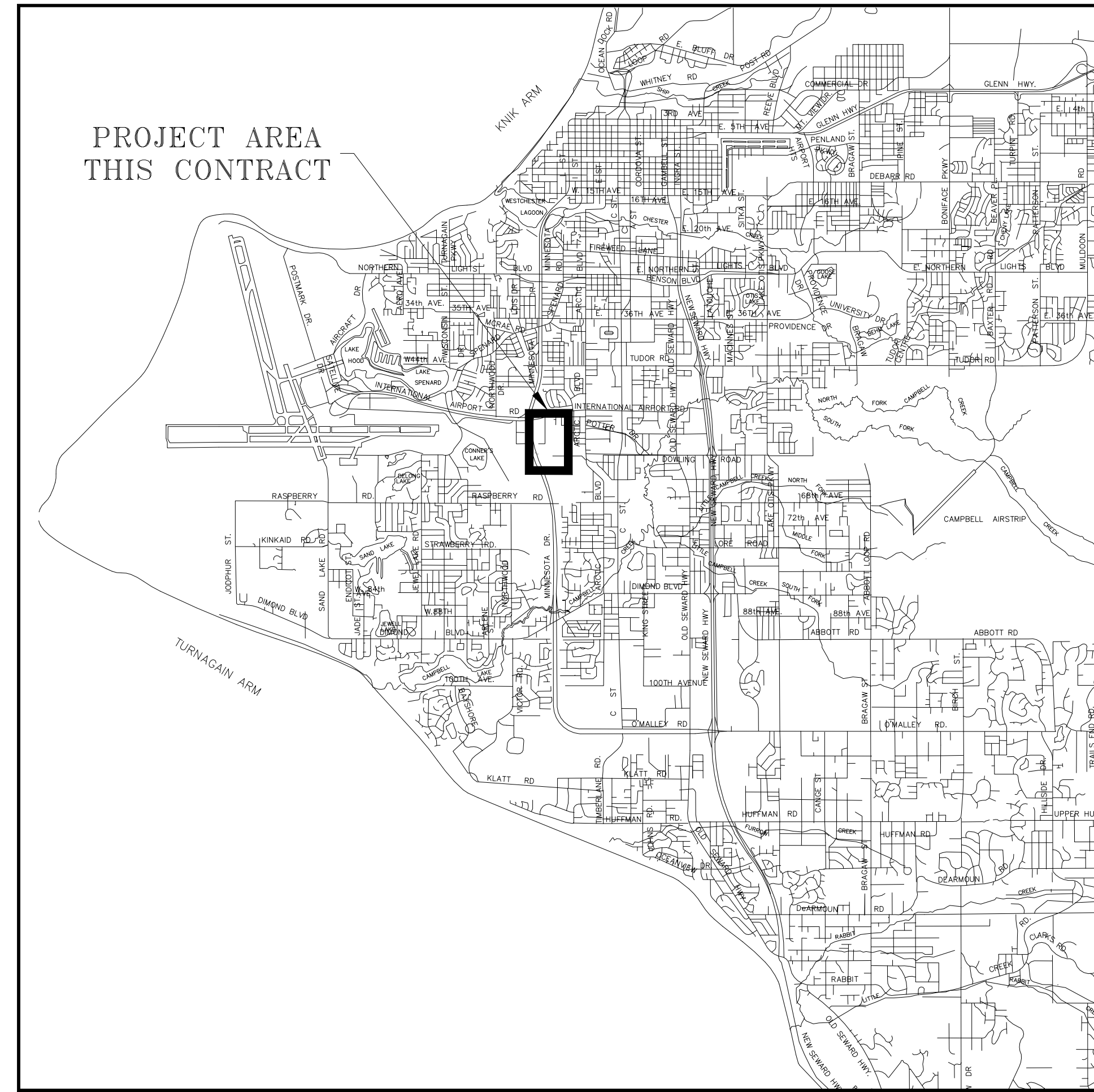


CHUGACH ELECTRIC ASSOCIATION, INC.

INTL TRANSMISSION – ROBERT RETHERFORD

SOUTH CAMPUS POLE RELOCATION – PHASE 2

W.O. E2420080



VICINITY MAP

NOT IN THIS CONTRACT, TYPICAL

DRAWING INDEX – PHASE 1			
PAGE	DRAWING NUMBER	TITLE	NOTES
1	INSS-MC-INDEX	VICINITY MAP & DRAWING INDEX	
2	INSS-MC-INFO	MISCELLANEOUS & KEY MAPS LEGEND	
3	INSS-PP-0006	PLAN AND PROFILE	
4	INSS-PP-0008	PLAN & PROFILES STRUCTURE SCHEDULE	
5	INSS-PP-0009	PLAN & PROFILES SAGGING TABLES	
6	INSS-SS-0003	SITE & STRUCTURAL RETIREMENT PLAN	
7	INSS-SS-0004	SITE & STRUCTURAL PROPOSED PLAN	
8	INSS-SS-0060	STRUCTURAL & ASSEMBLY STEEL STRUCTURE DETAILS	
9	INSS-SS-0061	STRUCTURAL & ASSEMBLY POLE TOP ASSEMBLIES	
10	INSS-SS-0062	STRUCTURAL & ASSEMBLY MISCELLANEOUS ASSEMBLIES & PILE CAP ORIENTATIONS	
11	INSS-SS-0063	STRUCTURAL & ASSEMBLY FOUNDATION DETAILS	
12	INSS-SS-0064	STRUCTURAL & ASSEMBLY STRUCTURE SIGN ASSEMBLIES	
13	INSS-SS-0065	STRUCTURAL & ASSEMBLY STEEL STRUCTURES	
14	INSS-SS-0066	34.5kV STRUCTURAL & ASSEMBLY STEEL STRUCTURES	

* DRAWING FOR REFERENCE ONLY

DRAWING INDEX – PHASE 2			
PAGE	DRAWING NUMBER	TITLE	NOTES
1	INSS-MC-INDEX	VICINITY MAP & DRAWING INDEX	
2	INSS-MC-INFO	MISCELLANEOUS & KEY MAPS LEGEND	
3	ITRR-PP-0005	PLAN AND PROFILE	
4	INSS-PP-0007	PLAN & PROFILES STRUCTURE SCHEDULE	
5	INSS-PP-0009	PLAN & PROFILES SAGGING TABLES	
6	INSS-SS-0003	SITE & STRUCTURAL RETIREMENT PLAN	
7	INSS-SS-0004	SITE & STRUCTURAL PROPOSED PLAN	
8	INSS-SS-0059	STRUCTURAL & ASSEMBLY STEEL STRUCTURES ITRR 1-1 AND ITRR 1-2	
9	INSS-SS-0060	STRUCTURAL & ASSEMBLY STEEL STRUCTURE DETAILS	
10	INSS-SS-0061	STRUCTURAL & ASSEMBLY POLE TOP ASSEMBLIES	
11	INSS-SS-0062	STRUCTURAL & ASSEMBLY MISCELLANEOUS ASSEMBLIES & PILE CAP ORIENTATIONS	
12	INSS-SS-0063	STRUCTURAL & ASSEMBLY FOUNDATION DETAILS	
13	INSS-SS-0064	STRUCTURAL & ASSEMBLY STRUCTURE SIGN ASSEMBLIES	
14	INSS-SS-02XX	STRUCTURAL & ASSEMBLY STEEL STRUCTURES ITFM2 1-1/ITUV 1-1 AND 100-07	

* DRAWING FOR REFERENCE ONLY

PROJECT: SOUTH CAMPUS POLE RELOCATION – PHASE 2				
ENG./DESIGN.: SUPAT CHANONTO (CEA) / GREG HUFFMAN (EPS) W.O. # E2420080				
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN. BY/DATE	REVIEWED MGR./SUPV./DATE	APPROVED DIRECTOR/DATE
0	ISSUED FOR CONSTRUCTION	KER 01/30/25	GDH 01/30/25	

NO.	RECORD REVISION	CAD DRAWN BY	W.P.#	W.O. NUMBER	RECORD APPROVED	DATE
1	X	XX	-	-	XXX	XX/XX/XX

Chugach Electric Association, Inc.
5601 Electron Drive - P.O. Box 196300
Anchorage, Alaska 99519-6300

DRAWING NAME: 138kV TRANSMISSION LINE
INTL TRANSMISSION – ROBERT RETHERFORD
VICINITY MAP & DRAWING INDEX

CONFIDENTIAL

DRAWING NO. – PREVIOUS/REFERENCE
NEW
DRAWING NO.: INSS-MC-INDEX

SHEET 0001 OF 1
PAGE _____ OF _____

SYMBOL LEGEND

	ELECTRIC BOX, TRANSFORMER, LOAD CENTER
	ELECTRIC PEDESTAL
	ELECTRIC METER
	ELECTRIC JUNCTION BOX
	LIGHT POLE
	MASTARM LIGHTPOLE
	UTILITY POLE
	GUY WIRE
	FIBER OPTIC VAULT
	TELEPHONE PEDESTAL
	TELEPHONE JUNCTION BOX
	POST
	BOLLARD
	GATE POST
	SIGN
	RAILROAD LIGHTS
	WATER VALVE
	FIRE HYDRANT
	WATER MANHOLE
	MONITORING WELL
	BOULDER
	SANITARY SEWER CLEANOUT
	SANITARY SEWER MANHOLE
	STORM DRAIN MANHOLE
	STORM DRAIN CATCH BASIN MANHOLE
	FLOWLINE CATCH BASIN MANHOLE
	CATCH BASIN
	GAS METER
	VERTICAL SUPPORT MEMBER
	DECORATIVE VEGETATION
	SWAMP
	TREE
	UNDERGROUND ELECTRIC CROSSING
	UNDERGROUND FIBER OPTIC CROSSING
	UNDERGROUND GAS CROSSING
	UNDERGROUND SANITARY SEWER CROSSING
	UNDERGROUND STORM DRAIN CROSSING
	UNDERGROUND TELEPHONE CROSSING
	UNDERGROUND WATER CROSSING
	CULVERT
	RAILROAD TRACKS
	FENCE
	UNDERGROUND FIBER OPTIC LINE
	UNDERGROUND WATER LINE
	UNDERGROUND STORM DRAIN LINE
	UNDERGROUND SANITARY SEWER LINE
	UNDERGROUND ELECTRIC LINE
	UNDERGROUND TELEPHONE LINE
	UNDERGROUND GAS LINE
	OVERHEAD ELECTRIC
	OVERHEAD TELEPHONE

LEGEND

	DISTRIBUTION SUBSTATION
	BULK TRANSMISSION SUBSTATION
	POLE
	230KV OH
	230KV UG
	69KV OH
	138KV OH
	138KV UG
	115KV OH
	34.5KV OH
	34.5KV UG

HATCH LEGEND

	CONCRETE SURFACE
	PAVED SURFACE
	WATER BODY
	BUILDING
	UNPAVED SURFACE

CONTRACT NOTES

- ① THE FOLLOWING TRIANGLES AND CLOUDING WILL BE USED ON DRAWINGS TO IDENTIFY THE CONTRACTOR'S SCOPE OF WORK IN SPECIFIC AREAS. AREAS NOT CLOUDED ON DRAWINGS SHALL NOT BE IN THE CONTRACTOR'S SCOPE OF WORK.

IN CONTRACT
- ② THE FOLLOWING TRIANGLES AND CLOUDING WILL BE USED ON DRAWINGS TO IDENTIFY SPECIFIC AREAS OUTSIDE OF THE CONTRACTOR'S SCOPE OF WORK. AREAS NOT CLOUDED ON DRAWINGS SHALL BE IN THE CONTRACTOR'S SCOPE OF WORK.

NOT IN CONTRACT
- ③ IF NO CLOUDS ARE NOTED ON THE DRAWING, THE CONTRACTOR'S SCOPE OF WORK SHALL INCLUDE THE ENTIRE DRAWING.
- ④ IF THE DRAWING IS ISSUED FOR REFERENCE ONLY, IT WILL BE IDENTIFIED WITH THE FOLLOWING BLOCK. THE PURPOSE OF AN "ISSUED FOR REFERENCE ONLY" DRAWING IS TO CONVEY INFORMATION THAT MAY BE USEFUL TO THE CONTRACTOR IN PERFORMANCE OF THE CONTRACT. NONE OF THE MATERIAL SHOWN ON THE DRAWING IS WITHIN THE CONTRACTOR'S SCOPE OF WORK TO SUPPLY.

ISSUED FOR REFERENCE ONLY
- DO NOT EDIT -

- ⑤ SCOPE OF WORK OR PERFORMANCE INFORMATION FOR THE CONTRACTOR MAY BE CONVEYED WITH "CONSTRUCTION NOTES". BELOW IS AN EXAMPLE OF CONSTRUCTION NOTES.

CONSTRUCTION NOTES:

- ① EXAMPLE NOTE
- ② EXAMPLE NOTE

- ⑥ DEMOLITION DRAWINGS WILL BE IDENTIFIED WITH THE FOLLOWING BLOCK. DEMOLITION WORK THAT IS WITHIN THE CONTRACTOR'S SCOPE OF WORK WILL BE IDENTIFIED BY DEMOLITION CLOUDS. THE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIAL, AND EQUIPMENT FOR THE REMOVAL OF THE IDENTIFIED ITEMS. SCOPE OF WORK OR PERFORMANCE INFORMATION FOR THE CONTRACTOR MAY BE CONVEYED WITH "DEMOLITION NOTES". BELOW IS AN EXAMPLE OF A DEMOLITION CLOUD AND DEMOLITION NOTES.

DEMOLITION

EXAMPLE DEMOLITION CLOUD:

EXAMPLE DEMOLITION NOTES:

DEMOLITION NOTES:

- ① EXAMPLE NOTE
- ② EXAMPLE NOTE

- ⑦ DETAIL AREAS NOT FOR REVIEW AT A SUBMITTAL WILL BE IDENTIFIED WITH THE HOLD TAG SHOWN BELOW. THE HOLD TAG SHALL BE PLACED DIRECTLY OVER THE EFFECTED AREA WITH THE DIMENSIONS LISTED BELOW WITH A 30° ROTATION WHEN FEASIBLE. THE HOLD TAG MAY BE ADJUSTED IN ROTATION AND LENGTH WHEN NECESSARY.

HOLD

PROJECT: SOUTH CAMPUS POLE RELOCATION - PHASE 2				
ENG./DESIGN: SUPAT CHANONTO (CEA) / GREG HUFFMAN (EPS) W.O. # E2420080				
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN. BY/DATE	REVIEWED MGR./SUPV./DATE	APPROVED DIRECTOR/DATE
0	ISSUED FOR CONSTRUCTION	KER 01/30/25	GDH 01/30/25	

NO.	RECORD REVISION	CAD DRAWN BY	W.P. #	W.O. NUMBER	RECORD APPROVED	DATE
1	X	XX	-	-	XXX	XX/XX/XX

CHUGACH
POWERING ALASKA'S FUTURE

Chugach Electric Association, Inc.
5601 Electron Drive - P.O. Box 196300
Anchorage, Alaska 99519-6300

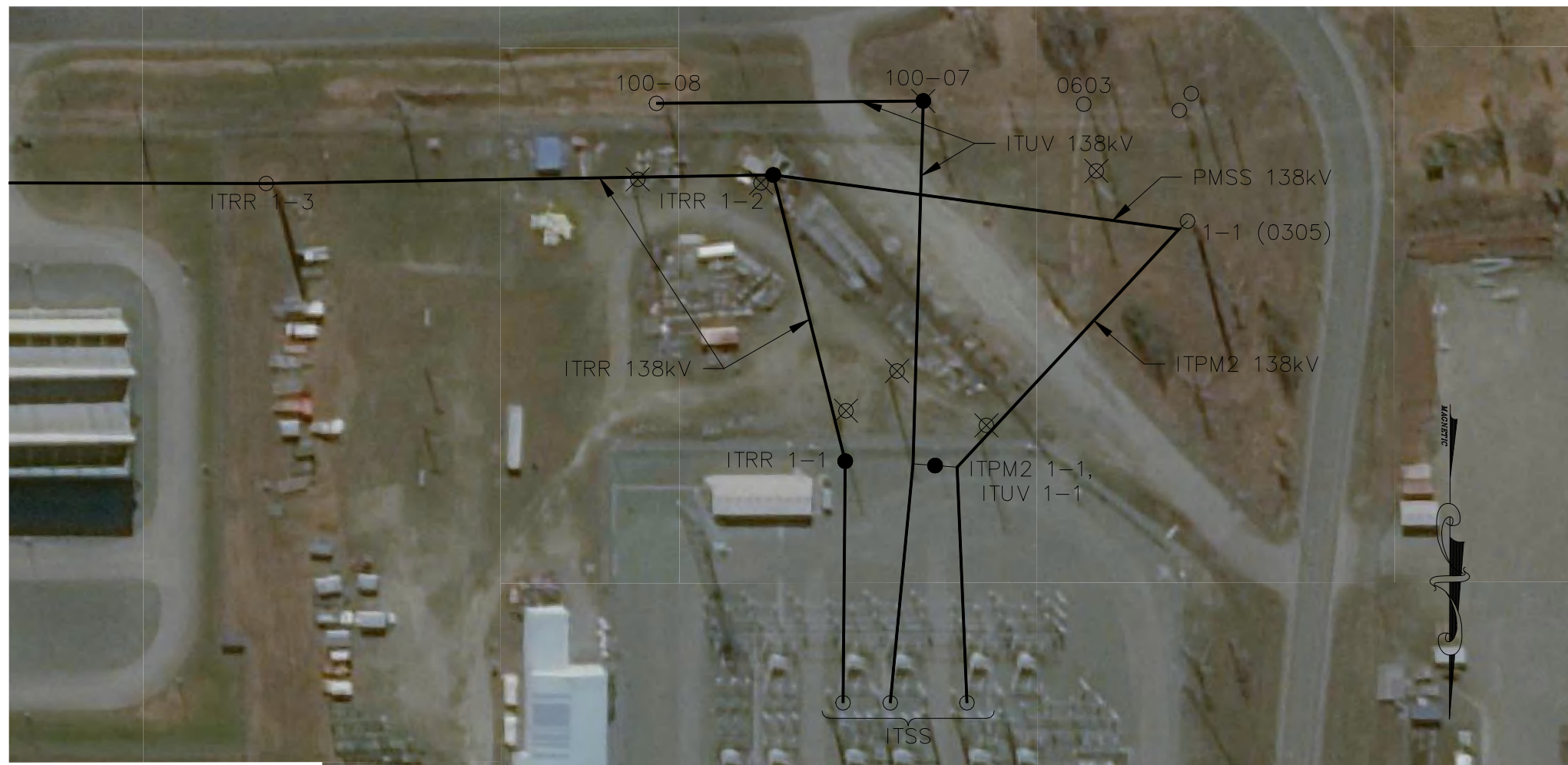
DRAWING NAME: 138kV TRANSMISSION LINE
INTL TRANSMISSION - ROBERT RETHERFORD
MISCELLANEOUS & KEY MAPS
LEGEND

CONFIDENTIAL

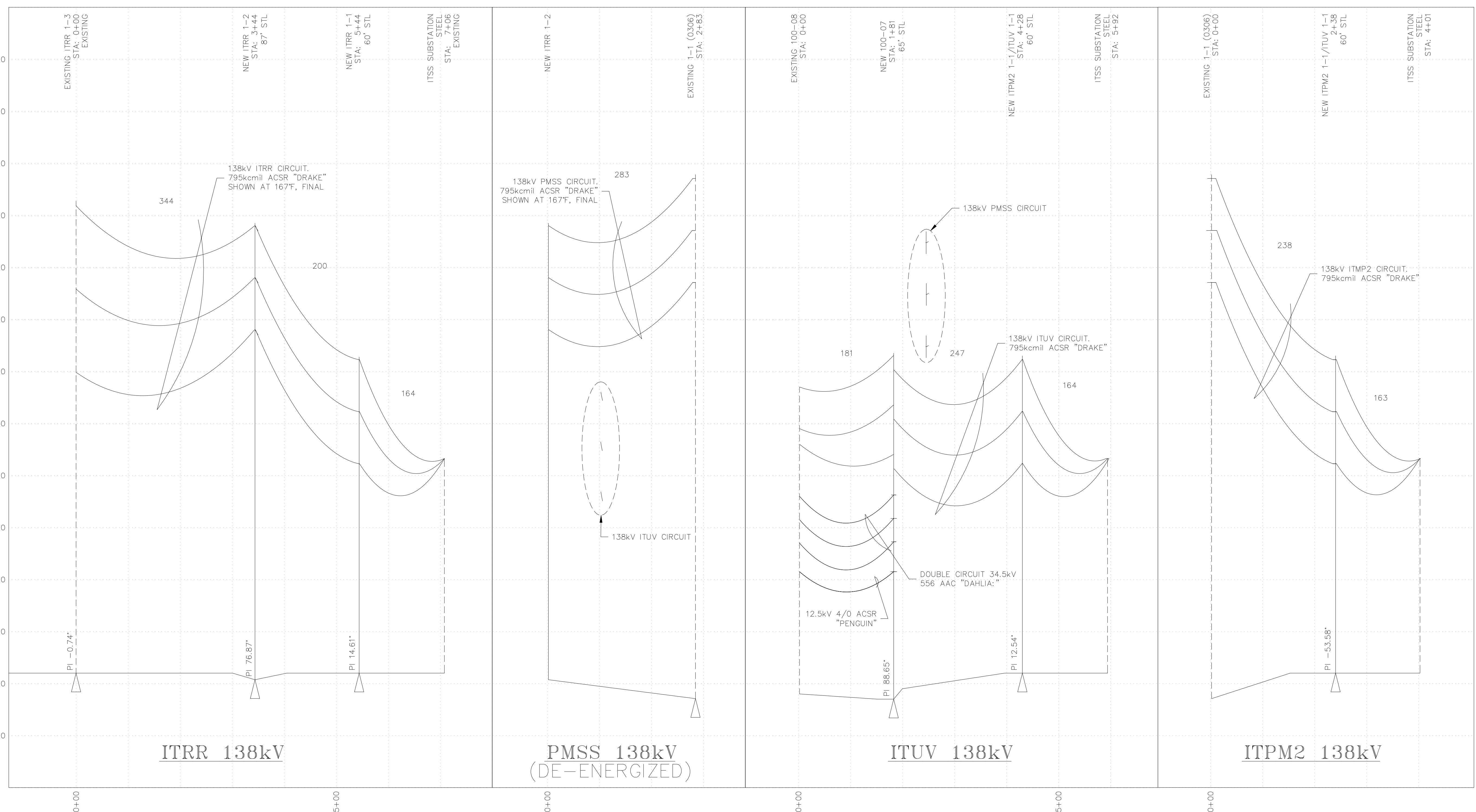
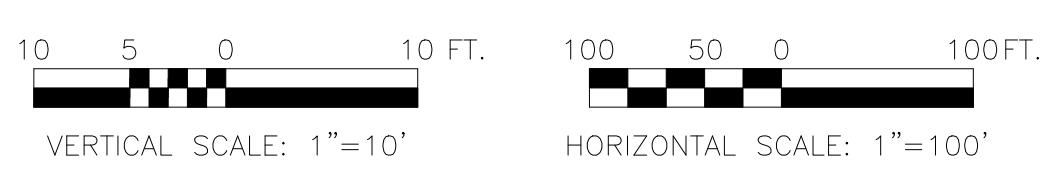
DRAWING NO. - PREVIOUS/REFERENCE
NEW

DRAWING NO.: INSS-MC-INFO

SHEET 0001 OF 1
PAGE 2 OF X



- LEGEND**
- ⊗ EXISTING STRUCTURE TO BE RETIRED
 - EXISTING STRUCTURE TO REMAIN
 - PROPOSED STRUCTURE
 - EXISTING STRUCTURE TO BE REPLACED



PROJECT: SOUTH CAMPUS POLE RELOCATION - PHASE 2				
ENG./DESIGN.: SUPAT CHANONTO (CEA) / GREG HUFFMAN (EPS) W.O. # E2420080				
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN. BY/DATE	REVIEWED MGR./SUPV./DATE	APPROVED DIRECTOR/DATE
0	ISSUED FOR CONSTRUCTION	KER 01/30/25	GDH 01/30/25	

NO.	RECORD REVISION	CAD DRAWN BY	W.P.#	W.O. NUMBER	RECORD APPROVED	DATE



Chugach Electric Association, Inc.
5601 Electron Drive - P.O. Box 196300
Anchorage, Alaska 99519-6300

DRAWING NAME: 138kV TRANSMISSION LINE INTL TRANSMISSION - ROBERT RETHERFORD PLAN AND PROFILE	
CONFIDENTIAL	INSS-PP-0005-0001
DRAWING NO. - PREVIOUS/REFERENCE	SHEET 0001 OF 1
DRAWING NO.: INSS-PP-0005	PAGE _____ OF _____

ITRR 138kV

STRUCTURE NO.	STATION	BACK SPAN (FT)	LINE ANGLE (DEG.)	STRUCTURE TYPE	STR LENGTH (FT)	FOUNDATION ASSEMBLY (DE=DIRECT EMBEDDED)	138KV ASSEMBLIES	34.5KV ASSEMBLIES	12.5KV ASSEMBLIES	SIGN ASSEMBLIES	MISCELLANEOUS ASSEMBLIES	RETIREMENT UNITS	REMARKS	STRUCTURE NO.
ITRR 1-3	0+00	-	-	EXISTING STEEL POLE	90	EXISTING CONCRETE DRILLED SHAFT	EXISTING DOUBLE DEADEND	-	-	-	-	-	STRUCTURE AND DEADENDS TO REMAIN. MAINTAIN EXISTING WIRE TENSIONS ON SWITCH FRAME.	ITRR 1-3
RETIRE ITRR 1-2	-	-	-	EXISTING WOOD POLE	90	EXISTING DE	EXISTING 3-WAY DEADEND	-	-	-	-	(1) *WOOD POLE (3) *138KV DE (3) *GUY (3) *ANCHOR	-	RETIRE ITRR 1-2
RETIRE 1-2	-	-	-	EXISTING STEEL POLE	100	EXISTING CONCRETE DRILLED SHAFT, 5.0' DIA.	EXISTING HORIZONTAL POSTS	-	-	-	-	(1) *STEEL POLE (1) *138KV POST	-	RETIRE 1-2
NEW ITRR 1-2	3+44	344	76.87 RT	STEEL POLE ITRR 1-2	87	PP42x7-35	(3) STM-10 (3) STM-10D	-	-	(1) SM52-3 (1) SM52-3B (1) SM52-3T	-	-	INSTALL DOUBLE TONGUE DEADEND (STM-10D) ON NORTH SPAN. JUMPER BETWEEN NORTH SPAN AND EAST SPAN ONLY.	NEW ITRR 1-2
1-1 (0306)	-	283	-	EXISTING STEEL POLE	100	EXISTING CONCRETE DRILLED SHAFT	EXISTING DEADEND	-	-	-	-	-	STRUCTURE AND DEADENDS TO REMAIN. INSTALL PMSS 138KV SPAN BETWEEN NEW ITRR 1-2 AND 1-1 (0306). DO NOT ENERGIZE.	1-1 (0306)
RETIRE ITRR 1-1	-	-	-	EXISTING WOOD POLE	80	EXISTING DE	EXISTING RUNNING ANGLE	-	-	-	-	(1) *WOOD POLE (1) *138KV SUSP (2) *GUY (2) *ANCHOR	-	RETIRE ITRR 1-1
NEW ITRR 1-1	5+44	200	14.61 RT	STEEL POLE ITRR 1-1	60	PP30x5-35	(6) STM-10 (3) STM-3B	-	-	(1) SM52-3 (1) SM52-3B (1) SM52-3T	-	-	-	NEW ITRR 1-1
ITSS SUBST	7+06	164	-	EXISTING STEEL A-FRAME	42	EXISTING CONCRETE	EXISTING DEADEND	-	-	-	-	-	STRUCTURE AND DEADENDS TO REMAIN.	ITSS SUBST

