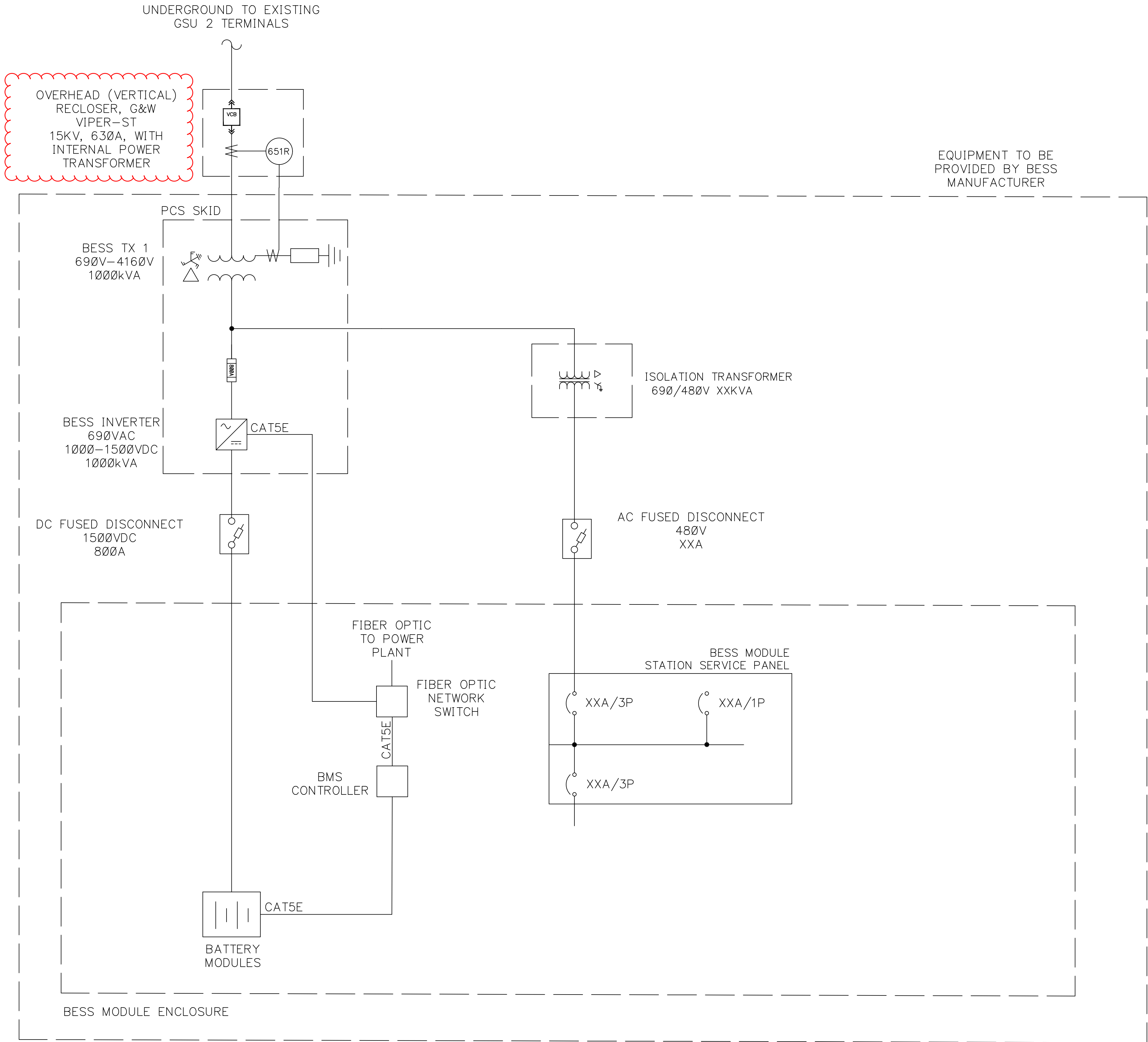
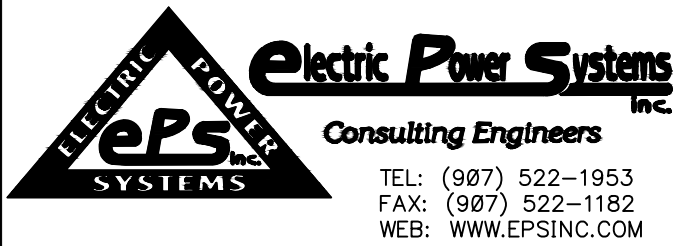




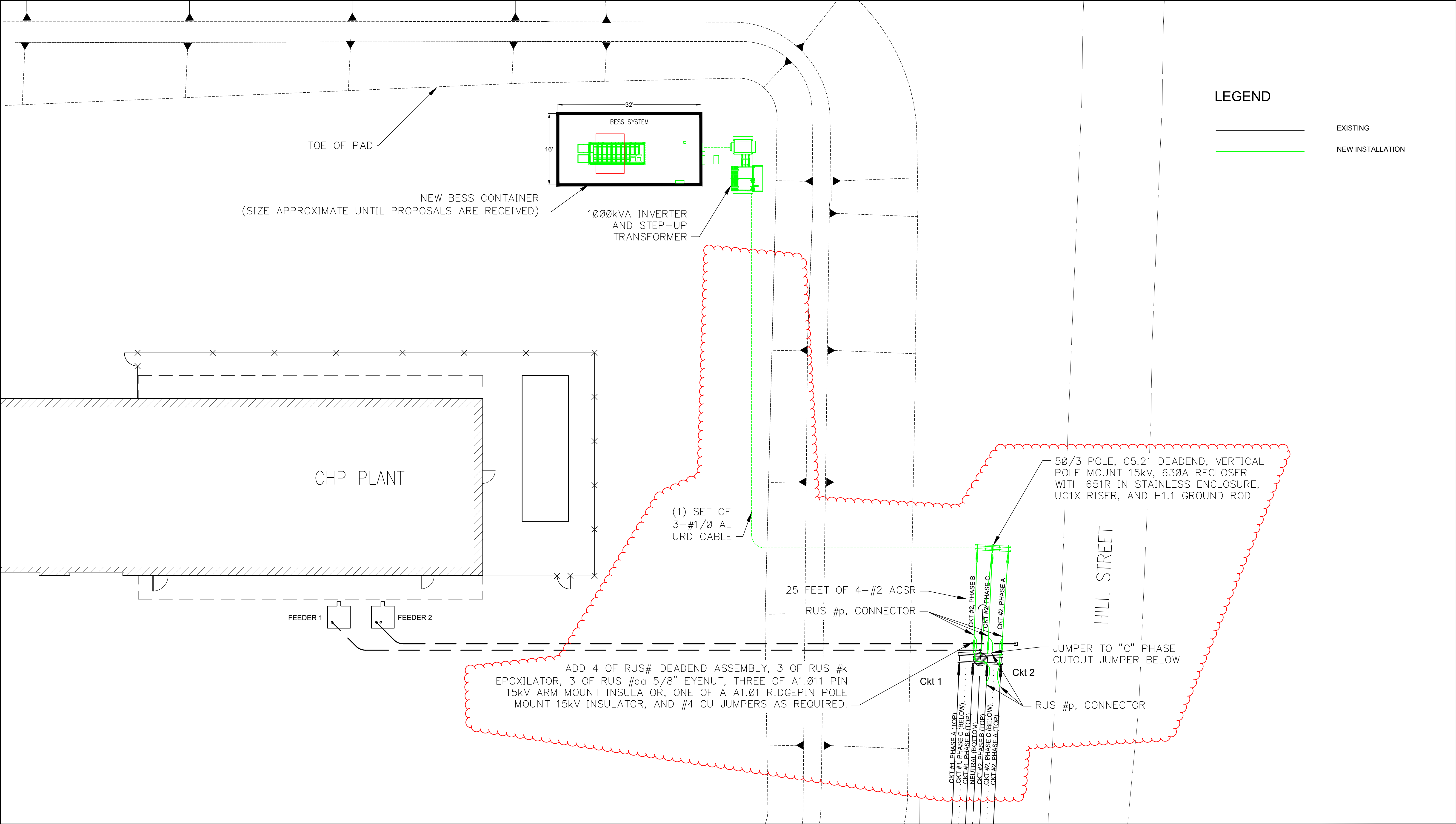
PROJECT: FORT YUKON RENEWABLE ENERGY DESIGN			
DESIGNER/PROJECT ENGINEER: MAX DONALDSON/JOHN VENABLES JOB #: 25-0053			
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED BY/DATE
A	ISSUED FOR 35% REVIEW	MED/04-04-2025	JRV/04-04-2025
B	ISSUED FOR 65% REVIEW	MED/04-23-2025	JRV/04-23-2025
C	ISSUED FOR 95% REVIEW	MED/05-02-2025	JRV/05-02-2025
D	BESS RECLOSER UPDATE	CTD/09-22-2025	JRV/09-22-2025

ENG. STAMP



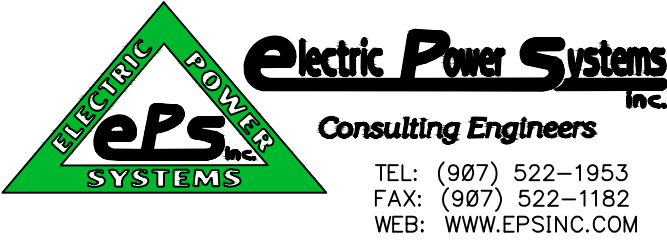
NO.	DRAWING NO./SHEET	REFERENCE DRAWING DESCRIPTION
1	FYRE-EL-2500/2	PV ARRAY LAYOUT DIAGRAM
2	FYRE-EL-2500/3	BESS LAYOUT DIAGRAM

DRAWING NAME:		TANANA CHIEFS CONFERENCE FORT YUKON RENEWABLE ENERGY 1.5MWH BESS ONLINE DIAGRAM	
REF DWG(S):		fyre-el-0010_1.dwg	
DRAWING NO.:		FYRE-EL-0010	SHEET 1 OF 2



PROJECT: FORT YUKON RENEWABLE ENERGY DESIGN			
DESIGNER/PROJECT ENGINEER: MAX DONALDSON/JOHN VENABLES JOB #: 25-0053			
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED BY/DATE
A	ISSUED FOR 35% REVIEW	MED/04-04-2025	JRV/04-04-2025
B	ISSUED FOR 65% REVIEW	MED/04-23-2025	JRV/04-23-2025
C	ISSUED FOR 95% REVIEW	MED/05-02-2025	JRV/05-02-2025
D	BESS RECLOSER UPDATE	CTD/09-22-2025	JRV/09-22-2025

ENG. STAMP



NO.	DRAWING NO./SHEET	REFERENCE DRAWING DESCRIPTION

DRAWING NAME: TANANA CHIEFS CONFERENCE FORT YUKON RENEWABLE ENERGY BESS INTERCONNECTION LAYOUT DIAGRAM	
REF DWG(S): fyre-el-2500_3.dwg	
DRAWING NO.: FYRE-EL-2500	
SHEET 3 OF 5	

DISTRIBUTION SPECIFICATIONS

A. General

All construction work shall be done in a thorough and workman-like manner in accordance with the Staking Sheets, Plans and Specification, and Construction Drawings. All work areas shall be left clean of any excess materials and garbage.

The C2-2023 Edition of the National Electric Safety Code shall be followed except where local regulations are more stringent, in which case local regulations shall govern. The design was performed per C2-2023 NESC, if construction is delayed and occurs under a later code, the design must be reviewed for the later code prior to construction.

Some of the drawings and specifications are from RUS bulletins 1728F-804 "Specifications and Drawings for 12.47/7.2 kV Construction".

B. Overhead Specifications

1. Distributing Poles:

In distributing the poles, large, choice, close-grained poles shall be used for transformers, deadend, angle, and corner poles.

2. Pole Setting:

The minimum depth for setting poles shall be as follows:

Length of Pole (feet)	Setting in Soil (feet)	Over-Embedded (feet)
30	5.5	7.5
35	6.0	8.0
40	6.0	8.0
45	6.5	8.5
50	7.0	9.0
55	7.5	9.5
60	8.0	10.0
65	8.5	10.5
70	9.0	11.0
75	9.5	11.5

"Setting in Soil" specifications shall apply:

- Where poles are to be set in soil.
- Where there is a layer of soil of more than two (2) feet in depth over solid rock.
- Where the hole in solid rock is not substantially vertical or the diameter of the hole at the surface of the rock exceeds approximately twice the diameter of the pole at the same level.

