

CU Type: UC_POLE

CUs limited to 17 characters

Transmission Framing 'TQ' CU Coding Format and Naming Convention

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th
U	X1	P	T	-	T	Q	-	X2	X3	-	X4	X5	-	X6		

X1	OpCo
2	NYSEG
3	CMP
4	RG&E

X2	Voltage
1	115kV
2	230kV
3	345kV
4	46kV
5	35kV
6	69kV
9	multiple use

X3	Brace Material
W	WOOD
L	LAMINATED
S	STEEL
F	FIBERGLASS

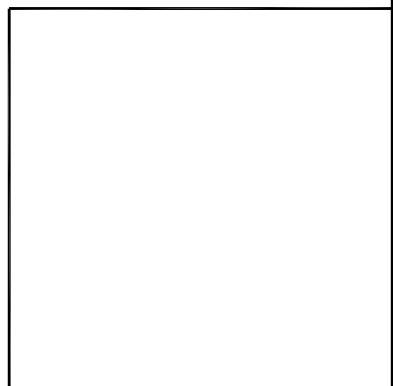
X4	Framing Application
X	Standard X-Brace on round wood 2-pole
H	Heavy Duty X-Brace on round wood 2-pole
Y	Set of X-Braces on round wood 3-pole
Z	Set of HD X-Braces on round wood 3-pole
L	X-Brace on laminated 2-pole
M	Set of X-Braces on laminated 3-pole
B	Crossarm Brace
K	Knee Brace
V	Vee Brace

X5	Dimensional Spacing
10	10' pole spacing
11	11' pole spacing
12	12' pole spacing
14	14' pole spacing
20	19'-6" or 20'-0" pole spacing
21	21' pole spacing
26	26' pole spacing
28	28' pole spacing
31	31' pole spacing
33	33' pole spacing
63	Brace: 60" Span 30" Drop

X6	Qualifier
A	single brace
B	double braces
C	triple braces
D	quad braces
Z	1 Standard X-Brace & 1 Heavy Duty X-Brace

CU Examples:

U3PT-TQ-1W-X14-B =
 (2) 115kV Wood X-Braces
 on round wood structure
 with 14' Pole Spacing
 for CMP usage




CU Function: U_TL69 for 35kV & 46kV, U_TG69 for 69kV through 344kV, U_T345 for 345kV & greater.

For correct CU: substitute 2 for NYSEG, 3 for CMP or 4 for RG&E in place of asterisk (U*_).

Contact Engineering Standards - Transmission for the creation of new standards and CUs.

Drawing Scale: N/A

	IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL	TRANSMISSION FRAMING DETAILS STANDARD CU FORMAT AND NAMING CONVENTION				Revision
						00
						DATE
						10/28/2015
Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:	TM2.23.TQ-CU
L.A. Best	10/17/2013	Shepard/Becken/Hart	10/28/2015	Barry R. Hart	10/28/2015	
						Sheet 1

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ANSI A
8-1/2" X 11"

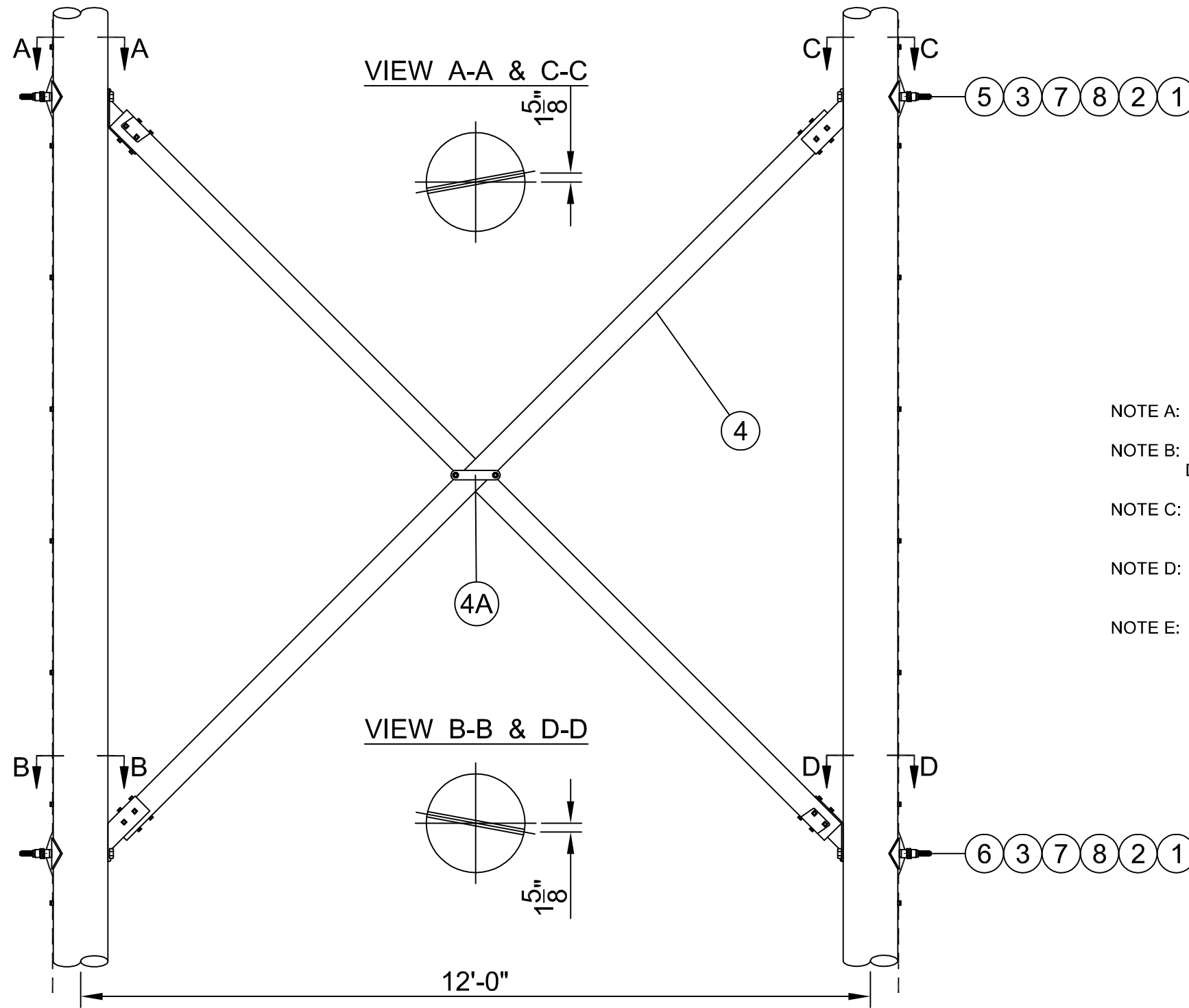
CU Type:
UC_POLE

BILL OF MATERIAL

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*PT-TQ-1W-X12-A
1	4	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	4	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	4	ST	30919391	WSHR CRVD 4 SQ 3/8 THK 15/16 HOLE
4	1	ST	30924058	XBRC WD 3-3/8 X 4-5/8 12F PS
4A				- INCLUDES 1 CNTR CLMP ASSY HUGHES 2840-A
5	2	ST	30919194	BOLT SQHD GALV SQNT 7/8 X 20
6	2	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22
7	4	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
8	4	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8

CU Function:
U_TL69 for 35kV & 46kV, U_TG69 for 69kV through 344kV, U_T345 for 345kV & greater.

For correct CU:
substitute 2 for NYSEG, 3 for CMP or 4 for RG&E in place of asterisk (U*_).



NOTE A: POLE DRILLING: ALL HOLES 15/16" DIAMETER.

NOTE B: ACTUAL POLE DRILLING MAY VARY DEPENDING ON MANUFACTURER'S END FITTING DESIGN. SEE VENDOR DRAWINGS FOR DETAILS ON SPECIFIC END FITTINGS.

NOTE C: ATTACH BOTH TOP BOLTS INTO POSITIONED X-BRACE, LINE UP HOLES IN OTHER END AGAINST POLE, MARK AND DRILL.

NOTE D: IF A SECOND X-BRACE IS NEEDED ON THE STRUCTURE, INSTALL THE TOP BOLT OF THE SECOND X-BRACE 1'-6" BELOW THE BOTTOM BOLT OF THE FIRST X-BRACE.

NOTE E: LONGER OR SHORTER BOLTS MAY BE REQUIRED DEPENDING ON THE ACTUAL DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN ON THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION FOR ASSISTANCE.

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ANSIB 11" X 17"

Contact Engineering Standards - Transmission for the creation of new standards and CUs.				Drawing Scale: 1/2" = 1'-0"	
	IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL	TRANSMISSION FRAMING DETAILS 115kV STANDARD WOOD X-BRACE 12'-0" POLE SPACING ON ROUND WOOD POLES			Revision
					00
				Date	10/28/2015
Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
L.A. Best	7/6/2012	Shepard/Becken/Hart	10/12/2015	Barry R. Hart	10/28/2015
TM2.23.TQ-1W-X12					Sheet 1

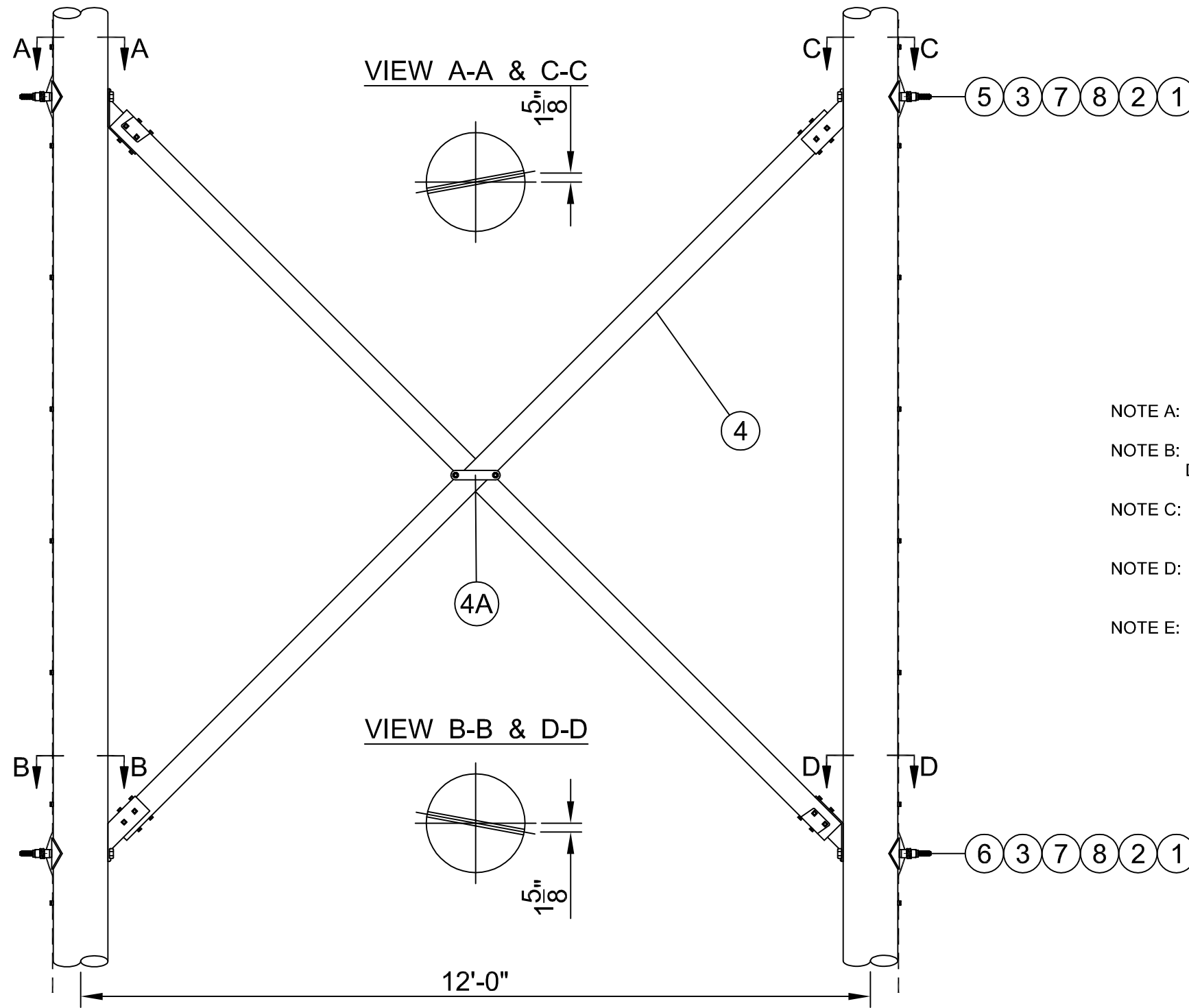
CU Type:
UC_POLE

BILL OF MATERIAL

ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*PT-TQ-1W-X12-A
1	4	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	4	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	4	ST	30919391	WSHR CRVD 4 SQ 3/8 THK 15/16 HOLE
4	1	ST	30924058	XBRC WD 3-3/8 X 4-5/8 12F PS
4A				- INCLUDES 1 CNTR CLMP ASSY HUGHES 2840-A
5	2	ST	30919194	BOLT SQHD GALV SQNT 7/8 X 20
6	2	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22
7	4	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
8	4	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8

CU Function:
U_TL69 for 35kV & 46kV, U_TG69 for 69kV through 344kV, U_T345 for 345kV & greater.

For correct CU:
substitute 2 for NYSEG, 3 for CMP or 4 for RG&E in place of asterisk (U*_).



NOTE A: POLE DRILLING: ALL HOLES 15/16" DIAMETER.

NOTE B: ACTUAL POLE DRILLING MAY VARY DEPENDING ON MANUFACTURER'S END FITTING DESIGN. SEE VENDOR DRAWINGS FOR DETAILS ON SPECIFIC END FITTINGS.

NOTE C: ATTACH BOTH TOP BOLTS INTO POSITIONED X-BRACE, LINE UP HOLES IN OTHER END AGAINST POLE, MARK AND DRILL.

NOTE D: IF A SECOND X-BRACE IS NEEDED ON THE STRUCTURE, INSTALL THE TOP BOLT OF THE SECOND X-BRACE 1'-6" BELOW THE BOTTOM BOLT OF THE FIRST X-BRACE.

NOTE E: LONGER OR SHORTER BOLTS MAY BE REQUIRED DEPENDING ON THE ACTUAL DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN ON THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION FOR ASSISTANCE.

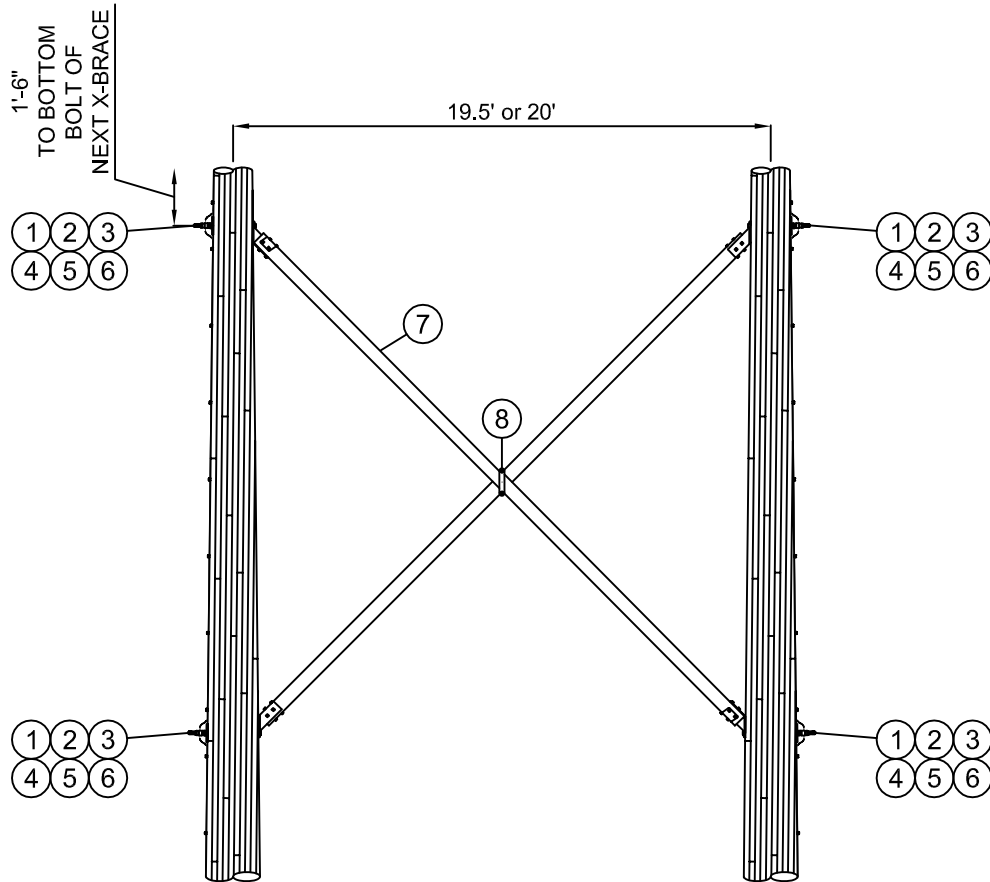
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ANSIB 11" X 17"

Contact Engineering Standards - Transmission for the creation of new standards and CUs.				Drawing Scale: 1/2" = 1'-0"	
	IBERDROLA USA TRANSMISSION CONSTRUCTION STANDARDS MANUAL	TRANSMISSION FRAMING DETAILS 115kV STANDARD WOOD X-BRACE 12'-0" POLE SPACING ON ROUND WOOD POLES			Revision
					00
				Date	10/28/2015
Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
L.A. Best	7/6/2012	Shepard/Becken/Hart	10/12/2015	Barry R. Hart	10/28/2015
TM2.23.TQ-1W-X12					Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-2W-L20-A
1	4	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	4	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	4	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	4	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	4	ST	30919368	WSHR FLAT 4 SQ 1/4 THK 15/16 HOLE
6	4	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	1	ST	30924060	XBRC WD 4-5/8 X 5-3/4 19F6 PS
8	1	ST	30923712	XBRC CENTER CLAMP 4-5/8 X 5-3/4 STRAP



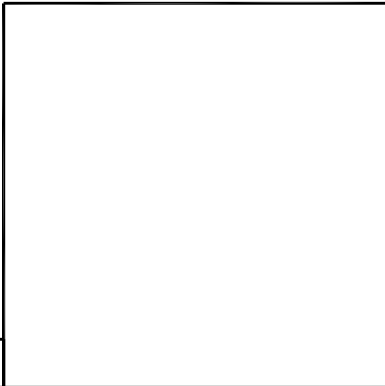
CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: IF THE LAMINATED WOOD POLES HAVE A SPLICE AND THE ABOVE DIMENSIONS CAUSE X-BRACE MOUNTING BOLTS TO BE WITHIN 12" OF THE SPLICE PLATES THE INSTALLATION LOCATION OF THE X-BRACES SHALL BE FIELD MODIFIED DOWN THE POLE SUCH THAT THE NEAREST X-BRACE MOUNTING BOLT IS 12" FROM THE SPLICE PLATES.

NOTE C: 230KV H-FRAME STRUCTURES USING POLES 80' LONG OR LONGER SHALL REQUIRE A SECOND CROSS-BRACE.



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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 5'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
230KV X-BRACING
19.5' OR 20' POLE SPACING
LAMINATED POLES**

REVISION
01
DATE
10/06/2015

Drwn. By: B. Franklin
Date Dr.: 10/04/2013

Checked By: Becken/Hart

Date Ck.: 3/05/2015

Approved By: Barry R. Hart

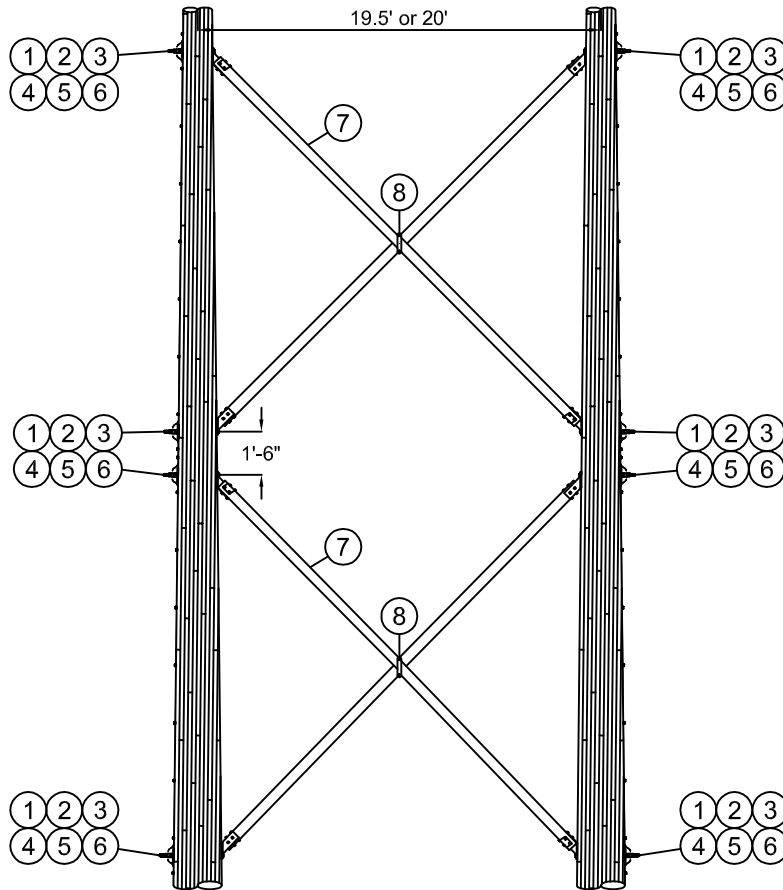
Date App.: 3/19/2015

TM2.23.TQ-2W-L20-A

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-2W-L20-B
1	8	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	8	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	8	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	8	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	8	ST	30919368	WSHR FLAT 4 SQ 1/4 THK 15/16 HOLE
6	8	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	2	ST	30924060	XBRC WD 4-5/8 X 5-3/4 19F6 PS
8	2	ST	30923712	XBRC CENTER CLAMP 4-5/8 X 5-3/4 STRAP



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: IF THE LAMINATED WOOD POLES HAVE A SPLICE AND THE ABOVE DIMENSIONS CAUSE X-BRACE MOUNTING BOLTS TO BE WITHIN 12" OF THE SPLICE PLATES THE INSTALLATION LOCATION OF THE X-BRACES SHALL BE FIELD MODIFIED DOWN THE POLE SUCH THAT THE NEAREST X-BRACE MOUNTING BOLT IS 12" FROM THE SPLICE PLATES.

NOTE C: 230KV H-FRAME STRUCTURES USING POLES 80' LONG OR LONGER SHALL REQUIRE TWO (2) CROSS-BRACES.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
230KV X-BRACING - 2 X-BRACES
19.5' OR 20' POLE SPACING
LAMINATED POLES**

REVISION
01
DATE
10/06/2015

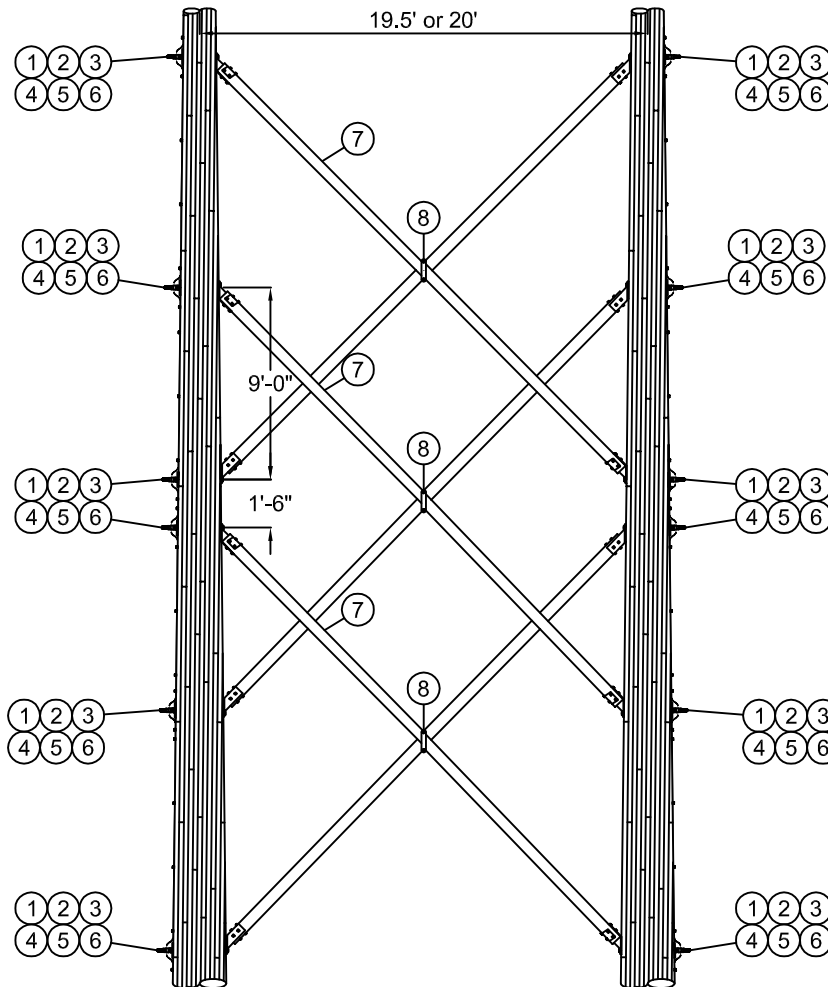
Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
B. Franklin	10/17/2013	Shepard/Becken/Hart	3/05/2015	Barry R. Hart	3/19/2015

TM2.23.TQ-2W-L20-B

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-2W-L20-C
1	12	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	12	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	12	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	12	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	12	ST	30919368	WSHR FLAT 4 SQ 1/4 THK 15/16 HOLE
6	12	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	3	ST	30924060	XBRC WD 4-5/8 X 5-3/4 19F6 PS
8	3	ST	30923712	XBRC CENTER CLAMP 4-5/8 X 5-3/4 STRAP



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: IF THE LAMINATED WOOD POLES HAVE A SPLICE AND THE ABOVE DIMENSIONS CAUSE X-BRACE MOUNTING BOLTS TO BE WITHIN 12" OF THE SPLICE PLATES THE INSTALLATION LOCATION OF THE X-BRACES SHALL BE FIELD MODIFIED DOWN THE POLE SUCH THAT THE NEAREST X-BRACE MOUNTING BOLT IS 12" FROM THE SPLICE PLATES.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
230KV X-BRACING - 3 X-BRACES
19.5' OR 20' POLE SPACING
LAMINATED POLES**

REVISION
01
DATE
10/06/2015

Drwn. By: B. Franklin
Date Dr.: 7/30/2014

Checked By: Becken/Hart

Date Ck.: 3/05/2015

Approved By: Barry R. Hart

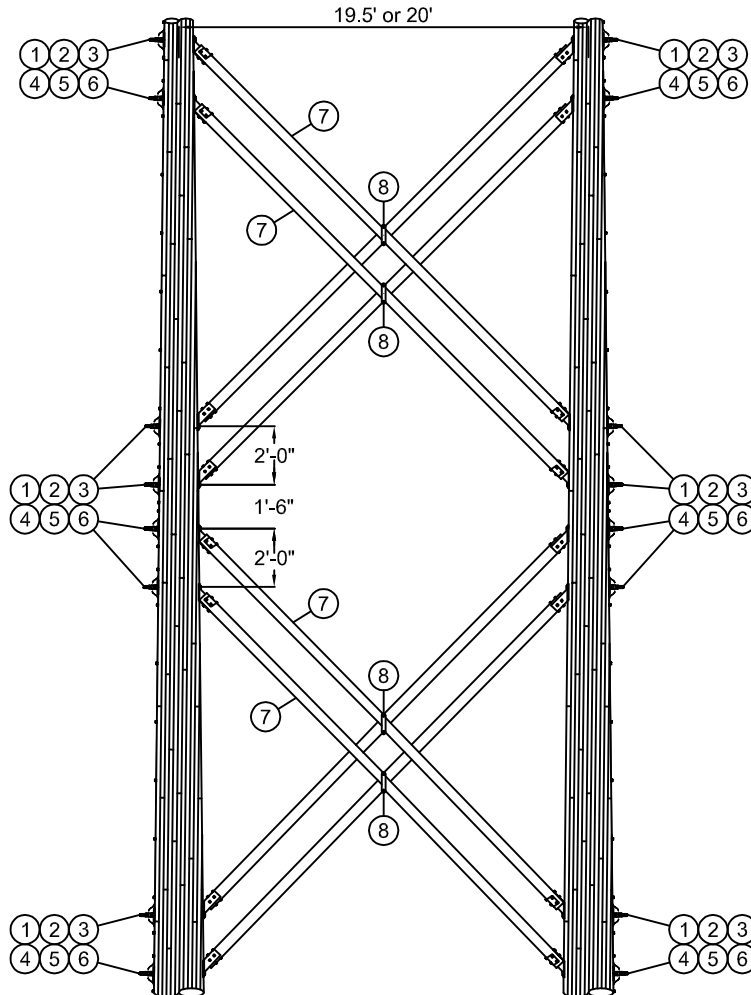
Date App.: 3/19/2015

TM2.23.TQ-2W-L20-C

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-2W-L20-D
1	16	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	16	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	16	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	16	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	16	ST	30919368	WSHR FLAT 4 SQ 1/4 THK 15/16 HOLE
6	16	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	4	ST	30924060	XBRC WD 4-5/8 X 5-3/4 19F6 PS
8	4	ST	30923712	XBRC CENTER CLAMP 4-5/8 X 5-3/4 STRAP



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U_).

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**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
230KV X-BRACING - 4 X-BRACES
19.5' OR 20' POLE SPACING
LAMINATED POLES**

REVISION
01
DATE
10/06/2015

Drwn. By: B. Franklin
Date Dr.: 8/07/2014

Checked By: Becken/Hart

Date Ck.: 3/05/2015

Approved By: Barry R. Hart

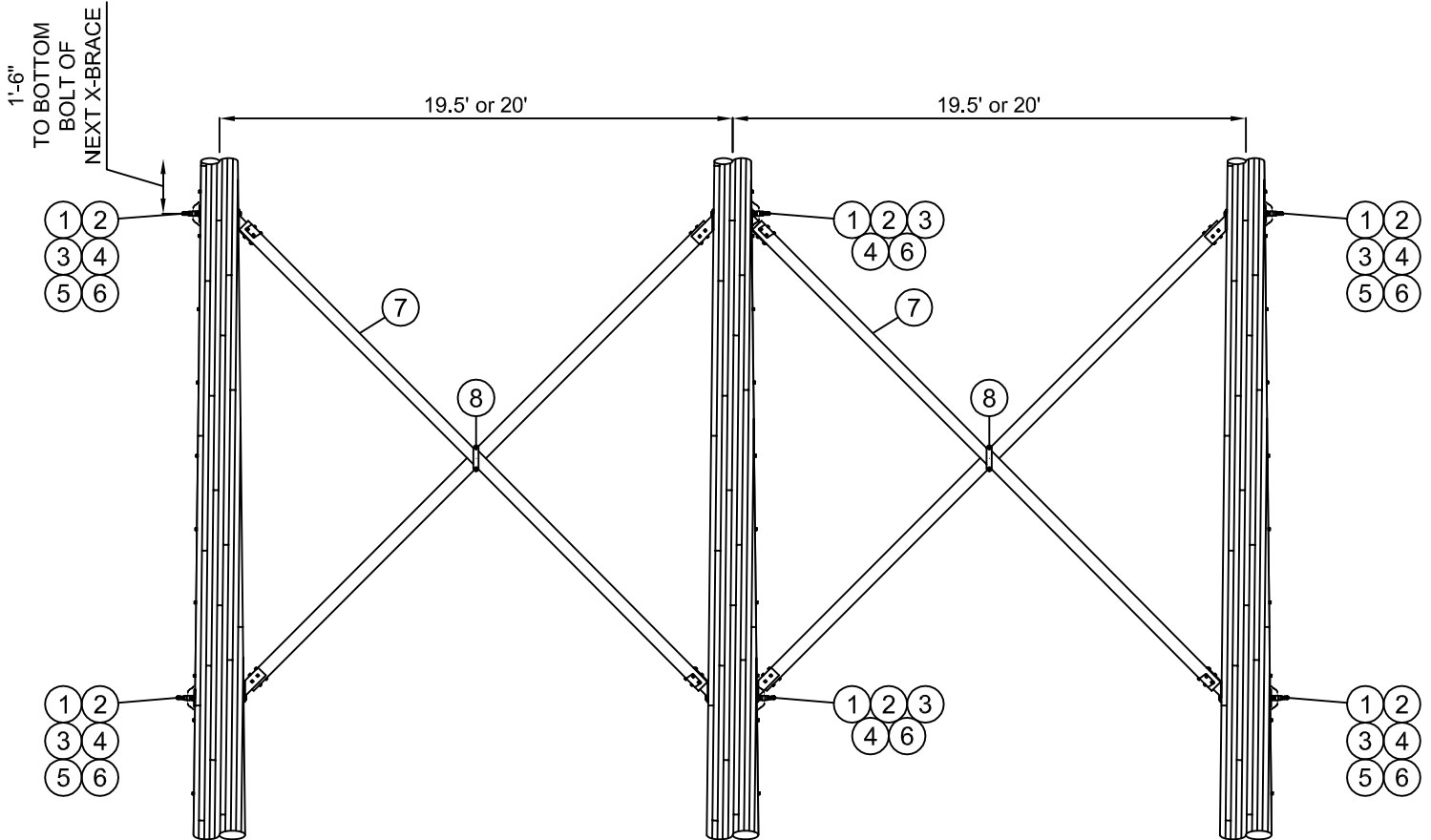
Date App.: 3/19/2015

TM2.23.TQ-2W-L20-D

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-2W-M20-A
1	6	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	6	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	6	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	6	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	4	ST	30919368	WSHR FLAT 4 SQ 1/4 THK 15/16 HOLE
6	6	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	2	ST	30924060	XBRC WD 4-5/8 X 5-3/4 19F6 PS
8	2	ST	30923712	XBRC CENTER CLAMP 4-5/8 X 5-3/4 STRAP



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

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NOTE C: 230KV H-FRAME STRUCTURES USING POLES 80' LONG OR LONGER SHALL REQUIRE A SECOND CROSS-BRACE.

