CLARK PUBLIC UTILITIES
CONTRACTOR HANDBOOK

This handbook provides information regarding current Clark Public Utilities standards, diagrams, and specifications for approved high voltage contractors. The information in this handbook is also part of Clark Public Utilities' Construction Standards book and the Residential and Commercial Electric Service Handbook.

TABLE OF CONTENTS

N New Standard
R Redrawn Standard
C Changed Standard
~ No Change

Meter Department Pre-Made Wire Bundles
(All are Solid Copper Wire)

1ø	Potentials	#14 gauge	Black, Green, White
	Currents	#12 Gauge	Blue, Yellow, Brown
3ø	Potentials	#14 gauge	Black, Green, White, Orange
	Currents	#12 Gauge	Blue, Yellow, Brown, Red

Note:
Maximum distance for #12 current wire is 35 feet one way to meet burden of 0.2 on rating factor 4 CTs. For CT conduit runs over 35 feet use #10 current wire to a maximum of 60 feet for a burden of 0.2. If a longer conduit run than 60 feet is unavoidable, see meter department for CT and burden charts and CT sizing.

Distance Chart				
	CT to Meter Distance	Total Wire Distance	Solid State Meter	Add Electrical Mechanical
#12 Wire @ .01588 Ohm per 10 ft			.01	.05
			.002 <MISC>	.002
			.009 <TEST SW>	.009
	35'	70'	.132	.17216
	50'	100'	.1798	.2198
	70'	140'	.243	.28332
	100'	200'	.3386	.3786
	125'	250'	.418	.458
	150'	300'	.4974	.5374
#10 Wire @ .009989 Ohm per 10 ft	60'	120'	.1408	.1808
	75'	150'	.1708	.2108
	80'	160'	.1808	.2208
	100'	200'	.2208	.2608
	200'	400'	.4206	.461

CLARK PUBLIC UTILITY

METERING REQUIREMENTS BASED ON EUSERC SPECIFICATIONS

TYPE OF SERVICE OR SOURCE VOLTAGES		SIZE	NUMBER OF TERMINALS	BYPASS PROVISION	TEST SWITCH	DEMAND METERING	REACTIVE METERING
SINGLE PHASE 120/240 VOLTS (Swimming pools over 35kw will be C.T.'d or 320 amp)	Commercial	200 amp	4	BLOCK BYPASS *	NO	20KW OR GREATER	NO
	Residential	200 amp	4	NO	NO	NO	NO
		320 amp	4	BLOCK BYPASS	NO	COMMERCIAL ONLY	NO
	Commercial	C.T.	6	NO	YES	20KW OR GREATER	NO
	Residential	C.T.	6	NO	NO	NO	NO
NETWORK 120/208V (2 LEGS OF Y)	Commercial	200 amp	5	SAFETY SOCKET	NO	NO	NO
	Residential	200 amp	5	NO	NO	NO	NO
	Commercial	C.T.	8	NO	YES	NO	NO
4 WIRE WYE 120/208 VOLTS		200 amp	7	SAFETY SOCKET	NO	YES	NO
		C.T.	13	NO	YES	YES	YES *
4 WIRE DELTA 240/120 VOLTS		200 amp	7	SAFETY SOCKET	NO	YES	NO
		C.T.	13	NO	YES	YES	YES *
3 WIRE 3Ø DELTA 240V (Existing service only. New services, current trans. Will be 4 wire 240/120)		200 amp	5	SAFETY SOCKET	NO	YES	NO
		C.T.	8	NO	YES	YES	YES *
3 WIRE 3Ø DELTA 480V (Existing service only. New services, current trans. Will be 4 wire 240/480		200 amp	5	SAFETY SOCKET	NO	YES	NO
		(Contact district about type of socket and whether or not current transformers and reactive metering will be required before making any 480 volt installations)					
4 WIRE 3Ø 277/480 VOLTS		200 amp B/base	7	SAFETY SOCKET	NO	YES	NO
		C.T. & V.T.	13	NO	YES	YES	YES *
		Prim. Met. 7200/120 P.T. & C.T.	13	NO	YES	YES	YES *

C.T. - Current Transformer

V.T. - Voltage Transformer

Rev 2 - Changed blocks marked with a *.

Clark Public Utilities

CONSTRUCTION STANDARDS

METERING REQUIREMENTS
GENERAL

REVISIONS			
R	DATE	ENGR	OPS
0	8/20/02		
1	8/2/05	LB	AH
2	1/13/10	CM	AH

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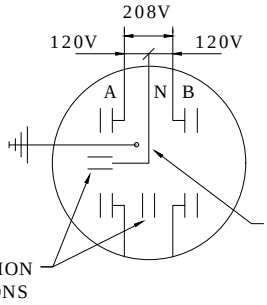
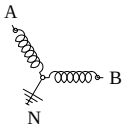
SELF CONTAINED

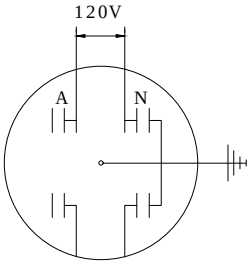
120/208V
1 PHASE NETWORK



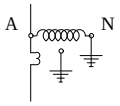
SEE MD04 *



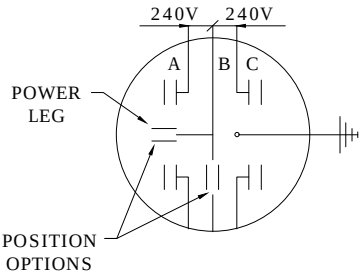
120V 2
WIRE



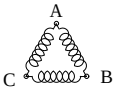
SEE MD01 *



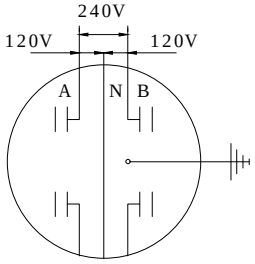
3 PHASE
3 WIRE 240V



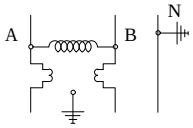
SEE MD06 *



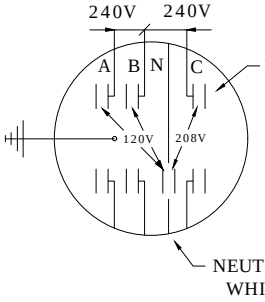
SINGLE PHASE
3 WIRE 120/240V



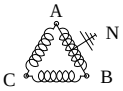
SEE MD02 *



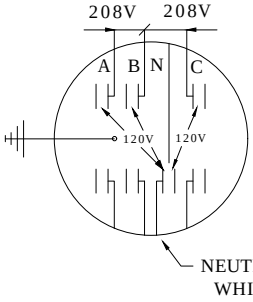
3 PHASE 4 WIRE
DELTA 240/120V



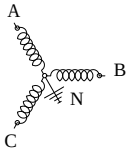
SEE MD08 *



3 PHASE 4 WIRE
WYE 120/208V
(or 277/480V)



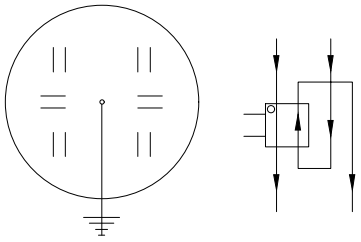
SEE MD07 *



C.T. RATED

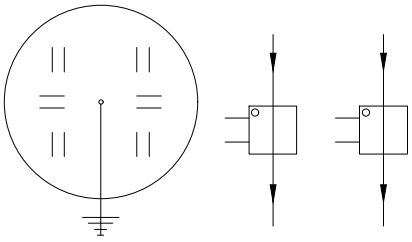
3 WIRE SERVICE USING ONE
C.T. 6 TERMINAL SOCKET

SEE MD09 *



3 WIRE SINGLE SERVICE USING 2
C.T.'s 6 TERMINAL SOCKET

SEE MD11 *
MD11A



LEGEND

CURRENT COIL
VOLTAGE COIL

ALL METER SOCKETS TO BE GROUNDED

* REV. 1 - Added Metering Diagram Numbers.

Clark Public Utilities

CONSTRUCTION STANDARDS

METERING REQUIREMENTS
GENERAL

REVISIONS			
R	DATE	ENGR	OPS
0	8/20/02		
1	8/2/05	LB	AH

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Clark Public Utilities Metering Requirements
Commercial Applications

Source Voltage	Ampacity	Reference Circle AW P/N	Meter Diagram Numbers	Number of Terminals	Bypass Provision Required	Test Switch Required
120 Volt 1ø 2 Wire	0-100 Amps	U12134*	MD01	4	Yes	No
120/240 Volt 1ø 3Wire	0-200 Amps	U264*	MD02	4	Yes	No
120/240 Volt 1ø 3Wire	0-400 Amps	324N, 324NF	MD03	4	Yes	No
120/240 Volt 1ø 3Wire	Over 200 Amps	12146	MD10, MD11	6	No	Yes
240/480 Volt 1ø 3Wire	0-200 Amps	124TB	MD02, MD05 Dmd	4	Yes	No
240/480 Volt 1ø 3Wire	Over 200 Amps	12146	MD10, MD11	6	No	Yes
120/208 Volt 3Wire Network	0-200 Amps	125TB	MD04	5	Yes	No
120/208 Volt 3Wire Network	Over 200 Amps	12148	MD12	8	No	Yes
240 Volt 3ø 3Wire Delta	0-200 Amps	125TB	MD06	5	Yes	No
120/208 Volt 3ø 4Wire Wye	0-200 Amps	127TB	MD07	7	Yes	No
120/208 Volt 3ø 4Wire Wye	Over 200 Amps	121413	MD13	13	No	Yes
240/120 Volt 3ø 4Wire Delta	0-200 Amps	127TB	MD08	7	Yes	No
240/120 Volt 3ø 4Wire Delta	Over 200 Amps	121413	MD14	13	No	Yes
277/480 Volt 3ø 4Wire Wye	0-200 Amps	127TB	MD07	7	Yes	No
277/480 Volt 3ø 4Wire Wye	Over 200 Amps	121413	MD13	13	No	Yes
480 Volt 3ø 3Wire Delta	0-200 Amps	125TB	MD06	5	Yes	No
480Volt 3ø 3Wire Delta	Over 200 Amps	12148	MD12	8	No	Yes

-Circle AW part numbers are for cross reference only
-All Commercial current transformer cabinets shall have hinged doors

Current Transformer Cabinet Dimensions, CT Mounting Base		
Amperes	Dimensions	Circle AW or Equivalent
200 Amps - 400 Amps 1ø	24" X 30" X 11"	6019-HAL (LUG LUG)
401 Amps - 800 Amps 1ø	30" X 36" X 11"	6019-HEL (LUG LUG)
200 Amps - 400 Amps 3ø	30" X 36" X 11"	6019-HAL or 6067-HAL
401 Amps - 800 Amps 3ø	36" X 48" X 11"	6019-HEL or 6067-HEEL

-Over 800 Amps Switchgear Required
-Maximum wire size 600 MCM per lug or parallel per EUSERC SPEC. & UL label

Rev. 3 - Changed cells with asterisks.

Clark Public Utilities Metering Requirements
Residential Applications

Source Voltage	Ampacity	Reference Circle AW P/N	Meter Diagram Numbers	Number of Terminals	Bypass Provision Required	Test Switch Required
120 Volt 1ø 2Wire	0-100 Amps	011	MD01	4	No	No
120/240 Volt 1ø 3Wire	0-200 Amps	204, U204	MD02	4	No	No
120/240 Volt 1ø 3Wire	0-400 Amps	324N, 324NF	MD03	4	Yes	No
120/240 Volt 1ø 3Wire	Over 400 Amps	UO11, 011, 925 or 926	MD09, MD11A	5 or 6	No	No

-Circle AW part numbers are for cross reference only

Current Transformer Cabinet Dimensions, CT Mounting Base		
Amperes	Dimensions	Circle AW or Equivalent
200 Amps - 400 Amps 1ø	24" X 30" X 11"	6019-HAL (LUG LUG)
*401 Amps - 800 Amps 1ø Buss Mt	30" X 36" X 11"	6019-HEL (LUG LUG)
200 Amps - 400 Amps 3ø Window	30" X 36" X 11"	6019-HAL or 6067-HAL
401 Amps - 800 Amps 3ø Buss Mt	36" X 48" X 11"	6019-HEL or 6067-HEEL

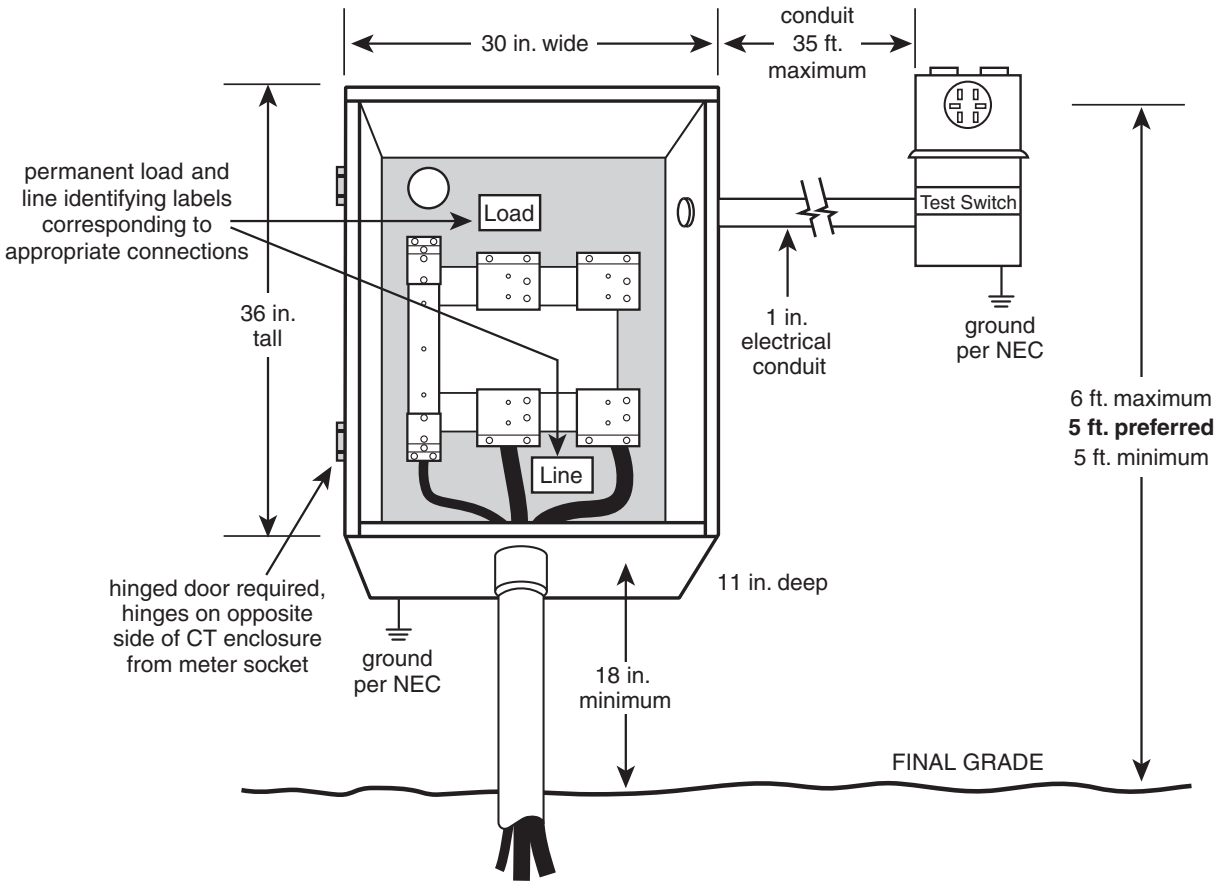
* Optional

Notes:
1. CT Metering for 200- 400 Amp panels required pre-approval from Clark Public Utilities
2. All CT cans shall be mounted outside.

Rev. 2 - Added optional CT cabinet dimensions and notes.

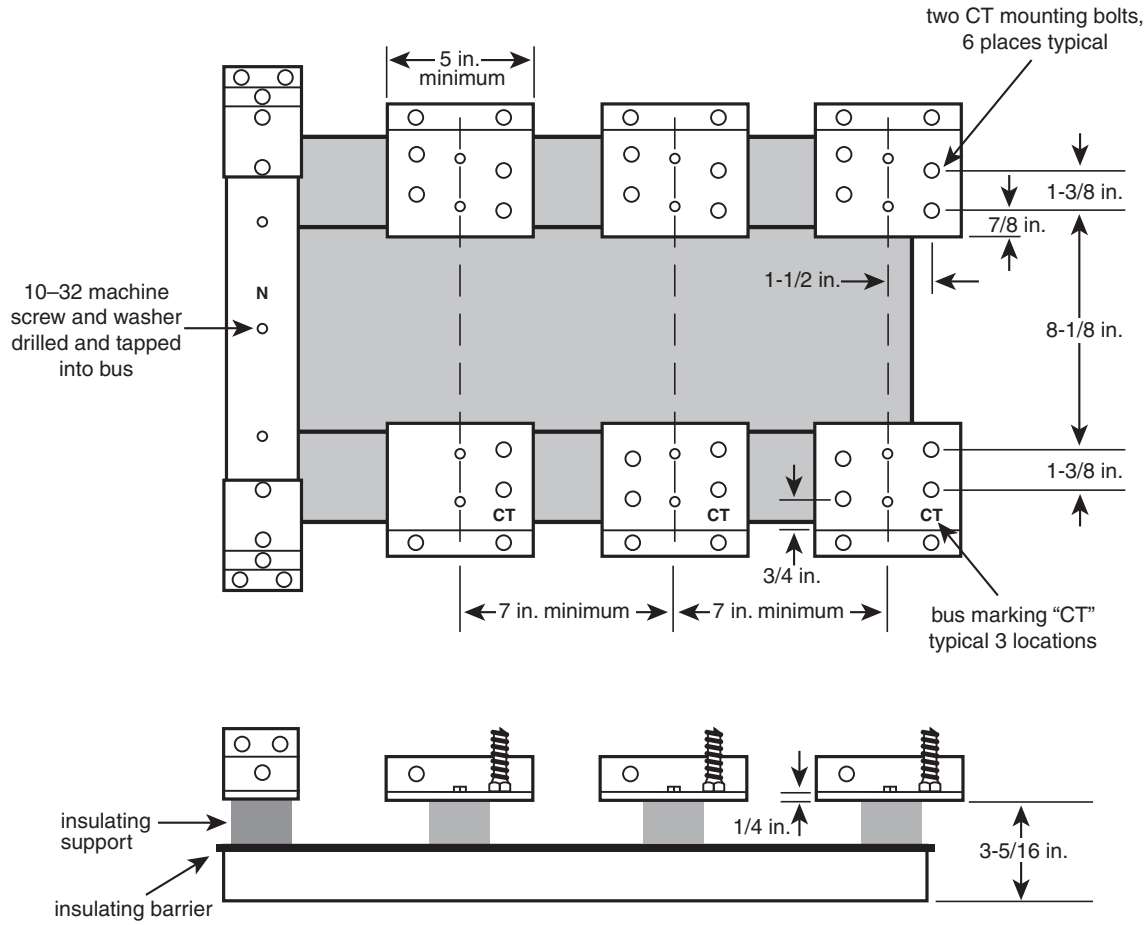
Please see page 33 of the Commercial Electric Service Handbook, for details and more information.

Figure 8 Typical 401–800 amp single-phase current transformer (CT) metering



Please see page 34 of the Commercial Electric Service Handbook, for details and more information.

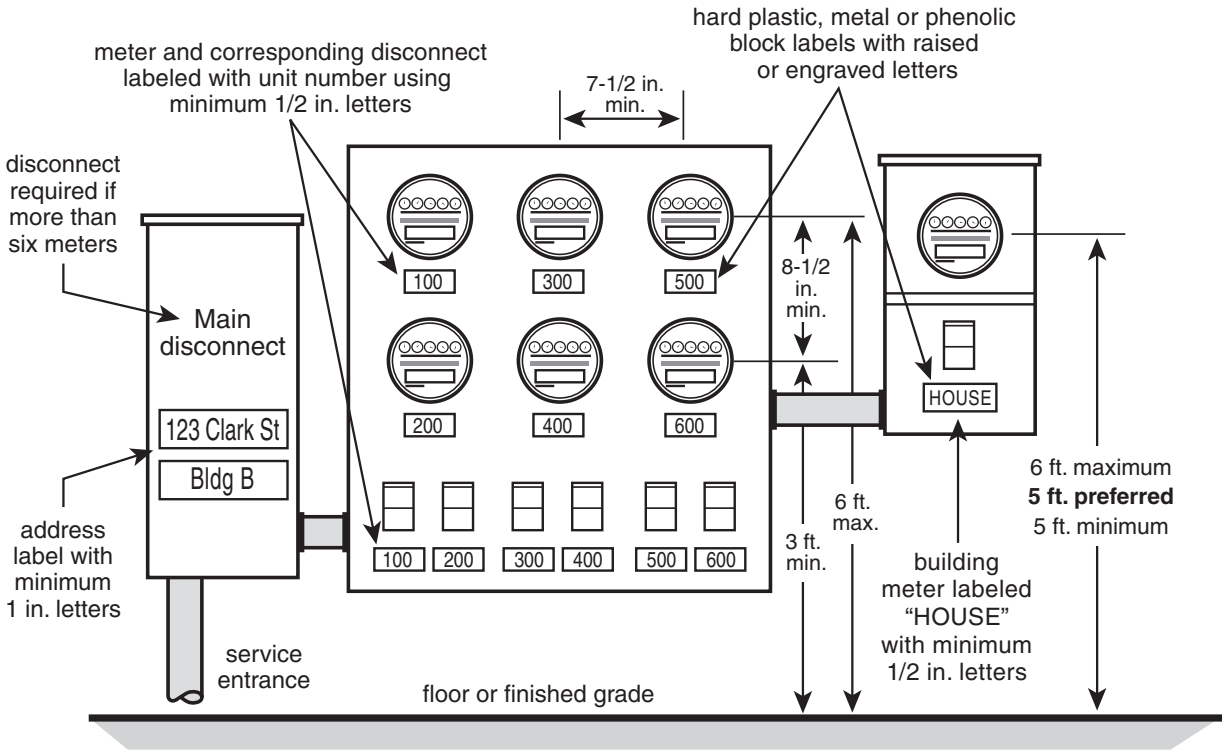
Figure 9 Commercial three-phase CT mounting base



NOTE: For additional information see EUSERC drawing 329B.

Please see page 35 of the Commercial Electric Service Handbook, for details and more information.

Figure 10 Multiple meter socket detail



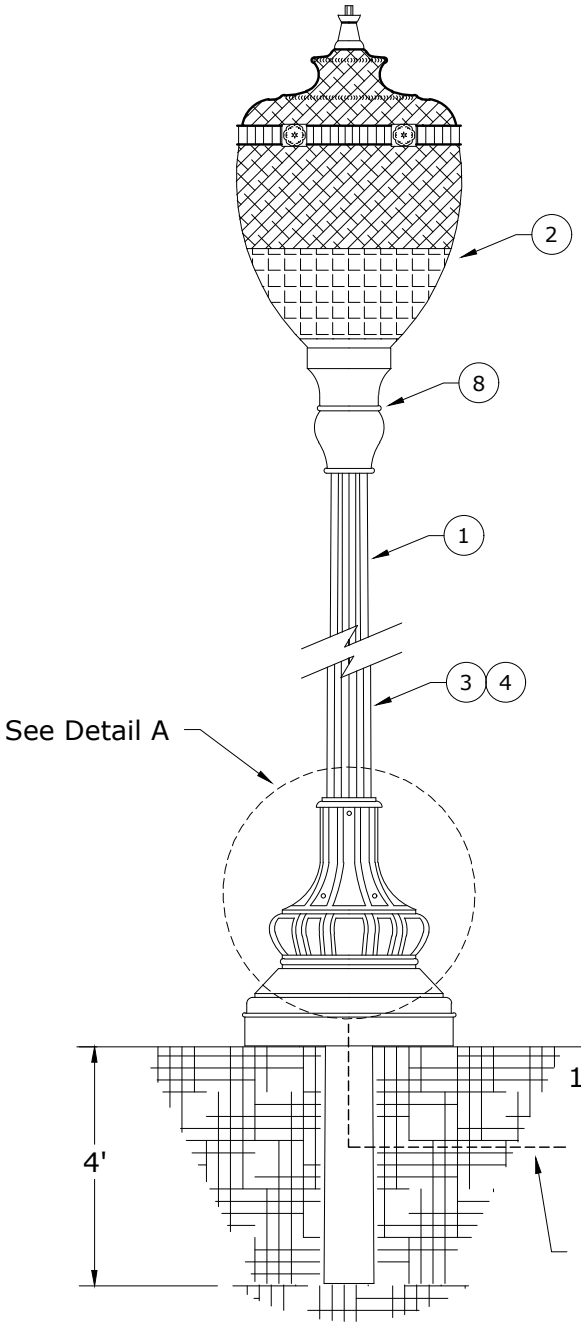
NOTE: See page 31 for meter base bypass requirements.

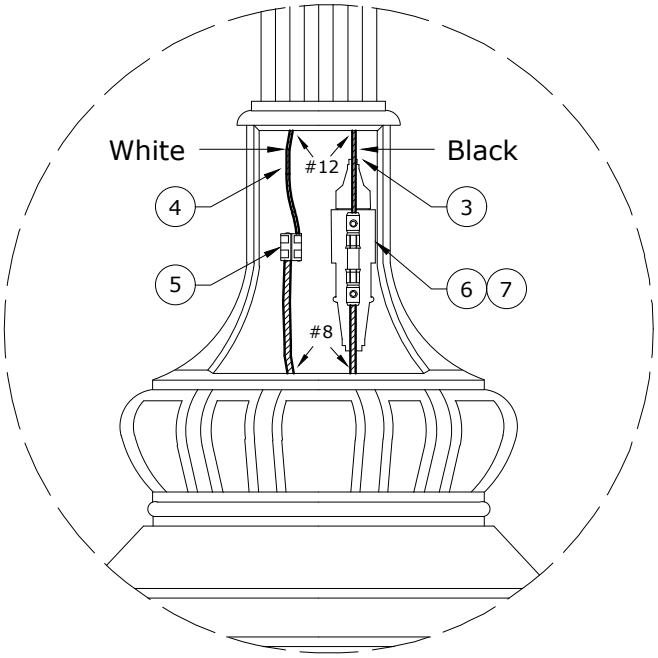
1000
STREETLIGHTING

6/1/2022

C	DLLED	Decorative LED Area Lighting, Single Acorn, Fiberglass Pole
C	DLTLED	Decorative LED Area Lighting, Twin Acorn, Fiberglass Pole
C	DLSH	Decorative HPS Area Lighting, Shepherds Hook Fiberglass Pole, For Maintenance Only
N	FL200LED-FL400LED	Area LED Light, Floodlight, Wood Pole Mounted
N	HLLED	Area LED Light, High Light, Wood Pole Mounted
C	SL	General Streetlighting, Light Patterns
N	SL100LED-SL200LED	Streetlight, 100/200W Equiv. LED Cobrahead, Wood Pole Mounted
N	SL100ALED-SL200ALED	Streetlight, 100/200W Equiv. LED Cobrahead, Single Arm, Aluminum Pole, Direct Burial
N	SL100SALED	Streetlight, 100W Equiv. LED Cobrahead, Short Mast Arm, Aluminum Pole, Direct Burial
N	SL100SFLED-SL200SFLED	Streetlight, 100/200W Equiv. LED Cobrahead, Single Arm, Aluminum Pole, Anchor Base
M	SL200SFDLED	Streetlight, 200W Equiv. LED Cobrahead, Twin Arm, Aluminum Pole, Anchor Base
C	SLARM6-SLARM22	Streetlight, Mast Arm Installation, Wood Pole Mounted
C	SLF	Streetlight Foundation, Steel - 6” Diameter
~	SLPT	Streetlight Pole Tagging
C	SLR	Secondary Overhead to Underground Riser Assembly, For Streetlight Feeder

N New Standard
R Redrawn Standard
C Changed Standard
~ No Change





Detail A

Notes: Installation meets NESC not NEC.

ITEM NO	DESCRIPTION	DLLED	
		QTY	S/N
1	Pole, Streetlight, Fiberglass, Direct Burial, 14.5' Mounting Height, Fluted Shaft, Clamshell Base	1	2219
2	Luminaire, Post Top Acorn, LED, 60W, 120V, Type 3, 3000K	1	2845
3	Cable, 600V, Cu, #12, 19-Str, Black, 1C	25 ft	386
4	Cable, 600V, Cu, #12, 19-Str, White, 1C	25 ft	387
5	Connector, H-Tap, Al/Cu, Run #6-#2 Str - Tap #14-#8 Str	1	416
6	Fuse, 10A, 250V, Time Delay, Streetlight	1	2389
7	Holder, Fuse, Streetlight	1	2388
8	Photoeye, LED and HPS, 120V, 3-pin	1	2872

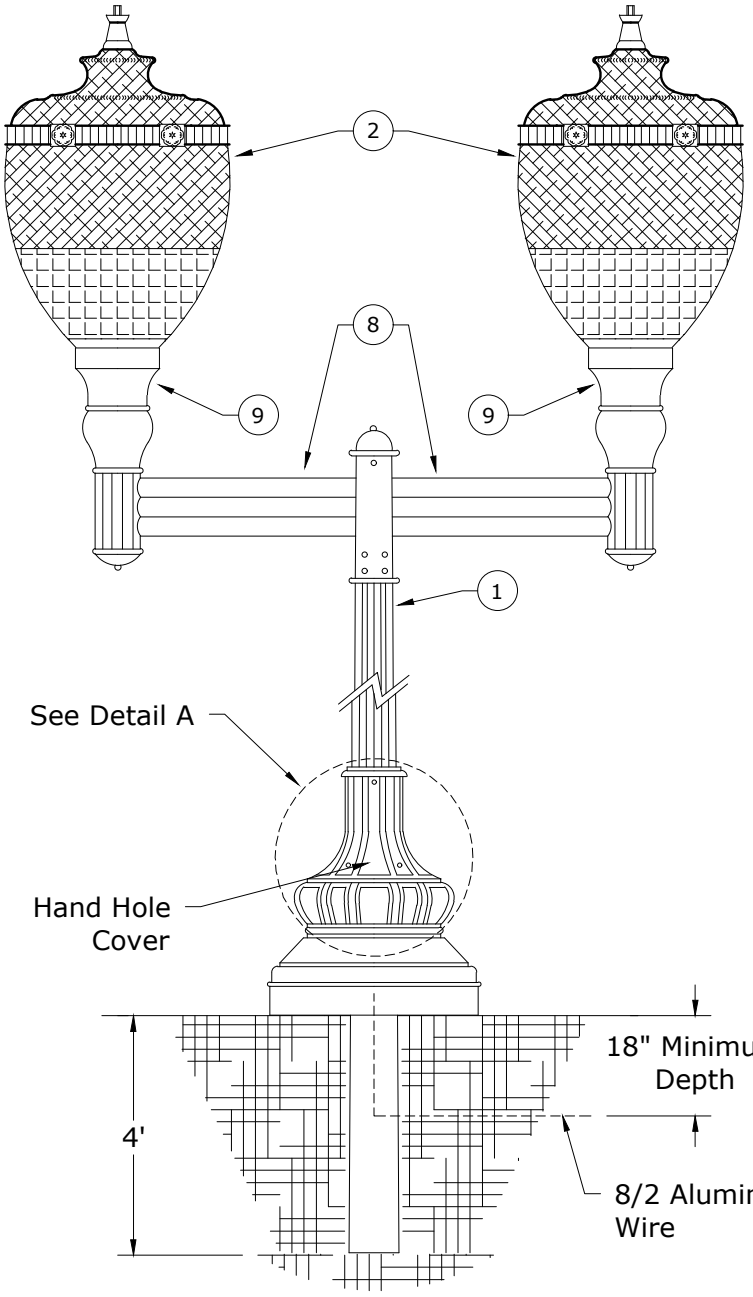
Clark Public Utilities

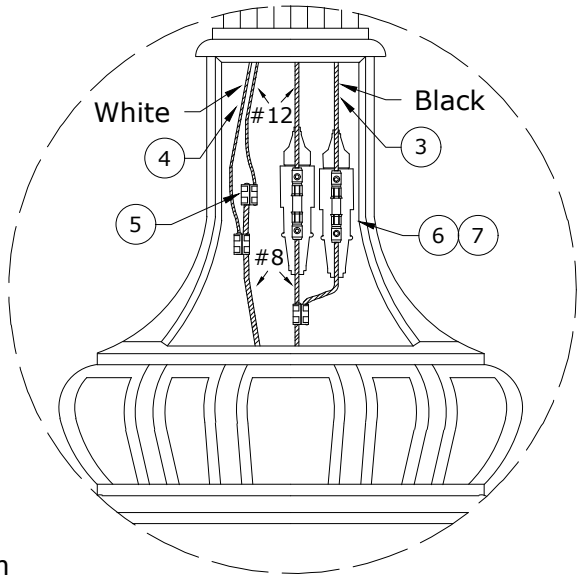
CONSTRUCTION STANDARDS

DECORATIVE LED AREA LIGHTING
SINGLE ACORN
FIBERGLASS POLE

REVISIONS			
R	DATE	ENGR	OPS

PAGE:		CAD FILE:	APP: DRK/KJP	SECTION
1 of 1	DLLED	DLLED	DATE: 6/1/22	1000





Detail A

Notes: Installation meets NESC not NEC.

ITEM NO	DESCRIPTION	DLTLED	
		QTY	S/N
1	Pole, Streetlight, Fiberglass, Direct Burial, 14.5' Mounting Height, Fluted Shaft, Clamshell Base	1	2219
2	Luminaire, Post Top Acorn, LED, 60W, 120V, Type 3, 3000K	2	2845
3	Cable, 600V, Cu, #12, 19-Str, Black, 1C	25 ft	386
4	Cable, 600V, Cu, #12, 19-Str, White, 1C	25 ft	387
5	Connector, H-Tap, AL/CU, Run #6-#2 Str - Tap #14-#8 Str	3	416
6	Fuse, 10A, 250V, Time Delay, Streetlight	2	2389
7	Holder, Fuse, Streetlight	2	2388
8	Arm, Twin Fixture, 3" O.D. x 2-7/8" Tenon, Black	1	2200
9	Photoeye, LED and HPS, 120V, 3-pin	2	2872

Clark Public Utilities

CONSTRUCTION STANDARDS

DECORATIVE LED AREA LIGHTING
TWIN ACORN
FIBERGLASS POLE

REVISIONS			
R	DATE	ENGR	OPS

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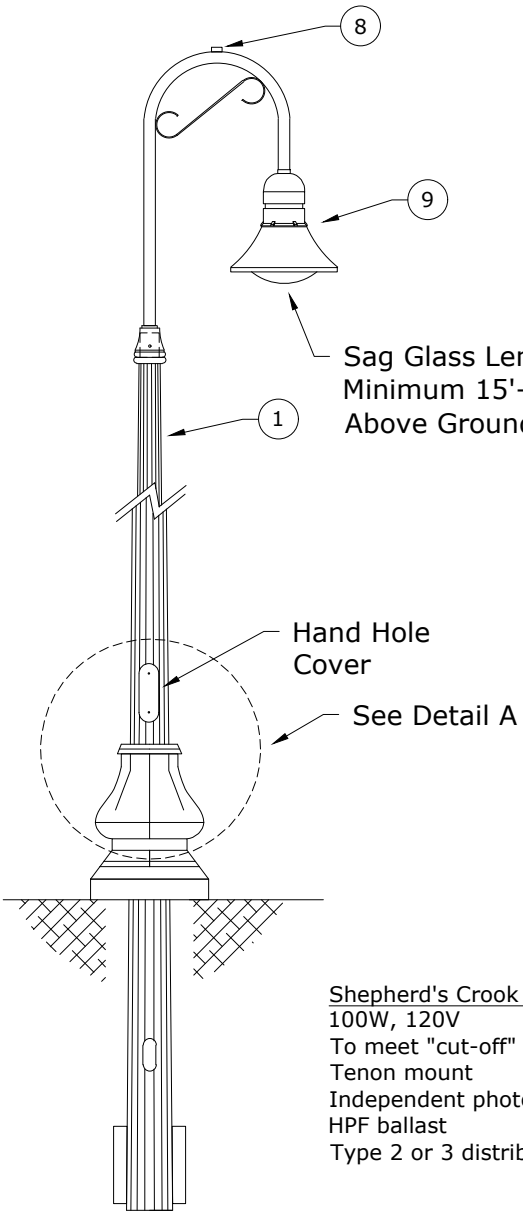
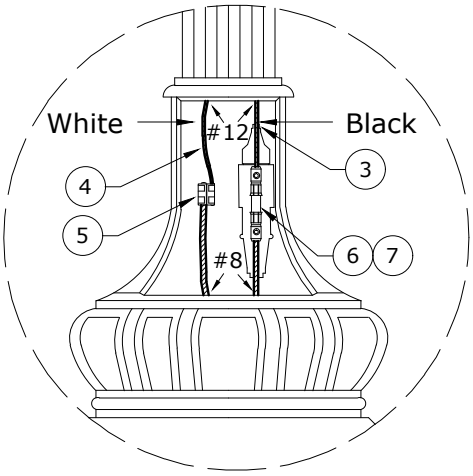
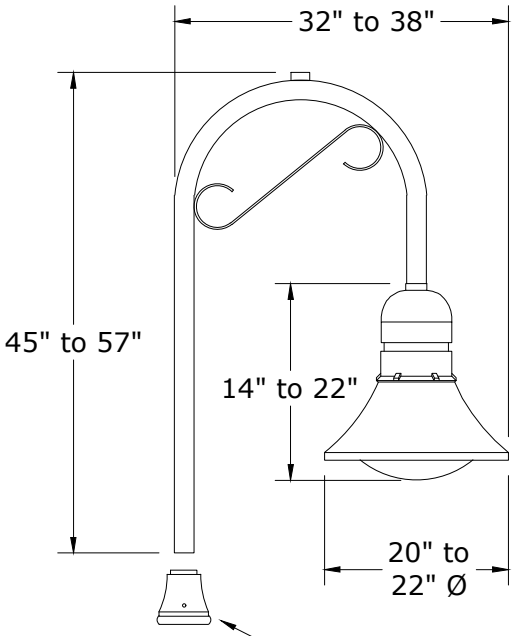




Detail A



Shepherd's Crook Area Light Specifications
100W, 120V
To meet "cut-off" Dark Skies designation
Tenon mount
Independent photo control
HPF ballast
Type 2 or 3 distribution pattern

Notes:
1. For maintenance only.
2. Dimensions are approximate.
3. Color: Black matte or semi-gloss.

ITEM NO	DESCRIPTION	DLSH	
		QTY	S/N
1	Pole, Streetlight, Fiberglass, Direct Burial, 14.5' Mounting Height, Fluted Shaft, Clamshell Base	1	2219
2	Luminaire, Shepherd Hook, HPS, 100W 120V, Med. Base, Type 2&3	1	2565
3	Cable, 600V, Cu, #12, 19-Str, Black, 1C	35 ft	386
4	Cable, 600V, Cu, #12, 19-Str, White, 1C	35 ft	387
5	Connector, H-Tap, Al/Cu, Run #6-#2 Str - Tap #14-#8 Str	1	416
6	Fuse, 10A, 250V, Time Delay, Streetlight	1	2389
7	Holder, Fuse, Streetlight	1	2388
8	Photoeye, LED and HPS, 120V, 3-pin	1	2872
9	Lamp, HPS, 100W, 55V	1	1745

Clark Public Utilities

CONSTRUCTION STANDARDS

DECORATIVE HPS AREA LIGHTING
SHEPHERDS HOOK FIBERGLASS POLE
FOR MAINTENANCE ONLY

REVISIONS			
R	DATE	ENGR	OPS
0	8/24/04	LB	AH
1	4/19/22	DRK	

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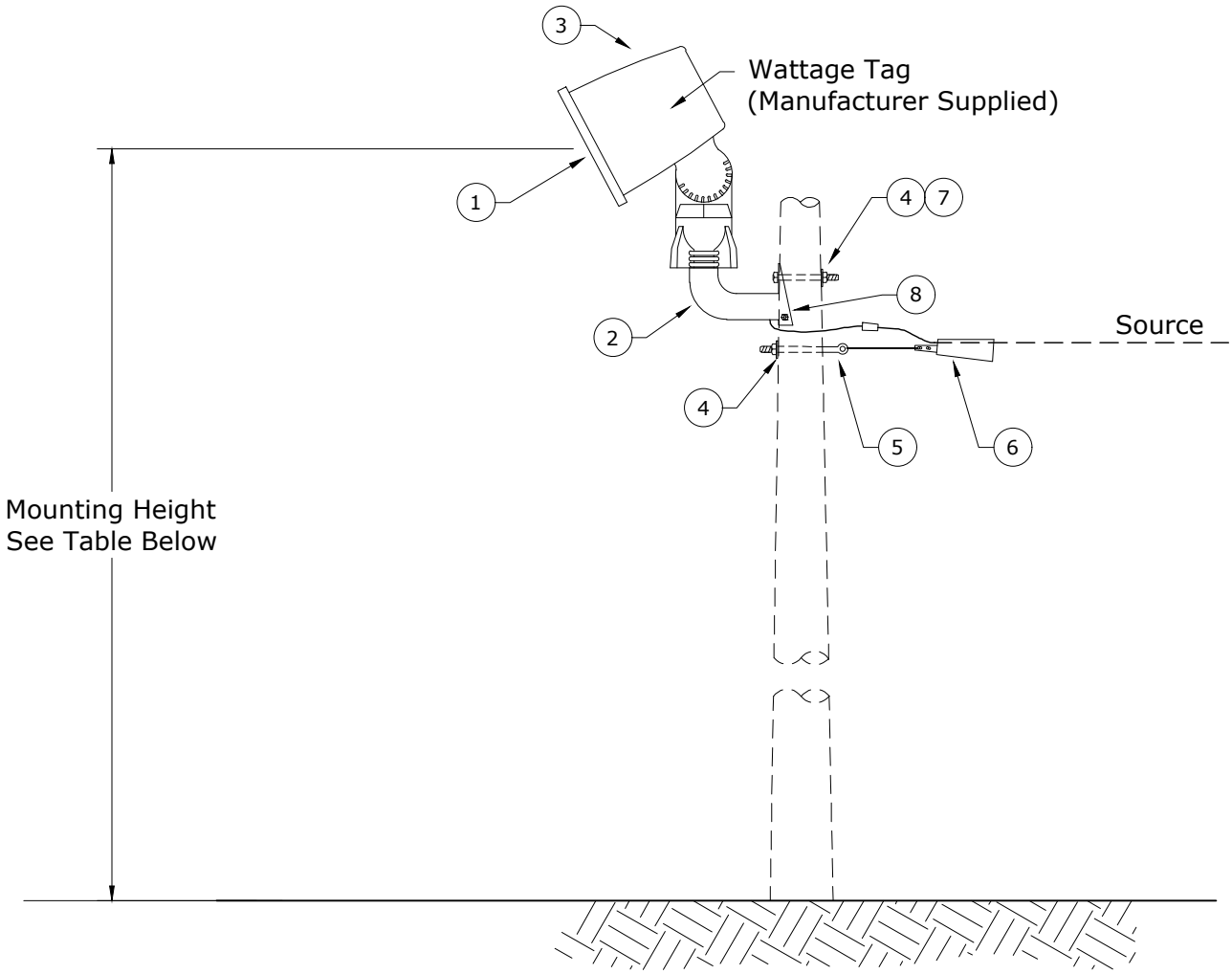
DLSH

CAD FILE: DLSH

APP: WAH
DATE: 8/13/04

SECTION 2200



RECOMMENDED MOUNTING HEIGHTS			
TYPE	PREFERRED	MINIMUM	MAXIMUM
200W	30 ft	20 ft	32 ft
400W	35 ft	25 ft	37 ft

Notes: Installation meets NESC not NEC.

ITEM NO	DESCRIPTION	FL200LED		FL400LED	
		QTY	S/N	QTY	S/N
1	Luminaire, Floodlight, LED, 3000k, HPS-Equivalent	1	2906	1	2907
2	Bracket, Floodlight, PM1, Single Pole Mt.	1	211	1	211
3	Photoeye, LED and HPS, 120V, 3-pin	1	2872	1	2872
4	Washer, Square Flat 5/8" x 2 1/4" x 2 1/4"	2	1412	2	1412
5	Bolt, Eye, 5/8" x 12", Galv, 12,400 LB Ultimate Tensile	1	107	1	107
6	Clamp, Wedge #6-#2 ACSR, Solid Bail	1	310	1	310
7	Bolt, Machine, 5/8" x 12", Galv, 12,400 LB, Ultimate Tensile	1	155	1	155
8	Screw, Lag 1/2" x 3", Fetter Drive, Drive Point	2	1131	2	1131

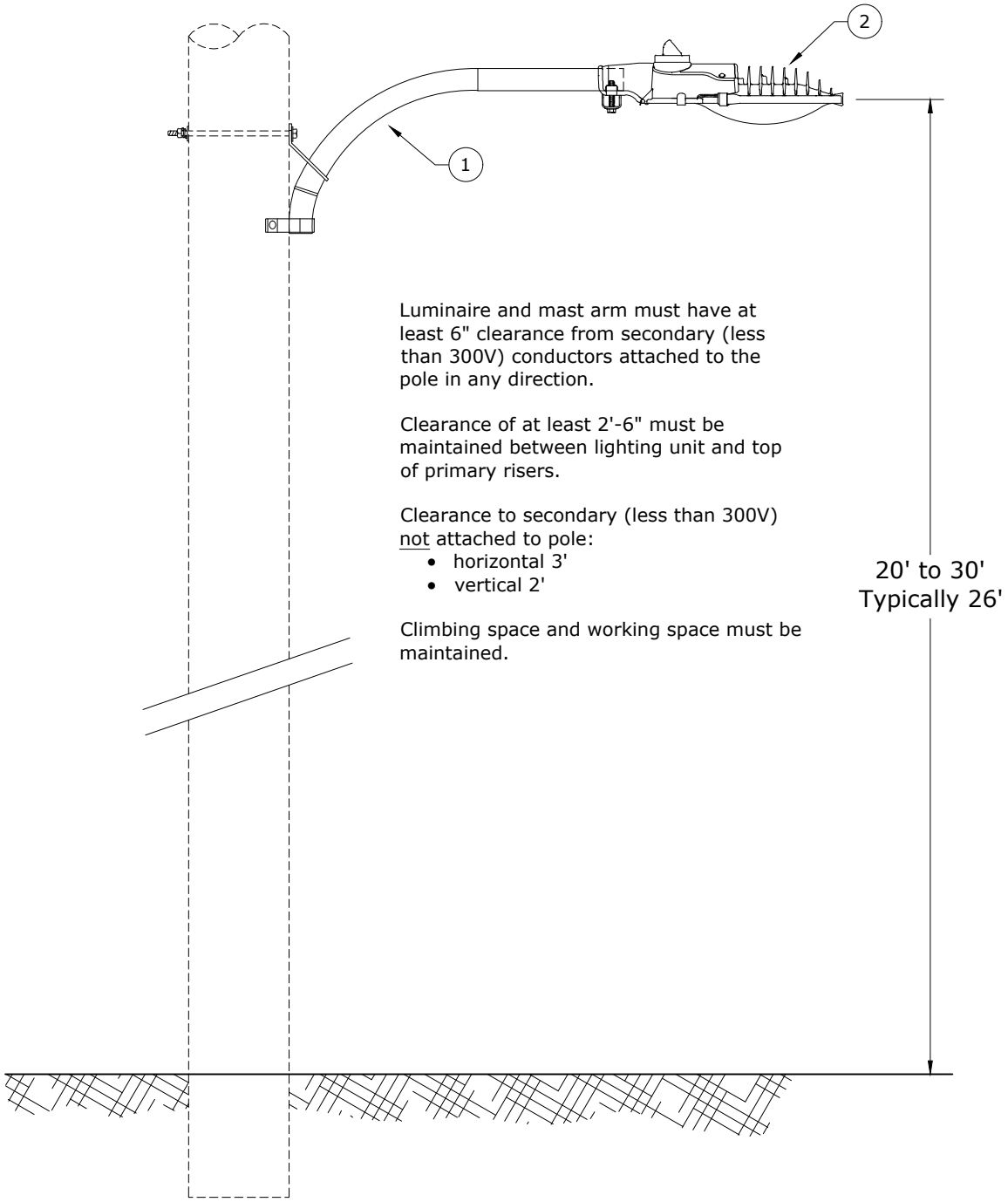
Clark Public Utilities

CONSTRUCTION STANDARDS

AREA LED LIGHT
FLOODLIGHT
WOOD POLE MOUNTED

REVISIONS			
R	DATE	ENGR	OPS

PAGE:		CAD FILE:	APP: DRK/KJP	SECTION
1 of 1	FL200LED, FL400LED	FL200LED	DATE: 6/1/22	1000



Luminaire and mast arm must have at least 6" clearance from secondary (less than 300V) conductors attached to the pole in any direction.

Clearance of at least 2'-6" must be maintained between lighting unit and top of primary risers.

Clearance to secondary (less than 300V) not attached to pole:

- horizontal 3'
- vertical 2'

Climbing space and working space must be maintained.

Notes: Installation meets NESC not NEC.

ITEM NO	DESCRIPTION	HLLED	
		QTY	S/N
1	Arm, Mast Al 2', Highlite, Wood Pole	1	44
2	Luminaire, High Light, LED, 3000K, Integrated Photoeye, HPS Equivalent	1	2890

Clark Public Utilities

CONSTRUCTION STANDARDS

AREA LED LIGHT
HIGH LIGHT
WOOD POLE MOUNTED

REVISIONS			
R	DATE	ENGR	OPS

PAGE: 1 of 1

HLLED

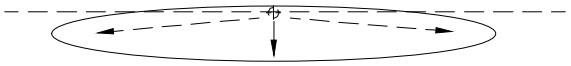
CAD FILE: HLLED

APP: DRK/KJP

DATE: 6/1/22

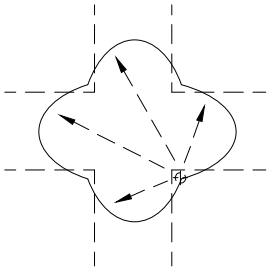
SECTION 1000

X. LIGHTING TYPES



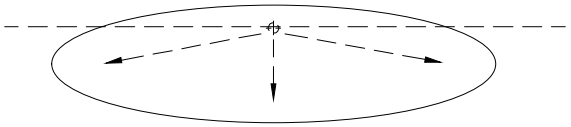
IES TYPE II

For use on narrow to medium width street using mast arm mounted luminaire. Mount at right angle (90°) with centerline of street. Not a CPU standard.



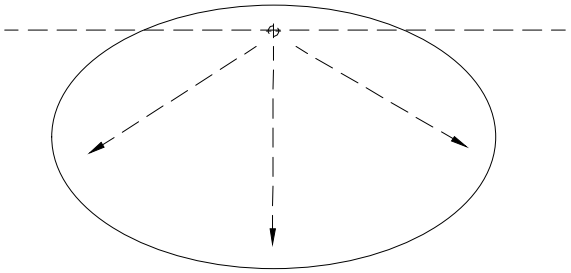
IES TYPE II 4-WAY

For use at intersections when only one mast arm mounted luminaire can be used. Mount luminaire as near as possible to center of intersection. Not a CPU standard.



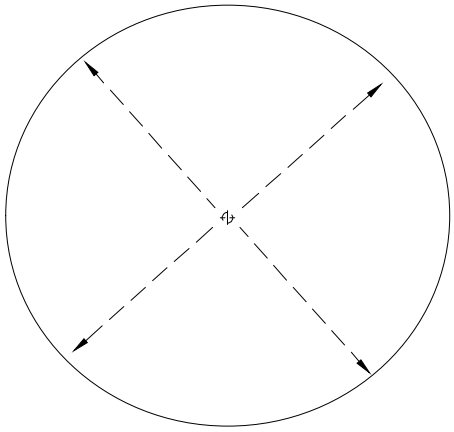
IES TYPE III

For use on wide width streets using mast arm mounted luminaires. Mount at right angle (90°) with centerline of street. Cobrahead and decorative acorns use this pattern.



IES TYPE IV

For use in subdivision cul-de-sacs using specialized cobrahead luminaires. Aim luminaire as near as possible to center of cul-de-sac. Not a CPU standard.



IES TYPE V

Yard lights (HLLED) use this pattern when located in center of area to be illuminated.

FLOODLIGHTS

1. To be used for parking lots, storage areas, etc. Not to be used for streetlighting.
2. Always take into account unintentional light trespass on surrounding areas prior to installation.
3. Floodlights used by CPU have a beam spread of 65° both vertically and horizontally.
4. Aiming of floodlight should be 1/2 to 2/3 of distance across area to be illuminated.

Rev. 2 - Added type of light to IES type and replaced Std. SL.

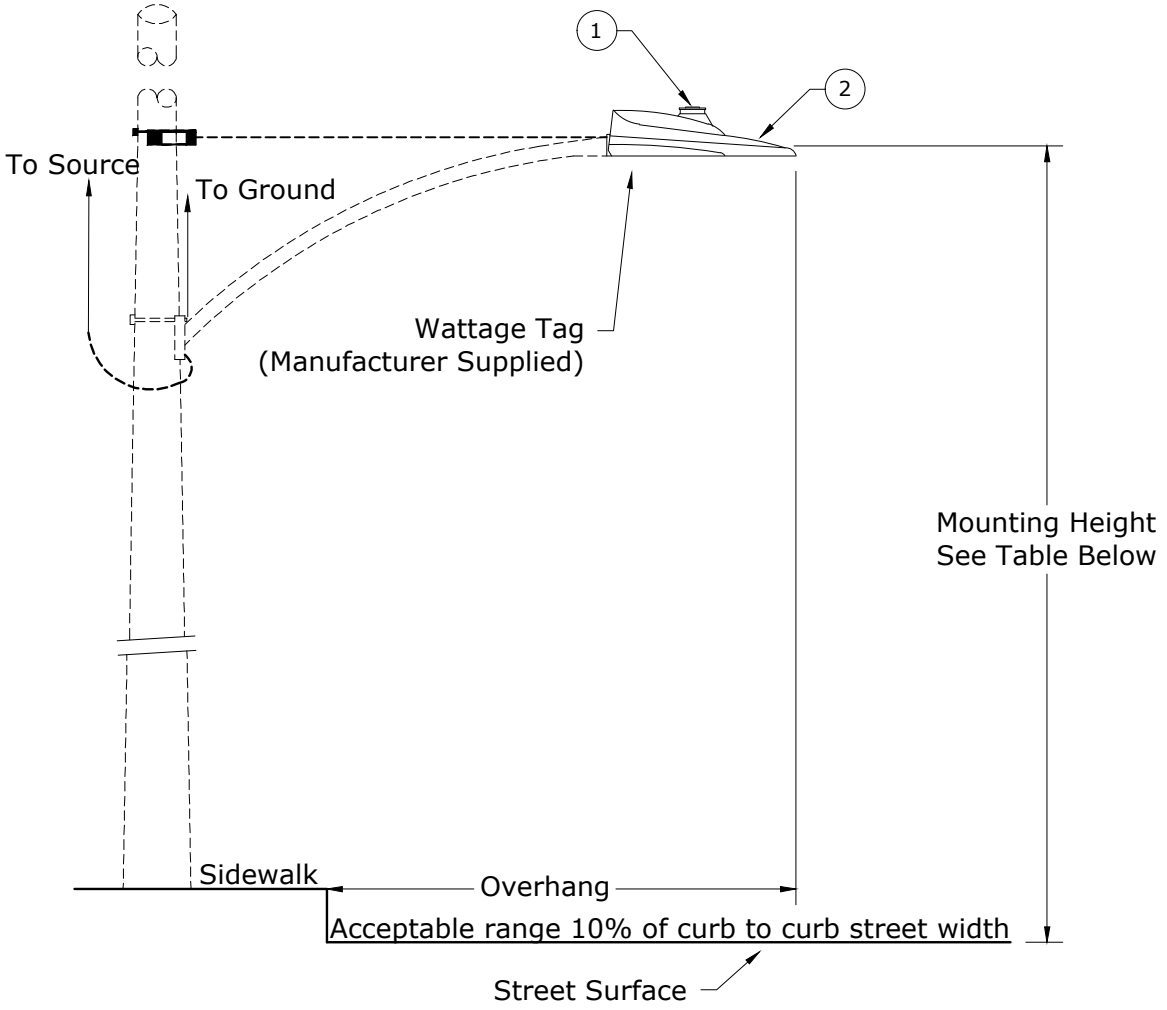
Clark Public Utilities

CONSTRUCTION STANDARDS

GENERAL STREETLIGHTING
LIGHT PATTERNS

REVISIONS			
R	DATE	ENGR	OPS
0	2/23/00	HWH	MA
1	8/24/04	LB	AH
2	4/21/22	DRK	

PAGE:		CAD FILE:	APP: HWH/RGH	SECTION
1 of 1	SL	SL	DATE: 1/13/82	1000



RECOMMENDED MOUNTING HEIGHTS		
TYPE	MINIMUM	MAXIMUM
100W	25 ft	27 ft
200W	30 ft	32 ft

Notes:

1. Installation meets NESC not NEC.
2. Mast arm attachment height varies with type of arm and must be positioned so luminaire is level.

Rev. 1 - Updated to LED and added note #1.

ITEM NO	DESCRIPTION	SL100LED		SL200LED	
		QTY	S/N	QTY	S/N
1	Photoeye, LED and HPS, 120V, 3-Pin	1	2872	1	2872
2	Luminaire, Cobrahead, LED, Type 3, 3000K, HPS Equivalent	1	2889	1	2895

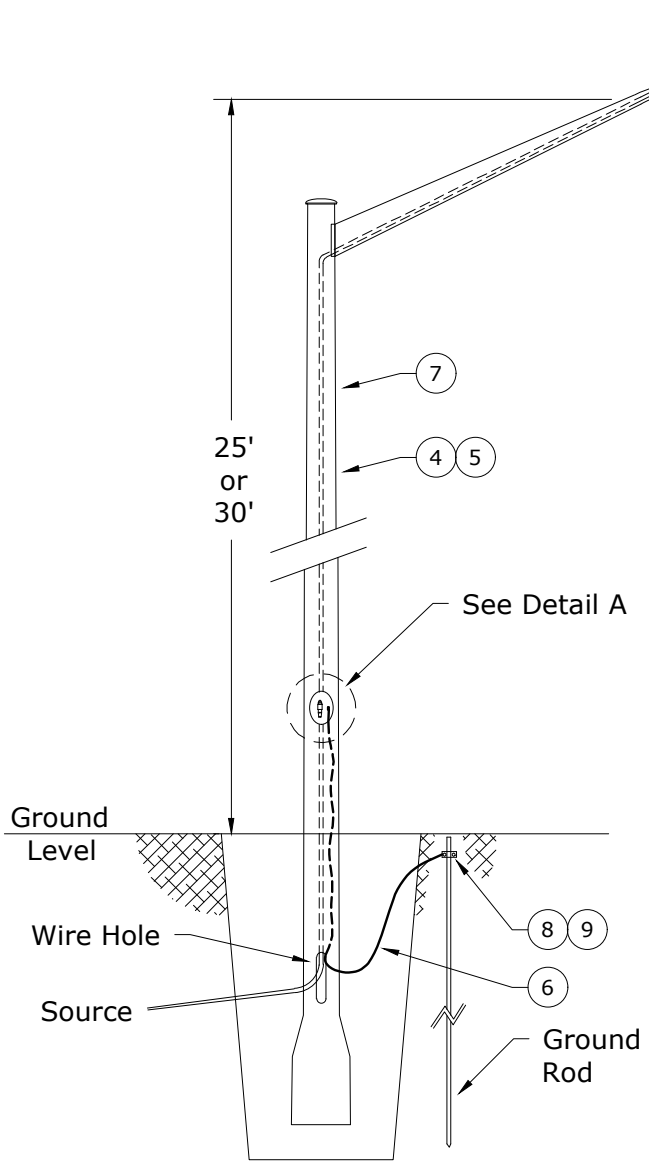
Clark Public Utilities

CONSTRUCTION STANDARDS

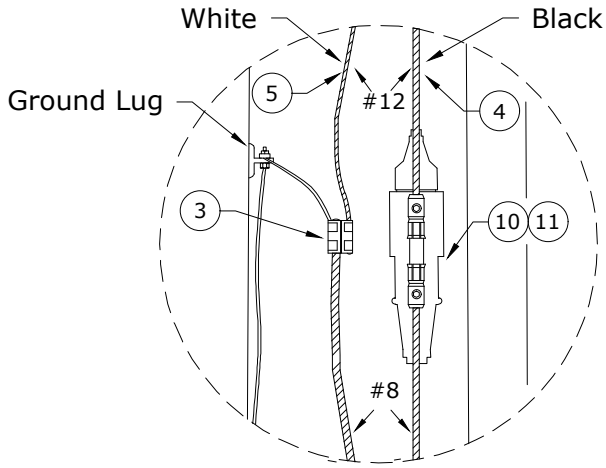
STREETLIGHT
100/200W EQUIV. LED COBRAHEAD
WOOD POLE MOUNTED

REVISIONS			
R	DATE	ENGR	OPS
1	6/1/22	DRK	

PAGE:		CAD FILE:	APP: HWH/GLE	SECTION
1 of 1	SL100LED,SL200LED	SL100LED	DATE: 1/31/80	1000



All splices shall be compression
DO NOT USE WIRE NUTS



Detail A

Notes: Installation meets NESC not NEC.

ITEM NO	DESCRIPTION	SL100ALED		SL200ALED	
		QTY	S/N	QTY	S/N
1	Photoeye, LED and HPS, 120V, 3-pin	1	2872	1	2872
2	Luminaire, Cobrahead, LED, Type 3, 3000K, HPS Equivalent	1	2889	1	2895
3	Connector, H-Tap, Al/Cu, Run #6-#2 Str, Tap #14-#8 Str	1	416	1	416
4	Cable, 600V, Cu, #12, 19-Str, Black, 1C	42 ft	386	42 ft	386
5	Cable, 600V, Cu, #12, 19-Str, White, 1C	42 ft	387	42 ft	387
6	Conductor, Cu, #6, Solid, Bare, Soft Drawn, 1C	2 ft	374	2 ft	374
7	Pole, Streetlight, Al, Direct Burial, 25' Mounting Height w/ 6' Arm ☼	1	2946	–	N/A
7	Pole, Streetlight, Al, Direct Burial, 30' Mounting Height w/ 6' Arm ☼	–	N/A	1	2945
8	Clamp, Ground Rod, 5/8", Bronze, Small	1	281	1	281
9	Rod, Ground, 5/8" x 8'	1	1124	1	1124
10	Fuse, 10A, 250V, Time Delay, Streetlight	1	2389	1	2389
11	Holder, Fuse, Streetlight	1	2388	1	2388

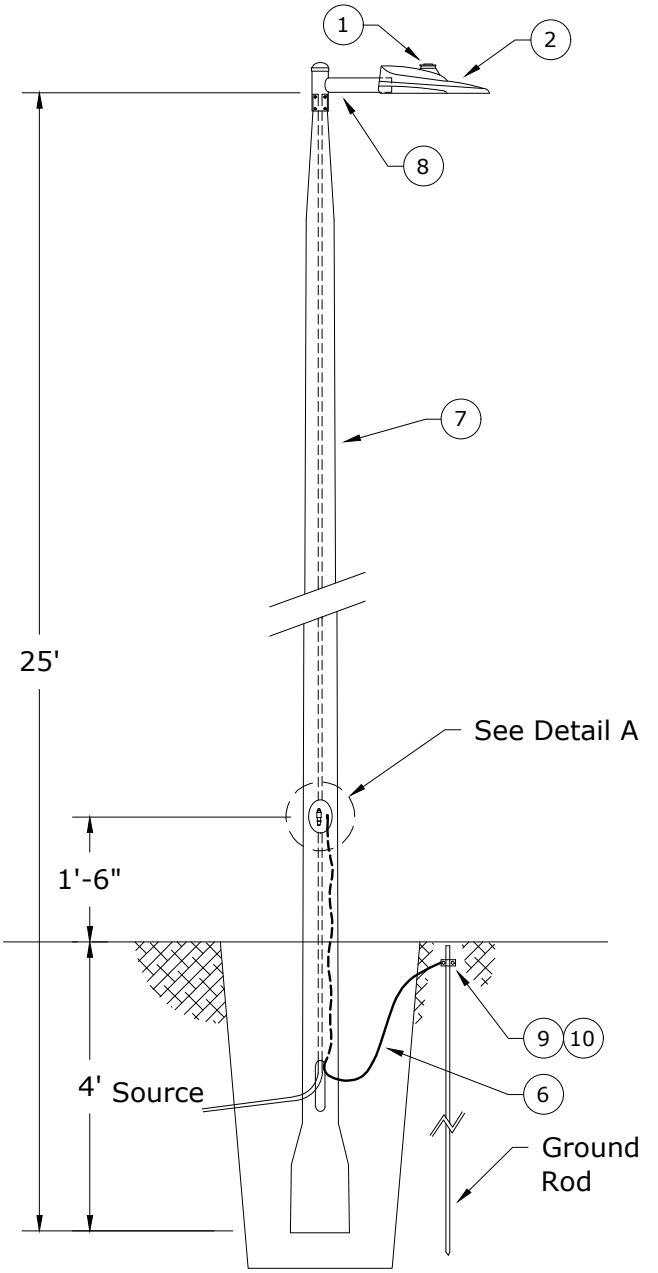
Clark Public Utilities

CONSTRUCTION STANDARDS

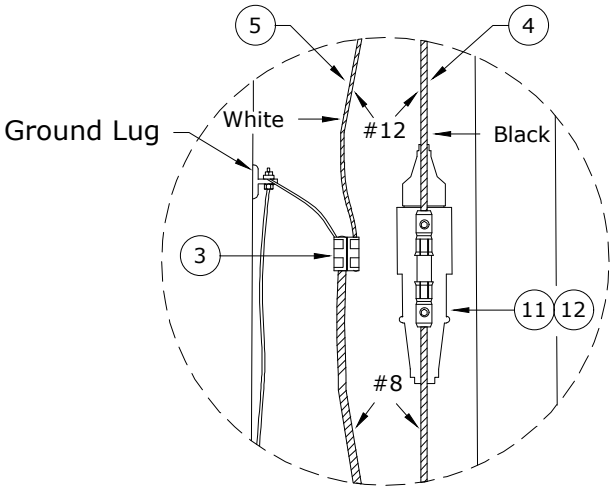
STREETLIGHT, 100/200W EQUIV. LED COBRAHEAD
SINGLE ARM
ALUMINUM POLE, DIRECT BURIAL

REVISIONS			
R	DATE	ENGR	OPS

PAGE:		CAD FILE:	APP: DRK/KJP	SECTION
1 of 1	SL100ALED,SL200ALED	SL100ALED	DATE: 6/1/22	1000



All splices shall be compression
DO NOT USE WIRE NUTS



Detail A

Notes: Installation meets NESC not NEC.

ITEM NO	DESCRIPTION	SL100SALED	
		QTY	S/N
1	Photoeye, LED and HPS, 120V, 3-pin	1	2872
2	Luminaire, Cobrahead, LED Type 3, 3000K, HPS Equivalent	1	2889
3	Connector, H-Tap, Al/Cu, Run #6-#2 Str - Tap #14-#8 Str	1	416
4	Cable, 600V, Cu, #12, 19-Str, Black, 1C	20 ft	386
5	Cable, 600V, Cu, #12, 19-Str, White, 1C	20 ft	387
6	Conductor, Cu, #6, Solid, Bare, Soft Drawn, 1C	2 ft	374
7	Pole, Streetlight, Al, Direct Burial, 25' Mounting Height, Post Top ☼	1	2947
8	Arm, Tenon-mount, Streetlight	1	2901
9	Clamp, Ground Rod, 5/8", Bronze, Small	1	281
10	Rod, Ground, 5/8" x 8'	1	1124
11	Fuse, 10A, 250V, Time Delay, Streetlight	1	2389
12	Holder, Fuse, Streetlight	1	2388

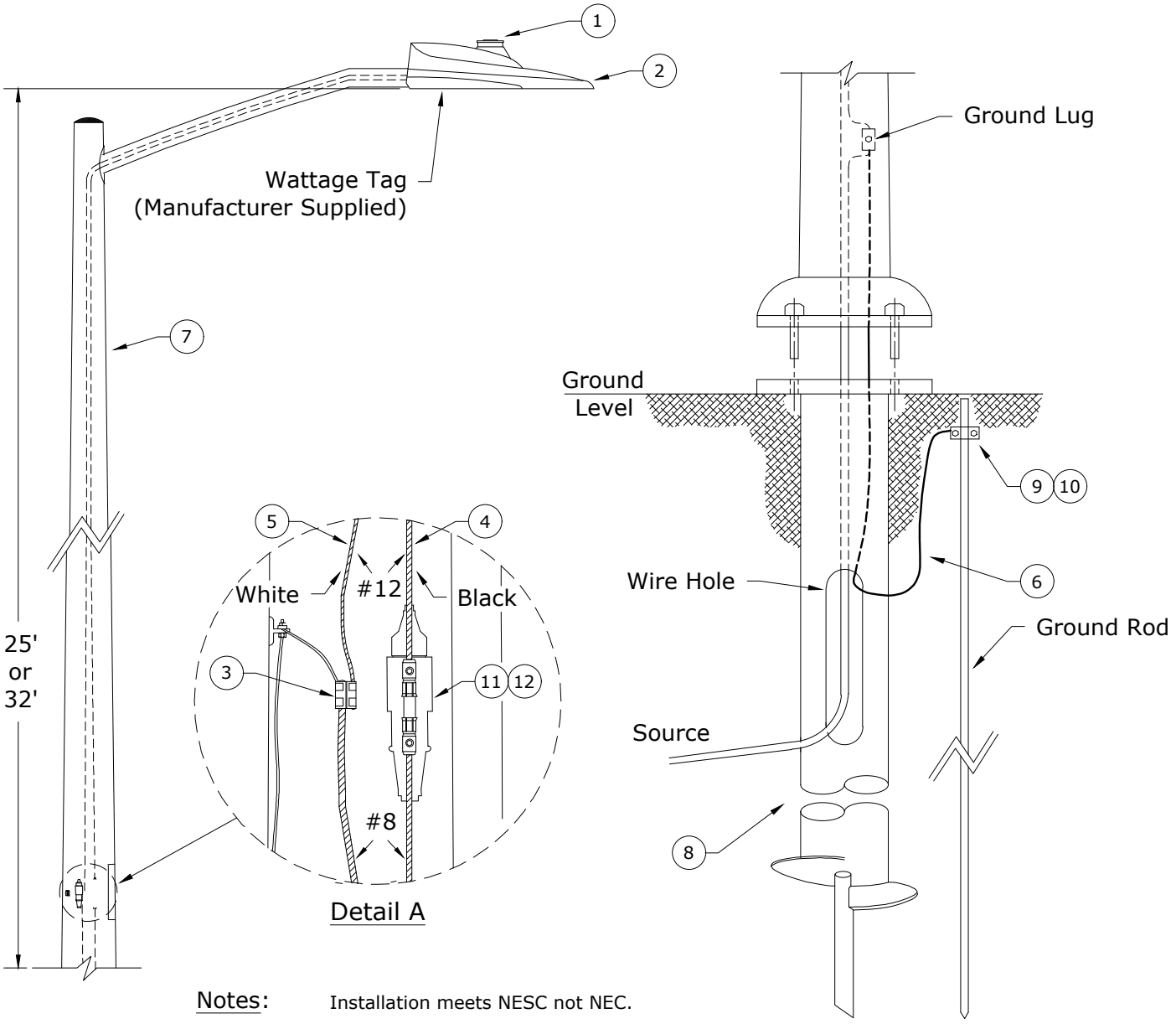
Clark Public Utilities

CONSTRUCTION STANDARDS

STREETLIGHT, 100W EQUIV. LED COBRAHEAD
SHORT MAST ARM
ALUMINUM POLE, DIRECT BURIAL

REVISIONS			
R	DATE	ENGR	OPS

PAGE:		CAD FILE:	APP: DRK/KJP	SECTION
1 of 1	SL100SALED	SL100SALED	DATE: 6/1/22	2200



Notes: Installation meets NESC not NEC.

ITEM NO	DESCRIPTION	SL100SFLED		SL200SFLED	
		QTY	S/N	QTY	S/N
1	Photoeye, LED and HPS, 120V, 3-pin	1	2872	1	2872
2	Luminaire, Cobrahead, LED, Type 3, 3000K, HPS Equivalent	1	2889	1	2895
3	Connector, H-Tap, Al/Cu, #6 Solid, Bare, Soft Drawn, 1C	1	416	1	416
4	Cable, 600V, Cu, #12, 19-Str, Black, 1C	42 ft	386	42 ft	386
5	Cable, 600V, Cu, #12, 19-Str, White, 1C	42 ft	387	42 ft	387
6	Conductor, Cu, #6 Solid, Bare, Soft Drawn, 1C	2 ft	374	2 ft	374
7	Pole, Streetlight, Al, Anchor base 11-1/2" bolt circle, 25' mounting height, 6' arm	1	1225	_	N/A
7	Pole, Streetlight, Al, Anchor base 11-1/2" bolt circle, 32' mounting height, 6' arm	_	N/A	1	1226
8	Anchor, Streetlight foundation (rocky soil), 6" Diameter	1	20	1	20
9	Clamp, Ground Rod, 5/8", Bronze, Small	1	281	1	281
10	Rod, Ground 5/8" x 8'	1	1124	1	1124
11	Fuse, 10A, 250V, Time Delay, Streetlight	1	2389	1	2389
12	Holder, Fuse, Streetlight	1	2388	1	2388

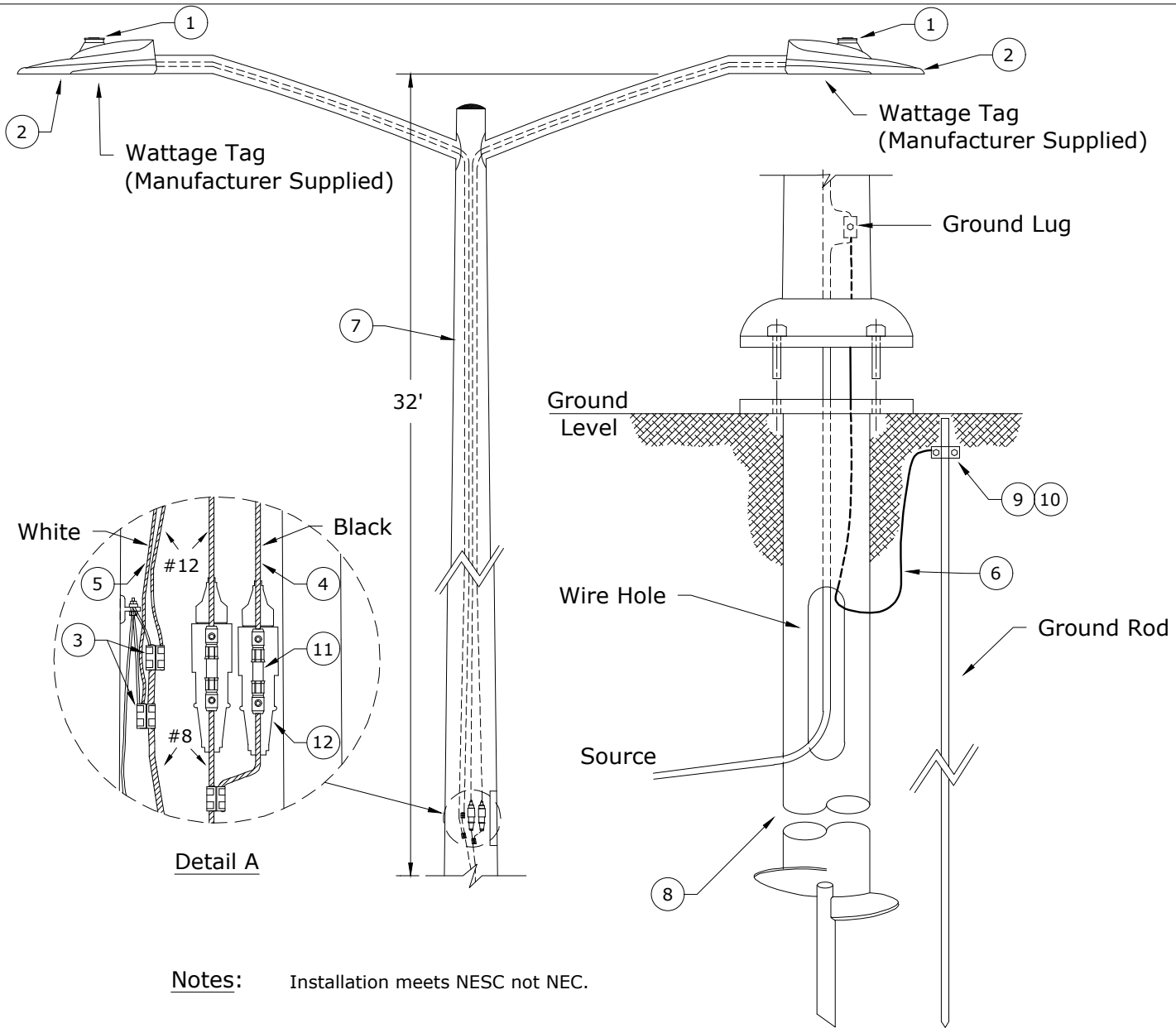
Clark Public Utilities

CONSTRUCTION STANDARDS

STREETLIGHT
100/200W EQUIV. LED COBRAHEAD, SINGLE ARM
ALUMINUM POLE, ANCHOR BASE

REVISIONS			
℞	DATE	ENGR	OPS

PAGE:		CAD FILE:	APP: DRK/KJP	SECTION
1 of 1	SL100SFLED,SL200SFLED	SL100SFLED	DATE: 6/1/22	1000



Notes: Installation meets NESC not NEC.

Rev. 2 - Changed to LED lights.

ITEM NO	DESCRIPTION	SL200SFDLED	
		QTY	S/N
1	Photoeye, LED and HPS, 120V, 3-pin	2	2872
2	Luminaire, Cobrahead, LED, Type 3, 3000K, HPS Equivalent	2	2895
3	Connector, H-Tap, Al/Cu, #6 Solid, Bare, Soft Drawn, 1C	2	416
4	Cable, 600V, Cu, #12, 19-Str, Black, 1C	84 ft	386
5	Cable, 600V, Cu, #12, 19-Str, White, 1C	84 ft	387
6	Conductor, Cu, #6 Solid, Bare, Soft Drawn, 1C	3 ft	374
7	Pole, Streetlight, Al, Anchor base 11-1/2" bolt circle, 32' mounting height, Double 6' arm	1	1227☼
8	Anchor, Streetlight foundation (rocky soil), 6" Diameter	1	20 ☼
9	Clamp, Ground Rod, 5/8", Bronze, Small	1	281
10	Rod, Ground 5/8" x 8'	1	1124
11	Fuse, 10A, 250V, Time Delay, Streetlight	2	2389
12	Holder, Fuse, Streetlight	2	2388

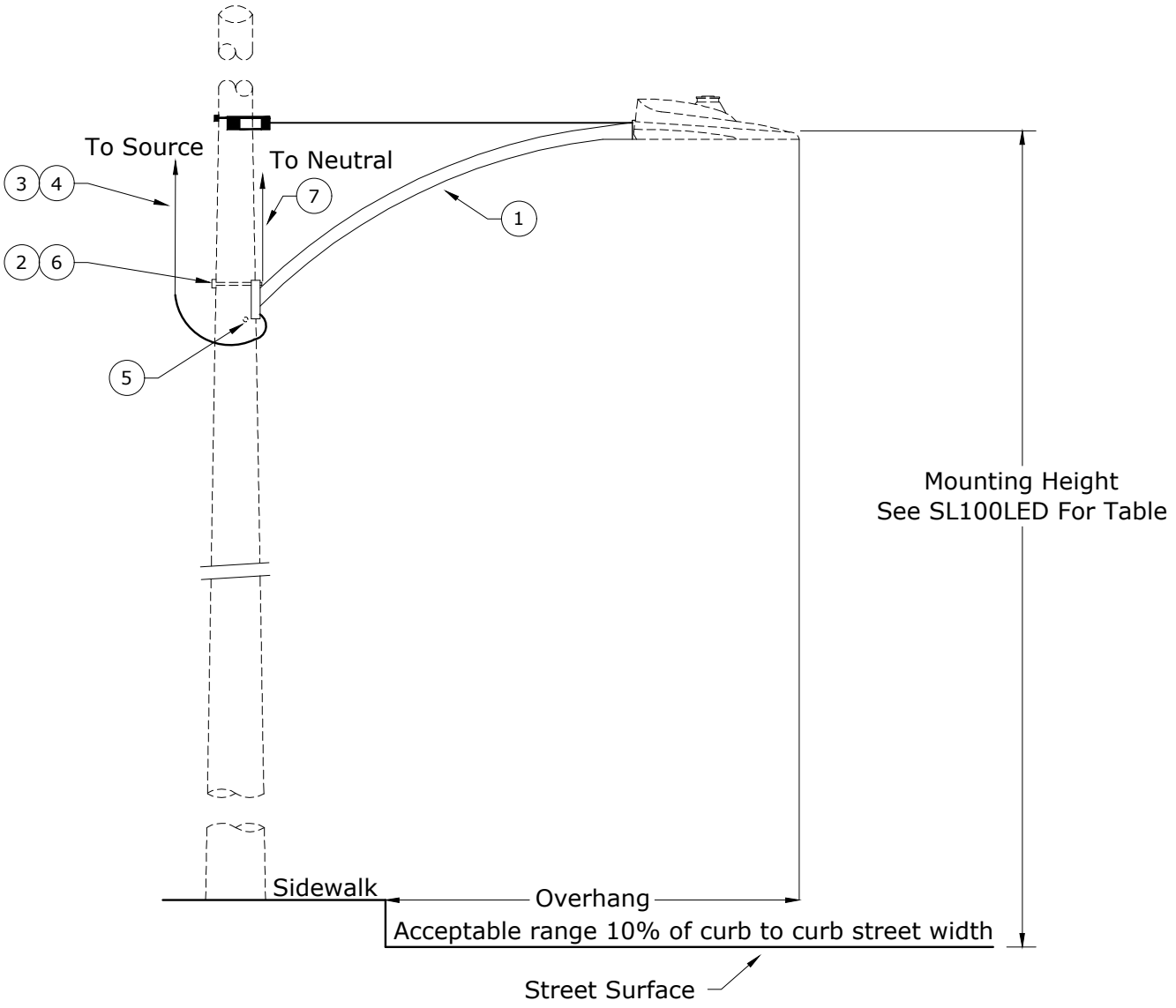
Clark Public Utilities

CONSTRUCTION STANDARDS

STREETLIGHT, 200W EQUIV.
LED COBRAHEAD, TWIN ARM
ALUMINUM POLE, ANCHOR BASE

REVISIONS			
R	DATE	ENGR	OPS
0	2/23/00	HWH	MA
1		LB	AH
2	6/1/22	DRK	

PAGE:		CAD FILE:	APP: JEH	SECTION
1 of 1	SL200SFDLED	SL200SFDLED	DATE: 2/22/00	1000



Notes:

1. Installation meets NESC not NEC.
2. Mast of arm attachment height varies with type of arm and must be positioned so luminaire is level. SLARM6, 8, 12, 14, 16, 18, 20 & 22. Ending numbers specify mast arm length. Conductor wire length will be adjusted to match mast arm size.

