Number and Size in KVA. (GIS Examples of Loop and Radial feed)	
T2344 	T2344 	Padmounted Duplex Transformer - Show Transformer Number and Size in KVA.	
T2344 	T2344 	Padmounted Transformer with Internal Switch - Show Transformer Number, Size in KVA and Switch Number.	
T3445 	T2344 	Padmounted Transformer with Two Internal Switches - Show Transformer Number, Size in KVA and Switch Numbers.	
N/A	GFS 	Padmounted Ground Fault Sensing Bank, Customer Owned (shown with LoadBreak Elbows) - Show "GFS" for Transformer Number	5/17
T1212 	T1212 	Subsurface Transformer with Internal Switch - Show Transformer Number, Size in KVA and Switch Number.	
T1504 	T1504 	Subsurface Transformer with Two Internal Switches - Show Transformer Number, Size in KVA and Switch Numbers.	
T1270 	T1270 	Subsurface Duplex Transformer with Internal Switch - Show Transformer Number, Size in KVA and Switch Number.	



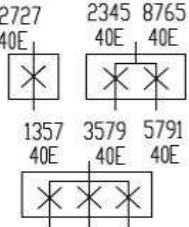
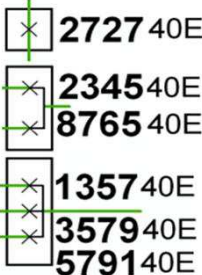
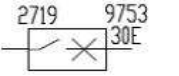

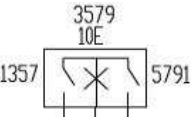
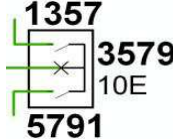
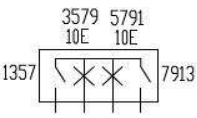
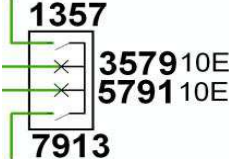
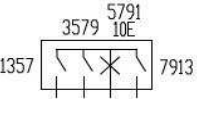
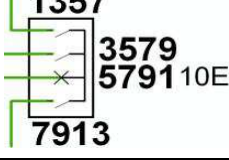
TD5451S - Attachment 1(A), Uniform Symbols for Electric Estimating and Mapping - (Devices / Structures)

CAD Symbol	GIS Symbol	Definition	Revised
Note: Internal Interrupter operates as internal protection for the Padmount Transformer and does NOT require an Operating Number or modeling in DART			
T70591 3325 3Ø 277/480V 	T70591 3325 3Ø 277/480 	Padmounted Transformer with Internal Interrupter - Show Transformer Number and Size in KVA.	
T70591 3325 3Ø 277/480V 2346 6542 	T70591 3325 3Ø 277/480 2346 6542 	Padmounted Transformer with Internal Interrupter and Two Switches - Show Transformer Number, Size in KVA and Switch Numbers.	
T1212 3600 3Ø 21/12 	T1212 3600 3Ø 12000 	Padmounted Auto Transformer 20780 GRD Y/21,000-12,000 GRD Y/6900 - Show Transformer Number and Size in KVA.	
T1215 3600 3Ø 	T1215 3600 3Ø 	Padmounted Auto Transformer Auto-Bank with Two Reclosers - Show Transformer Number, Size in KVA and Recloser Numbers.	
T1212 2500 3Ø 12/4 	T1212 2500 3Ø 12000/4160 × 	Padmounted 3-Phase, 12kV or 21kV to 4kV Transformer and Recloser - Show Transformer Number, Size in KVA, Voltage and Recloser Number.	
Note: Capacitor Type of Control - Show ONLY F = Fixed or S = Switched after size (Example - 300F or 300S)			
Legacy Abbreviations:	TSC = Temperature / TSCV = Temperature with Override / RS = Kilovar / CBVS = Current Biased Voltage / TS = Time Switched / CS = Current / VS = Voltage / VRP = Voltage Reg Position / TSV = Time with Override		
	C1234 300F 	Padmounted Capacitor - Show Operating Number, Size and Type	
	C1234 300S 	Padmounted Capacitor (Supervisory Controlled) - Show Operating Number, Size and Type	
	R1755 150A 	Padmounted Regulator - Show Operating Number, Size (Rated Amps) and Total Number of Regulators (GIS will annotate if 2 or more) - Show Normal Flow (Single Potential shown)	
	98765 	Padmounted Regulator Bypass Switch - Show Operating Number	
	4060 40CL 4060SW 	Subsurface Fused Switch (Show One Number) - Show Fuse Operating Number on Distribution Map - Show Fuse Operating Number and Fuse Size on Circuit Map - Annotation of Generic Bypass Device numbers is not required (GIS)	
	4060 1-25CL 4060SW 	Subsurface Fused Switch Dual Well (Show One Number) - Fused with one fuse per phase on Distribution & Circuit Map (1-25CL) - Fused with two fuses per phase on Distribution & Circuit Map (2-25CL) - Annotation of Generic Bypass Device numbers is not required (GIS)	
Note: GIS Generic Numbering policy for unnumbered Bypass Devices (Subsurface Fused Switches) Bypass Switch = [Fuse Operating Number] + BP (e.g. 2468BP) Line or Source Side Switch = [Fuse Operating Number] + SW (e.g. 42194SW)			
	7721 10E 	Subsurface Cutouts - Show Operating Number on Distribution Map - Show Fuse Operating Number and Fuse Size on Circuit map	