"Over-Embedded" specifications shall apply where indicated on the Drawings and Staking Sheets. In addition to the additional depth of burial, backfill for these locations shall be imported backfill, non-frost susceptible material, free of clay and organics, and without large rocks or cobbles larger than 3", i.e. "pit run" material or similar.

On sloping ground, the depth of the hole always shall be measured from the low side of the hole.

Poles shall be set so that alternate crossarm gains face in opposite directions, except at terminals and deadends where the gains of the last two (2) poles shall be on the side facing the terminal or deadend. On unusually long spans, the poles shall be set so that the crossarm comes on the side of the pole away from the long span. Where pole top pins are used, they shall be on the opposite side of the pole from the gain, with the flat side against the pole.

Poles shall be set in alignment and plumb except at corners, terminals, angles, junctions, or other points of strain, where they shall be set and raked against the strains so that the conductors shall be in line.

Poles shall be raked against the conductor strain not less than one (1) inch for each ten (10) feet of pole length nor more than two (2) inches for each ten (10) feet of pole length after conductors are installed at the required tension.

Pole backfill shall be thoroughly tamped in full depth. Excess soil shall be banked around the pole to a nominal depth of 2' and sloped to provide drainage away from the pole.

Poles which have been in storage for more than 1 year from the date of treatment shall be ground line treated when installed.

3. Grading of Line and Bolts:

There shall be no upstrain on pin-type insulators in grading the line each way to lower poles when using high poles to clear obstacles such as buildings, foreign wire crossings, railroads, etc.

All bolts employed for the mounting of hardware items on poles shall be long enough to fully engage the nut (including locknut, where applicable) but shall not extend more than 2 in. beyond the nut after the nut is tightened. The ends of bolts shall not be cut.

4. Hardware:

All pole hardware shall be from RUS's current approved material list. All bolts, nuts, washers, and other mounting hardware shall be hot-dipped galvanized.

5. Guys and Anchors:

Guys shall be placed before the conductors are strung and shall be attached to the pole.

All anchors and rods shall be in line with the strain and shall be so installed that approximately six (6) inches of the rod remain out of the ground. In cultivated fields or other locations, as deemed necessary, the projection of the anchor rod above earth may be increased to a maximum of twelve (12) inches to prevent burial of the rod eye. The backfill of all anchor holes must be thoroughly tamped the full depth.

Power screw anchors shall be installed in accordance with manufacturer's instructions to provide the designated holding power listed on the assembly drawings. Utilize a torque measuring method (either shear pins or a torque indicator attachment) along with the manufacturer's installed torque vs. holding capacity relationship data and install anchors to required torque in order to achieve the designated holding capacity.

All guys shall be equipped with guy markers with reflective tape/material providing high visibility

6. Locknuts:

A locknut shall be installed with each nut, eyenut or other fastener on all bolts or threaded hardware such as insulator pins, upset bolts, double arming bolts, etc.

7. Conductors:

Conductors must be handled with care. Conductors shall not be tramped on or run over by vehicles. Each reel shall be examined and the wire shall be inspected for cuts, kinks, or other damaged. Damaged portions shall be cut out and the conductors spliced. The conductors shall be pulled over suitable rollers or stringing blocks properly mounted on pole or crossarm if necessary to prevent binding while stringing.

The neutral conductor shall be maintained on the road side of the pole whenever practicable.

Armor rod protection shall be used for all new main feeder line conductor, not including jumpers. Secure conductor to insulators using clamp tops, where clamp top insulators are specified, in accordance with insulator manufacturer's specifications. At other locations, pin type insulators shall be tied using factory formed ties in the top groove of the insulator on tangent poles and on the side of the insulator away from the strain at angles. Pin-type insulators shall be tight on the pins and on tangent construction the top groove must be in line with the conductors after tying in.

All conductors shall be cleaned thoroughly by wire brushing before splicing or the installation of a connector or clamp. A suitable inhibitor shall be used before splicing or applying connectors over aluminum conductor.

8. Splices and Deadends:

There shall be not more than one (1) splice per conductor in any span and splicing sleeves shall be located at least ten (10) feet from the conductor support. No splices shall be located in Grade B crossing spans and preferably not in the adjacent spans. Splices shall be installed in accordance with the manufacturer's recommendations

9. Taps and Jumpers

Jumpers and other leads shall be bare or covered copper conductor. Jumpers and other leads connected to line conductors shall have sufficient slack to allow free movement of the conductors. Where slack is not shown on the Construction Drawings it will be provided by at least two (2) bends in a vertical plane, or one (1) in a horizontal plane, or the equivalent. In areas where aeolian vibration occurs, special measures to minimize the effects of jumper breaks shall be used as specified.

Leads on equipment such as transformers, reclosers, etc. shall be minimum #4 Cu. Utilize hot-line clamps with stirrups for connection of equipment leads to line as indicated on the assembly details.

All primary jumpers shall consist of conductors matching or exceeding ampacity of the main line conductor and be insulated for bird protection where required. AMPACT or equivalent connectors suitable for bi-metallic connections shall be used for jumper connections

10. Hot-Line Clamps and Connectors

Connectors and hot-line clamps suitable for the purpose shall be installed as shown on Guide Drawings. Stirrups shall be used with all hot-line clamp installations. On all hot-line clamp installations, the clamp and jumper shall be so installed so that they are permanently bonded to

the load side of the line, allowing the jumper to be de-energized when the clamp is disconnected. This applies in all cases, even where the line layout is such that the tap line is in actuality the main back to the power source.

11. Sagging of Power Conductors:

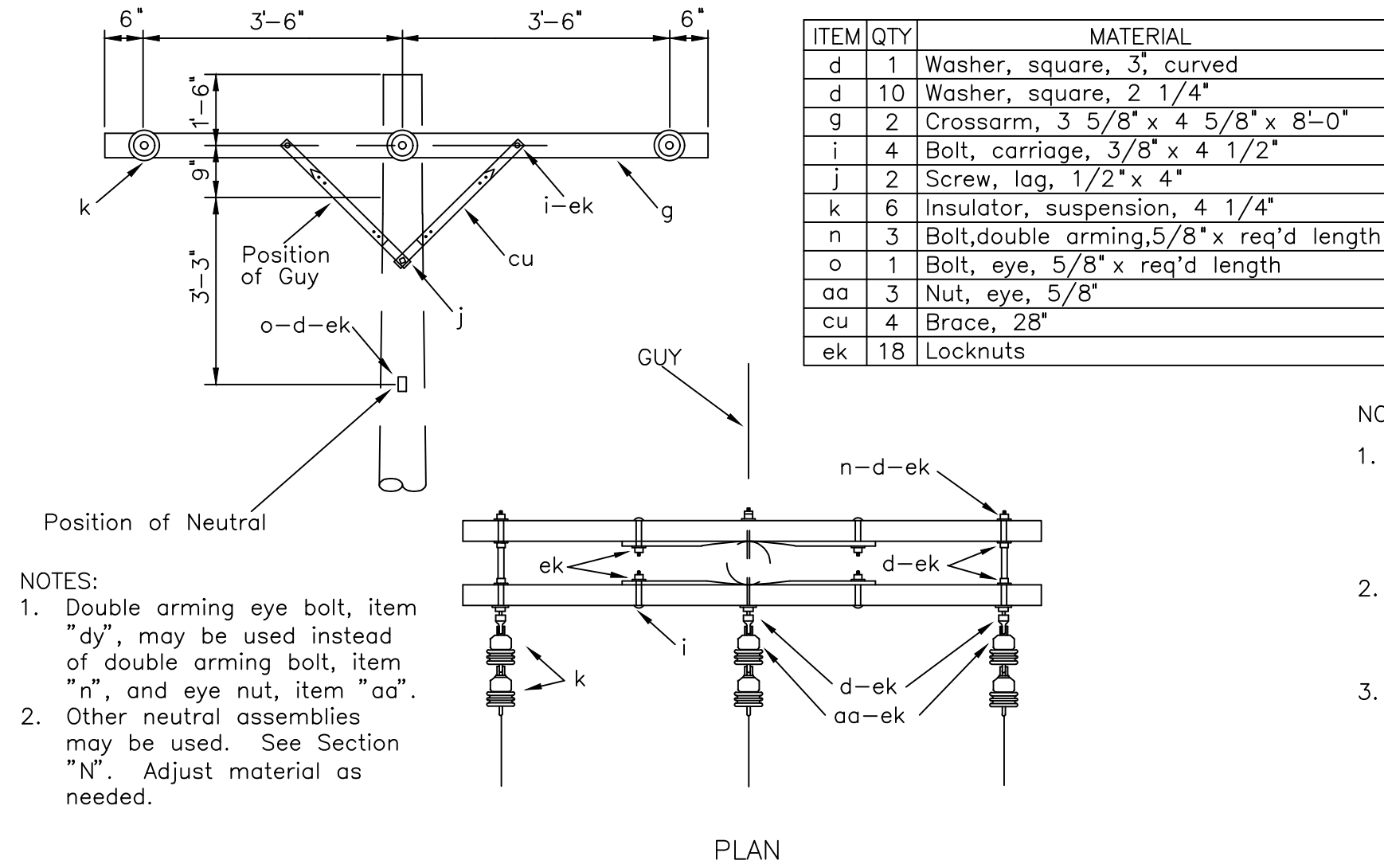
Conductors shall be sagged in accordance with the provided stringing tables. However, under no circumstances will a decrease in the specified sag be allowed. All conductors shall be sagged evenly. Stringing of conductors shall be done using travelers of proper diameter for the conductor selected. The air temperature at the time and place of sagging shall be determined by a certified etched glass thermometer. After bringing conductor to proper sag, deadends are to be secure within 2 hours. Wire must be tied to insulators within 48 hours.

12. Grounds:

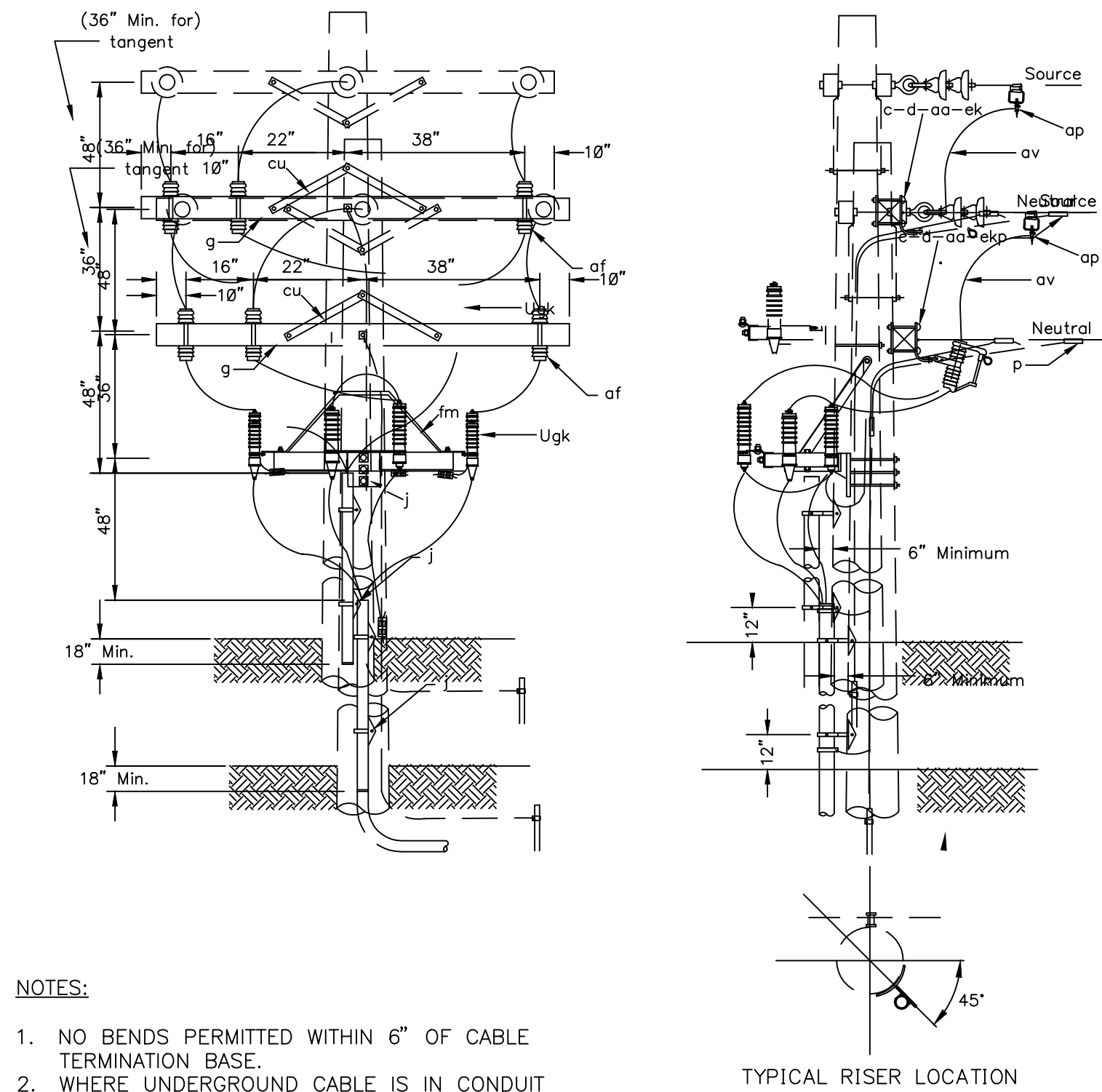
Ground plate shall be installed in accordance with the Construction Drawings. The staples on the ground wire shall be spaced two (2) feet apart except for a distance of eight (8) feet above the ground and eight (8) feet down from the top of the pole where they shall be six (6) inches apart.