Rev. 2 - Obsoleted 4' arm.

ITEM NO	DESCRIPTION	SLARM16	
		QTY	S/N
1	Arm, Mast, Steel, 16' Streetlight, Double Guy	1	51
2	Bolt, Machine, 5/8" x 12" Galv, 12,400 lb Ultimate	2	155
3	Cable, 600V, Cu, #12, 19-Str, Black, 1C	19	386
4	Cable, 600V, Cu, #12, 19-Str, White, 1C	19	387
5	Screw, Lag, 1/2" x 3", Fetter Drive, Drive Point	2	1131
6	Washer, Square Flat, 5/8" x 2-1/4" x 2-1/4"	2	1412
7	Conductor, Cu, #6, Solid, Bare, Soft Drawn, 1C	5✲	374

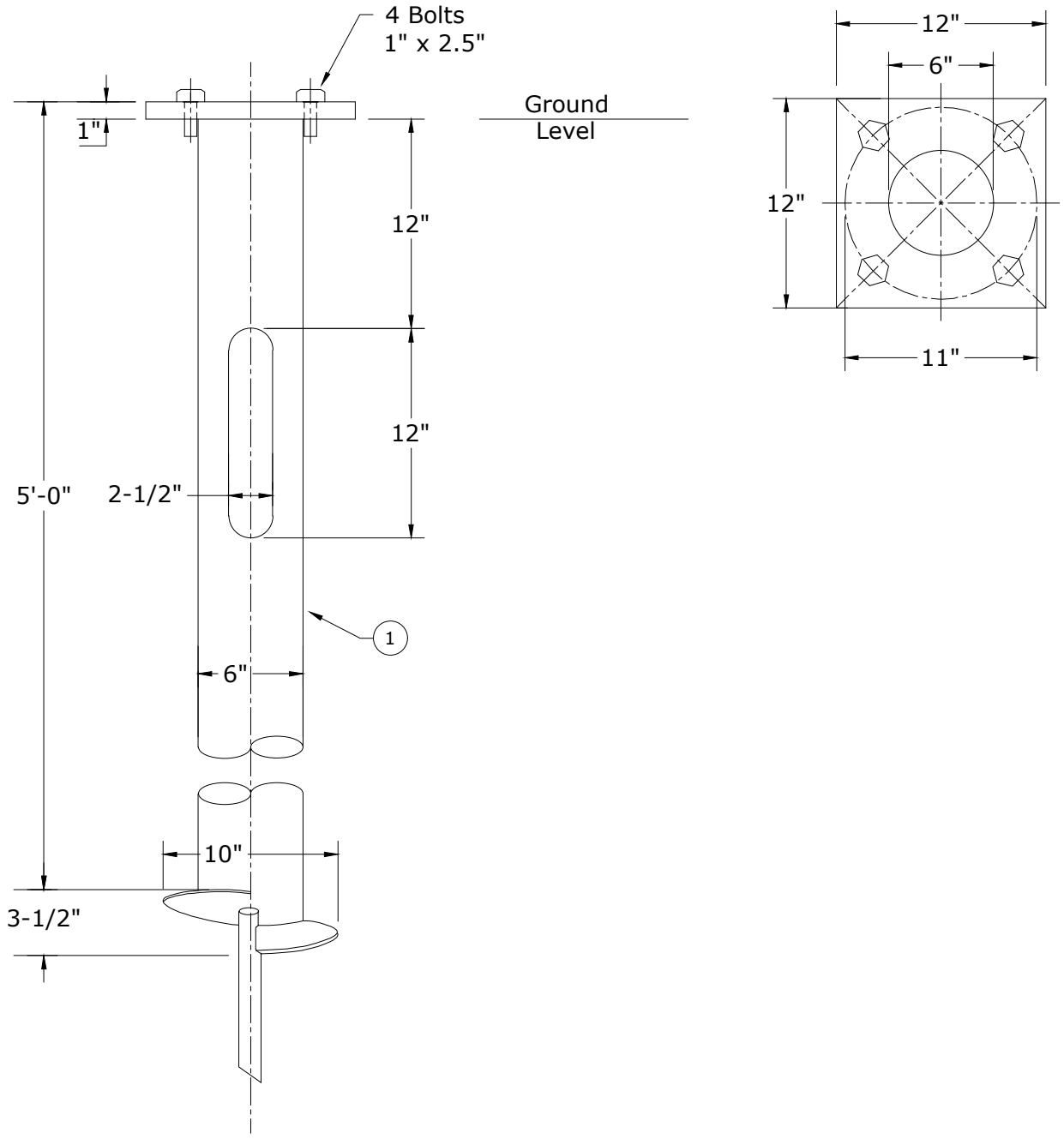
Clark Public Utilities

CONSTRUCTION STANDARDS

STREETLIGHT
MAST ARM INSTALLATION
WOOD POLE MOUNTED

REVISIONS			
R	DATE	ENGR	OPS
1	2/23/00	HWH	MA
2	4/20/22	DRK	

PAGE:		CAD FILE:	APP:	SECTION
1 of 1	SLARM6-SLARM22	SLARM6	DATE:	1000



Rev. 2 - Updated dimension formatting.

ITEM NO	DESCRIPTION	SLF QTY	SLF S/N
1	Anchor, Streetlight Foundation (Rocky Soil), 6" Diameter	1	20

Clark Public Utilities

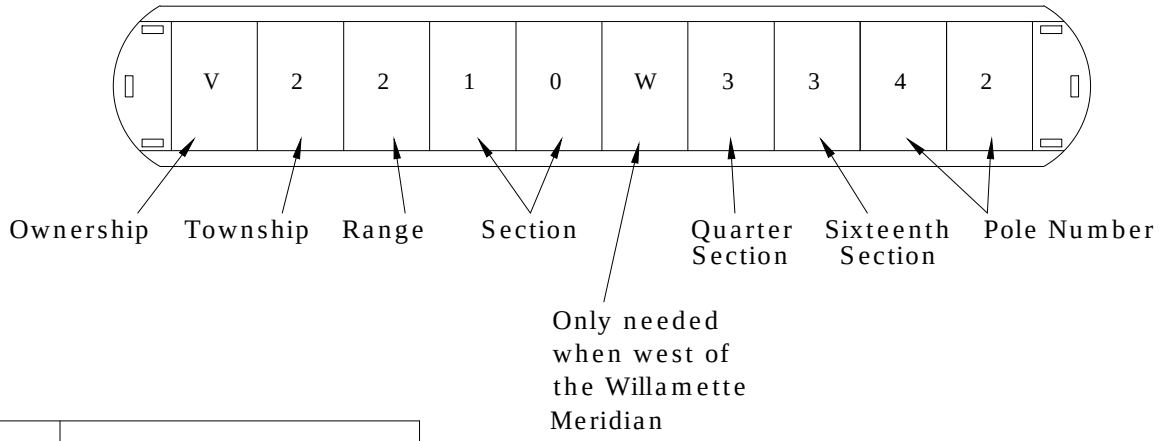
CONSTRUCTION STANDARDS

STREETLIGHT FOUNDATION
STEEL - 6" DIAMETER

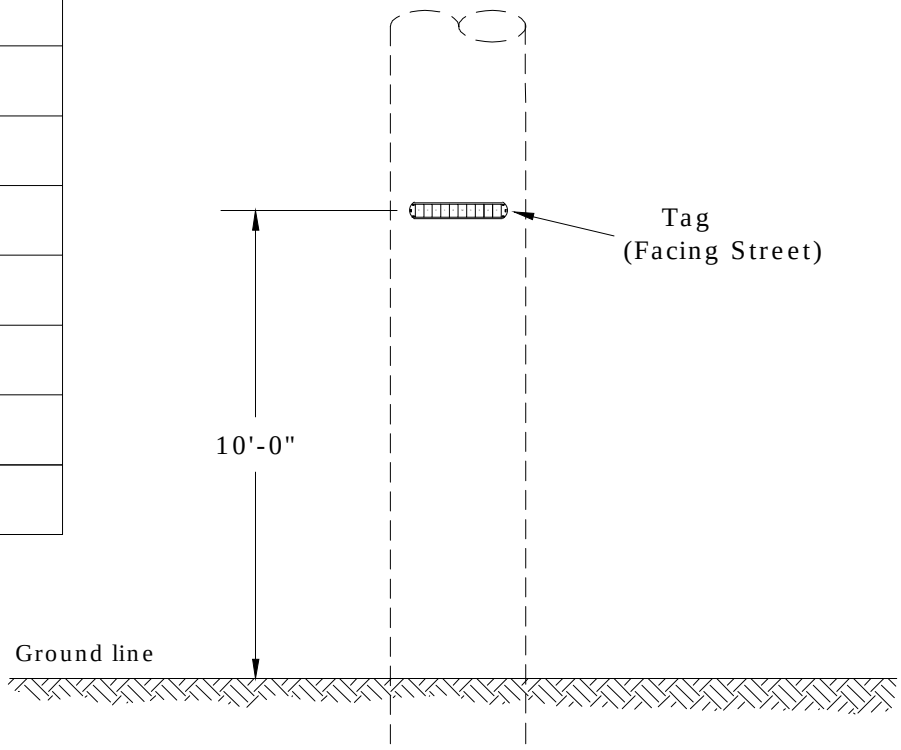
REVISIONS			
R	DATE	ENGR	OPS
1	2/23/00	HWH	MA
2	4/20/22	DRK	

PAGE:		CAD FILE:	APP: HWH/GW	SECTION
1 of 1	SLF	SLF	DATE: 1/31/80	1000

STREETLIGHT POLE TAGGING



CODE	OWNERSHIP
V	Vancouver
P	Clark Public Utilities
B	Battle Ground
R	Ridgefield
W	Washougal
C	Camas
L	La Center
A	Amboy
Y	Yacolt
U	Unincorporated Clark County
D	WA Dot



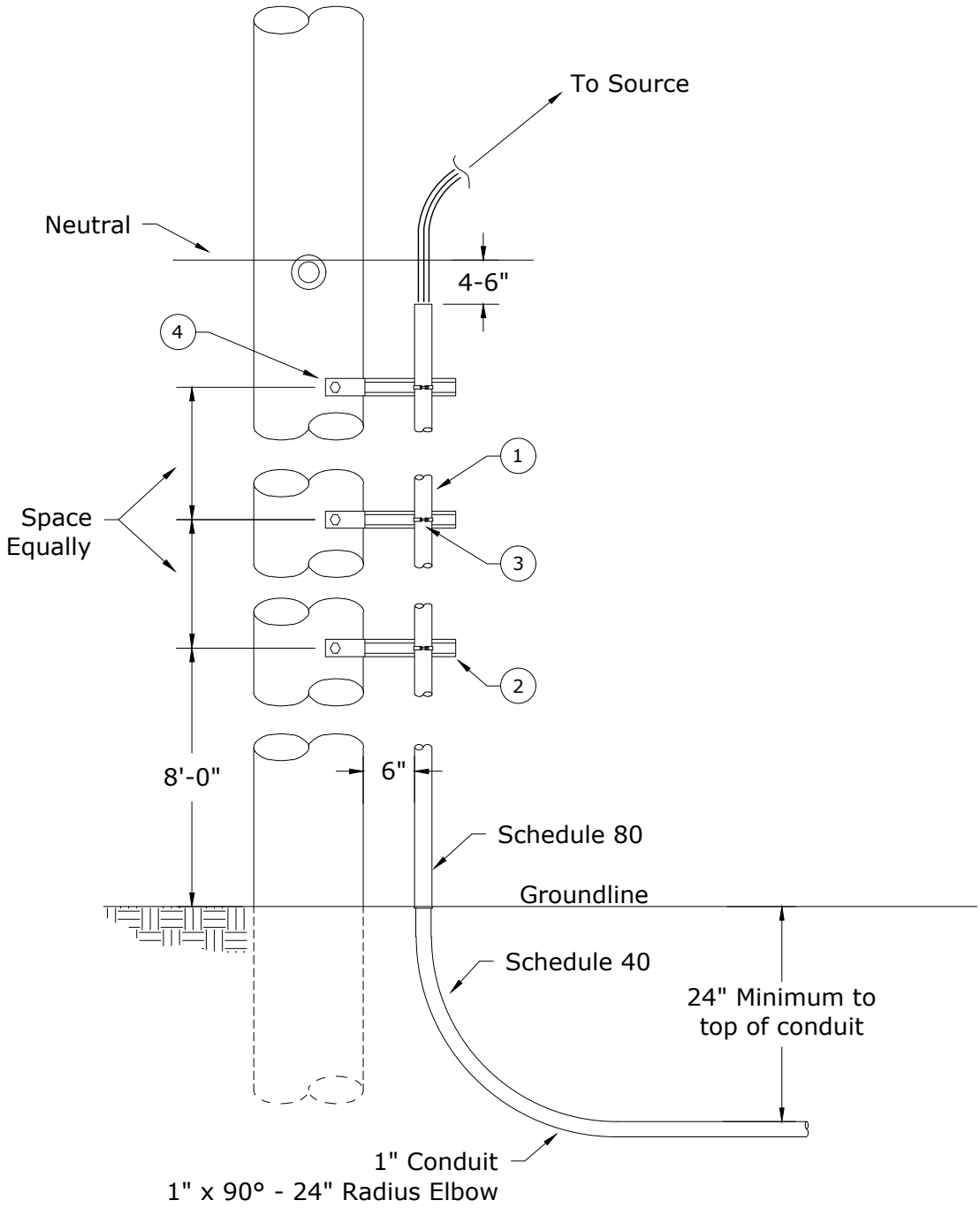
Clark Public Utilities

CONSTRUCTION STANDARDS

STREETLIGHT POLE TAGGING

REVISIONS			
R	DATE	ENGR	OPS

PAGE:		CAD FILE:	APP: CM/AH	SECTION
1 of 1	SLPT	SLPT	DATE: 10/17/08	1000



Rev. 3 - Updated to 2017 NESC, added lag screws, corrected material quantity, and reformatted.

ITEM NO	DESCRIPTION	SLR	
		QTY	S/N
1	Conduit, PVC, 1" x 10', Sch 80, (1) Bell End	30☼	2482
2	Bracket, Standoff, 10.5", w/Stop	3 ☼	226
3	Clamp, Standoff Bracket, 1" Conduit	3	292
4	Screw, Lag, 1/2" x 3", Fetter Drive, Drive Point	6	1131

Clark Public Utilities

CONSTRUCTION STANDARDS

SECONDARY OVERHEAD TO
UNDERGROUND RISER ASSEMBLY
FOR STREETLIGHT FEEDER

REVISIONS			
R	DATE	ENGR	OPS
1	2/23/00	HWH	MA
2	10/17/08	CM	AH
3	4/20/22	DRK	

PAGE:		CAD FILE:	APP: HWH/GW	SECTION
1 of 1	SLR	SLR	DATE: 1/22/80	1000

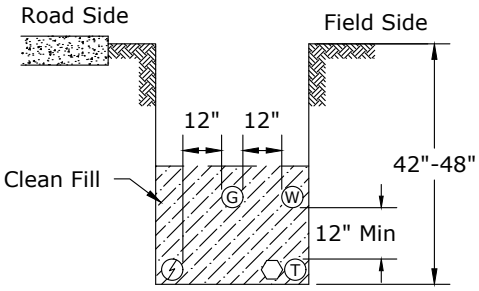
1200
UNDERGROUND GENERAL AND TRENCHING

9/2/2019

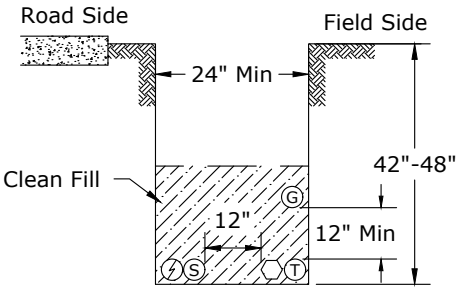
C	UA1	Basic Trench Requirements
~	UC1	Conduit Requirements
~	UD1	Directional Boring Specifications
~	UVE1	Underground Vault 120 V Wiring
~	UVSP1	Underground Vault - Sump Pump

N New Standard
R Redrawn Standard
C Changed Standard
~ No Change

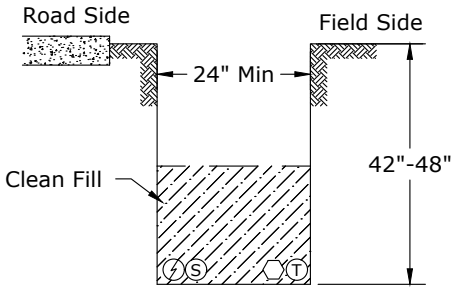
The trench configurations below are shown with 1ø primary. Conduits for 2ø primary cable should lay side-by-side. Conduits for 3ø primary cable should be tie-wrapped to form an equilateral triangle (see Detail A).



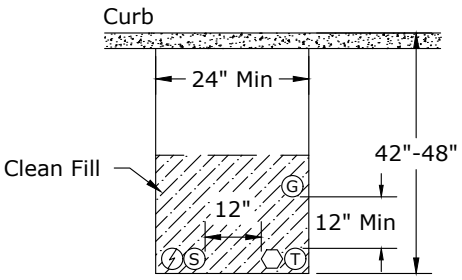
1ø Trench With Gas & Water



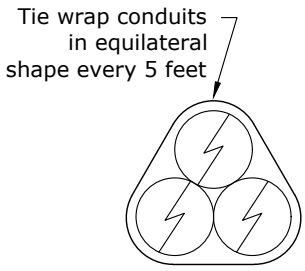
1ø and Secondary Trench With Gas



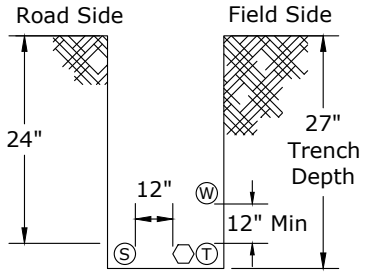
1ø and Secondary Trench Without Gas



1ø and Secondary Street Crossing



DETAIL A
Additional Requirements for 3ø Trenches



Secondary & Communications

Notes:

1. All primary and secondary power cables are in conduit.
2. Select backfill or controlled density fill (CDF) may be required.
3. Construction scrap material or trash of any kind is not allowed in any part of the trench.

Legend:

- Ⓟ Primary Power
- Ⓣ Telephone
- Ⓖ Gas
- Ⓢ Secondary Power
- ⬡ TV Cable
- Ⓦ Water Service Only
- Ⓕ CPU Fiber (2" conduit)

Rev. 6 - Updated secondary trench depths.

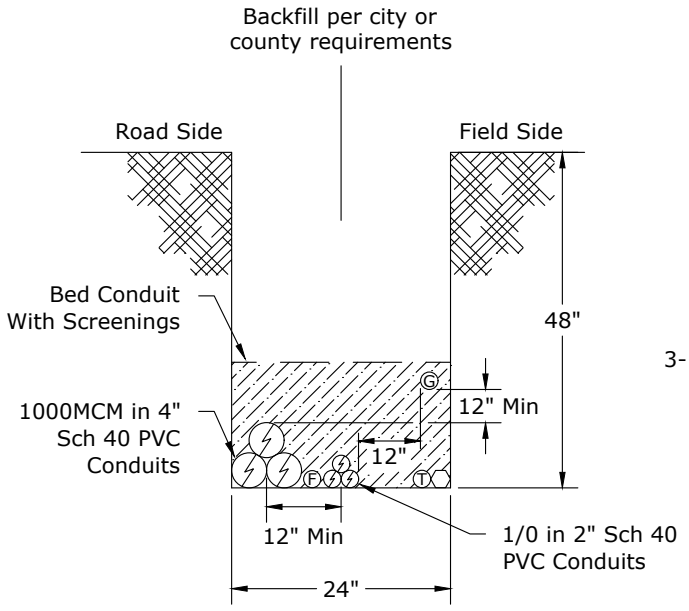
Clark Public Utilities

CONSTRUCTION STANDARDS

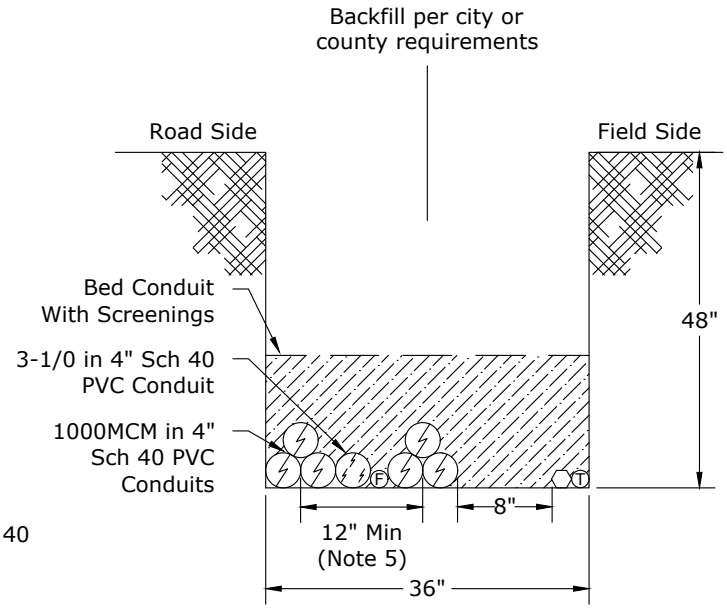
BASIC TRENCH REQUIREMENTS

REVISIONS			
R	DATE	ENGR	OPS
3	5/30/07	LB	AH
4	12/14/09	KJP	
5	8/22/19	CM	GM
6	5/19/21	KJP	

PAGE:		CAD FILE:	APP: HWH/GW	SECTION
1 of 2	UA1	UA1	DATE: 1/22/80	1200



1000MCM With 1/0 Trench



2-1000MCM With 3ø-1/0 Trench

Note: 3Ø conduits (4" and 2") are to be tie wrapped in a triangular configuration every 5 feet. See Detail A on page 1.

Notes:

1. All primary and secondary power cables are in conduit.
2. Select backfill or controlled density fill (CDF) may be required.
3. Construction scrap material or trash of any kind is not allowed in any part of the trench.
4. Caution tape is required one foot above the top 1000 MCM conduit (on screenings).
5. 12-inch minimum horizontal separation applies to both parallel feeders and to different feeders.

Legend:

- Ⓟ Primary Power
- Ⓣ Telephone
- Ⓖ Gas
- Ⓢ Secondary Power
- ⬡ TV Cable
- Ⓦ Water Service Only
- Ⓕ CPU Fiber (2" conduit)

Rev. 6 - Upated secondary trench depths.

Clark Public Utilities

CONSTRUCTION STANDARDS

BASIC TRENCH REQUIREMENTS

REVISIONS			
R	DATE	ENGR	OPS
3	5/30/07	LB	AH
4	12/14/09	KJP	
5	8/22/19	CM	GM
6	5/19/21	KJP	

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ALL CONDUIT SHALL BE GRAY ELECTRICAL CONDUIT AND SHALL BE UL LISTED AND NEMA TC-2 OR TC-3 LABELED -- NO OTHER PIPE IS ACCEPTABLE.

1. All primary and secondary cables shall be in conduit.

2. All road and street crossings shall be in schedule 40, PVC, gray electrical conduit or polyethylene of equal or greater strength specifications. Pipe with other designated use is not acceptable.

3. All risers above finished grade shall be in schedule 80 PVC.

4. Acceptable conduit sizes are as follows:
   - 1Ø, 1/0 primary cable in 1-2" conduit
   - 3Ø, 1/0 primary cable in 1-4" or 3-2" conduits
   - Triplex secondary cable in 1-3" conduit
   - 3Ø, 1000MCM cable in 3-4" conduits

5. Where rock is encountered and the depths shown on UA1 cannot be accomplished, a lesser depth with schedule 80 conduit* and/or control density fill (CDF) may be approved.* Contact CPU Engineering.

6. All conduit terminations shall have end bells or bushings.

7. All conduits that terminate into energized enclosures shall be installed by qualified personnel with a CPU standby person.

8. All conduit runs shall be designed to limit pulling tension to the values specified on UCP1.

9. All conduit ends shall be chamfered 45° x 1/4" internally at all straight ends (not belled ends).

10. All conduits installed for future use shall be marked with 3M electrical markers within six inches at both ends. All ends shall be elbowed up as per Std. ULE (section 1500). The elbow shall NOT be glued to the conduit. The elbow shall be covered with a CPU loop enclosure.

11. Sufficient select backfill shall be placed to prevent crushing of the conduits due to trucks and other heavy equipment.

12. Unused conduits shall have removable plugs designed for that purpose in both ends.

13. Road and street crossings may be either trenched and backfilled, bored or pushed whichever is acceptable to the governing agency.

14. All street and road crossings shall be at property lines.

15. Where conduit bends are required, they shall meet the requirements for cable pulling in the construction specifications. Only manufactured radii are acceptable. No heated bends.

16. A condulet (LB) shall never be used.

17. Conduit sweeps shall be 24" secondary* and 36" primary radius.

18. Conduits installed for futures should be plumbed into transformer with elbows and capped. Flex pipe is not acceptable.

19. Conduits shall be installed so that cable is pulled toward the end bells to avoid scraping cable on sharp edges of conduit.

20. All cut ends of conduits shall be square.

21. Steel mandrels shall be pulled through the conduits to detect damage and debris.

Rev 3: Updated Notes Have A *

Clark Public Utilities

CONSTRUCTION STANDARDS

CONDUIT REQUIREMENTS

REVISIONS			
R	DATE	ENGR	OPS
1	2/23/00	HWH	MA
2	12/29/04	LB	AH
3	5/30/07	LB	AH

1 REVISIONS MARKED WITH STAR

PAGE:		CAD FILE:	APP:	SECTION
1 of 1	UC1	UC1	DATE: 9/94	1200

DIRECTIONAL BORING SPECIFICATIONS

1. DIRECTIONAL DRILLING SHALL BE PERFORMED ONLY BY CPU APPROVED ELECTRICAL CONTRACTORS ON JOBS THAT HAVE BEEN PRE-APPROVED FOR DIRECTIONAL DRILLING.

2. DIRECTIONAL DRILLING EQUIPMENT SHALL BE PRE-APPROVED BY CPU.

3. DIRECTIONAL DRILLING EQUIPMENT SHALL BE OPERATED ONLY BY PERSONNEL WHO HAVE BEEN CERTIFIED OR APPROVED BY CPU OR A CPU ACCEPTED AGENCY.

4. CONDUIT INSTALLATIONS SHALL BE 2", 4" OR 6" GRAY✲POLYETHYLENE PIPE OF NOT-LESS-THAN STANDARD RADIUS DIMENSION (SDR) 13.5. (OUTSIDE DIAMETER DIVIDED BY WALL THICKNESS NLT 13.5). ALL CONDUIT WILL MEET ASTM STANDARDS FOR CONSTRUCTION AND INSTALLATION OF POLYETHYLENE (PE) CONDUIT. CONDUIT INSTALLATIONS USING PVC CONDUIT SHALL HAVE DESIGNS, MATERIAL AND INSTALLATION PRACTICES PRE-APPROVED BY CPU.

5. ALL CONNECTION TO PVC SWEEPS OR CONDUIT WILL BE FULLY GLUED USING IRS WELD-ON 600 ADHESIVE OR CPU APPROVED EQUIVALENT. GLUE USED TO FASTEN PVC TO PVC SHALL BE IRS WELD ON 721 WITH A COMPATIBLE PRIMER (OR APPROVED EQUIVALENT GLUE AND PRIMER).

6. A PLOT AND TRACK OF THE BORE USING THE BORE EQUIPMENT SOFTWARE, OR A CERTIFIED COPY OF A SURVEYED PROFILE OF THE BORE, SHALL BE PROVIDED TO CPU BEFORE ACCEPTANCE OF THE INSTALLATION.

7. THE DEPTH OF THE CONDUIT SHALL BE IDENTIFIED BY A STAKE WITH THE DEPTH EVERY 10 FEET ALONG THE ROUTE IN UNPAVED AREAS AND BY THE DEPTH WRITTEN IN MARKER PAINT EVERY 10 FEET ALONG ALONG THE ROUTE IN PAVED AREAS.

8. THE CONDUIT DEPTHS SHALL CONFORM TO THE CPU STANDARDS OF 42" NOMINAL DEPTH, NOT LESS THAN 36", NOR GREATER THAN 48". ANY OTHER DEPTH SHALL REQUIRE PRIOR APPROVAL BY CPU.

9. ALL INSTALLED CONDUITS SHALL BE "PROOFED" USING THE APPROPRIATE MANDREL, AND HAVE A 2500 POUND, 3/4" SEQUENTIALLY-NUMBERED, CONTINUOUS "MULE TAPE" INSTALLED FOR FUTURE CABLE PULLING. CERTIFICATION OF THE TEST MANDRELING SHALL BE PROVIDED TO CPU PRIOR TO ACCEPTANCE BY THE UTILITY.

10. CPU RESERVES THE OPTION TO REQUIRE "POTHOLING" TO DETERMINE DEPTH AND LOCATION FOR ANY INSTALLATIONS THAT ARE QUESTIONABLE. THE "POTHOLING" WILL BE AT THE CONTRACTOR'S EXPENSE.

Rev 2: Added "Gray" to Item #4 and 3/4" mule tape in all conduit in Item #9

Clark Public Utilities

CONSTRUCTION STANDARDS

DIRECTIONAL BORING SPECIFICATIONS

REVISIONS

R	DATE	ENGR	OPS
1	12/29/04	LB	AH
2	12/14/09	KJP	

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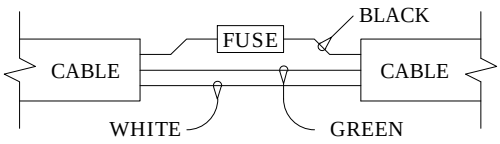
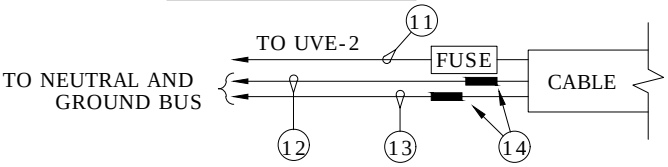
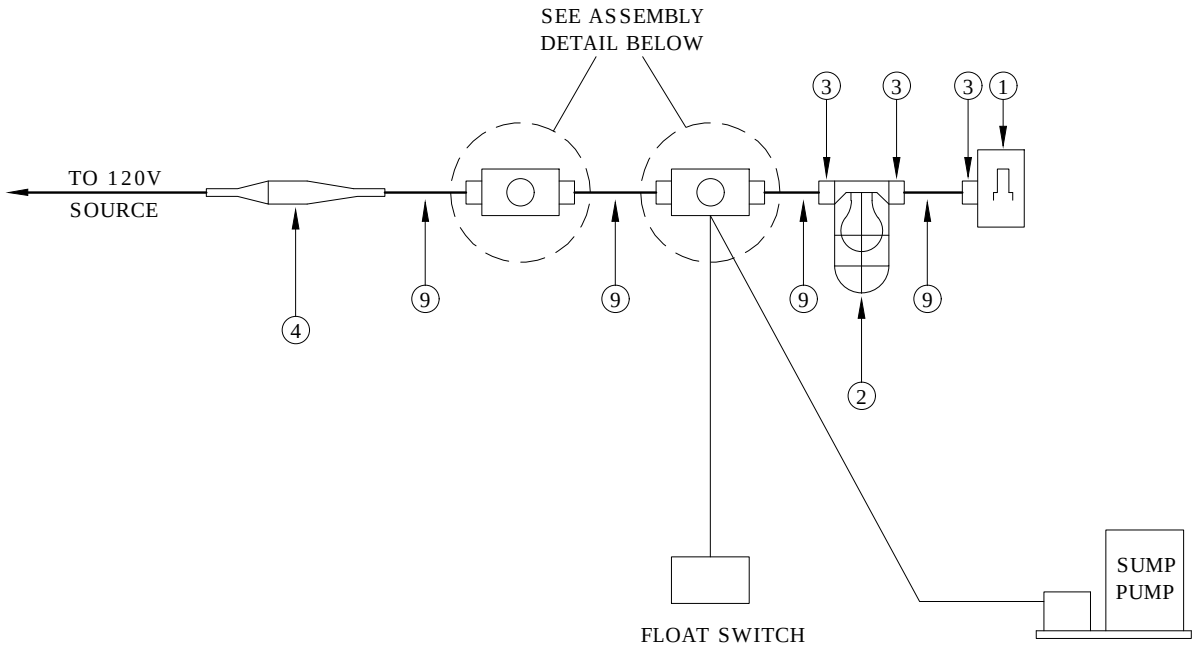
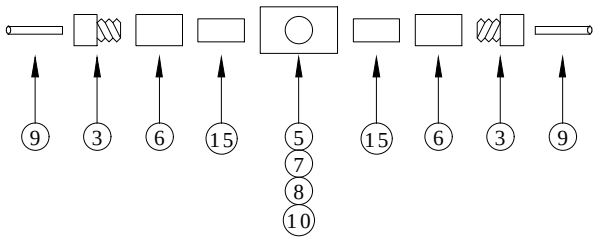
DETAIL ITEM 4
REMOTE SOURCE



DETAIL ITEM 4
IN VAULT SOURCE







RECEPTACLE ASSEMBLY
(TYPICAL)

STORE ITEM 10 NEAR RECEPTACLE
WHEN NOT IN USE.

R1 - REDRAWN IN CAD

Clark Public Utilities

CONSTRUCTION STANDARDS

UNDERGROUND VAULT
120 VOLT WIRING

REVISIONS			
R	DATE	ENGR	OPS
1	2/23/00	HWH	MA

1 REDRAWN IN CAD

PAGE:		CAD FILE:	APP:	SECTION
1 of 3	UVE1	UVE1	DATE: 4/94	1200

MATERIAL LIST

ITEM	QTY.	DESCRIPTION	TDM.
1	1	SWITCH, DUST-TIGHT, WATER-TIGHT, 125V, 20A SQUARE 'D' CAT #KW-1	2290
2	1	LIGHT FIXTURE, VAPOR-TIGHT, 150V WITH GLOBE, GUARD AND BASE WITH 2 - 3/4" NPT HUBS HUBBELL CAT #NVX15CHG	2291
3	7	CONNECTOR, STRAIGHT, 3/4" NPT HUB SIZE, MALE, NYLON HUBBELL #SHC-1037-CR	2292
4	1	FUSE HOLDER, HOMAC #SLK	2309
5	2	BOX, CONDUIT, PVC, TYPE FSC, 3/4"	2293
6	4	ADAPTER, FEMALE, 3/4", PVC	1586
7	2	POWER OUTLET, CHROME PLATED BRASS 30A, 3 WIRE, 125V, HUBBELL #60CM63	2294
8	2	ADAPTER, HUBBELL #60CM75 FOR ITEM #7	2295
9	A.R.	CORD, PORTABLE, TYPE STO 3 CONDUCTOR 10 AWG	2296
10	2	ADAPTER, TWIST LOCK MALE 30A TO STRAIGHT BLADE FEMALE 30A, HUBBELL #31CM29	2297
11	A.R.	CONDUCTOR #10 CU BLACK	2298
12	A.R.	CONDUCTOR #10 CU WHITE	2299
13	A.R.	CONDUCTOR #10 CU BARE	2300
14	2	SPLICE COVER, STREET LIGHT, HOMAC FSS20	2115
15	A.R.	CONDUIT, PVC, SCH 40, 3/4"	1564

NOTES:

1. THIS WIRING DIAGRAM IS TYPICAL ONLY. EACH VAULT REQUIRES SPECIAL CONSIDERATION TO LOCATE EACH COMPONENT FOR OPTIMUM UTILIZATION.

2. LOCATE THE LIGHT SWITCH AS CLOSE TO THE LADDER AS POSSIBLE BUT PROTECT IT FROM DAMAGE WHEN EQUIPMENT IS BEING MOVED IN OR OUT.

3. THE 120 VOLT SOURCE MAY BE FROM A TRANSFORMER IN THE VAULT OR FROM AN EXTERNAL SOURCE.

4. THE FLOAD SWITCH LOCATION MUST BE CALCULATED FOR EACH VAULT SEPARATELY. THE LOCATION DEPENDS UPON THE AMOUNT OF OIL IN THE EQUIPMENT IN THE VAULT. REFER THIS TO ENGINEERING.

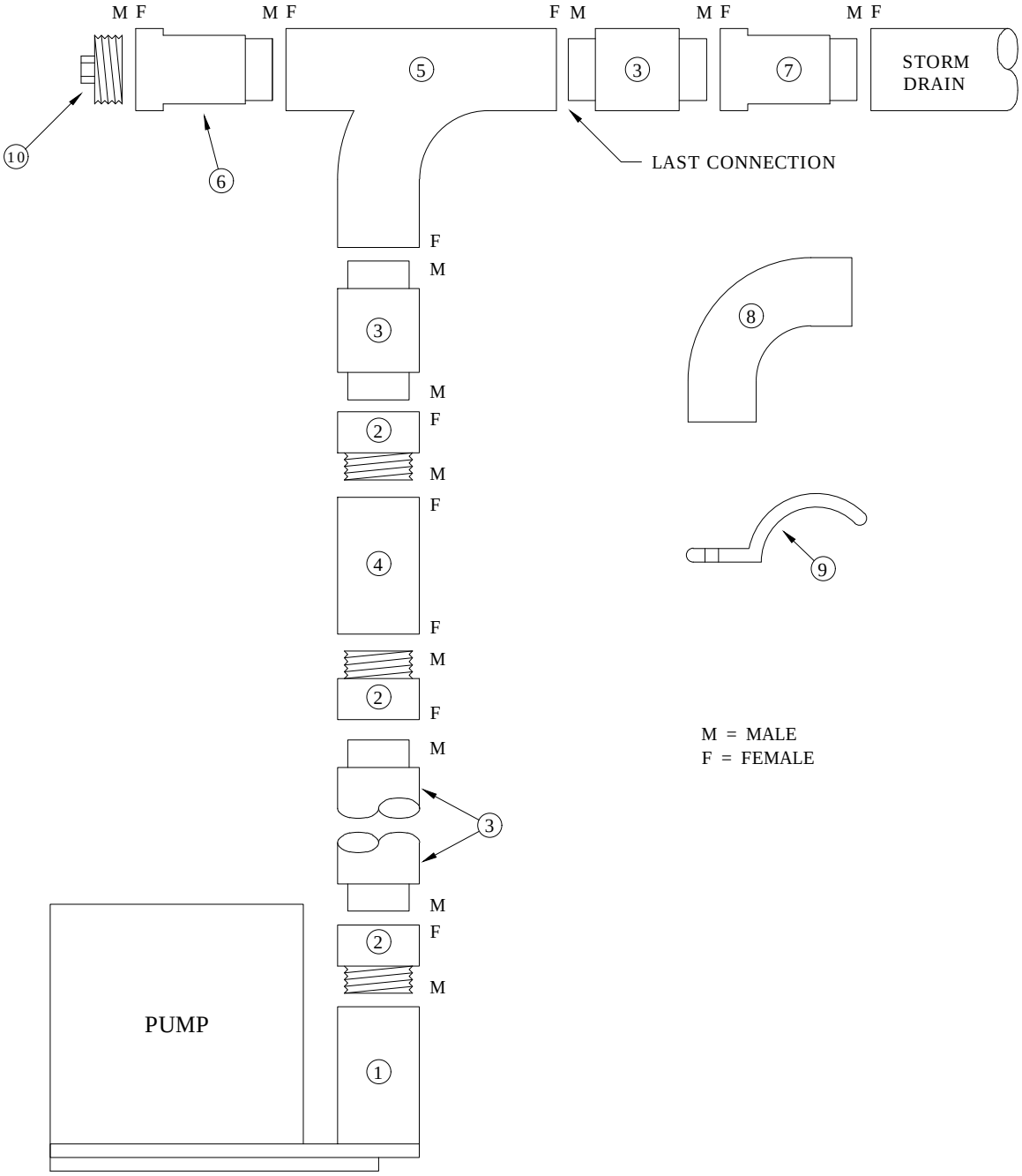
5. LOCATE RECEPTACLES AS HIGH AS POSSIBLE TO MINIMIZE THE PROBABILITY OF BEING SUBMERGED.

6. LOCATE FUSE ON OR NEAR THE CEILING

7. FUSE IS 600 VOLT, 30 AMP, 13/32" x 1 1/2" NON-GLASS TYPE.

8. CONNECTOR, ITEM 3, SCREWS DIRECTLY INTO HUB.

9. THE NEUTRAL MAY COME FROM ANY AVAILABLE SOURCE WITHIN THE VAULT IF THE 120 VOLT SOURCE IS INTERNAL. IF THE SOURCE IS EXTERNAL, IT MUST INCLUDE A NEUTRAL.



NOTES:

1. ALL PIPE AND FITTINGS MUST BE SCHEDULE 40 SEWER TYPE. SEWER AND WATER FITTINGS DON'T FIT TOGETHER EXCEPT AT THREATED JOINTS.

2. THIS SPECIFICATION IS TYPICAL ONLY. LOCATION OF STORM DRAIN WILL DICTATE PIPE ROUTING.

3. LOCATE CHECK VALVE CLOSE TO PUMP AND IN THE VERTICAL POSITION.

4. PUMP MUST BE IN VAULT SUMP.

5. SEE UVE FOR ELECTRICAL CONNECTIONS.

R1 - REDRAWN IN CAD

Clark Public Utilities

CONSTRUCTION STANDARDS

UNDERGROUND VAULT
SUMP PUMP

REVISIONS			
R	DATE	ENGR	OPS
1	2/23/00	HWH	MA

1 REDRAWN IN CAD

PAGE:		CAD FILE:	APP:	SECTION
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MATERIAL LIST

ITEM	QTY.	DESCRIPTION	TDM.
1	1	SUMP PUMP	1955
2	3	ADAPTER, MALE, 2" PLASTIC, SEWER	2353
3	A. R.	PIPE, SEWER, PLASTIC, 2"	2301
4	1	CHECK VALVE, 2", BRONZE	2354
5	1	COMBINATION Y, 2", PLASTIC	2355
6	1	CLEANOUT FITTING 2", PLASTIC	2356
7	1	REDUCER, PLASTIC, SEWER, 2" x __	A. R.
8	A. R.	1/4 BEND, PLASTIC, SEWER, 2"	2308
9	A. R.	CLAMP, PIPE, 2", ONE BOLT	2307
10	1	CLEANOUT PLUG 2"	2358

Clark Public Utilities

CONSTRUCTION STANDARDS

UNDERGROUND VAULT
SUMP PUMP

REVISIONS			
R	DATE	ENGR	OPS
1	2/23/00	HWH	MA

1 REDRAWN IN CAD

PAGE:		CAD FILE:	APP:	SECTION
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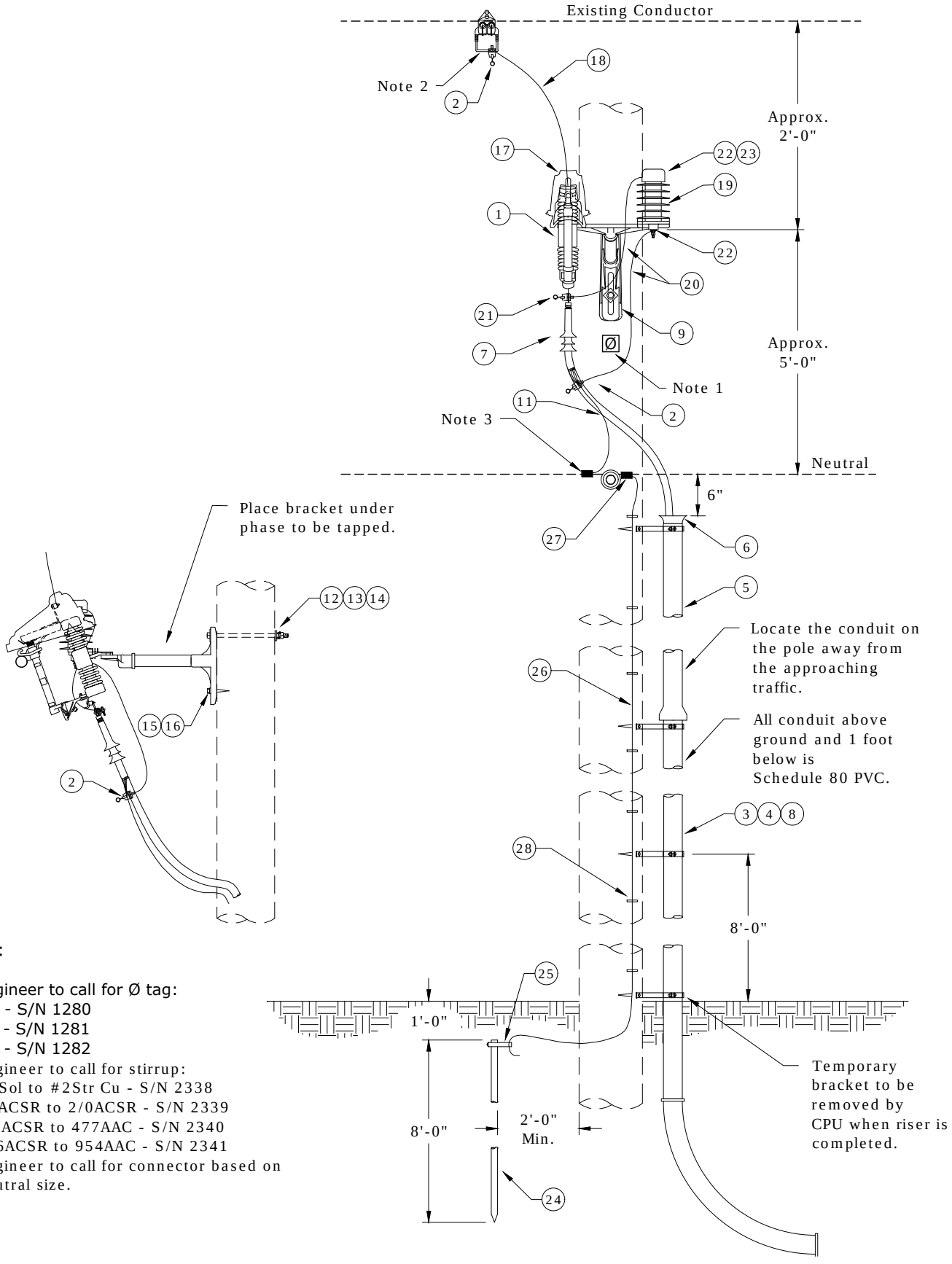
1300
UNDERGROUND RISERS, CABLES AND CONNECTORS

12/19/2022

~	U1	1Ø Primary Riser
~	U1R	1Ø Primary Riser, Reverse Feed
~	U2	2Ø Primary Riser
~	U2R	2Ø Primary Riser, Reverse Feed
~	U3	3Ø Primary Riser
~	U3R	3Ø Primary Riser, Reverse Feed
~	U83,U84	Secondary Overhead to Underground Riser Assembly
~	U8P	Secondary OH to UG Riser Assembly with Secondary Pedestal
~	U9	Riser Bracket Assembly
~	U10	1Ø Primary (U1) & Secondary (U8) Riser Guidelines
~	UB20-UB28	Underground Primary Basic Units
~	UCA1-UCA6	Underground Primary Cable Accessories - 200 Amp
~	UCH-0	Underground Cable Reel Handling
~	UCH-1	Underground Cable Handling and Storage
~	UCP1	Underground Cable Pulling Requirements
~	UEP2	Primary Elbow Assembly 200A w/ Current-Reset Fault Indicator
~	UEP3	Primary Elbow Assembly 200A w/ Voltage-Reset Fault Indicator
~	UFI	Underground Fault Indicators
~	UFI2	Underground Cable Current-Reset Fault Indicators Installation
C	UID2	Underground Conductor Identification Tags

N New Standard
R Redrawn Standard
C Changed Standard
~ No Change



Notes:

1. Engineer to call for Ø tag:
   AØ - S/N 1280
   BØ - S/N 1281
   CØ - S/N 1282
2. Engineer to call for stirrup:
   #6Sol to #2Str Cu - S/N 2338
   #6ACSR to 2/0ACSR - S/N 2339
   1/0ACSR to 477AAC - S/N 2340
   336ACSR to 954AAC - S/N 2341
3. Engineer to call for connector based on neutral size.

Rev. 6 - Corrected drawing and material.

Clark Public Utilities

CONSTRUCTION STANDARDS

SINGLE PHASE
PRIMARY RISER

REVISIONS			
R	DATE	ENGR	OPS
3	12/29/04	LB	AH
4	12/14/09	KJP	
5	10/31/17	CM	DK
6	1/16/19	CM	DK

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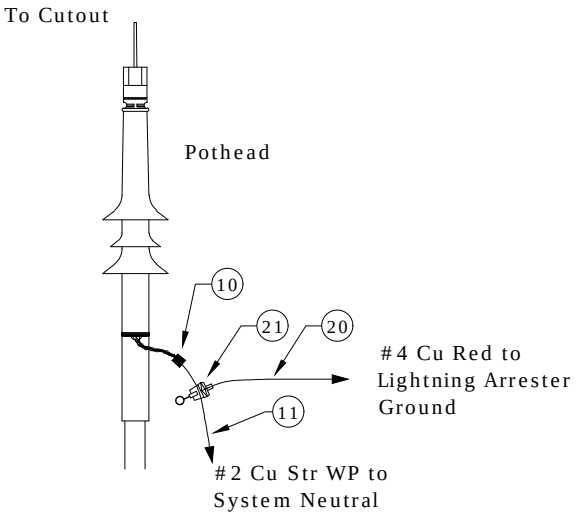
1 of 2	U1	U1	DATE: 1/31/80	1300



Pothead
Connection Detail

Notes:

4. Connect concentric neutrals to arrester ground using #4 Cu, Red.
5. Make arrester ground terminal-to-concentric neutral jumper as short as possible.

Rev. 6 - Corrected drawing and material.

ITEM NO.	DESCRIPTION	U1 Additional Material QTY.	S/N
1	Cutout, Polymer, Universal, 100A, 16kA Asym.	1	2532
2	Clamp, Hotline, GP 1520, #8 to 2/0 Str, Cu Only	1✲	283
3	Screw, Lag, 1/2" x 3", Fetter Drive, Drive Point	6	1131
4	Bracket, Standoff Riser, 10 1/2"	3	226
5	Conduit, PVC, 2" X 10', Sch 80	30✲	2205
6	End Bell, 2", Sch 40	1✲	2206
7	Terminator, 15kV, Cold-Shrink JCN & CN, 1/0	1	2214
8	Clamp, Standoff Bracket, Conduit, 2"	3	295
9	Bracket, Arrester/Cutout Mounting, 1ø Fiberglass 18"	1	2537
10	Connector, Crimpet, Cu 2/2 - 2/2 (2C2)	1	455
11	Conductor, Cu #2, 1/C, 7-Str, SD, 600V, HMP	10	393
12	Bolt, Machine, 5/8" x 12", 12,400 lbs. Ultimate Tensile	1	155
13	Washer, Curved, Square, Cast, 3" x 3" x 3/8" Thick x 13/16" Hole	1	1392
14	Washer, Lock, Spring, Double Coil, Galv. 5/8"	1	2217
15	Screw, Lag, 1/2" x 4 1/2", Twist Drive, Drive Point	1	1132
16	Washer, Flat, Round Galv., 1/2"	1	1394
17	Guard, Wildlife, Cutout, Polymer	1	2928 ✲
18	Conductor, Cu 1/C #2, 7-Str, 600V, Red, THW	3	2513

ITEM NO.	DESCRIPTION	LA2 QTY.	S/N
19	Arrester, Surge, 9kV, MOV, Riser Pole	1	58
20	Conductor, Cu 1/C #4, 7-Str, 600V, Red, THW	7	2512
21	Clamp, Hotline, GP 1520, #8 to 2/0 Str, Cu Only	2	283
22	Connector, Compression Lug, #4, Cu/Al, One-Hole, Tin-Plated, For Arrester	2	2548
23	Guard, Wildlife, Polymer Arrester	1	2583

ITEM NO.	DESCRIPTION	N1 QTY.	S/N
24	Rod, Ground, 5/8" x 8'	1	1124
25	Clamp, Ground Rod, 5/8", Bronze Small	1	281
26	Conductor, Copper-Clad Steel, #4 Cu Equivalent, Covered	40	1512
27	Connector, Cabelok, Al/Cu, #2-2/0 Run, #6-#1 Tap	1	413
28	Staple, Ground, Barbed, Galv. 1 1/2"	24	2707

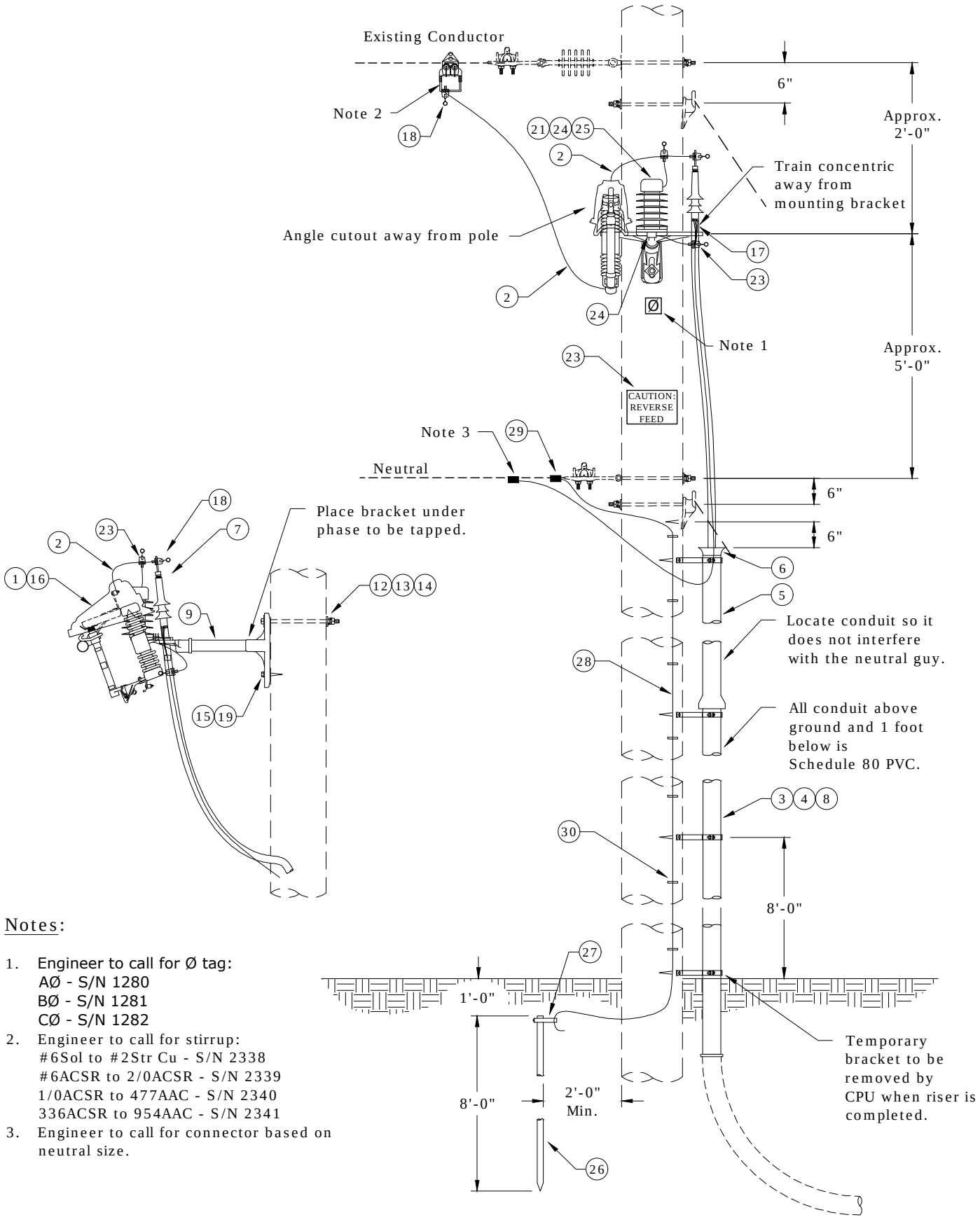
Clark Public Utilities

CONSTRUCTION STANDARDS

SINGLE PHASE
PRIMARY RISER

REVISIONS			
R	DATE	ENGR	OPS
3	12/29/04	LB	AH
4	12/14/09	KJP	
5	10/31/17	CM	DK
6	1/16/19	CM	DK

PAGE:		CAD FILE:	APP: ELM	SECTION
2 of 2	U1	U1	DATE: 1/31/80	1300



Notes:

1. Engineer to call for Ø tag:
   AØ - S/N 1280
   BØ - S/N 1281
   CØ - S/N 1282
2. Engineer to call for stirrup:
   #6Sol to #2Str Cu - S/N 2338
   #6ACSR to 2/0ACSR - S/N 2339
   1/0ACSR to 477AAC - S/N 2340
   336ACSR to 954AAC - S/N 2341
3. Engineer to call for connector based on neutral size.

Rev. 2 - Moved arrester to middle of bracket, added cutout direction note, and updated materials.

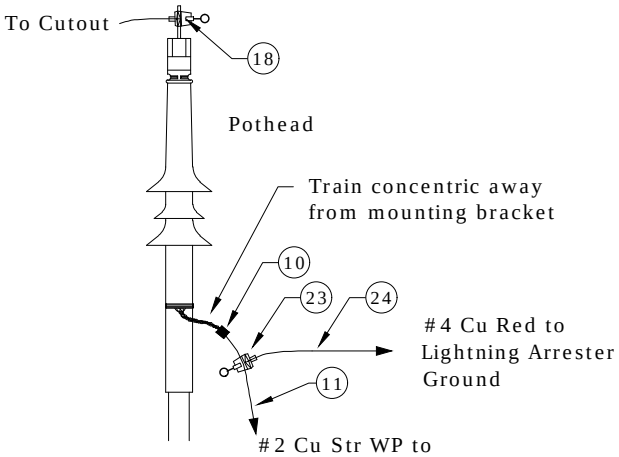
Clark Public Utilities

CONSTRUCTION STANDARDS

SINGLE PHASE
PRIMARY RISER
REVERSE FEED

REVISIONS			
R	DATE	ENGR	OPS
1	10/31/17	CM	DK
2	1/16/19	CM	DK

PAGE:		CAD FILE:	APP: HWH/MA	SECTION
1 of 2	U1R	U1R	DATE: 2/23/00	1300



Notes:

4. Connect concentric neutrals to arrester ground using #4 Cu, Red.
5. Make arrester ground terminal-to-concentric neutral jumper as short as possible.

Rev. 2 - Moved arrester to middle of bracket, added cutout direction note, and updated materials.

ITEM NO.	DESCRIPTION	U1R Additional Material QTY.	S/N
1	Cutout, Polymer, Universal, 100A, 16kA Asym.	1	2532
2	Conductor, Cu 1/C #2, 7 Str, 600V, Red, THW	6	2513
3	Screw, Lag, 1/2" x 3", Fetter Drive, Drive Point	6	1131
4	Bracket, Standoff Riser, 10 1/2"	3	226
5	Conduit, PVC, 2" x 10', Sch 80	30	2205
6	End Bell, 2", Sch 40	1	2206
7	Terminator, 15kV, Cold-Shrink, JCN & CN, 1/0	1	2214
8	Clamp, Standoff Bracket, 2" Conduit	3	295
9	Bracket, Arrester/Cutout Mounting, 1Ø, Fiberglass 18"	1	2537
10	Connector, Crimpet, Cu, 2/2 - 2/2 (2C2)	1	455
11	Conductor, Cu #2, 1/C, 7-Str, SD, 600V, HMP	10	393
12	Bolt, Machine 5/8" x 12", 12,400 lbs. Ultimate Tensile	1	155
13	Washer, Curved, Square, Cast, 3" x 3" x 3/8" Thick x 13/16" Hole	1	1392
14	Washer, Lock, Spring, Double Coil, Galv. 5/8"	1	2217
15	Screw, Lag 1/2" x 4 1/2", Twist Drive, Drive Point	1	1132
16	Guard, Wildlife, Cutout, Polymer	1	2928
17	Clamp, 2-Bolt, for 1/0 Terminator	1	1858
18	Clamp, Hotline, GP 1520, #8 to 2/0 Str, Cu Only	2	283
19	Washer, Flat, Round Galv. 1/2"	1	1394
20	Sign, "Caution: Reverse Feed"	1	2719

ITEM NO.	DESCRIPTION	LA2 QTY.	S/N
21	Arrester, Surge, 9kV, MOV, Riser Pole	1	58
22	Conductor, Cu 1/C #4, 7-Str, 600V, Red, THW	7	2512
23	Clamp, Hotline, GP 1520, #8 to 2/0 Str, Cu Only	2	283
24	Connector, Compression Lug, #4, Cu/Al, One-Hole, Tin-Plated, For Arrester	2	2548
25	Guard, Wildlife, Polymer Arrester	1	2583

ITEM NO.	DESCRIPTION	N1 QTY.	S/N
26	Rod, Ground, 5/8" x 8'	1	1124
27	Clamp, Ground Rod, 5/8", Bronze Small	1	281
28	Conductor, Copper-Clad Steel, #4 Cu Equivalent, Covered	40	1512
29	Connector, Cabelok, Al/Cu, #2-2/0 Run, #6-#1 Tap	1	413
30	Staple, Ground, Barbed, Galvanized, 1 1/2"	24	2707

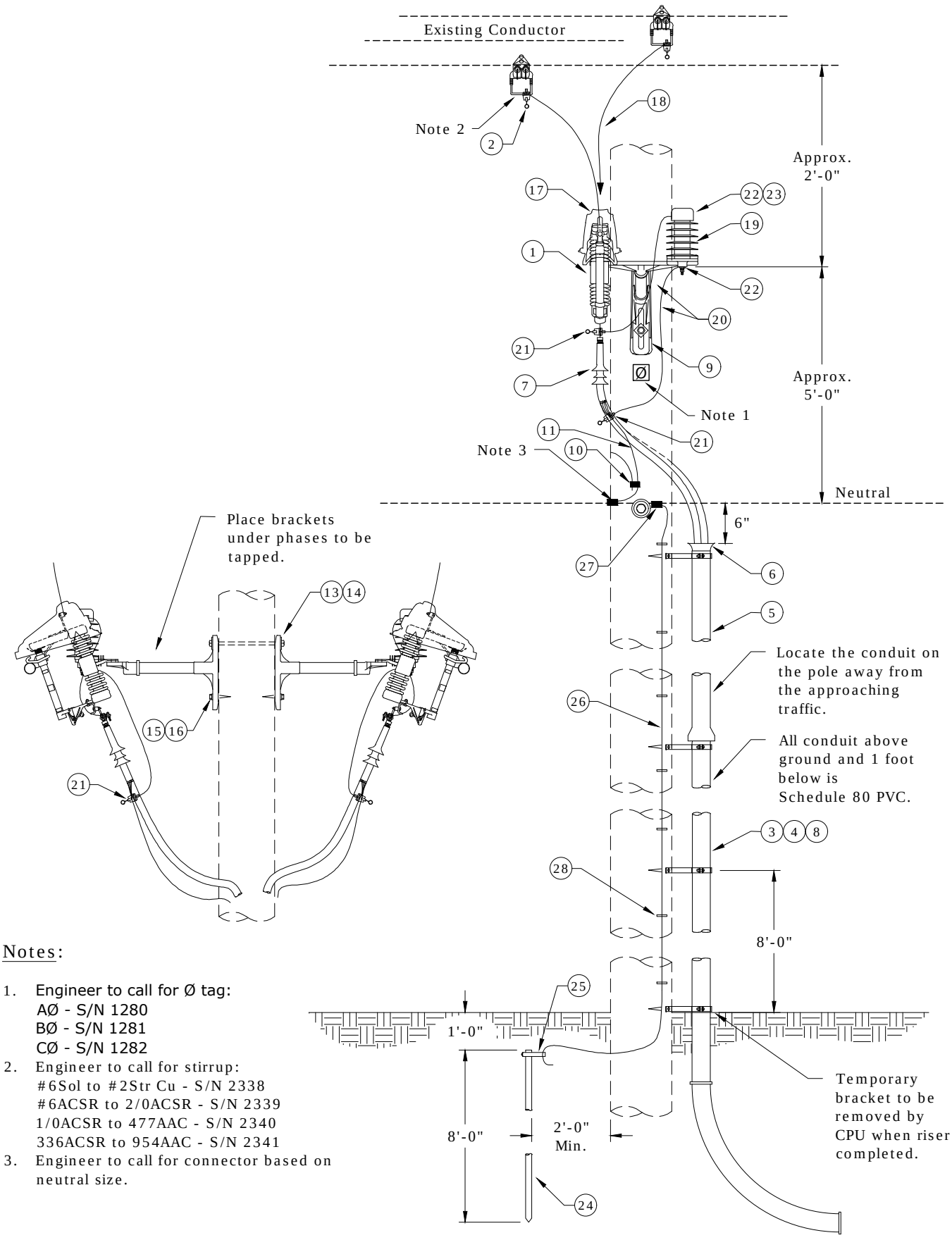
Clark Public Utilities

CONSTRUCTION STANDARDS

SINGLE PHASE
PRIMARY RISER
REVERSE FEED

REVISIONS			
R	DATE	ENGR	OPS
1	10/31/17	CM	DK
2	1/16/19	CM	DK

PAGE:		CAD FILE:	APP: HWH/MA	SECTION
2 of 2	U1R	U1R	DATE: 2/23/00	1300



Notes:

1. Engineer to call for Ø tag:
   AØ - S/N 1280
   BØ - S/N 1281
   CØ - S/N 1282
2. Engineer to call for stirrup:
   #6Sol to #2Str Cu - S/N 2338
   #6ACSR to 2/0ACSR - S/N 2339
   1/0ACSR to 477AAC - S/N 2340
   336ACSR to 954AAC - S/N 2341
3. Engineer to call for connector based on neutral size.

Rev. 5 - Corrected drawing and material issue.

Clark Public Utilities

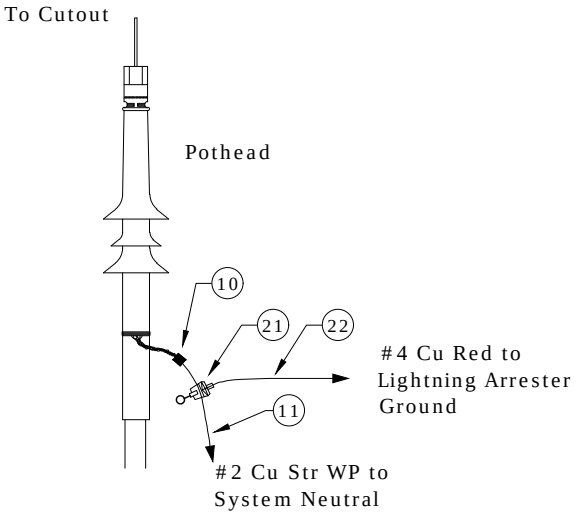
CONSTRUCTION STANDARDS

TWO PHASE
PRIMARY RISER

REVISIONS			
R	DATE	ENGR	OPS
2	12/29/04	LB	AH
3	12/14/09	KJP	
4	10/31/17	CM	DK
5	1/16/19	CM	DK

PAGE:	CAD FILE:	APP: ELM	SECTION
1 of 2	U2	DATE: 2/22/00	1300

U2



Pothead
Connection Detail

Notes:

4. Connect concentric neutrals to arrester ground using #4 Cu, Red.
5. Make arrester ground terminal-to-concentric neutral jumper as short as possible.

Rev. 5 - Corrected drawing and material.

ITEM NO.	DESCRIPTION	U2 Additional Material QTY.	S/N
1	Cutout, Polymer, Universal, 100A, 16kA Asym.	2	2532
2	Clamp, Hotline, GP 1520, #8 to 2/0 Str, Cu Only	2✲	283
3	Screw, Lag, 1/2" x 3", Fetter Drive, Drive Point	6	1131
4	Bracket, Standoff Riser, 10 1/2"	3	226
5	Conduit, PVC, 4" X 10', Sch 80	30✲	2203
6	End Bell, 4", Sch 40	1✲	2204
7	Terminator, 15kV, Cold-Shrink JCN & CN, 1/0	2	2214
8	Clamp, Standoff Bracket, Conduit, 4"	3	297
9	Bracket, Arrester/Cutout Mounting, 1ø Fiberglass 18"	2	2537
10	Connector, Crimpet, Cu 2/2 - 2/2 (2C2)	2	455
11	Conductor, Cu #2, 1/C, 7-Str, SD, 600V, HMP	20	393
13	Bolt, Machine, 5/8" x 14", 12,400 lb Ultimate	1	156
14	Washer, Lock, Spring, Double Coil, Galv. 5/8"	1	2217
15	Screw, Lag, 1/2" x 4 1/2", Twist Drive, Drive Point	2	1132
16	Washer, Flat, Round Galv., 1/2"	2	1394
17	Guard, Wildlife, Cutout, Polymer	2	2928 ✲
18	Conductor, Cu 1/C #2, 7-Str, 600V, Red, THW	6	2513

ITEM NO.	DESCRIPTION	LA2(2) QTY.	S/N
19	Arrester, Surge, 9kV, MOV, Riser Pole	2	58
20	Conductor, Cu 1/C #4, 7-Str, 600V, Red, THW	14	2512
21	Clamp, Hotline, GP 1520, #8 to 2/0 Str, Cu Only	4	283
22	Connector, Compression Lug, #4, Cu/Al, One-Hole, Tin-Plated, For Arrester	4	2548
23	Guard, Wildlife, Polymer Arrester	2	2583

ITEM NO.	DESCRIPTION	N1 QTY.	S/N
24	Rod, Ground, 5/8" x 8'	1	1124
25	Clamp, Ground Rod, 5/8", Bronze Small	1	281
26	Conductor, Copper-Clad Steel, #4 Cu Equivalent, Covered	40	1512
27	Connector, Cabelok, Al/Cu, #2-2/0 Run, #6-#1 Tap	1	413
28	Staple, Ground, Barbed, Galvanized, 1 1/2"	24	2707

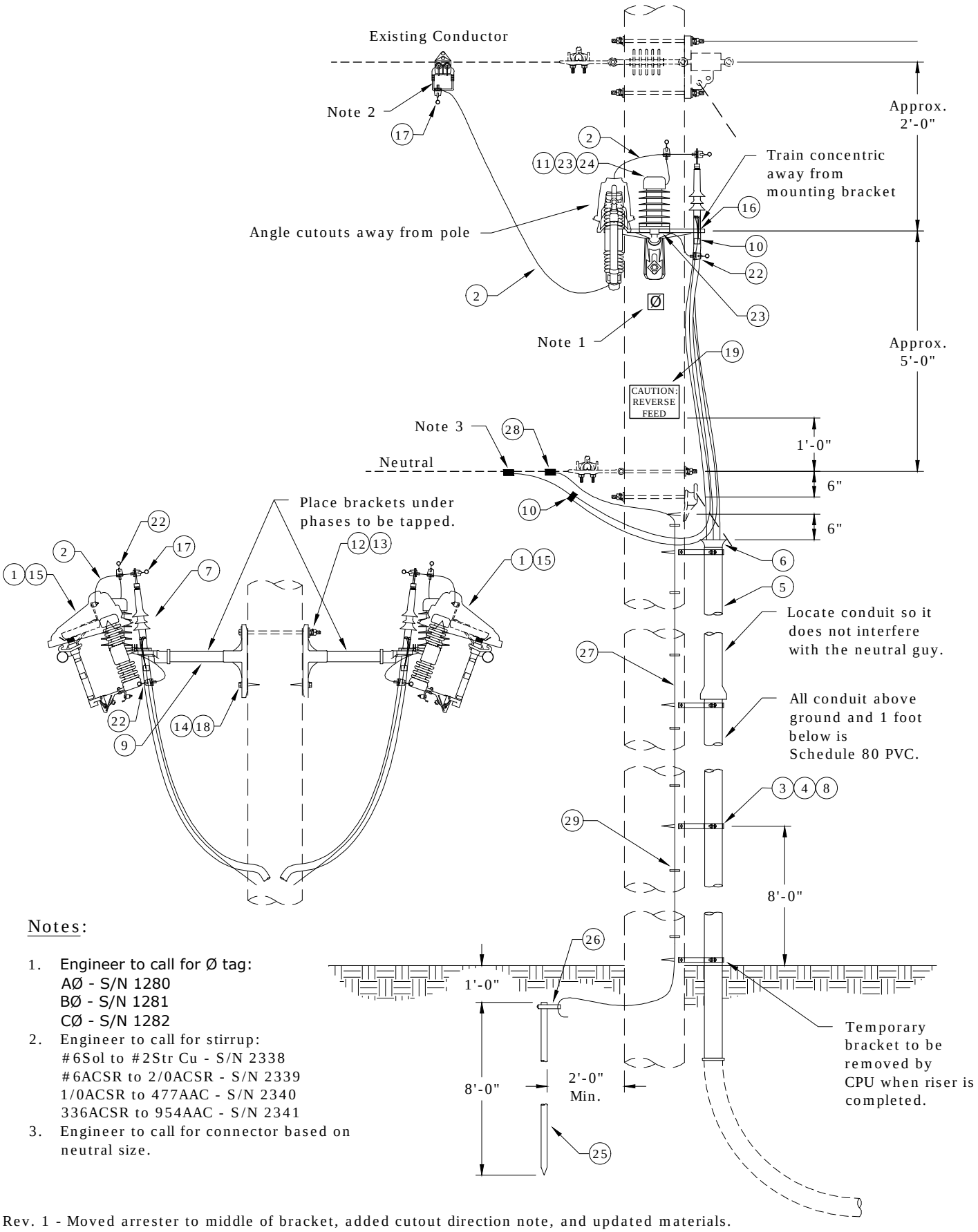
Clark Public Utilities

CONSTRUCTION STANDARDS

TWO PHASE
PRIMARY RISER

REVISIONS			
R	DATE	ENGR	OPS
2	12/29/04	LB	AH
3	12/14/09	KJP	
4	10/31/17	CM	DK
5	1/16/19	CM	DK

PAGE:		CAD FILE:	APP: ELM	SECTION
2 of 2	U2	U2	DATE: 2/22/00	1300



Notes:

1. Engineer to call for Ø tag:
   AØ - S/N 1280
   BØ - S/N 1281
   CØ - S/N 1282
2. Engineer to call for stirrup:
   #6Sol to #2Str Cu - S/N 2338
   #6ACSR to 2/0ACSR - S/N 2339
   1/0ACSR to 477AAC - S/N 2340
   336ACSR to 954AAC - S/N 2341
3. Engineer to call for connector based on neutral size.

Rev. 1 - Moved arrester to middle of bracket, added cutout direction note, and updated materials.

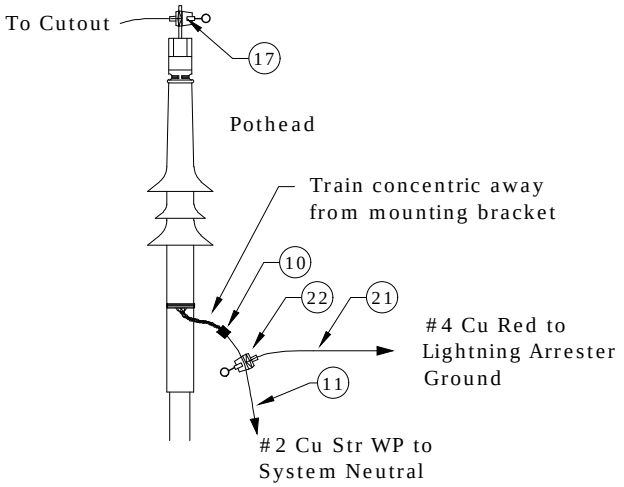
Clark Public Utilities

CONSTRUCTION STANDARDS

TWO PHASE
PRIMARY RISER
REVERSE FEED

REVISIONS			
R	DATE	ENGR	OPS
1	1/16/19	CM	DK

PAGE:		CAD FILE:	APP: CM/DK	SECTION
1 of 2	U2R	U2R	DATE: 10/31/17	1300



Pothead
Connection Detail

Notes:

4. Connect concentric neutrals to arrester ground using #4 Cu, Red.
5. Make arrester ground terminal-to-concentric neutral jumper as short as possible.

Rev. 1 - Moved arrester to middle of bracket, added cutout direction note, and updated materials.

ITEM NO.	DESCRIPTION	U2R Additional Material QTY.	S/N
1	Cutout, Polymer, Universal, 100A, 16kA Asym.	2	2532
2	Conductor, Cu 1/C #2, 7-Str, 600V, Red, THW	12	2513
3	Screw, Lag, 1/2" x 3", Fetter Drive, Drive Point	6	1131
4	Bracket, Standoff Riser, 10 1/2"	3	226
5	Conduit, PVC, 4" x 10', Sch 80	30	2203
6	End Bell, 4", Sch 40	2	2204
7	Terminator, 15kV, Cold-Shrink, JCN & CN, 1/0	2	2214
8	Clamp, Standoff Bracket, 4" Conduit	3	297
9	Bracket, Arrester/Cutout Mounting, 1Ø, Fiberglass 18"	2	2537
10	Connector, Crimpet, Cu, 2/2 - 2/2 (2C2)	4	455
11	Conductor, Cu #2, 1/C, 7-Str, SD, 600V, HMP	20	393
12	Bolt, Machine 5/8" x 14", 12,400 lbs. Ultimate Tensile	1	156
13	Washer, Lock, Spring, Double Coil, Galv. 5/8"	1	2217
14	Screw, Lag 1/2" x 4 1/2", Twist Drive, Drive Point	2	1132
15	Guard, Wildlife, Cutout, Polymer	2	2928
16	Clamp, 2-Bolt, for 1/0 Terminator	2	1858
17	Clamp, Hotline, GP 1520, #8 to 2/0 Str, Cu Only	4	283
18	Washer, Flat, Round Galv. 1/2"	2	1394
19	Sign, "Caution: Reverse Feed"	1	2719
ITEM NO.	DESCRIPTION	LA2(2) QTY.	S/N
20	Arrester, Surge, 9kV, MOV, Riser Pole	2	58
21	Conductor, Cu 1/C #4, 7-Str, 600V, Red, THW	14	2512
22	Clamp, Hotline, GP 1520, #8 to 2/0 Str, Cu Only	4	283
23	Connector, Compression Lug, #4, Cu/Al, One-Hole, Tin-Plated, For Arrester	4	2548
24	Guard, Wildlife, Polymer Arrester	2	2583
ITEM NO.	DESCRIPTION	N1 QTY.	S/N
25	Rod, Ground, 5/8" x 8'	1	1124
26	Clamp, Ground Rod, 5/8", Bronze Small	1	281
27	Conductor, Copper-Clad Steel, #4 Cu Equivalent, Covered	40	1512
28	Connector, Cabelok, Al/Cu, #2-2/0 Run, #6-#1 Tap	1	413
29	Staple, Ground, Barbed, Galvanized, 1 1/2"	24	2707

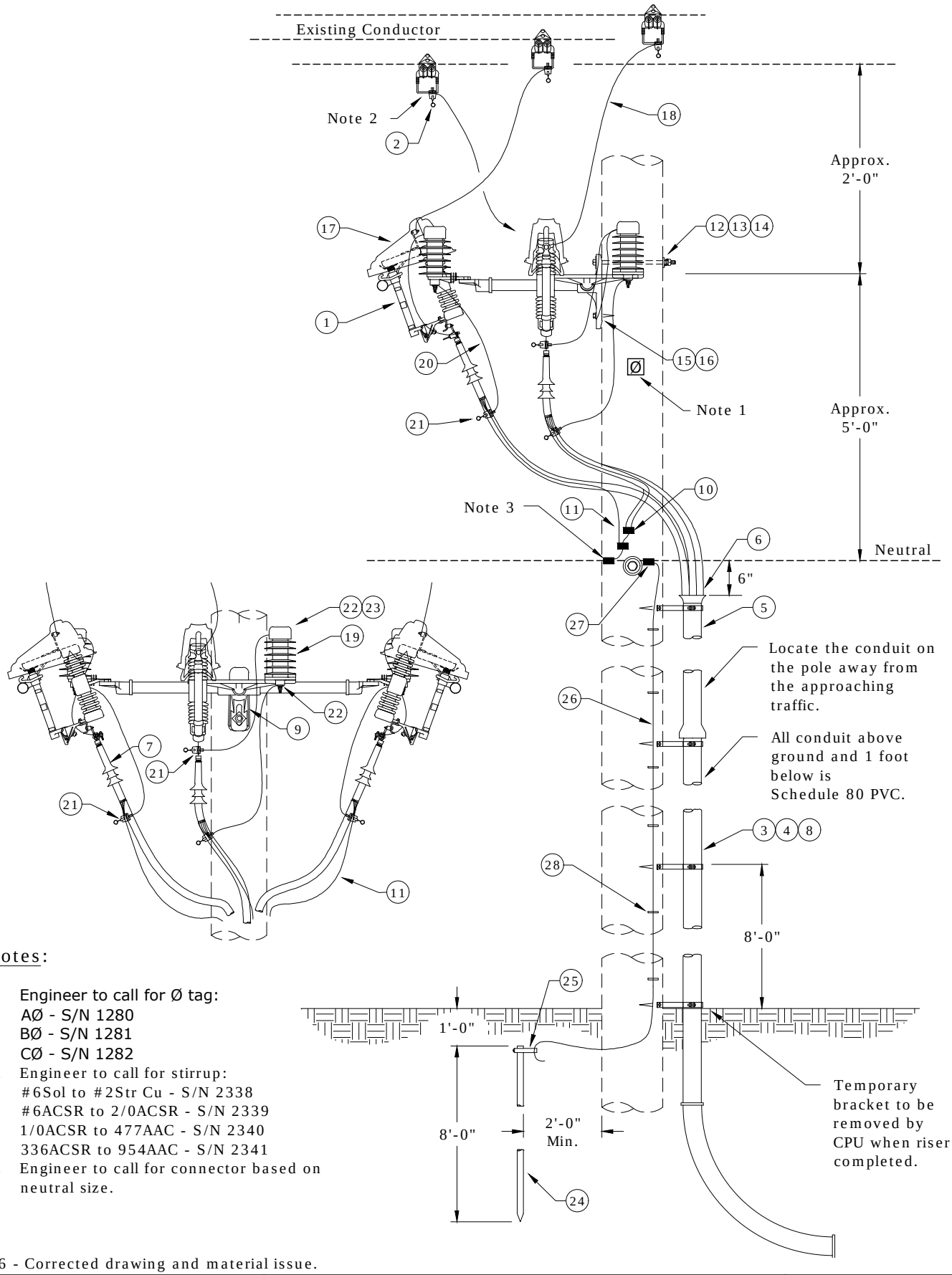
Clark Public Utilities

CONSTRUCTION STANDARDS

TWO PHASE
PRIMARY RISER
REVERSE FEED

REVISIONS			
R	DATE	ENGR	OPS
1	1/16/19	CM	DK

PAGE:		CAD FILE:	APP: CM/DK	SECTION
2 of 2	U2R	U2R	DATE: 10/31/17	1300



Notes:

1. Engineer to call for Ø tag:
   AØ - S/N 1280
   BØ - S/N 1281
   CØ - S/N 1282
2. Engineer to call for stirrup:
   #6Sol to #2Str Cu - S/N 2338
   #6ACSR to 2/0ACSR - S/N 2339
   1/0ACSR to 477AAC - S/N 2340
   336ACSR to 954AAC - S/N 2341
3. Engineer to call for connector based on neutral size.