TD-5451S - Attachment 1(A), Uniform Symbols for Electric Estimating and Mapping - (Devices / Structures)

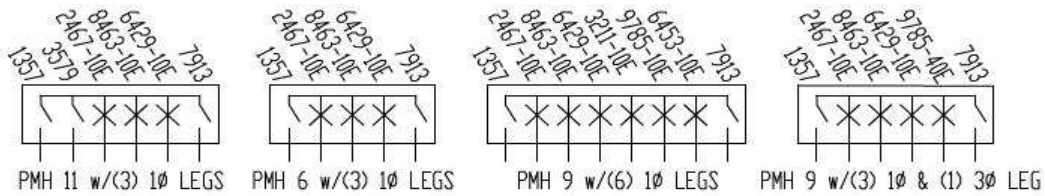
CAD Symbol	GIS Symbol	Definition	Revised
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PM H Devices

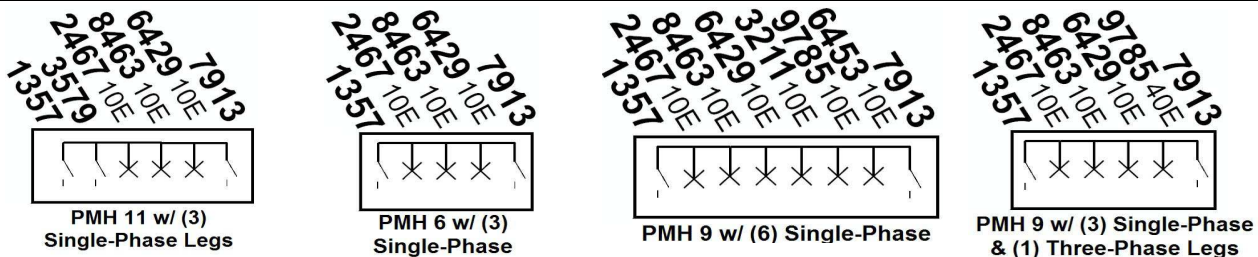
	 <p>2175</p>	PMH 3 - Show Operating Number on Distribution Map, Show Operating Number and "SB" (CAD) on Circuit Map	
Note: When mapping 1-wire, single phase systems - map & label each single phase leg individually on ALL maps			
		PMH 4 - (Variation of PMH 4 Shown) - Show Operating Number(s) on Distribution Map - Show Operating Number(s), Fuse Size(s) & Type(s) on Circuit Map	
		PMH 5 - (Assign two Operating Numbers) - Show Operating Numbers on Distribution Map - Show Operating Numbers, Fuse Size & Type on Circuit Map	
		PMH 6 - (Assign 3 Operating Numbers) - Show Operating Numbers on Distribution Map - Show Operating Numbers, Fuse Size & Type on Circuit Map (Equipment sequence can vary)	
		PMH 9 - (Assign 4 Operating Numbers) - Show Operating Numbers on Distribution Map - Show Operating Numbers, Fuse Size & Type on Circuit Map (Equipment sequence can vary)	
		PMH 11 - (Assign 4 Operating Numbers) - Show Operating Numbers on Distribution Map - Show Operating Numbers, Fuse Size & Type on Circuit Map (Equipment sequence can vary)	

