

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
**CUY-77-13.80 (CCG6B)
BUILDABLE UNIT 8**
CITY OF CLEVELAND
CUYAHOGA COUNTY

PROJECT DESCRIPTION
RELOCATION OF EXISTING CPP OVERHEAD POWER LINES.

PROJECT EARTH DISTURBED AREA: N/A ACRES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA: N/A ACRES
NOTICE OF INTENT EARTH DISTURBED AREA: N/A ACRES
(SEE BU-6 FOR PROJECT EARTH DISTURBED AREA)

LIMITED ACCESS
THIS IMPROVEMENT IS ESPECIALLY DESIGNED FOR THROUGH TRAFFIC AND HAS BEEN DECLARED A LIMITED ACCESS HIGHWAY OR FREEWAY BY ACTION OF THE DIRECTOR IN ACCORDANCE WITH THE PROVISIONS OF SECTION 5511.02 OF THE OHIO REVISED CODE.

2016 SPECIFICATIONS
THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

INDEX OF SHEETS:

TITLE SHEET	1
CPP RELOCATION PLANS	2-9
CPP STANDARD DRAWINGS	10-22
STRINGING SUMMARY	23

DESIGN DESIGNATION

	I.R. 77 NORTH OF BROADWAY	I.R. 77 SOUTH OF BROADWAY	RAMP J5 & J6	FRONTAGE ROAD	BROADWAY AVENUE
CURRENT ADT (2017)	32,770	54,050	21,280	2,340	18,170
DESIGN YEAR ADT (2037)	41,220	63,300	22,080	2,300	18,410
DESIGN HOURLY VOLUME AM/PM (2037)	2,340/4,970	4,900/6,470	2,560/1,500	110/310	1,580/1,160
DIRECTIONAL DISTRIBUTION AM/PM	55%/61%	57%/60%	N/A	N/A	62%/65%
TRUCKS (24 HOUR B&C)	8%	8%	7%	37%	6%
DESIGN SPEED	60	60	50 (490E), 35 (490W)	40	35
LEGAL SPEED	50	60	N/A	35	35
DESIGN FUNCTIONAL CLASSIFICATION:	URBAN INTERSTATE	URBAN INTERSTATE	DIRECTIONAL RAMP	FRONTAGE ROAD	URBAN ARTERIAL
NHS PROJECT	YES	YES	YES	YES	YES

DESIGN EXCEPTIONS

NONE

UNDERGROUND UTILITIES
CONTACT BOTH SERVICES TWO WORKING DAYS BEFORE YOU DIG.

Call Before You Dig
1-800-362-2764
(Non-members must be called directly)

OIL & GAS PRODUCERS UNDERGROUND PROTECTION SERVICE
1-800-925-0988

PLAN PREPARED BY:
E.L. ROBINSON ENGINEERING
1468 West 9th Street • Cleveland, Ohio 44113
www.elrobinsonengineering.com



ENGINEERS SEAL:

SIGNED: *Richard E. Rockich Jr.*
DATE: 10/18/2017

STANDARD CONSTRUCTION DRAWINGS				SUPPLEMENTAL SPECIFICATIONS	SPECIAL PROVISIONS
				800	7/30/16

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APPROVED _____
DATE _____ DISTRICT DEPUTY DIRECTOR

APPROVED _____
DATE _____ DIRECTOR, DEPARTMENT OF TRANSPORTATION

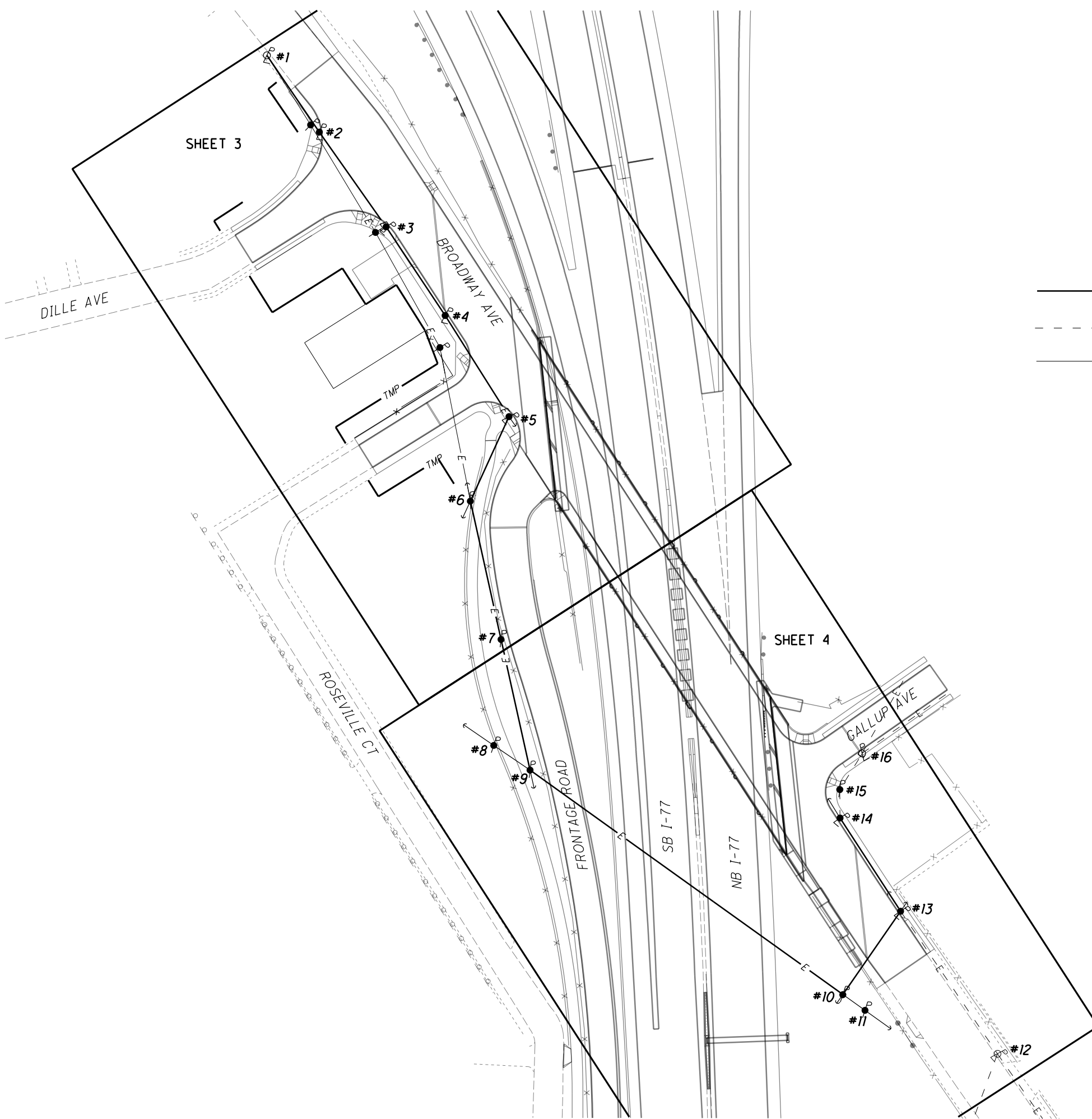
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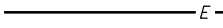
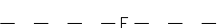

FEDERAL PROJECT NO. **E131(492)**
PID NO. **82388**
CONSTRUCTION PROJECT NO. **173001**
RAILROAD INVOLVEMENT **NONE**
CUY-77-13.80
1/23

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LEGEND

-  EXISTING CPP POWER POLE W/LUMINAIRE
-  PROPOSED CPP POWER POLE
-  PROPOSED CPP POWER POLE W/LUMINAIRE
-  PROPOSED DOWN GUY
- #XX** CPP PROJECT POLE NUMBER
-  PROPOSED POWER DISTRIBUTION LINE
-  EXISTING POWER DISTRIBUTION LINE (CABLE TO BE REUSED)
-  PROPOSED SPAN GUY



**CPP OVERHEAD POWER RELOCATION PLANS
SCHEMATIC PLAN**

CUY-77-13.80

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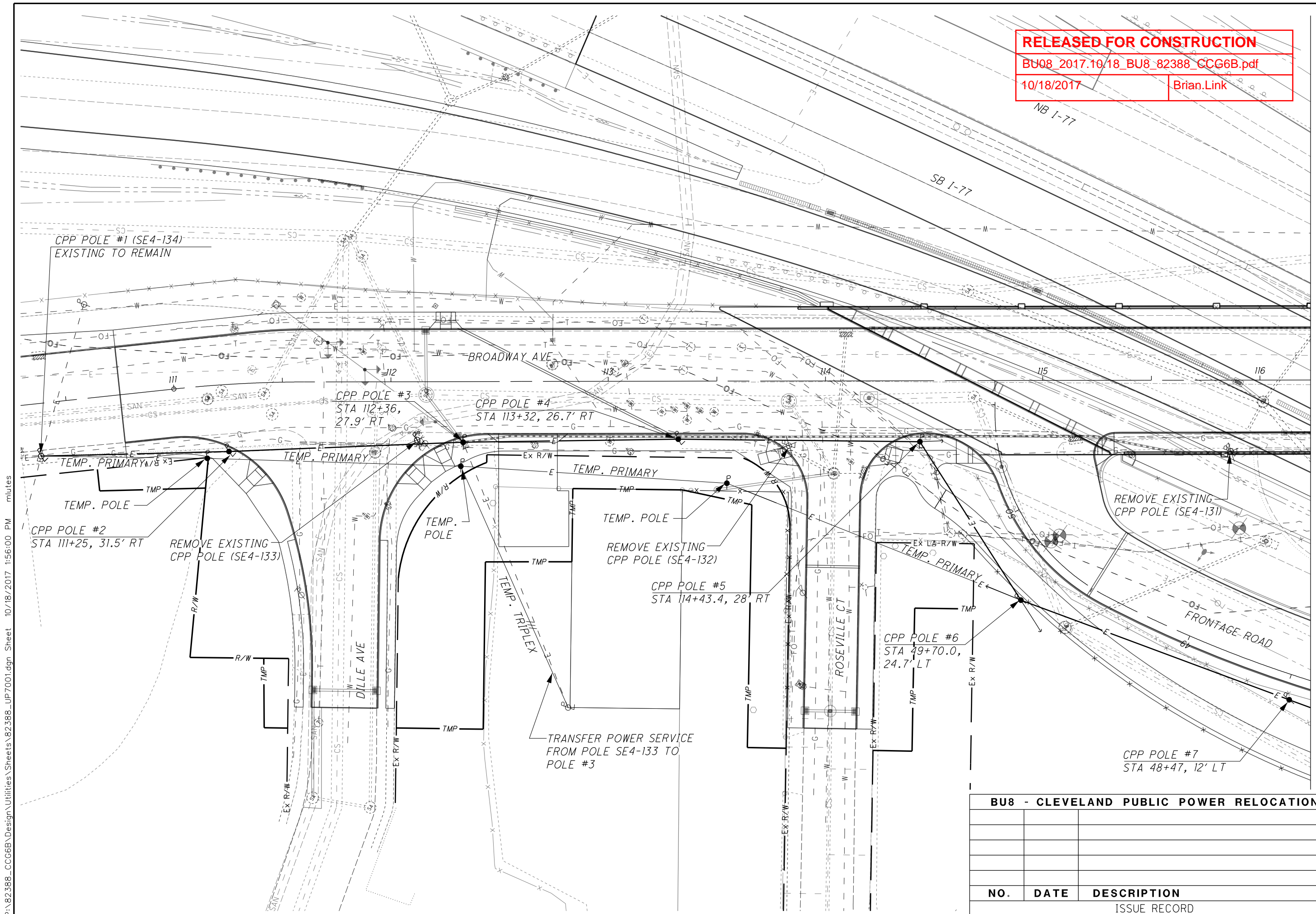


CALCULATED
KAE
CHECKED
MJH

CPP OVERHEAD POWER RELOCATION PLAN
WEST END CONNECTION

CUY-77-13.80

3
23



MATCH LINE - SEE NEXT SHEET

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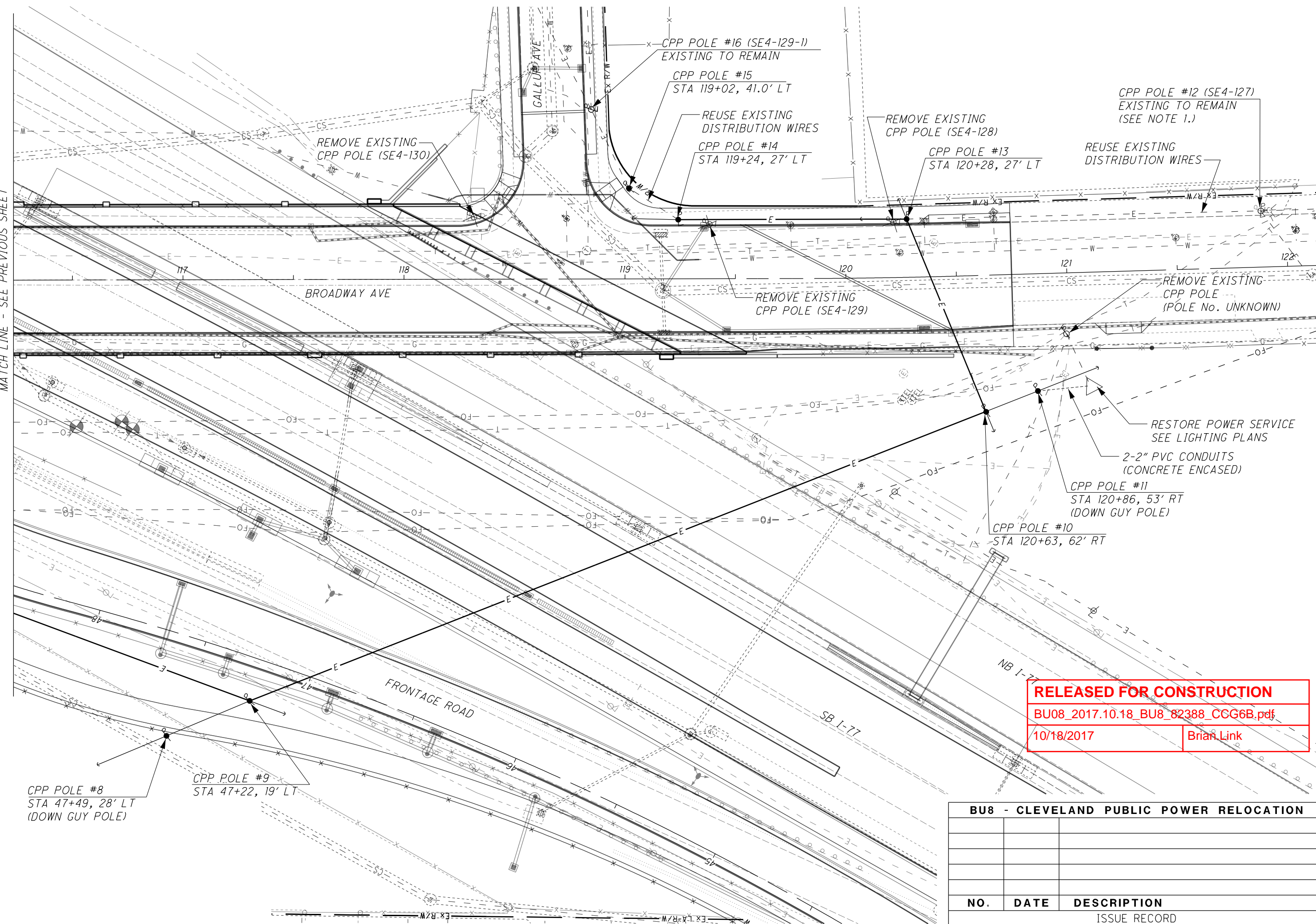
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CPP OVERHEAD POWER RELOCATION PLANS
EAST END CONNECTION

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MATCH LINE - SEE PREVIOUS SHEET



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ATTACHMENT DETAILS (NOT TO SCALE)

INSTALL CPP 15-4
(DWG 8556) 10' X-ARMS
(WITH REDUCED TENSION (N)
DOUBLE X-ARM, DOUBLE
DEAD END

(3) - 636 kcmil
ACSR (26/7) GROSBEAK
PRIMARY DISTRIBUTION

4/0 ACSR
NEUTRAL
CONDUCTOR

1/0 TRI-PLEX
SECONDARY
DISTRIBUTION

(3) COMMUNICATION
CABLES

ELEVATION
OF PROPOSED
SIDEWALK

CPP POLE #6

INSTALL CPP 15-2
10' X-ARMS (DWG 8563)

(3) - 636 kcmil
ACSR (26/7) GROSBEAK
PRIMARY DISTRIBUTION

4/0 ACSR
NEUTRAL
CONDUCTOR

1/0 TRI-PLEX
SECONDARY
DISTRIBUTION

(3) COMMUNICATION
CABLES

ELEVATION
OF PROPOSED
GROUND

CPP POLE #7

ADDITIONAL ITEMS ON POLE:
- (3) - CPP 3-1 (DWG 8297) (IN-LINE 600A
DISCONNECT) (CLOSED)

INSTALL CPP 15-4 (DWG 8556)
TRIPLE X-ARM, TRIPLE DEAD
END SWITCHING POLE
(USE 10' CROSSARMS)

(3) - 636 kcmil
ACSR (26/7) GROSBEAK
PRIMARY DISTRIBUTION

(IDLE) (E)

4/0 ACSR NEUTRAL
CONDUCTOR (N)
336 ACSR (E)

(3) COMMUNICATION
CABLES

ELEVATION
OF PROPOSED
GROUND

CPP POLE #9

(3) - 636 kcmil
ACSR (26/7) GROSBEAK
PRIMARY DISTRIBUTION

4/0 ACSR
NEUTRAL
CONDUCTOR

1/0 TRI-PLEX
SECONDARY
DISTRIBUTION

(3) COMMUNICATION
CABLES (TYP.)