Rev. 6 - Corrected drawing and material issue.

Clark Public Utilities

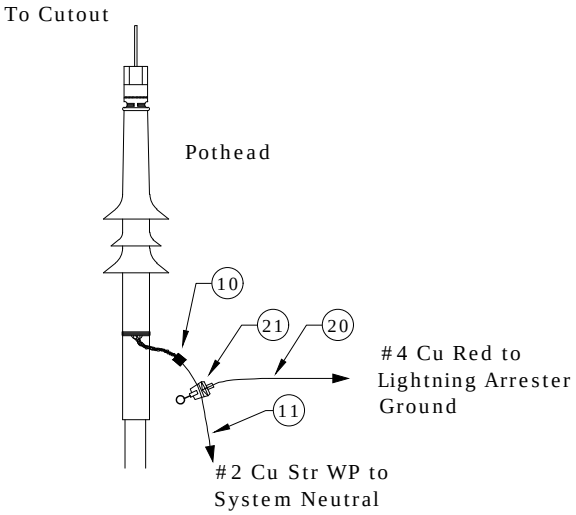
CONSTRUCTION STANDARDS

THREE PHASE
PRIMARY RISER

REVISIONS			
R	DATE	ENGR	OPS
3	12/29/04	LB	AH
4	12/14/09	KJP	
5	10/31/17	CM	DK
6	1/16/19	CM	DK

PAGE:	CAD FILE:	APP: ELM	SECTION
1 of 2	U3	DATE: 1/31/80	1300

U3



Pothead
Connection Detail

Notes:

4. Connect concentric neutrals to arrester ground using #4 Cu, Red.
5. Make arrester ground terminal-to-concentric neutral jumper as short as possible.

Rev. 6 - Corrected drawing and material issue.

ITEM NO.	DESCRIPTION	U3 Additional Material QTY.	S/N
1	Cutout, Polymer, Universal, 100A, 16kA Asym.	3	2532
2	Clamp, Hotline, GP 1520, #8 to 2/0 Str, Cu Only	3	283✡
3	Screw, Lag, 1/2" x 3", Fetter Drive, Drive Point	6	1131
4	Bracket, Standoff Riser, 10 1/2"	3	226
5	Conduit, PVC, 4" x 10', Sch 80	30	2203
6	End Bell, 4", Sch 40	1	2204
7	Terminator, 15kV, Cold-Shrink, JCN & CN, 1/0	3	2214
8	Clamp, Standoff Bracket, 4" Conduit	3	297✡
9	Bracket, Arrester/Cutout Mounting, 3Ø Fiberglass 18"	1	2538
10	Connector, Crimpet, Cu 2/2 - 2/2 (2C2)	3	455
11	Conductor, Cu #2, 1/C, 7-Str, SD, 600V, HMP	30	393
12	Bolt, Machine, 5/8" x 12", 12,400 lbs. Ultimate Tensile	1	155
13	Washer, Curved, Square, Cast, 3" x 3" x 3/8" Thick x 13/16" Hole	1	1392
14	Washer, Lock Spring, Double Coil, Galv. 5/8"	1	2217
15	Screw, Lag, 1/2" x 4 1/2", Twist Drive, Drive Point	1	1132
16	Washer, Flat, Round, Galv., 1/2"	1	1394
17	Guard, Wildlife, Cutout, Polymer	3	2928✡
18	Conductor, Cu 1/C #2, 7 STR, 600V, Red	9	2513

ITEM NO.	DESCRIPTION	LA2(3) QTY.	S/N
19	Arrester, Surge, 9kV, MOV, Riser Pole	3	58
20	Conductor, Cu 1/C #4, 7-Str, 600V, Red, THW	21	2512
21	Clamp, Hotline, GP 1520, #8 to 2/0 Str, Cu Only	6	283
22	Connector, Compression Lug, #4, Cu/Al, One-Hole, Tin-Plated, For Arrester	6	2548
23	Guard, Wildlife, Polymer Arrester	3	2583

ITEM NO.	DESCRIPTION	N1 QTY.	S/N
24	Rod, Ground, 5/8" x 8'	1	1124
25	Clamp, Ground Rod, 5/8" Bronze Small	1	281
26	Cond, Copper-Clad Steel, #4 Cu Equivalent, Covered	40	1512
27	Connector, Cabelok, Al/Cu, #2-2/0 Run, #6-#1 Tap	1	413
28	Staple, Ground, Barbed, Galvanized, 1 1/2"	24	2707

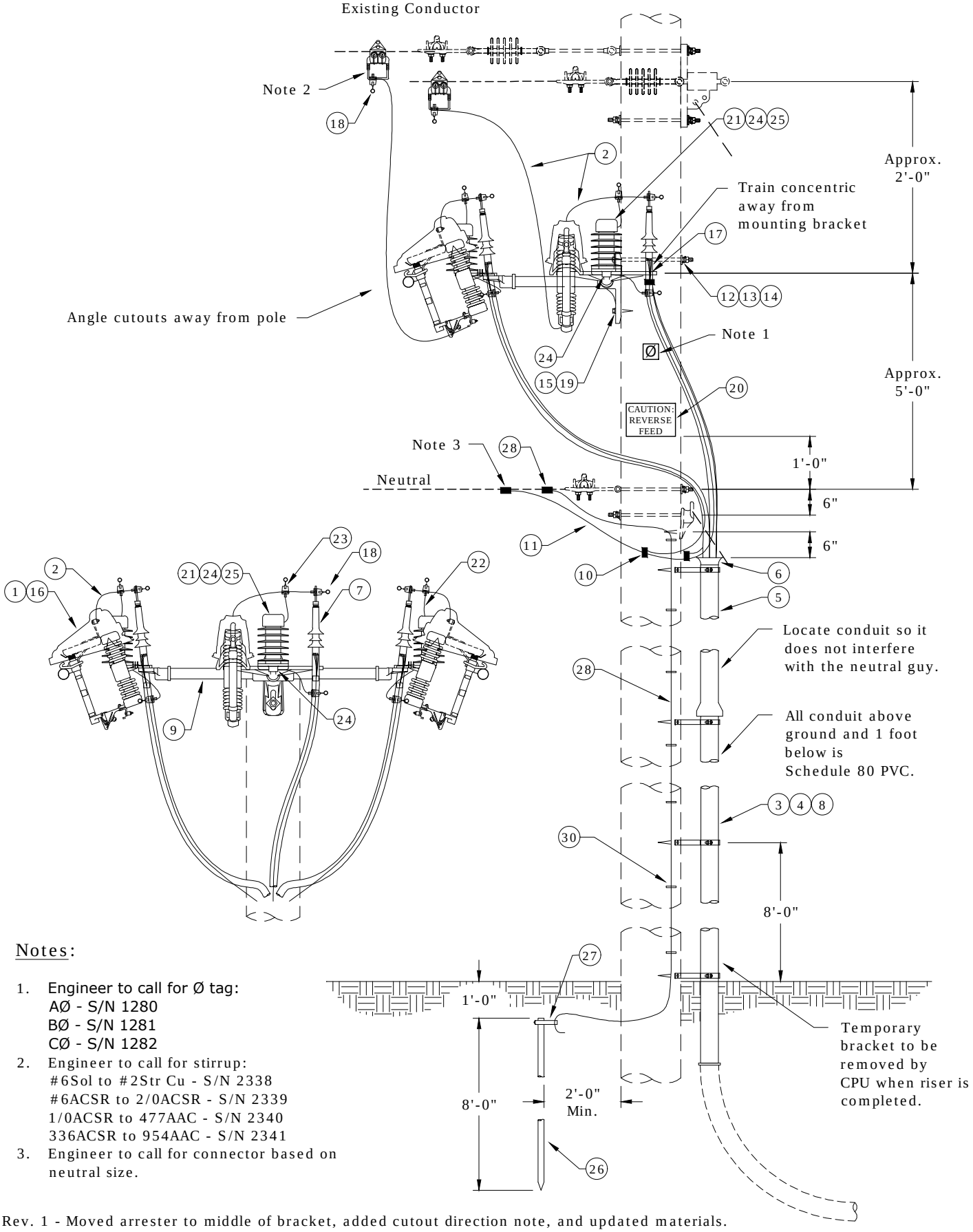
Clark Public Utilities

CONSTRUCTION STANDARDS

THREE PHASE
PRIMARY RISER

REVISIONS			
R	DATE	ENGR	OPS
3	12/29/04	LB	AH
4	12/14/09	KJP	
5	10/31/17	CM	DK
6	1/16/19	CM	DK

PAGE:		CAD FILE:	APP: ELM	SECTION
2 of 2	U3	U3	DATE: 1/31/80	1300



Notes:

1. Engineer to call for Ø tag:
   AØ - S/N 1280
   BØ - S/N 1281
   CØ - S/N 1282
2. Engineer to call for stirrup:
   #6Sol to #2Str Cu - S/N 2338
   #6ACSR to 2/0ACSR - S/N 2339
   1/0ACSR to 477AAC - S/N 2340
   336ACSR to 954AAC - S/N 2341
3. Engineer to call for connector based on neutral size.

Rev. 1 - Moved arrester to middle of bracket, added cutout direction note, and updated materials.

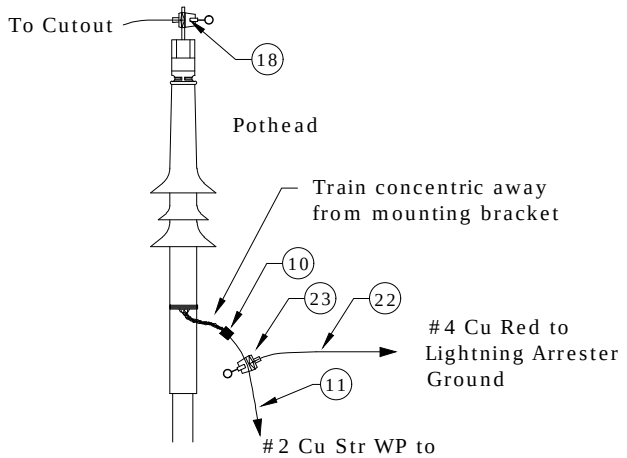
Clark Public Utilities

CONSTRUCTION STANDARDS

THREE PHASE
PRIMARY RISER
REVERSE FEED

REVISIONS			
R	DATE	ENGR	OPS
1	1/16/19	CM	DK

PAGE:		CAD FILE:	APP: CM/DK	SECTION
1 of 2	U3R	U3R	DATE: 10/31/17	1300



Notes:

4. Connect concentric neutrals to arrester ground using #4 Cu, Red.
5. Make arrester ground terminal-to-concentric neutral jumper as short as possible.

Rev. 1 - Moved arrester to middle of bracket, added cutout direction note, and updated materials.

ITEM NO.	DESCRIPTION	U3R Additional Material QTY.	S/N
1	Cutout, Polymer, Universal, 100A, 16kA Asym.	3	2532
2	Conductor, Cu 1/C #2, 7 Str, 600V, Red, THW	18	2513
3	Screw, Lag, 1/2" x 3", Fetter Drive, Drive Point	6	1131
4	Bracket, Standoff Riser, 10 1/2"	3	226
5	Conduit, PVC, 4" x 10', Sch 80	30	2203
6	End Bell, 4", Sch 40	1	2204
7	Terminator, 15kV, Cold-Shrink, JCN & CN, 1/0	3	2214
8	Clamp, Standoff Bracket, 4" Conduit	3	297
9	Bracket, Arrester/Cutout Mounting, 3Ø, Fiberglass 18"	1	2538
10	Connector, Crimpet, Cu, 2/2 - 2/2 (2C2)	5	455
11	Conductor, Cu #2, 1/C, 7-Str, SD, 600V, HMP	30	393
12	Bolt, Machine 5/8" x 12", 12,400 lbs. Ultimate Tensile	1	155
13	Washer, Curved, Square, Cast, 3" x 3" x 3/8" Thick x 13/16" Hole	1	1392
14	Washer, Lock, Spring, Double Coil, Galv. 5/8"	1	2217
15	Screw, Lag 1/2" x 4 1/2", Twist Drive, Drive Point	1	1132
16	Guard, Wildlife, Cutout, Polymer	3	2928
17	Clamp, 2-Bolt, for 1/0 Terminator	3	1858
18	Clamp, Hotline, GP 1520, #8 to 2/0 Str, Cu Only	6	283
19	Washer, Flat, Round Galv. 1/2"	1	1394
20	Sign, "Caution: Reverse Feed"	1	2719

ITEM NO.	DESCRIPTION	LA2(3) QTY.	S/N
21	Arrester, Surge, 9kV, MOV, Riser Pole	3	58
22	Conductor, Cu 1/C #4, 7-Str, 600V, Red, THW	21	2512
23	Clamp, Hotline, GP 1520, #8 to 2/0 Str, Cu Only	6	283
24	Connector, Compression Lug, #4, Cu/Al, One-Hole, Tin-Plated, For Arrester	6	2548
25	Guard, Wildlife, Polymer Arrester	3	2583

ITEM NO.	DESCRIPTION	N1 QTY.	S/N
26	Rod, Ground, 5/8" x 8'	1	1124
27	Clamp, Ground Rod, 5/8", Bronze Small	1	281
28	Conductor, Copper-Clad Steel, #4 Cu Equivalent, Covered	40	1512
29	Connector, Cabelok, Al/Cu, #2-2/0 Run, #6-#1 Tap	1	413
30	Staple, Ground, Barbed, Galvanized, 1 1/2"	24	2707

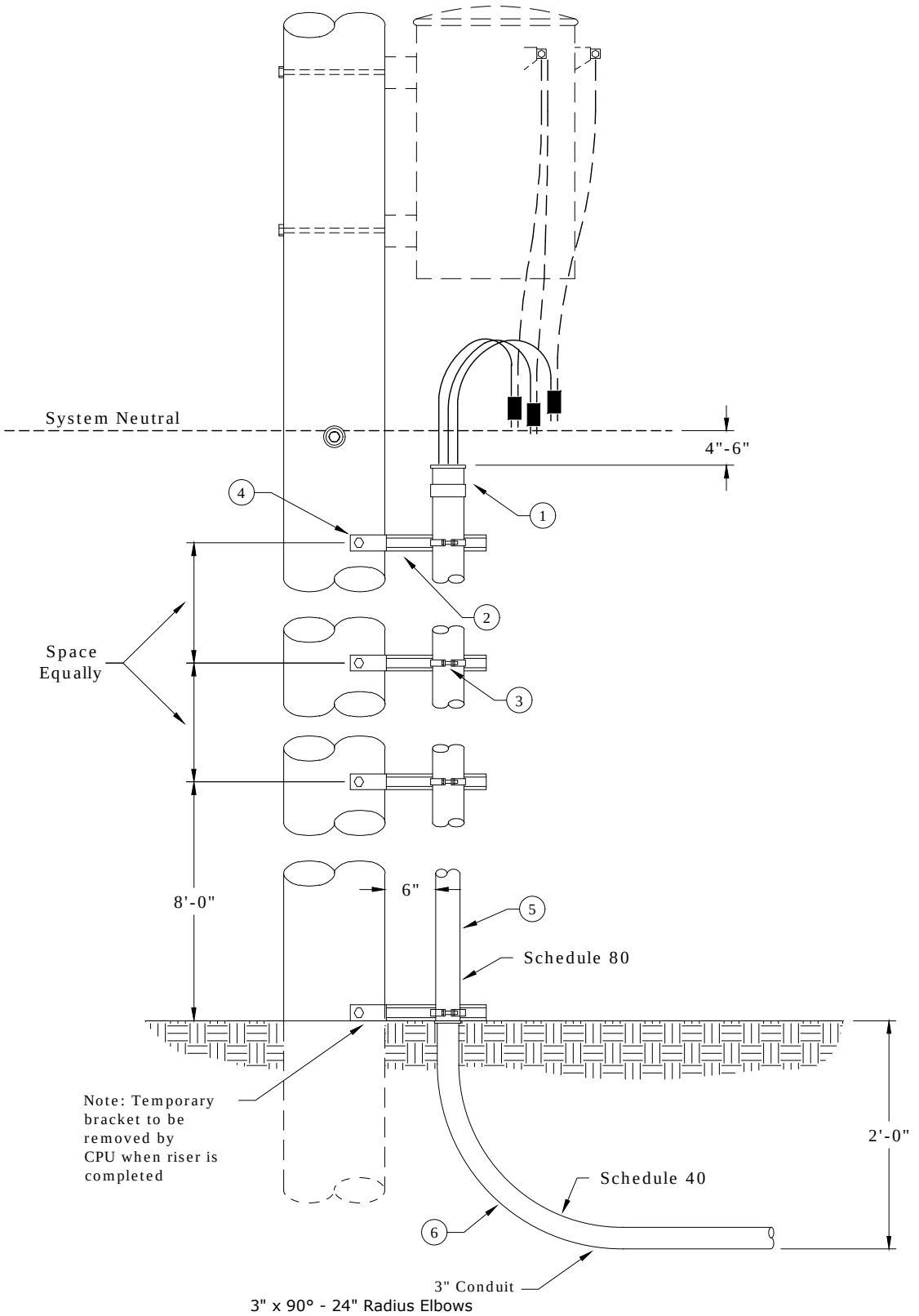
Clark Public Utilities

CONSTRUCTION STANDARDS

THREE PHASE
PRIMARY RISER
REVERSE FEED

REVISIONS			
R	DATE	ENGR	OPS
1	1/16/19	CM	DK

PAGE:		CAD FILE:	APP: CM/DK	SECTION
2 of 2	U3R	U3R	DATE: 10/31/17	1300



Rev 2: Material corrections.

Clark Public Utilities

CONSTRUCTION STANDARDS

SECONDARY OVERHEAD TO UNDERGROUND RISER ASSEMBLY

REVISIONS			
R	DATE	ENGR	OPS
1	5/30/07	LB	AH
2	6/8/18	KJP	

PAGE:		CAD FILE:	APP: KJP	SECTION
1 of 2	U83,U84	U83	DATE: 12/29/04	1300

Rev 2: Material corrections.

ITEM NO.	DESCRIPTION	U83	
		QTY.	S/N
1	End Bell, 3", Sch. 40	1	2317
2	Bracket, Standoff Riser 10-1/2" U.G.	3	226
3	Clamp, Standoff Bracket, 3"	3	296
4	Screw, Lag 1/2" X 3"	6	1131
5	Conduit, PVC, Sch 80, 3" x 10'	30	2313
6	Elbow, PVC, 3", 90°, 24" Radius, Sch. 40	1	2574

ITEM NO.	DESCRIPTION	U84	
		QTY.	S/N
1	End Bell, 4", Sch. 40	1	2204
2	Bracket, Standoff Riser 10-1/2" U.G.	3	226
3	Clamp, Standoff Bracket, 4"	3	297
4	Screw, Lag 1/2" X 3"	6	1131
5	Conduit, PVC, Sch 80, 4" x 10'	30	2203
6	Elbow, PVC, 4", 90°, 24" Radius, Sch. 40	1	1536

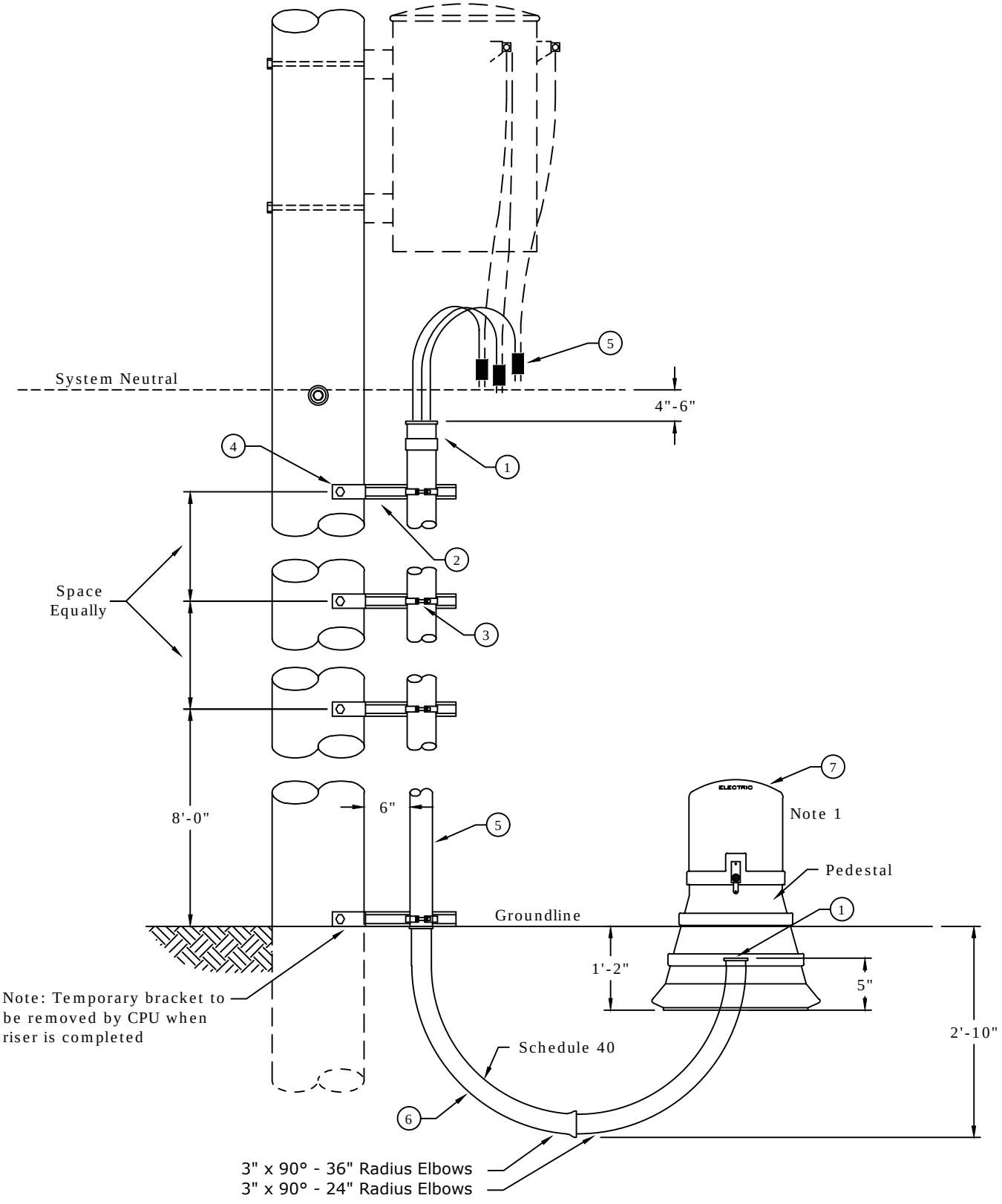
Clark Public Utilities

CONSTRUCTION STANDARDS

SECONDARY OVERHEAD TO
UNDERGROUND RISER ASSEMBLY

REVISIONS			
R	DATE	ENGR	OPS
1	5/30/07	LB	AH
2	6/8/18	KJP	

PAGE:		CAD FILE:	APP: KJP	SECTION
2 of 2	U83,U84	U83	DATE: 12/29/04	1300



Note: Direction of the pedestal will be determined by the CPU Engineer.

Rev 4: Material corrections.

Clark Public Utilities

CONSTRUCTION STANDARDS

SECONDARY OVERHEAD TO
UNDERGROUND RISER ASSEMBLY
W/ SECONDARY PEDESTAL

REVISIONS			
R	DATE	ENGR	OPS
1	4/26/04	LB	AH
2	12/29/04	LB	AH
3	12/14/09	KJP	
4	10/6/14	KJP	

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1 of 2	U8P	U8P	DATE: 1/80	1300

Rev 4: Material corrections.

ITEM NO.	DESCRIPTION	U8P QTY.	U8P S/N
1	End Bell, 3", Sch. 40	2	2317
2	Bracket, Standoff Riser 10-1/2" U.G.	3	226
3	Clamp, Standoff Bracket, 3"	3	296
4	Screw, Lag 1/2" X 3"	6	1131
5	Connector	3	as req*
6	Conduit, PVC, Sch 80, 3" x 10'	30✡	2313
7	Pedestal, Secondary, Aboveground W/ Connectors and Covers	1	2562
8	350MCM AL Triplex UG Secondary	40	362
9	Elbow, PVC, 3", 90°, 24" Radius, Sch. 40 Straight	1	2713
10	Elbow, PVC, 3", 90°, 36" Radius, Sch. 40	1	1534

Clark Public Utilities

CONSTRUCTION STANDARDS

SECONDARY OVERHEAD TO
UNDERGROUND RISER ASSEMBLY
W/ SECONDARY PEDESTAL

REVISIONS

R	DATE	ENGR	OPS
1	4/26/04	LB	AH
2	12/29/04	LB	AH
3	12/14/09	KJP	
4	10/6/14	KJP	

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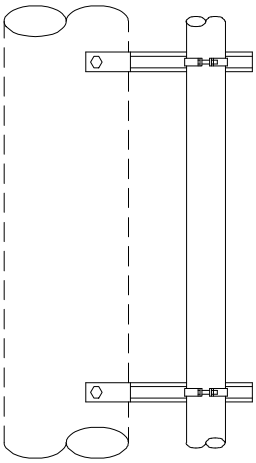

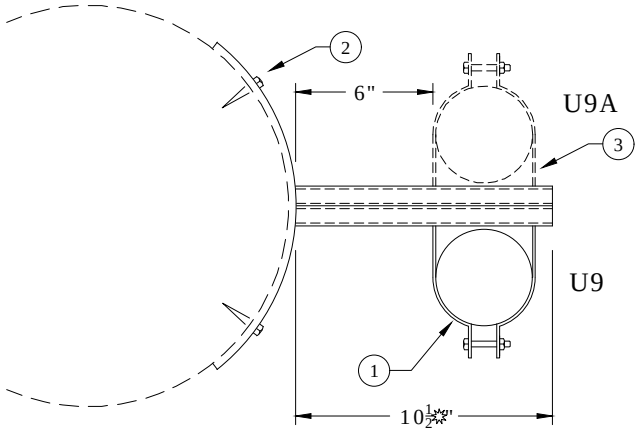

Rev 3: Corrected drawing and material list to 10 1/2" standoff riser bracket.

ITEM NO.	DESCRIPTION	U9 QTY.	U9 S/N
1	Clamp, Standoff Bracket 4"	2	297
2	Screw, Lag 1/2" x 4-1/2"	4	1132
3	Bracket, Standoff Riser 10-1/2" ✲	2	226

ITEM NO.	DESCRIPTION	U9A QTY.	U9A S/N
1	Clamp, Standoff Bracket 4"	2	297

ITEM NO.	DESCRIPTION	U9B QTY.	U9B S/N
1	Clamp, Standoff Bracket 2"	2	295
2	Screw, Lag 1/2" x 4-1/2"	4	1132
3	Bracket, Standoff Riser 10-1/2" ✲	2	226

ITEM NO.	DESCRIPTION	U9C QTY.	U9C S/N
1	Clamp, Standoff Bracket 2"	2	295

Clark Public Utilities

CONSTRUCTION STANDARDS

RISER BRACKET ASSEMBLY

REVISIONS			
R	DATE	ENGR	OPS
1	2/23/00	HWH	MA
2	7/15/02	JEH	TR
3	12/14/09	KJP	

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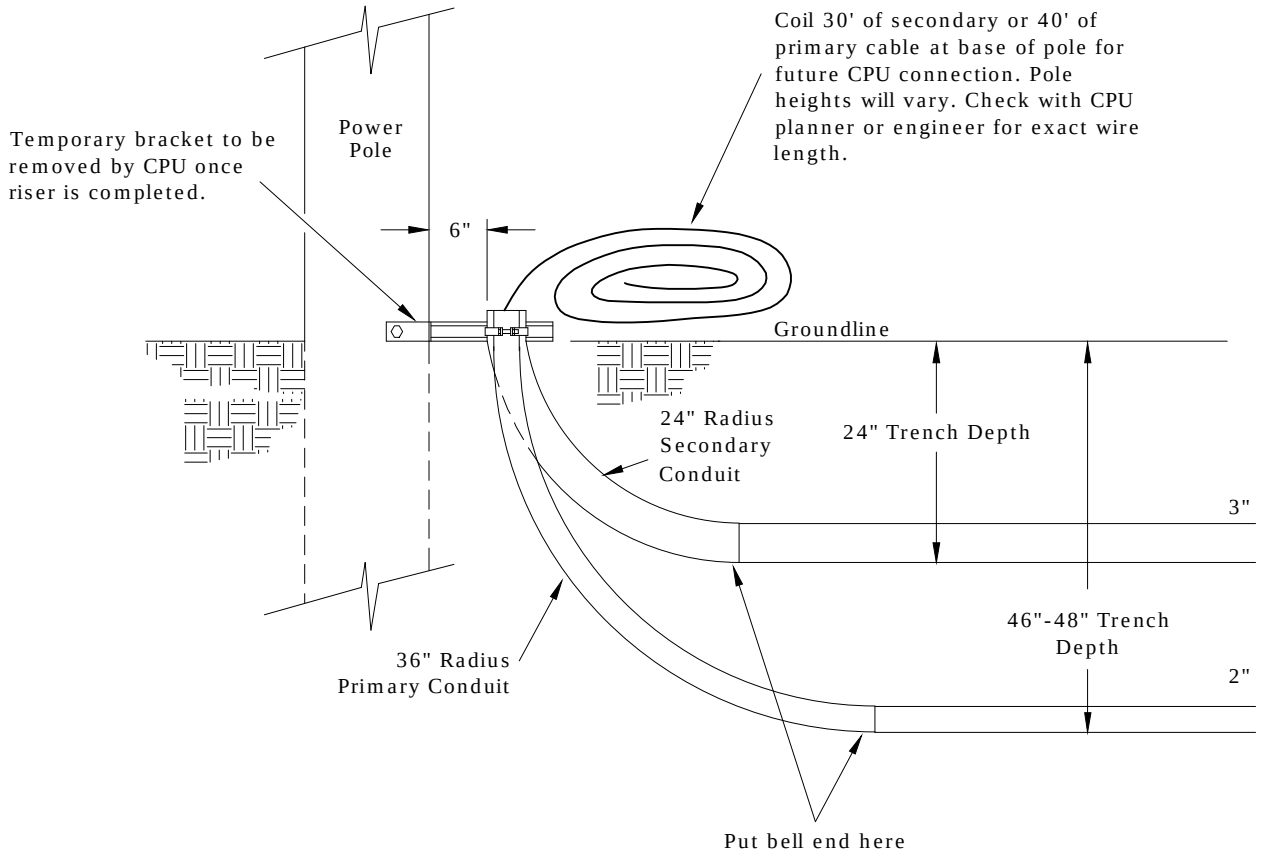

Rev. 2 - Change title for clarity, corrected secondary trench, and corrected Note 2.

Clark Public Utilities

CONSTRUCTION STANDARDS

1Ø PRIMARY (U1) & SECONDARY (U8) RISER GUIDELINES

REVISIONS			
R	DATE	ENGR	OPS
1	12/29/04	LB	AH
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STANDOFF BRACKET PLACEMENT

1) Basic Rule: On poles without anchors or existing clean poles, 1Ø primary and secondary riser brackets should be installed on the "belly button" side of the pole. Typically, a transformer would also be installed on the "belly button" side above the 1Ø primary or secondary riser.

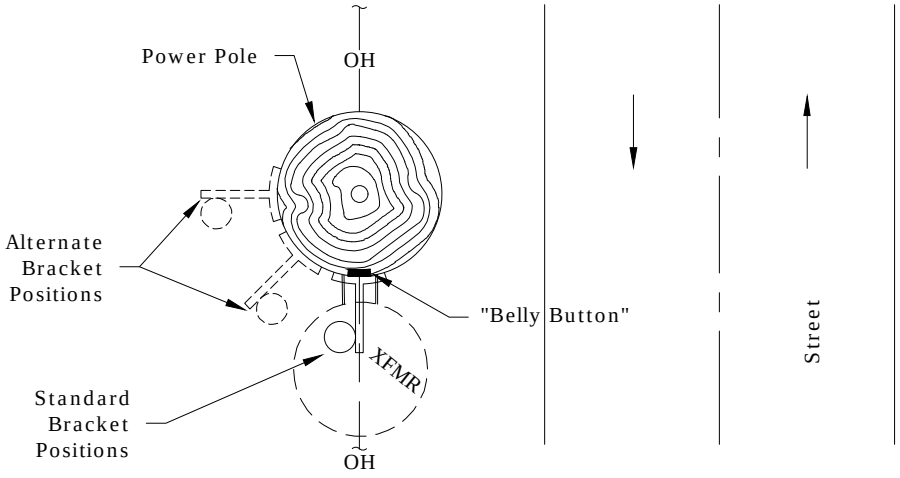
2) On poles with an existing transformer or transformer bank, the bracket should be installed under the transformer or center transformer on a bank with the alternative position being 45°-90° away from street side. If the existing transformer is located on the opposite side of the "belly button," place the bracket under the transformer.

3) Standoffs are typically not installed under guy wires no matter where the "belly button" is located.

4) Standoffs and risers should be placed to avoid conflict with overhead communication wires and guy wires.

5) For poles with an existing riser, use the brackets that are installed to maintain climbing space.

1Ø



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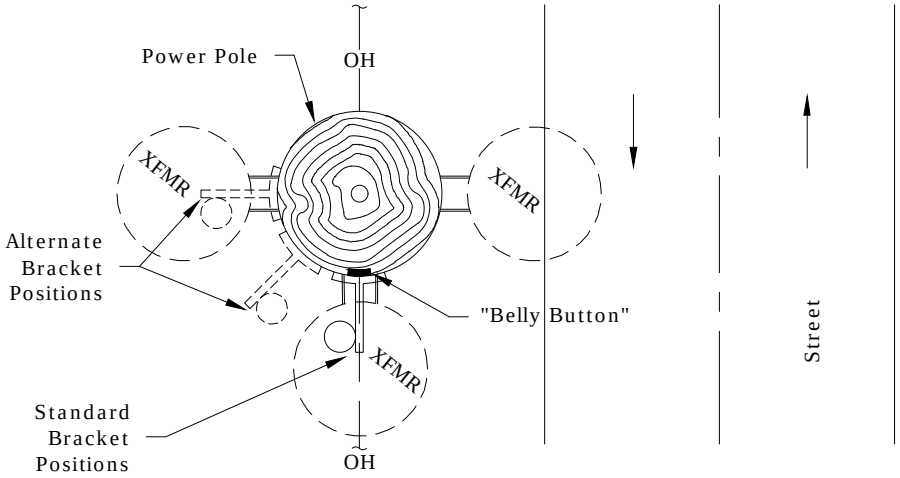

Rev. 2 - Change title for clarity, corrected secondary trench, and corrected Note 2.

Clark Public Utilities

CONSTRUCTION STANDARDS

1Ø PRIMARY (U1) & SECONDARY (U8)
RISER GUIDELINES

REVISIONS			
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2	1/16/19	KJP	

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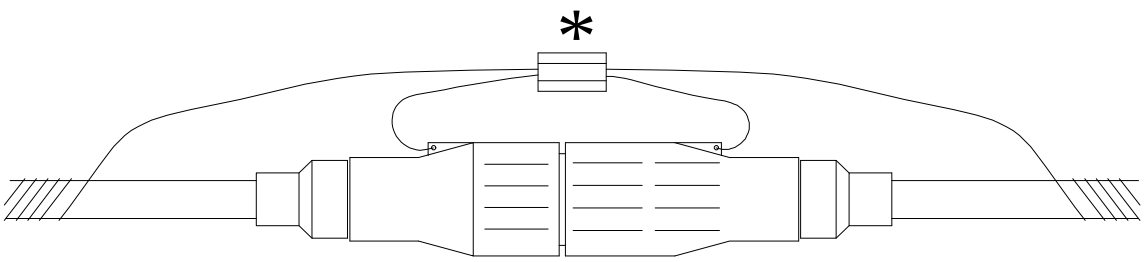
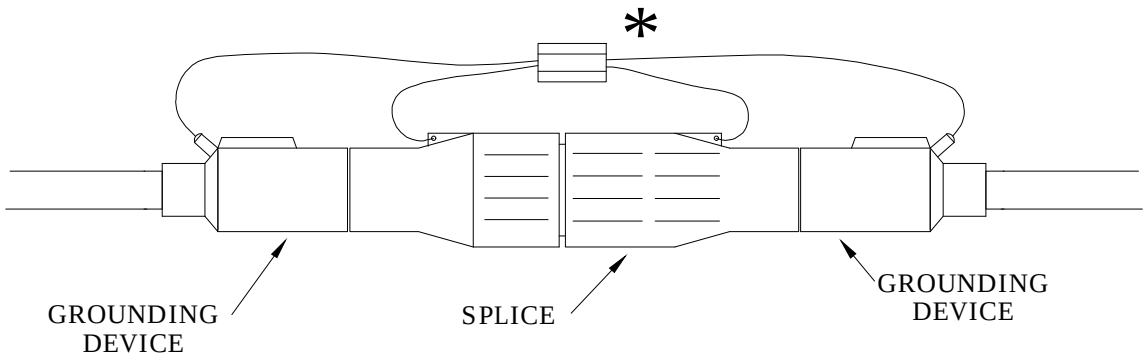


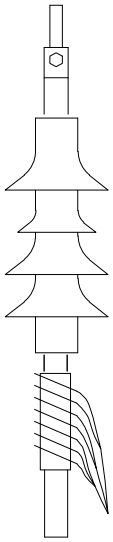
ITEM	MATERIAL DESCRIPTION	S/N
UB20	SPLICE, KIT S 15KV UG 2 AWG	1206

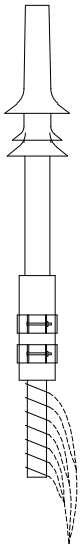
* NOTE: CONST SPEC. NO. UB20 & UB21 INCLUDE CONNECTOR, CRIMPET YC4C4



ITEM	MATERIAL DESCRIPTION	S/N
UB22	SPLICE, KIT S 15KV UG 1000 MCM	1210
UB23	DEVICE, GROUNDING, 1000 MCM (FOR TAPE SHIELD ONLY)	608

* NOTE: CONST SPEC. NO. UB22 & UB23 INCLUDE CONNECTOR, CRIMPET YC4C4





ITEM	MATERIAL DESCRIPTION	S/N
UB22	TERMINATOR, OUTDOOR MOLDED RUBBER, #2, 200A	1305
UB23	TERMINATOR, OUTDOOR MOLDED RUBBER, 1/0, 200A	2214

ITEM	MATERIAL DESCRIPTION	S/N
UB26	TERMINATOR, OUTDOOR BUTYL, 1000 MCM, 600A	2225

Clark Public Utilities

CONSTRUCTION STANDARDS

UNDERGROUND PRIMARY
BASIC UNITS

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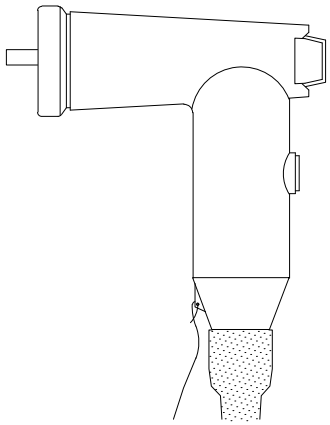
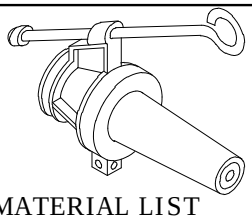
UB20-UB26



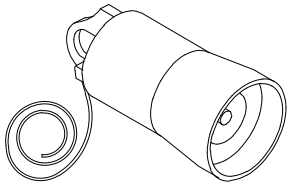
MATERIAL LIST — UCA1,UCA2

ITEM	QTY.	DESCRIPTION	SIN
UCA1	1	TERMINATOR, ELBOW L.B. 1/0 220MIL ONLY	2186
UCA2	1	TERMINATOR, ELBOW L.B. 1/0 OR 2AL EXCEPT 1/0 220MIL ONLY	1312



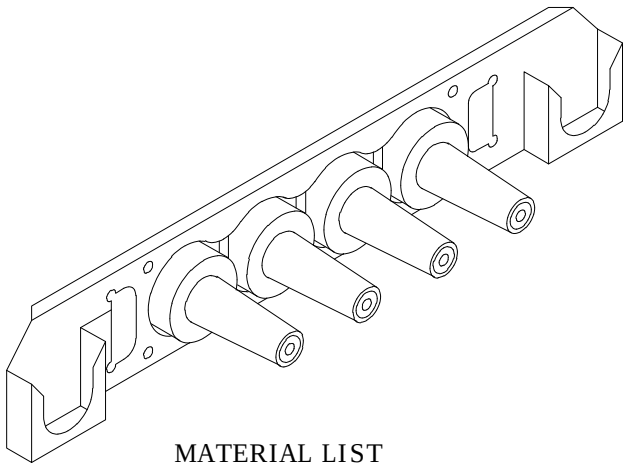
MATERIAL LIST — UCA3

ITEM	QTY.	DESCRIPTION	SIN
UCA3	1	BUSHING, STANDOFF INSUL, 200A	252



MATERIAL LIST — UCA4

ITEM	QTY.	DESCRIPTION	SIN
UCA4	1	CAP, PROTECTIVE GRD. 200A	265



MATERIAL LIST — UCA5,UCA6

ITEM	QTY.	DESCRIPTION	SIN
UCA5	1	MODULE 4 POSITION W/ BRACKET	900
UCA6	1	MODULE 4 POSITION W/O BRACKET	901

Clark Public Utilities

CONSTRUCTION STANDARDS

UNDERGROUND PRIMARY
CABLE ACCESSORIES
200A

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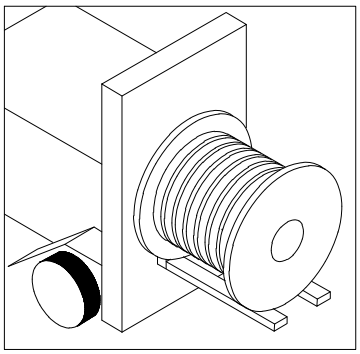
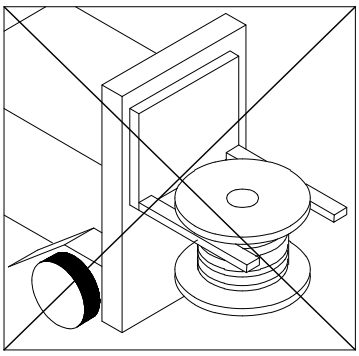
SECTION 1300

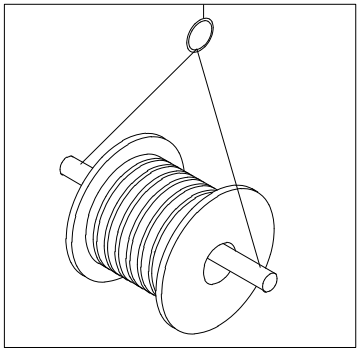
HOW TO HANDLE CABLE REELS



CRADLE BOTH REEL FLANGES BETWEEN FORKS.

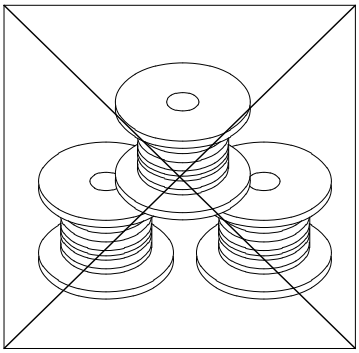


DO NOT LIFT BY TOP FLANGE. CABLE OR REEL WILL BE DAMAGED.

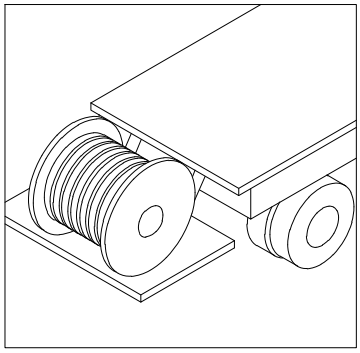


REELS CAN BE HOISTED WITH A SHAFT EXTENDING THROUGH BOTH FLANGES.

← YES

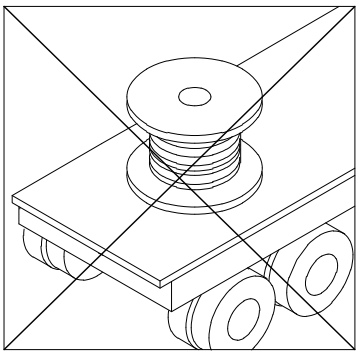


UPENDED HEAVY REELS WILL OFTEN ARRIVE DAMAGED. REFUSE OR RECEIVE SUBJECT TO INSPECTION FOR HIDDEN DAMAGE.

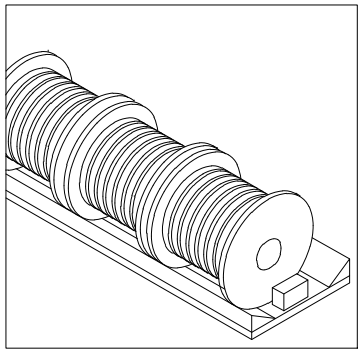


LOWER REELS FROM TRUCK USING HYDRAULIC GATE, HOIST OR FORK LIFT. (LOWER CAREFULLY)

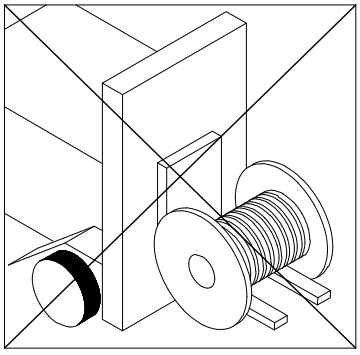
NO →



DO NOT UPEND REELS



ALWAYS LOAD WITH FLANGES ON EDGE AND CHOCK AND BLOCK SECURELY.



NEVER ALLOW FORKS TO TOUCH CABLE SURFACE OR REEL WRAP.

Clark Public Utilities

CONSTRUCTION STANDARDS

UNDERGROUND CABLE
REEL HANDLING

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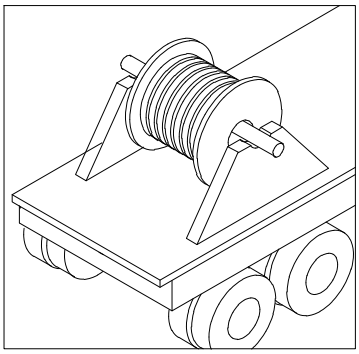
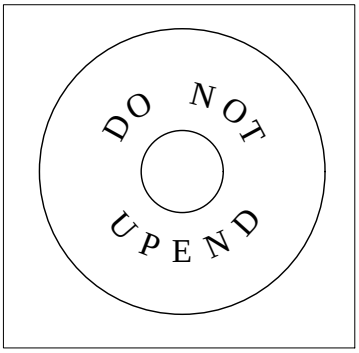
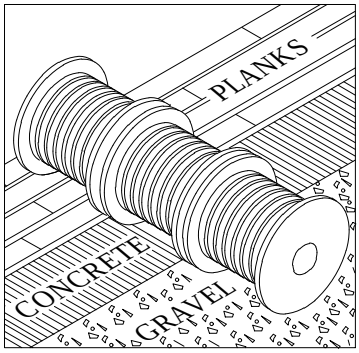
HOW TO HANDLE CABLE REELS



REELS GOING TO JOBS SHALL ALWAYS BE MOUNTED ON A HORIZONTAL AXLE.



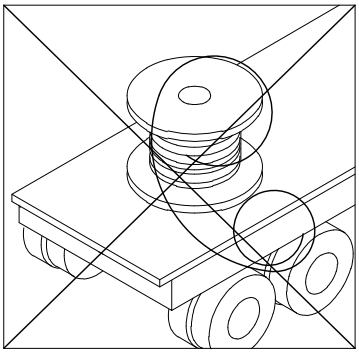
THIS SIGN APPLIES FOR ANY REEL HANDLING. NOT JUST FACTORY DELIVERY.



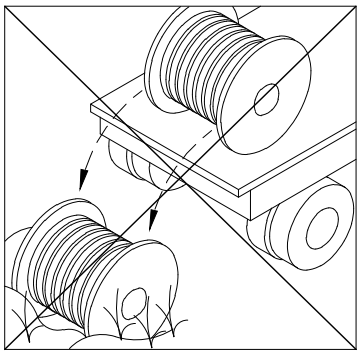
ALWAYS STORE REELS ON A HARD SURFACE.

YES ←

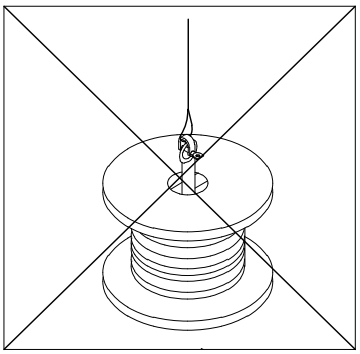
NO →



NEVER REMOVE CABLE FROM A REEL THIS WAY. IT WILL KINK.



NEVER DROP A CABLE REEL FROM ANY HEIGHT WITH EVEN A SMALL AMOUNT OF CABLE ON THE REEL.



NEVER USE A SWIVEL TO REMOVE CABLE FROM A REEL.

Clark Public Utilities

CONSTRUCTION STANDARDS

UNDERGROUND CABLE
REEL HANDLING

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MOVEMENT, STORAGE, AND HANDLING OF CABLE

MOVEMENT OF REELS OF CABLE

1. REELS OF CABLE MUST NOT BE DROPPED FROM ANY HEIGHT, PARTICULARLY FROM TRUCKS OR OTHER TRANSPORTING EQUIPMENT.

2. LIFT REELS USING FOLLOWING METHODS:

   A) CRANE OR BOOM TYPE EQUIPMENT--INSERT SHAFT (HEAVY ROD OR PIPE) THROUGH REEL HUBS AND LIFT WITH SLINGS ON SHAFT, PREFERABLY UTILIZING SPREADER OR YOKE TO REDUCE OR AVOID SLING PRESSURE AGAINST REEL HEAD.

   B) FORK LIFT TYPE OF EQUIPMENT MAY BE USED TO MOVE SMALLER, NARROWER WIDTH REELS. FORK TINES SHALL BE PLACED SO THAT LIFT PRESSURE IS ON REEL HEADS, NOT ON CABLE, AND MUST REACH ALL THE WAY ACROSS REELS SO LIFT IS AGAINST BOTH REEL HEADS.

3. REELS MAY BE MOVED SHORT DISTANCES BY ROLLING. REELS SHOULD BE ROLLED IN THE DIRECTION INDICATED BY ARROWS PAINTED ON REEL HEADS. SURFACES OVER WHICH THE REELS ARE TO BE ROLLED SHALL BE FIRM, CLEAR OF DEBRIS, AND ALSO CLEAR OF PROTRUDING STONES, HUMPS, ETC. WHICH MIGHT DAMAGE THE CABLE IF THE REEL STRADDLED THEM.

STORAGE OF REELS OF CABLE

1. CABLE ENDS ARE SEALED PRIOR TO SHIPMENT, IF FACTORY SEALS ARE CUT OFF, NEW SEALS MUST BE APPLIED TO PREVENT MOISTURE ENTRY INTO CABLE.

2. WHENEVER POSSIBLE, THE FACTORY APPLIED PROTECTIVE COVER SHOULD BE LEFT IN PLACE UNTIL REMOVAL IS ABSOLUTELY NECESSARY. ADDITIONAL COVERING SUCH AS TARPAULIN, PLASTIC SHEETING, ETC., MAY BE USED IF CABLE IS TO BE STORED FOR LONG PERIODS OUTDOORS OR IN EXCESSIVELY DIRTY, DUSTY AREAS.

3. STORE REELS OF CABLE ON A FIRM SURFACE, PAVED IF POSSIBLE, OR ON PLANKING TO PREVENT SETTLING INTO SOFT GROUND.

4. THE STORAGE AREAS SHALL HAVE GOOD DRAINAGE.

5. USE FENCING OR OTHER BARRIERS TO PROTECT CABLES AND REELS AGAINST DAMAGE BY VEHICLES OR OTHER EQUIPMENT MOVING ABOUT IN THE STORAGE AREA.

6. NEVER STORE REELS ON END.

HANDLING DURING INSTALLATION

1. COLD WEATHER HANDLING AND PULLING-IN CABLE CAN BE MORE DIFFICULT, DEPENDING ON THE CABLE CONSTRUCTION AND INSTALLATION LOCATION. COLD-INDUCED STIFFNESS OF CABLE MUST BE CONSIDERED ALONG WITH RADIUS AND NUMBER OF BENDS IN THE PROPOSED INSTALLATION RUN.

   IN GENERAL MOST CABLES CAN BE SAFELY HANDLED WITHOUT DAMAGE IF NOT SUBJECTED TO TEMPERATURE LOWER THAN 10°F (-12°C) IN THE 24 HOUR PERIOD PRECEDING PULLING AND BENDING. IF IT IS ANTICIPATED THAT STORE TEMPERATURES WILL BE BELOW THIS LEVEL DURING THE 24 HOUR PRE-PULL PERIOD, ARRANGEMENTS SHOULD BE MADE TO MOVE THE REEL, AVOIDING IMPACT, TO A WARMER AREA. IF NO INDOOR WARMING AREA IS AVAILABLE, A PLASTIC SHEETING-COVERED SHELTER MAY BE CONSTRUCTED AND HEATED. THE REEL SHOULD BE HELD IN THE WARM STORAGE AREA AT A TEMPERATURE OF AT LEAST 60°F (16°C) FOR 24 HOURS TO ENSURE TOTAL WARMUP. APPLY PULLING EYES OR GRIPS WHILE CABLE IS IN THE WARMING AREA, PRIOR TO MOVEMENT OUTDOORS OR UNCOVERING.

2. FACTORY APPLIED SEALS ON CABLE ENDS MAY BE DISRUPTED DURING THE PULLING OPERATIONS AND, THEREFORE, SHOULD BE CHECKED AND REPLACED IF THE CABLES ARE NOT GOING TO BE SPLICED OR TERMINATED RIGHT AFTER PULL-IN. THIS IS ESPECIALLY IMPORTANT FOR UNDERGROUND RUNS WHERE CABLE ENDS MAY BE LEFT IN ENCLOSURES WHICH ARE SUBJECT TO FLOODING.

3. THE CABLES SHOULD BE LAID INTO THE TRENCH BEING CAREFUL NOT TO TWIST OR KINK THEM. CARE SHOULD BE TAKEN NOT TO ABRADE OR IMPACT THE CABLE SURFACE AS IT LEAVES THE PAY-OFF EQUIPMENT AND ENTERS THE TRENCH. OVER-BENDING THE CABLE TO A POINT LESS THAN THE RECOMMENDED MINIMUM BENDING RADIUS ALSO SHALL BE AVOIDED. CABLES CAN BECOME EASILY OVER-BENT AT GUIDE POINTS SUCH AS SMALL SHEAVES OR ROLLERS LOCATED ON THE CABLE LAYING EQUIPMENT.

   AFTER LAYING THE CABLES INTO THE TRENCH, THEY SHOULD BE COVERED WITH A LAYER OF SELECTED BACKFILL TO A LEVEL OF APPROXIMATELY THREE TO FOUR INCHES ABOVE THE CABLES' SURFACES. "SELECTED BACKFILL" IS DEFINED AS EITHER THERMAL SAND OR SAND-CLAY-GRAVEL MIXTURE CONTAINING SOME SMALL STONES NO GREATER IN SIZE THAN ONE-QUARTER TO ONE-HALF INCH ACROSS AT THEIR LARGEST DIMENSION.

FOLLOWING ARE THE MINIMUM REQUIREMENTS FOR ANY CABLE PULL:

1. THE ENTIRE CONDUIT LENGTH INCLUDING BENDS AND RISERS SHALL BE CLEAN AND SMOOTH. THE TOTAL NUMBER OF ANGLES SHALL NOT EXCEED 270° ✲ WITHOUT PRIOR CPU ENGINEERING APPROVAL.

2. THE ENTIRE CONDUIT LENGTH INCLUDING BENDS AND RISERS SHALL BE SECURED IN THE FINAL LOCATION WITH ALL ACCESSORIES FIRMLY ATTACHED.

3. A PULLING TENSION CALCULATION SHALL BE COMPLETED TO ASSURE THAT MAXIMUM TENSION LIMITS WILL NOT BE EXCEEDED. SEE TABLE 1 FOR LIMITS.

4. SUFFICIENT APPROVED CABLE LUBRICANT SHALL BE USED AT THE START OF THE PULL.

5. THE CABLE SHALL NEVER BE BENT TO A RADIUS LESS THAN 12 TIMES THE CABLE DIAMETER. ALL SHEAVES SHALL HAVE A GROOVE DIAMETER OF NOT LESS THAN 24 TIMES THE CABLE DIAMETER.

6. NEVER ALLOW CABLE TENSION AT THE CABLE REELS. THE REELS SHALL BE TURNED BY HAND OR BY A POWER DEVICE SO THAT THE CABLE IS SLACK GOING INTO THE CONDUIT ENTRANCE.

7. LUBRICANT SHALL BE APPLIED TO THE CONDUIT BEFORE THE CABLE ENTERS THE CONDUIT. IT MAY BE POURED IN OR A PLASTIC BAG OF LUBRICANT MAY BE ATTACHED TO THE PULLING LINE AHEAD OF THE CABLE.

8. ALL CABLE ENDS SHALL BE SEALED TO PREVENT THE ENTRY OF MOISTURE OR DIRT.

9. FOR 1000 MCM CABLE, THE PULLING LINE SHALL BE 2500 LB, SEQUENTIALLY-NUMBERED, CONTINUOUS MULE TAPE.

10. CABLE ATTACHMENT MAY BE WITH KELLEMS (CABLE OR BASKET) ✲ GRIP OR CONDUCTOR (PULLING EYE) GRIP WHICHEVER THE PULLING TENSION CALCULATION DICTATES.

11. ALL CONDUIT ENTRANCES AND EXITS SHALL HAVE PROTECTIVE BUSHINGS IN PLACE THAT WILL ASSURE THAT CABLE DAMAGE DOES NOT OCCUR DURING THE PULL. AT RISER LOCATIONS, DO NOT GLUE PROTECTIVE BUSHING TO CONDUIT.

12. CABLE PULLING SPEED SHALL NOT EXCEED 50 FEET PER MINUTE.

13. ALL CABLE ENDS SHALL BE EITHER TERMINATED OR SEALED IMMEDIATELY AFTER THE PULL. NO CABLE ENDS SHALL BE LEFT EXPOSED OVER NIGHT OR DURING INCLEMENT WEATHER.

REV 1 - CORRECTIONS MARKED WITH A ✲.

Clark Public Utilities

CONSTRUCTION STANDARDS

UNDERGROUND CABLE
PULLING REQUIREMENTS

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14. IT SHALL BE THE RESPONSIBILITY OF THE DESIGNER TO AVOID UNFAVORABLE SIDEWALL PRESSURES. THE SIDEWALL PRESSURES SHALL BE CALCULATED USING THE FOLLOWING EQUATIONS:

(A.) THE SIDEWALL PRESSURE (P) IN GENERAL IS DEFINED AS THE TENSION OUT OF A BEND EXPRESSED IN POUNDS DIVIDED BY THE INSIDE RADIUS OF THE BEND EXPRESSED IN FEET. EQUATIONS 1A AND 1B ARE FOR THE "WORST CASE" CABLE.

EQ 1: $P = \frac{T_o}{r}$ (ONE SINGLE CABLE)

1A: $P = \frac{(3c - 2)}{3} \frac{T_o}{r}$ (TWO OR THREE SINGLE CABLES - CRADLE CONFIGURATION) WHERE $c = 1 + \frac{4}{3}\left(\frac{d}{D - d}\right)^2$

1B: $P = \frac{c\,T_o}{2r}$ (TRIANGULAR CONFIGURATION) WHERE $c = \frac{1}{\sqrt{1 - \left(\frac{d}{D - d}\right)^2}}$

P = SIDEWALL PRESSURE, LBS PER FOOT OF RADIUS
T_o= TENSION (LEAVING THE BEND), POUNDS
c = WEIGHT CORRECTION FACTOR (EQ. 7 AND 8)
r = INSIDE RADIUS OF CONDUIT IN FEET
d = CABLE O.D. IN INCHES
D = CONDUIT I.D. IN INCHES

THE MAXIMUM SIDEWALL PRESSURE SHALL NOT EXCEED 500 LB/FT FOR 1 CABLE OR 1000 LB/FT FOR 2 OR 3 CABLES.

TABLE 1
CABLE PULLING LINE TENSION LIMITS

CABLE	KELLEMS (BASKET) GRIP TENSION (POUNDS)	CONDUCTOR (PULLING EYE) GRIP TENSION (POUNDS)
1 - 1/0 PRIMARY	845 ✲	845
2 - 1/0 PRIMARY	845 ✲	845 ✲
3 - 1/0 PRIMARY	1690 ✲	1690
1 - 1000 MCM PRIMARY	1000	5000 ✲
2 - 1000 MCM PRIMARY	1000 ✲	5000 ✲
3 - 1000 MCM PRIMARY	2000	5000 ✲
4/0 - 4/0 - 2/0 SEC.	3000 ✲	4450
350 - 350 - 4/0 SEC.	3000 ✲	5000 ✲

KELLEMS GRIP IS OVER THE CABLE JACKET. ALSO CALLED "CABLE GRIP" OR "BASKET GRIP." ✲

NOTE: 5000 LB LIMIT DUE TO EQUIPMENT LIMITS.

REV 1: CORRECTIONS MARKED WITH A ✲.

Clark Public Utilities

CONSTRUCTION STANDARDS

UNDERGROUND CABLE
PULLING REQUIREMENTS

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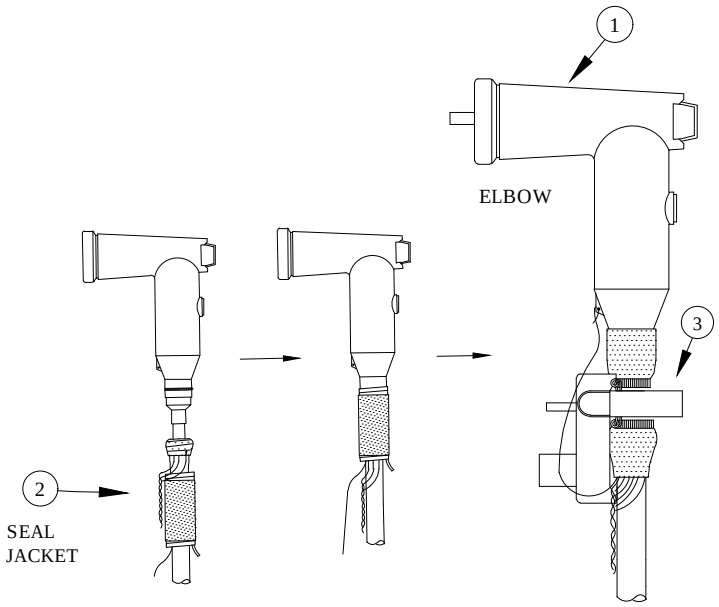
2 of 2	UCP1	UCP-1	DATE: 9/94	1300

TYPICAL ASSEMBLY



FOR REFERENCE ONLY
OLD INSTALLATIONS WITHOUT VOLTAGE-TEST POINT
NEW INSTALLATIONS HAVE VOLTAGE-TEST POINT

NOTES:
1. INDIVIDUALLY PACKAGED INSTRUCTIONS COME WITH EACH OF THE THREE MOULDED RUBBER COMPONENTS.
2. THE FAULT INDICATOR SHALL BE INSTALLED AS SHOWN. NEUTRAL WIRES MUST BE TRAINED AS SHOWN SO THAT THE FAULT INDICATOR WILL FIT.

Rev 3: Added Current-Reset fault indicator to title and made "Reference Only."

ITEM NO.	DESCRIPTION	UEP2 QTY.	UEP2 S/N
1	Elbow, Loadbreak, 1/0, 200A, 175 MIL	1	1312
2	Kit, Cable Sealing, 15KV, 200A	1	2391
3	Fault Indicator, Current-reset, 400A, 1Ø UG	1	2581

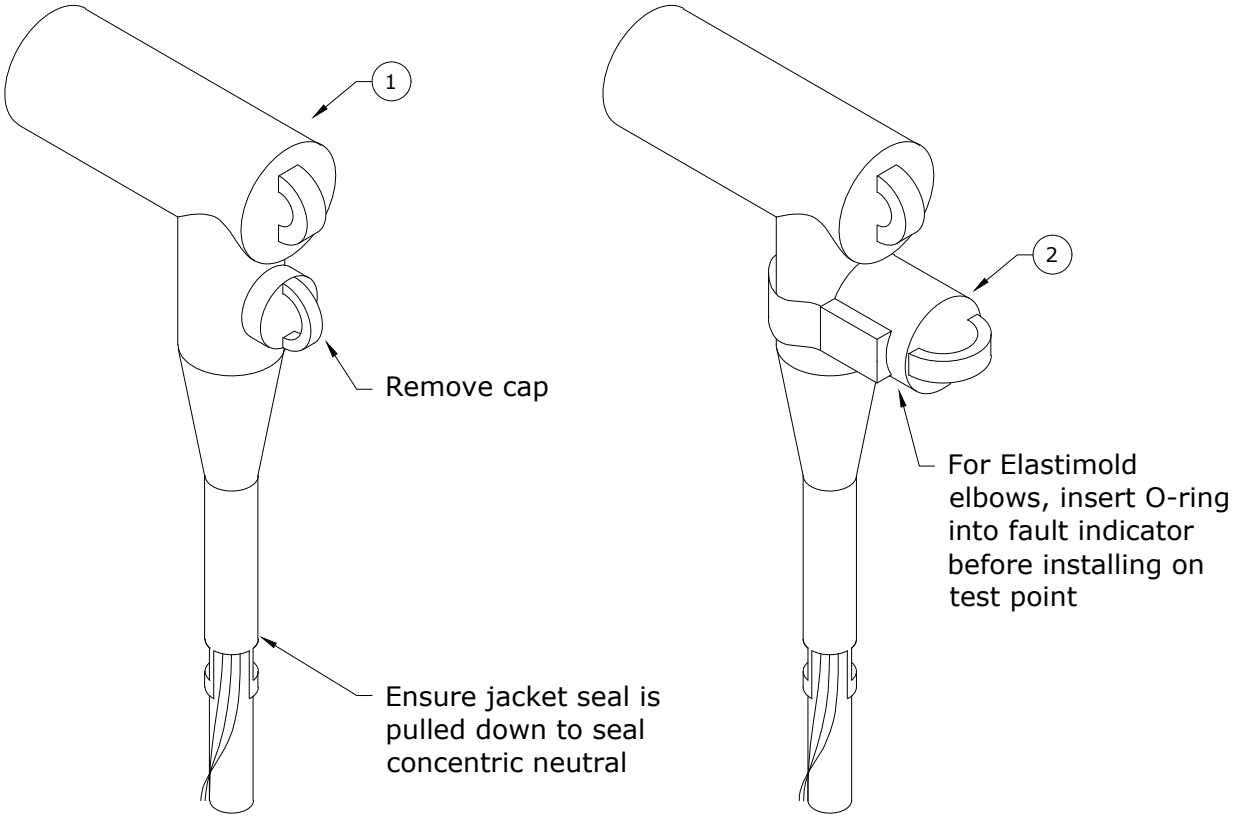
Clark Public Utilities

CONSTRUCTION STANDARDS

PRIMARY ELBOW ASSEMBLY
200A WITH
CURRENT-RESET FAULT INDICATOR

REVISIONS			
R	DATE	ENGR	OPS
0	2/23/00	HWH	MA
1	9/23/04	LB	AH
2	8/2/05	LB	AH
3	4/29/09	CM	AH

PAGE:		CAD FILE:	APP:	SECTION
1 of 1	UEP2	UEP2	DATE: 9/94	1300



Note: Follow manufacturer's cutbacks and use template provided. Do NOT use a metal tape measure.

Rev. 1 - Changed to elbow with integrated jacket seal.

ITEM NO.	DESCRIPTION	UEP3 QTY.	UEP3 S/N
1	Elbow, 200A, LB, 1/0, 175 & 220 mil, Test Point, 15 kV, Integrated Jacket Seal	1	1312
2	Fault Indicator, Voltage-reset, 400A Trip, 1Ø UG	1	2694

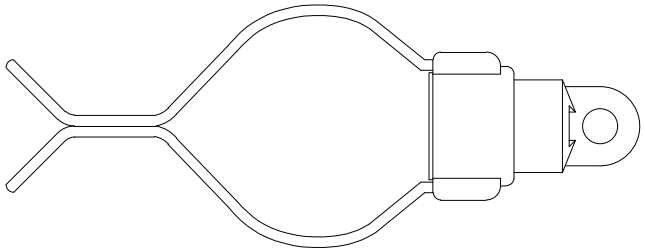
Clark Public Utilities

CONSTRUCTION STANDARDS

PRIMARY ELBOW ASSEMBLY
200A WITH
VOLTAGE-RESET FAULT INDICATOR

REVISIONS			
R	DATE	ENGR	OPS
1	11/19/20	CM	GM

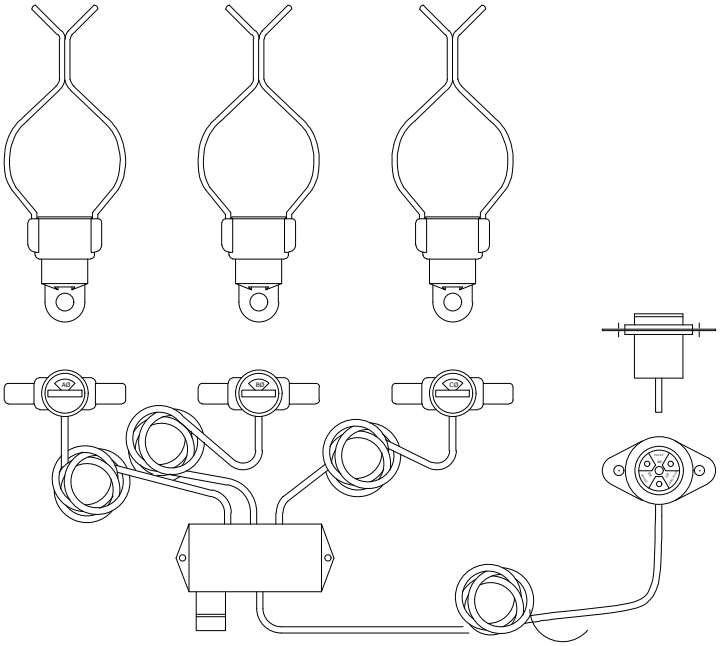
PAGE:		CAD FILE:	APP: CM/AH	SECTION
1 of 1	UEP3	UEP3	DATE: 4/29/09	1300



S/N# 2694 - VOLTAGE-RESET FLAG INDICATION
USE: 1Ø AND 3Ø PADMOUNT TRANSFORMERS AND J-BOXES (1/0 CABLE)
TRIP CURRENT: 400A
RESET VOLTAGE AND TIME: 5KV (UP TO 4 MIN.)
SEE: UT21-UT22, UT24-UT28, UT30-UT32, UJ1, UJ3, AND UJM

Note: Elastimold elbows (used for Cable Cure) need the ring adapter provided with the fault indicator.

ITEM NO.	DESCRIPTION	UFIV400	
		QTY.	S/N
1	VOLTAGE-RESET FAULT INDICATOR, 400A TRIP, 1Ø UG	1	2694



S/N# 2695 - VOLTAGE-RESET FLAG AND BLINKING LIGHT INDICATION
USE: SWITCHGEAR (1000 MCM CABLE)
TRIP CURRENT: 800A
RESET VOLTAGE AND TIME: 5KV (UP TO 4 MIN.) REPLACEABLE BATTERY FOR FLASHING LIGHT
SEE: USG1

Note: Elastimold elbows (used for Cable Cure) need the ring adapter provided with the fault indicator.

ITEM NO.	DESCRIPTION	UFIV800	
		QTY.	S/N
1	VOLTAGE-RESET FAULT INDICATOR, 800A TRIP, 3Ø UG SWG	1	2695

REV 3 - ADDED VOLTAGE-RESET FAULT INDICATORS AND CHANGED FROM "UFI1" TO "UFI"

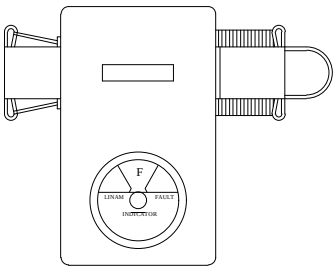
Clark Public Utilities

CONSTRUCTION STANDARDS

UNDERGROUND
FAULT INDICATORS

REVISIONS			
R	DATE	ENGR	OPS
1	2/23/00	HWH	MA
2	9/23/04	LB	AH
3	4/29/09	CM	AH

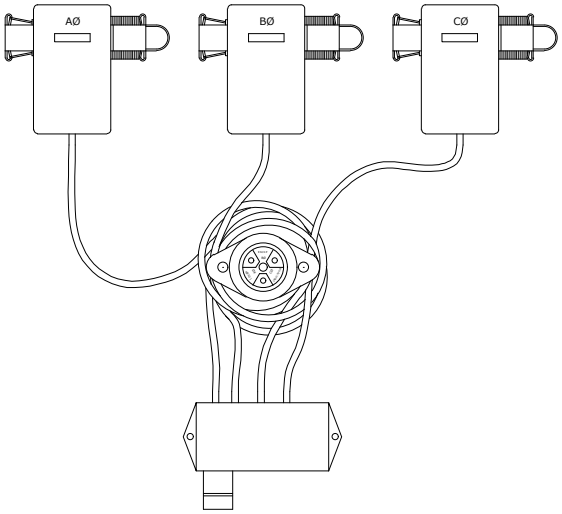
PAGE:		CAD FILE:	APP:	SECTION
1 of 2	UFI	UFI	DATE: 10/94	1300



S/N# 2581 - CURRENT RESET-FLAG INDICATION
USE: 1Ø AND 3Ø PADMOUNT TRANSFORMERS AND J-BOXES (1/0 CABLE)
TRIP CURRENT: 400A
RESET CURRENT AND TIME: 1.5A (40 SEC)
SEE: UT21-UT22, UT24-UT28, UT30-UT32, UJ1, UJ3, AND UJM

NOTE: ONLY USE ON ELBOWS WITHOUT A VOLTAGE TEST POINT

ITEM NO.	DESCRIPTION	UFIA400	
		QTY.	S/N
1	INDICATOR, FAULT, CURRENT-RESET, 400A, 1Ø UG	1	2581



S/N# 2463 - CURRENT RESET-FLAG AND FLASHING LIGHT INDICATION
USE: SWITCHGEAR (1000 MCM CABLE)
TRIP CURRENT: 800A
RESET CURRENT AND TIME: 3A (25 SEC)
REPLACEABLE BATTERY FOR FLASHING LIGHT
SEE: USG1

NOTE: ONLY USE ON ELBOWS WITHOUT A VOLTAGE TEST POINT

ITEM NO.	DESCRIPTION	UFIA800	
		QTY.	S/N
1	INDICATOR, FAULT, CURRENT-RESET, 800A, 3Ø	1	2463

REV 3 - ADDED VOLTAGE-RESET FAULT INDICATORS AND CHANGED FROM "UFI1" TO "UFI"

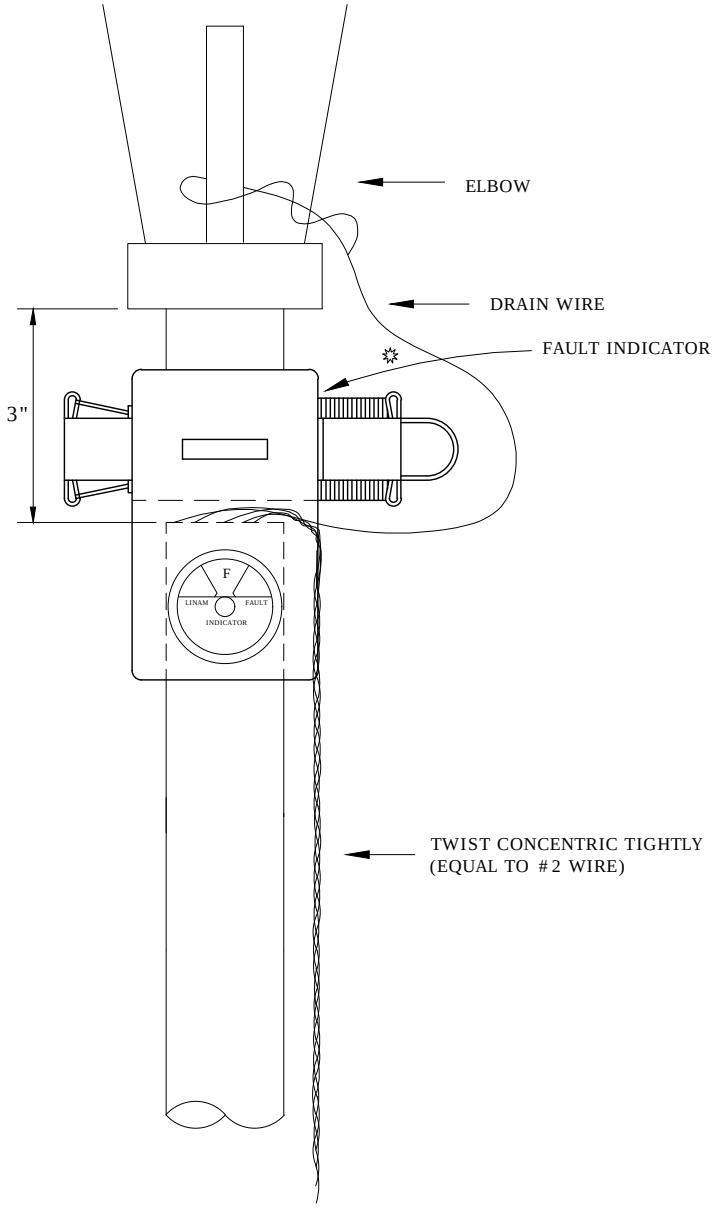
Clark Public Utilities

CONSTRUCTION STANDARDS

UNDERGROUND
FAULT INDICATORS

REVISIONS			
R	DATE	ENGR	OPS
1	2/23/00	HWH	MA
2	9/23/04	LB	AH
3	4/29/09	CM	AH

PAGE:		CAD FILE:	APP:	SECTION
2 of 2	UFI	UFI	DATE: 10/94	1300



JACKETED
CABLES

NOTES

1. GRAY CLAMP OF FAULT INDICATOR MUST
   BE ABOVE CONCENTRIC NEUTRAL.
   IF NOT, INDICATOR WILL NOT WORK.

2. NEUTRALS MUST BE FORMED AS SHOWN SO
   THAT INDICATOR WILL FIT.

REV 1 - REFLECT JACKETED CABLE - REVISIONS ARE MARKED WITH STAR
REV 2 - CHANGED TO CURRENT-RESET FAULT INDICATOR

Clark Public Utilities

CONSTRUCTION STANDARDS

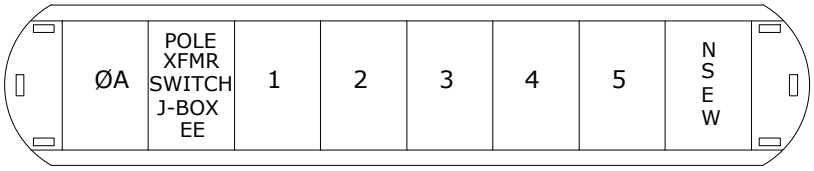
UNDERGROUND CABLE CURRENT-RESET
FAULT INDICATOR INSTALLATION

REVISIONS			
R	DATE	ENGR	OPS
1	2/23/00	HWH	MA
2	9/23/04	LB	AH

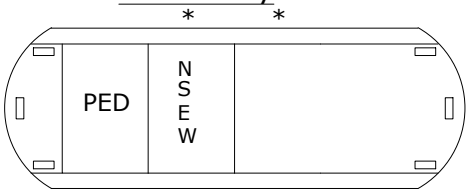
1 REVISIONS MARKED WITH STAR

PAGE:		CAD FILE:	APP:	SECTION
1 of 1	UFI2	UFI	DATE: 10/94	1300

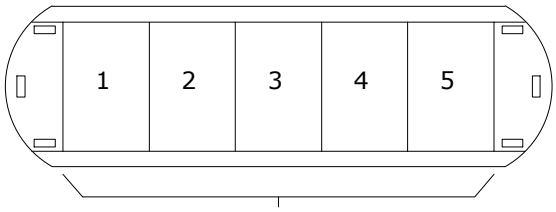
Primary



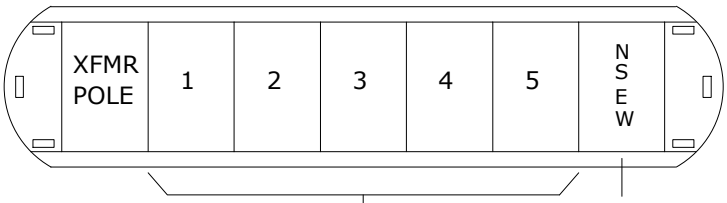
Secondary



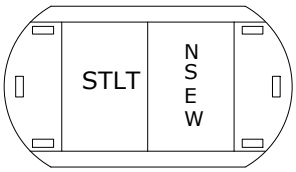
In transformer to secondary pedestal.



In secondary pedestal to house.

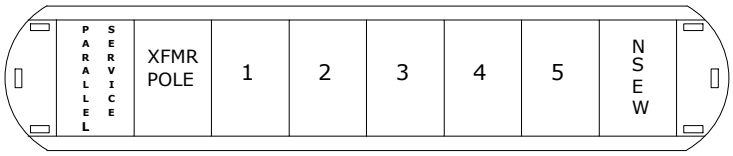


In secondary pedestal from transformer or pole.