All equipment shall have at least two (2) connections from the frame, case or tank to the multi-grounded neutral conductor.

The equipment ground, neutral wires, and lightning-protective equipment shall be interconnected and attached to a common ground wire.

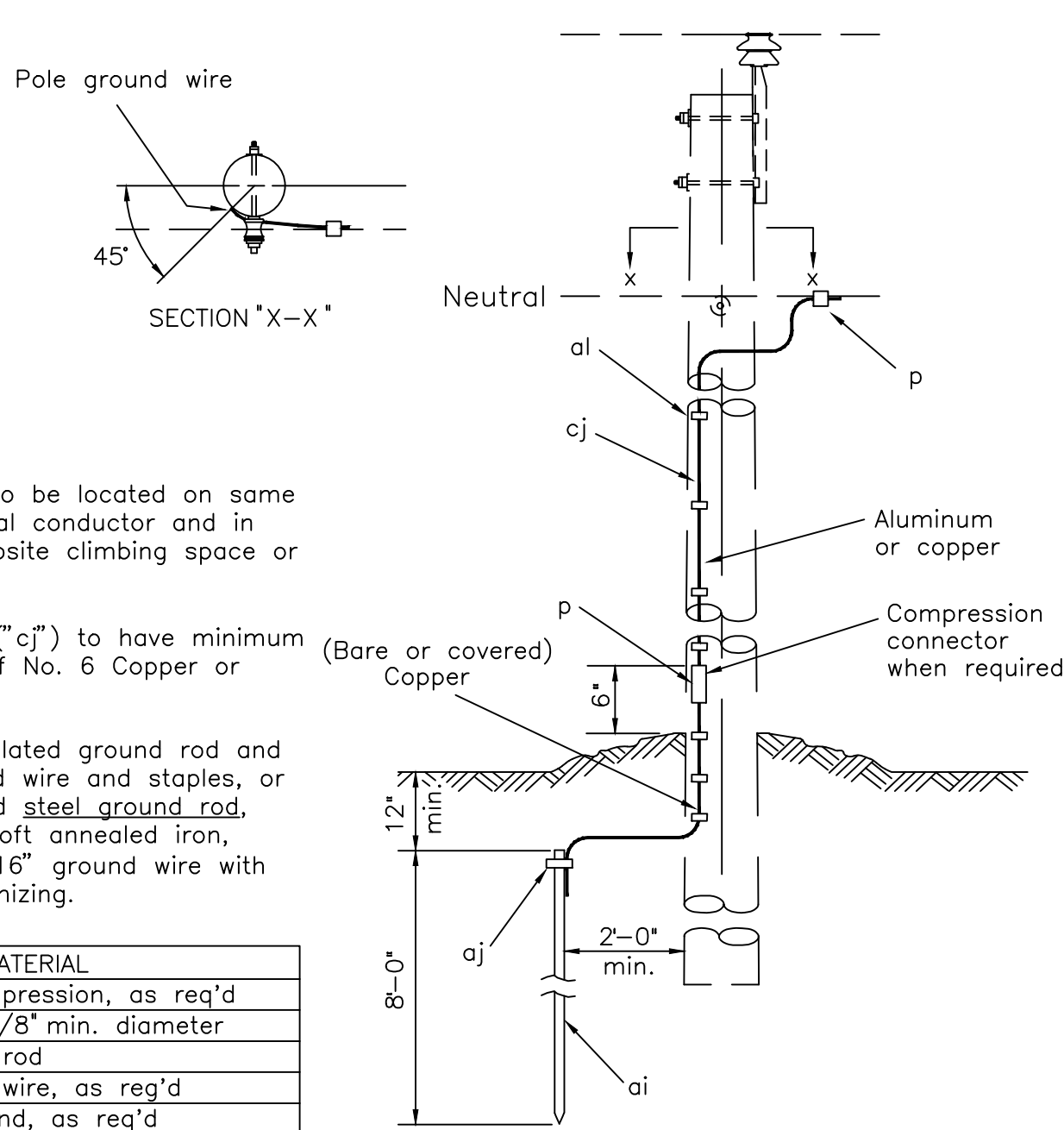


C5.21 SINGLE HORIZONTAL DEADEND



NOTES:

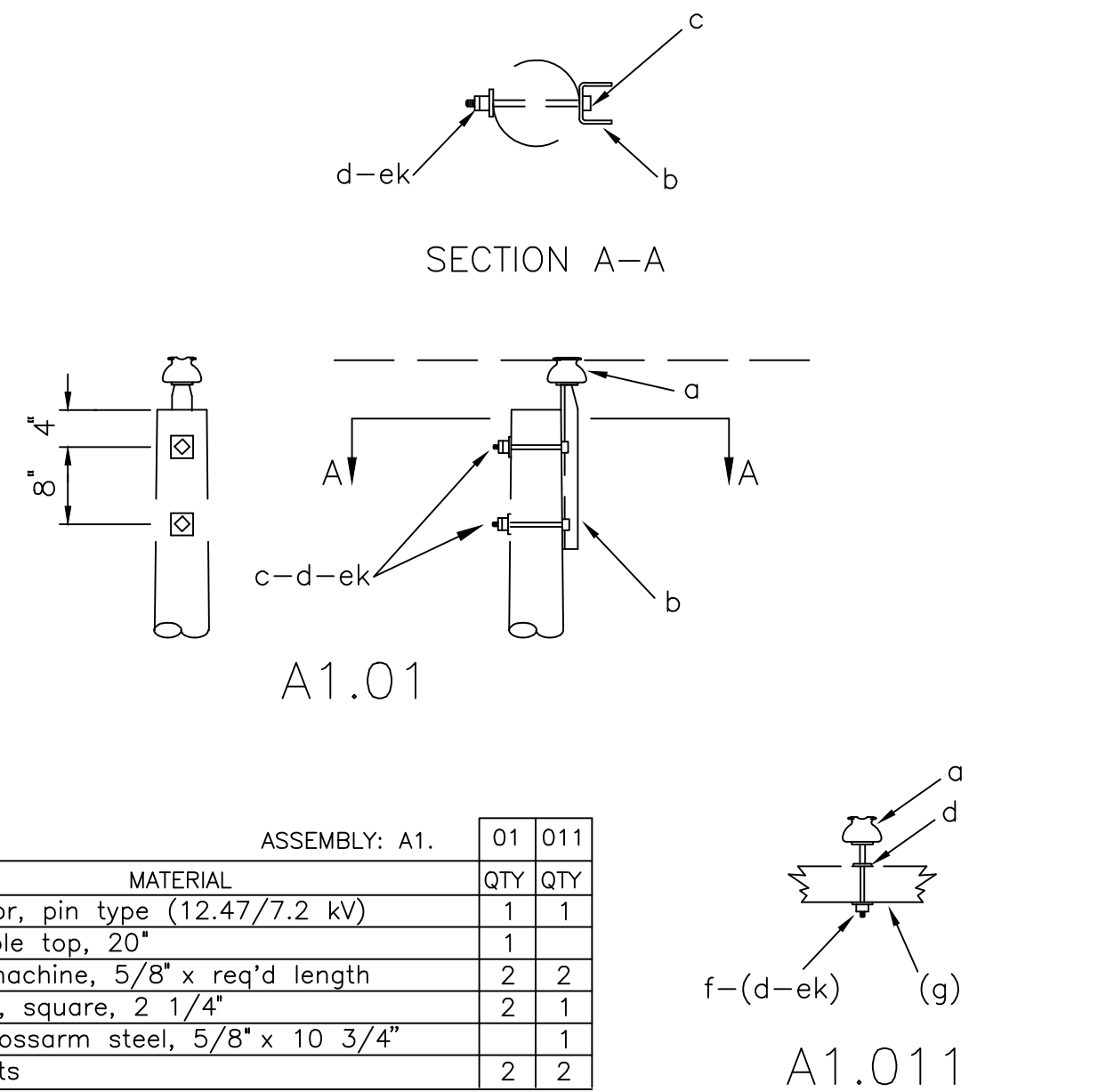
- NO BENDS PERMITTED WITHIN 6" OF CABLE TERMINATION BASE.
- WHERE UNDERGROUND CABLE IS IN CONDUIT PROVIDE APPROPRIATE COUPLING TO CONNECT RSC CONDUIT TO UNDERGROUND CONDUIT.
- EACH LENGTH OF CONDUIT SHALL HAVE A MINIMUM OF ONE STAND-OFF BRACKET. THE MAXIMUM UNSUPPORTED LENGTH SHALL NOT EXCEED 10'.
- USE TWO STAND-OFF BRACKETS ON THE FIRST SECTION OF RSC CONDUIT AT THE BASE OF THE POLE. THE MINIMUM SEPARATION BETWEEN THE BOTTOM TWO STAND-OFF BRACKETS SHALL BE 8'.
- INSTALL EXPANSION PLUG AT THE TOP OF RISER TO PROVIDE MOISTURE SEAL (FACTORY FORMED BOOTS ARE ACCEPTABLE).
- BOND THE TOP OF RISER WITH GROUNDING BUSHING AND BOTTOM OF RSC NEAR FIRST STAND-OFF BRACKET WITH GROUNDING CLAMP.
- TAG CABLES TO INDICATE PHASE AND LOCATION OF OTHER END OF CABLE PER GUIDE UM2.2GX.