CPP POLE #5
(SEE PREVIOUS SHEET
FOR POLE INFORMATION)

(8-17) (DETAIL "C")
TRIPLE HELIX
GUY ANCHOR

REDUCED
TENSION

3 POWER
DOWN GUYS
SEE NOTE 1

PROPOSED
GROUND

EXISTING
GROUND

CPP POLE #6
65' CLASS 1 POLE, 9.5' DEEP
IN GRAVEL

CPP POLE #7
70' CLASS 1 POLE
9.0' DEEP

CPP POLE #9
75' CLASS H2 POLE, 10.5' DEEP IN GRAVEL
(SEE NEXT SHEET FOR CONNECTION TO CPP
POLE #10)

3 POWER DOWN GUYS
SEE NOTE 1

(8-17) (DETAIL "C")
TRIPLE HELIX
GUY ANCHOR

NOTE:
1) THE CONTRACTOR SHALL COORDINATE WITH
THE TELECOMMUNICATIONS COMPANIES
REGARDING DOWN GUYS FOR TELE-COM LINES.

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CPP OVERHEAD POWER RELOCATION PROFILE
POLES 6 THRU 9 - FRONTAGE ROAD

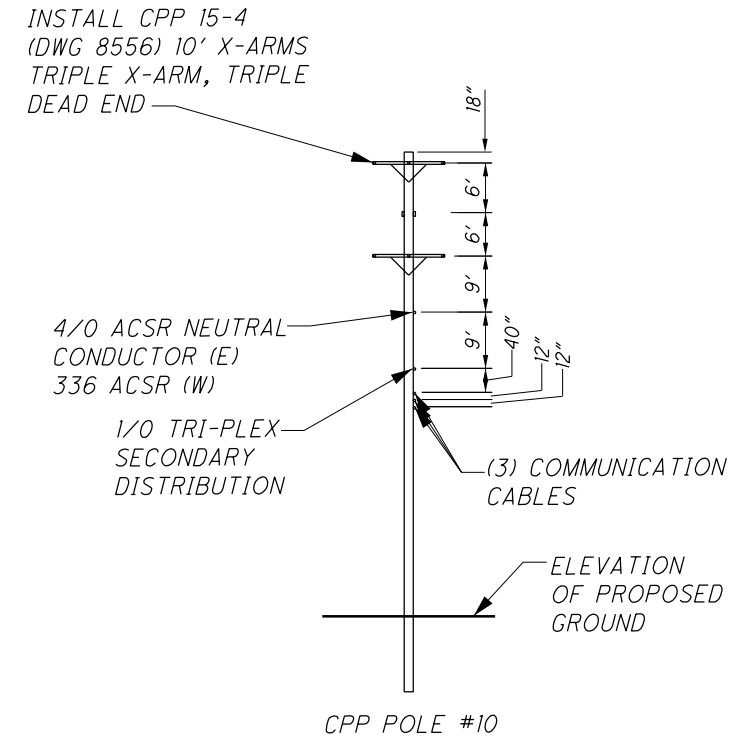
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NOTE:
 1) THE CONTRACTOR SHALL COORDINATE WITH THE TELECOMMUNICATIONS COMPANIES REGARDING DOWN GUYS FOR TELE-COM LINES.

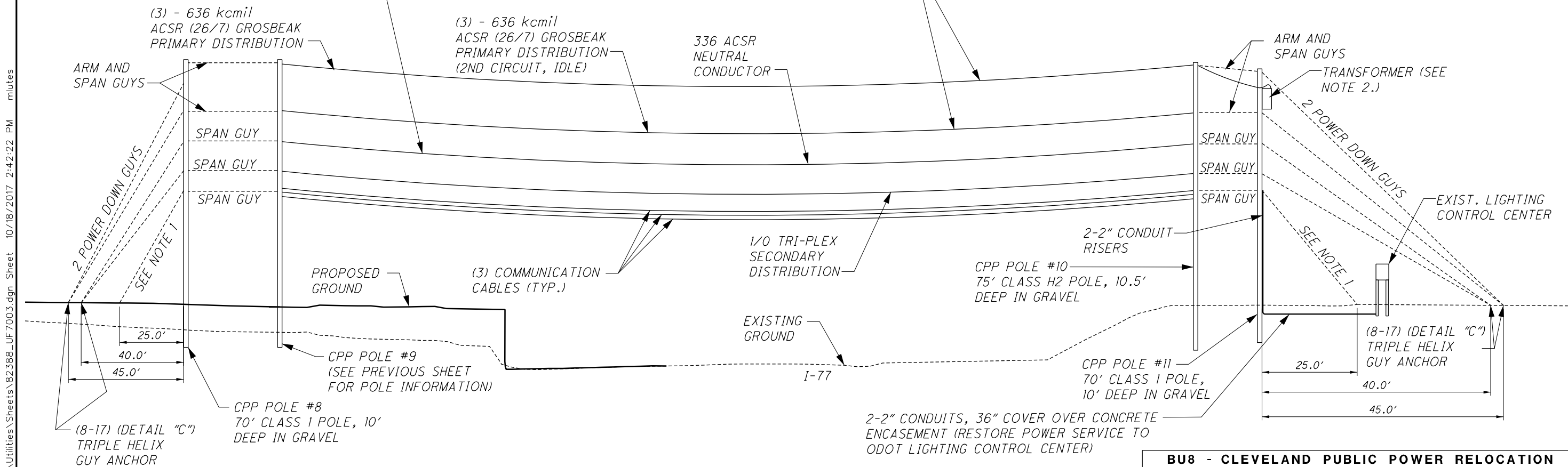
2) TRANSFER SINGLE PHASE OVERHEAD DISTRIBUTION TRANSFORMER. 25KVA, 7970/13800Y - 240/480V WITH 2.5% TAPS ABOVE AND BELOW RATED VOLTAGE.

ATTACHMENT DETAILS (NOT TO SCALE)



INSTALL 7 PLP (CAT #5058103) AIR FLOW SPOILERS, SPACED AT 28.0' C/C CENTERED IN THE SPAN, ON EACH CONDUCTOR

INSTALL 7 PLP (CAT #5058105) AIR FLOW SPOILERS, SPACED AT 28.0' C/C CENTERED IN THE SPAN, ON EACH CONDUCTOR



0 20 40
 HORIZONTAL SCALE IN FEET

CALCULATED
 KAE
 CHECKED
 MJH

CPP OVERHEAD POWER RELOCATION PROFILE
 POLES 10 THRU 12 - ACROSS I-77

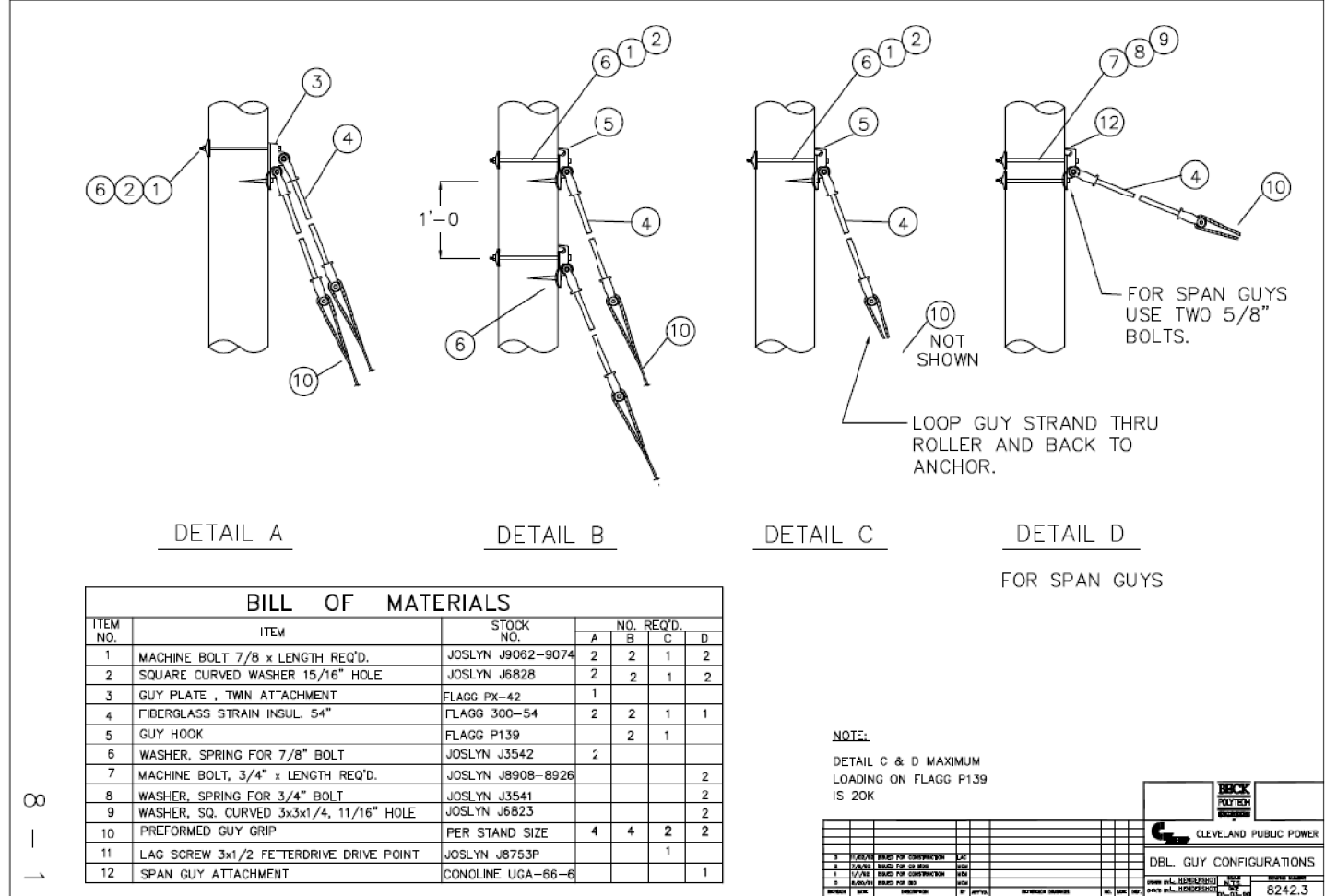
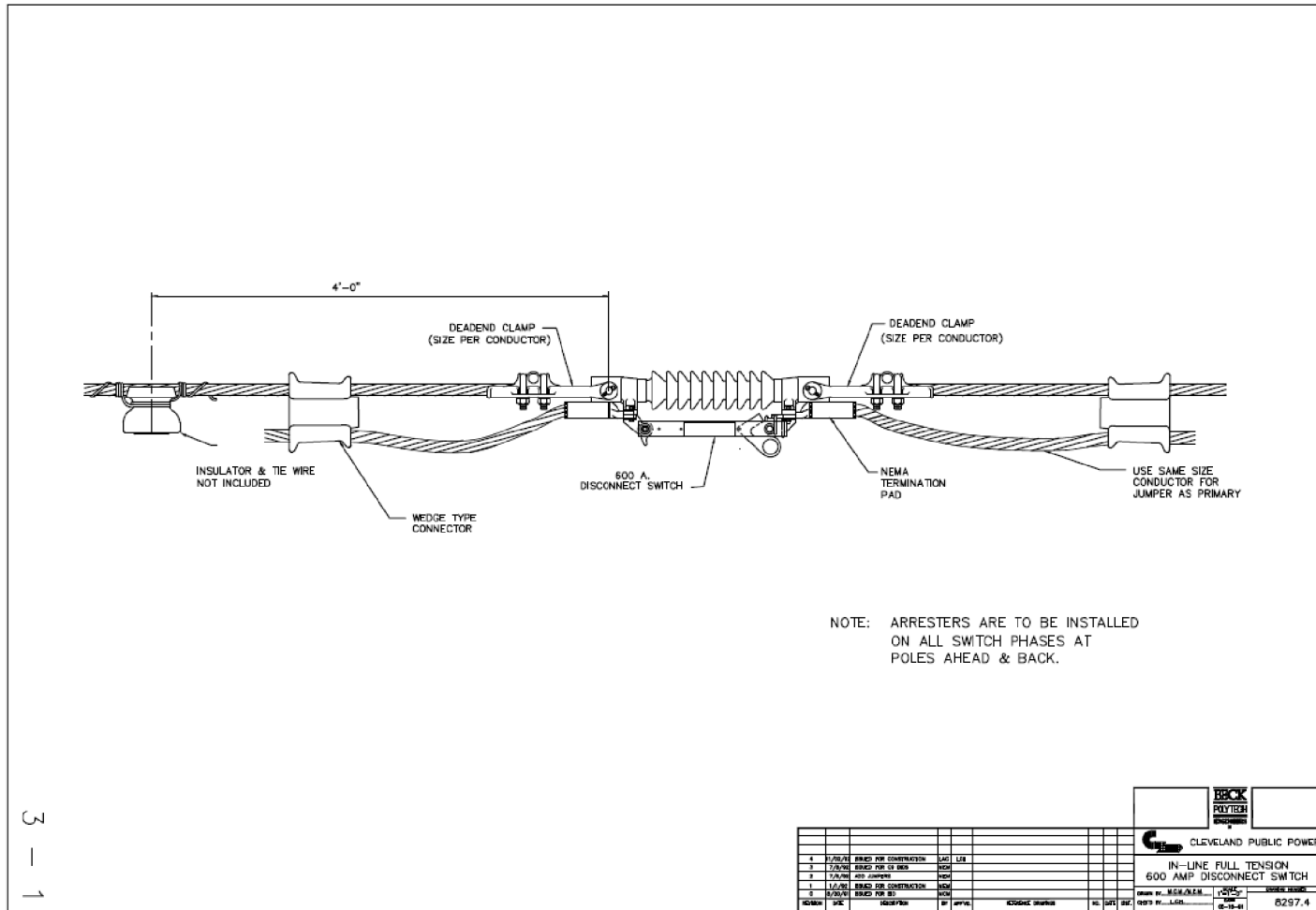
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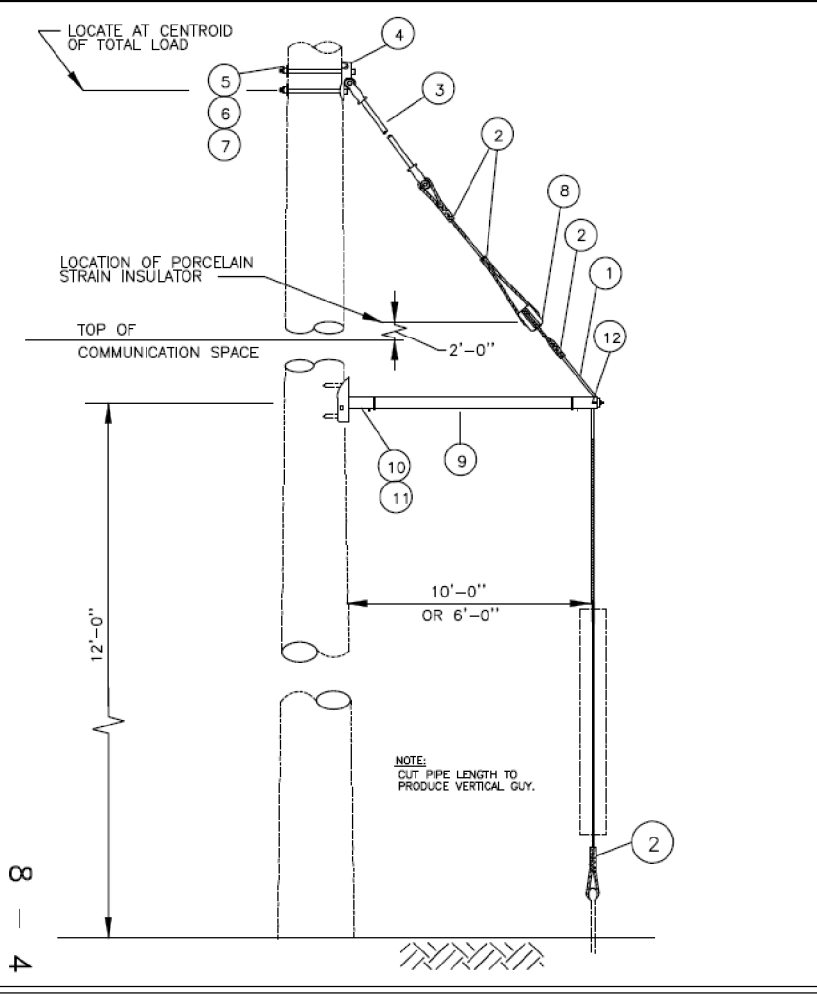
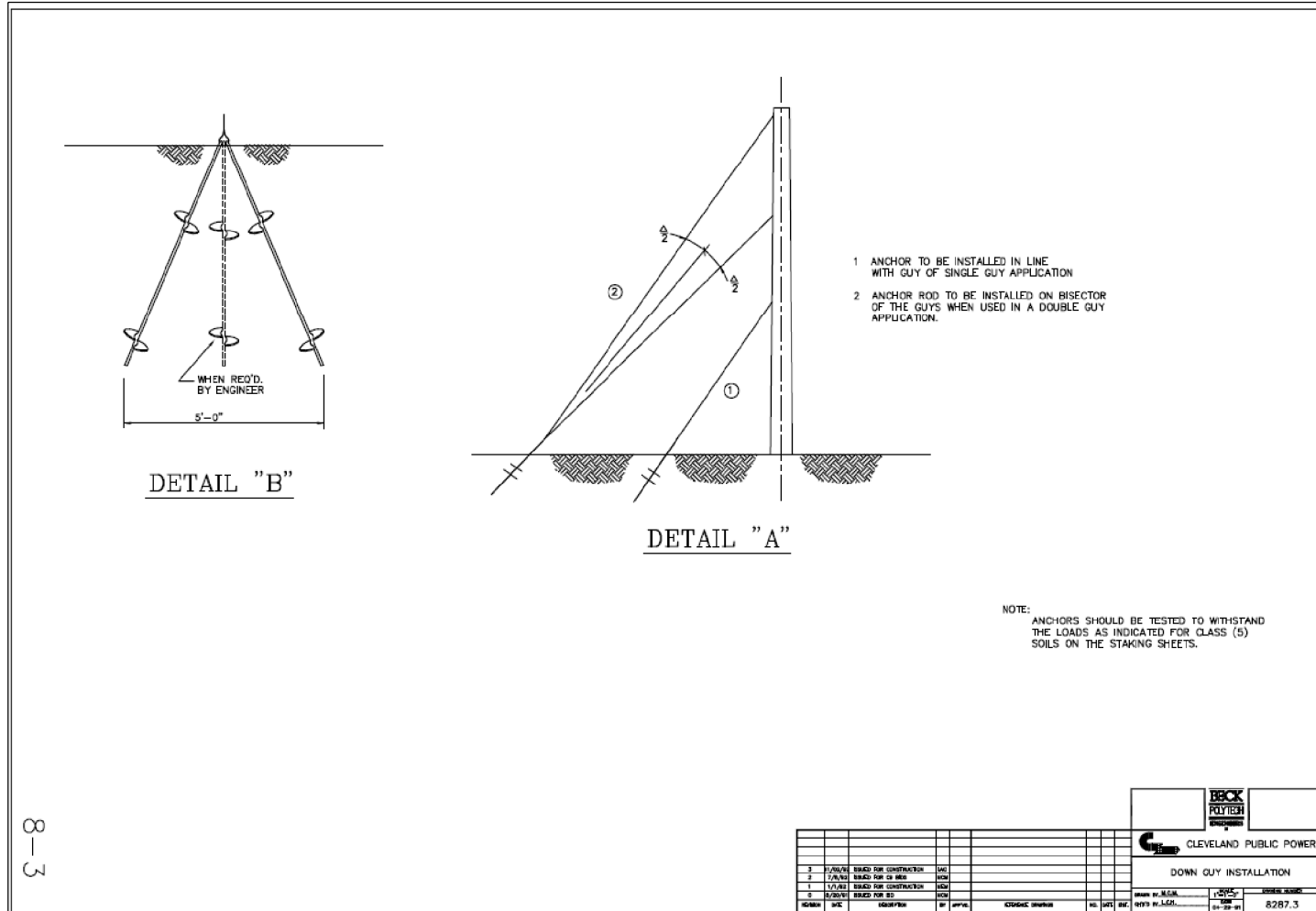
BILL OF MATERIALS