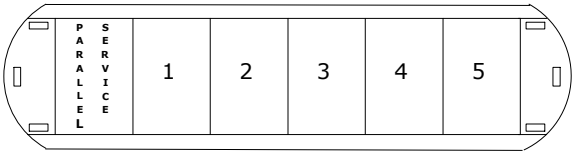


In transformer or pedestal
to streetlight.

Parallel Secondary



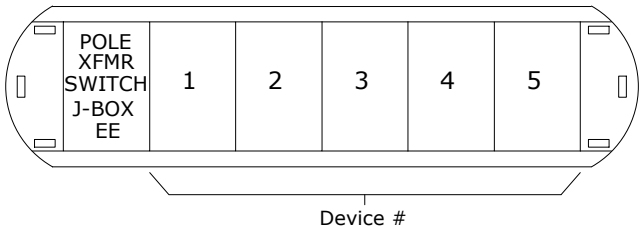
In secondary pedestal from transformer or pole.

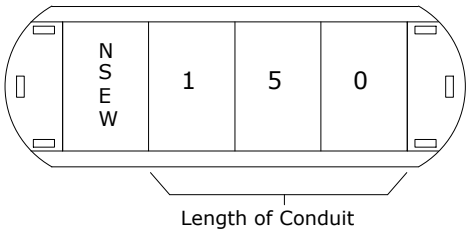


In secondary pedestal to house.

Note: Zip tie ONE tag around each set of parallel cables.

Future Conduits (Normally Will Require Two Tag Holders)





Notes:

1. These tags are for URD primary and secondary cables. Tag all cables.
2. Parallel cables shall have one tag zip tied around both cables.

Rev 4: Added tagging for parallel conductors.

Clark Public Utilities

CONSTRUCTION STANDARDS

UNDERGROUND CONDUCTOR
IDENTIFICATION TAGS

REVISIONS			
R	DATE	ENGR	OPS
1	2/23/00	HWH	MA
2	9/23/04	LB	AH
3	1/16/19	KJP	
4	12/9/22	CRM	GM

PAGE:	CAD FILE:	APP:	SECTION
1 of 1	UID2	DATE: 1/31/80	1300

1400
UNDERGROUND TRANSFORMERS

5/13/2024

~	F1A	Fuse Schedule – Padmount Transformers
~	HB16,HB32	Hillside Barrier
~	UID1	Padmounted Equipment Identification Tags & Safety Signs
~	UT2	1Ø Padmount Transformer Radial Feed
~	UT4	Open Y - Open Δ Padmount Transformer Installation
C	UT21,UT22	1Ø Padmount Transformer Assemblies, Loop Feed
~	UT24-UT28	1Ø Pad Xfmr Assembly, Radial or Loop w/ Feed-Thru Bushing
~	UT30-UT32	3Ø Padmount Transformer Assemblies
~	UTB	1Ø Padmount Transformer Boxpad (Basement)
~	UTP1	1Ø Transformer Pad – 25 to 75kVA
~	UTP2	1Ø Transformer Pad – 100kVA
~	UTP3	1Ø Transformer Pad Orientation & Conduit Installation
~	UTP4	3Ø Transformer Pad – 75 to 1500kVA
~	UTP5	Precast Pad & Vault for 3Ø Transformers
C	UTP6	3Ø Transformer Pad Orientation & Conduit Installation
~	UTP9	Typical Barrier Installation to Protect Padmounted Equipment

N New Standard
R Redrawn Standard
C Changed Standard
~ No Change

1ø Padmounted Transformers

kVA	Transformer Stock Number BM 240/120	Transformer Stock Number BR 480/120	Transformer Primary Protection Bayonet Fuse No	S/N	Isolation Link*7	Minimum Upstream OH Fuse Size*2 Size	S/N
25*1	1317		4000358C05 (8 A)	653	3001861A02	25 A	683
50	1318	2016	4000358C08 (15 A)	654	3001861A03	30 A	684
75	1320		4000358C10 (25 A)	655	3001861A05	65 A	687
100	1322		4000358C10 (25 A)	655	3001861A05	65 A	687

3ø Padmounted Transformers

kVA	Transformer Stock Number BL 208/120	Transformer Stock Number BW 480/277	Transformer Primary Protection Bayonet Fuse No	S/N	Isolation Link*7	Minimum Upstream OH Fuse *2 Size	S/N
75	1328	1337	4000358C05 (8 A)	653	3001861A02	25 A	683
150	1329	1338	4000358C08 (15 A)	654	3001861A03	30 A	684
300	1331	1340	4000358C10 (25 A)	655	3001861A05	50 A	686
500	1332	1341	4000358C12 (50 A)	656	3001861A06	100 A	689
750	1333	1342	4000358C12 (50 A)	656	3001861A06	100 A	689
1000	1334	1343	4000358C14 (65 A)*3	657	3001861A07	100 A*4	689
1500		1344	4000353C17 (140 A)	658	3001861A05	100 A*4*5	689
					ELSP Fuse*6		
2000✡		2164	4038361C05C (125 A)	2976	CBUC08250D100✡	See Systems Engineering	
2500✡		1345	4038361C05C (125 A)	2976	CBUC08250D100✡		

Spare fuses are kept in each transformer. It is the responsibility of the person using the spare fuse to replace it. Fuses are in free issue.

Notes:

*1 Fuses for 25 kVA livefront transformers are stocked for maintenance only (RTE 476B1, S/N 1664).
*2 Use largest fuse size for applications while considering up/downstream fuses, conductor, and loading. Check with Systems Engineering as needed.
*3 Recommended fuse will result in some loss of overload capability.
*4 Transformer and upstream protection may miscoordinate, therefore each transformer should ideally be on separate feeders/protection.
*5 Fuse will limit overload capability of transformer.
*6 The use of these fuses will provide 175% of rated load for 2 hours and 150% of rated load for 7 hours.
*7 Equivalent Howard isolation link may be substituted for Eaton isolation link. See transformer specifications for P/N.

Rev. 4 - Added note 7 to allow Howard isolation links.

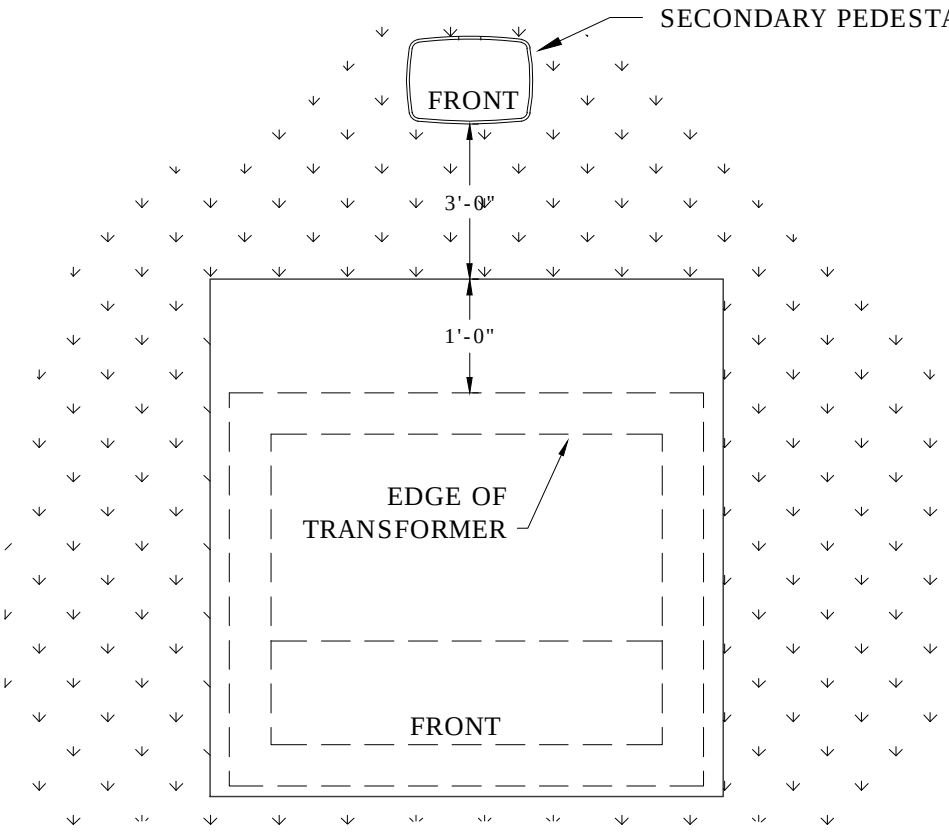
Clark Public Utilities

CONSTRUCTION STANDARDS

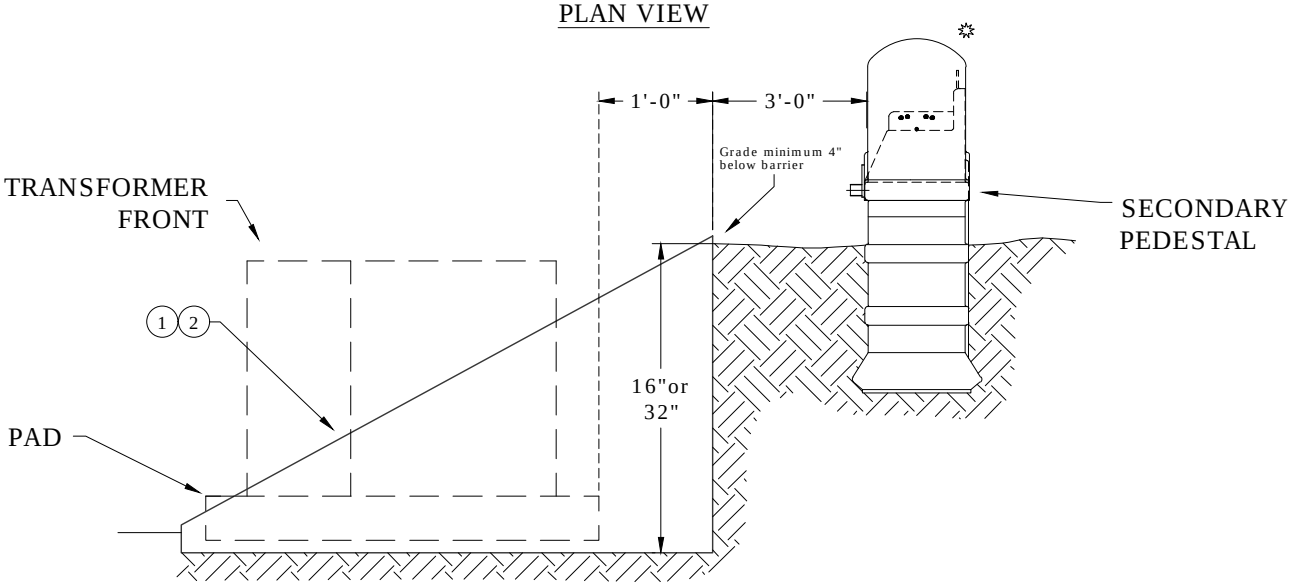
FUSE SCHEDULE
PADMOUNT TRANSFORMERS

REVISIONS			
℞	DATE	ENGR	OPS
1	3/02	DRAWN	IN CAD
2	2/11/10	KJP	
3	7/10/20	KJP	
4	11/30/21	JDK	

PAGE:	CAD FILE:	APP: ELM	SECTION
1 of 1	F1A	DATE: 1/31/80	1400



PLAN VIEW



SIDE VIEW

REV 2: Corrected Measurement Behind Pad, and changed title from HB1 to HB16,HB32.

ITEM NO.	DESCRIPTION	HB16		HB32	
		QTY.	S/N	QTY.	S/N
1	BARRIER, 16" Height	1	2460		
2	BARRIER, 32" Height			1	2461

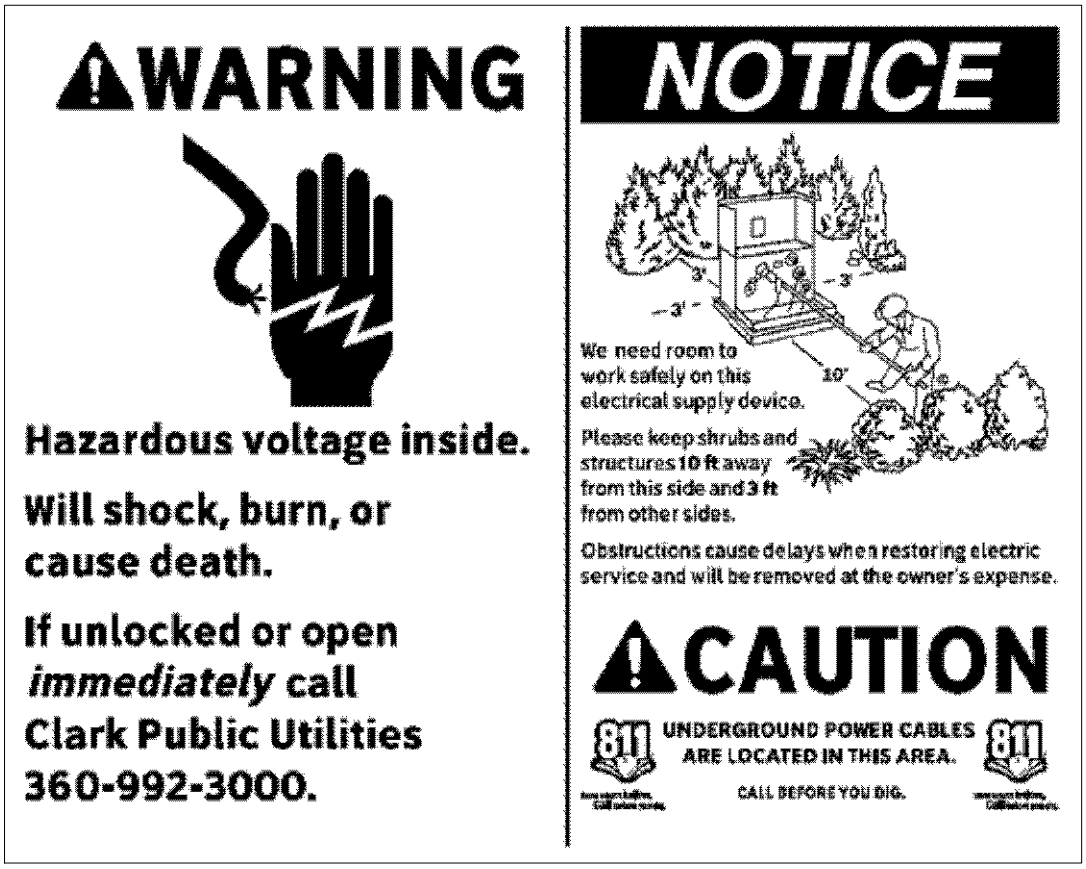
Clark Public Utilities

CONSTRUCTION STANDARDS

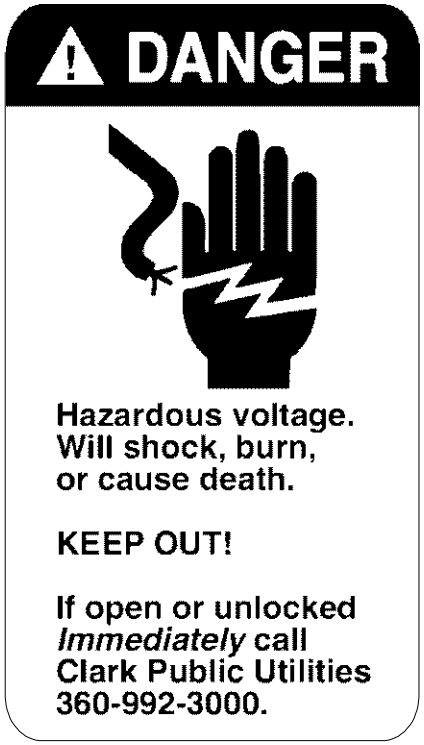
HILLSIDE BARRIER

REVISIONS			
R	DATE	ENGR	OPS
1	4/26/04	LB	AH
2	5/30/07	LB	AH

PAGE:		CAD FILE:	APP:	SECTION
1 of 1	HB16,HB32	HB16	DATE:	1400



Label for outside of padmounted equipment S/N 2568



Label for inside of padmounted equipment S/N 2569

Rev. 2 - Updated warning and danger signs.

Clark Public Utilities

CONSTRUCTION STANDARDS

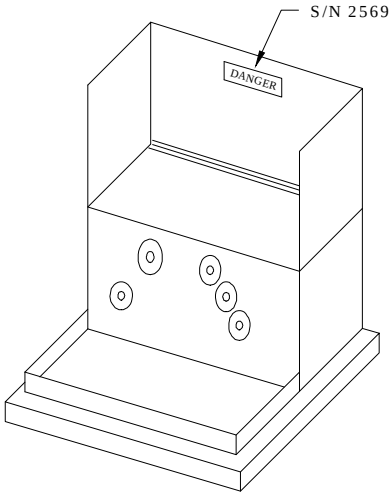
PADMOUNTED EQUIPMENT
IDENTIFICATION TAGS AND
SAFETY SIGNS

REVISIONS			
R	DATE	ENGR	OPS
0	6/13/02		
1	6/23/04	LB	AH
2	8/3/18	KJP	

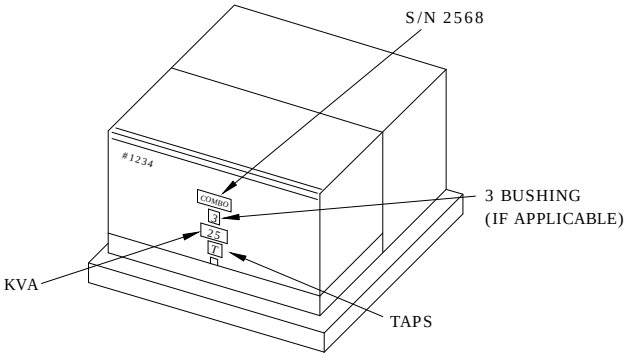
PAGE:	CAD FILE:	APP: ELM	SECTION
1 of 3	UID1	DATE: 1/31/80	1400

UID1

1. SINGLE-PHASE PADMOUNTED TRANSFORMERS

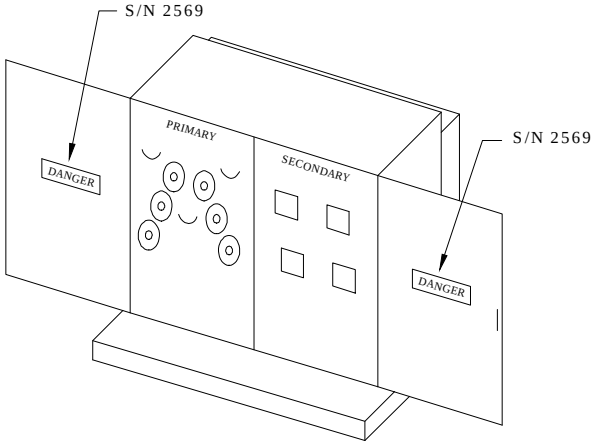


VIEW WITH LID OPEN



VIEW WITH LID CLOSED

2. THREE-PHASE PADMOUNTED TRANSFORMERS

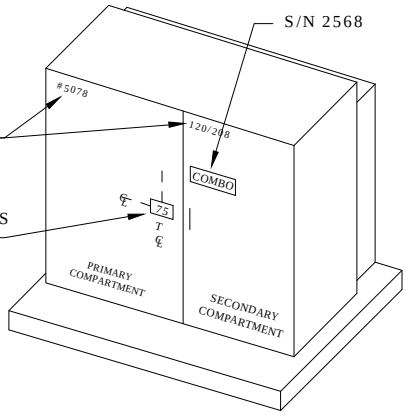


VIEW WITH DOOR OPEN

CO. NUMBER & SEC. VOLTAGE IN 1-1/2" BLACK LETTERS

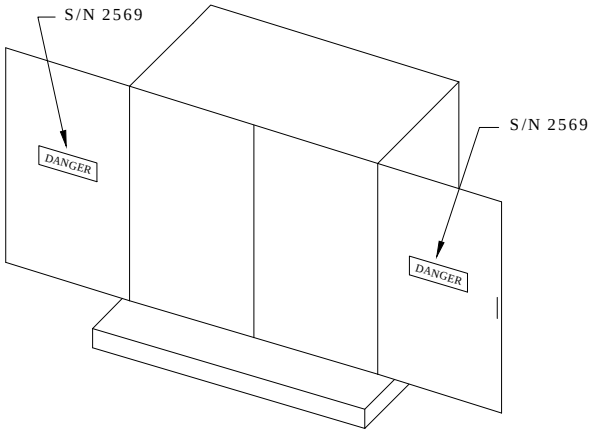
A. TRANSFORMER RATING IN 1-1/2" YELLOW LETTERS I.E.; 75 FOR 75KVA

B. ADD SUFFIX "T" WHEN TRANSFORMER HAS TAPS I.E.; 75-T

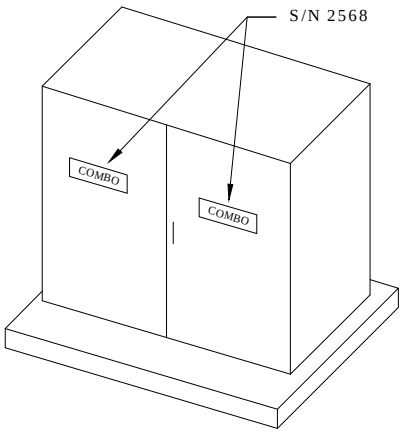


VIEW WITH DOOR CLOSED

3. OTHER PADMOUNT EQUIPMENT



VIEW WITH DOOR OPEN



VIEW WITH DOOR CLOSED

Rev. 2 - Updated warning and danger signs.

Clark Public Utilities

CONSTRUCTION STANDARDS

PADMOUNTED EQUIPMENT
IDENTIFICATION TAGS AND
SAFETY SIGNS

REVISIONS			
R	DATE	ENGR	OPS
0	6/13/02		
1	6/23/04	LB	AH
2	8/3/18	KJP	

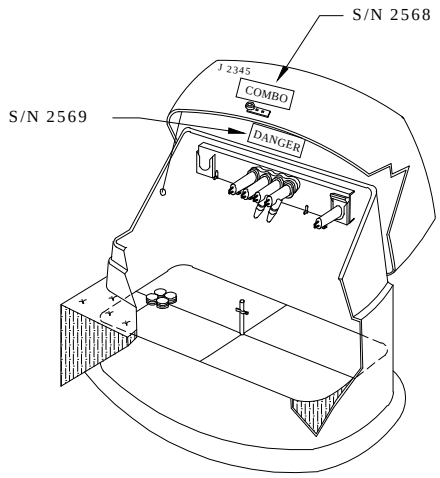
UID1

CAD FILE: UID1

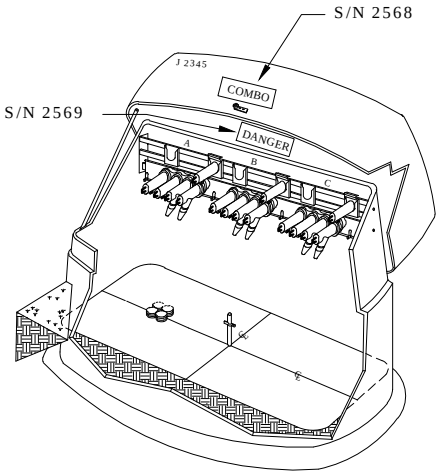
APP: ELM
DATE: 1/31/80

SECTION 1400

4. SINGLE-PHASE J-BOX



4. THREE-PHASE J-BOX



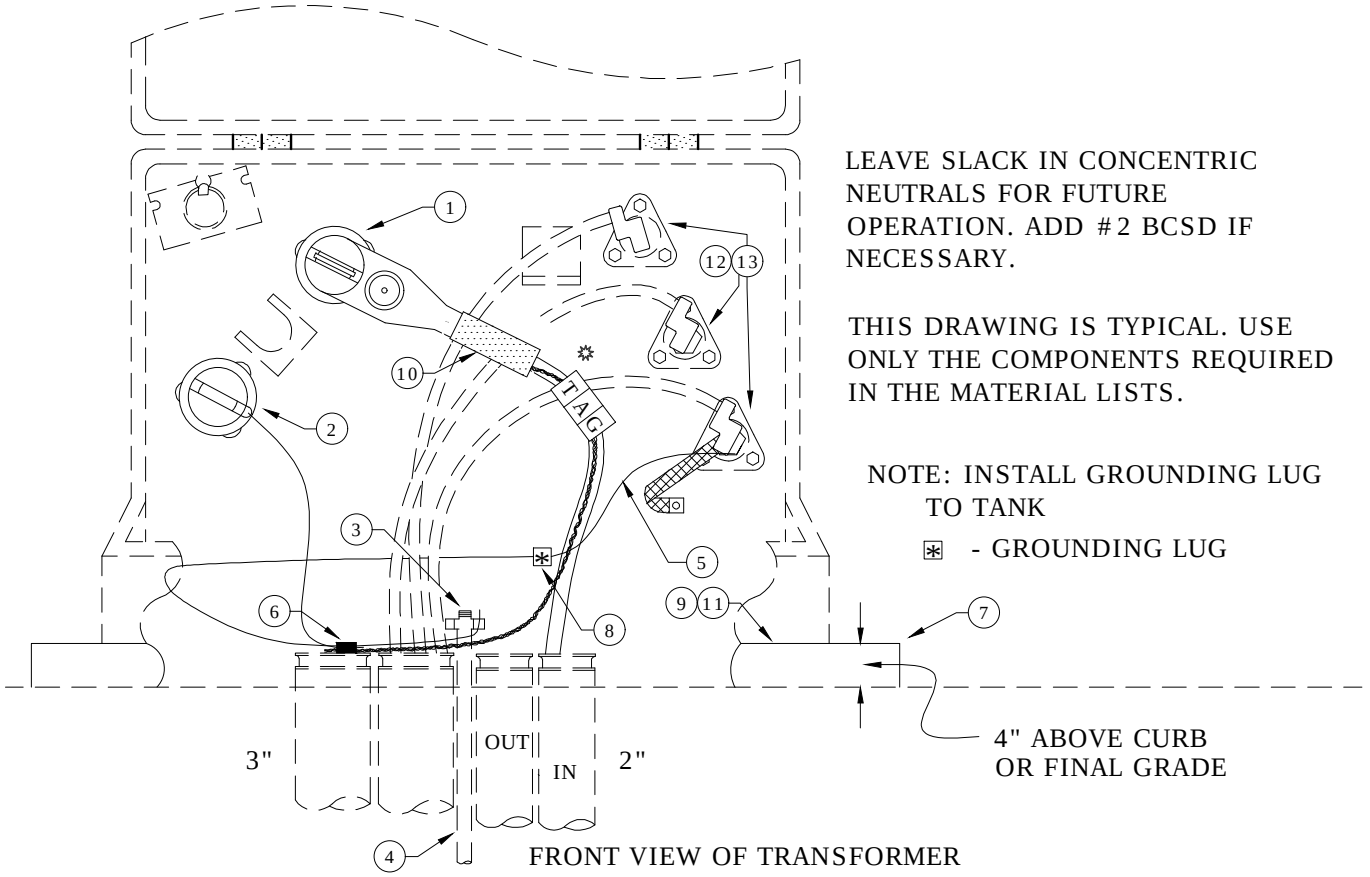
Rev. 2 - Updated warning and danger signs.

Clark Public Utilities

CONSTRUCTION STANDARDS

PADMOUNTED EQUIPMENT
IDENTIFICATION TAGS AND
SAFETY SIGNS

REVISIONS			
R	DATE	ENGR	OPS
0	6/13/02		
1	6/23/04	LB	AH
2	8/3/18	KJP	



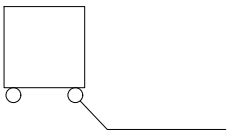
LEAVE SLACK IN CONCENTRIC NEUTRALS FOR FUTURE OPERATION. ADD #2 BCSD IF NECESSARY.

THIS DRAWING IS TYPICAL. USE ONLY THE COMPONENTS REQUIRED IN THE MATERIAL LISTS.

NOTE: INSTALL GROUNDING LUG TO TANK

⊛ - GROUNDING LUG

FRONT VIEW OF TRANSFORMER



RADIAL FEED

UT2

SEE US6 FOR SECONDARY CONNECTIONS DETAILS

MATERIAL LIST

ITEM NO.	DESCRIPTION	QTY.	S/N
1	Elbow, Loadbreak, 1/0, 200A, 175 mil	1	1312
2	Cap, Protective Insulated, 200A	1	265
3	Clamp, Ground Rod 5/8", Small	1	281
4	Rod, Ground 5/8" x 8'	1	1124
5	Conductor, Wire BSDC #4 SLD	6	376
6	Connector, Crimpet, #4 to #2	1	454
7	Pad, Transformer 42" x 42"	1	929
8	Ground Lug	1	842
9	Bolt, Machine, 1/2" x 1-1/2" SS	2	131✲
10	Elbow, Sealing Kit, 1/0, 175 & 220 mil	1	2391✲
11	Washer, 2" x 3" x 3/16" w/ 9/16" Slotted Hole	2	1415
12	Connector, z-bar #2-500 MCM + Streetlight	3	2265
13	Cover, Connector U.G.	3	2266

Rev. 4 - Corrected material issue.

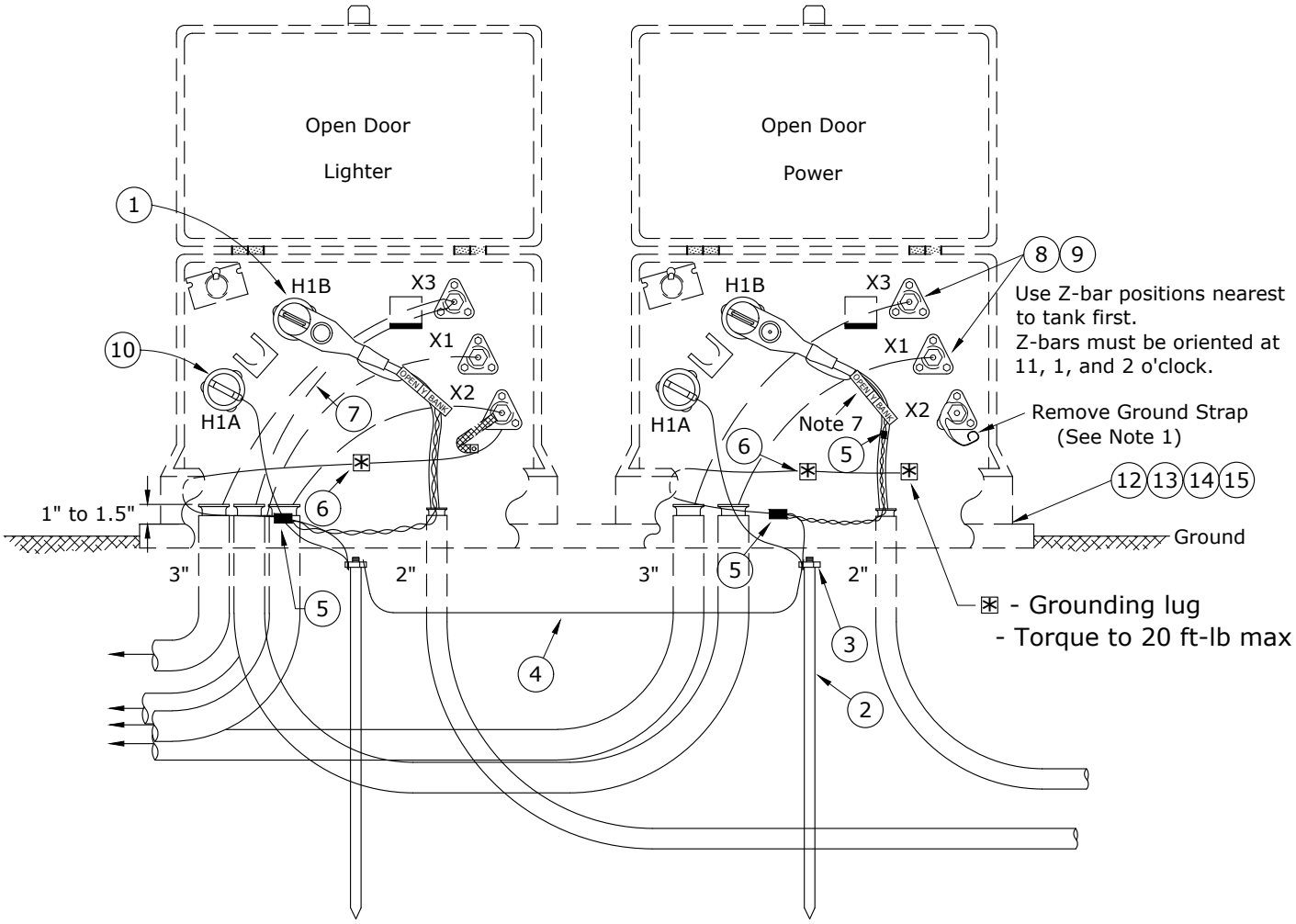
Clark Public Utilities

CONSTRUCTION STANDARDS

SINGLE PHASE
PADMOUNT TRANSFORMER
RADIAL FEED

REVISIONS			
R	DATE	ENGR	OPS
1	2/23/00	HWH	MA
2	9/23/04	LB	AH
3	12/29/04	LB	AH
4	11/11/16	KJP	

PAGE:		CAD FILE:	APP: JEH	SECTION
1 of 1	UT2	UT2	DATE: 2/22/00	1400



Notes:

1. Remove ground strap from one secondary neutral bushing. Caution: Measure resistance from bushing to tank. There may be an internal ground.
2. Ground rods may be driven in trench.
3. Primary and secondary cables may be arranged as required to fit job site.
4. For 2-25kVA only.
5. See Std UTP1 for pad specifications.
6. Both phases must come from the same source and direction.
7. Put tags on cables that say "Open Y Bank".
8. Maximum motor size shall be 15 horsepower.

Rev 6 - Changed to 200A elbow with integral jacket seal, and added pad to material list.

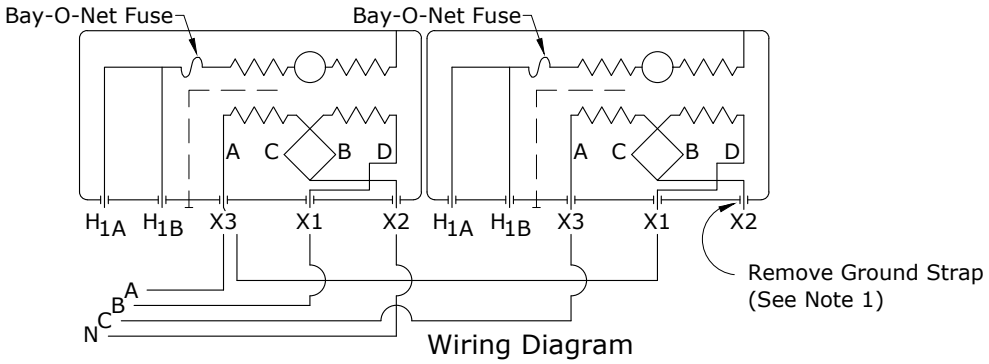
Clark Public Utilities

CONSTRUCTION STANDARDS

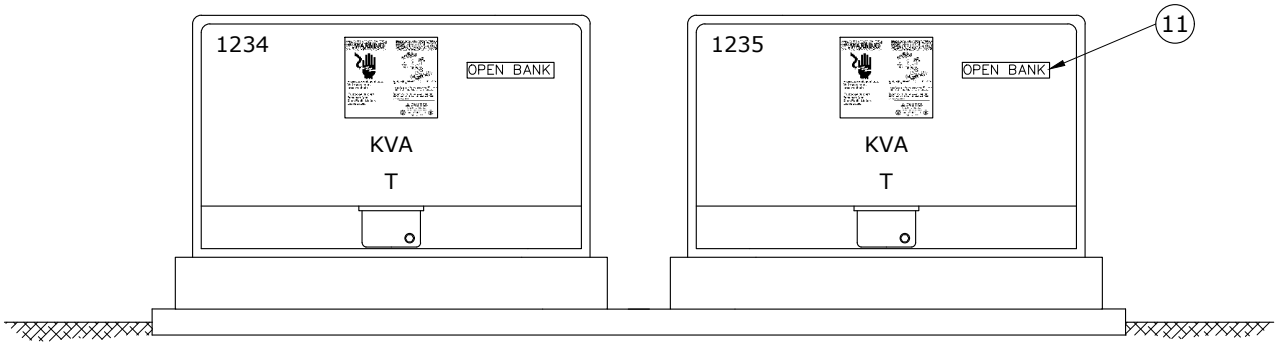
OPEN WYE - OPEN DELTA
PADMOUNT TRANSFORMER
INSTALLATION

REVISIONS			
R	DATE	ENGR	OPS
3	12/2/22	LB	AH
4	12/14/09	KJP	
5	2/4/14	CM	AH
6	3/7/23	CM	GM

PAGE:		CAD FILE:	APP: TR/GM	SECTION
1 of 2	UT4	UT4	DATE: 1/2/80	1400



Wiring Diagram



Rev 6 - Changed to 200A elbow with integral jacket seal, and added pad to material list.

ITEM NO.	DESCRIPTION	UT4 QTY.	UT4 S/N
1	Elbow, 200A, Loadbreak, 1/0, 200A, 175 & 200 mil, Test Point, 15 kV, w/ Jacket Seal	2	1312 ✲
2	Rod, Ground, 5/8" x 8'	2	1124
3	Clamp, Ground Rod 5/8", Bronze, Small	2	281
4	Conductor, Cu, #4 Solid, Bare, Soft-Drawn, 1C	30	376
5	Connector, Crimpet, Cu, Run #2 Sol/Str, Tap #8 Sol - #4 Str (2C4)	2	454
6	Lug, Grounding, #8 Sol-2/0 Str, 4-way	3	842
7	Cable, UG, 600v, Al, 4/0, USE, 1C	13	353
8	Connector, Z-Bar, 5/8" Stud, Al/Cu, 6-position, #2 - 500 MCM + Streetlight	5	2265
9	Cover, Connector, Z-Bar, 6-position	5	2266
10	Cap, Protective Insulated, 200A, 15 kV	2	265
11	Label, "Open Bank"	2	2781
12	Pad, Transformer 42" x 42", 1Ø, 25-75 kVA	2	929 ✲
13	Bolt, Machine, 1/2" x 1-1/2" SS	4	131 ✲
14	Washer, 2" x 3" x 3/16" w/ 9/16" Slotted Hole	4	1415 ✲
15	Nut, Spring Loaded, Galv, 1/2" (Unistrut)	4	920 ✲

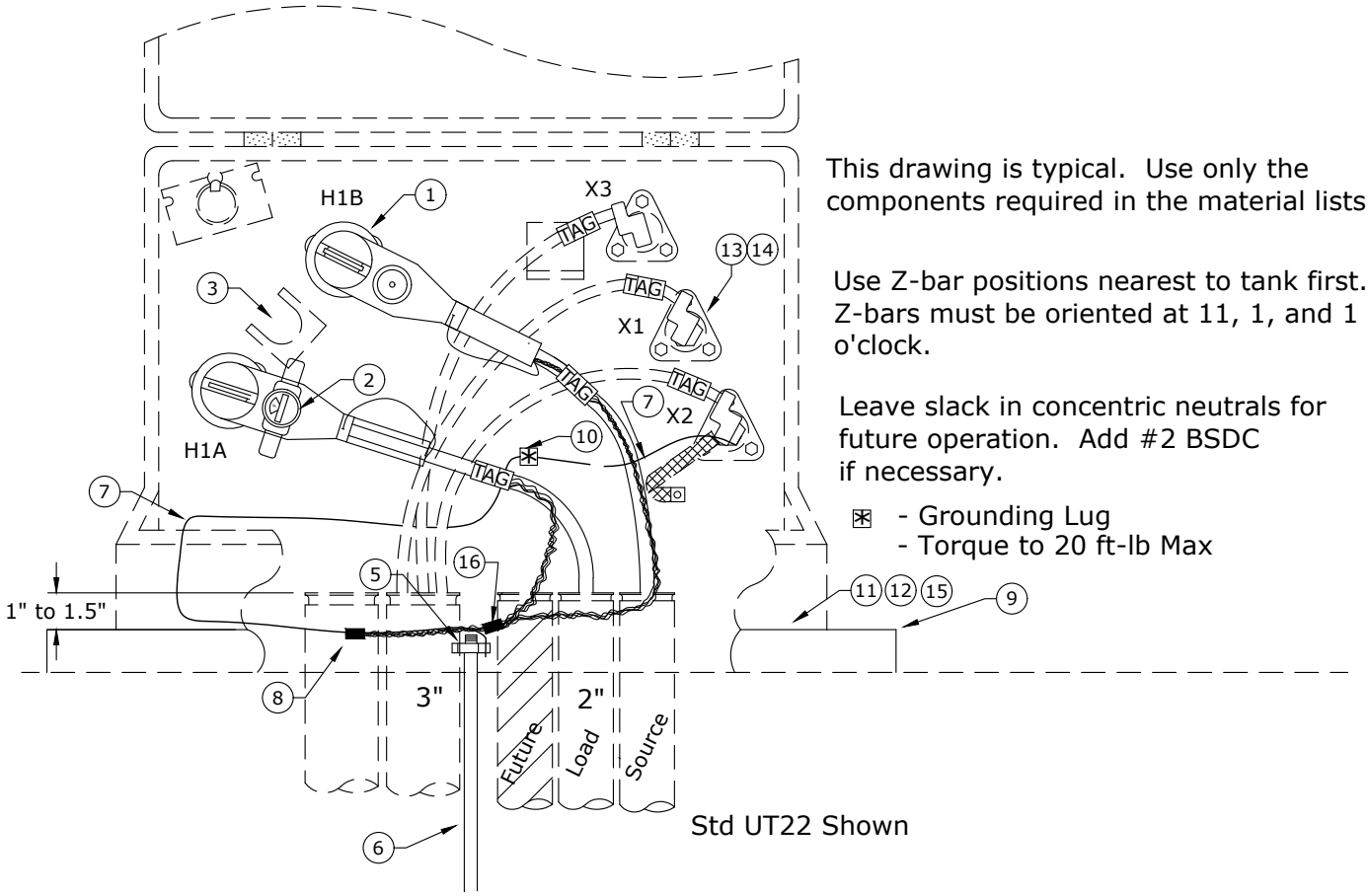
Clark Public Utilities

CONSTRUCTION STANDARDS

OPEN WYE - OPEN DELTA
PADMOUNT TRANSFORMER
INSTALLATION

REVISIONS			
R	DATE	ENGR	OPS
3	12/29/04	LB	AH
4	12/14/09	KJP	
5	2/4/14	CM	AH
6	3/7/23	CM	GM

PAGE:		CAD FILE:	APP: TR/GM	SECTION
2 of 2	UT4	UT4	DATE: 9/94	1400



Std UT22 Shown

This drawing is typical. Use only the components required in the material lists.

Use Z-bar positions nearest to tank first. Z-bars must be oriented at 11, 1, and 1 o'clock.

Leave slack in concentric neutrals for future operation. Add #2 BSDC if necessary.

⊠ - Grounding Lug
- Torque to 20 ft-lb Max

Note: 1. See Std US6 for secondary connection details.

Rev 4 - Changed to 200A elbow with integral jacket seal.

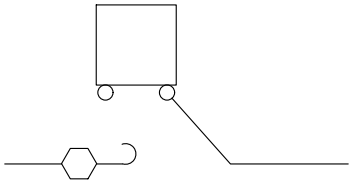
Clark Public Utilities

CONSTRUCTION STANDARDS

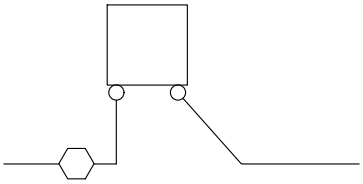
SINGLE PHASE
PADMOUNT TRANSFORMER ASSEMBLIES
LOOP FEED

REVISIONS			
R	DATE	ENGR	OPS
1	9/23/04	LB	AH
2	12/29/04	LB	AH
3	4/29/09	CM	AH
4	5/8/24	DK	

PAGE:		CAD FILE:	APP: HWH/GW	SECTION
1 of 2	UT21-UT22	UT21-UT22	DATE: 1/22/80	1400



UT21



UT22

FAULT INDICATOR

NORMALLY OPEN

Rev 4 - Changed to 200A elbow with integral jacket seal.

ITEM NO.	DESCRIPTION	UT21 QTY.	UT21 S/N
1	Elbow, 200A, Loadbreak, 1/0, 175 & 220 mil, Test Point, 15kV, w/ Jacket Seal	2	1312 ✡
2	Indicator, Fault, UG, 400A, Test Point, Voltage Reset, 1Ø	1	2694
3	Bushing, Standoff Insulated 200A	1	252
4	Cap, Protective Insulated, 200A, 15kV	1	265
5	Clamp, Ground Rod, 5/8", Bronze, Small	1	281
6	Rod, Ground, 5/8" x 8'	1	1124
7	Conductor, Cu, #4 Solid, Bare, Soft-Drawn, 1C	12	376
8	Connector, Crimpet, Cu, Run #2 Sol/Str, Tap #8 Sol - #4 Str (2C4)	1	454
9	Pad, Transformer 42" x 42", 1Ø, 25-75 kVA	1	929
10	Lug, Grounding, #8 Sol - 2/0 Str, 4-way	1	842
11	Bolt, Machine, 1/2" x 1-1/2" SS	2	131 ✡
12	Washer, 2" x 3" x 3/16" w/ 9/16" Slotted Hole	2	1415
13	Connector, Z-Bar, 5/8" Stud, Al/Cu, 6-position, #2-500 MCM + Streetlight	3	2265
14	Cover, Connector, Z-Bar, 6-position	3	2266
15	Nut, Spring Loaded, Galv, 1/2" (Unistrut)	2	920 ✡

ITEM NO.	DESCRIPTION	UT22 QTY.	UT22 S/N
1	Elbow, 200A, Loadbreak, 1/0, 175 & 220 mil, Test Point, 15 kV, w/ Jacket Seal	2	1312 ✡
2	Indicator, Fault, UG, 400A, Test Point, Voltage Reset, 1Ø	1	2694
5	Clamp, Ground Rod, 5/8", Bronze, Small	1	281
6	Rod, Ground 5/8" x 8'	1	1124
7	Conductor, Cu, #4 Solid, Bare, Soft-Drawn, 1C	12	376
8	Connector, Crimpet, Cu, Run#2 Sol/Str, Tap #8 Sol - #4 Str (2C4)	1	454
9	Pad, Transformer, 42" x 42", 1Ø, 25-75 kVA	1	929
10	Lug, Grounding, #8 Sol - 2/0 Str, 4-way	1	842
11	Bolt, Machine, 1/2" x 1-1/2" SS	2	131 ✡
12	Washer, 2" x 3" x 3/16" w/ 9/16" Slotted Hole	2	1415
13	Connector, Z-Bar, 5/8" Stud, Al/Cu, 6-position, #2-500 MCM + Streetlight	3	2265
14	Cover, Connector, Z-Bar, 6-position	3	2266
15	Nut, Spring Loaded, Galv, 1/2" (Unistrut)	2	920 ✡
16	Connector, Crimpet, Cu, Run and Tap #2 Sol/Str (2C2)	1	455

Clark Public Utilities

CONSTRUCTION STANDARDS

SINGLE PHASE
PADMOUNT TRANSFORMER ASSEMBLIES
LOOP FEED

REVISIONS			
R	DATE	ENGR	OPS
1	9/23/04	LB	AH
2	12/29/04	LB	AH
3	4/29/09	CM	AH
4	5/8/24	DK	

PAGE: 2 of 2

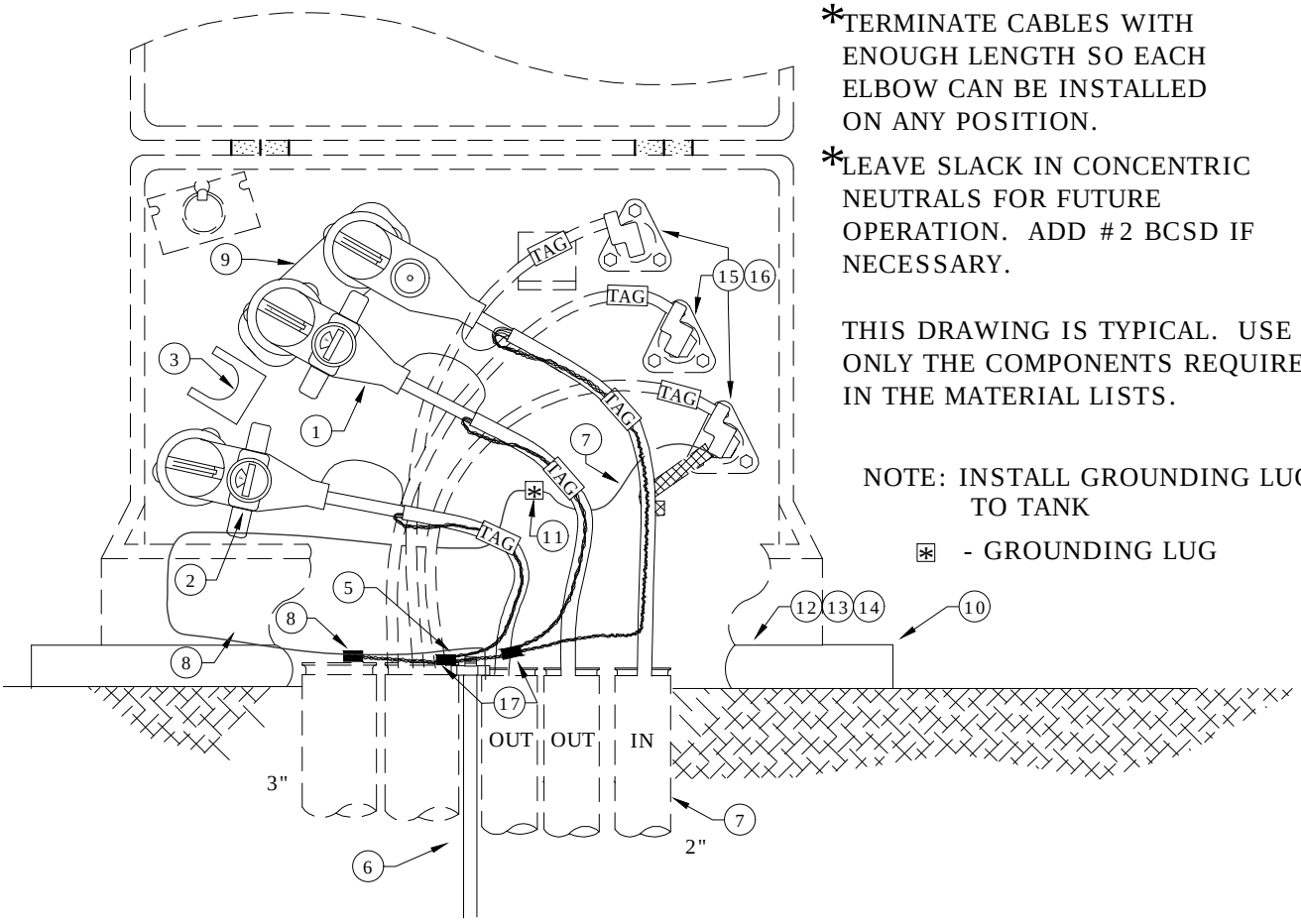
UT21-UT22

CAD FILE: UT21-UT22

APP: HWH/GW

DATE: 1/22/80

SECTION 1400



FRONT VIEW OF TRANSFORMER UT28

*TERMINATE CABLES WITH ENOUGH LENGTH SO EACH ELBOW CAN BE INSTALLED ON ANY POSITION.

*LEAVE SLACK IN CONCENTRIC NEUTRALS FOR FUTURE OPERATION. ADD #2 BCSD IF NECESSARY.

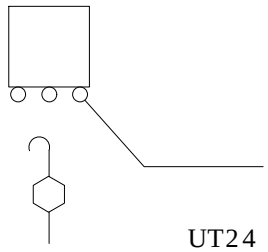
THIS DRAWING IS TYPICAL. USE ONLY THE COMPONENTS REQUIRED IN THE MATERIAL LISTS.

NOTE: INSTALL GROUNDING LUG TO TANK

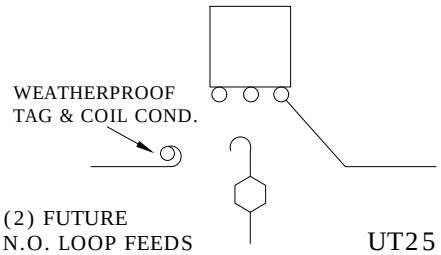
⊛ - GROUNDING LUG

SEE US6 FOR SECONDARY CONNECTORS DETAILS

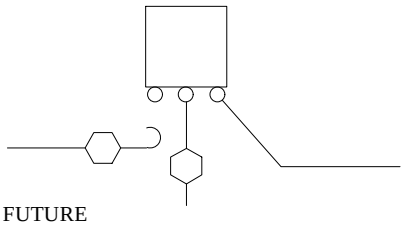
Rev 4: Changed to Voltage-reset fault indicators.



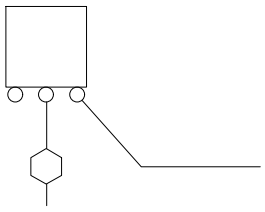
RADIAL FEED UT24



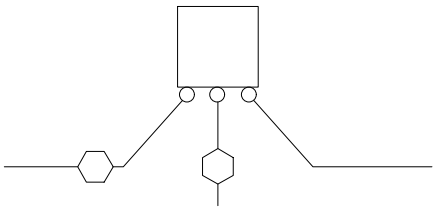
(2) FUTURE
N.O. LOOP FEEDS UT25



(1) FUTURE
(1) LOOP FEED UT26



LOOP FEED UT27



(2) LOOP UT28

FAULT INDICATOR

NORMALLY OPEN

Clark Public Utilities

CONSTRUCTION STANDARDS

SINGLE PHASE
PADMOUNT TRANSFORMER ASSEMBLIES RADIAL
OR LOOP FEED WITH FEED-THROUGH BUSHING

REVISIONS			
R	DATE	ENGR	OPS
1	7/15/02	JEH	TR
2	9/23/04	LB	AH
3	12/29//04	LB	AH
4	4/29/09	CM	AH

PAGE:		CAD FILE:	APP:	SECTION
1 of 4	UT24-UT28	UT24-UT28	DATE: 10/94	1400

Rev 4: Changed to Voltage-reset fault indicators.

ITEM NO.	DESCRIPTION	UT24 QTY.	UT24 S/N
1	Elbow, Loadbreak. 1/0, 200A, 175 mil	2	1312
2	Voltage-Reset Fault Indicator, 400A Trip, 1Ø UG	1	2694 ✲
3	Bushing, Standoff Insulated 200A	1	252
4	Cap, Protective Insulated 200A	2	265
5	Clamp, Ground Rod 5/8", Small	1	281
6	Rod, Ground 5/8" x 8'	1	1124
7	Conductor, Wire BSDC #4 SLD	6	376
8	Connector, Crimpet, #4 to #2 (2C4)	1	454
9	Insert, Feed-Through	1	237
10	Pad, Transformer 42" x 42"	1	929
11	Ground Lug	1	842
12	Bolt, Unistrut, Padmount Tie Down	2	193
13	Nut, Spring-loaded, Galv, 1/2", Unistrut	2	920
14	Washer, 2" X 3" X 3/16" w/ 9/16" slotted hole	2	1415
15	Connector, Z-Bar #6-500 MCM + St. Lt	3	2265
16	Cover, Connector U.G.	3	2266
17	Connector, Crimpet, #2 to #2 (2C2)	1	455

ITEM NO.	DESCRIPTION	UT25 QTY.	UT25 S/N
1	Elbow, Loadbreak. 1/0, 200A, 175 mil	2	1312
2	Voltage-Reset Fault Indicator, 400A Trip, 1Ø UG	1	2694 ✲
3	Bushing, Standoff Insulated 200A	1	252
4	Cap, Protective Insulated 200A	2	265
5	Clamp, Ground Rod 5/8", Small	1	281
6	Rod, Ground 5/8" x 8'	1	1124
7	Conductor, Wire BSDC #4 SLD	6	376
8	Connector, Crimpet, #4 to #2 (2C4)	1	454
9	Insert, Feed-Through	1	237
10	Pad, Transformer 42" x 42"	1	929
11	Ground Lug	1	842
12	Bolt, Unistrut, Padmount Tie Down	2	193
13	Nut, Spring-loaded, Galv, 1/2", Unistrut	2	920
14	Washer, 2" X 3" X 3/16" w/ 9/16" slotted hole	2	1415
15	Connector, Z-Bar #6-500 MCM + St. Lt	3	2265
16	Cover, Connector U.G.	3	2266
17	Connector, Crimpet, #2 to #2 (2C2)	1	455

Clark Public Utilities

CONSTRUCTION STANDARDS

SINGLE PHASE
PADMOUNT TRANSFORMER ASSEMBLIES RADIAL
OR LOOP FEED WITH FEED-THROUGH BUSHING

REVISIONS			
R	DATE	ENGR	OPS
1	7/15/02	JEH	TR
2	9/23/04	LB	AH
3	12/29/04	LB	AH
4	4/29/09	CM	AH
△			

Rev 4: Changed to Voltage-reset fault indicators.

ITEM NO.	DESCRIPTION	UT26 QTY.	UT26 S/N
1	Elbow, Loadbreak, 1/0, 200A, 175 mil	3	1312
2	Voltage-Reset Fault Indicator, 400A Trip, 1Ø UG	2	2694 ✲
3	Bushing, Standoff Insulated 200A	1	252
4	Cap, Protective Insulated 200A	1	265
5	Clamp, Ground Rod 5/8", Small	1	281
6	Rod, Ground 5/8" x 8'	1	1124
7	Conductor, Wire BSDC #4 SLD	6	376
8	Connector, Crimpet, #4 to #2 (2C4)	1	454
9	Insert, Feed-Through	1	237
10	Pad, Transformer 42" x 42"	1	929
11	Ground Lug	1	842
12	Bolt, Unistrut, Padmount Tie Down	2	193
13	Nut, Spring-loaded, Galv, 1/2", Unistrut	2	920
14	Washer, 2" X 3" X 3/16" w/ 9/16" slotted hole	2	1415
15	Connector, Z-Bar #6-500 MCM + St. Lt	3	2265
16	Cover, Connector U.G.	3	2266
17	Connector, Crimpet, #2 to #2 (2C2)	2	455

ITEM NO.	DESCRIPTION	UT27 QTY.	UT27 S/N
1	Elbow, Loadbreak, 1/0, 200A, 175 mil	2	1312
2	Voltage-Reset Fault Indicator, 400A Trip, 1Ø UG	1	2694 ✲
3	Bushing, Standoff Insulated 200A	1	252
4	Cap, Protective Insulated 200A	1	265
5	Clamp, Ground Rod 5/8", Small	1	281
6	Rod, Ground 5/8" x 8'	1	1124
7	Conductor, Wire BSDC #4 SLD	6	376
8	Connector, Crimpet, #4 to #2 (2C4)	1	454
9	Insert, Feed-Through	1	237
10	Pad, Transformer 42" x 42"	1	929
11	Ground Lug	1	842
12	Bolt, Unistrut, Padmount Tie Down	2	193
13	Nut, Spring-loaded, Galv, 1/2", Unistrut	2	920
14	Washer, 2" X 3" X 3/16" w/ 9/16" slotted hole	2	1415
15	Connector, Z-Bar #6-500 MCM + St. Lt	3	2265
16	Cover, Connector U.G.	3	2266
17	Connector, Crimpet, #2 to #2 (2C2)	1	455

Clark Public Utilities

CONSTRUCTION STANDARDS

SINGLE PHASE
PADMOUNT TRANSFORMER ASSEMBLIES RADIAL
OR LOOP FEED WITH FEED-THROUGH BUSHING

REVISIONS			
R	DATE	ENGR	OPS
1	7/15/02	JEH	TR
2	9/23/04	LB	AH
3	12/29/04	LB	AH
4	4/29/09	CM	AH
△			

PAGE:		CAD FILE:	APP:	SECTION
3 of 4	UT24-UT28	UT24-UT28	DATE: 10/94	1400

Rev 4: Changed to Voltage-reset fault indicators.

ITEM NO.	DESCRIPTION	UT28 QTY.	UT28 S/N
1	Elbow, Loadbreak, 1/0, 200A, 175 mil	3	1312
2	Voltage-Reset Fault Indicator, 400A Trip, 1Ø UG	2	2694 ✲
3	Bushing, Standoff Insulated 200A	1	252
4	Cap, Protective Insulated 200A	-	265
5	Clamp, Ground Rod 5/8", Small	1	281
6	Rod, Ground 5/8" x 8'	1	1124
7	Conductor, Wire BSDC #4 SLD	6	376
8	Connector, Crimpet, #4 to #2 (2C4)	1	454
9	Insert, Feed-Through	1	237
10	Pad, Transformer 42" x 42"	1	929
11	Ground Lug	1	842
12	Bolt, Unistrut, Padmount Tie Down	2	193
13	Nut, Spring-loaded, Galv, 1/2", Unistrut	2	920
14	Washer, 2" X 3" X 3/16" w/ 9/16" slotted hole	2	1415
15	Connector, Z-Bar #6-500 MCM + St. Lt	3	2265
16	Cover, Connector U.G.	3	2266
17	Connector, Crimpet, #2 to #2 (2C2)	2	455

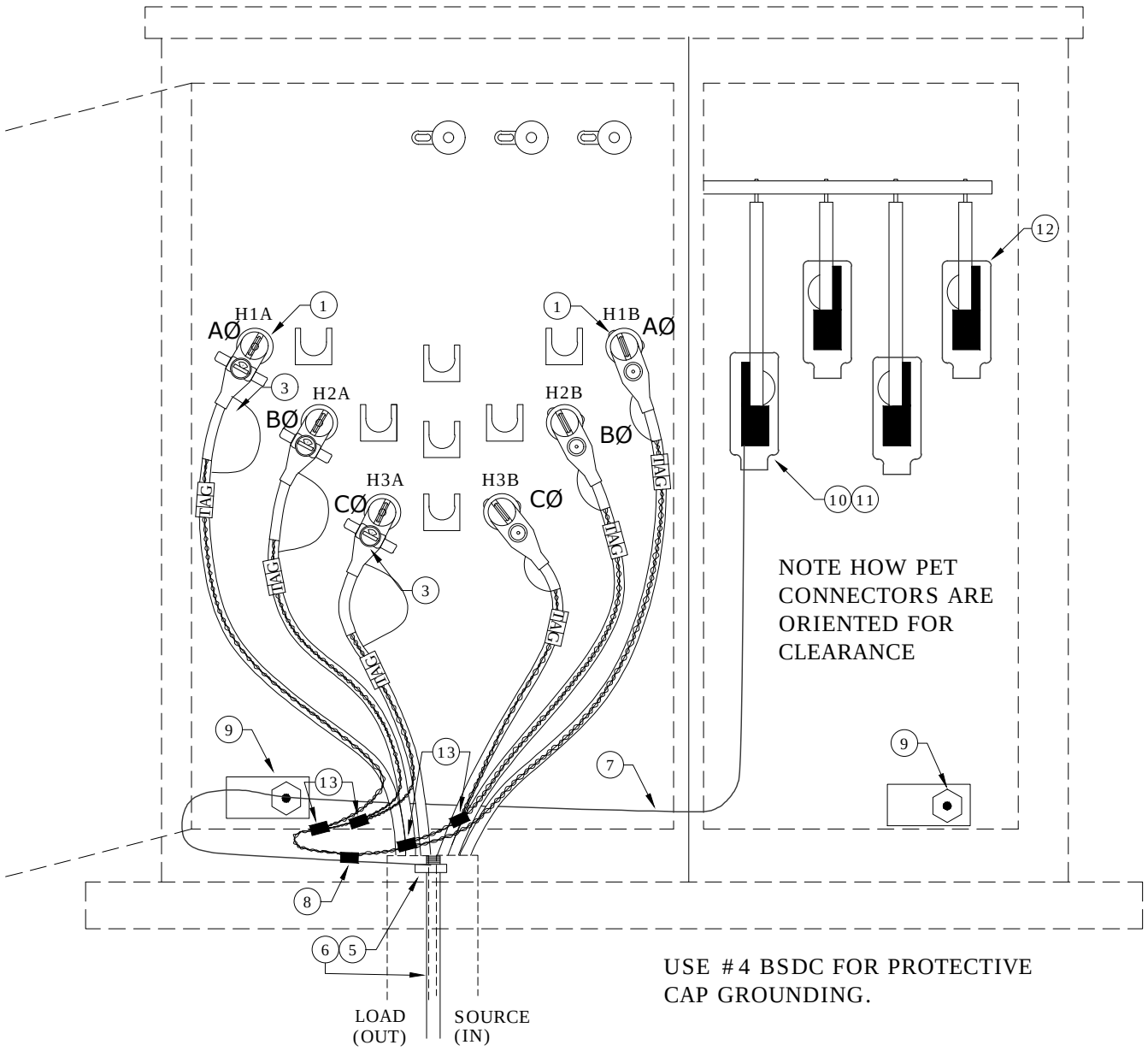
Clark Public Utilities

CONSTRUCTION STANDARDS

SINGLE PHASE
PADMOUNT TRANSFORMER ASSEMBLIES RADIAL
OR LOOP FEED WITH FEED-THROUGH BUSHING

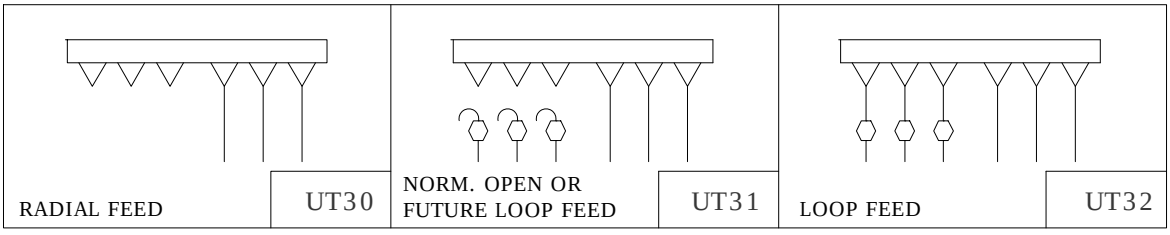
REVISIONS			
R	DATE	ENGR	OPS
1	7/15/02	JEH	TR
2	9/23/04	LB	AH
3	12/29/04	LB	AH
4	4/29/09	CM	AH
△			

PAGE:		CAD FILE:	APP:	SECTION
4 of 4	UT24-UT28	UT24-UT28	DATE: 10/94	1400



FRONT VIEW OF TRANSFORMER

(UT32 SHOWN)



NOTE: SPECIFY I.D. TAGS AS REQUIRED.

Rev 3: Changed to Voltage-reset fault indicators.

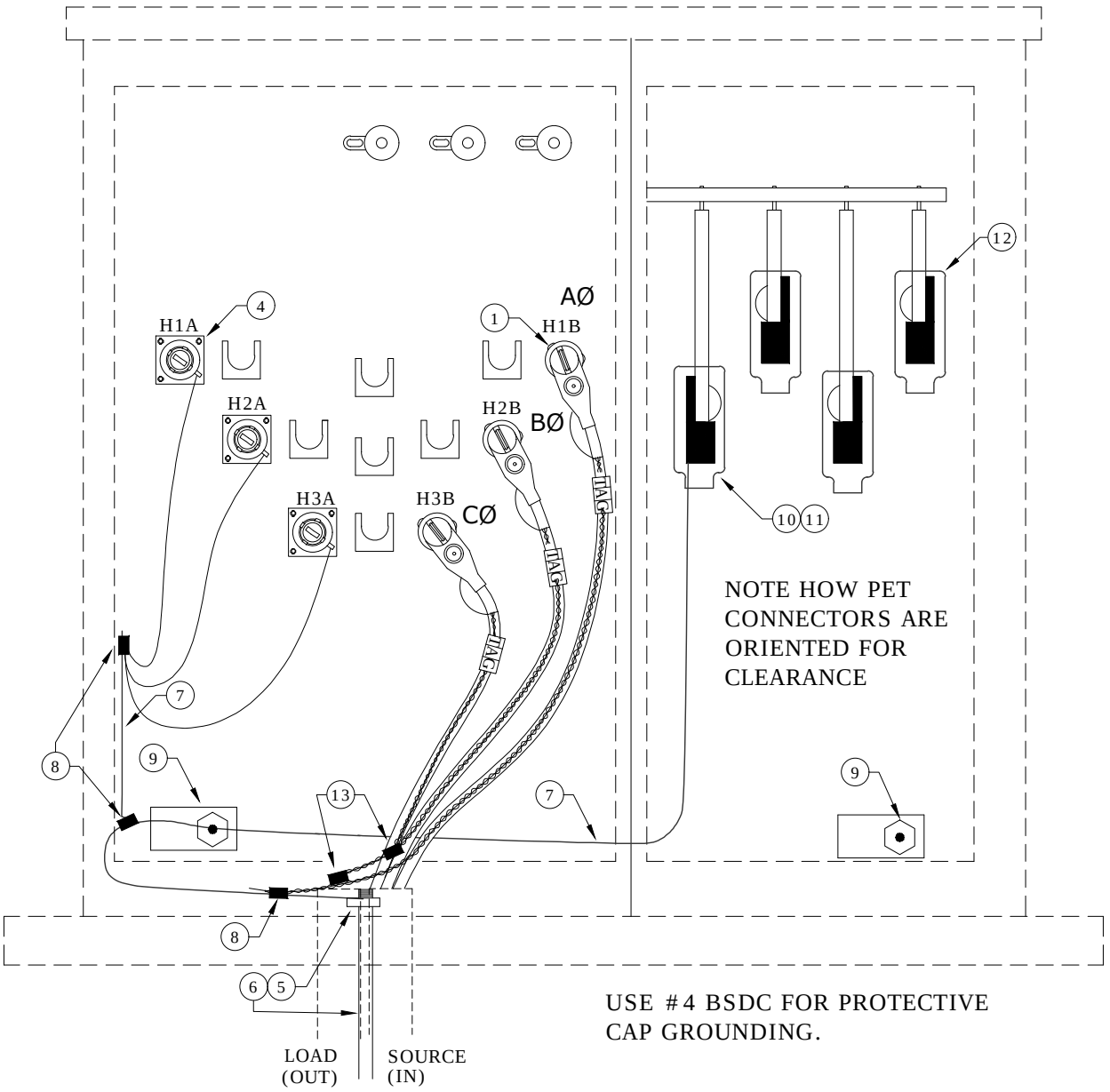
Clark Public Utilities

CONSTRUCTION STANDARDS

THREE PHASE
PADMOUNT TRANSFORMER ASSEMBLIES

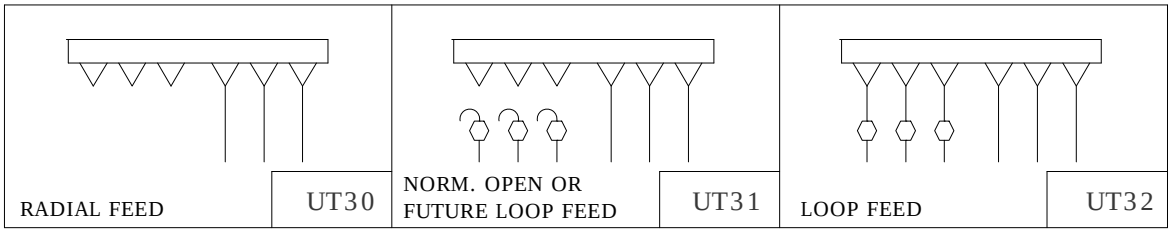
REVISIONS			
R	DATE	ENGR	OPS
1	2/23/00	HWH	MA
2	9/23/04	LB	AH
3	4/29/09	CM	AH

PAGE:		CAD FILE:	APP:	SECTION
1 of 3	UT30-UT32	UT30	DATE: 10/99	1400



FRONT VIEW OF TRANSFORMER

(UT30 SHOWN)



NOTE: SPECIFY I.D. TAGS AS REQUIRED.

Rev 3: Changed to Voltage-reset fault indicators.

Clark Public Utilities

CONSTRUCTION STANDARDS

THREE PHASE
PADMOUNT TRANSFORMER ASSEMBLIES

REVISIONS			
R	DATE	ENGR	OPS
1	2/23/00	HWH	MA
2	9/23/04	LB	AH
3	4/29/09	CM	AH

PAGE:		CAD FILE:	APP:	SECTION
2 of 3	UT30-UT32	UT30	DATE: 10/99	1400

Rev 3: Changed to Voltage-reset fault indicators.

ITEM NO.	DESCRIPTION	UT30 QTY.	UT30 S/N
1	Elbow, Loadbreak, 1/0, 200A, 175 mil	3	1312
4	Cap, Protective Insulated 200A	3	265
5	Clamp, Ground Rod 5/8", Small	1	281
6	Rod, Ground 5/8" x 8'	1	1124
7	Conductor, Wire BSDC #4 SLD	10	376
8	Connector, Crimpet, #4 to #2 (2C4)	1	454
9	Ground Lug	2	842
10	Connector, PET, #2-750 Al/Cu, 6 Position	4	2129
11	Bolt, Machine, 1/2 x 2" SS w/ Bronze Nut & Belleville Washer	16	1389
12	Cover, PET, 8 Position	4	2182
13	Connector, Crimpet, #2 to #2 (2C2)	2	455

ITEM NO.	DESCRIPTION	UT31 QTY.	UT31 S/N
1	Elbow, Loadbreak, 1/0, 200A, 175 mil	6	1312
2	Bushing, Standoff Insulated 200A	3	252
3	Voltage-Reset Fault Indicator, 400A Trip, 1Ø UG	3	2694 ✲
4	Cap, Protective Insulated, 200A	3	265
5	Clamp, Ground Rod 5/8", Small	1	281
6	Rod, Ground 5/8" x 8'	1	1124
7	Conductor, Wire BSDC #4 SLD	10	376
8	Connector, Crimpet, #4 to #2 (2C4)	1	454
9	Ground Lug	2	842
10	Connector, PET, #2-750 Al/Cu, 6 Position	4	2129
11	Bolt, Machine, 1/2 x 2" SS w/ Bronze Nut & Belleville Washer	16	1389
12	Cover, PET, 8 Position	4	2182
13	Connector, Crimpet, #2 to #2 (2C2)	4	455

ITEM NO.	DESCRIPTION	UT32 QTY.	UT32 S/N
1	Elbow, Loadbreak, 1/0, 200A, 175 mil	6	1312
3	Voltage-Reset Fault Indicator, 400A Trip, 1Ø UG	3	2694 ✲
5	Clamp, Ground Rod 5/8", Small	1	281
6	Rod, Ground 5/8" x 8'	1	1124
7	Conductor, Wire BSDC #4 SLD	10	376
8	Connector, Crimpet, #4 to #2 (2C4)	1	454
9	Ground Lug	2	842
10	Connector, PET, #2-750 Al/Cu, 6 Position	4	2129
11	Bolt, Machine, 1/2 x 2" SS w/ Bronze Nut & Belleville Washer	16	1389
12	Cover, PET, 8 Position	4	2182
13	Connector, Crimpet, #2 to #2 (2C2)	4	455

Clark Public Utilities

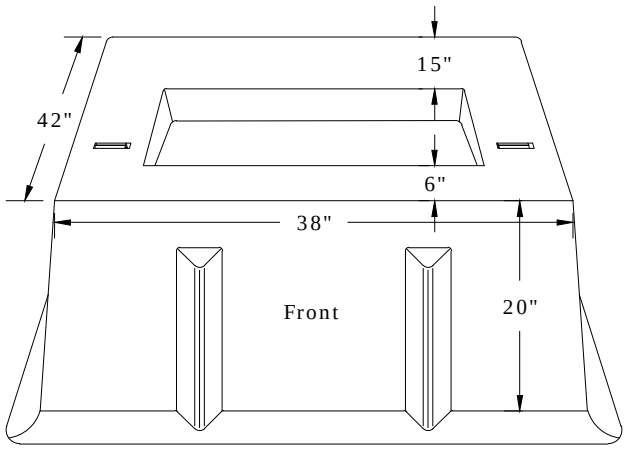
CONSTRUCTION STANDARDS

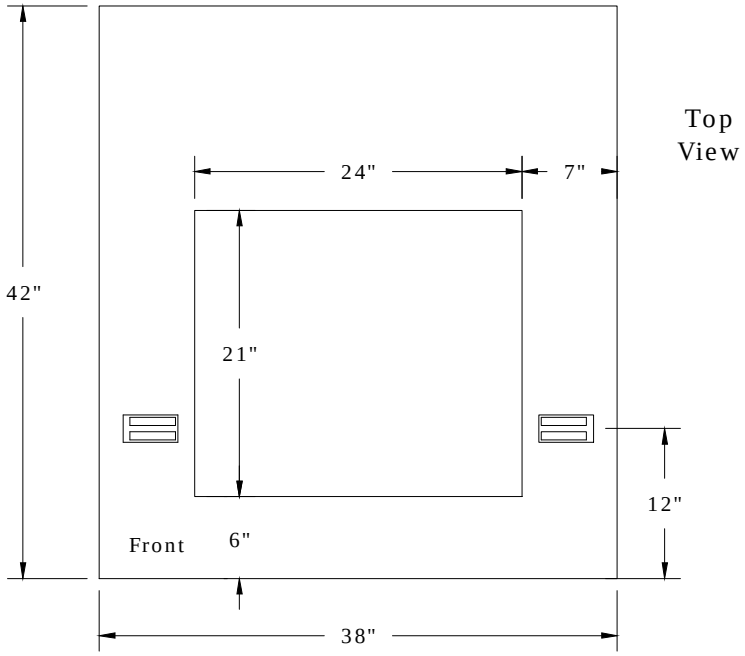
THREE PHASE
PADMOUNT TRANSFORMER ASSEMBLIES

REVISIONS			
R	DATE	ENGR	OPS
1	2/23/00	HWH	MA
2	9/23/04	LB	AH
3	4/29/09	CM	AH

△

PAGE:		CAD FILE:	APP:	SECTION
3 of 3	UT30-UT32	UT30	DATE: 10/99	1400





ITEM NO.	DESCRIPTION	QTY.	S/N
1	Box Pad, 1Ø Transformer, Fiberglass	1	2433

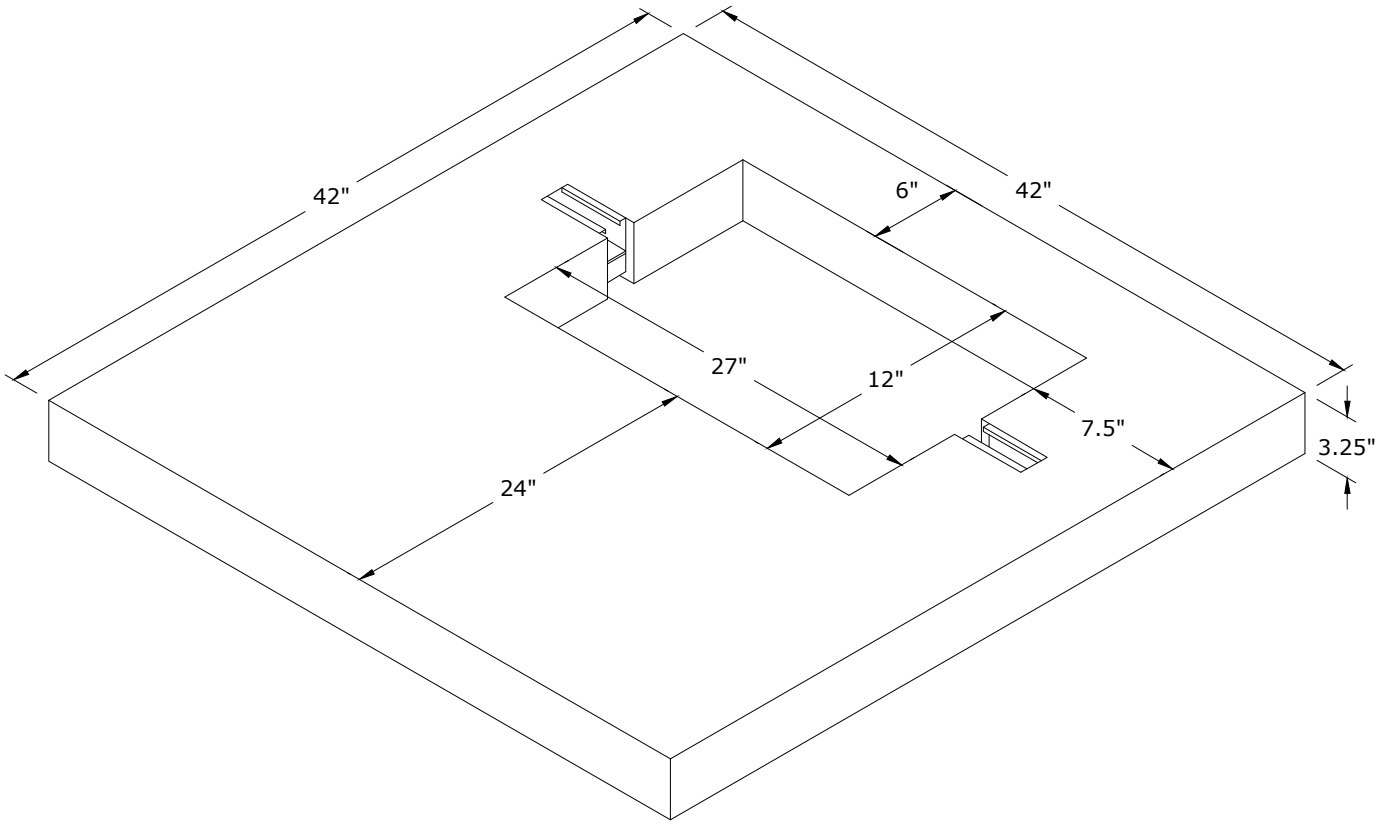
Clark Public Utilities

CONSTRUCTION STANDARDS

SINGLE PHASE
PADMOUNT TRANSFORMER
BOXPAD (BASEMENT)

REVISIONS			
R	DATE	ENGR	OPS

PAGE:		CAD FILE:	APP: KJP	SECTION
1 of 1	UTB	UTB	DATE: 12/29/04	1400



Note: See Std UTP3 - 1Ø Transformer Pad Orientation and Conduit Installation 25-75kVA (page 1) - for installation instructions. ☼

Rev. 2 - Changed from plastic pad to polyconcrete, updated note, and added material issue.