Note:	Variations of PMH 6, 9 & 11 can exist in which each fuse has up to 3 - single phase legs When mapping 1-wire, single phase systems - map & label each single phase leg individually on ALL maps Examples below show some possible variations of the PM H 6, 9 & 11 (Equipment sequence can vary)
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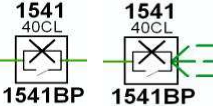
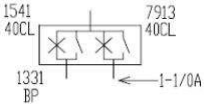
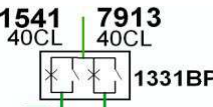
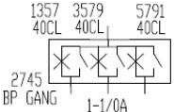
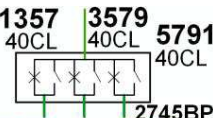
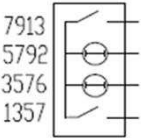
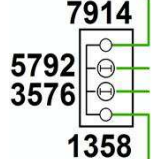
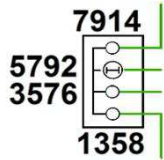
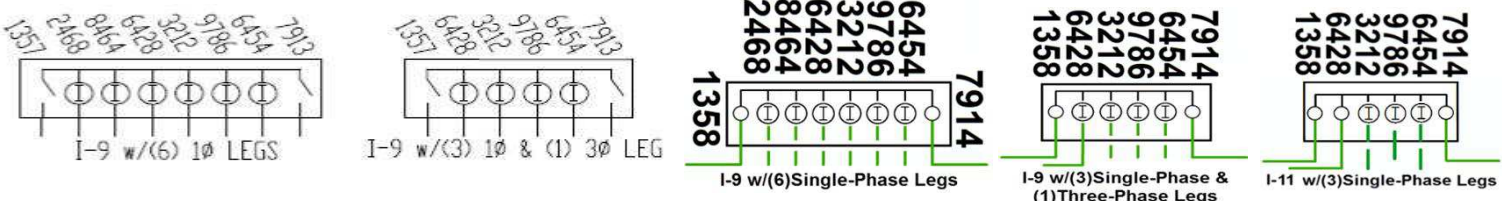
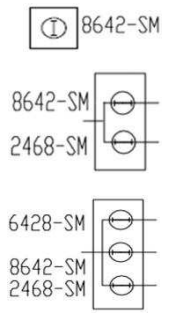
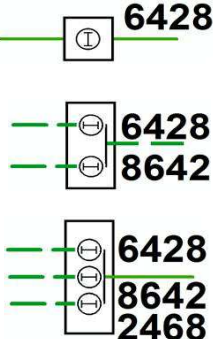
CAD Examples





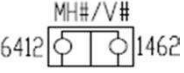

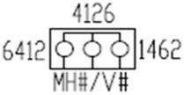
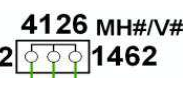


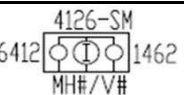
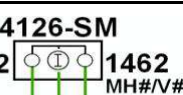
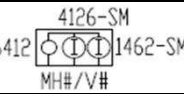





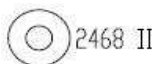








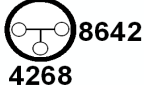
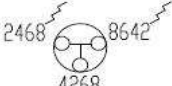



GIS Examples





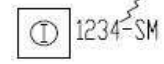



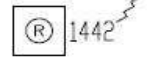


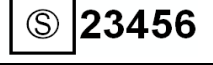
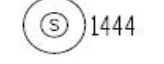

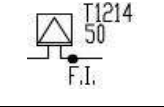
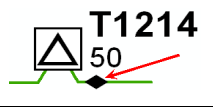