PMSS 138kV (DE-ENERGIZED)

STRUCTURE NO.	STATION	BACK SPAN (FT)	LINE ANGLE (DEG.)	STRUCTURE TYPE	STR LENGTH (FT)	FOUNDATION ASSEMBLY (DE=DIRECT EMBEDDED)	138KV ASSEMBLIES	34.5KV ASSEMBLIES	12.5KV ASSEMBLIES	SIGN ASSEMBLIES	MISCELLANEOUS ASSEMBLIES	RETIREMENT UNITS	REMARKS	STRUCTURE NO.
NEW ITRR 1-2	0+00	-	-	STEEL POLE ITRR 1-2	87	SEE ITRR 138KV	(3) STM-10	-	-	SEE ITRR 138KV	-	-	SEE ITRR 138KV SCHEDULE FOR ADDITIONAL ASSEMBLIES ON THIS STRUCTURE.	NEW ITRR 1-2
1-1 (0306)	2+83	283	-	EXISTING STEEL POLE	100	EXISTING CONCRETE DRILLED SHAFT	EXISTING DEADEND	-	-	-	-	-	STRUCTURE AND DEADENDS TO REMAIN.	1-1 (0306)

ITUV 138kV

STRUCTURE NO.	STATION	BACK SPAN (FT)	LINE ANGLE (DEG.)	STRUCTURE TYPE	STR LENGTH (FT)	FOUNDATION ASSEMBLY (DE=DIRECT EMBEDDED)	138KV ASSEMBLIES	34.5KV ASSEMBLIES	12.5KV ASSEMBLIES	SIGN ASSEMBLIES	MISCELLANEOUS ASSEMBLIES	RETIREMENT UNITS	REMARKS	STRUCTURE NO.
100-08	0+00	-	-	EXISTING WOOD POLE	??	EXISTING DE	EXISTING VERTICAL AND HORIZONTAL POSTS	EXISTING DOUBLE CIRCUIT VERTICAL POSTS ON ARMS	EXISTING 4-WIRE ON ARM	-	-	-	STRUCTURE AND ASSEMBLIES TO REMAIN. INSTALL NEW ARMOR RODS.	100-08
RETIRE 100-07	-	-	-	EXISTING WOOD POLE	??	EXISTING DE WITH SWAMP BRACES	EXISTING VERTICAL AND HORIZONTAL POSTS	EXISTING DOUBLE CIRCUIT VERTICAL POSTS ON ARMS	EXISTING 4-WIRE ON ARM	-	-	(1) *WOOD POLE, (1) *SW BRACE, (1) *138KV POST, (2) *35KV POST, (1) *12KV ARM, (1) *GUY, (1) *ANCHOR	-	RETIRE 100-07
NEW 100-07	1+81	181	88.65 RT	STEEL POLE 100-07	65	PP42x7-35	(6) STM-10	(6) STM-3F	(4) M5-7X (1) GR	(1) SM52-3 (1) SM52-3B (1) SM52-3T	35KV-TRANS DIST-TRANS	-	TRANSFER TWO 34.5KV AND ONE 12.5KV CIRCUITS TO NEW POLE. TRANSFER CUTOUT, TRANSFORMER, AND RISER TO NEW 100-07.	NEW 100-07
0603	-	-	-	EXISTING WOOD POLE	85	EXISTING DE	EXISTING DOUBLE DEADEND	EXISTING DOUBLE CIRCUIT VERTICAL POSTS ON ARMS	EXISTING 4-WIRE ON ARM	-	-	(2) *138KV DE (6) *GUY (3) *ANCHOR	STRUCTURE TO REMAIN. RETIRE 138KV AND ASSOCIATED SPAN GUYS, DOWN GUYS, AND ANCHORS.	0603
RETIRE ITUV 1-2	-	-	-	EXISTING WOOD POLE	75	EXISTING DE	EXISTING DOUBLE DEADEND WITH JUMPER POSTS	-	-	-	-	(1) *WOOD POLE, (2) *138KV DE, (1) *138KV POST, (6) *GUY, (6) *ANCHOR	-	RETIRE ITUV 1-2
RETIRE ITUV 1-1	-	-	-	EXISTING WOOD POLE	90	EXISTING DE	EXISTING RUNNING ANGLE	-	-	-	-	(1) *WOOD POLE (1) *138KV SUSP (2) *GUY (2) *ANCHOR	-	RETIRE ITUV 1-1
NEW ITPM2 1-1/ITUV 1-1	4+28	247	12.54 RT	STEEL POLE ITPM2 1-1/ITUV 1-1	60	PP36x6-35	(6) STM-10	-	-	(1) SM52-3 (1) SM52-3B (1) SM52-3T	-	-	SEE ITPM 138KV SCHEDULE FOR ADDITIONAL ASSEMBLIES ON THIS STRUCTURE.	NEW ITPM2 1-1/ITUV 1-1
ITSS SUBST	5+92	164	-	EXISTING STEEL A-FRAME	42	EXISTING CONCRETE	EXISTING DEADEND	-	-	-	-	-	STRUCTURE AND DEADENDS TO REMAIN.	ITSS SUBST

ITPM2 138kV

STRUCTURE NO.	STATION	BACK SPAN (FT)	LINE ANGLE (DEG.)	STRUCTURE TYPE	STR LENGTH (FT)	FOUNDATION ASSEMBLY (DE=DIRECT EMBEDDED)	138KV ASSEMBLIES	34.5KV ASSEMBLIES	12.5KV ASSEMBLIES	SIGN ASSEMBLIES	MISCELLANEOUS ASSEMBLIES	RETIREMENT UNITS	REMARKS	STRUCTURE NO.
1-1 (0306)	0+00	-	-	EXISTING STEEL POLE	100	EXISTING CONCRETE DRILLED SHAFT	EXISTING DEADEND	-	-	-	-	-	STRUCTURE AND DEADENDS TO REMAIN.	1-1 (0306)
RETIRE ITPM2 1-1	-	-	-	EXISTING WOOD POLE	80	EXISTING DE	EXISTING RUNNING ANGLE	-	-	-	-	(1) *WOOD POLE (1) *138KV SUSP (2) *GUY (2) *ANCHOR	-	RETIRE ITPM2 1-1
NEW ITPM2 1-1/ITUV 1-1	2+38	238	53.58 LT	STEEL POLE ITPM2 1-1/ITUV 1-1	60	SEE ITUV 138KV	(6) STM-10	-	-	SEE ITUV 138KV	-	-	SEE ITUV 138KV SCHEDULE FOR ADDITIONAL ASSEMBLIES ON THIS STRUCTURE.	NEW ITPM2 1-1/ITUV 1-1
ITSS SUBST	4+01	163	-	EXISTING STEEL A-FRAME	42	EXISTING CONCRETE	EXISTING DEADEND	-	-	-	-	-	STRUCTURE AND DEADENDS TO REMAIN.	ITSS SUBST

PROJECT: SOUTH CAMPUS POLE RELOCATION - PHASE 2
 ENG./DESIGN: SUPAT CHANONTO (CEA) / GREG HUFFMAN (EPS) W.O. # E2420080

NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN. BY/DATE	REVIEWED MGR./SUPV./DATE	APPROVED DIRECTOR/DATE	ENG. STAMP
0	ISSUED FOR CONSTRUCTION	KER 01/30/25	GDH 01/30/25		

NO.	RECORD REVISION	CAD DRAWN BY	W.P. #	W.O. NUMBER	RECORD APPROVED	DATE

CHUGACH
POWERING ALASKA'S FUTURE

Chugach Electric Association, Inc.
 5601 Electron Drive - P.O. Box 196300
 Anchorage, Alaska 99519-6300

DRAWING NAME: 138kV TRANSMISSION LINE
 INTL TRANSMISSION - ROBERT RETHERFORD
 PLAN & PROFILES
 STRUCTURE SCHEDULE

CONFIDENTIAL

DRAWING NO. - PREVIOUS/REFERENCE
 NEW
 DRAWING NO.: INSS-PP-0007

SHEET 0001 OF 1
 PAGE OF

SAGGING TABLE										
ITRR 138kV TRANSMISSION LINE										
BETWEEN STRUCTURES EXISTING ITSS SUBSTATION AND NEW ITRR 1-1										
CONDUCTOR	795kcmil ACSR "DRAKE"									
RULING SPAN, FT	163									
CONDUCTOR TEMP, °F	0°	10°	20°	30°	40°	50°	60°	70°	80°	
CONDUCTOR TENSION, LBS	653	644	634	625	617	608	600	594	589	
SPAN LENGTH, FT	INITIAL SAG IN DECIMAL FEET									
	163	5.59	5.67	5.76	5.84	5.92	6.01	6.09	6.15	6.20

SAGGING TABLE										
ITRR 138kV TRANSMISSION LINE										
BETWEEN STRUCTURES NEW ITRR 1-1 AND NEW ITRR 1-2										
CONDUCTOR	795kcmil ACSR "DRAKE"									
RULING SPAN, FT	197									
CONDUCTOR TEMP, °F	0°	10°	20°	30°	40°	50°	60°	70°	80°	
CONDUCTOR TENSION, LBS	1757	1652	1536	1484	1415	1354	1300	1251	1207	
SPAN LENGTH, FT	INITIAL SAG IN DECIMAL FEET									
	197	3.04	3.23	3.41	3.59	3.77	3.94	4.10	4.27	4.42

SAGGING TABLE										
ITUV 138kV TRANSMISSION LINE										
BETWEEN STRUCTURES ITSS SUBSTATION AND NEW ITPM2 1-1/ITUV 1-1										
CONDUCTOR	795kcmil ACSR "DRAKE"									
RULING SPAN, FT	163									
CONDUCTOR TEMP, °F	0°	10°	20°	30°	40°	50°	60°	70°	80°	
CONDUCTOR TENSION, LBS	652	643	633	625	616	608	599	594	589	
SPAN LENGTH, FT	INITIAL SAG IN DECIMAL FEET									
	163	5.73	5.81	5.90	5.99	6.08	6.15	6.24	6.29	6.34

SAGGING TABLE										
ITUV 138kV TRANSMISSION LINE										
BETWEEN STRUCTURES NEW ITPM2 1-1/ITUV 1-1 AND NEW 100-07										
CONDUCTOR	795kcmil ACSR "DRAKE"									
RULING SPAN, FT	244									
CONDUCTOR TEMP, °F	0°	10°	20°	30°	40°	50°	60°	70°	80°	
CONDUCTOR TENSION, LBS	1563	1509	1460	1415	1374	1335	1300	1267	1236	
SPAN LENGTH, FT	INITIAL SAG IN DECIMAL FEET									
	244	5.20	5.39	5.57	5.74	5.92	6.09	6.25	6.42	6.58

SAGGING TABLE										
ITPM 138kV TRANSMISSION LINE										
BETWEEN STRUCTURES ITSS SUBSTATION AND NEW ITPM2 1-1/ITUV 1-1										
CONDUCTOR	795kcmil ACSR "DRAKE"									
RULING SPAN, FT	161									
CONDUCTOR TEMP, °F	0°	10°	20°	30°	40°	50°	60°	70°	80°	
CONDUCTOR TENSION, LBS	653	644	634	625	617	608	600	594	589	
SPAN LENGTH, FT	INITIAL SAG IN DECIMAL FEET									
	161	5.57	5.65	5.73	5.82	5.90	5.99	6.06	6.12	6.17

SAGGING TABLE										
ITPM 138kV TRANSMISSION LINE										
BETWEEN STRUCTURES NEW ITPM2 1-1/ITUV 1-1 AND EXISTING 1-1 (0305)										
CONDUCTOR	795kcmil ACSR "DRAKE"									
RULING SPAN, FT	222									
CONDUCTOR TEMP, °F	0°	10°	20°	30°	40°	50°	60°	70°	80°	
CONDUCTOR TENSION, LBS	1638	1565	1500	1443	1390	1343	1300	1261	1224	
SPAN LENGTH, FT	INITIAL SAG IN DECIMAL FEET									
	222	4.20	4.39	4.58	4.76	4.94	5.12	5.29	5.45	5.61

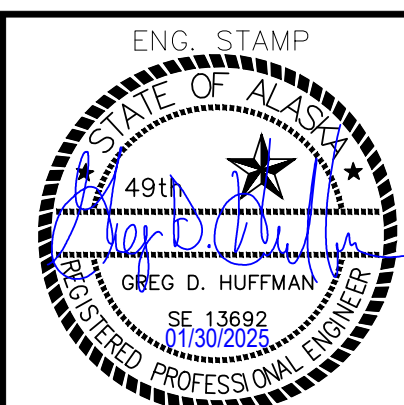
SAGGING TABLE										
PMSS 138kV TRANSMISSION LINE (DE-ENERGIZED)										
BETWEEN STRUCTURES NEW ITRR 1-2 AND EXISTING 1-1 (0305)										
CONDUCTOR	795kcmil ACSR "DRAKE"									
RULING SPAN, FT	276									
CONDUCTOR TEMP, °F	0°	10°	20°	30°	40°	50°	60°	70°	80°	
CONDUCTOR TENSION, LBS	2768	2595	2444	2313	2195	2092	2001	1917	1843	
SPAN LENGTH, FT	INITIAL SAG IN DECIMAL FEET									
	276	3.76	4.01	4.26	4.50	4.75	4.98	5.21	5.43	5.65

SAGGING TABLE										
ITIN1 138kV TRANSMISSION LINE										
BETWEEN STRUCTURES INSS SUBSTATION AND NEW ITIN1 1-2 (SEE NOTE 3)										
CONDUCTOR	795kcmil ACSR "DRAKE"									
RULING SPAN, FT	120									
CONDUCTOR TEMP, °F	0°	10°	20°	30°	40°	50°	60°	70°	80°	
CONDUCTOR TENSION, LBS	1223	1132	1056	992	938	890	850	813	788	
SPAN LENGTH, FT	INITIAL SAG IN DECIMAL FEET									
	120	1.65	1.78	1.91	2.03	2.15	2.26	2.37	2.48	2.56

SAGGING TABLE										
ITIN1 138kV TRANSMISSION LINE										
BETWEEN STRUCTURES INSS SUBSTATION AND NEW ITIN2 1-2 (SEE NOTE 3)										
CONDUCTOR	795kcmil ACSR "DRAKE"									
RULING SPAN, FT	120									
CONDUCTOR TEMP, °F	0°	10°	20°	30°	40°	50°	60°	70°	80°	
CONDUCTOR TENSION, LBS	1230	1136	1059	994	939	891	849	813	788	
SPAN LENGTH, FT	INITIAL SAG IN DECIMAL FEET									
	120	1.62	1.76	1.88	2.01	2.12	2.24	2.35	2.45	2.53

CONDUCTOR SAG/TENSION NOTES

- WHILE THE LINE IS DE-ENERGIZED AND PRIOR TO PERFORMING ANY WORK ON THE SPAN, CONTRACTOR SHALL MEASURE THE AIR TEMPERATURE, SAG AND SPAN LENGTH IN THE FOLLOWING DEADEND SPANS AND PROVIDE THE INFORMATION TO CHUGACH'S ENGINEER. THE ENGINEER WILL THEN PROVIDE SAG AND TENSION TABLES FOR THE NEW SPAN.
 - A. EXISTING ITRR 1-3 TO EXISTING ITRR 1-2
 - B. EXISTING SLSS/ATSS 332C (INSN 1-1) TO EXISTING N-4 (INSN 1-1C)
 - C. EXISTING N-4 (INSN 1-1C) TO EXISTING 6-13 (0332)
- CONTRACTOR SHALL MAINTAIN EXISTING CONDUCTOR TENSIONS ON THE FOLLOWING TANGENT STRUCTURES THAT WILL REMAIN BY MARKING THE CONDUCTOR, PLACING IN TRAVELERS, AND MAINTAINING MARKED LOCATIONS WHILE THE SPAN IS REWORKED. INSTALL NEW ARMOR RODS PRIOR TO RE-CLIPPING.
 - A. 100-08
 - B. ITIN2 1-1
 - C. ITIN2 1-1
- SAGS AND TENSIONS PROVIDED FOR ITIN1 AND ITIN2 CIRCUITS INTO INSS SUBSTATION ARE APPROXIMATE. CONTRACTOR SHALL MATCH LONGITUDINAL LOADING OF NEW SINGLE 795 KCMIL ACSR "DRAKE" ON THE SOUTH SIDE OF THE SUBSTATION H-FRAMES TO THE LONGITUDINAL LOADING OF EXISTING TWIN BUNDLED 1590 KCMIL AAC CONDUCTORS ON THE NORTH SIDE OF THE H-FRAMES.
 - A. EXISTING ITRR 1-3
 - B. EXISTING 100-08
 - C. EXISTING ITIN1 1-1
 - D. EXISTING ITIN2 1-1
 - E. EXISTING INSS LATTICE H-FRAME FOR CIRCUIT ITIN1
 - F. EXISTING INSS WOOD H-FRAME FOR CIRCUIT ITIN2
 - G. EXISTING SLSS/ATSS 332C (INSN 1-1)
 - H. EXISTING RBSS 337D (INWJ 1-1)
- CONTRACTOR SHALL MAINTAIN EXISTING WIRE TENSIONS ON THE FOLLOWING STRUCTURES TO REMAIN DURING ALL PHASES OF THE WORK.
 - A. EXISTING ITRR 1-3
 - B. EXISTING 100-08
 - C. EXISTING ITIN1 1-1
 - D. EXISTING ITIN2 1-1
 - E. EXISTING INSS LATTICE H-FRAME FOR CIRCUIT ITIN1
 - F. EXISTING INSS WOOD H-FRAME FOR CIRCUIT ITIN2
 - G. EXISTING SLSS/ATSS 332C (INSN 1-1)
 - H. EXISTING RBSS 337D (INWJ 1-1)

PROJECT: SOUTH CAMPUS POLE RELOCATION - PHASE 2					NO.				
ENG./DESIGN: SUPAT CHANONTO (CEA) / GREG HUFFMAN (EPS)					RECORD REVISION				
W.O. # E2420080					CAD DRAWN BY				
NO.					W.P. #				
DESIGN/CONSTRUCTION/ASBUILT REVISION					W.O. NUMBER				
DWN. BY/DATE					RECORD APPROVED				
REVISED MGR./SUPV./DATE					DATE				
APPROVED DIRECTOR/DATE									
ENG. STAMP									
0 ISSUED FOR CONSTRUCTION									
KER 01/30/25									
GDH 01/30/25									
									

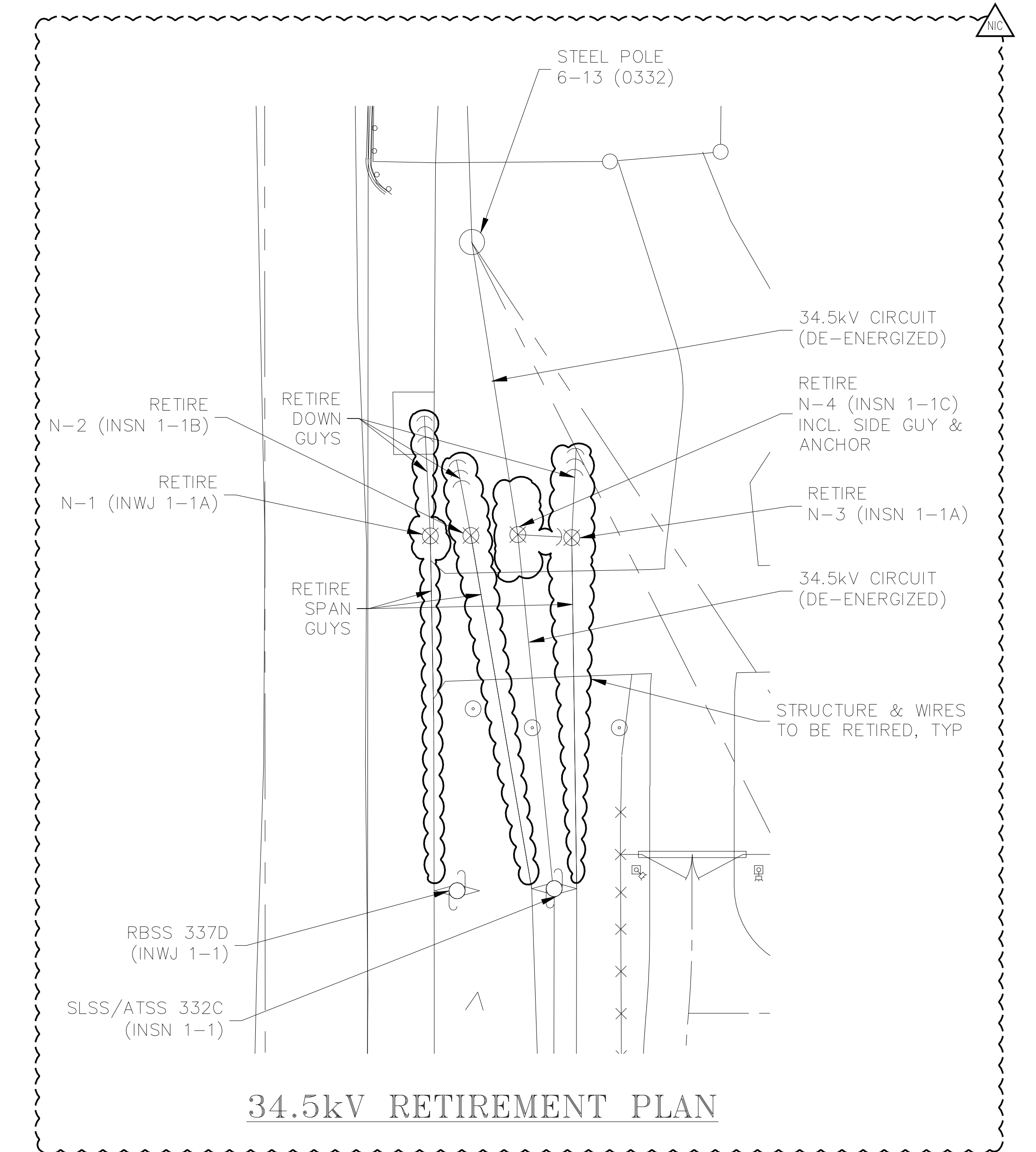
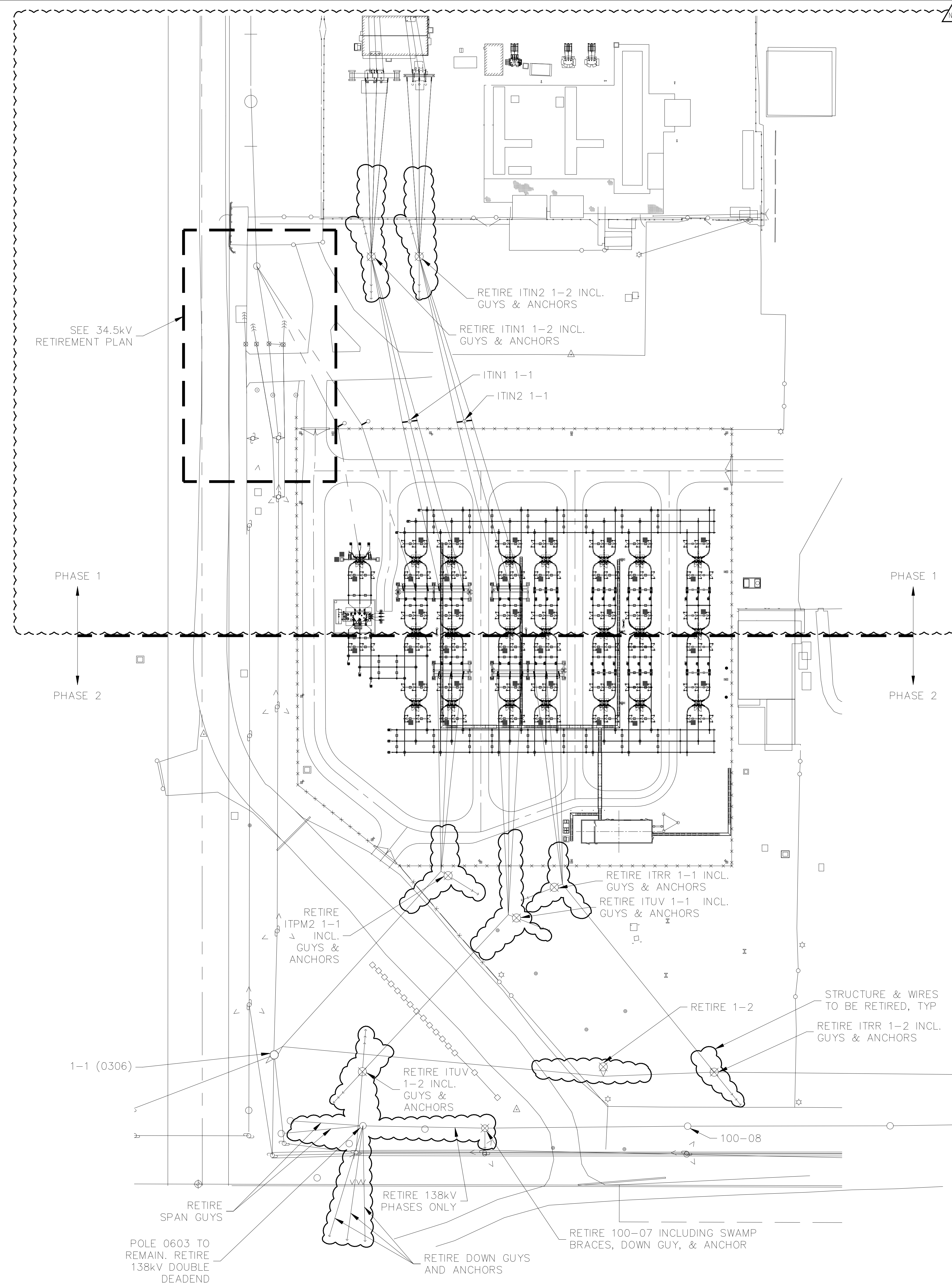