ITEM NO.	DESCRIPTION	UTP1 QTY.	UTP1 S/N
1	Pad, Transformer, 42" x 42", 1Ø, 25-75kVA	1	929

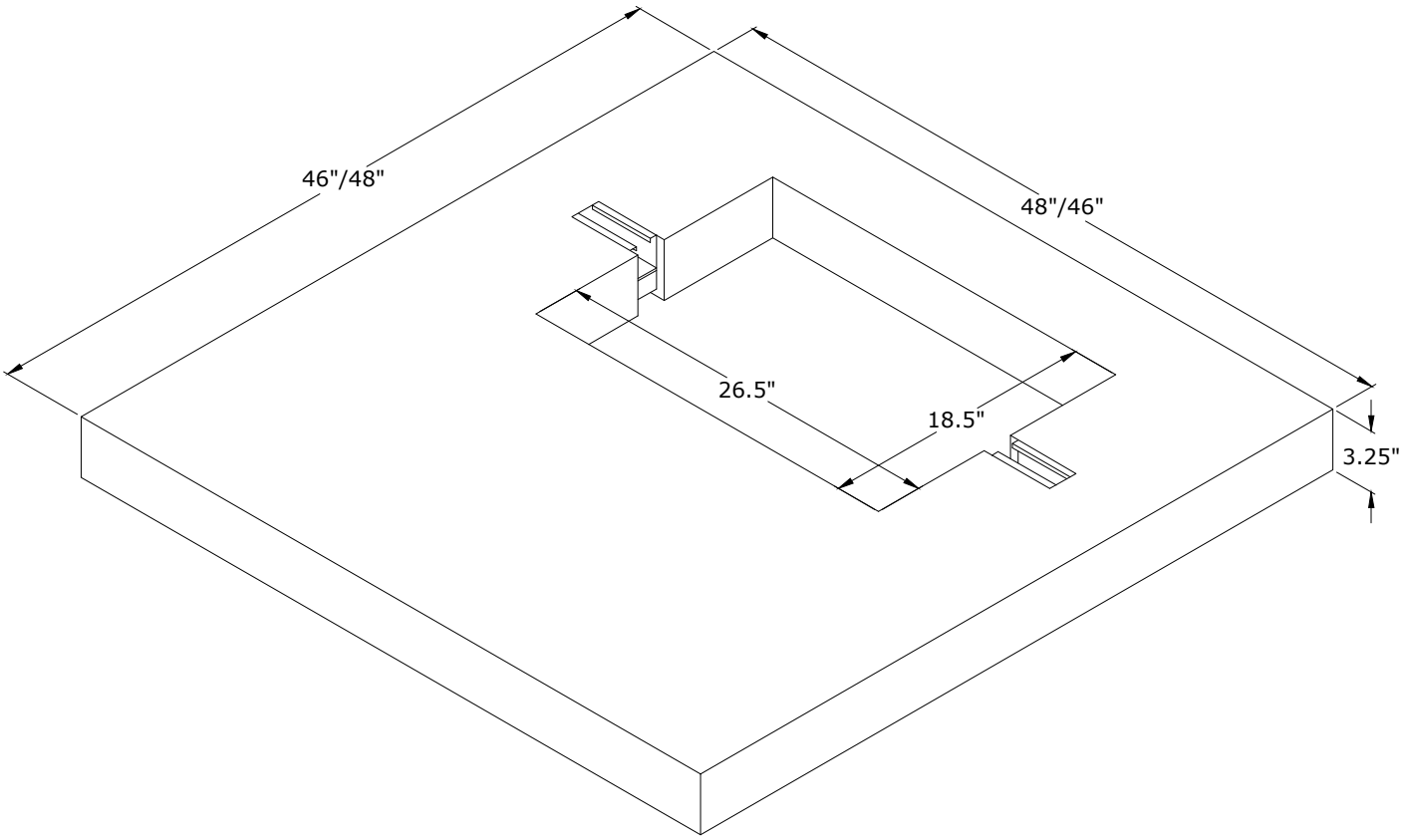
Clark Public Utilities

CONSTRUCTION STANDARDS

1Ø TRANSFORMER PAD
25 to 75 kVA

REVISIONS			
R	DATE	ENGR	OPS
1	2/23/00	HWH	MA
2	12/9/20	CM	GM

PAGE:		CAD FILE:	APP: HWH/GW	SECTION
1 of 1	UTP1	UTP1	DATE: 1/22/80	1400



Notes: ✲

1. See Std UTP3 - 1Ø Transformer Pad Orientation and Conduit Installation 100KVA (page 2) - for installation instructions.
2. Armorcast pad is 48" W x 46" L. Quazite pad is 46" W x 48" L.

Rev. 2 - Updated drawing, notes, and added material issue.

ITEM NO.	DESCRIPTION	UTP2 QTY.	UTP2 S/N
1	Pad, Transformer, 48" x 46", 1Ø, 100kVA only	1	930

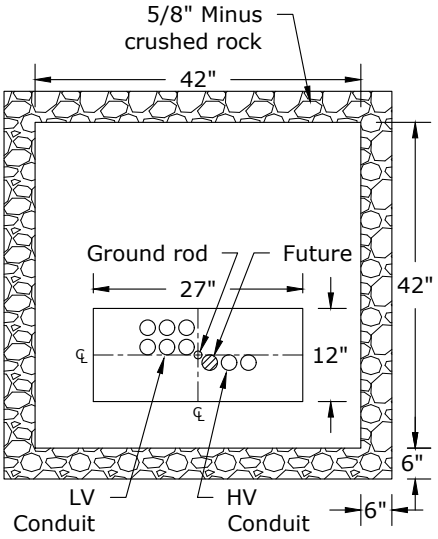
Clark Public Utilities

CONSTRUCTION STANDARDS

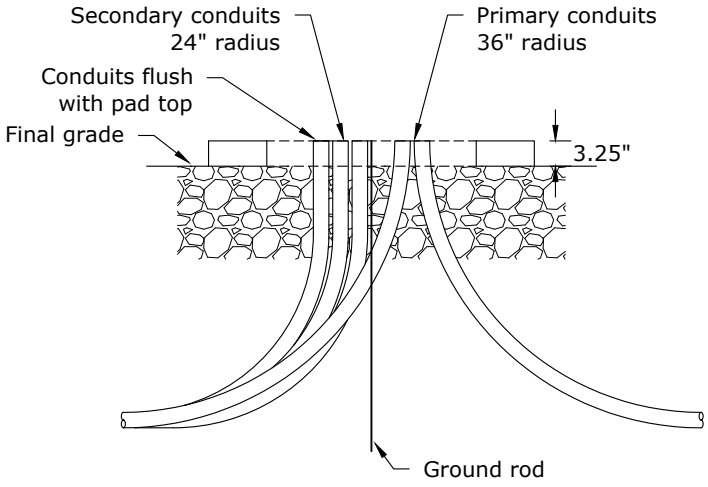
1Ø TRANSFORMER PAD
100 kVA

REVISIONS			
R	DATE	ENGR	OPS
1	2/23/00	HWH	MA
2	12/9/20	CM	GM

PAGE:		CAD FILE:	APP: HWH/GW	SECTION
1 of 1	UTP2	UTP2	DATE: 1/22/80	1400



25-75 KVA PAD
PLAN VIEW



FRONT VIEW

1Ø PADMOUNT TRANSFORMER CONDUIT ORIENTATION (25-75 KVA)

Notes:

1. AIC for 25 to 75 kVA transformers is 10,000 A.
2. High and low voltage conduits must be within their designated areas.
3. All conduits shall be in place and approved prior to transformer installation.
4. It shall be the responsibility of the owner or owner's representative to comply with all applicable code requirements.
5. The pad shall be furnished by the customer.
6. The front side must have 10 feet clear access for maintenance. See Std UTPC - Padmount Transformer Clearances.
7. All future conduit ends shall extend past the edge of the pad by 48 inches minimum.
8. Radius of secondary conduit elbow shall be 24 inches.
9. Depth of burial of conduits shall be as shown on Std UA1.
10. The pad shall be located so that no part of the transformer is closer than 10 feet to a combustible surface, windows or doors, or 3 feet to a non-combustible structure. See clearances in CPU Residential Handbook.
11. Minimum primary conduit size shall be 2 inches.
12. Backfill under the transformer pad must be 5/8" minus crushed rock compacted in multiple lifts. The rock layer must be a minimum of 12-inches thick below the pad. Soil stability may require more. The rock base shall extend 6 inches beyond the pad on all four sides.

Rev. 2 - Added 100kVA from UTP6, updated drawing and notes.

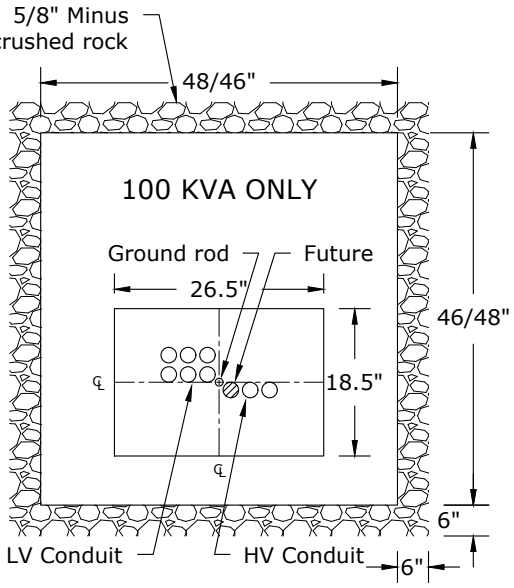
Clark Public Utilities

CONSTRUCTION STANDARDS

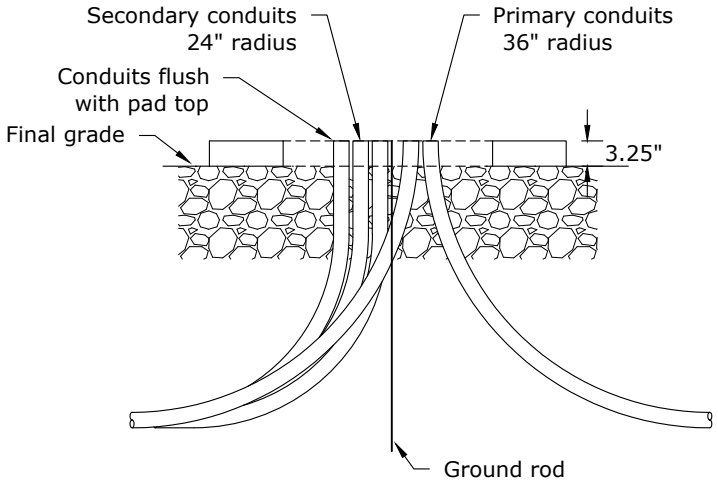
1Ø TRANSFORMER PAD ORIENTATION
AND CONDUIT INSTALLATION
25-75 KVA

REVISIONS			
R	DATE	ENGR	OPS
0	2/23/00	HWH	MA
1	1/26/04	LB	AH
2	12/9/20	CM	GM

PAGE:		CAD FILE:	APP: HWH/GW	SECTION
1 of 2	UTP3	UTP3	DATE: 1/22/80	1400



100 KVA PAD
PLAN VIEW



FRONT VIEW

1Ø PADMOUNT TRANSFORMER CONDUIT ORIENTATION (100 KVA)

Notes:

1. AIC for 100 kVA transformer is 14,000 A.
2. High and low voltage conduits must be within their designated areas.
3. All conduits shall be in place and approved prior to transformer installation.
4. It shall be the responsibility of the owner or owner's representative to comply with all applicable code requirements.
5. The pad shall be furnished by the customer.
6. The front side must have 10 feet clear access for maintenance. See Std UTPC - Padmount Transformer Clearances.
7. All future conduit ends shall extend past the edge of the pad by 48 inches minimum.
8. Radius of secondary conduit elbows shall be 24 inches.
9. Depth of burial of conduits shall be as shown on Std UA1.
10. The pad shall be located so that no part of the transformer is closer than 10 feet to a combustible surface, windows or doors or 3 feet to a non-combustible structure. See clearances in CPU Residential Handbook.
11. Minimum primary conduit size shall be 2 inches.
12. Backfill under the transformer pad must be 5/8" minus crushed rock compacted in multiple lifts. The rock layer must be a minimum of 12-inches thick below the pad. Soil stability may require more. The rock base shall extend 6 inches beyond the pad on all four sides.

Rev. 2 - Added 100kVA from UTP6, updated drawing and notes.

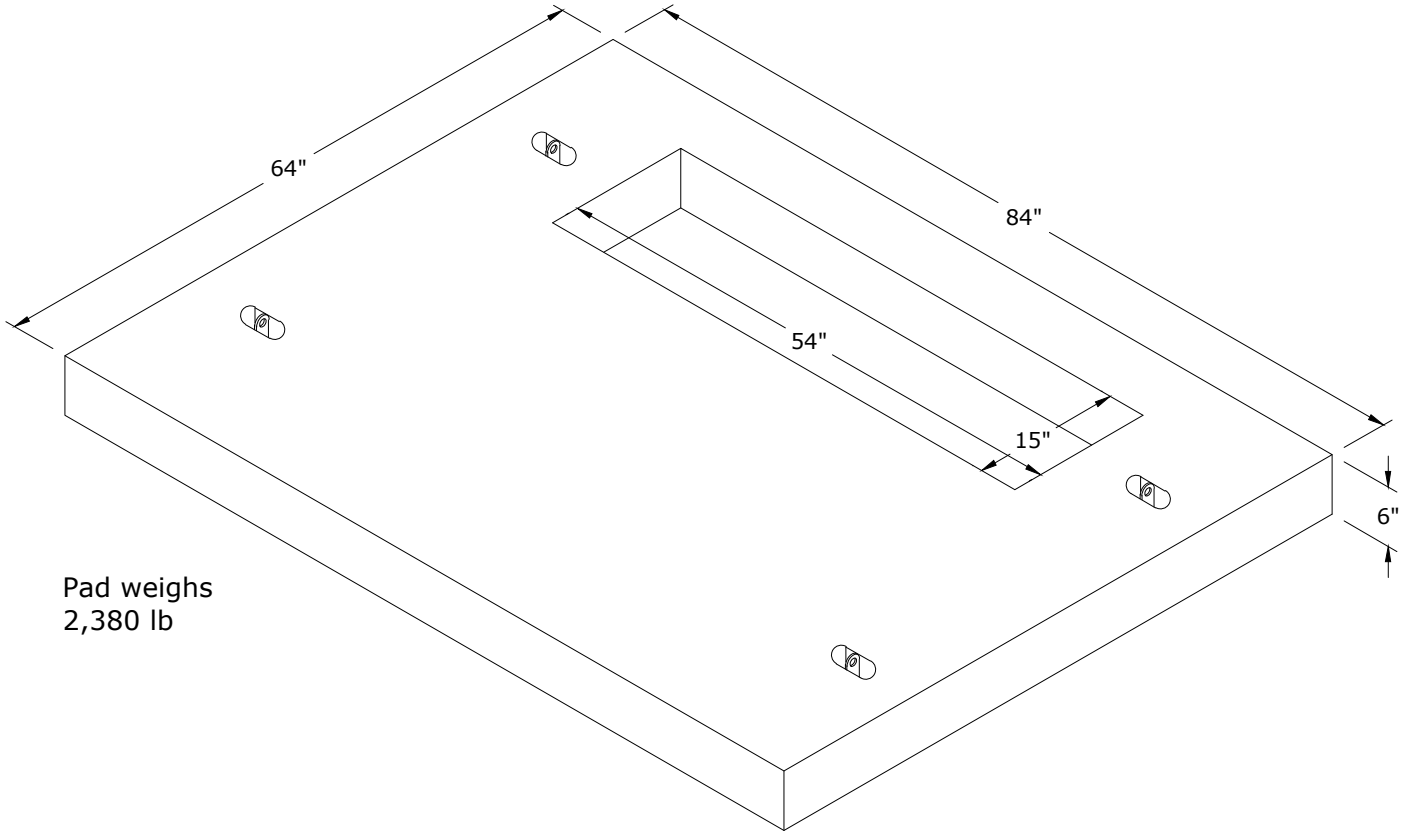
Clark Public Utilities

CONSTRUCTION STANDARDS

1Ø TRANSFORMER PAD ORIENTATION
AND CONDUIT INSTALLATION
100 KVA

REVISIONS			
R	DATE	ENGR	OPS
0	2/23/00	HWH	MA
1	1/26/04	LB	AH
2	12/9/20	CM	GM

PAGE:		CAD FILE:	APP: HWH/GW	SECTION
2 of 2	UTP3	UTP3	DATE: 1/22/80	1400



Pad weighs
2,380 lb

Notes:

1. This pad is available from Utility Vault/OldCastle catalog #UTP4 (CPU S/N 2170).
2. This pad is adequate up to 6 conductors per phase. See Std UTP5 - Precast Pad and Vault for 3Ø Transformers - if more conductors are required.
3. See Std UPT6 - 3Ø Transformer Pad Orientation and Conduit Installation - for installation instructions.

Rev. 2 - Updated dimensions, added weight, and removed reinforcement detail.

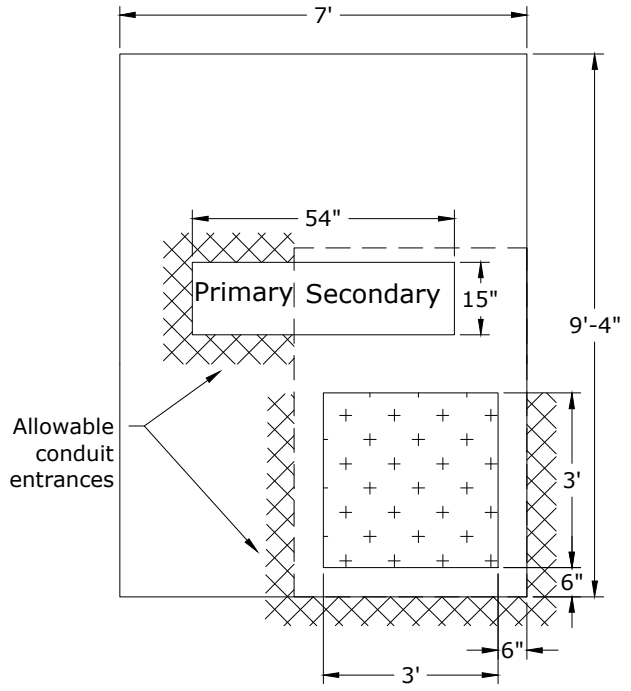
Clark Public Utilities

CONSTRUCTION STANDARDS

3Ø TRANSFORMER PAD
75 to 1500 kVA

REVISIONS			
R	DATE	ENGR	OPS
0	2/23/00	HWH	MA
1	8/17/03	LB	DK
2	12/9/20	CM	GM

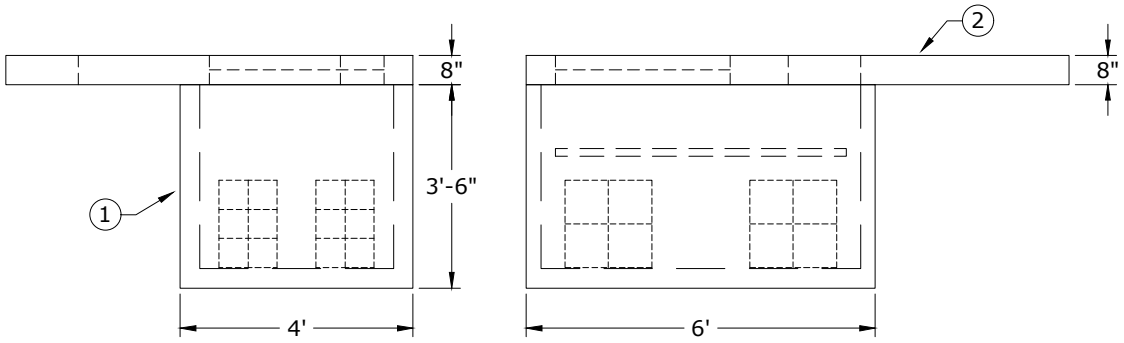
PAGE:		CAD FILE:	APP: HWH/GW	SECTION
1 of 1	UTP4	UTP4	DATE: 1/22/80	1400



Top View

Materials:

1. Vault 6' x 4' x 3'-6" - Oldcastle Part #644LA
2. Pad 7' x 9'-4" x 8" with 15" x 54" opening - Oldcastle Part #0370133.



Front View

Side View

Notes:

1. Locking bolts shall be 1/2" pentahead bolt.
2. Backfill under the vault and transformer pad must be 5/8" minus crushed rock compacted in lifts. The rock layer must be a minimum of 12-inches thick below the pad and vault. Soil stability may require more. The rock base shall extend 6 inches beyond the pad on all four sides.
3. Customer shall install both components shown. All secondary conduits go into 644 vault and enter only in the areas shown. All secondary cables shall have a minimum 10 feet of excess in vault for makeup.
4. All primary conduits shall enter the pad from outside of the vault and only in the locations shown.
5. This pad and vault are required if more than 6 cables per leg are being installed. The maximum number of secondary runs is 8.
6. Install bell ends in conduit in knockouts and grout inside and outside to be even with vault walls.

Rev. 1 - Renamed from UTP4-6, and updated drawing.

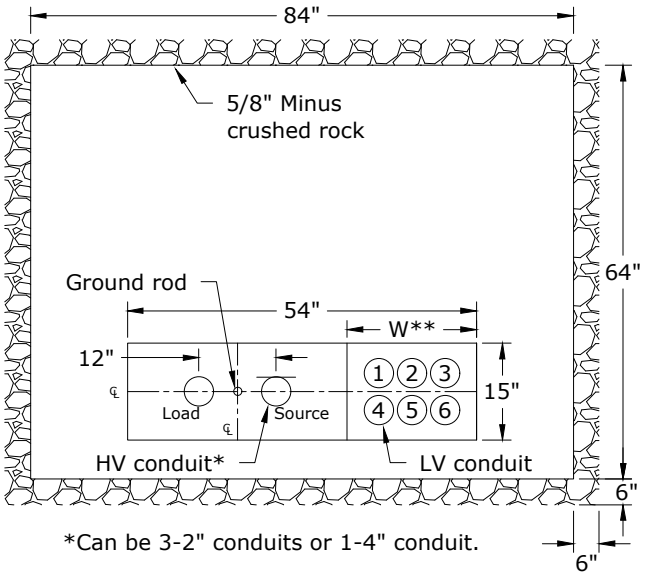
Clark Public Utilities

CONSTRUCTION STANDARDS

PRECAST PAD AND VAULT
FOR 3Ø TRANSFORMERS

REVISIONS			
R	DATE	ENGR	OPS
1	12/9/20	CM	GM

PAGE:		CAD FILE:	APP: GW	SECTION
1 of 1	UTP5	UTP5	DATE: 12/18/87	1400

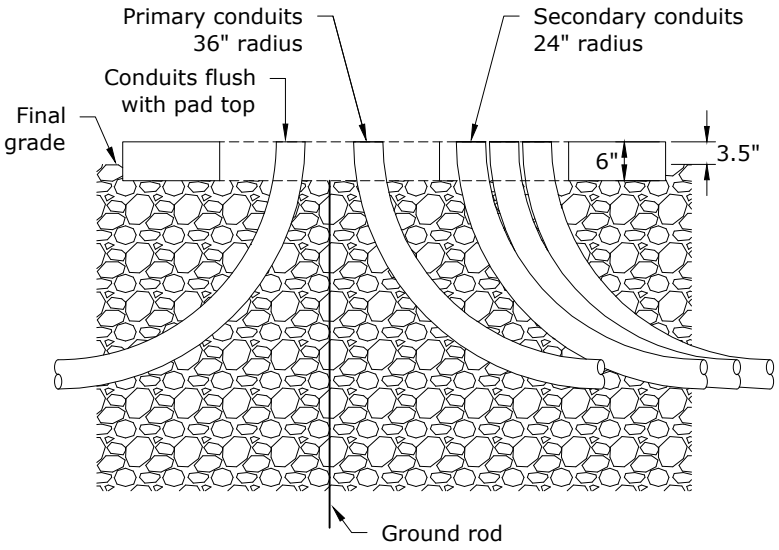


*Can be 3-2" conduits or 1-4" conduit.

KVA	TYPICAL** "W" INCHES
75 - 300	20
500	22
750 - 1500	28

**Varies by manufacturer

PLAN VIEW



FRONT VIEW

3Ø Padmount Transformer Conduit Orientation

Notes:

1. The concrete pad and all conduits shall be in place and approved by the CPU Inspector prior to transformer installation.
2. Refer to Std UPTC - Padmount Transformer Clearances - and the CPU Commercial Handbook for clearances.
3. See Std UTP4 - 3ø Transformer Pad 75 to 1500 kVA - for concrete pad details.
4. Backfill under the transformer pad must be 5/8" minus crushed rock compacted in multiple lifts. The rock layer must be a minimum of 12-inches thick below the pad. Soil stability may require more. The rock base shall extend 6 inches beyond the pad on all four sides.

Rev 6. - Clarified LV conduit placement.

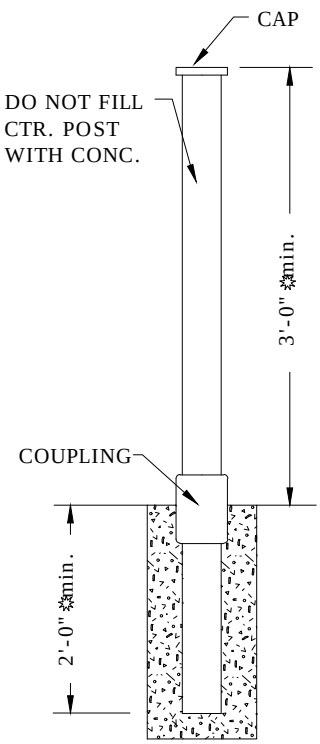
Clark Public Utilities

CONSTRUCTION STANDARDS

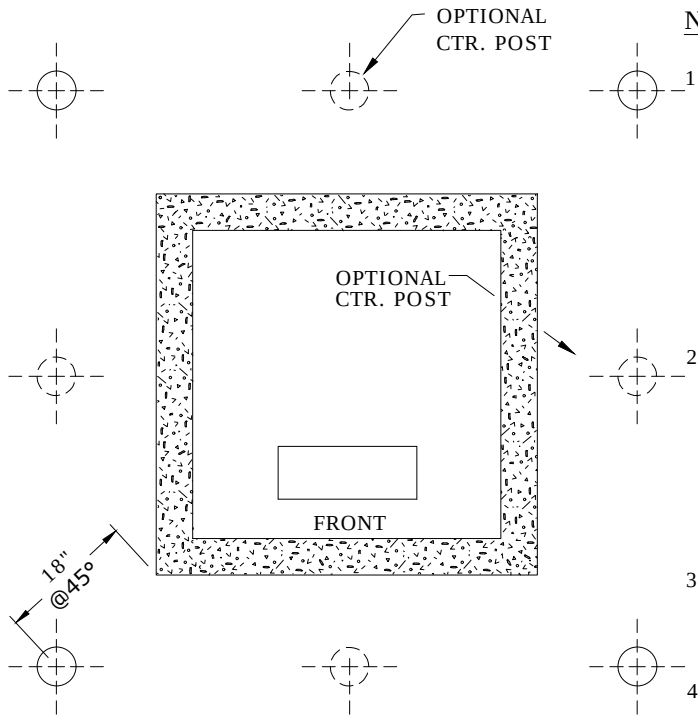
3Ø TRANSFORMER PAD ORIENTATION
AND CONDUIT INSTALLATION

REVISIONS			
R	DATE	ENGR	OPS
3	1/26/04	LB	AH
4	12/29/04	LB	AH
5	12/9/20	CM	GM
6	4/1/24	CSB	

PAGE:		CAD FILE:	APP:	SECTION
1 of 1	UTP6	UTP6	DATE: 10/98	1400



DETAIL "A"

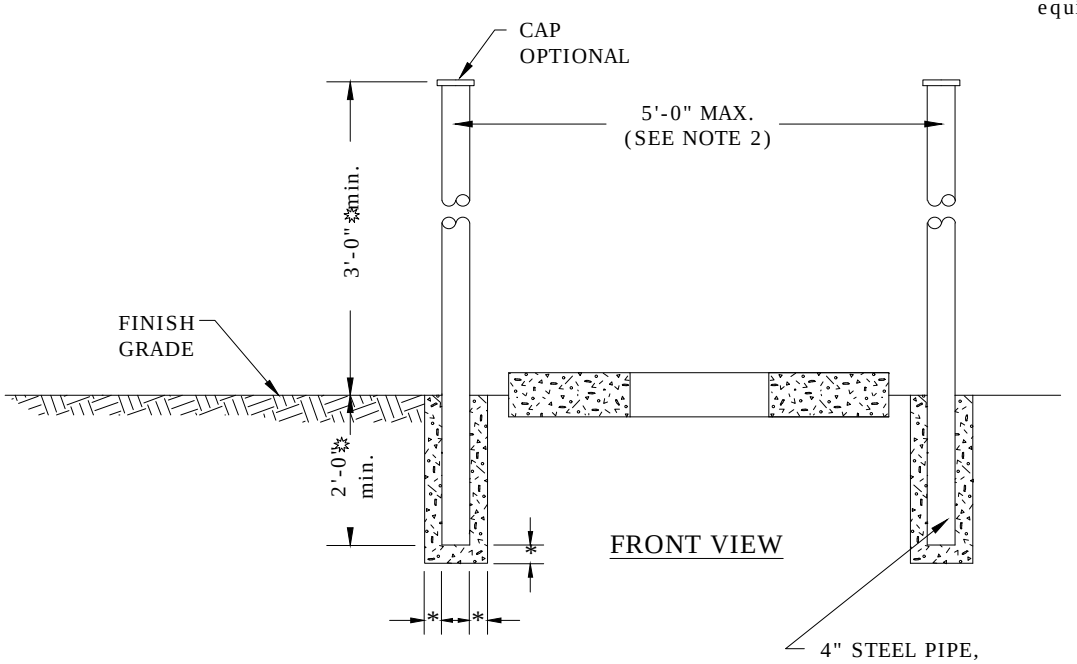


DETAIL "A"

PLAN VIEW
TYPICAL PAD

Notes:

1. Typical locations of barriers positioning will vary depending on the following conditions.
   a. Physical location of equipment with respect to hazards.
   b. Type of equipment to be protected and accessibility required.
2. If distance between corner barriers exceeds 5 ft., A ctr. post may be required similar to corner post except center post on front side of padmount device may be constructed as det. "A".
3. Project Engineer will determine and indicate number, size, and position of barrier posts.
4. Posts of 4" steel pipe, concrete-filled or substitute of equal strength to be set in concrete. Use same mixture as pad.
5. See WAC 296-46-480 Para. 4, rules and regulations for installing electric wires and equipment.



FRONT VIEW

* DIMENSIONS AND CONDUIT SIZE TO BE PROVIDED BY PROJECT ENGINEER.

Rev 2: Corrected dimensions on barrier to match Commercial Electric Service Handbook.

Clark Public Utilities

CONSTRUCTION STANDARDS

TYPICAL BARRIER INSTALLATION TO PROTECT PADMOUNTED EQUIPMENT

REVISIONS

R	DATE	ENGR	OPS
0	2/23/00	HWH	MA
1	5/30/07	LB	AH
2	12/14/09	KJP	

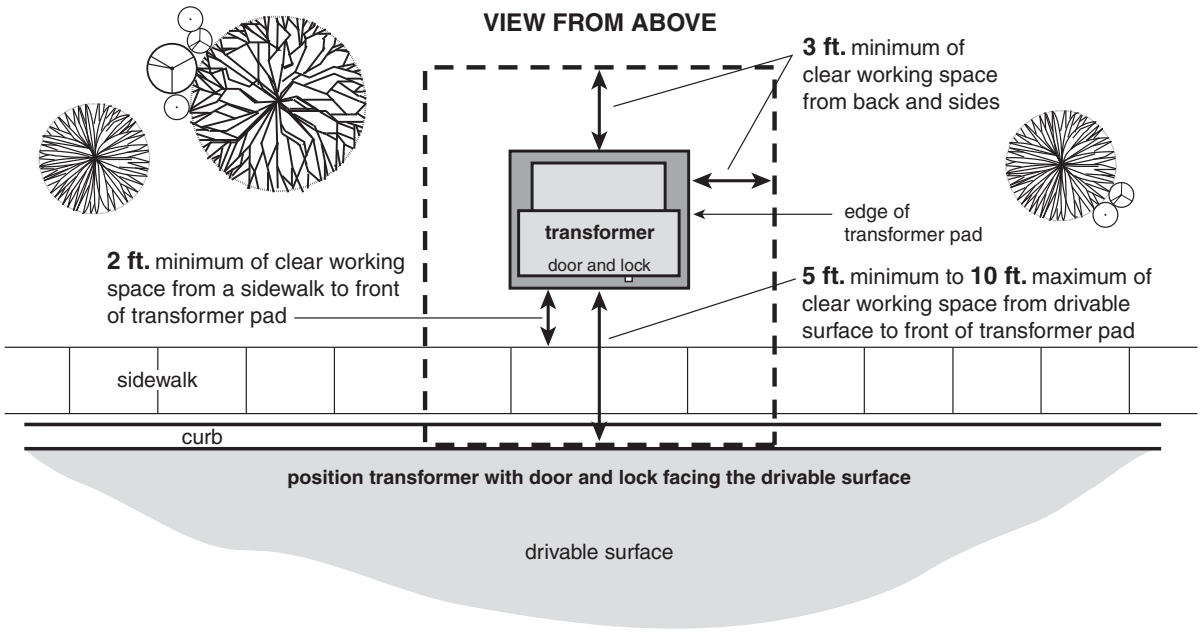
△

PAGE:	CAD FILE:	APP:	SECTION
1 of 1	UTP9	DATE: 9/94	1400

UTP9

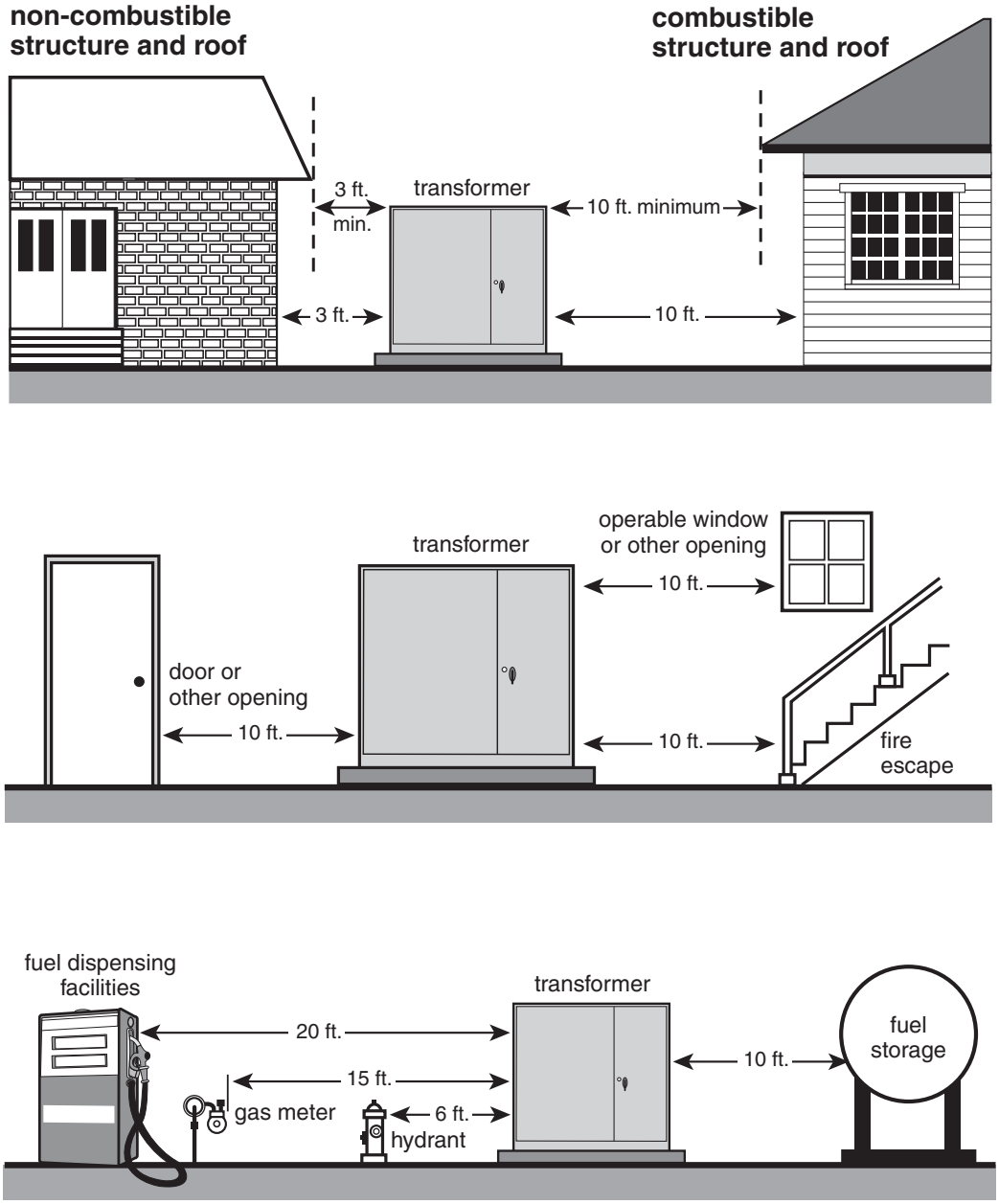
Please see page 17 of our Commercial Electric Service Handbook, for more details and information.

Figure 3 Commercial padmounted transformer location and access



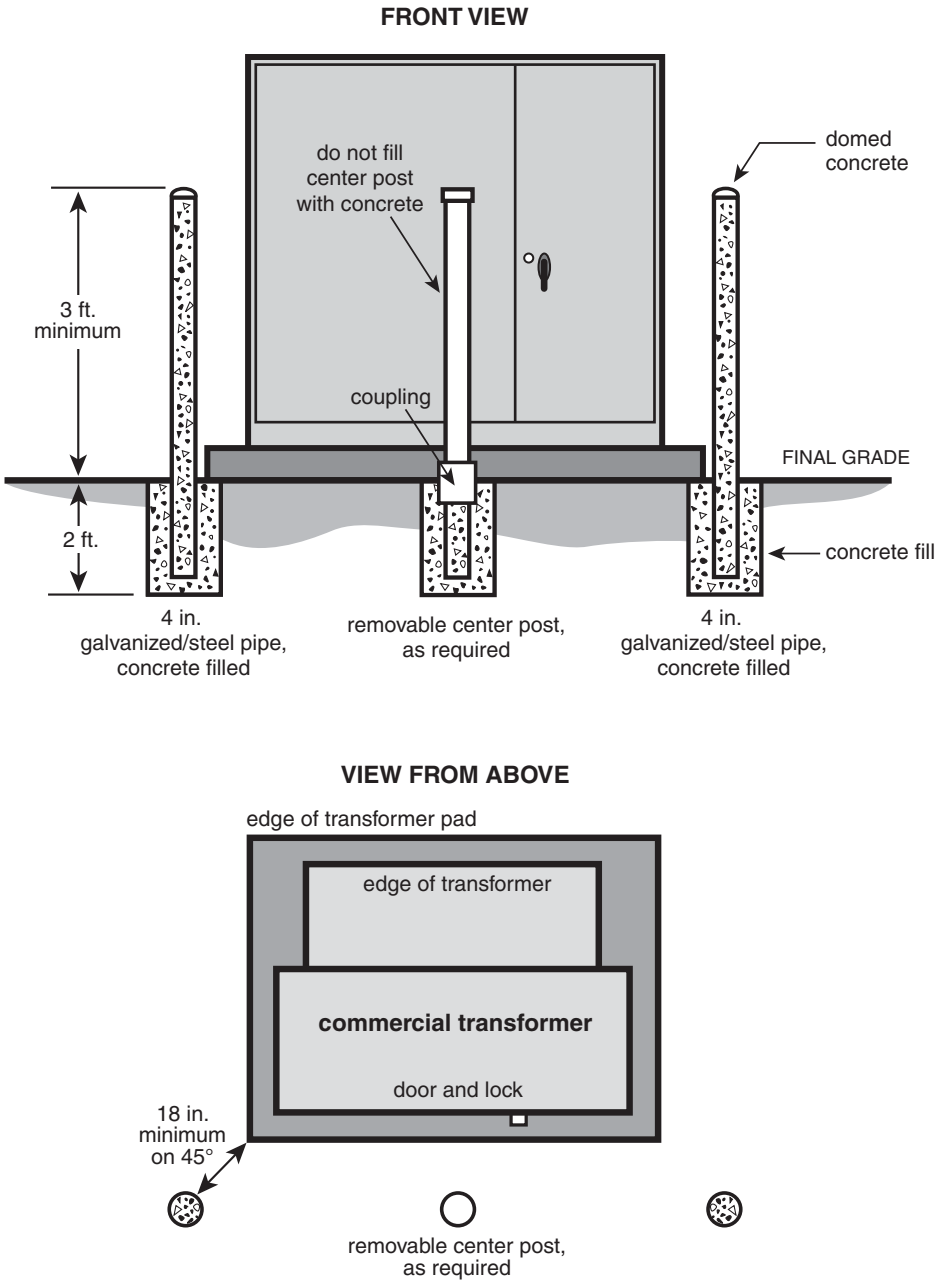
Please see page 18 of our Commercial Electric Service Handbook, for more details and information.

Figure 4 Commercial padmounted transformer minimum safety clearances



Please see page 20 of our Commercial Electric Service Handbook, for more details and informaion.

Figure 5 Guard post (bollard) installation for commercial transformers



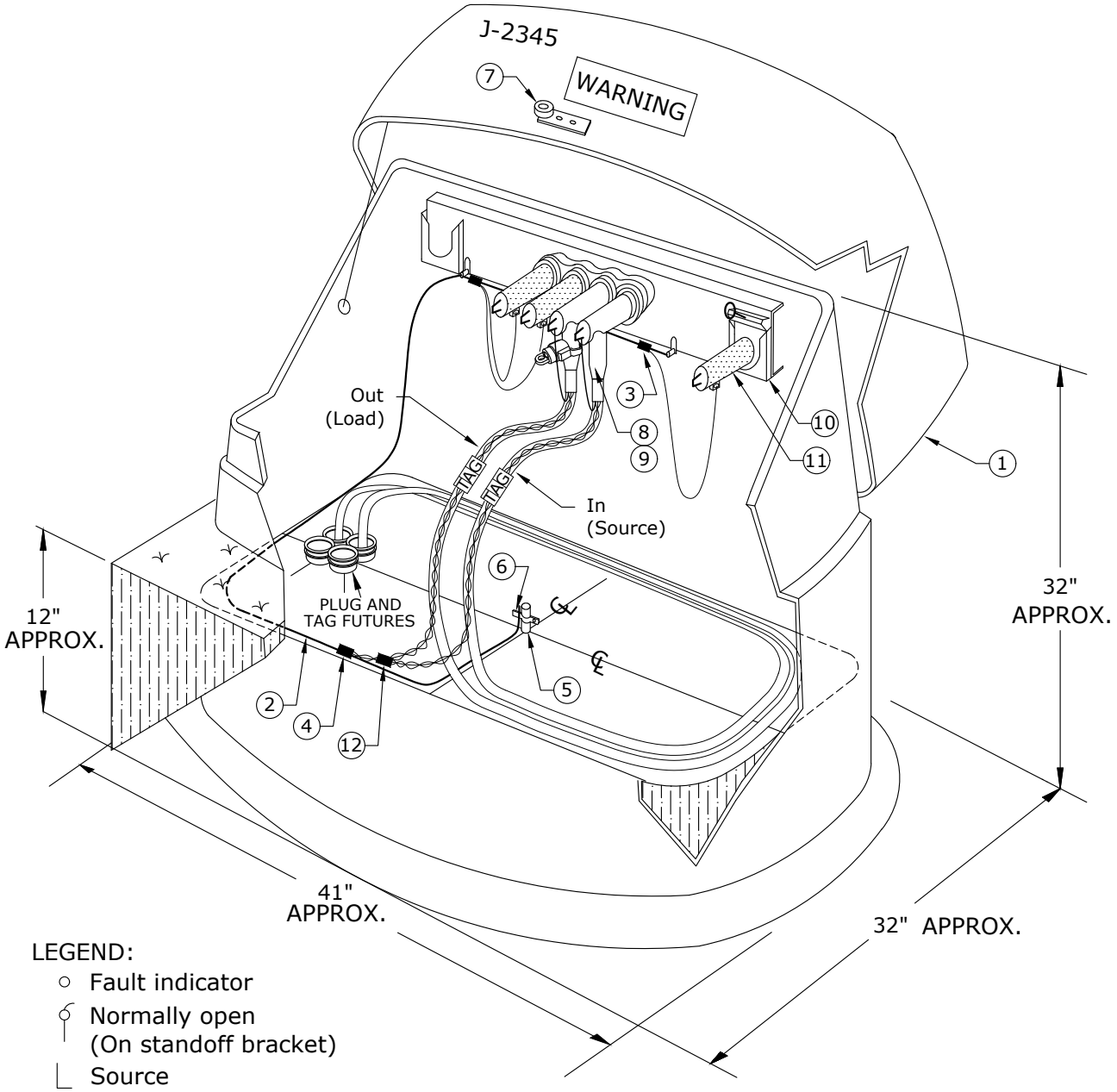
NOTE: Additional guard posts may be required at back and sides of transformer.

1500
UNDERGROUND J-BOXES & VAULTS

12/19/2022

~	UJ1	1Ø Junction Box 4-Way
~	UJ2	1Ø Junction Box 5-Way
~	UJ3	3Ø Junction Box 4-Way
C	UJ3F	3Ø Junction Box 4-Way Flush-Mount
~	UJ4	3Ø Junction Box 5-Way
~	UJM	Primary Junction Box 1Ø & 3Ø Material List
~	UJMP	Junction Box Marker
~	ULE	Loop Enclosure
~	UVG1,UVG2	Underground Vault Grounding System

N New Standard
R Redrawn Standard
C Changed Standard
~ No Change



Rev. 5 - Added "Plug and Tag Future Conduits" to drawings, added Notes #4-6, and corrected material issue.

UJM4	UJM41	UJM42	UJM44	UJM45	UJM46	UJM47	UJM48	UJM49

ITEM NO.	DESCRIPTION	QTY	S/N
1	Box, Junction, 1Ø, Fiberglass w/LBC4 Installed	1	194
2	Conductor, Cu, #4 Solid, 1C, Bare, Soft-Drawn	15	376
3	Connector, Crimpet, Cu, Run & Tap #6 Sol - #4 Str (4C4)	3	450
4	Connector, Crimpet, Cu, Run #4 Sol - #2 Str, Tap #8 Sol - #4 Str (2C4)	1	454
5	Rod, Ground 5/8" x 8'	1	1124
6	Clamp, Ground Rod, 5/8", Bronze, Small	1	281
7	Lock, Equipment, UG	1	837

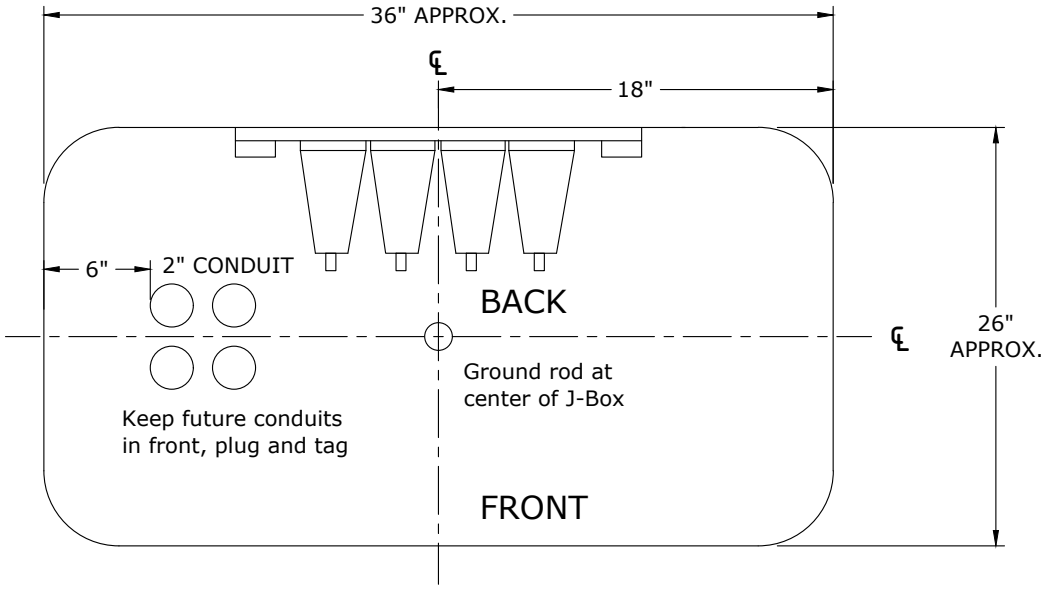
Clark Public Utilities

CONSTRUCTION STANDARDS

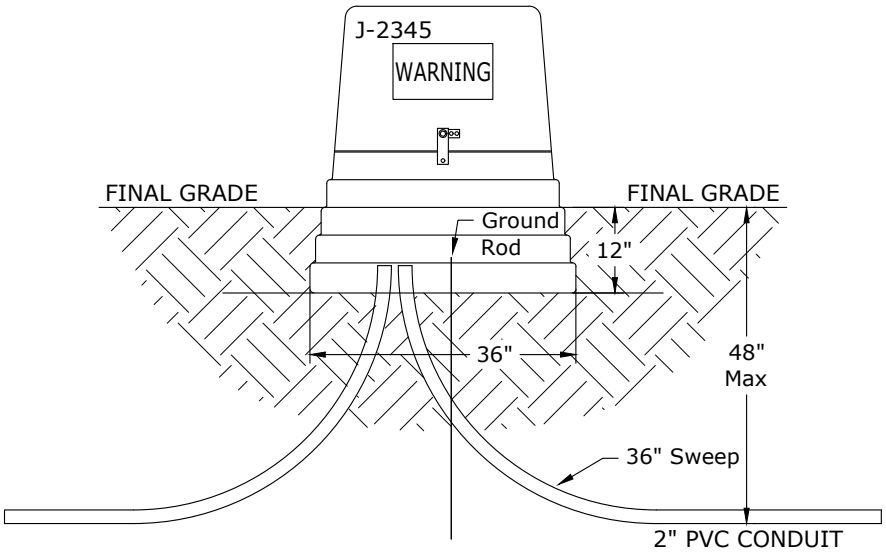
1Ø JUNCTION BOX
4-WAY

REVISIONS			
R	DATE	ENGR	OPS
2	9/23/04	LB	AH
3	12/29/04	LB	AH
4	4/29/09	CM	AH
5	3/12/20	CM	GM

PAGE:		CAD FILE:	APP: HWH/GGW	SECTION
1 of 2	UJ1	UJ1	DATE: 1/22/80	1500



Plan View 1-Phase J-Box



Primary J-Box Conduit Arrangement

Notes:

1. Typical elbow arrangement is shown.
2. Do not put dirt inside junction box. Space is required for cable slack and operating clearance.
3. Leave cable slack for future operations.
4. Future conduits shall be plugged w/
   S/N 2697- 2" plastic conduit plug, or
   S/N 2698- 4" plastic conduit plug.
5. Futures should be tagged with direction and length of conduit. See Std UID2.
6. Proof conduit and install sequentially numbered, 2500 lb mule tape in all futures.

Rev. 5 - Added "Plug and Tag Future Conduits" to drawings, added Notes #4-6, and corrected material issue.

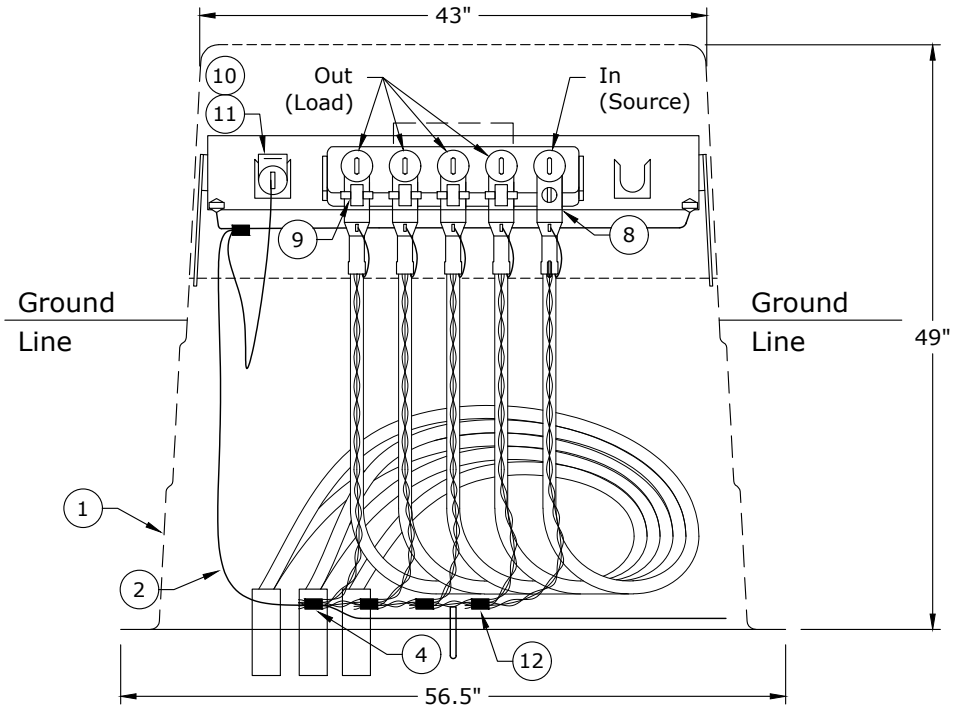
Clark Public Utilities

CONSTRUCTION STANDARDS

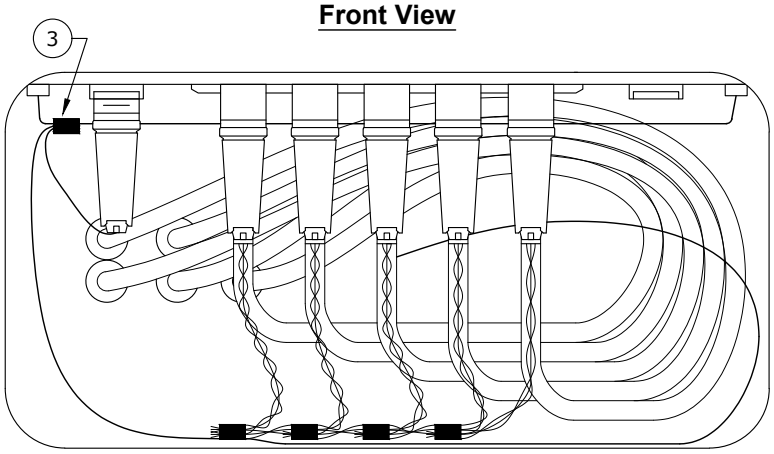
1Ø JUNCTION BOX
4-WAY

REVISIONS			
R	DATE	ENGR	OPS
2	9/23/04	LB	AH
3	12/29/04	LB	AH
4	4/29/09	CM	AH
5	3/12/20	CM	GM

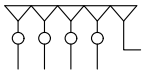
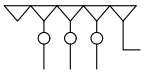
PAGE:		CAD FILE:	APP: HWH/GGW	SECTION
2 of 2	UJ1	UJ1	DATE: 1/22/80	1500



Front View



Top View

UJM5 | UJM51

LEGEND:
- ○ Fault indicator
- └ Source

ITEM	DESCRIPTION	QTY	S/N
1	Box, Jct., 1ø, Fiberglass w/ LBC5 and 200A bushing inserts installed	1	2940
2	Conductor, Cu, #4 Sol, 1C, Bare, Soft Drawn	25	376
3	Connector, Crimpet, Cu, Run & Tap #6 Sol - #4 Str (4C4)	1	450
4	Connector, Crimpet, Cu, Run #4 Sol - #2 Str, Tap #8 Sol - #4 Str (2C4)	1	454
5	Rod, Ground 5/8" x 8'	1	1124
6	Clamp, Ground Rod 5/8", Bronze, Small	1	281
7	Lock, Equipment UG	1	837

Clark Public Utilities

CONSTRUCTION STANDARDS

1Ø JUNCTION BOX
5-WAY

REVISIONS			
R	DATE	ENGR	OPS

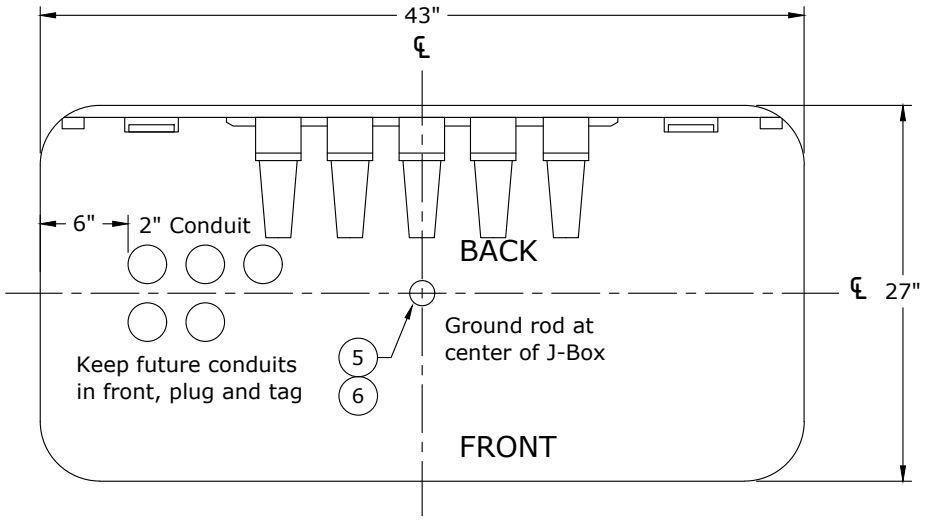
PAGE: 1 of 2

UJ2

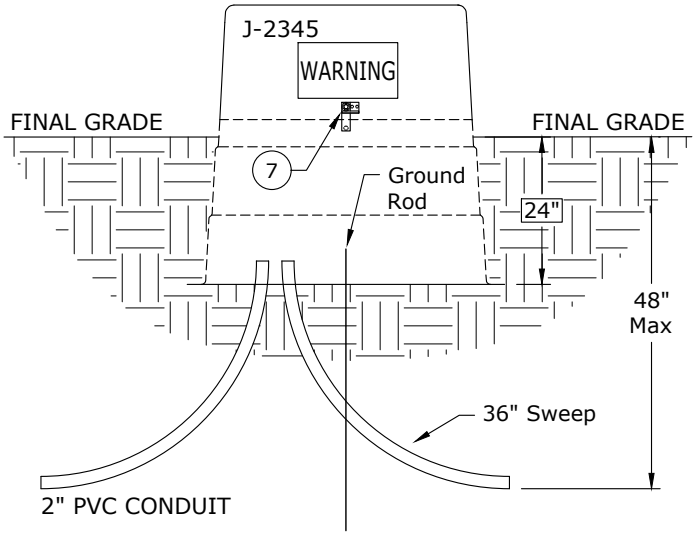
CAD FILE: UJ2

APP: CM/GM
DATE: 3/12/20

SECTION 1500



Plan View



Primary J-Box Conduit Arrangement

Notes:

1. Typical elbow arrangement is shown.
2. Do not put dirt inside junction box. Space is required for cable slack and operating clearance.
3. Leave cable slack for future operations.
4. Future conduits shall be plugged with
   S/N 2697 - 2" plastic conduit plug, or
   S/N 2698 - 4" plastic conduit plug.
5. Futures should be tagged with direction and length of conduit. See Std UID2.
6. Proof conduit and install sequentially numbered, 2500 lb mule tape in all futures.

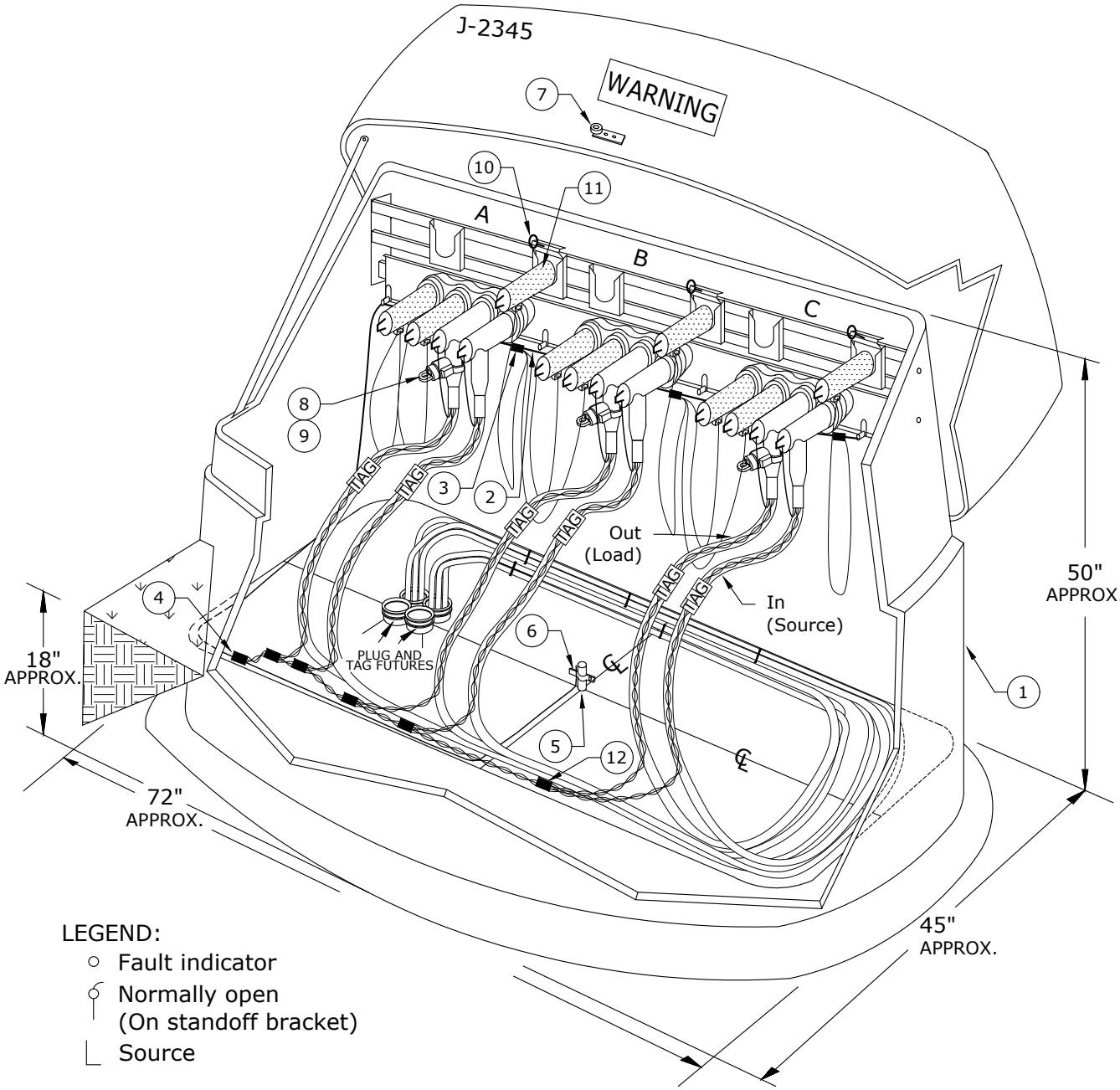
Clark Public Utilities

CONSTRUCTION STANDARDS

1Ø JUNCTION BOX
5-WAY

REVISIONS			
⚠R	DATE	ENGR	OPS

PAGE:		CAD FILE:	APP: CM/GM	SECTION
2 of 2	UJ2	UJ2	DATE: 3/12/20	1500



LEGEND:
- ○ Fault indicator
- Normally open (On standoff bracket)
- Source

Rev. 4 - Added "Plug and Tag Future Conduits" to drawings and Notes #4 - #6.

UJM4	UJM41	UJM42	UJM44	UJM45	UJM46	UJM47	UJM48	UJM49

ITEM NO.	DESCRIPTION	QTY	S/N
1	Box, Junction, 3Ø, Fiberglass w/LBC4 Installed, 49" High	1	2047
2	Conductor, Cu, #4 Solid, 1C, Bare, Soft-Drawn	25	376
3	Connector, Crimpet, Cu, Run & Tap #6 Sol - #4 Str (4C4)	5	450
4	Connector, Crimpet, Cu, Run #4 Sol - #2 Str, Tap #8 Sol - #4 Str (2C4)	1	454
5	Rod, Ground 5/8" x 8'	1	1124
6	Clamp, Ground Rod, 5/8", Bronze, Small	1	281
7	Lock, Equipment, UG	1	837

Clark Public Utilities

CONSTRUCTION STANDARDS

3Ø JUNCTION BOX
4-WAY

REVISIONS

R	DATE	ENGR	OPS
1	9/23/04	LB	AH
2	12/29/04	LB	AH
3	4/29/09	CM	AH
4	3/12/20	CM	GM

PAGE: 1 of 2

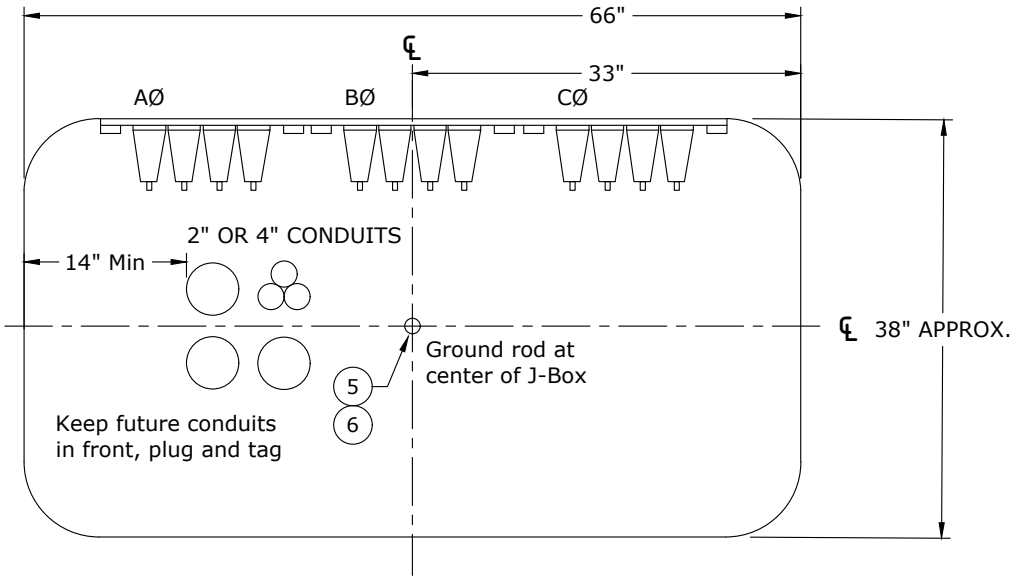
UJ3

CAD FILE: UJ3

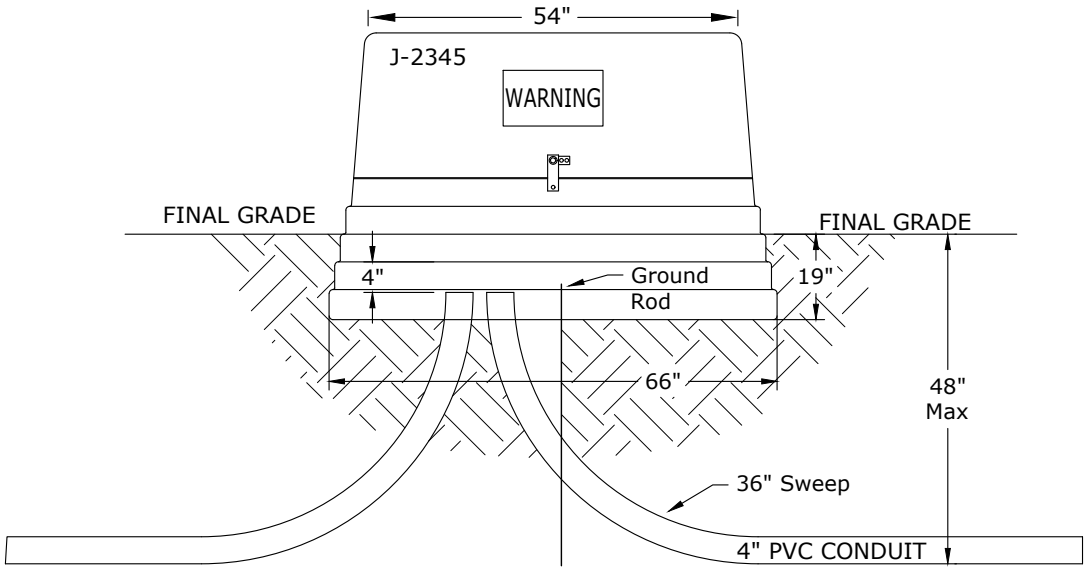
APP: HWH/GGW

DATE: 1/22/80

SECTION 1500



Plan View 3-Phase J-Box



Primary J-Box Conduit Arrangement

Notes:

1. Typical elbow arrangement is shown.
2. Do not put dirt inside junction box. Space is required for cable slack and operating clearance.
3. Leave cable slack for future operations.
4. Future conduits shall be plugged w/
   S/N 2697- 2" plastic conduit plug, or
   S/N 2698- 4" plastic conduit plug.
5. Futures should be tagged with direction and length of conduit. See Std UID2.
6. Proof conduit and install sequentially-numbered, 2500 lb, mule tape in all futures.

Rev. 4 - Added "Plug and Tag Future Conduits" to drawings and Notes #4 - #6.

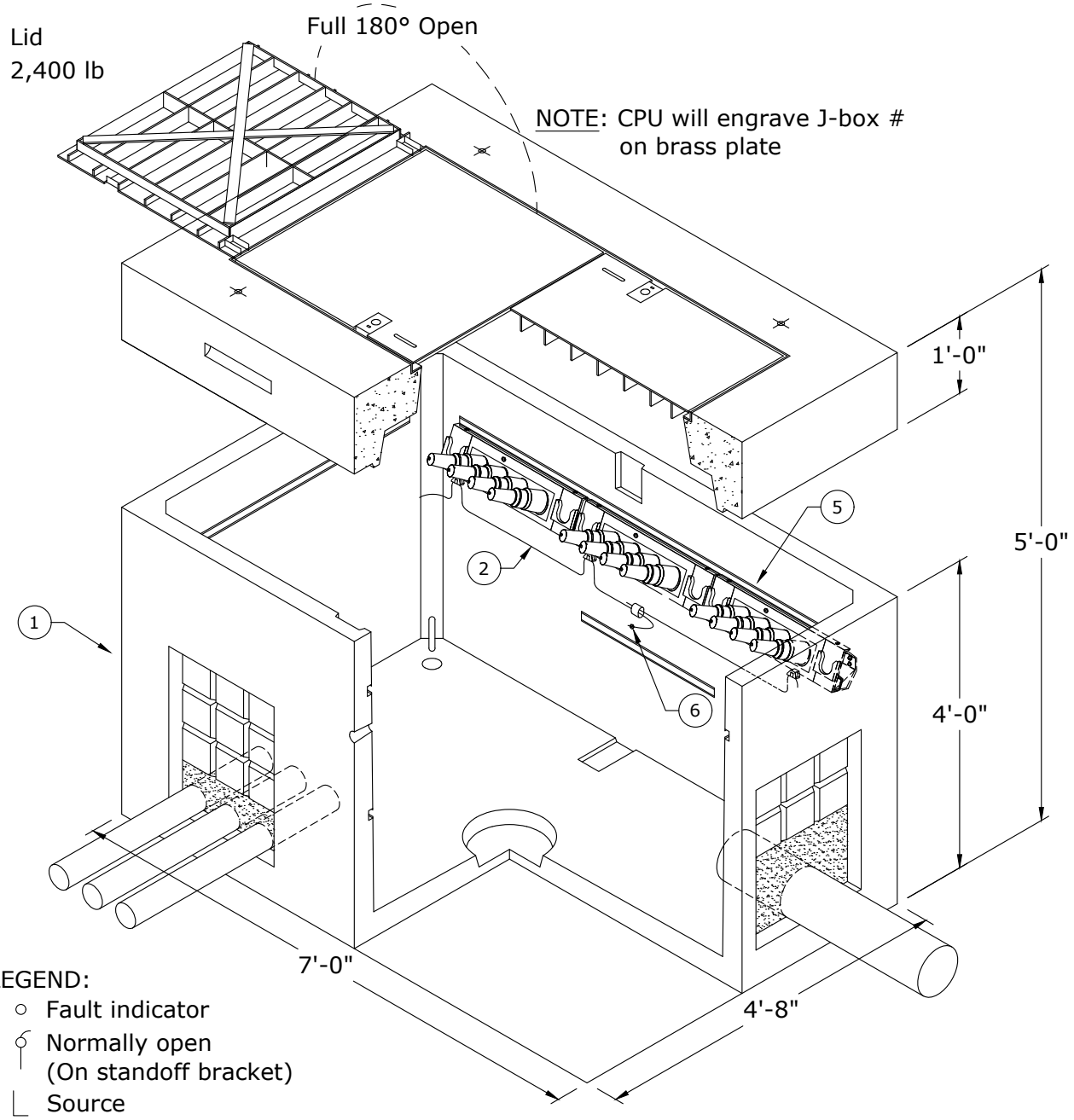
Clark Public Utilities

CONSTRUCTION STANDARDS

3Ø JUNCTION BOX
4-WAY

REVISIONS			
R	DATE	ENGR	OPS
1	9/23/04	LB	AH
2	12/29/04	LB	AH
3	4/29/09	CM	AH
4	3/12/20	CM	GM

PAGE:		CAD FILE:	APP: HWH/GGW	SECTION
2 of 2	UJ3	UJ3	DATE: 1/22/80	1500



UJM4	UJM41	UJM42	UJM44	UJM45	UJM46	UJM47	UJM48	UJM49

ITEM NO.	DESCRIPTION	QTY	S/N
1	Vault, 575LA, Flush Mount J-box or EE, Ufer Ground, Non-Slip Lid	1	2722
2	Conductor, Cu, #4 Solid, 1C, Bare, Soft-Drawn	30	376
3	Connector, Crimpet, Cu, Run & Tap #6 Sol - #4 Str	7	450
4	Connector, Crimpet, Cu, Run #4 Sol - #2 Str, Tap #8 Sol - #4 Str	1	454
5	Module, LBC4 UG w/Bracket	3	900
6	Lug, Grounding, #8 Sol - 2/0 Str, 4-way	2	842

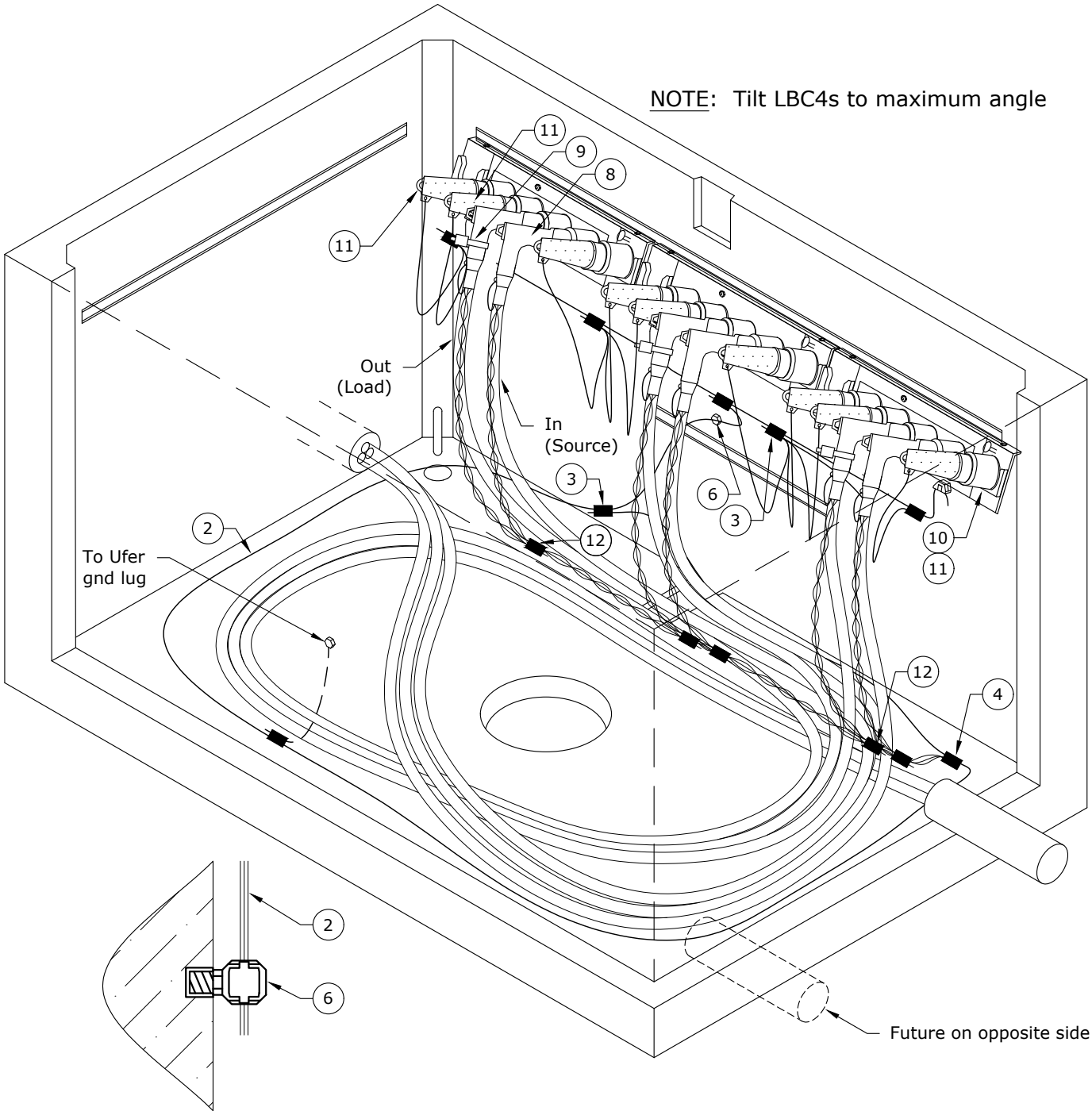
Clark Public Utilities

CONSTRUCTION STANDARDS

3Ø JUNCTION BOX
4-WAY
FLUSH-MOUNT

REVISIONS			
R	DATE	ENGR	OPS
1	12/9/22	CRM	GM

PAGE:		CAD FILE:	APP: CM/GM	SECTION
1 of 2	UJ3F	UJ3F	DATE: 3/12/20	1500



UFER GROUND CONNECTION

Notes:

1. Fully seal knockouts with grout around conduit.
2. Std UJM44 configuration shown in drawing.
3. See Std UJM for cable configurations and material items #8-12.
4. Bring concentrics down on front side of elbows. Leave cable slack for future operations.
5. Future conduits shall be plugged w/
   S/N 2697 - 2" plastic conduit plug, or
   S/N 2698 - 4" plastic conduit plug.
6. Futures should be tagged with direction and length of conduit. See Std UID2.
7. Proof conduit and install sequentially-marked, 2500 lb mule tape in all futures.