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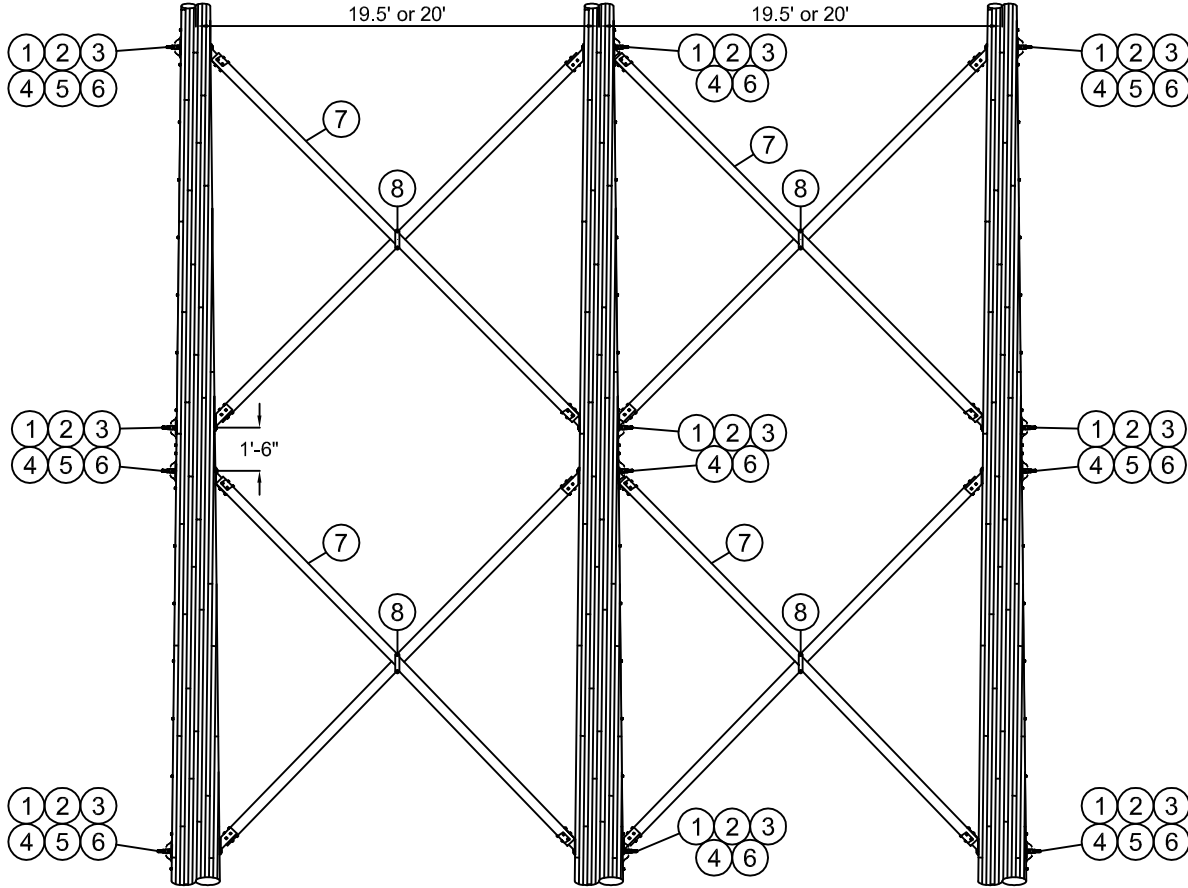
Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 5'

	TRANSMISSION CONSTRUCTION STANDARDS MANUAL	STRUCTURE STANDARDS 230KV X-BRACING 19.5' OR 20' POLE SPACING - 3-POLE STRUCTURE LAMINATED POLES	REVISION
			01
			DATE
			10/06/2015
Drwn. By:	Date Dr.:	Checked By:	Date Ck.:
B. Franklin	8/15/2014	Becken/Hart	3/05/2015
Approved By:	Date App.:	TM2.23.TQ-2W-M20-A	
Barry R. Hart	3/19/2015	Sheet 1	

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-2W-M20-B
1	12	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	12	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	12	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	12	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	8	ST	30919368	WSHR FLAT 4 SQ 1/4 THK 15/16 HOLE
6	12	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	4	ST	30924060	XBRC WD 4-5/8 X 5-3/4 19F6 PS
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CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: IF THE LAMINATED WOOD POLES HAVE A SPLICE AND THE ABOVE DIMENSIONS CAUSE X-BRACE MOUNTING BOLTS TO BE WITHIN 12" OF THE SPLICE PLATES THE INSTALLATION LOCATION OF THE X-BRACES SHALL BE FIELD MODIFIED DOWN THE POLE SUCH THAT THE NEAREST X-BRACE MOUNTING BOLT IS 12" FROM THE SPLICE PLATES.

NOTE C: 230KV H-FRAME STRUCTURES USING POLES 80' LONG OR LONGER SHALL REQUIRE TWO (2) CROSS-BRACES.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
230KV X-BRACING - 2 SETS OF X-BRACES
19.5' OR 20' POLE SPACING - 3-POLE STRUCTURE
LAMINATED POLES**

REVISION
01
DATE
10/06/2015

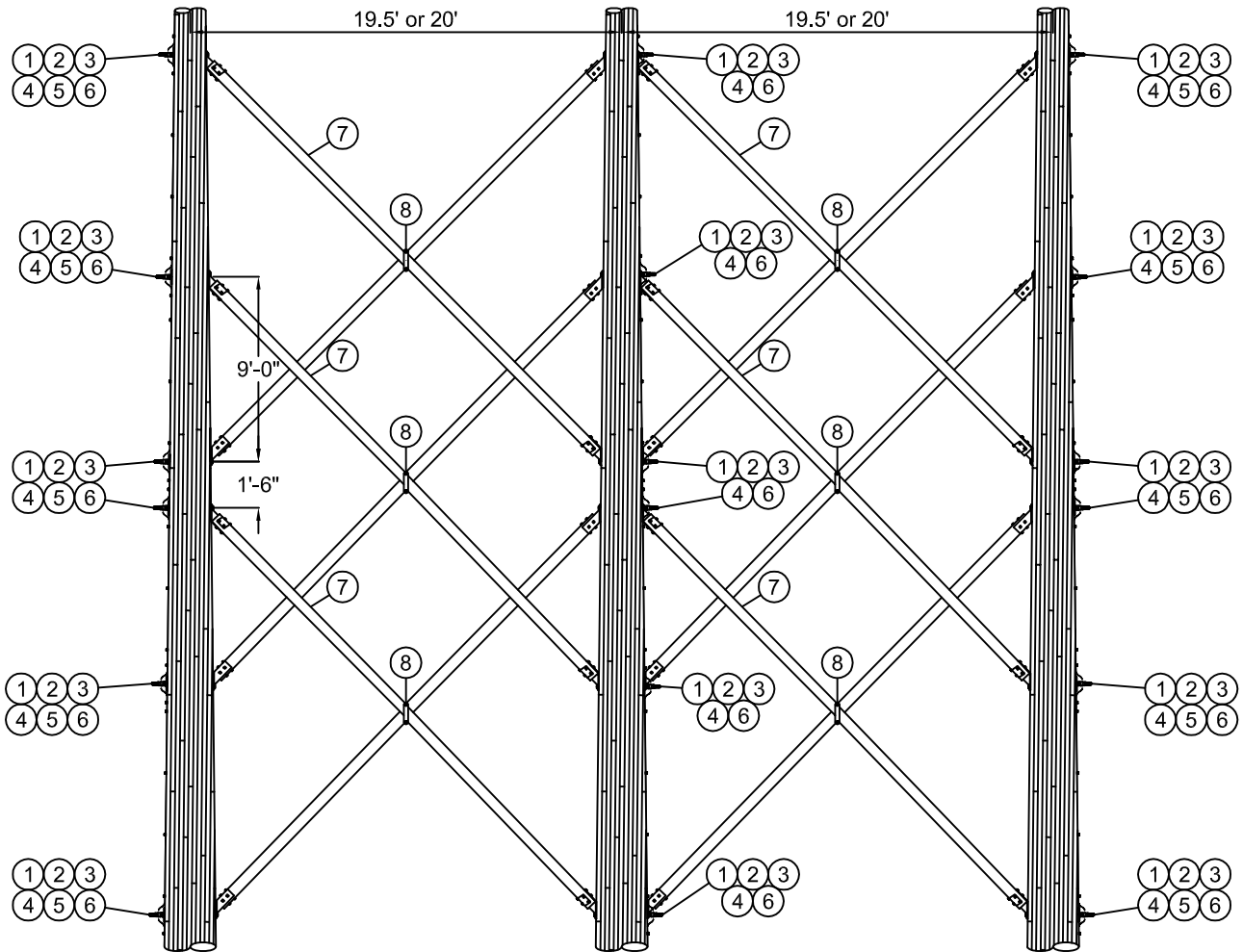
Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
B. Franklin	8/15/2014	Becken/Hart	3/05/2015	Barry R. Hart	3/19/2015

TM2.23.TQ-2W-M20-B

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-2W-M20-C
1	18	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	18	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	18	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	18	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	12	ST	30919368	WSHR FLAT 4 SQ 1/4 THK 15/16 HOLE
6	18	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	6	ST	30924060	XBRC WD 4-5/8 X 5-3/4 19F6 PS
8	6	ST	30923712	XBRC CENTER CLAMP 4-5/8 X 5-3/4 STRAP



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: IF THE LAMINATED WOOD POLES HAVE A SPLICE AND THE ABOVE DIMENSIONS CAUSE X-BRACE MOUNTING BOLTS TO BE WITHIN 12" OF THE SPLICE PLATES THE INSTALLATION LOCATION OF THE X-BRACES SHALL BE FIELD MODIFIED DOWN THE POLE SUCH THAT THE NEAREST X-BRACE MOUNTING BOLT IS 12" FROM THE SPLICE PLATES.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

STRUCTURE STANDARDS
230KV X-BRACING - 3 SETS OF X-BRACES
19.5' OR 20' POLE SPACING - 3-POLE STRUCTURE
LAMINATED POLES

REVISION
01
DATE
10/06/2015

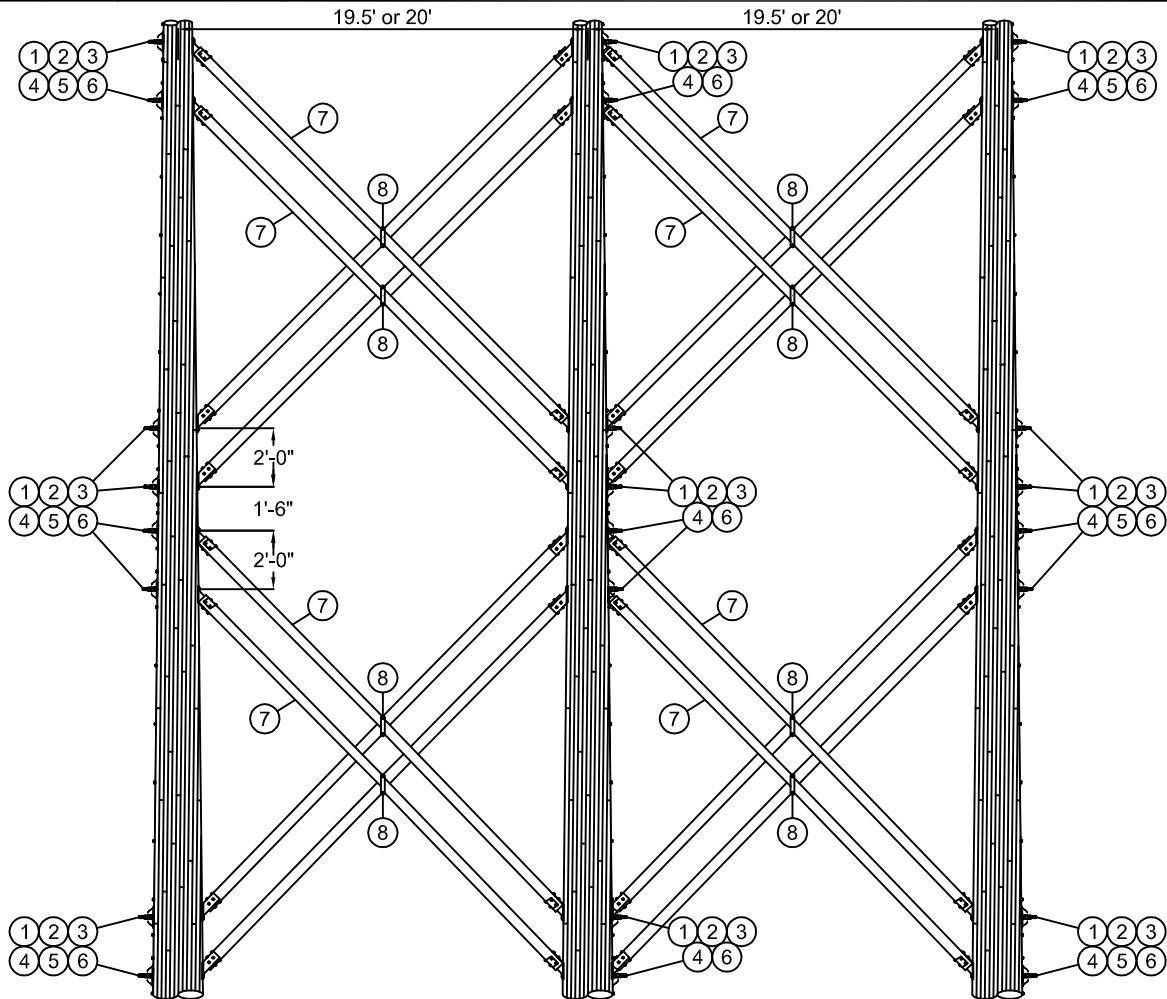
Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
B. Franklin	8/15/2014	Becken/Hart	3/05/2015	Barry R. Hart	3/19/2015

TM2.23.TQ-2W-M20-C

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-2W-M20-D
1	24	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	24	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	24	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	24	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	16	ST	30919368	WSHR FLAT 4 SQ 1/4 THK 15/16 HOLE
6	24	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	8	ST	30924060	XBRC WD 4-5/8 X 5-3/4 19F6 PS
8	8	ST	30923712	XBRC CENTER CLAMP 4-5/8 X 5-3/4 STRAP



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: IF THE LAMINATED WOOD POLES HAVE A SPLICE AND THE ABOVE DIMENSIONS CAUSE X-BRACE MOUNTING BOLTS TO BE WITHIN 12" OF THE SPLICE PLATES THE INSTALLATION LOCATION OF THE X-BRACES SHALL BE FIELD MODIFIED DOWN THE POLE SUCH THAT THE NEAREST X-BRACE MOUNTING BOLT IS 12" FROM THE SPLICE PLATES.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

STRUCTURE STANDARDS
230KV X-BRACING - 4 SETS OF X-BRACES
19.5' OR 20' POLE SPACING - 3-POLE STRUCTURE
LAMINATED POLES

REVISION
01
DATE
10/06/2015

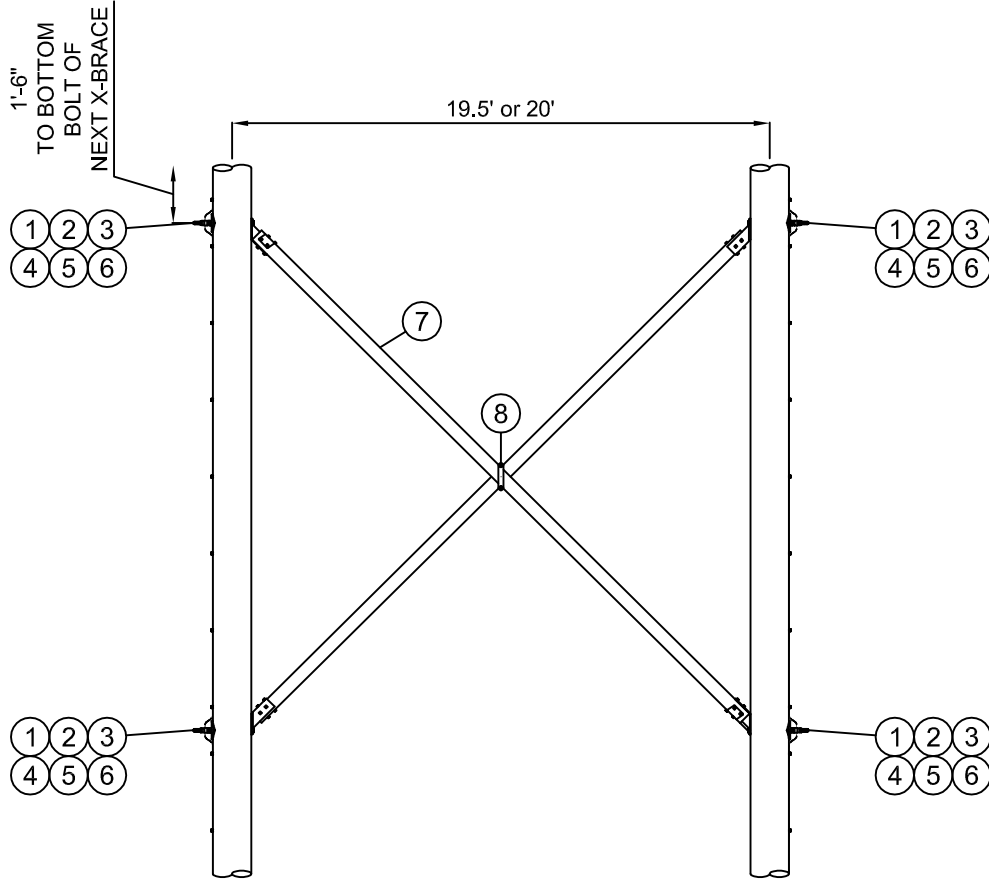
Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
B. Franklin	8/15/2014	Becken/Hart	3/05/2015	Barry R. Hart	3/19/2015

TM2.23.TQ-2W-M20-D

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-2W-X20-A
1	4	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	4	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	4	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	4	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	4	ST	30919393	WSHR CRVD CAST 4 SQ 7/16 THK 15/16 HOLE
6	4	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	1	ST	30924060	XBRC WD 4-5/8 X 5-3/4 19F6 PS
8	1	ST	30923712	XBRC CENTER CLAMP 4-5/8 X 5-3/4 STRAP



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: 230KV H-FRAME STRUCTURES USING POLES 80' LONG OR LONGER SHALL REQUIRE A SECOND CROSS-BRACE.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 5'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
230KV X-BRACING
19.5' & 20' POLE SPACING
ROUND WOOD POLES**

REVISION
01
DATE
10/14/2015

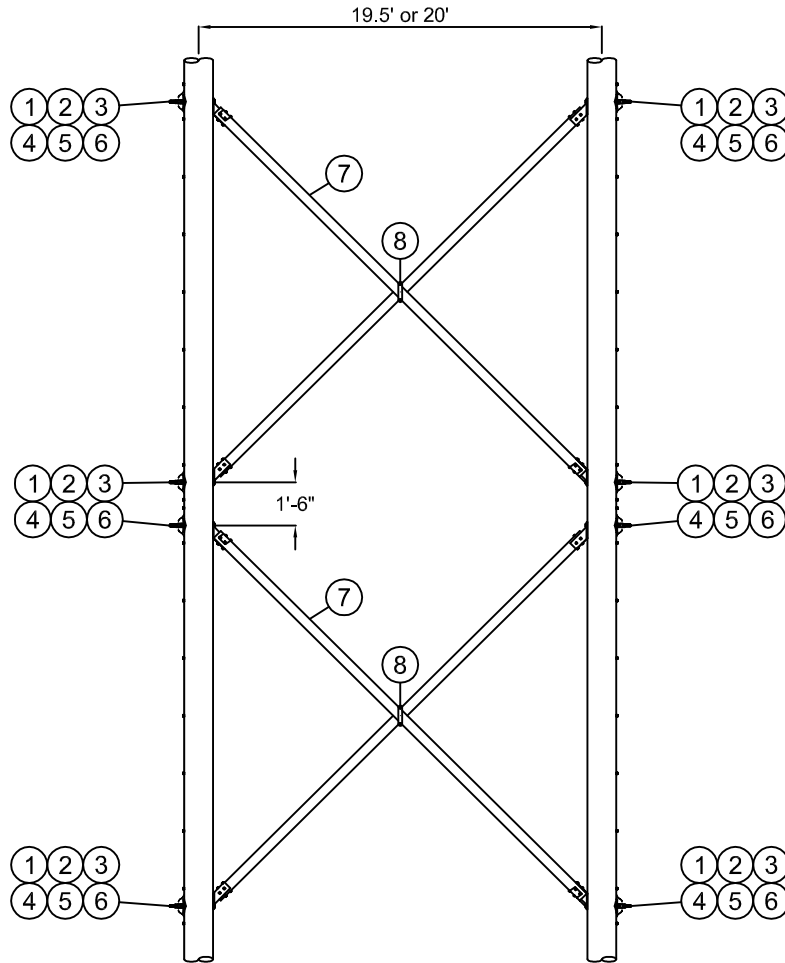
Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
C. Gauvin	10/04/2013	Becken/Hart	3/05/2015	Barry R. Hart	3/26/2015

TM2.23.TQ-2W-X20-A

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-2W-X20-B
1	8	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	8	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	8	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	8	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	8	ST	30919393	WSHR CRVD CAST 4 SQ 7/16 THK 15/16 HOLE
6	8	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	2	ST	30924060	XBRC WD 4-5/8 X 5-3/4 19F6 PS
8	2	ST	30923712	XBRC CENTER CLAMP 4-5/8 X 5-3/4 STRAP



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: 230KV H-FRAME STRUCTURES USING POLES 80' LONG OR LONGER SHALL REQUIRE A SECOND CROSS-BRACE.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
230KV X-BRACING - 2 X-BRACES
19.5' & 20' POLE SPACING
ROUND WOOD POLES**

REVISION
01
DATE
10/14/2015

Drwn. By: C. Gauvin
Date Dr.: 10/15/2013

Checked By: Becken/Hart

Date Ck.: 3/05/2015

Approved By: Barry R. Hart

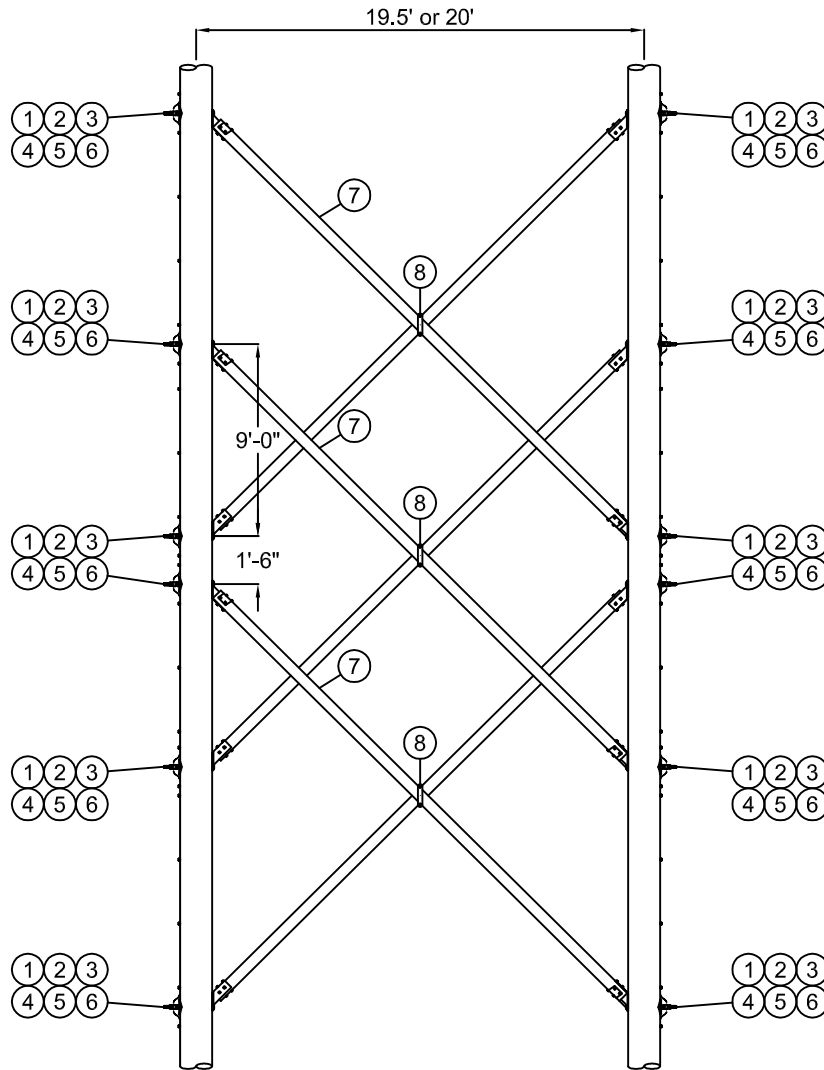
Date App.: 3/26/2015

TM2.23.TQ-2W-X20-B

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-2W-X20-C
1	12	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	12	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	12	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	12	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	12	ST	30919393	WSHR CRVD CAST 4 SQ 7/16 THK 15/16 HOLE
6	12	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	3	ST	30924060	XBRC WD 4-5/8 X 5-3/4 19F6 PS
8	3	ST	30923712	XBRC CENTER CLAMP 4-5/8 X 5-3/4 STRAP



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
230KV X-BRACING - 3 X-BRACES
19.5' & 20' POLE SPACING
ROUND WOOD POLES**

REVISION
01
DATE
10/14/2015

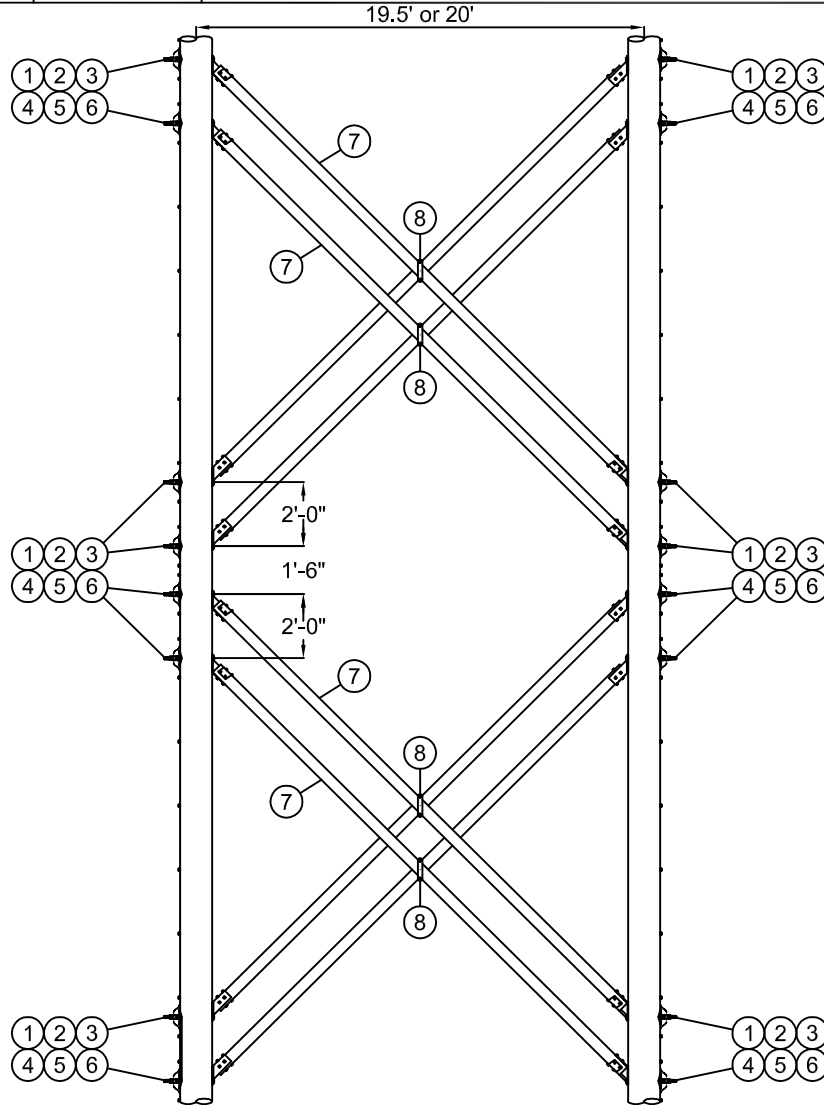
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C. Gauvin	7/30/2014	Becken/Hart	3/05/2015	Barry R. Hart	3/26/2015

TM2.23.TQ-2W-X20-C

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-2W-X20-D
1	16	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	16	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	16	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	16	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	16	ST	30919393	WSHR CRVD CAST 4 SQ 7/16 THK 15/16 HOLE
6	16	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	4	ST	30924060	XBRC WD 4-5/8 X 5-3/4 19F6 PS
8	4	ST	30923712	XBRC CENTER CLAMP 4-5/8 X 5-3/4 STRAP



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
230KV X-BRACING - 4 X-BRACES
19.5' & 20' POLE SPACING
ROUND WOOD POLES**

REVISION
01
DATE
10/14/2015

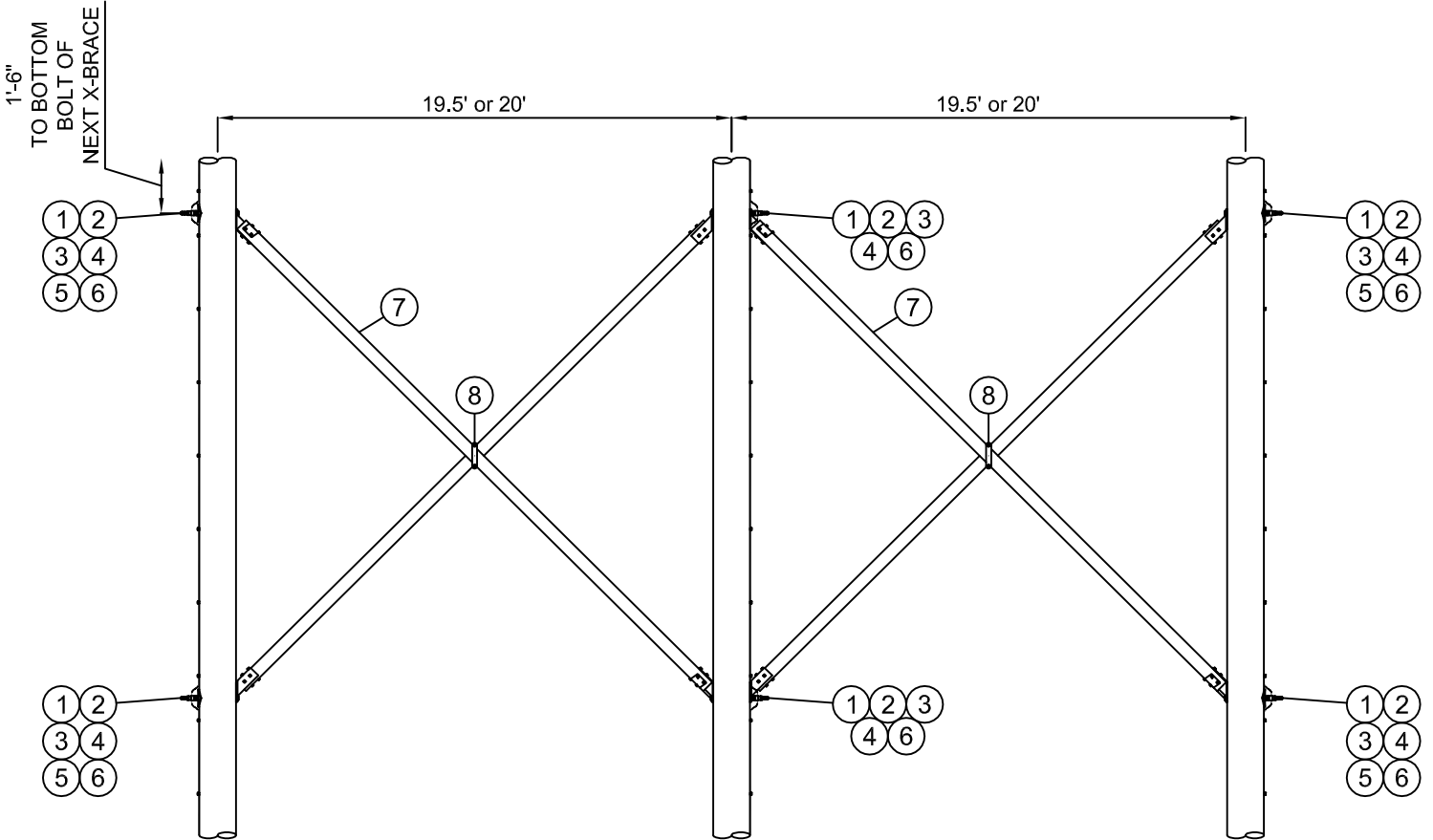
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C. Gauvin	7/30/2014	Becken/Hart	3/05/2015	Barry R. Hart	3/26/2015

TM2.23.TQ-2W-X20-D

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-2W-Y20-A
1	6	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	6	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	6	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	6	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	4	ST	30919393	WSHR CRVD CAST 4 SQ 7/16 THK 15/16 HOLE
6	6	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	2	ST	30924060	XBRC WD 4-5/8 X 5-3/4 19F6 PS
8	2	ST	30923712	XBRC CENTER CLAMP 4-5/8 X 5-3/4 STRAP



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: 230kV H-FRAME STRUCTURES USING POLES 80' LONG OR LONGER SHALL REQUIRE A SECOND CROSS-BRACE.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 5'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
230KV X-BRACING
19.5' & 20' POLE SPACING - 3-POLE STRUCTURE
ROUND WOOD POLES**

REVISION
01
DATE
10/14/2015

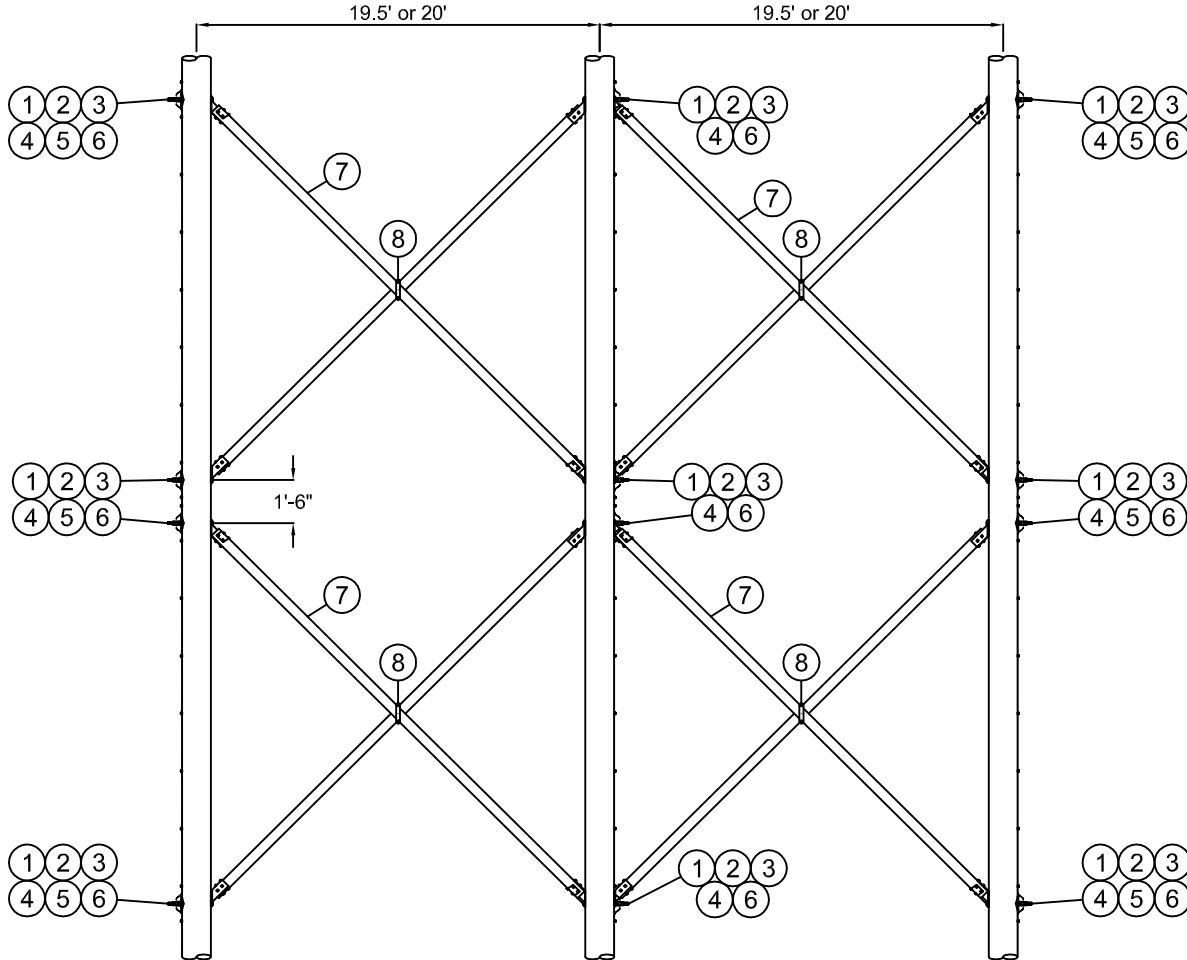
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C. Gauvin	8/15/2014	Becken/Hart	3/05/2015	Barry R. Hart	4/02/2015

TM2.23.TQ-2W-Y20-A

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-2W-Y20-B
1	12	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	12	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	12	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	12	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	8	ST	30919393	WSHR CRVD CAST 4 SQ 7/16 THK 15/16 HOLE
6	12	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	4	ST	30924060	XBRC WD 4-5/8 X 5-3/4 19F6 PS
8	4	ST	30923712	XBRC CENTER CLAMP 4-5/8 X 5-3/4 STRAP



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: 230KV H-FRAME STRUCTURES USING POLES 80' LONG OR LONGER SHALL REQUIRE A SECOND CROSS-BRACE.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