H1.1 GROUNDING ROD ASSEMBLY

R3.3 THREE-PHASE POLE MOUNTED RECLOSER

RUS ITEM	QTY.	MATERIAL
c	2	Bolt, machine, 5/8" x req'd length
d	4	Washer, square, 2-1/4"
g	1	Crossarm, 3-5/8" x 4-5/8" x 8'-0"
j	3	Screw, lag, 5/8" x req'd length
j	3	Screw, lag, 1/2" x 4", as req'd
p		Connectors, as req'd
af	3	Cutout, load break type, 7.8/15 kV
af		Cutout, load break type, 15/27 kV
af	3	Fuse link, as designated
al		Staples, as req'd
ap	3	Clamp, hot line
av		Jumpers, stranded, as req'd
cu	2	Brace, 28"
ek		Locknuts, as req'd
fm	1	Bracket, surge arrester and termination (ALUMA-FORM R3CA-48)
Uae	3	Arrester, surge, (9 kV)
Ugc		Conduit, galvanized rigid steel, size and length as req'd
Ugc		Conduit, PVC, size and length as req'd
Ugk	3	Cable termination, (15 kV)
	1	Conduit, rigid steel, grounding bushing
	2	Clamp, grounding, conduit, size as req'd
		Bracket, stand-off, GS, 14" long (min.), as req'd
	1	Connector, for stand-offs, as-req'd
	1	Duct plug, expansion (Jackmoon, size as req'd)

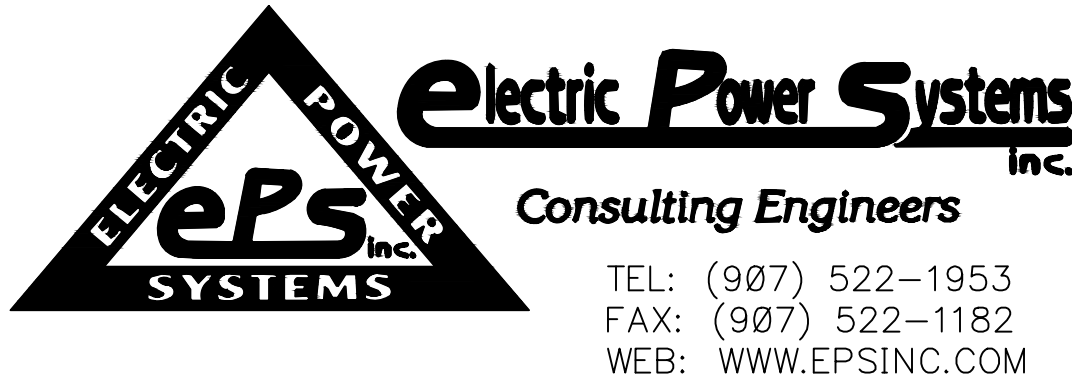


UC1X, THREE PHASE TERMINAL POLE WITH CUTOUTS AND ARRESTERS

SINGLE SUPPORT ASSEMBLIES

PROJECT: FORT YUKON RENEWABLE ENERGY DESIGN				
DESIGNER/PROJECT ENGINEER: ERIC D. SCHRAM/CHRISTOPHER T. DAVIS				
W.O. #: 25-0053				
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED (MGR/SUPV)/DATE	APPROVED (DIRECTOR)/DATE
A	BESS RECLOSER UPDATE	CTD/09-22-2025	CTD/09-22-2025	

ENG. STAMP



TEL: (907) 522-1953
FAX: (907) 522-1182
WEB: WWW.EPSINC.COM

DRAWING NAME:		TANANA CHIEFS CONFERENCE FORT YUKON RENEWABLE ENERGY DISTRIBUTION SPECS & DETAILS	
REF DWG(S):			
DRAWING NO.:		FYRE-SS-2005	
		SHEET 1 OF 1	

DISTRIBUTION
SPECIFICATIONS

A. General

All construction work shall be done in a thorough and workman-like manner in accordance with the Staking Sheets, Plans and Specification, and Construction Drawings. All work areas shall be left clean of any excess materials and garbage.

The C2-2023 Edition of the National Electric Safety Code shall be followed except where local regulations are more stringent, in which case local regulations shall govern. The design was performed per C2-2023 NESC, if construction is delayed and occurs under a later code, the design must be reviewed for the later code prior to construction.

Some of the drawings and specifications are from RUS bulletins 1728F-804 "Specifications and Drawings for 12.47/7.2 kV Construction".

B. Overhead Specifications

1. Distributing Poles:

In distributing the poles, large, choice, close-grained poles shall be used for transformers, deadend, angle, and corner poles.

2. Pole Setting:

The minimum depth for setting poles shall be as follows:

Length of Pole	Setting in Soil	Over-Embedded
(feet)	(feet)	(feet)
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45	6.5	8.5
50	7.0	9.0
55	7.5	9.5
60	8.0	10.0
65	8.5	10.5
70	9.0	11.0
75	9.5	11.5

"Setting in Soil" specifications shall apply.

- Where poles are to be set in soil.
- Where there is a layer of soil of more than two (2) feet in depth over solid rock.
- Where the hole in solid rock is not substantially vertical or the diameter of the hole at the surface of the rock exceeds approximately twice the diameter of the pole at the same level.

"Over-Embedded" specifications shall apply where indicated on the Drawings and Staking Sheets. In addition to the additional depth of burial, backfill for these locations shall be imported backfill, non-frost susceptible material, free of clay and organics, and without large rocks or cobbles larger than 3", i.e. "pit run" material or similar.

On sloping ground, the depth of the hole always shall be measured from the low side of the hole.

Poles shall be set so that alternate crossarm gains face in opposite directions, except at terminals and deadends where the gains of the last two (2) poles shall be on the side facing the terminal or deadend. On unusually long spans, the poles shall be set so that the crossarm comes on the side of the pole away from the long span. Where pole top pins are used, they shall be on the opposite side of the pole from the gain, with the flat side against the pole.

Poles shall be set in alignment and plumb except at corners, terminals, angles, junctions, or other points of strain, where they shall be set and raked against the strains so that the conductors shall be in line.

Poles shall be raked against the conductor strain not less than one (1) inch for each ten (10) feet of pole length nor more than two (2) inches for each ten (10) feet of pole length after conductors are installed at the required tension.

Pole backfill shall be thoroughly tamped in full depth. Excess soil shall be banked around the pole to a nominal depth of 2' and sloped to provide drainage away from the pole.

Poles which have been in storage for more than 1 year from the date of treatment shall be ground line treated when installed.

3. Grading of Line and Bolts:

There shall be no upstrain on pin-type insulators in grading the line each way to lower poles when using high poles to clear obstacles such as buildings, foreign wire crossings, railroads, etc.

All bolts employed for the mounting of hardware items on poles shall be long enough to fully engage the nut (including locknut, where applicable) but shall not extend more than 2 in. beyond the nut after the nut is tightened. The ends of bolts shall not be cut.

4. Hardware:

All pole hardware shall be from RUS's current approved material list. All bolts, nuts, washers, and other mounting hardware shall be hot-dipped galvanized.

5. Guys and Anchors:

Guys shall be placed before the conductors are strung and shall be attached to the pole.

All anchors and rods shall be in line with the strain and shall be so installed that approximately six (6) inches of the rod remain out of the ground. In cultivated fields or other locations, as deemed necessary, the projection of the anchor rod above earth may be increased to a maximum of twelve (12) inches to prevent burial of the rod eye. The backfill of all anchor holes must be thoroughly tamped the full depth.

Power screw anchors shall be installed in accordance with manufacturer's instructions to provide the designated holding power listed on the assembly drawings. Utilize a torque measuring method (either shear pins or a torque indicator attachment) along with the manufacturer's installed torque vs. holding capacity relationship data and install anchors to required torque in order to achieve the designated holding capacity.

All guys shall be equipped with guy markers with reflective tape/material providing high visibility

6. Locknuts:

A locknut shall be installed with each nut, eyenut or other fastener on all bolts or threaded hardware such as insulator pins, upset bolts, double arming bolts, etc.

7. Conductors:

Conductors must be handled with care. Conductors shall not be tramped on or run over by vehicles. Each reel shall be examined and the wire shall be inspected for cuts, kinks, or other damaged. Damaged portions shall be cut out and the conductors spliced. The conductors shall be pulled over suitable rollers or stringing blocks properly mounted on pole or crossarm if necessary to prevent binding while stringing.

The neutral conductor shall be maintained on the road side of the pole whenever practicable.

Armor rod protection shall be used for all new main feeder line conductor, not including jumpers. Secure conductor to insulators using clamp tops, where clamp top insulators are specified, in accordance with insulator manufacturer's specifications. At other locations, pin type insulators shall be tied using factory formed ties in the top groove of the insulator on tangent poles and on the side of the insulator away from the strain at angles. Pin-type insulators shall be tight on the pins and on tangent construction the top groove must be in line with the conductors after tying in.

All conductors shall be cleaned thoroughly by wire brushing before splicing or the installation of a connector or clamp. A suitable inhibitor shall be used before splicing or applying connectors over aluminum conductor.

8. Splices and Deadends:

There shall be not more than one (1) splice per conductor in any span and splicing sleeves shall be located at least ten (10) feet from the conductor support. No splices shall be located in Grade B crossing spans and preferably not in the adjacent spans. Splices shall be installed in accordance with the manufacturer's recommendations

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Jumpers and other leads shall be bare or covered copper conductor. Jumpers and other leads connected to line conductors shall have sufficient slack to allow free movement of the conductors. Where slack is not shown on the Construction Drawings it will be provided by at least two (2) bends in a vertical plane, or one (1) in a horizontal plane, or the equivalent. In areas where aeolian vibration occurs, special measures to minimize the effects of jumper breaks shall be used as specified.

Leads on equipment such as transformers, reclosers, etc. shall be minimum #4 Cu. Utilize hot-line clamps with stirrups for connection of equipment leads to line as indicated on the assembly details.

All primary jumpers shall consist of conductors matching or exceeding ampacity of the main line conductor and be insulated for bird protection where required. AMPACT or equivalent connectors suitable for bi-metallic connections shall be used for jumper connections

10. Hot-Line Clamps and Connectors

Connectors and hot-line clamps suitable for the purpose shall be installed as shown on Guide Drawings. Stirrups shall be used with all hot-line clamp installations. On all hot-line clamp installations, the clamp and jumper shall be so installed so that they are permanently bonded to the load side of the line, allowing the jumper to be de-energized when the clamp is disconnected. This applies in all cases, even where the line layout is such that the top line is in actuality the main back to the power source.

11. Sagging of Power Conductors:

Conductors shall be sagged in accordance with the provided stringing tables. However, under no circumstances will a decrease in the specified sag be allowed. All conductors shall be sagged evenly. Stringing of conductors shall be done using travelers of proper diameter for the conductor selected. The air temperature at the time and place of sagging shall be determined by a certified etched glass thermometer. After bringing conductor to proper sag, deadends are to be secure within 2 hours. Wire must be tied to insulators within 48 hours.

12. Grounds:

Ground plate shall be installed in accordance with the Construction Drawings. The staples on the ground wire shall be spaced two (2) feet apart except for a distance of eight (8) feet above the ground and eight (8) feet down from the top of the pole where they shall be six (6) inches apart.

All equipment shall have at least two (2) connections from the frame, case or tank to the multi-grounded neutral conductor.

The equipment ground, neutral wires, and lightning-protective equipment shall be interconnected and attached to a common ground wire.

13. Clearing of Right-Of-Way:

The right-of-way shall be prepared by removing trees, clearing underbrush, and trimming trees so that the right-of-way is cleared close to the ground at the width specified. Low growing shrubs which will not interfere with the operation or maintenance of the line shall be left undisturbed if so directed by the Owner. Slash may be chipped and blown on the right-of-way unless strictly prohibited by the Owner, federal, state or local laws. Trees fronting each side of the right-of-way shall be trimmed symmetrically unless otherwise specified. Dead trees beyond the right-of-way which would strike the line in falling shall be removed. Leaning trees beyond the right-of-way, which would strike the line in falling and which would require topping if not removed, shall either be removed or topped

GENERAL NOTES:

- SEE STAKING ON SHEET FYRE-SS-2001-1.
- SEE DETAILS ON SHEETS FYRE-SS-2001-2 AND FYRE-SS-2001-3.
- SEE RETIREMENT PLANS ON SHEET FYRE-EL-2500-7.
- SEE INSTALL PLANS ON SHEET FYRE-EL-2500-8.