ITEM NO.	ITEM	STOCK NO.	NO. REQ'D.			
			A	B	C	D
1	MACHINE BOLT 7/8 x LENGTH REQ'D.	JOSLYN J9062-9074	2	2	1	2
2	SQUARE CURVED WASHER 15/16" HOLE	JOSLYN J6828	2	2	1	2
3	GUY PLATE , TWIN ATTACHMENT	FLAGG PX-42	1			
4	FIBERGLASS STRAIN INSUL 54"	FLAGG 300-54	2	2	1	1
5	GUY HOOK	FLAGG P139		2	1	
6	WASHER, SPRING FOR 7/8" BOLT	JOSLYN J3542	2			
7	MACHINE BOLT, 3/4" x LENGTH REQ'D.	JOSLYN J8908-8926				2
8	WASHER, SPRING FOR 3/4" BOLT	JOSLYN J3541				2
9	WASHER, SQ. CURVED 3x3/4, 11/16" HOLE	JOSLYN J6823				2
10	PREFORMED GUY GRIP	PER STAND SIZE	4	4	2	2
11	LAG SCREW 3x1/2 FETTERDRIVE DRIVE POINT	JOSLYN J8753P				1
12	SPAN GUY ATTACHMENT	CONCLINE UGA-66-6				1

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BU8 - CLEVELAND PUBLIC POWER RELOCATION

NO.	DATE	DESCRIPTION
		ISSUE RECORD



BILL OF MATERIALS

ITEM NO.	ITEM	STOCK NO.	NO. REQ'D
1	GUY STRAND 20M		*
1	GUY STRAND 12.5M		*
2	GUY GRIP, FORMED TYPE	PER STRAND SIZE	4 4
3	FIBERGLASS STRAIN INSULATOR 54"	FLAGG 300-54	1 1
4	GUY PLATE	FLAGG P139	1 1
4	GUY PLATE	FLAGG P139	1 1
5	MACHINE BOLT 1/8 X REQ'D LENGTH	JOSLYN J9062-9074	2 1
6	WASHER SPRING FOR 1/8 BOLT	JOSLYN J3542	2 1
7	WASHER SQUARE CURVED 3-1/2X3-1/2X3/8, 15/16 HOLE	JOSLYN J6828	2 1
8	PORCELAIN GUY STRAIN INSULATOR	PPS06	1 1
9	GALV. STEEL PIPE, PER REQ'D. LENGTH X 2 1/2" DIA., SCH. 40		1 1
10	POLE PLATE	JOSLYN J0521	1 1
11	LAG SCREW 2" x 4"	CHANCE 508754	3 3
12	END FITTING W/CLAMP, DOUBLE GUY	JOSLYN J0522	1 1

NOTE: ALL STOCK ITEMS ARE "OR EQUIVALENT" WITH ENGINEER APPROVAL.
* AS REQUIRED

FOR 6' GUY LEAD

GUY STRAND	MAX. TOTAL LOADING	MIN POLE CLASS		
35' & 40' POLES	45' & 50' POLES	55' & 60' POLES		
A 20.0M	3000	2400	2000	2
B 12.5M	1900	1500	1300	3

FOR 10' GUY LEAD

GUY STRAND	MAX. TOTAL LOADING	MIN POLE CLASS		
35' & 40' POLES	45' & 50' POLES	55' & 60' POLES		
A 20.0M	4800	4000	3300	1
B 12.5M	3000	2500	2100	2

NOTE: LOADS INCLUDE APPROPRIATE OVERLOAD CAPACITY FACTORS. SPECIFY GUY GUARD, POLE BUTT SUPPORT, AND ANCHOR SEPARATELY.

5	17/21/10 GENERAL - STANLEY REVIEW	RES	
4	10/17/10 GENERAL - STANLEY REVIEW	RES	
3	11/26/09 BRIDGE FOR CONSTRUCTION	CON	
2	12/18/09 BRIDGE FOR CONSTRUCTION	CON	
1	12/18/09 BRIDGE FOR CONSTRUCTION	CON	
0	12/18/09 BRIDGE FOR CONSTRUCTION	CON	

STANLEY CONSULTANTS
POLYTECH ENGINEERS

CLEVELAND PUBLIC POWER
SIDEWALK GUYS

8298.5

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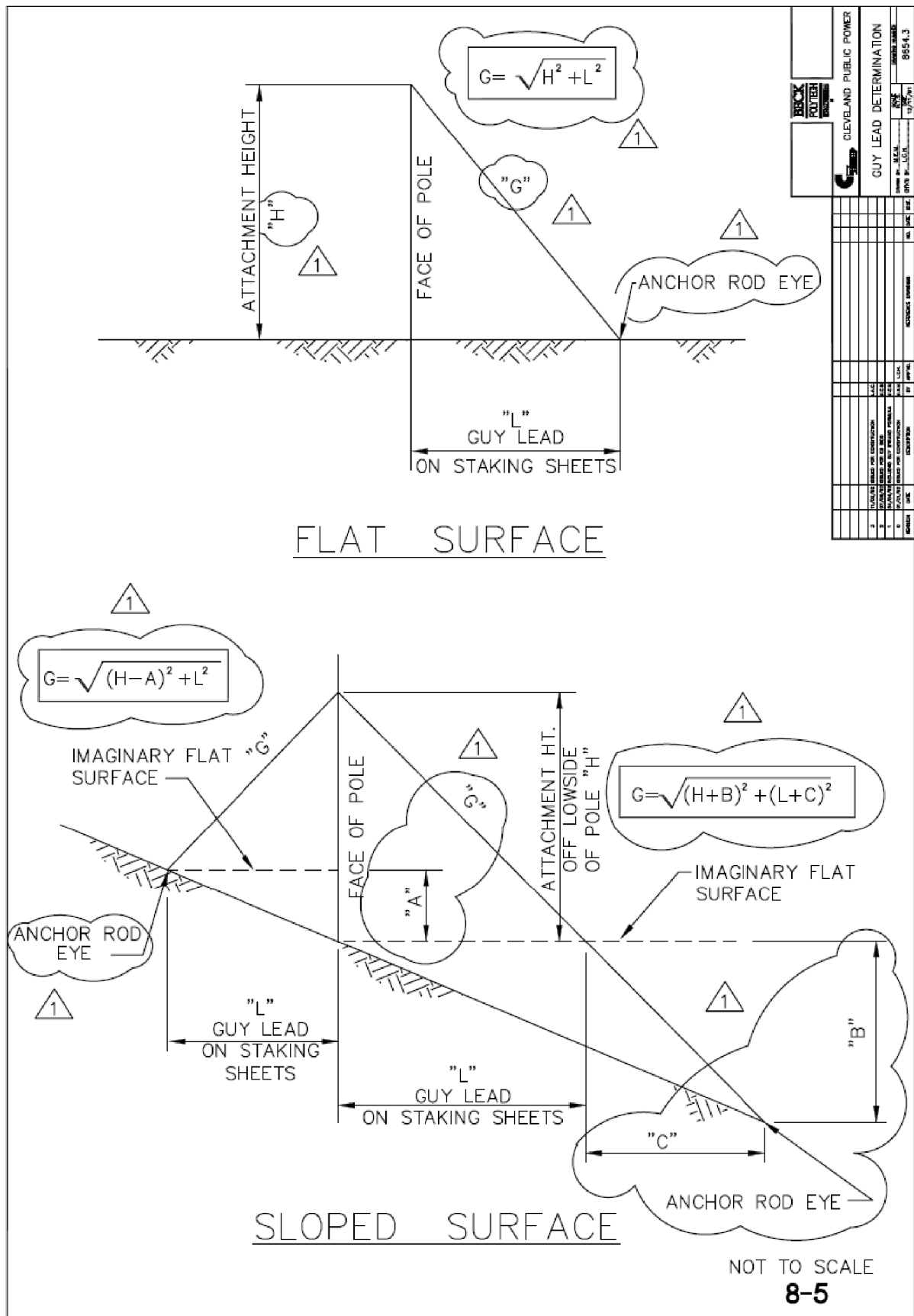
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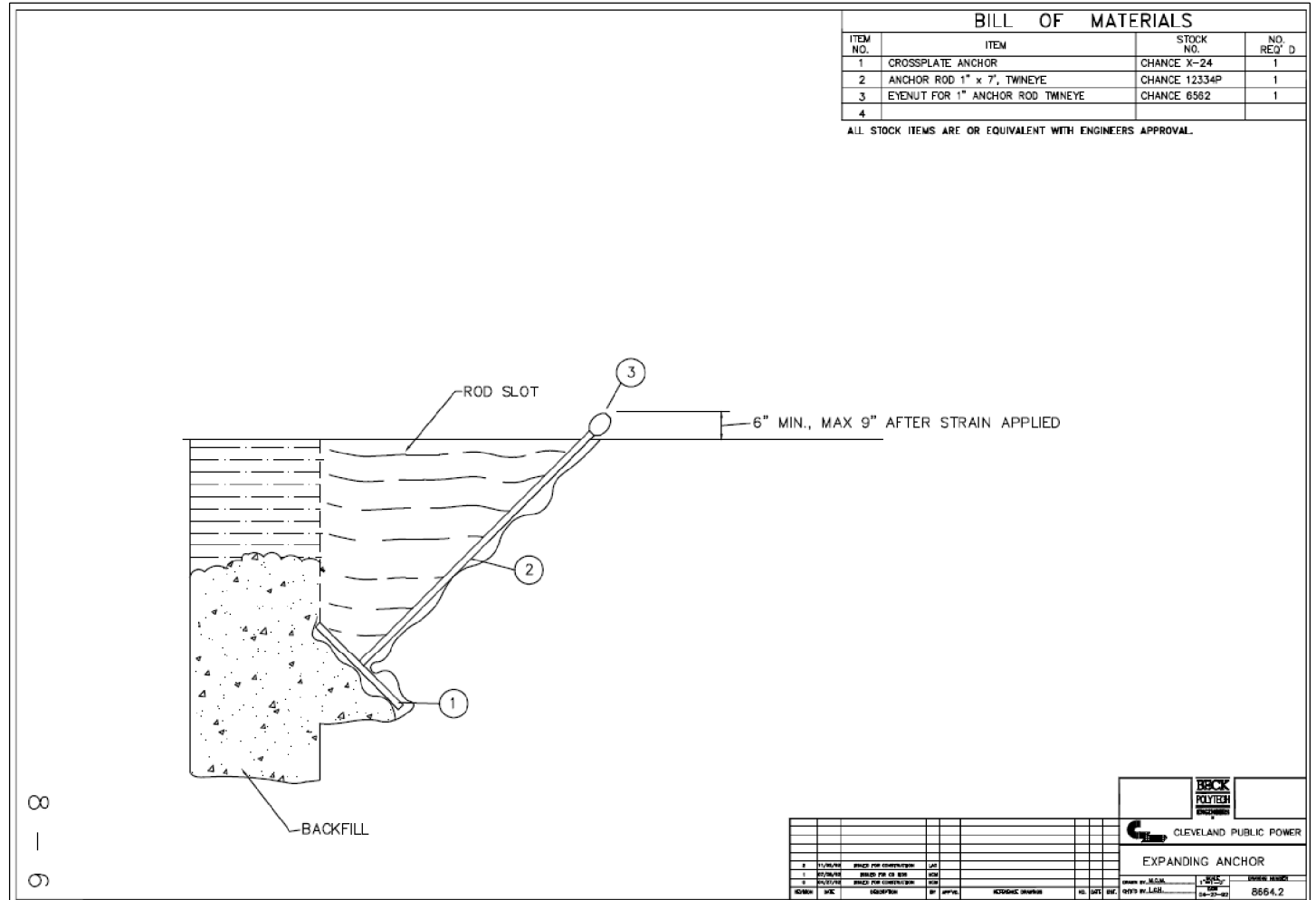
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BECK POLYTECH		CLEVELAND PUBLIC POWER	
NO.	DESCRIPTION	NO.	DESCRIPTION
1	FLAT SURFACE	1	FLAT SURFACE
2	SLOPED SURFACE	2	SLOPED SURFACE
3	ANCHOR ROD EYE	3	ANCHOR ROD EYE
4	IMAGINARY FLAT SURFACE	4	IMAGINARY FLAT SURFACE
5	ATTACHMENT HT. OFF LOWSIDE OF POLE	5	ATTACHMENT HT. OFF LOWSIDE OF POLE
6	GUY LEAD ON STAKING SHEETS	6	GUY LEAD ON STAKING SHEETS
7	IMAGINARY FLAT SURFACE	7	IMAGINARY FLAT SURFACE
8	ATTACHMENT HT. OFF LOWSIDE OF POLE	8	ATTACHMENT HT. OFF LOWSIDE OF POLE
9	GUY LEAD ON STAKING SHEETS	9	GUY LEAD ON STAKING SHEETS
10	IMAGINARY FLAT SURFACE	10	IMAGINARY FLAT SURFACE
11	ATTACHMENT HT. OFF LOWSIDE OF POLE	11	ATTACHMENT HT. OFF LOWSIDE OF POLE
12	GUY LEAD ON STAKING SHEETS	12	GUY LEAD ON STAKING SHEETS
13	IMAGINARY FLAT SURFACE	13	IMAGINARY FLAT SURFACE
14	ATTACHMENT HT. OFF LOWSIDE OF POLE	14	ATTACHMENT HT. OFF LOWSIDE OF POLE
15	GUY LEAD ON STAKING SHEETS	15	GUY LEAD ON STAKING SHEETS
16	IMAGINARY FLAT SURFACE	16	IMAGINARY FLAT SURFACE
17	ATTACHMENT HT. OFF LOWSIDE OF POLE	17	ATTACHMENT HT. OFF LOWSIDE OF POLE
18	GUY LEAD ON STAKING SHEETS	18	GUY LEAD ON STAKING SHEETS
19	IMAGINARY FLAT SURFACE	19	IMAGINARY FLAT SURFACE
20	ATTACHMENT HT. OFF LOWSIDE OF POLE	20	ATTACHMENT HT. OFF LOWSIDE OF POLE
21	GUY LEAD ON STAKING SHEETS	21	GUY LEAD ON STAKING SHEETS
22	IMAGINARY FLAT SURFACE	22	IMAGINARY FLAT SURFACE
23	ATTACHMENT HT. OFF LOWSIDE OF POLE	23	ATTACHMENT HT. OFF LOWSIDE OF POLE
24	GUY LEAD ON STAKING SHEETS	24	GUY LEAD ON STAKING SHEETS
25	IMAGINARY FLAT SURFACE	25	IMAGINARY FLAT SURFACE
26	ATTACHMENT HT. OFF LOWSIDE OF POLE	26	ATTACHMENT HT. OFF LOWSIDE OF POLE
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40	IMAGINARY FLAT SURFACE	40	IMAGINARY FLAT SURFACE
41	ATTACHMENT HT. OFF LOWSIDE OF POLE	41	ATTACHMENT HT. OFF LOWSIDE OF POLE
42	GUY LEAD ON STAKING SHEETS	42	GUY LEAD ON STAKING SHEETS
43	IMAGINARY FLAT SURFACE	43	IMAGINARY FLAT SURFACE
44	ATTACHMENT HT. OFF LOWSIDE OF POLE	44	ATTACHMENT HT. OFF LOWSIDE OF POLE
45	GUY LEAD ON STAKING SHEETS	45	GUY LEAD ON STAKING SHEETS
46	IMAGINARY FLAT SURFACE	46	IMAGINARY FLAT SURFACE
47	ATTACHMENT HT. OFF LOWSIDE OF POLE	47	ATTACHMENT HT. OFF LOWSIDE OF POLE
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49	IMAGINARY FLAT SURFACE	49	IMAGINARY FLAT SURFACE
50	ATTACHMENT HT. OFF LOWSIDE OF POLE	50	ATTACHMENT HT. OFF LOWSIDE OF POLE
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52	IMAGINARY FLAT SURFACE	52	IMAGINARY FLAT SURFACE
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55	IMAGINARY FLAT SURFACE	55	IMAGINARY FLAT SURFACE
56	ATTACHMENT HT. OFF LOWSIDE OF POLE	56	ATTACHMENT HT. OFF LOWSIDE OF POLE
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62	ATTACHMENT HT. OFF LOWSIDE OF POLE	62	ATTACHMENT HT. OFF LOWSIDE OF POLE
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64	IMAGINARY FLAT SURFACE	64	IMAGINARY FLAT SURFACE
65	ATTACHMENT HT. OFF LOWSIDE OF POLE	65	ATTACHMENT HT. OFF LOWSIDE OF POLE
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68	ATTACHMENT HT. OFF LOWSIDE OF POLE	68	ATTACHMENT HT. OFF LOWSIDE OF POLE
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76	IMAGINARY FLAT SURFACE	76	IMAGINARY FLAT SURFACE
77	ATTACHMENT HT. OFF LOWSIDE OF POLE	77	ATTACHMENT HT. OFF LOWSIDE OF POLE
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79	IMAGINARY FLAT SURFACE	79	IMAGINARY FLAT SURFACE
80	ATTACHMENT HT. OFF LOWSIDE OF POLE	80	ATTACHMENT HT. OFF LOWSIDE OF POLE
81	GUY LEAD ON STAKING SHEETS	81	GUY LEAD ON STAKING SHEETS
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90	GUY LEAD ON STAKING SHEETS	90	GUY LEAD ON STAKING SHEETS
91	IMAGINARY FLAT SURFACE	91	IMAGINARY FLAT SURFACE
92	ATTACHMENT HT. OFF LOWSIDE OF POLE	92	ATTACHMENT HT. OFF LOWSIDE OF POLE
93	GUY LEAD ON STAKING SHEETS	93	GUY LEAD ON STAKING SHEETS
94	IMAGINARY FLAT SURFACE	94	IMAGINARY FLAT SURFACE
95	ATTACHMENT HT. OFF LOWSIDE OF POLE	95	ATTACHMENT HT. OFF LOWSIDE OF POLE
96	GUY LEAD ON STAKING SHEETS	96	GUY LEAD ON STAKING SHEETS
97	IMAGINARY FLAT SURFACE	97	IMAGINARY FLAT SURFACE
98	ATTACHMENT HT. OFF LOWSIDE OF POLE	98	ATTACHMENT HT. OFF LOWSIDE OF POLE
99	GUY LEAD ON STAKING SHEETS	99	GUY LEAD ON STAKING SHEETS
100	IMAGINARY FLAT SURFACE	100	IMAGINARY FLAT SURFACE