Chugach Electric Association, Inc.
5601 Electron Drive - P.O. Box 196300
Anchorage, Alaska 99519-6300

DRAWING NAME:		138kV TRANSMISSION LINE	
		INTL TRANSMISSION - ROBERT RETHERFORD	
		PLAN & PROFILES	
		SAGGING TABLES	
CONFIDENTIAL			
DRAWING NO. - PREVIOUS/REFERENCE		SHEET 0001 OF 1	
DRAWING NO.:		PAGE OF	
INSS-PP-0009			

NOTES:

1. FEATURES SHOWN ARE APPROXIMATE.

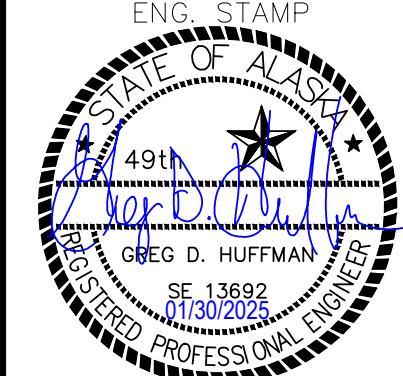


34.5kV RETIREMENT PLAN

RETIREMENT PLAN

PROJECT: SOUTH CAMPUS POLE RELOCATION - PHASE 2				
ENG./DESIGN.: SUPAT CHANONTO (CEA) / GREG HUFFMAN (EPS) W.O. # E2420080				
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN. BY/DATE	REVIEWED MGR./SUPV./DATE	APPROVED DIRECTOR/DATE
0	ISSUED FOR CONSTRUCTION	KER 01/30/25	GDH 01/30/25	

NO.	RECORD REVISION	CAD DRAWN BY	W.P.#	W.O. NUMBER	RECORD APPROVED	DATE
1	X	XX	-	-	XXX	XX/XX/XX



Chugach Electric Association, Inc.
5601 Electron Drive - P.O. Box 196300
Anchorage, Alaska 99519-6300

DRAWING NAME: 138kV TRANSMISSION LINE INTL TRANSMISSION - ROBERT RETHERFORD SITE & STRUCTURAL RETIREMENT PLAN

CONFIDENTIAL

DRAWING NO. - PREVIOUS/REFERENCE: NEW

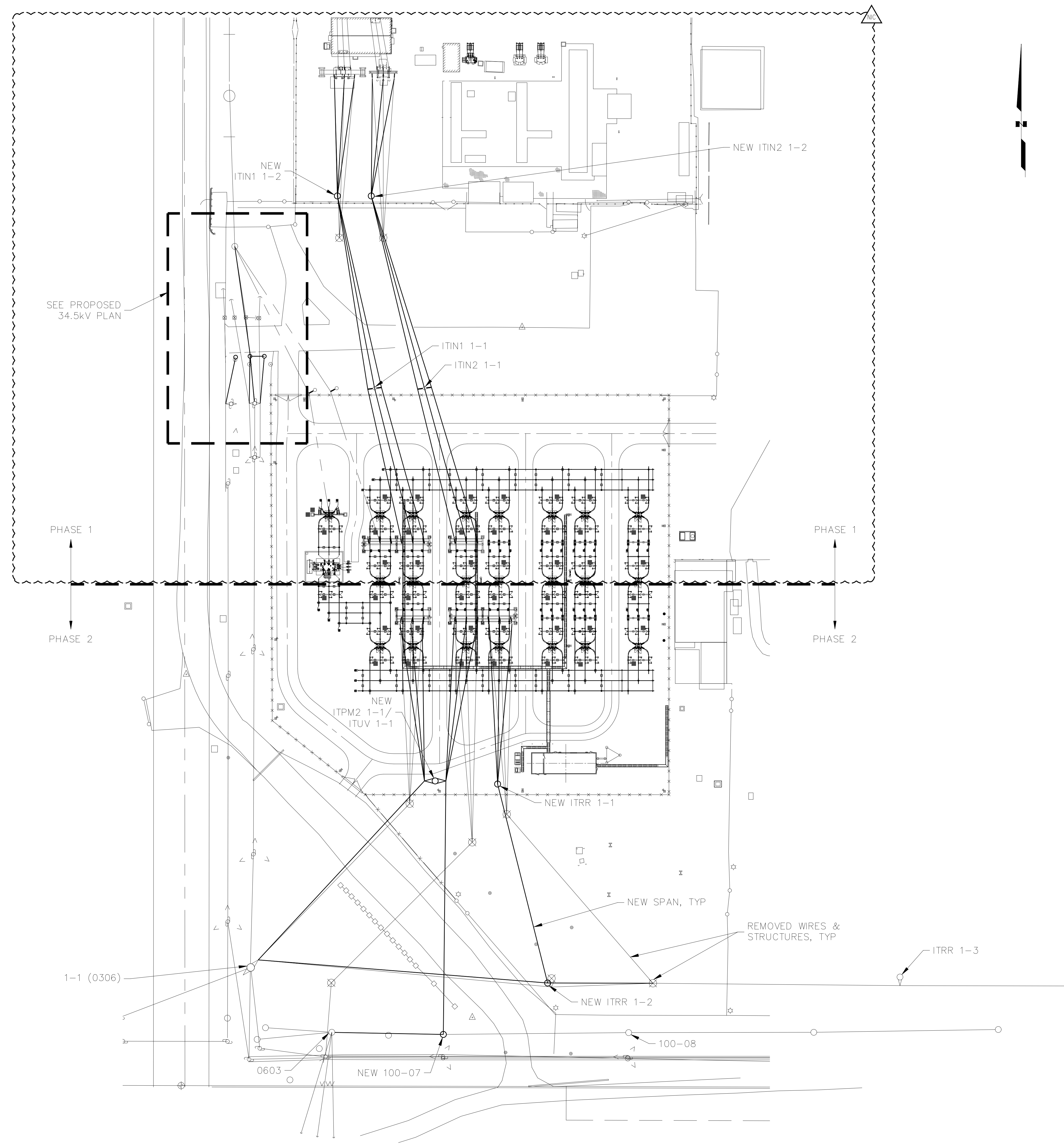
DRAWING NO.: INSS-SS-0003

SHEET 0001 OF 1

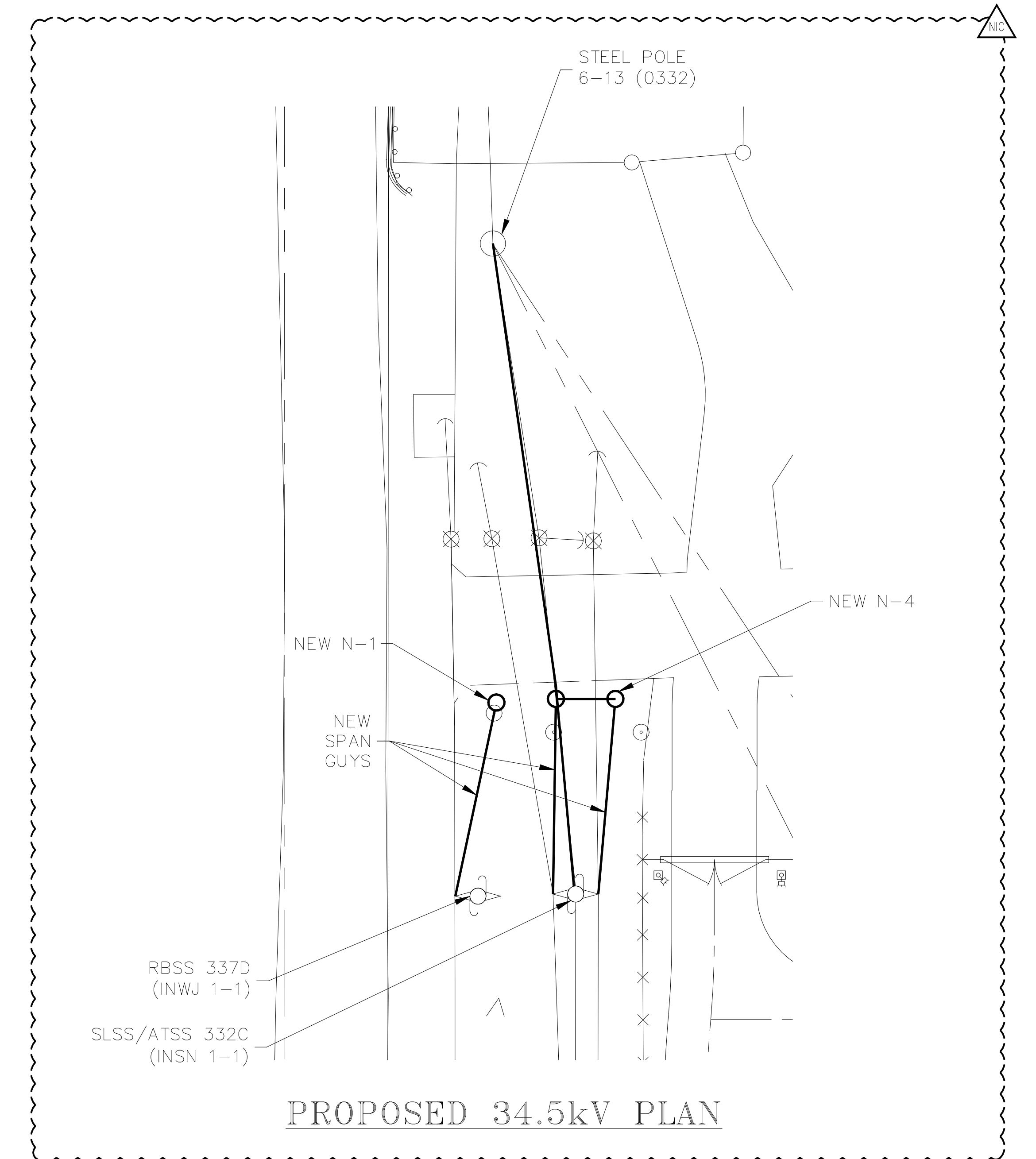
PAGE OF

NOTES:

1. FILL VOIDS LEFT BY REMOVED POLES AND ANCHORS WITH TAMPED FILL TO MATCH SURROUNDING GRADE.
2. FEATURES SHOWN ARE APPROXIMATE.



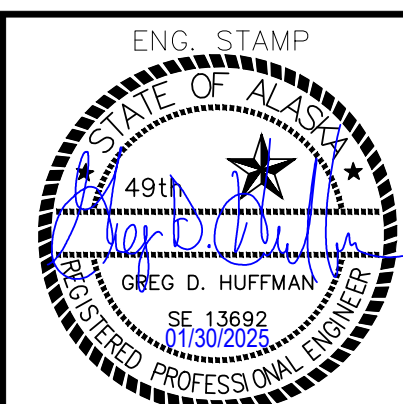
PROPOSED PLAN



PROPOSED 34.5kV PLAN

PROJECT: SOUTH CAMPUS POLE RELOCATION - PHASE 2				
ENG./DESIGN.: SUPAT CHANONTO (CEA) / GREG HUFFMAN (EPS) W.O. # E2420080				
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN. BY/DATE	REVIEWED MGR./SUPV./DATE	APPROVED DIRECTOR/DATE
0	ISSUED FOR CONSTRUCTION	KER 01/30/25	GDH 01/30/25	

NO.	RECORD REVISION	CAD DRAWN BY	W.P.#	W.O. NUMBER	RECORD APPROVED	DATE
1	X	XX	-	-	XXX	XX/XX/XX



Chugach Electric Association, Inc.
5601 Electron Drive - P.O. Box 196300
Anchorage, Alaska 99519-6300

DRAWING NAME: **138kV TRANSMISSION LINE INTL TRANSMISSION - ROBERT RETHERFORD SITE & STRUCTURAL PROPOSED PLAN**

CONFIDENTIAL

DRAWING NO. - PREVIOUS/REFERENCE: **NEW**

DRAWING NO.: **INSS-SS-0004**

SHEET **0001** OF **1**

PAGE **1** OF **1**

LOADING CRITERIA

LOAD CASE	TEMP F°	RADIAL ICE, IN	WIND PSF	LOAD FACTORS		
				VERTICAL	WIND	TENSION
NESC HEAVY	0	0.5	4	1.5	2.5	1.65
EXTREME WIND	60	-	29	1.0	1.0	1.0
EXTREME ICE	32	1.0	-	1.1	-	1.1

CONDUCTORS: 795kcmil ACSR "DRAKE" FOR 138kV

LOAD TABLE FOR ITRR 1-1

LOAD CASE	LOAD PT. A1, 3 PLACES			LOAD PT. A2, 3 PLACES			STRUCTURE		
	V,KIP	T,KIP	L,KIP	V,KIP	T,KIP	L,KIP	W,PSF	Ø	K
1. NESC HEAVY	0.6	0.7	2.5	-0.6	0.9	-5.6	10	180	1.5
2. EXTREME WIND	0.3	0.5	1.5	-0.5	0.7	-3.1	29	180	1.0
3. EXTREME ICE	0.7	0.5	2.3	-0.5	0.6	-4.5	-	-	1.1

LOAD TABLE FOR ITRR 1-2

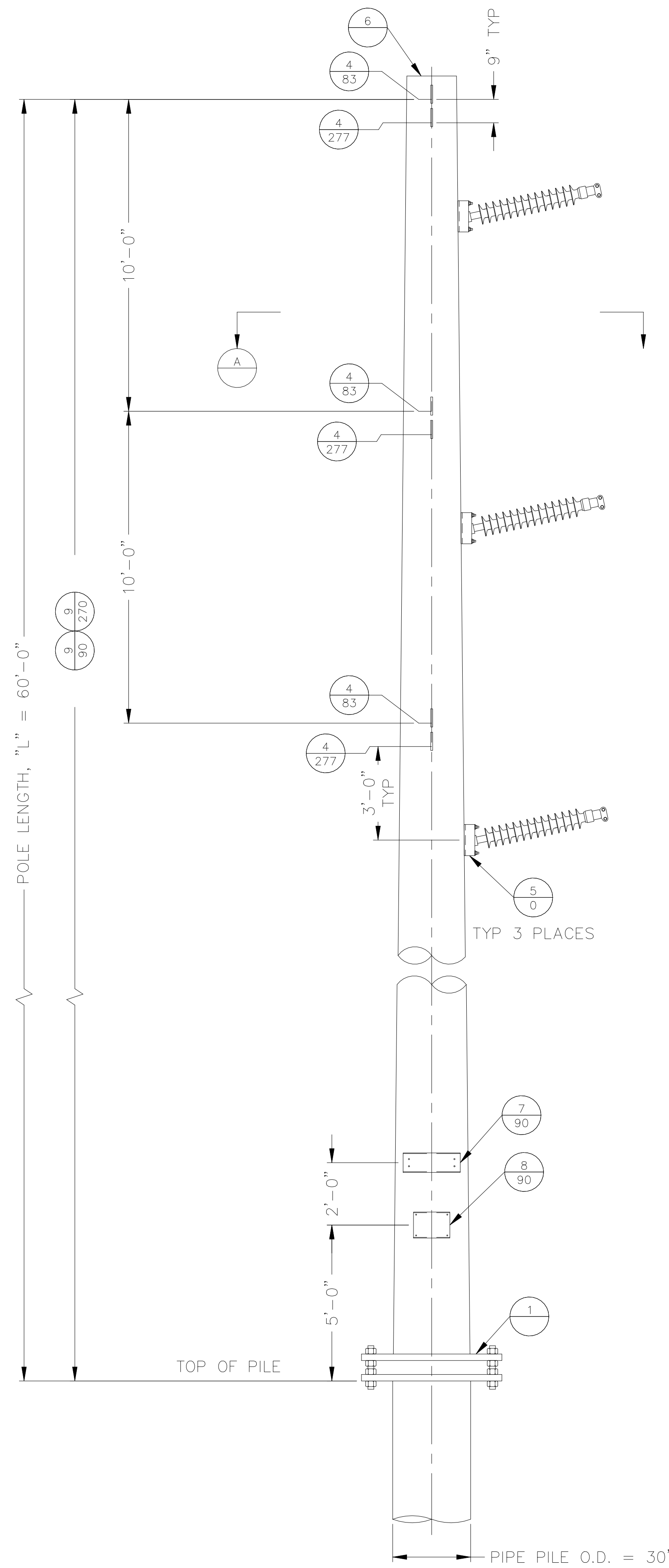
LOAD CASE	LOAD PT. A1, 3 PLACES			LOAD PT. A2, 3 PLACES			LOAD PT. A3, 3 PLACES			STRUCTURE		
	V,KIP	T,KIP	L,KIP	V,KIP	T,KIP	L,KIP	V,KIP	T,KIP	L,KIP	W,PSF	Ø	K
1. NESC HEAVY	0.6	0.8	8.0	1.3	5.4	1.8	0.8	1.0	-10.8	10	180	1.5
2. EXTREME WIND	0.3	0.7	4.6	0.8	3.1	1.2	0.4	0.9	-6.0	29	180	1.0
3. EXTREME ICE	0.7	0.4	6.4	1.4	4.3	1.4	1.0	0.5	-8.3	-	-	1.1

NOTES:

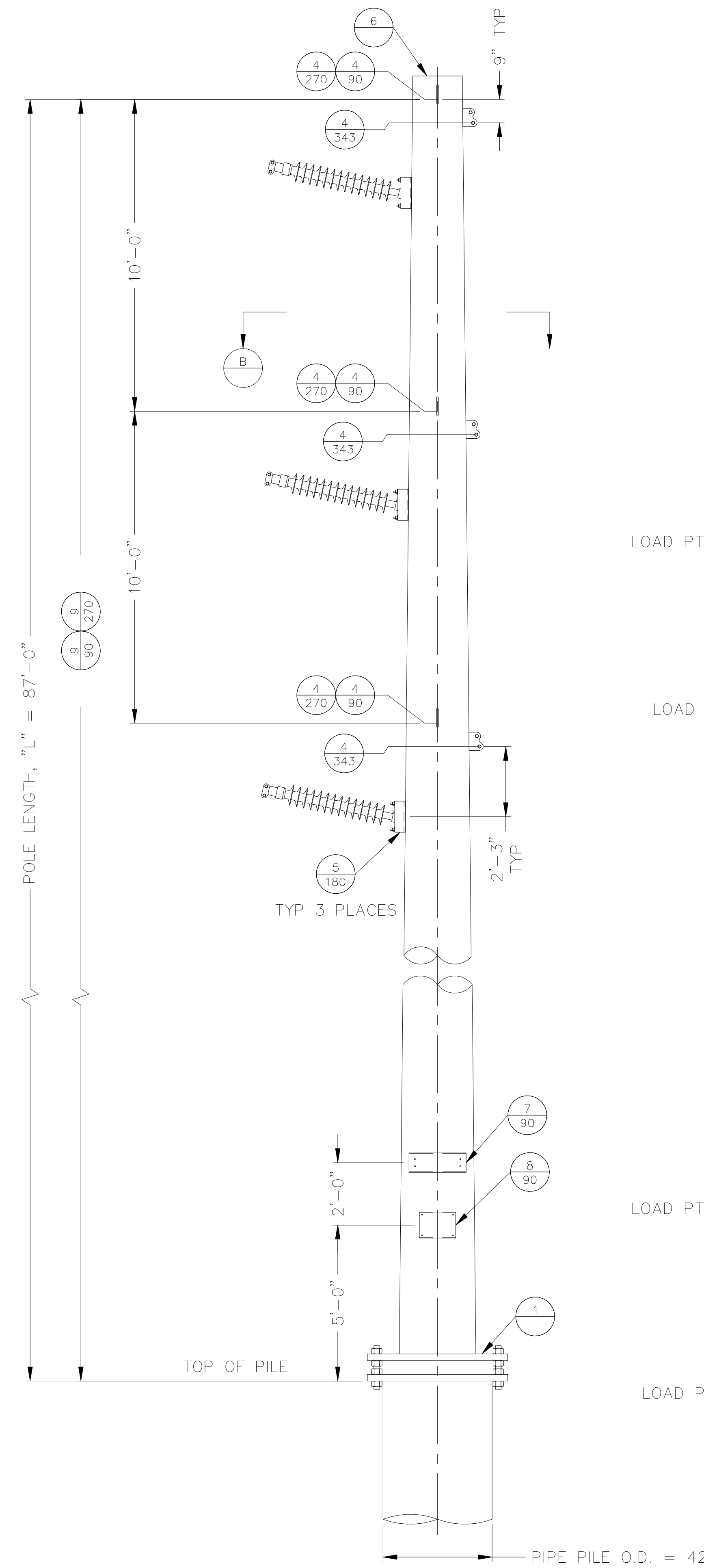
- THE INDICATED LOADS ARE ULTIMATE LOADS WHICH INCLUDE ALL LOAD FACTORS.
- V, T, & L, ARE, RESPECTIVELY, THE VERTICAL, TRANSVERSE, AND LONGITUDINAL WIRE LOADS. WEIGHT OF INSULATORS ARE INCLUDED.
- Ø IS THE ORIENTATION OF THE WIND DIRECTION. "W" IS THE WIND PRESSURE INCLUDING LOAD FACTORS TO BE APPLIED TO THE STRUCTURE. THESE WIND PRESSURES SHALL BE MULTIPLIED BY THE SHAPE FACTOR LISTED BELOW. "K" IS THE LOAD FACTOR BY WHICH THE DEAD LOAD OF THE STRUCTURE SHALL BE MULTIPLIED.

CROSS SECTION	SHAPE FACTOR
CIRCULAR	1.0
12-SIDED POLY	1.0
OCTAGONAL	1.2
SQUARE	1.6

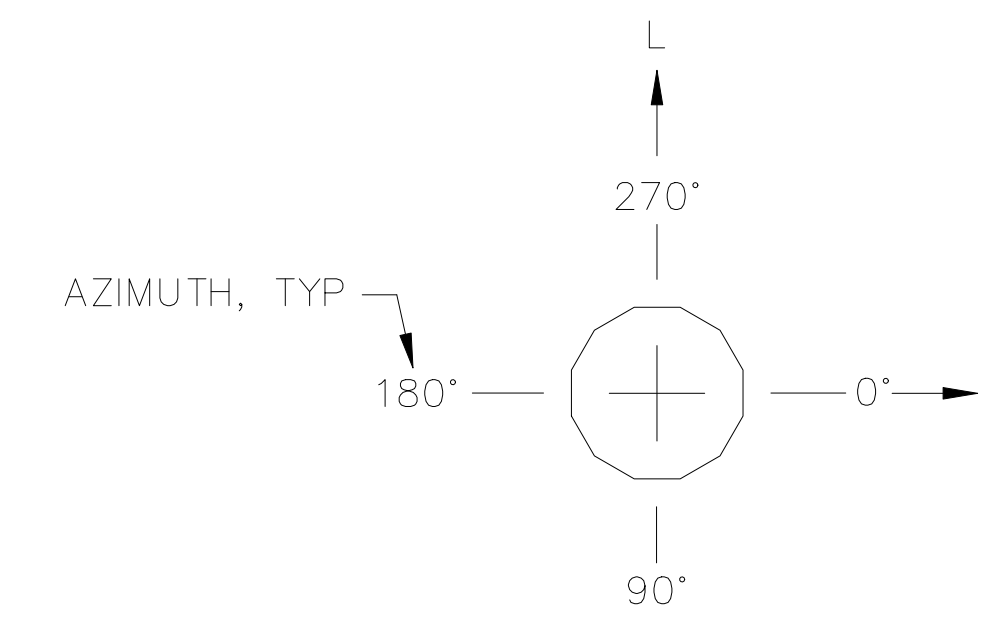
- STRUCTURE ITRR 1-1 SHALL BE DESIGNED FOR ALL LOAD POINTS INTACT AND FOR LOAD POINTS A1 REMOVED.
- STRUCTURE ITRR 1-2 SHALL BE DESIGNED FOR ALL LOAD POINTS INTACT AND FOR LOAD POINTS A1 REMOVED.