PROJECT: FORT YUKON RENEWABLE ENERGY DESIGN				
DESIGNER/PROJECT ENGINEER: ERIC D. SCHRAM/CHRISTOPHER T. DAVIS				
			W.O. #: 25-0053	
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED (MGR/SUPV)/DATE	APPROVED (DIRECTOR)/DATE
A	ISSUED FOR REVIEW	EDS/09-23-2025	CTD/09-23-2025	

ENG. STAMP



TEL: (907) 522-1953
FAX: (907) 522-1182
WEB: WWW.EPSINC.COM

DRAWING NAME:		TANANA CHIEFS CONFERENCE FORT YUKON RENEWABLE ENERGY SPECIFICATIONS	
		fort-yukon_pv_array_distribution.dwg	
REF DWG(S):			
DRAWING NO.:		FYRE-EL-0000	SHEET 3 OF 3



LEGEND

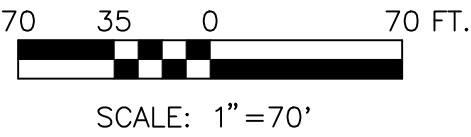
	NEW	EXISTING	RETIRE
POLE			
POLE - REPLACE EXISTING IN PLACE			
ANCHOR			
FUSED CUTOUT			
SPAN GUY			
LINE CONTINUATION			
STREET LIGHT			
1PH TRANSFORMER			
3PH TRANSFORMER			
OVERHEAD SECONDARY			
OVERHEAD 3PH - 4WIRE			
OVERHEAD 3PH - 3WIRE			
OVERHEAD 1PH			
UNDERGROUND 3PH			

NOTES:

1. RETIREMENT POLE LOCATIONS AND SPANS ESTIMATED

GENERAL NOTES:

1. SEE SPECIFICATIONS ON SHEET FYRE-EL-0000-3.
2. SEE STAKING ON SHEET FYRE-SS-2001-1.
3. SEE DETAILS ON SHEETS FYRE-SS-2001-2 AND FYRE-SS-2001-3.
4. SEE INSTALL PLANS ON SHEET FYRE-EL-2500-8.



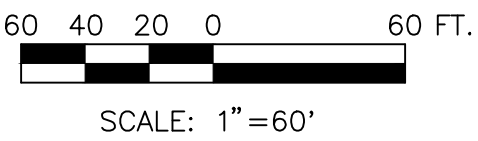
PROJECT: FORT YUKON RENEWABLE ENERGY DESIGN				
DESIGNER/PROJECT ENGINEER: ERIC D. SCHRAM/CHRISTOPHER T. DAVIS W.O. #: 25-0053				
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED (MGR/SUPV)/DATE	APPROVED (DIRECTOR)/DATE
A	ISSUED FOR REVIEW	EDS/09-23-2025	CTD/09-23-2025	

ENG. STAMP



TEL: (907) 522-1953
FAX: (907) 522-1182
WEB: WWW.EPSINC.COM

DRAWING NAME: TANANA CHIEFS CONFERENCE FORT YUKON RENEWABLE ENERGY RETIREMENT PLAN	
REF DWG(S): fort-yukon_pv_array_distribution.dwg	
DRAWING NO.:	FYRE-EL-2500
SHEET 7 OF 8	



LEGEND

	NEW	EXISTING	RETIRE
POLE			
POLE - REPLACE			
EXISTING IN PLACE			
ANCHOR			
FUSED CUTOUT			
SPAN GUY			
LINE CONTINUATION			
STREET LIGHT			
1PH TRANSFORMER			
3PH TRANSFORMER			
OVERHEAD SECONDARY			
OVERHEAD 3PH - 4WIRE			
OVERHEAD 3PH - 3WIRE			
OVERHEAD 1PH			
UNDERGROUND 3PH			

GENERAL NOTES:

- SEE SPECIFICATIONS ON SHEET FYRE-EL-0000-3.
- SEE STAKING ON SHEET FYRE-SS-2001-1.
- SEE DETAILS ON SHEETS FYRE-SS-2001-2 AND FYRE-SS-2001-3.
- SEE RETIREMENT PLANS ON SHEET FYRE-EL-2500-7.

PROJECT: FORT YUKON RENEWABLE ENERGY DESIGN				
DESIGNER/PROJECT ENGINEER: ERIC D. SCHRAM/CHRISTOPHER T. DAVIS				
W.O. #: 25-0053				
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED (MGR/SUPV)/DATE	APPROVED (DIRECTOR)/DATE
A	ISSUED FOR REVIEW	EDS/09-23-2025	CTD/09-23-2025	

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FAX: (907) 522-1182
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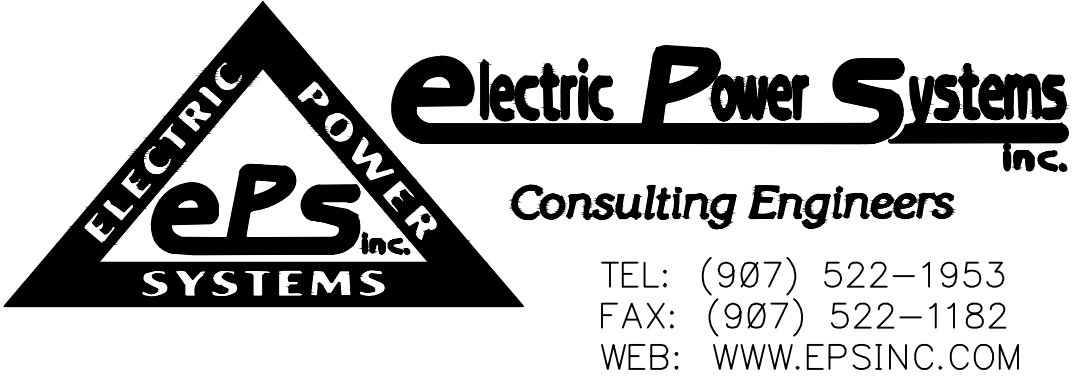
DRAWING NAME:		TANANA CHIEFS CONFERENCE FORT YUKON RENEWABLE ENERGY PV TAKE-OFF PLAN SHEET	
REF DWG(S):		fort-yukon_pv_array_distribution.dwg	
DRAWING NO.:		FYRE-EL-2500	SHEET 8 OF 8

STATUS	STRUCTURE NUMBER	STATION NUMBER	SHEET NUMBER	BACK SPAN	LINE ANGLE	PRIMARY					GUY			ANCHOR		SECONDARY AND SERVICE		MISCELLANEOUS		METER	REMARKS			
						CONDUCTOR		POLE or TRENCH	POLE TOP/ UG		TRANSFORMER UNIT	GROUND UNIT	NO.	UNIT	LEAD (ft)	NO.	UNIT	NO.	UNIT			WIRE SIZE	NO.	UNIT
						NO.	TYPE		NO.	UNIT														
ABANDONED GOVERNMENT POLE RETIREMENT (FYPV-P-01)																								
R	P1			0		4	#2 ACSR	40/2	1	C1.11											POLE LOCATION AND BACKSPAN ESTIMATED			
R	P2			56		4	#2 ACSR	40/2	1	C5.21		1	E2.1X	15	1	F3.18X					POLE LOCATION AND BACKSPAN ESTIMATED			
R									1	UC1X														
R	P3			170		1	UM50-P-4	40/2	1	C1.11											POLE LOCATION AND BACKSPAN ESTIMATED			
R				250		4	#2 ACSR		1	UC1X		2	E2.1X	15	2	F3.18X								
R	P4			123		4	#2 ACSR	40/2	1	C1.11											POLE LOCATION AND BACKSPAN ESTIMATED			
R	P5			154		4	#2 ACSR	40/2	1	C1.11											POLE LOCATION AND BACKSPAN ESTIMATED			
R	P6			173		4	#2 ACSR	40/2	1	C1.11											POLE LOCATION AND BACKSPAN ESTIMATED			
R	P7			177		4	#2 ACSR	40/2	1	C1.11											POLE LOCATION AND BACKSPAN ESTIMATED			
R	P8			203		4	#2 ACSR	40/2	1	C1.11											POLE LOCATION AND BACKSPAN ESTIMATED			
R	P9			185		4	#2 ACSR	40/2	1	C1.11											POLE LOCATION AND BACKSPAN ESTIMATED			
R	P10			175		4	#2 ACSR	40/2	1	C1.11											POLE LOCATION AND BACKSPAN ESTIMATED			
R	P11			162		4	#2 ACSR	40/2	1	C1.11											POLE LOCATION AND BACKSPAN ESTIMATED			
R	P12			175		4	#2 ACSR	40/2	1	C5.21											POLE LOCATION AND BACKSPAN ESTIMATED			
R									1	UC1X		1	E2.1X	15	1	F3.18X								
PV ARRAY TAKEOFF (FYPV-P-02)																								
E	N65							40/4	1	C5.21	G1.4-15-A													
I				0		4	#2 ACSR		1	C5.31		H1.1	1	E2.02X	45									
I	GUY STUB			45				35/5				H1.1	1	E2.1X	30	1	F3.18X				INSTALL GUY STUB POLE ACROSS ROAD			
I	N65-1C			40		4	#2 ACSR	40/4	1	C6.31														
I									1	R3.1		H1.1									RECLOSER POLE			
I	N65-2C			25		4	#2 ACSR	40/4	1	C5.31			1	E2.1X	30	1	F3.18X							
I				0		3	#1/0 CONC 15		1	UC1X		H1.1						3	UM6-24-A		RISER POLE			
I	PV STEPUP			115		1	UM50-H-4	UR2	1	UM1-1B											SEE PV PLANS FOR TRENCH DETAIL.			
I				175		3	#1/0 CONC 15				UG17-2-1500-B							3	UM6-1-A		SEE PV PLANS FOR SECONDARY CONDUCTORS			
	▼																							

- GENERAL NOTES:
- SEE SPECIFICATIONS ON SHEET FYRE-EL-0000-3.
 - SEE DETAILS ON SHEETS FYRE-SS-2001-2 AND FYRE-SS-2001-3.
 - SEE RETIREMENT PLANS ON SHEET FYRE-EL-2500-7.
 - SEE INSTALL PLANS ON SHEET FYRE-EL-2500-8.

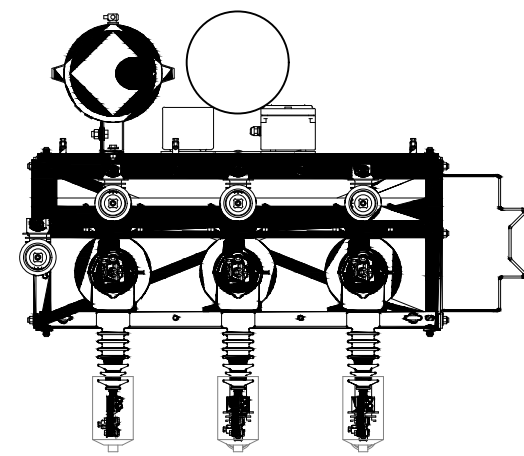
PROJECT: FORT YUKON RENEWABLE ENERGY DESIGN				
DESIGNER/PROJECT ENGINEER: ERIC D. SCHRAM/CHRISTOPHER T. DAVIS				
W.O. #: 25-0053				
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN BY/DATE	REVIEWED (MGR/SUPV)/DATE	APPROVED (DIRECTOR)/DATE
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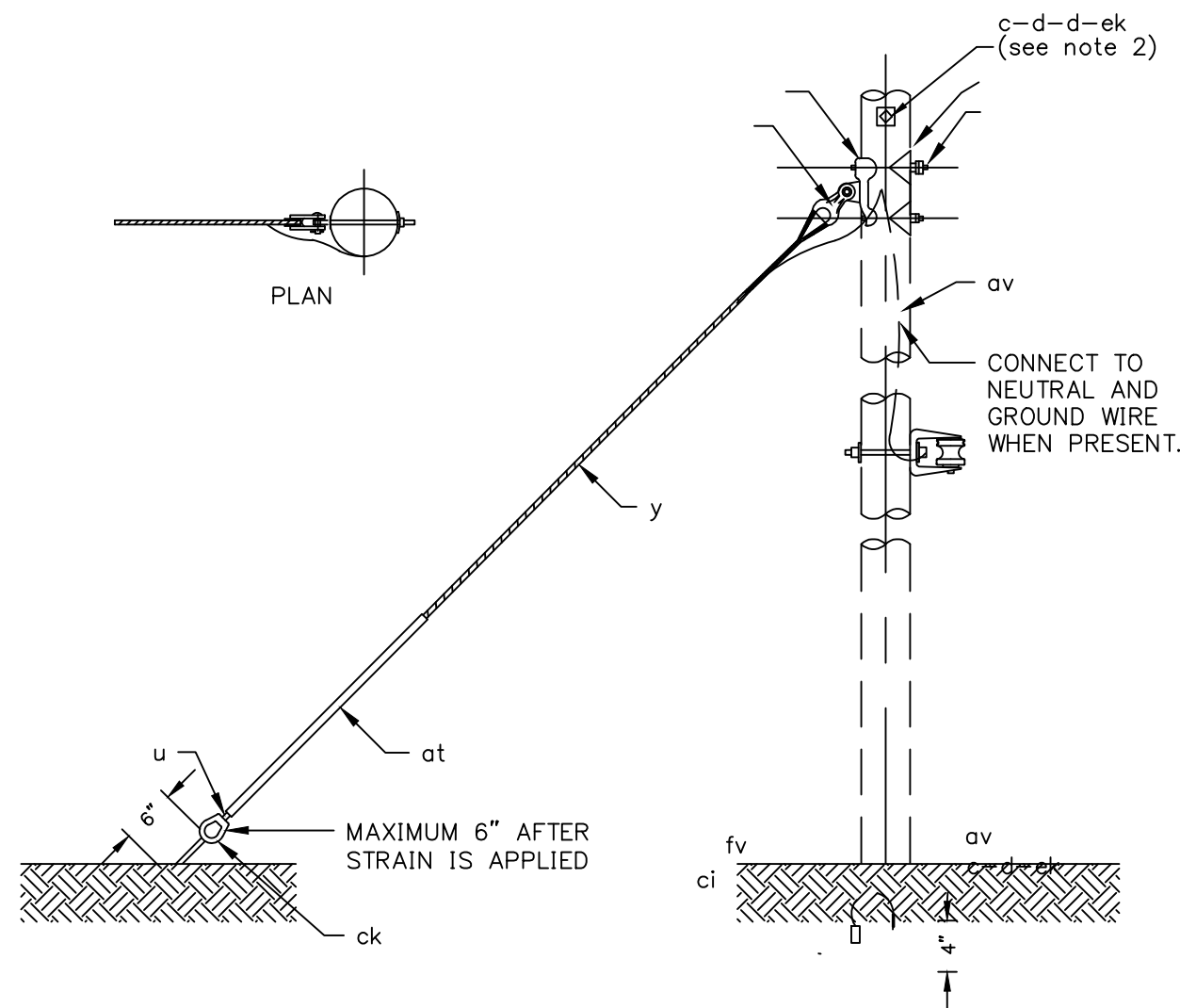
TEL: (907) 522-1953
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DRAWING NAME:		TANANA CHIEFS CONFERENCE FORT YUKON RENEWABLE ENERGY STAKING SHEETS
REF DWG(S):		fort-yukon_pv_array_distribution.dwg
DRAWING NO.:		FYRE-SS-2001
		SHEET 1 OF 1



