

SYMBOL LEGEND

A	_____	ANGLE
AB	_____	ANGLE BRACE
CL	_____	CURRENT LIMITING
D	_____	DOUBLE
DE	_____	DEADEND
F	_____	FLAT (HORIZONTAL)
FB	_____	FLAT BRACE
HD	_____	HEAVY DUTY
I	_____	INSULATED
PP	_____	PHASE TO PHASE
N	_____	NEUTRAL
R	_____	RIDGE OR POLE TOP PIN
S	_____	SECONDARY, OPEN WIRE
ST	_____	SECONDARY, TRIPLEX
SQ	_____	SECONDARY, QUADRUPLIX
T	_____	TRANSFORMER
TERM	_____	TERMINAL
UG	_____	UNDERGROUND
V	_____	VERTICAL
X	_____	CROSSARM, 8'
X10	_____	CROSSARM, 10'

GENERAL NOTES

1. SYMBOLS COMPRISING THE OVERHEAD SKETCHES ARE NOT INTENDED TO BE "ALL INCLUSIVE" FOR USE ON EVERY DISTRIBUTION POLE LINE CONFIGURATION. ONLY SKETCHES WHICH REFLECT TYPICAL ARRANGEMENTS ARE INCLUDED. FOR OTHER DESIRED ARRANGEMENTS, PROVIDE SEPARATE DETAILS DRAWN TO REFLECT THE SPECIFIC CONDITIONS.
2. THE METHOD OF SHOWING INFORMATION ON SITE PLAN IS OPTIONAL; HOWEVER, IT SHALL BE CONSISTENT WITH INFORMATION CONTAINED IN THE GUIDE LEGEND (APPENDIX C) INCLUDED IN "TECHNICAL GUIDELINES AND CRITERIA FOR ELECTRICAL DESIGN". THE CHARACTERISTICS AND IDENTIFICATION OF ALL CIRCUITS SHALL BE INCLUDED ON THE SITE PLAN.
3. EACH SKETCH CONTAINS MATERIAL ITEMS WHICH COMPRISE A PART OF EACH INDIVIDUAL SYMBOL REFERENCED BY THAT SKETCH. THESE ITEMS ARE INDICATED BY CIRCLED NUMERALS WHICH ARE IDENTIFIED BY SKETCHES OH-1.5 AND OH-1.5A.
4. SPACING REQUIREMENTS RELATED TO INDIVIDUAL COMPONENTS OF A SYMBOL ARE INDICATED ON THE APPROPRIATE SKETCH. VERTICAL SPACING REQUIREMENTS BETWEEN CIRCUITS AND/OR SYSTEMS ARE INDICATED ON SKETCH OH-1.4. ALL OTHER SEPARATIONS BETWEEN CIRCUITS, EQUIPMENT, ETC., SHALL CONFORM TO THE NATIONAL ELECTRICAL SAFETY CODE, IEEE C2.
5. FOR NEW CONSTRUCTION OR OPERATING VOLTAGES GREATER THAN 5KV, LIMIT THE NUMBER OF CONDUCTORS ON ANY CROSSARM TO A MAXIMUM OF 3.
6. USE 10' CROSSARMS FOR ALL UNDERBUILD CIRCUITS WITH OPERATING VOLTAGES GREATER THAN 15KV.

THIS INFORMATION IS FOR DESIGNER USE
AND SHALL NOT BE INCLUDED ON
CONSTRUCTION DRAWINGS.

SYMBOL LEGEND & GENERAL NOTES

SKETCH DATE

JUNE 2002

STYLE

OH-1.1

LIST OF SYMBOLS

<u>SKETCH NUMBER</u>			<u>CATEGORY</u>
OH-2	THRU	OH-10	CROSSARM SYMBOLS
OH-11	THRU	OH-14	HORIZONTAL (TANGENT OR ANGLE) CONSTRUCTION SYMBOLS
OH-15	THRU	OH-20	HORIZONTAL DEADEND CONSTRUCTION SYMBOLS
OH-21	THRU	OH-25	VERTICAL CONSTRUCTION SYMBOLS
OH-26	THRU	OH-29	TRANSFORMER SYMBOLS
OH-30	THRU	OH-31	UNDERGROUND TERMINAL SYMBOLS
OH-32	THRU	OH-33	GUY SYMBOLS
OH-34	THRU	OH-35	CONDUIT RISER SYMBOLS
OH-36	THRU	OH-40	SECONDARY SYMBOLS
OH-41			GROUND SYMBOL

THIS INFORMATION IS FOR DESIGNER USE
AND SHALL NOT BE INCLUDED ON
CONSTRUCTION DRAWINGS.

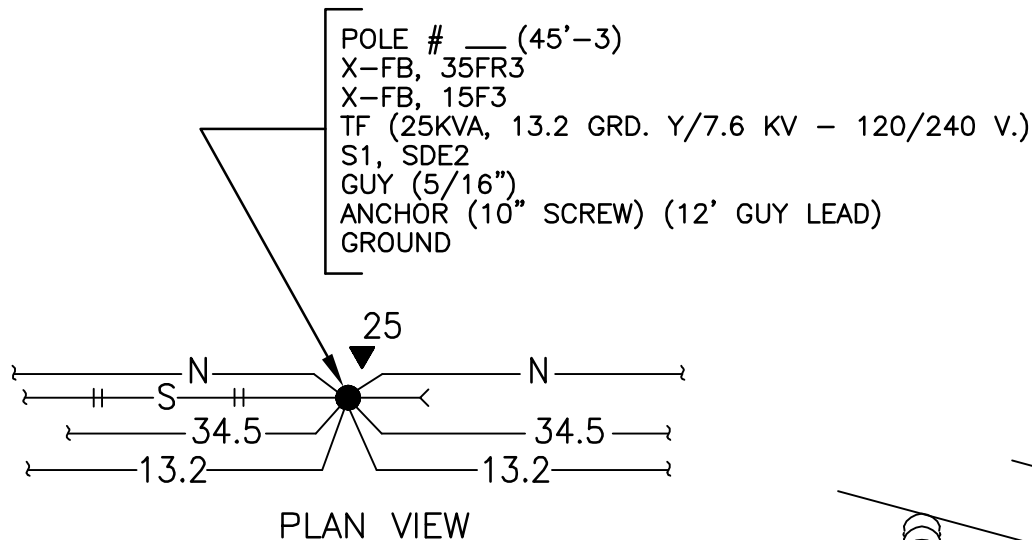
LIST OF SYMBOLS

SKETCH DATE

JUNE 2002

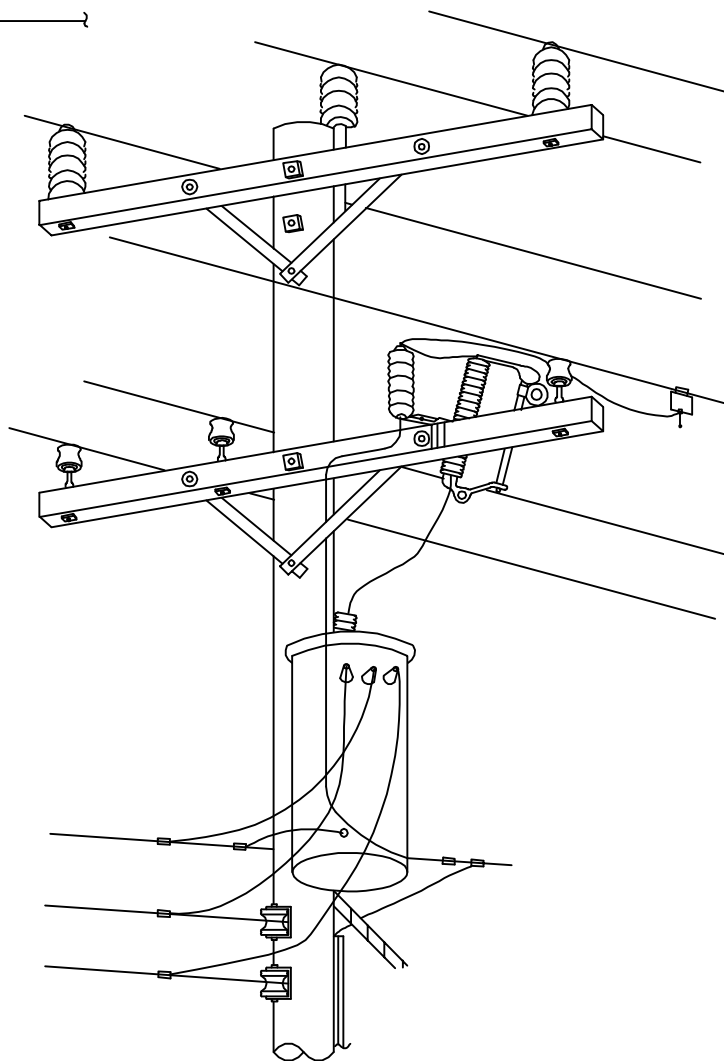
STYLE

OH-1.2



NOTES

1. THE SYMBOLS LISTED ABOVE INCLUDE MATERIALS (DESCRIBED BY OVERHEAD SKETCHES) WHICH ARE GRAPHICALLY ILLUSTRATED BY THIS PICTURE. SEE SKETCH OH-1.3A FOR EXPLANATORY NOTES.
2. EACH SKETCH CONTAINS MATERIAL ITEMS WHICH COMPRISE A PART OF EACH INDIVIDUAL SYMBOL REFERENCED BY THAT SKETCH, THESE ITEMS ARE INDICATED BY CIRCLED NUMERALS WHICH ARE IDENTIFIED BY SKETCHES OH-1.5 AND OH-1.5A.
3. SPACING REQUIREMENTS RELATED TO INDIVIDUAL COMPONENTS OF A SYMBOL ARE INDICATED ON THE APPROPRIATE SKETCH. VERTICAL SPACING REQUIREMENTS BETWEEN CIRCUITS AND/OR SYSTEMS ARE INDICATED ON SKETCH OH-1.4. ALL OTHER SEPARATIONS BETWEEN CIRCUITS, EQUIPMENT, ETC., SHALL CONFORM TO THE NATIONAL ELECTRICAL SAFETY CODE, IEEE C2.



METHOD OF SHOWING SYMBOLS

SKETCH DATE

JUNE 2002

STYLE

OH-1.3

EXPLANATORY NOTES – METHOD OF SHOWING SYMBOLS

1. SYMBOLS ARE SHOWN IN THE BASIC ORDER AS THEY APPEAR ON THE POLE, BY STARTING AT THE TOP AND WORKING DOWN.
2. NUMERALS PRECEDING THE SYMBOL INDICATE THE MINIMUM REQUIRED VOLTAGE (KV) RATING (5,15,35) OF THE ASSEMBLY, IF APPLICABLE.
3. NUMERAL FOLLOWING THE SYMBOL INDICATES THE NUMBER OF CONDUCTORS ASSOCIATED WITH THE ASSEMBLY, IF APPLICABLE.
4. NUMERAL IN PARENTHESIS FOLLOWING THE SYMBOL DENOTES THE NUMBER OF ASSEMBLIES REQUIRED, IF MORE THAN ONE.
5. DATA IN PARENTHESIS FOLLOWING THE SYMBOL PROVIDES INFORMATION RELATIVE TO THE SYMBOL.

EXPLANATION OF SYMBOLS LISTED FOR POLE ON SKETCH OH-1.3

PROVIDE 45 FOOT LONG, CLASS 3 POLE CONTAINING:

X-FB – 8' CROSSARM WITH FLAT BRACE

35FR3 – 35KV INSULATORS, FLAT (MOUNTED HORIZONTAL ON CROSS-ARM), RIDGE PIN (CENTER PHASE ON POLE TOP PIN), THREE CONDUCTORS

X-FB – 8' CROSSARM WITH FLAT BRACE

15F3 – 15KV INSULATORS, FLAT (MOUNTED HORIZONTAL ON CROSSARM), THREE CONDUCTORS. NOTE: THIS SYMBOL CALLS FOR THREE CROSSARM MOUNTED PINS IN LIEU OF RIDGE PIN ON CENTER PHASE.

TF – TRANSFORMER ON FLAT (HORIZONTAL) CONSTRUCTION. DATA IN PARENTHESIS DESCRIBES THE TRANSFORMER CHARACTERISTICS.

S1 – SECONDARY, ONE CONDUCTOR, TANGENT CONSTRUCTION (COMMON NEUTRAL).

SDE2 – SECONDARY DEADEND, TWO CONDUCTORS, OPEN WIRE

GUY (5/16") – DOWN GUY – WIRE SIZE 5/16"

ANCHOR – 10" SCREW TYPE ANCHOR WITH 12 FT. GUY LEAD.
(10" SCREW) NOTE: NO PLATE IS INCLUDED FOR THE ANCHOR SYMBOL.

GROUND – NO EXPLANATION NECESSARY

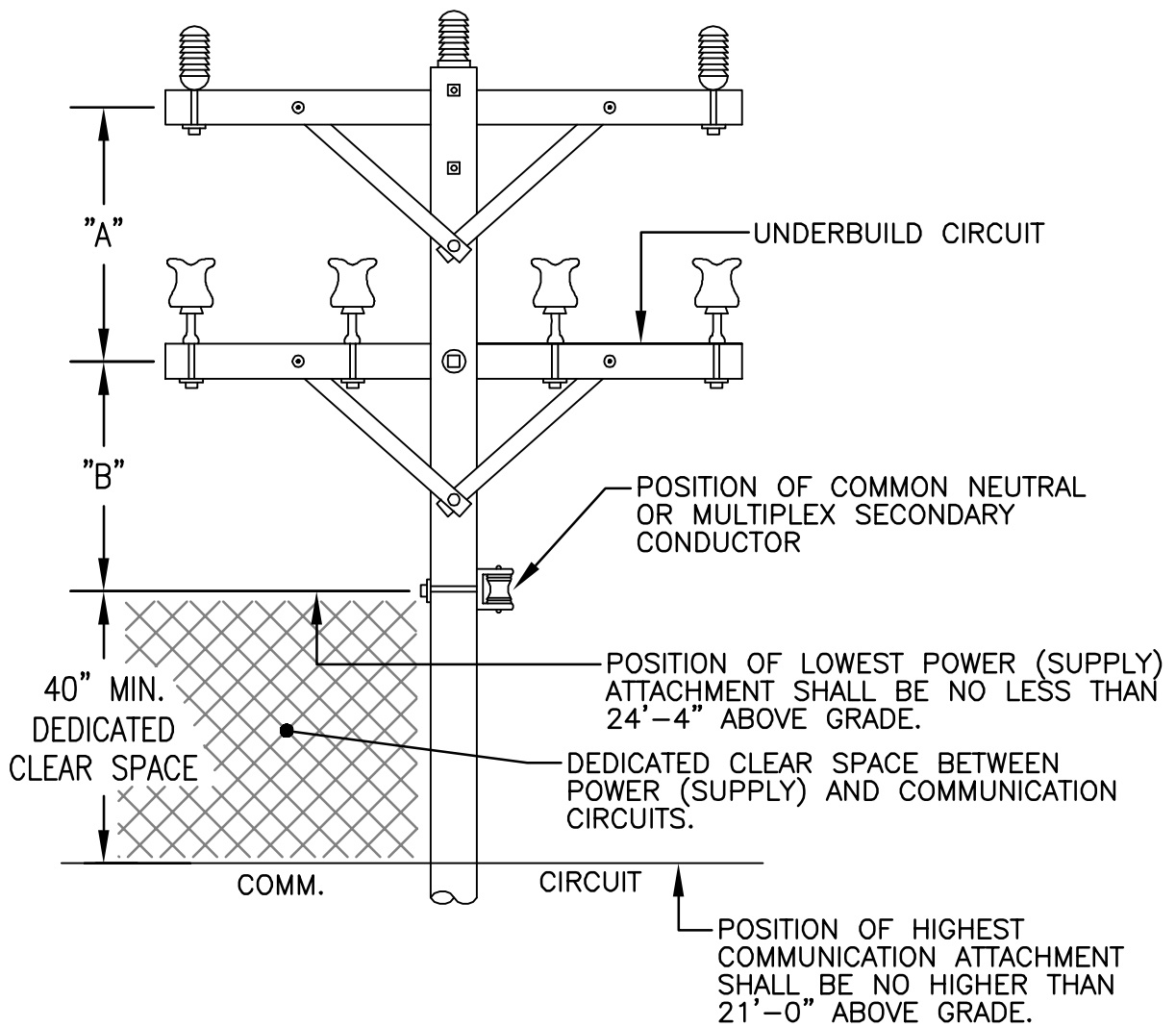
EXPLANATION OF NOTES/SYMBOLS

SKETCH DATE

JUNE 2002

STYLE

OH-1.3A



NOTE

- FOR HORIZONTAL SPACING REQUIREMENTS FOR CONDUCTORS ON SAME SUPPORT, REFER TO THE NATIONAL ELECTRICAL SAFETY CODE, IEEE C2.

ϕ - ϕ VOLTAGE	0-15KV	15-50KV
SPACING "A"	40"	48"*
SPACING "B"	40"	40"

* PROVIDE 60" CLEARANCE WHEN OPERATING VOLTAGE OF UNDERBUILD CIRCUIT IS GREATER THAN 15KV.

BASIC VERTICAL SPACING REQUIREMENTS

SKETCH DATE

JUNE 2002

STYLE

OH-1.4

POLE LINE MATERIAL LIST

- ① — FLAT STEEL BRACE (TWO PIECES)
- ② — MACHINE BOLT, 3/8" X LENGTH NEEDED WITH WASHER, NUT AND LOCKWASHER
- ③ — 8' WOOD CROSSARM WITH CROSS SECTION DIMENSIONS OF 3 1/2" X 4 1/2"
- ④ — MACHINE BOLT, 5/8" X LENGTH NEEDED WITH WASHER, NUT AND LOCKWASHER
- ⑤ — TIMBER CONNECTOR
- ⑥ — LAGSCREW, 1/2" X 4"
- ⑦ — ANGLE STEEL BRACE (TWO PIECES)
- ⑧ — MACHINE BOLT, 1/2" X LENGTH NEEDED, WITH WASHER, NUT & LOCKWASHER
- ⑨ — DEADEND BOX
- ⑩ — STEEL PIN
- ⑪ — PIN INSULATOR
- ⑫ — GRID GAIN, USED ONLY WHEN THERE IS NO POLE GAIN
- ⑬ — ANGLE STEEL BRACE (ONE PIECE)
- ⑭ — 10' WOOD CROSSARM WITH CROSS SECTION DIMENSIONS OF 3 1/2" X 4 1/2"
- ⑮ — 5/8" EYE NUT
- ⑯ — 5/8" EYE BOLT, LENGTH AS NEEDED, WITH WASHER, NUT & LOCKWASHER
- ⑰ — EXTENSION LINK
- ⑱ — BELL TYPE SUSPENSION INSULATOR WITH CONNECTING HARDWARE
- ⑲ — STRAIN CLAMP
- ⑳ — STEEL ANGLE PIN
- ㉑ — CLUSTER MOUNTING BRACKET, STEEL
- ㉒ — TRANSFORMER GROUNDING CONNECTION
- ㉓ — STIRRUP
- ㉔ — SECONDARY LEAD SUPPORT BRACKET
- ㉕ — ADAPTER PLATE FOR CLUSTER MOUNTING
- ㉖ — CLEVIS BRACKET FOR SPOOL INSULATOR
- ㉗ — SPOOL INSULATOR
- ㉘ — U BOLT CLAMP
- ㉙ — PREFORMED GUY GRIP
- ⑳ — GUY HOOK
- ㉑ — GUY STRAIN INSULATOR
- ㉒ — GUY WIRE, SIZE AS SPECIFIED
- ㉓ — #4 WP CU. SOFT DRAWN GROUND WIRE
- ㉔ — GROUND CLAMP
- ㉕ — CONDUIT COUPLING
- ㉖ — CONDUIT BEND
- ㉗ — INSULATED BUSHING
- ㉘ — PERFORATED STRAPPING, 1-1/2" WIDE
- ㉙ — HOT LINE CLAMP
- ④① — FUSED CUTOUT, AS SPECIFIED
- ④② — SURGE ARRESTER, AS SPECIFIED
- ④③ — POLE TOP PIN (RIDGE PIN) - 24 INCHES LONG
- ④④ — CROSSARM ANGLE PIN
- ④⑤ — ANGLE POLE TOP PIN
- ④⑥ — WEATHERPROOF SOFT DRAWN WIRE—SIZE
 - (a) TO MATCH OR EXCEED AMPACITY OF CONNECTING CABLE, OR
 - (b) AT 125% OF TRANSFORMER FULL LOAD CURRENT, BUT NOT LESS THAN NO. 4 AWG

POLE LINE MATERIAL LIST

SKETCH DATE

JUNE 2002

STYLE

OH-1.5

POLE LINE MATERIAL LIST

- ④⑥ — TRI-MOUNT BRACKET
- ④⑦ — TERMINATOR
- ④⑧ — MOUNTING BRACKET
- ④⑨ — CABLE GRIP HANGER
- ⑤① — HOSE CLAMP
- ⑤② — STUD, 3/4" X 1-3/4"
- ⑤③ — LINE POST INSULATOR
- ⑤④ — TRIPLE INSULATOR BRACKET
- ⑤⑤ — ANGLE CLAMP
- ⑤⑥ — INSULATOR, LINE POST CLAMP
- ⑤⑦ — 4' CROSSARM
- ⑤⑧ — CROSSARM GAIN BRACKET
- ⑤⑨ — PULLEY BRACKET
- ⑥① — WEDGE CLAMP
- ⑥② — MIDSPAN SERVICE CLAMP
- ⑥③ — STUD, 7"
- ⑥④ — SADDLE, ANGLE
- ⑥⑤ — SADDLE CROSSARM
- ⑥⑥ — FITTING, POLE TOP
- ⑥⑦ — CONNECTOR
- ⑥⑧ — SUSPENSION CLAMP
- ⑥⑨ — TIE, SERVICE CABLE
- ⑦① — 54" FIBERGLASS STRAIN INSULATOR
- ⑦② — PVC RISER SHIELD
- ⑦③ — PVC EXTENSION SHIELD
- ⑦④ — PVC BACK PLATE
- ⑦⑤ — 8' WOOD CROSSARM WITH CROSS SECTION DIMENSIONS OF 4 3/4" X 5 3/4"
- ⑦⑥ — 10' WOOD CROSSARM WITH CROSS SECTION DIMENSIONS OF 4 3/4" X 5 3/4"
- ⑦⑦ — BACK-UP CURRENT LIMITING FUSE

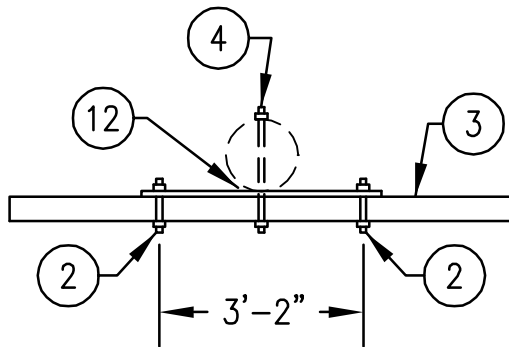
POLE LINE MATERIAL LIST

SKETCH DATE

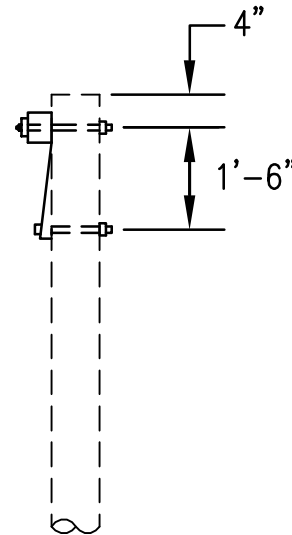
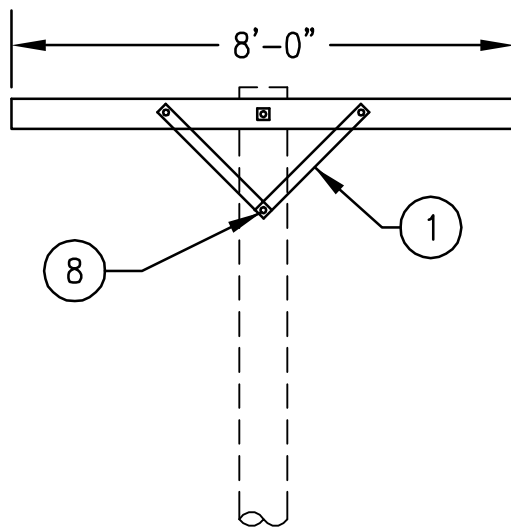
JUNE 2002

STYLE

OH-1.5A



PLAN VIEW

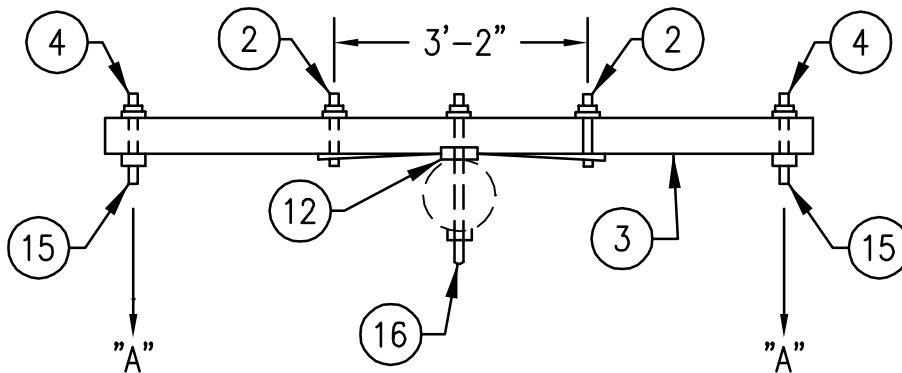


ELEVATIONS

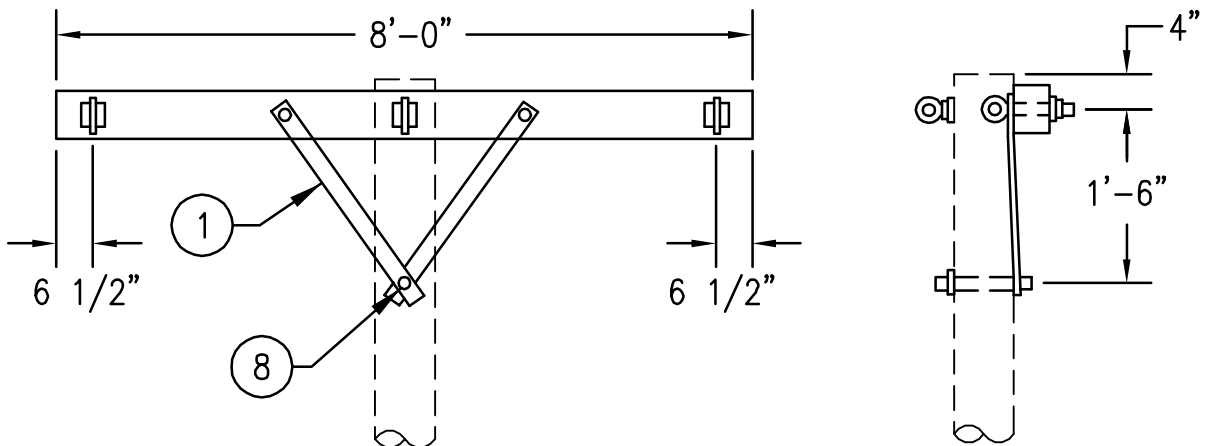
NOTE

DRAWING INDICATES SYMBOL X-FB.
 SUBSTITUTE ⑦ FOR ① ON SYMBOL
 X-AB.