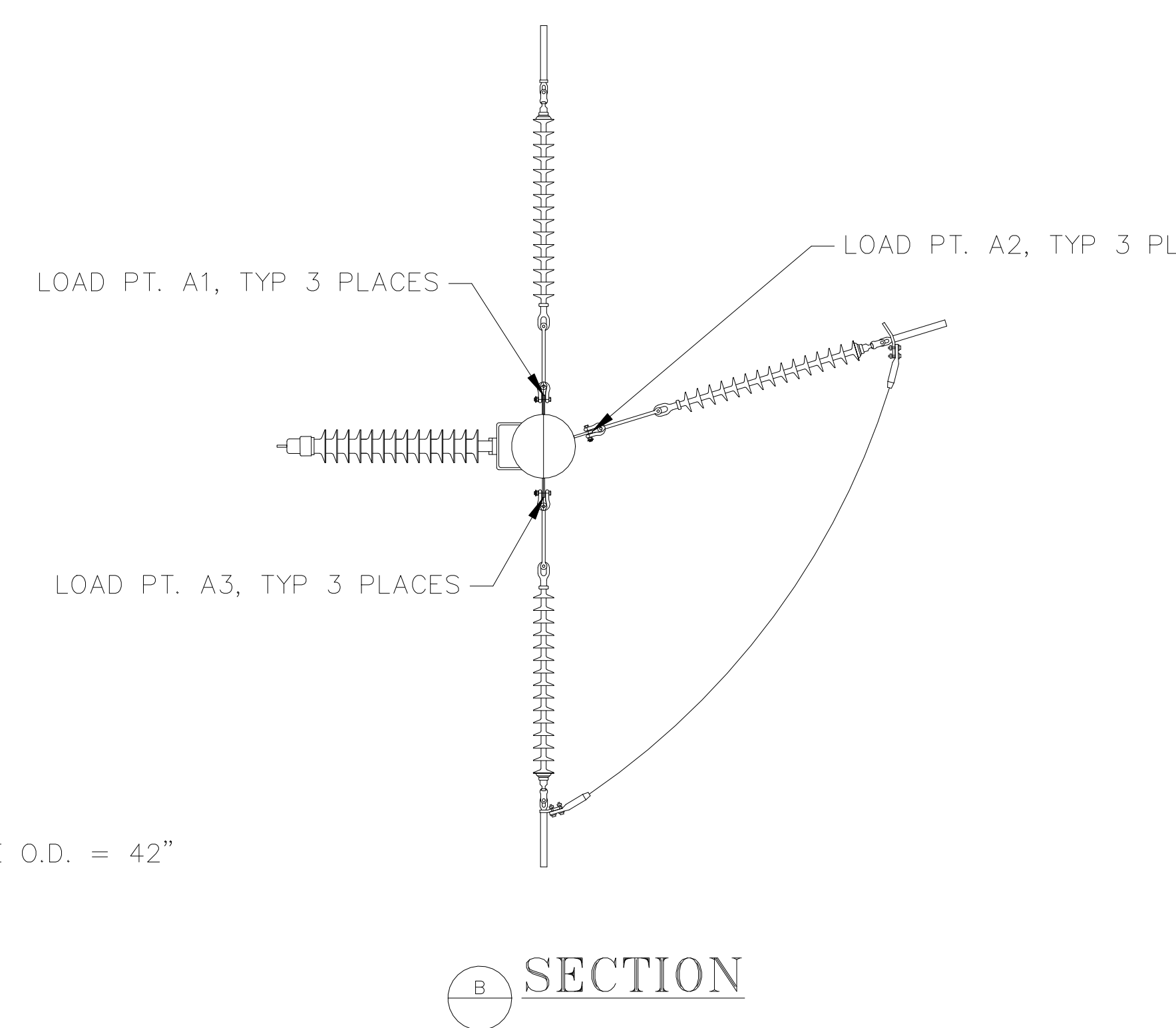
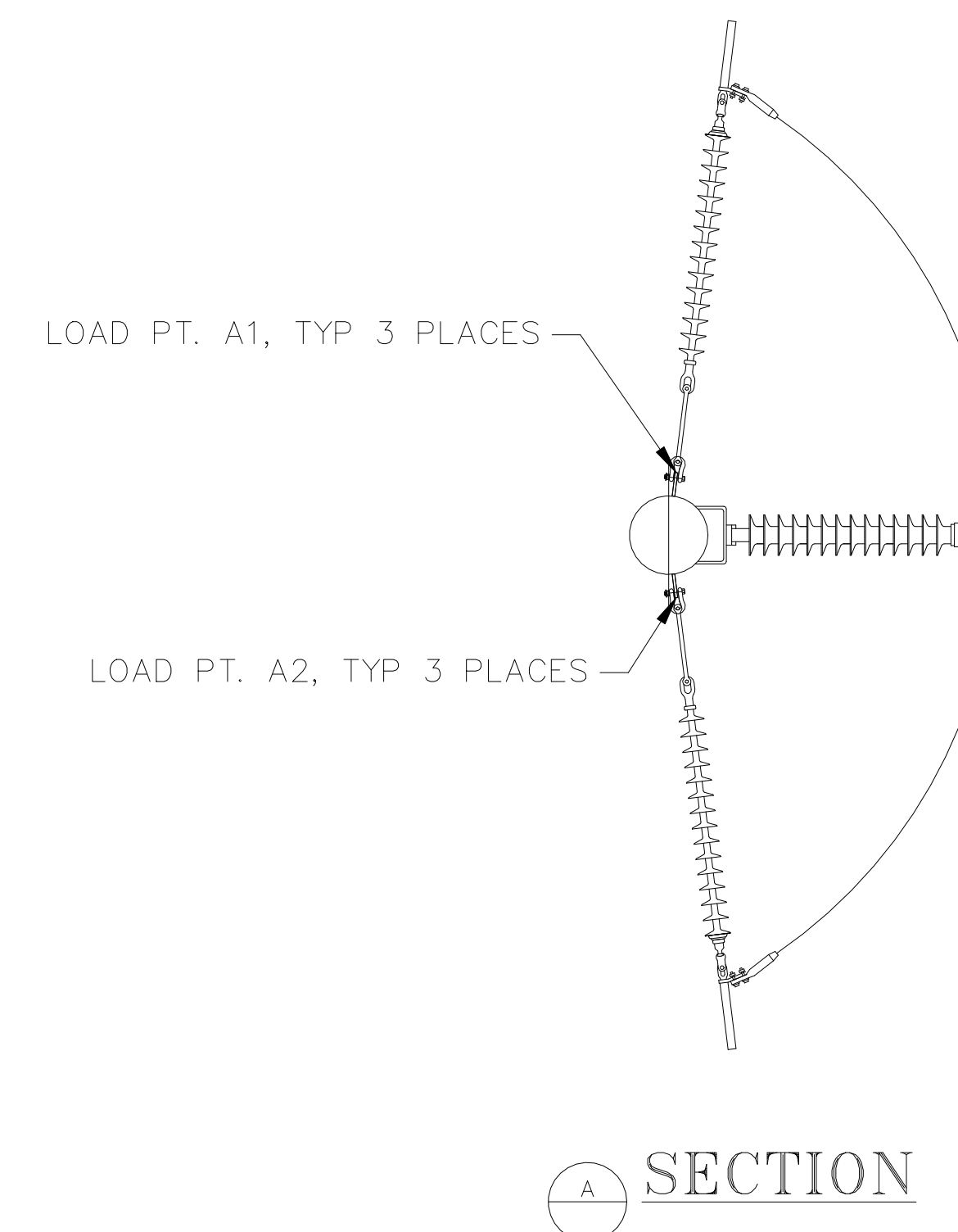
STR. ITRR 1-1
(1 REQ'D)



STR. ITRR 1-2
(1 REQ'D)



ORIENTATION PLAN



ISSUED FOR REFERENCE ONLY
- DO NOT EDIT -

NO.	DRAWING NO./SHEET	REFERENCE DRAWING/DETAIL/PLAN/SECTION DESCRIPTION
1	INSS-SS-0060/1	DETAIL - CONNECTION TO PIPE PILE FDN.
4	INSS-SS-0060/1	DETAIL - CONDUCTOR ATTACHMENTS
5	INSS-SS-0060/1	DETAIL - POST INSULATOR BRACKET
6	INSS-SS-0060/1	DETAIL - AERIAL PATROL SIGN MOUNT
7	INSS-SS-0060/1	DETAIL - STRUCTURE NUMBER BRACKET
8	INSS-SS-0060/1	DETAIL - DANGER SIGN BRACKET
9	INSS-SS-0060/1	DETAIL - LADDER CLIPS FOR CLIMBING AND WORKING PROVISIONS
A	-	SECTION
B	-	SECTION

DRAWING NAME:
**138kV TRANSMISSION LINE
INTL TRANSMISSION - ROBERT RETHERFORD
STRUCTURAL & ASSEMBLY
STEEL STRUCTURES
ITRR 1-1 AND ITRR 1-2**

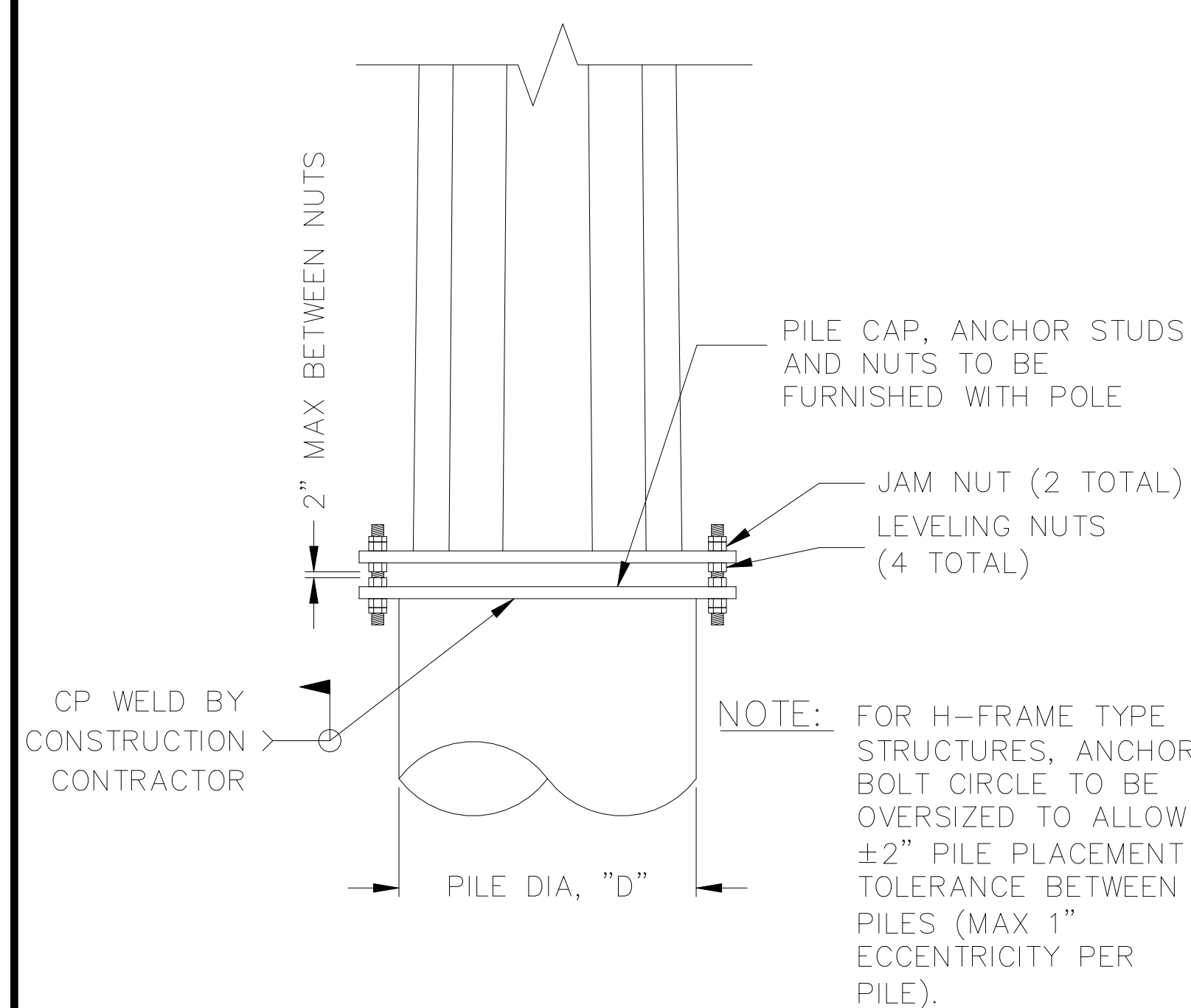
CONFIDENTIAL
DRAWING NO. - PREVIOUS/REFERENCE
NEW
DRAWING NO.: **INSS-SS-0059** SHEET **0001** OF **1**
PAGE _____ OF _____

PROJECT: SOUTH CAMPUS POLE RELOCATION - PHASE 2				
ENG./DESIGN.: SUPAT CHANONTO (CEA) / GREG HUFFMAN (EPS) W.O. # E2420080				
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN. BY/DATE	REVIEWED MGR./SUPV./DATE	APPROVED DIRECTOR/DATE
0	ISSUED FOR PROCUREMENT BID	KER 03/15/24	GDH 03/15/24	
0-1	ISSUED FOR CONSTRUCTION REFERENCE	KER 01/30/25	GDH 01/30/25	

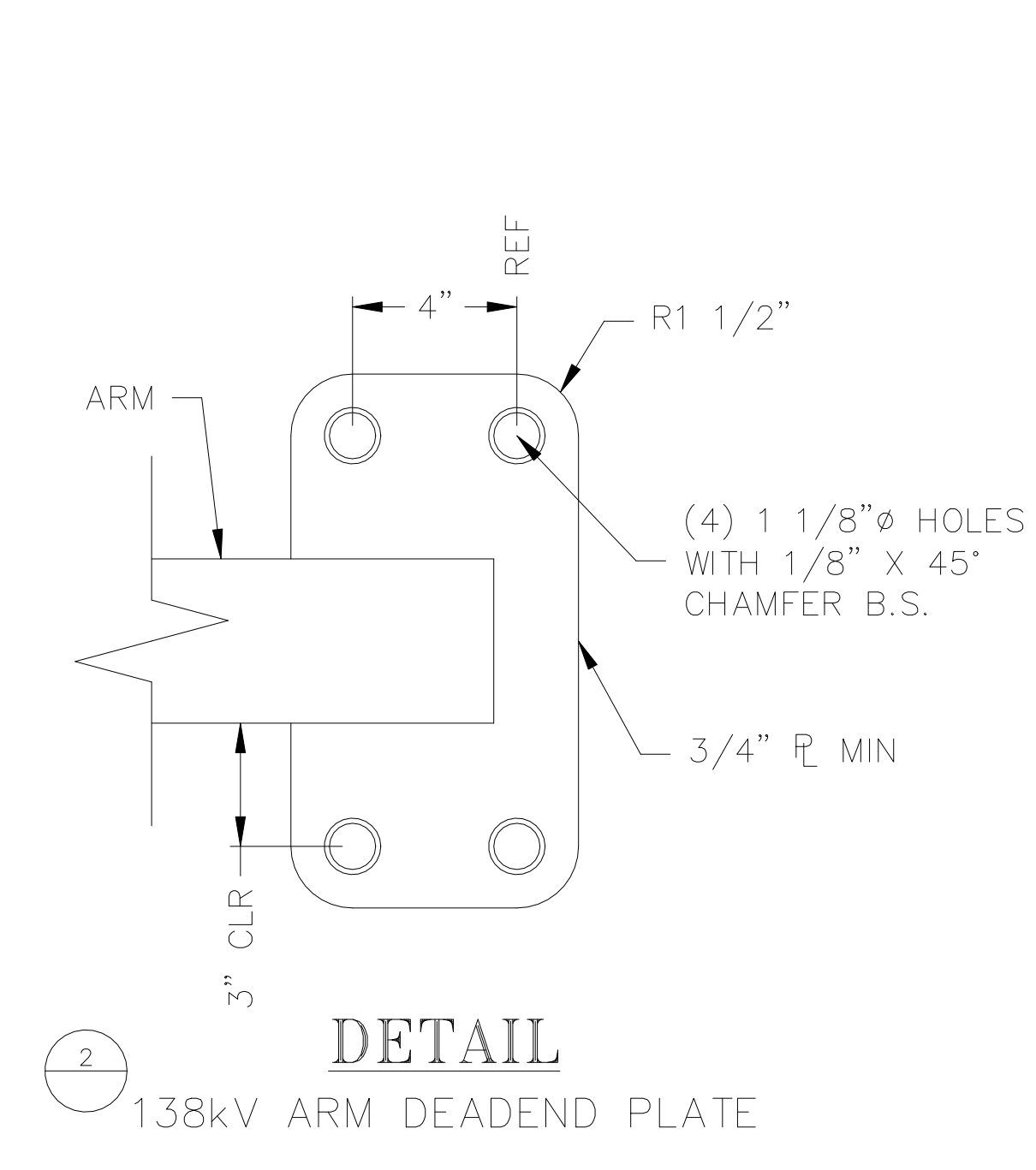
NO.	RECORD REVISION	CAD DRAWN BY	W.P.#	W.O. NUMBER	RECORD APPROVED	DATE
1	X	XX	-	-	XXX	XX/XX/XX



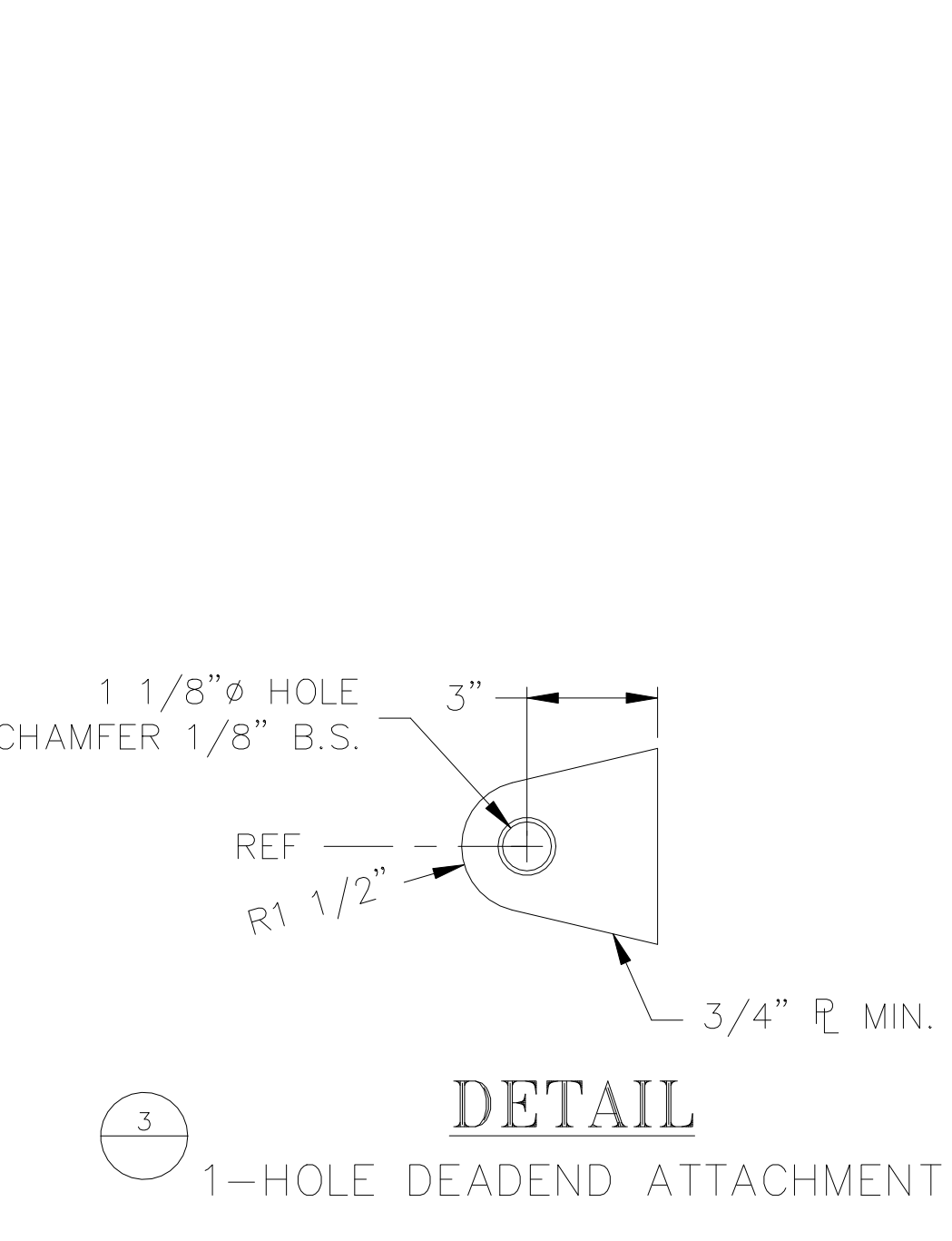
Chugach Electric Association, Inc.
5601 Electron Drive - P.O. Box 196300
Anchorage, Alaska 99519-6300



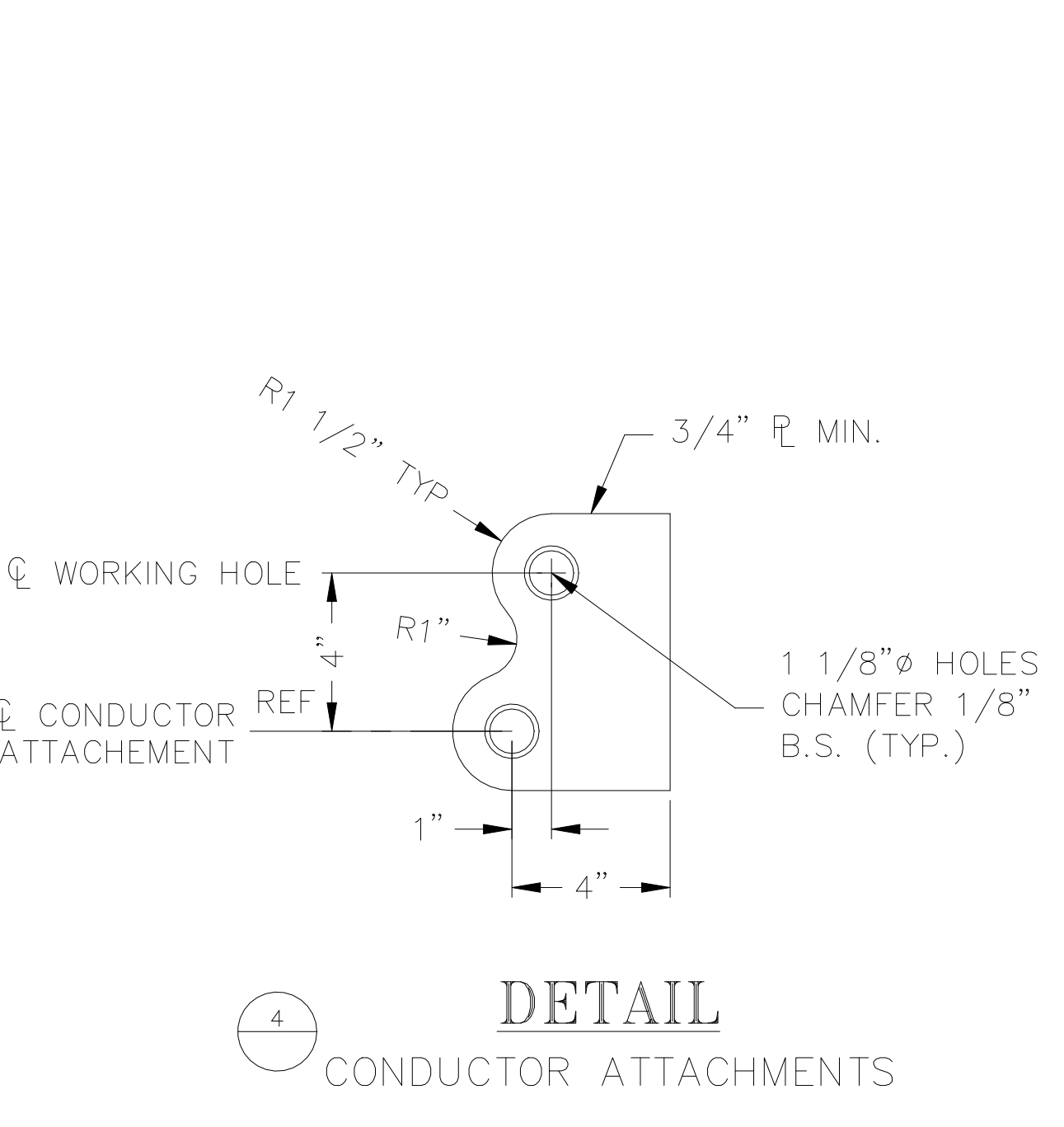
1 DETAIL CONNECTION TO PIPE PILE FDN.