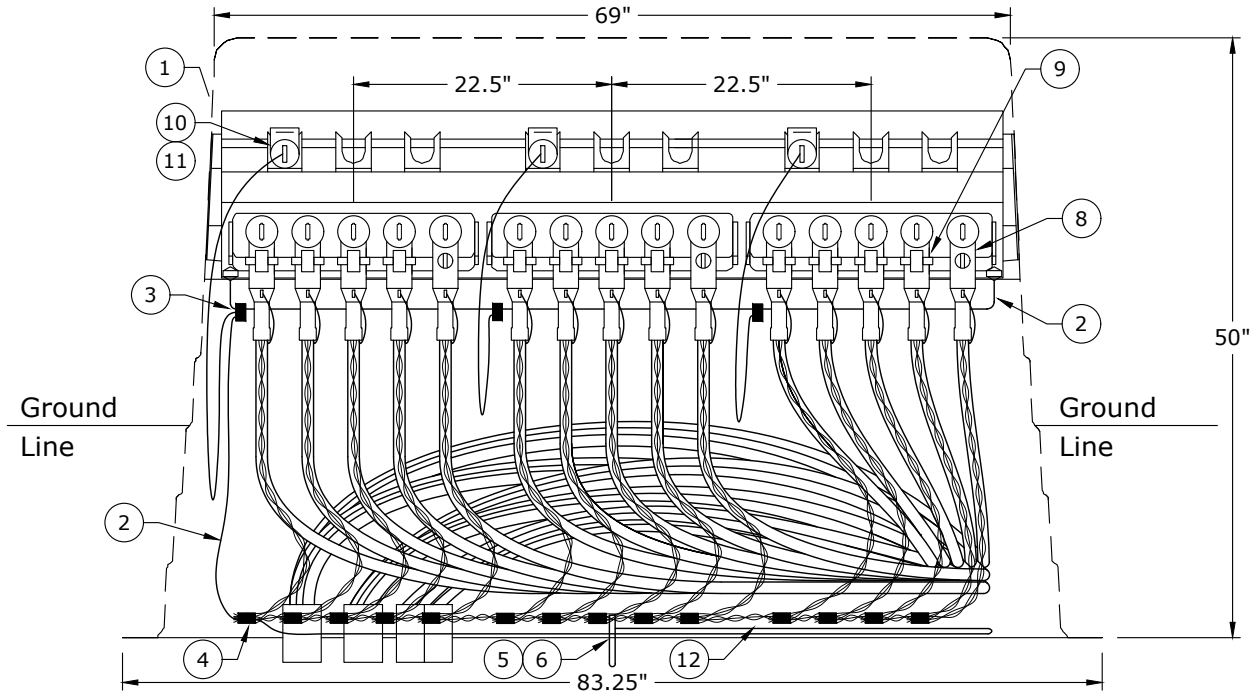
Clark Public Utilities

CONSTRUCTION STANDARDS

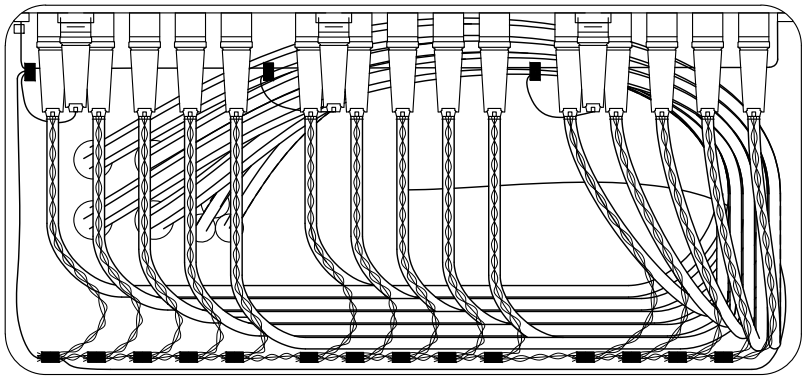
3Ø JUNCTION BOX
4-WAY
FLUSH-MOUNT

REVISIONS			
R	DATE	ENGR	OPS
1	12/9/22	CRM	GM

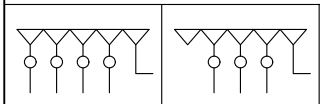
PAGE:		CAD FILE:	APP: CM/GM	SECTION
2 of 2	UJ3F	UJ3F	DATE: 3/12/20	1500



Front View



Top View



UJM5 | UJM51

LEGEND:
- ○ Fault indicator
- └ Source

ITEM	DESCRIPTION	QTY	S/N
1	Box, Jct., 3ø, Fiberglass w/ LBC5 and 200A bushing inserts installed	1	2941
2	Conductor, Cu, #4 Sol, 1C, Bare, Soft-Drawn	30	376
3	Connector, Crimpet, Cu, Run & Tap #6 Sol - #4 Str (4C4)	3	450
4	Connector, Crimpet, Cu, Run #4 Sol - #2 Str, Tap #8 Sol - #4 Str (2C4)	1	454
5	Rod, Ground, 5/8" x 8'	1	1124
6	Clamp, Ground Rod 5/8", Bronze, Small	1	281
7	Lock, Equipment UG	1	837

Clark Public Utilities

CONSTRUCTION STANDARDS

3Ø JUNCTION BOX
5-WAY

REVISIONS			
R	DATE	ENGR	OPS

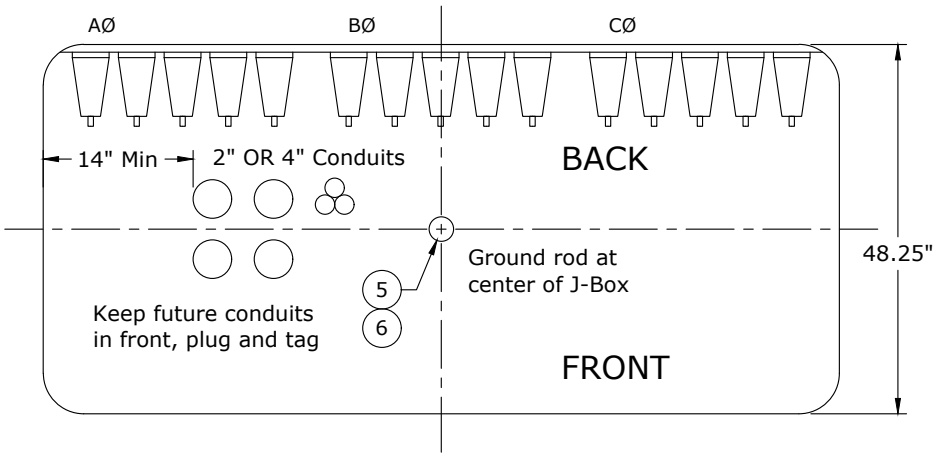
PAGE: 1 of 2

UJ4

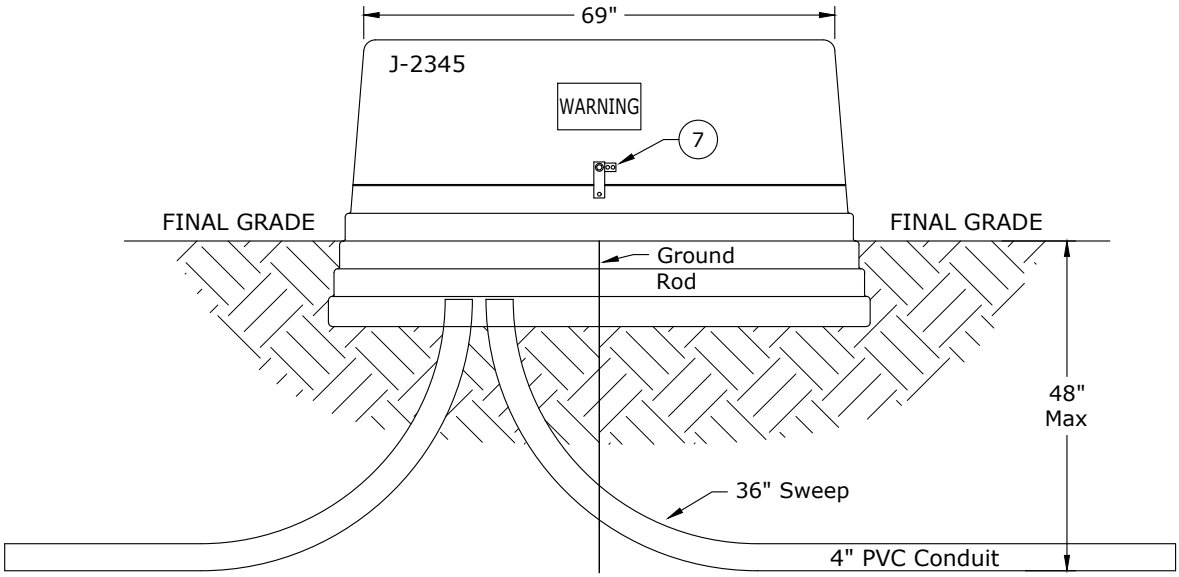
CAD FILE: UJ4

APP: CM/GM
DATE: 3/12/20

SECTION 1500



Plan View 3-Phase J-Box



Primary J-Box Conduit Arrangement

Notes:

1. Typical elbow arrangement is shown.
2. Do not put dirt inside junction box. Space is required for cable slack and operating clearance.
3. Leave cable slack for future operations.
4. Future conduits shall be plugged with
   S/N 2697- 2" plastic conduit plug, or
   S/N 2698- 4" plastic conduit plug.
5. Futures should be tagged with direction and length of conduit. See Std UID2.
6. Proof conduit and install sequentially numbered, 2500 lb mule tape in all futures.

Clark Public Utilities

CONSTRUCTION STANDARDS

3Ø JUNCTION BOX
5-WAY

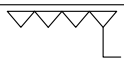
REVISIONS			
R	DATE	ENGR	OPS

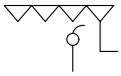
PAGE:		CAD FILE:	APP: CM/GM	SECTION
2 of 2	UJ4	UJ4	DATE: 3/12/20	1500

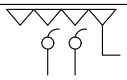
LEGEND:
- ○ Fault indicator
- Normally open (On standoff bracket)
- Source

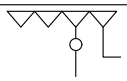
The following are for Standards UJ1, UJ3, and UJ3F:

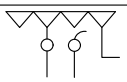
Rev. 4 - Removed LBC4 (installed at factory) from material issue, corrected material issue, and added LBC5 configurations.

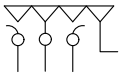
ITEM NO.	DESCRIPTION 	UJM4 QTY.	UJM4 S/N
8	Elbow, 200A, LB, 1/0, 175 & 220 mil, Test Point, 15kV, w/Jacket Seal	1	1312
10	Bushing, Standoff Insulated, 200A	1	252
11	Cap, Protective Insulated, 200A, 15kV UG	4	265
12	Connector, Crimpet, Cu, Run & Tap #2 Sol - #2 Str (2C2)	1	455

ITEM NO.	DESCRIPTION 	UJM41 QTY.	UJM41 S/N
8	Elbow, 200A, LB, 1/0, 175 & 220 mil, Test Point, 15kV, w/Jacket Seal	2	1312
9	Indicator, Fault, UG, 400A, Test Point, Voltage Reset, 1Ø	1	2694
10	Bushing, Standoff Insulated, 200A	1	252
11	Cap, Protective Insulated, 200A, 15kV UG	3	265
12	Connector, Crimpet, Cu, Run & Tap #2 Sol - #2 Str (2C2)	2	455

ITEM NO.	DESCRIPTION 	UJM42 QTY.	UJM42 S/N
8	Elbow, 200A, LB, 1/0, 175 & 220 mil, Test Point, 15kV, w/Jacket Seal	3	1312
9	Indicator, Fault, UG, 400A, Test Point, Voltage Reset, 1Ø	2	2694
10	Bushing, Standoff Insulated, 200A	2	252
11	Cap, Protective Insulated, 200A, 15kV UG	3	265
12	Connector, Crimpet, Cu, Run & Tap #2 Sol - #2 Str (2C2)	3	455

ITEM NO.	DESCRIPTION 	UJM44 QTY.	UJM44 S/N
8	Elbow, 200A, LB, 1/0, 175 & 220 mil, Test Point, 15kV, w/Jacket Seal	2	1312
9	Indicator, Fault, UG, 400A, Test Point, Voltage Reset, 1Ø	1	2694
10	Bushing, Standoff Insulated, 200A	1	252
11	Cap, Protective Insulated, 200A, 15kV UG	3	265
12	Connector, Crimpet, Cu, Run & Tap #2 Sol - #2 Str (2C2)	2	455

ITEM NO.	DESCRIPTION 	UJM45 QTY.	UJM45 S/N
8	Elbow, 200A, LB, 1/0, 175 & 220 mil, Test Point, 15kV, w/Jacket Seal	3	1312
9	Indicator, Fault, UG, 400A, Test Point, Voltage Reset, 1Ø	2	2694
10	Bushing, Standoff Insulated, 200A	1	252
11	Cap, Protective Insulated, 200A, 15kV UG	2	265
12	Connector, Crimpet, Cu, Run & Tap #2 Sol - #2 Str (2C2)	3	455

ITEM NO.	DESCRIPTION 	UJM46 QTY.	UJM46 S/N
8	Elbow, 200A, LB, 1/0, 175 & 220 mil, Test Point, 15kV, w/Jacket Seal	4	1312
9	Indicator, Fault, UG, 400A, Test Point, Voltage Reset, 1Ø	3	2694
10	Bushing, Standoff Insulated, 200A	2	252
11	Cap, Protective Insulated, 200A, 15kV UG	2	265
12	Connector, Crimpet, Cu, Run & Tap #2 Sol - #2 Str (2C2)	4	455

Clark Public Utilities

CONSTRUCTION STANDARDS

PRIMARY JUNCTION BOX
SINGLE AND THREE PHASE
MATERIAL LIST

REVISIONS			
⚠R	DATE	ENGR	OPS
1	9/23/04	LB	AH
2	12/29/04	LB	AH
3	4/29/09	CM	AH
4	3/12/20	CM	GM

PAGE:		CAD FILE:	APP: HWH/GGD	SECTION
1 of 2	UJM	UJM	DATE: 1/22/80	1500

The following are for Standards UJ1, UJ3, and UJ3F:

Rev. 4 - Removed LBC4 (installed at factory) from material issue, corrected material issue, and added LBC5 configurations.

ITEM NO.	DESCRIPTION	UJM47 QTY.	UJM47 S/N
8	Elbow, 200A, LB, 1/0, 175 & 220 mil, Test Point, 15kV, w/Jacket Seal	3	1312
9	Indicator, Fault, UG, 400A, Test Point, Voltage Reset, 1Ø	2	2694
10	Bushing, Standoff Insulated, 200A	1	252
11	Cap, Protective Insulated, 200A, 15kV UG	2	265
12	Connector, Crimpet, Cu, Run & Tap #2 Sol - #2 Str (2C2)	3	455

ITEM NO.	DESCRIPTION	UJM48 QTY.	UJM48 S/N
8	Elbow, 200A, LB, 1/0, 175 & 220 mil, Test Point, 15kV, w/Jacket Seal	4	1312
9	Indicator, Fault, UG, 400A, Test Point, Voltage Reset, 1Ø	3	2694
10	Bushing, Standoff Insulated, 200A	1	252
11	Cap, Protective Insulated, 200A, 15kV UG	1	265
12	Connector, Crimpet, Cu, Run & Tap #2 Sol - #2 Str (2C2)	4	455

ITEM NO.	DESCRIPTION	UJM49 QTY.	UJM49 S/N
8	Elbow, 200A, LB, 1/0, 175 & 220 mil, Test Point, 15kV, w/Jacket Seal	4	1312
9	Indicator, Fault, UG, 400A, Test Point, Voltage Reset, 1Ø	3	2694
10	Bushing, Standoff Insulated, 200A	1	252
11	Cap, Protective Insulated, 200A, 15kV UG	1	265
12	Connector, Crimpet, Cu, Run & Tap #2 Sol - #2 Str (2C2)	4	455

The following are for Standards UJ2 and UJ4:

ITEM NO.	DESCRIPTION	UJM5 QTY.	UJM5 S/N
8	Elbow, 200A, LB, 1/0, 175 & 220 mil, Test Point, 15kV, w/Jacket Seal	5	1312
9	Indicator, Fault, UG, 400A, Test Point, Voltage Reset, 1Ø	4	2694
10	Bushing, Standoff Insulated, 200A	1	252
11	Cap, Protective Insulated, 200A, 15kV UG	1	265
12	Connector, Crimpet, Cu, Run & Tap #2 Sol - #2 Str (2C2)	5	455

ITEM NO.	DESCRIPTION	UJM51 QTY.	UJM51 S/N
8	Elbow, 200A, LB, 1/0, 175 & 220 mil, Test Point, 15kV, w/Jacket Seal	4	1312
9	Indicator, Fault, UG, 400A, Test Point, Voltage Reset, 1Ø	3	2694
10	Bushing, Standoff Insulated, 200A	1	252
11	Cap, Protective Insulated, 200A, 15kV UG	2	265
12	Connector, Crimpet, Cu, Run & Tap #2 Sol - #2 Str (2C2)	4	455

Clark Public Utilities

CONSTRUCTION STANDARDS

PRIMARY JUNCTION BOX
SINGLE AND THREE PHASE
MATERIAL LIST

REVISIONS			
R	DATE	ENGR	OPS
1	9/23/04	LB	AH
2	12/29/04	LB	AH
3	4/29/09	CM	AH
4	3/12/20	CM	GM

UJM

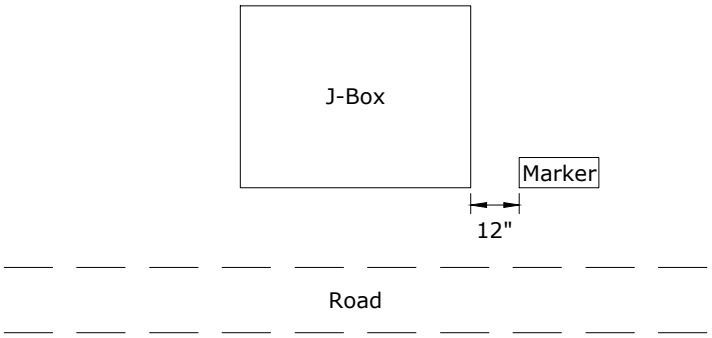
CAD FILE: UJM

APP: HWH/GGD

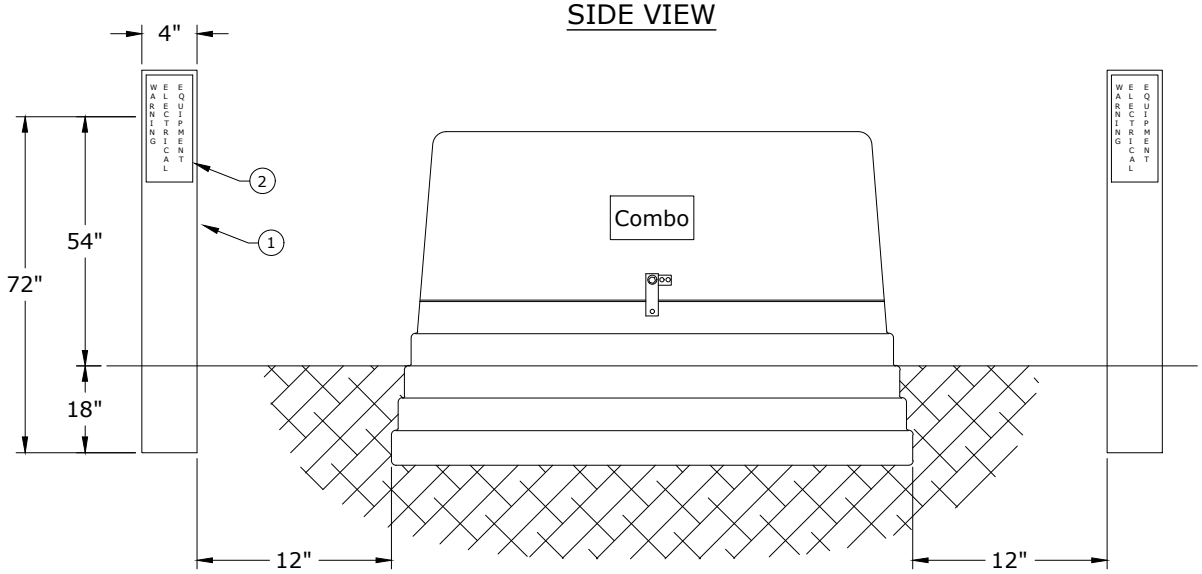
DATE: 1/22/80

SECTION 1500

TOP VIEW



SIDE VIEW



Notes:

1. Use marker when view of J-box may be obscured by terrain or foliage.
2. Call for locates before installing.

ITEM NO.	DESCRIPTION	UJMP QTY.	UJMP S/N
1	Marker, Post, Red, 6', Electrical Equipment	2	2896
2	Marker, Post, Marker, Electrical Equipment	2	2893

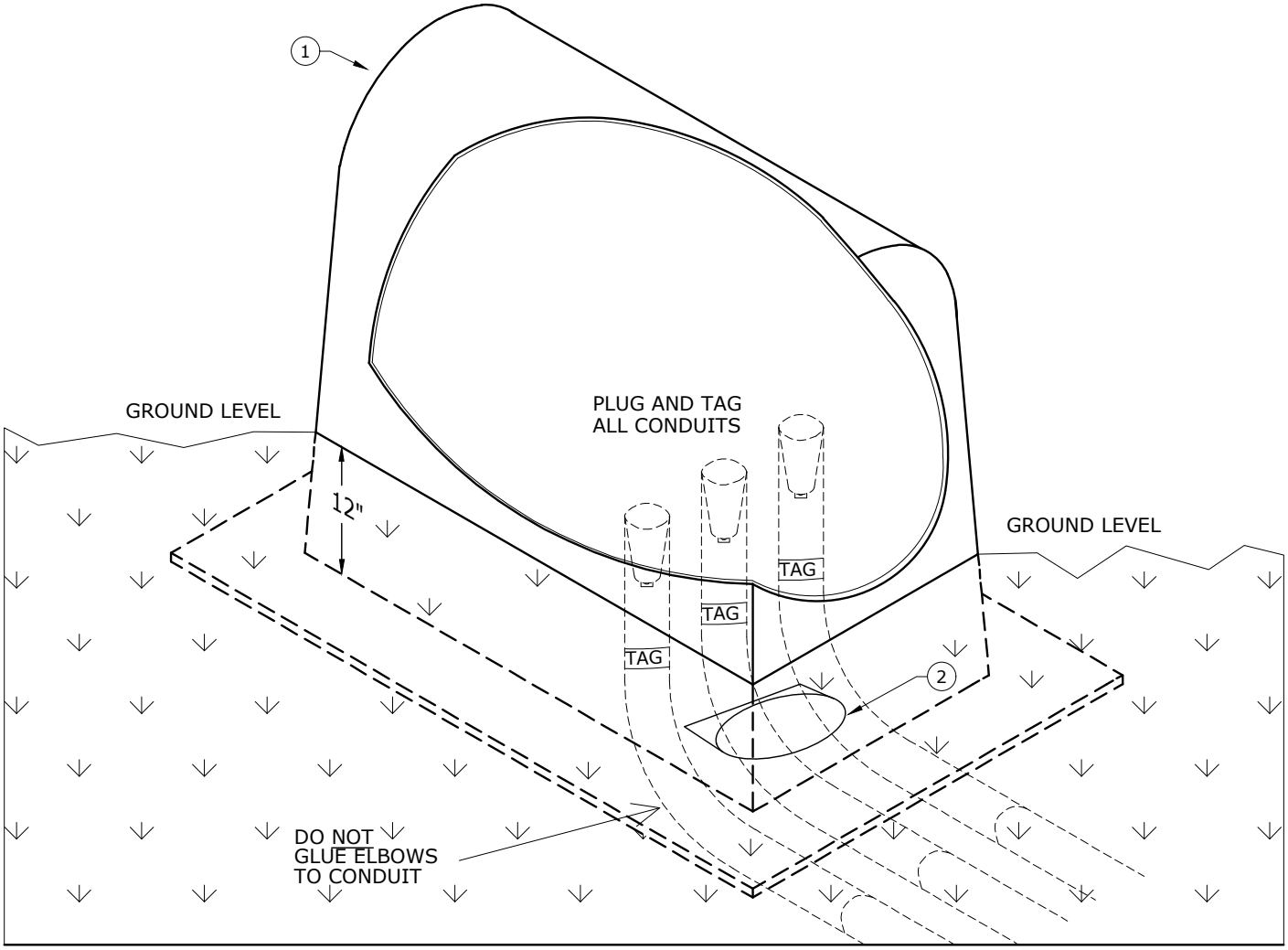
Clark Public Utilities

CONSTRUCTION STANDARDS

JUNCTION BOX MARKER

REVISIONS			
R	DATE	ENGR	OPS

PAGE:		CAD FILE:	APP: CM/GM	SECTION
1 of 1	UJMP	UJMP	DATE: 3/12/20	1500



Notes:

1. Bury approximately one foot of the enclosure.
2. Conduits shall be buried 42" to 48" deep unless otherwise approved by CPU.
3. The disc marker is to be installed flat with the instructions facing up.
4. The disc should be placed in radius of elbow.
5. CPU has the locator for finding these markers.
6. The markers are reusable.
7. Loop enclosures and marker discs provided by CPU.
8. All conduits shall be plugged w/
   S/N 2697- 2" plastic conduit plug or
   S/N 2698- 4" plastic conduit plug.
9. All conduits should be tagged with direction and length of conduit. See Std. UID2.
10. Proof conduit and install sequentially-numbered, 2500 lb, mule tape in all futures.

Rev. 2 - Added Notes #8, #9, & #10 and added plugs and tags to drawings.

ITEM	DESCRIPTION	QTY	S/N
1	Enclosure, Cable Loop, Fiberglass, 30" x 30" x 8" w/ 5" Flange	1	1821
2	Marker, UG, Disc, Full Range	1	2210

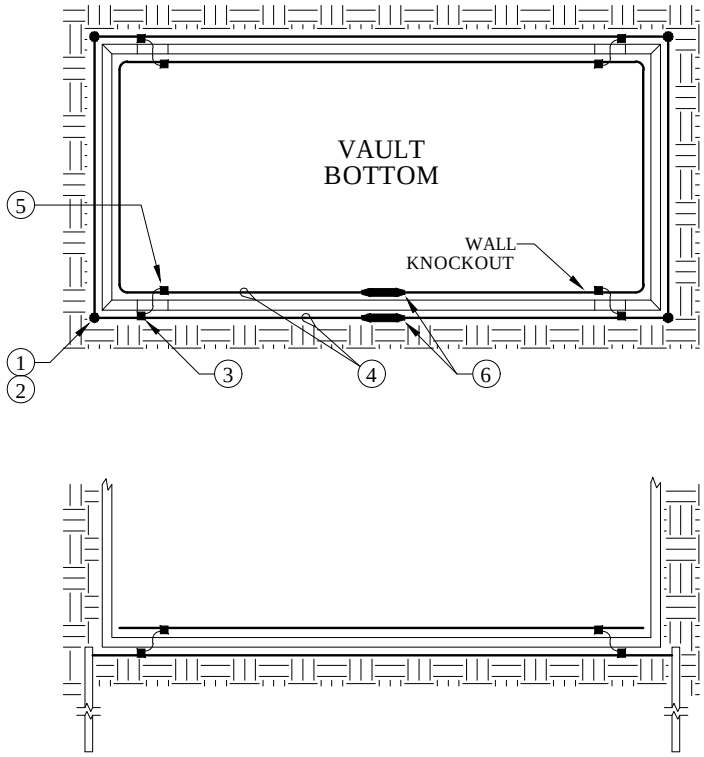
Clark Public Utilities

CONSTRUCTION STANDARDS

LOOP ENCLOSURE

REVISIONS			
R	DATE	ENGR	OPS
0	9/23/04	LB	AH
1	12/29/04	LB	AH
2	3/12/20	CM	GM

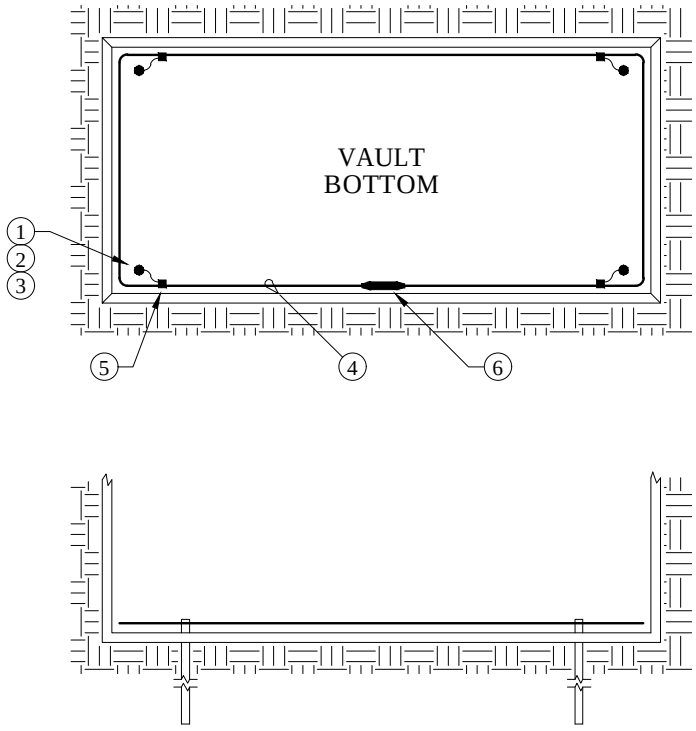
PAGE:		CAD FILE:	APP: HWH/GGW	SECTION
1 of 1	ULE	ULE	DATE: 9/94	1500



INSTALL GROUND RODS AND OUTSIDE 2/0 COPPER BEFORE VAULT IS INSTALLED. FEED 2/0 TAPS FROM OUTSIDE GROUND THROUGH VAULT WALL KNOCKOUTS.

FOR NEW VAULTS

UVG-1



CUT GROUND RODS IN HALF. DRIVE ONE HALF. COUPLE ON SECOND HALF AND DRIVE SO THAT ONLY THE CLAMP IS EXPOSED ABOVE THE FLOOR.

FOR EXISTING VAULTS

UVG-2

Clark Public Utilities

CONSTRUCTION STANDARDS

UNDERGROUND VAULT
GROUNDING SYSTEM

REVISIONS			
R	DATE	ENGR	OPS
0	2/23/00	HWH	MA

△0

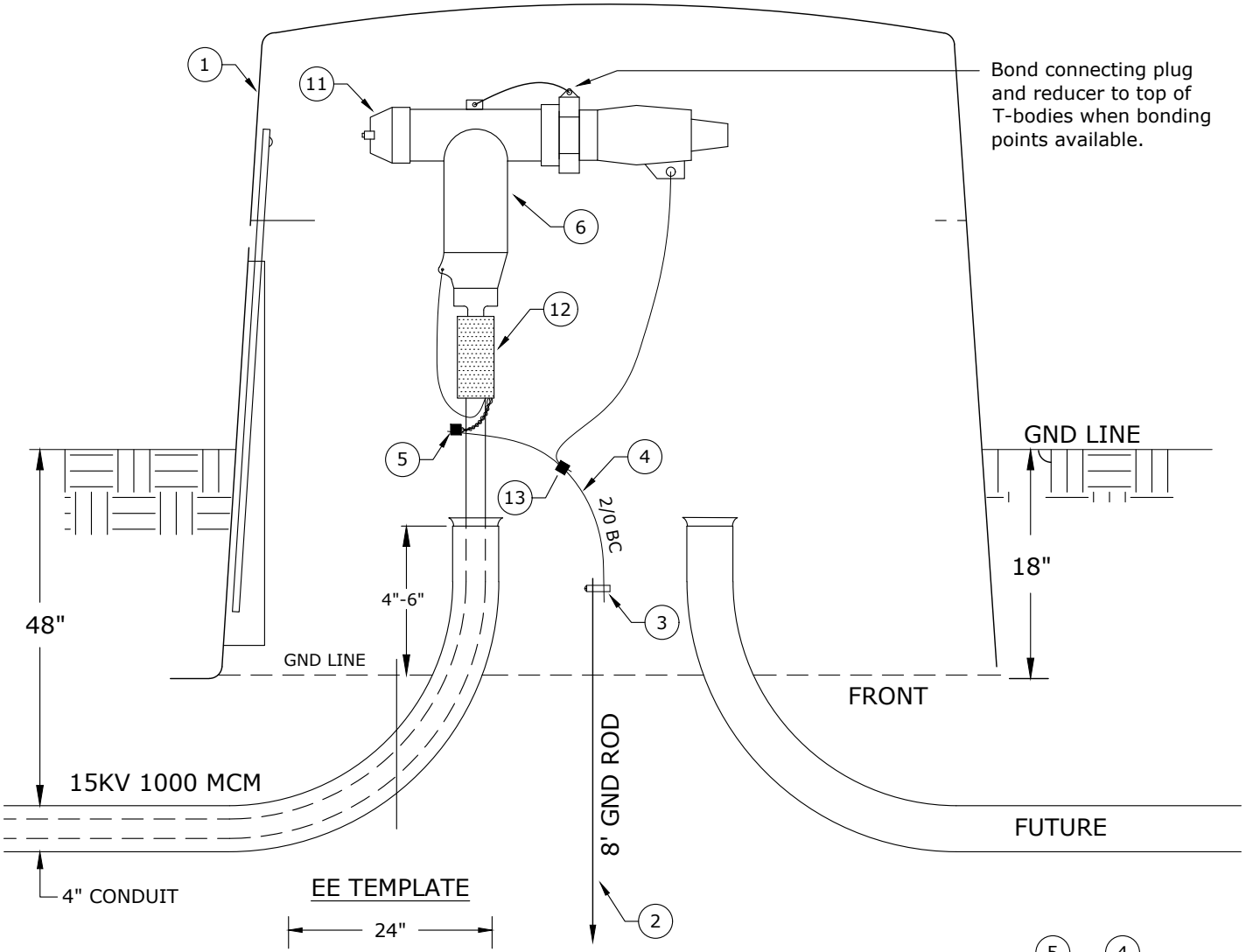
PAGE:		CAD FILE:	APP: JEH	SECTION
1 of 1	UVG-1, UVG-2	UVG-1	DATE: 2/22/00	1500

1600
1000 MCM CABLE

12/23/2022

~	UEE1	Elbow Enclosure - Deadend
~	UEE2	Elbow Enclosure - Feed-Through
C	UPR1	1000 MCM Cable Riser
C	UPR2	1000 MCM Power Cable Riser Grounding Detail
C	UPR4	1000 MCM Cable Riser with 3Ø Switch
C	UPR5	1000 MCM Cable Riser with 600 Amp Disconnects
C	UPR6	Parallel 1000 MCM Cable Riser with 3Ø Switch
~	USG1	Padmount Switchgear - 600A Elbow - 1000MCM Cable
~	USG2	Padmount Switchgear Chart
~	USG3	Deadfront Switchgear – 612 Vault Detail
~	USG5	Deadfront Switchgear on 774 Vault For Maintenance Only or When Std USG3 Vault Will Not Fit
~	USG8	Below Grade Switchgear – Use w/ Std USG9
~	USG9	Below Grade Switchgear – Vault Detail – Use w/ Std USG8
~	USP	1000MCM Splice Pit Flush-Mount

N New Standard
R Redrawn Standard
C Changed Standard
~ No Change



Notes:

1. Use EE template when framing conduits and backfilling.
2. Leave enough cable slack to position the elbow near the top of the enclosure lid. This provides room for future operations.
3. Elbows assemble 8-3/4" apart (center to center). Align conduits to avoid cable bending.

Rev. 4 - Corrected material list, torque requirements, and template dimensions.

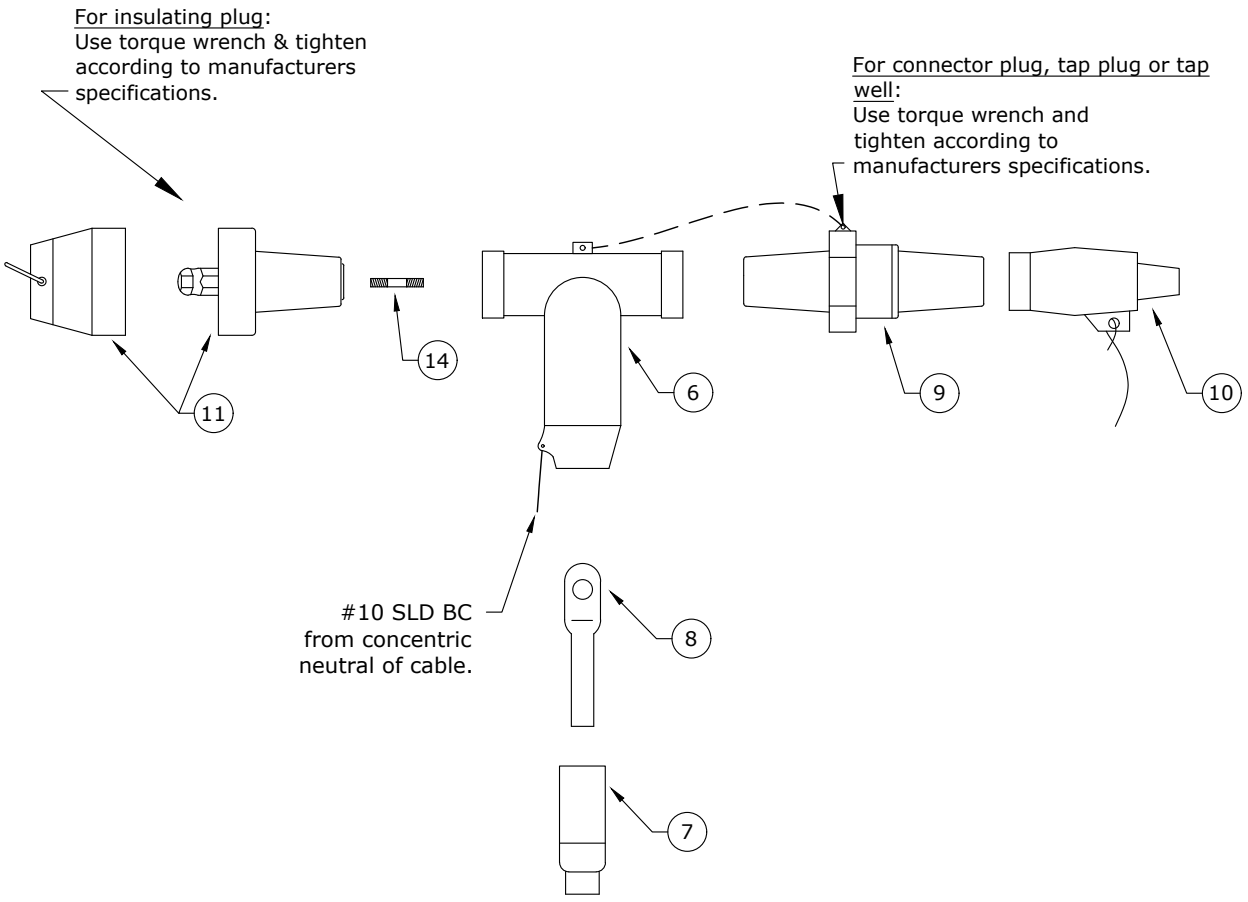
Clark Public Utilities

CONSTRUCTION STANDARDS

ELBOW ENCLOSURE
DEADEND

REVISIONS			
R	DATE	ENGR	OPS
1	9/23/04	LB	AH
2	10/7/05	LB	AH
3	12/14/09	KJP	
4	8/8/22	CRM	GM

PAGE:		CAD FILE:	APP:	SECTION
1 of 2	UEE1	UEE1	DATE: 6/90	1600



DEADEND

Rev. 4 - Corrected material list, torque requirements, and template dimensions.

ITEM NO.	DESCRIPTION	UEE1☼	
		QTY.	S/N
1	Enclosure, Elbow (EE), Fiberglass, 72"w x 49"h x 44"d	1	2213
2	Rod, Ground, 5/8" x 8'	1	1124
3	Clamp, Ground Rod, 5/8" Bronze, Large	1	282
4	Conductor, OH, Cu, 2/0, 7-Str, Bare, Soft-Drawn, 1C	30 Ft.	379 ☼
5	Connector, Crimpet, Cu, Run & Tap 3/0 to 4/0 Str	3	460
6	Elbow, 600 Amp, T-body	3	1825
7	Adapter, Cable, 1000 MCM	3	1
8	Contact, Compression, Al, 1000 MCM, Non-Threaded Hole	3	941
9	Plug, Loadbreak, Reducing Tap, 600A-200A	3	1769
10	Cap, Protective Insulated, 200A	3	265
11	Plug, Basic Insulating	3	1824
12	Elbow, Sealing Kit, 1000MCM, 175 & 220 mil	3	2376
13	Connector, Crimpet, Cu, Run & Tap 1/0 to 2/0 Str	1	457
14	Stud, Al, 600A T-body To Reducer Plug	3	2704 ☼

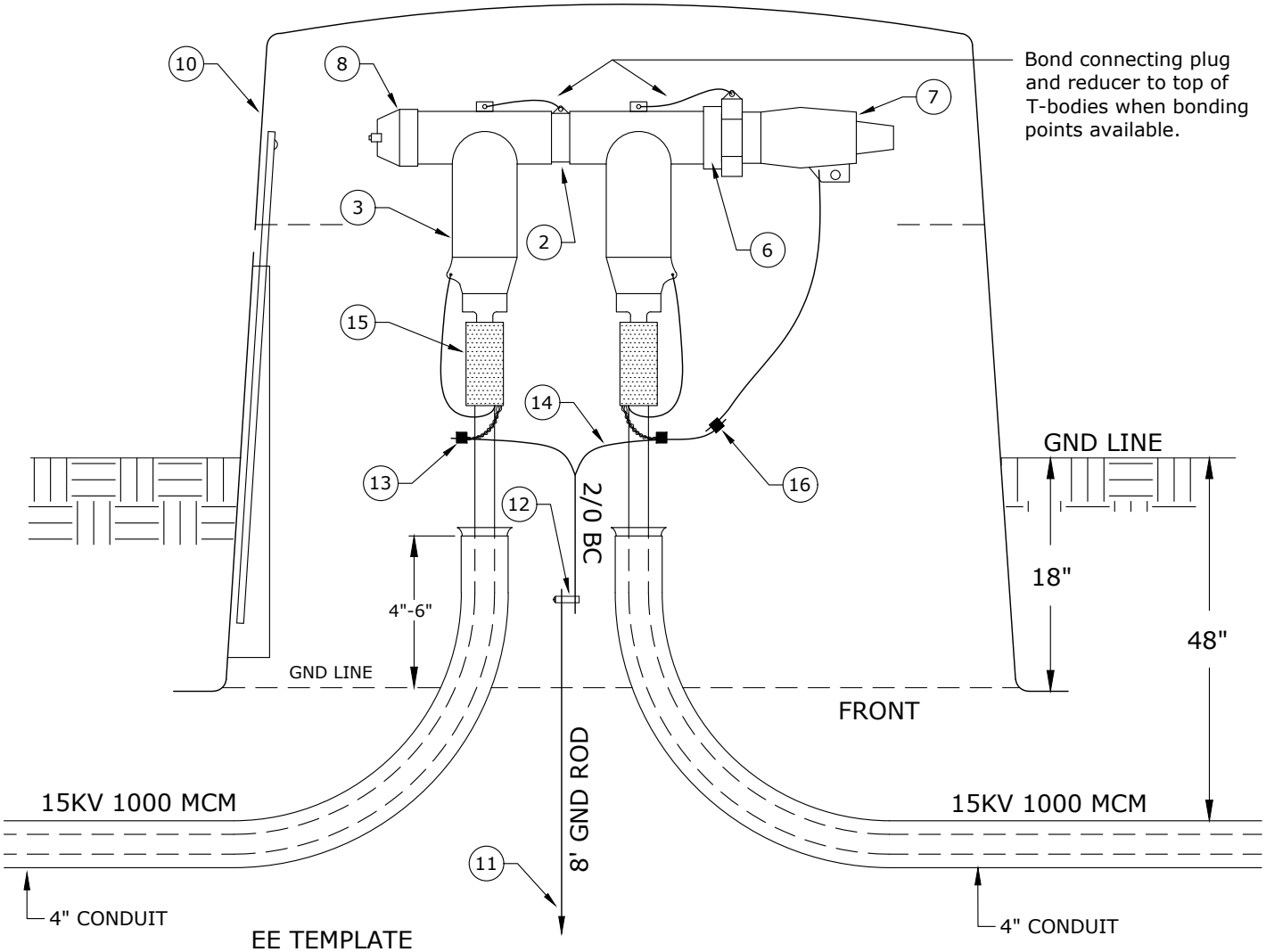
Clark Public Utilities

CONSTRUCTION STANDARDS

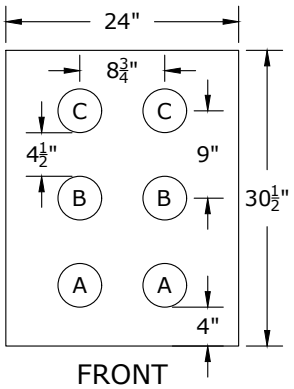
ELBOW ENCLOSURE
DEADEND

REVISIONS			
R	DATE	ENGR	OPS
1	9/23/04	LB	AH
2	10/7/05	LB	AH
3	12/14/09	KJP	
4	8/8/22	CRM	GM

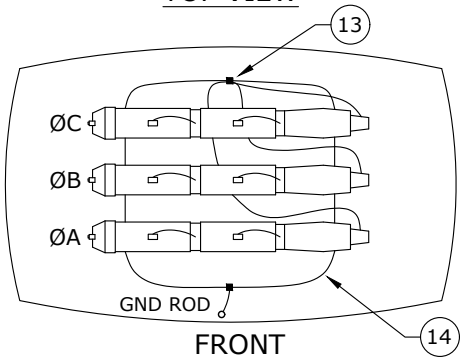
PAGE:		CAD FILE:	APP:	SECTION
2 of 2	UEE1	UEE1	DATE: 6/90	1600



EE TEMPLATE



TOP VIEW



Notes:

1. Use EE template when framing conduits and backfilling.
2. Leave enough cable slack to position the elbow near the top of the enclosure lid. This provides room for future operations.
3. Elbows assemble 8-3/4" apart (center to center). Align conduits to avoid cable bending.

Rev. 3 - Corrected material list, torque requirements, and template dimensions.

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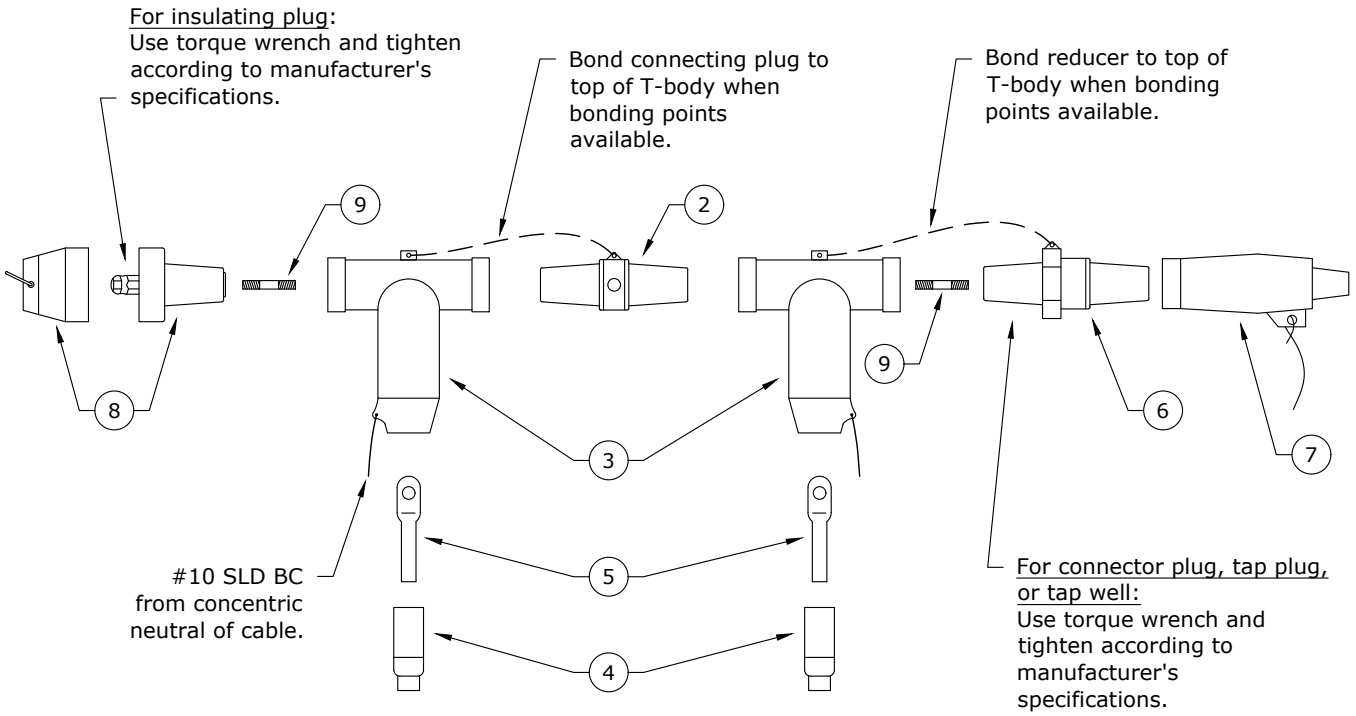
CONSTRUCTION STANDARDS

ELBOW ENCLOSURE
FEED-THROUGH

REVISIONS			
R	DATE	ENGR	OPS
1	10/7/05	LB	AH
2	8/25/09	CM	AH
3	8/8/22	CRM	GM

PAGE:		CAD FILE:	APP: LB/AH	SECTION
1 of 2	UEE2	UEE2	DATE: 9/23/04	1600



Rev. 3 - Corrected material list, torque requirements, and template dimensions.

ITEM NO.	DESCRIPTION	UEE2	
		QTY.	S/N
1	Elbow, 600A, NLB, Test Point, Kit for UEE2	3	2693
	Each Kit Consists Of: (Items #2 Thru #9)		
2	*Plug, Connecting, 600A*	1	1723
3	*Elbow, 600A, T-body*	2	1825
4	*Adapter, Cable, 1000MCM*	2	1
5	*Contact, Compression, Al, 1000 MCM, Non-threaded Hole*	2	941
6	*Plug, Loadbreak, Reducing Tap, 600A-200A*	1	1769
7	*Cap, Protective Insulated, 200A*	1	265
8	*Plug, Basic Insulating*	1	1824
9	*Stud, Al, 600A T-body To Reducer Plug*	2	2704 ✲
10	Enclosure, Elbow (EE), Fiberglass, 72"w x 49"h x 44"d	1	2213
11	Rod, Ground, 5/8" x 8'	1	1124
12	Clamp, Ground Rod, 5/8" Bronze, Large	1	282
13	Connector, Crimpet, Cu, Run & Tap 3/0 to 4/0	6	460
14	Conductor, OH, Cu, 2/0, 7-Str, Bare, Soft-Drawn, 1C	30 ft	379
15	Elbow, Sealing Kit, 1000MCM, 175 & 220 mil	6	2376
16	Connector, Crimpet, Cu, Run & Tap 1/0 to 2/0 Str	1	457

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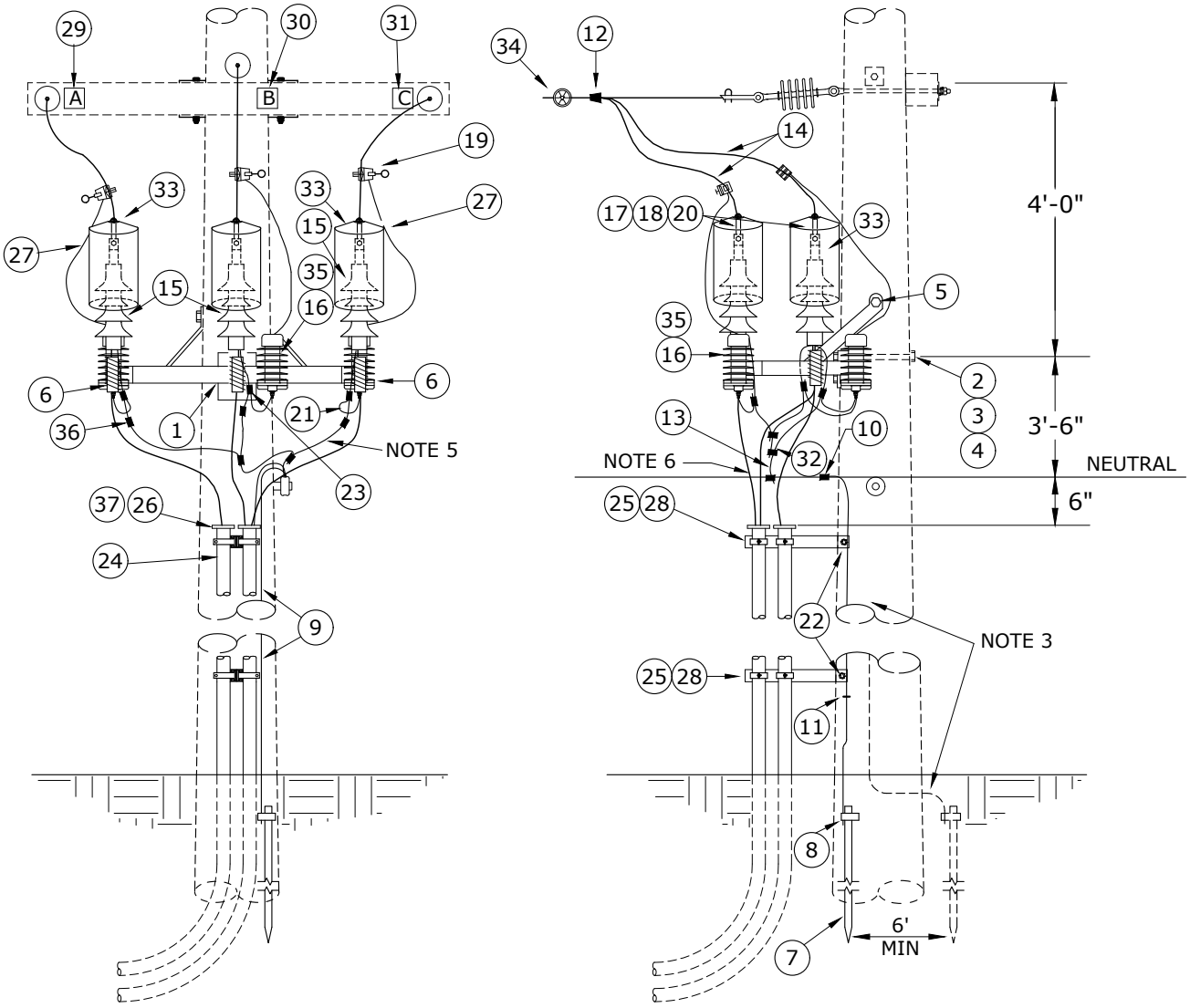
CONSTRUCTION STANDARDS

ELBOW ENCLOSURE
FEED-THROUGH

REVISIONS			
R	DATE	ENGR	OPS
1	10/7/05	LB	AH
2	8/25/09	CM	AH
3	8/8/22	CRM	GM

PAGE:		CAD FILE:	APP: LB/AH	SECTION
2 of 2	UEE2	UEE2	DATE: 9/23/04	1600



Notes:

1. UPR4 is the preferred standard. This standard is to be used for short dips such as airport dips or if other switches are nearby for isolation. See UPR4 for the recommended construction.
2. See UPR2 for grounding details.
3. All ground wire is #4 Cu equivalent covered copper-clad steel.
4. Static wire ground when required. DO NOT connect to neutral. See N2 for details. Engineer must call for static wire ground separately.
5. Avoid sharp turns in the arrester grounds and primary leads.
6. 2/0 CU from terminators to overhead neutral for all 1000MCM construction.

Rev 3 - Removed extra 2/0 Cu neutral for substation get-a-aways, changed to copper-clad steel grounds & added support grips and 4/0-2/0 crimpets.

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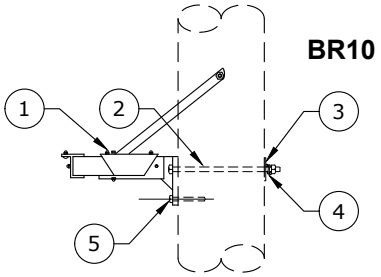
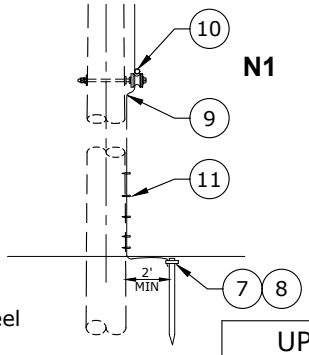
CONSTRUCTION STANDARDS

1000 MCM CABLE RISER

REVISIONS			
R	DATE	ENGR	OPS
0	2/23/00	HWH	MA
1	12/29/04	LB	AH
2	1/13/10	CM	AH
3	12/9/22	CRM	GM

PAGE:		CAD FILE:	APP:	SECTION
1 of 2	UPR1	UPR1	DATE: 6/90	1600





Rev 3 - Removed extra 2/0 Cu neutral for substation get-a-aways, changed to copper-clad steel grounds & added support grips and 4/0-2/0 crimpets.

ITEM NO.	DESCRIPTION	UPR1 BR10 QTY.	S/N
1	Bracket, Terminator, Mount, 48", 1000MCM	1	2842 ✡
2	Bolt, Machine, 5/8" x 14", Galv, 12,400 lb Ultimate Tensile	1	156
3	Washer, Curved, Square, Cast, 3" x 3" x 3/8" Thick x 13/16" Hole, Galv	1	1392
4	Washer, Lock, Spring, Double Coil, Galv, 5/8"	1	2217
5	Screw, Lag, 1/2" x 4 1/2", Twist Drive, Drive Point	3	1132
6	Support, Cable, 1000MCM	3	2229
ITEM NO.	DESCRIPTION	N1 QTY.	S/N
7	Rod, Ground, 5/8" x 8'	1	1124
8	Clamp, Ground Rod, 5/8", Small, Bronze	1	281
9	Conductor, Copper-Clad Steel, #4 Cu Equivalent, 40% Annealed, Black Jacket with Green Stripe	40✡	1512 ✡
10	Connector, H-Tap, Al/Cu, Run #2-2/0 Str - Tap #6-#1 Str	1	413
11	Staple, Ground Wire, Barbed, Galvanized, 1 1/2"	24	2707
ITEM NO.	DESCRIPTION	ADDITIONAL MATERIAL QTY.	S/N
12	Connector, Tap, Wedge, Run and Tap 336 ACSR to 397 AAC	3	2501
13	Conductor, OH, 600v, Cu, 2/0, 19-Str, XLPE, 80 mil, Soft-Drawn, 1C, RHW-2	30	381
14	Conductor, OH, AAC, 397.5, 19-Str, Bare, 1C, Canna	30	367
15	Terminator, 15kV, Cold-Shrink JCN, 1000MCM	3	2225
16	Arrester, Surge, 9 kV, MOV, Riser Pole	3	58
17	Connector, Compression, Lug, 2-hole, 336 ACSR & 397 AAC	3	438
18	Connector, Compression, Lug, Al/Cu, Tin-Plated, 1000MCM to NEMA 2-Hole	3	1501
19	Clamp, Hot Line, GP1530, Line #6 Sol - 400MCM, Tap #6 Sol - 4/0 Str Cu Only	3	284
20	Bolt, 1/2" x 2", w/ Flat and Belleville Washers, Assembly	6	1389
21	Conductor, OH, Cu, #4 Solid, Bare, Soft-Drawn, 1C	10	376
22	Screw, Lag, 1/2" x 4 1/2", Twist Drive, Drive Point	6	1132
23	Connector, Crimpet, Cu, Run 3/0 - 4/0 Str, Tap #6 Sol - #2 Str	3	458 ✡
24	Conduit, 4" x 10', Sch 80	90	2203
25	Clamp, Standoff Bracket, 4"	9	297
26	End Bell, 4", Sch 40, Long	3	2204
27	Conductor, OH, 600v, Cu, #2, 7-Str, XLPE, 60 mil, Soft-Drawn, 1C, RHW-2	15	393
28	Bracket, Standoff, 15" w/ Stop and Brace	3	227
29	Tag, Phase A	1	1280
30	Tag, Phase B	1	1281
31	Tag, Phase C	1	1282
32	Connector, Crimpet, Cu, Run and Tap 1/0 - 2/0 Str	2 ✡	457
33	Guard, Wildlife, Large, OH/UG Terminators	3	1676
34	Indicator, Fault, 400A, OH, Beacon w/ Signal Flag, Electric Field Reset	3	2558
35	Guard, Wildlife, Polymer Arrester	3	2583
36	Connector, Crimpet, Cu, Run 3/0 Str - 250 Str, Tap #6 Sol - 2/0 Str	3	459 ✡
37	Grip, Support, 4" Conduit, 1000MCM (1.625" to 2.5")	3	2521 ✡

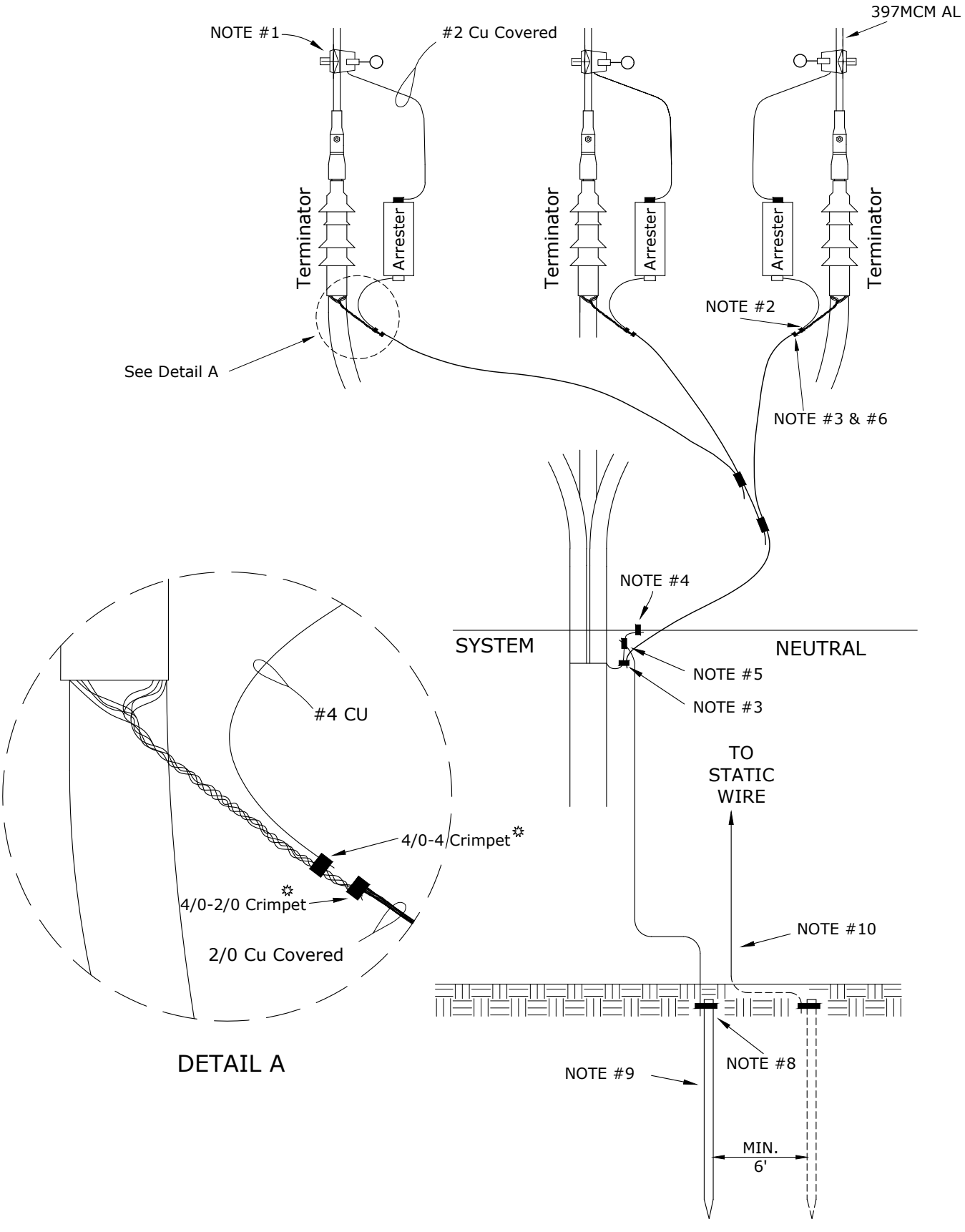
Clark Public Utilities

CONSTRUCTION STANDARDS

1000 MCM CABLE RISER

REVISIONS			
⚠R	DATE	ENGR	OPS
0	2/23/00	HWH	MA
1	12/29/04	LB	AH
2	1/13/10	CM	AH
3	12/9/22	CRM	GM

PAGE:		CAD FILE:	APP:	SECTION
2 of 2	UPR1	UPR1	DATE: 6/90	1600



DETAIL A

Rev 2 - Updated notes for 2023 NESC and changed to 4/0-2/0 crimpet.

Clark Public Utilities

CONSTRUCTION STANDARDS

1000 MCM CABLE RISER
GROUNDING DETAIL

REVISIONS			
R	DATE	ENGR	OPS
0	2/23/00	HWH	MA
1	12/29/04	LB	AH
2	12/9/22	CRM	GM

PAGE:		CAD FILE:	APP:	SECTION
1 of 2	UPR2	UPR2	DATE: 6/90	1600

NOTES:

1. Make connections as close to terminator as possible but DO NOT make a sharp bend. Use hot line clamp for easy removal.

2. Connect surge arrester lead to concentric neutral.

3. Connect concentric neutral wires (twist together) to 2/0 stranded copper with 4/0-2/0✲ crimpet. Connect separate 2/0 runs, as per drawing, from each concentric neutral to the system neutral. Use 2/0 covered conductor and train this conductor back down along the 1000MCM cable for appearance.

4. Connect 2/0 copper riser neutral to system neutral only. This riser neutral is only used for substation get-a-ways. The 2/0 Cu riser neutral is only needed on old installations where the 1000MCM had less than 1/3 neutral per phase. Any get-a-way with a full neutral does not need the additional 2/0 Cu.✲

5. Use separate ground lead for system neutral grounding connection. Any other equipment grounds may be connected to this ground lead also per NESC 092B3.

6. Do not connect arrester grounds separately to system neutral. Connect to concentric neutral as near to the terminator as possible per NESC 097B.

7. Do not ground equipment mounting bracket per NESC 123A.

8. Top of ground rod must be buried per NESC 094C2a3. ✲

9. If more than one ground rod is required they must be separated by at least 6 feet per NESC 094C2a2.✲

10. Static wire ground when required. DO NOT connect to neutral. See TN1 to TN4 for static wire details.

Rev 2 - Updated notes for 2023 NESC and changed to 4/0-2/0 crimpet.

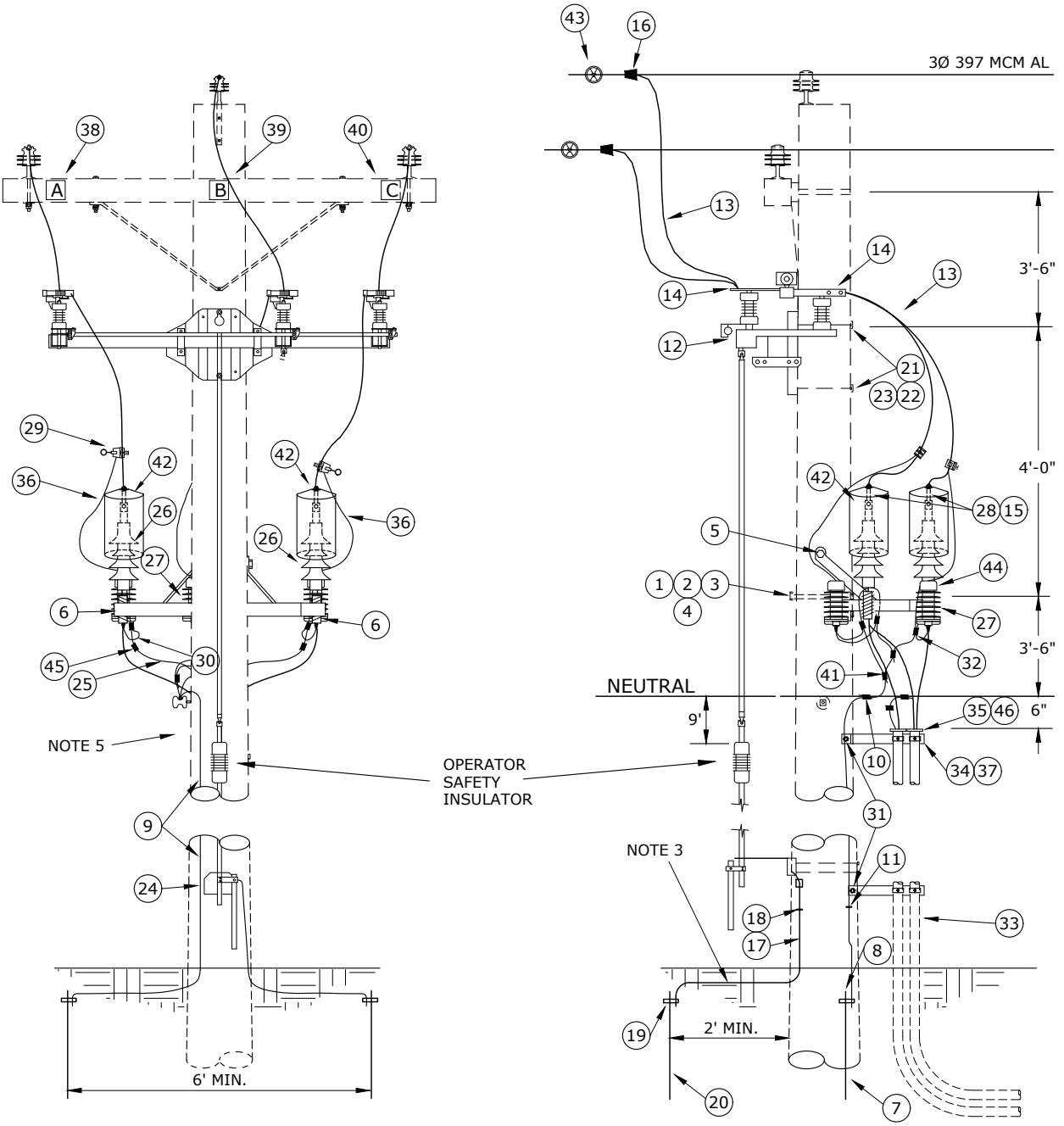
Clark Public Utilities

CONSTRUCTION STANDARDS

1000 MCM CABLE RISER
GROUNDING DETAIL

REVISIONS			
R	DATE	ENGR	OPS
0	2/23/00	HWH	MA
1	12/29/04	LB	AH
2	12/9/22	CRM	GM

PAGE:		CAD FILE:	APP:	SECTION
2 of 2	UPR2	UPR2	DATE: 6/90	1600



Notes:

1. This is the recommended 1000 MCM riser standard. See UPR1 or UPR5 when it is not possible to install a switch.
2. See UPR2 for grounding details.
3. All ground wire is #4 Cu equivalent covered copper-clad steel.
4. Avoid sharp turns in lightning arrester grounds and primary leads.
5. The pole must be 45' Class 2 or taller.
6. Static wire ground when required. DO NOT connect to neutral. See N2 for details. Engineer must call for static wire ground separately.

Rev 1 - Corrected material issue, changed to copper-clad steel, and added support grips and Note #6.

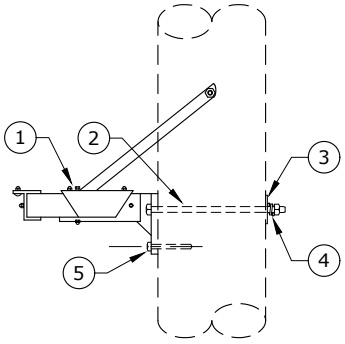
Clark Public Utilities

CONSTRUCTION STANDARDS

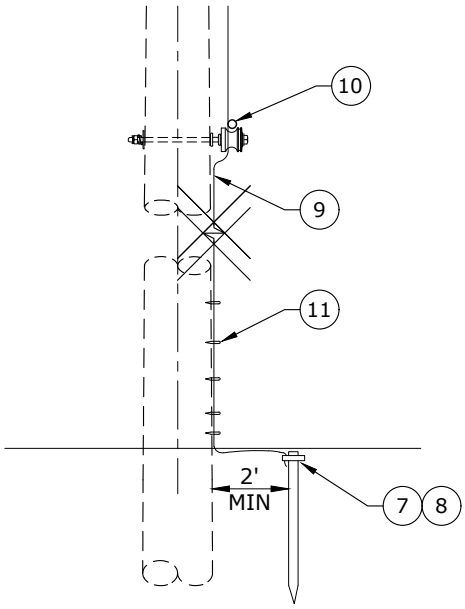
1000MCM CABLE RISER
WITH 3Ø SWITCH

REVISIONS			
R	DATE	ENGR	OPS
1	12/9/22	CRM	GM

PAGE:		CAD FILE:	APP: CM/AH	SECTION
1 of 3	UPR4	UPR4	DATE: 1/13/10	1600



BR10



N1

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CONSTRUCTION STANDARDS

1000MCM CABLE RISER
WITH 3Ø SWITCH

REVISIONS			
R	DATE	ENGR	OPS
1	12/9/22	CRM	GM

PAGE:		CAD FILE:	APP: CM/AH	SECTION
2 of 3	UPR4	UPR4	DATE: 1/13/10	1600

Rev 1 - Corrected material issue, changed to copper-clad steel, and added support grips and Note #6.

ITEM NO.	DESCRIPTION	UPR4 BR10 QTY.	S/N
1	Bracket, Terminator, Mount, 48", 1000MCM	1	2842 ✡
2	Bolt, Machine, 5/8" x 14", Galv, 12,400 lb Ultimate Tensile	1	156
3	Washer, Curved, Square, Cast, 3" x 3" x 3/8" Thick x 13/16" Hole, Galv	1	1392
4	Washer, Lock, Spring, Double Coil, Galv 5/8"	1	2217
5	Screw, Lag, 1/2" x 4 1/2", Twist Drive, Drive Point	3	1132
6	Support, Cable, 1000MCM	3	2229
ITEM NO.	DESCRIPTION	N1 QTY.	S/N
7	Rod, Ground, 5/8" x 8'	1	1124
8	Clamp, Ground Rod, 5/8", Small, Bronze	1	281
9	Conductor, Copper-Clad Steel, #4 Cu Equivalent, 40% Annealed, Black Jacket with Green Stripe	40✡	1512 ✡
10	Connector, H-Tap, Al/Cu, Run #2 - 2/0 Str, Tap #6 - #1 Str	1	413
11	Staple, Ground Wire, Barbed, Galvanized, 1 1/2"	24	2707 ✡
ITEM NO.	DESCRIPTION	ADDITIONAL MATERIAL QTY.	S/N
12	Switch, Loadbreak, Horizontal, 600A, 15kV	1	2432
13	Conductor, OH, AAC, 397.5, 19-Str, Bare, 1C, Canna	60	367
14	Connector, Compression, Lug, 2-Hole, 336 ACSR and 397 AAC	6	438
15	Bolt, 1/2" x 2", w/ Flat and Belleville Washers, Assembly	6 ✡	1389
16	Connector, Tap, Wedge, Run and Tap 336 ACSR - 397 AAC	3	2501
17	Conductor, Copper-Clad Steel, #4 Cu Equivalent, 40% Annealed, Black Jacket with Green Stripe	20	1512 ✡
18	Staple, Ground Wire, Barbed, Galvanized, 1 1/2"	5	2707 ✡
19	Clamp, Ground Rod, 5/8", Small, Bronze	1	281
20	Rod, Ground, 5/8" x 8'	1	1124
21	Machine Bolt, 3/4" x 16" Galv., 18,350 lbs. Ultimate Tensile	2	175
22	Washer, Curved, Cast, 4" x 4" with 13/16" Hole	2	1910
23	Washer, Lock Spring, Double Coil, Galv. 3/4"	2	2218
24	Lock, Padlock, 2" Hardened Stainless Steel Shackle	1	2564
25	Conductor, OH, 600v, Cu, 2/0, 19-Str, XLPE, 80 mil, Soft-Drawn, 1C, RHW-2	60	381
26	Terminator, 15kV, Cold-Shrink JCN, 1000 MCM	3	2225
27	Arrester, Surge, 9kV, MOV, Riser Pole	3	58
28	Connector, Compression, Lug, Al/Cu, Tin-Plated, 1000MCM to NEMA 2-Hole	3	1501
29	Clamp, Hot Line, GP 1530, Line #6 Sol - 400MCM, Tap #6 Sol - 4/0 Str Cu Only	3	284
30	Conductor, OH, Cu, #4 Solid, Bare, Soft-Drawn, 1C	10	376
31	Screw, Lag, 1/2" x 4 1/2", Twist Drive, Drive Point	9	1132
32	Connector, Crimpet, Cu, Run 3/0 - 4/0 Str, Tap #6 Sol - #2 Str	3✡	458 ✡
33	Conduit, 4" x 10', Sch 80	90✡	2203
34	Clamp, Standoff Bracket, 4"	9	297
35	End Bell, 4" Sch 40, Long	3	2204
36	Conductor, OH, 600v, Cu, #2, 7-Str, XLPE, 60 mil, Soft-Drawn, 1C, RHW-2	15	393
37	Bracket, Standoff, 15" with Stop and Brace	3	227
38	Tag, Phase A	1	1280
39	Tag, Phase B	1	1281
40	Tag, Phase C	1	1282
41	Connector, Crimpet, Cu, Run and Tap 1/0 - 2/0 Str	2 ✡	457
42	Guard, Wildlife, Large, OH/UG Terminators	3	1676 ✡
43	Indicator, Fault, 400A, OH, Beacon with Signal Flag, Electric Field Reset	3	2558
44	Guard, Wildlife, Polymer Arrester	3	2583✡
45	Connector, Crimpet, Cu, Run 3/0 Str - 250 Str, Tap #6 Sol - 2/0 Str	3	459 ✡
46	Grip, Support, 4" Conduit, 1000MCM (1.625" to 2.5")	3	2521✡

Clark Public Utilities

CONSTRUCTION STANDARDS

1000MCM CABLE RISER
WITH 3Ø SWITCH

REVISIONS

R	DATE	ENGR	OPS
1	12/9/22	CRM	GM

PAGE: 3 of 3

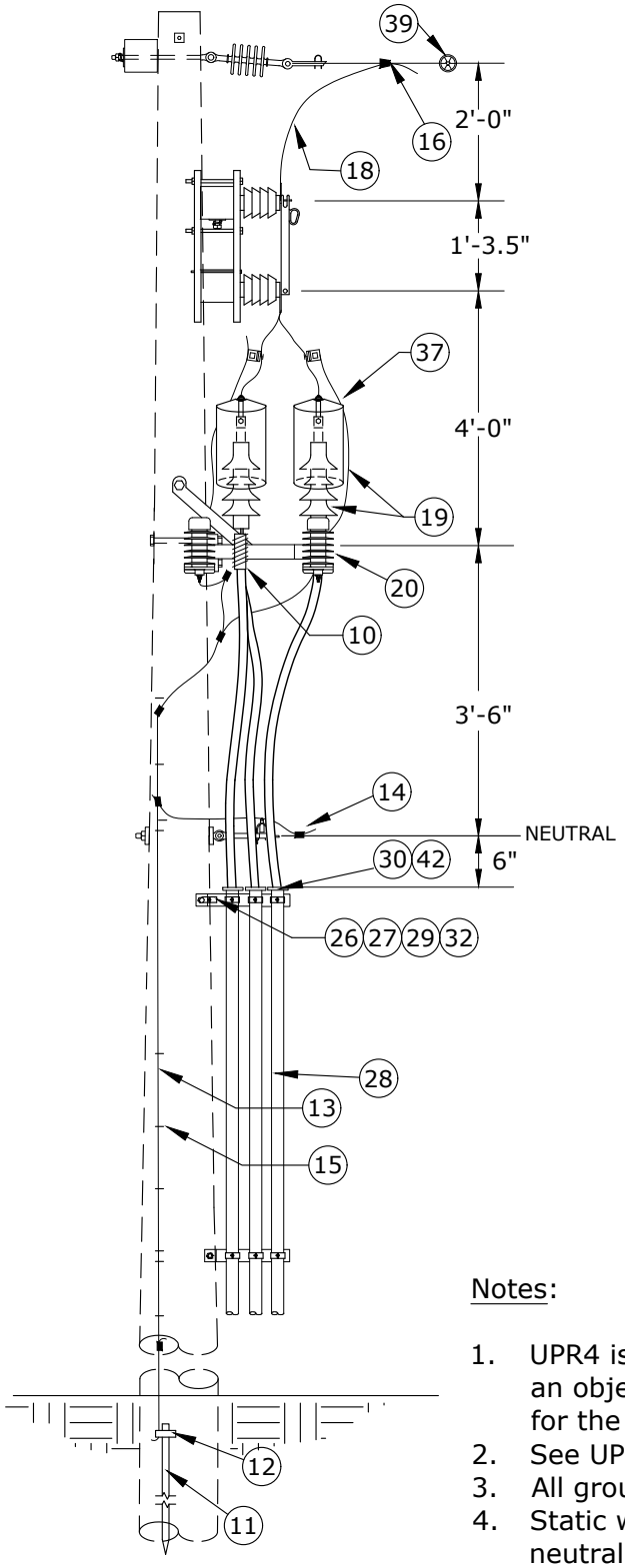
UPR4

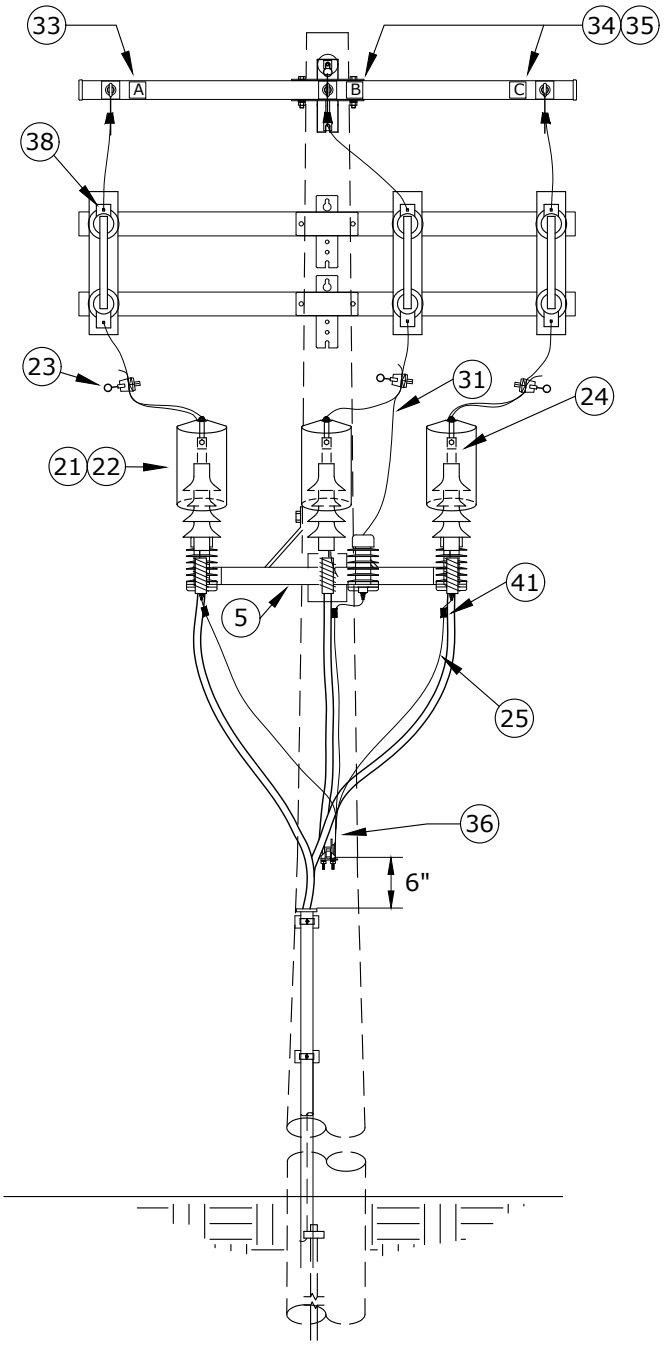
CAD FILE: UPR4

APP: CM/AH

DATE: 1/13/10

SECTION 1600





Notes:

1. UPR4 is the preferred standard. This standard is to be used if an object interferes w/ the switch handle of UPR4. See UPR4 for the recommended construction.
2. See UPR2 for grounding details.
3. All ground wire is #4 covered copper-clad steel.
4. Static wire ground when required. DO NOT connect to neutral. See N2 for static wire details. Engineer must call for static wire ground separately.
5. Avoid sharp turns in arrester grounds and primary leads.
6. 2/0 CU from terminators to overhead neutral for all 1000MCM construction.

Rev 1 - Removed extra 2/0 Cu neutral for substation get-a-ways, added 4/0-2/0 crimpet and support grips, and changed ground to Cu-clad steel grounds.