X-FB
 X-AB



PLAN VIEW



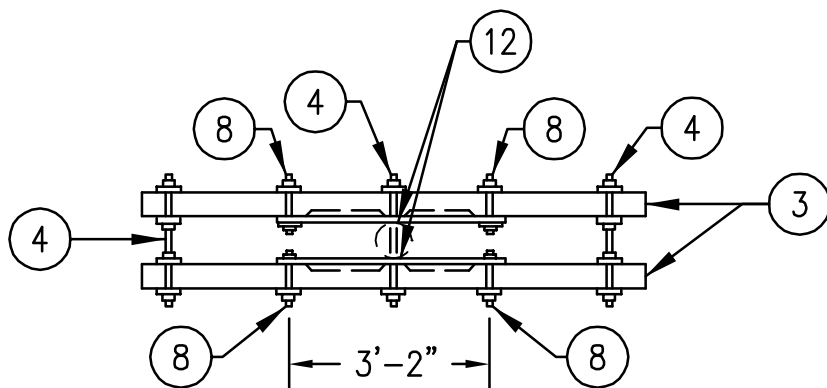
ELEVATIONS

MAXIMUM ALLOWABLE CONDUCTOR TENSION AT "A" - 1200 LBS

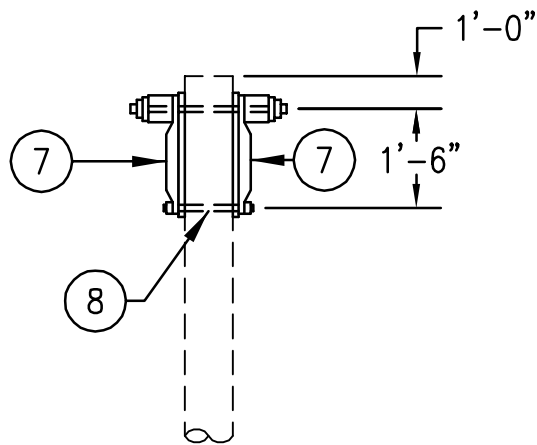
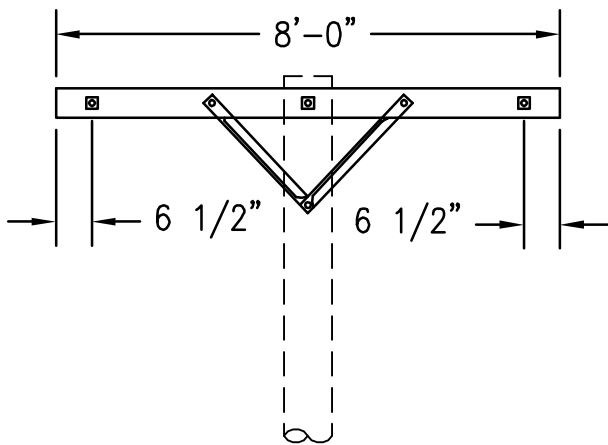
NOTE

DRAWING INDICATES SYMBOL X-DE-FB. SUBSTITUTE ⑦ FOR ① ON SYMBOL X-DE-AB.

X-DE-FB
X-DE-AB



PLAN VIEW

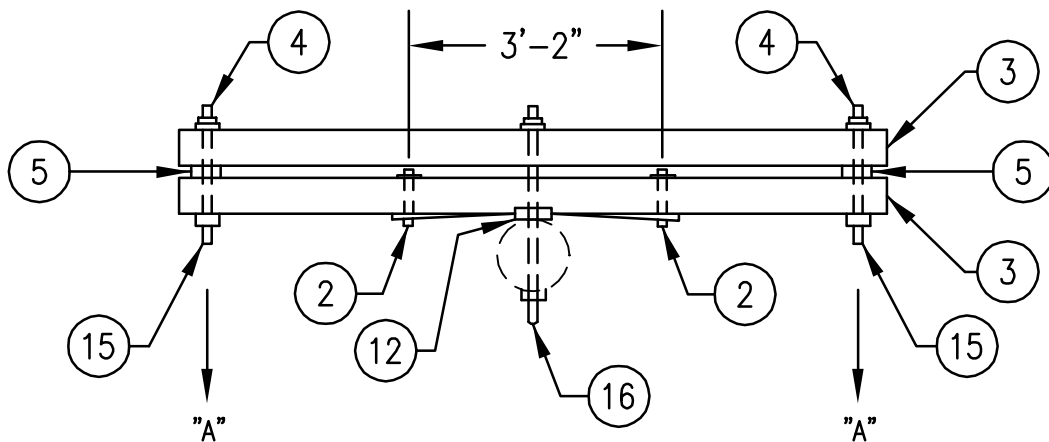


ELEVATIONS

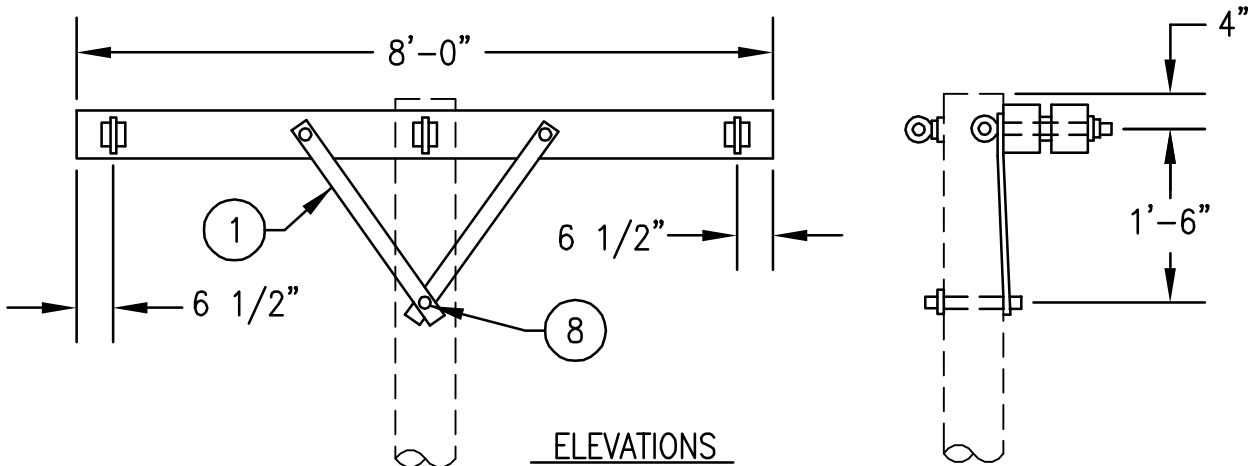
NOTE

DRAWING INDICATES SYMBOL DX-AB. SUBSTITUTE ① FOR ⑦ ON SYMBOL DX-FB.

DX-AB
DX-FB



PLAN VIEW



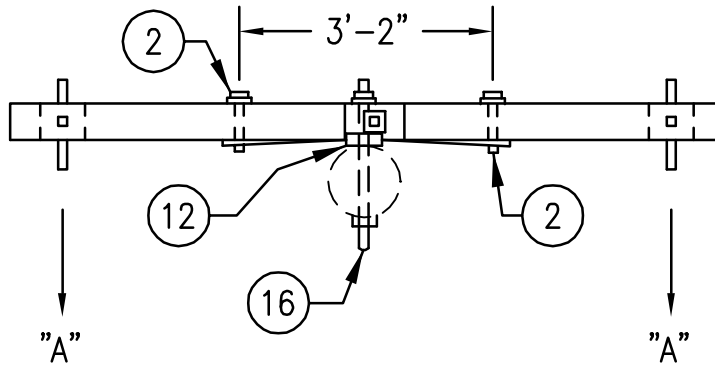
ELEVATIONS

MAXIMUM ALLOWABLE CONDUCTOR TENSION AT "A" - 2400 LBS

NOTE

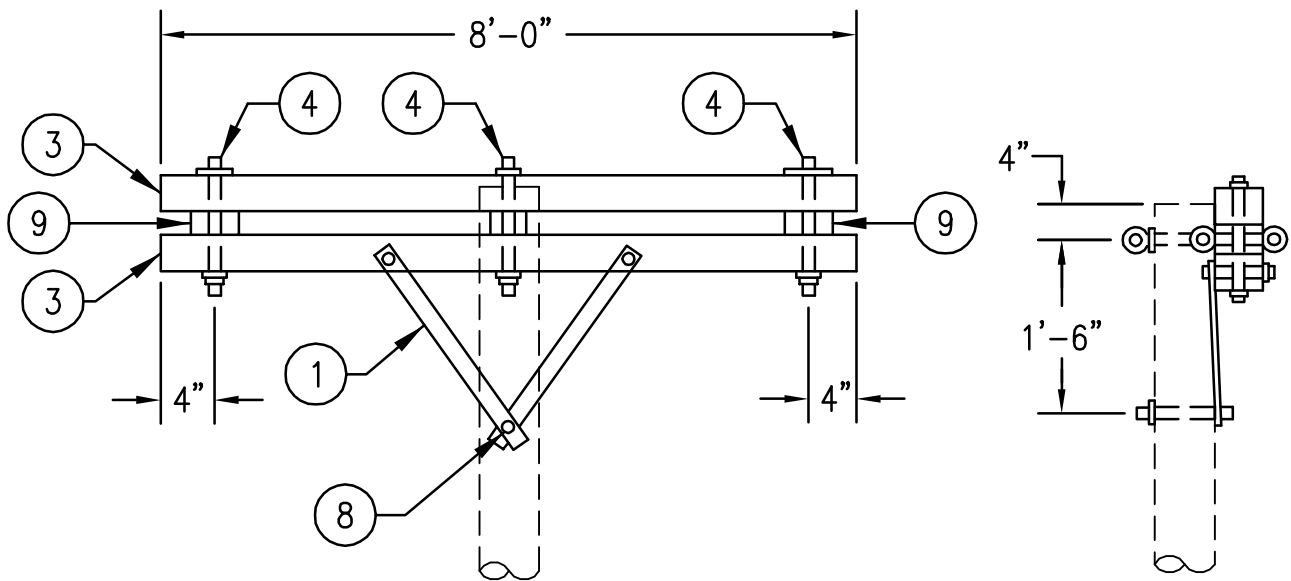
DRAWING INDICATES SYMBOL DX-DE-FB. SUBSTITUTE ⑦ FOR ① AND ⑧ FOR ② ON SYMBOL DX-DE-AB.

DX-DE-FB
DX-DE-AB



PLAN VIEW

MAXIMUM ALLOWABLE
CONDUCTOR TENSIONS
AT "A" - 3500 LBS
EXCEPT 4750 LBS
FOR NOTE 2 SYMBOL.

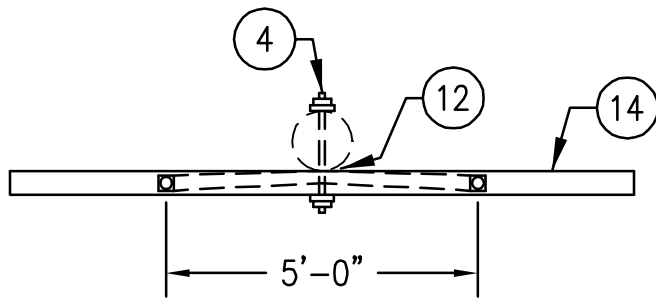


ELEVATIONS

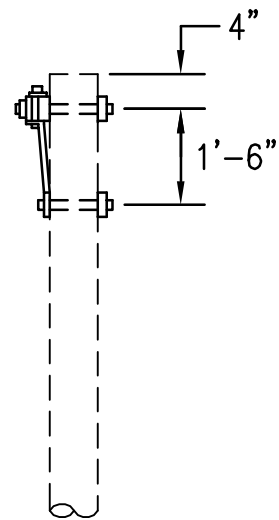
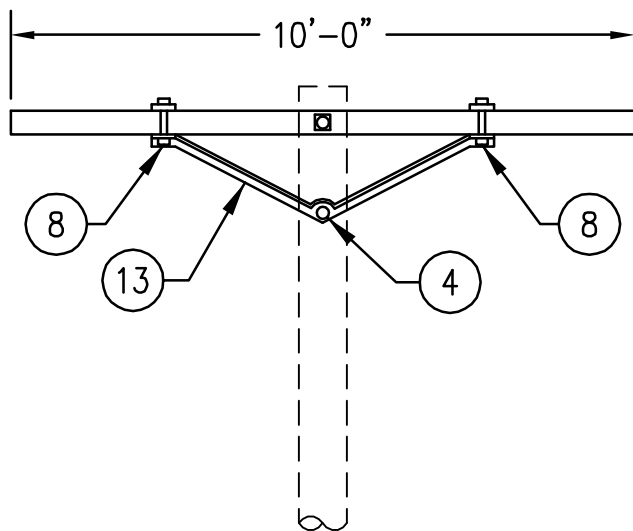
NOTES

1. DRAWING INDICATES SYMBOL DX-DE-FB-BOX. SUBSTITUTE (7) FOR (1) AND (8) FOR (2) ON SYMBOL DX-DE-AB-BOX.
2. SUBSTITUTE (72) FOR (3), (7) FOR (1), AND (8) FOR (2) ON SYMBOL DX-DE-AB-BOX-HD.

DX-DE-FB-BOX, DX-DE-AB-BOX
DX-DE-AB-BOX-HD



PLAN VIEW



ELEVATIONS

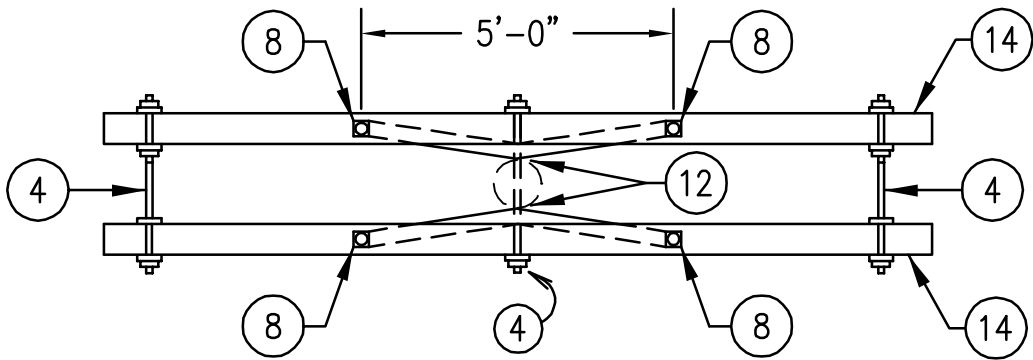
X10-AB

SKETCH DATE

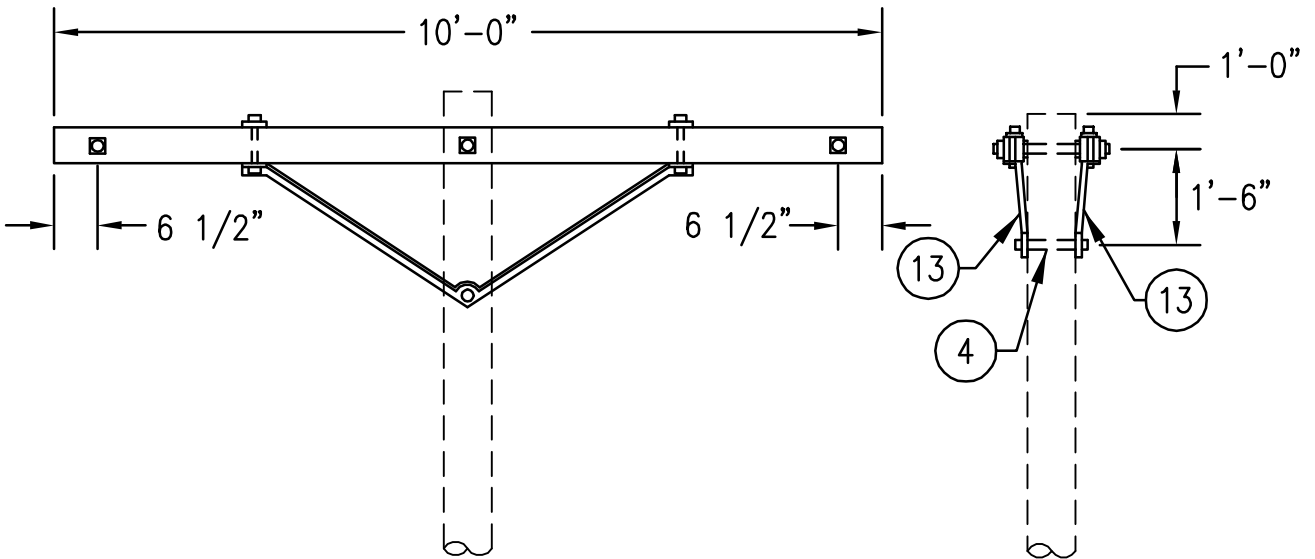
JUNE 2002

STYLE

OH-7



PLAN VIEW



ELEVATIONS

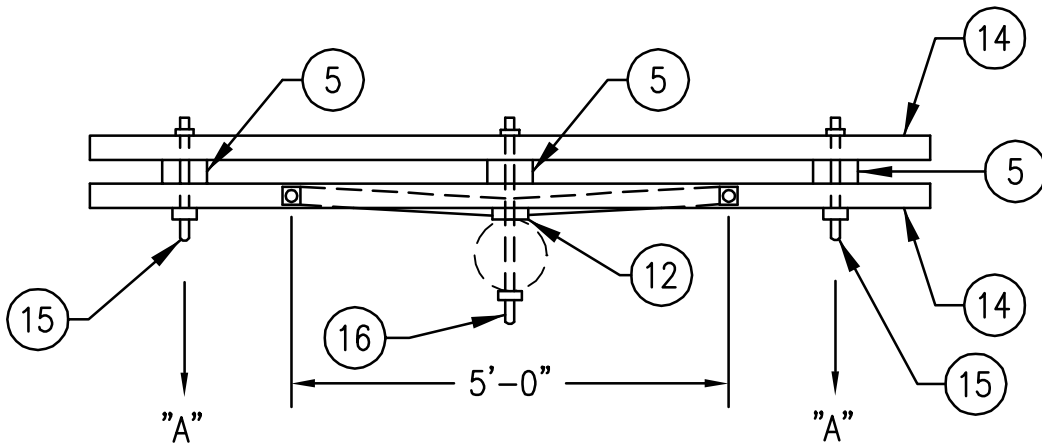
DX10-AB

SKETCH DATE

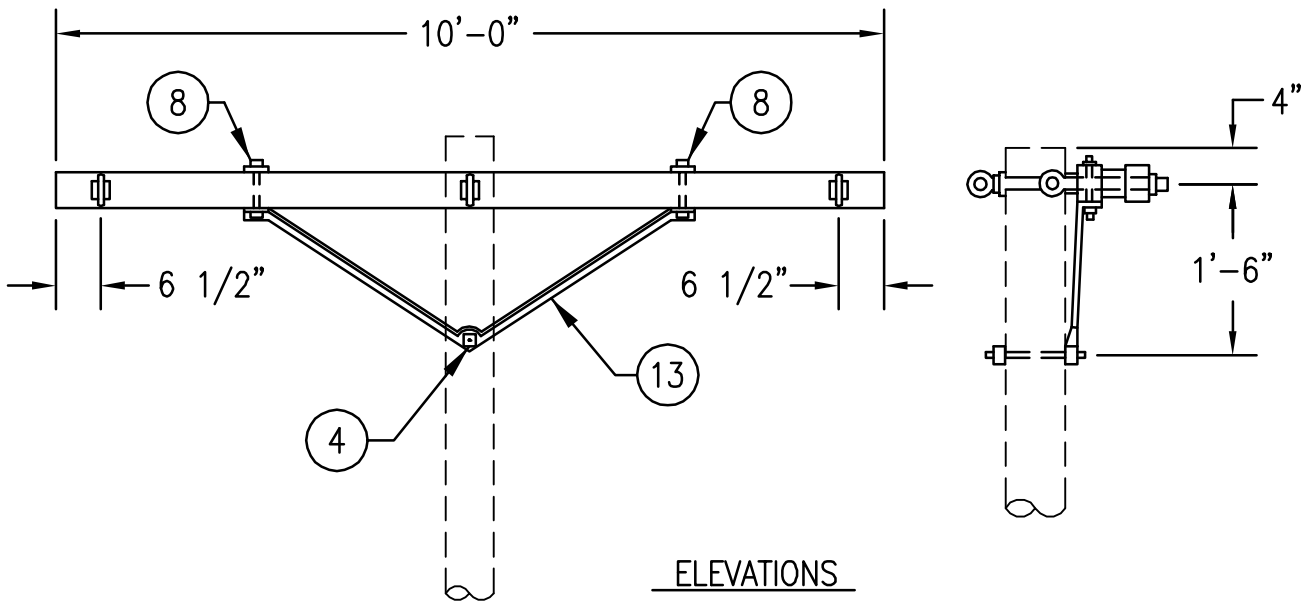
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STYLE