STRUCTURE STANDARDS
230KV X-BRACING - 2 SETS OF X-BRACES
19.5' & 20' POLE SPACING - 3-POLE STRUCTURES
ROUND WOOD POLES

REVISION
01
DATE
10/14/2015

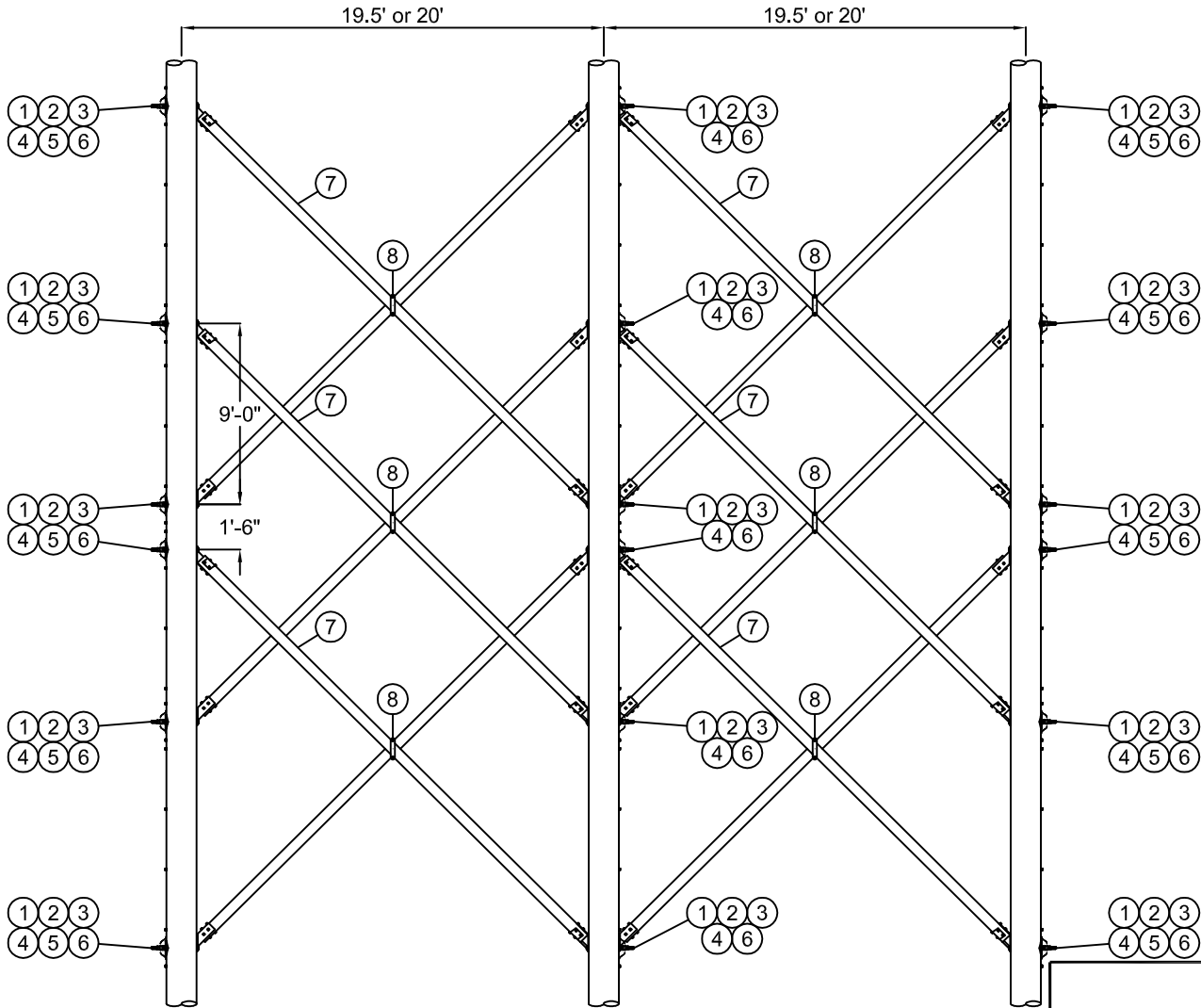
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C. Gauvin	8/15/2014	Becken/Hart	3/05/2015	Barry R. Hart	4/03/2015

TM2.23.TQ-2W-Y20-B

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-2W-Y20-C
1	18	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	18	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	18	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	18	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	12	ST	30919393	WSHR CRVD CAST 4 SQ 7/16 THK 15/16 HOLE
6	18	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	6	ST	30924060	XBRC WD 4-5/8 X 5-3/4 19F6 PS
8	6	ST	30923712	XBRC CENTER CLAMP 4-5/8 X 5-3/4 STRAP



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

STRUCTURE STANDARDS
230KV X-BRACING - 3 SETS OF X-BRACES
19.5' & 20' POLE SPACING - 3-POLE STRUCTURE
ROUND WOOD POLES

REVISION
01
DATE
10/14/2015

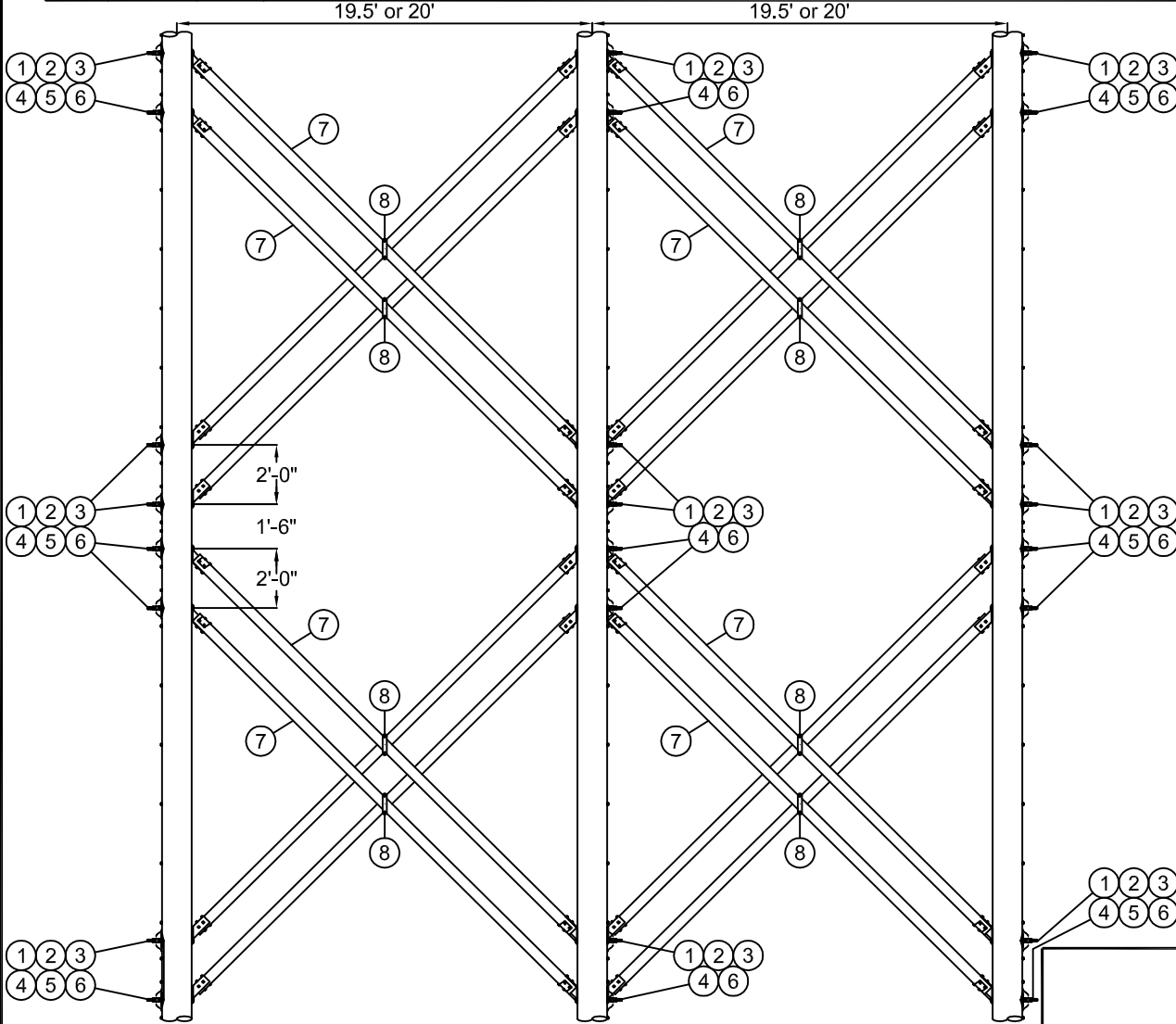
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C. Gauvin	8/15/2014	Becken/Hart	3/05/2015	Barry R. Hart	4/03/2015

TM2.23.TQ-2W-Y20-C

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-2W-Y20-D
1	24	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	24	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	24	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	24	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	16	ST	30919393	WSHR CRVD CAST 4 SQ 7/16 THK 15/16 HOLE
6	24	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	8	ST	30924060	XBRC WD 4-5/8 X 5-3/4 19F6 PS
8	8	ST	30923712	XBRC CENTER CLAMP 4-5/8 X 5-3/4 STRAP



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

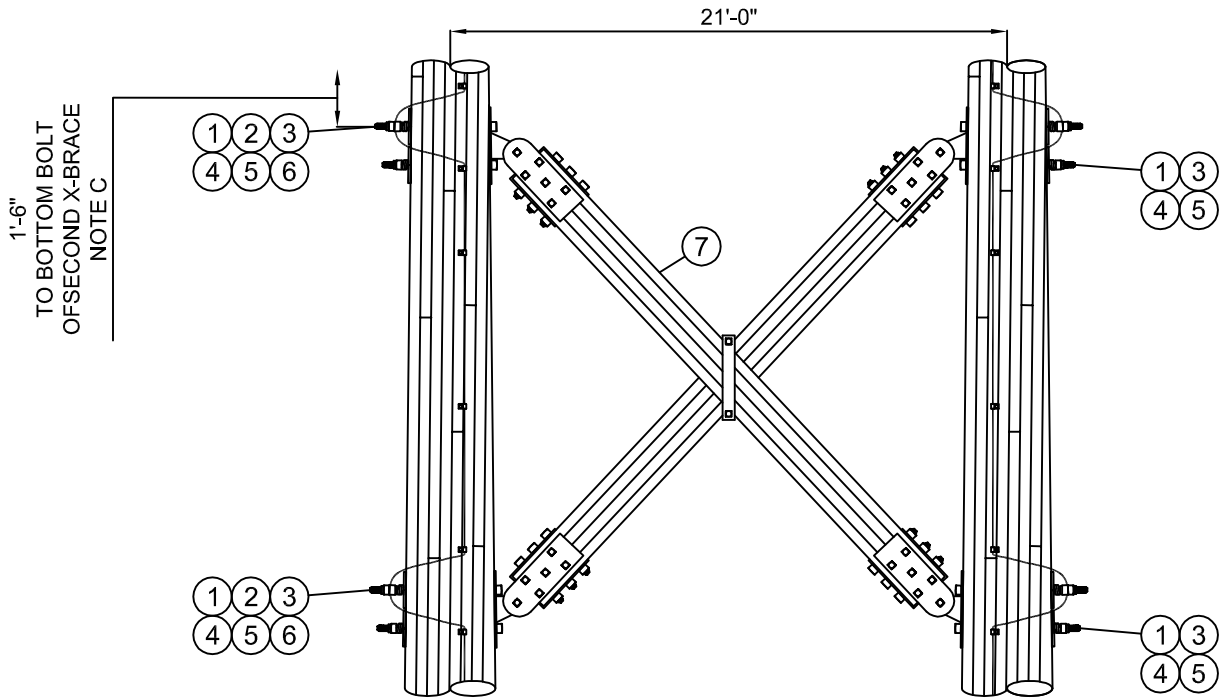
Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'

	TRANSMISSION CONSTRUCTION STANDARDS MANUAL	STRUCTURE STANDARDS 230KV X-BRACING - 4 SETS OF X-BRACES 19.5' & 20' POLE SPACING - 3-POLE STRUCTURES ROUND WOOD POLES			REVISION 01
					DATE 10/14/2015
Drwn. By: C. Gauvin Date Dr.: 8/15/2014	Checked By: Becken/Hart	Date Ck.: 3/05/2015	Approved By: Barry R. Hart Date App.: 4/03/2015	TM2.23.TQ-2W-Y20-D	
					Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-3W-L21-A
1	8	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	4	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	8	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	8	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	8	ST	30919368	WSHR FLAT 4 SQ 1/4 THK 15/16 HOLE
6	4	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	1	ST	30924047	XBRC LAM 6 X 6-3/4" ASSY 21F PS (NOTE B)



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: X-BRACE ASSEMBLY (ITEM #7) INCLUDES X-BRACE, MOUNTING TEES, GRID GAINS, CENTER PINS AND CENTER CLAMP. DO NOT USE GRID GAINS FOR LAMINATED POLES.

NOTE C: 345KV STRUCTURES USING 100' LONG POLES OR LONGER REQUIRE (2) CROSS BRACES. THE X-BRACES SHALL BE SEPARATED BY 1'-6" PER THE DIMENSION ON THE DETAIL.

NOTE D: IF THE LAMINATED WOOD POLES HAVE A SPLICE AND THE ABOVE DIMENSIONS CAUSE X-BRACE MOUNTING BOLTS TO BE WITHIN 12" OF THE SPLICE PLATES THE INSTALLATION LOCATION OF THE X-BRACES SHALL BE FIELD MODIFIED DOWN THE POLE SUCH THAT THE NEAREST X-BRACE MOUNTING BOLT IS 12" FROM THE SPLICE PLATES.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 5'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

STRUCTURE STANDARDS
345KV X-BRACING
21' POLE SPACING
LAMINATED POLES

REVISION
01
DATE
10/06/2015

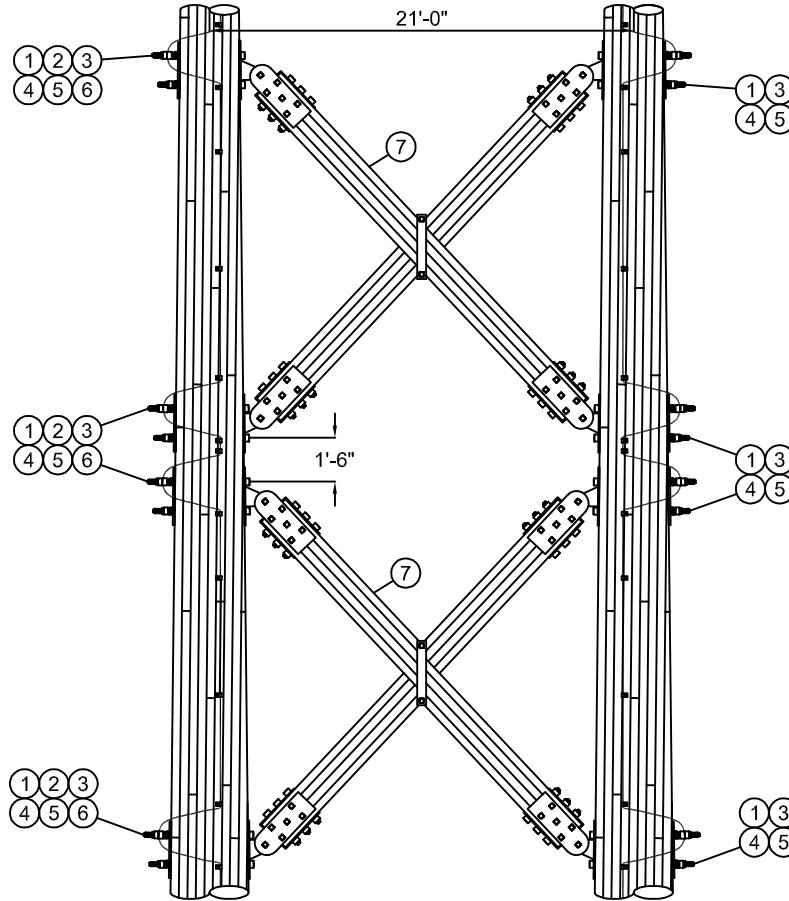
Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
B. Franklin	10/17/2013	Becken/Hart	3/05/2015	Barry R. Hart	4/03/2015

TM2.23.TQ-3W-L21-A

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-3W-L21-B
1	16	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	8	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	16	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	16	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	16	ST	30919368	WSHR FLAT 4 SQ 1/4 THK 15/16 HOLE
6	8	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	2	ST	30924047	XBRC LAM 6 X 6-3/4" ASSY 21F PS (NOTE B)



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: X-BRACE ASSEMBLY (ITEM #7) INCLUDES X-BRACE, MOUNTING TEES, GRID GAINS, CENTER PINS AND CENTER CLAMP. DO NOT USE GRID GAINS FOR LAMINATED POLES.

NOTE C: 345KV STRUCTURES USING 100' LONG POLES OR LONGER REQUIRE (2) CROSS BRACES.

NOTE D: IF THE LAMINATED WOOD POLES HAVE A SPLICE AND THE ABOVE DIMENSIONS CAUSE X-BRACE MOUNTING BOLTS TO BE WITHIN 12" OF THE SPLICE PLATES THE INSTALLATION LOCATION OF THE X-BRACES SHALL BE FIELD MODIFIED DOWN THE POLE SUCH THAT THE NEAREST X-BRACE MOUNTING BOLT IS 12" FROM THE SPLICE PLATES.

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
345KV X-BRACING - 2 X-BRACES
21' POLE SPACING
LAMINATED POLES**

REVISION
01
DATE
10/06/2015

Drwn. By: B. Franklin
Date Dr.: 10/17/2013

Checked By: Becken/Hart

Date Ck.: 3/05/2015

Approved By: Barry R. Hart

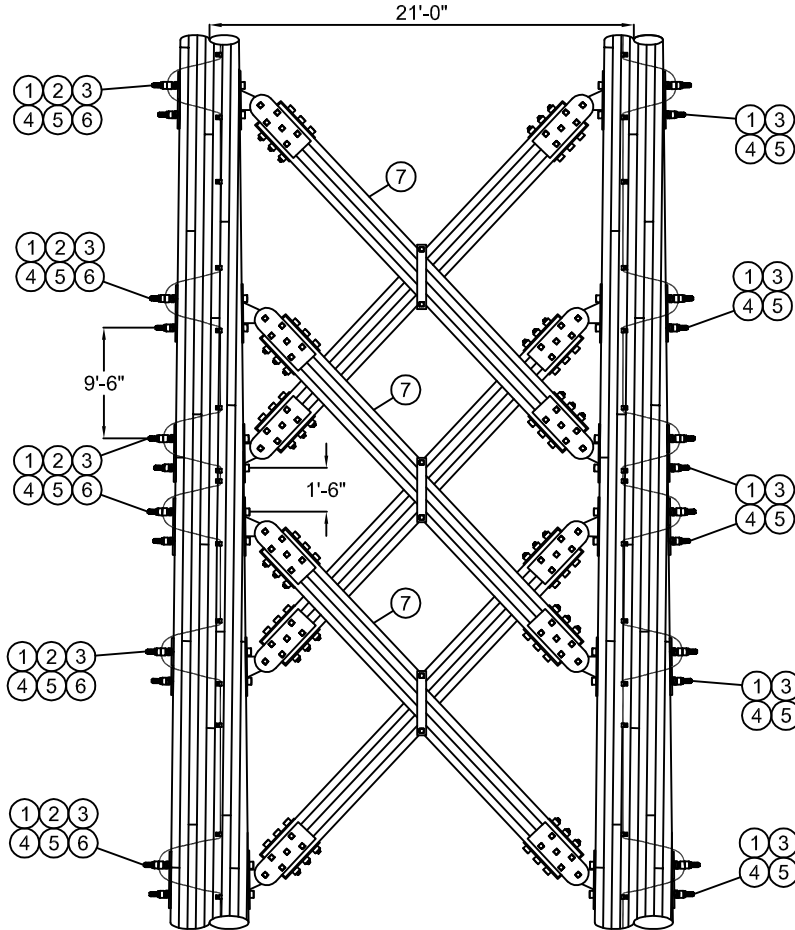
Date App.: 4/03/2015

TM2.23.TQ-3W-L21-B

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-3W-L21-C
1	24	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	12	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	24	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	24	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	24	ST	30919368	WSHR FLAT 4 SQ 1/4 THK 15/16 HOLE
6	12	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	3	ST	30924047	XBRC LAM 6 X 6-3/4" ASSY 21F PS (NOTE B)



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: X-BRACE ASSEMBLY (ITEM #7) INCLUDES X-BRACE, MOUNTING TEES, GRID GAINS, CENTER PINS AND CENTER CLAMP. DO NOT USE GRID GAINS FOR LAMINATED POLES.

NOTE C: IF THE LAMINATED WOOD POLES HAVE A SPLICE AND THE ABOVE DIMENSIONS CAUSE X-BRACE MOUNTING BOLTS TO BE WITHIN 12" OF THE SPLICE PLATES THE INSTALLATION LOCATION OF THE X-BRACES SHALL BE FIELD MODIFIED DOWN THE POLE SUCH THAT THE NEAREST X-BRACE MOUNTING BOLT IS 12" FROM THE SPLICE PLATES.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
345KV X-BRACING - 3 X-BRACES
21' POLE SPACING
LAMINATED POLES**

REVISION
01
DATE
10/06/2015

Drwn. By: B. Franklin
Date Dr.: 8/07/2014

Checked By: Becken/Hart

Date Ck.: 3/05/2015

Approved By: Barry R. Hart

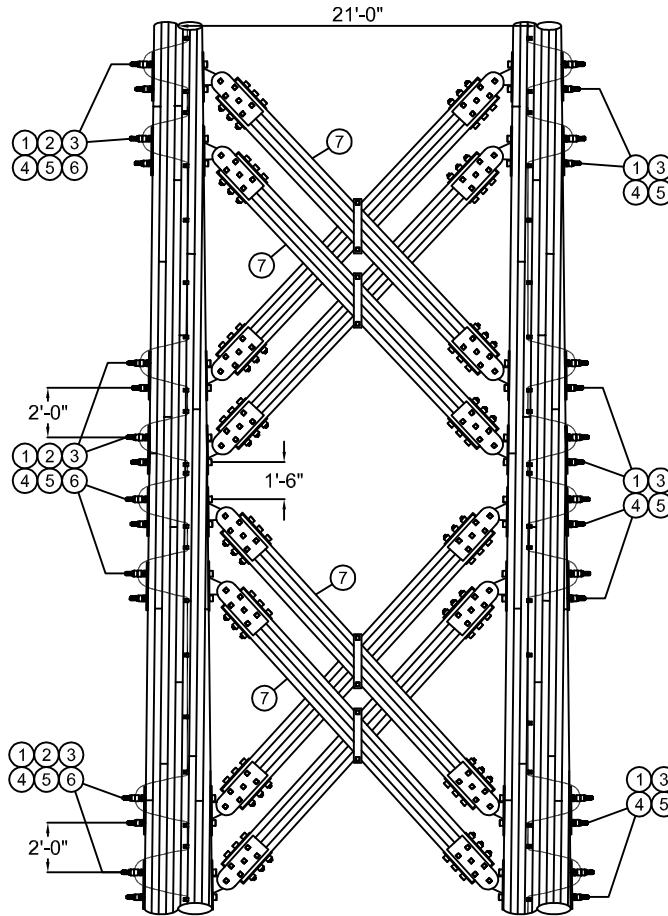
Date App.: 4/03/2015

TM2.23.TQ-3W-L21-C

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-3W-L21-D
1	32	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	16	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	32	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	32	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	32	ST	30919368	WSHR FLAT 4 SQ 1/4 THK 15/16 HOLE
6	16	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	4	ST	30924047	XBRC LAM 6 X 6-3/4" ASSY 21F PS (NOTE B)



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: X-BRACE ASSEMBLY (ITEM #7) INCLUDES X-BRACE, MOUNTING TEES, GRID GAINS, CENTER PINS AND CENTER CLAMP. DO NOT USE GRID GAINS FOR LAMINATED POLES.

NOTE C: IF THE LAMINATED WOOD POLES HAVE A SPLICE AND THE ABOVE DIMENSIONS CAUSE X-BRACE MOUNTING BOLTS TO BE WITHIN 12" OF THE SPLICE PLATES THE INSTALLATION LOCATION OF THE X-BRACES SHALL BE FIELD MODIFIED DOWN THE POLE SUCH THAT THE NEAREST X-BRACE MOUNTING BOLT IS 12" FROM THE SPLICE PLATES.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 7'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
345KV X-BRACING - 4 X-BRACES
21' POLE SPACING
LAMINATED POLES**

REVISION
01
DATE
10/06/2015

Drwn. By: B. Franklin
Date Dr.: 10/17/2013

Checked By: Becken/Hart

Date Ck.: 3/05/2015

Approved By: Barry R. Hart

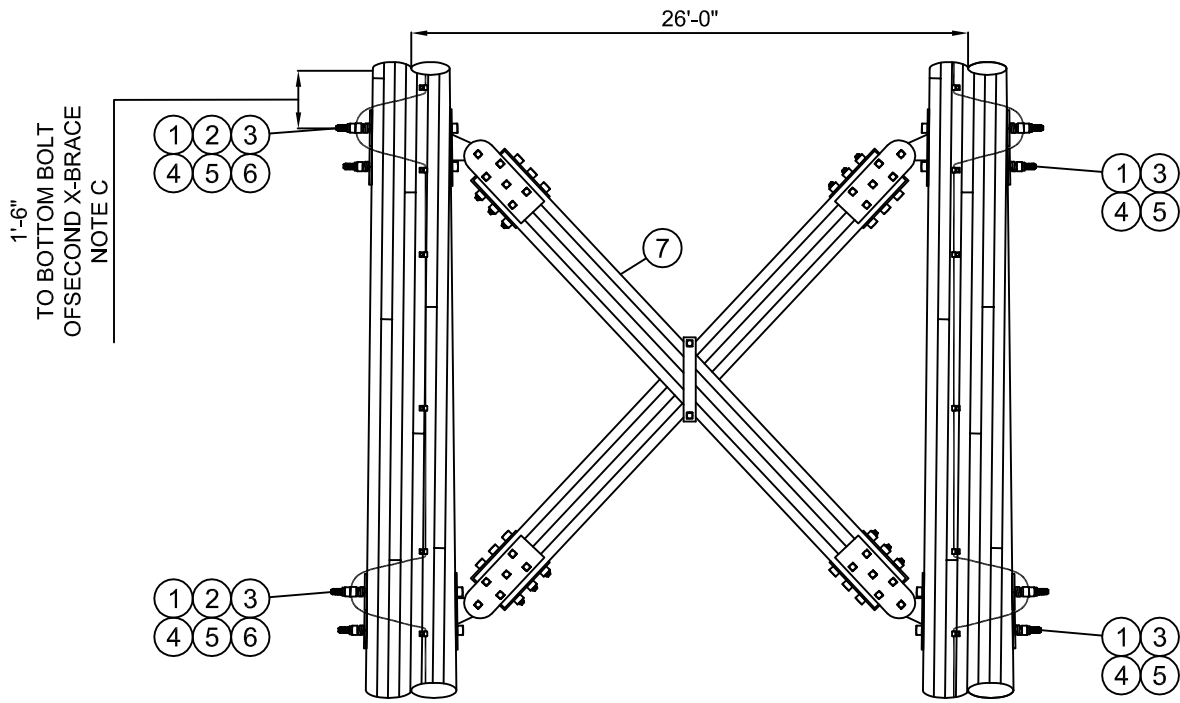
Date App.: 4/03/2015

TM2.23.TQ-3W-L21-D

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-3W-L26-A
1	8	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	4	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	8	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	8	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	8	ST	30919368	WSHR FLAT 4 SQ 1/4 THK 15/16 HOLE
6	4	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	1	ST	30924048	XBRC LAM 6 X 6-3/4" ASSY 26F PS (NOTE B)



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: X-BRACE ASSEMBLY (ITEM #7) INCLUDES X-BRACE, MOUNTING TEES, GRID GAINS, CENTER PINS AND CENTER CLAMP. DO NOT USE GRID GAINS FOR LAMINATED POLES.

NOTE C: 345KV STRUCTURES USING 100' LONG POLES OR LONGER REQUIRE (2) CROSS BRACES. THE X-BRACES SHALL BE SEPARATED BY 1'-6" PER THE DIMENSION ON THE DETAIL.

NOTE D: IF THE LAMINATED WOOD POLES HAVE A SPLICE AND THE ABOVE DIMENSIONS CAUSE X-BRACE MOUNTING BOLTS TO BE WITHIN 12" OF THE SPLICE PLATES THE INSTALLATION LOCATION OF THE X-BRACES SHALL BE FIELD MODIFIED DOWN THE POLE SUCH THAT THE NEAREST X-BRACE MOUNTING BOLT IS 12" FROM THE SPLICE PLATES.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 5'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

STRUCTURE STANDARDS
345KV X-BRACING
26' POLE SPACING
LAMINATED POLES

REVISION
01
DATE
10/06/2015

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
B. Franklin	10/17/2013	Becken/Hart	3/05/2015	Barry R. Hart	4/03/2015

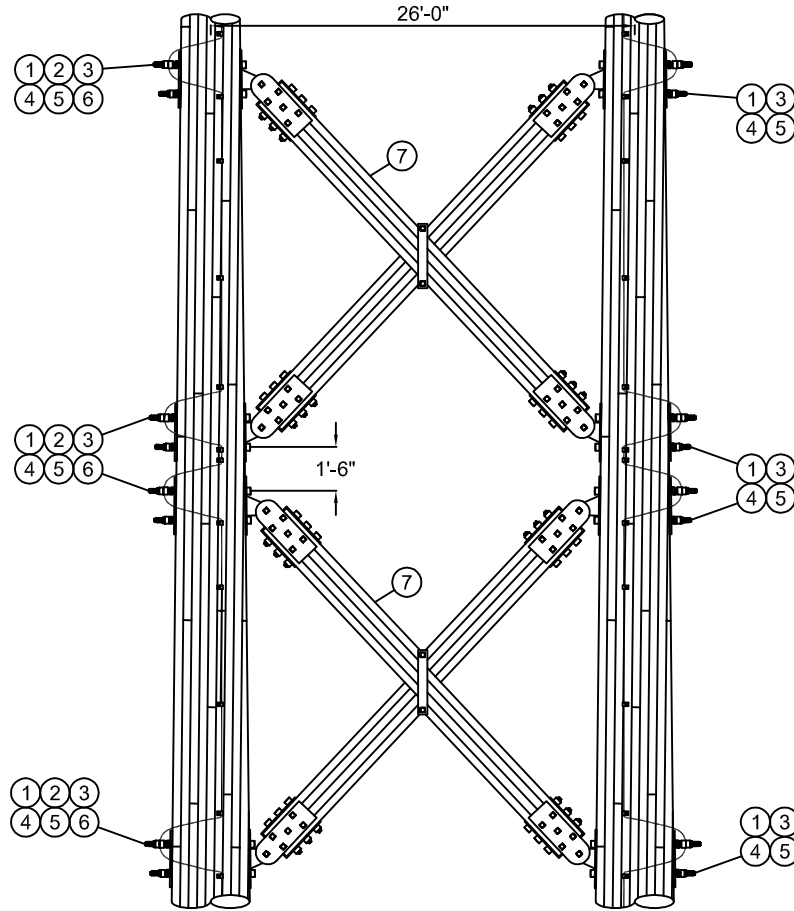
TM2.23.TQ-3W-L26-A

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

CU: U*PT-TQ-3W-L26-B

ITEM NO.	QTY.	UOM	IUSA MID	
1	16	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	8	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	16	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	16	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	16	ST	30919368	WSHR FLAT 4 SQ 1/4 THK 15/16 HOLE
6	8	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	2	ST	30924048	XBRC LAM 6 X 6-3/4" ASSY 26F PS (NOTE B)



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: X-BRACE ASSEMBLY (ITEM #7) INCLUDES X-BRACE, MOUNTING TEES, GRID GAINS, CENTER PINS AND CENTER CLAMP. DO NOT USE GRID GAINS FOR LAMINATED POLES.

NOTE C: 345KV STRUCTURES USING 100' LONG POLES OR LONGER REQUIRE (2) CROSS BRACES.

NOTE D: IF THE LAMINATED WOOD POLES HAVE A SPLICE AND THE ABOVE DIMENSIONS CAUSE X-BRACE MOUNTING BOLTS TO BE WITHIN 12" OF THE SPLICE PLATES THE INSTALLATION LOCATION OF THE X-BRACES SHALL BE FIELD MODIFIED DOWN THE POLE SUCH THAT THE NEAREST X-BRACE MOUNTING BOLT IS 12" FROM THE SPLICE PLATES.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
345KV X-BRACING - 2 X-BRACES
26' POLE SPACING
LAMINATED POLES**

REVISION
01
DATE
10/06/2015

Drwn. By: B. Franklin
Date Dr.: 10/17/2013

Checked By: Becken/Hart

Date Ck.: 3/05/2015

Approved By: Barry R. Hart

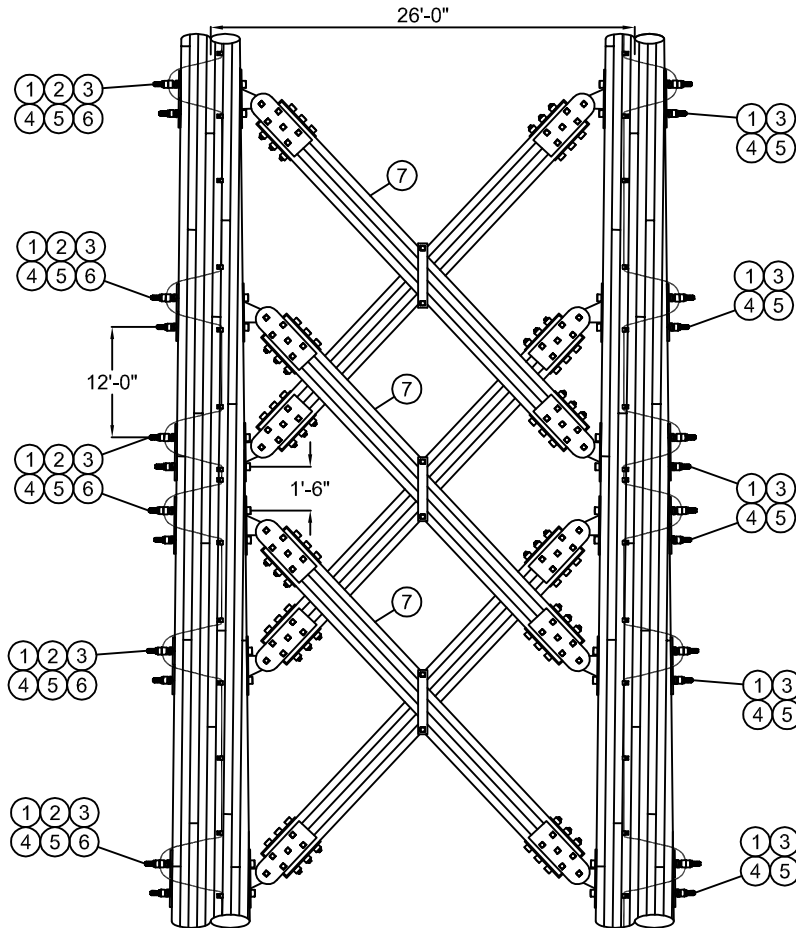
Date App.: 4/05/2015

TM2.23.TQ-3W-L26-B

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-3W-L26-C
1	24	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	12	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	24	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	24	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	24	ST	30919368	WSHR FLAT 4 SQ 1/4 THK 15/16 HOLE
6	12	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	3	ST	30924048	XBRC LAM 6 X 6-3/4" ASSY 26F PS (NOTE B)



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

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NOTE C: IF THE LAMINATED WOOD POLES HAVE A SPLICE AND THE ABOVE DIMENSIONS CAUSE X-BRACE MOUNTING BOLTS TO BE WITHIN 12" OF THE SPLICE PLATES THE INSTALLATION LOCATION OF THE X-BRACES SHALL BE FIELD MODIFIED DOWN THE POLE SUCH THAT THE NEAREST X-BRACE MOUNTING BOLT IS 12" FROM THE SPLICE PLATES.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
345KV X-BRACING - 3 X-BRACES
26' POLE SPACING
LAMINATED POLES**

REVISION
01
DATE
10/06/2015

Drwn. By: B. Franklin
Date Dr.: 8/07/2014

Checked By: Becken/Hart

Date Ck.: 3/05/2015

Approved By: Barry R. Hart

Date App.: 4/03/2015

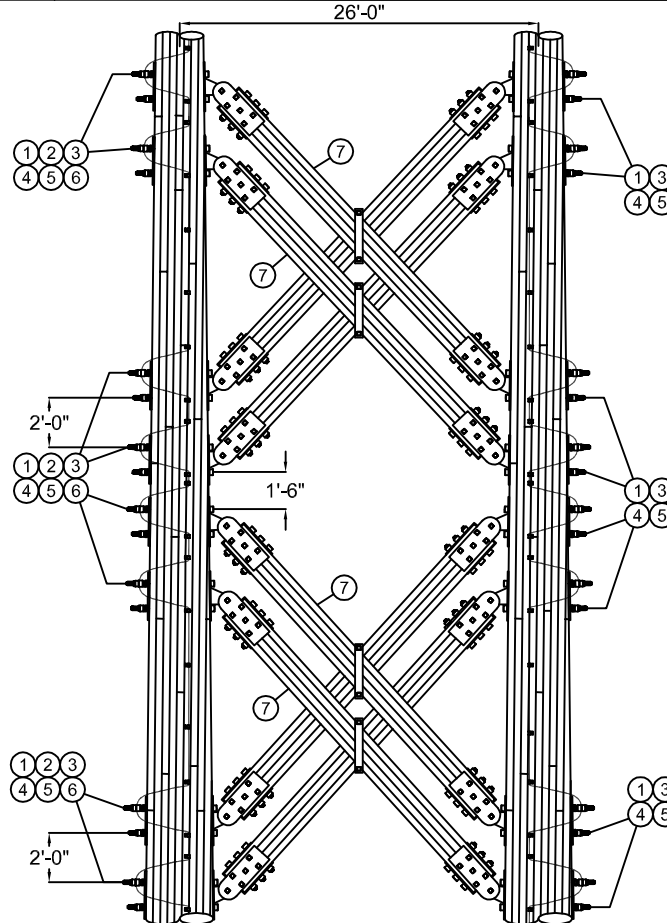
TM2.23.TQ-3W-L26-C

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

CU: U*PT-TQ-3W-L26-D

ITEM NO.	QTY.	UOM	IUSA MID	
1	32	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	16	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	32	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	32	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	32	ST	30919368	WSHR FLAT 4 SQ 1/4 THK 15/16 HOLE
6	16	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	4	ST	30924048	XBRC LAM 6 X 6-3/4" ASSY 26F PS (NOTE B)



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

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NOTE B: X-BRACE ASSEMBLY (ITEM #7) INCLUDES X-BRACE, MOUNTING TEES, GRID GAINS, CENTER PINS AND CENTER CLAMP. DO NOT USE GRID GAINS FOR LAMINATED POLES.