Clark Public Utilities

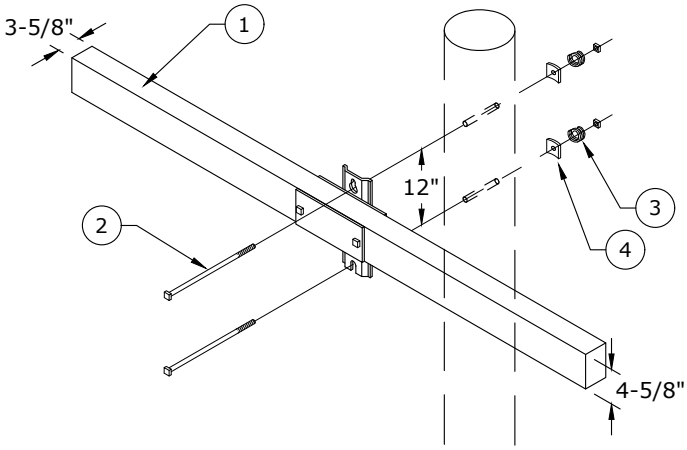
CONSTRUCTION STANDARDS

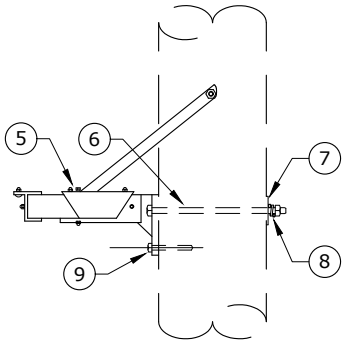
1000MCM CABLE RISER
WITH 600 AMP DISCONNECTS

REVISIONS			
R	DATE	ENGR	OPS
1	12/9/22	CRM	GM

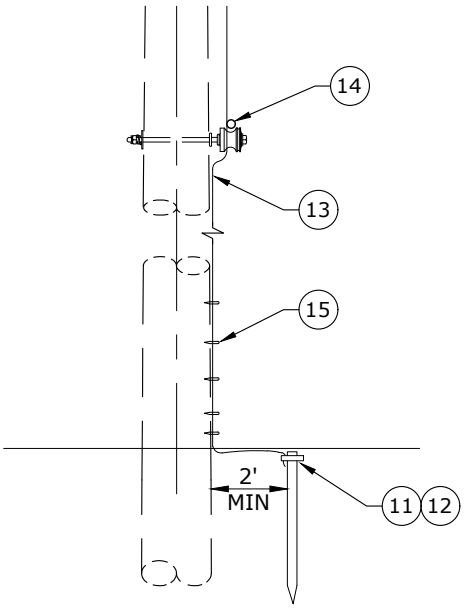
PAGE:		CAD FILE:	APP: CM/AH	SECTION
1 of 3	UPR5	UPR5	DATE: 1/13/10	1600

CR23B





BR10



N1

Rev 1 - Removed extra 2/0 Cu neutral for substation get-a-ways, added 4/0-2/0 crimpets and support grips, and changed ground to Cu-clad steel grounds.

Clark Public Utilities

CONSTRUCTION STANDARDS

1000MCM CABLE RISER
WITH 600 AMP DISCONNECTS

REVISIONS			
R	DATE	ENGR	OPS
1	12/9/22	CRM	GM

PAGE:		CAD FILE:	APP: CM/AH	SECTION
2 of 3	UPR5	UPR5	DATE: 1/13/10	1600

Rev 1 - Removed extra 2/0 Cu neutral for substation get-a-ways, added 4/0-2/0 crimpets and support grips, and changed ground to Cu-clad steel grounds.

ITEM NO	DESCRIPTION	UPR5 CR23B (2) QTY	S/N
1	Crossarm, Distribution, Fiberglass, 10' Long x 3-5/8" Wide x 4-5/8" Tall	2	3031 ✲
2	Bolt, Machine, 5/8" x 14", Galv., 12,400 lb Ultimate Tensile	4	156 ✲
3	Washer, Lock, Spring, Double Coil, Galv, 5/8"	4	2217 ✲
4	Washer, Curved, Square, Cast, 3" x 3" x 3/8" Thick x 13/16" Hole	4	1392 ✲
ITEM NO	DESCRIPTION	BR10 QTY	S/N
5	Bracket, Terminator, Mount, 48", 1000MCM	1	2842 ✲
6	Bolt, Machine, 5/8" x 14", Galv, 12,400 lb Ultimate Tensile	1	156
7	Washer, Curved, Square, Cast, 3" x 3" x 3/8" Thick x 13/16" Hole, Galv	1	1392
8	Washer, Lock, Spring, Double Coil, Galv, 5/8"	1	2217
9	Screw, Lag, 1/2" x 4 1/2", Twist Drive, Drive Point	3	1132
10	Support, Cable, 1000MCM	3	2229
ITEM NO	DESCRIPTION	N1 QTY	S/N
11	Rod, Ground, 5/8" x 8'	1	1124
12	Clamp, Ground Rod, 5/8", Small, Bronze	1	281
13	Conductor, Copper-Clad Steel, #4 Cu Equivalent, 40% Annealed, Black Jacket with Green Stripe	40✲	1512 ✲
14	Connector, H-Tap, Al/Cu, Run #2 - 2/0 Str, Tap #6 - #1 Str	1	413
15	Staple, Ground Wire, Barbed, Galvanized, 1 1/2"	24✲	2707 ✲
ITEM NO	DESCRIPTION	ADDITIONAL MATERIAL QTY	S/N
16	Connector, Tap, Wedge, Run and Tap 336 ACSR and 397 AAC	3	2501
17	Conductor, OH, 600v, Cu, 2/0, 19-Str, XLPE, 80 mil, Soft-Drawn, 1C, RHW-2	30	381
18	Conductor, OH, AAC, 397.5, 19-Str, Bare, 1C, Canna	30	367
19	Terminator, 15kV, Cold-Shrink JCN, 1000MCM	3	2225
20	Arrester, Surge, 9 kV, MOV, Riser Pole	3	58
21	Connector, Compression, Lug, 2-Hole, 336 ACSR and 397 AAC	3	438
22	Connector, Compression, Lug, Al/Cu, Tin-Plated, 1000MCM to NEMA 2-Hole	3	1501
23	Clamp, Hot Line, GP1530, Line #6 Sol - 400MCM, Tap #6 Sol - 4/0 Str, Cu Only	3	284
24	Bolt, 1/2" x 2", w/ Flat and Belleville Washers, Assembly	6	1389
25	Conductor, OH, Cu, #4 Solid, Bare, Soft-Drawn, 1C	10	376
26	Screw, Lag, 1/2" x 4 1/2", Twist Drive, Drive Point	9	1132
27	Connector, Crimpet, Cu, Run 3/0 - 4/0 Str, Tap #6 Sol - #2 Str	3	458 ✲
28	Conduit, 4" x 10', Sch 80	90✲	2203
29	Clamp, Standoff Bracket, 4"	9	297
30	End Bell, 4", Sch 40, Long	3	2204
31	Conductor, OH, 600v, Cu, #2, 7-Str, XLPE, 60 mil, Soft-Drawn, 1C, RHW-2	15	393
32	Bracket, Standoff, 15" with Stop and Brace	3	227
33	Tag, Phase A	1	1280
34	Tag, Phase B	1	1281
35	Tag, Phase C	1	1282
36	Connector, Crimpet, Cu, Run and Tap 1/0 - 2/0 Str	2 ✲	457
37	Guard, Wildlife, Large, OH/UG Terminators	3	1676
38	Disconnect, 600 Amp, Single Blade	3	2531
39	Indicator, Fault, 400A, OH, Beacon with Signal Flag, Electric Field Reset	3	2558
40	Guard, Wildlife, Polymer Arrester	3	2583
41	Connector, Crimpet, Cu, Run 3/0 Str - 250 Str, Tap #6 Sol - 2/0 Str	3	459 ✲
42	Grip, Support, 4" Conduit, 1000MCM (1.625" to 2.5")	3	2521✲

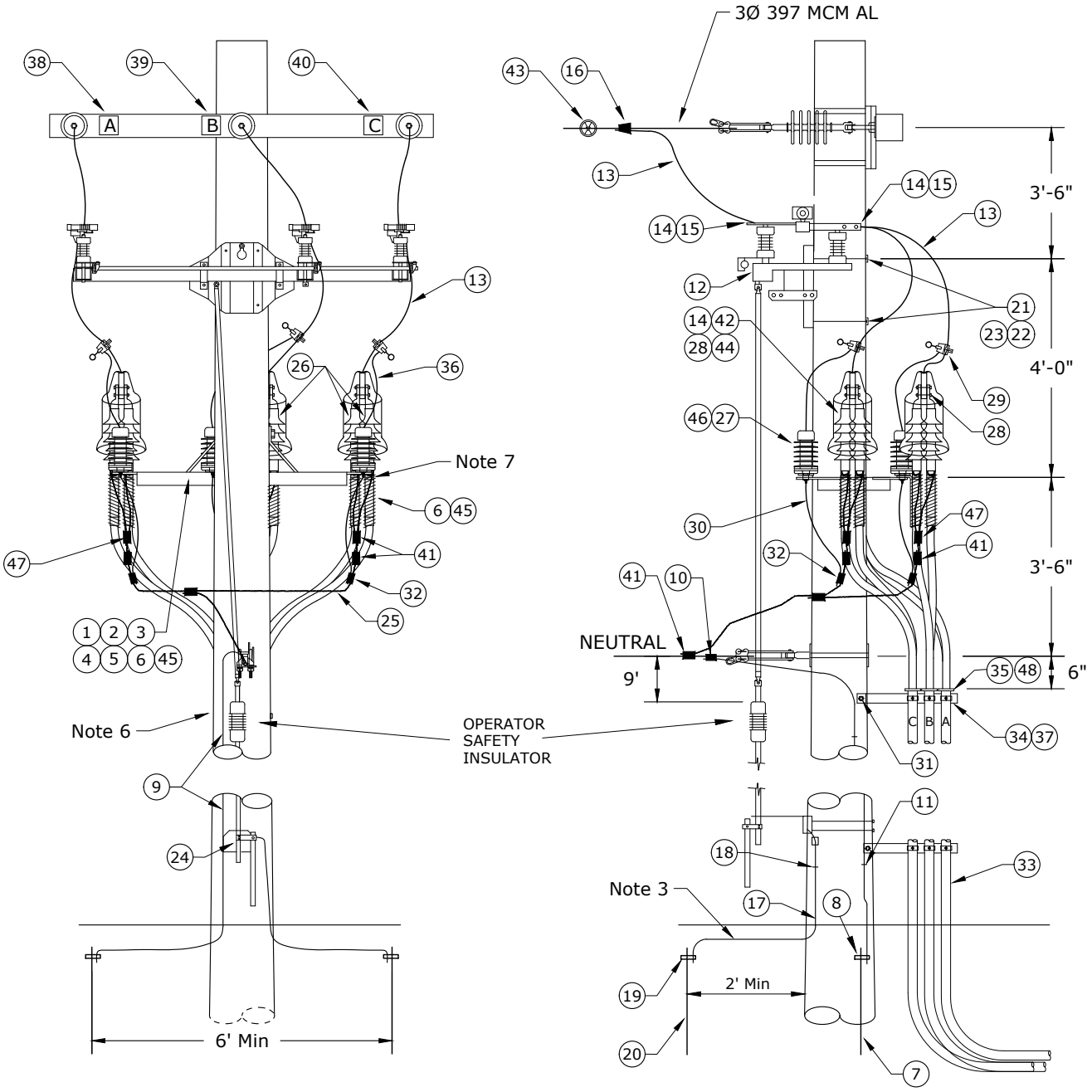
Clark Public Utilities

CONSTRUCTION STANDARDS

1000MCM CABLE RISER
WITH 600 AMP DISCONNECTS

REVISIONS			
R	DATE	ENGR	OPS
1	12/9/22	CRM	GM

PAGE:		CAD FILE:	APP: CM/AH	SECTION
3 of 3	UPR5	UPR5	DATE: 1/13/10	1600



Notes:

1. This is the recommended 1000MCM riser standard for parallel runs.
2. See UPR2 for grounding details.
3. All ground wire is #4 Cu equivalent covered copper-clad steel.
4. Engineer must call for static wire ground separately, if needed. DO NOT connect to neutral. See N2 for details.
5. Avoid sharp turns in arrester ground and primary leads.
6. The pole must be 45' Class 2 or taller.
7. Install the cable positioners and arresters to the 48" equipment mounting brackets using carriage bolts provided with bracket.
8. 2/0 Cu from terminators to OH neutral for all 1000MCM.

Rev 1 - Added 4/0-2/0 crimpets and support grips.

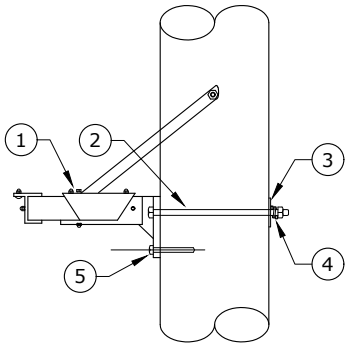
Clark Public Utilities

CONSTRUCTION STANDARDS

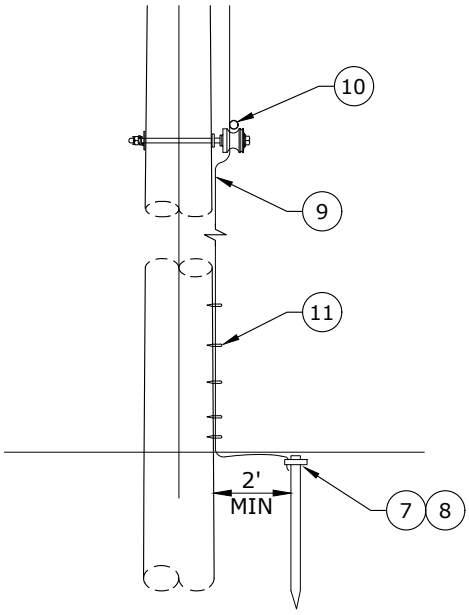
PARALLEL 1000MCM CABLE RISER
WITH 3Ø SWITCH

REVISIONS			
R	DATE	ENGR	OPS
1	12/9/22	CRM	GM

PAGE:		CAD FILE:	APP: CM/DK	SECTION
1 of 3	UPR6	UPR6	DATE: 11/2/18	1600



BR10



N1

Rev 1 - Added 4/0-2/0 crimpets and support grips.

ITEM NO.	DESCRIPTION	UPR6 BR10 QTY.	UPR6 BR10 S/N
1	Bracket, Terminator Mount, 48", 1000 MCM Cable	1	2842
2	Bolt, Machine, 5/8" x 14", Galv., 12,400 lbs Ultimate Tensile	1	156
3	Washer, Curved, Square, Cast, 3" x 3" x 3/8" Thick x 13/16" Hole, Galv	1	1392
4	Washer, Lock, Spring, Double Coil Galv., 5/8"	1	2217
5	Screw, Lag, 1/2" x 4 1/2", Twist Drive, Drive Point	3	1132
6	Support, Cable, 1000 MCM	3	2229

ITEM NO.	DESCRIPTION	N1 QTY.	N1 S/N
7	Rod, Ground, 5/8" x 8'	1	1124
8	Clamp, Ground Rod, 5/8", Small, Bronze	1	281
9	Conductor, Copper-Clad Steel, #4 Cu Equivalent, 40% Annealed, Black Jacket with Green Stripe	40	1512
10	Connector, H-Tap, Al/Cu, Run #2 - 2/0 Str, Tap #6 - #1 Str	1	413
11	Staple, Ground, Barbed, Galvanized, 1 1/2"	24	2707

Clark Public Utilities

CONSTRUCTION STANDARDS

PARALLEL 1000MCM CABLE RISER
WITH 3Ø SWITCH

REVISIONS			
R	DATE	ENGR	OPS
1	12/9/22	CRM	GM

PAGE:		CAD FILE:	APP: CM/DK	SECTION
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ITEM NO.	DESCRIPTION	UPR6 ADDITIONAL MATERIAL QTY.	S/N
12	Switch, Loadbreak, Horizontal, 900A, 15kV	1	2432
13	Conductor, OH, AAC, 397.5, 19-Str, Bare, 1C, Canna	60	367
14	Connector, Compression, Lug, 2-Hole, 336 ACSR and 397 AAC	9	438
15	Bolt, 1/2" x 2", w/ Flat & Belleville Washers , Assembly	12	1389
16	Connector, Tap, Wedge, Run and Tap 336 ACSR - 397 AAC	3	2501
17	Conductor, Copper-Clad Steel, #4 Cu Equivalent, 40% Annealed, Black Jacket with Green Stripe	20	1512
18	Staple, Ground, Barbed, Galv, 1 1/2"	5	2707
19	Clamp, Ground Rod, 5/8", Small, Bronze	1	281
20	Rod, Ground, 5/8" x 8'	1	1124
21	Bolt, Machine, 3/4" x 16", Galv, 18,300 lb Ultimate Tensile	2	175
22	Washer, Curved, Cast, 4" x 4" w/ 13/16" Hole	2	1910
23	Washer, Lock, Spring, Double Coil Galv, 3/4"	2	2218
24	Lock, Padlock, 2" Hardened Stainless Steel Shackle	1	2564
25	Conductor, OH, 600v, Cu, 2/0, 19-Str, XLPE, 80 mil, Soft-Drawn, 1C, RHW-2	60	381
26	Terminator, 15 kV, Cold-Shrink JCN, 1000 MCM	6	2225
27	Arrester, Surge, 9 kV, MOV, Riser Pole	3	58
28	Connector, Compression, Lug, Al/Cu, Tin-Plated, 1000 MCM to NEMA 2-Hole	6	1501
29	Clamp, Hot Line, GP 1530, Line #6 Sol - 400MCM, Tap #6 Sol - 4/0 Str, Cu Only	3	284
30	Conductor, OH, Cu, #4 Solid, Bare, Soft-Drawn, 1C	10	376
31	Screw. Lag, 1/2" x 4 1/2", Twist Drive, Drive Point	6	1132
32	Connector, Crimpet, Cu, Run 3/0 - 4/0 Str, Tap #6 Sol - #2 Str	6	458 ✡
33	Conduit, 4" x 10', Sch 80	180	2203
34	Clamp, Standoff Bracket, 4"	18	297
35	End Bell, 4" Sch 40, Long	6	2204
36	Conductor, OH, 600v, Cu, #2, 7-Str, XLPE, 60 mil, Soft-Drawn, 1C, RHW-2	15	393
37	Bracket, Standoff, Riser, 24" with Stop and Brace	3	228
38	Tag, Phase A	1	1280
39	Tag, Phase B	1	1281
40	Tag, Phase C	1	1282
41	Connector, Crimpet, Cu, Run and Tap 1/0 - 2/0 Str	6 ✡	457
42	Guard, Wildlife, Large OH/UG Terminators	3	1676
43	Indicator, Fault, 400A, OH, Beacon with Signal Flag, Electric Field Reset	3	2558
44	Bolt, 1/2" x 2-1/2", w/ Flat & Belleville Washers, Assembly	6	2584
45	Support, Cable, 1000 MCM	3	2229
46	Guard, Wildlife, Polymer Arrester	3	2583
47	Connector, Crimpet, Cu, Run 3/0 Str - 250 Str, Tap #6 Sol - 2/0 Str	6	459 ✡
48	Grip, Support, 4" Conduit, 1000MCM (1.625" to 2.5")	6	2521 ✡

Clark Public Utilities

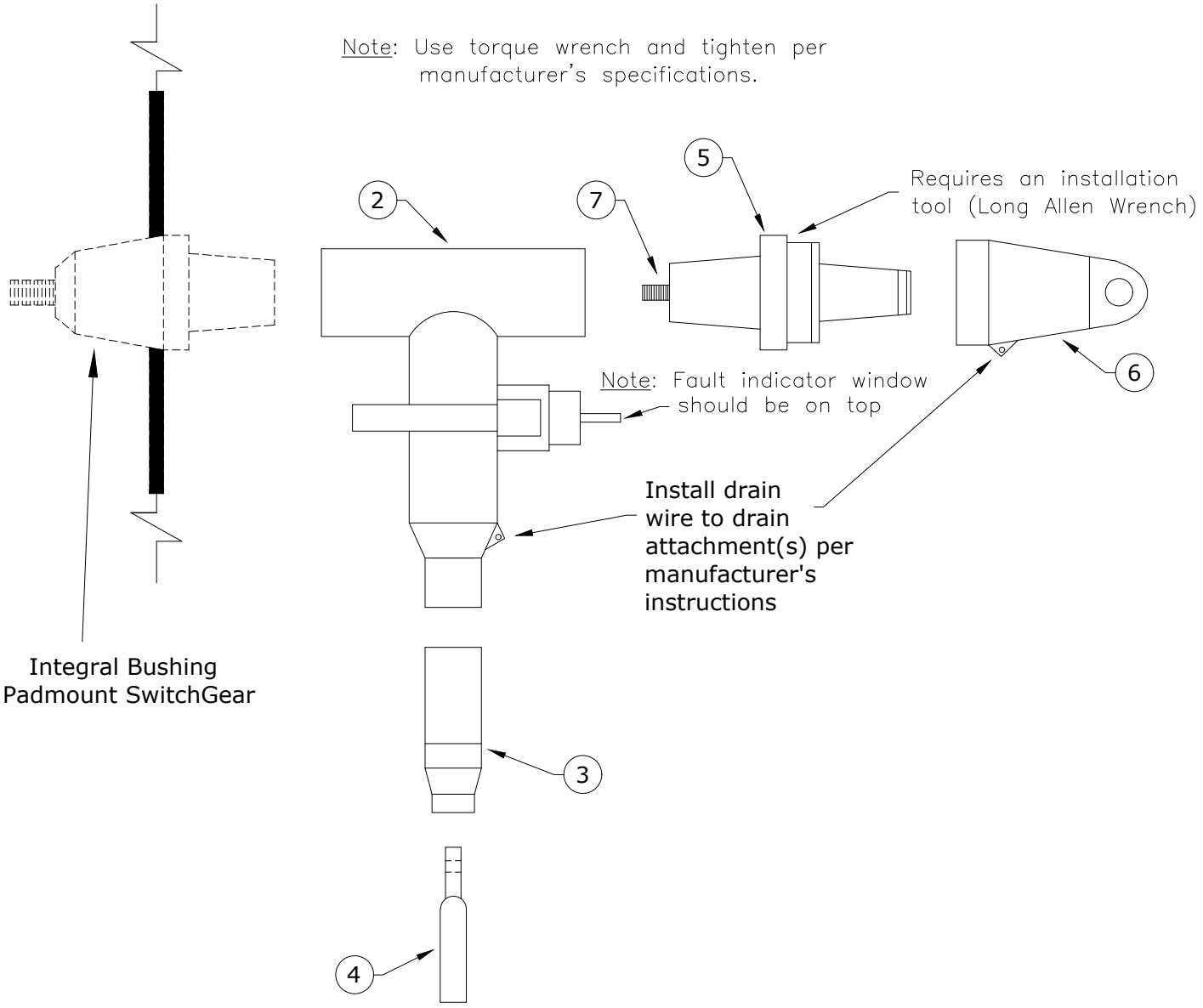
CONSTRUCTION STANDARDS

PARALLEL 1000MCM CABLE RISER
WITH 3Ø SWITCH

REVISIONS			
R	DATE	ENGR	OPS
1	12/9/22	CRM	GM

PAGE:		CAD FILE:	APP: CM/DK	SECTION
3 of 3	UPR6	UPR6	DATE: 11/2/18	1600

ASSEMBLY DIAGRAM
ONE ASSEMBLY PER 600A PHASE



Rev 3: Added torque requirements and material corrections.

ITEM NO.	DESCRIPTION	USG1 QTY.	USG1 S/N
1	600A Elbow Kit For Switchgear	1	2692
	Each Kit Consists Of #2 to #7:		
2	*Housing, Elbow, 600A*	1	1825
3	*Adapter, Cable, 1000 MCM*	1	1
4	*Contact, Compression, 1000 MCM, Al, Non-Threaded Hole*	1	941
5	*Plug, Loadbreak Reducing Tap, 600A-200A*	1	1769
6	*Cap, Protective Insulated, 200A, 15kV*	1	265
7	*Stud, Al, 600A, T-Body to Reducer Plug*	1	2704
8	600A Elbow Sealing Kit	1	2376

Clark Public Utilities

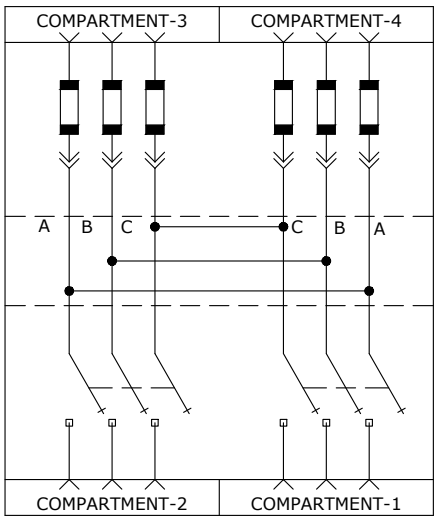
CONSTRUCTION STANDARDS

PADMOUNT SWITCHGEAR
600 AMP ELBOW - 1000MCM CABLE

REVISIONS			
R	DATE	ENGR	OPS
0	2/23/00	HWH	MA
1	1/11/04	LB	AH
2	4/29/09	CM	AH
3	12/5/19	CM	GM

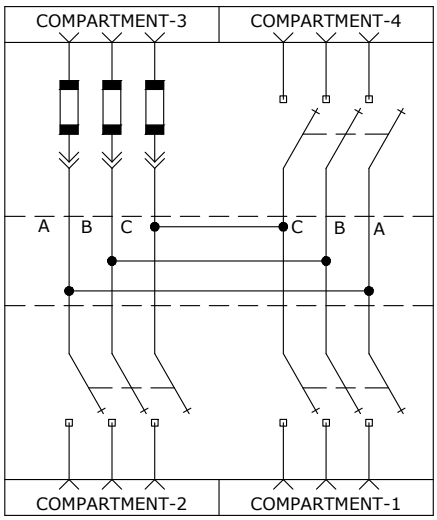
PAGE:		CAD FILE:	APP: GGW/RWG	SECTION
1 of 1	USG1	USG1	DATE: 6/90	1600

Access Door Side



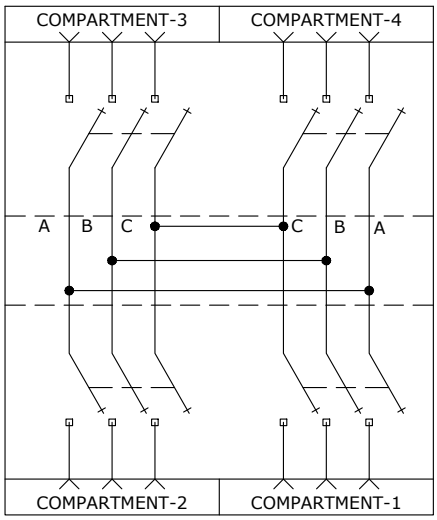
PME9

Access Door Side



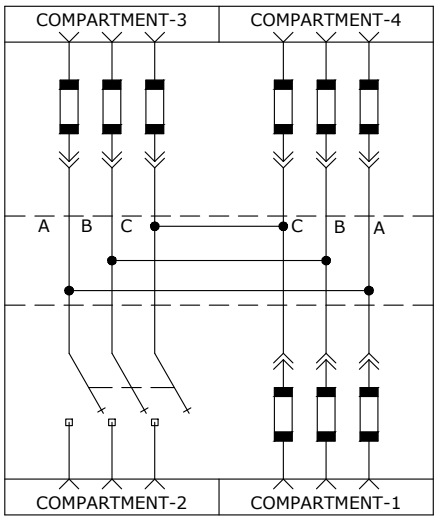
PME11

Access Door Side



PME10

Access Door Side



PME12

PADMOUNT DEADFRONT	PADMOUNT LIVEFRONT (Maintenance only)	600 AMP 3ø SWITCH	200 AMP 3ø POSITIONS
PME9	PMH9	2	2
PME10	PMH10	4	0
PME11	PMH11	3	1
PME12	PMH12	1	3

FUSE SIZE (SMU)	S/N
65E	2770
100E	2771
125E	2772

Contact Systems Engineering for proper fuse coordination.

Notes:

1. Material issue has the maximum number of fault indicators that may be used. Engineer to determine the actual number needed.
2. All new PMEs are ordered with the required number of 100E fuses for the configuration plus 3 spare 100E fuses.
3. If 65E or 125E fuses are required, the Engineer will have to call for the number needed plus 3 spares.

Rev. 4 - Changed to PME and PMH nomenclature, SMU fuses, removed separate fuse holders, added tie-downs, changed to 612 vault, and updated materials.

Clark Public Utilities

CONSTRUCTION STANDARDS

PADMOUNT SWITCHGEAR CHART

USE WITH STANDARD USG3

REVISIONS			
⚠R	DATE	ENGR	OPS
1	1/11/04	LB	AH
2	10/7/05	LB	AH
3	4/29/09	CM	AH
4	12/5/19	CM	GM

PAGE:		CAD FILE:	APP: HWH/MA	SECTION
1 of 2	USG2	USG2	DATE: 2/22/00	1600

Rev. 4 - Changed to PME and PMH nomenclature, SMU fuses, removed separate fuse holders, added tie-downs, changed to 612 vault, and updated materials.

DEADFRONT (CPU Standard)

ITEM NO.	DESCRIPTION	S/N	PME9 QTY	PME10 QTY	PME11 QTY	PME12 QTY
1	Switch, Padmount, PME9, 2-600A Switches & 2-200A Fused Taps	2458	1	–	–	–
	PME10, 4-600A Switches	2452	–	1	–	–
	PME11, 3-600A Switches & 1-200A Fused Taps	2459	–	–	1	–
	PME12, 1-600A Switches & 3-200A Fused Taps	CONTACT STANDARDS ENGINEERING - NOT STOCKED				
2	600A Elbow Kit For Switchgear (USG1 Kit)	2692	6	12	9	3
	Each Kit Consists Of #3 to #8:					
3	*Housing, Elbow, 600A*	1825	6	12	9	3
4	*Adapter, Cable, 1000 MCM*	1	6	12	9	3
5	*Contact, Compression, 1000 MCM, Al, Non-Threaded Hole*	941	6	12	9	3
6	*Plug, Loadbreak Reducing Tap, 600A-200A*	1769	6	12	9	3
7	*Cap, Protective Insulated, 200A, 15kV*	265	6	12	9	3
8	*Stud, Al, 600A, T-Body to Reducer Plug*	2704	6	12	9	3
9	Elbow, Sealing Kit, 1000MCM 175 & 220 mil	2376	6	12	9	3
10	Conductor, Cu, 2/0, 1C, 7-Str, Bare, Soft Drawn	379	40	50	45	35
11	Connector, Crimpet, Cu, Run 4/0 Str, Tap 1/0 - 2/0 Str	459	6	12	9	3
12	Connector, Crimpet, Cu, Run 1/0 - 2/0 Str, Tap 1/0 - 2/0 Str	457	2	4	3	1
13	Indicator, Fault, UG, 800A, Test-Point, Voltage-Reset, 3-phase	2695	1	3	2	–
14	Elbow, 200A, LB, 1/0, 175 & 220 mil, Test Point, 15 kV, Jacket Seal	1312	6	-	3	9
15	Cap, Protective, Insulated, 200A 15 kV	265	6	-	3	9
16	Bushing, Standoff, Insulated, 200A	252	6	-	3	9
17	Connector, Crimpet, Cu, Run & Tap #2 Sol/Str (2C2)	455	6	-	3	9
18	Connector, Crimpet, Cu, Run 1/0 - 2/0 Str, Tap #8 Sol - #2 Str	456	2	-	1	3
19	Strut, Slotted, 10', 1-5/8" x 1-5/8", 12 Ga Galv	2958	1	2	2	1
20	Anchor, Sleeve, 1/2" x 3", Stainless Steel, 3/8" Thread	2959	4	8	8	4
21	Washer, Flat, 3/8", (304) Stainless Steel	1398	4	8	8	4
22	Bracket, Wall Mount, Strut, 2-Hole, Galv	2960	2	4	4	2
23	Clamp, Cable, Strut, 1000 MCM, Mount	2961	6	12	9	3
24	Bolt, Machine, 1/2" x 1", (304) Stainless Steel	130	14	16	16	14
25	Nut, Spring-Loaded, Galv, 1/2" (Unistrut)	920	14	16	16	14

LIVEFRONT (Non-standard)

ITEM NO.	DESCRIPTION	S/N	PMH9 QTY	PMH10 QTY	PMH11 QTY	PMH12 QTY
1	Bolt, Machine, 1/2" x 2", SS	132	24	24	24	24
2	Clamp, Ground Rod	282	2	2	2	2
3	Conductor, 2/0 BC, 7 STR	379	50	50	50	50
4	Connector, Comp Lug YCA26-2NCU 2/0	431	6	–	3	9
5	Connector, Crimpet, 2/0 - 2/0	457	4	4	4	4
6	Rod, Ground, 5/8" x 8'	1124	2	2	2	2
7	2" x 1/2" Bolt Assembly	1389	24	24	24	24
8	Connector, Comp Lug, YA44-A3AL/CU 1000 MCM	1501	6	12	9	3
9	Vault, Concrete, 600 AMP SW, Mod. U-J-6	1541	1	1	1	1
10	Terminator, Outdoor, Molded Rubber 1/0	2214	6		3	9
11	Terminator, Outdoor, Butyl, 600 AMP, 1000 MCM	2225	6	12	9	3
12	Switch, Padmt, Linefront, PMH9		(#1265)	(#1264)	(#1468)	(#1471)
13	Holder, Fuse, Padmount, Livefront	745	6	–	3	9
14	Fault Indicator, 800A, Current-Reset, Beacon	2463	1	3	2	–
15	Caulk, Switchgear	2604	1	1	1	1

Clark Public Utilities

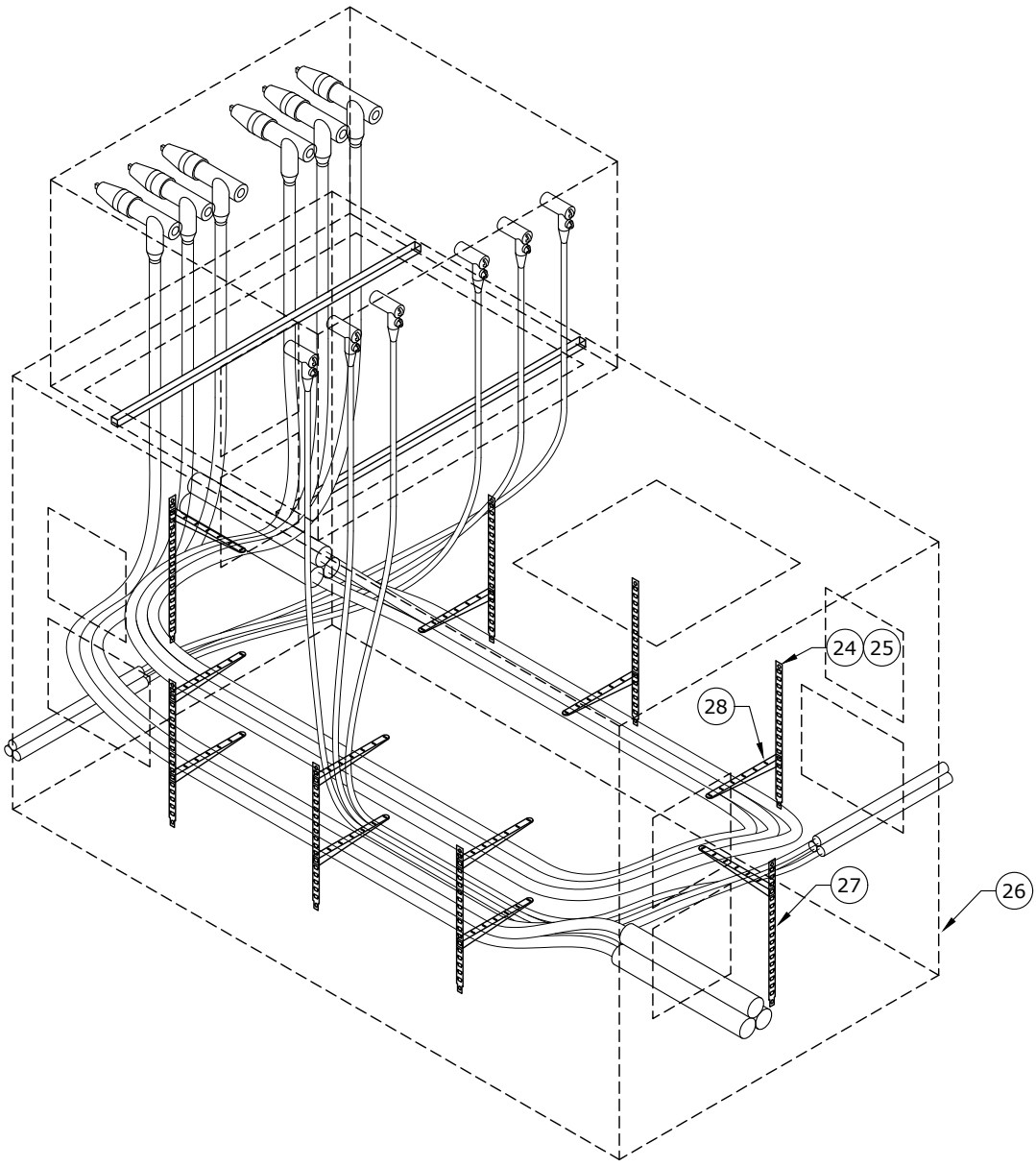
CONSTRUCTION STANDARDS

PADMOUNT SWITCHGEAR CHART

USE WITH STANDARD USG3

REVISIONS			
R	DATE	ENGR	OPS
1	1/11/04	LB	AH
2	10/7/05	LB	AH
3	4/29/09	CM	AH
4	12/5/19	CM	GM

PAGE:		CAD FILE:	APP: HWH/MA	SECTION
2 of 2	USG2	USG2	DATE: 2/22/00	1600



Notes:

1. Cable clamps required on 600A ways and not required on 200A ways. Install strut and cable clamps after setting switchgear to precisely land elbows on bushings.
2. Seal vacant conduits with reusable expanding duct plugs.
   2" - S/N 2955
   4" - S/N 2943
   Seal conduits with cable using inflatable seals.
   2" - S/N 2952
   4" - S/N 2943
3. For PME9 and PME12, face switchgear side with two fuse bays toward access door.
4. Engineer to call for temporary lid (S/N 2495) when switch and vault installed separately.

Rev. 4 - Fixed stock number in Note 4 for temporary lid.

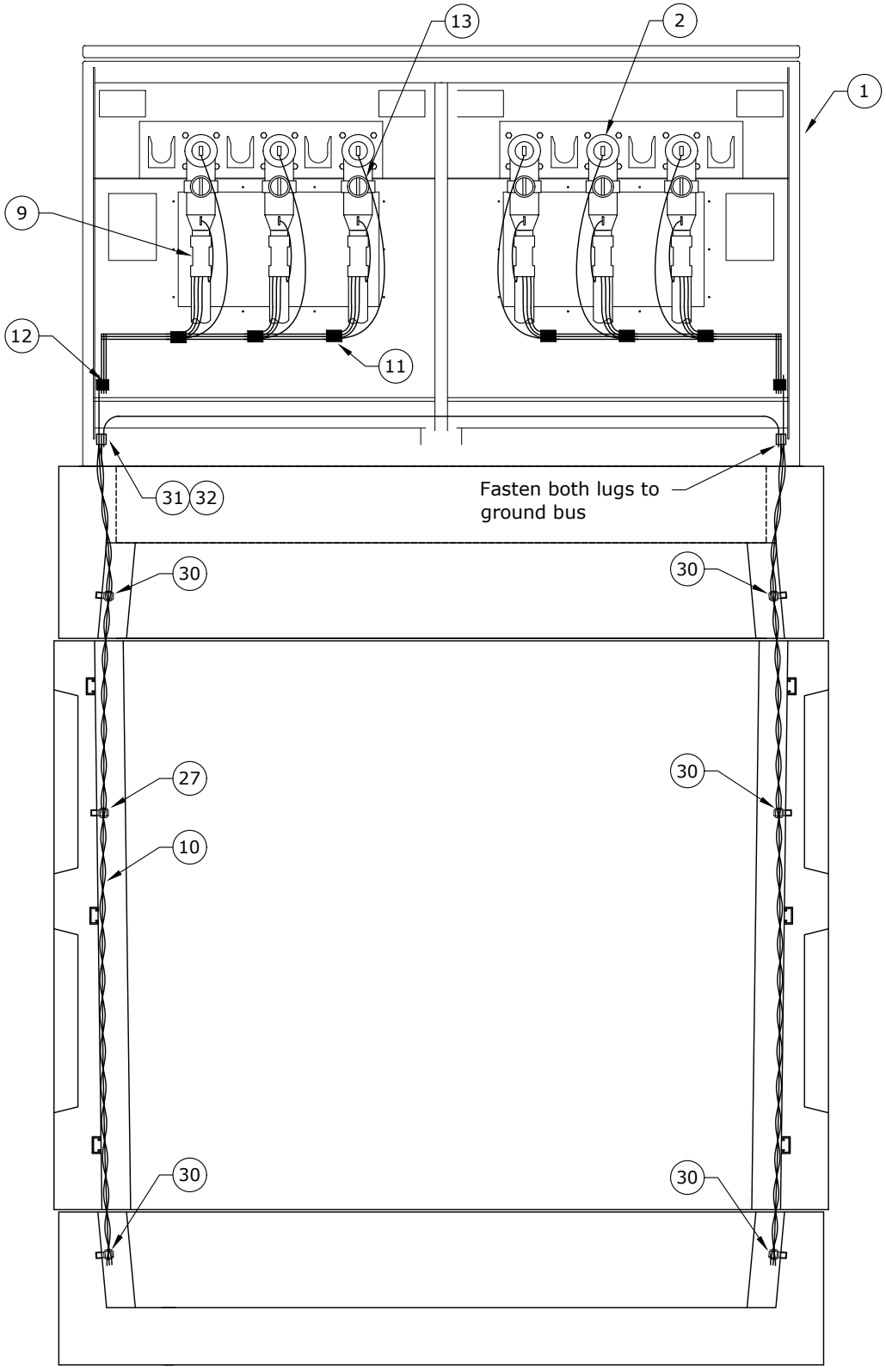
Clark Public Utilities

CONSTRUCTION STANDARDS

DEADFRONT SWITCHGEAR
612 VAULT DETAIL
USE WITH STANDARD USG2

REVISIONS			
R	DATE	ENGR	OPS
1	1/11/04	LB	AH
2	10/7/05	LB	AH
3	12/5/19	CM	GM
4	9/16/21	JDK	

PAGE:		CAD FILE:	APP: HWH/MA	SECTION
1 of 6	USG3	USG3	DATE: 2/22/00	1600



600A Elbow Detail

Rev. 4 - Fixed stock number in Note 4 for temporary lid.

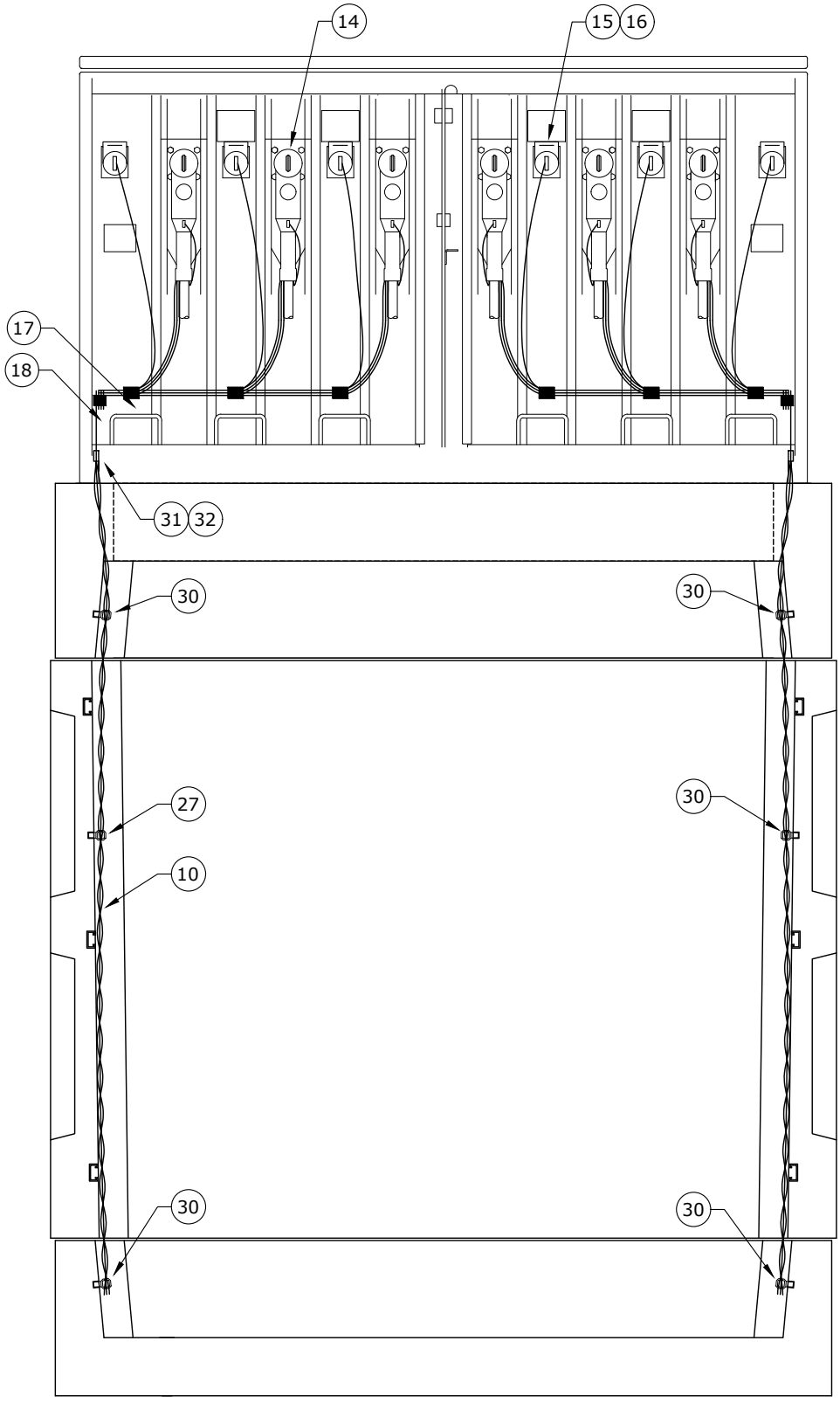
Clark Public Utilities

CONSTRUCTION STANDARDS

DEADFRONT SWITCHGEAR
612 VAULT DETAIL
USE WITH STANDARD USG2

REVISIONS			
R	DATE	ENGR	OPS
1	1/11/04	LB	AH
2	10/7/05	LB	AH
3	12/5/19	CM	GM
4	9/16/21	JDK	

PAGE:		CAD FILE:	APP: HWH/MA	SECTION
2 of 6	USG3	USG3	DATE: 2/22/00	1600



200A Elbow Detail

Rev. 4 - Fixed stock number in Note 4 for temporary lid.

Clark Public Utilities

CONSTRUCTION STANDARDS

DEADFRONT SWITCHGEAR
612 VAULT DETAIL
USE WITH STANDARD USG2

REVISIONS			
R	DATE	ENGR	OPS
1	1/11/04	LB	AH
2	10/7/05	LB	AH
3	12/5/19	CM	GM
4	9/16/21	JDK	

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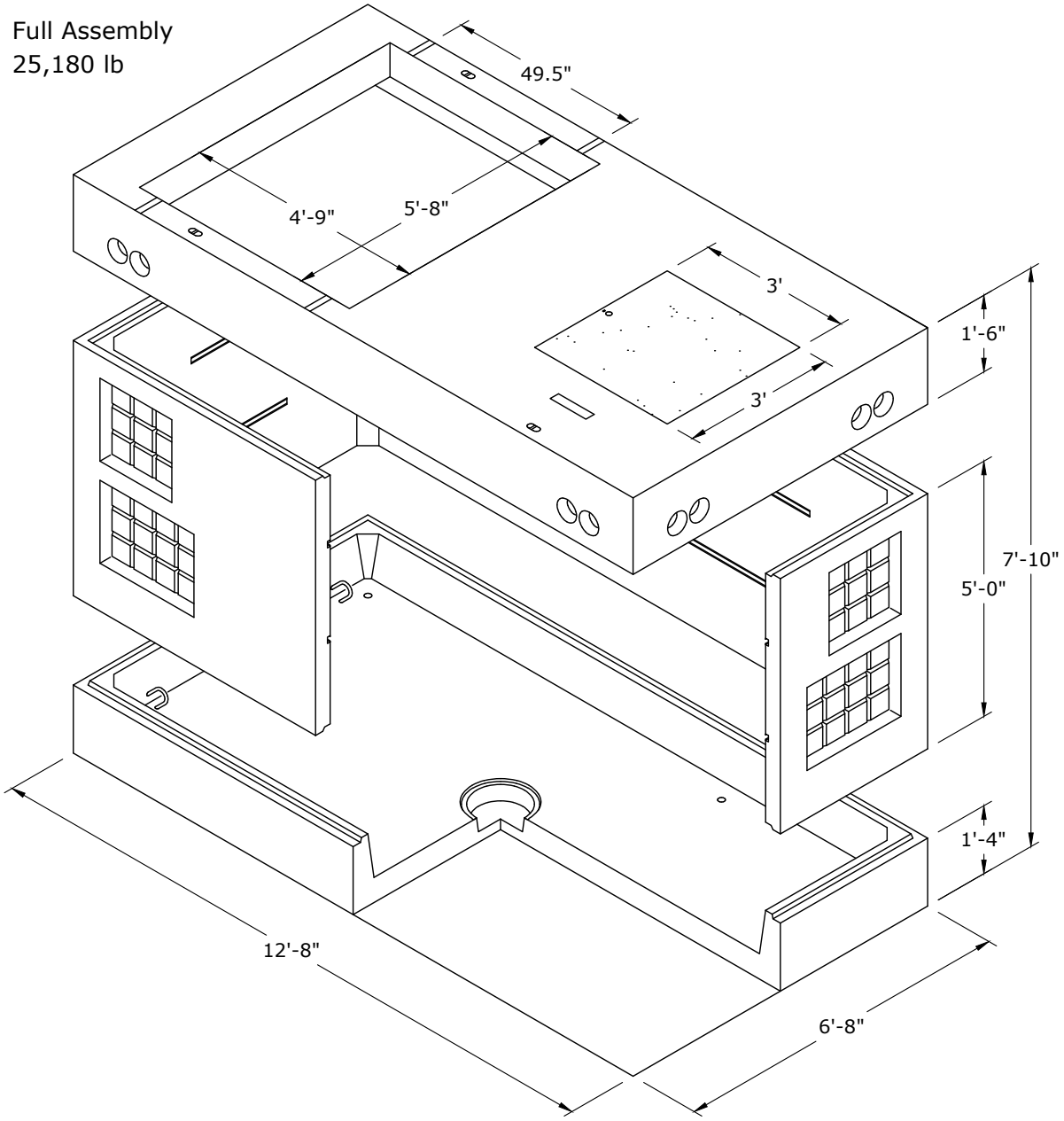
Full Assembly
25,180 lb

Top
7,210 lb

Middle
9,710 lb

Base
8,260 lb



SIDE VIEW

Rev. 4 - Fixed stock number in Note 4 for temporary lid.

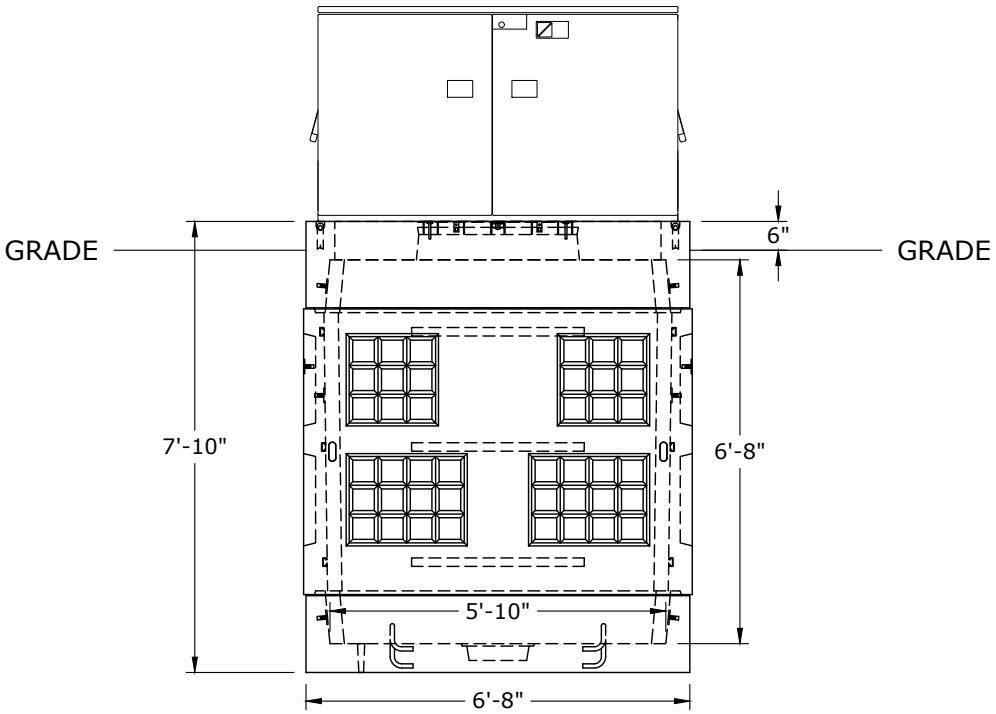
Clark Public Utilities

CONSTRUCTION STANDARDS

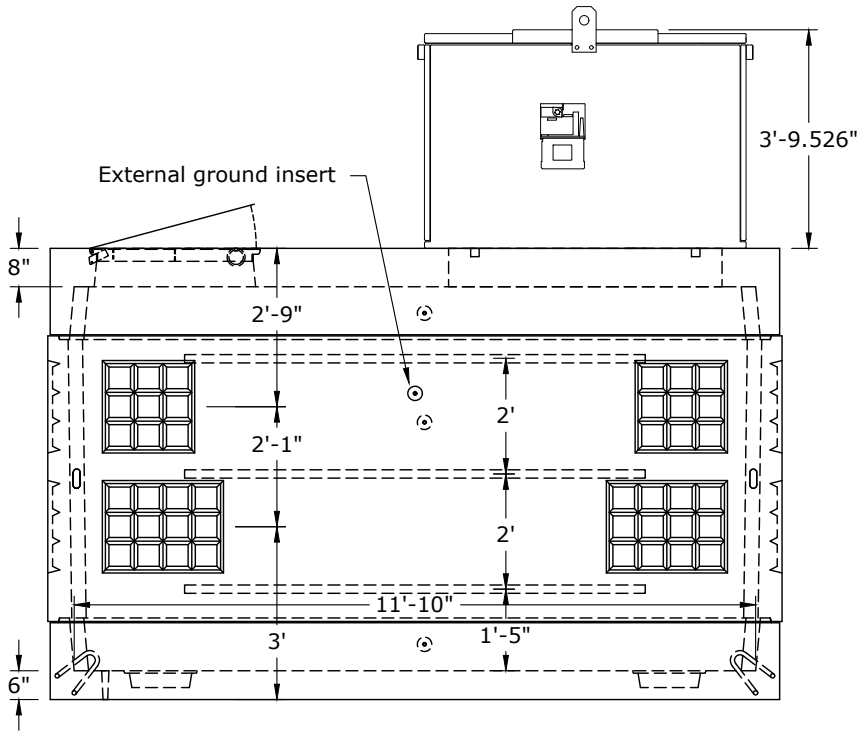
DEADFRONT SWITCHGEAR
612 VAULT DETAIL
USE WITH STANDARD USG2

REVISIONS			
R	DATE	ENGR	OPS
1	1/11/04	LB	AH
2	10/7/05	LB	AH
3	12/5/19	CM	GM
4	9/16/21	JDK	

PAGE:		CAD FILE:	APP: HWH/MA	SECTION
4 of 6	USG3	USG3	DATE: 2/22/00	1600



End View



SIDE VIEW

Rev. 4 - Fixed stock number in Note 4 for temporary lid.

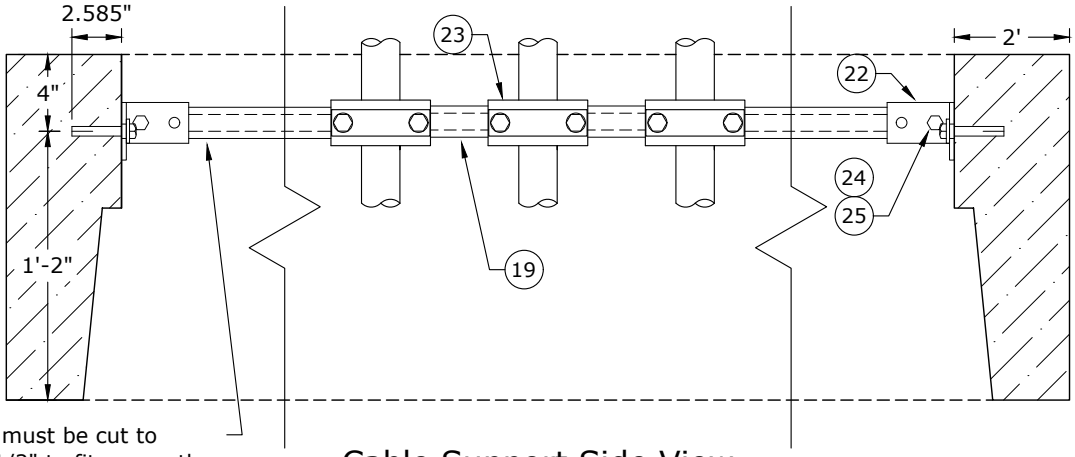
Clark Public Utilities

CONSTRUCTION STANDARDS

DEADFRONT SWITCHGEAR
612 VAULT DETAIL
USE WITH STANDARD USG2

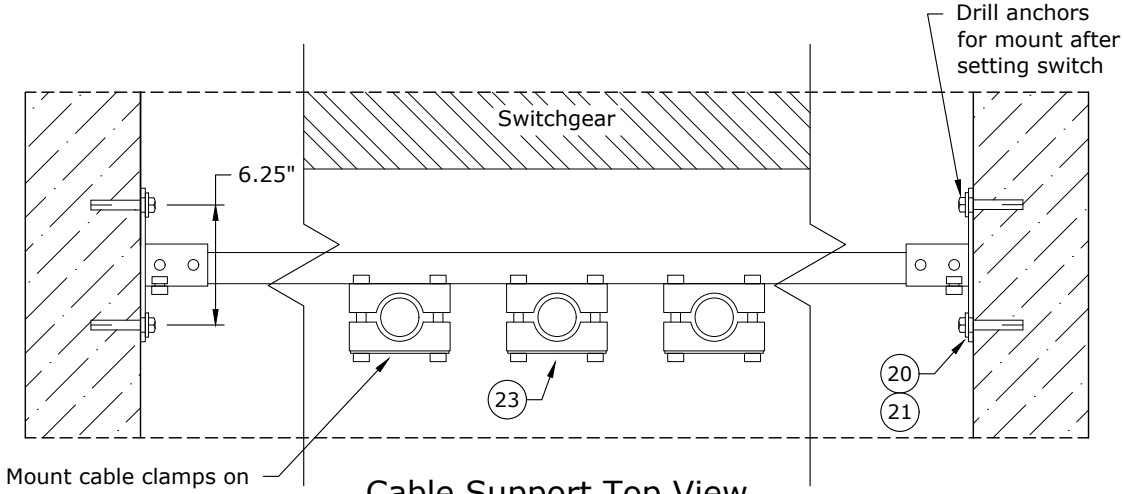
REVISIONS			
R	DATE	ENGR	OPS
1	1/11/04	LB	AH
2	10/7/05	LB	AH
3	12/5/19	CM	GM
4	9/16/21	JDK	

PAGE:		CAD FILE:	APP: HWH/MA	SECTION
5 of 6	USG3	USG3	DATE: 2/22/00	1600



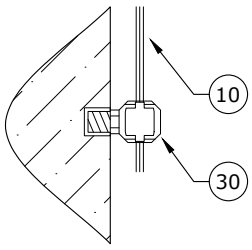
Strut must be cut to 5'-8-1/2" to fit across the lid blockout

Cable Support Side View

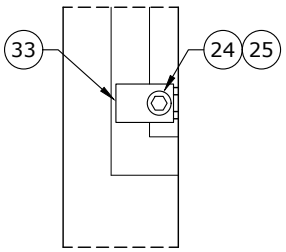


Mount cable clamps on door side of strut

Cable Support Top View



UFER Ground Connection



Switchgear to Vault Anchoring Detail

Rev. 4 - Fixed stock number in Note 4 for temporary lid.

ITEM NO.	DESCRIPTION	USG3	
		QTY	S/N
26	Vault, w/ Lid, 612-3LA, Ufer Ground, for PME Switchgear	1	2957
27	Rack, Cable, 30"	8	2861
28	Hook, Cable Rack, 18"	16	2863
29	Tie Wrap, Plastic, Releasable, 1/2" W x 19" L	36	2956
30	Lug, Grounding, #8 Sol - 2/0 Str, 4-Way	6	842
31	Connector, Compression Lug, Cu, 2/0 Str	4	431
32	Bolt, Washer, SS, 1/2" x 2" Assembly, w/ Si Br Nut	4	1389
33	Washer, 2" x 3" x 3/16" with 9/16" Slotted Hole	4	1415

Clark Public Utilities

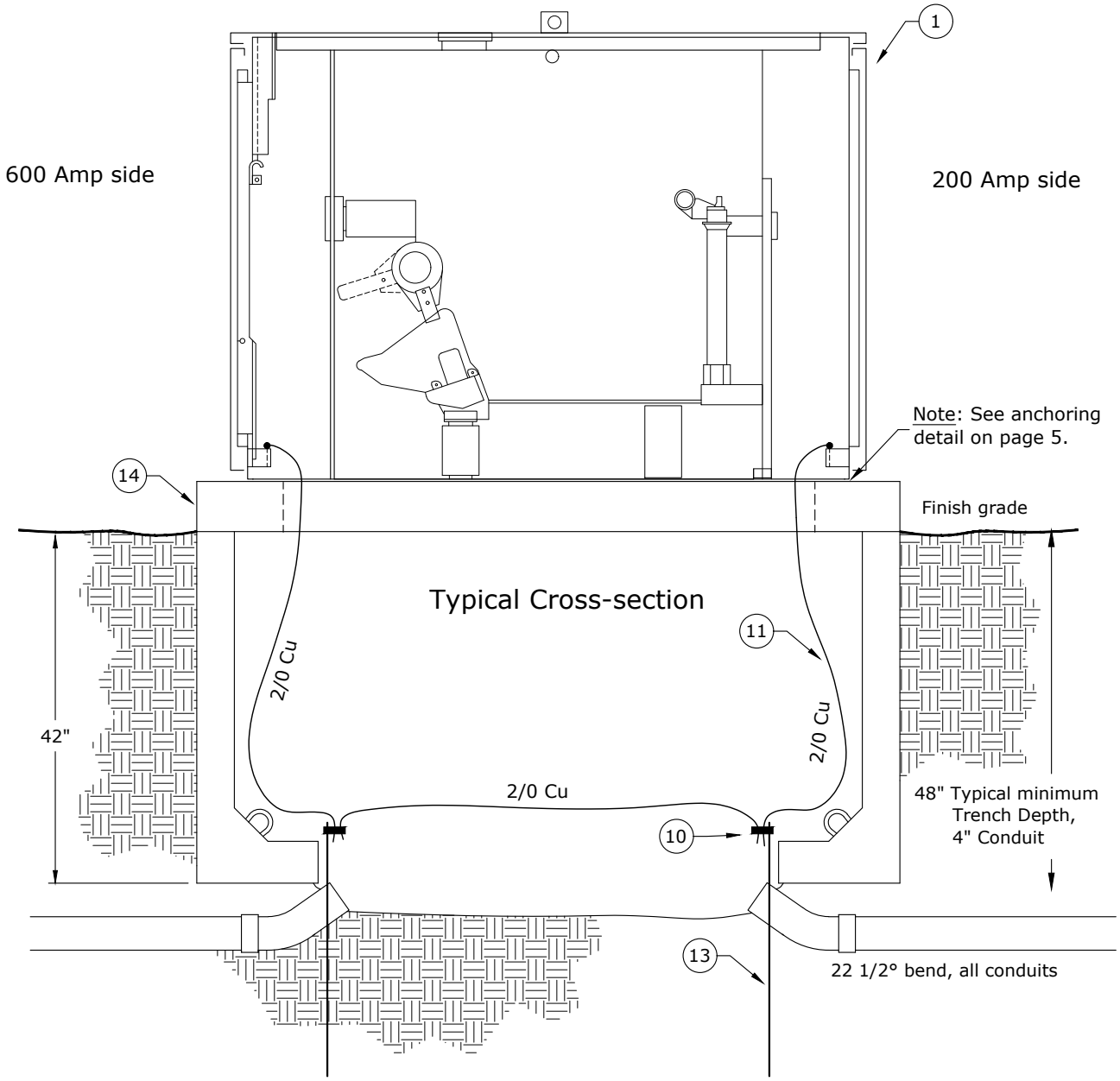
CONSTRUCTION STANDARDS

DEADFRONT SWITCHGEAR
612 VAULT DETAIL
USE WITH STANDARD USG2

REVISIONS			
R	DATE	ENGR	OPS
1	1/11/04	LB	AH
2	10/7/05	LB	AH
3	12/5/19	CM	GM
4	9/16/21	JDK	

PAGE:		CAD FILE:	APP: HWH/MA	SECTION
6 of 6	USG3	USG3	DATE: 2/22/00	1600

FOR MAINTENANCE ONLY OR
WHEN STD USG3 VAULT WILL NOT FIT



Notes:
1. Std USG3 is the preferred vault standard for PME switchgear.
2. Install 2 ground rods and 2/0 Cu bus loop around vault & bond to switchgear case in opposite corners.
3. Remote indicator for fault indicator is to be installed in the upper hinged-side of door of compartment with indicator.

Rev. 2 - Combined USG 5, 6, & 7, changed to maintenance or where 612 vault does not fit & added material issue.

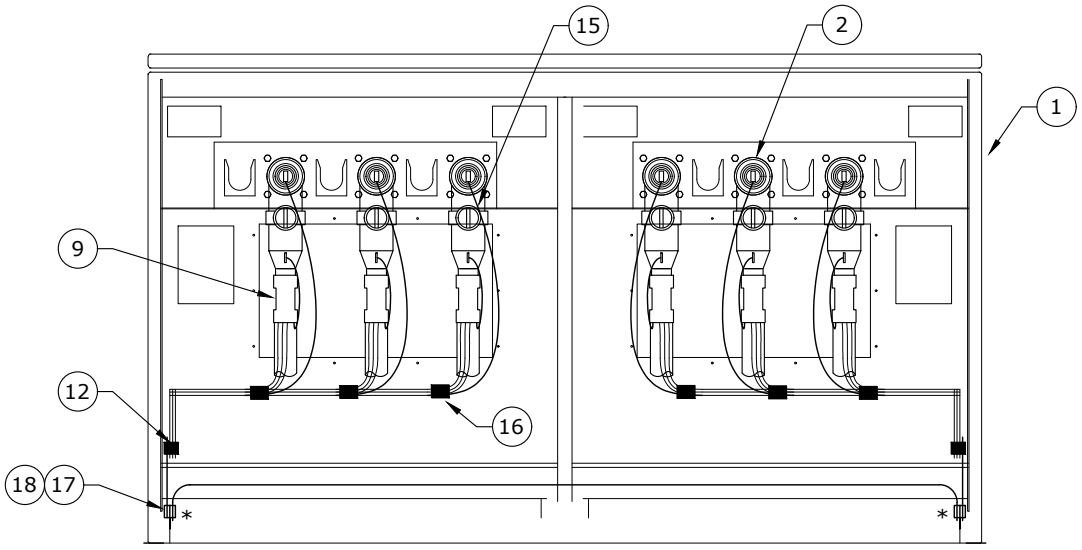
Clark Public Utilities

CONSTRUCTION STANDARDS

DEADFRONT SWITCHGEAR ON 774 VAULT
FOR MAINTENANCE ONLY
OR WHEN STD USG3 VAULT WILL NOT FIT

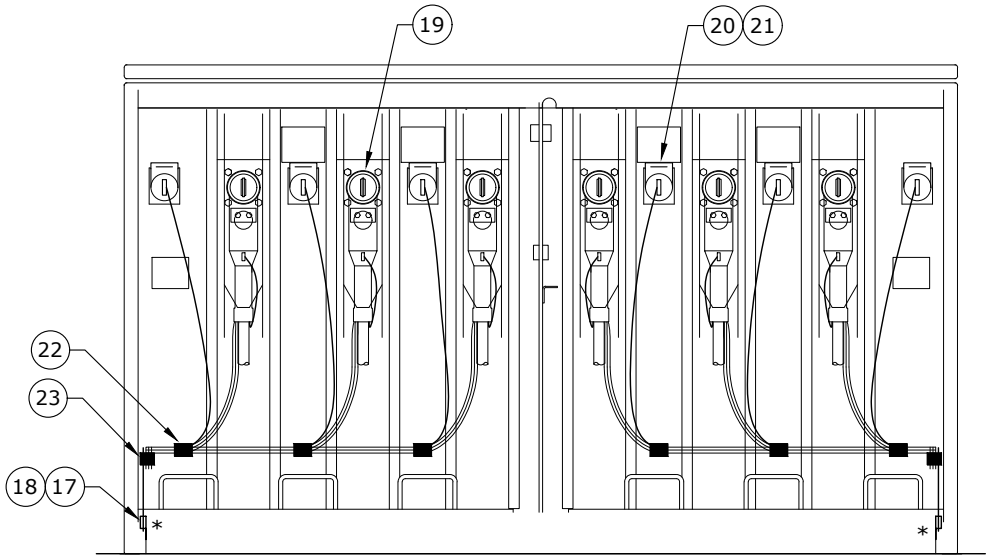
REVISIONS			
R	DATE	ENGR	OPS
1	1/11/04	LB	AH
2	8/8/22	CRM	GM

PAGE:		CAD FILE:	APP: HWH/MA	SECTION
1 of 6	USG5	USG5	DATE: 11/94	1600



600A Elbow Detail

*Note: Bond concentric neutrals from cable to 2/0 Cu ground. Leave enough slack to move elbows.



200A Elbow Detail

Rev. 2 - Combined USG 5, 6, & 7, changed to maintenance or where 612 vault does not fit, and added material issue.

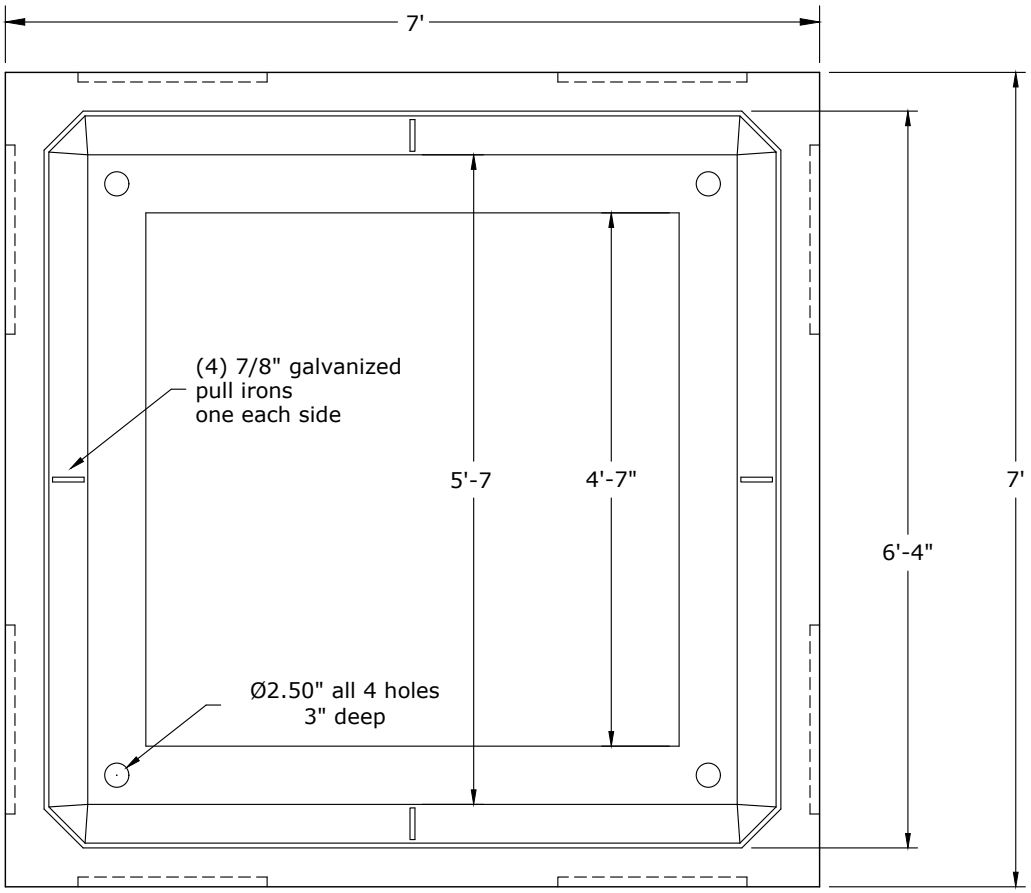
Clark Public Utilities

CONSTRUCTION STANDARDS

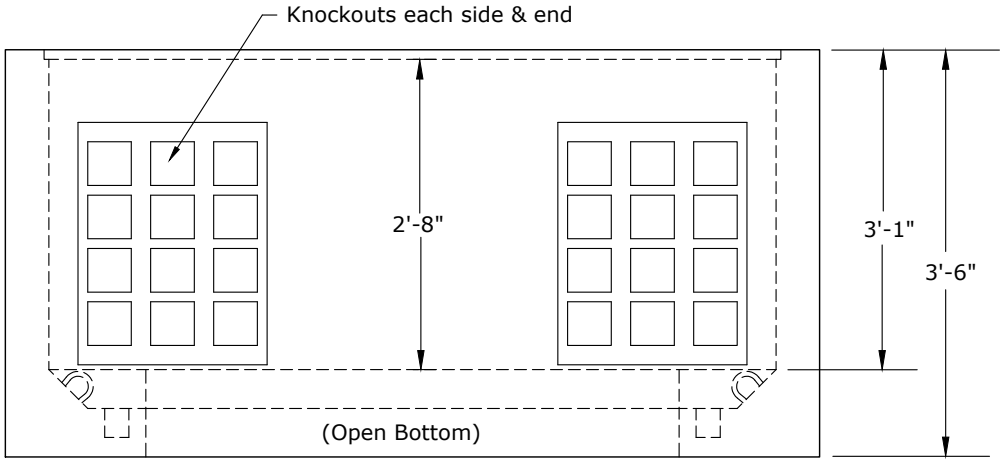
DEADFRONT SWITCHGEAR ON 774 VAULT
FOR MAINTENANCE ONLY
OR WHEN STD USG3 VAULT WILL NOT FIT

REVISIONS			
R	DATE	ENGR	OPS
1	1/11/04	LB	AH
2	8/8/22	CRM	GM

PAGE:		CAD FILE:	APP: HWH/MA	SECTION
2 of 6	USG5	USG5	DATE: 11/94	1600



Top View (Vault Base)



Front View (Vault Base)

Base Weight - 6,040 lb

Rev. 2 - Combined USG 5, 6, & 7, changed to maintenance or where 612 vault does not fit, and added material issue.

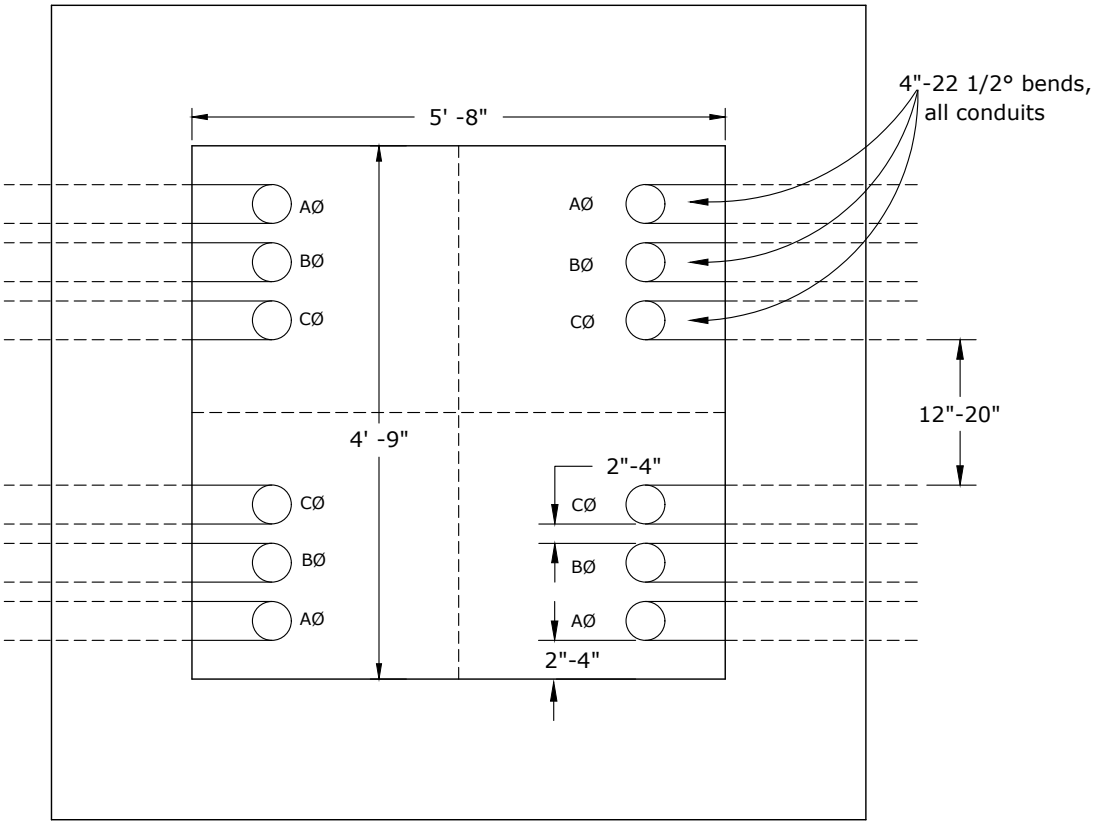
Clark Public Utilities

CONSTRUCTION STANDARDS

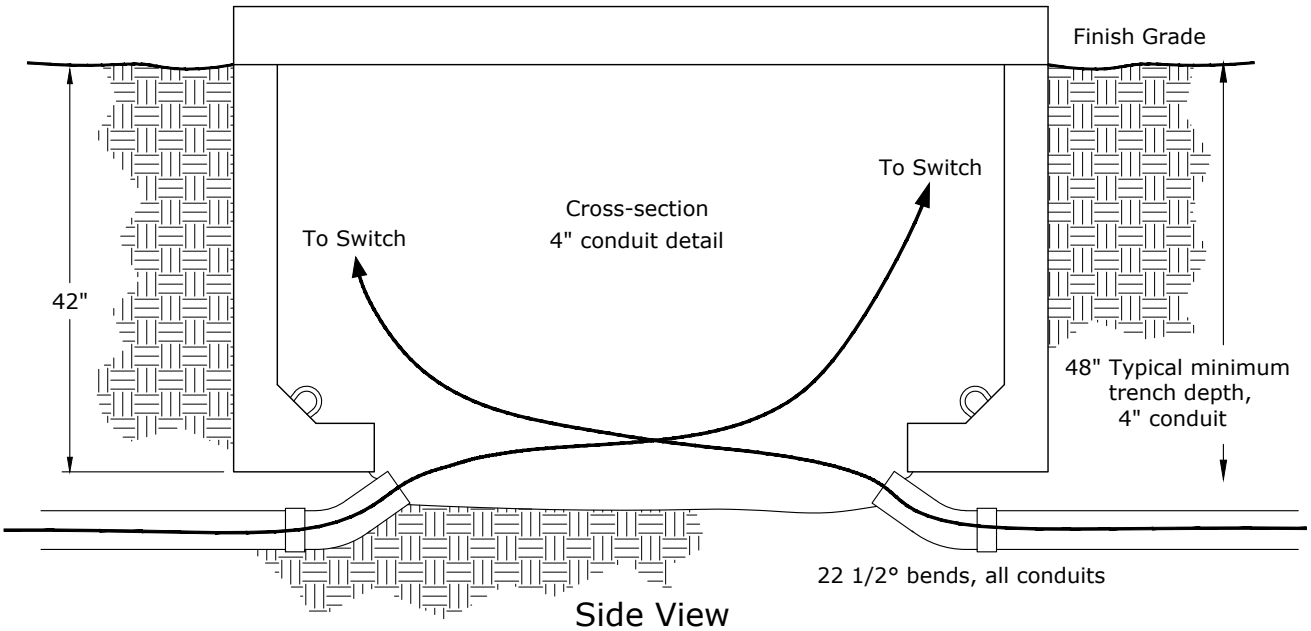
DEADFRONT SWITCHGEAR ON 774 VAULT
FOR MAINTENANCE ONLY
OR WHEN STD USG3 VAULT WILL NOT FIT

REVISIONS			
R	DATE	ENGR	OPS
1	1/11/04	LB	AH
2	8/8/22	CRM	GM

PAGE:		CAD FILE:	APP: HWH	SECTION
3 of 6	USG5	USG5	DATE: 11/94	1600



Top View



Side View

Rev. 2 - Combined USG 5, 6, & 7, changed to maintenance or where 612 vault does not fit, and added material issue.

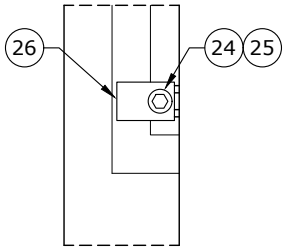
Clark Public Utilities

CONSTRUCTION STANDARDS

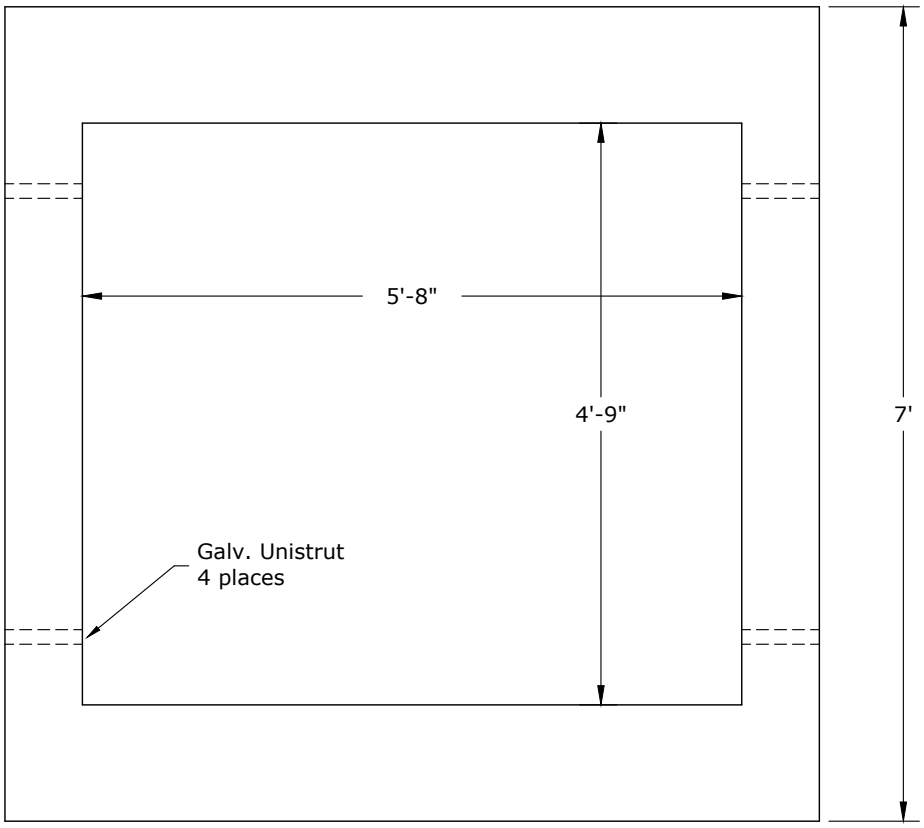
DEADFRONT SWITCHGEAR ON 774 VAULT
FOR MAINTENANCE ONLY
OR WHEN STD USG3 VAULT WILL NOT FIT

REVISIONS			
R	DATE	ENGR	OPS
1	1/11/04	LB	AH
2	8/8/22	CRM	GM

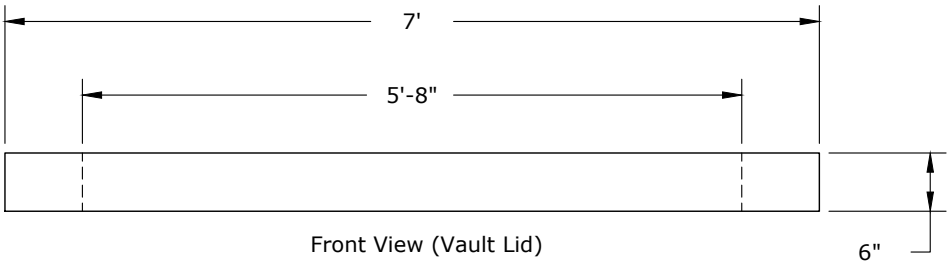
PAGE:		CAD FILE:	APP: HWH/MA	SECTION
4 of 6	USG5	USG5	DATE: 11/94	1600



Switchgear to
Vault Anchoring Detail



Top View (Vault Lid)



Front View (Vault Lid)

Lid Weight - 2,740 lb

Rev. 2 - Combined USG 5, 6, & 7, changed to maintenance or where 612 vault does not fit, and added material issue.