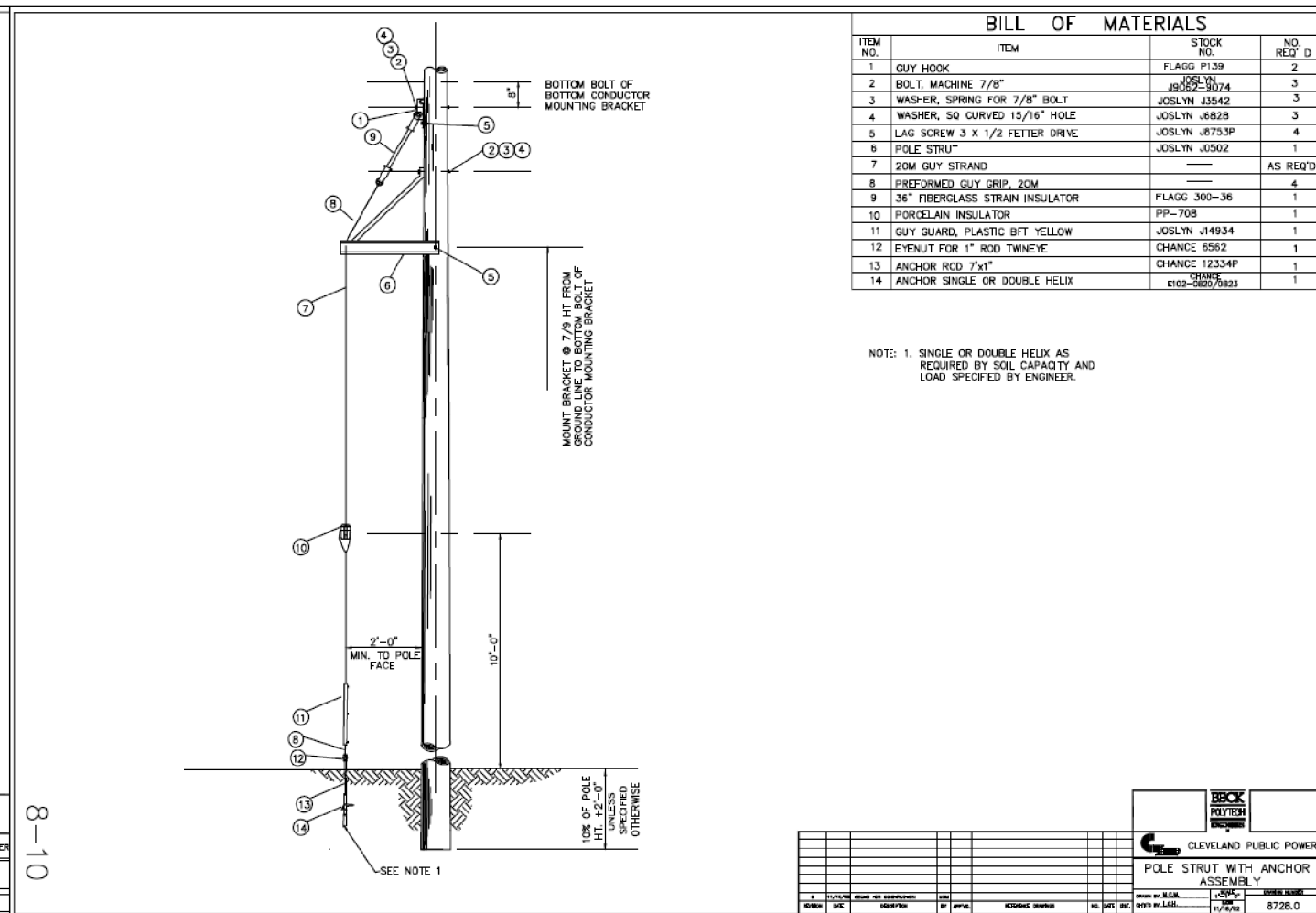
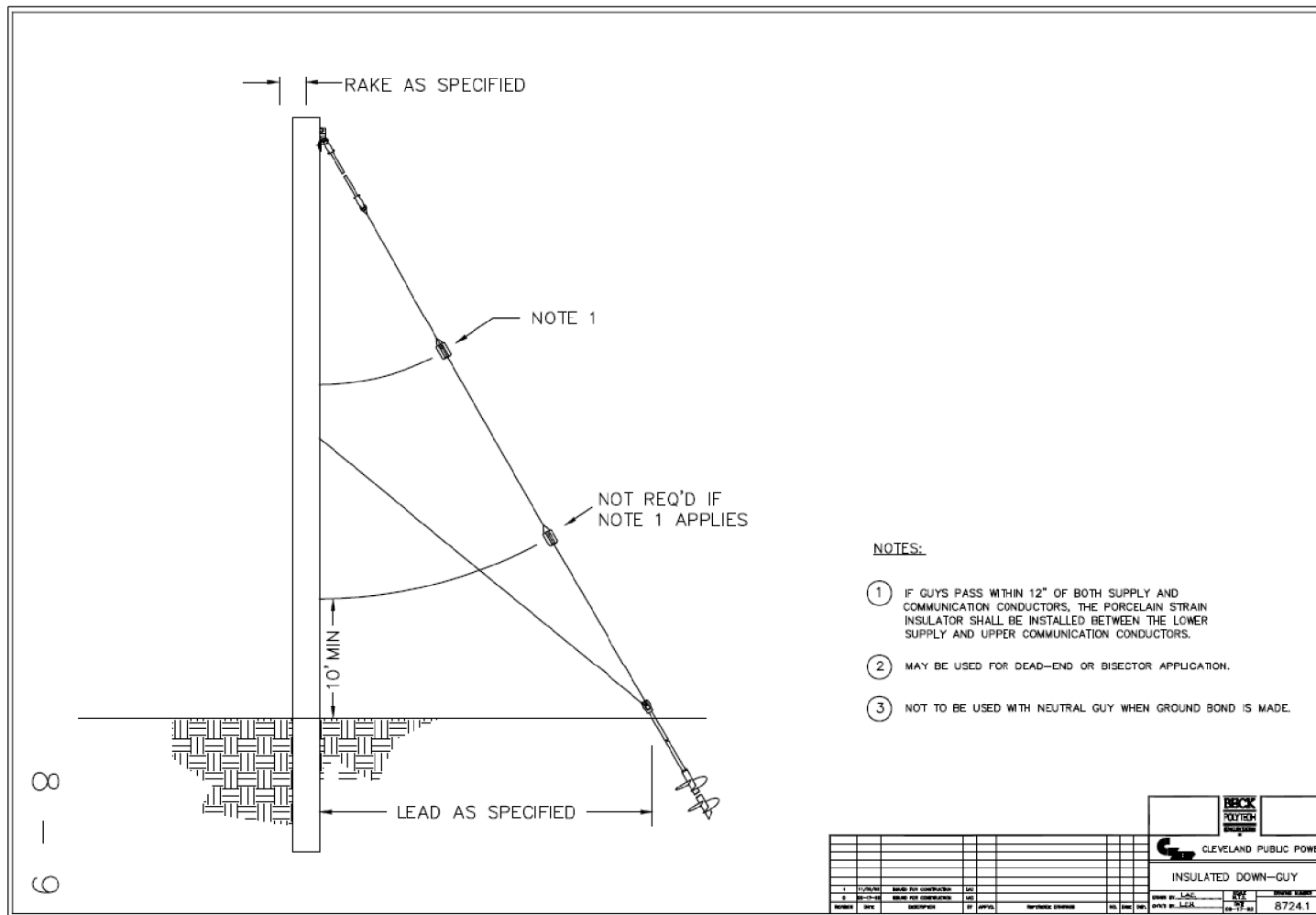
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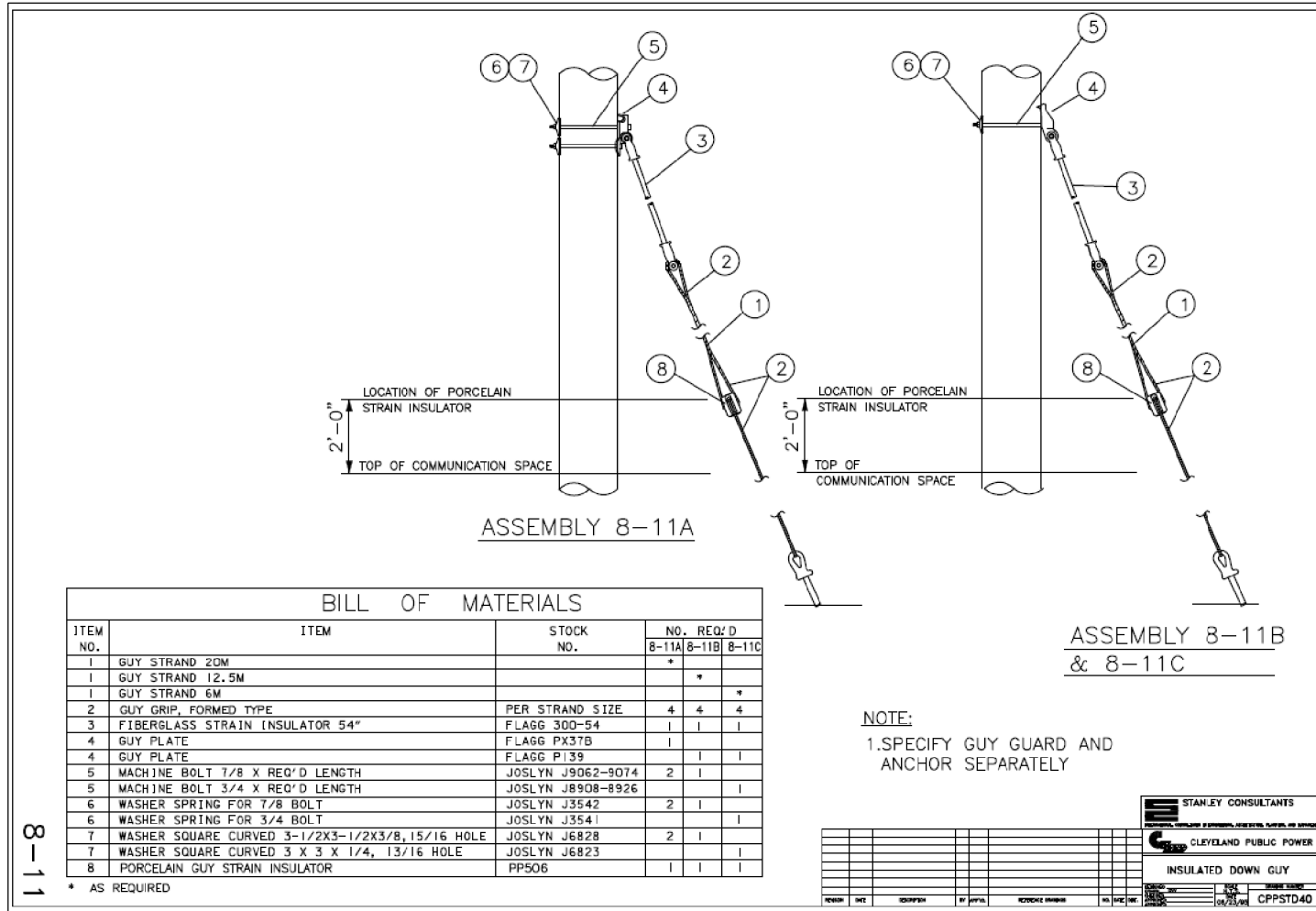
- NOTES:
- 1 IF GUYS PASS WITHIN 12" OF BOTH SUPPLY AND COMMUNICATION CONDUCTORS, THE PORCELAIN STRAIN INSULATOR SHALL BE INSTALLED BETWEEN THE LOWER SUPPLY AND UPPER COMMUNICATION CONDUCTORS.
 - 2 MAY BE USED FOR DEAD-END OR BISECTOR APPLICATION.
 - 3 NOT TO BE USED WITH NEUTRAL GUY WHEN GROUND BOND IS MADE.