PLAN

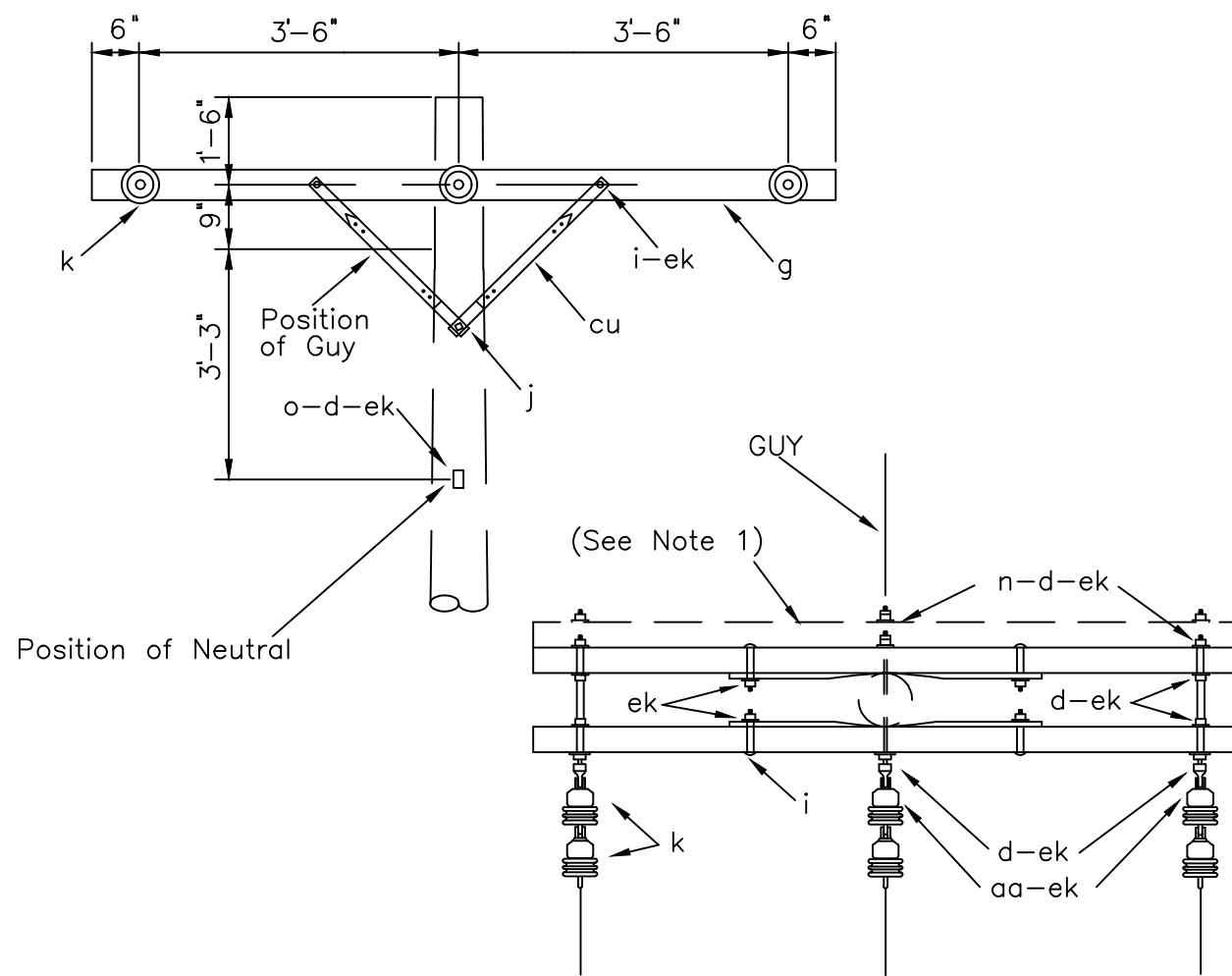
R3.3 THREE-PHASE POLE MOUNTED RECLOSER



RUS	ITEM	QTY	MATERIAL
	c	1	Bolt, machine, 5/8" x req'd length
	c	2	Bolt, machine, 3/4" x req'd length
	d	2	Washer, square, 2-1/4", curved
	d	2	Washer, square, 4", curved
	p		Connectors, guy bond and as req'd
	u	2	Deadend, preformed, guy, heavy duty
	y		Guy wire, as req'd (3/8" EHS)
	al		Staples, ground wire, as req'd
	at	1	Guy marker, with reflective material
	av		Jumpers, as req'd
	ci	1	Clevis, thimble, 5/8", (15,000 lbs.)
	ck	1	Clamp, anchor bonding
	dp	1	Clamp, ground wire, 3/4", with nut
	ek	3	Locknuts, 1 ea 5/8", 2 ea 3/4"
	fv	1	Guy attachment (15,000 lbs.) 3/4" bolt, 4" spacing

NOTES:

- UTILITY ACCEPTED AUTOMATICS MAY BE SUBSTITUTED AT THE ANCHOR ROD ATTACHMENT.
- INSTALL ANTI-SPLIT BOLTS 3" ABOVE GUY ATTACHMENT BOLT ON GUY STUB INSTALLATIONS.

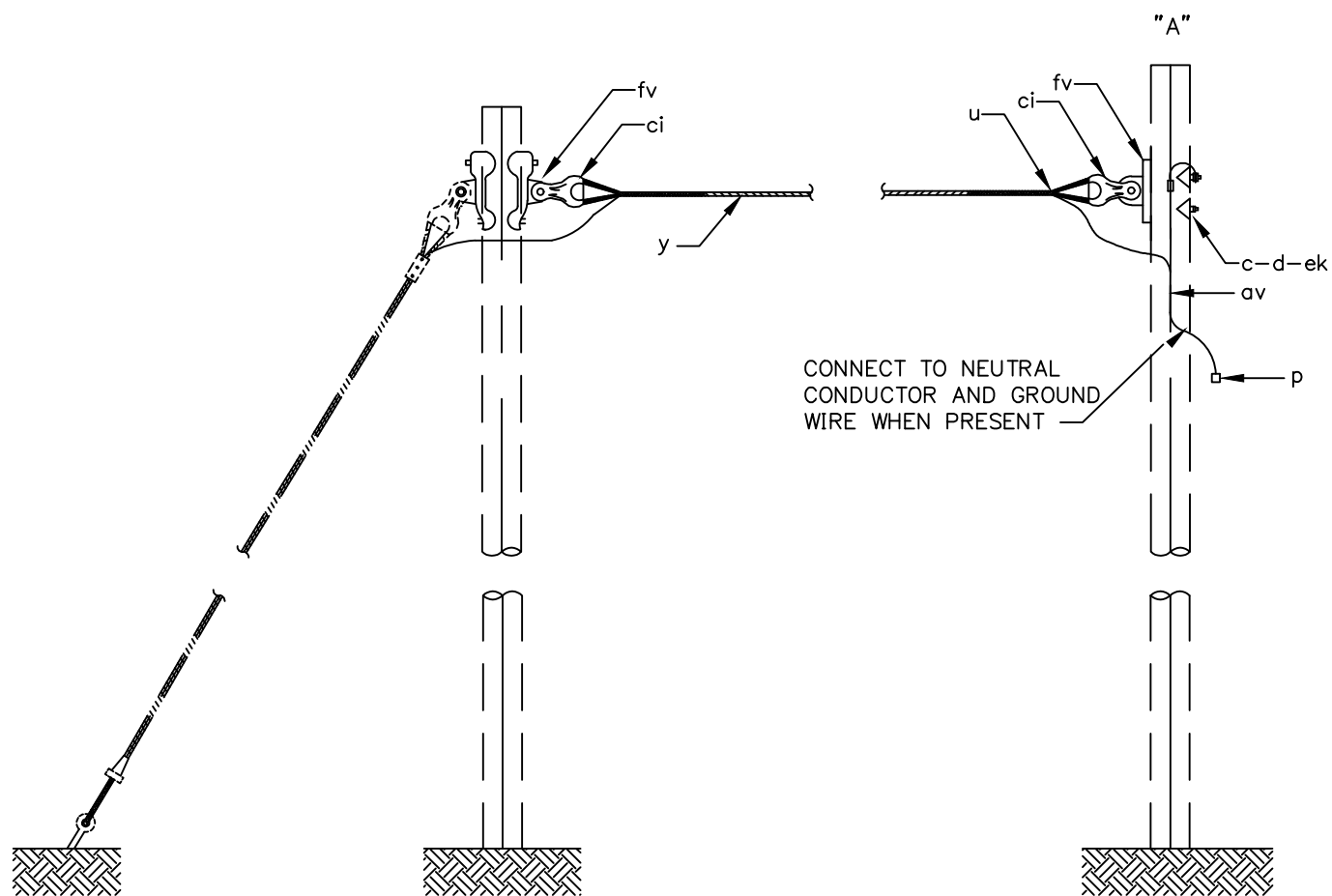


PLAN

ITEM	QTY	MATERIAL
d	1	Washer, square, 3", curved
d	10	Washer, square, 2 1/4"
g	2	Crossarm, 3 5/8" x 4 5/8" x 8'-0"
i	4	Bolt, carriage, 3/8" x 4 1/2"
j	2	Screw, lag, 1/2" x 4"
k	6	Insulator, suspension, 4 1/4"
n	3	Bolt, double arming, 5/8" x req'd length
o	1	Bolt, eye, 5/8" x req'd length
aa	3	Nut, eye, 5/8"
cu	4	Brace, 28"
ek	18	Locknuts

NOTES:

- Designate as "C5.31" for assembly with three crossarms.
- Double arming eye bolt, item "dy," may be used instead of double arming bolt, item "n," and eye nut, item "aa."
- Other neutral assemblies may be used. See Section N. Adjust material as needed.