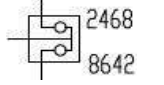

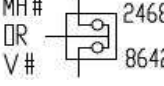
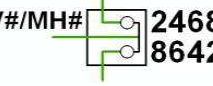
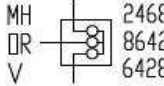
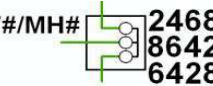
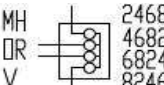
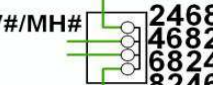
TD5451S - Attachment 1(A), Uniform Symbols for Electric Estimating and Mapping - (Devices / Structures)

CAD Symbol	GIS Symbol	Definition	Revised
		<p>PMH 41, 42, 43 - Show Operating Number on Distribution Map - Show Operating Number, Fuse Size & Type on Circuit Map (Same Phase In - Same Phase Out) - Annotation of Generic Bypass Device numbers is not required (GIS)</p>	
		<p>(FOR EXISTING FACILITIES ONLY) PMH 42 - Show two Operating Numbers for Fuses, show one Operating Number for Bypass. (2) 1-Wire, Single Phase Systems (4kV, 21kV, etc) - Label #, Size & Type of Conductor on Circuit Map.</p>	
		<p>(FOR EXISTING FACILITIES ONLY) PMH 43 - Show three Operating Numbers for Fuses, show one Operating Number for Bypass. (3) 1-Wire, Single Phase Systems (4kV, 21kV, etc) - Label #, Size & Type of Conductor on Circuit Map.</p>	
<p>Note: GIS Generic Numbering policy for unnumbered Bypass Devices (PM H 41, 42, 43) Bypass Disconnect = [Fuse Operating Number] + BP (e.g. 2468BP)</p>			
<p>PMI Devices</p>			
		<p>Padmounted I-9 (All Models: PMI-9, PMI-9R, PMI-9TT, PMI-9ST) - Two Switched Ways / Two Interrupter Ways Show Operating Numbers - Indicate if Supervisory Controlled - Label SM (Switch-Mode) if Interrupters are operating in Switch Mode.</p>	05/17
		<p>Padmounted I-11 (All Models: PMI-11, PMI-11R) - Three Switched Ways / One Interrupter Way Show Operating Numbers - Indicate if Supervisory Controlled - Label SM (Switch-Mode) if Interrupters are operating in Switch Mode.</p>	05/17
<p>Note: PMI Variations can exist in which each Interrupter has up to 3 - single phase legs</p>			
<p>CAD Examples</p>		<p>GIS Examples</p>	
			
		<p>PMI-4R - Padmounted Interrupter (Variations of the PMI-4R shown) - Three Single Phase Interrupters (Non-Gang Operated) Show Operating Numbers (Indicate if Supervisory Controlled) Label SM (Switch-Mode) if operating in Switch Mode.</p>	02/16

TD5451S - Attachment 1(A), Uniform Symbols for Electric Estimating and Mapping - (Devices / Structures)