OH-8



PLAN VIEW



ELEVATIONS

MAXIMUM ALLOWABLE CONDUCTOR
TENSION AT "A" - 1800 LBS

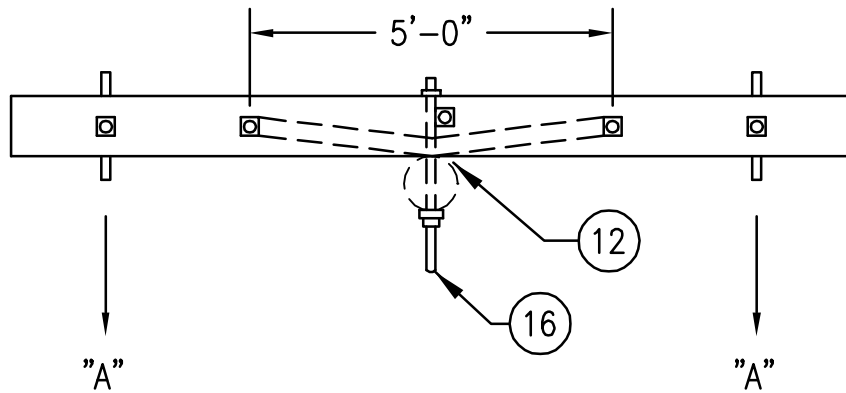
DX10-DE-AB

SKETCH DATE

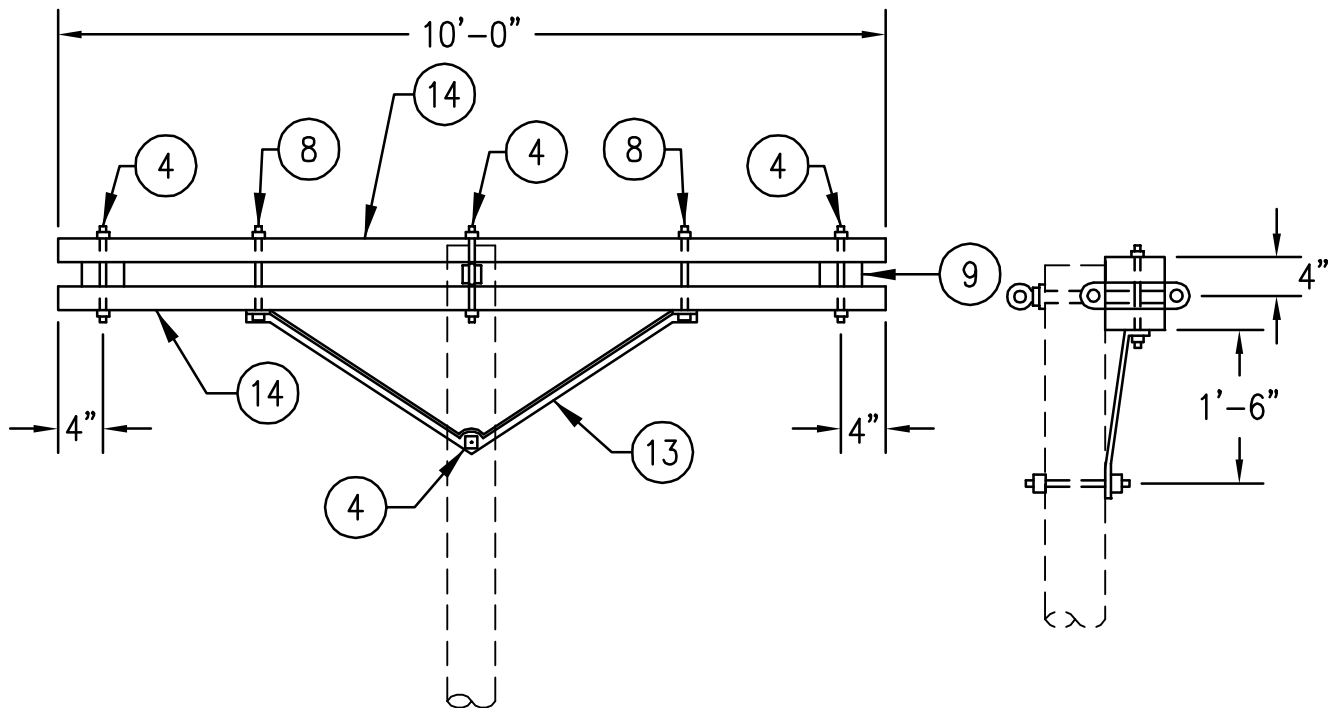
JUNE 2002

STYLE

OH-9



PLAN VIEW



ELEVATIONS

MAXIMUM ALLOWABLE CONDUCTOR
TENSION AT "A" - 2700 LBS
EXCEPT 3700 LBS FOR NOTE 1 SYMBOL.

NOTE

- DRAWING INDICATES SYMBOL DX10-DE-AB-BOX. SUBSTITUTE (73) FOR (14) ON SYMBOL DX10-DE-AB-BOX-HD.

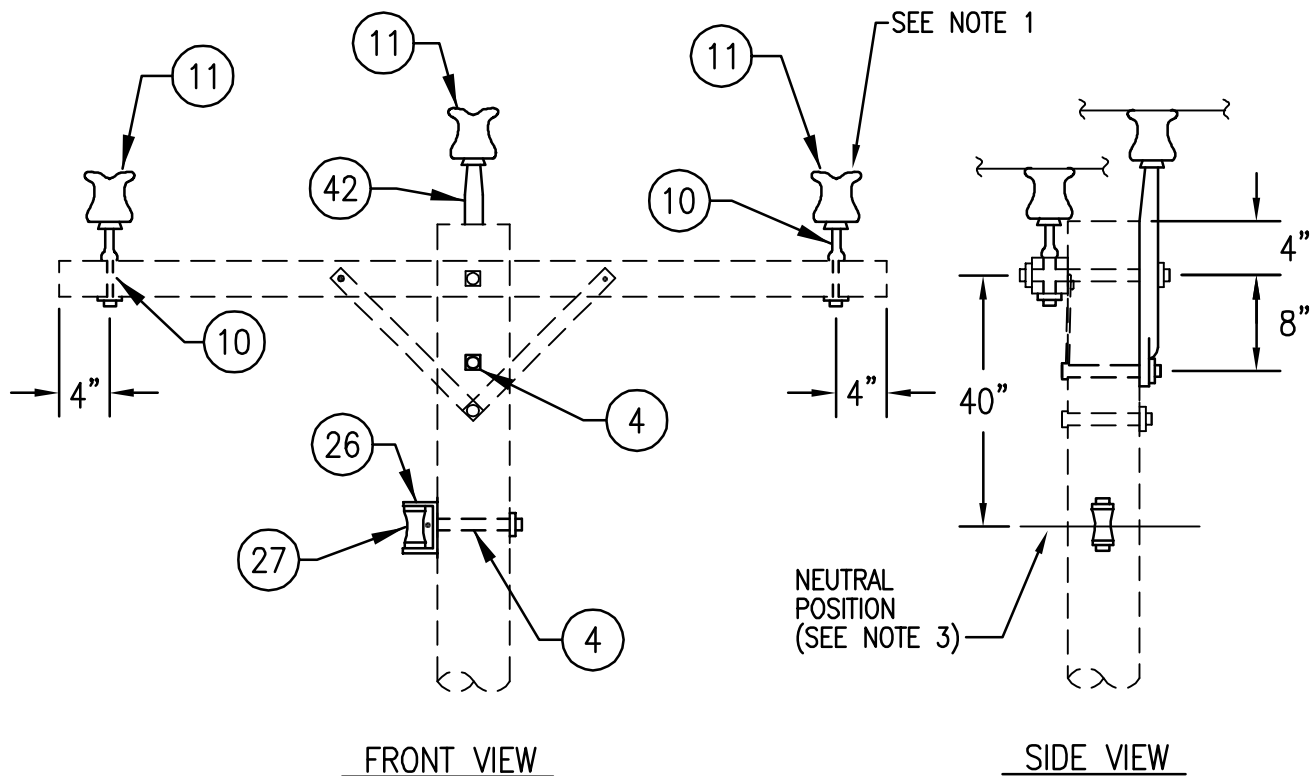
DX10-DE-AB-BOX
DX10-DE-AB-BOX-HD

SKETCH DATE

JUNE 2002

STYLE

OH-10



SEE SPECIFICATION SECTION 16301
FOR THE REQUIRED A.N.S.I.
INSULATOR CLASS.

NOTES

1. DRAWING REPRESENTS SYMBOL FR3-N FOR VOLTAGES UP TO 15KV. ON CIRCUIT VOLTAGE OPERATING LEVELS GREATER THAN 15 KV, SUBSTITUTE (52) FOR (11), (64) FOR (42) AND (61) FOR (10).
2. ELIMINATE (4), (26) AND (27) FOR NEUTRAL POSITION ON SYMBOL FR3.
3. MODIFY THE 40 INCH NEUTRAL SPACING AS INDICATED ON OTHER SKETCHES FOR TRANSFORMER AND U.G. TERMINAL INSTALLATIONS.

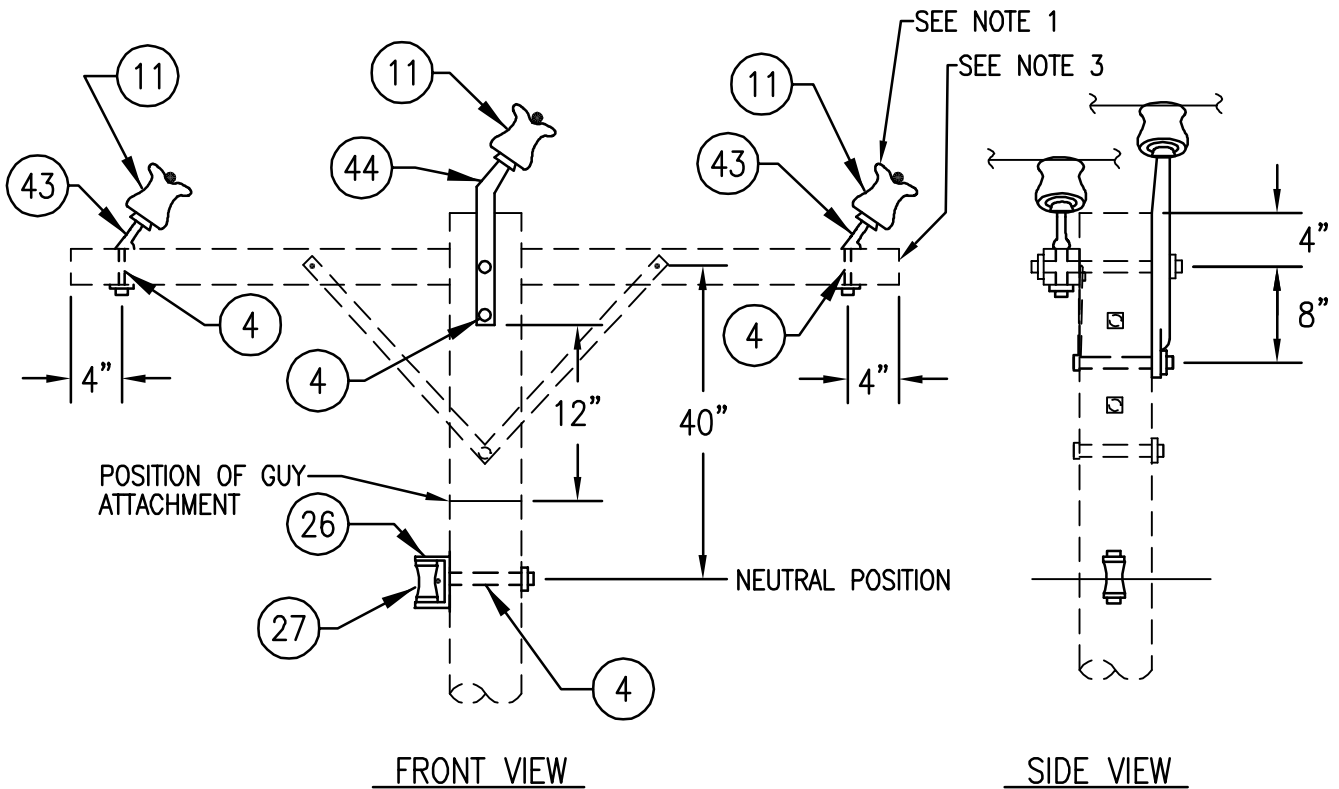
FR3-N, FR3
(0-50KV)

SKETCH DATE

JUNE 2002

STYLE

OH-11



SEE SPECIFICATION SECTION 16301
FOR THE REQUIRED A.N.S.I.
INSULATOR CLASS.

NOTES

1. DRAWING REPRESENTS SYMBOL FRA3-N FOR VOLTAGES UP TO 15KV. ON CIRCUIT VOLTAGE OPERATING LEVELS GREATER THAN 15 KV, SUBSTITUTE (52) FOR (11), (61), (62), AND (63) FOR (43) AND (64) FOR (44).
2. ELIMINATE (4), (26) & (27) FOR NEUTRAL POSITION ON SYMBOL FRA3.
3. CROSSARM SPACING FROM TOP OF POLE INCREASES FROM 4" TO 12" WHEN DOUBLE CROSSARMS (AND INSULATORS) ARE USED.

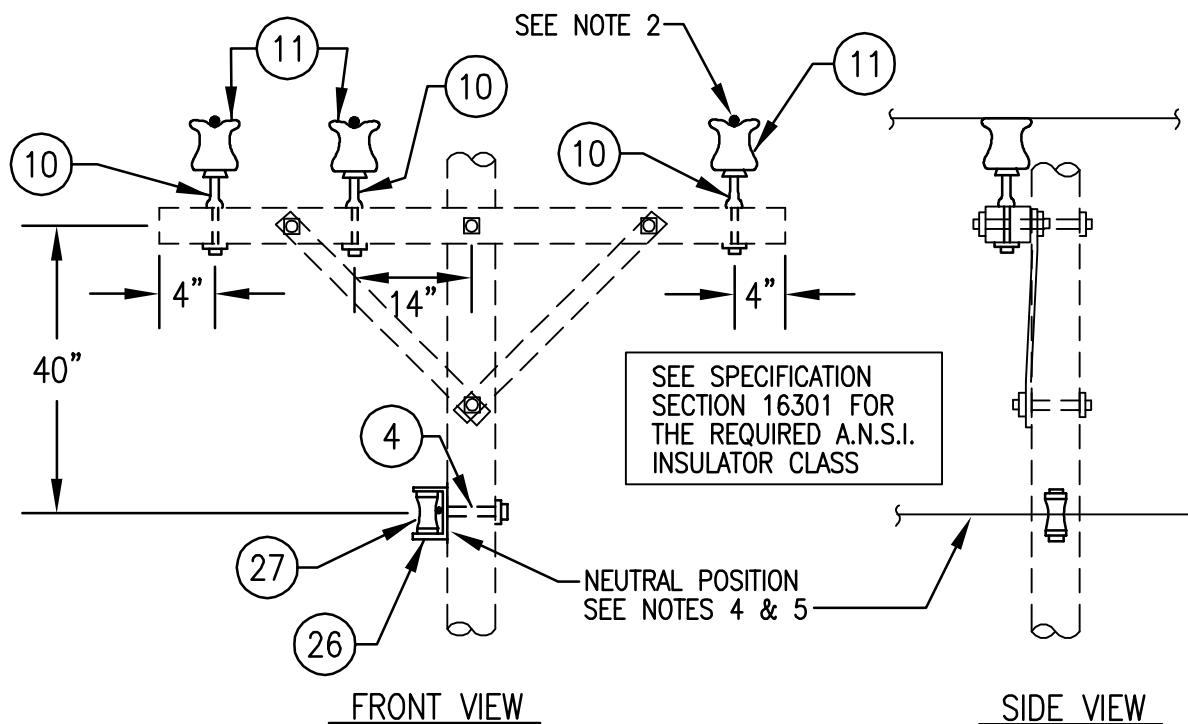
FRA3-N, FRA3
(0-50KV)

SKETCH DATE

JUNE 2002

STYLE

OH-12



NOTES

1. DRAWING REPRESENTS SYMBOL F3-N FOR VOLTAGES UP TO 15KV (3-PHASE CONDUCTORS). MODIFY INSULATOR ASSEMBLIES AS REQUIRED TO COINCIDE WITH THE NUMBER OF PHASE CONDUCTORS.
2. FOR CIRCUIT VOLTAGE OPERATING LEVELS GREATER THAN 15KV, SUBSTITUTE (52) FOR (11) AND (61) FOR (10).
3. OMIT ITEMS (4), (26) AND (27) FOR NEUTRAL ON ALL SYMBOLS WHICH DO NOT CONTAIN "N".
4. IT SHALL BE PERMISSIBLE TO UTILIZE THE F4 SYMBOL & MOUNT THE NEUTRAL (AS THE FOURTH CONDUCTOR) ON THE CROSSARM WHEN MAINTAINING EXISTING FACILITIES FOR VOLTAGES UP TO 15KV ON WHICH THE NEUTRAL IS LOCATED ON THE CROSSARM. THIS NON-STANDARD ARRANGEMENT SHALL NOT BE USED FOR NEW LINE EXTENSIONS.
5. MODIFY THE 40" NEUTRAL SPACING AS INDICATED ON OTHER SKETCHES FOR TRANSFORMER AND U.G. TERMINAL INSTALLATIONS.

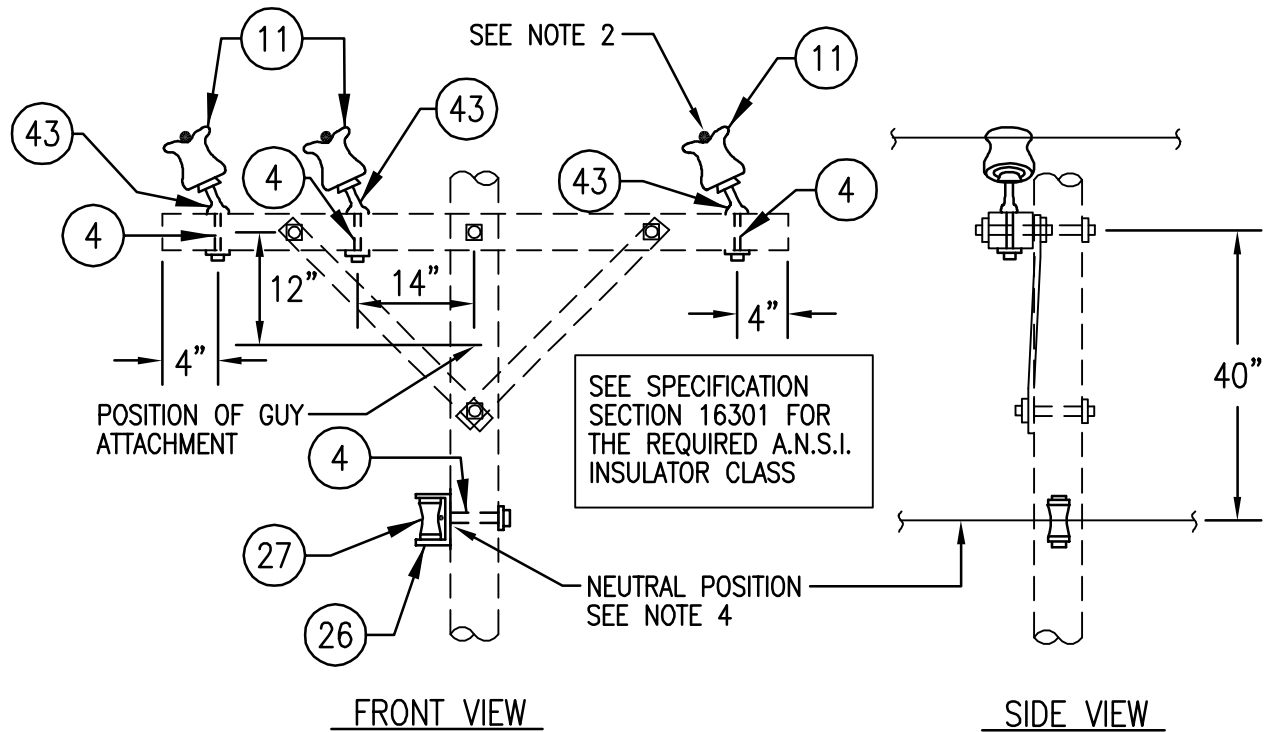
F3-N, F3, F2-N, F2, F1, F4
(0-50KV)

SKETCH DATE

JUNE 2002

STYLE

OH-13



NOTES

1. DRAWING REPRESENTS SYMBOL FA3-N FOR VOLTAGES UP TO 15KV (3-PHASE CONDUCTORS). MODIFY INSULATOR ASSEMBLIES AS REQUIRED TO COINCIDE WITH THE NUMBER OF PHASE CONDUCTORS.
2. FOR CIRCUIT VOLTAGE OPERATING LEVELS GREATER THAN 15KV, SUBSTITUTE (52) FOR (11) AND (61), (62), (63) FOR (43).
3. OMIT ITEMS (4), (26) AND (27) FOR NEUTRAL ON ALL SYMBOLS WHICH DO NOT CONTAIN "N".
4. IT SHALL BE PERMISSIBLE TO UTILIZE THE F4 SYMBOL & MOUNT THE NEUTRAL (AS THE FOURTH CONDUCTOR) ON THE CROSSARM WHEN MAINTAINING EXIST. FACILITIES FOR VOLTAGES UP TO 15KV ON WHICH THE NEUTRAL IS LOCATED ON THE CROSSARM. THIS NON-STANDARD ARRANGEMENT SHALL NOT BE USED FOR NEW LINE EXTENSIONS.

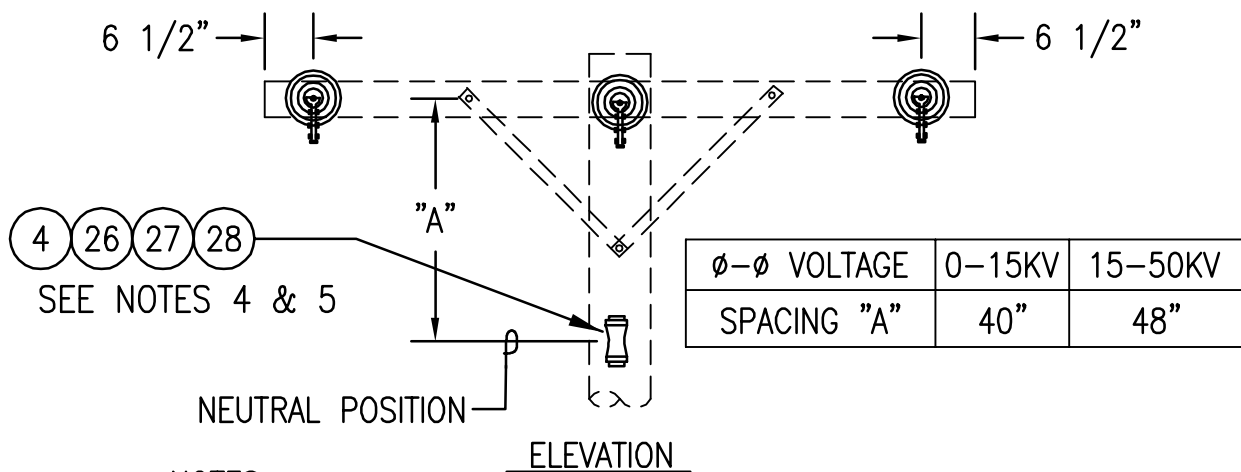
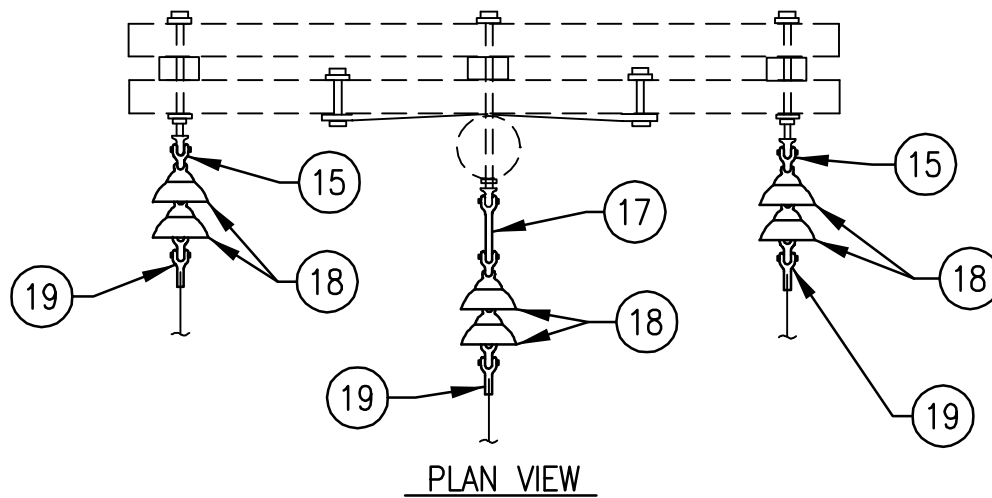
FA3-N, FA3, FA2-N, FA2, FA4
(0-50KV)

SKETCH DATE

JUNE 2002

STYLE

OH-14



NOTES

1. DRAWING REPRESENTS SYMBOL FDE3-N. ELIMINATE INSULATOR ASSEMBLY FOR MIDDLE PHASE ON SYMBOLS FDE2 AND FDE2-N.
2. DRAWING REPRESENTS DEADEND ASSEMBLY FOR CIRCUIT VOLTAGES >5KV AND \leq 15KV. REFER TO SPECIFICATIONS SECTION 16301 FOR NUMBER AND CLASS OF INSULATORS REQUIRED FOR EACH VOLTAGE LEVEL.
3. OMIT ITEMS (4), (26) (27) AND (28) FOR NEUTRAL ON FDE2 AND FDE3.
4. FOR NEUTRAL CONDUCTOR LARGER THAN #2 AWG, SUBSTITUTE (19) FOR (26), (27) AND (28).
5. MODIFY THE NEUTRAL SPACING "A" AS INDICATED ON OTHER SKETCHES FOR TRANSFORMER AND U.G. TERMINAL INSTALLATIONS.