Clark Public Utilities

CONSTRUCTION STANDARDS

DEADFRONT SWITCHGEAR ON 774 VAULT
FOR MAINTENANCE ONLY
OR WHEN STD USG3 VAULT WILL NOT FIT

REVISIONS			
R	DATE	ENGR	OPS
1	1/11/04	LB	AH
2	8/8/22	CRM	GM

PAGE:		CAD FILE:	APP: HWH	SECTION
5 of 6	USG5	USG5	DATE: 11/94	1600

ITEM NO.	DESCRIPTION	S/N	7PME9 QTY	7PME10 QTY	7PME11 QTY	7PME12 QTY
1	Switch, Padmt, PME 9, 2-600 A Switches & 2-200 A Fused Bays	2458	1	–	–	–
	PME 10, 4-600 A Switches	2452	–	1	–	–
	PME 11, 3-600 A Switches & 1-200 A Fused Bay	2459	–	–	1	–
	PME 12, 1-600 A Switch & 3-200 A Fused Bays	Contact Standards Engineer - Not Stocked				
2	Elbow, 600A, NLB, Test Point, Kit For USG1	2692	6	12	9	3
	Each Kit Consists Of #3 to #8:					
3	*Elbow, 600 A, T-body*	1825	6	12	9	3
4	*Adapter, Cable, 1000 MCM*	1	6	12	9	3
5	*Contact, Compression, Al, 1000 MCM, Non-Threaded Hole*	941	6	12	9	3
6	*Plug, Loadbreak, Reducing Tap, 600A-200A*	1769	6	12	9	3
7	*Cap, Protective, Insulated, 200A, 15 kV*	265	6	12	9	3
8	*Stud, Al, 600A, T-body to Reducer Plug*	2704	6	12	9	3
9	Elbow, Sealing Kit, 1000MCM, 175mil & 220mil	2376	6	12	9	3
10	Clamp, Ground Rod, 5/8" Bronze, Large	282	2	2	2	2
11	Conductor, OH, Cu, 2/0, 7-Str, Bare, Soft Drawn, 1C	379	50	50	50	50
12	Connector, Crimpet, Cu, Run & Tap 1/0 - 2/0 Str	457	2	4	3	1
13	Rod, Ground, 5/8" x 8'	1124	2	2	2	2
14	Vault, Concrete, with Lid, 774, PME Switchgear	1541	1	1	1	1
15	Indicator, Fault, UG, 800A, Test-Point, Voltage-Reset, 3 phase	2695	1	3	2	–
16	Connector, Crimpet, Cu, Run 3/0 - 250 Str, Tap #6 Sol - 2/0 Str	459	6	12	9	3
17	Connector, Compression Lug, Cu, 2/0 Str	431	4	4	4	4
18	Bolt, Hexhead, SS, 1/2" x 2" Assembly, w/ Belleville & Flat Washers	1389	4	4	4	4
19	Elbow, 200A, LB, 1/0, 175 & 220 mil, Test Point, 15 kV, Jacket Seal	1312	6	-	3	9
20	Cap, Protective, Insulated, 200A 15 kV	265	6	-	3	9
21	Bushing, Standoff, Insulated, 200A	252	6	-	3	9
22	Connector, Crimpet, Cu, Run & Tap #2 Sol/Str (2C2)	455	6	-	3	9
23	Connector, Crimpet, Cu, Run 1/0 - 2/0 Str, Tap #8 Sol - #2 Str	456	2	-	1	3
24	Bolt, Machine, 1/2' x 1", (304) Stainless Steel	130	4	4	4	4
25	Nut, Spring-Loaded, Galv, 1/2" (Unistrut)	920	4	4	4	4
26	Washer, 2" x 3" x 13/16" w/ 9/16" Slotted Hole	1415	4	4	4	4

Additional Material If Needed

Description	S/N
Lid Only for Vault, Concrete, 774, PME Switchgear	1541B
Cover, Vault, 71" x 77", Fiberglass (Temp Only)	2495

Notes: 1. Material issue has the maximum number of fault indicators that may be used. Engineer to determine the actual number needed.
2. All new PMEs are ordered with the required number of 100E fuses for the configuration plus 3 spare fuses.
3. If 65E or 125E fuses are required, the Engineer will have to call for the number needed plus 3 spares.
4. Contact Systems Engineering for proper fuse coordination.

FUSE SIZE	S/N
65 E	661
100 E	662
125 E	663

Rev. 2 - Combined USG 5, 6, & 7, changed to maintenance or where 612 vault does not fit, and added material issue.

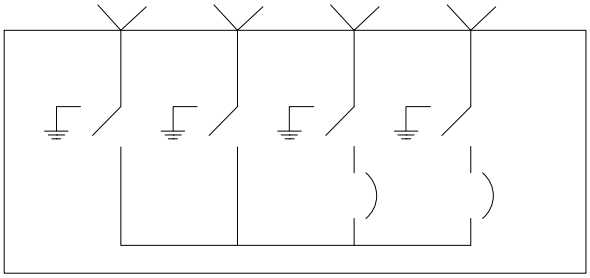
Clark Public Utilities

CONSTRUCTION STANDARDS

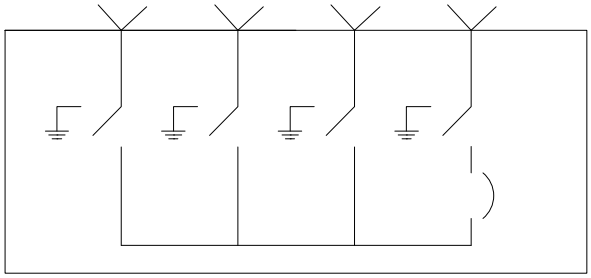
DEADFRONT SWITCHGEAR ON 774 VAULT
FOR MAINTENANCE ONLY
OR WHEN STD USG3 VAULT WILL NOT FIT

REVISIONS			
⚠R	DATE	ENGR	OPS
1	1/11/04	LB	AH
2	8/8/22	CRM	GM

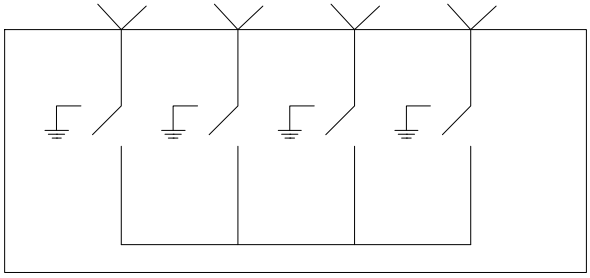
PAGE:		CAD FILE:	APP: HWH/MA	SECTION
6 of 6	USG5	USG5	DATE: 11/94	1600



S/N 2910 - Model 422



S/N 2911 - Model 431



S/N 2924 - Model 440

BELOW GRADE SWITCH MODEL	S/N	600 AMP 3ø SWITCH	200 AMP 3ø FUSED POSITIONS
422	2910	2	2
431	2911	3	1
440	2924	4	0

ITEM NO.	DESCRIPTION		BG422	BG431	BG440
		S/N	QTY	QTY	QTY
1	Switchgear, Below Grade, 422, 15kV, 12.5kA Isc	2910	1	–	–
	Switchgear, Below Grade, 431, 15kV, 12.5kA Isc	2911	–	1	–
	Switchgear, Below Grade, 440, 15kV, 12.5kA Isc	2924	–	–	1
2	Elbow, 600A, NLB, Test Point, Kit For USG1	2692	6	9	12
	Each Kit Consists Of Items #3 to #8:				
3	*Elbow, 600A, T-body*	1825	6	9	12
4	*Adapter, Cable, 1000 MCM*	1	6	9	12
5	*Contact, Compression, Al, 1000 MCM, Non-Threaded Hole*	941	6	9	12
6	*Plug, Loadbreak, Reducing Tap, 600A-200A*	1769	6	9	12
7	*Cap, Protective, Insulated, 200A, 15 kV*	265	12	12	12
8	*Stud, Al, 600A, T-body to Reducer Plug*	2704	6	9	12
9	Elbow, Sealing Kit, 1000MCM, 175 & 220 mil	2376	6	9	12
10	Connector, Crimpet, Cu, Run & Tap 3/0 to 4/0 Str	460	6	9	12
11	Elbow, 200A, LB, 1/0, 175 & 220 mil, Test Point, 15 kV, Jacket Seal	1312	6	3	-
12	Bushing, Feed-Thru, 200A, 15 kV	237	6	3	-
13	Connector, Crimpet, Cu, Run & Tap #2 Sol/Str (2C2)	455	6	3	-
14	Indicator, Fault, 400A, Test Point, Voltage Reset, 1Ø	2694	2	1	-
15	Indicator, Fault, 800A, Test Point, Voltage Reset, 3Ø	2695	1	2	3

Clark Public Utilities

CONSTRUCTION STANDARDS

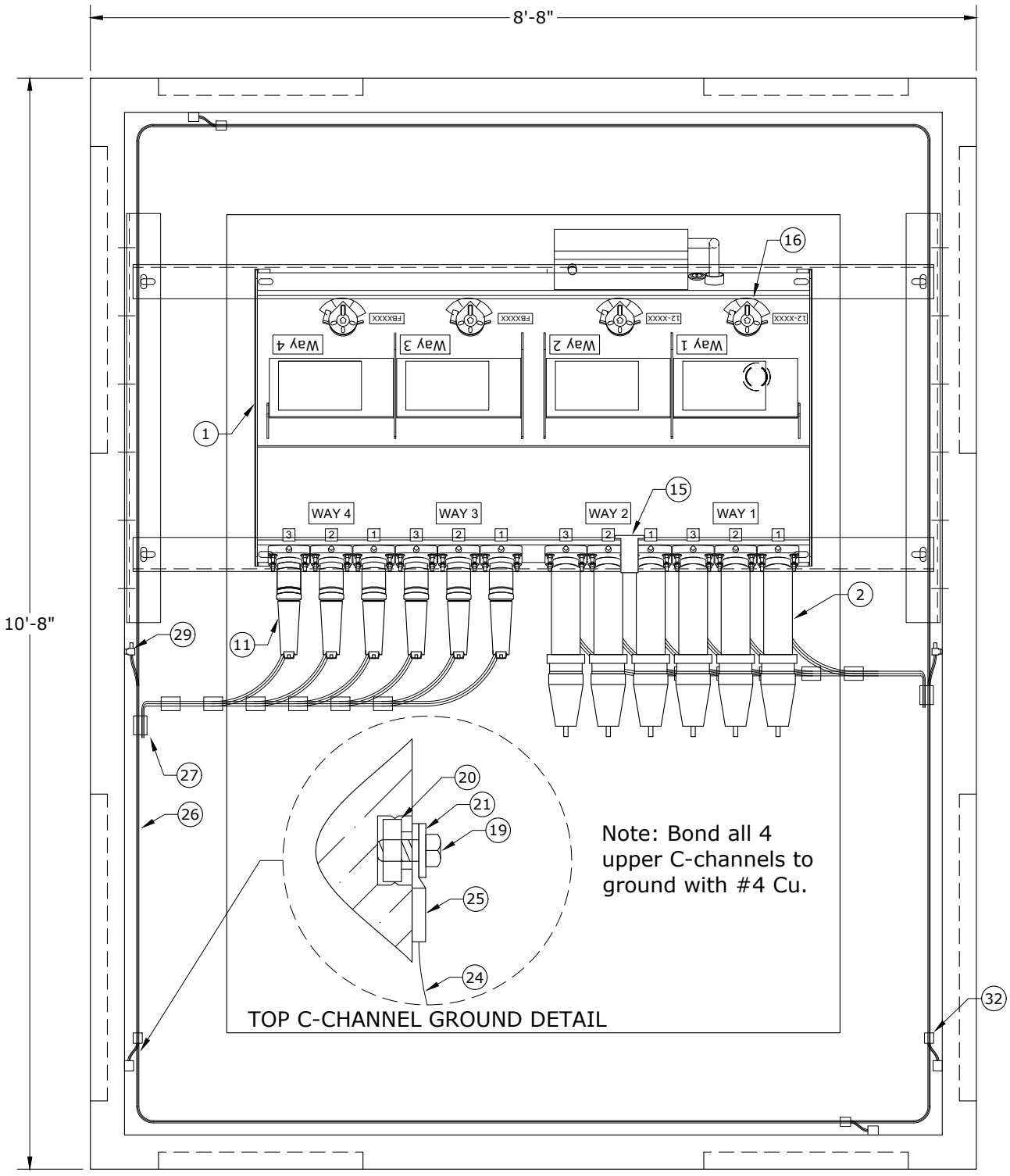
BELOW GRADE SWITCHGEAR

USE WITH STANDARD USG9

REVISIONS			
R	DATE	ENGR	OPS

PAGE:		CAD FILE:	APP: CRM/GM	SECTION
1 of 1	USG8	USG8	DATE: 8/8/22	1600

Note: Switch numbers and FB number labels are made by the warehouse. Labels are black on yellow and are 4" wide by 2" high. Systems Engineering assigns the numbers.



Grounding Detail Top View

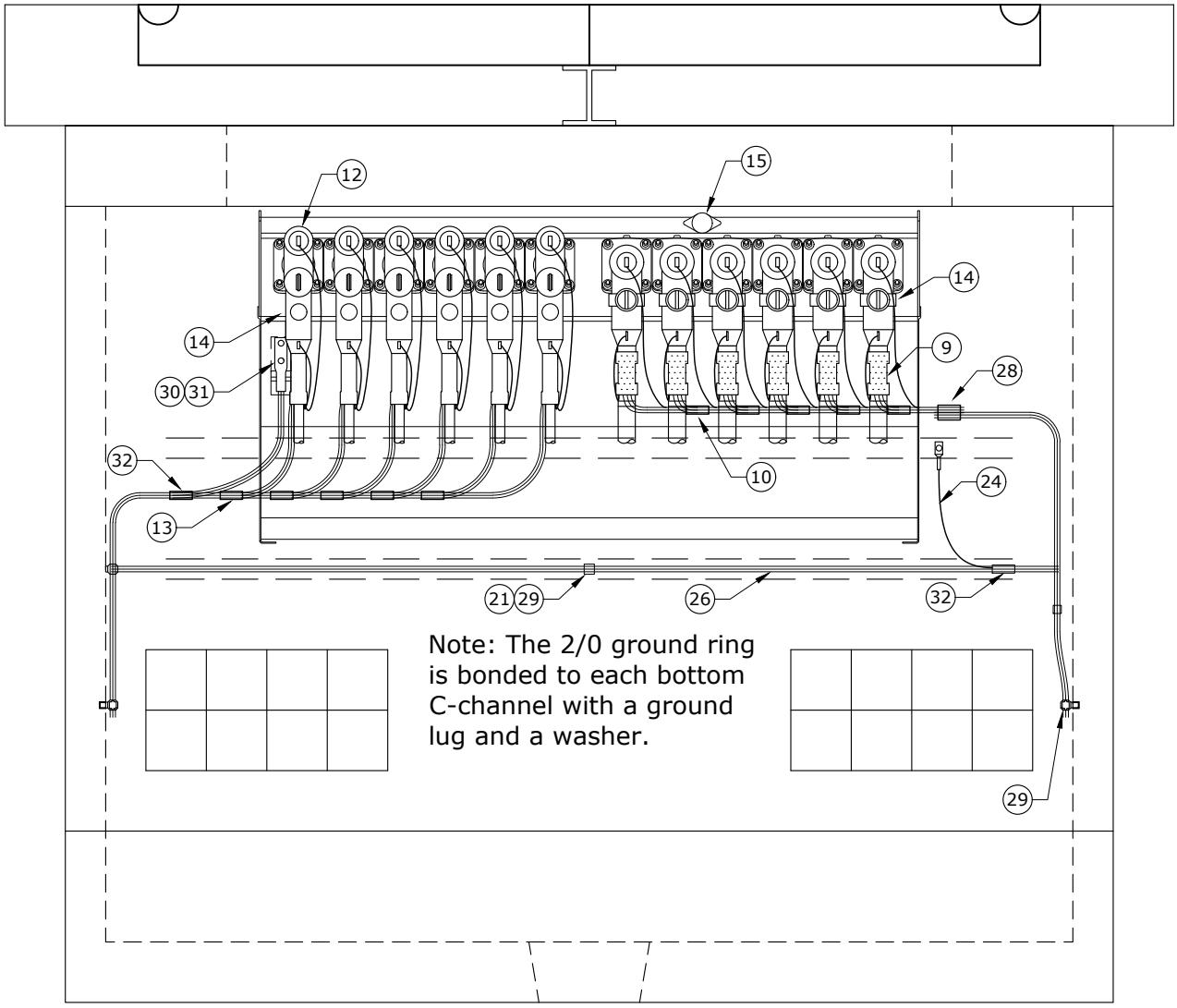
Clark Public Utilities

CONSTRUCTION STANDARDS

BELOW GRADE SWITCHGEAR
VAULT DETAIL
USE WITH STANDARD USG8

REVISIONS			
R	DATE	ENGR	OPS

PAGE:		CAD FILE:	APP: CRM/GM	SECTION
1 of 7	USG9	USG9	DATE: 8/8/22	1600



Grounding Detail Back View

Note: This drawing is for model 422. For all models, keep 200A elbow concentrics separate from 600A elbow concentrics.

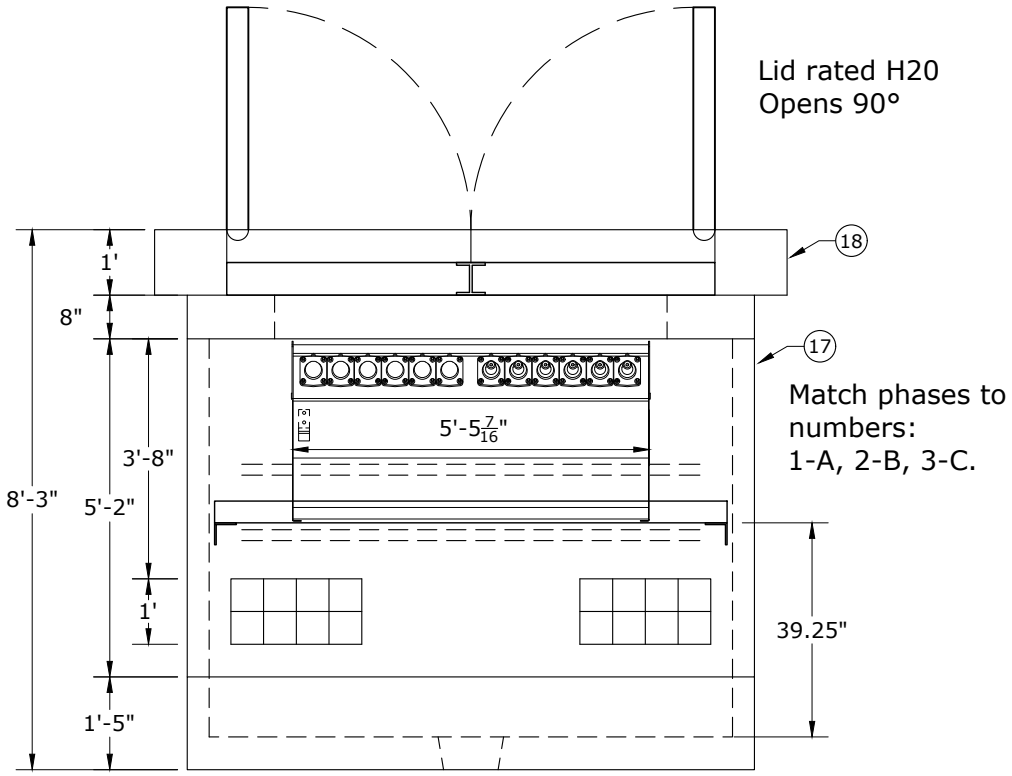
Clark Public Utilities

CONSTRUCTION STANDARDS

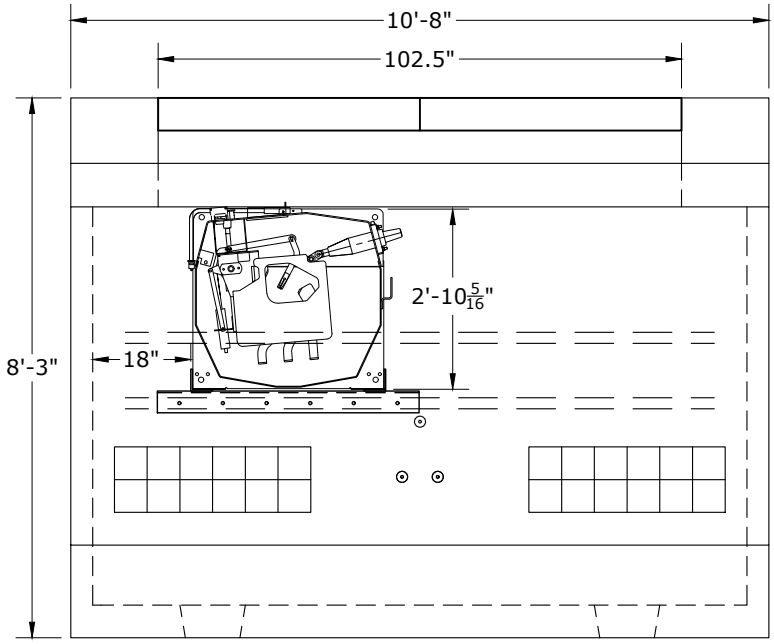
BELOW GRADE SWITCHGEAR
VAULT DETAIL
USE WITH STANDARD USG8

REVISIONS			
R	DATE	ENGR	OPS

PAGE:		CAD FILE:	APP: CRM/GM	SECTION
2 of 7	USG9	USG9	DATE: 8/8/22	1600



Back View



Side View

Notes:

1. Use the bottom outermost conduits first so that remaining vacant conduits are accessible for future cable pulling and orderly cable training. Seal vacant conduits with reusable expanding duct plugs (S/N 2943). Seal conduits with cable using inflatable seals (S/N 2944).
2. Install feed-thru bushings in each 200 A bushing well.

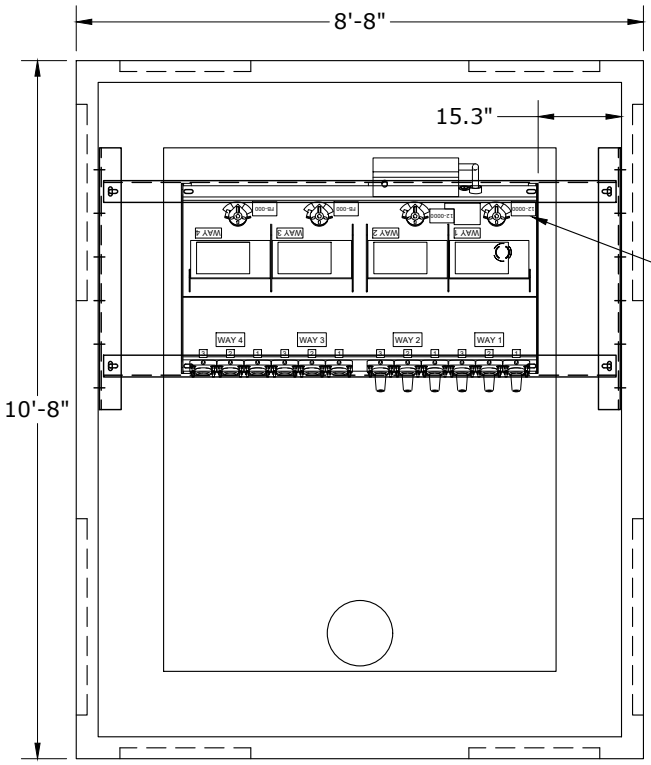
Clark Public Utilities

CONSTRUCTION STANDARDS

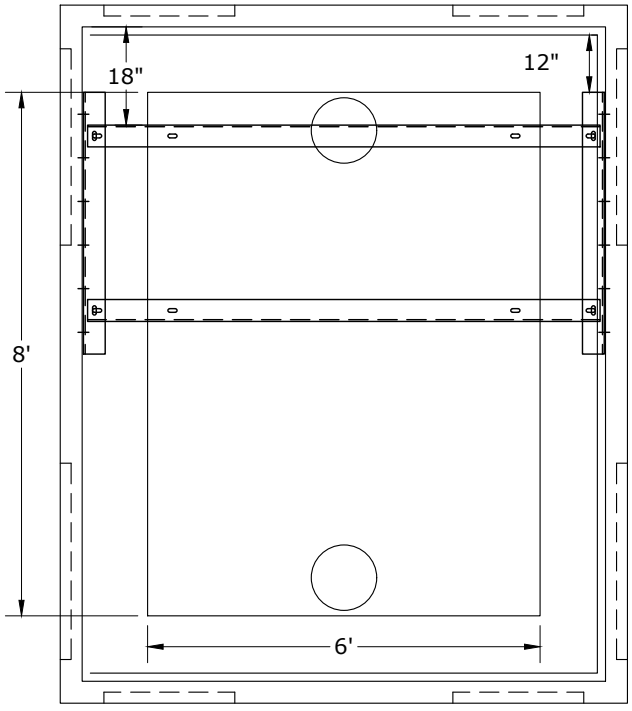
BELOW GRADE
VAULT DETAIL
USE WITH STANDARD USG8

REVISIONS			
R	DATE	ENGR	OPS

PAGE:		CAD FILE:	APP: CRM/GM	SECTION
3 of 7	USG9	USG9	DATE: 8/8/22	1600



Vault Base With Switch



Vault Base Top View

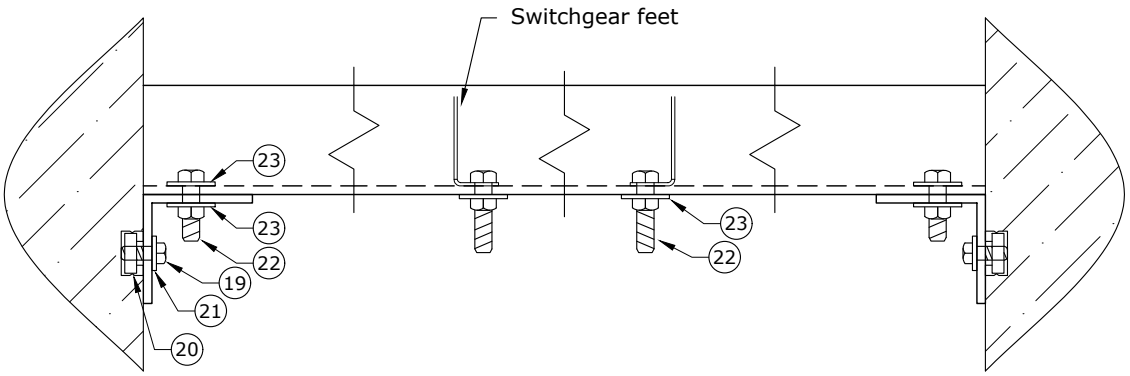
Clark Public Utilities

CONSTRUCTION STANDARDS

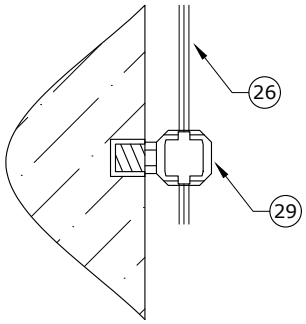
BELOW GRADE SWITCHGEAR
VAULT DETAIL
USE WITH STANDARD USG8

REVISIONS			
R	DATE	ENGR	OPS

PAGE:		CAD FILE:	APP: CRM/GM	SECTION
4 of 7	USG9	USG9	DATE: 8/8/22	1600



Switchgear Support Assembly



Ufer Ground Connection Detail

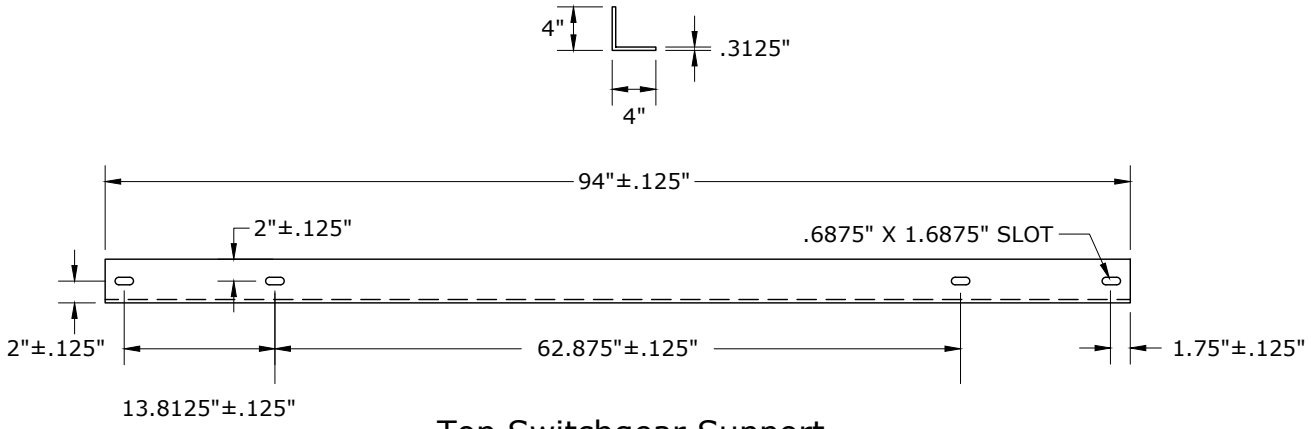
Clark Public Utilities

CONSTRUCTION STANDARDS

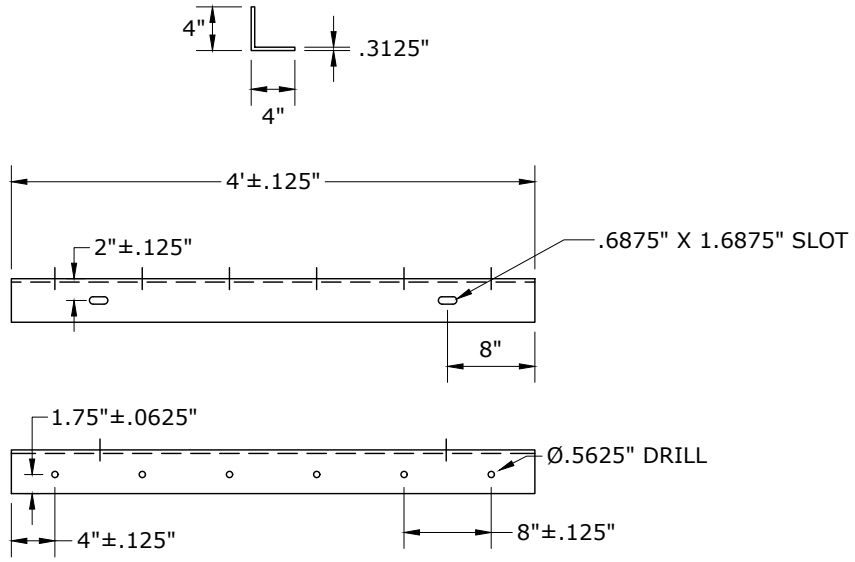
BELOW GRADE SWITCHGEAR
VAULT DETAIL
USE WITH STANDARD USG8

REVISIONS			
R	DATE	ENGR	OPS

PAGE:		CAD FILE:	APP: CRM/GM	SECTION
5 of 7	USG9	USG9	DATE: 8/8/22	1600



Top Switchgear Support



Bottom Switchgear Support

Notes:

1. These dimensions are for a Utility Vault 8'x10' with tapered walls.
2. These supports are not part of CPU inventory and must be fabricated at a machine shop.

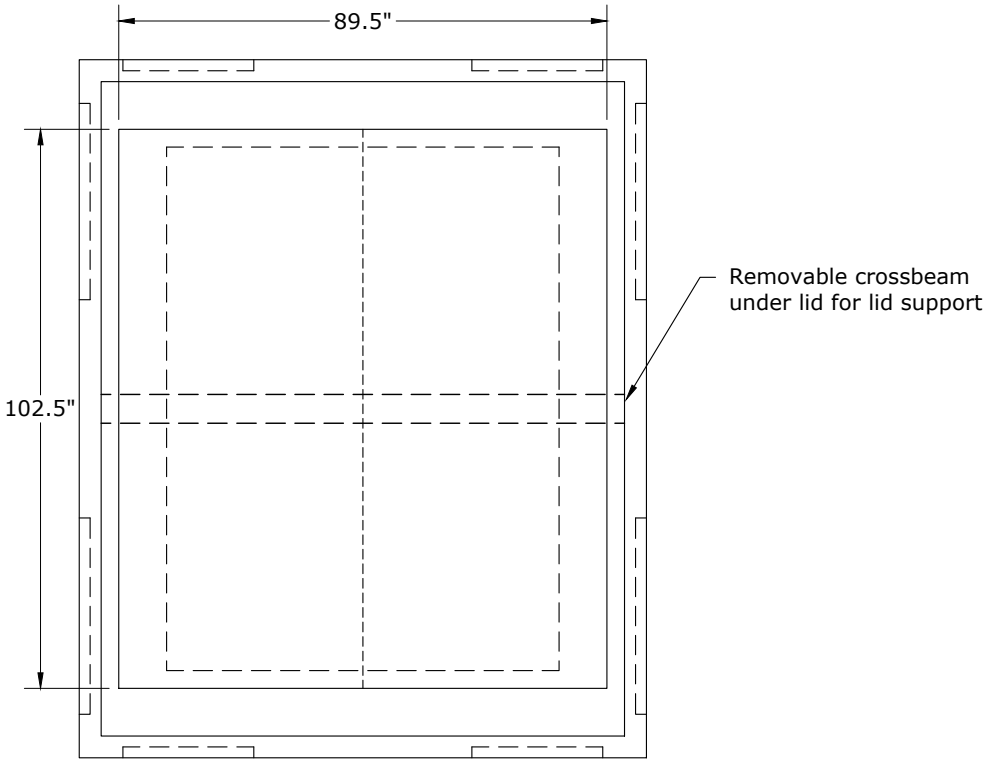
Clark Public Utilities

CONSTRUCTION STANDARDS

BELOW GRADE SWITCHGEAR
VAULT DETAIL
USE WITH STANDARD USG8

REVISIONS			
R	DATE	ENGR	OPS

PAGE:		CAD FILE:		
6 of 7	USG9	USG9	APP: CRM/GM DATE: 8/8/22	SECTION 1600



Top View With Lid

Note: See USG8 for items #1-16.

ITEM NO.	DESCRIPTION	USG9	
		QTY	S/N
17	Vault, 810. w/o Lid, Below Grade Switch	1	2793
18	Lid, (2) 3' x 8' Doors, 810 Vault, Below Grade Switch	1	2794
19	Bolt, Machine, 1/2" x 1-1/2" SS	12	131
20	Nut, Spring-Loaded Galv. 1/2"	16	920
21	Washer, Flat, 1/2", SS	20	2610
22	Bolt, Machine 5/8" x 2" Galv., 12,400 lbs Ultimate Tensile	8	149
23	Washer, Flat Round, Galv., 5/8"	16	1395
24	Conductor, OH, BSDC, #4, 1C 7 Str	35	377
25	Connector, Compression Lug, #4 Cu	8	2548
26	Conductor, OH, BSDC, 2/0, 1C 7 Str	60	379
27	Connector, Crimpet, Cu, 2/0 to 2/0	6	457
28	Connector, Crimpet, Cu, 2/0 to 4/0	1	459
29	Lug, Grounding, #8 SLD - 2/0 Str 4 Way	6	842
30	Connector, Compression Lug, Cu 2/0 Str	1	431
31	Bolt, Washer, SS, 1/2" x 2" Assembly, w/ Si Br Nut	2	1389
32	Connector, Crimpet, Cu, 1/0-2/0 to #6-#2	6	456

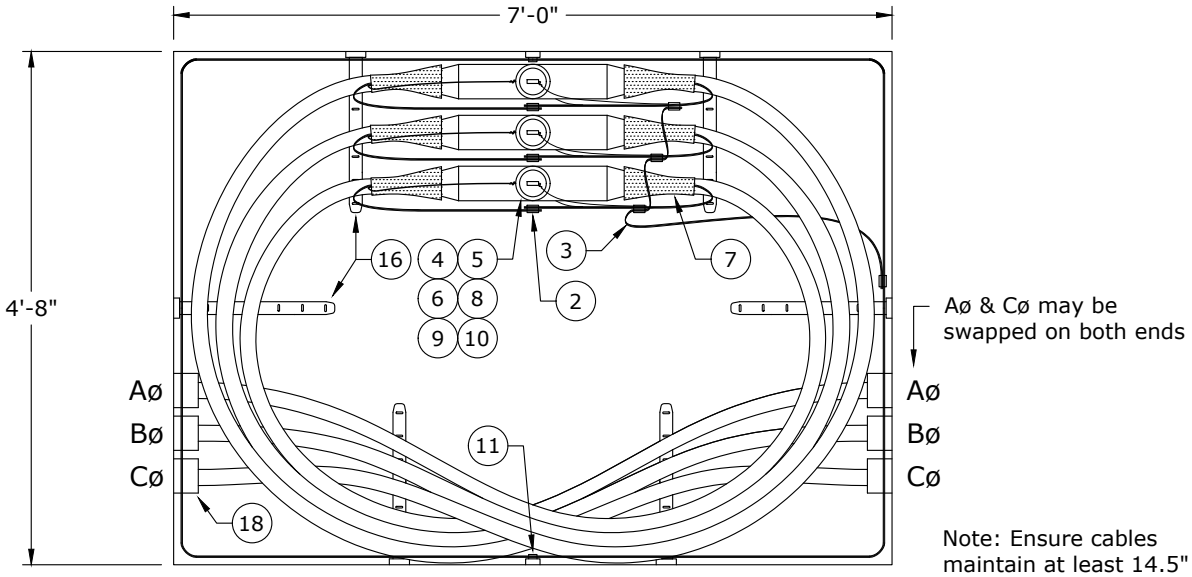
Clark Public Utilities

CONSTRUCTION STANDARDS

BELOW GRADE SWITCHGEAR
VAULT DETAIL
USE WITH STANDARD USG8

REVISIONS			
R	DATE	ENGR	OPS

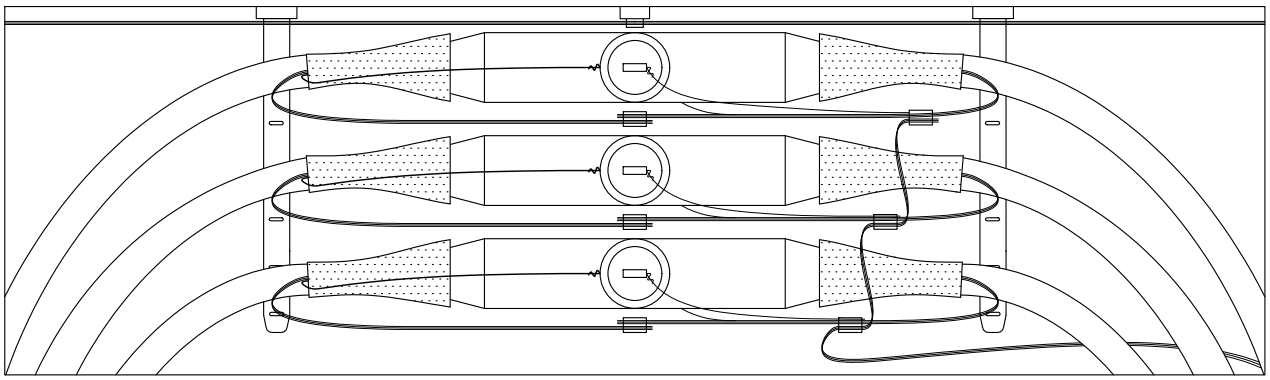
PAGE:		CAD FILE:		
7 of 7	USG9	USG9	APP: CRM/GM DATE: 8/8/22	SECTION 1600



Note: CO2 cartridges for seals (#18) are in free issue.
Inflation tool is in Tool Room.

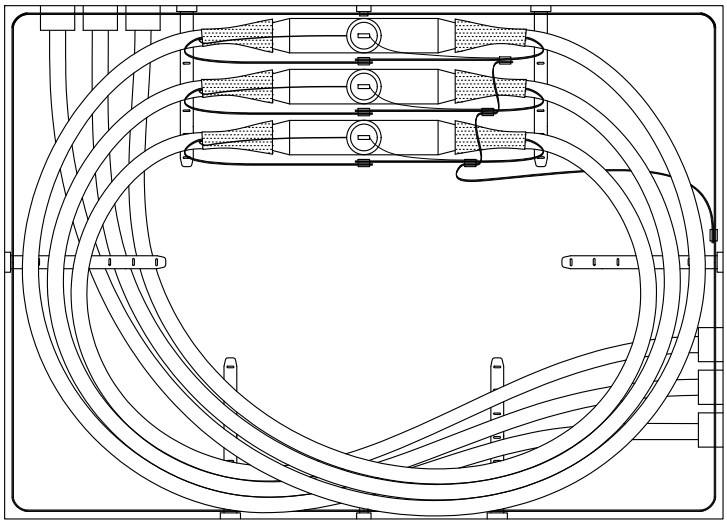
Top View

Note: Ensure cables maintain at least 14.5" minimum bend radius



Grounding Detail

Cø Bø Aø



Alternate Configuration

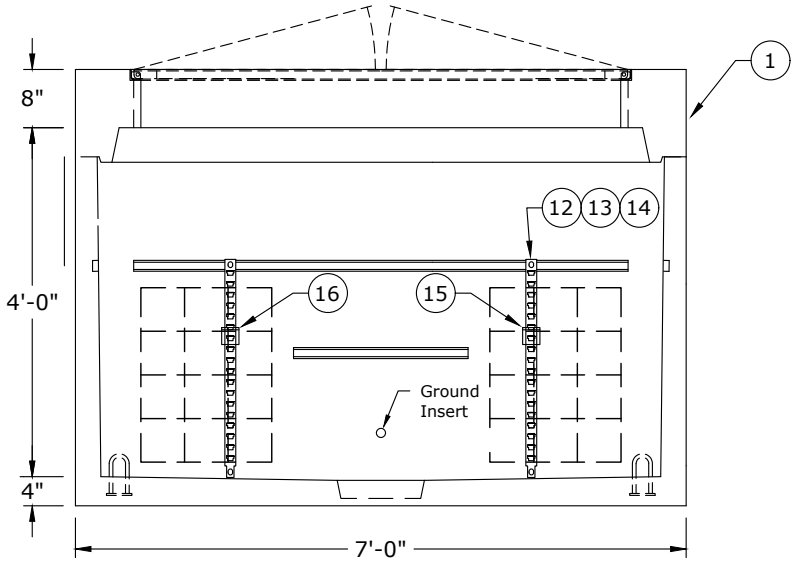
Clark Public Utilities

CONSTRUCTION STANDARDS

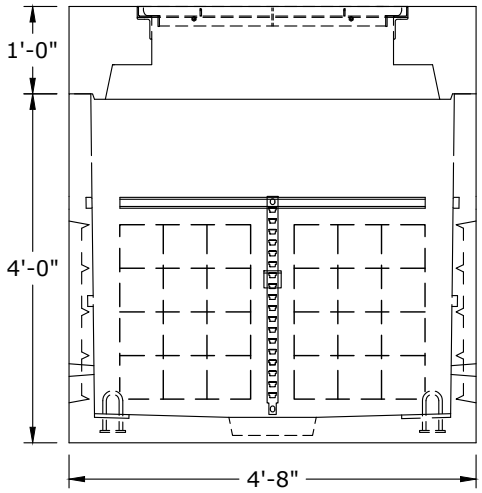
1000MCM SPLICE PIT
FLUSH-MOUNT

REVISIONS			
R	DATE	ENGR	OPS

PAGE:		CAD FILE:	APP: CRM/GM	SECTION
1 of 2	USP	USP	DATE: 8/8/22	1600



Front View (Inside)



Side View (Inside)

ITEM NO.	DESCRIPTION	USP	
		QTY.	S/N
1	Vault, 575LA, Flush-Mount J-Box or EE, Ufer Ground, Non-Slip Lid	1	2722
2	Connector, Crimpet, Cu, Run & Tap 1/0 - 2/0 Str	7	457
3	Conductor, OH, Cu, 2/0, 7-str, Bare, Soft-Drawn, 1C	30	379
4	Extender, 1000MCM Cable	3	2766
5	Plug, Basic Insulating	3	1824
6	Contact, Compression, Al, 1000MCM, Non-Threaded Hole	6	941
7	Elbow, Sealing Kit, 1000MCM 175 & 220 Mil	6	2376
8	Adapter, Cable, 1000MCM	6	1
9	Plug, Loadbreak, Reducing Tap, 600A-200A	3	1769
10	Cap, Protective, Insulated, 200A	3	265
11	Lug, Grounding, #8 Sol - 2/0 Str, 4-Way	2	842
12	Bolt, Machine, 1/2" x 1-1/2" SS	6	131
13	Nut, Spring-Loaded, Galv, 1/2" (Uni-strut)	6	920
14	Washer, Flat, 1/2", 18-8, Stainless Steel	6	2610
15	Bracket, Mounting, Vault, 30"	6	2861
16	Arm, Vault, Cable, 18"	6	2863
17	Tie Wrap, Plastic, Releasable, 1/2" W x 19" L	21	2956
18	Seal, 4" Conduit, Inflatable (Up to 2 Cables)	6	2944

Clark Public Utilities

CONSTRUCTION STANDARDS

1000MCM SPLICE PIT
FLUSH-MOUNT

REVISIONS			
R	DATE	ENGR	OPS

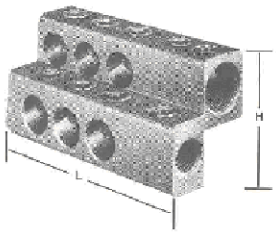
PAGE:		CAD FILE:	APP: CRM/GM	SECTION
2 of 2	USP	USP	DATE: 8/8/22	1600

1700
UNDERGROUND SECONDARY

5/13/2024

~	UB30-UB60	Basic Units - Underground Secondary
C	UE18,UE38	Secondary J-Box 17" x 30" x 18" Deep (Light Duty) Secondary J-Box 24” x 36” x 18”
C	UED6	Secondary Pedestal Assembly
~	US-1	UG Secondary Splice
C	US6,US7	Padmount Transformer Assembly 1Ø Secondary
~	US35-US38	Secondary Connectors 3Ø Padmount Transformer

N New Standard
R Redrawn Standard
C Changed Standard
~ No Change

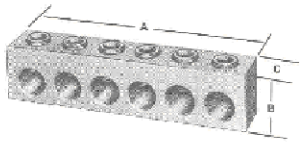


Single Phase Padmount Transformer Terminal

UB30's Material Descriptions	TDM #	Const. Spec.
Connector PTL 4-250 UG Al/Cu 6 to 4/0	1439	UB30
Connector PTL 4-350 UG Al/Cu 6 to 350	539	UB31
Connector PTL 6-250 UG Al/Cu 6 to 4/0	540	UB32
Connector PTL 6-350 UG Al/Cu 6 to 350	541	UB33
Connector PTL 6-500 UG Al/Cu 2 to 500	542	UB34

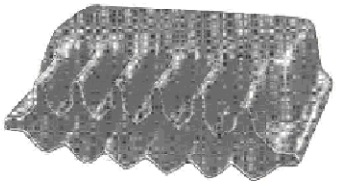
Three Phase Padmount Transformer Terminal

See US35 through US40 for Three Phase Padmount Transformer Terminals



Pedestal and Junction Box Connector

UB50's Material Descriptions	TDM #	Const. Spec.
Connector PTL 4-250 UG Al/Cu 6 to 4/0	527	UB50
Connector PTL 4-350 UG Al/Cu 6 to 350	528	UB51
Connector PTL 4-500 UG Al/Cu 2 to 500	529	UB52
Connector PTL 6-250 UG Al/Cu 6 to 4/0	530	UB53
Connector PTL 6-350 UG Al/Cu 6 to 350	531	UB54
Connector PTL 6-500 UG Al/Cu 2 to 500	532	UB55
Connector PTL 6-750 UG Al/Cu 350 to 750	533	UB56
Connector PTL 8-500 UG Al/Cu 2 to 500	534	UB57
Connector PTL 8-750 UG Al/Cu 2 to 750	535	UB58



PTL, PET, PED Cover

UB60's Material Descriptions	TDM #	Const. Spec.
Cover, Connector 4-350 UG	573	UB60
Cover, Connector 6-500 UG	574	UB61
Cover, Connector 8-500 UG	575	UB62
Cover, Connector 8-750 UG	576	UB63

1700 Underground Secondary

Clark Public Utilities

CONSTRUCTION STANDARDS

BASIC UNITS
UNDERGROUND SECONDARY

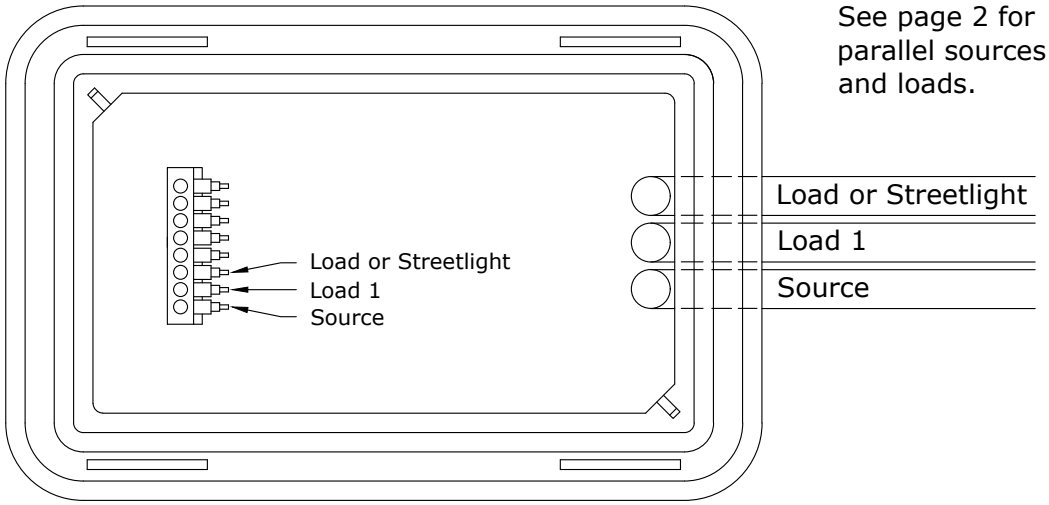
REVISIONS

R	DATE	ENGR	OPS
3	8/16/02		

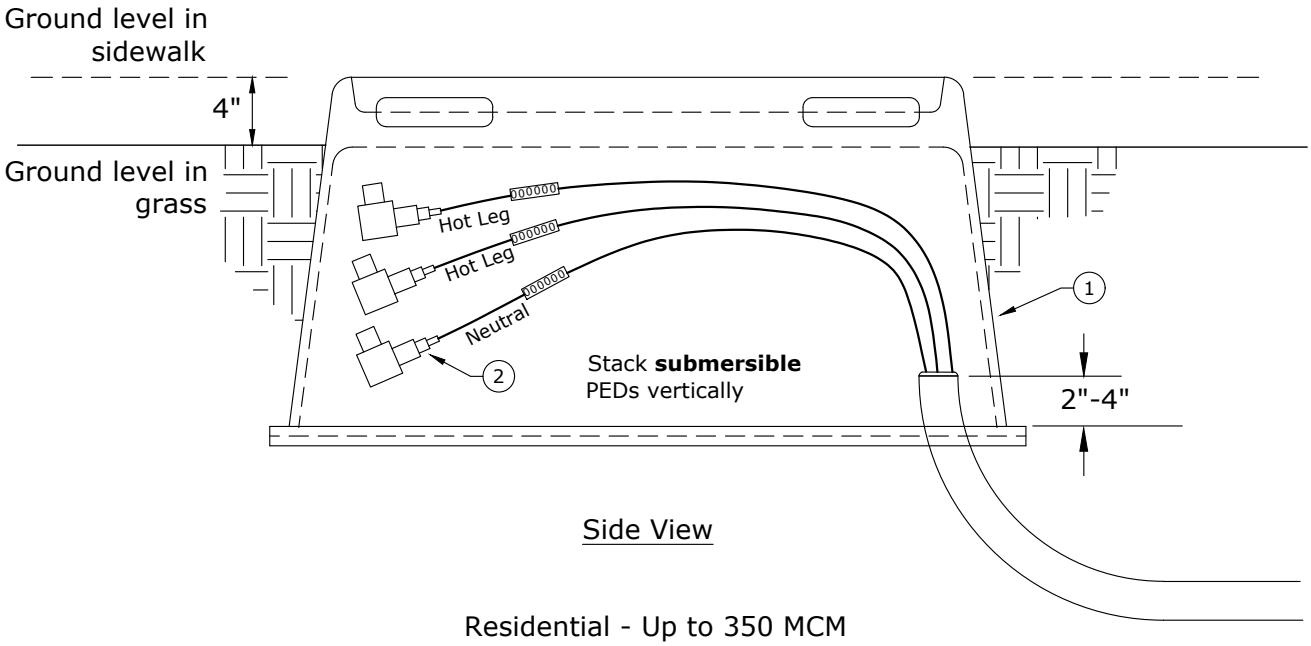
3 REDRAWN IN CAD

PAGE:		CAD FILE:	APP: ELM	SECTION
1 of 1	UB30,UB40,UB50,UB60	UB30	DATE: 1/22/80	1700

See page 2 for parallel sources and loads.



Top View



Side View

Residential - Up to 350 MCM
Commercial - Up to 500 MCM

Notes:

1. Do not install S/N 2556 in streets, alleys, or highways.
2. Cut all cables long enough to allow makeup to be done above the box top with cables in an approximately vertical position.
3. Bend cables down after makeup so that lid can be installed.
4. Use silicone grease on all allen wrench plugs and cable boots (both ends).
5. If additional depth is needed, place one box upside down, bolt the 2 boxes together and salvage one lid. (S/N 2556 only).

Rev. 7 - Added drawing for parallel source and loads.

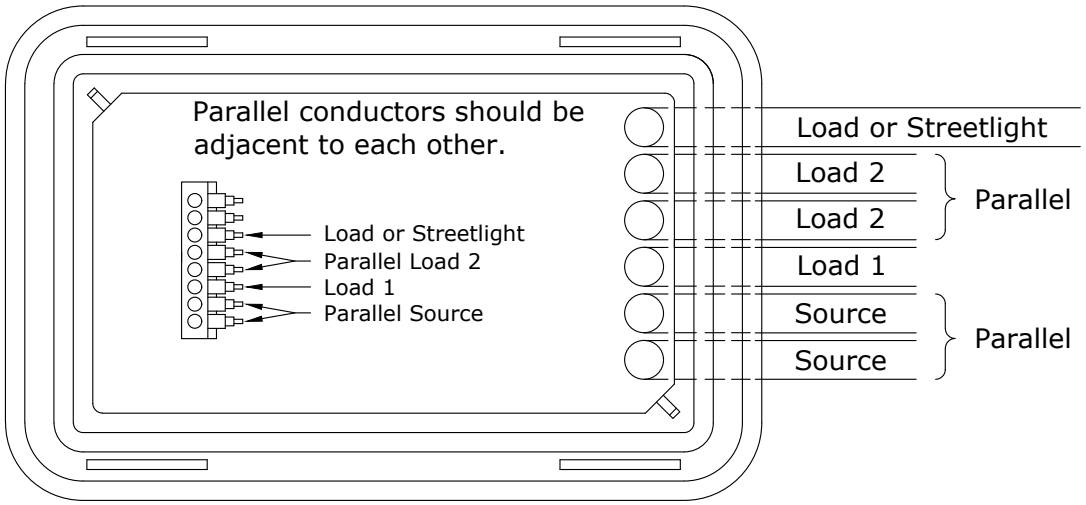
Clark Public Utilities

CONSTRUCTION STANDARDS

SECONDARY JUNCTION BOX
17" x 30" x 18" DEEP (LIGHT DUTY)
24" x 36" x 18" DEEP (HEAVY DUTY)

REVISIONS			
R	DATE	ENGR	OPS
4	10/29/18	KJP	
5	6/24/19	JDK	
6	12/2/19	KJP	
7	12/9/22	CRM	GM

PAGE:		CAD FILE:	APP: GGW/RWG	SECTION
1 of 2	UE18,UE38	UE18	DATE: 4/92	1700



Top View

Parallel Source and Loads

Occasional Traffic Areas (S/N 2556):

- Rated 10,000 pounds
- This box is NOT for use in streets, alley or highways. Do NOT use in driveways if location is part of the normal traveled way

Heavier Traffic Areas (S/N 2608):

- Rated 20,000 pounds
- This box is 24" x 36" x 18"
- May be used in alleys or driveways-only rated 20k
- Do NOT use in streets or highways

Rev. 7 - Added drawing for parallel source and loads.

ITEM NO	DESCRIPTION	UE18 QTY	UE18 S/N
1	Box, Junction, Secondary, Composite, Light Duty (10k lb) with Cover, 17" x 30" x 18" with Pentabolts	1	2556
2	Connector, Submersible, Sec., 8 Position, #12 to 500 MCM Al/Cu	3	2264

ITEM NO	DESCRIPTION	UE18H QTY	UE18H S/N
1	Box, Junction, Secondary, Composite, Heavy Duty (20k lb) with Cover, 24" x 36" x 18" with Pentabolts	1	2608
2	Connector, Submersible, Sec., 8 Position, #12 to 500 MCM Al/Cu	3	2264

ITEM NO	DESCRIPTION	UE38 QTY	UE38 S/N
1	Box, Junction, Secondary, Composite, Light Duty (10k lb) with Cover, 17" x 30" x 18" with Pentabolts	1	2556
2	Connector, Submersible, Sec., 8 Position, #12 to 500 MCM Al/Cu	4	2264

ITEM NO	DESCRIPTION	UE38H QTY	UE38H S/N
1	Box, Junction, Secondary, Composite, Heavy Duty (20k lb) with Cover, 24" x 36" x 18" with Pentabolts	1	2608
2	Connector, Submersible, Sec., 8 Position, #12 to 500 MCM Al/Cu	4	2264

Clark Public Utilities

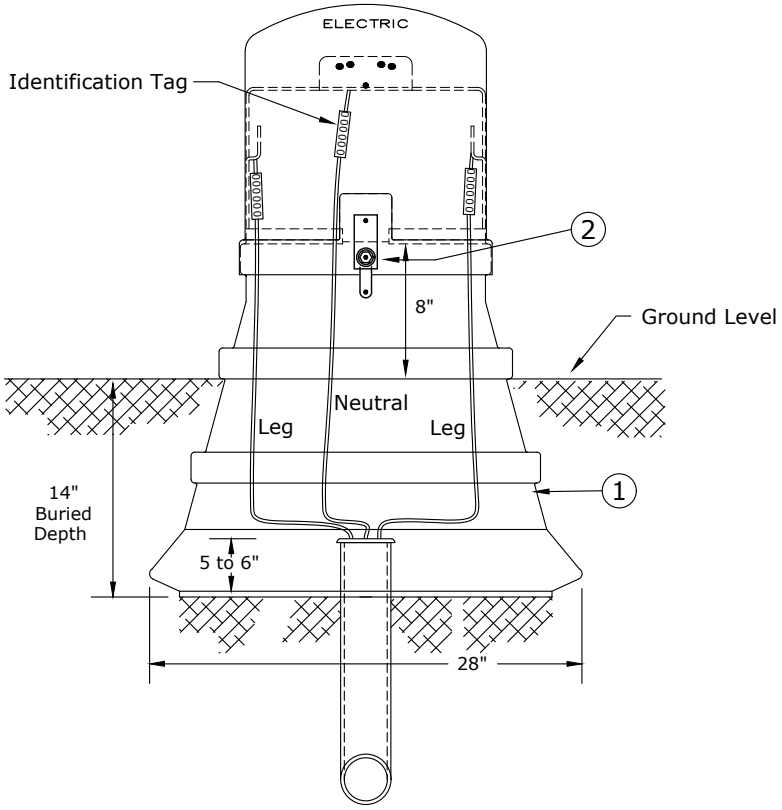
CONSTRUCTION STANDARDS

SECONDARY JUNCTION BOX
17" x 30" x 18" DEEP (LIGHT DUTY)
24" x 36" x 18" DEEP (HEAVY DUTY)

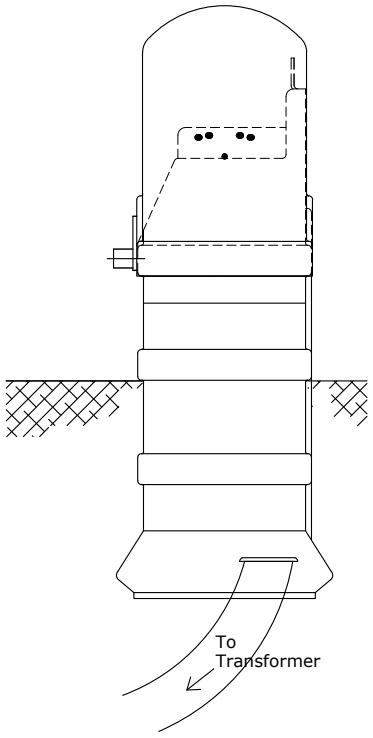
REVISIONS			
R	DATE	ENGR	OPS
4	10/29/18	KJP	
5	6/24/19	JDK	
6	12/2/19	KJP	
7	12/9/22	CRM	GM

PAGE:		CAD FILE:	APP: GGW/RWG	SECTION
2 of 2	UE18,UE38	UE18	DATE: 4/92	1700

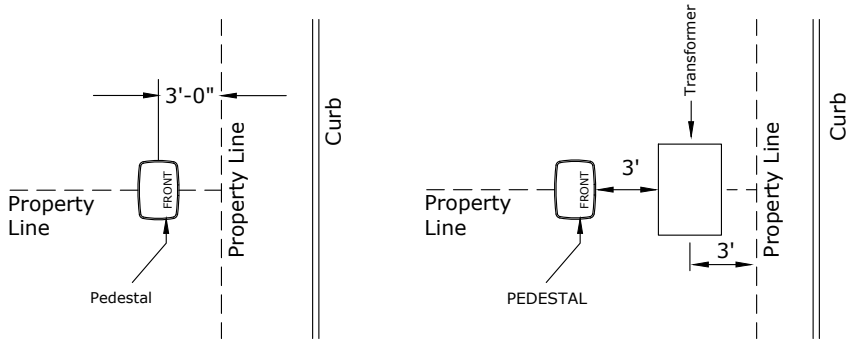
FRONT VIEW



SIDE VIEW

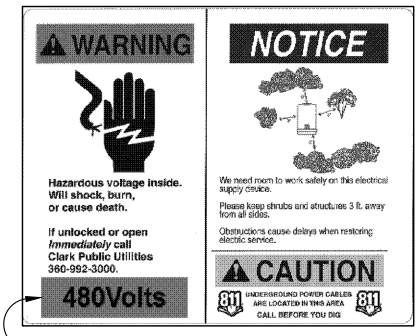


Notes: 1.) Leave slack in wire to allow for settling.
2.) Recommended torque for connectors: 23-38 ft-lb



LOCATION IN SUBDIVISION

FOR 480V SERVICE



Add S/N 794 "480 VOLTS" Label to "WARNING" label when pedestal is used for 480 V service.

Rev. 4 - Removed ground rod for BDR.

Clark Public Utilities

CONSTRUCTION STANDARDS

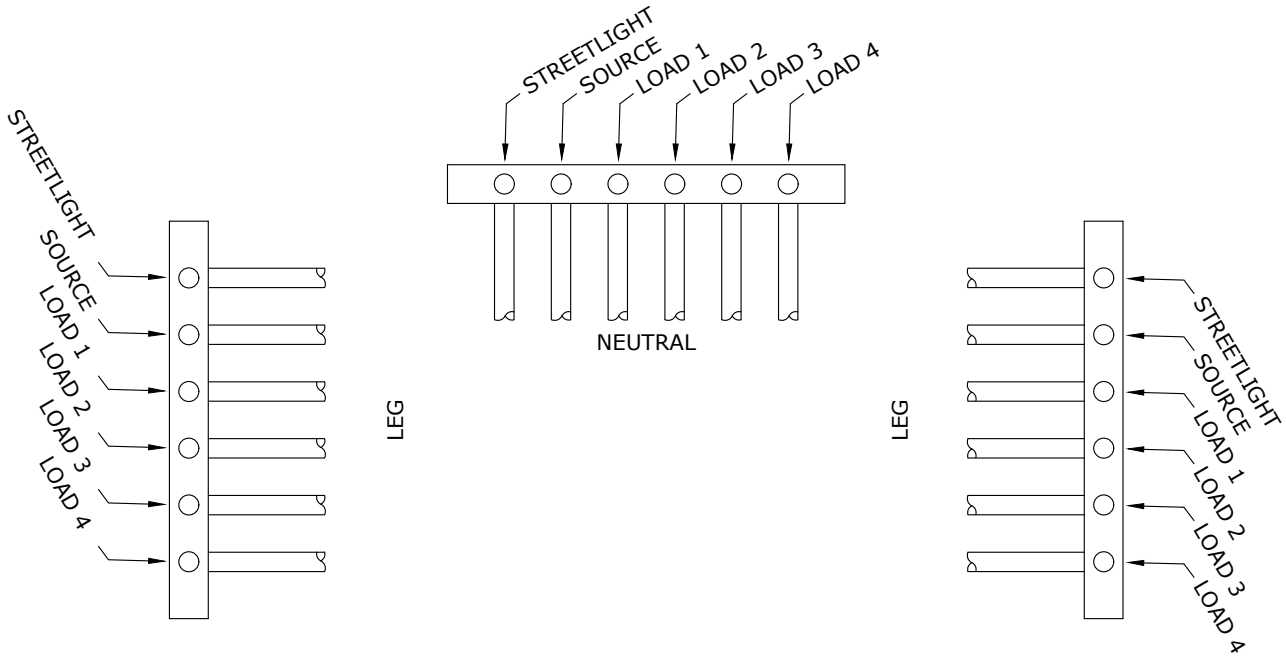
SECONDARY PEDESTAL ASSEMBLY

REVISIONS			
R	DATE	ENGR	OPS
1	4/26/04	LB	AH
2	3/12/20	KJP	
3	12/9/22	CRM	GM
4	6/7/23	CSB	

PAGE:		CAD FILE:	APP: HWH/ELM	SECTION
1 of 3	UED6	UED6	DATE: 1980	1700

DO NOT Cut Zip Ties off Plastic PED Covers
Zip Ties MUST Be Reinstalled

Back of Pedestal



Top View

Recommended torque: 23-38 ft-lb
Do NOT Use Impact Driver/Wrench

Notes: 1.) Maximum cable size is 350 MCM.
2.) Minimum cable size is #10.
3.) Maximum of 6 triplex cables.

Rev. 4 - Removed ground rod for BDR.

ITEM NO	DESCRIPTION	UED6 QTY	UED6 S/N
1	Pedestal, Secondary, Above Ground, W/ Connectors and Covers *	1	2562
2	Lock, Equipment *	1	837

Clark Public Utilities

CONSTRUCTION STANDARDS

SECONDARY PEDESTAL ASSEMBLY

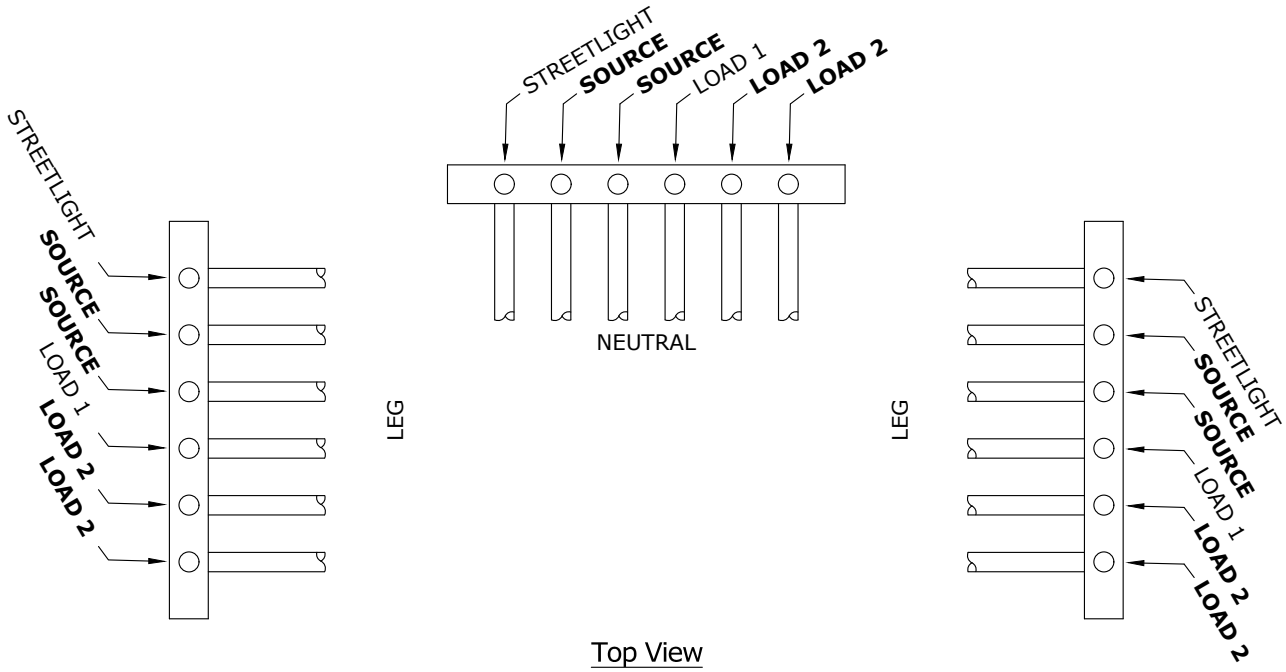
REVISIONS			
R	DATE	ENGR	OPS
1	4/26/04	LB	AH
2	3/12/20	KJP	
3	12/9/22	CRM	GM
4	6/7/23	CSB	

PAGE:		CAD FILE:	APP: HWH/ELM	SECTION
2 of 3	UED6	UED6	DATE: 1980	1700

DO NOT Cut Zip Ties off Plastic PED Covers
Zip Ties MUST Be Reinstalled

Zip tie ONE tag around each set of parallel cables

Back of Pedestal



Top View
Parallel Source and Loads

Recommended torque: 23-38 ft-lb
Do NOT Use Impact Driver/Wrench

Notes: 1.) Maximum cable size is 350 MCM.
2.) Minimum cable size is #10.
3.) Maximum of 6 triplex cables.

Rev. 4 - Removed ground rod for BDR.

ITEM NO	DESCRIPTION	UED6 QTY	UED6 S/N
1	Pedestal, Secondary, Above Ground, W/ Connectors and Covers *	1	2562
2	Lock, Equipment *	1	837

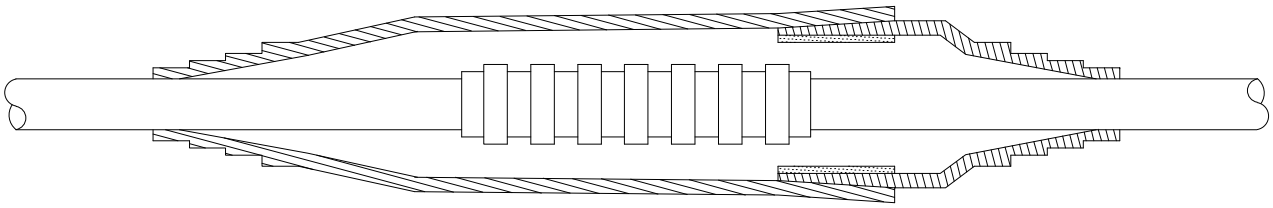
Clark Public Utilities

CONSTRUCTION STANDARDS

SECONDARY PEDESTAL ASSEMBLY
PARALLEL SOURCE AND LOADS

REVISIONS			
R	DATE	ENGR	OPS
1	4/26/04	LB	AH
2	3/12/20	KJP	
3	12/9/22	CRM	GM
4	6/7/23	CSB	

PAGE:		CAD FILE:	APP: HWH/ELM	SECTION
3 of 3	UED6	UED6	DATE: 1980	1700



APPLY SILICONE GREASE TO CABLES FOR EASE OF ASSEMBLY.

NOTES:

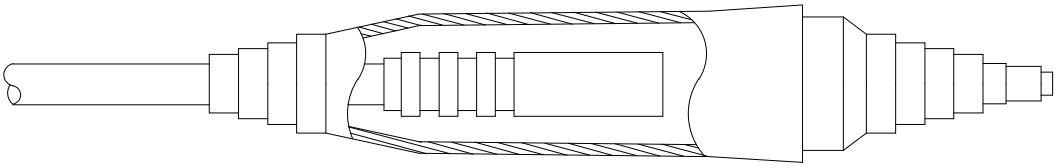
1. THIS SPLICE IS FOR ANY 600 VOLT OR LESS APPLICATION.
2. THIS SPLICE CAN BE DIRECTLY BURIED OR USED IN A HAND HOLE OR VAULT.
3. OTHER SIZES ARE AVAILABLE FOR SPECIAL APPLICATIONS.

MATERIAL LIST — US-1

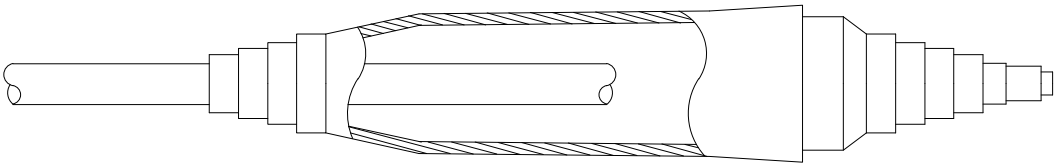
ITEM	QTY.	DESCRIPTION	SIN
1	1	SPLICE KIT, 600V, U.G.	1215
2	1	CONNECTOR, SLEEVE	#

WIRE SIZE	#SIN
2/0 AL	1166
4/0 AL	1167
350 AL	1169
2/0-4/0 AL	1454
4/0-350 AL	1455

OTHER USES



HALF-READY SPLICE



CABLE CAP

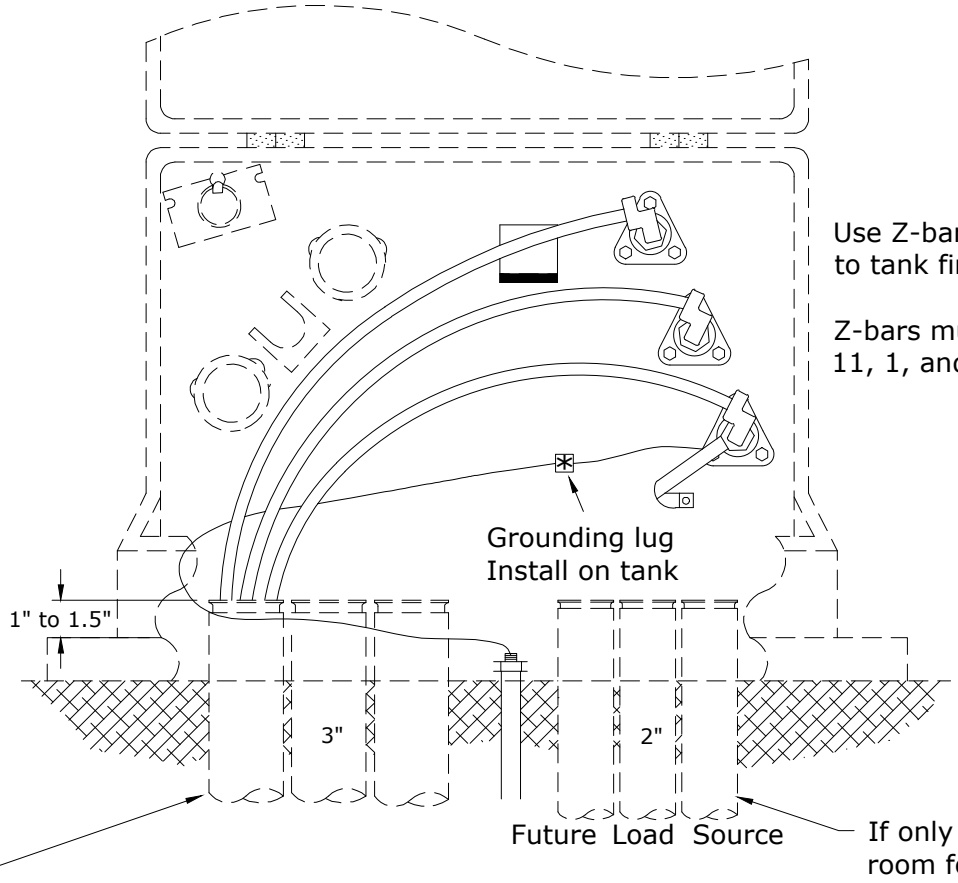
Clark Public Utilities

CONSTRUCTION STANDARDS

UNDERGROUND SECONDARY SPLICE

REVISIONS			
R	DATE	ENGR	OPS
0	2/23/00	HWH	MA
0			

PAGE:		CAD FILE:	APP: JEH	SECTION
1 of 1	US-1	US-1	DATE: 2/22/00	1700



TOP VIEW OF PAD WINDOW

Notes:
1. Use Std US6 for 25 to 75 kVA padmounts with 5/8" stud.
2. Use Std US7 for 100 kVA padmounts with 1" stud.

Rev 3: Added US7 for 100 kVA padmount 1" stud for Z-bar connector, and updated drawing for maximum conduits.

ITEM NO.	DESCRIPTION	US6		US7	
		QTY.	S/N	QTY.	S/N
1	Connector, Z-bar, Al/Cu, 6-Position, #2-500MCM, w/ Streetlight Position	3	2265	3	2318
2	Cover, Connector, Z-bar, 6-Position	3	2266	3	2266

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CONSTRUCTION STANDARDS

PADMOUNT TRANSFORMER ASSEMBLY
SINGLE PHASE SECONDARY

REVISIONS			
R	DATE	ENGR	OPS
1	2/23/00	HWH	MA
2	12/29/04	LB	AH
3	5/8/24	DK	

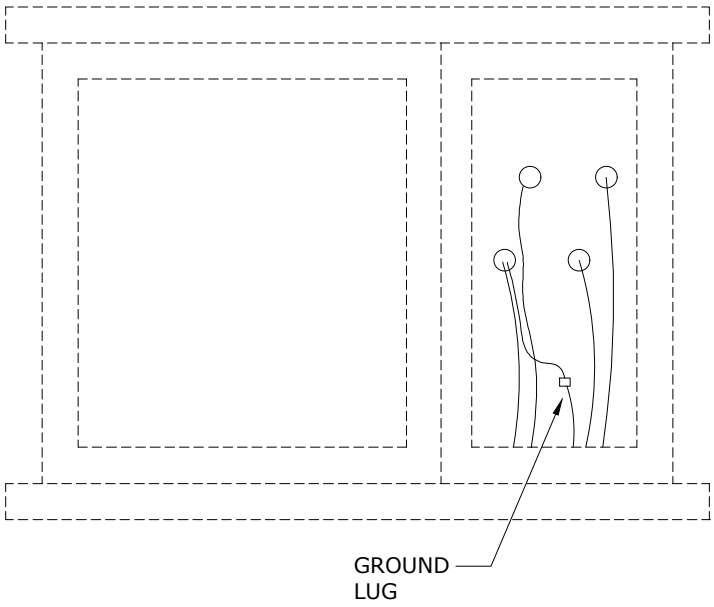
PAGE: 1 of 1

US6,US7

CAD FILE: US6,US7

APP: GGW/BG
DATE: 4/1988

SECTION 1700



US35
US36

Notes:

1. This specification covers 3ø padmounted transformers 75 through 1500 kVA, 120/208 V and 277/480 V.
2. Conductor size range is 1/0 through 750 kcmil.
3. See Std UT30-UT32 - Underground Transformers - Section 1400 for mounting arrangement.

Rev. 2 - Removed US37 & 38 due to secondary bushing leaks and clearance problems in secondary compartment of transformer.

ITEM NO.	DESCRIPTION	US35 QTY.	US35 S/N
1	Connector, PET, 6-750 Al/Cu 1/0 to 750	4	2129
2	1/2" Belleville Assembly, SS 2" Bolt and Washers W/ Bronze Nut	4	1389
3	Cover, Connector, 6-750	4	2176

ITEM NO.	DESCRIPTION	US36 QTY.	US36 S/N
1	Connector, PET, 6-750 Al/Cu 1/0 to 750	4	2129
2	1/2" Belleville Assembly, SS 2 1/2" Bolt and Washers W/ Bronze Nut	4	2584
3	Cover, Connector, 6-750	4	2176

Clark Public Utilities

CONSTRUCTION STANDARDS

SECONDARY CONNECTORS
THREE PHASE PADMOUNT TRANSFORMERS

REVISIONS			
R	DATE	ENGR	OPS
1	11/12/10	KJP	
2	9/21/21	JDK	

PAGE:		CAD FILE:	APP: HWH/MA	SECTION
1 of 1	US35-US38	US35	DATE: 2/23/00	1700