CAD Symbol	GIS Symbol	Definition	Revised
Vault Mounted Switches & Interrupters			
		Vault Mounted Switch, 2-way, 1-way Switched - Show Operating Number, Show Type of enclosure w/ # (Designate if Class II)	
		Vault Mounted Switch, 3-way, 2-way Switched - Show Operating Numbers, Show Type of enclosure w/ # (Designate if Class II)	
		Vault Mounted Switch, 3-way, 3-way Switched - Show Operating Numbers, Show Type of enclosure w/ # (Designate if Class II)	
		Vault Mounted Interrupter, 2-way, 1-way Switched - Show Operating Number, Show Type of enclosure w/ # - Label SM (Switch-Mode) if operating in Switch Mode.	02/16
		Vault Mounted Switch-Interrupter-Switch, 3-way, 3-way Switched - Show Operating Numbers, Show Type of enclosure w/ # (Designate if Class II) - Label SM (Switch-Mode) if operating in Switch Mode.	02/16
		Vault Mounted Switch-Interrupter-Interrupter, 3-way, 3-way Switched - Show Operating Numbers, Show Type of enclosure w/ # (Designate if Class II) - Label SM (Switch-Mode) if operating in Switch Mode.	02/16
		Padmounted Oil Switch - Show Operating Number (Designate if Class II)	
		Padmounted Oil Switch (Supervisory Controlled) - Show Operating Number	
		Subsurface Switch, 2-way, 1-way Switched - Show Operating Number (Designate if Class II)	
		Subsurface Switch, 2-way, 1-way Switched (Supervisory Controlled) - Show Operating Number	
		Proposed Subsurface Switch (Typical) - Show Operating Numbers - Indicate if Supervisory Controlled	
		Subsurface Switch, 3-way, 2-way Switched - Show Operating Numbers	
		Subsurface Switch, 3-way, 3-way Switched - Show Operating Numbers	
		Subsurface Switch, 3-way, 3-way Switched (2 Switches Supervisory Controlled Only) - Show Operating Numbers	
		Subsurface Smart Switch - Show Operating Number (Not modeled in DART)	

TD-5451S - Attachment 1(A), Uniform Symbols for Electric Estimating and Mapping - (Devices / Structures)

CAD Symbol	GIS Symbol	Definition	Revised
		Subsurface Switch-Interrupter-Switch, 3-way, 3-way Switched - Show Operating Numbers (Designate if Class II) - Label SM (Switch Mode) if operating in Switch Mode.	02/16
		Padmounted Interrupter (3-Phase Unit - Gang Operated) or PMI-4R (Three Single-Phase Units - Non-Gang Operated) - Show Operating Number (Indicate if Supervisory Controlled) - Label SM (Switch Mode) if operating in Switch Mode.	02/16
		Subsurface Interrupter - Show Operating Number (Indicate if Supervisory Controlled) - Label SM (Switch Mode) if operating in Switch Mode.	02/16
		Padmounted Automatic Circuit Recloser (Supervisory Controlled) - Show Operating Number	
		Padmounted Sectionalizer - Show Operating Number	
		Subsurface Sectionalizer - Show Operating Number	
		Subsurface or Padmounted Fault Indicator (CAD - Est. Sketch Only) Subsurface or Padmounted Fault Indicator (GIS - Existing/Legacy ONLY) - See Overhead Fault Indicator Note (Page 5)	5/15
		Direct Buried Underground Splice (Distribution Maps Only)	
		Direct Buried Underground Wye Splice (Distribution Maps Only)	
		TGRAL on Pad - Show Operating Numbers (Designate if Class II)	
		TGRAL in Vault or Manhole - Show Operating Numbers (Designate if Class II - Show Vault/Manhole Number)	
		TGRAM (3-way) in Vault or Manhole - Show Operating Numbers (Designate if Class II - Show Vault/Manhole Number)	
		TGRAM (4-way) in Vault or Manhole - Show Operating Numbers (Designate if Class II - Show Vault/Manhole Number)	

TD-5451S - Attachment 1(A), Uniform Symbols for Electric Estimating and Mapping - (Devices / Structures)

CAD Symbol	GIS Symbol	Definition	Revised
		Connector, Separable 200 Amp (Dead Break)	
		Connector, Separable 600 Amp (Dead Break)	
		Connector, Separable 200 Amp (Load Break)	

Possible Combinations of Separable Connections




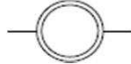
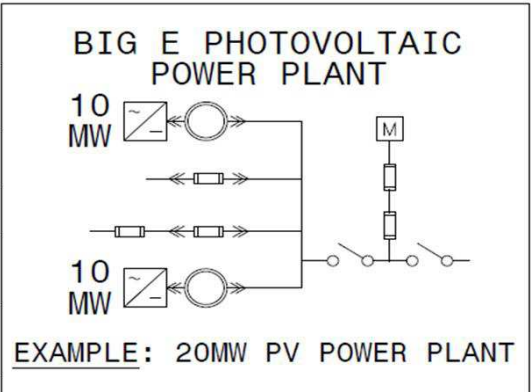


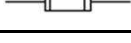
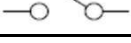


NOTE: Refer to Utility Procedure TD-2303P-01, Operating Procedures for Primary Underground Separable Termination, for required operating procedures for dead-break, load-break, and live-front separable terminations used on underground primary distribution systems.