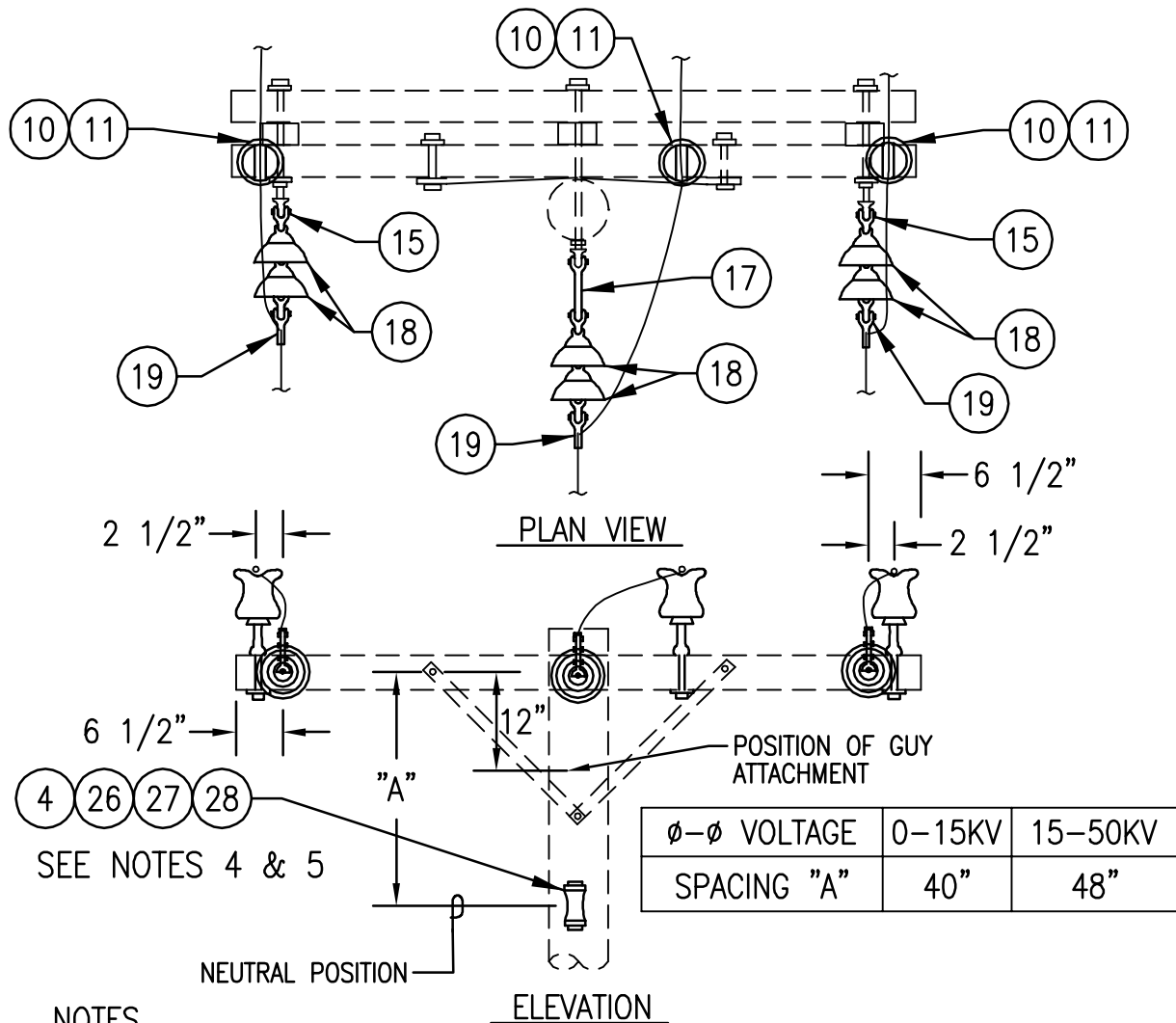
FDE3-N, FDE3, FDE2-N, FDE2
(0-50KV)

SKETCH DATE

JUNE 2002

STYLE

0H-15



NOTES

1. DRAWING REPRESENTS FDE3-N-SLACK FOR VOLTAGES UP TO 15KV. ELIMINATE INSULATOR ASSEMBLIES FOR MIDDLE PHASE ON FDE2-SLACK AND FDE2-N-SLACK.
2. DRAWING REPRESENTS DEADEND ASSEMBLY FOR CIRCUIT VOLTAGES >5KV AND ≤15KV. REFER TO SPECIFICATION SECTION 16301 FOR NUMBER AND CLASS OF INSULATORS REQUIRED FOR EACH VOLTAGE LEVEL.
3. OMIT ITEMS (4), (26) (27) AND (28) ON FDE2-SLACK AND FDE3-SLACK.
4. FOR NEUTRAL CONDUCTOR LARGER THAN #2 AWG, SUBSTITUTE (19) FOR (26), (27) AND (28).
5. TWO INSULATOR ASSEMBLIES (ITEMS (26) (27) (28) (4)) REQUIRED FOR THE NEUTRAL CONDUCTOR.
6. SLACK SPAN CONSTRUCTION LIMITED TO MAXIMUM SPAN LENGTH OF 80'.

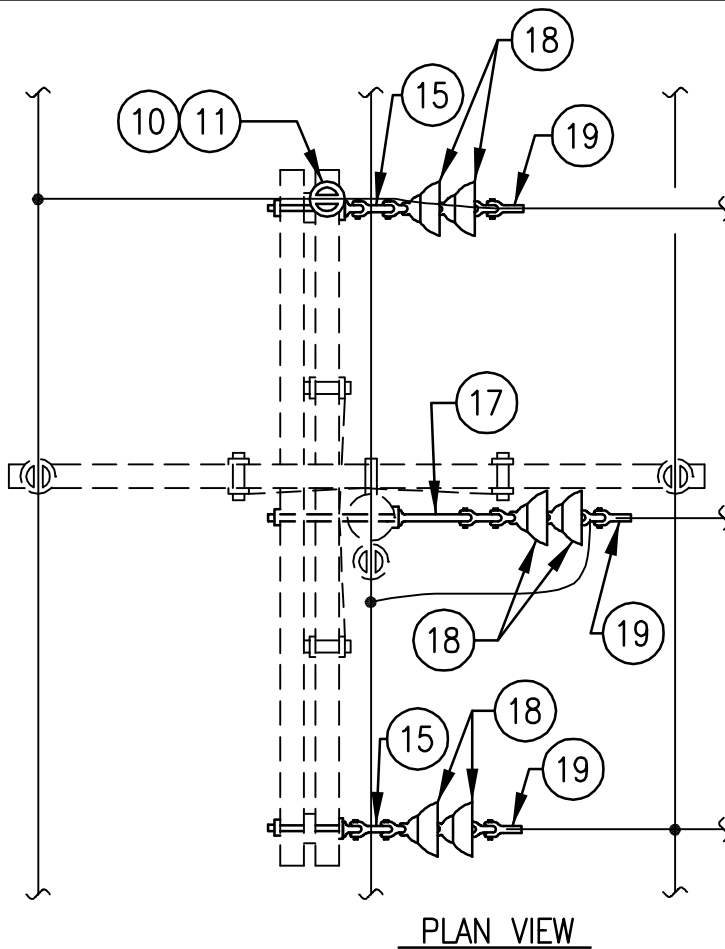
FDE3-N-SLACK, FDE3-SLACK, FDE2-N-SLACK, FDE2-SLACK
(0-50KV)

SKETCH DATE

JUNE 2002

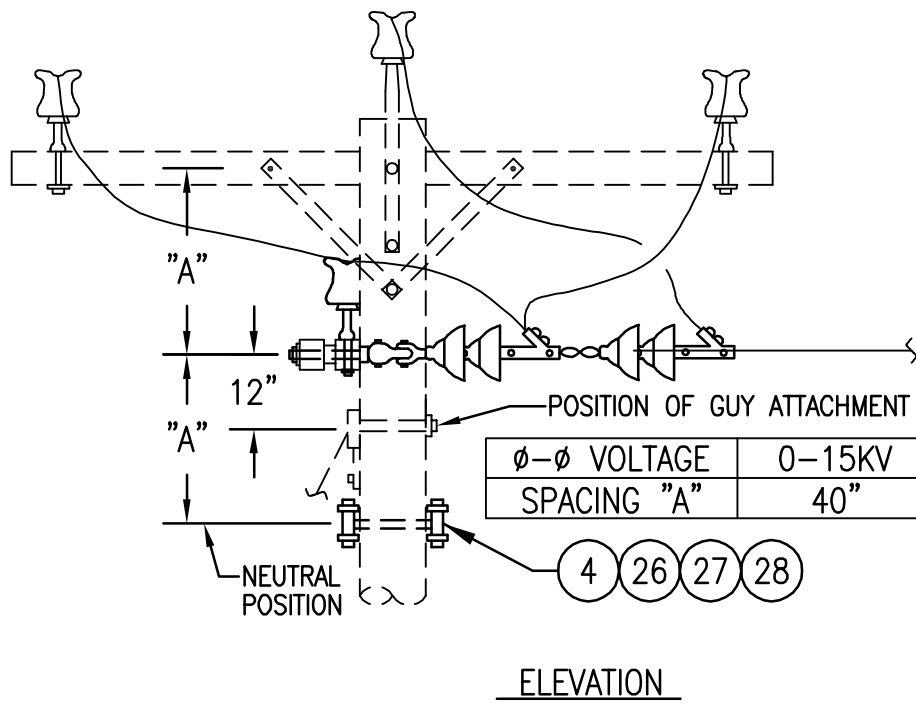
STYLE

OH-16



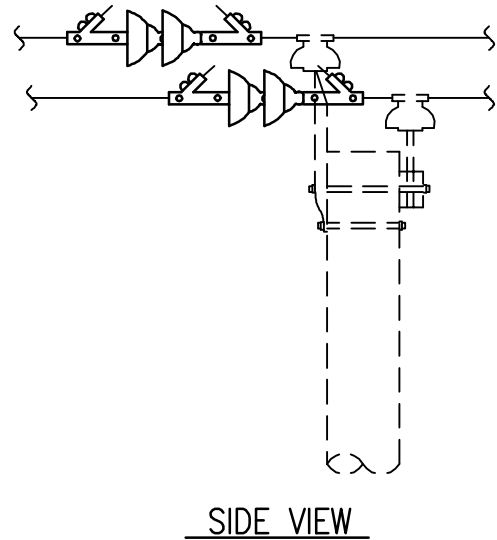
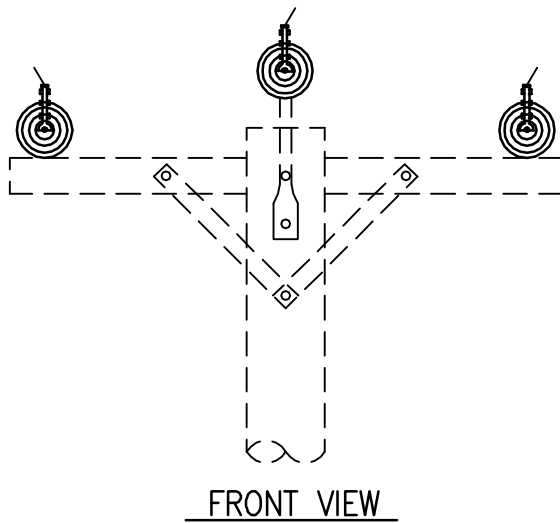
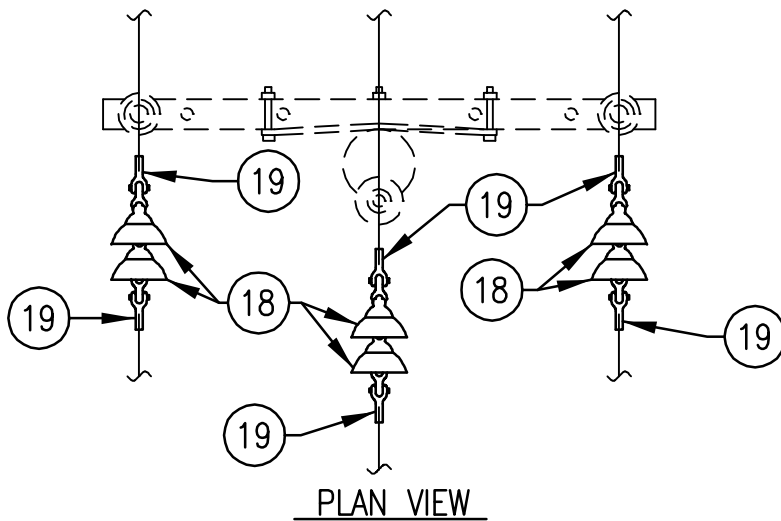
NOTES

1. DRAWING REPRESENTS FDE3-N-TAP. ELIMINATE INSULATOR FOR MIDDLE PHASE CONDUCTOR ON FDE2-N-TAP.
2. DRAWING REPRESENTS DEADEND ASSEMBLY FOR CIRCUIT VOLTAGES >5KV AND ≤15KV. REFER TO SPECIFICATION SECTION 16301 FOR NUMBER AND CLASS OF INSULATORS REQUIRED FOR EACH VOLTAGE LEVEL.
3. OMIT ITEMS (4), (26), (27) AND (28) FOR NEUTRAL ON FDE3-TAP AND FDE2-TAP.



φ-φ VOLTAGE	0-15KV	15-50KV
SPACING "A"	40"	48"

FDE3-N-TAP, FDE3-TAP, FDE2-N-TAP, FDE2-TAP
(0-50KV)



NOTES

1. DRAWING REPRESENTS FDE3-FLOATING. ELIMINATE INSULATOR ASSEMBLIES FOR MIDDLE PHASE ON FDE2-FLOATING.
2. DRAWING REPRESENTS FLOATING DEADEND ASSEMBLY FOR CIRCUIT VOLTAGES $>5KV$ AND $\leq 15KV$. REFER TO SPECIFICATION SECTION 16301 FOR NUMBER AND CLASS OF INSULATORS REQUIRED FOR EACH VOLTAGE LEVEL.
3. THIS CONSTRUCTION IS TO BE USED FOR INSTALLING A DELIBERATE BREAK IN A CIRCUIT FOR SECTIONALIZING PURPOSES.

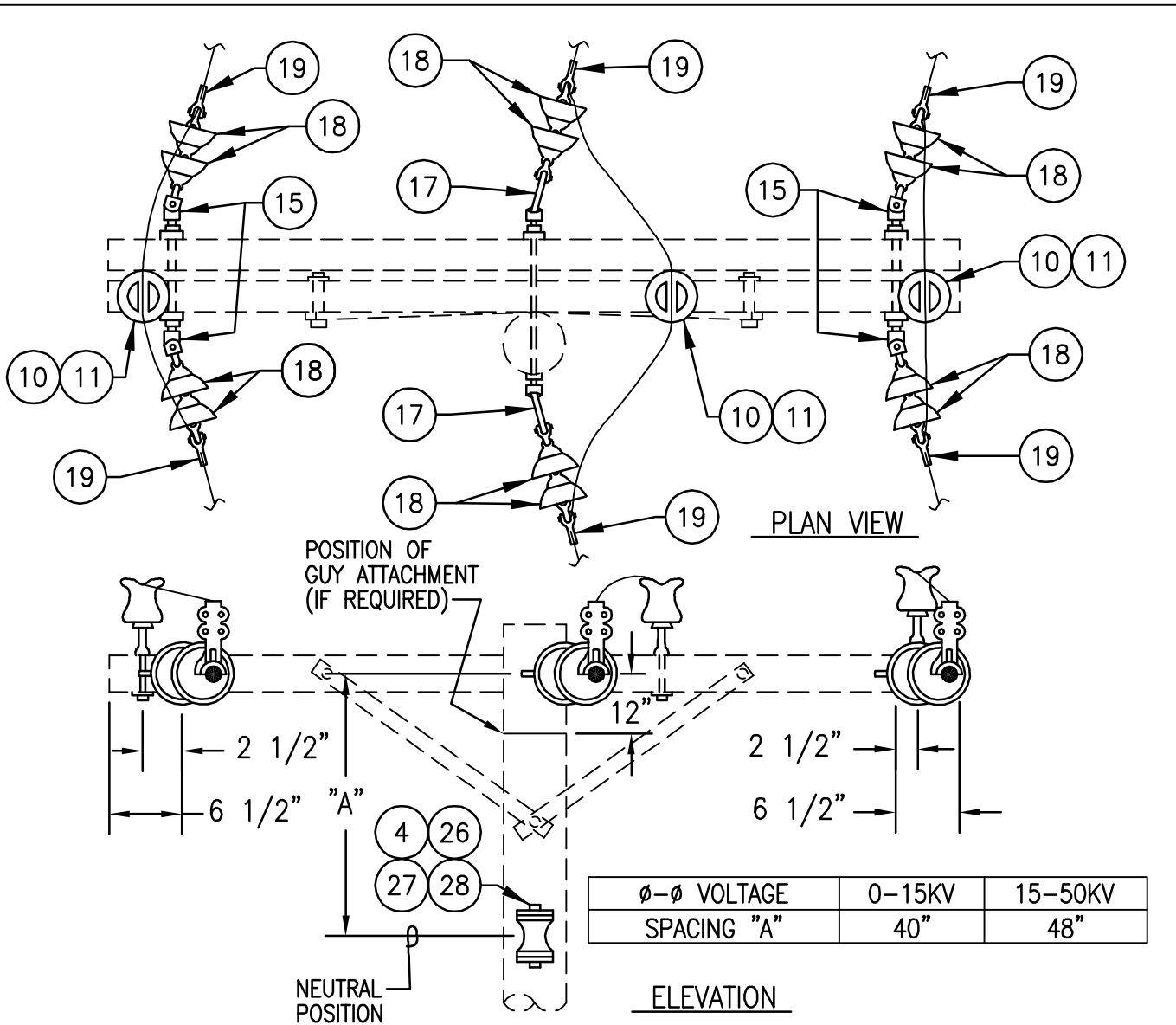
FDE3-FLOATING, FDE2-FLOATING
(0-50KV)

SKETCH DATE

JUNE 2002

STYLE

OH-18



NOTES

1. DRAWING REPRESENTS FDDE3-N. ELIMINATE INSULATOR ASSEMBLIES FOR MIDDLE PHASE ON FDDE2 AND FDDE2-N.
2. DRAWING REPRESENTS DEADEND ASSEMBLY FOR CIRCUIT VOLTAGES >5KV AND ≤15KV. REFER TO SPECIFICATION SECTION 16301 FOR NUMBER AND CLASS OF INSULATORS REQUIRED FOR EACH VOLTAGE LEVEL.
3. OMIT ITEMS (4), (26), (27) AND (28) FOR NEUTRAL ON FDDE2 AND FDDE3.
4. FOR NEUTRAL CONDUCTOR LARGER THAN #2 AWG, SUBSTITUTE (19) FOR (26), (27) AND (28).
5. TWO INSULATOR ASSEMBLIES ((26), (27) AND (28)) REQUIRED FOR NEUTRAL CONDUCTOR.

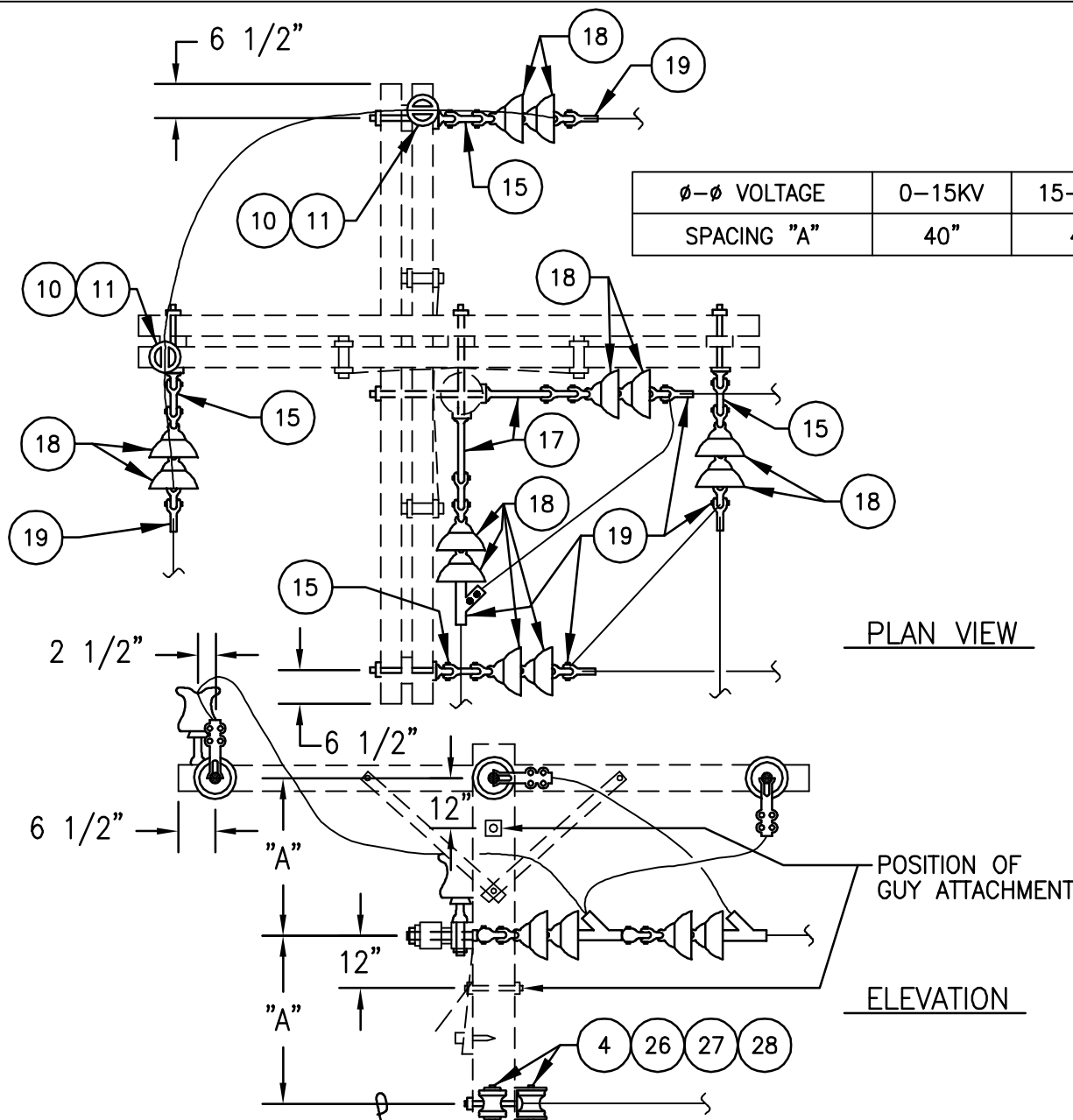
FDDE3-N, FDDE3, FDDE2-N, FDDE2
(0-50KV)

SKETCH DATE

JUNE 2002

STYLE

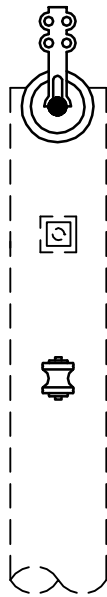
OH-19



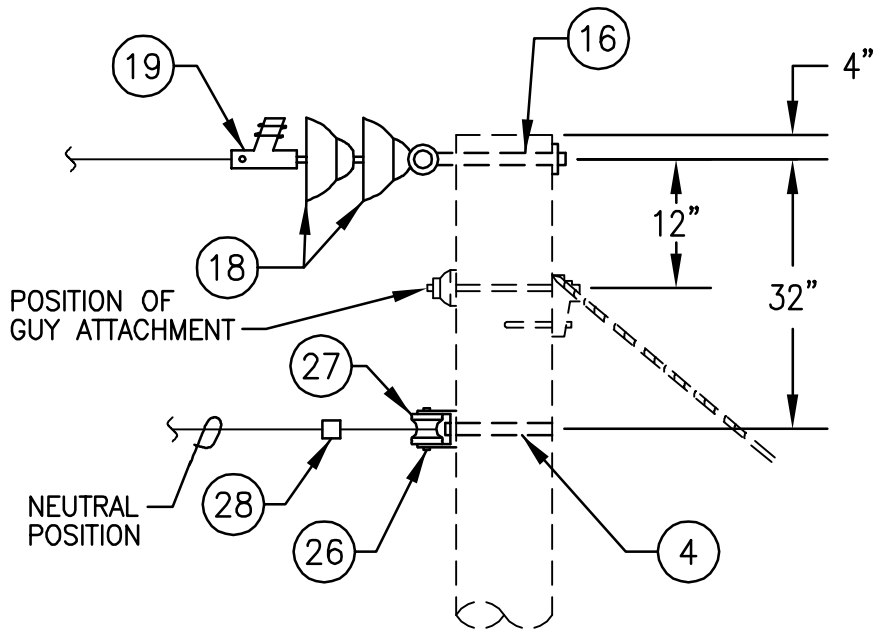
NEUTRAL POSITION
 NOTES
 TWO INSULATOR ASSEMBLIES REQUIRED FOR NEUTRAL CONDUCTOR

1. DRAWING REPRESENTS FDDE3-N-BUCK. ELIMINATE INSULATOR ASSEMBLIES FOR MIDDLE PHASE ON FDDE2-BUCK AND FDDE2-N-BUCK.
2. DRAWING REPRESENTS DEADEND ASSEMBLY FOR CIRCUIT VOLTAGES >5KV AND ≤15KV. REFER TO SPECIFICATION SECTION 16301 FOR NUMBER AND CLASS OF INSULATORS REQUIRED FOR EACH VOLTAGE LEVEL.
3. OMIT ITEMS (4), (26), (27) AND (28) FOR NEUTRAL ON FDDE2-BUCK AND FDDE3-BUCK.
4. FOR NEUTRAL CONDUCTOR LARGER THAN #2 AWG, SUBSTITUTE (19) FOR (26), (27) AND (28).