8-10

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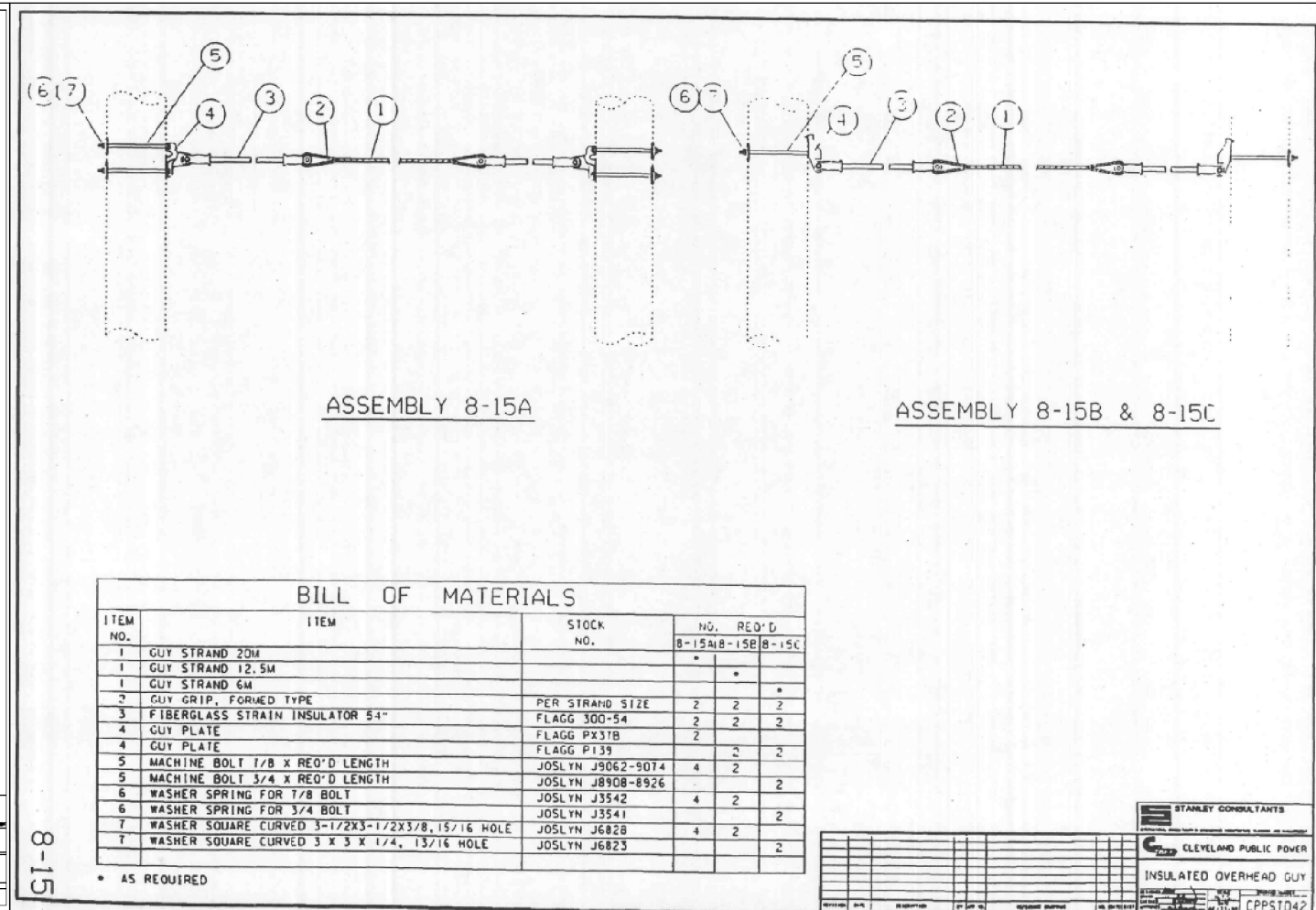
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BILL OF MATERIALS

ITEM NO.	ITEM	STOCK NO.	NO. REQ'D		
			8-11A	8-11B	8-11C
1	GUY STRAND 20M		*	*	*
1	GUY STRAND 12.5M				
1	GUY STRAND 6M				*
2	GUY GRIP, FORMED TYPE	PER STRAND SIZE	4	4	4
3	FIBERGLASS STRAIN INSULATOR 54"	FLAGG 300-54	1	1	1
4	GUY PLATE	FLAGG PX37B	1		
4	GUY PLATE	FLAGG P139	1	1	1
5	MACHINE BOLT 7/8 X REQ'D LENGTH	JOSLYN J9062-9074	2	1	
5	MACHINE BOLT 3/4 X REQ'D LENGTH	JOSLYN J8908-8926			1
6	WASHER SPRING FOR 7/8 BOLT	JOSLYN J3542	2	1	
6	WASHER SPRING FOR 3/4 BOLT	JOSLYN J3541			1
7	WASHER SQUARE CURVED 3-1/2X3-1/2X3/8, 15/16 HOLE	JOSLYN J6828	2	1	
7	WASHER SQUARE CURVED 3 X 3 X 1/4, 13/16 HOLE	JOSLYN J6823			1
8	PORCELAIN GUY STRAIN INSULATOR	PP506	1	1	1

* AS REQUIRED



BILL OF MATERIALS

ITEM NO.	ITEM	STOCK NO.	NO. REQ'D		
			8-15A	8-15B	8-15C
1	GUY STRAND 20M		*	*	*
1	GUY STRAND 12.5M				
1	GUY STRAND 6M				*
2	GUY GRIP, FORMED TYPE	PER STRAND SIZE	2	2	2
3	FIBERGLASS STRAIN INSULATOR 54"	FLAGG 300-54	2	2	2
4	GUY PLATE	FLAGG PX37B	2		
4	GUY PLATE	FLAGG P139		2	2
5	MACHINE BOLT 1/8 X REQ'D LENGTH	JOSLYN J9062-9074	4	2	
5	MACHINE BOLT 3/4 X REQ'D LENGTH	JOSLYN J8908-8926			2
6	WASHER SPRING FOR 7/8 BOLT	JOSLYN J3542	4	2	
6	WASHER SPRING FOR 3/4 BOLT	JOSLYN J3541			2
7	WASHER SQUARE CURVED 3-1/2X3-1/2X3/8, 15/16 HOLE	JOSLYN J6828	4	2	
7	WASHER SQUARE CURVED 3 X 3 X 1/4, 13/16 HOLE	JOSLYN J6823			2

* AS REQUIRED

STANLEY CONSULTANTS
CLEVELAND PUBLIC POWER
INSULATED DOWN GUY
CPPSTD40

STANLEY CONSULTANTS
CLEVELAND PUBLIC POWER
INSULATED OVERHEAD GUY
CPPSTD42

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CALCULATED
KAE
CHECKED
MJH

CPP STANDARD DRAWINGS

CUY-77-13.80

17
23

BILL OF MATERIALS					
ITEM NO.	ITEM	STOCK NO.	NO. REQUIRED		
1	TWINEYE NUT FOR 1" ANCHOR ROD	CHANCE 8562	A	B	C
2	TRIPLEYE ADAPTER FOR 1 1/2" SHAFT	CHANCE C182-8825	1	1	
3	ANCHOR - SINGLE HELIX, 18"	CHANCE E182-8828			1
4	ANCHOR - DOUBLE HELIX, 18"	CHANCE E182-8823	1		
5	ANCHOR - TRIPLE HELIX, 14"	CHANCE C118-8584		1	
6	ANCHOR ROD - 7'-8" X 1"	CHANCE 12334P	1	1	1
7	ANCHOR SHAFT EXT. - 5'-8" X 1 1/2"	CHANCE C118-8478			2

NOTE: ALL STOCK ITEMS ARE "OR EQUIVALENT" WITH ENGINEER APPROVAL.

ULTIMATE HOLDING CAPACITY	
CLASS 6 SOIL	
A	12,000 LBS
B	20,000 LBS
C	60,000 LBS

NOTE: INSTALL EXTENSION RODS AS REQUIRED TO DEVELOP HOLDING STRENGTH.

8-17

STANLEY CONSULTANTS
CLEVELAND PUBLIC POWER
POWER SCREW ANCHORS
CPFS107

LOCATE AT CENTROID OF TOTAL LOAD

LOCATION OF PORCELAIN STRAIN INSULATOR

TOP OF COMMUNICATION SPACE

2'-0"

10'-0" OR 6'-0"

12'-0"

8-19

BILL OF MATERIALS				
ITEM NO.	ITEM	STOCK NO.	NO. REQ'D	
1	GUY STRAND 20M			*
2	GUY GRIP FORMED TYPE	PER STRAND SIZE		8
3	FIBERGLASS STRAIN INSULATOR 54"	FLAGG 300-54		2
4	GUY PLATE	FLAGG PX37B		2
5	MACHINE BOLT 7/8 X REQ'D LENGTH	JOSLYN J9062-9074		4
6	WASHER SPRING FOR 7/8 BOLT	JOSLYN J3542		4
7	WASHER SQUARE CURVED 3-1/2X3-1/2X3/8, 15/16 HOLE	JOSLYN J8828		4
8	PORCELAIN GUY STRAIN INSULATOR	PPS06		2
9	GALV. STEEL PIPE, PER REQ'D. LENGTH X 2 1/2" DIA., SCH. 40			1
10	POLE PLATE	JOSLYN J0521		1
11	LAG SCREW 1/2" X 4"	CHANCE 508754		4
12	END FITTING W/CLAMP, DOUBLE GUY	JOSLYN J0522		1
13	GUY CLAMP	JOSLYN J931		1

NOTE: ALL STOCK ITEMS ARE "OR EQUIVALENT" WITH ENGINEER APPROVAL.
* AS REQUIRED

FOR 6' GUY LEAD				
GUY STRAND	MAX. TOTAL LOADING	MIN POLE CLASS		
35' & 40' POLES	4,900	H3		
45' & 50' POLES	4,000	H3		
55' & 60' POLES	4,000	H3		

FOR 10' GUY LEAD				
GUY STRAND	MAX. TOTAL LOADING	MIN POLE CLASS		
35' & 40' POLES	6,000	H3		
45' & 50' POLES	6,700	H3		
55' & 60' POLES	6,700	H3		

NOTE: LOADS INCLUDE APPROPRIATE OVERLOAD CAPACITY FACTORS. SPECIFY GUY GUARD, POLE BUTT SUPPORT, AND ANCHOR SEPARATELY.

STANLEY CONSULTANTS
CLEVELAND PUBLIC POWER
HIGH CAPACITY SIDEWALK GUY
CPPST833

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BILL OF MATERIALS

ITEM NO.	ITEM	STOCK NO.	NO. REQ'D	
			8-20A	8-20B
1	ANCHOR, EXPANDING, 200 SQ. IN., 10" HOLE	CHANCE 1082	1	--
1	ANCHOR, EXPANDING, 300 SQ. IN., 12" HOLE	CHANCE 1283-1	--	1
2	ROD, ANCHOR, 1" X 10"	CHANCE 5370	1	1
3	BACKFILL, CRUSHED ROCK	---	AS REQ'D	AS REQ'D

APPROX 6"

10" FOR 8-20A
12" FOR 8-20B

ULTIMATE HOLDING CAPACITY

	CLASS 6 SOIL	CLASS 7 SOIL
8-20A	16,500 LBS	12,000 LBS
8-20B	21,500 LBS	16,000 LBS

NOTES:

1. INSTALL ANCHOR PER MANUFACTURER'S RECOMMENDATIONS.
2. INSTALL ANCHOR AT SAME ANGLE AS GUY.
3. BACKFILL HOLE WITH CRUSHED ROCK COMPACTED IN 6 IN. LAYERS. TOP 6" PER SITE RESTORATION REQUIREMENTS.

8-20

STANLEY CONSULTANTS

CLEVELAND PUBLIC POWER

EXPANDING CONE ANCHOR

NO.	REV.	DATE	DESCRIPTION	BY	CHKD.
0					

8778.0

BILL OF MATERIALS

ITEM NO.	ITEM	STOCK NO.	NO. REQ'D
1	STAPLES, ROLLED	JOSLYN J6497	AS REQ'D
2	#4 COPPERWELD SD.		*
3	WOOD MOULDING, BFT.	HUGHES 2501.8	1
4	GALV. STAPLE OVERWOOD MOULDING	JOSLYN J7493 HDG	AS REQ'D

NOTE: ALL STOCK ITEMS ARE "OR EQUIVALENT" WITH ENGINEER APPROVAL.

INSTALL UNDER WOOD MOULDING 8'-0"

BUTT COIL SHOULD HAVE ADEQUATE COILS TO MAKE GOOD CONTACT WITH THE EARTH.

REFER TO DWG. 8659 FOR GROUND OPTION. GROUND GIRDL.

8-20

BECK

CLEVELAND PUBLIC POWER

BUTT COIL GROUNDING DETAIL

NO.	REV.	DATE	DESCRIPTION	BY	CHKD.
0					

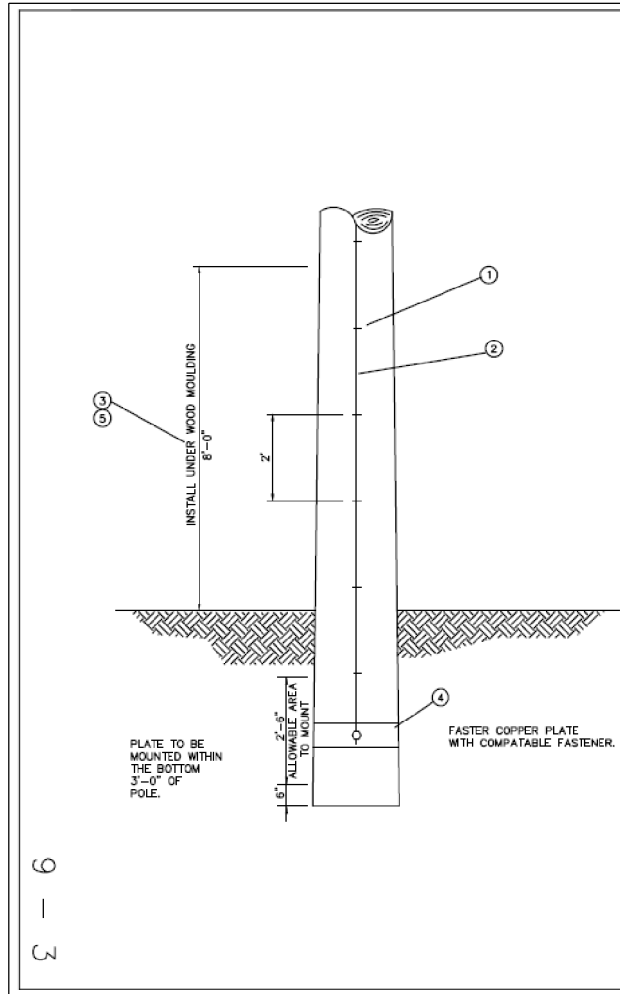
8243.4

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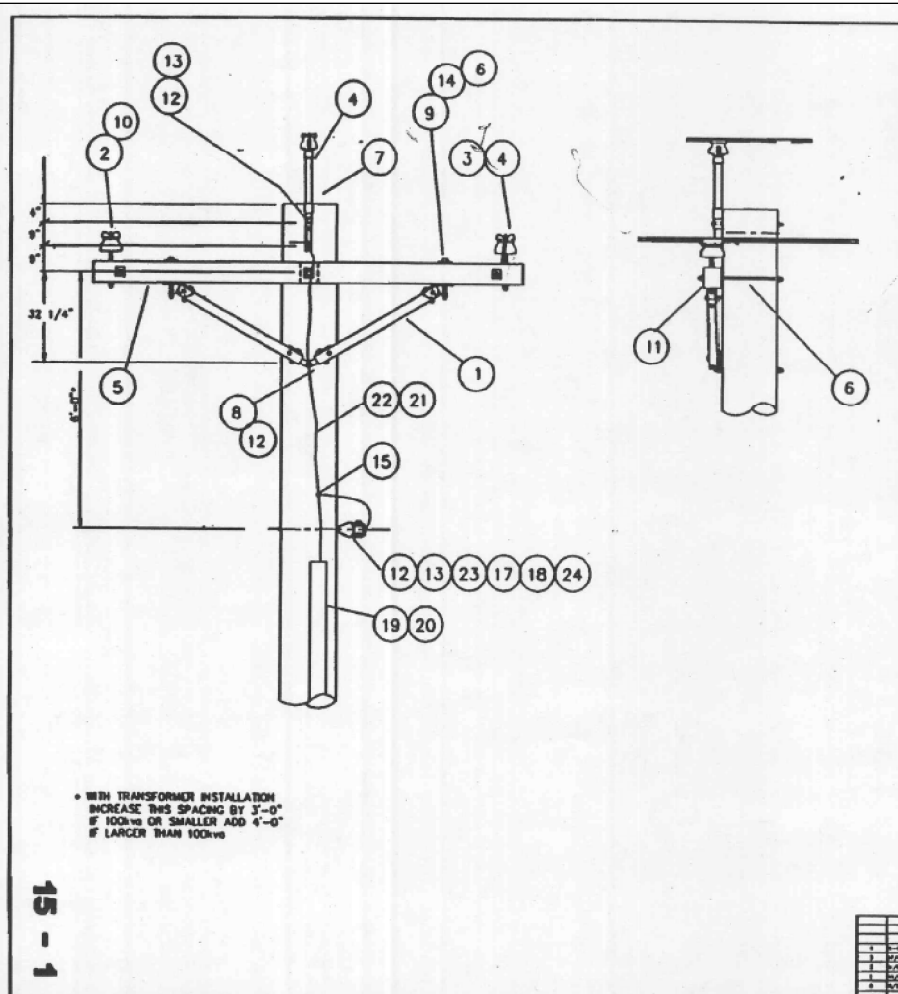