NOTE C: IF THE LAMINATED WOOD POLES HAVE A SPLICE AND THE ABOVE DIMENSIONS CAUSE X-BRACE MOUNTING BOLTS TO BE WITHIN 12" OF THE SPLICE PLATES THE INSTALLATION LOCATION OF THE X-BRACES SHALL BE FIELD MODIFIED DOWN THE POLE SUCH THAT THE NEAREST X-BRACE MOUNTING BOLT IS 12" FROM THE SPLICE PLATES.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 7'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
345KV X-BRACING - 4 X-BRACES
26' POLE SPACING
LAMINATED POLES**

REVISION
01
DATE
10/06/2015

Drwn. By: B. Franklin
Date Dr.: 10/17/2013

Checked By: Becken/Hart

Date Ck.: 3/05/2015

Approved By: Barry R. Hart

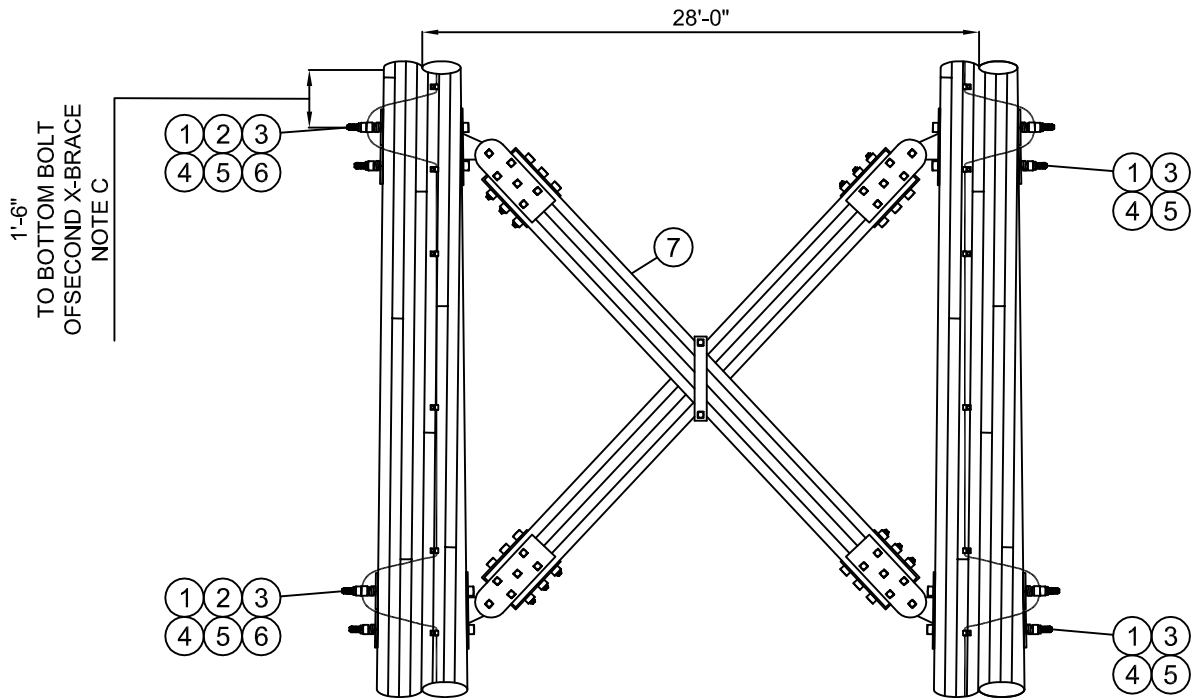
Date App.: 4/02/2015

TM2.23.TQ-3W-L26-D

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-3W-L28-A
1	8	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	4	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	8	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	8	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	8	ST	30919368	WSHR FLAT 4 SQ 1/4 THK 15/16 HOLE
6	4	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	1	ST	30924046	XBRC LAM 5-1/8 X 7-1/2" ASSY 28F PS (NOTE B)



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: X-BRACE ASSEMBLY (ITEM #7) INCLUDES X-BRACE, MOUNTING TEES, GRID GAINS, CENTER PINS AND CENTER CLAMP. DO NOT USE GRID GAINS FOR LAMINATED POLES.

NOTE C: 345KV STRUCTURES USING 100' LONG POLES OR LONGER REQUIRE (2) CROSS BRACES. THE X-BRACES SHALL BE SEPARATED BY 1'-6" PER THE DIMENSION ON THE DETAIL.

NOTE D: IF THE LAMINATED WOOD POLES HAVE A SPLICE AND THE ABOVE DIMENSIONS CAUSE X-BRACE MOUNTING BOLTS TO BE WITHIN 12" OF THE SPLICE PLATES THE INSTALLATION LOCATION OF THE X-BRACES SHALL BE FIELD MODIFIED DOWN THE POLE SUCH THAT THE NEAREST X-BRACE MOUNTING BOLT IS 12" FROM THE SPLICE PLATES.

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 5'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

STRUCTURE STANDARDS
345KV X-BRACING
28' POLE SPACING
LAMINATED POLES

REVISION
01
DATE
10/06/2015

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
B. Franklin	10/17/2013	Becken/Hart	3/05/2015	Barry R. Hart	4/03/2015

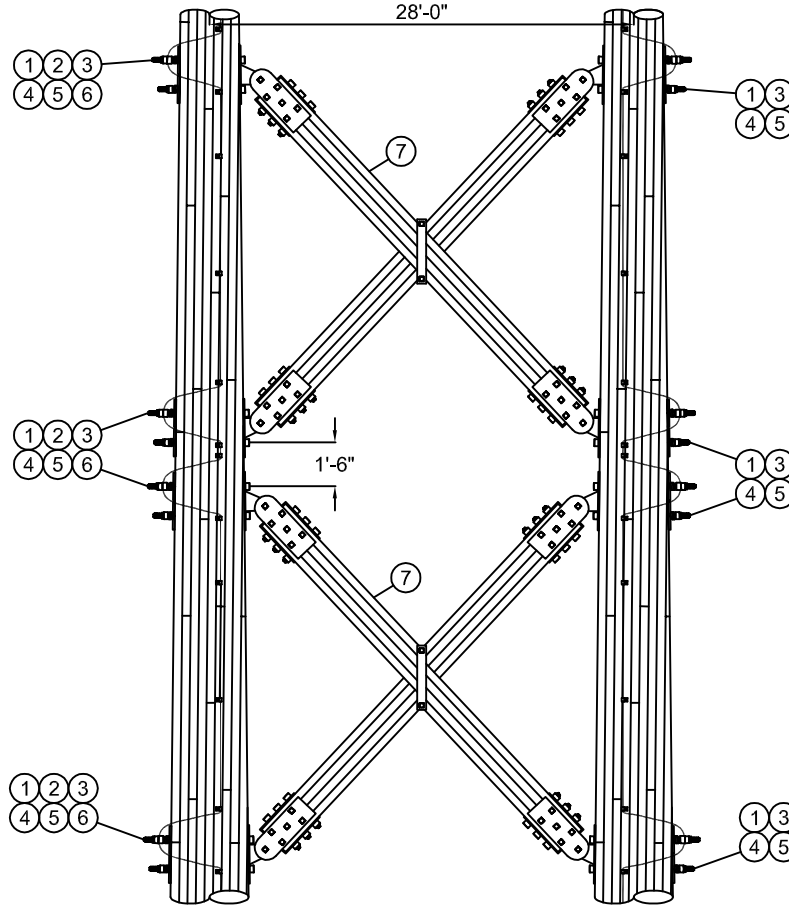
TM2.23.TQ-3W-L28-A

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

CU: U*PT-TQ-3W-L28-B

ITEM NO.	QTY.	UOM	IUSA MID	
1	16	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	8	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	16	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	16	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	16	ST	30919368	WSHR FLAT 4 SQ 1/4 THK 15/16 HOLE
6	8	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	2	ST	30924046	XBRC LAM 5-1/8 X 7-1/2" ASSY 28F PS (NOTE B)



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: X-BRACE ASSEMBLY (ITEM #7) INCLUDES X-BRACE, MOUNTING TEES, GRID GAINS, CENTER PINS AND CENTER CLAMP. DO NOT USE GRID GAINS FOR LAMINATED POLES.

NOTE C: 345kV STRUCTURES USING 100' LONG POLES OR LONGER REQUIRE (2) CROSS BRACES.

NOTE D: IF THE LAMINATED WOOD POLES HAVE A SPLICE AND THE ABOVE DIMENSIONS CAUSE X-BRACE MOUNTING BOLTS TO BE WITHIN 12" OF THE SPLICE PLATES THE INSTALLATION LOCATION OF THE X-BRACES SHALL BE FIELD MODIFIED DOWN THE POLE SUCH THAT THE NEAREST X-BRACE MOUNTING BOLT IS 12" FROM THE SPLICE PLATES.

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
345KV X-BRACING - 2 X-BRACES
28' POLE SPACING
LAMINATED POLES**

REVISION
01
DATE
10/06/2015

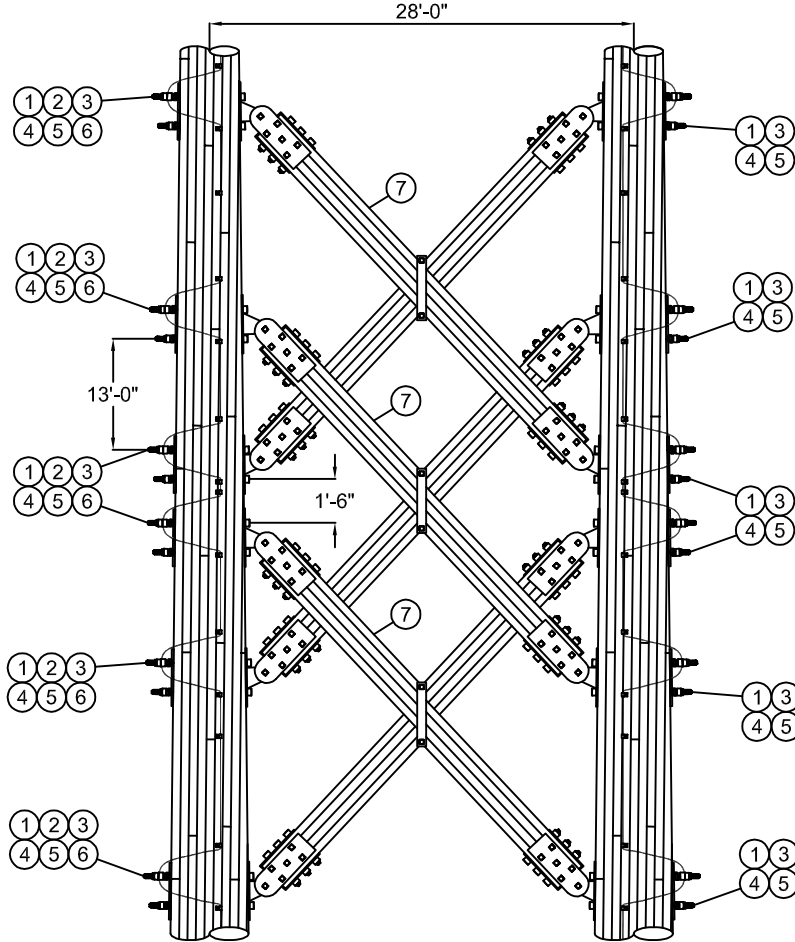
Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
B. Franklin	10/17/2013	Becken/Hart	3/05/2015	Barry R. Hart	4/03/2015

TM2.23.TQ-3W-L28-B

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-3W-L28-C
1	24	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	12	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	24	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	24	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	24	ST	30919368	WSHR FLAT 4 SQ 1/4 THK 15/16 HOLE
6	12	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	3	ST	30924046	XBRC LAM 5-1/8 X 7-1/2" ASSY 28F PS (NOTE B)



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: X-BRACE ASSEMBLY (ITEM #7) INCLUDES X-BRACE, MOUNTING TEES, GRID GAINS, CENTER PINS AND CENTER CLAMP. DO NOT USE GRID GAINS FOR LAMINATED POLES.

NOTE C: IF THE LAMINATED WOOD POLES HAVE A SPLICE AND THE ABOVE DIMENSIONS CAUSE X-BRACE MOUNTING BOLTS TO BE WITHIN 12" OF THE SPLICE PLATES THE INSTALLATION LOCATION OF THE X-BRACES SHALL BE FIELD MODIFIED DOWN THE POLE SUCH THAT THE NEAREST X-BRACE MOUNTING BOLT IS 12" FROM THE SPLICE PLATES.

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
345KV X-BRACING - 3 X-BRACES
28' POLE SPACING
LAMINATED POLES**

REVISION
01
DATE
10/06/2015

Drwn. By: B. Franklin
Date Dr.: 8/14/2014

Checked By: Becken/Hart

Date Ck.: 3/05/2015

Approved By: Barry R. Hart

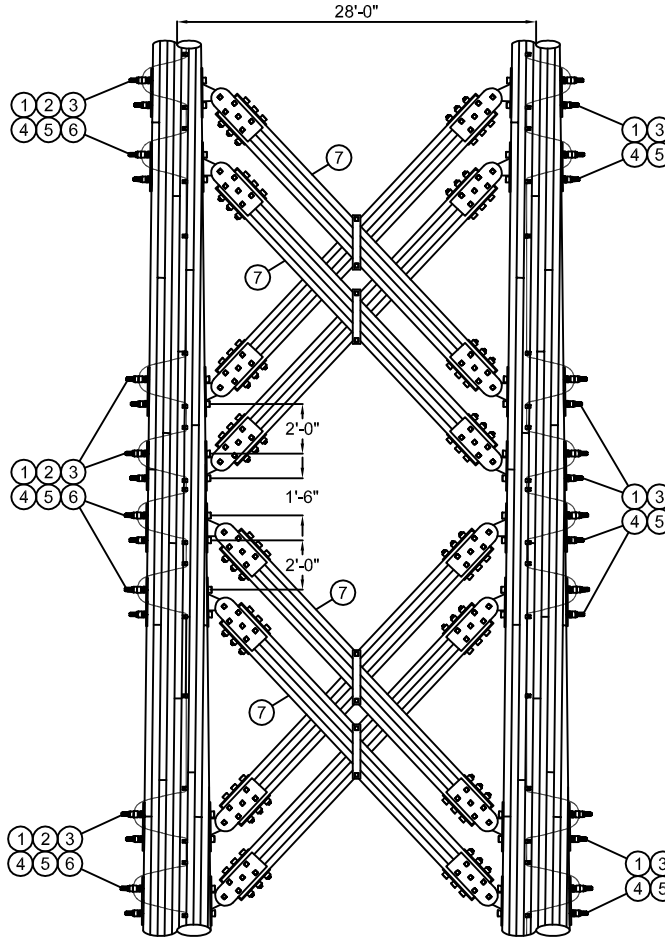
Date App.: 4/03/2015

TM2.23.TQ-3W-L28-C

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-3W-L28-D
1	32	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	16	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	32	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	32	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	32	ST	30919368	WSHR FLAT 4 SQ 1/4 THK 15/16 HOLE
6	16	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	4	ST	30924046	XBRC LAM 5-1/8 X 7-1/2" ASSY 28F PS (NOTE B)



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: X-BRACE ASSEMBLY (ITEM #7) INCLUDES X-BRACE, MOUNTING TEES, GRID GAINS, CENTER PINS AND CENTER CLAMP. DO NOT USE GRID GAINS FOR LAMINATED POLES.

NOTE C: IF THE LAMINATED WOOD POLES HAVE A SPLICE AND THE ABOVE DIMENSIONS CAUSE X-BRACE MOUNTING BOLTS TO BE WITHIN 12" OF THE SPLICE PLATES THE INSTALLATION LOCATION OF THE X-BRACES SHALL BE FIELD MODIFIED DOWN THE POLE SUCH THAT THE NEAREST X-BRACE MOUNTING BOLT IS 12" FROM THE SPLICE PLATES.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
345KV X-BRACING - 4 X-BRACES
28' POLE SPACING
LAMINATED POLES**

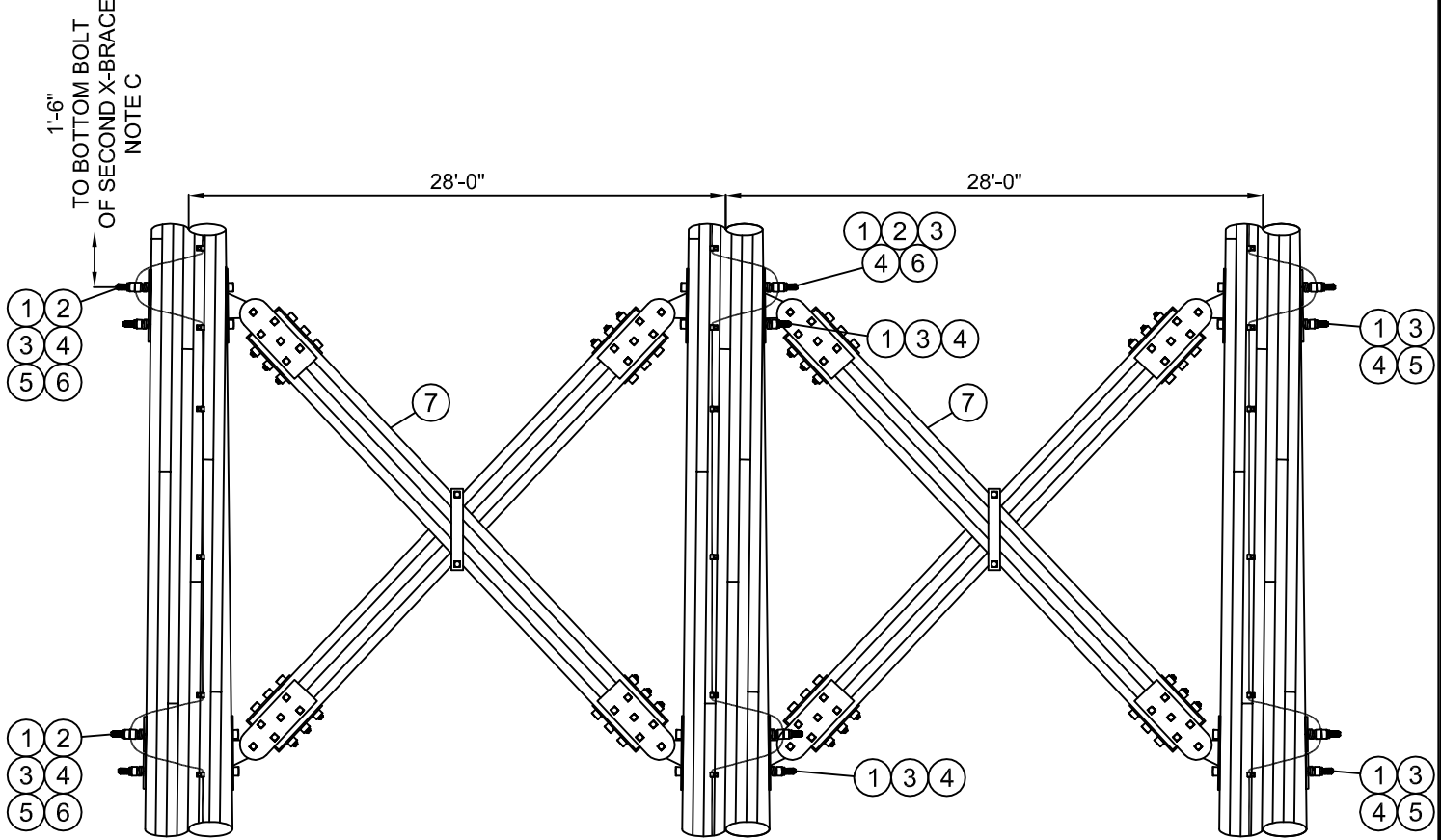
REVISION
01
DATE
10/06/2015

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:	TM2.23.TQ-3W-L28-D	Sheet 1
B. Franklin	8/14/2014	Becken/Hart	3/05/2015	Barry R. Hart	4/03/2015		

BILL OF MATERIAL (CU Type: POLE)

CU: U*PT-TQ-3W-M28-A

ITEM NO.	QTY.	UOM	IUSA MID	
1	12	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	6	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	12	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	12	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	8	ST	30919368	WSHR FLAT 4 SQ 1/4 THK 15/16 HOLE
6	6	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	2	ST	30924046	XBRC LAM 5-1/8 X 7-1/2" ASSY 28F PS (NOTE B)



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: X-BRACE ASSEMBLY (ITEM #7) INCLUDES X-BRACE, MOUNTING TEES, GRID GAINS, CENTER PINS AND CENTER CLAMP. DO NOT USE GRID GAINS FOR LAMINATED POLES.

NOTE C: 345KV STRUCTURES USING 100' LONG POLES OR LONGER REQUIRE (2) CROSS BRACES. THE X-BRACES SHALL BE SEPARATED BY 1'-6" PER THE DIMENSION ON THE DETAIL.

NOTE D: IF THE LAMINATED WOOD POLES HAVE A SPLICE AND THE ABOVE DIMENSIONS CAUSE X-BRACE MOUNTING BOLTS TO BE WITHIN 12" OF THE SPLICE PLATES THE INSTALLATION LOCATION OF THE X-BRACES SHALL BE FIELD MODIFIED DOWN THE POLE SUCH THAT THE NEAREST X-BRACE MOUNTING BOLT IS 12" FROM THE SPLICE PLATES.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 5'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

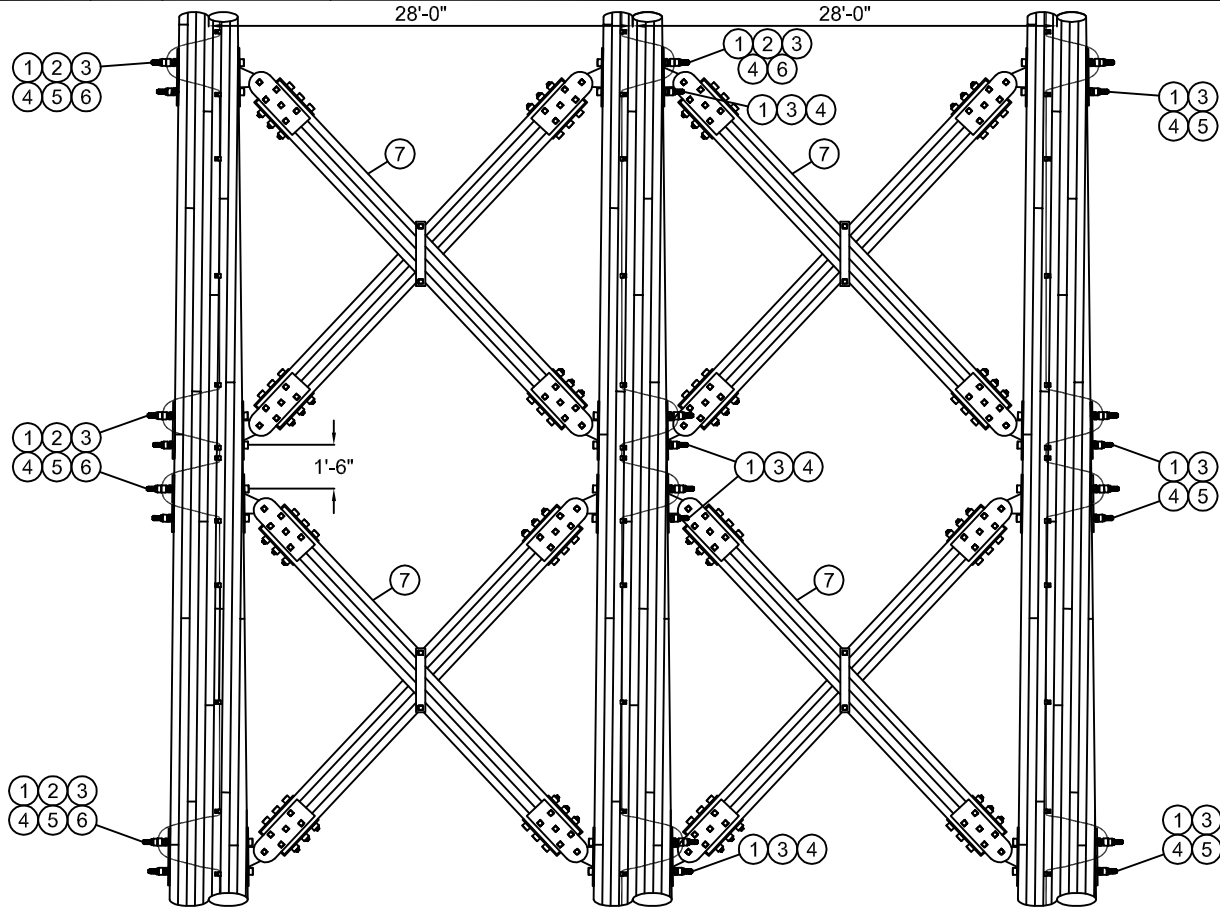
**STRUCTURE STANDARDS
345KV X-BRACING
28' POLE SPACING - 3-POLE STRUCTURE
LAMINATED POLES**

REVISION
01
DATE
10/13/2015

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:	TM2.23.TQ-3W-M28-A	Sheet 1
C. Gauvin	8/20/2014	Becken/Hart	3/05/2015	Barry R. Hart	4/02/2015		

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-3W-M28-B
1	24	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	12	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	24	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	24	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	16	ST	30919368	WSHR FLAT 4 SQ 1/4 THK 15/16 HOLE
6	12	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	4	ST	30924046	XBRC LAM 5-1/8 X 7-1/2" ASSY 28F PS (NOTE B)



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: X-BRACE ASSEMBLY (ITEM #7) INCLUDES X-BRACE, MOUNTING TEES, GRID GAINS, CENTER PINS AND CENTER CLAMP. DO NOT USE GRID GAINS FOR LAMINATED POLES.

NOTE C: 345KV STRUCTURES USING 100' LONG POLES OR LONGER REQUIRE (2) CROSS BRACES.

NOTE D: IF THE LAMINATED WOOD POLES HAVE A SPLICE AND THE ABOVE DIMENSIONS CAUSE X-BRACE MOUNTING BOLTS TO BE WITHIN 12" OF THE SPLICE PLATES THE INSTALLATION LOCATION OF THE X-BRACES SHALL BE FIELD MODIFIED DOWN THE POLE SUCH THAT THE NEAREST X-BRACE MOUNTING BOLT IS 12" FROM THE SPLICE PLATES.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

STRUCTURE STANDARDS
345KV X-BRACING - 2 SETS OF X-BRACES
28' POLE SPACING - 3-POLE STRUCTURE
LAMINATED POLES

REVISION
01
DATE
10/13/2015

Drwn. By: C. Gauvin
Date Dr.: 8/20/2014

Checked By: Shepard/Becken/Hart

Date Ck.: 3/05/2015

Approved By: Barry R. Hart

Date App.: 4/02/2015

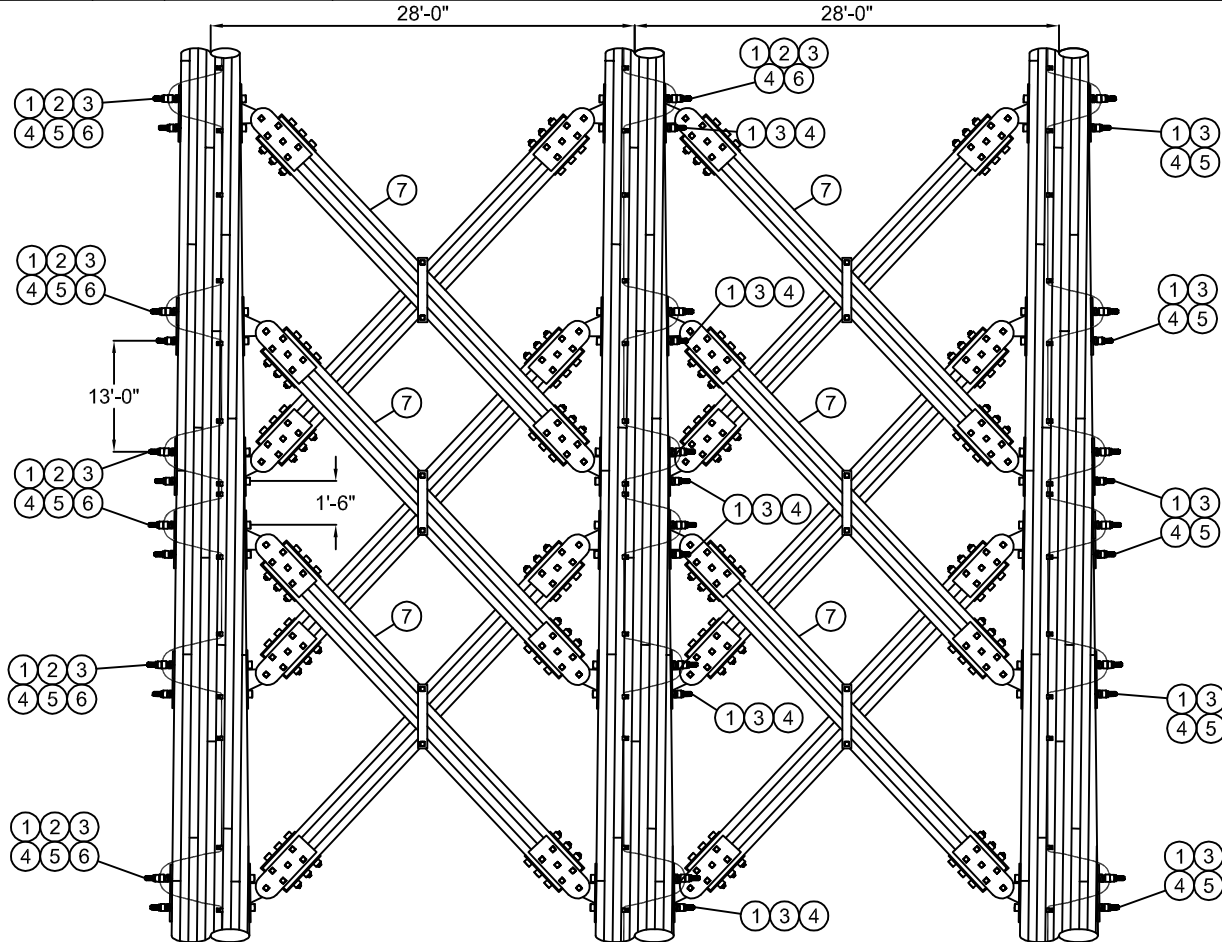
TM2.23.TQ-3W-M28-B

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

CU: U*PT-TQ-3W-M28-C

ITEM NO.	QTY.	UOM	IUSA MID	
1	36	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	18	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	36	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	36	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	24	ST	30919368	WSHR FLAT 4 SQ 1/4 THK 15/16 HOLE
6	18	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	6	ST	30924046	XBRC LAM 5-1/8 X 7-1/2" ASSY 28F PS (NOTE B)



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: X-BRACE ASSEMBLY (ITEM #7) INCLUDES X-BRACE, MOUNTING TEES, GRID GAINS, CENTER PINS AND CENTER CLAMP. DO NOT USE GRID GAINS FOR LAMINATED POLES.

NOTE C: IF THE LAMINATED WOOD POLES HAVE A SPLICE AND THE ABOVE DIMENSIONS CAUSE X-BRACE MOUNTING BOLTS TO BE WITHIN 12" OF THE SPLICE PLATES THE INSTALLATION LOCATION OF THE X-BRACES SHALL BE FIELD MODIFIED DOWN THE POLE SUCH THAT THE NEAREST X-BRACE MOUNTING BOLT IS 12" FROM THE SPLICE PLATES.

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

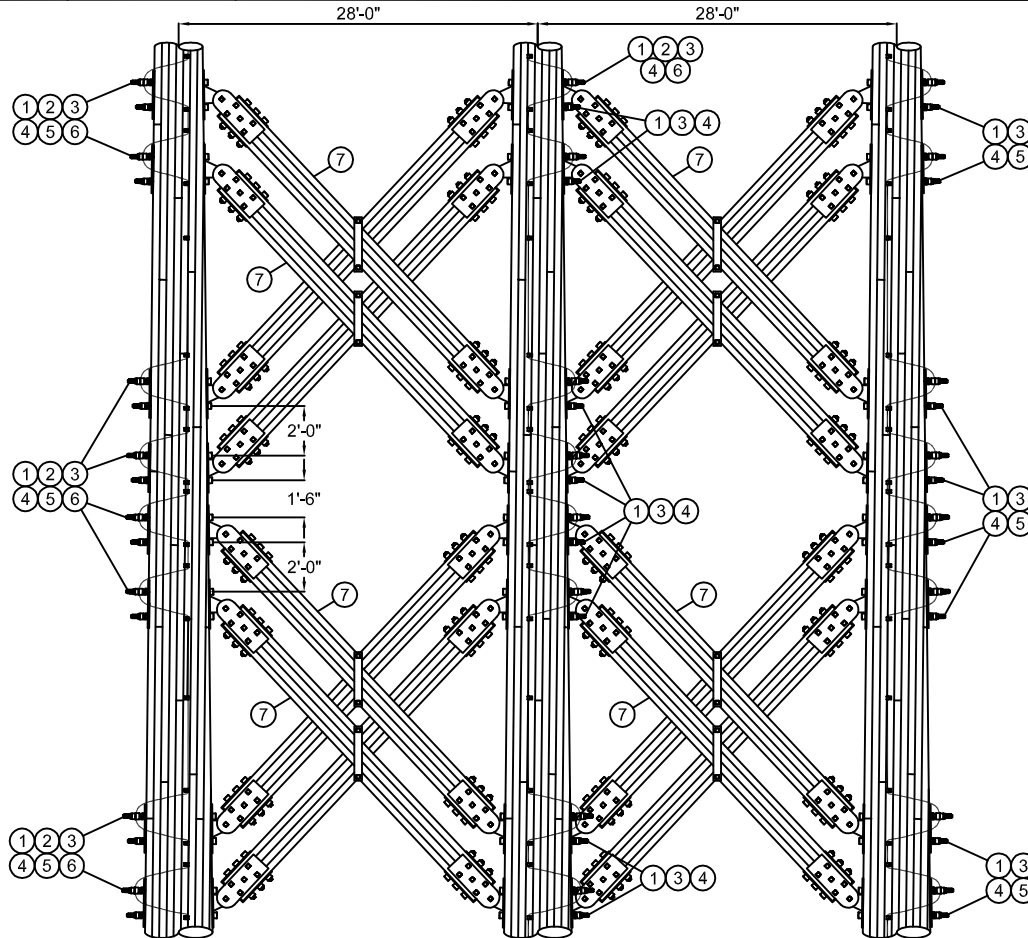
STRUCTURE STANDARDS
345KV X-BRACING - 3 SETS OF X-BRACES
28' POLE SPACING - 3-POLE STRUCTURE
LAMINATED POLES

REVISION
01
DATE
10/13/2015

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:	TM2.23.TQ-3W-M28-C	Sheet 1
C. Gauvin	8/20/2014	Becken/Hart	3/05/2015	Barry R. Hart	4/03/2015		

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-3W-M28-D
1	48	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	24	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	48	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	48	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	32	ST	30919368	WSHR FLAT 4 SQ 1/4 THK 15/16 HOLE
6	24	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	8	ST	30924046	XBRC LAM 5-1/8 X 7-1/2" ASSY 28F PS (NOTE B)



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: X-BRACE ASSEMBLY (ITEM #7) INCLUDES X-BRACE, MOUNTING TEES, GRID GAINS, CENTER PINS AND CENTER CLAMP. DO NOT USE GRID GAINS FOR LAMINATED POLES.