		Dead Break Junction, 200 Amp, 4-way (Padmount shown) - Show type of enclosure and J-Number	
		Load Break Junction, 200 Amp, 3-way (Padmount shown) - Show type of enclosure and J-Number	
		Load Break Junction, 200 Amp, 4-way (Padmount shown) - Show type of enclosure and J-Number	
		Dead Break Junction, 600 Amp, 3-way (Subsurface shown) - Show type of enclosure and J-Number	
		Dead Break Junction, 600 Amp w/ Dead Break Elbows on 200A Tap, 3-way (Subsurface shown) - Show type of enclosure and J-Number	02/16
		Dead Break Junction, 600 Amp w/ Dead Break Elbows on 200A Tap, 4-way (Subsurface shown) - Show type of enclosure and J-Number	02/16
N/A		Dead Break Junction, 600 Amp w/ Load Break Elbows on 200A Tap, 3-way (Subsurface shown) - Show type of enclosure and J-Number	02/16
N/A		Dead Break Junction, 600 Amp w/ Load Break Elbows on 200A Tap, 4-way (Subsurface shown) - Show type of enclosure and J-Number	02/16

Examples of 200A Dead Break or Load Break Elbows 'Piggy-Backing' off 600A Equipment

<p align="center">200A LOAD-BREAK ELBOW PIGGY-BACKING OFF 600A EQUIPMENT (SWITCH)</p>	<p align="center">200A DEAD-BREAK ELBOW PIGGY-BACKING OFF 600A EQUIPMENT (SWITCH)</p>	02/16
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TD-5451S - Attachment 1(A), Uniform Symbols for Electric Estimating and Mapping - (Devices / Structures)

CAD Symbol	GIS Symbol	Definition	Revised
Single-Line Diagram Symbols - Relevant to Control Center Wall Maps (CAD ONLY)			
	See GIS Substation Symbology Section - Not Yet Approved	Inverter Based (e.g. Photovoltaic) Generator - Show Capacity (MW) & Name of Facility	
		Machine Based (e.g. Hydro, Fossil) Generator - Show Capacity (MW) & Name of Facility	
		Power Circuit Breaker (Drawout Type)	
		Power Circuit Breaker	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">BIG E PHOTOVOLTAIC POWER PLANT</p>  <p style="text-align: center;">EXAMPLE: 20MW PV POWER PLANT</p> </div>
		Secondary Circuit Breaker	
		Fuse (Drawout Type)	
		Fuse	
		Disconnect	
		Primary Meter	
		Drawout (Rackout)	

TD5451S - Attachment 1(A), Uniform Symbols for Electric Estimating and Mapping - (Devices / Structures)

CAD Symbol	GIS Symbol	Definition	Revised
Electric Network Symbols (San Francisco and Oakland Offices ONLY)			
		120/208V - Network Unit	
		265/460V - Spot Unit	
		120/208V - Spot Unit	
		277/480V - Spot Unit	
		12,000/4,160V - Spot Unit	
		34,000/4,160V - Spot Unit	
	N/A	Fault Indicator	
		265/460V Service	
		Network Protector (With Number)	
		2-Way TGRAL (With Number)	
		Class 1, 2-Way, TGRAM Oil Switch (With Number)	
		ESNA 200A Separable Tee (With Number for Transformer w/o Ground Switch)	
		200A Separable Connector	
		600A Separable Connector	
		Fuse	
		Padmounted Fuse	
		Tap	
		Clear Cap	
		Conductor Change	
		Capacitor Bank	
			4kV Junction Box
San Francisco DC Grid Map Symbols			
		Field Rectifier (DC Rectifier)	
	N/A	Manhole	
		Splice Box	
		Distribution Box	
		Pole Riser	
		Customer	
		Underground Secondary Cable	
		Overhead Secondary Conductor	
		Underground Service Cable	
	Overhead Service Conductor		