FDDE3-N-BUCK, FDDE3-BUCK, FDDE2-N-BUCK, FDDE2-BUCK
 (0-50KV)



FRONT VIEW



SIDE VIEW

NOTES

1. DRAWING REPRESENTS DEADEND ASSEMBLY FOR CIRCUIT VOLTAGES $>5KV$ AND $\leq 15KV$. REFER TO SPECIFICATION SECTION 16301 FOR NUMBER AND CLASS OF INSULATORS REQUIRED FOR EACH VOLTAGE LEVEL.
2. OMIT ITEMS (4), (26), (27) AND (28) FOR NEUTRAL ON SYMBOL VDE1.

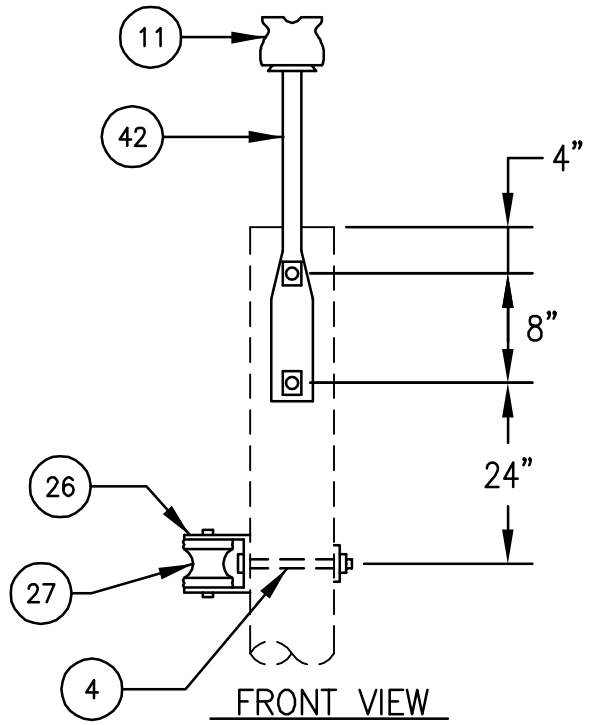
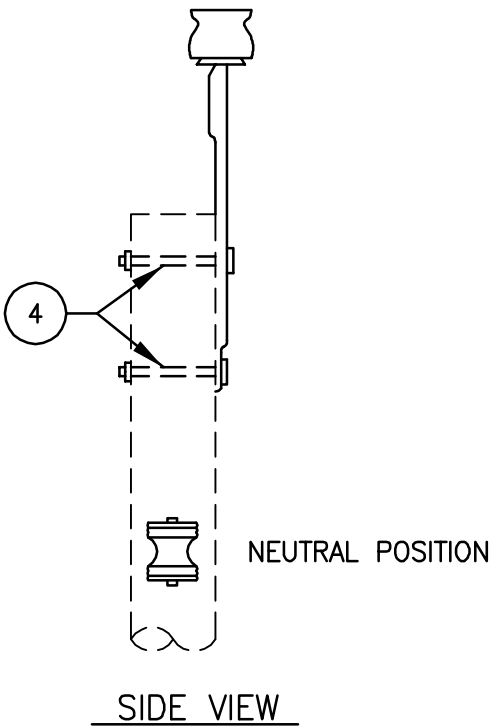
VDE1-N, VDE1
(0-50KV)

SKETCH DATE

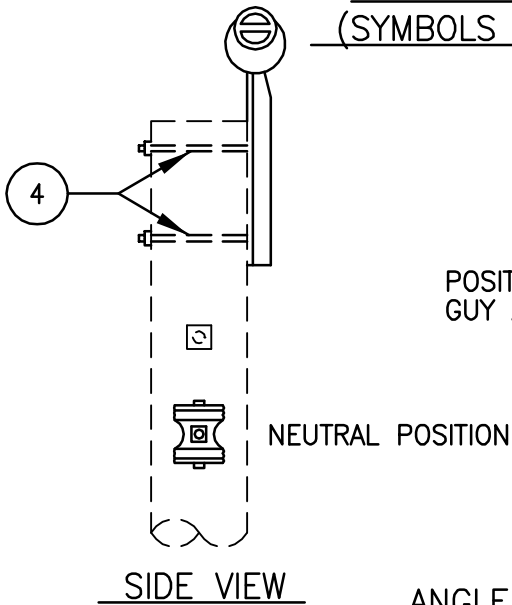
JUNE 2002

STYLE

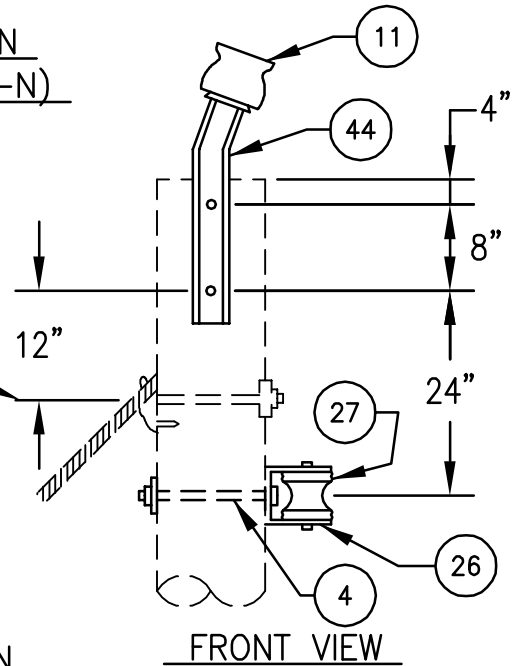
OH-21



TANGENT CONSTRUCTION
(SYMBOLS VR1 AND VR1-N)



POSITION OF GUY ATTACHMENT



ANGLE CONSTRUCTION
(SYMBOLS VRA1 AND VRA1-N)

NOTES

1. DRAWING REPRESENTS ASSEMBLIES FOR CIRCUIT VOLTAGES >5KV AND ≤15KV. REFER TO SPECIFICATION SECTION 16301 FOR THE REQUIRED CLASS OF INSULATORS.
2. OMIT (4), (26), AND (27) FOR NEUTRAL ON SYMBOLS VR1 AND VRA1.

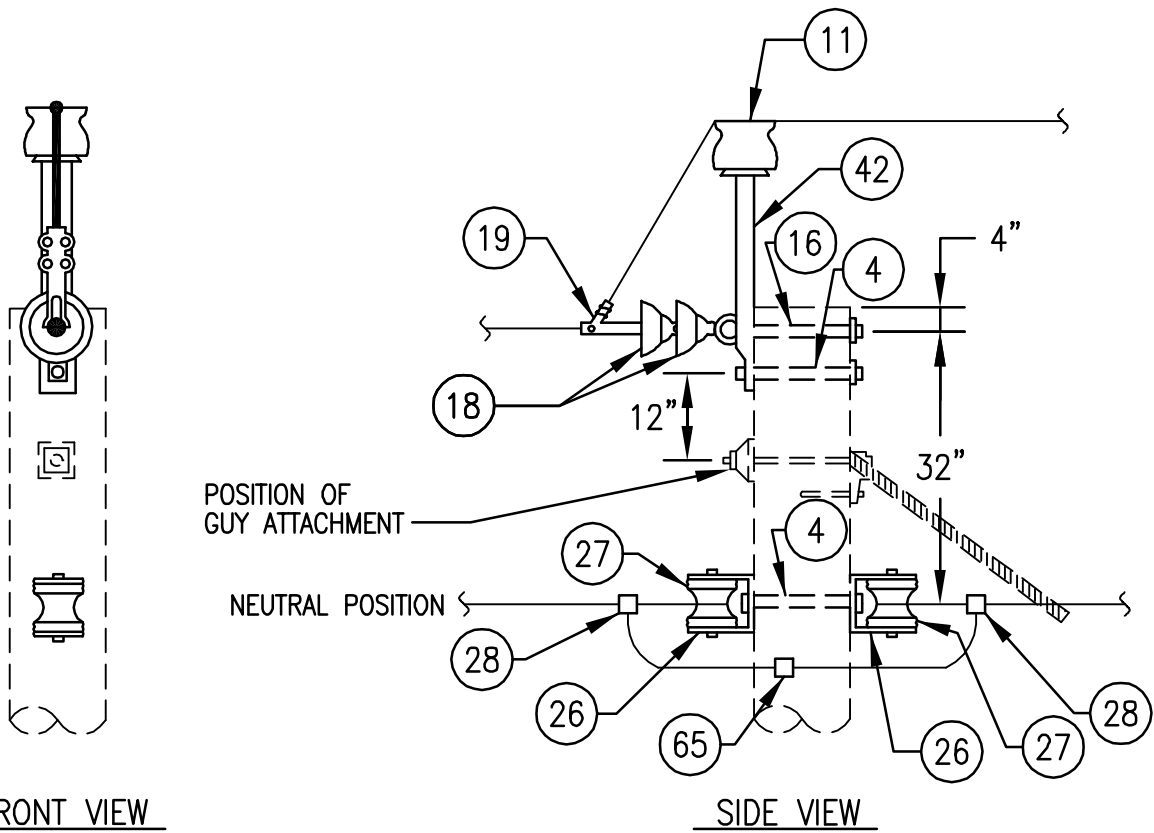
VR1, VR1-N, VRA1, VRA1-N
(0-50KV)

SKETCH DATE

JUNE 2002

STYLE

OH-22



NOTES

1. DRAWING REPRESENTS ASSEMBLY FOR CIRCUIT VOLTAGES $>5KV$ AND $\leq 15KV$. REFER TO SPECIFICATION SECTION 16301 FOR THE REQUIRED NUMBER AND CLASS OF INSULATORS.
2. OMIT ITEMS (4), (26), (27) AND (28) FOR NEUTRAL ON SYMBOL VDE1-SLACK.
3. SINGLE PHASE SLACK SPAN CONSTRUCTION LIMITED TO MAXIMUM SPAN LENGTH OF 80'.

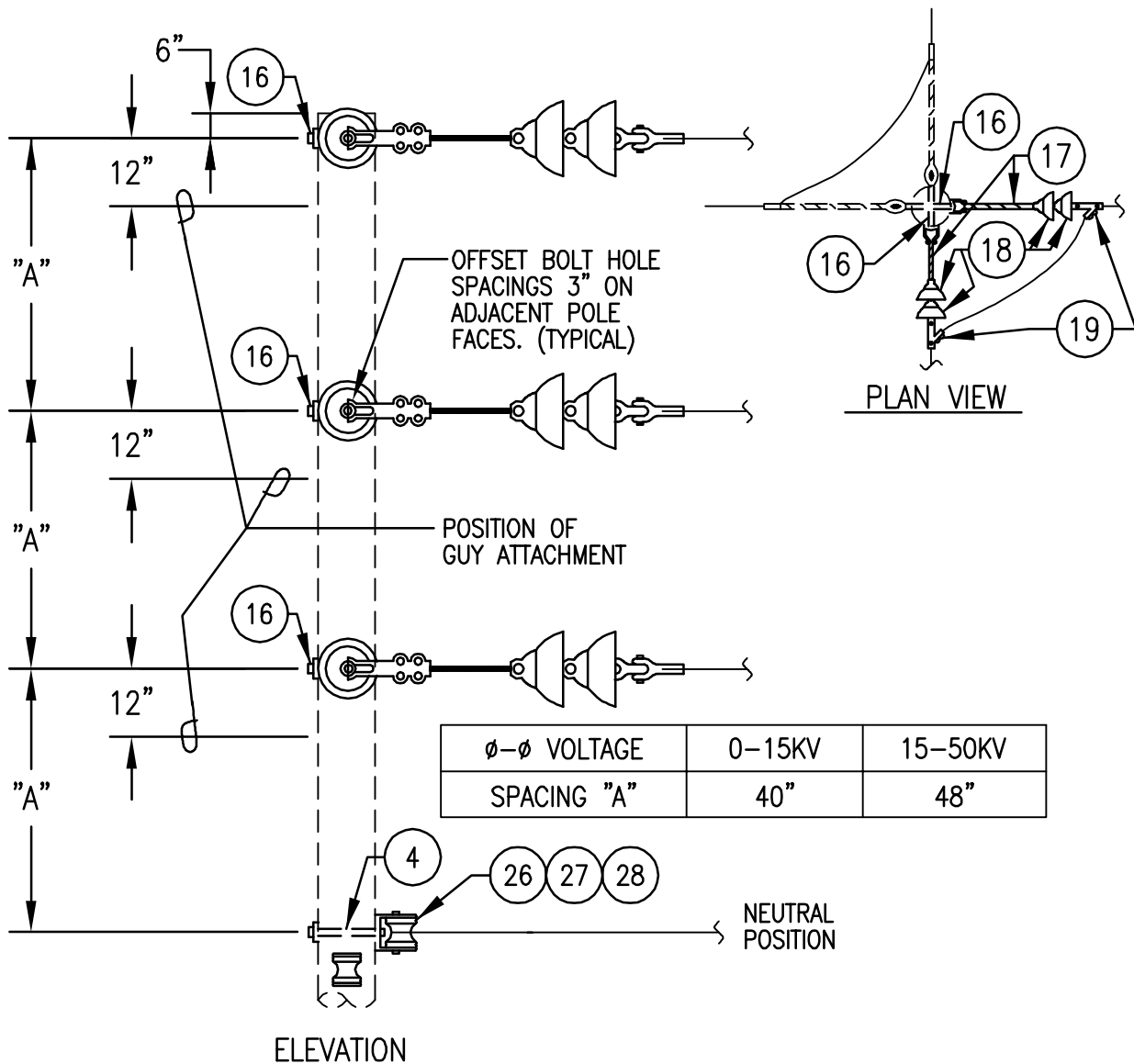
VDE1-N-SLACK, VDE1-SLACK
(0-50KV)

SKETCH DATE

JUNE 2002

STYLE

OH-23



NOTES

1. DRAWING REPRESENTS VDDE3-N FOR CIRCUIT VOLTAGES >5KV AND ≤15KV. MODIFY INSULATOR ASSEMBLIES AS REQUIRED TO COINCIDE WITH THE NUMBER OF PHASE CONDUCTORS. REFER TO SPECIFICATION SECTION 16301 FOR THE REQUIRED NUMBER AND CLASS OF INSULATORS.
2. OMIT ITEMS (4) (26) (27) AND (28) FOR NEUTRAL ON ALL SYMBOLS WHICH DO NOT CONTAIN "N".
3. FOR NEUTRAL CONDUCTORS LARGER THAN #1/0 AWG, PROVIDE (15) AND (19) IN LIEU OF (26) (27) AND (28). TWO INSULATOR ASSEMBLIES REQUIRED FOR NEUTRAL.

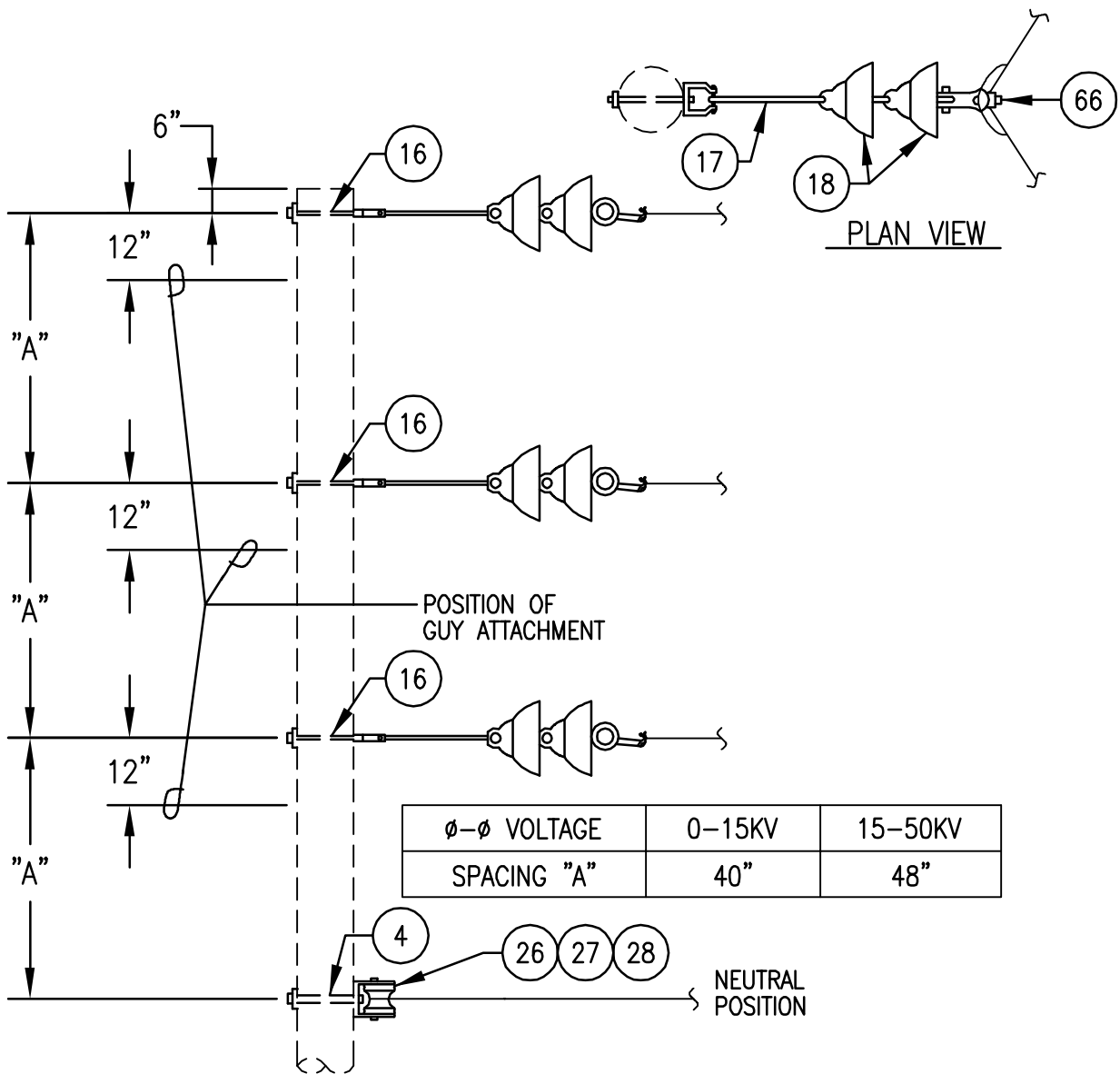
VDDE3-N, VDDE3, VDDE2-N, VDDE2, VDDE1-N, VDDE1
(0-50KV)

SKETCH DATE

JUNE 2002

STYLE

OH-24



NOTES

ELEVATION

1. DRAWING REPRESENTS VA3-N. MODIFY INSULATOR ASSEMBLIES AS REQUIRED TO COINCIDE WITH THE NUMBER OF PHASE CONDUCTORS.
2. OMIT ITEMS (4) (26) (27) AND (28) FOR NEUTRAL ON ALL SYMBOLS WHICH DO NOT CONTAIN "N".
3. DRAWING REPRESENTS ASSEMBLY FOR CIRCUIT VOLTAGES >5KV AND ≤15KV. REFER TO SPECIFICATION SECTION 16301 FOR THE REQUIRED NUMBER AND CLASS OF INSULATORS.