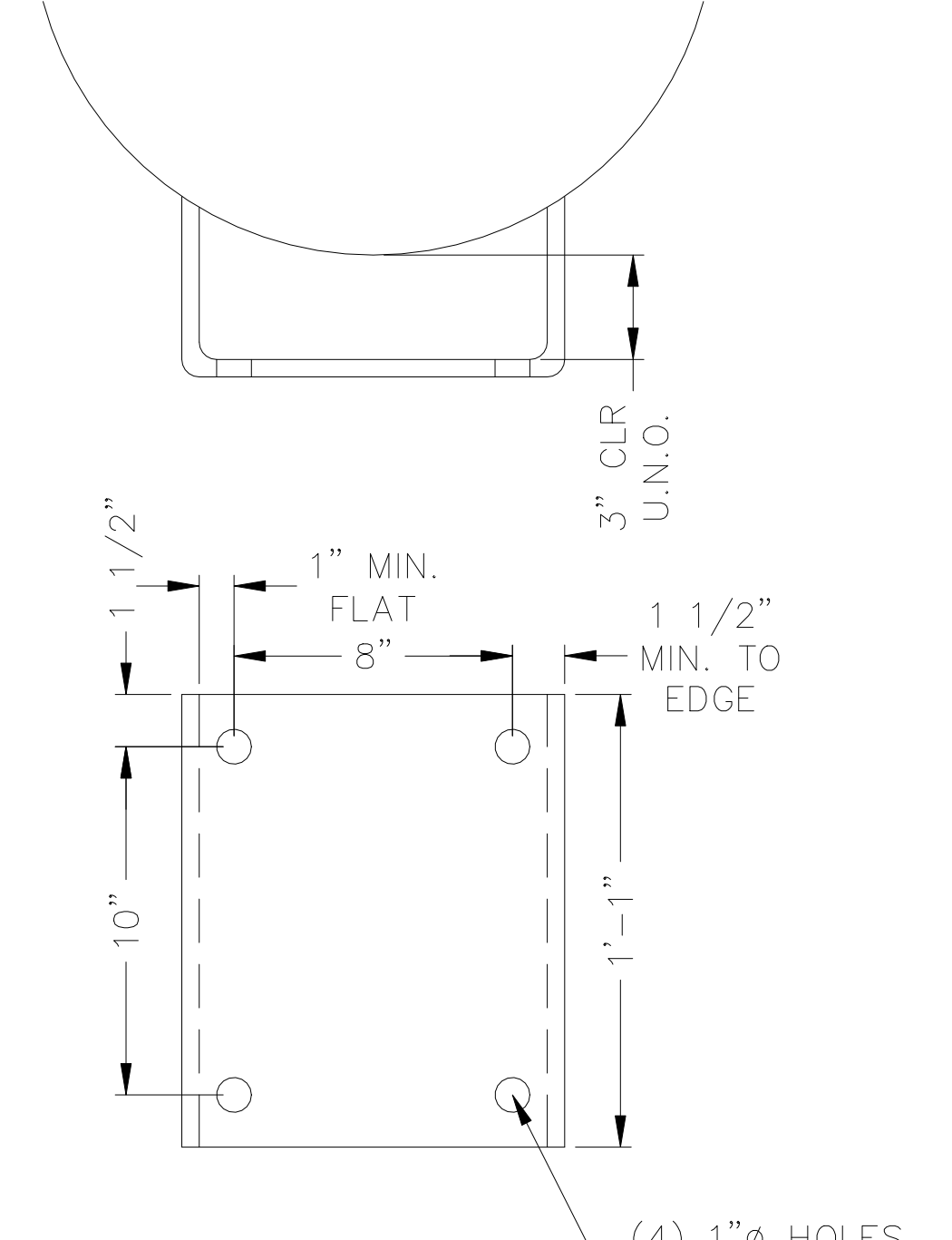
2 DETAIL 138kV ARM DEADEND PLATE



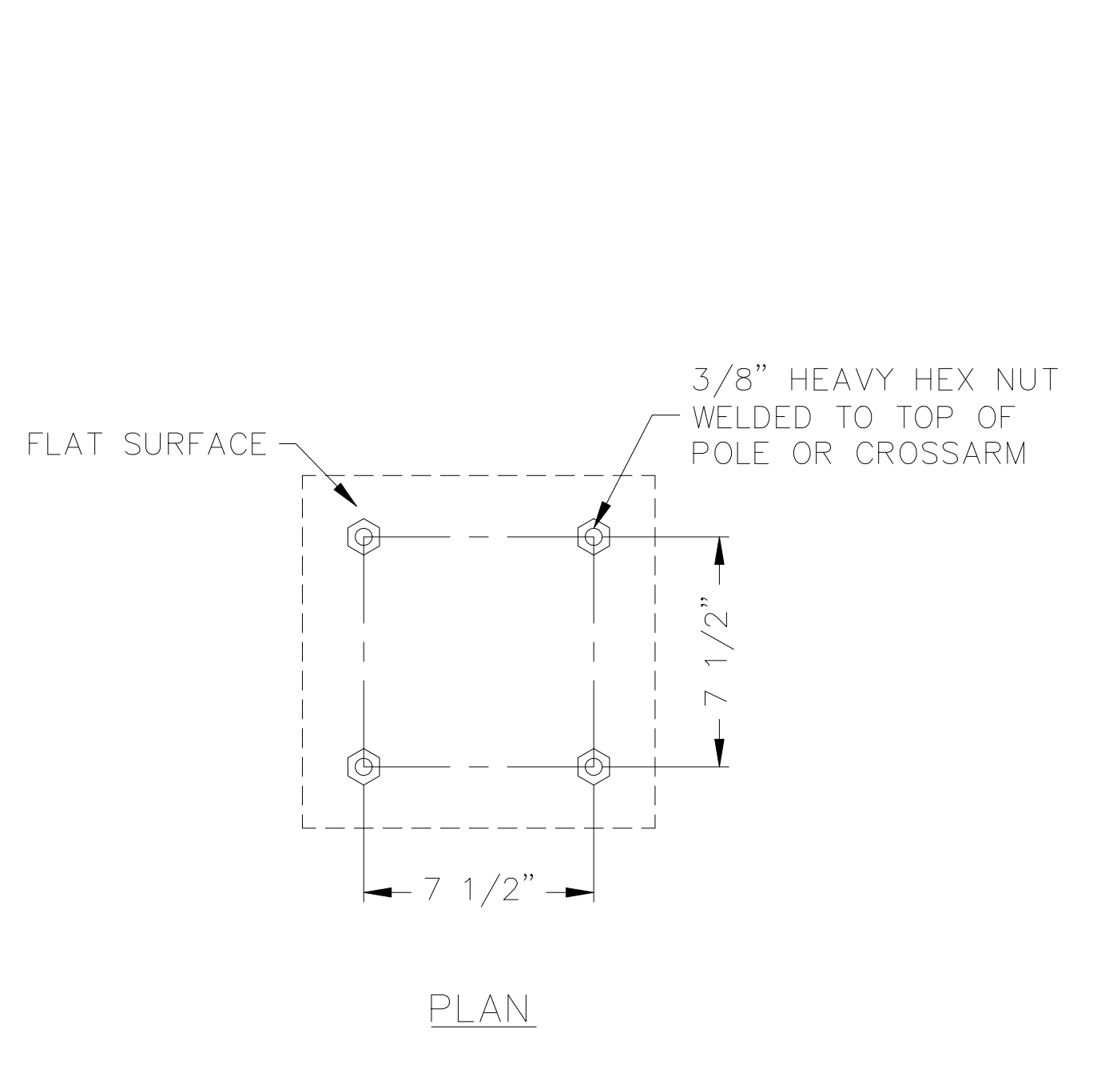
3 DETAIL 1-HOLE DEADEND ATTACHMENT



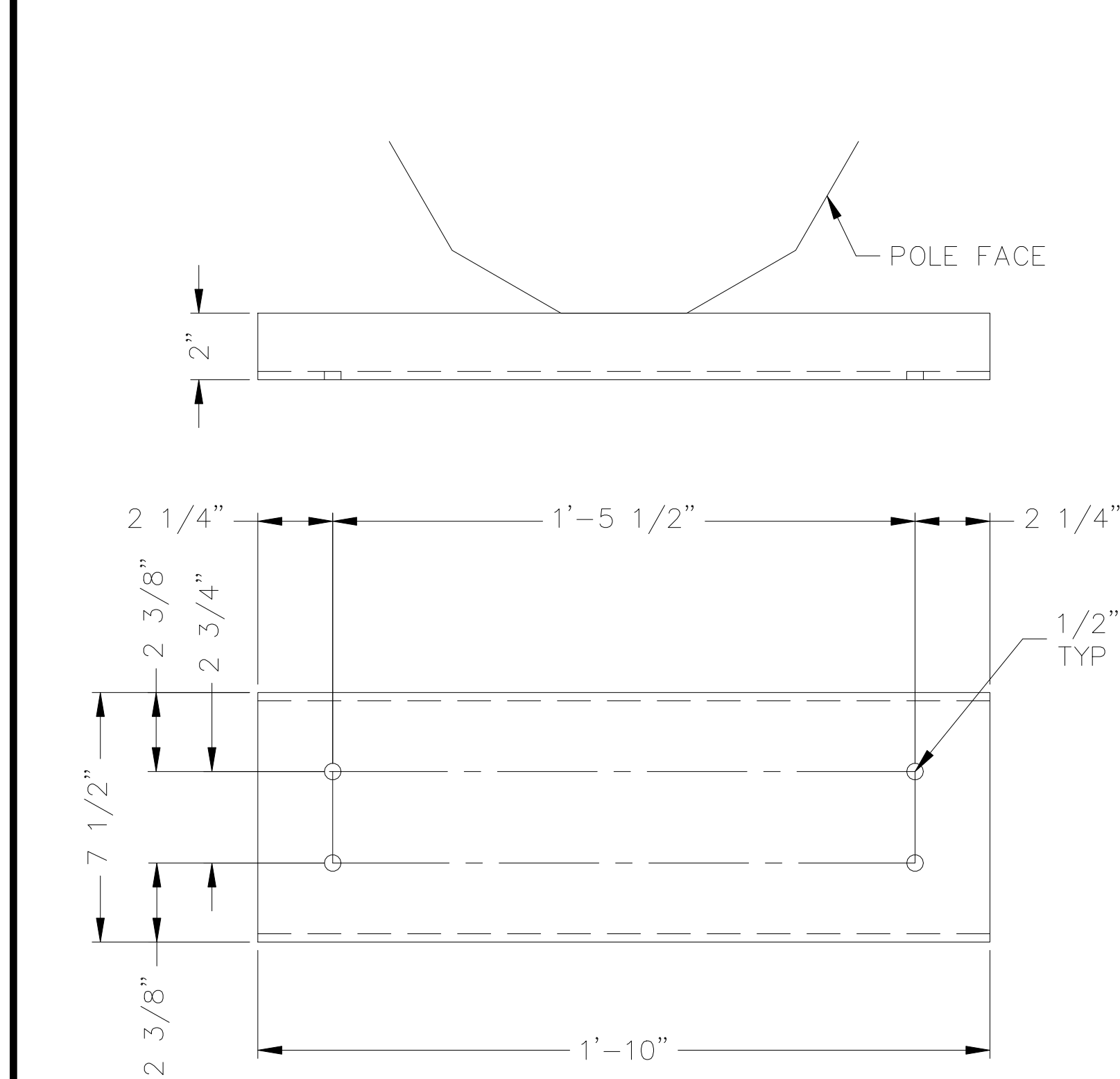
4 DETAIL CONDUCTOR ATTACHMENTS



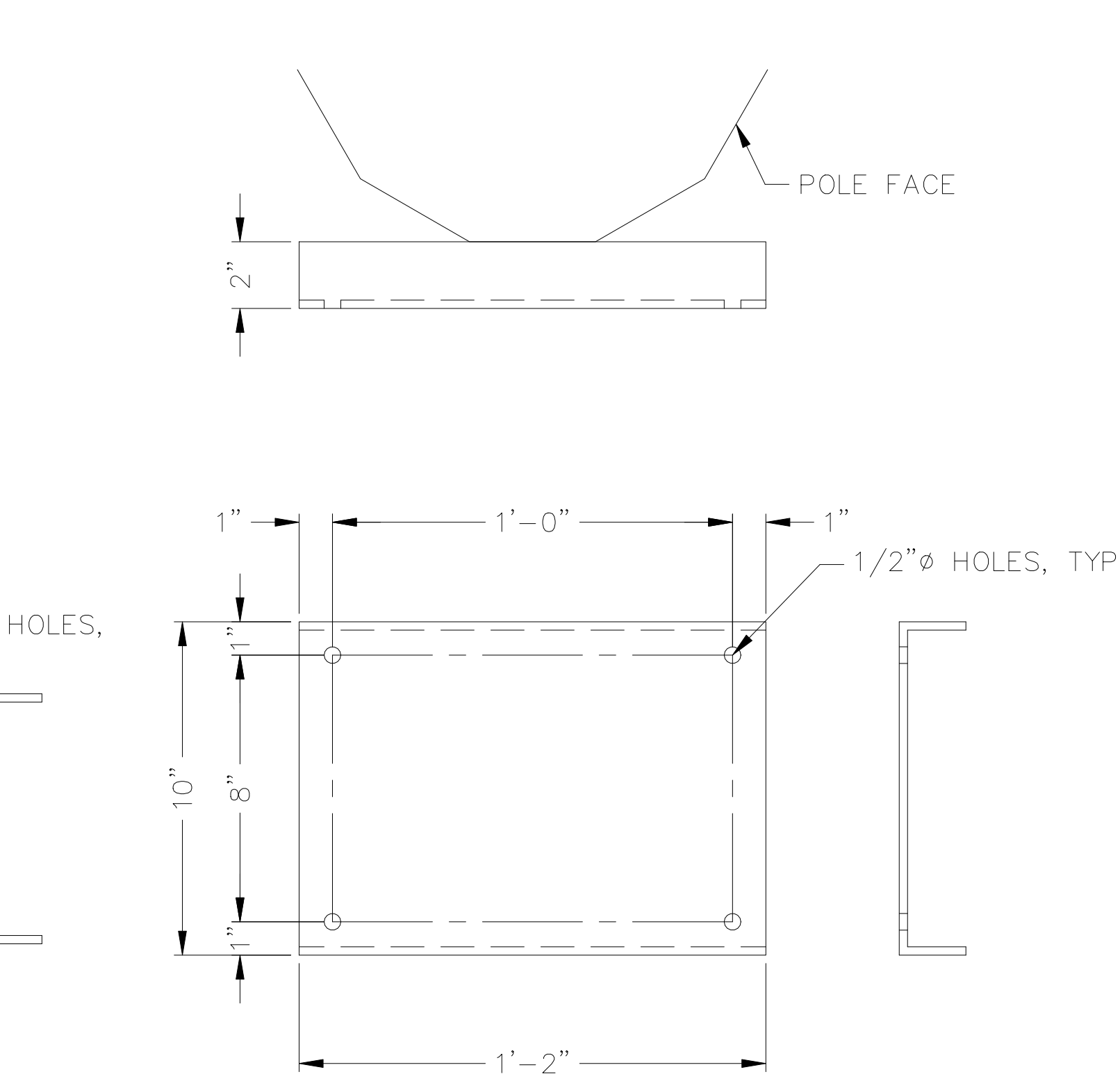
5 DETAIL POST INSULATOR BRACKET



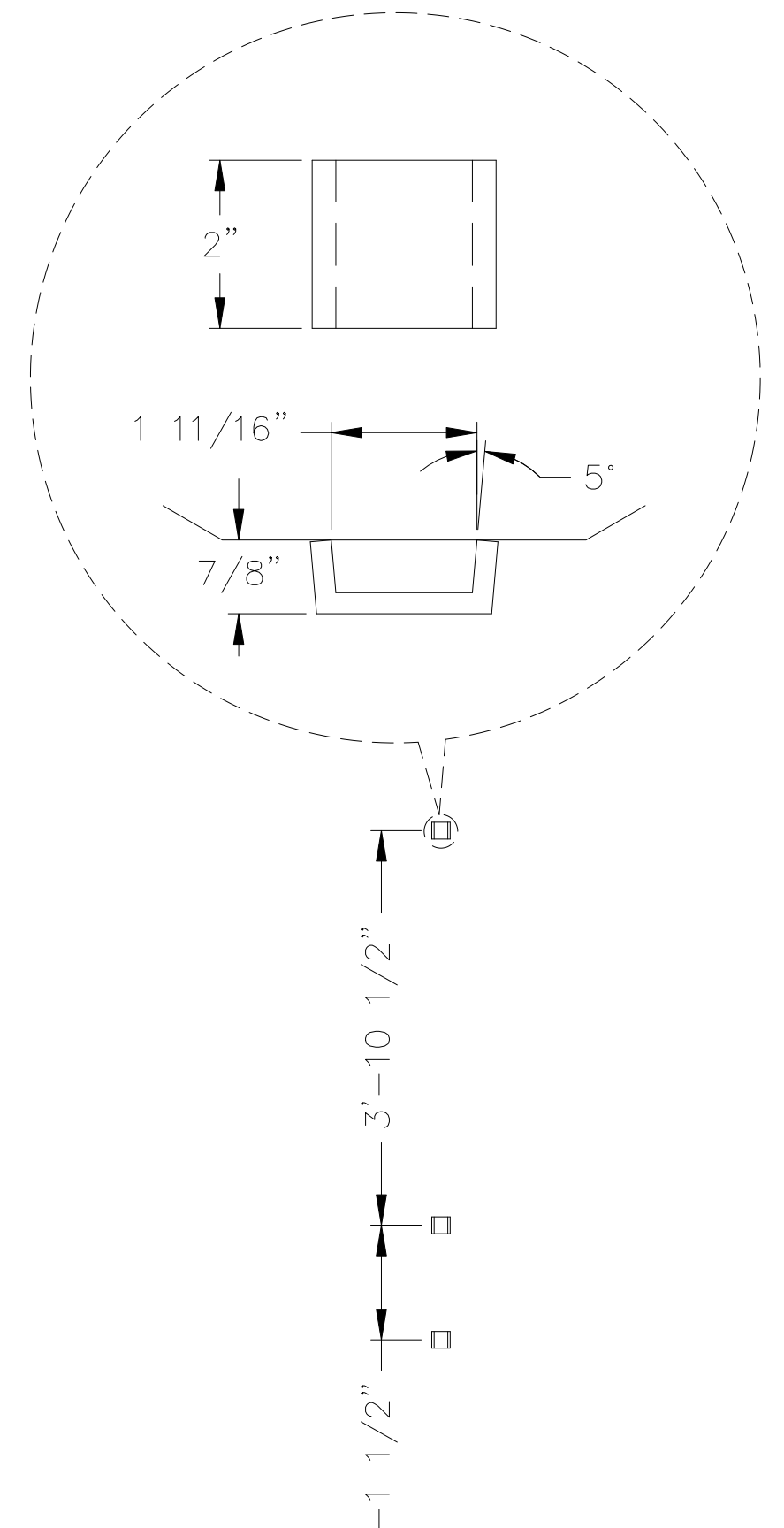
6 DETAIL AERIAL PATROL SIGN MOUNT



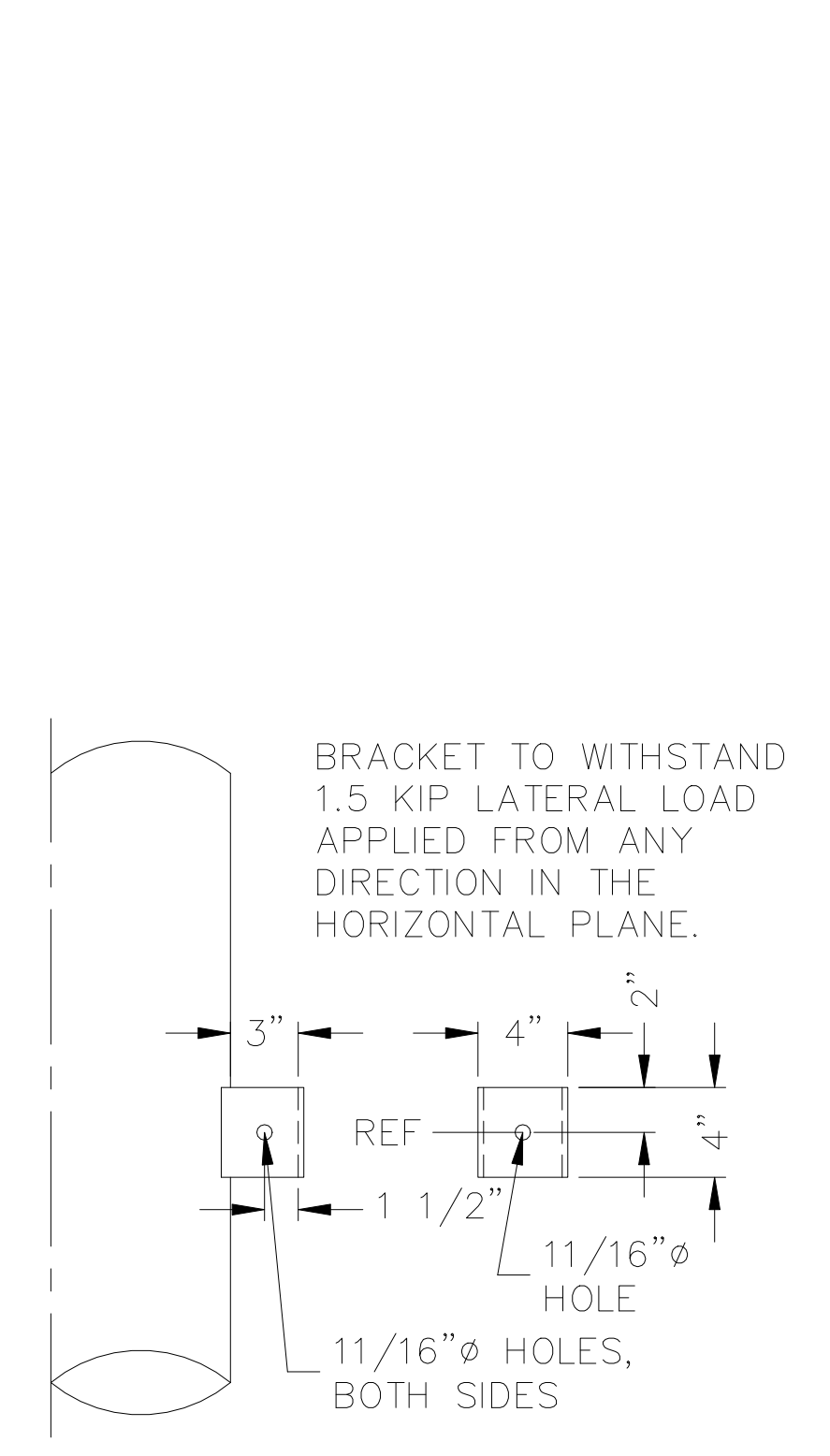
7 DETAIL STRUCTURE NUMBER BRACKET



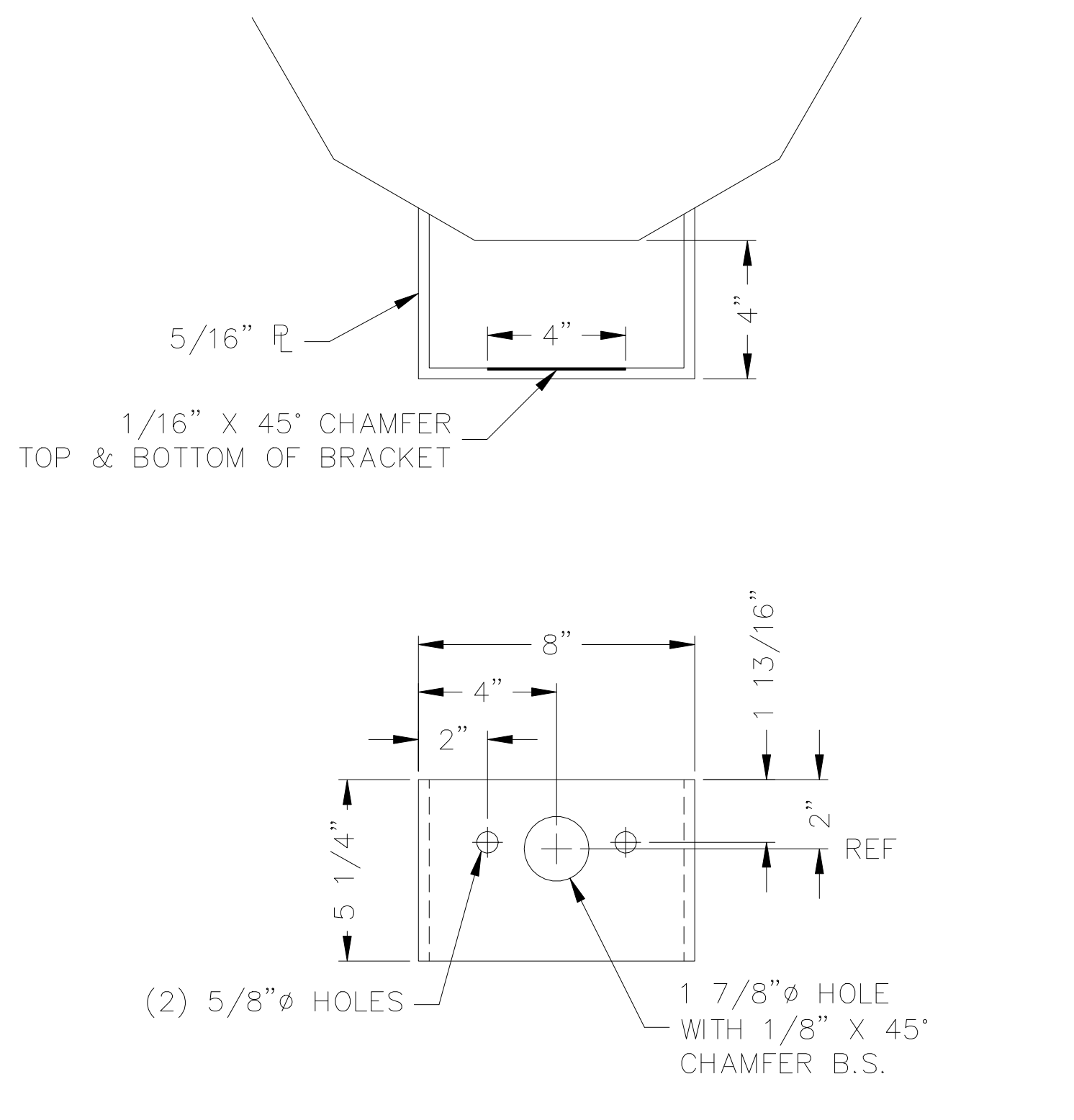
8 DETAIL DANGER SIGN BRACKET



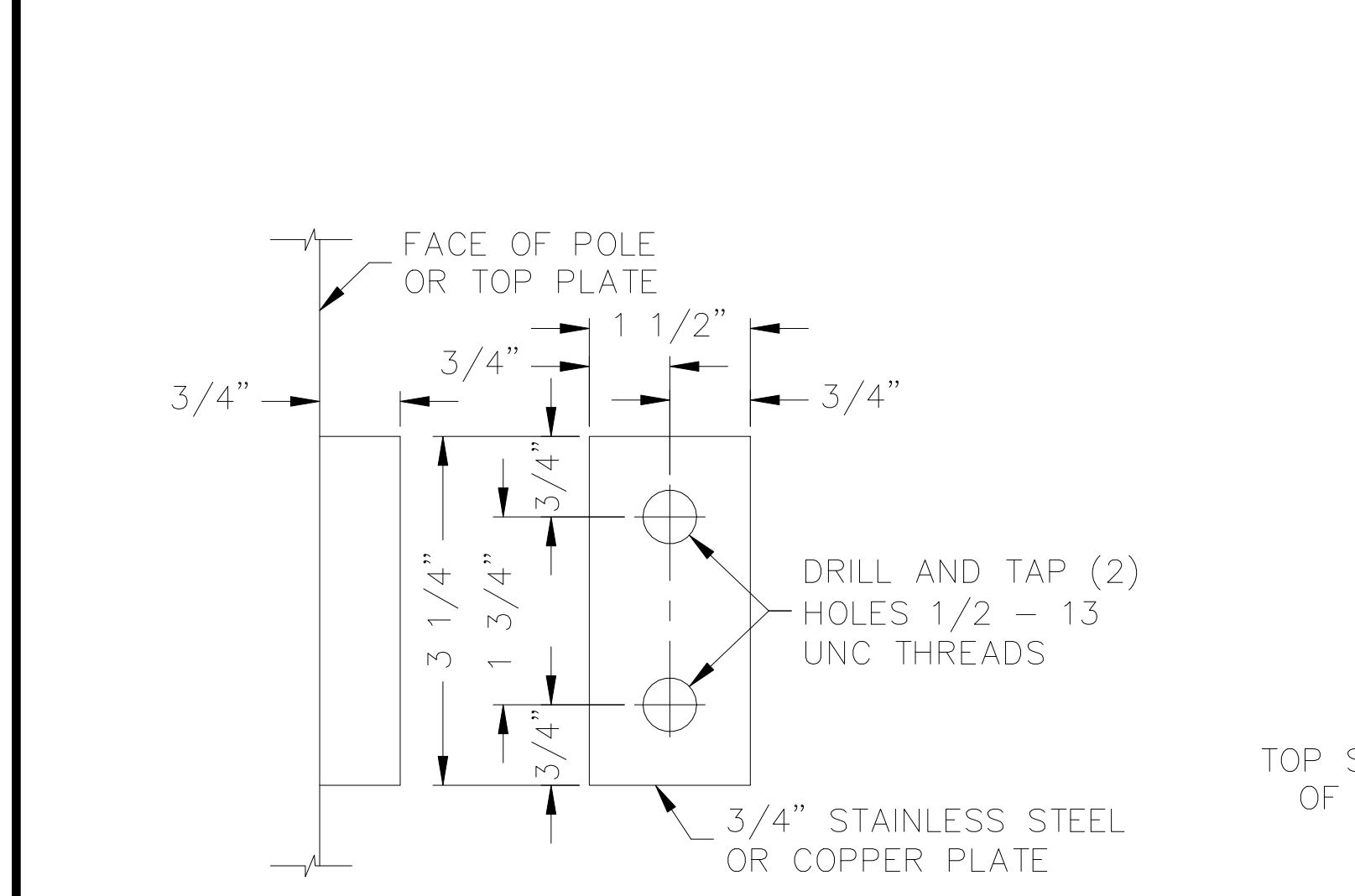
9 DETAIL LADDER CLIPS FOR CLIMBING AND WORKING PROVISIONS



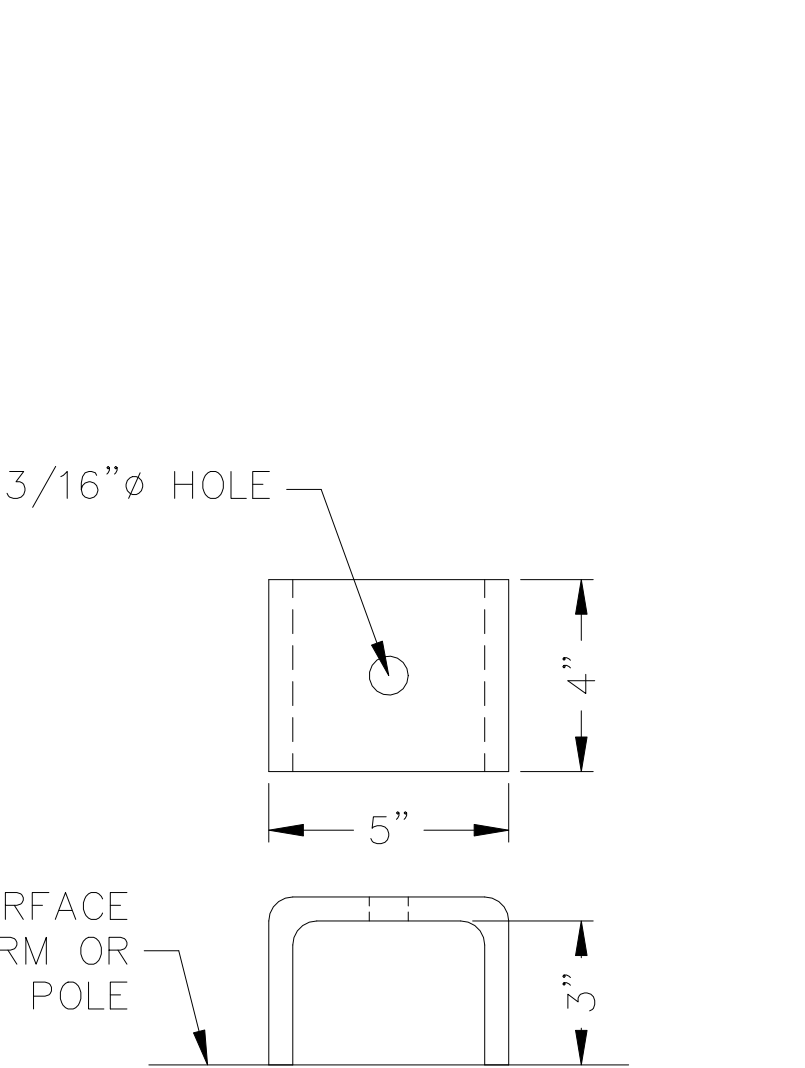
10 DETAIL SECONDARY ATTACHMENT BRACKET



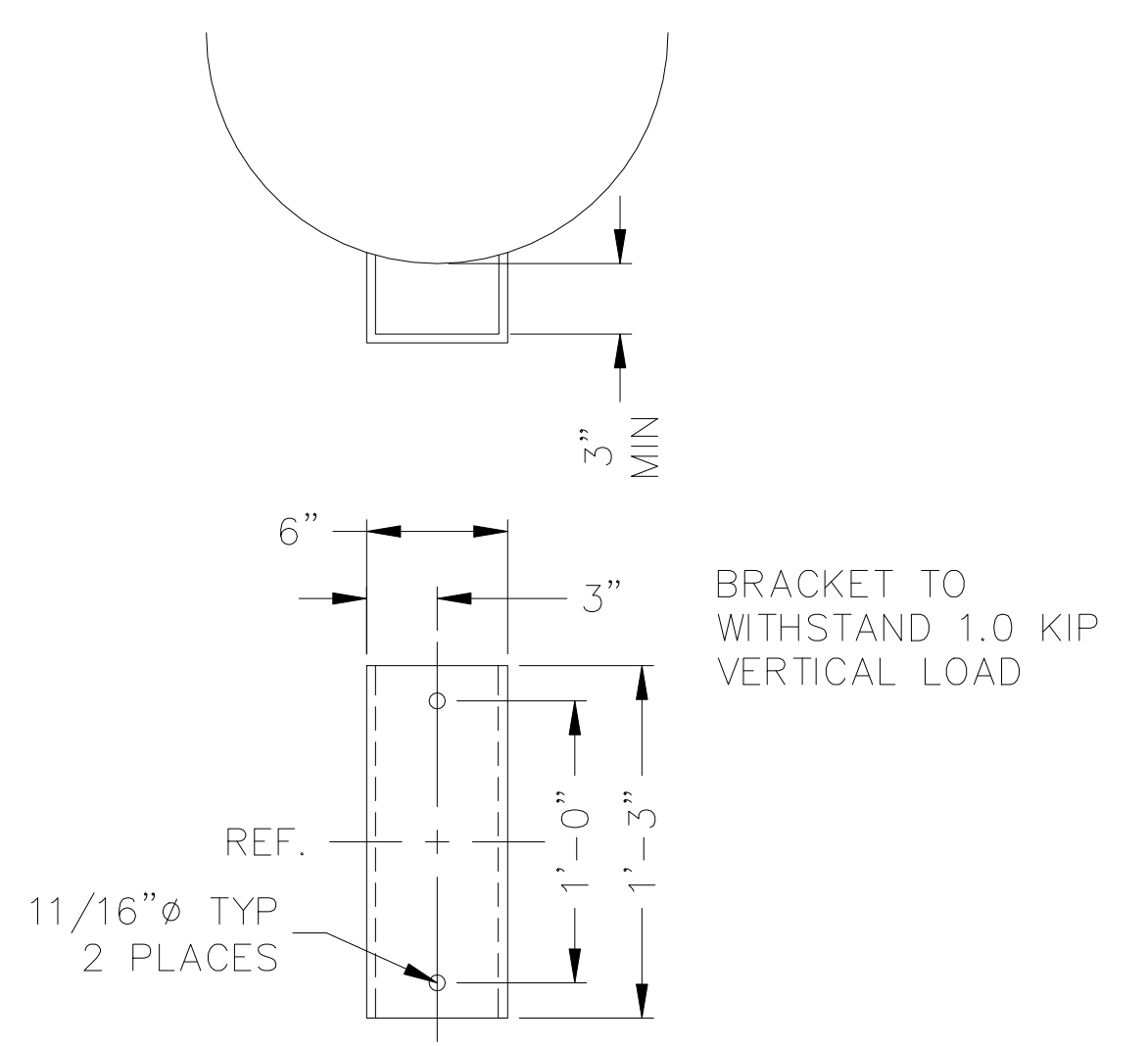
11 DETAIL STREET LIGHT BRACKET



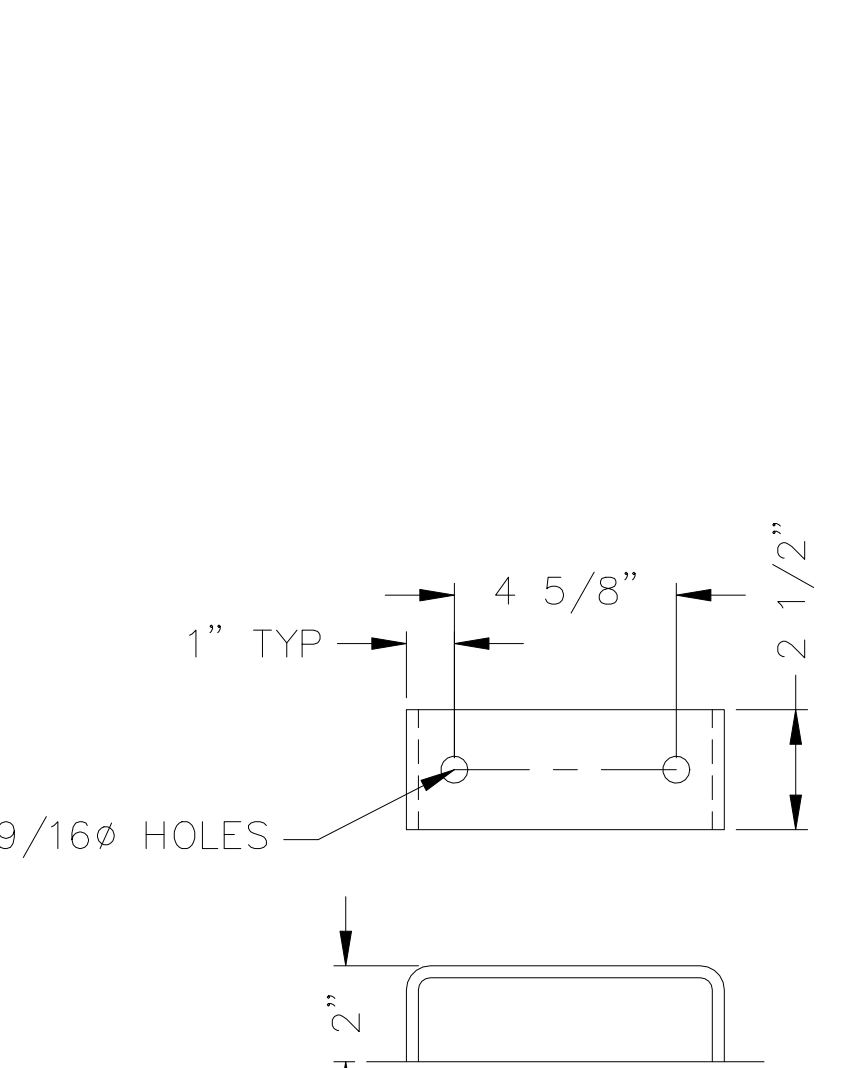
12 DETAIL GROUNDING PAD



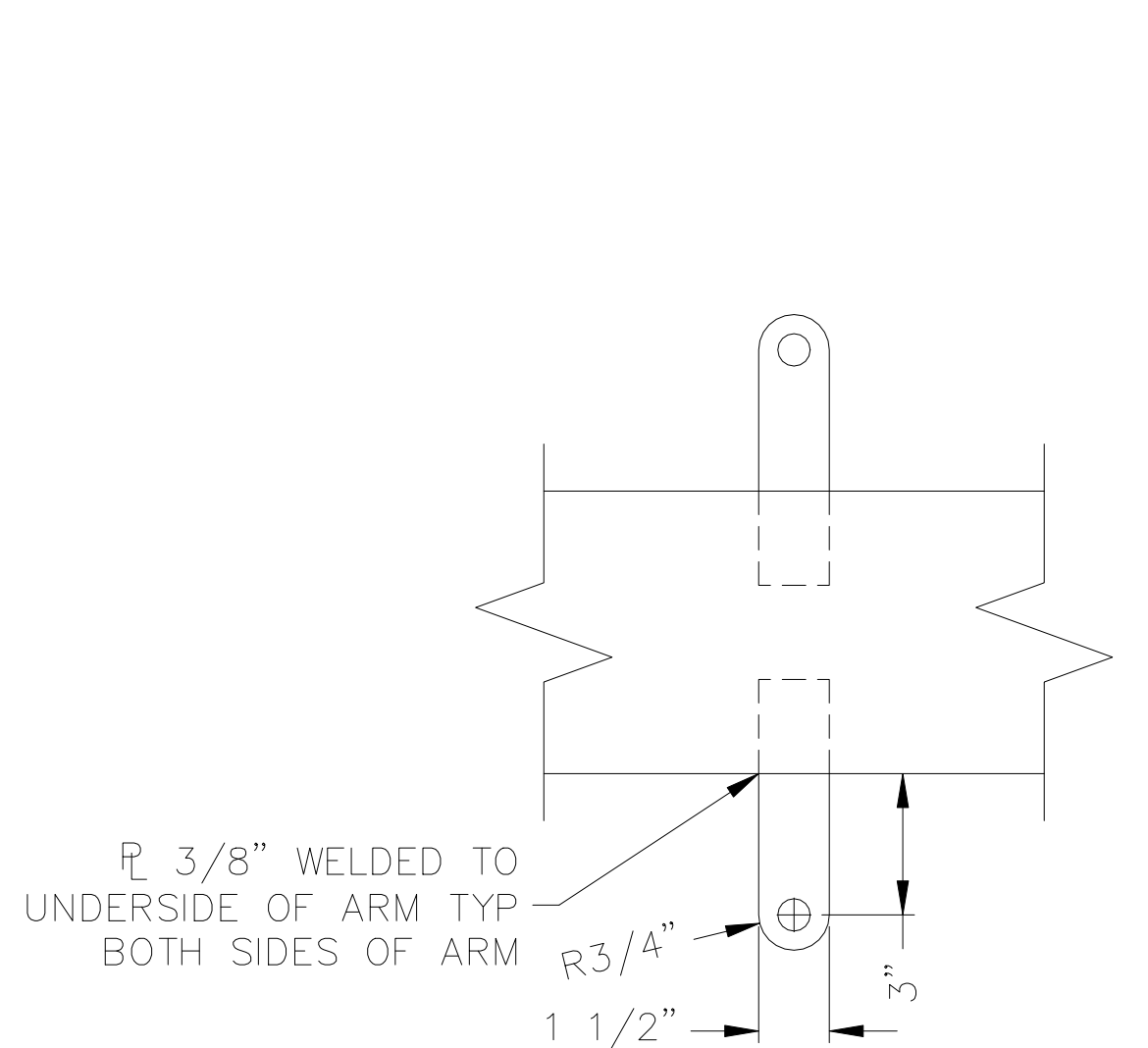
13 DETAIL 35kV PIN INSULATOR BRACKET



14 DETAIL TRANSFORMER BRACKET



15 DETAIL RISER BRACKET



16 DETAIL ARRESTER BRACKET

ISSUED FOR REFERENCE ONLY
- DO NOT EDIT -

NO.	DRAWING NO./SHEET	REFERENCE DRAWING/DETAIL/PLAN/SECTION DESCRIPTION
1	-	DETAIL - CONNECTION TO PIPE PILE FDN.
2	-	DETAIL - 115kV ARM DEADEND PLATE
3	-	DETAIL - 1-HOLE DEADEND ATTACHMENT
4	-	DETAIL - CONDUCTOR ATTACHMENTS
5	-	DETAIL - POST INSULATOR BRACKET