BILL OF MATERIALS			
ITEM NO.	ITEM	STOCK NO.	NO. REQ'D
1	STAPLES, ROLLED	JOSLYN J6497	AS REQ'D
2	#4 COPPERWELD SD.		*
3	WOOD MOLDING, 8FT.	HUGHES 2501.8	1
4	GROUND GIRDLE	HOMAC GG 288-E3	1
5	GALV. STAPLE OVER WOOD MOLDING	JOSLYN J7493 HDG	AS REQ'D

* AS REQUIRED
NOTE: ALL STOCK ITEMS ARE "OR EQUIVALENT" WITH ENGINEER APPROVAL.

REV		DESCRIPTION	DATE	BY	CHKD
1		ISSUED FOR CONSTRUCTION			
2		ISSUED FOR CONSTRUCTION			
3		ISSUED FOR CONSTRUCTION			

BECK POLYTECH
CLEVELAND PUBLIC POWER
GROUND GIRDLE
GROUNDING DETAIL
8659.2



BILL OF MATERIALS			
ITEM NO.	ITEM	STOCK NO.	NO. REQ'D
1	WOOD BRACE, 60" SPAN	JOSLYN J1730W-R	1 PAR
2	INSULATOR, 13 KV PM TYPE	PP 368-3	3
3	STEEL PIN, 5/8" SHANK	JOSLYN J628	2
4	LINE GUARD (SEE NOTE 3)		1 SET/PH
5	CROSSARM, 6" X 3 1/2" X 4 1/2" STL. PM		1
6	WASHER, LOCK FOR 1/2" BOLT	JOSLYN J138	2
7	POLE TOP PIN, FIBERGLASS, 12"	FLAG 7561-812	1
8	WASHER, 5/8", ROUND, FLAT	JOSLYN J1088	3
9	BOLT, MACHINE 1/2" X 6"	JOSLYN J6706	2
10	TC WIRE, DOUBLE PH	PER COND.	3
11	GRID CAM	FLAG P1127	1
12	BOLT, MACHINE 5/8" X LENGTH REQ'D.	JOSLYN J1007-24	3
13	WASHER, CURVED 1 1/8" HOLE, 3/8X1/4"	JOSLYN J1113	3
14	WASHER, 1/2", ROUND, FLAT	JOSLYN J1086	2
15	CONNECTOR, #4CU TO #4 CU	BURNDY YC4CA	1
16	CONNECTOR, #4CU TO NEUT./MESSENGER	PER NEUTRAL	1
17	CLEWS, INSULATED SECONDARY	JOSLYN J3540	1
18	INSULATOR SPOOL	JOSLYN J101	1
19	WOOD MOLDING, 6" LENGTHS	HUGHES 2501.8	3
20	STAPLES, GALV. OVER WOOD MOLDING	HUGHES 2501.4	50
21	STAPLES, ROLLED, OVER BARE COPPERWELD	JOSLYN J6497	100
22	#4 COPPERWELD SOLID SD		AS REQ'D
23	NEUTRAL TC WIRE	PER NEUT.	1
24	WASHER, SPRING, 5/8" BOLT HOLE	JOSLYN J3349	3

NOTE:
1. SEE DWG. 8243 OR 8569 FOR GROUNDING
2. BOND ALL HARDWARE TO NEUTRAL
3. LINE GUARD REQ'D. FOR SPANS OVER 200'

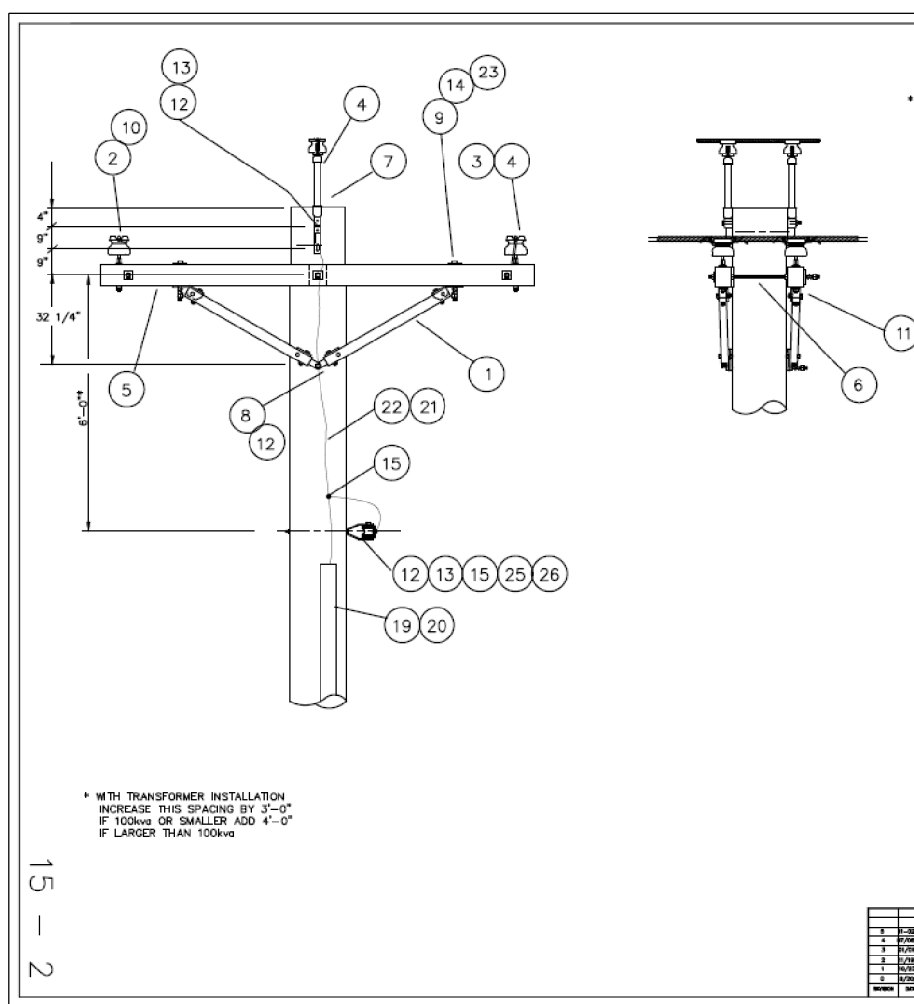
* WITH TRANSFORMER INSTALLATION INCREASE THIS SPACING BY 3'-0" IF 100V OR SMALLER ADD 4'-0" IF LARGER THAN 100V

REV		DESCRIPTION	DATE	BY	CHKD
1		ISSUED FOR CONSTRUCTION			
2		ISSUED FOR CONSTRUCTION			
3		ISSUED FOR CONSTRUCTION			

BECK POLYTECH
CLEVELAND PUBLIC POWER
THREE PHASE ASSEMBLY
8652.4

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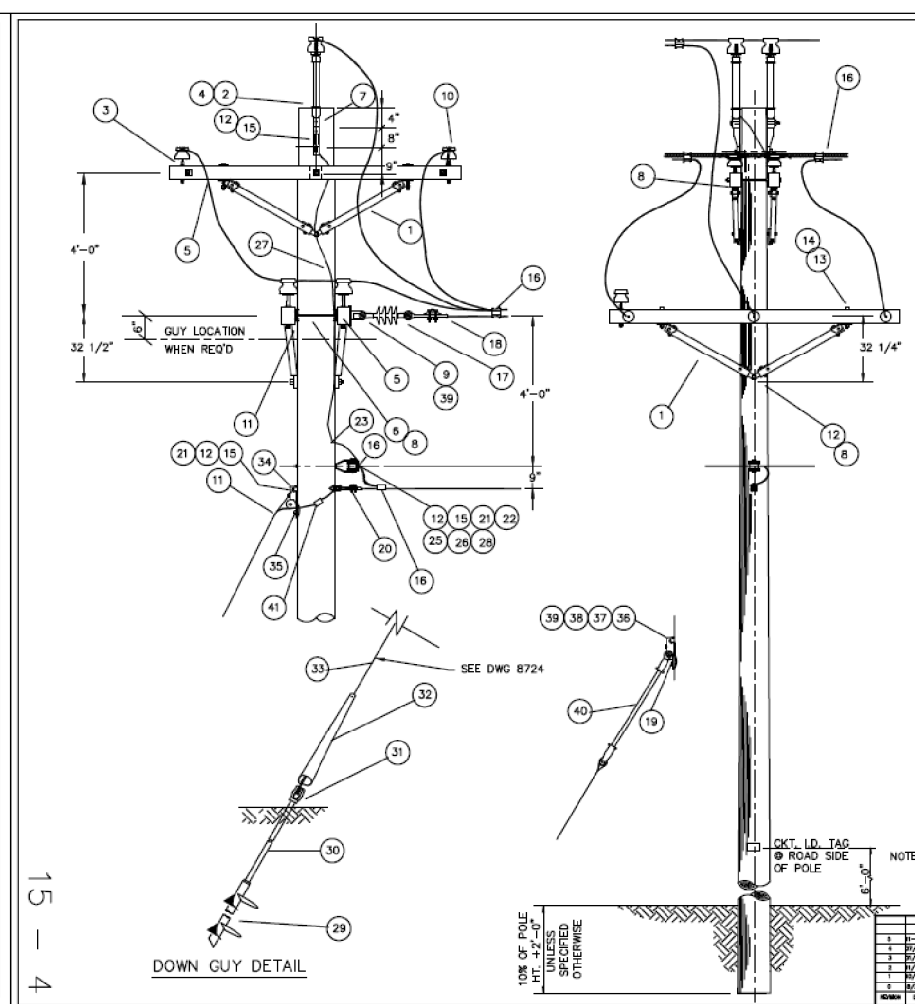


ITEM NO.	ITEM	STOCK NO.	NO. REQ'D
1	WOOD BRACE, 60" SPAN	JOSLYN J4730W-R	2 PAIR
2	INSULATOR, 13 KV PIN TYPE	PP 366-3	6
3	STEEL PIN, 5/8" SHANK	JOSLYN J626	4
4	LINE GUARD (SEE NOTE 3)	PER COND. SIZE	1 SET/PH
5	CROSSARM, 8" X 3 1/2" X 4 1/2" STL. PIN		2
6	DBL. ARMING BOLT, 5/8" X LENGTH REQ'D.	JOSLYN J8660-79	2
7	POLE TOP PIN, FIBERGLASS, 12"	FLAGG 7561-612	2
8	WASHER, 5/8", ROUND, FLAT	JOSLYN J1088	8
9	BOLT, MACHINE 1/2" X 6"	JOSLYN J8706	4
10	TIE WIRE, DOUBLE PIN SUPPORT TIE	PER COND.	3
11	GRID GAIN	FLAGG P1122	2
12	BOLT, MACHINE 5/8" X LENGTH REQ'D.	JOSLYN J8660-79	5
13	WASHER, CURVED 11/16" HOLE, 3X3X1/4"	JOSLYN J1113	5
14	WASHER, 1/2", ROUND, FLAT	JOSLYN J1086	4
15	CONNECTOR, #4CU TO #4 CU	BURNDY YC4CA	1
16	CONNECTOR, #4CU TO NEUT./MESSENGER	PER NEUTRAL	1
17	CLEVIS, INSULATED SECONDARY	JOSLYN J3540	1
18	INSULATOR SPOOL	JOSLYN J101	1
19	WOOD MOLDING, 8" LENGTHS	HUGHES 2501.8	3
20	STAPLES, GALV., OVER WOOD MOLDING	HUGHES 2501.4	50
21	STAPLES, ROLLED, OVER BARE COPPERWELD	JOSLYN J6497	100
22	#4 COPPERWELD SOLD S.D.		AS REQ'D.
23	WASHER, LOCK FOR 1/2" BOLT	JOSLYN J138	2
24	STEEL PIN 3/4" SHANK	JOSLYN J628	4
25	NEUTRAL TIE WIRE	PER NEUT.	1
26	WASHER, SPRING, 5/8" BOLT HOLE	JOSLYN J3540	5

NOTE:
 1. SEE DWG. 8243 OR 8659 FOR GROUNDING
 2. BOND ALL HARDWARE TO NEUTRAL
 3. LINE GUARD REQ'D. FOR SPANS OVER 200'

REQUIRES ANSI CLASS 55-5 WITH 11/16" R. SIDE GROOVE WHEN 636 CONDUCTOR WITH GUARD IS USED.