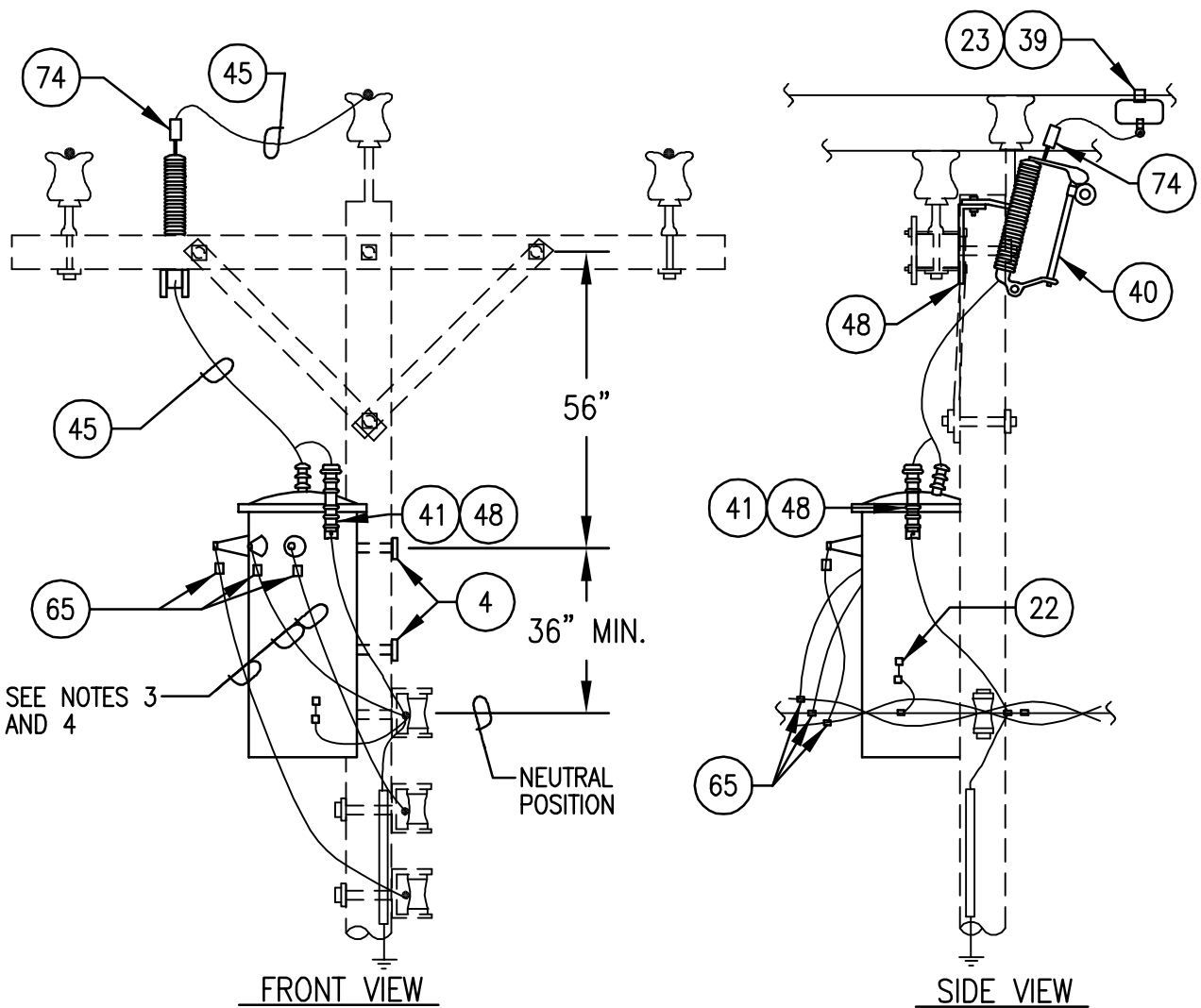
VA3-N, VA3, VA2-N, VA2, VA1-N, VA1
(0-50KV)

SKETCH DATE

JUNE 2002

STYLE

0H-25



SEE NOTES 3 AND 4

NOTES

1. DRAWING REPRESENTS TF-CL. OMIT ITEM (74) FOR SYMBOL TF.
2. MODIFY CONNECTIONS AS REQUIRED TO ACCOMODATE TRANSFORMERS WITH PRIMARY BUSHING ARRANGEMENTS OTHER THAN SHOWN.
3. WHEN TRANSFORMER PROVIDES UNDERGROUND SERVICE, SIZE SECONDARY OR SERVICE CONDUCTORS AS INDICATED.
4. WHEN TRANSFORMER SECONDARY LEADS CONNECT TO OPEN WIRE OR TRIPLEX SECONDARY, CONDUCTOR SHALL HAVE 600 VOLT INSULATION RATING AND MINIMUM AMPACITY OF 125% OF TRANSFORMER FULL LOAD SECONDARY CURRENT.

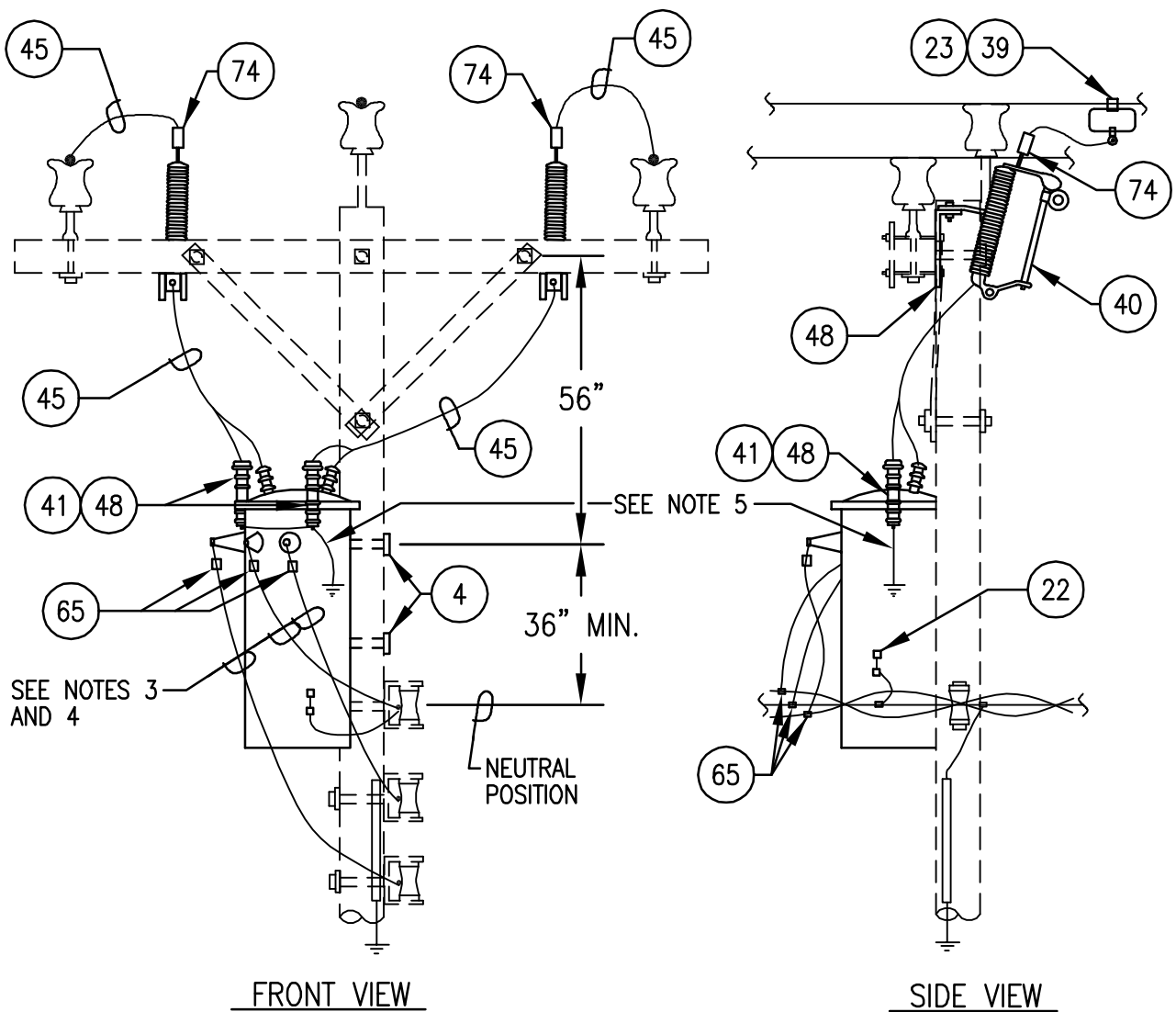
TF-CL, TF (0-15KV)

SKETCH DATE

JUNE 2002

STYLE

OH-26



NOTES

1. DRAWING REPRESENTS TFPP-CL. OMIT ITEM (74) FOR SYMBOL TFPP.
2. MODIFY CONNECTIONS AS REQUIRED TO ACCOMODATE TRANSFORMERS WITH PRIMARY BUSHING ARRANGEMENTS OTHER THAN SHOWN.
3. WHEN TRANSFORMER SECONDARY LEADS CONNECT TO OPEN WIRE OR TRIPLEX SECONDARY, CONDUCTOR SHALL HAVE 600 VOLT INSULATION RATING AND MINIMUM AMPACITY OF 125% OF TRANSFORMER FULL LOAD SECONDARY CURRENT.
4. WHEN TRANSFORMER PROVIDES UNDERGROUND SERVICE, SIZE SECONDARY OR SERVICE CONDUCTORS AS INDICATED.
5. CONNECT SURGE ARRESTERS TO A PRIMARY GROUNDING ELECTRODE SEPARATE FROM THE SECONDARY NEUTRAL GROUNDING ELECTRODE. SEE GROUNDING NOTES ON SKETCH OH-41.

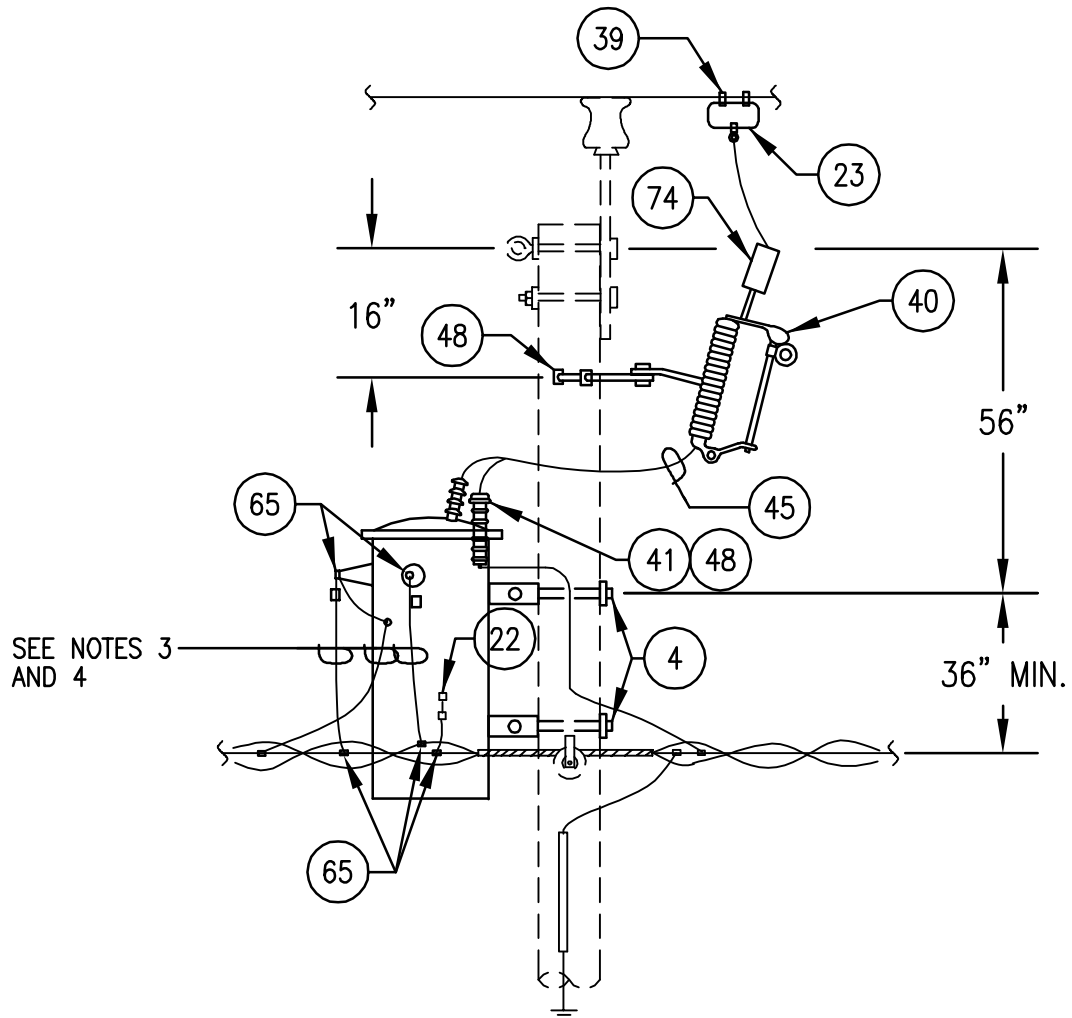
TFPP-CL, TFPP (0-15KV)

SKETCH DATE

JUNE 2002

STYLE

OH-27



SIDE ELEVATION

NOTES

1. DRAWING REPRESENTS TV-CL. OMIT ITEM (74) FOR SYMBOL TV.
2. MODIFY CONNECTIONS AS REQUIRED TO ACCOMODATE TRANSFORMERS WITH PRIMARY BUSHING ARRANGEMENTS OTHER THAN SHOWN.
3. WHEN TRANSFORMER SECONDARY LEADS CONNECT TO OPEN WIRE OR TRIPLEX SECONDARY, CONDUCTOR SHALL HAVE 600 VOLT INSULATION RATING AND MINIMUM AMPACITY OF 125% OF TRANSFORMER FULL LOAD SECONDARY CURRENT.
4. WHEN TRANSFORMER PROVIDES UNDERGROUND SERVICE, SIZE SECONDARY OR SERVICE CONDUCTORS AS INDICATED.

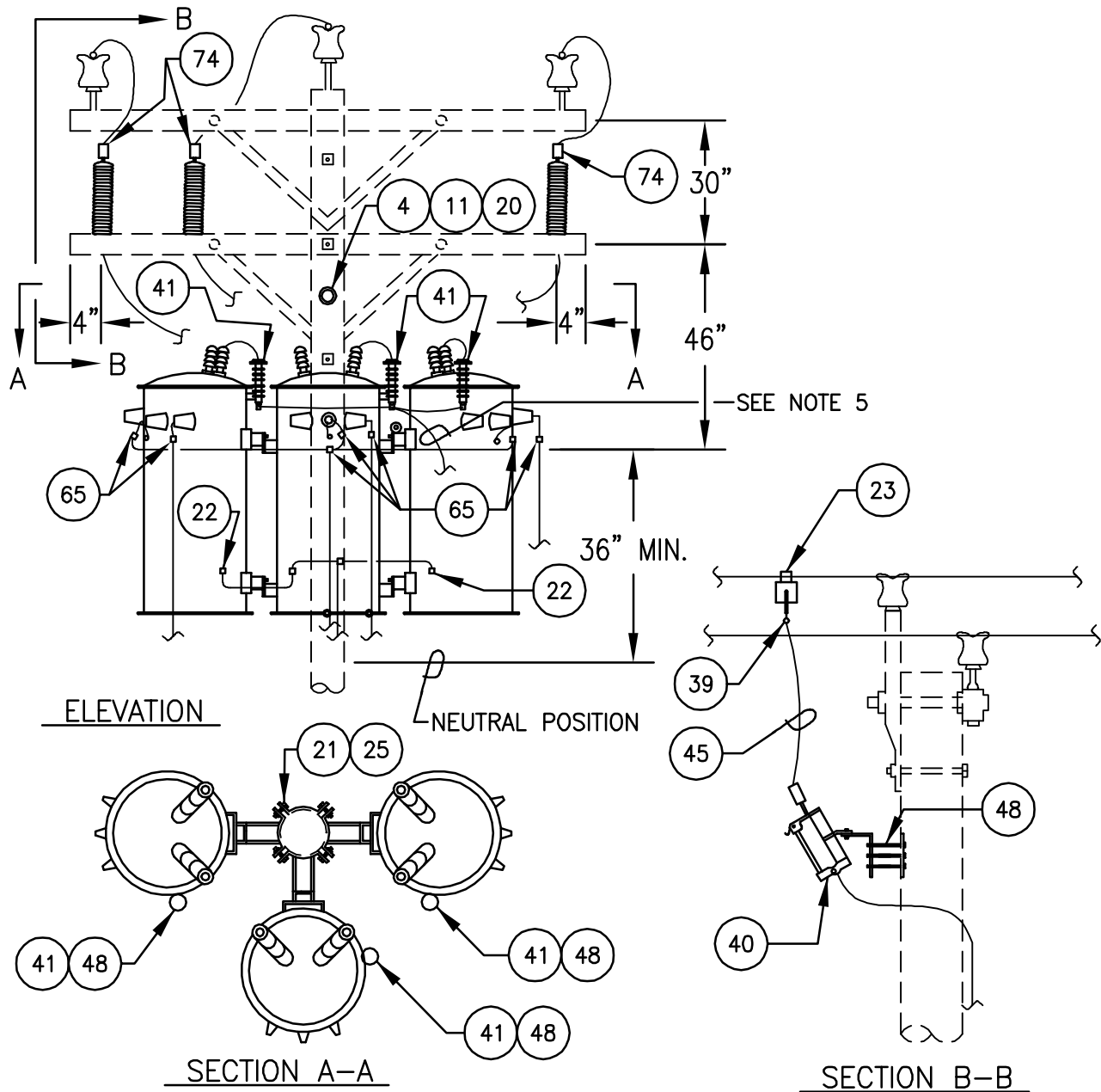
TV-CL, TV (0-15KV)

SKETCH DATE

JUNE 2002

STYLE

OH-28



ELEVATION

SECTION A-A

SECTION B-B

NOTES

1. DRAWING REPRESENTS TTT-CL. OMIT ITEM (74) FOR SYMBOL TTT.
2. MODIFY CONNECTIONS AS REQUIRED TO ACCOMMODATE TRANSFORMERS WITH PRIMARY BUSHING ARRANGEMENTS OTHER THAN SHOWN.
3. WHEN TRANSFORMER SECONDARY LEADS CONNECT TO OPEN WIRE OR QUADRUPLEX SECONDARY, CONDUCTOR SHALL HAVE 600 VOLT INSULATION RATING AND MINIMUM AMPACITY OF 125% OF TRANSFORMER FULL LOAD SECONDARY CURRENT.
4. WHEN TRANSFORMER PROVIDES UNDERGROUND SERVICE, SIZE SECONDARY OR SERVICE CONDUCTORS AS INDICATED.
5. CONNECT TO SYSTEM NEUTRAL IF THE PRIMARY CIRCUIT IS A 4 WIRE MULTI-GROUNDED SYSTEM. CONNECT TO A PRIMARY GROUNDING ELECTRODE SEPARATE FROM THE SECONDARY NEUTRAL IF THE PRIMARY CIRCUIT IS A 3 WIRE SYSTEM. SEE GROUNDING NOTES ON SKETCH OH-41.

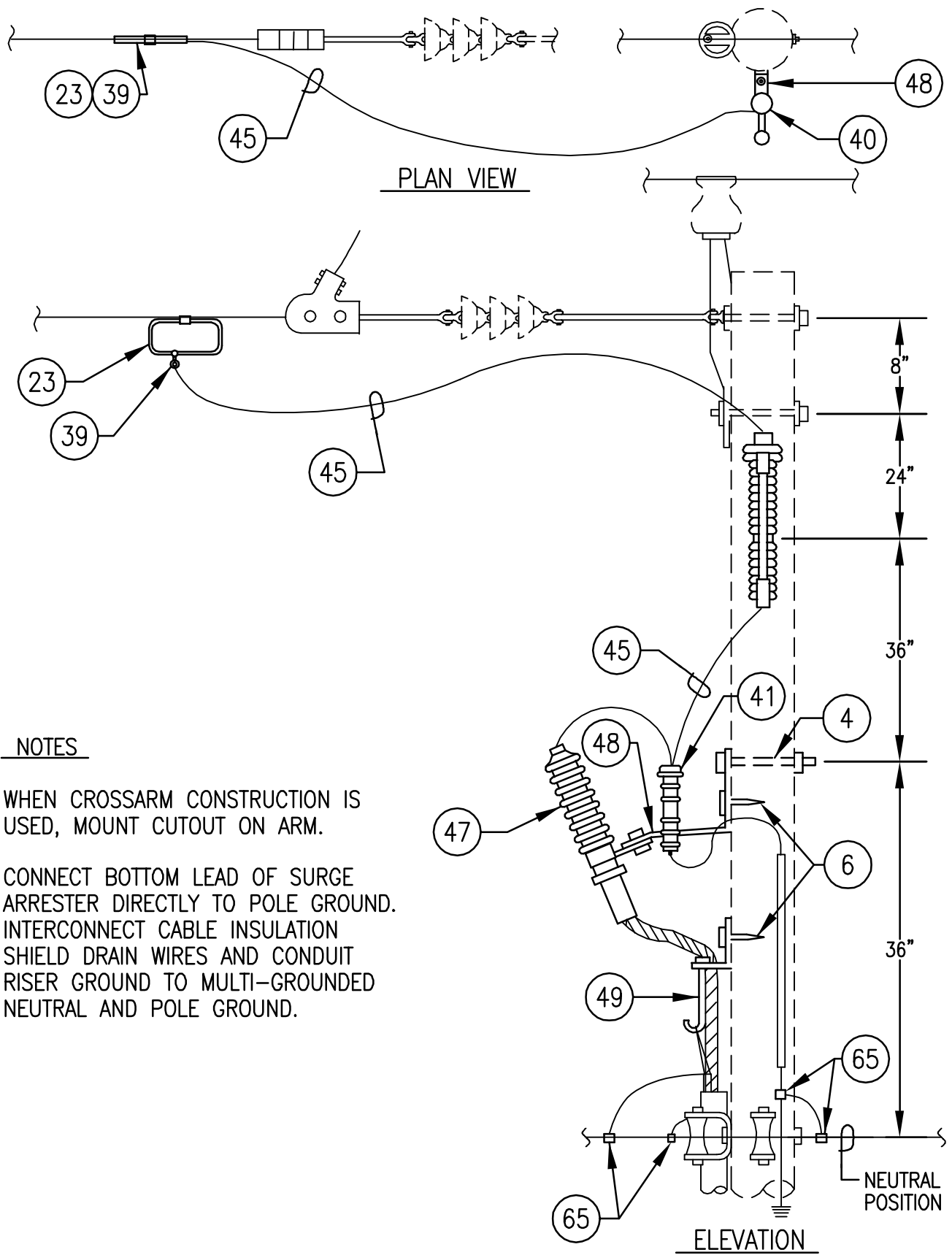
TTT-CL, TTT (0-15KV)

SKETCH DATE

JUNE 2002

STYLE

OH-29



NOTES

1. WHEN CROSSARM CONSTRUCTION IS USED, MOUNT CUTOUT ON ARM.
2. CONNECT BOTTOM LEAD OF SURGE ARRESTER DIRECTLY TO POLE GROUND. INTERCONNECT CABLE INSULATION SHIELD DRAIN WIRES AND CONDUIT RISER GROUND TO MULTI-GROUNDED NEUTRAL AND POLE GROUND.

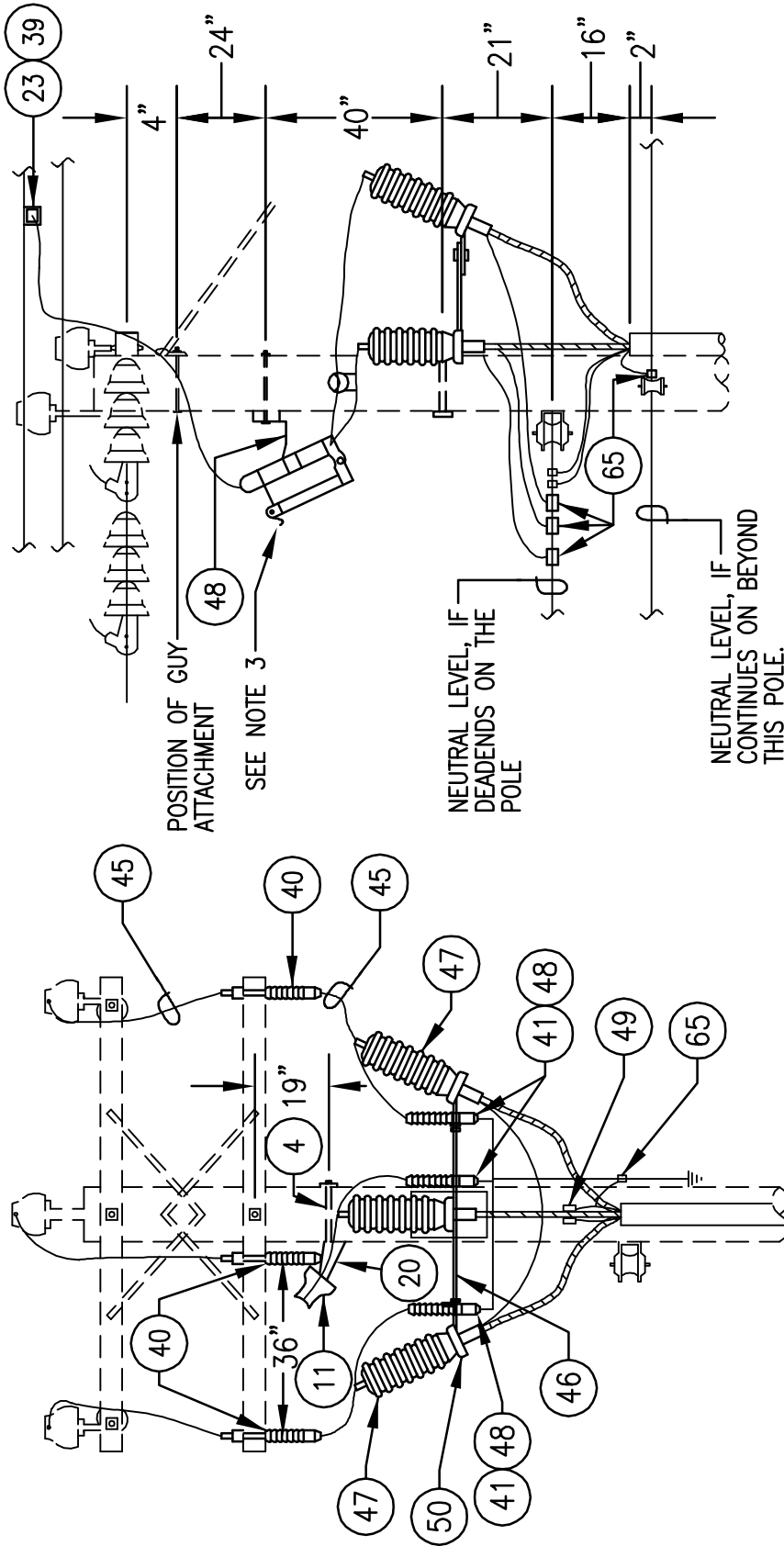
U.G. TERMINAL (SINGLE-PHASE)
(0-25KV)

SKETCH DATE

JUNE 2002

STYLE

OH-30



FRONT VIEW

SIDE VIEW

NOTES

1. MODIFY POSITION OF TERMINAL ON DEADENDS TO BE UNDER THE CONDUCTORS AND THE CUTOUPS ON THE BACKSIDE OF CROSSARM. POLE RISER MUST BE OFFSET TO CLEAR NEUTRAL CLEVIS BRACKET.
2. CONNECT BOTTOM LEAD OF ARRESTER DIRECTLY TO POLE GROUND. INTERCONNECT CABLE INSULATION SHIELD DRAIN WIRES AND CONDUIT RISER GROUND TO MULTI-GROUNDED NEUTRAL (IF EXISTING) AND POLE GROUND.
3. CUTOUP PROVIDES A FUSE OR A SOLID BLADE (NON-FUSED) OPTION. COORDINATE WITH SPECIFIC DESIGN REQUIREMENTS PROVIDED.