NOTE C: IF THE LAMINATED WOOD POLES HAVE A SPLICE AND THE ABOVE DIMENSIONS CAUSE X-BRACE MOUNTING BOLTS TO BE WITHIN 12" OF THE SPLICE PLATES THE INSTALLATION LOCATION OF THE X-BRACES SHALL BE FIELD MODIFIED DOWN THE POLE SUCH THAT THE NEAREST X-BRACE MOUNTING BOLT IS 12" FROM THE SPLICE PLATES.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

STRUCTURE STANDARDS
345KV X-BRACING - 4 SETS OF X-BRACES
28' POLE SPACING - 3-POLE STRUCTURE
LAMINATED POLES

REVISION
01
DATE
10/13/2015

Drwn. By: C. Gauvin
Date Dr.: 8/20/2014

Checked By: Becken/Hart

Date Ck.: 3/05/2015

Approved By: Barry R. Hart

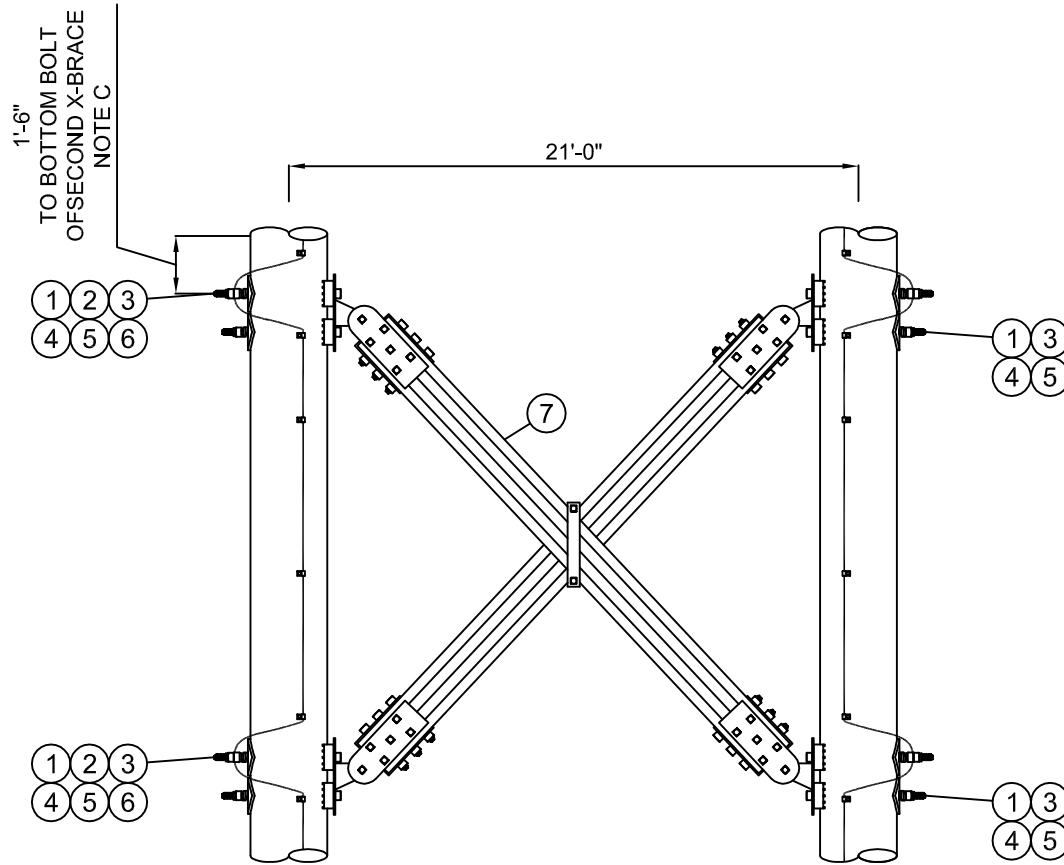
Date App.: 4/03/2015

TM2.23.TQ-3W-M28-D

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-3W-X21-A
1	8	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	4	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	8	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	8	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	8	ST	30919393	WSHR CRVD CAST 4 SQ 7/16 THK 15/16 HOLE
6	4	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	1	ST	30924047	XBRC LAM 6 X 6-3/4" ASSY 21F PS (NOTE B)



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: X-BRACE ASSEMBLY (ITEM #7) INCLUDES X-BRACE, MOUNTING TEES, GRID GAINS, CENTER PINS AND CENTER CLAMP.

NOTE C: 345KV STRUCTURES USING 100' LONG POLES OR LONGER REQUIRE (2) CROSS BRACES. THE X-BRACES SHALL BE SEPARATED BY 1'-6" PER THE DIMENSION ON THE DETAIL.

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 5'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
345KV X-BRACING
21' POLE SPACING
ROUND WOOD POLES**

REVISION
01
DATE
10/15/2015

Drwn. By: C. Gauvin
Date Dr.: 10/04/2013

Checked By: Becken/Hart

Date Ck.: 3/05/2015

Approved By: Barry R. Hart

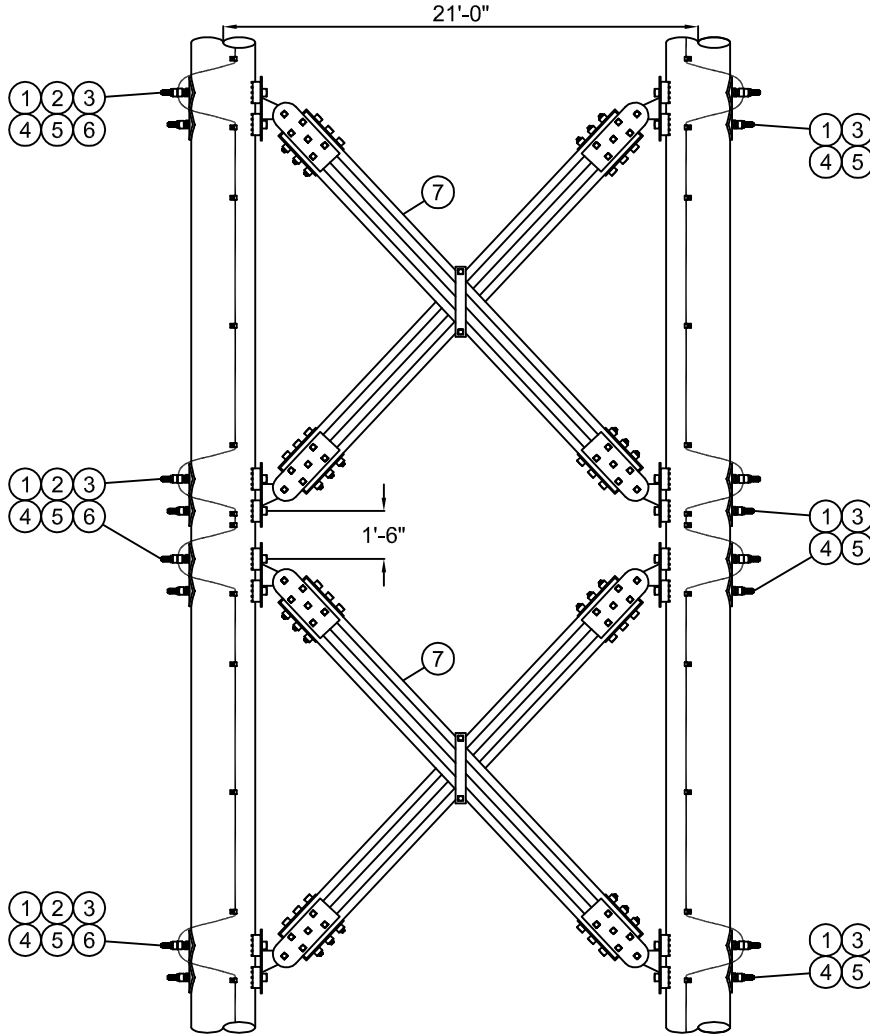
Date App.: 4/02/2015

TM2.23.TQ-3W-X21-A

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-3W-X21-B
1	16	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	8	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	16	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	16	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	16	ST	30919393	WSHR CRVD CAST 4 SQ 7/16 THK 15/16 HOLE
6	8	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	2	ST	30924047	XBRC LAM 6 X 6-3/4" ASSY 21F PS (NOTE B)



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: X-BRACE ASSEMBLY (ITEM #7) INCLUDES X-BRACE, MOUNTING TEES, GRID GAINS, CENTER PINS AND CENTER CLAMP.

NOTE C: 345KV STRUCTURES USING 100' LONG POLES OR LONGER REQUIRE (2) CROSS BRACES.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
345KV X-BRACING - 2 X-BRACES
21' POLE SPACING
ROUND WOOD POLES**

REVISION
01
DATE
10/15/2015

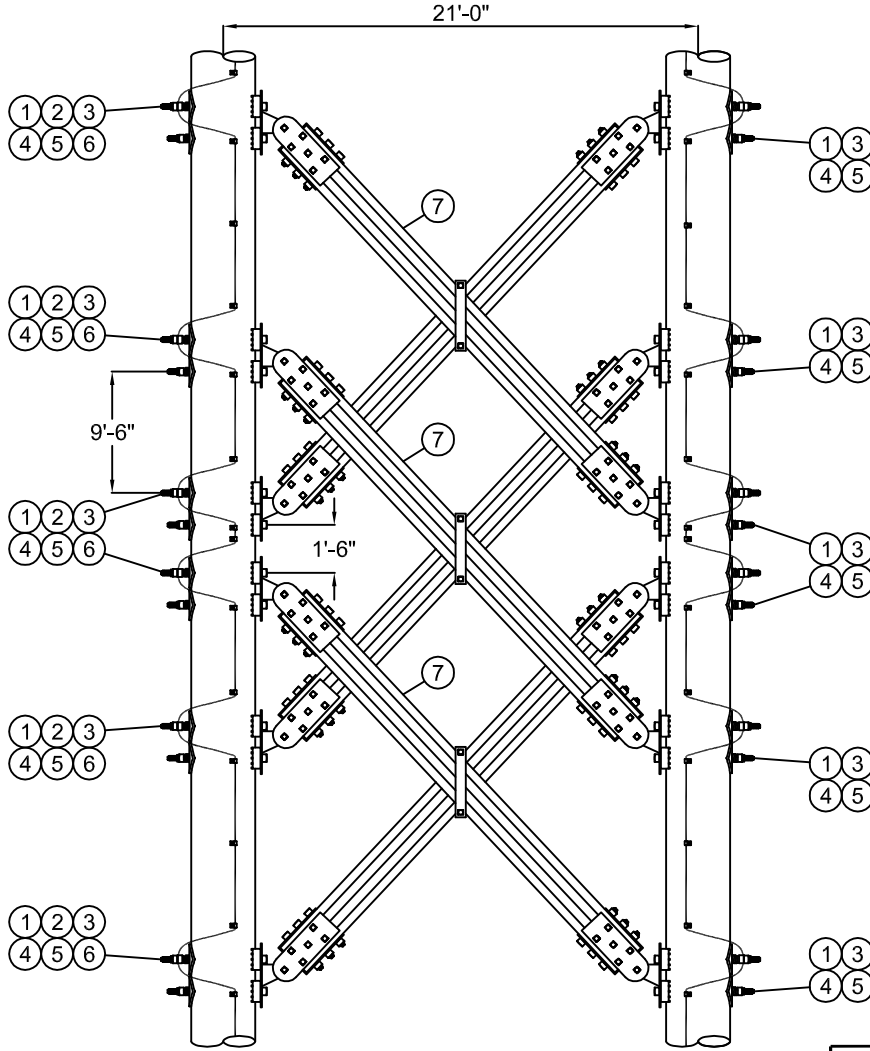
Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
C. Gauvin	10/15/2013	Becken/Hart	3/05/2015	Barry R. Hart	4/03/2015

TM2.23.TQ-3W-X21-B

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-3W-X21-C
1	24	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	12	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	24	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	24	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	24	ST	30919393	WSHR CRVD CAST 4 SQ 7/16 THK 15/16 HOLE
6	12	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	3	ST	30924047	XBRC LAM 6 X 6-3/4" ASSY 21F PS (NOTE B)



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: X-BRACE ASSEMBLY (ITEM #7) INCLUDES X-BRACE, MOUNTING TEES, GRID GAINS, CENTER PINS AND CENTER CLAMP.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
345KV X-BRACING - 3 X-BRACES
21' POLE SPACING
ROUND WOOD POLES**

REVISION
01
DATE
10/15/2015

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
C. Gauvin	8/07/2014	Becken/Hart	3/05/2015	Barry R. Hart	4/03/2015

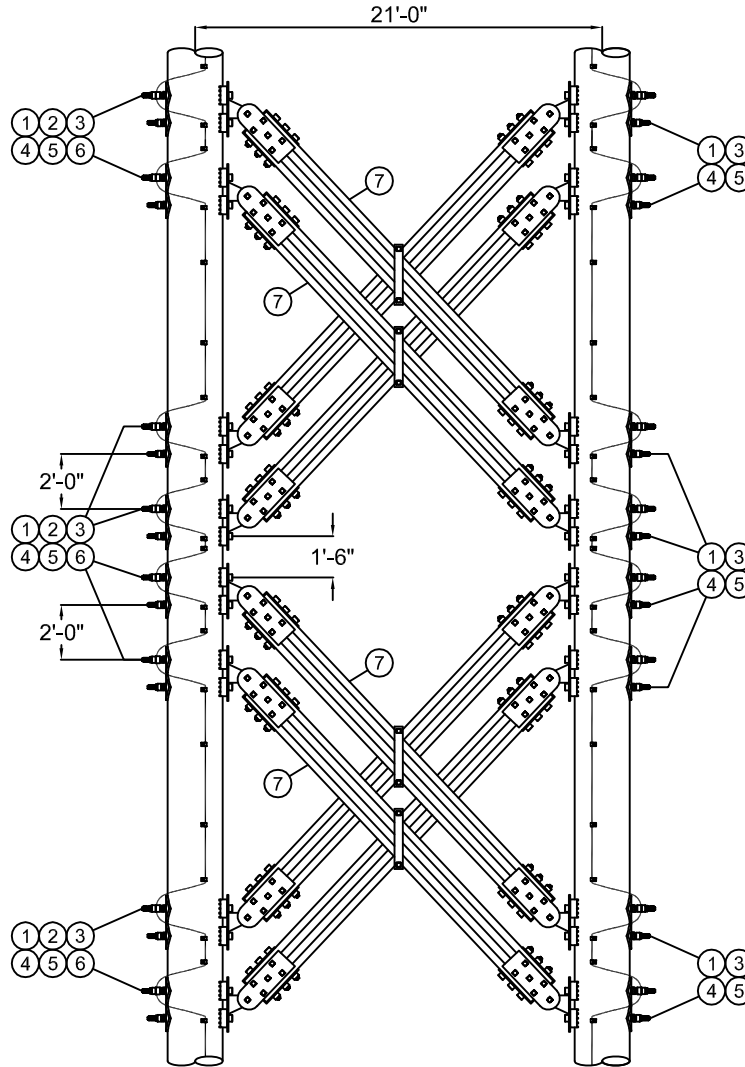
TM2.23.TQ-3W-X21-C

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

CU: U*PT-TQ-3W-X21-D

ITEM NO.	QTY.	UOM	IUSA MID	
1	32	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	16	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	32	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	32	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	32	ST	30919393	WSHR CRVD CAST 4 SQ 7/16 THK 15/16 HOLE
6	16	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	4	ST	30924047	XBRC LAM 6 X 6-3/4" ASSY 21F PS (NOTE B)



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: X-BRACE ASSEMBLY (ITEM #7) INCLUDES X-BRACE, MOUNTING TEES, GRID GAINS, CENTER PINS AND CENTER CLAMP.

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 7'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
345KV X-BRACING - 4 X-BRACES
21' POLE SPACING
ROUND WOOD POLES**

REVISION
01
DATE
10/15/2015

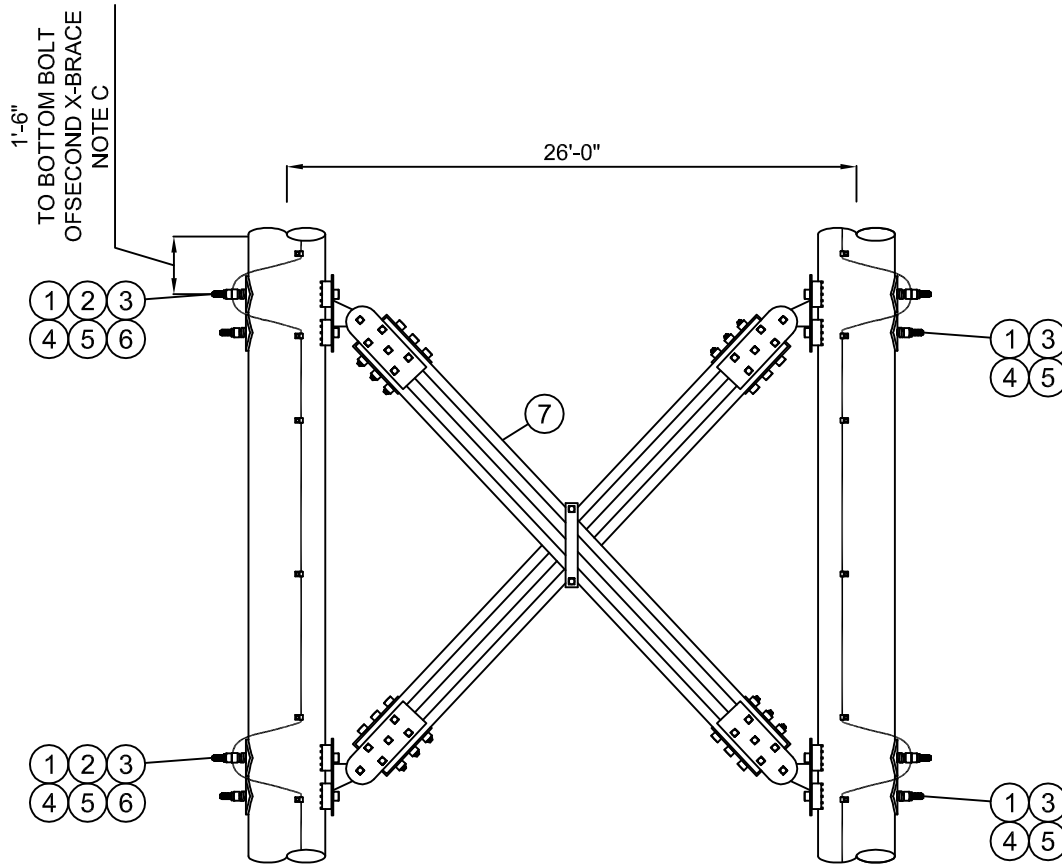
Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
C. Gauvin	10/17/2013	Becken/Hart	3/05/2015	Barry R. Hart	4/03/2015

TM2.23.TQ-3W-X21-D

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-3W-X26-A
1	8	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	4	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	8	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	8	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	8	ST	30919393	WSHR CRVD CAST 4 SQ 7/16 THK 15/16 HOLE
6	4	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	1	ST	30924048	XBRC LAM 6 X 6-3/4 ASSY 26F PS (NOTE B)



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: X-BRACE ASSEMBLY (ITEM #7) INCLUDES X-BRACE, MOUNTING TEES, GRID GAINS, CENTER PINS AND CENTER CLAMP.

NOTE C: 345KV STRUCTURES USING 100' LONG POLES OR LONGER REQUIRE (2) CROSS BRACES. THE X-BRACES SHALL BE SEPARATED BY 1'-6" PER THE DIMENSION ON THE DETAIL.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 5'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
345KV X-BRACING
26' POLE SPACING
ROUND WOOD POLES**

REVISION
01
DATE
10/15/2015

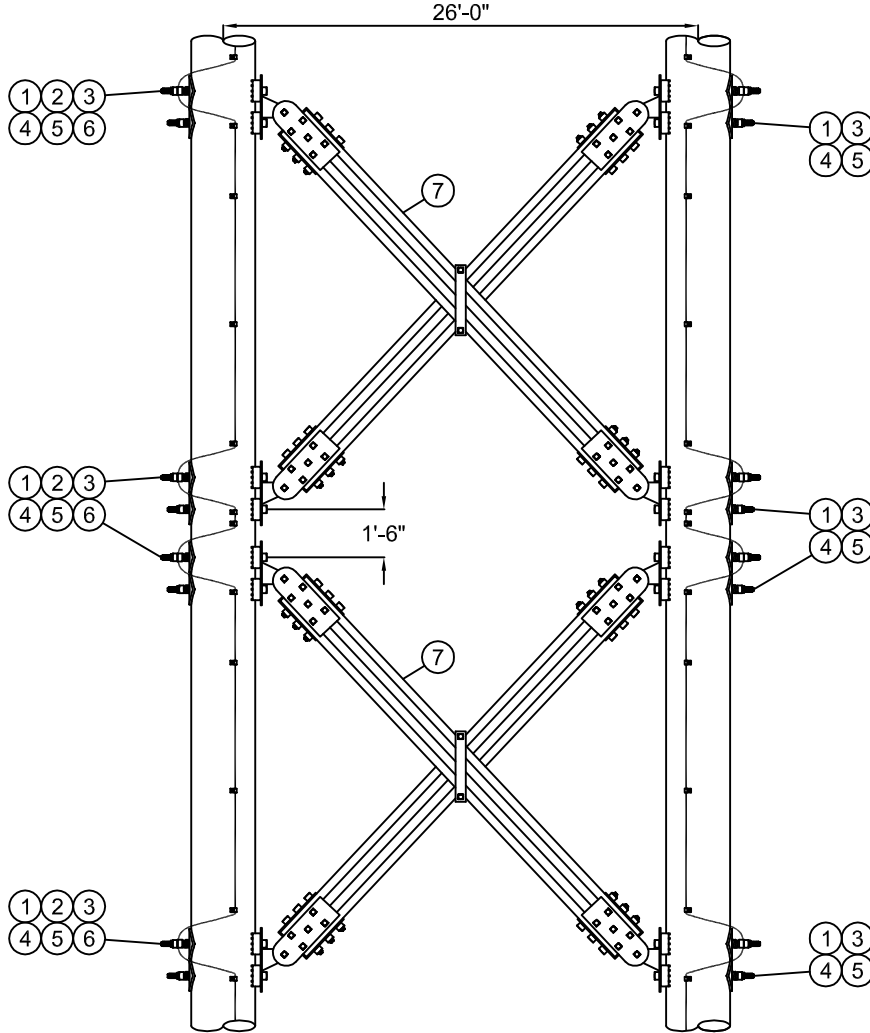
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C. Gauvin	10/04/2013	Becken/Hart	3/05/2015	Barry R. Hart	4/03/2015

TM2.23.TQ-3W-X26-A

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-3W-X26-B
1	16	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	8	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	16	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	16	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	16	ST	30919393	WSHR CRVD CAST 4 SQ 7/16 THK 15/16 HOLE
6	8	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	2	ST	30924048	XBRC LAM 6 X 6-3/4 ASSY 26F PS (NOTE B)



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: X-BRACE ASSEMBLY (ITEM #7) INCLUDES X-BRACE, MOUNTING TEES, GRID GAINS, CENTER PINS AND CENTER CLAMP.

NOTE C: 345KV STRUCTURES USING 100' LONG POLES OR LONGER REQUIRE (2) CROSS BRACES.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
345KV X-BRACING - 2 X-BRACES
26' POLE SPACING
ROUND WOOD POLES**

REVISION
01
DATE
10/15/2015

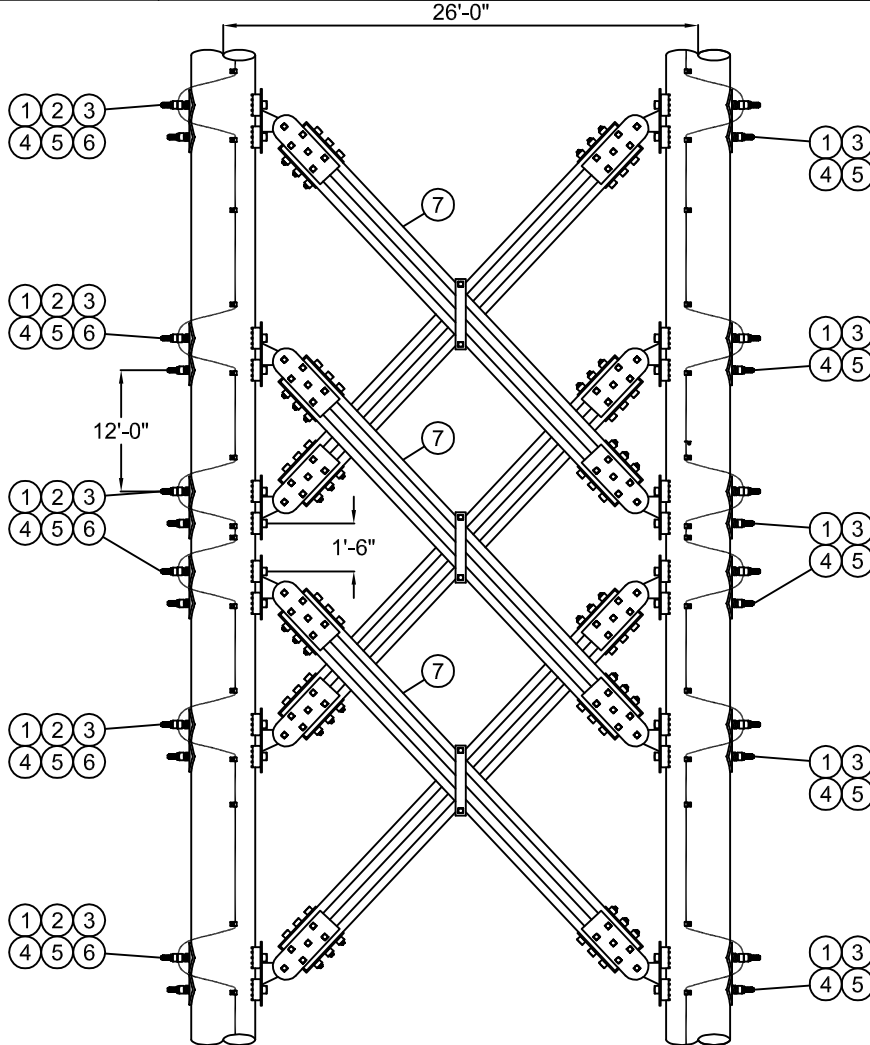
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C. Gauvin	10/16/2013	Becken/Hart	3/05/2015	Barry R. Hart	4/03/2015

TM2.23.TQ-3W-X26-B

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-3W-X26-C
1	24	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	12	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	24	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	24	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	24	ST	30919393	WSHR CRVD CAST 4 SQ 7/16 THK 15/16 HOLE
6	12	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	3	ST	30924048	XBRC LAM 6 X 6-3/4 ASSY 26F PS (NOTE B)



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: X-BRACE ASSEMBLY (ITEM #7) INCLUDES X-BRACE, MOUNTING TEES, GRID GAINS, CENTER PINS AND CENTER CLAMP.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
345KV X-BRACING - 3 X-BRACES
26' POLE SPACING
ROUND WOOD POLES**

REVISION
01
DATE
10/15/2015

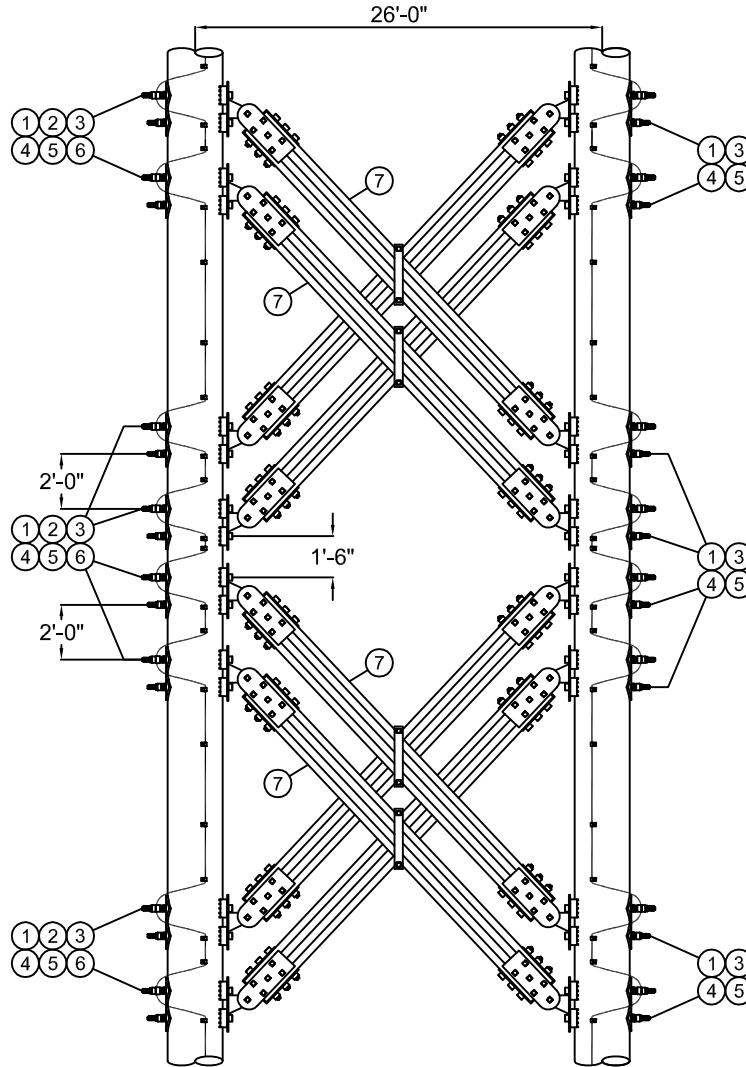
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C. Gauvin	8/07/2014	Becken/Hart	3/05/2015	Barry R. Hart	4/02/2015

TM2.23.TQ-3W-X26-C

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	NYSEG MID	CU: U*PT-TQ-3W-X26-D
1	32	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	16	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	32	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	32	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	32	ST	30919393	WSHR CRVD CAST 4 SQ 7/16 THK 15/16 HOLE
6	16	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	4	ST	30924048	XBRC LAM 6 X 6-3/4 ASSY 26F PS (NOTE B)



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: X-BRACE ASSEMBLY (ITEM #7) INCLUDES X-BRACE, MOUNTING TEES, GRID GAINS, CENTER PINS AND CENTER CLAMP.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 7'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
345KV X-BRACING - 4 X-BRACES
26' POLE SPACING
ROUND WOOD POLES**

REVISION
01
DATE
10/15/2015

Drwn. By: C. Gauvin
Date Dr.: 10/17/2013

Checked By: Becken/Hart

Date Ck.: 3/05/2015

Approved By: Barry R. Hart

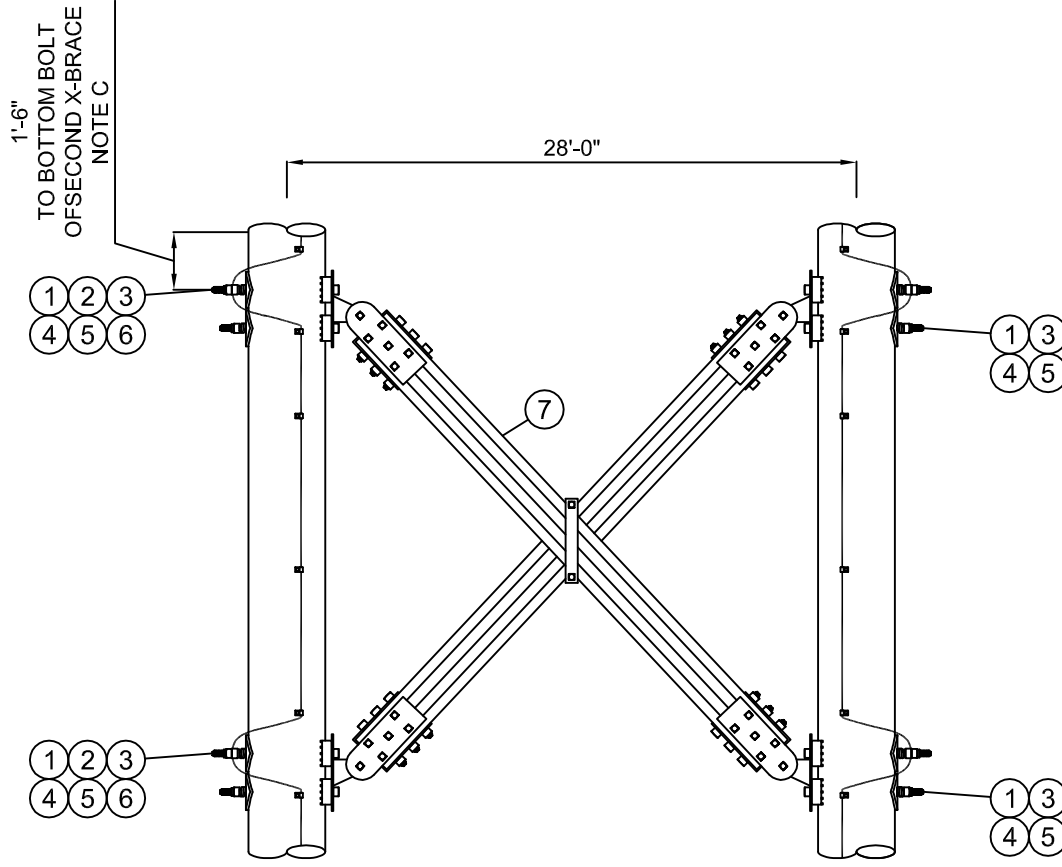
Date App.: 4/02/2015

TM2.23.TQ-3W-X26-D

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-3W-X28-A
1	8	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	4	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	8	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	8	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	8	ST	30919393	WSHR CRVD CAST 4 SQ 7/16 THK 15/16 HOLE
6	4	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	1	ST	30924046	XBRC LAM 5-1/8 X 7-1/2 ASSY 28F PS (NOTE B)



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: X-BRACE ASSEMBLY (ITEM #7) INCLUDES X-BRACE, MOUNTING TEES, GRID GAINS, CENTER PINS AND CENTER CLAMP.