15 - 4



ITEM NO.	ITEM	STOCK NO.	NO. REQ'D
1	WOOD BRACE, 60" SPAN	JOSLYN J4730W-R	4
2	INSULATOR, 13KV, PIN TYPE	PP 366-3	7
3	STEEL PIN, 5/8" DIA SHANK	JOSLYN J626	6
4	LINE GUARD, DOUBLE PIN	PER COND.	3 SET
5	CROSSARM, 8", 3 1/2" X 4 1/2" STL. PIN		4
6	DBL. ARMING BOLT, 5/8" X LENGTH REQ'D.	JOSLYN J8660-79	4
7	POLE TOP PIN, 12", FIBERGLASS	FLAGG 7561-612	2
8	WASHER, 5/8", ROUND, FLAT	JOSLYN J1088	16
9	EYENUT FOR 5/8" BOLT, OVALEYE	JOSLYN J1092	3
10	TIEWIRE, DOUBLE PIN SUPPORT TIE	PER COND.	4 SET
11	GRID GAIN	FLAGG P1122	4
12	BOLT, 5/8" X LENGTH REQ'D., MACHINE	JOSLYN J8660-79	8
13	BOLT, 1/2" X 6", MACHINE	JOSLYN J8706	4
14	WASHER, 1/2", ROUND, FLAT	JOSLYN J1086	4
15	WASHER, CURVED 11/16" HOLE, 3 X 3 X 1/4"	JOSLYN J1113	4
16	IMPACT TAP CONNECTOR, WIRE TO WIRE	PER COND.	8
17	INSULATOR, SUSPENSION 13KV, PDI-15 TYPE	08 401015-0215	3
18	CLAMP DEADEND, STRAIGHTTUNE	PER COND.	3
19	LAG SCREW, 3x1/2, FETTERDRIVE, DRIVE POINT	JOSLYN J8753P	2
20	DEADEND CLAMP	PER NEUT. SIZE	1
21	WASHER, SPRING 5/8" BOLT HOLE	JOSLYN J3540	4
22	CONNECTOR #4 CU TO NEUTRAL	PER NEUT.	1
23	CONNECTOR #4 CU TO #4 CU	BURNDY 4C4CA	1
24	CONNECTOR NEUT TO NEUT	PER NEUT. SIZE	1
25	CLEVIS, INSULATED SECONDARY	JOSLYN J3540	1
26	INSULATOR SPOOL	JOSLYN J101	1
27	#4 SD CU		AS REQ'D.
28	NEUTRAL TIE WIRE	PER NEUT. SIZE	1
29	ANCHOR, SINGLE OR DOUBLE HELIX	5102-0820/0823	AS REQ'D.
30	ANCHOR ROD 7" x 1"	CHANCE 12334P	AS REQ'D.
31	EYENUT FOR 1" ANCHOR ROD, TWINEYE	CHANCE 6562	1 PER ROD
32	GUY GUARD, PLASTIC 6" YELLOW	JOSLYN J1493Y	AS REQ'D.
33	GUY STRAND	PER ENGINEER	AS REQ'D.
34	GUY HOOK	FLAGG P135A	1
35	ANCHOR SHACKLE 5/8" PIN	JOSLYN BT 3009	3
36	GUY HOOK, COMBINATION TYPE	FLAGG P139	1
37	MACHINE BOLT 7/8" X LENGTH REQ'D	JOSLYN J8660-79	1
38	WASHER, SPRING FOR 7/8" BOLT	JOSLYN J3542	1
39	WASHER, SO. CURVED 3 1/2" X 3 1/2" X 3/8"	JOSLYN J6628	1
40	FIBERGLASS GUY STRAIN INSULATOR 54" 30kv	FLAGG P135A	1
41	NONTENSION SLEEVE	JOSLYN J6753P	1

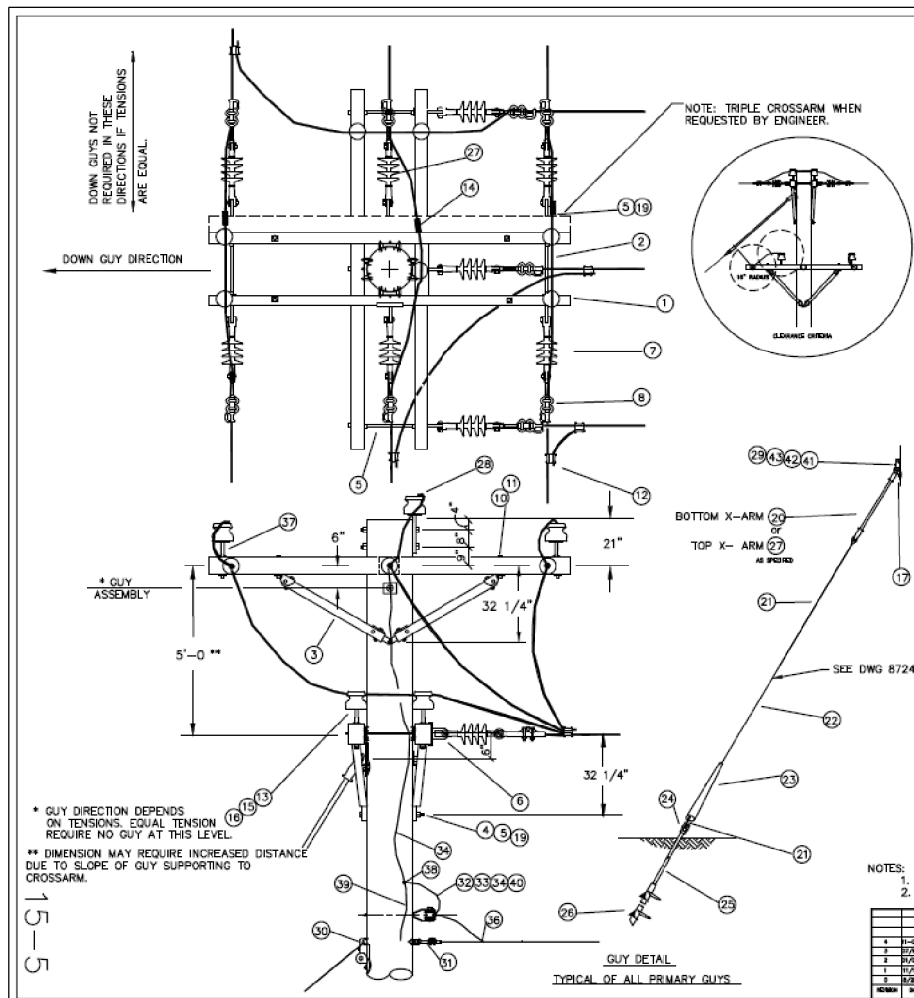
NOTE: ALL STOCK ITEMS ARE "OR EQUIVALENT" WITH ENGINEERS APPROVAL.
 ** REQUIRES ANSI CLASS 55-5 WITH 11/16" R. SIDE GROOVE WHEN 636 CONDUCTOR WITH GUARD IS USED.

1. FOR GROUNDING SEE DWG. 8243 OR 8659
 2. BOND ALL HARDWARE TO NEUTRAL
 3. * SPANS OVER 200' REQUIRE LINEGUARD

15 - 4

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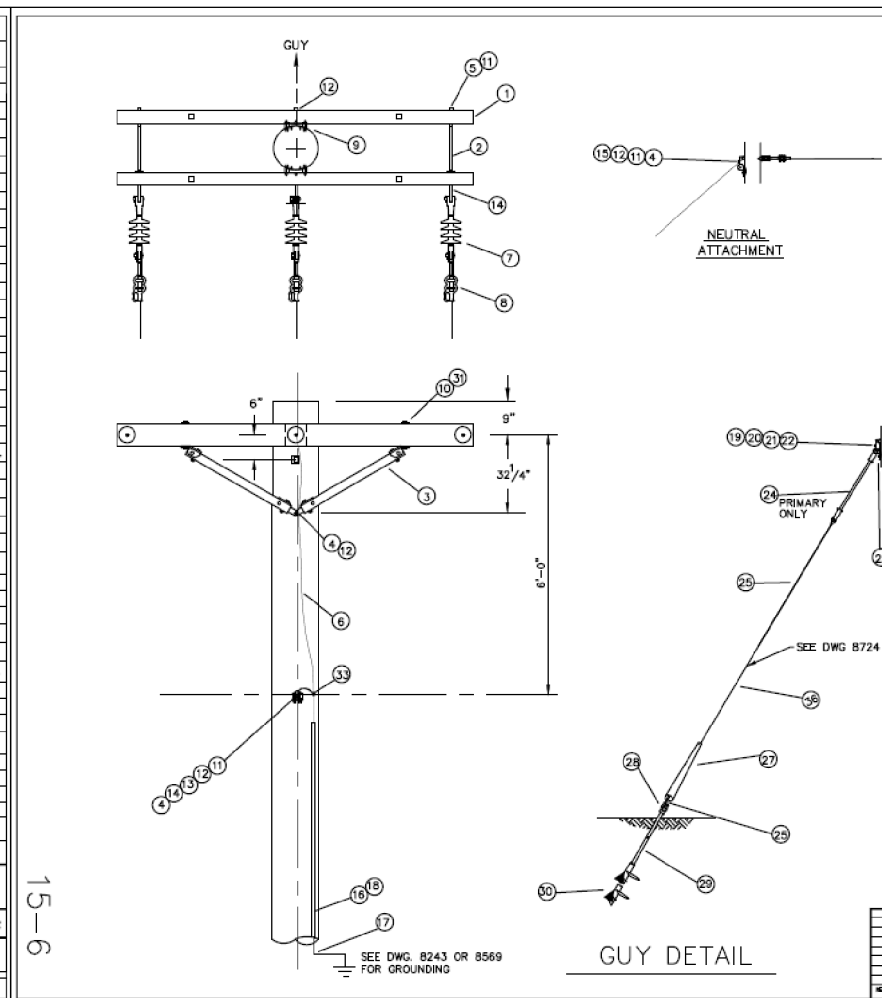


BILL OF MATERIALS			
ITEM NO.	ITEM	STOCK NO.	NO. REQ'D
1	CROSSARM, WD, 3 1/2" X 4 1/2", STL. PIN	----	4
2	DBL. ARMING EYEBOLT, 5/8" X LENGTH REQ'D	JOSLYN J8614 - 26	4
3	WOOD BRACE, 60" SPAN	JOSLYN J4730W-R	4 PAIR
4	BOLT, MACHINE, 5/8" X LENGTH REQ'D	JOSLYN J8808 - 24	8
5	WASHER, 5/8", ROUND, CURVED	JOSLYN J113	16
6	OVAL EYENUT, FOR 5/8" BOLT	JOSLYN J1092	10
7	INSULATORS, SUSPENSION 13KV, PDI TYPE	OB 401015-0215	9
8	DEADEND CLAMP, STRAIGHTLINE	PER COND.	9
9	GRID GAIN	FLAGG PX 122	4
10	BOLT, MACHINE, 1/2" X 6"	JOSLYN J8706	8
11	WASHER, 1/2", ROUND, FLAT	JOSLYN J1086	8
12	IMPACT CONNECTOR, LINE TO LINE	IMPACT	8
13	INSULATOR, 13KV PIN TYPE	PP 366-3	6
14	JUMPER SPLICE, NON-TENSION, PER COND.	PER COND. SIZE	3
15	STEEL PIN, 3/4" SHANK	JOSLYN J606	6
16	TIE WIRE, DBL. PIN, PER COND. SIZE	PER COND. SIZE	3
17	LAG SCREW, 3 X 1/2", FETTERDRIVE & POINT	JOSLYN J2742	2
18	WASHER, CURVED 11/16" HOLE 3 X 3 X 1/4"	JOSLYN J1113	8
19	SPRING WASHER FOR 5/8" BOLT	JOSLYN J3540	8
20	FIBERGLASS STRAIN INSUL. 36" 30K MIN	FLAGG 300-36	1
21	GUY GRIP	PER GUY STRAND	4
22	GUY STRAND	PER ENGINEER	AS REQ'D.
23	GUY GUARD, PLASTIC, 8" YELLOW	JOSLYN J1493Y	2
24	EYENUT FOR 1" ANCHOR ROD	CHANCE 6562	2
25	ANCHOR ROD 7" X 1"	CHANCE 12334P	2
26	ANCHOR SINGLE OR DOUBLE HELIX	E102-08207 - 0823	2
27	FIBERGLASS STRAIN INSUL 78" 30K MIN	FLAGG 300-78	1
28	TIE WIRE, SGL. PIN	PER COND. SIZE	1
29	GUY HOOK, COMBINATION TYPE	FLAGG P139	1
30	GUY HOOK NEUTRAL	FLAGG P135A	1
31	DEADEND CLAMP	PER NEUT. SIZE	1
32	CLEVIS SECONDARY INSULATED	JOSLYN J3540	1
33	INSULATOR SPOOL	JOSLYN J101	1
34	#4 CU SOLID S.D.	----	AS REQ'D.
35	CONNECTOR, #4 CU TO NEUTRAL	PER NEUT.	1
36	CONNECTOR NEUT. TO NEUT.	PER NEUT.	1
37	STEEL PIN 5/8" SHANK	JOSLYN J826	4
38	CONNECTOR #4 CU TO #4 CU	BURNDY Y04C4	1
39	WOOD MOULDING 8" LENGTH	HUGHES 2501.8	3
40	NEUTRAL TIE WIRE	PER NEUT. SIZE	1
41	MACHINE BOLT 7/8 X LENGTH REQ'D	JOSLYN J9052-9074	1
42	SPRING WASHER FOR 7/8 BOLT	JOSLYN J3542	1
43	CURVED SCL. WASHER 3 1/2 X 3 1/2 X 3/8 15/16 HOLE	JOSLYN J6828	1

NOTE: ALL STOCK ITEMS ARE "OR EQUIVALENT" WITH ENGINEERS APPROVAL.

NOTES:
 1. BOND ALL HARDWARE TO NEUTRAL
 2. SEE DWG. 8243 OR 8659 FOR GROUNDING

BECK PLYTECH
 CLEVELAND PUBLIC POWER
 THREE PHASE THREE WAY D.E. WOOD ARM ASSEMBLY
 8557.4



BILL OF MATERIALS			
ITEM NO.	ITEM	STOCK NO.	NO. REQ'D
1	3 1/2 X 4 1/2 X 8'-0" STL. PIN CROSSARM	----	2
2	DBL. ARMING EYEBOLT, 5/8" X LENGTH REQ'D	JOSLYN J8614 - 26	3
3	WOOD BRACE, 60" SPAN	JOSLYN J4730W-R	4
4	BOLT, 5/8" X LENGTH REQ'D, MACHINE	JOSLYN J8808 TO 8824	5
5	WASHER, 5/8", ROUND, FLAT	HUGHES 2501.8	8
6	#4 W.P. CU SOLID	----	AS REQ'D
7	INSULATORS, SUSPENSION 13KV, PDI-15 TYPE	O.B. 233194	3
8	DEADEND CLAMP	PER CONDUCTOR SIZE	3
9	GRID GAIN	FLAGG PX122	2
10	BOLT, 1/2 X 6", MACHINE	JOSLYN J8706	4
11	SPRING WASHER, FOR 5/8" BOLT	JOSLYN J3540	3
12	WASHER, CURVED 11/16" HOLE 3X3X1/4	JOSLYN J113	4
13	CONNECTOR #4CU TO NEUTRAL/MESSENGER	PER NEUT/MESS SIZE	1
14	EYENUT FOR 5/8", OVALEYE	JOSLYN J1093	4
15	GUY HOOK	FLAGG P135A	1
16	WOOD MOULDING, 8" LENGTHS	HUGHES 2501.8	3
17	STAPLES, ROLLED	JOSLYN J6497	100
18	STAPLES, GALV.	HUGHES 2501.4	50
19	MACHINE BOLT 7/8" X LENGTH REQ'D.	JOSLYN J9052-9074	1
20	WASHER, SPRING FOR 7/8" BOLT	JOSLYN J3542	1
21	WASHER, SCL. CURVED 3 1/2 X 3 1/2 X 3/8 15/16 HOLE	JOSLYN J6828	1
22	GUY HOOK, COMBINATION TYPE, MIN ULT. 35K	FLAGG P139	1
23	LAG SCREW, 3 X 1/2", FETTER DRIVE & POINT	JOSLYN J8753P	1
24	FIBERGLASS GUY STRAIN INSULATOR, 36", 30K MIN.	FLAGG 300-36	1
25	GUY GRIP	PER STRAND SIZE	4
26	GUY STRAND	PER ENGINEER	AS REQ'D.
27	GUY GUARD, PLASTIC 8" YELLOW	JOSLYN J1493Y	AS REQ'D.
28	EYENUT FOR 1" ANCHOR ROD	CHANCE 6562	2
29	ANCHOR ROD 7" X 1"	CHANCE 12334P	2
30	ANCHOR, SINGLE OR DOUBLE HELIX	E102-08207 TO 0823	2
31	WASHER, 1/2, ROUND FLAT	JOSLYN J1086	4
32	DEADEND CLAMP	PER NEUT. SIZE	1
33	CONNECTOR #4 CU - #4 CU	BURNDY Y04CA	1

NOTE: 1. ALL STOCK ITEMS ARE "OR EQUIVALENT" WITH ENGINEER APPROVAL.
 2. BOND ALL HARDWARE TO NEUTRAL

BECK PLYTECH
 CLEVELAND PUBLIC POWER
 THREE PH. DEADEND WOOD CROSSARM ASSEMBLY
 8564.3

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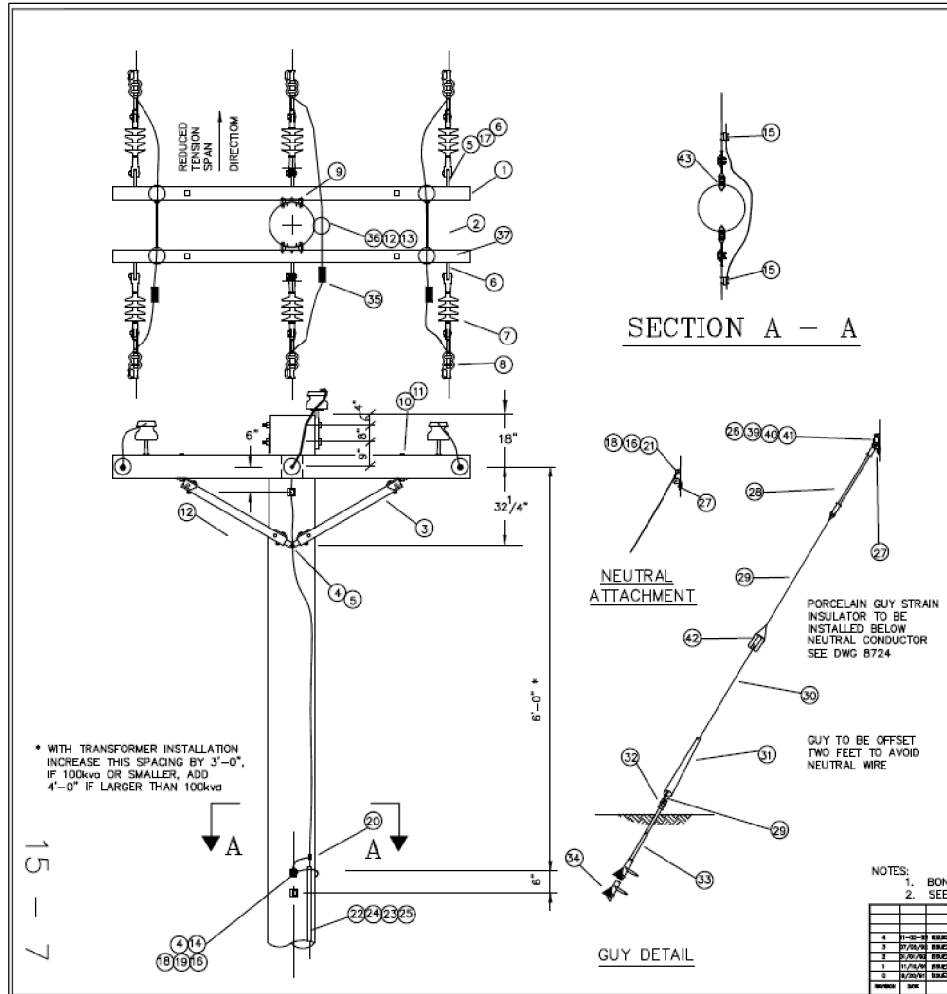
BU8 - CLEVELAND PUBLIC POWER RELOCATION		
NO.	DATE	DESCRIPTION
ISSUE RECORD		
21		
23		