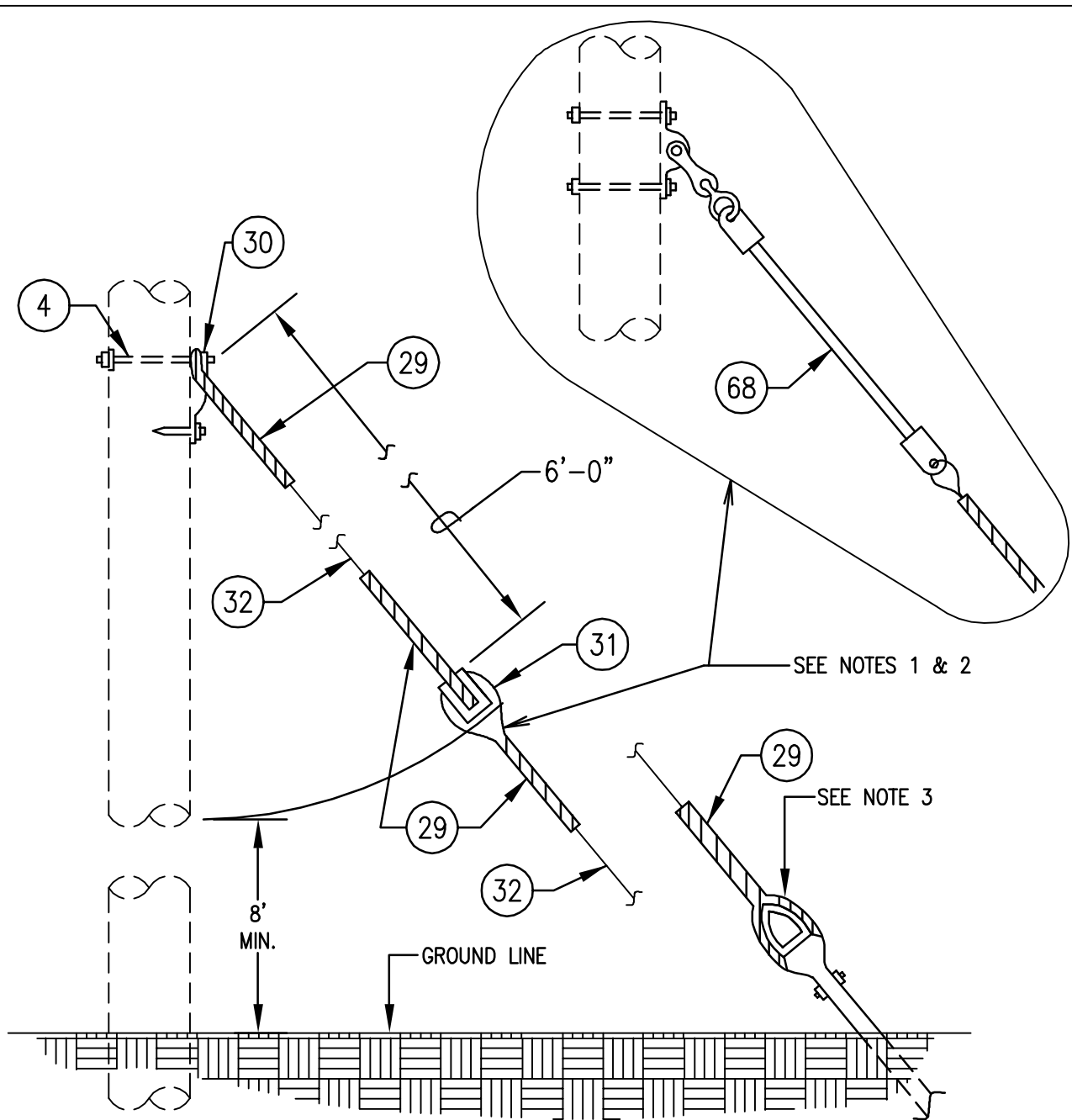
U.G. TERMINAL
(0-25KV)

SKETCH DATE

JUNE 2002

STYLE

OH-31



NOTES

1. DRAWING REPRESENTS SYMBOL FOR "GUY-1". OMIT ITEM (31) FOR THE "GUY" SYMBOL.
2. ON CIRCUIT OPERATING VOLTAGES GREATER THAN 15KV, SUBSTITUTE (68) FOR (31).
3. COORDINATE INSTALLATION WITH ANCHOR AS SPECIFIED.
4. UTILIZE ITEM (68) WHEN GUYING ATTACHMENT IS LOCATED IN THE PRIMARY AREA OF THE POLE AS INDICATED BY SPECIFIC DESIGN REQUIREMENTS PROVIDED.
5. BOND ALL GUYS (SUPPLY & COMMUNICATION) AND CONNECT TO POLE GROUND AND SYSTEM NEUTRAL (IF EXISTING).

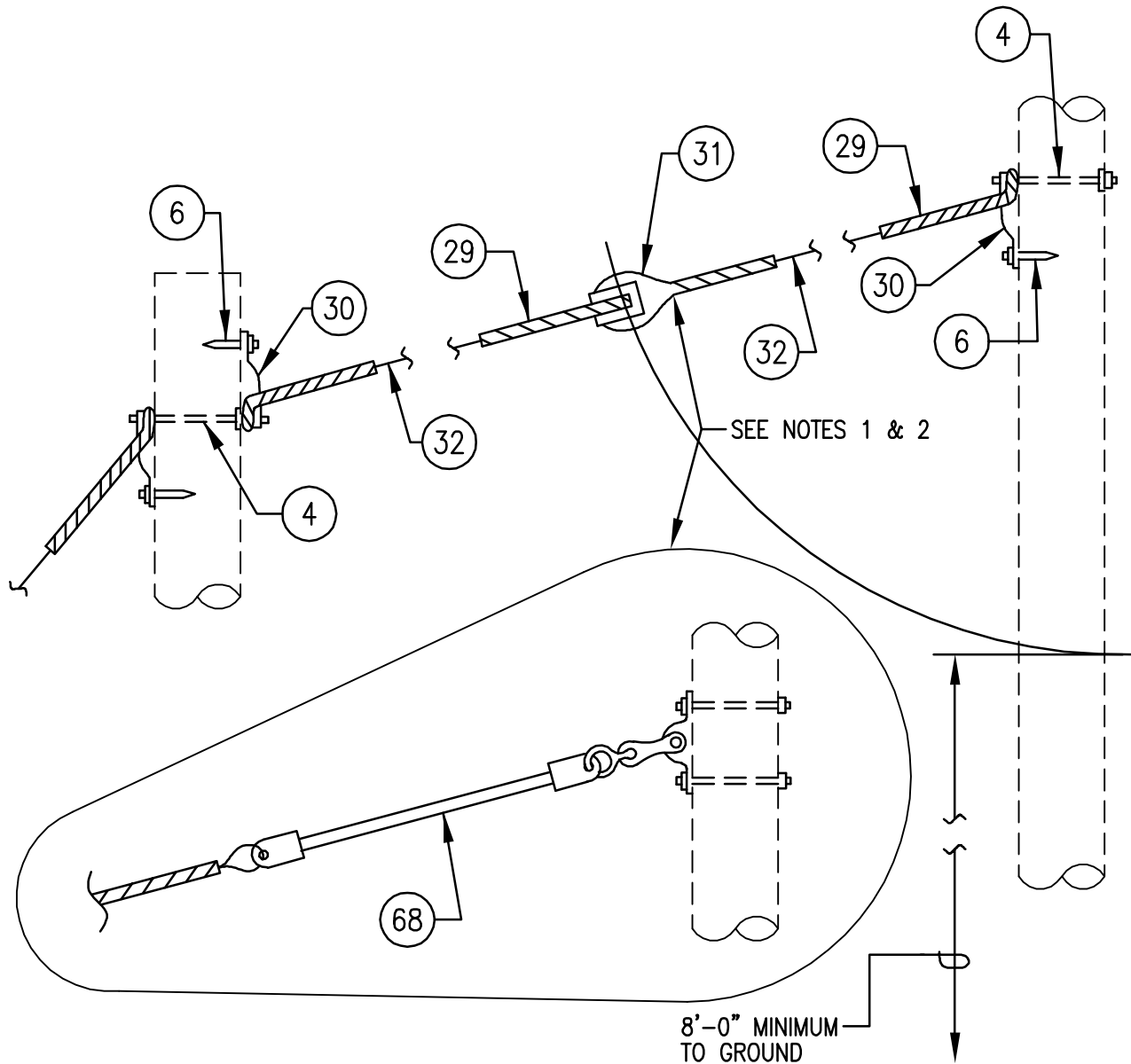
GUY-1
GUY

SKETCH DATE

JUNE 2002

STYLE

OH-32



NOTES

1. DRAWING REPRESENTS SYMBOL FOR "SPAN-GUY-1". OMIT ITEM (31) FOR THE "SPAN GUY" SYMBOL.
2. ON CIRCUIT OPERATING VOLTAGES GREATER THAN 15KV, SUBSTITUTE (68) FOR (31).
3. UTILIZE ITEM (68) WHEN GUYING ATTACHMENT IS LOCATED IN THE PRIMARY AREA OF THE POLE AS INDICATED BY SPECIFIC DESIGN REQUIREMENTS PROVIDED.

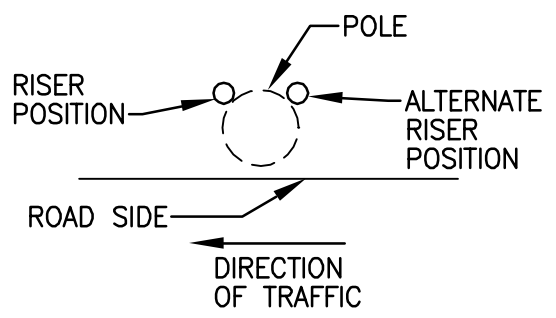
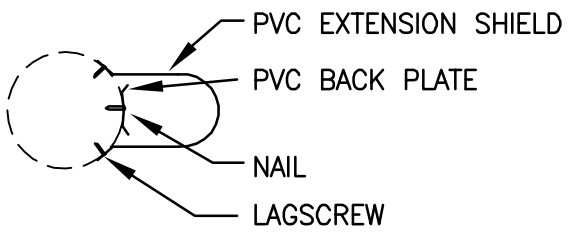
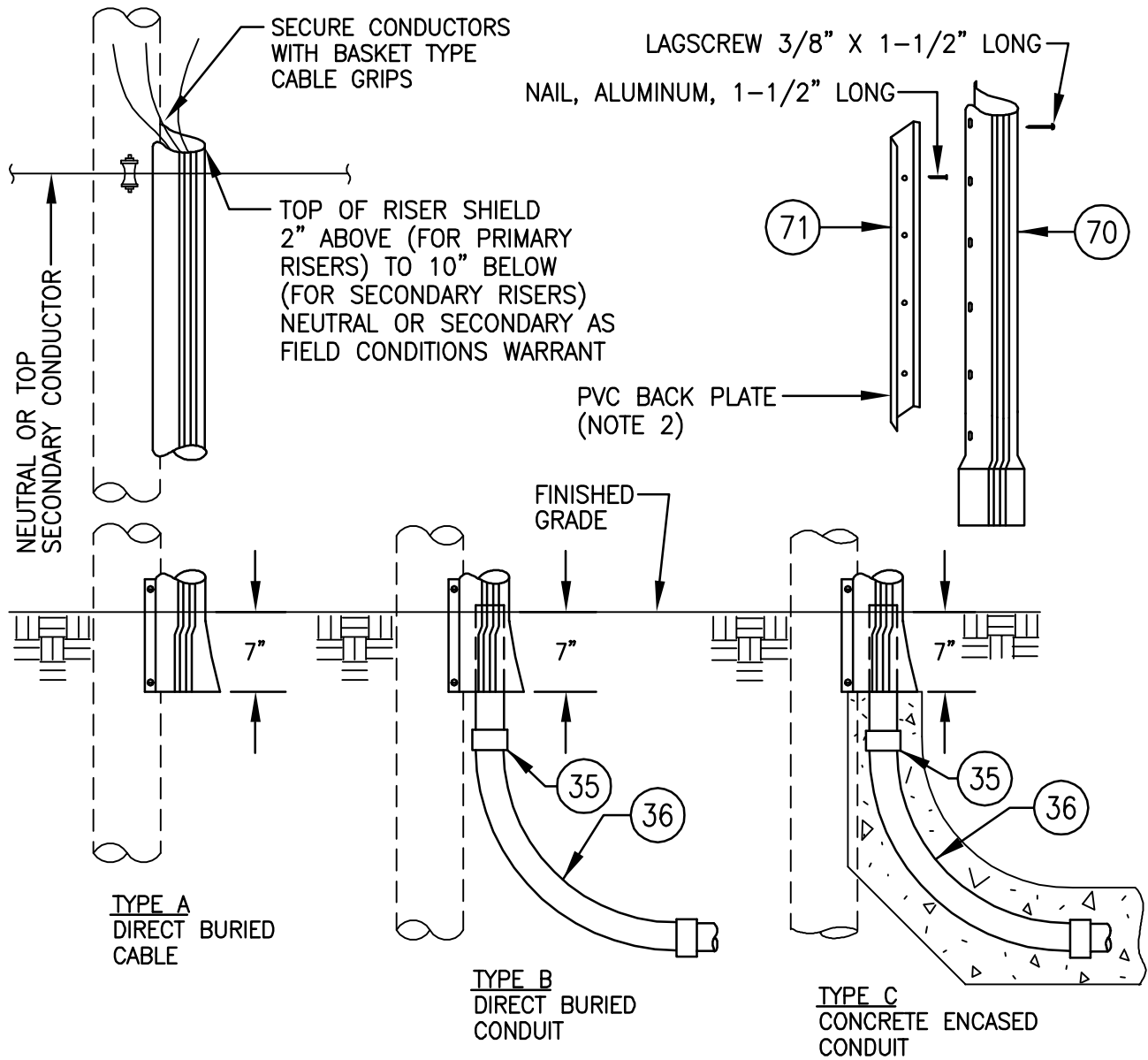
SPAN GUY-1
SPAN GUY

SKETCH DATE

JUNE 2002

STYLE

OH-33



NOTES

1. INSTALL RISER ON SIDE OR QUARTER OF POLE AWAY FROM CLIMBING SURFACE.
2. INSTALL BACK PLATE WITH THE RISER SHIELD FROM THE BOTTOM OF THE POLE.

CONDUIT LOCATION

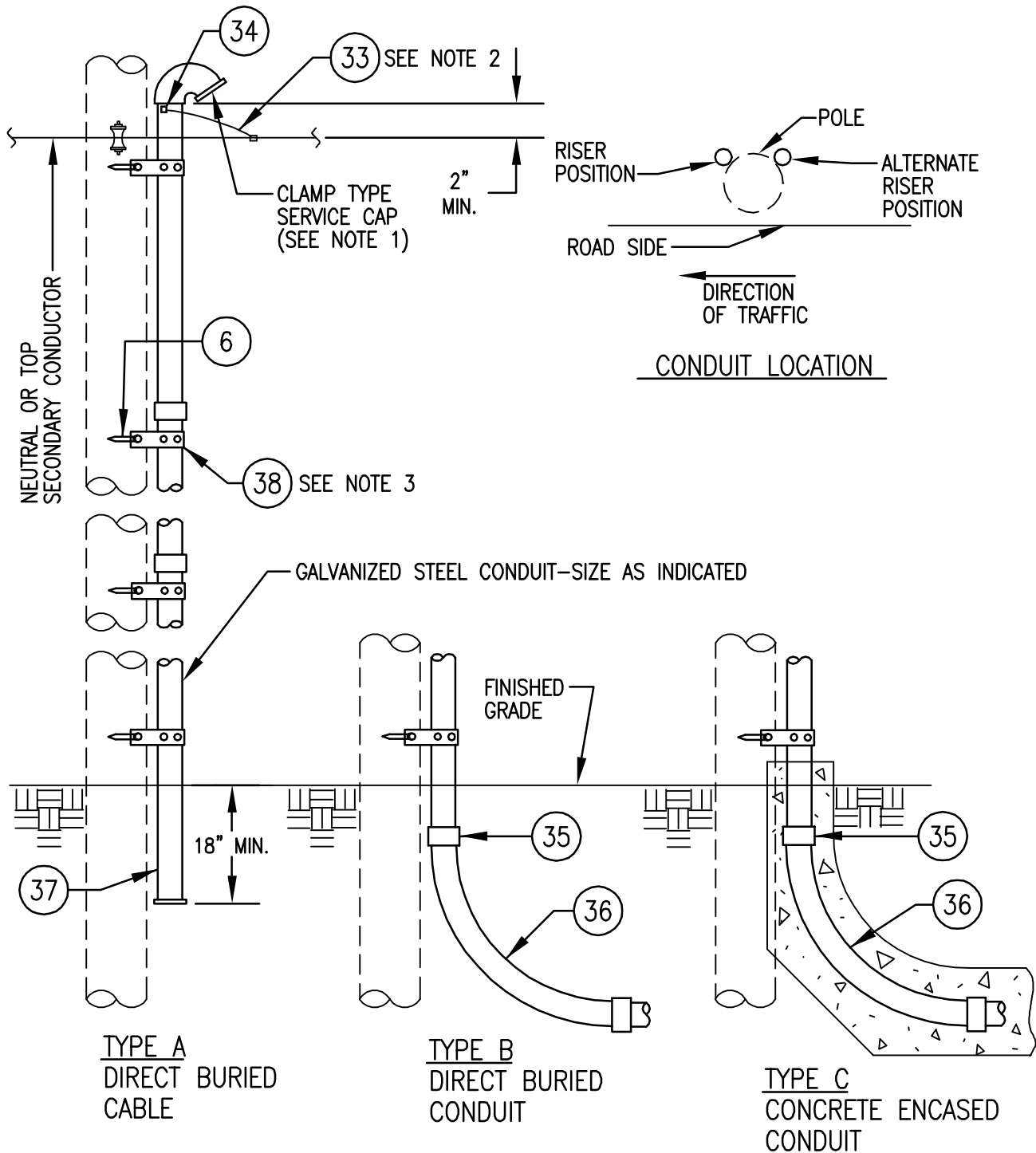
PVC RISER SHIELD
(SIZE & TYPE AS INDICATED)

SKETCH DATE

JUNE 2002

STYLE

OH-34



NOTES

1. ON CONDUIT RISER FOR PRIMARY CIRCUITS, ELIMINATE SERVICE CAP AND PROVIDE GROUNDING TYPE INSULATING BUSHING.
2. BOND CONDUIT TO POLE GROUND AND SYSTEM NEUTRAL (IF EXISTING). SEE GROUNDING NOTES ON SKETCH OH-41.
3. SPACE STRAPS AT MAXIMUM OF 4' INTERVALS.

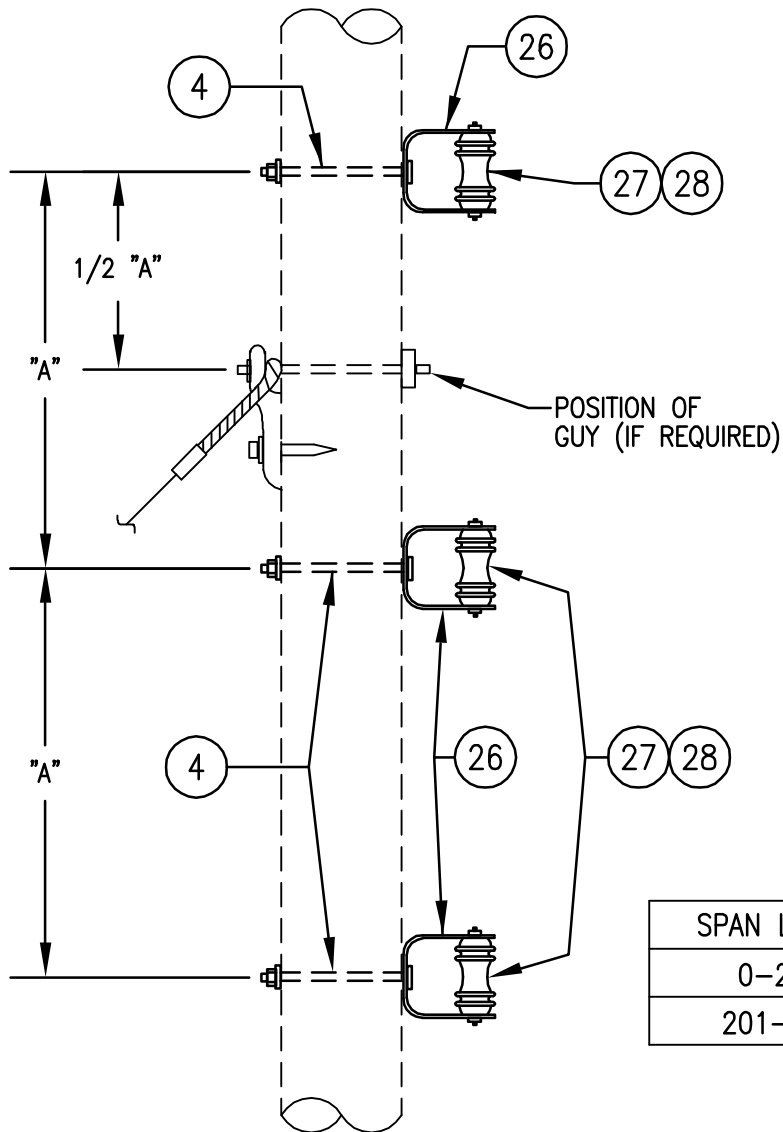
CONDUIT RISER
(SIZE & TYPE AS INDICATED)

SKETCH DATE

JUNE 2002

STYLE

OH-35



SPAN LENGTH	SPACING "A"
0-200'	12"
201-300'	14"

NOTES

1. DRAWING REPRESENTS SYMBOLS S3 OR SDE3. OMIT INSULATOR ASSEMBLIES AS REQUIRED TO COINCIDE WITH NUMBER OF CONDUCTORS.
2. OMIT ITEM (28) FOR SYMBOLS S3, S2 AND S1.