NOTE C: 345KV STRUCTURES USING 100' LONG POLES OR LONGER REQUIRE (2) CROSS BRACES. THE X-BRACES SHALL BE SEPARATED BY 1'-6" PER THE DIMENSION ON THE DETAIL.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 5'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
345KV X-BRACING
28' POLE SPACING
ROUND WOOD POLES**

REVISION
01
DATE
10/15/2015

Drwn. By: C. Gauvin
Date Dr.: 10/04/2013

Checked By: Becken/Hart

Date Ck.: 3/05/2015

Approved By: Barry R. Hart

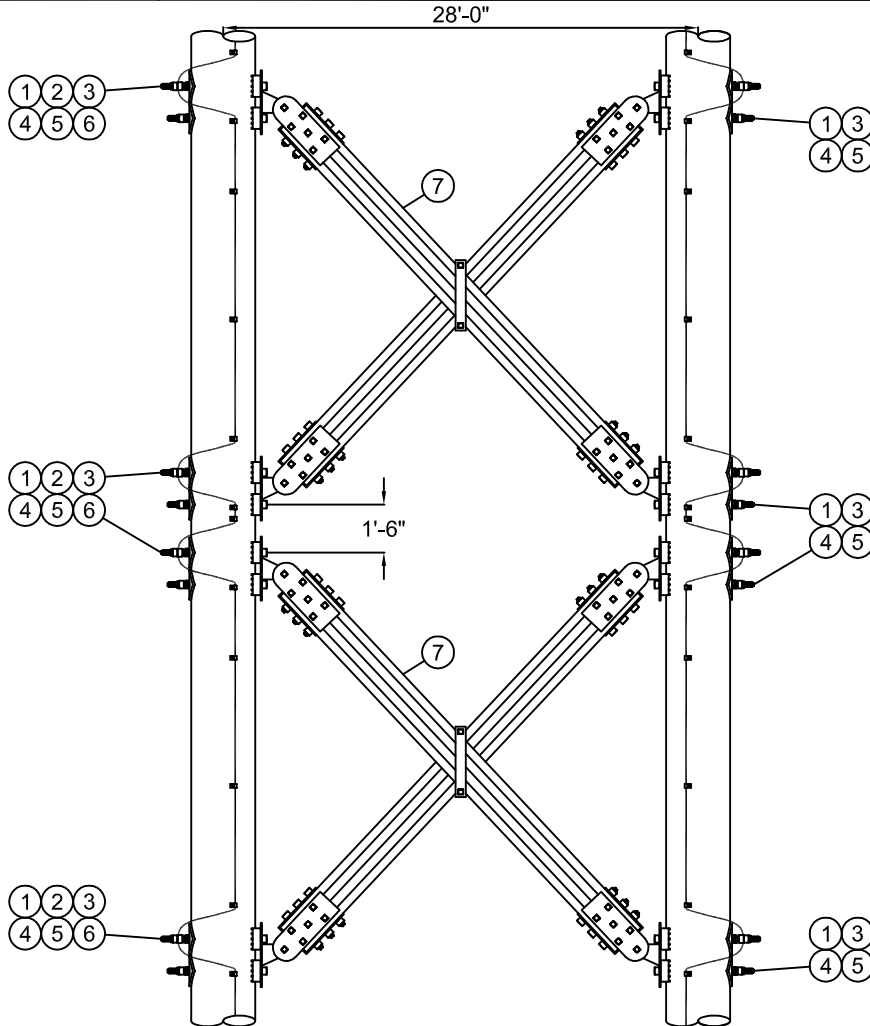
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TM2.23.TQ-3W-X28-A

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-3W-X28-B
1	16	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	8	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	16	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	16	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	16	ST	30919393	WSHR CRVD CAST 4 SQ 7/16 THK 15/16 HOLE
6	8	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	2	ST	30924046	XBRC LAM 5-1/8 X 7-1/2 ASSY 28F PS (NOTE B)



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: X-BRACE ASSEMBLY (ITEM #7) INCLUDES X-BRACE, MOUNTING TEES, GRID GAINS, CENTER PINS AND CENTER CLAMP.

NOTE C: 345kV STRUCTURES USING 100' LONG POLES OR LONGER REQUIRE (2) CROSS BRACES.

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
345KV X-BRACING - 2 X-BRACES
28' POLE SPACING
ROUND WOOD POLES**

REVISION
01
DATE
10/15/2015

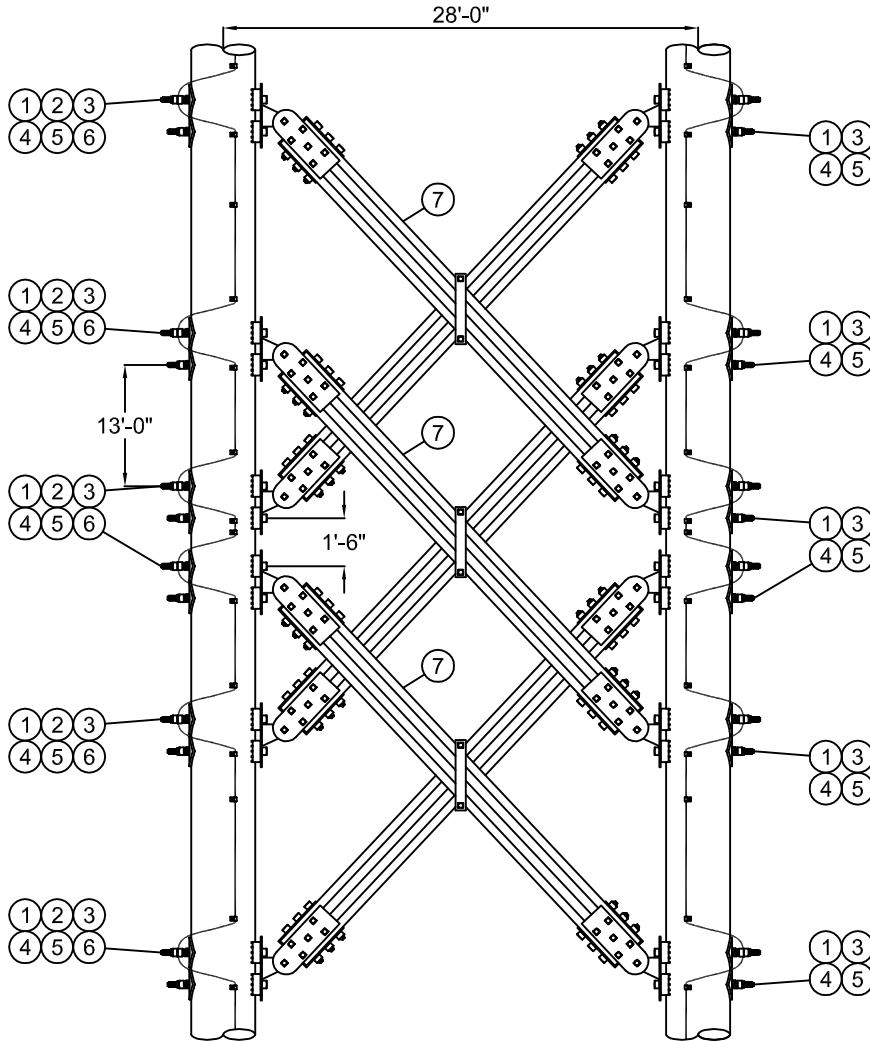
Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
C. Gauvin	10/16/2013	Becken/Hart	3/05/2015	Barry R. Hart	4/02/2015

TM2.23.TQ-3W-X28-B

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-3W-X28-C
1	24	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	12	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	24	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	24	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	24	ST	30919393	WSHR CRVD CAST 4 SQ 7/16 THK 15/16 HOLE
6	12	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	3	ST	30924046	XBRC LAM 5-1/8 X 7-1/2 ASSY 28F PS (NOTE B)



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: X-BRACE ASSEMBLY (ITEM #7) INCLUDES X-BRACE, MOUNTING TEES, GRID GAINS, CENTER PINS AND CENTER CLAMP.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
345KV X-BRACING - 3 X-BRACES
28' POLE SPACING
ROUND WOOD POLES**

REVISION
01
DATE
10/15/2015

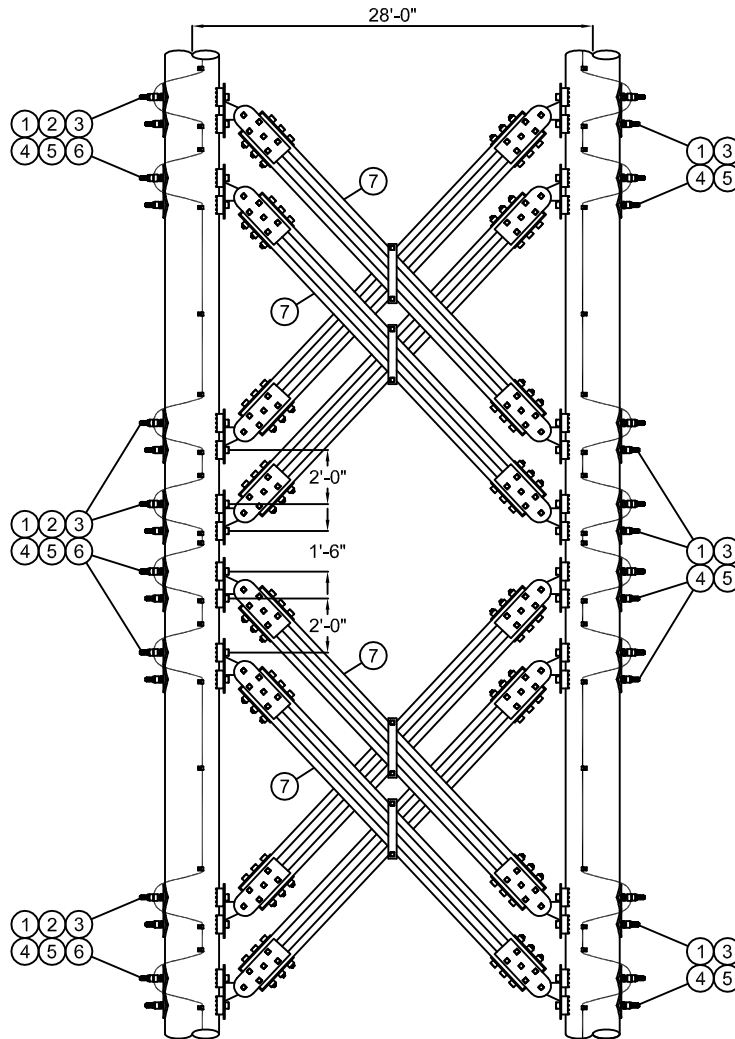
Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
C. Gauvin	8/13/2014	Becken/Hart	3/05/2015	Barry R. Hart	4/02/2015

TM2.23.TQ-3W-X28-C

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-3W-X28-D
1	32	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	16	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	32	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	32	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	32	ST	30919393	WSHR CRVD CAST 4 SQ 7/16 THK 15/16 HOLE
6	16	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	4	ST	30924046	XBRC LAM 5-1/8 X 7-1/2 ASSY 28F PS (NOTE B)



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: X-BRACE ASSEMBLY (ITEM #7) INCLUDES X-BRACE, MOUNTING TEES, GRID GAINS, CENTER PINS AND CENTER CLAMP.

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
345KV X-BRACING - 4 X-BRACES
28' POLE SPACING
ROUND WOOD POLES**

REVISION
01
DATE
10/15/2015

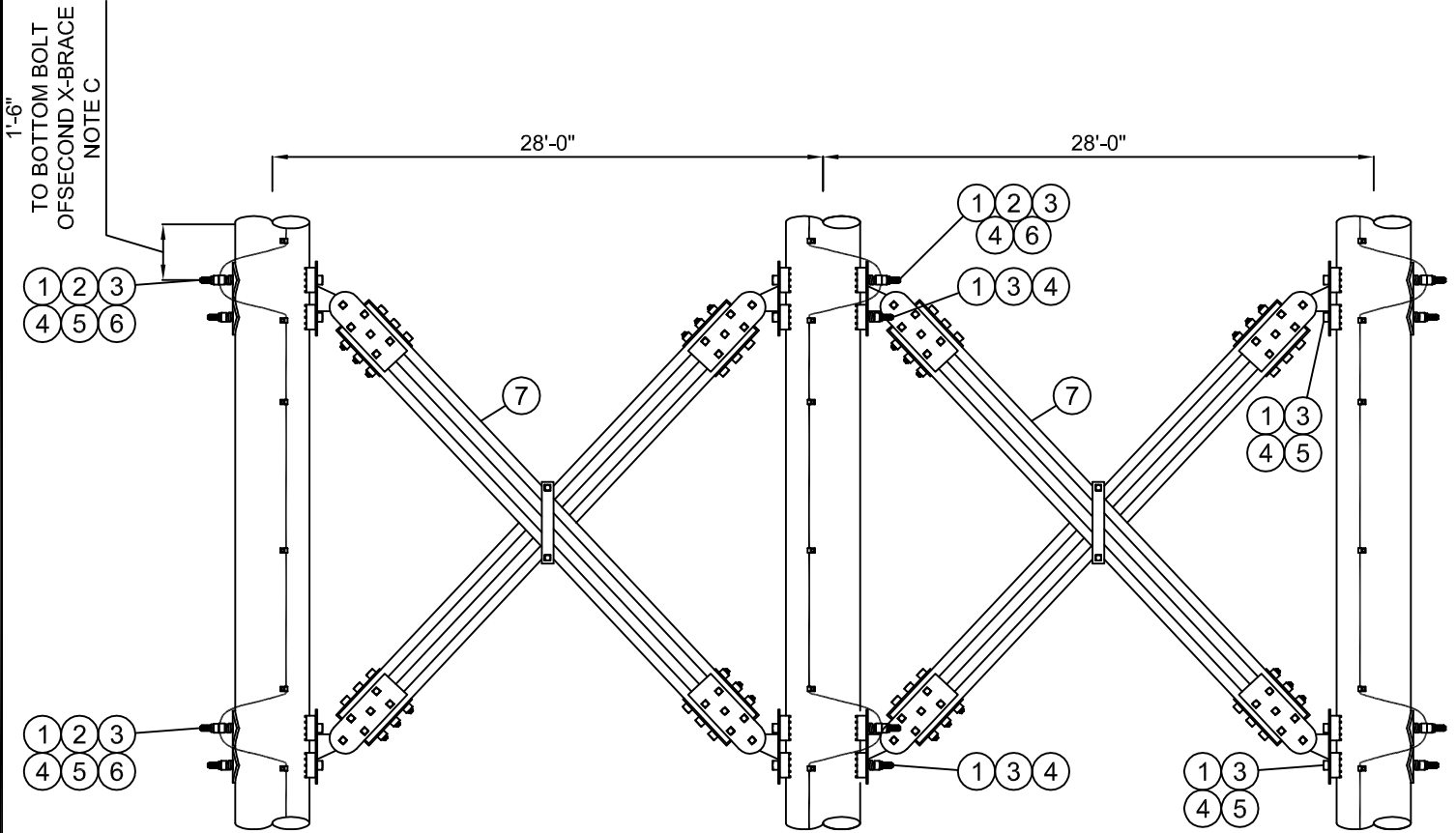
Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
C. Gauvin	8/13/2014	Becken/Hart	3/05/2015	Barry R. Hart	4/02/2015

TM2.23.TQ-3W-X28-D

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-3W-Y28-A
1	12	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	6	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	12	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	12	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	8	ST	30919393	WSHR CRVD CAST 4 SQ 7/16 THK 15/16 HOLE
6	6	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	2	ST	30924046	XBRC LAM 5-1/8 X 7-1/2 ASSY 28F PS (NOTE B)



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: X-BRACE ASSEMBLY (ITEM #7) INCLUDES X-BRACE, MOUNTING TEES, GRID GAINS, CENTER PINS AND CENTER CLAMP.

NOTE C: 345KV STRUCTURES USING 100' LONG POLES OR LONGER REQUIRE (2) CROSS BRACES. THE X-BRACES SHALL BE SEPARATED BY 1'-6" PER THE DIMENSION ON THE DETAIL.

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

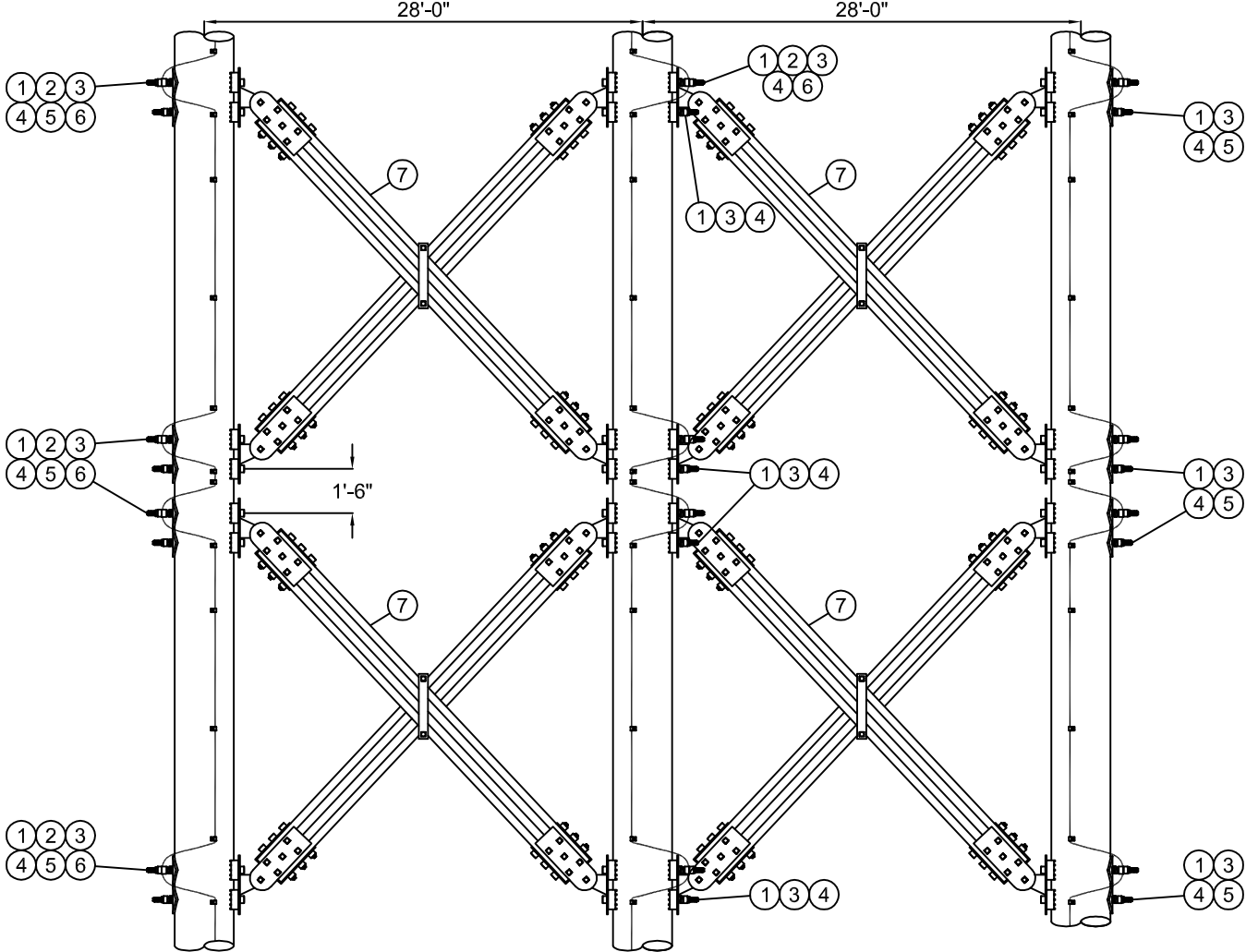
Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 5'

	TRANSMISSION CONSTRUCTION STANDARDS MANUAL	STRUCTURE STANDARDS 345KV X-BRACING 28' POLE SPACING - 3-POLE STRUCTURE ROUND WOOD POLES				REVISION 01
						DATE 10/15/2015
Drwn. By: C. Gauvin	Date Dr.: 8/15/2014	Checked By: Becken/Hart	Date Ck.: 3/05/2015	Approved By: Barry R. Hart	Date App.: 4/02/2015	TM2.23.TQ-3W-Y28-A Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-3W-Y28-B
1	24	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	12	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	24	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	24	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	16	ST	30919393	WSHR CRVD CAST 4 SQ 7/16 THK 15/16 HOLE
6	12	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	4	ST	30924046	XBRC LAM 5-1/8 X 7-1/2 ASSY 28F PS (NOTE B)



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: X-BRACE ASSEMBLY (ITEM #7) INCLUDES X-BRACE, MOUNTING TEES, GRID GAINS, CENTER PINS AND CENTER CLAMP.

NOTE C: 345KV STRUCTURES USING 100' LONG POLES OR LONGER REQUIRE (2) CROSS BRACES.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

STRUCTURE STANDARDS
345KV X-BRACING - 2 SETS OF X-BRACES
28' POLE SPACING - 3-POLE STRUCTURE
ROUND WOOD POLES

REVISION
01
DATE
10/15/2015

Drwn. By: C. Gauvin
Date Dr.: 8/19/2014

Checked By: Becken/Hart

Date Ck.: 3/05/2015

Approved By: Barry R. Hart

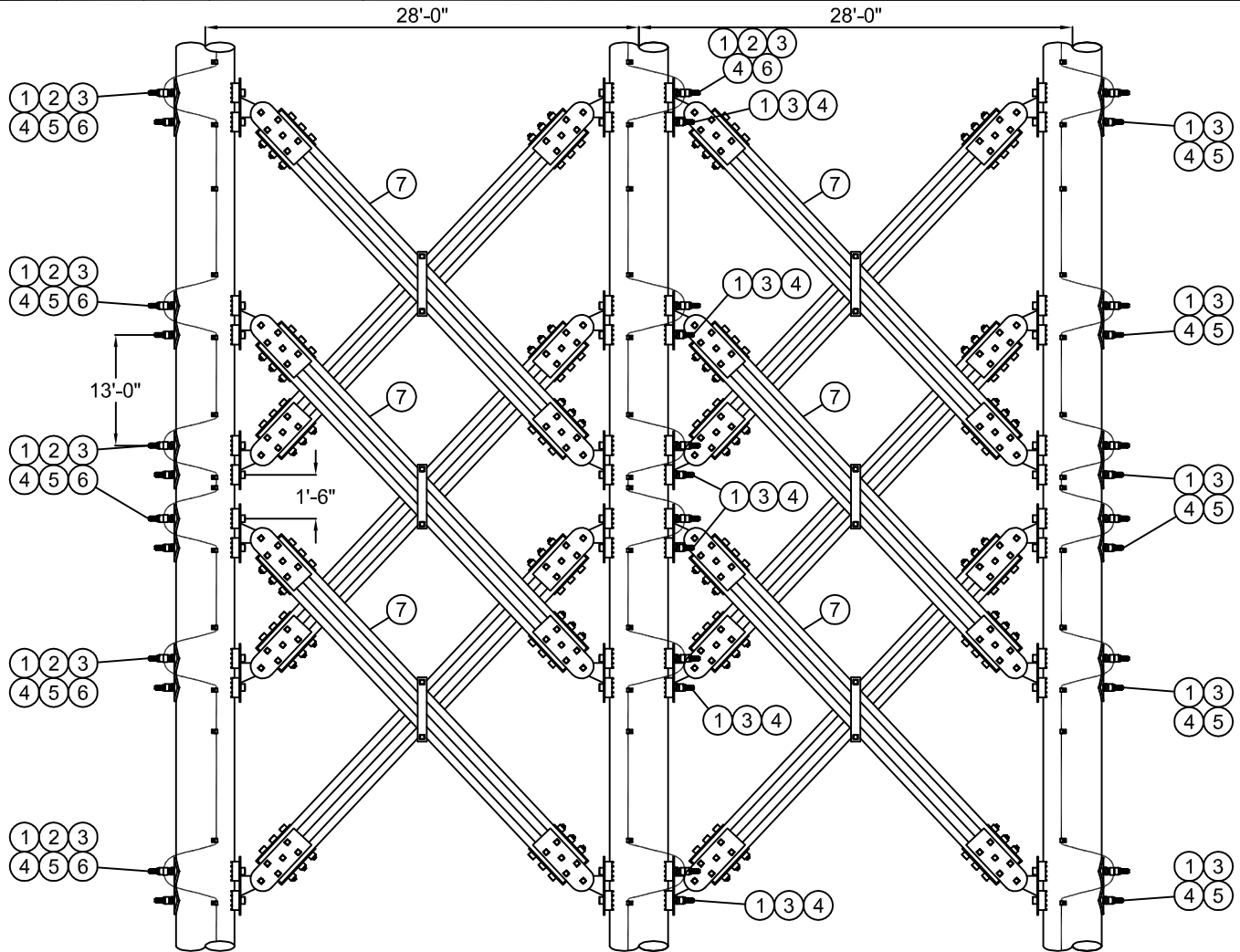
Date App.: 4/02/2015

TM2.23.TQ-3W-Y28-B

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-3W-Y28-C
1	36	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	18	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	36	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	36	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	24	ST	30919393	WSHR CRVD CAST 4 SQ 7/16 THK 15/16 HOLE
6	18	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	6	ST	30924046	XBRC LAM 5-1/8 X 7-1/2 ASSY 28F PS (NOTE B)



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: X-BRACE ASSEMBLY (ITEM #7) INCLUDES X-BRACE, MOUNTING TEES, GRID GAINS, CENTER PINS AND CENTER CLAMP.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

STRUCTURE STANDARDS
345KV X-BRACING - 3 SETS OF X-BRACES
28' POLE SPACING - 3-POLE STRUCTURE
ROUND WOOD POLES

REVISION
01
DATE
10/15/2015

Drwn. By: C. Gauvin
Date Dr.: 8/19/2014

Checked By: Becken/Hart

Date Ck.: 3/05/2015

Approved By: Barry R. Hart

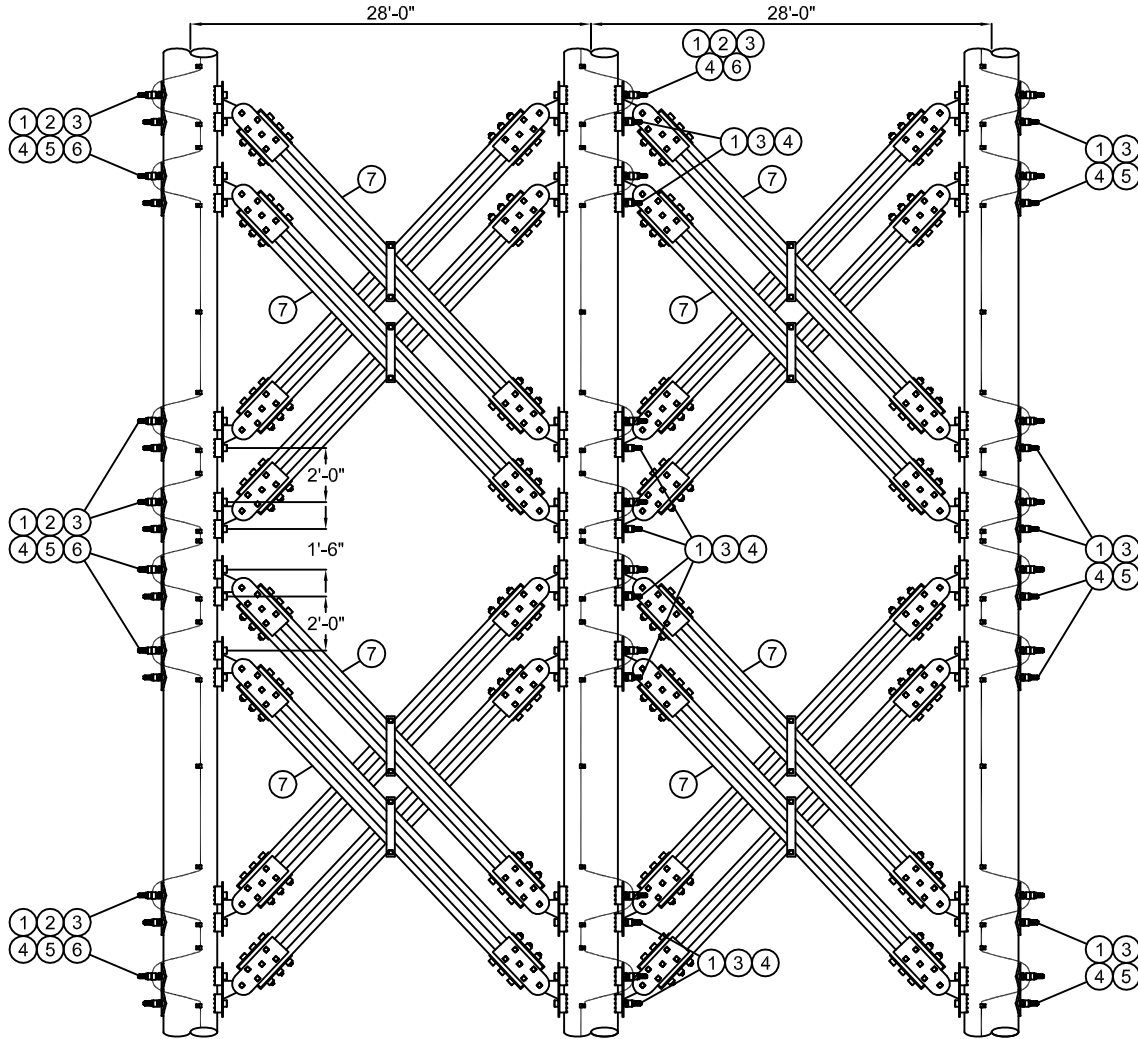
Date App.: 4/03/2015

TM2.23.TQ-3W-Y28-C

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-3W-Y28-D
1	48	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	24	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	48	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	48	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	32	ST	30919393	WSHR CRVD CAST 4 SQ 7/16 THK 15/16 HOLE
6	24	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	8	ST	30924046	XBRC LAM 5-1/8 X 7-1/2 ASSY 28F PS (NOTE B)



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: X-BRACE ASSEMBLY (ITEM #7) INCLUDES X-BRACE, MOUNTING TEES, GRID GAINS, CENTER PINS AND CENTER CLAMP.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

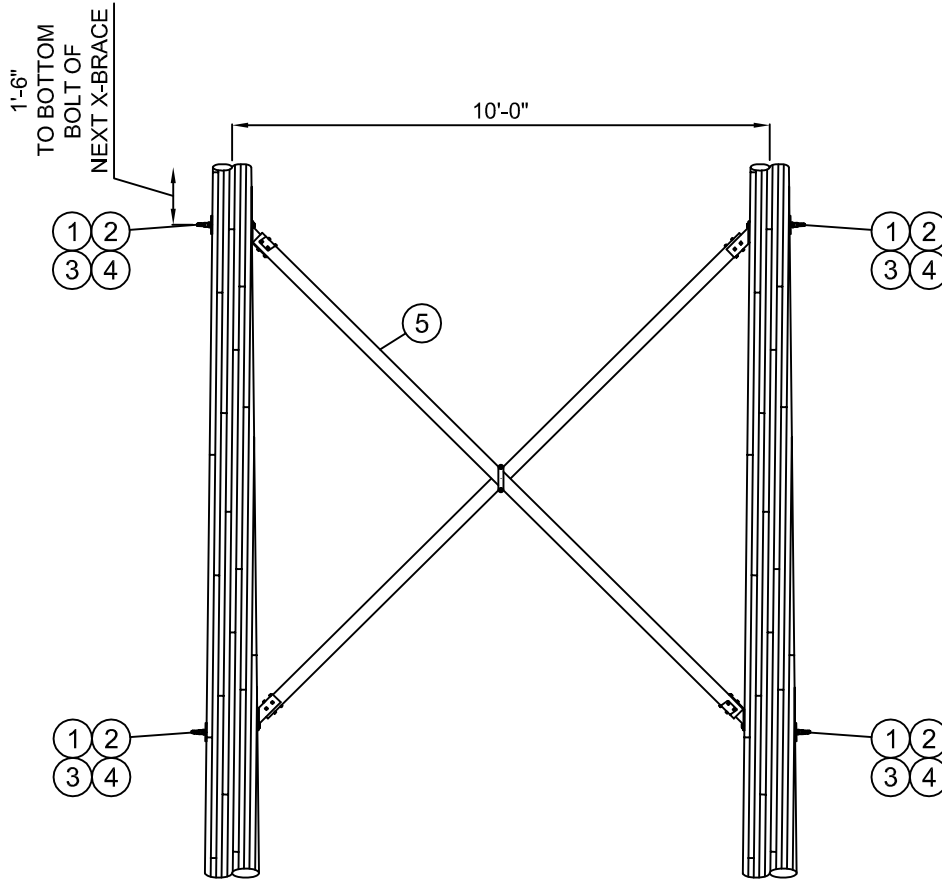
STRUCTURE STANDARDS
345KV X-BRACING - 4 SETS OF X-BRACES
28' POLE SPACING - 3-POLE STRUCTURE
ROUND WOOD POLES

REVISION
01
DATE
10/15/2015

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:	TM2.23.TQ-3W-Y28-D	Sheet 1
C. Gauvin	8/19/2014	Becken/Hart	3/05/2015	Barry R. Hart	4/02/2015		

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-5W-L10-A
1	4	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	4	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
3	4	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
4	4	ST	30919368	WSHR FLAT 4 SQ 1/4 THK 15/16 HOLE
5	1	ST	30924053	XBRC WD 10F PS



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE C: 35KV, 46KV, AND 69KV STRUCTURES USING 60' LONG POLES OR LONGER REQUIRE (2) CROSS BRACES.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 5'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

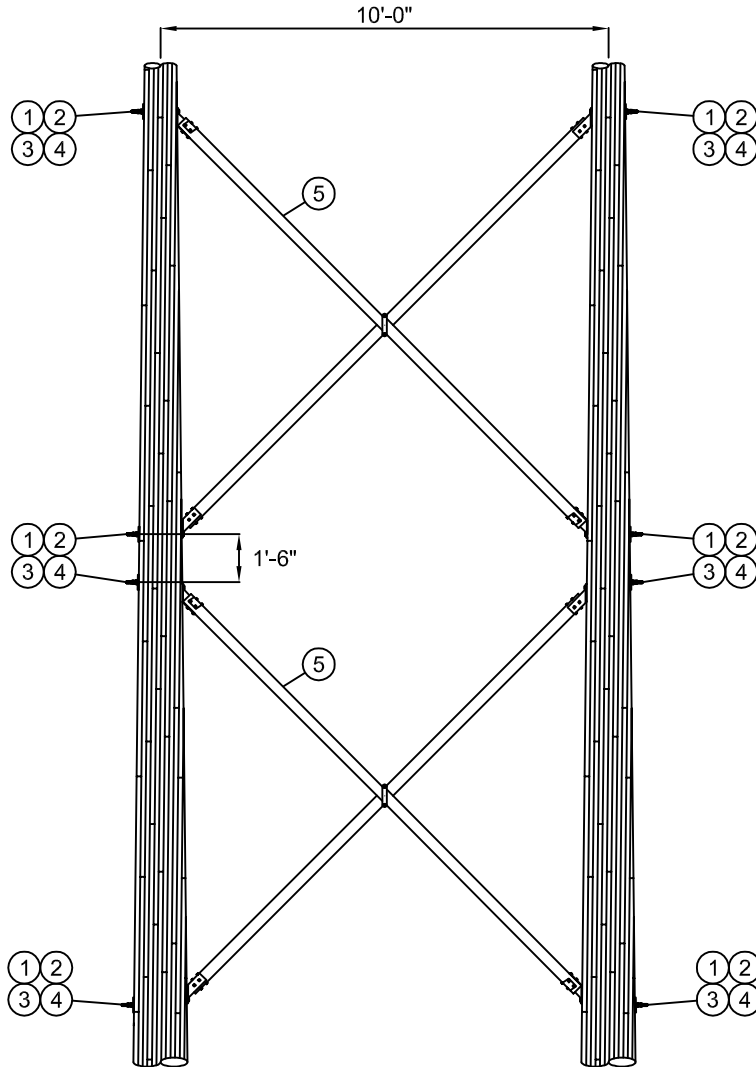
**STRUCTURE STANDARDS
35KV/46KV/69KV X-BRACING
10' POLE SPACING - MAINTENANCE ONLY
LAMINATED WOOD POLES**

REVISION
01
DATE
10/13/2015

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:	TM2.23.TQ-5W-L10-A	Sheet 1
C. Gauvin	10/10/2012	Becken/Hart	3/05/2015	Barry R. Hart	4/02/2015		

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	NYSEG MID	CU: U*PT-TQ-5W-L10-B
1	8	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	8	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
3	8	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
4	8	ST	30919368	WSHR FLAT 4 SQ 1/4 THK 15/16 HOLE
5	2	ST	30924053	XBRC WD 10F PS



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: 35kv, 46kv, AND 69kv STRUCTURES USING 60' LONG POLES OR LONGER REQUIRE (2) CROSS BRACES.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
35KV/46KV/69KV X-BRACING - 2 X-BRACES
10' POLE SPACING
LAMINATED POLES**