CALCULATED
KAE
CHECKED
MJH

CPP STANDARD DRAWINGS

CUY-77-13.80

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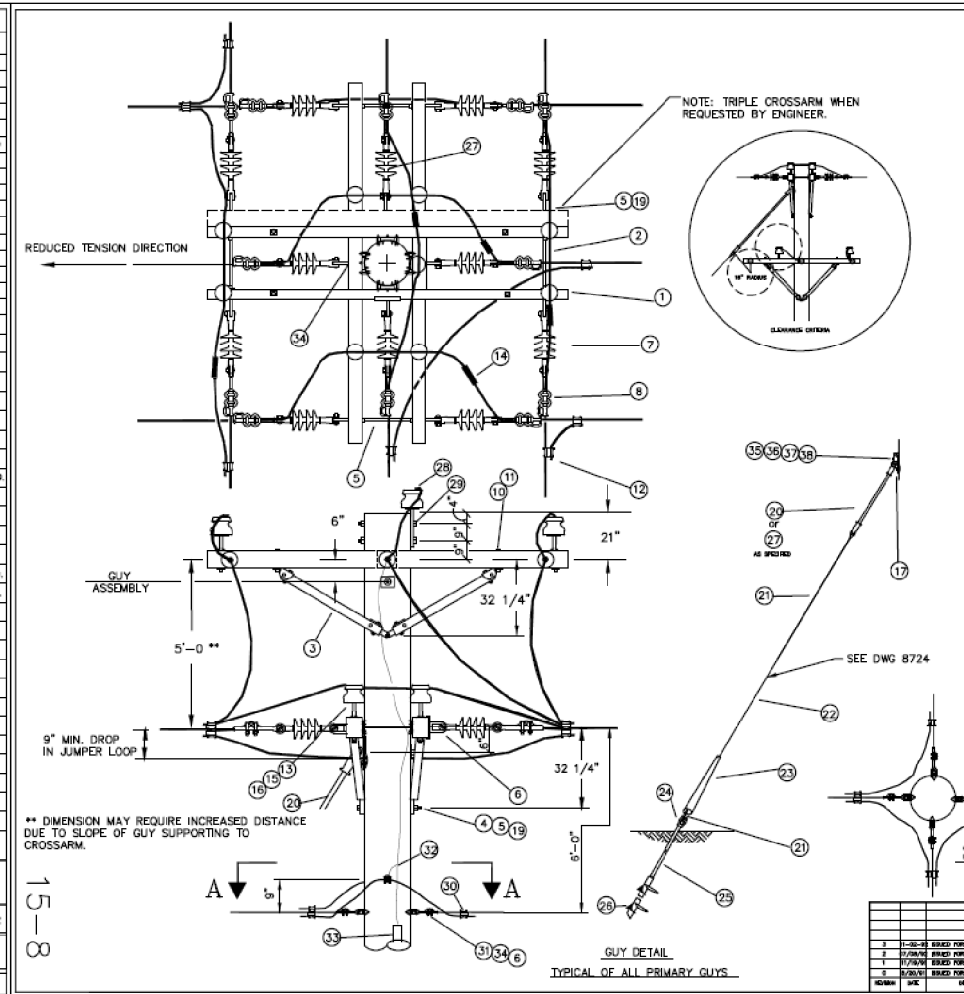


BILL OF MATERIALS			
ITEM NO.	ITEM	STOCK NO.	NO. REQ'D
1	3 1/2 X 4 1/2 X 6"-0" STL. PIN CROSSARM		2
2	DBL. ARMING EYEBOLT, 5/8" X LENGTH REQ'D	JOSLYN J614-28	4
3	WOOD BRACE, 60" SPAN	JOSLYN J4730W-R	2 PAIR
4	BOLT, 5/8" X LENGTH REQ'D, MACHINE	JOSLYN J808-24	8
5	WASHER, 5/8", ROUND, FLAT	JOSLYN J1086	4
6	#4 W.P. CU SOLID		AS REQ'D
7	INSULATORS, SUSPENSION 13kV, PDI-15 TYPE	OR 401019-0215	6
8	DEADEND CLAMP	PER CONDUCTOR SIZE	6
9	GRID GAIN	FLAGG P122	2
10	BOLT, 1/2 X 6", MACHINE	JOSLYN J8706	4
11	WASHER, 1/2", ROUND, FLAT	JOSLYN J1086	4
12	FIBERGLASS POLE TOP PIN 12"	FLAGG 7561-612	1
13	INSULATOR 13kV PIN TYPE	FLAGG PP366-3	5
14	DEADEND CLAMP	PER NEUT. SIZE	2
15	IMPACT CONNECTOR	PER NEUT. SIZE	1
16	SPRING WASHER, FOR 5/8" BOLT	JOSLYN J3540	4
17	WASHER, LOCK FOR 1/2" BOLT	JOSLYN J138	4
18	WASHER, CURVED 11/16" I.H.C. 3K3K1/4	JOSLYN J113	4
19	CONNECTOR #10U TO NEUTRAL/MESSENGER	PER NEUT./MESS SIZE	1
20	CONNECTOR #4 - #4 CU	BURNDD YC4CA	1
21	GUY HOOK	FLAGG P135A	1
22	WOOD MOULDING, 6" LENGTHS	HUGHES 2501.8	1
23	STAPLES, ROLLED	JOSLYN J5497	100
24	STAPLES, GALV.	HUGHES 25014	50
25	#4 CU S.D.		AS REQ'D
26	GUY HOOK, COMBINATION TYPE	FLAGG P139	1
27	LAG SCREW, 3 X 1/2", FETTER DRIVE & POINT	JOSLYN J2742	1
28	FIBERGLASS GUY STRAIN INSULATOR, 36", 30K MIN.	FLAGG 300-36	1
29	GUY GRIP	PER STRAND SIZE	4
30	GUY STRAND	PER ENGINEER	AS REQ'D
31	GUY GUARD, PLASTIC 8" YELLOW	JOSLYN J1493Y	AS REQ'D
32	EYENUT FOR 1" ANCHOR ROD	CHANCE 8562	1
33	ANCHOR ROD 7" X 1"	CHANCE 12334P	1
34	ANCHOR, SINGLE OR DOUBLE HELIX	CHANCE E102-08207 TO 0823	1
35	JUMPER SPLICE, NON-TENSION	BURNDD YCSR-45R	3
36	WIRE, SGL. PIN	PER COND. SIZE	1
37	WIRE, DBL. PIN	PER COND. SIZE	2
38	STEEL PIN 5/8" SHANK	JOSLYN J626	4
39	MACHINE BOLT 7/8" X LENGTH REQ'D.	JOSLYN J5062-9074	1
40	WASHER, SPRING FOR 7/8" BOLT	JOSLYN J3542	1
41	WASHER, SQ. CURVED 3 1/2 X 3 1/2 X 3/8 15/16" HOLE	JOSLYN J6828	1
42	PORCELAIN GUY INSULATOR	PP506	1
43	EYENUT FOR 5/8" BOLT OVALEYE	JOSLYN J1092	1

NOTE: ALL STOCK ITEMS ARE "OR EQUIVALENT" WITH ENGINEER APPROVAL.

NOTES:
1. BOND ALL HARDWARE TO NEUTRAL
2. SEE DWG. 8243 OR 8659 FOR GROUNDING

BECK
PUTZ
CLEVELAND PUBLIC POWER
THREE PH. DBL DEADEND
WOOD CROSSARM ASSEMBLY
8560.4



BILL OF MATERIALS			
ITEM NO.	ITEM	STOCK NO.	NO. REQ'D
1	CROSSARM, WD., 3 1/2" X 4 1/2", 6 STL. PIN		4
2	DBL. ARMING EYEBOLT, 5/8" X LENGTH REQ'D.	JOSLYN J614 - 28	4
3	WOOD BRACE, 60" SPAN	JOSLYN J4730W-R	4 PAIR
4	BOLT, MACHINE, 5/8" X LENGTH REQ'D.	JOSLYN J808 - 24	8
5	WASHER, 5/8", ROUND, FLAT	JOSLYN J1086	16
6	OVAL EYENUT, FOR 5/8" BOLT	JOSLYN J1092	12
7	INSULATORS, SUSPENSION 13kV, PDI TYPE	OR 233194	12
8	DEADEND CLAMP, STRAIGHTLINE	PER COND.	12
9	GRID GAIN	FLAGG PX 122	4
10	BOLT, MACHINE, 1/2" X 6"	JOSLYN J8706	8
11	WASHER, 1/2", ROUND, FLAT	JOSLYN J1086	8
12	IMPACT CONNECTOR, LINE TO LINE	IMPACT	8
13	INSULATOR, 13kV PIN TYPE	PP 366-3	9
14	JUMPER SPLICE, NON-TENSION, PER COND.	BURNDD YCSR-45R	6
15	STEEL PIN, 5/8" SHANK	JOSLYN J626	8
16	WIRE DBL PIN	PER COND. SIZE	4
17	LAG SCREW, 3 X 1/2", FETTERDRIVE & POINT	JOSLYN J2742	4
18	WASHER, CURVED 11/16" HOLE 3 X 3 X 1/4"	JOSLYN J1113	10
19	SPRING WASHER FOR 5/8" BOLT	JOSLYN J3540	10
20	FIBERGLASS STRAIN INSUL. 36" 30K MIN	FLAGG 300-36	1
21	GUY GRIP	PER GUY STRAND	8
22	GUY STRAND	PER ENGINEER	AS REQ'D
23	GUY GUARD, PLASTIC, 8" YELLOW	JOSLYN J1493Y	4
24	EYENUT FOR 1" ANCHOR ROD	CHANCE 8562	4
25	ANCHOR ROD 7" X 1"	CHANCE 12334P	4
26	ANCHOR SINGLE OR DOUBLE HELIX	CHANCE E102-08207 - 0823	4
27	FIBERGLASS STRAIN INSUL. 78" 30K MIN	FLAGG 300-78	1
28	WIRE, SGL. PIN	PER COND. SIZE	1
29	FIBERGLASS POLE TOP PIN 12"	FLAGG 7561-612	4
30	IMPACT CONNECTOR	PER NEUT. SIZE	4
31	DEADEND CLAMP	PER NEUT. SIZE	4
32	#4 CU TO #4 CU	BURNDD YC4CA	1
33	WOOD MOULDING" LENGTH	HUGHES 2501.8	1
34	EYE BOLT 5/8" X LENGTH REQ'D.	JOSLYN J614-9026	1
35	GUY HOOK, COMBINATION	FLAGG P139	1
36	MACHINE BOLT 7/8" X LENGTH REQ'D	JOSLYN J5062-9074	1
37	SPRING WASHER FOR 7/8 BOLT	JOSLYN J3542	1
38	WASHER, CURVED 3 1/2 X 3 1/2 X 3/8	JOSLYN J6828	1

NOTE: ALL STOCK ITEMS ARE "OR EQUIVALENT" WITH ENGINEERS APPROVAL.

NOTES:
1. SEE DWG 8243 OR 8659 FOR GROUNDING

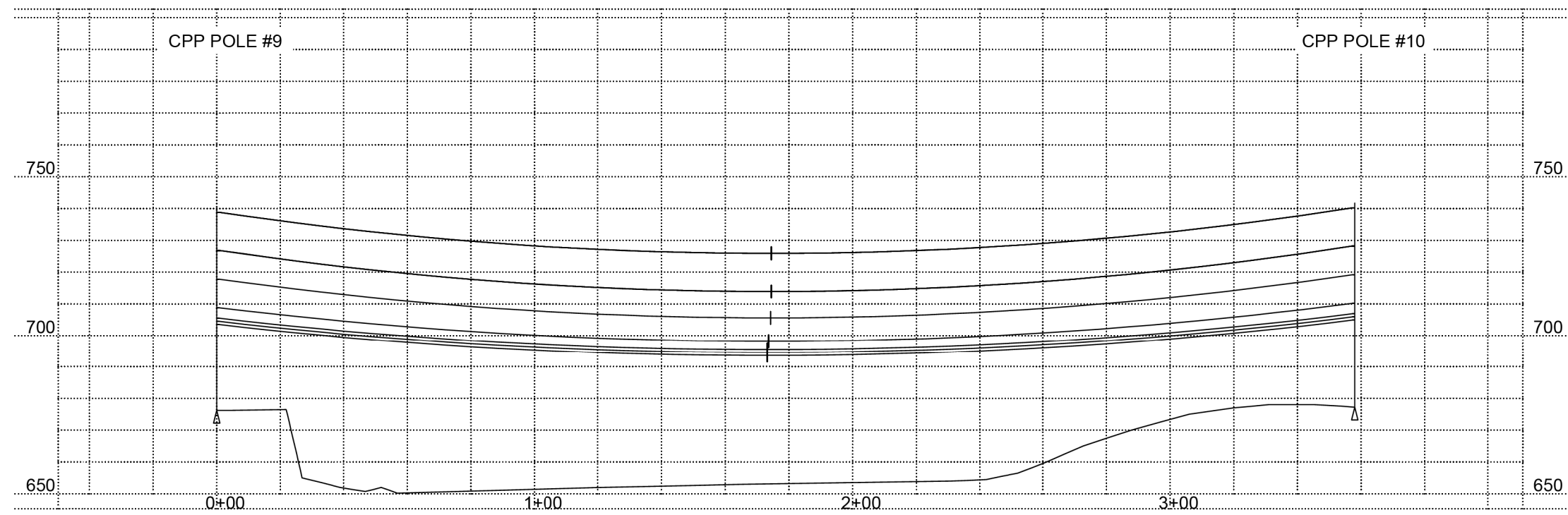
BECK
PUTZ
CLEVELAND PUBLIC POWER
THREE PHASE FOUR WAY D.E.
WOOD ARM ASSEMBLY
8561.3

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NO.	DATE	DESCRIPTION
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SPAN	WIRE	RULING SPAN (FT)	INITIAL/FINAL STRINGING	TENSION	TENSION (LBS.) BASED ON AMBIENT TEMPERATURE (°F) AT TIME OF TENSIONING																				
					0 F	5 F	10 F	15 F	20 F	25 F	30 F	35 F	40 F	45 F	50 F	55 F	60 F	65 F	70 F	75 F	80 F	85 F	90 F	95 F	100 F
9 TO 10	636 KCMIL 26/7 ACSR "GROSBEAK"	358	INITIAL		1121	1112	1105	1096	1088	1080	1073	1066	1058	1051	1044	1038	1031	1024	1018	1012	1005	999	993	987	981
	336.4 KCMIL 26/7 "LINNET"	358	INITIAL		635	630	624	619	614	609	604	600	595	591	586	582	578	574	570	565	562	558	554	550	547
	1/0 TRIPLEX	358	INITIAL		705	695	686	676	667	658	650	642	634	626	619	611	604	597	590	584	578	572	566	560	554
	COMMUNICATION	358	INITIAL		807	801	796	791	785	780	775	770	765	760	755	751	746	741	737	733	728	724	720	716	712

NOTES:
 1.) STRINGING TENSIONS BASED ON PLS CADD MODEL.
 2.) COMMUNICATION WIRE HAS BEEN MODELED AS A 3/8" EHS FOR ANALYSIS PURPOSES.



PROFILE VIEW:
 SCALE:
 HORIZONTAL: 1"=40'
 VERTICAL: 1"=40'

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BU8 - CLEVELAND PUBLIC POWER RELOCATION		
NO.	DATE	DESCRIPTION
ISSUE RECORD		

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