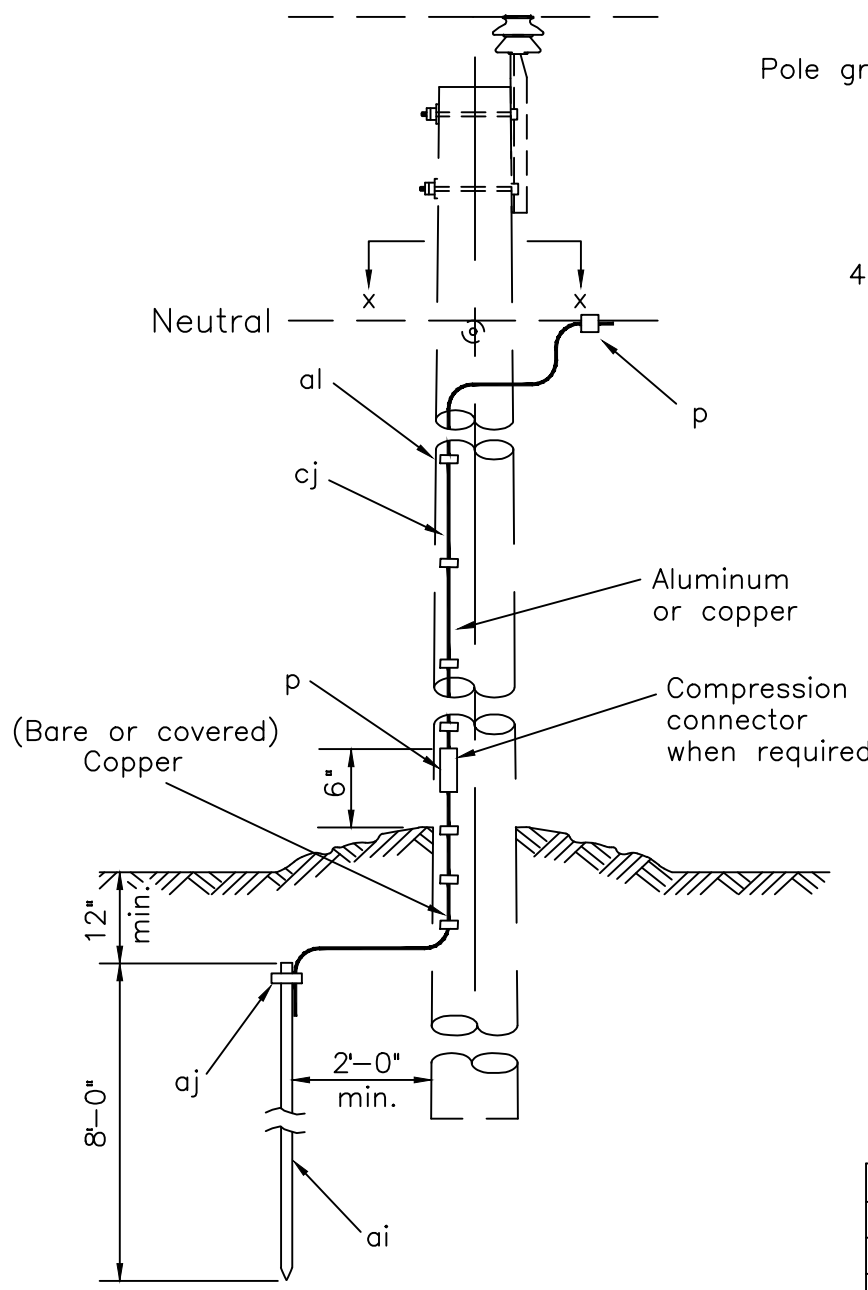
NOTES:

- USE E2.03X WHEN SPAN GUY IS BACKING UP A HUGHES ARM DEADEND ASSEMBLY. HUGHES ASSEMBLY INCLUDES DEAD END TEE.
- WHEN CONDUCTOR TENSIONS REQUIRE MULTIPLE 3/8" EHS SPAN GUYS, USE E2.02X ON LOWER SPAN GUY; THE MINIMUM SPACING BETWEEN ATTACHMENT BOLTS SHALL BE 6".
- SHARE BOLTS ON GUY STUB POLE WITH DOWN GUY ATTACHMENTS WHERE POSSIBLE.

RUS	QUANTITY	MATERIAL
ITEM	E2.02X	
c	4	Bolt, machine, 3/4" x req'd length
d	4	Washer, square, 4", curved, w/ 13/16" Hole
p		Connectors, guy bond and as req'd
u	2	Deadend, preformed, guy, heavy duty
y		Guy wire, as req'd (3/8" EHS)
al		Staples, ground wire, as req'd
av		Jumpers, as req'd
ci	2	Clevis, thimble, 5/8", (20,000 lb.)
dp	1	Clamp, ground wire, 3/4", with nut
ek	4	Locknuts, 3/4"
fv	2	Guy attachment (3/4" bolt, 4" spacing) (15,000 lb min @ 45°)

E2.02X SINGLE OVERHEAD GUY - HEAVY DUTY

E2.1X SINGLE DOWN GUY - HEAVY DUTY



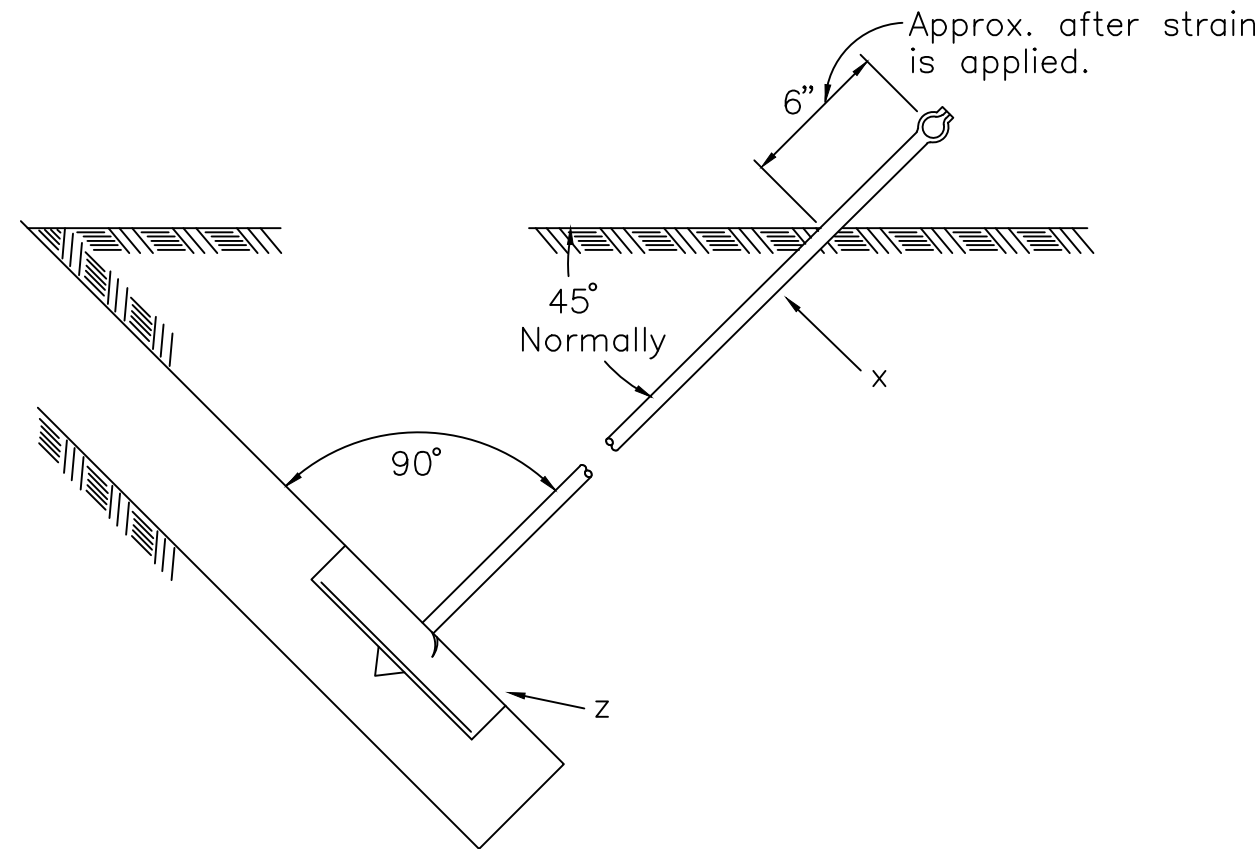
NOTES:

- Ground wire to be located on some side as neutral conductor and in quadrant opposite climbing space or pole top pin.
- Ground wire ("cj") to have minimum conductivity of No. 6 Copper or equivalent.
- Use copper plated ground rod and copper ground wire and staples, or use galvanized steel ground rod, staples and soft annealed iron, 3-strand, 5/16" ground wire with class C galvanizing.

ITEM	QTY	MATERIAL
p		Connector, compression, as req'd
ai	1	Rod, ground, 5/8" min. diameter
aj	1	Clamp, ground rod
al		Staple, ground wire, as req'd
cj		Wire, pole ground, as req'd

H1.1 GROUNDING ROD ASSEMBLY

C5.XX SINGLE HORIZONTAL DEADEND



NOTE: Designated maximum holding power rating assumes proper installation in class 5 soil. Plate anchors are to be installed per manufacturer's instructions to provide designated holding capacity as listed.

DESIGN PARAMETERS:
DESIGNATED MAXIMUM
HOLDING POWER (lbs.)
F3.18x: 18,500
F3.30x: 30,000

ASSEMBLY: F3		.18X	.30X
RUS	Minimum Area (sq. in.)	150	400
ITEM	MATERIAL	QTY	QTY
x	Rod, anchor, twin eye, 3/4" X 8'0"	1	
x	Rod, anchor, twin eye, 1" X 10'0"		1
z	Anchor, plate type (18,000 lbs min. holding capacity - class 5 soil)	1	
	Anchor, plate type (30,000 lbs min. holding capacity - class 5 soil)		1