REVISION
01
DATE
10/13/2015

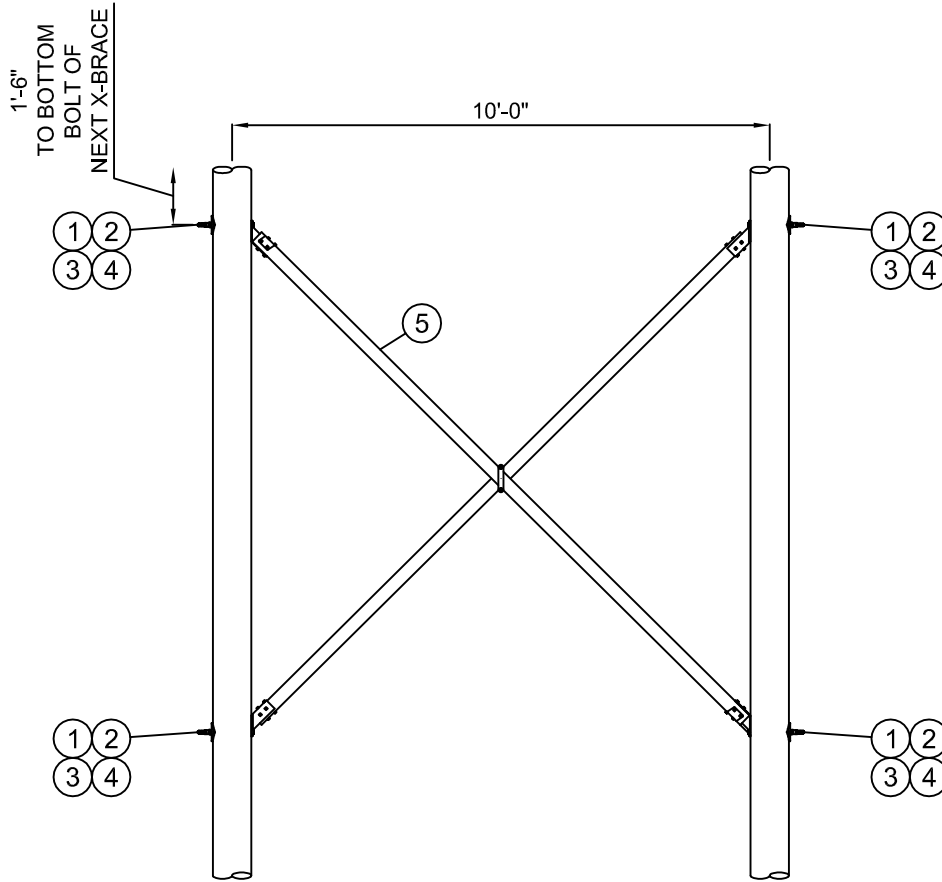
Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
C. Gauvin	10/11/2013	Becken/Hart	3/05/2015	Barry R. Hart	4/02/2015

TM2.23.TQ-5W-L10-B

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-5W-X10-A
1	4	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	4	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
3	4	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
4	4	ST	30919393	WSHR CRVD CAST 4 SQ 7/16 THK 15/16 HOLE
5	1	ST	30924053	XBRC WD 10F PS



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: 35kV, 46kV, AND 69kV STRUCTURES USING 60' LONG POLES OR LONGER REQUIRE (2) CROSS BRACES.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 5'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
35KV/46KV/69KV X-BRACING
10' POLE SPACING - MAINTENANCE ONLY
ROUND WOOD POLES**

REVISION
01
DATE
10/28/2015

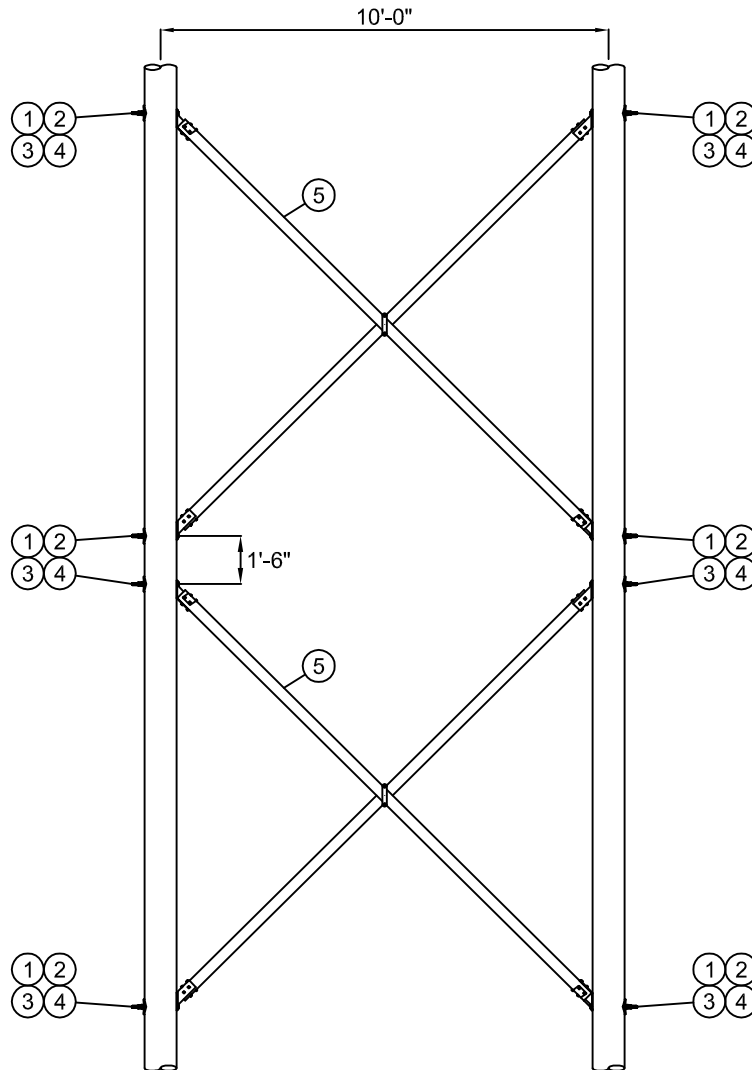
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C. Gauvin	10/10/2012	Becken/Hart	3/05/2015	Barry R. Hart	4/02/2015

TM2.23.TQ-5W-X10-A

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-5W-X10-B
1	8	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	8	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
3	8	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
4	8	ST	30919393	WSHR CRVD CAST 4 SQ 7/16 THK 15/16 HOLE
5	2	ST	30924053	XBRC WD 10F PS



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: 35KV, 46KV, AND 69KV STRUCTURES USING 60' LONG POLES OR LONGER REQUIRE (2) CROSS BRACES.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
35KV/46KV/69KV X-BRACING - 2 X-BRACES
10' POLE SPACING
ROUND WOOD POLES**

REVISION
01
DATE
10/28/2015

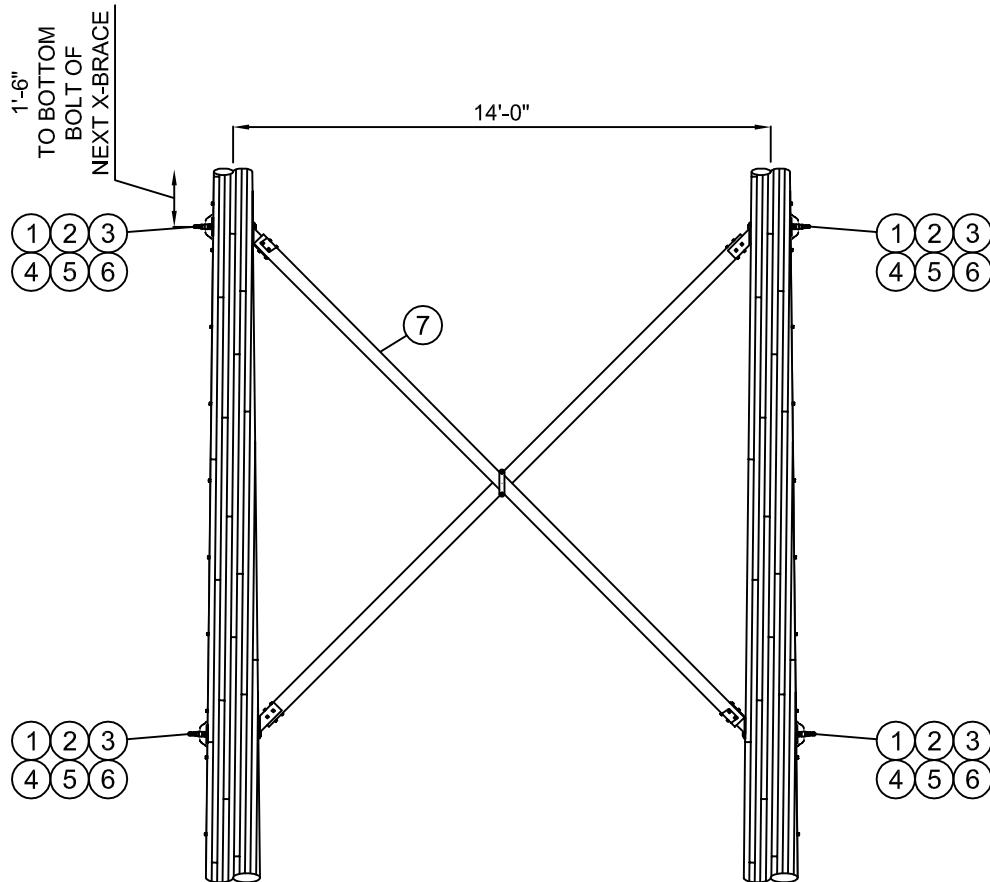
Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
C. Gauvin	10/10/2012	Becken/Hart	3/05/2015	Barry R. Hart	4/03/2015

TM2.23.TQ-5W-X10-B

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-9W-L14-A
1	4	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	4	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	4	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	4	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	4	ST	30919368	WSHR FLAT 4 SQ 1/4 THK 15/16 HOLE
6	4	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	1	ST	30924054	XBRC WD 14F PS



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: 69KV AND 115KV STRUCTURES USING 75' LONG POLES OR LONGER REQUIRE (2) CROSS BRACES.

THIS IS A COMPUTER GENERATED DRAWING - DO NOT REVISE MANUALLY

Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 5'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
69KV & 115KV X-BRACING
14' POLE SPACING
LAMINATED POLES**

REVISION
01
DATE
10/13/2015

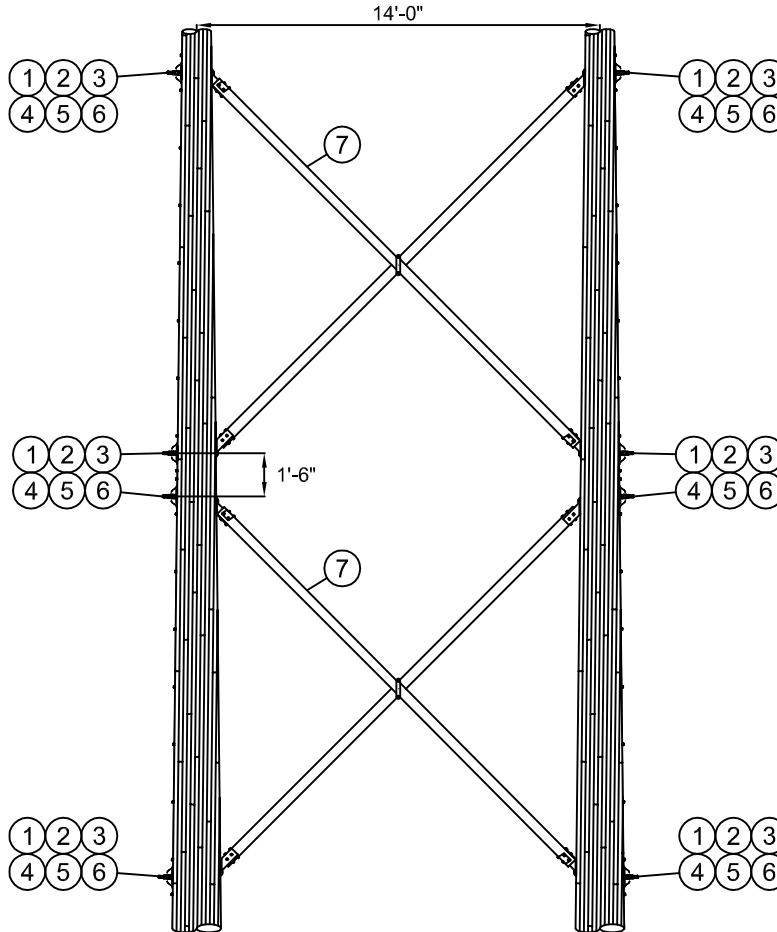
Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
C. Gauvin	10/04/2013	Becken/Hart	3/05/2015	Barry R. Hart	4/02/2015

TM2.23.TQ-9W-L14-A

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-9W-L14-B
1	8	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	8	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	8	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	8	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	8	ST	30919368	WSHR FLAT 4 SQ 1/4 THK 15/16 HOLE
6	8	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	2	ST	30924054	XBRC WD 14F PS



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: IF THE LAMINATED WOOD POLES HAVE A SPLICE AND THE ABOVE DIMENSIONS CAUSE X-BRACE MOUNTING BOLTS TO BE WITHIN 12" OF THE SPLICE PLATES THE INSTALLATION LOCATION OF THE X-BRACES SHALL BE FIELD MODIFIED DOWN THE POLE SUCH THAT THE NEAREST X-BRACE MOUNTING BOLT IS 12" FROM THE SPLICE PLATES.

NOTE C: 69KV AND 115KV STRUCTURES USING 75' LONG POLES OR LONGER REQUIRE (2) CROSS BRACES.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
69KV & 115KV X-BRACING - 2 X-BRACES
14' POLE SPACING
LAMINATED POLES**

REVISION
01
DATE
10/13/2015

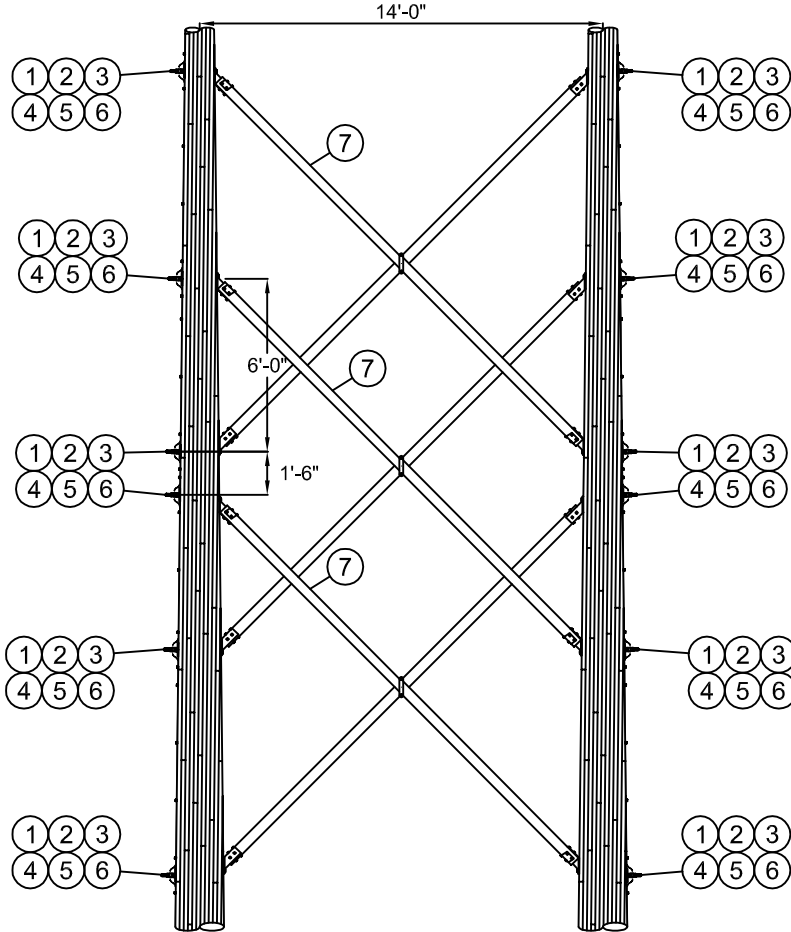
Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
C. Gauvin	10/17/2013	Becken/Hart	3/05/2015	Barry R. Hart	4/02/2015

TM2.23.TQ-9W-L14-B

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-9W-L14-C
1	12	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	12	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	12	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	12	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	12	ST	30919368	WSHR FLAT 4 SQ 1/4 THK 15/16 HOLE
6	12	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	3	ST	30924054	XBRC WD 14F PS



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: IF THE LAMINATED WOOD POLES HAVE A SPLICE AND THE ABOVE DIMENSIONS CAUSE X-BRACE MOUNTING BOLTS TO BE WITHIN 12" OF THE SPLICE PLATES THE INSTALLATION LOCATION OF THE X-BRACES SHALL BE FIELD MODIFIED DOWN THE POLE SUCH THAT THE NEAREST X-BRACE MOUNTING BOLT IS 12" FROM THE SPLICE PLATES.

NOTE C: 69KV AND 115KV STRUCTURES USING 75' LONG POLES OR LONGER REQUIRE (2) CROSS BRACES.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
69KV & 115KV X-BRACING - 3 X-BRACES
14' POLE SPACING
LAMINATED POLES**

REVISION
01
DATE
10/14/2015

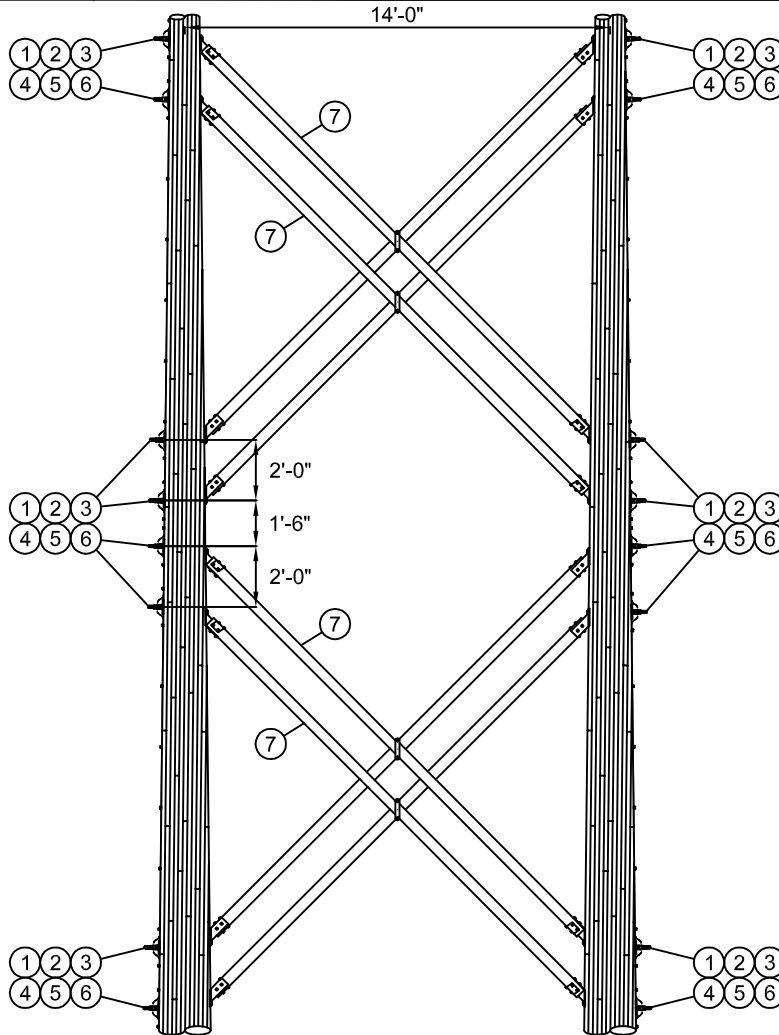
Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
C. Gauvin	7/24/2014	Becken/Hart	3/05/2015	Barry R. Hart	4/03/2015

TM2.23.TQ-9W-L14-C

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-9W-L14-D
1	16	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	16	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	16	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	16	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	16	ST	30919368	WSHR FLAT 4 SQ 1/4 THK 15/16 HOLE
6	16	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	4	ST	30924054	XBRC WD 14F PS



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: IF THE LAMINATED WOOD POLES HAVE A SPLICE AND THE ABOVE DIMENSIONS CAUSE X-BRACE MOUNTING BOLTS TO BE WITHIN 12" OF THE SPLICE PLATES THE INSTALLATION LOCATION OF THE X-BRACES SHALL BE FIELD MODIFIED DOWN THE POLE SUCH THAT THE NEAREST X-BRACE MOUNTING BOLT IS 12" FROM THE SPLICE PLATES.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
69KV & 115KV X-BRACING - 4 X-BRACES
14' POLE SPACING
LAMINATED POLES**

REVISION
01
DATE
10/14/2015

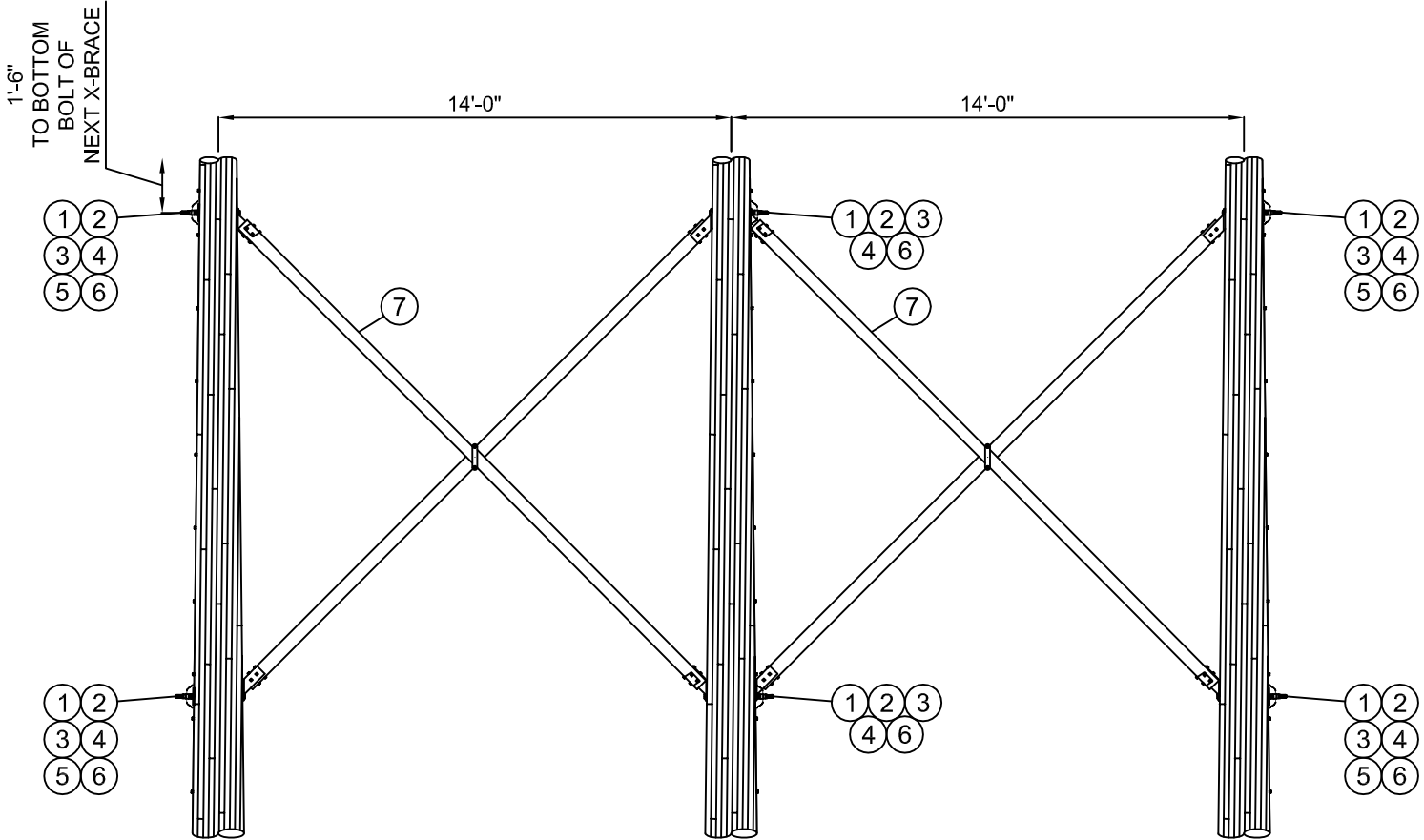
Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
C. Gauvin	7/28/2014	Becken/Hart	3/05/2015	Barry R. Hart	4/02/2015

TM2.23.TQ-9W-L14-D

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-9W-M14-A
1	6	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	6	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	6	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	6	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	4	ST	30919368	WSHR FLAT 4 SQ 1/4 THK 15/16 HOLE
6	6	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	2	ST	30924054	XBRC WD 14F PS



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: 69KV AND 115KV STRUCTURES USING 75' LONG POLES OR LONGER REQUIRE (2) SETS OF CROSS BRACES.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 5'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

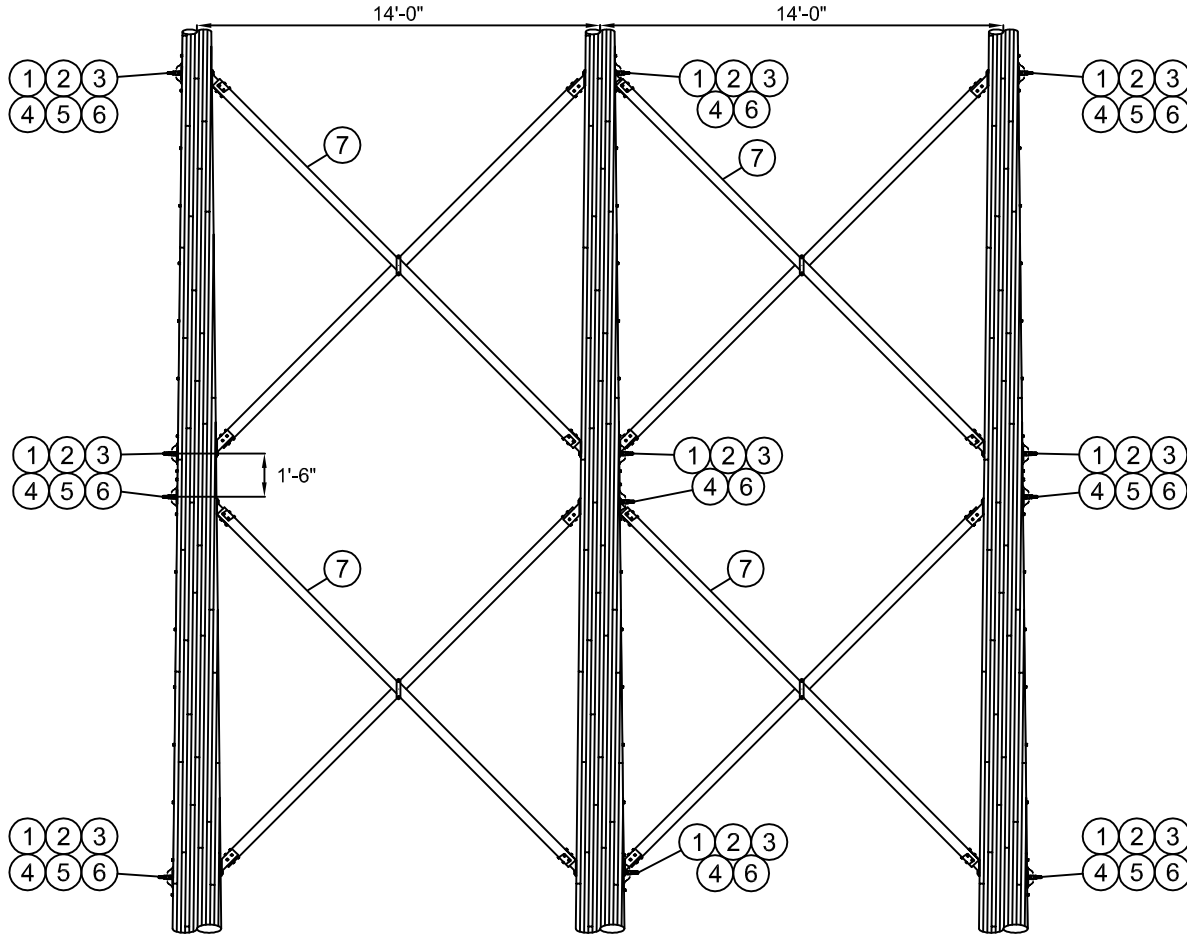
**STRUCTURE STANDARDS
69KV & 115KV X-BRACING
14' POLE SPACING - 3-POLE STRUCTURE
LAMINATED POLES**

REVISION
01
DATE
10/14/2015

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:	TM2.23.TQ-9W-M14-A	Sheet 1
C. Gauvin	8/14/2014	Becken/Hart	3/05/2015	Barry R. Hart	4/02/2015		

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-9W-M14-B
1	12	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	12	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	12	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	12	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	8	ST	30919368	WSHR FLAT 4 SQ 1/4 THK 15/16 HOLE
6	12	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	4	ST	30924054	XBRC WD 14F PS



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: IF THE LAMINATED WOOD POLES HAVE A SPLICE AND THE ABOVE DIMENSIONS CAUSE X-BRACE MOUNTING BOLTS TO BE WITHIN 12" OF THE SPLICE PLATES THE INSTALLATION LOCATION OF THE X-BRACES SHALL BE FIELD MODIFIED DOWN THE POLE SUCH THAT THE NEAREST X-BRACE MOUNTING BOLT IS 12" FROM THE SPLICE PLATES.

NOTE C: 69KV AND 115KV STRUCTURES USING 75' LONG POLES OR LONGER REQUIRE (2) SETS OF CROSS BRACES.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

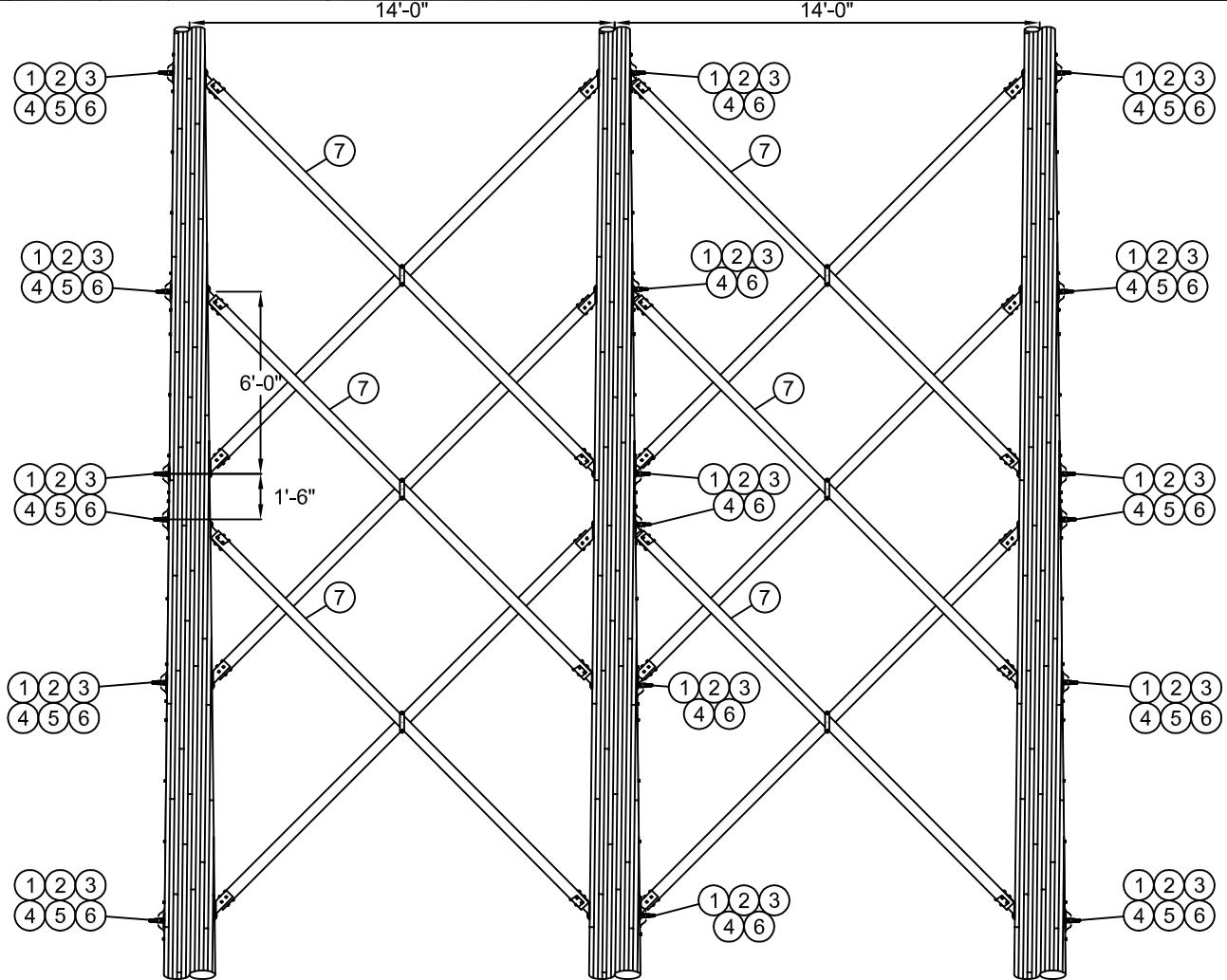
**STRUCTURE STANDARDS
69KV & 115KV X-BRACING - 2 SETS OF X-BRACES
14' POLE SPACING - 3-POLE STRUCTURE
LAMINATED POLES**

REVISION
01
DATE
10/14/2015

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:	TM2.23.TQ-9W-M14-B	Sheet 1
C. Gauvin	8/14/2014	Becken/Hart	3/05/2015	Barry R. Hart	4/02/2015		

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-9W-M14-C
1	18	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	18	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	18	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	18	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	12	ST	30919368	WSHR FLAT 4 SQ 1/4 THK 15/16 HOLE
6	18	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	6	ST	30924054	XBRC WD 14F PS



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: IF THE LAMINATED WOOD POLES HAVE A SPLICE AND THE ABOVE DIMENSIONS CAUSE X-BRACE MOUNTING BOLTS TO BE WITHIN 12" OF THE SPLICE PLATES THE INSTALLATION LOCATION OF THE X-BRACES SHALL BE FIELD MODIFIED DOWN THE POLE SUCH THAT THE NEAREST X-BRACE MOUNTING BOLT IS 12" FROM THE SPLICE PLATES.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
69KV & 115KV X-BRACING - 3 SETS OF X-BRACES
14' POLE SPACING - 3-POLE STRUCTURE
LAMINATED POLES**

REVISION
01
DATE
10/14/2015

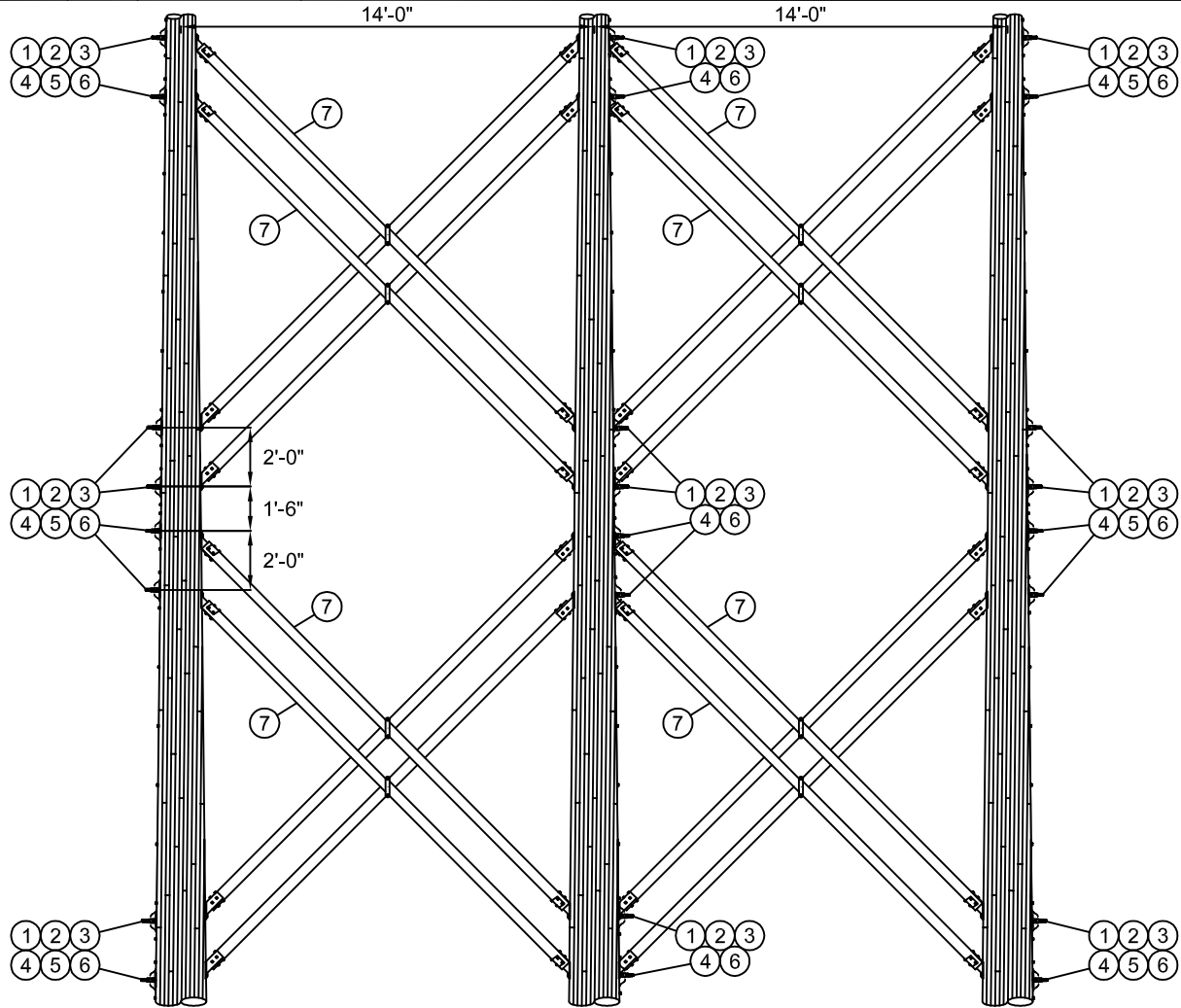
Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
C. Gauvin	8/14/2014	Becken/Hart	3/05/2015	Barry R. Hart	4/03/2015