6	-	DETAIL - AERIAL PATROL SIGN MOUNT
7	-	DETAIL - STRUCTURE NUMBER BRACKET
8	-	DETAIL - DANGER SIGN BRACKET
9	-	DETAIL - LADDER CLIPS FOR CLIMBING AND WORKING PROVISIONS
10	-	DETAIL - SECONDARY ATTACHMENT BRACKET
11	-	DETAIL - STREET LIGHT BRACKET
12	-	DETAIL - GROUNDING PAD
13	-	DETAIL - 35kV PIN INSULATOR BRACKET
14	-	DETAIL - TRANSFORMER BRACKET
15	-	DETAIL - RISER BRACKET
16	-	DETAIL - ARRESTER BRACKET

PROJECT: SOUTH CAMPUS POLE RELOCATION - PHASE 2				
ENG./DESIGN.: SUPAT CHANONTO (CEA) / GREG HUFFMAN (EPS) W.O. # E2420080				
NO.	DESIGN/CONSTRUCTION/ASBLUT REVISION	DWN. BY/DATE	REVIEWED MGR./SUPV./DATE	APPROVED DIRECTOR/DATE
0	ISSUED FOR PROCUREMENT BID	KER 03/15/24	GDH 03/15/24	
0-1	ISSUED FOR CONSTRUCTION REFERENCE	KER 01/30/25	GDH 01/30/25	

NO.	RECORD REVISION	CAD DRAWN BY	W.P.#	W.O. NUMBER	RECORD APPROVED	DATE
1	X	XX	-	-	XXX	XX/XX/XX

Chugach Electric Association, Inc.
5601 Electron Drive - P.O. Box 196300
Anchorage, Alaska 99519-6300

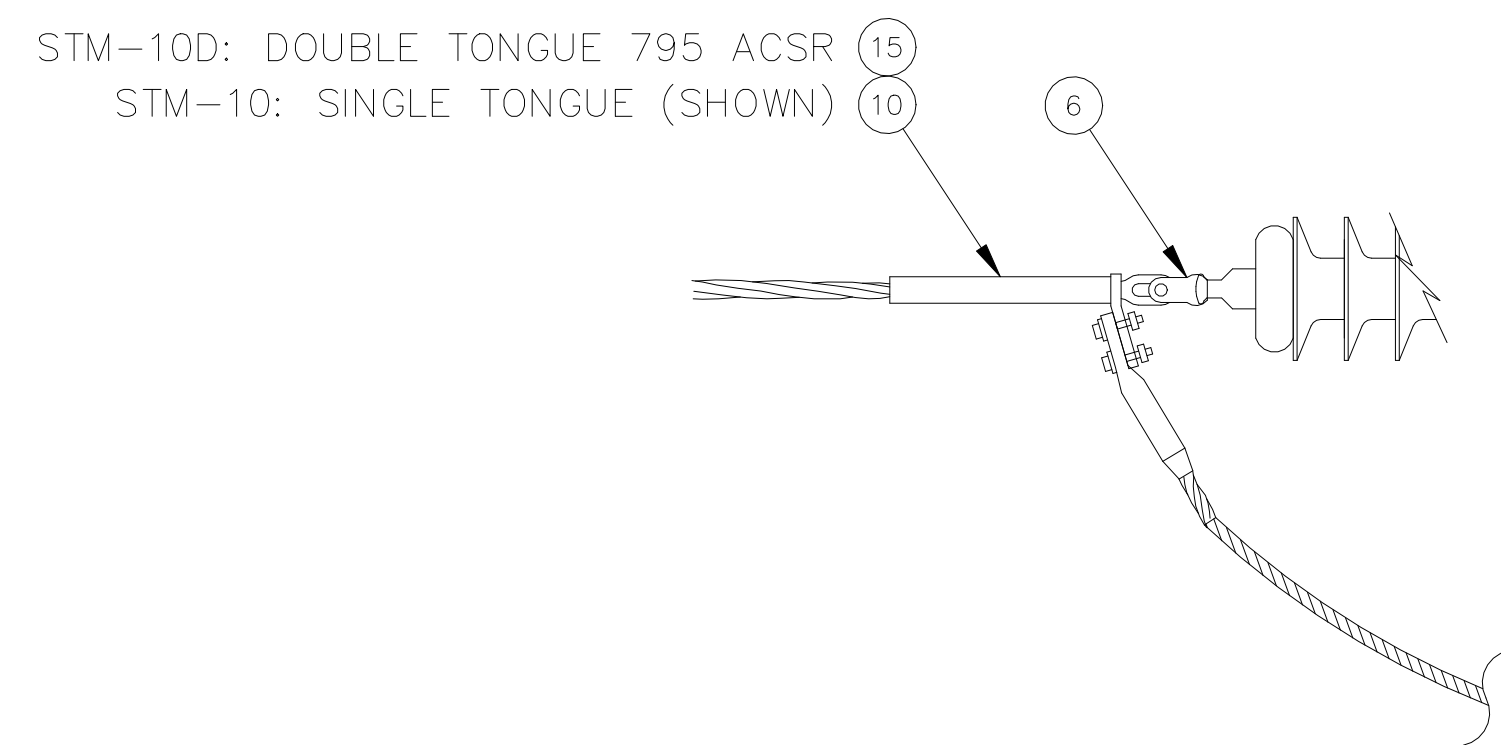
DRAWING NAME: 138kV TRANSMISSION LINE INTL TRANSMISSION - ROBERT RETHERFORD STRUCTURAL & ASSEMBLY STEEL STRUCTURE DETAILS

CONFIDENTIAL
DRAWING NO. - PREVIOUS/REFERENCE
NEW
DRAWING NO.: INSS-SS-0060

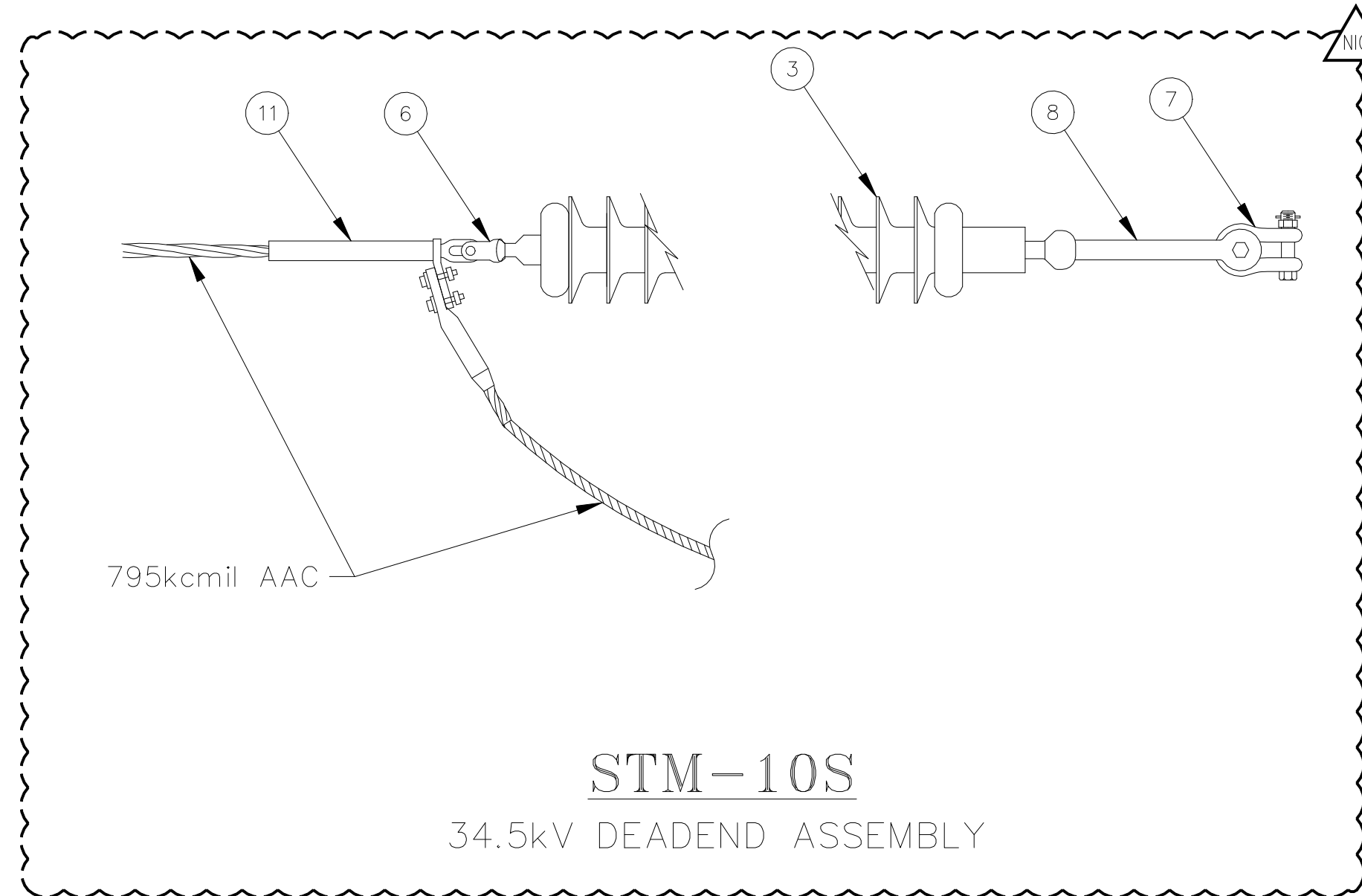
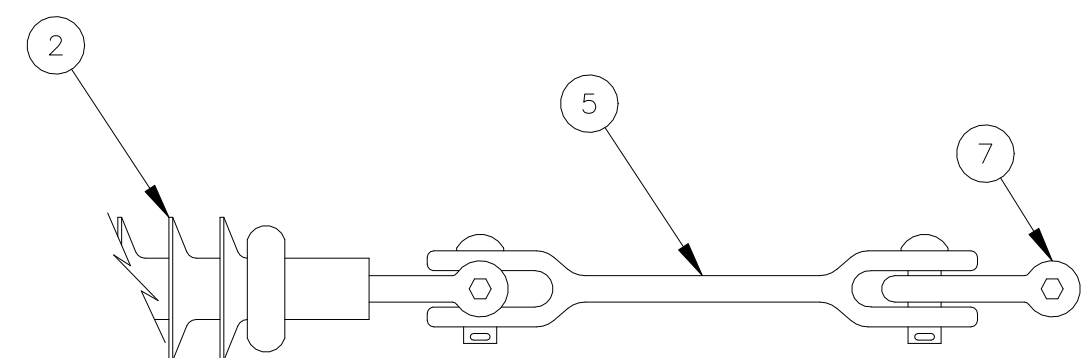
SHEET 0001 OF 1
PAGE _____ OF _____