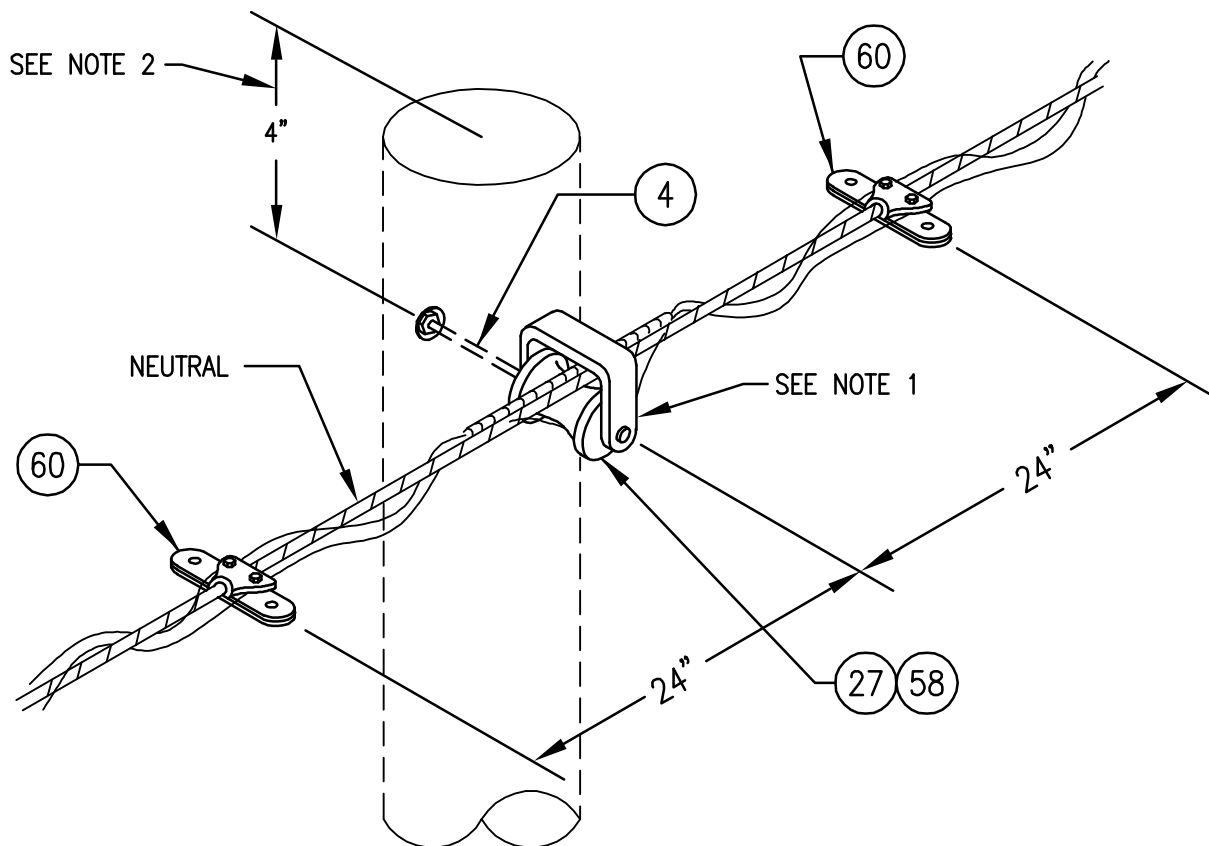
S3, S2, S1, SDE3, SDE2, SDE1
(0-600V)

SKETCH DATE

JUNE 2002

STYLE

OH-36



NOTES

1. TIE ONLY THE NEUTRAL CONDUCTOR TO THE SPOOL INSULATOR
2. WHEN USED AT TOP OF POLE, INSTALL MACHINE BOLT 4" DOWN FROM TOP OF POLE.

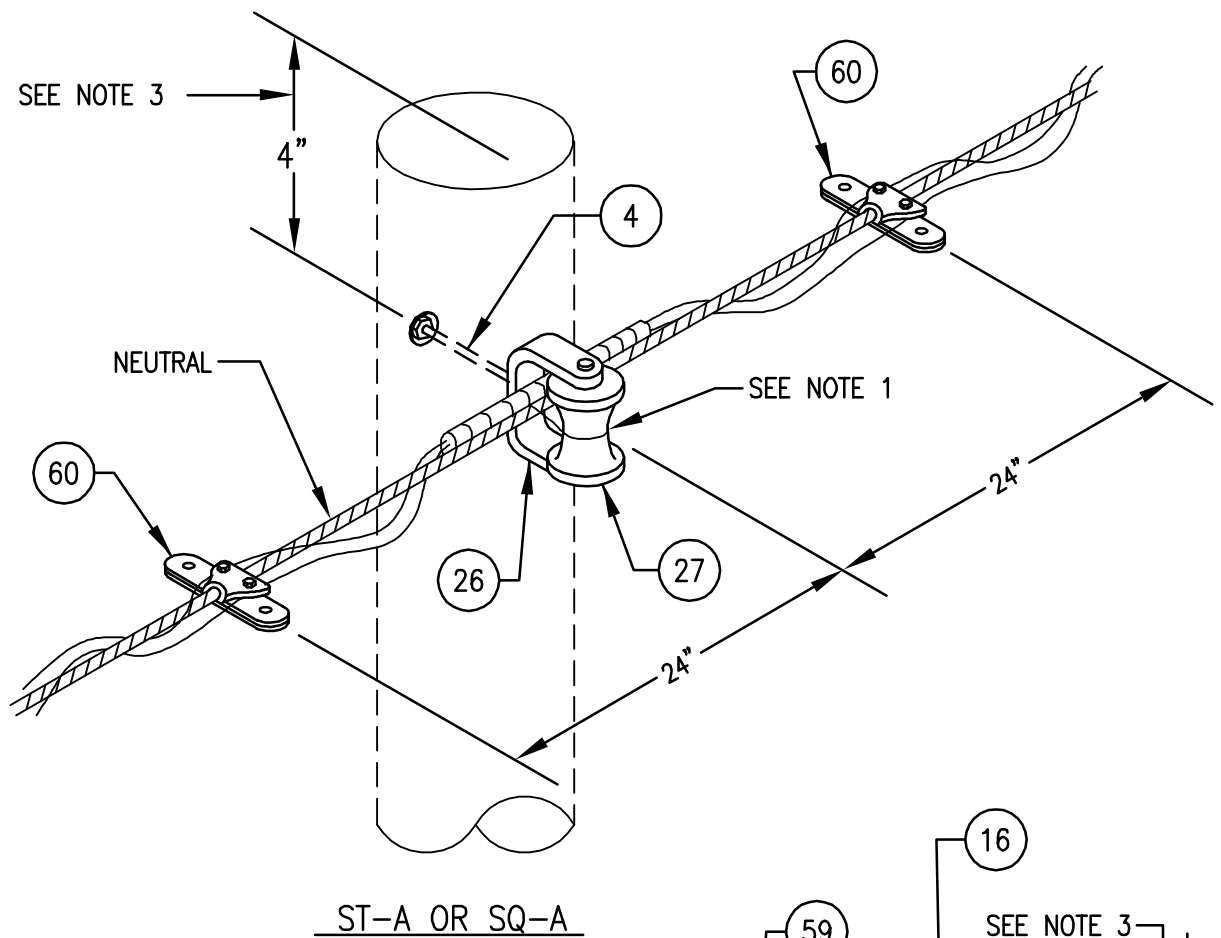
ST OR SQ
(0-600V)

SKETCH DATE

JUNE 2002

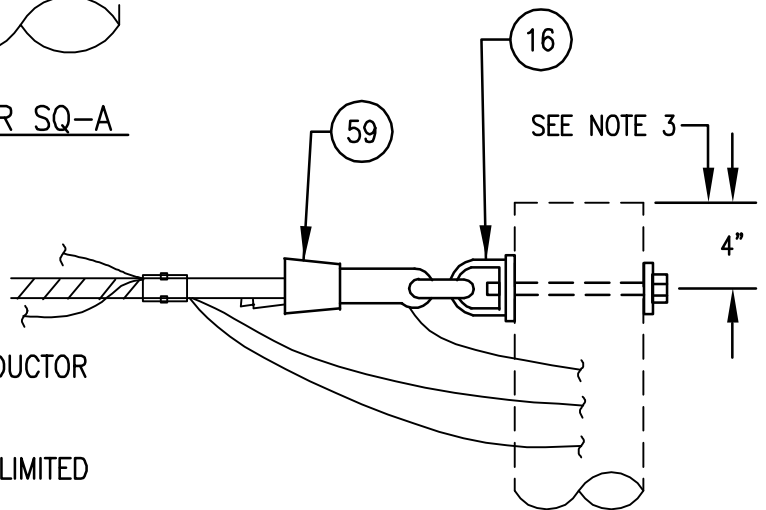
STYLE

OH-37



NOTES

1. TIE ONLY THE NEUTRAL CONDUCTOR TO THE SPOOL INSULATOR.
2. SLACK SPAN CONSTRUCTION LIMITED TO MAXIMUM OF 100' SPAN.
3. WHEN USED AT TOP OF POLE, INSTALL MACHINE BOLT 4" DOWN FROM TOP OF POLE

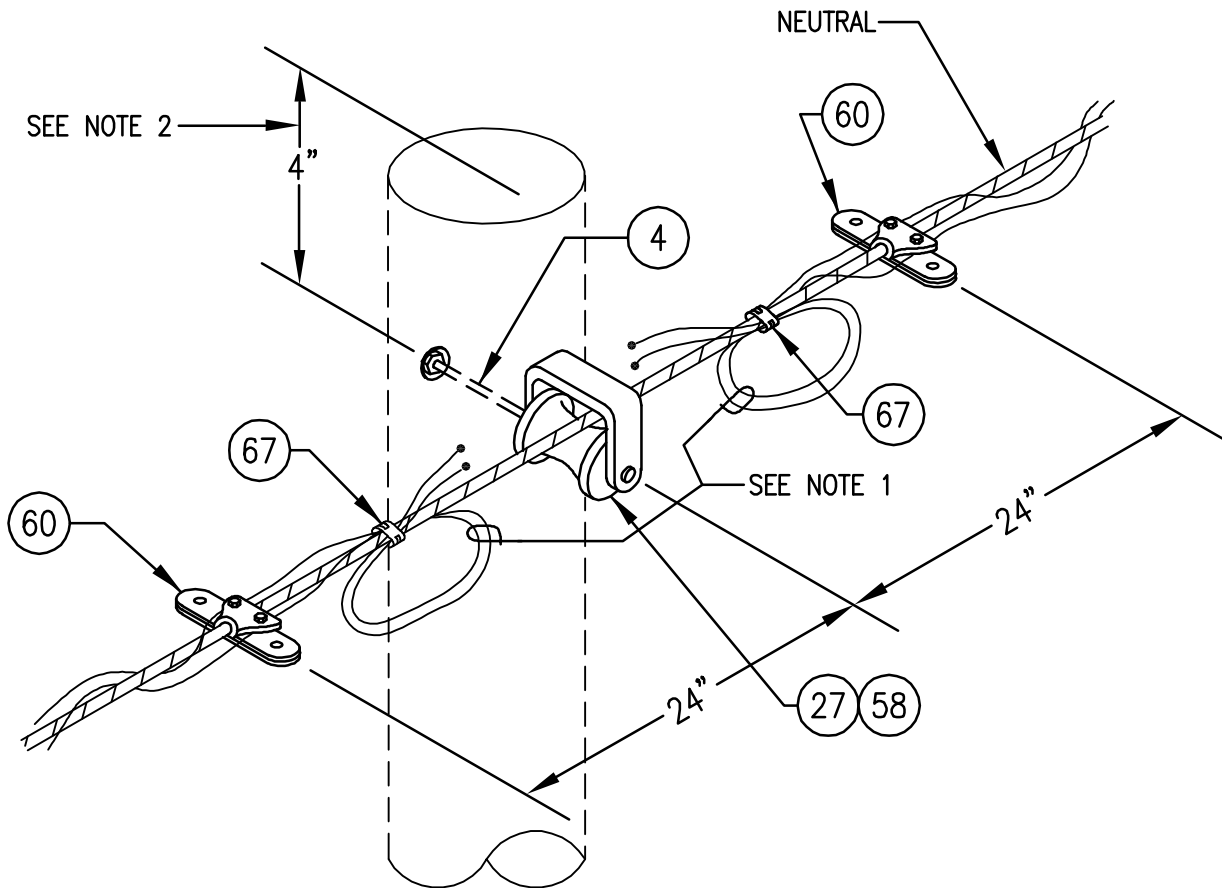


ST-SLACK, SQ-SLACK, ST-A, SQ-A
(0-600V)

SKETCH DATE

JUNE 2002 | STYLE

OH-38



NOTES

1. COIL CONDUCTORS SO THEY WILL BE LONG ENOUGH TO BE JOINED AND SPLICED TOGETHER.
2. WHEN USED AT TOP OF POLE, INSTALL MACHINE BOLT 4" DOWN FROM TOP OF POLE.

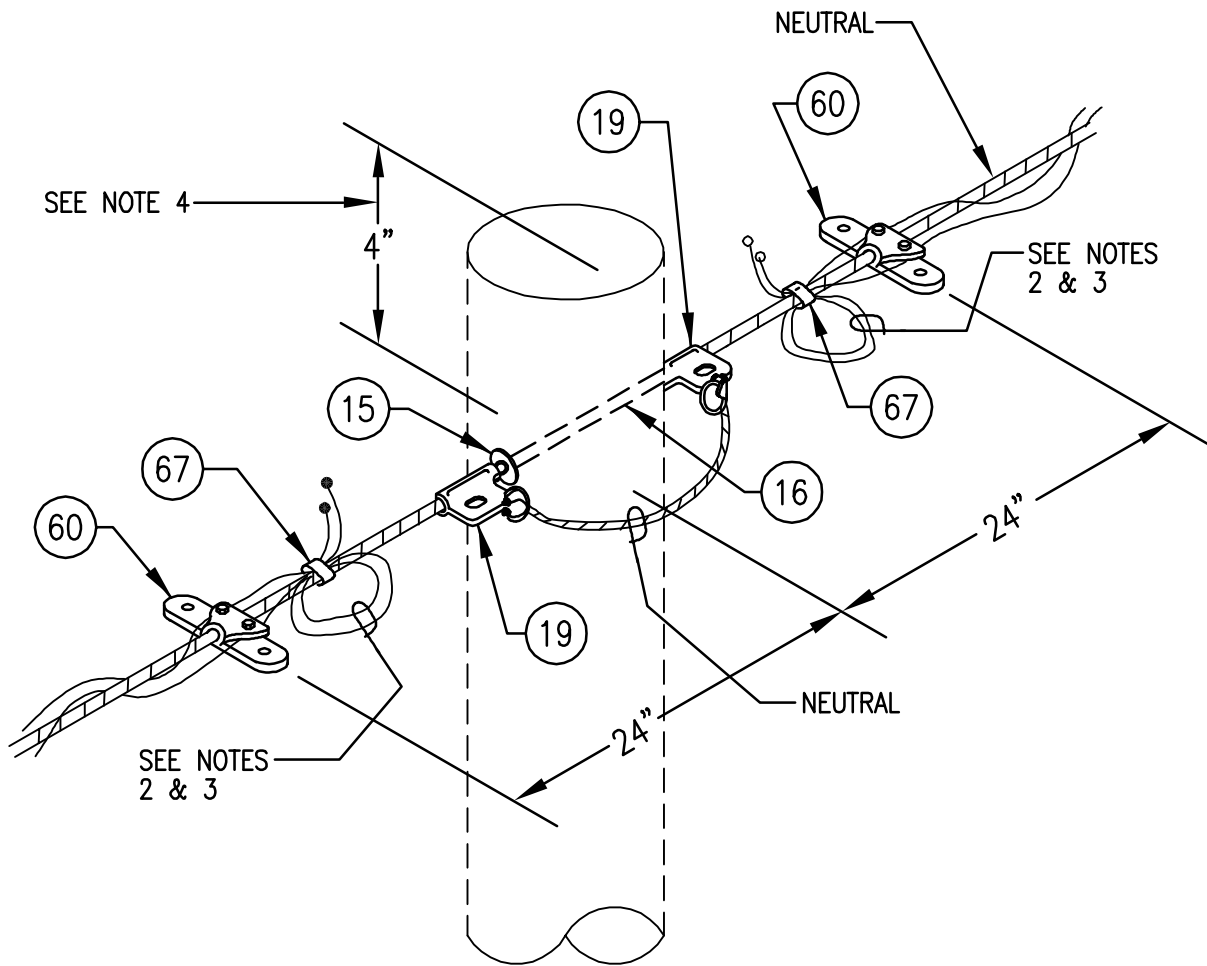
STDDE (TANGENT), SQDDE (TANGENT)
(0-600V)

SKETCH DATE

JUNE 2002

STYLE

OH-39



NOTES

1. DRAWING REPRESENTS A STDDE OR SQDDE. OMIT ONE EACH OF ITEMS (19) (60) AND (67) FOR USE WITH STDE OR SQDE.
2. CABLE MAY EXTEND ON THROUGH WITHOUT BEING CUT, WHEN REQUIRED.
3. COIL CONDUCTORS SO THEY WILL BE LONG ENOUGH TO BE JOINED AND SPLICED TOGETHER.
4. WHEN USED AT TOP OF POLE, INSTALL MACHINE BOLT 4" DOWN FROM TOP OF POLE.

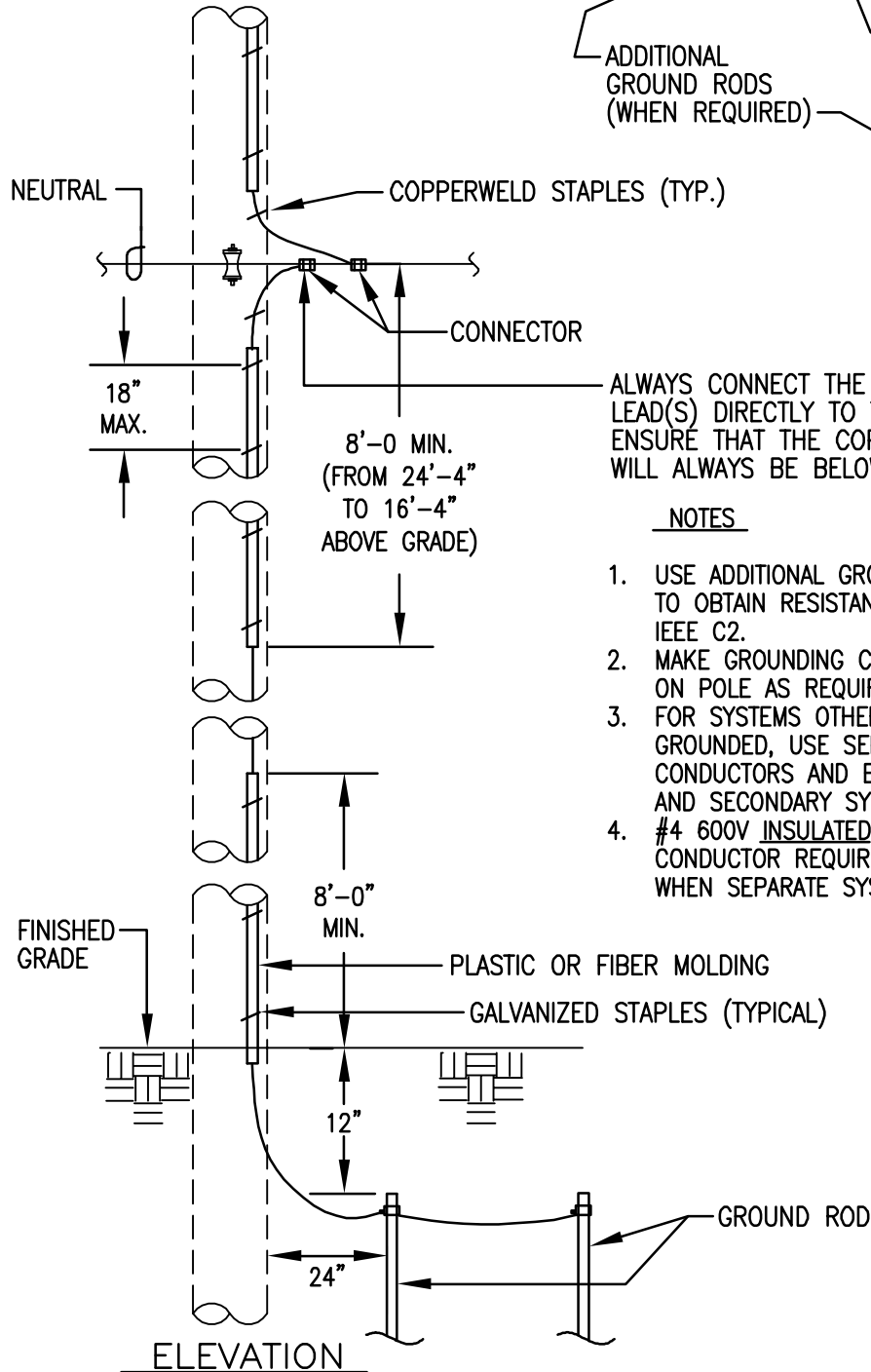
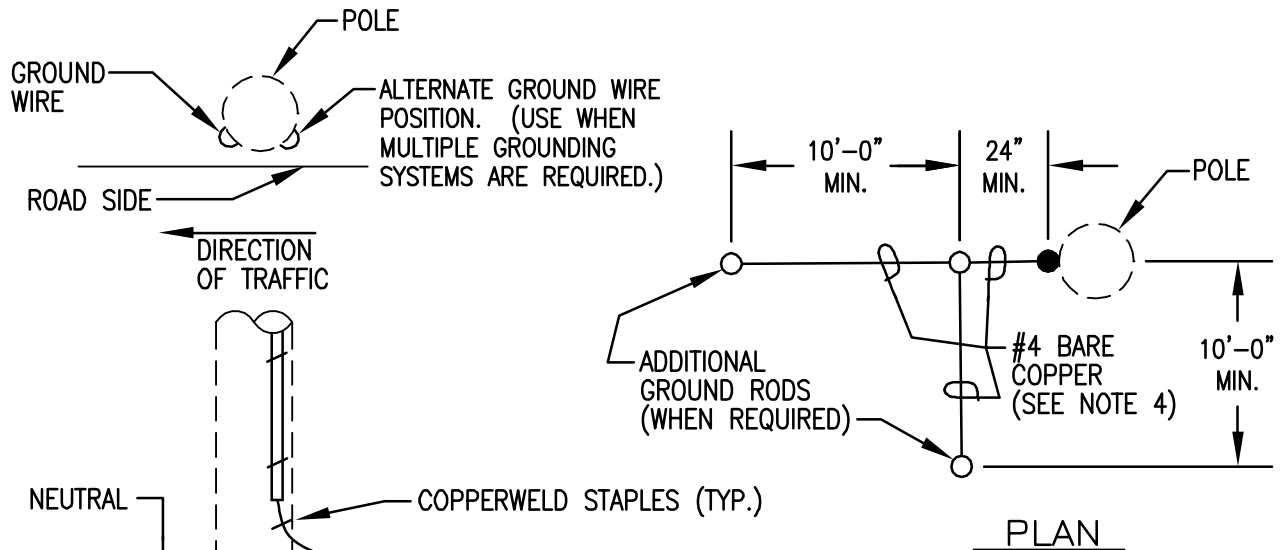
STDDE, SQDDE, STDE, SQDE
(0-600V)

SKETCH DATE

JUNE 2002

STYLE

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ALWAYS CONNECT THE POLE GROUND LEAD(S) DIRECTLY TO THE NEUTRAL—ENSURE THAT THE COPPER CONDUCTOR WILL ALWAYS BE BELOW THE ALUMINUM.

NOTES

1. USE ADDITIONAL GROUND RODS, WHEN REQUIRED, TO OBTAIN RESISTANCE VALUE, AS REQUIRED BY IEEE C2.
2. MAKE GROUNDING CONNECTIONS TO ALL EQUIPMENT ON POLE AS REQUIRED BY IEEE C2.
3. FOR SYSTEMS OTHER THAN 4 WIRE, MULTI-GROUNDED, USE SEPARATE GROUNDING CONDUCTORS AND ELECTRODES FOR PRIMARY AND SECONDARY SYSTEM DEVICE CONNECTIONS.
4. #4 600V INSULATED COPPER GROUNDING CONDUCTOR REQUIRED ON PRIMARY SYSTEM WHEN SEPARATE SYSTEMS ARE REQUIRED.

GROUND

SKETCH DATE

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STYLE

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