TM2.23.TQ-9W-M14-C

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-9W-M14-D
1	24	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	24	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	24	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	24	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	16	ST	30919368	WSHR FLAT 4 SQ 1/4 THK 15/16 HOLE
6	24	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	8	ST	30924054	XBRC WD 14F PS



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: IF THE LAMINATED WOOD POLES HAVE A SPLICE AND THE ABOVE DIMENSIONS CAUSE X-BRACE MOUNTING BOLTS TO BE WITHIN 12" OF THE SPLICE PLATES THE INSTALLATION LOCATION OF THE X-BRACES SHALL BE FIELD MODIFIED DOWN THE POLE SUCH THAT THE NEAREST X-BRACE MOUNTING BOLT IS 12" FROM THE SPLICE PLATES.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
69KV & 115KV X-BRACING - 4 SETS OF X-BRACES
14' POLE SPACING - 3-POLE STRUCTURES
LAMINATED POLES**

REVISION
01
DATE
10/14/2015

Drwn. By: C. Gauvin
Date Dr.: 8/14/2014

Checked By: Becken/Hart

Date Ck.: 3/05/2015

Approved By: Barry R. Hart

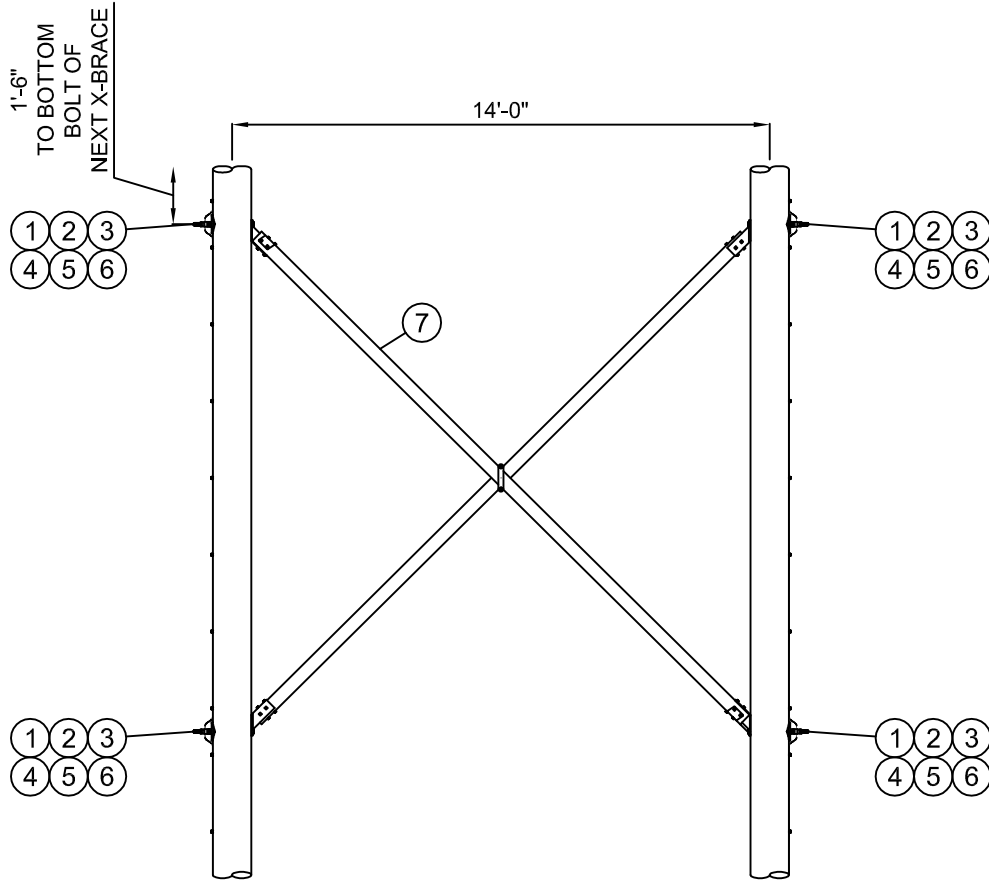
Date App.: 4/02/2015

TM2.23.TQ-9W-M14-D

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-9W-X14-A
1	4	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	4	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	4	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	4	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	4	ST	30919393	WSHR CRVD CAST 4 SQ 7/16 THK 15/16 HOLE
6	4	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	1	ST	30924054	XBRC WD 14F PS

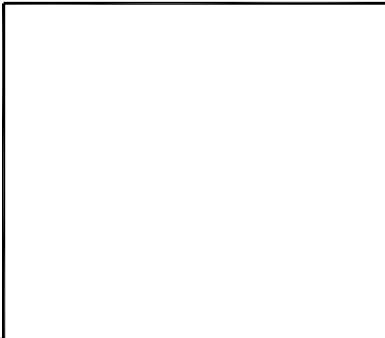


CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: 69KV AND 115KV STRUCTURES USING 75' LONG POLES OR LONGER REQUIRE (2) CROSS BRACES.



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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 5'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
69KV & 115KV X-BRACING
14' POLE SPACING
ROUND WOOD POLES**

REVISION
01
DATE
10/28/2015

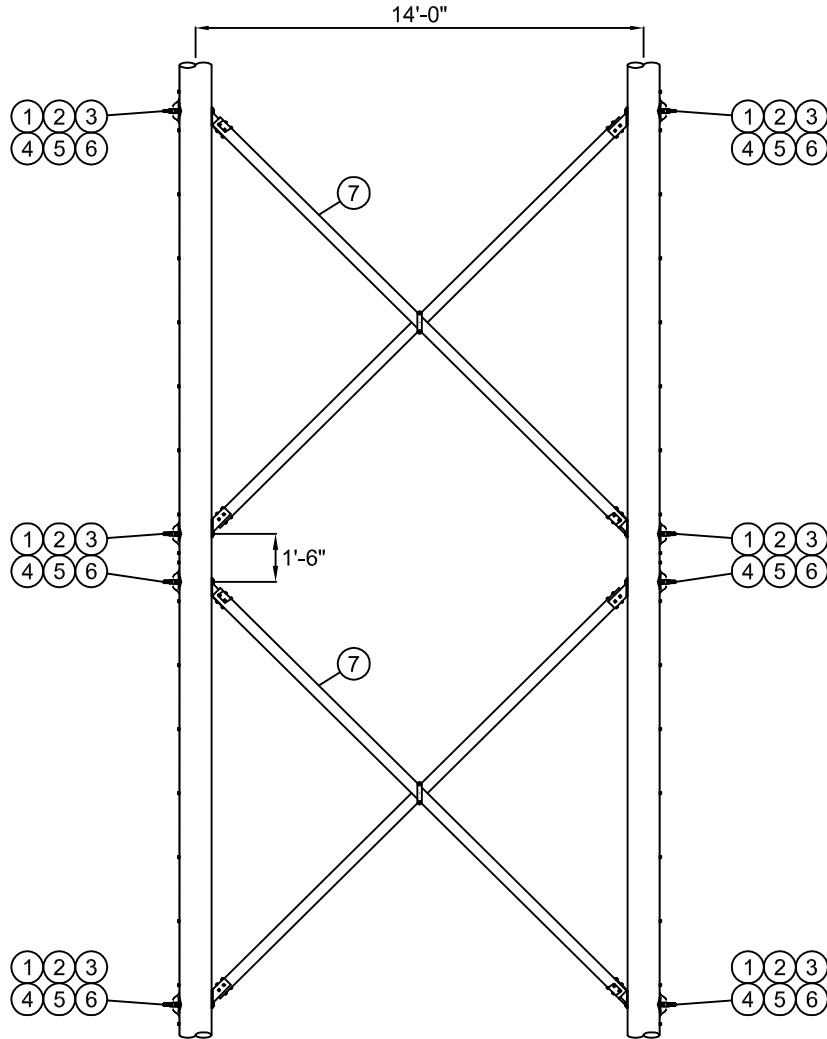
Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
C. Gauvin	10/03/2012	Becken/Hart	3/05/2015	Barry R. Hart	4/02/2015

TM2.23.TQ-9W-X14-A

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-9W-X14-B
1	8	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	8	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	8	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	8	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	8	ST	30919393	WSHR CRVD CAST 4 SQ 7/16 THK 15/16 HOLE
6	8	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	2	ST	30924054	XBRC WD 14F PS



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: 69KV AND 115KV STRUCTURES USING 75' LONG POLES OR LONGER REQUIRE (2) CROSS BRACES.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
69KV & 115KV X-BRACING - 2 X-BRACES
14' POLE SPACING
ROUND WOOD POLES**

REVISION
01
DATE
10/28/2015

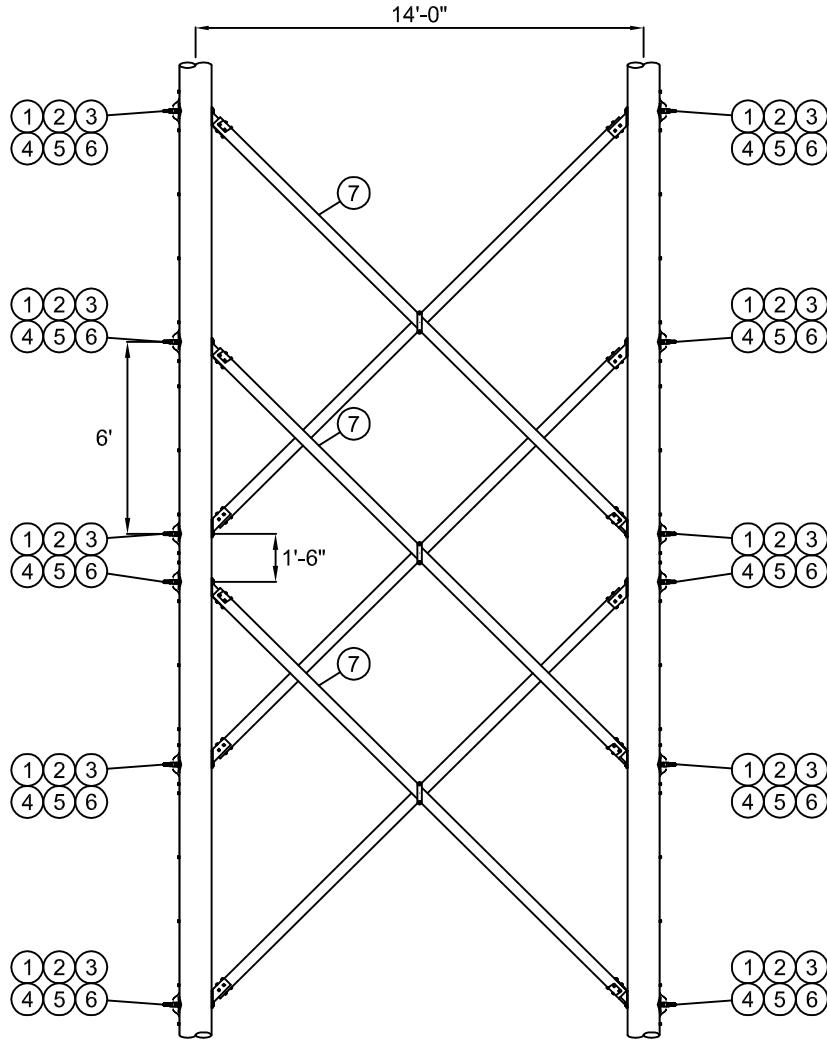
Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
C. Gauvin	10/10/2012	Becken/Hart	3/05/2015	Barry R. Hart	4/02/2015

TM2.23.TQ-9W-X14-B

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-9W-X14-C
1	12	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	12	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	12	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	12	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	12	ST	30919393	WSHR CRVD CAST 4 SQ 7/16 THK 15/16 HOLE
6	12	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	3	ST	30924054	XBRC WD 14F PS



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

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Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

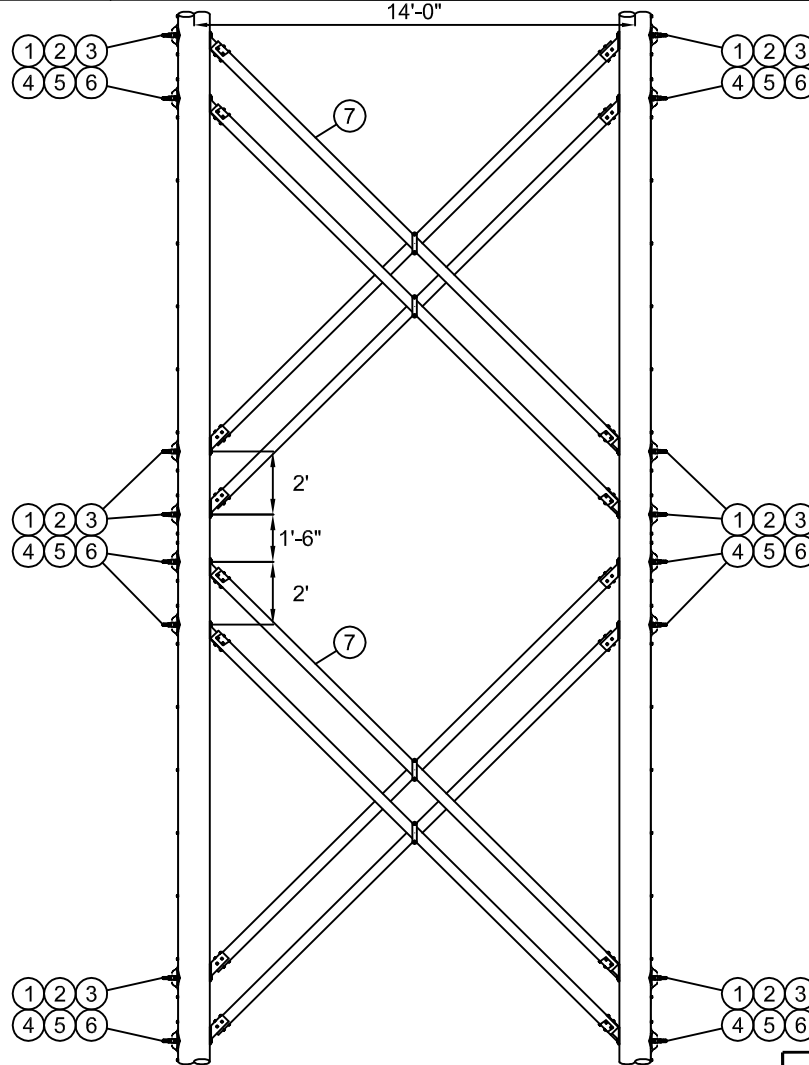
**STRUCTURE STANDARDS
69KV & 115KV X-BRACING - 3 X-BRACES
14' POLE SPACING
ROUND WOOD POLES**

REVISION
01
DATE
10/28/2015

Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:	TM2.23.TQ-9W-X14-C	Sheet 1
C. Gauvin	7/24/2014	Becken/Hart	3/05/2015	Barry R. Hart	4/02/2015		

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-9W-X14-D
1	16	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	16	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	16	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	16	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	16	ST	30919393	WSHR CRVD CAST 4 SQ 7/16 THK 15/16 HOLE
6	16	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	4	ST	30924054	XBRC WD 14F PS



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

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**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
69KV & 115KV X-BRACING - 4 X-BRACES
14' POLE SPACING
ROUND WOOD POLES**

REVISION
01
DATE
10/28/2015

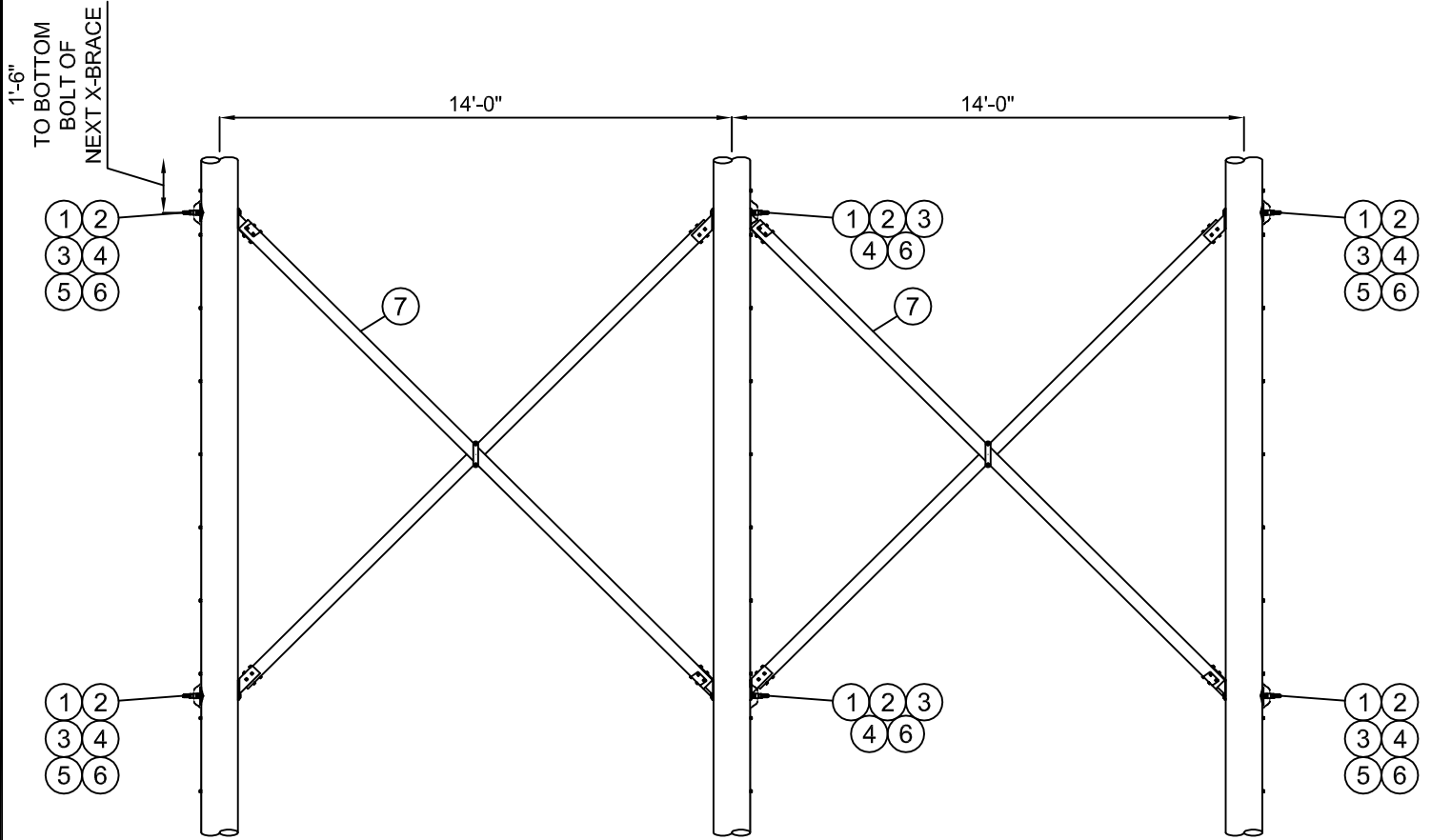
Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
C. Gauvin	7/24/2014	Becken/Hart	3/05/2015	Barry R. Hart	4/02/2015

TM2.23.TQ-9W-X14-D

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-9W-Y14-A
1	6	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	6	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	6	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	6	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	4	ST	30919393	WSHR CRVD CAST 4 SQ 7/16 THK 15/16 HOLE
6	6	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	2	ST	30924054	XBRC WD 14F PS



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: 69KV AND 115KV STRUCTURES USING 75' LONG POLES OR LONGER REQUIRE (2) SETS OF CROSS BRACES.

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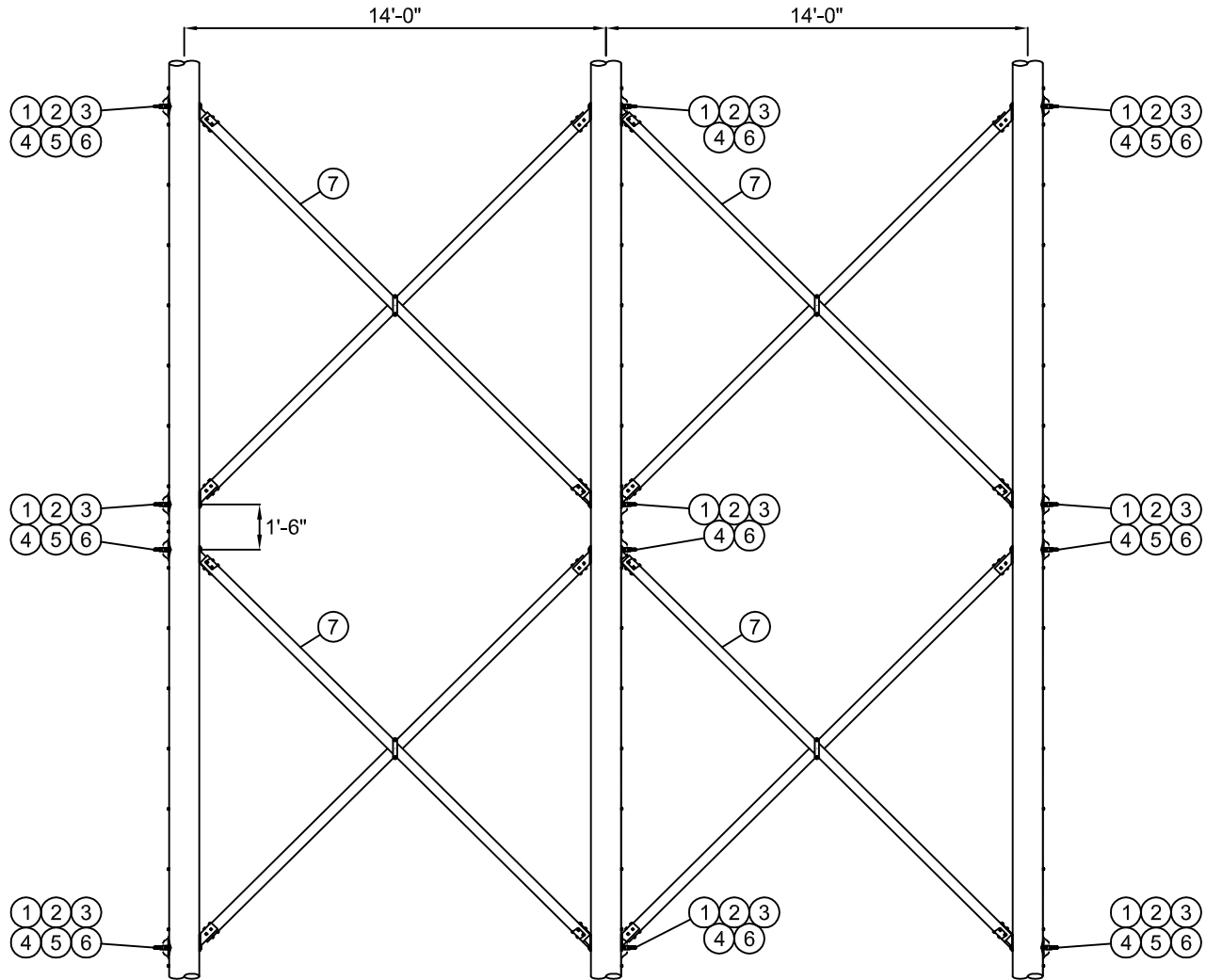
Contact Engineering Standards - Transmission Section for the creation of new standards and CUs.

Drawing Scale: 1" = 5'

	TRANSMISSION CONSTRUCTION STANDARDS MANUAL	STRUCTURE STANDARDS 69KV & 115KV X-BRACING 14' POLE SPACING - 3-POLE STRUCTURE ROUND WOOD POLES	REVISION
			01
			DATE
			10/28/2015
Drwn. By:	Date Dr.:	Checked By:	Date Ck.:
C. Gauvin	8/15/2014	Becken/Hart	3/05/2015
Approved By:	Date App.:	TM2.23.TQ-9W-Y14-A	
Barry R. Hart	4/02/2015	Sheet 1	

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-9W-Y14-B
1	12	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	12	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	12	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	12	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	8	ST	30919393	WSHR CRVD CAST 4 SQ 7/16 THK 15/16 HOLE
6	12	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	4	ST	30924054	XBRC WD 14F PS



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

NOTE B: 69KV AND 115KV STRUCTURES USING 75' LONG POLES OR LONGER REQUIRE (2) SETS OF CROSS BRACES.

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Drawing Scale: 1" = 6'



**TRANSMISSION
CONSTRUCTION
STANDARDS
MANUAL**

**STRUCTURE STANDARDS
69KV & 115KV X-BRACING - 2 SETS OF X-BRACES
14' POLE SPACING - 3-POLE STRUCTURES
ROUND WOOD POLES**

REVISION
01
DATE
10/28/2015

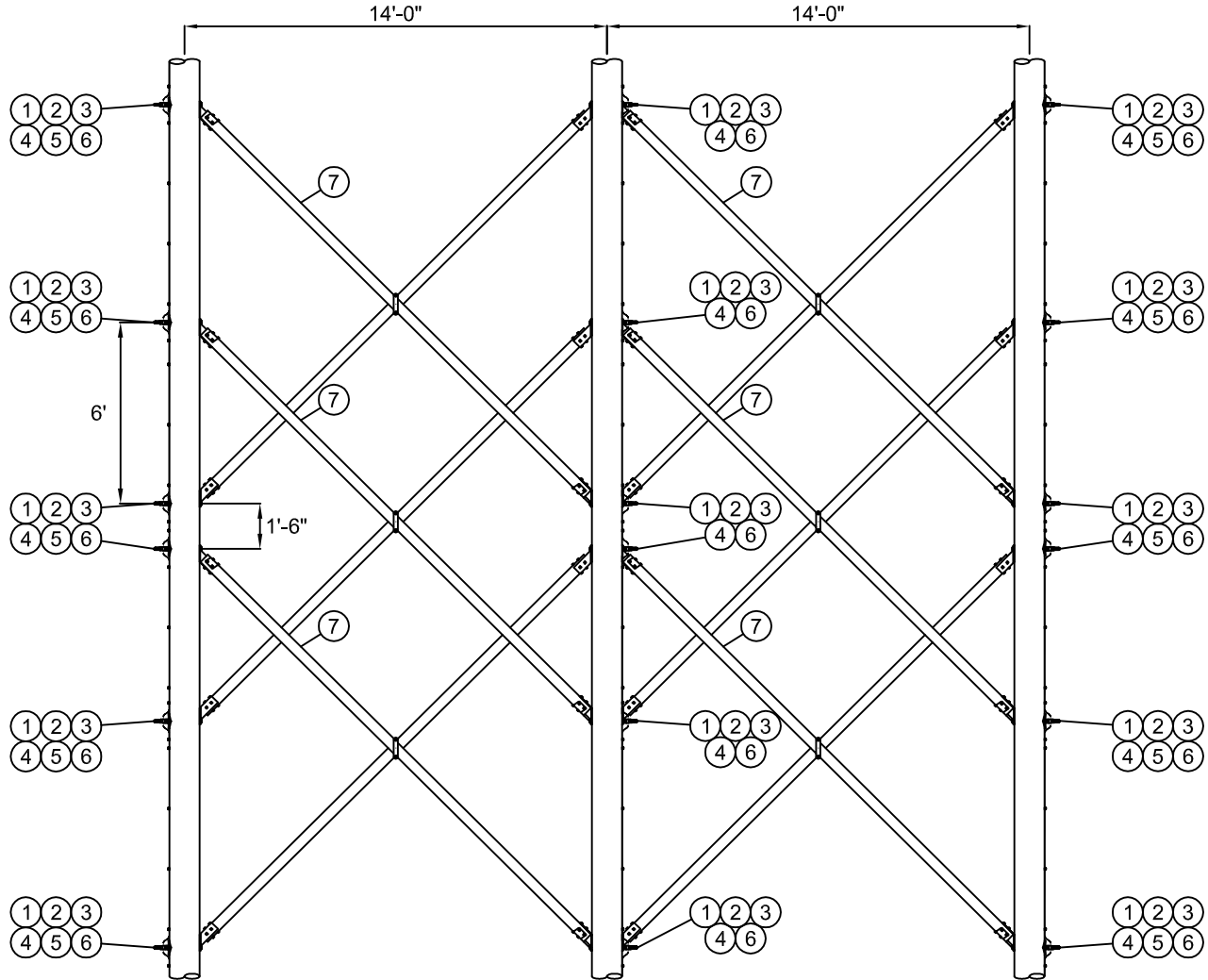
Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:
C. Gauvin	8/15/2014	Becken/Hart	3/05/2015	Barry R. Hart	4/02/2015

TM2.23.TQ-9W-Y14-B

Sheet 1

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-9W-Y14-C
1	18	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	18	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	18	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	18	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	12	ST	30919393	WSHR CRVD CAST 4 SQ 7/16 THK 15/16 HOLE
6	18	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	6	ST	30924054	XBRC WD 14F PS



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

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**TRANSMISSION
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STANDARDS
MANUAL**

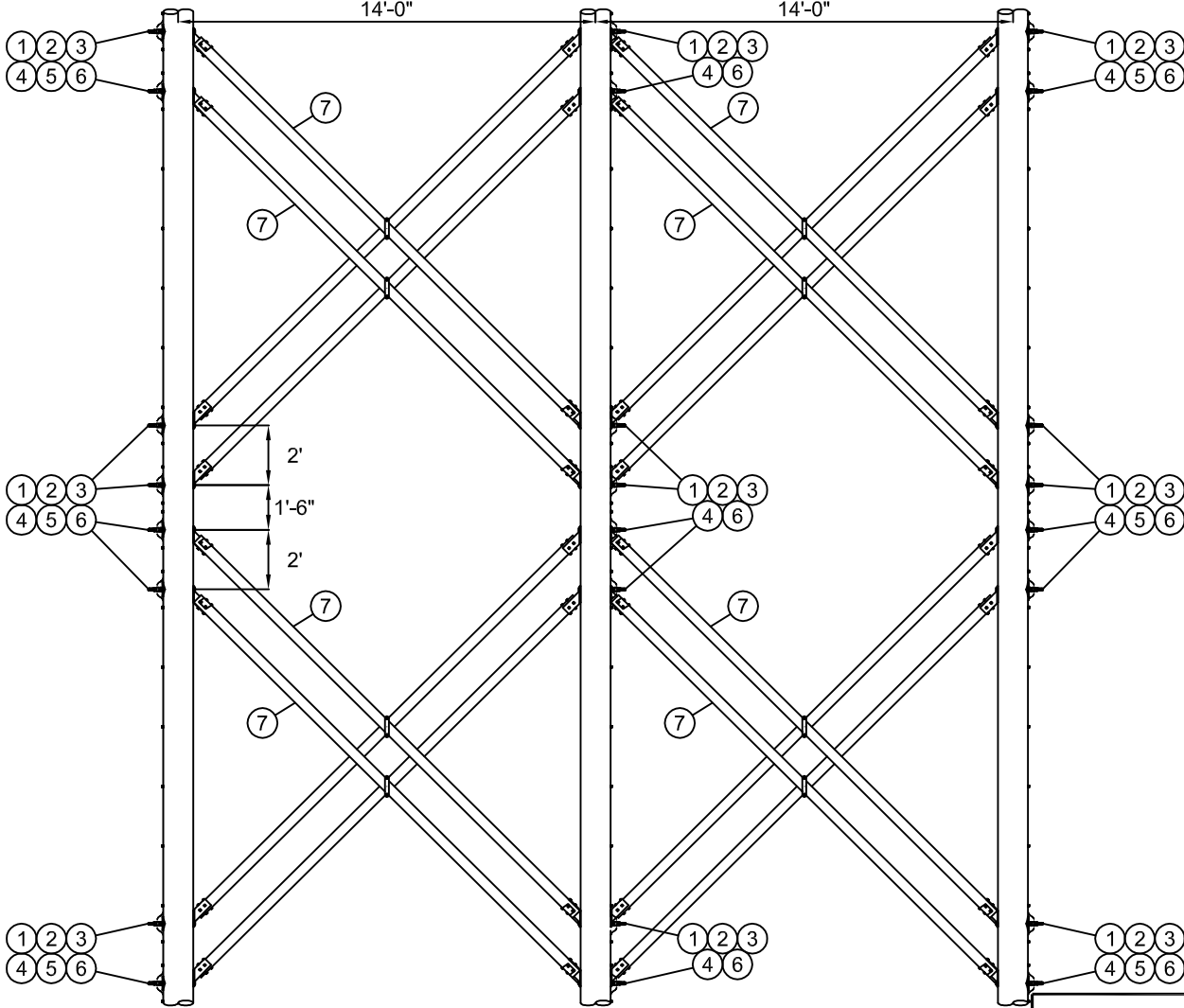
STRUCTURE STANDARDS
69KV & 115KV X-BRACING - 3 SETS OF X-BRACES
14' POLE SPACING - 3-POLE SPACING
ROUND WOOD POLES

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Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:	TM2.23.TQ-9W-Y14-C	Sheet 1
C. Gauvin	8/15/2014	Becken/Hart	3/05/2015	Barry R. Hart	4/02/2015		

BILL OF MATERIAL (CU Type: POLE)

ITEM NO.	QTY.	UOM	IUSA MID	CU: U*PT-TQ-9W-Y14-D
1	24	ST	30919294	NUT LOCK M-F SQ FOR 7/8" BOLT
2	24	ST	30919303	NUT SQ GALV FOR 7/8" BOLT
3	24	ST	30919196	BOLT SQHD GALV SQNT 7/8 X 22 (NOTE A)
4	24	ST	30919328	WSHR LCK 2 TURN SPR GALV 7/8"
5	16	ST	30919393	WSHR CRVD CAST 4 SQ 7/16 THK 15/16 HOLE
6	24	ST	30923809	CLAMP GRND WIRE U-CLIP 15/16 IN HOLE
7	8	ST	30924054	XBRC WD 14F PS



CU FUNCTION: U_TL69 FOR 35KV & 46KV, U_TG69 FOR 69KV THRU 344KV, U_T345 FOR 345KV & GREATER.

FOR CORRECT CU: SUBSTITUTE 2 FOR NYSEG, 3 FOR CMP OR 4 FOR RG&E IN PLACE OF ASTERISK (U*_).

NOTE A: LARGER OR SMALLER BOLTS MAY BE REQUIRED DEPENDING ON THE DIAMETER OF THE POLE USED. SUBSTITUTE MATERIAL ID (MID) ON THE WORK ORDER COMPONENTS PAGE FOR THE LENGTH NEEDED IF DIFFERENT THAN THE GENERIC LENGTH SHOWN IN THE BILL OF MATERIALS. CONTACT ENGINEERING STANDARDS - TRANSMISSION SECTION IF YOU NEED ASSISTANCE.

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**TRANSMISSION
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STRUCTURE STANDARDS
69KV & 115KV X-BRACING - 4 SETS OF X-BRACES
14' POLE SPACING - 3-POLE STRUCTURE
ROUND WOOD POLES

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Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:	TM2.23.TQ-9W-Y14-D	Sheet 1
C. Gauvin	8/15/2014	Becken/Hart	3/05/2015	Barry R. Hart	4/02/2015		