ITEM	QTY/ASM								DESCRIPTION	MANUFACTURE/CATALOG #
	STM-10	STM-10D	STM-10S	STM-3B	STM-3F	STM-3FX	M5-7X	GR		
1	-	-	-	1	-	-	-	-	INSULATOR, HORIZONTAL POST, 2.5" ROD, 61", FLAT BASE, 2-HOLE BLADE, 138kV	MACLEAN #H21010050MXSS026
2	1	1	-	-	-	-	-	-	INSULATOR, SUSPENSION, Y-CLEVIS BALL, 138kV, 25K	MACLEAN #S14080048MXSS07SS024
3	-	-	1	-	-	-	-	-	INSULATOR, SUSPENSION, SOCKET BALL, 35kV, 15K	HUBBELL #4050031301
4	-	-	-	-	1	1	-	-	INSULATOR, VERTICAL POST, 35kV, CLAMP TOP, STUD BASE	LAPP #510035
5	1	1	-	-	-	-	-	-	LINK, EXTENSION, 10", Y-CLEVIS - CLEVIS, 30K	MACLEAN #YCCHL-65
6	1	1	1	-	-	-	-	-	SOCKET CLEVIS, 30K	HUBBELL #SC-30
7	1	1	1	-	-	-	-	-	ANCHOR SHACKLE, 30K	HUBBELL #AS-25
8	-	-	1	-	-	-	-	-	Y-CLEVIS BALL	HUBBELL #HYBC-30
9	-	-	-	-	1	1	1	-	INSULATOR STUD, 3/4" SHORT SHANK W/ HARDWARE	LAPP #301614
10	1	-	-	-	-	-	-	-	DEADEND, COMPRESSION, 795 ACSR "DRAKE", SINGLE TONGUE	DMC #DC99-188-40
11	-	-	1	-	-	-	-	-	DEADEND, COMPRESSION, 795 AAC "ARBUTUS", SINGLE TONGUE	DMC #DB99-188-25
12	-	-	-	-	1	1	-	-	TRUNNION CLAMP, 1.00" - 1.50" CLAMPING RANGE	LAPP #47114
13	-	-	-	1	-	-	-	-	JUMPER CLAMP, 795kcmil ACSR "DRAKE"	HUBBELL #97642-3002
15	-	1	-	-	-	-	-	-	DEADEND, COMPRESSION, 795 ACSR "DRAKE", DOUBLE TONGUE	HUBBELL #A021245
16	-	-	-	-	1	-	-	-	ARMOR RODS FOR 556 AAC "DAHLIA"	PREFORMED #AR-0134
17	-	-	-	-	-	-	1	-	PIN INSULATOR, POLYETHYLENE, VISE TOP, 1" THREADS	HENDRIX #HPI-15VTP-01
18	-	-	-	-	-	-	1	-	INSULATOR PIN, 3/4" SHORT SHANK, 1" THREADED PIN	MACLEAN #J224Z
* 20	-	-	-	-	-	-	-	1	CRIMPIT, LINE TAP 4/0 ACSR TO #2 CU STRANDED	BURNDY #YC28U26
* 21	-	-	-	-	-	-	-	1	COMPRESSION TERMINAL, UNINSULATED, 2-HOLE NEMA #2 CU STRANDED	BURNDY #YA2CA9
* 22	-	-	-	-	-	-	-	2	BOLT, BRONZE, 1/2"Ø, 3/4" LENGTH	BURNDY #50X75
* 23	-	-	-	-	-	-	-	2	SPLIT WASHER, BRONZE, 1/2"	BURNDY #50SW
* 30	-	-	-	4	-	-	-	-	BOLT, 3/4"Ø X 2 1/2", WITH NUT	HUGHES #B72-1/2-1-3/4
* 31	-	-	-	4	-	-	-	-	LOCKNUT, 3/4", MF TYPE	HUGHES #MF70

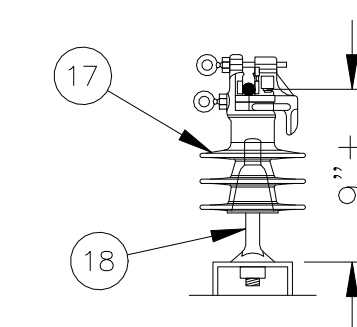
* FURNISHED BY CONSTRUCTION CONTRACTOR



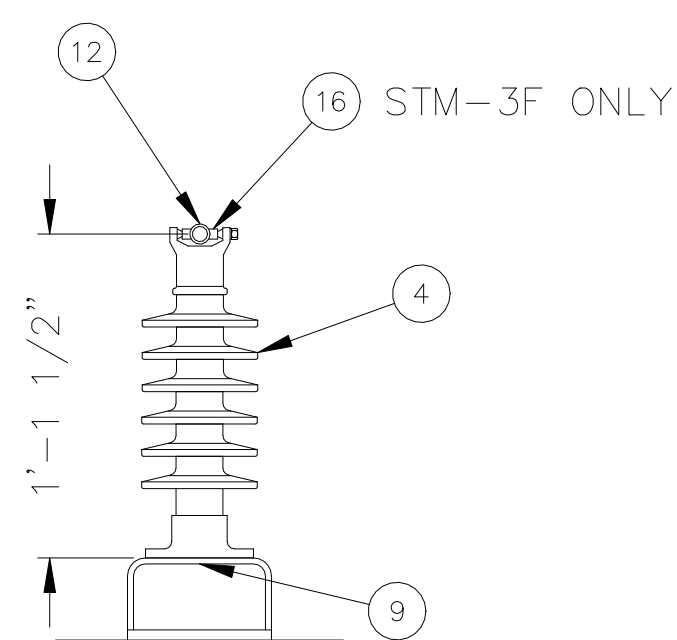
STM-10 (SINGLE TONGUE) & STM-10D (DOUBLE TONGUE)
138kV DEADEND ASSEMBLY



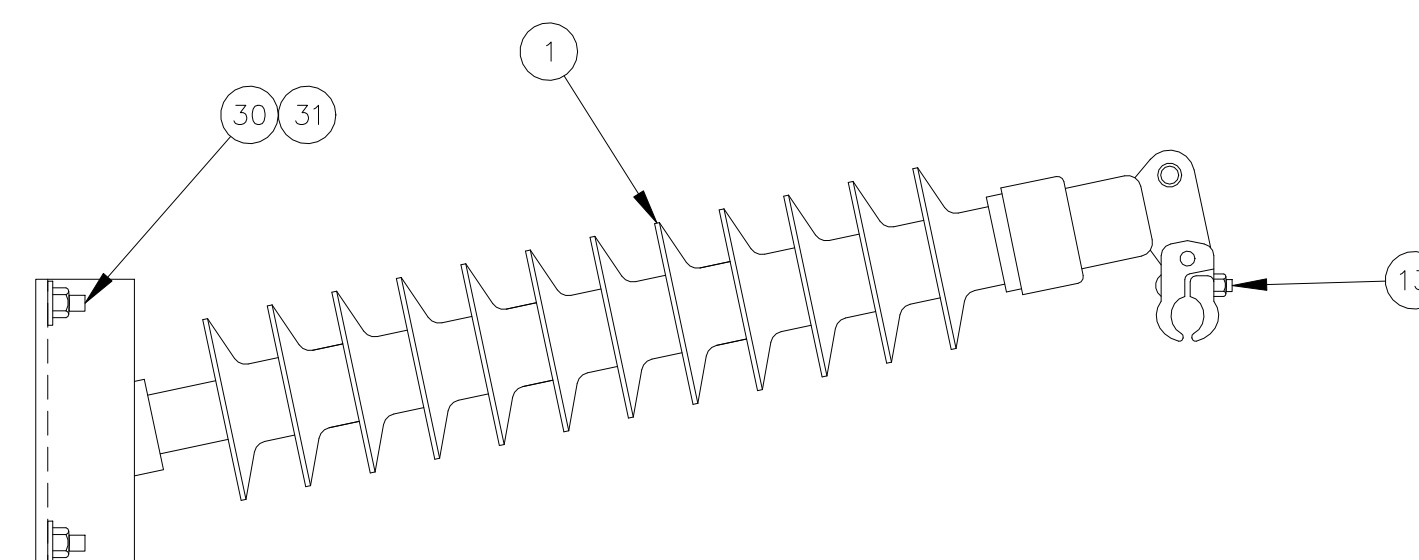
STM-10S
34.5kV DEADEND ASSEMBLY



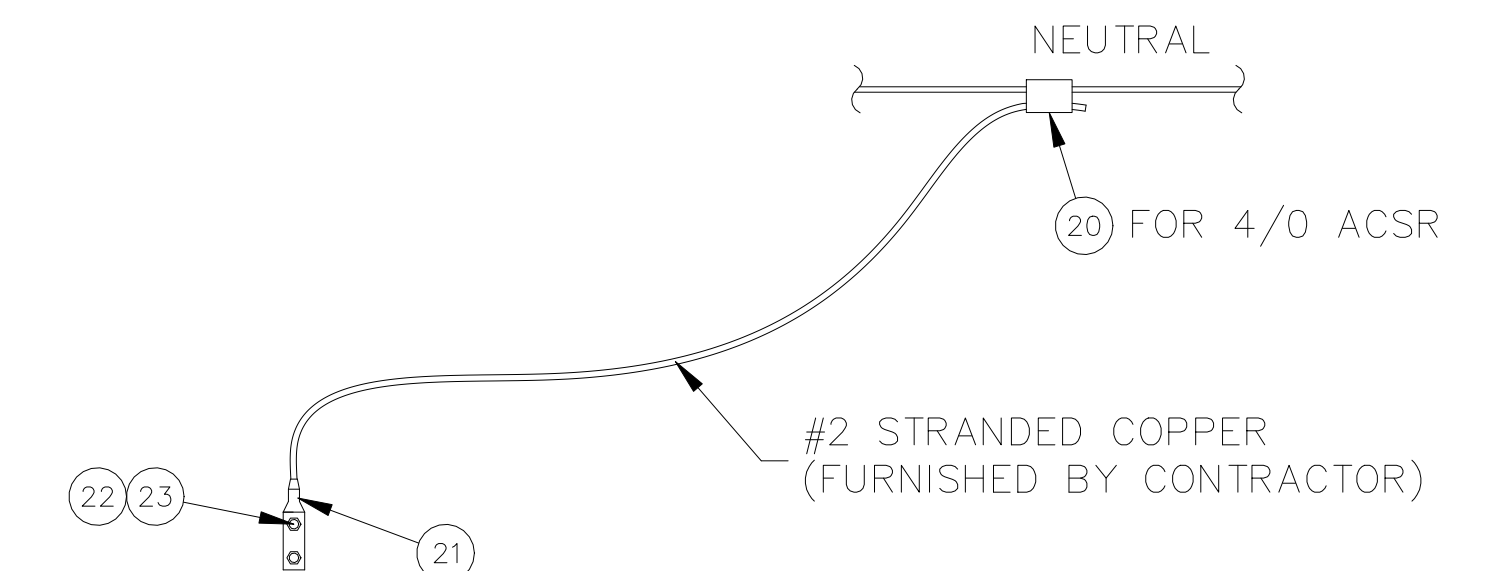
M5-7X
12.5kV VERTICAL LINE POST



STM-3F (W/ ARMOR RODS) & STM-3FX (W/O ARMOR RODS)
34.5kV VERTICAL POST

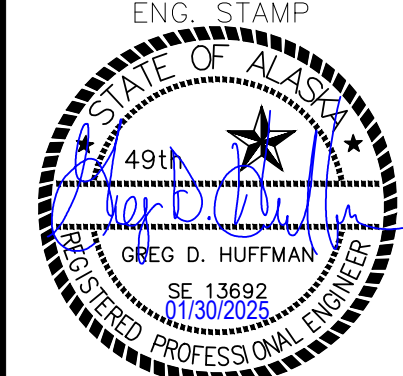


STM-3B
138kV JUMPER POST



GR
4/0 ACSR NEUTRAL GROUND

PROJECT: SOUTH CAMPUS POLE RELOCATION - PHASE 2				
ENG./DESIGN.: SUPAT CHANONTO (CEA) / GREG HUFFMAN (EPS) W.O. # E2420080				
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN. BY/DATE	REVIEWED MGR./SUPV./DATE	APPROVED DIRECTOR/DATE
0	ISSUED FOR CONSTRUCTION	KER 01/30/25	GDH 01/30/25	

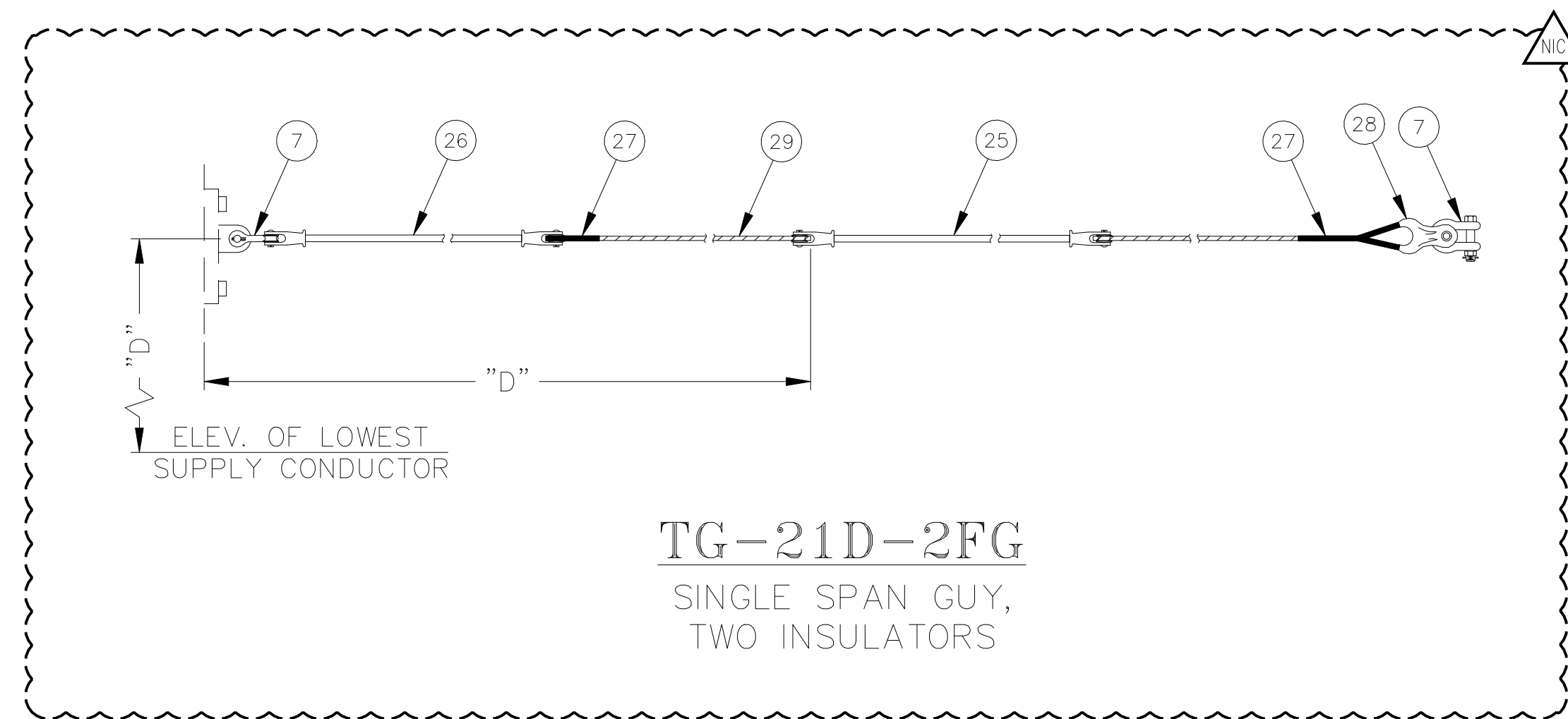


NO.	RECORD REVISION	CAD DRAWN BY	W.P.#	W.O. NUMBER	RECORD APPROVED	DATE
1	X	XX	-	-	XXX	XX/XX/XX

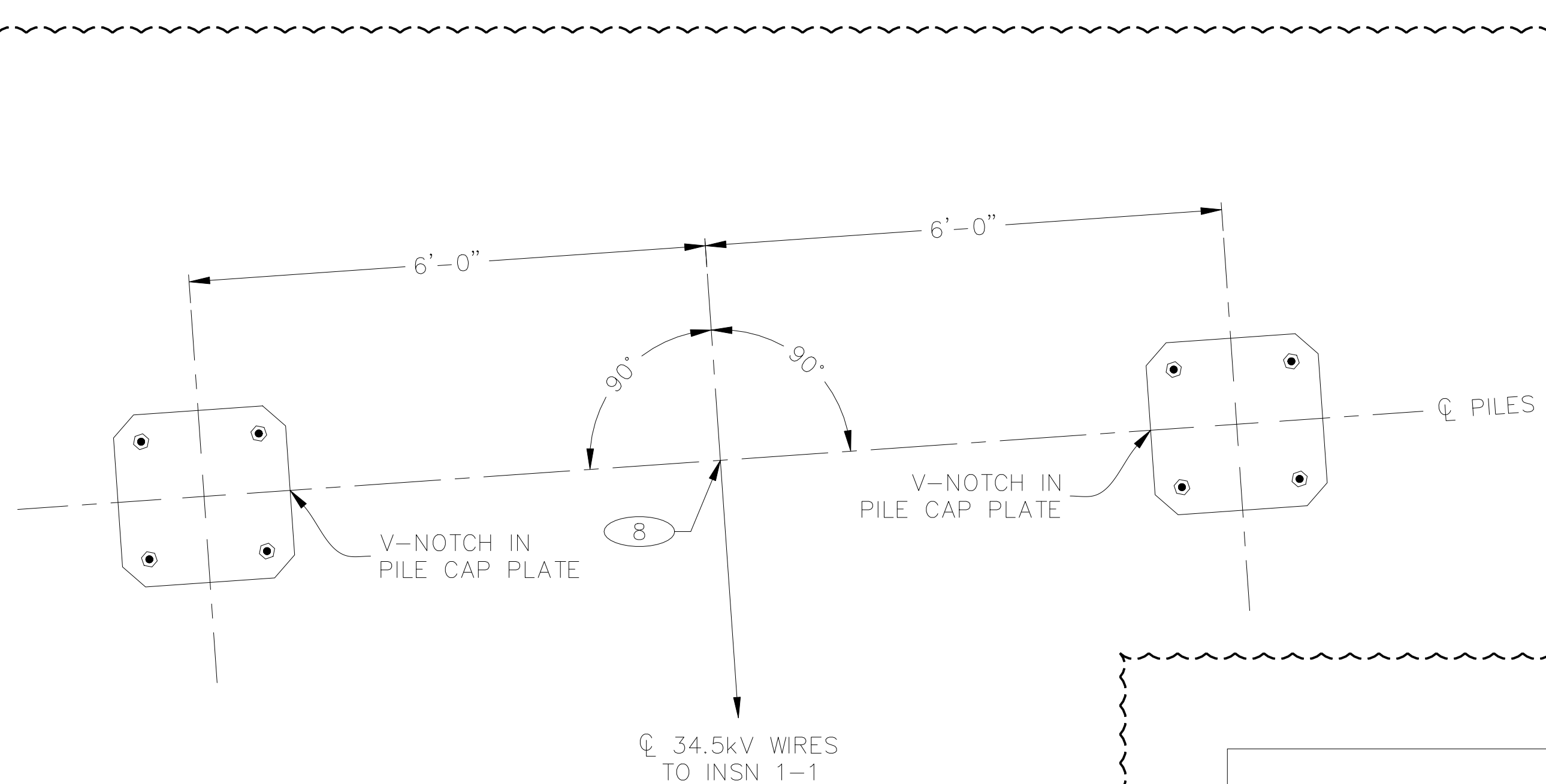
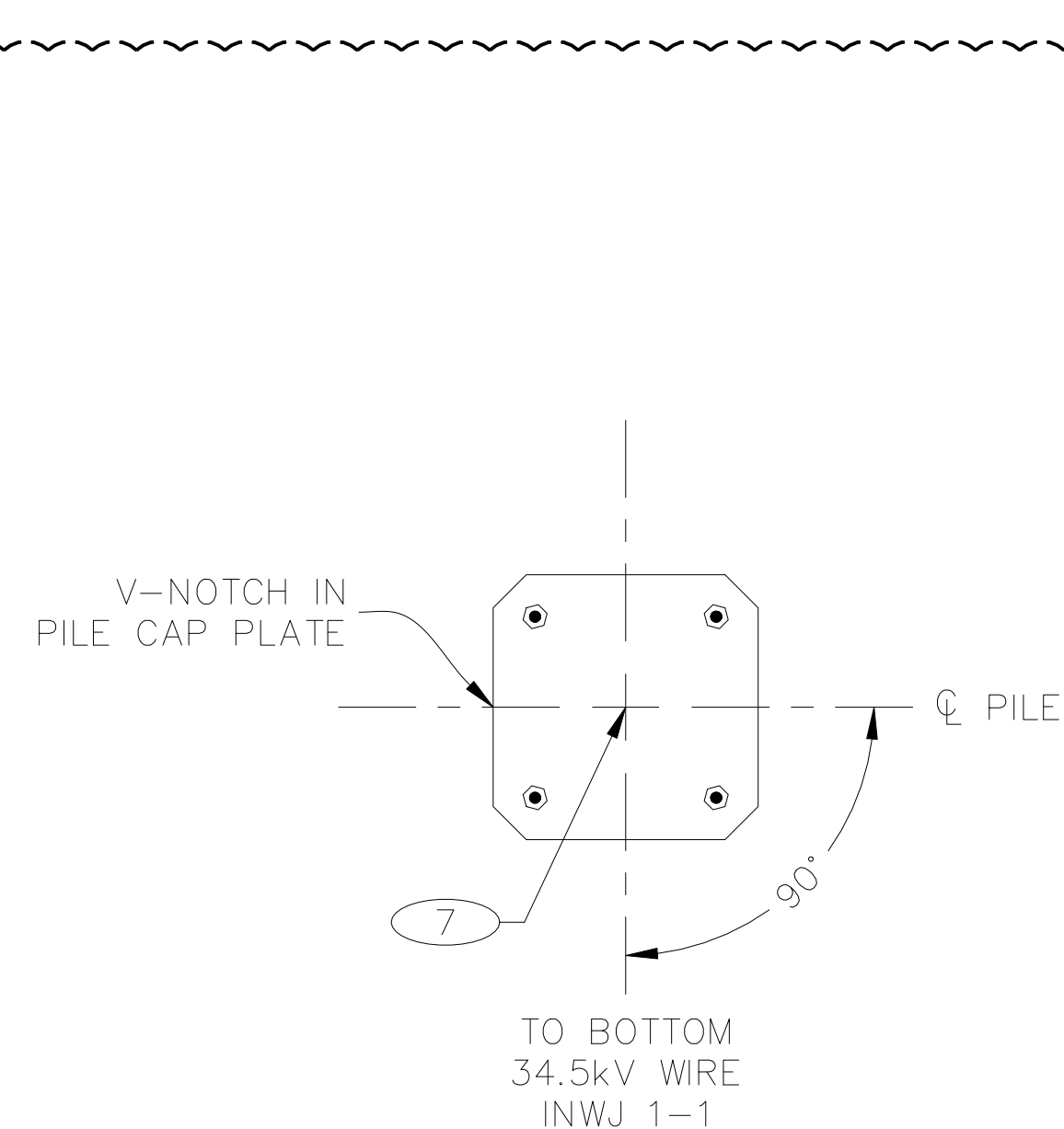
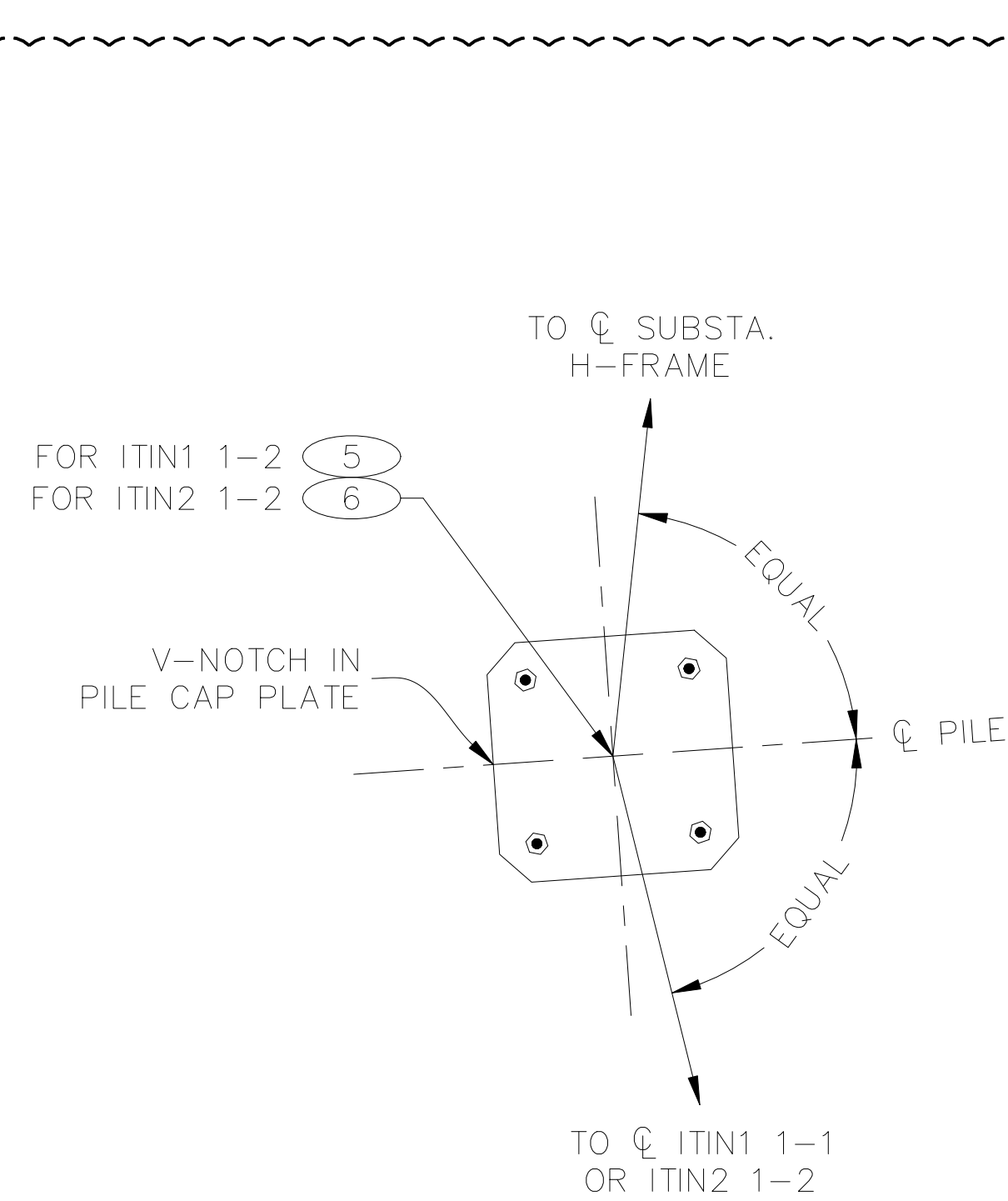
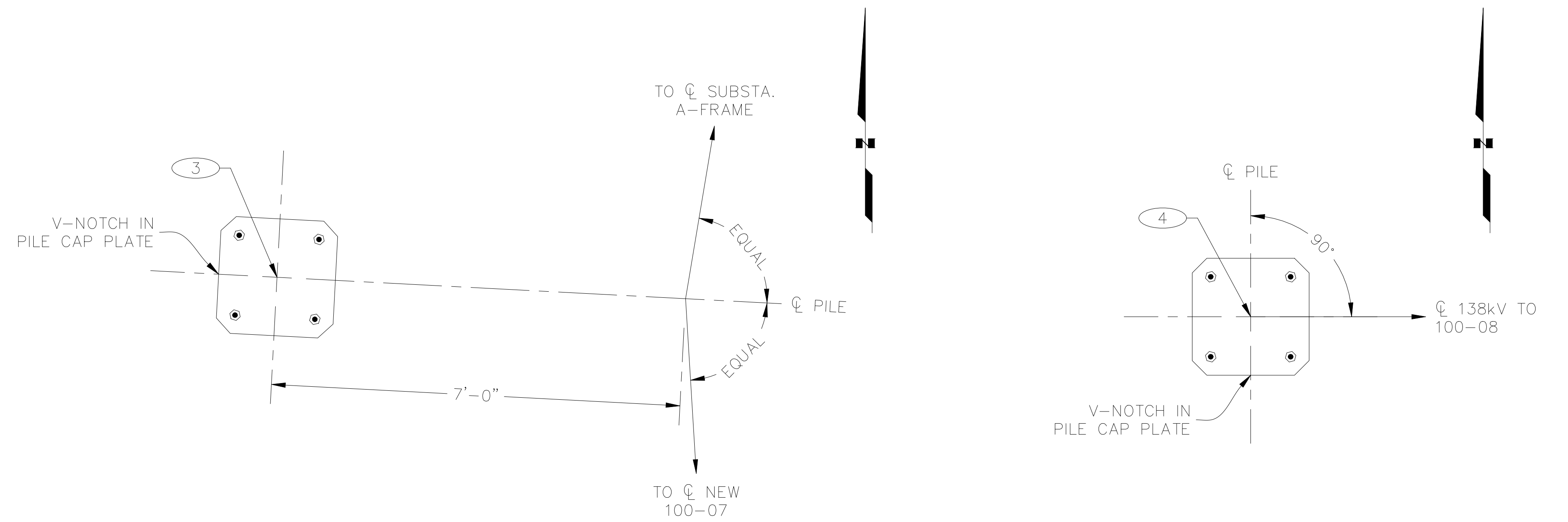
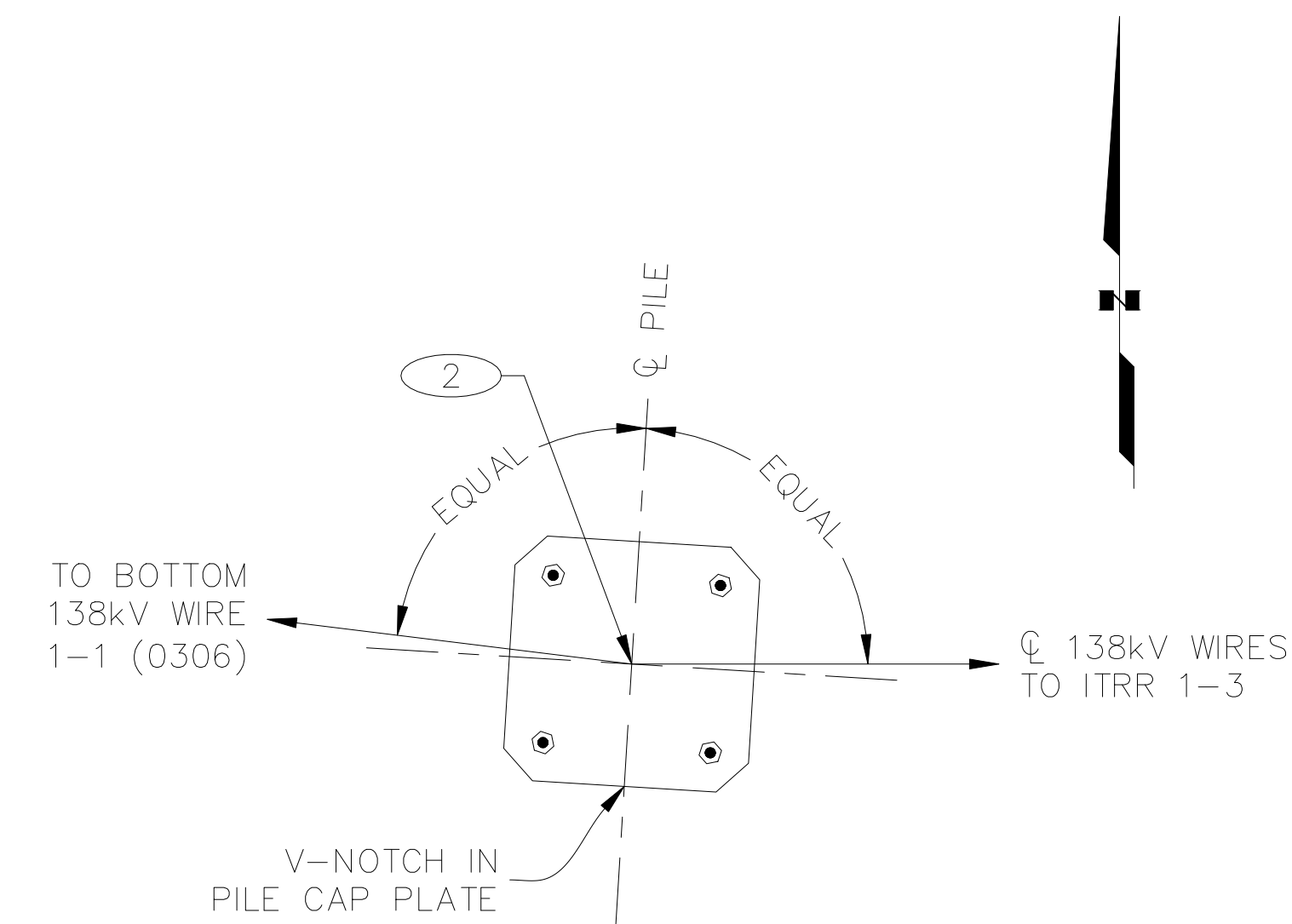
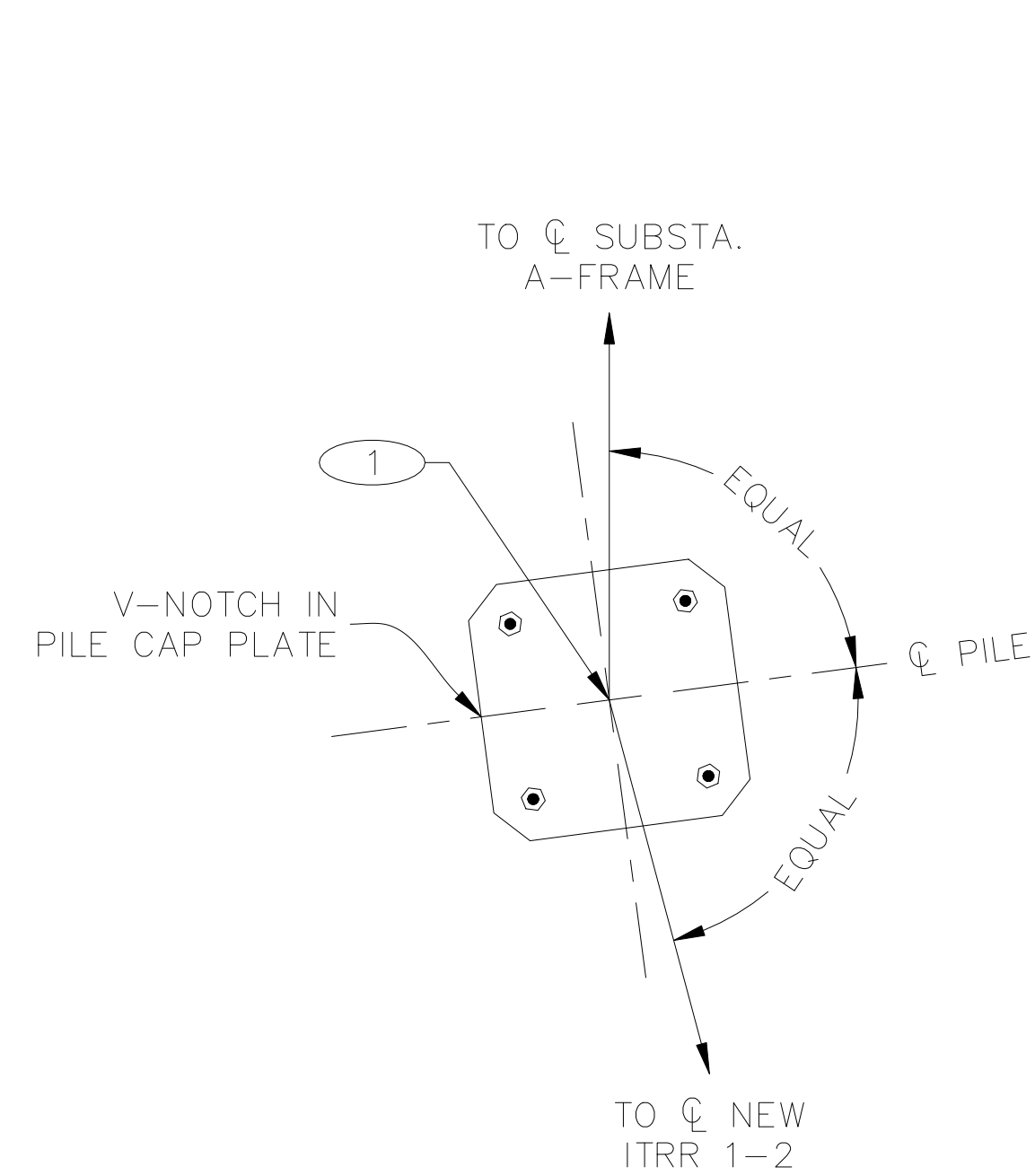