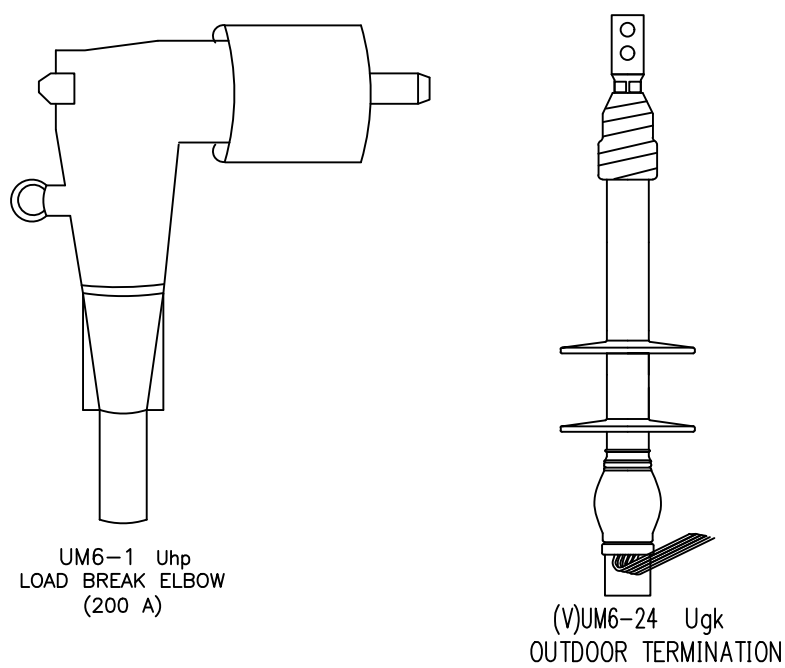
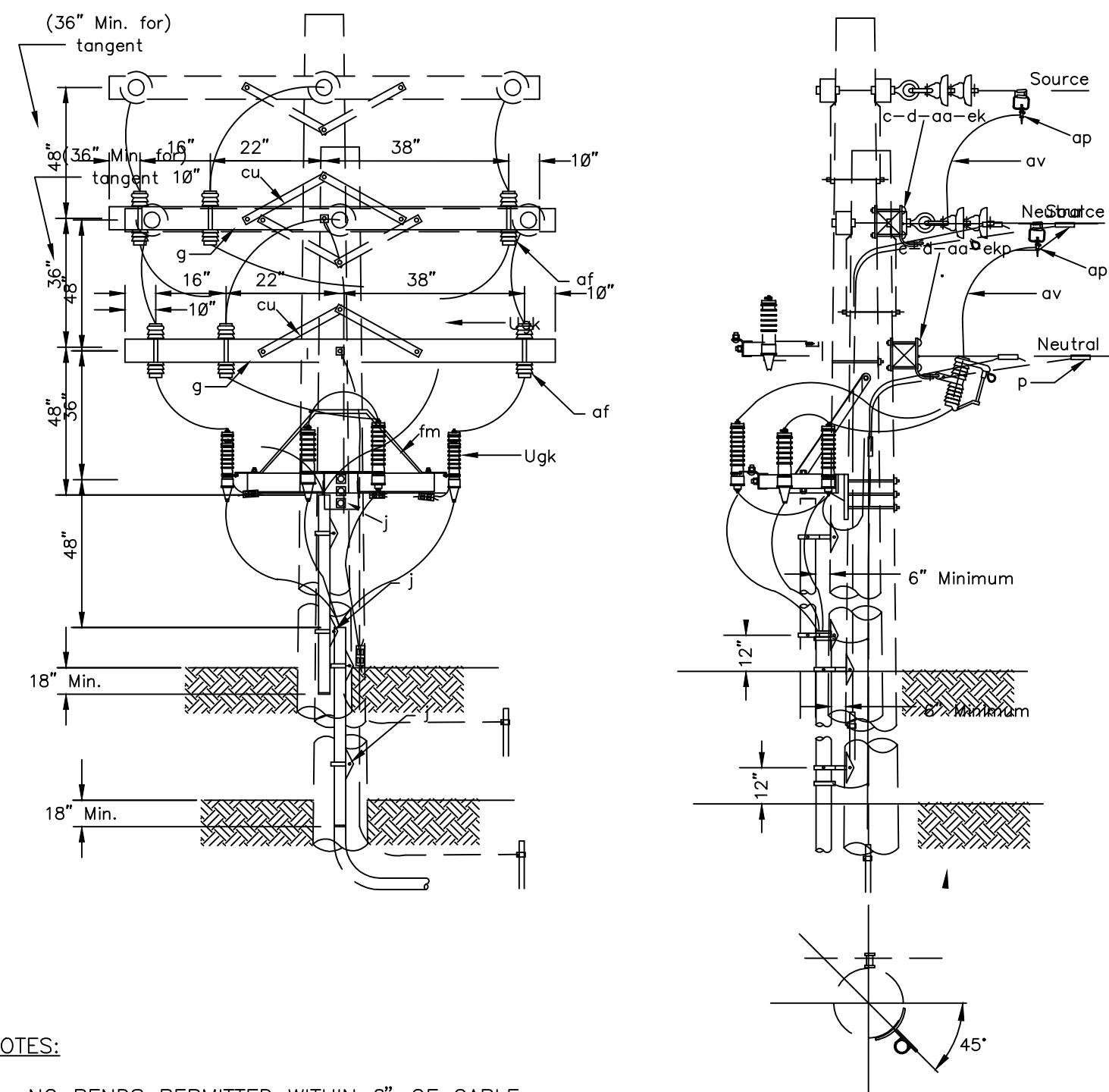
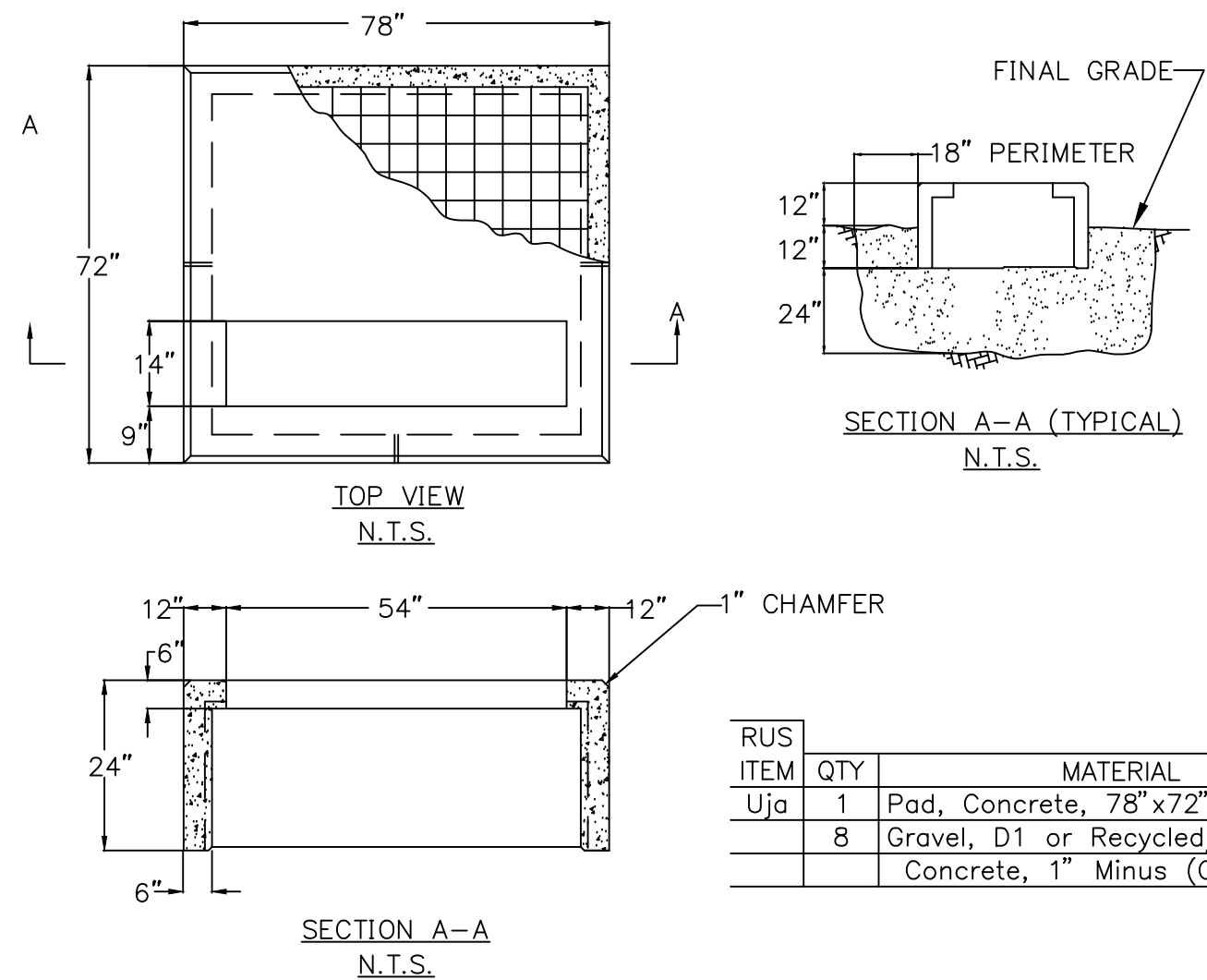
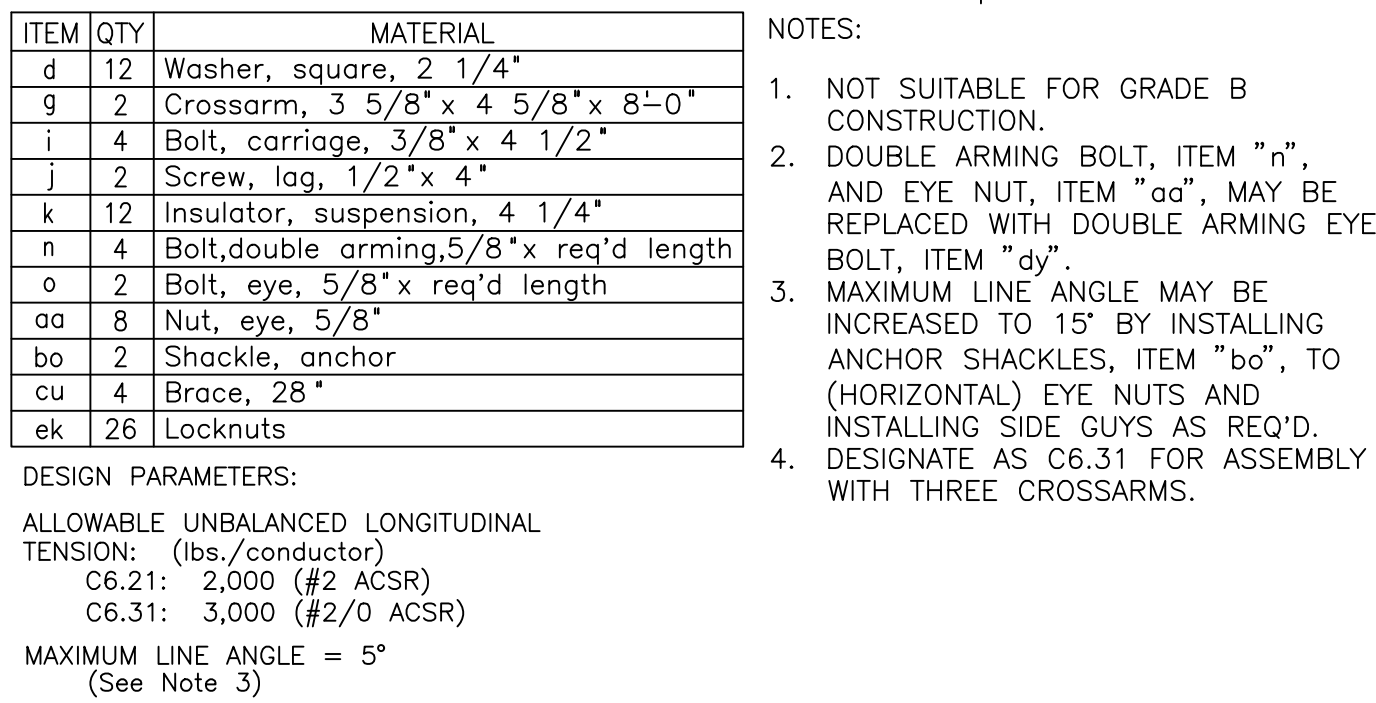
F3.18X/30X, PLATE ANCHORS

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DRAWING NAME:		TANANA CHIEFS CONFERENCE FORT YUKON RENEWABLE ENERGY DETAILS	
REF DWG(S):		fort-yukon_pv_array_distribution.dwg	
DRAWING NO.:		FYRE-SS-2001	
		SHEET 2 OF 3	



RUS	QTY.	
ITEM	15 kW	MATERIAL
c	2	Bolt, machine, 5/8" x req'd length
d	4	Washer, square, 2-1/4"
g	1	Crossarm, 3-5/8" x 4-5/8" x 8'-0"
j	3	Screw, lag, 5/8" x req'd length
j	3	Screw, lag, 1/2" x 4", as req'd
p		Connectors, as req'd
af	3	Cutout, load break type, 7.8/15 kV
af		Cutout, load break type, 15/27 kV
af	3	Fuse link, as designated
al		Staples, as req'd
ap	3	Clamp, hot line
av		Jumpers, stranded, as req'd
cu	2	Brace, 28"
ek		Locknuts, as req'd
fnn	1	Bracket, surge arrester and termination (ALUMA-FORM R3CA-48)
Uae	3	Arrester, surge, (9 kV)
Ugc		Conduit, galvanized rigid steel, size and length as req'd
Ugc		Conduit, PVC, size and length as req'd
Ugk	3	Cable termination, (15 kV)
	1	Conduit, rigid steel, grounding bushing
	2	Clamp, grounding, conduit, size as req'd
		Bracket, stand-off, GS, 14" long (min.), as req'd
	1	Connector, for stand-offs, as req'd
	1	Duct plug, expansion (Jackmoon, size as req'd)

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DESIGNER/PROJECT ENGINEER: ERIC D. SCHRAM/CHRISTOPHER T. DAVIS			W.O. #: 25-0053	
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DRAWING NO.:

FYRE-SS-2001

SHEET 3 OF 3