Chugach Electric Association, Inc.
5601 Electron Drive - P.O. Box 196300
Anchorage, Alaska 99519-6300

DRAWING NAME:		138kV TRANSMISSION LINE INTL TRANSMISSION - ROBERT RETHERFORD STRUCTURAL & ASSEMBLY POLE TOP ASSEMBLIES	
CONFIDENTIAL		INSS-SS-0061-0001	
DRAWING NO. - PREVIOUS/REFERENCE		NEW	
DRAWING NO.:		INSS-SS-0061	
SHEET 0001 OF 1		PAGE OF	



LIST OF MATERIALS FOR TG-21D-2FG			
ITEM	QTY/ASM	DESCRIPTION	MANUFACTURE/CATALOG #
7	2	ANCHOR SHACKLE, 30K	HUBBELL #AS-25
25	1	GUY STRAIN INSULATOR, 30K, 42", CLEVIS-CLEVIS W/ 2 ROLLERS	MACLEAN #GCC30-42R2
26	1	GUY STRAIN INSULATOR, 30K, 42", CLEVIS-CLEVIS W/ 1 ROLLER	MACLEAN #GCC30-42R
27	4	PREFORMED GRIP FOR 25M ALUMOWELD	PREFORMED #AWDE-4130
28	1	THIMBLE CLEVIS, 30K, 5/8" PIN	MACLEAN #FSA-88A-5
29	AS REQ'D	GUY WIRE, 25M ALUMOWELD	-



NOTE: PILE CAP PLATES AND ANCHOR BOLTS SHOWN CONCEPTUALLY. SEE STEEL STRUCTURE MANUFACTURER DRAWINGS FOR ACCURATE DETAILS.

COORDINATE TABLE			
POINT NO.	NORTHING	EASTING	DESCRIPTION
1	2618535.403	1656105.568	ITRR 1-1
2	2618341.204	1656154.353	ITRR 1-2
3	2618538.357	1656044.609	ITPM2 1-1/ITUV 1-1
4	2618291.071	1656052.614	100-07
5	2619109.114	1655949.315	ITIN1 1-2
6	2619109.226	1655982.328	ITIN2 1-2
7	2618951.902	1655849.904	N-1
8	2618952.770	1655870.927	N-4

PILE CAP PLATE ORIENTATIONS

PROJECT: SOUTH CAMPUS POLE RELOCATION - PHASE 2			
ENG./DESIGN.: SUPAT CHANONTO (CEA) / GREG HUFFMAN (EPS) W.O. # E2420080			
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN. BY/DATE	REVIEWED MGR./SUPV./DATE
0	ISSUED FOR CONSTRUCTION	KER 01/30/25	GDH 01/30/25

NO.	RECORD REVISION	CAD DRAWN BY	W.P.#	W.O. NUMBER	RECORD APPROVED	DATE
1	X	XX	-	-	XXX	XX/XX/XX

CHUGACH
POWERING ALASKA'S FUTURE

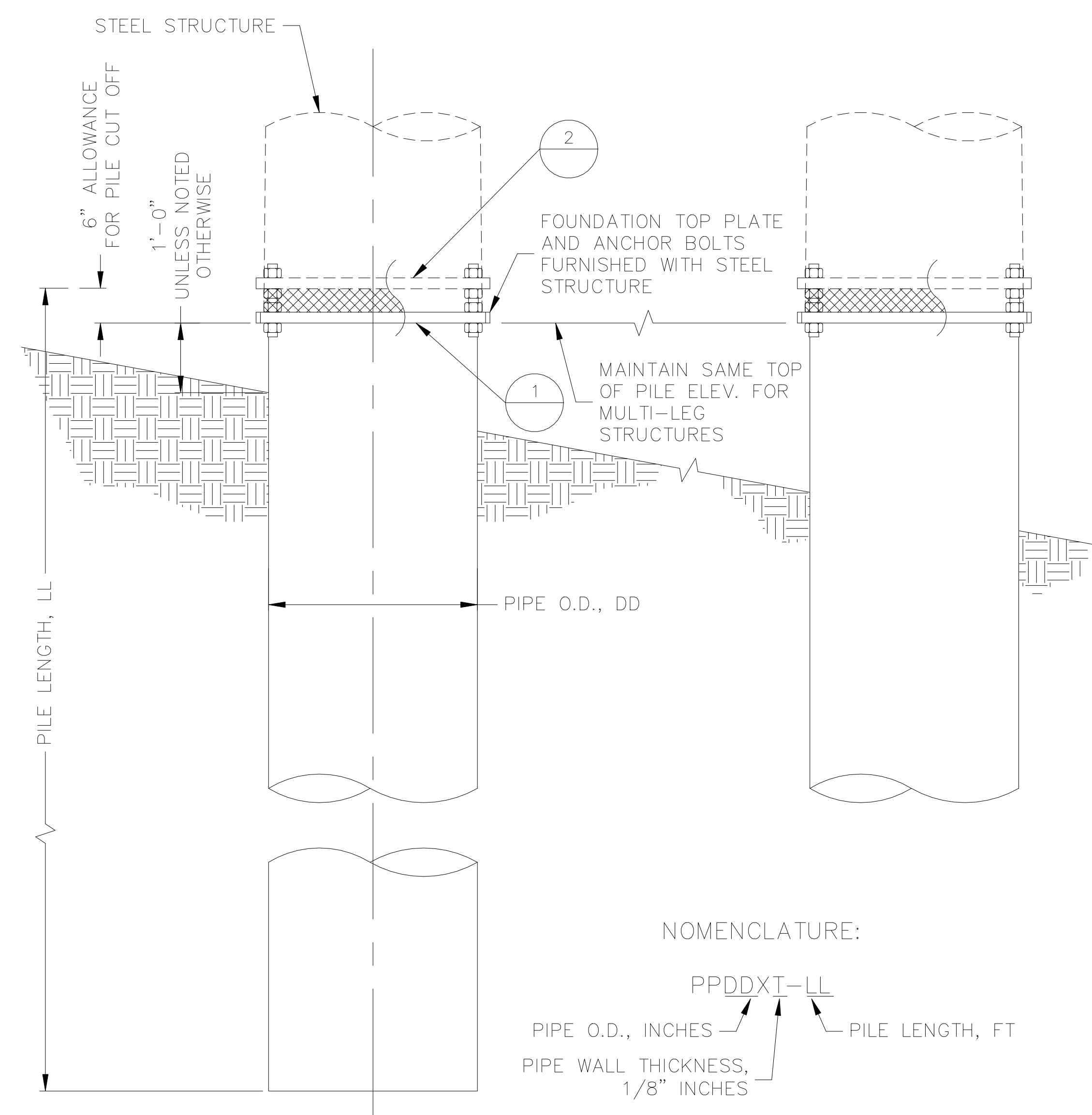
Chugach Electric Association, Inc.
5601 Electron Drive - P.O. Box 196300
Anchorage, Alaska 99519-6300

DRAWING NAME: 138kV TRANSMISSION LINE
INTL TRANSMISSION - ROBERT RETHERFORD
STRUCTURAL & ASSEMBLY
MISCELLANEOUS ASSEMBLIES &
PILE CAP ORIENTATIONS

CONFIDENTIAL

DRAWING NO. - PREVIOUS/REFERENCE
NEW
DRAWING NO.: INSS-SS-0062

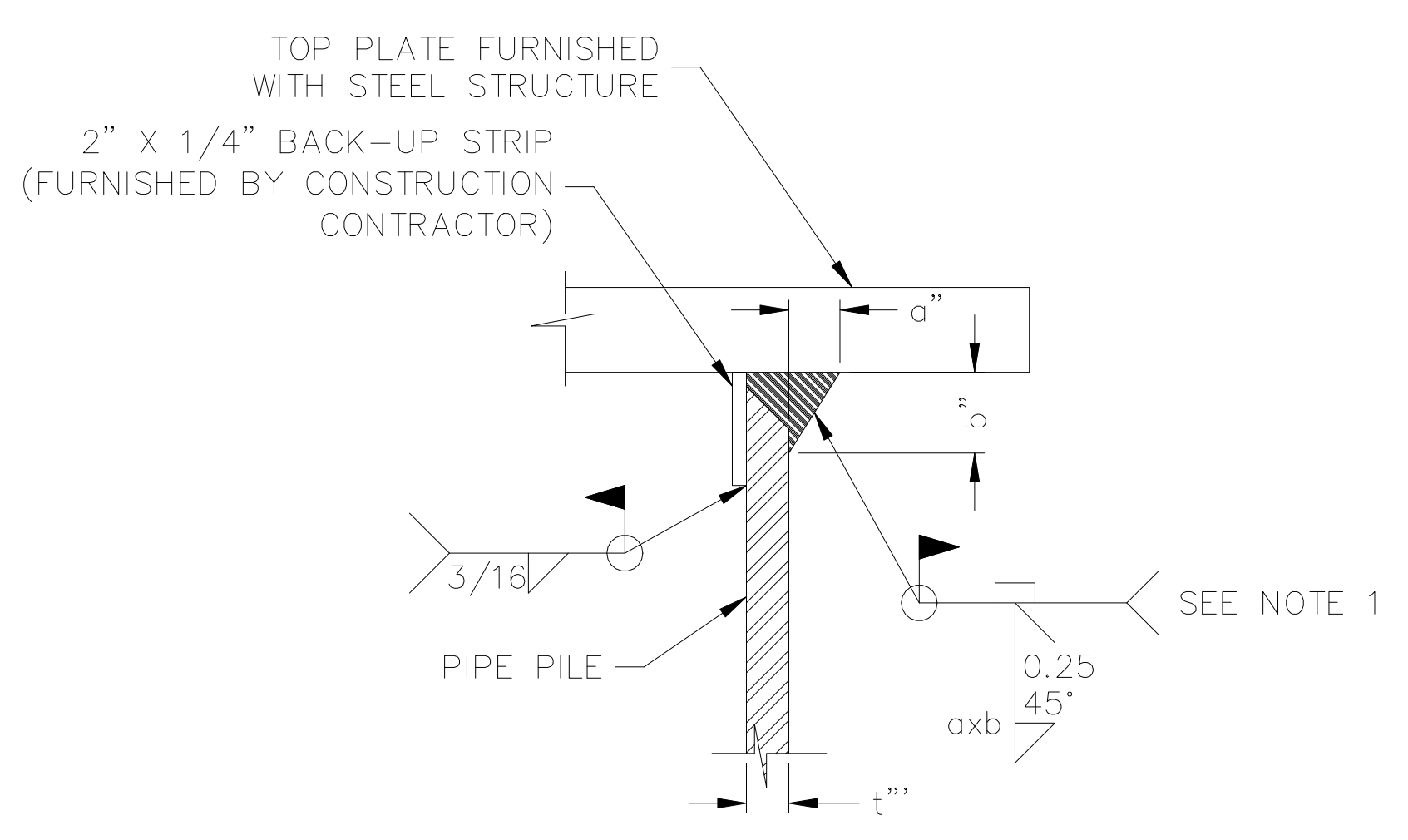
SHEET 0001 OF 1
PAGE OF



PPDDXT-LL
DRIVEN PIPE PILE
FOUNDATION W/WELDED
TOP PLATE

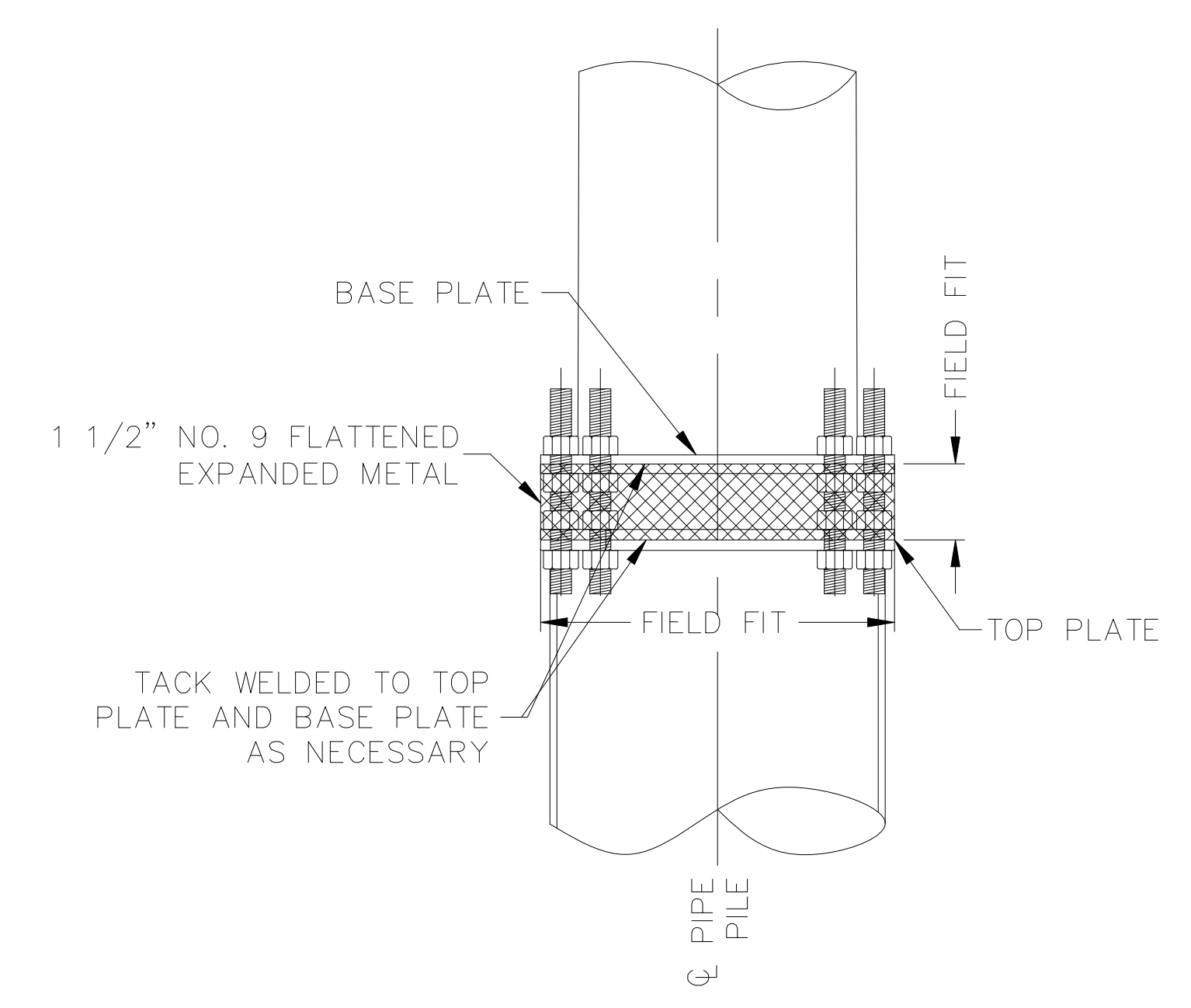
NOMENCLATURE:
PPDDXT-LL
PIPE O.D., INCHES
PIPE WALL THICKNESS, 1/8" INCHES
PILE LENGTH, FT
EXAMPLE: PP36X6-40-U IS AN UNCOATED 36" O.D. X 0.75" WALL X 40' LONG

T, 1/8"	t, in	a	b
6	3/4"	3/4"	1 3/16"
7	7/8"	7/8"	1 5/16"
8	1"	1"	1 7/16"



DETAIL 1
TOP PLATE TO PILE WELD

NOTE:
1. FOR GALVANIZED TOP PLATES, POLISH/GRIND THE WELD AREA AROUND THE PAINTED, NON-GALVANIZED ANNULAS ON THE UNDERSIDE OF THE TOP PLATE PRIOR TO WELDING. TOUCH-UP WITH ZINC-RICH PRIMER AFTER WELDING.



DETAIL 2
FOUNDATION GUARD DETAIL

PROJECT: SOUTH CAMPUS POLE RELOCATION - PHASE 2				
ENG./DESIGN.: SUPAT CHANONTO (CEA) / GREG HUFFMAN (EPS) W.O. # E2420080				
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN. BY/DATE	REVIEWED MGR./SUPV./DATE	APPROVED DIRECTOR/DATE
0	ISSUED FOR CONSTRUCTION	KER 01/30/25	GDH 01/30/25	

NO.	RECORD REVISION	CAD DRAWN BY	W.P.#	W.O. NUMBER	RECORD APPROVED	DATE
1	X	XX	-	-	XXX	XX/XX/XX



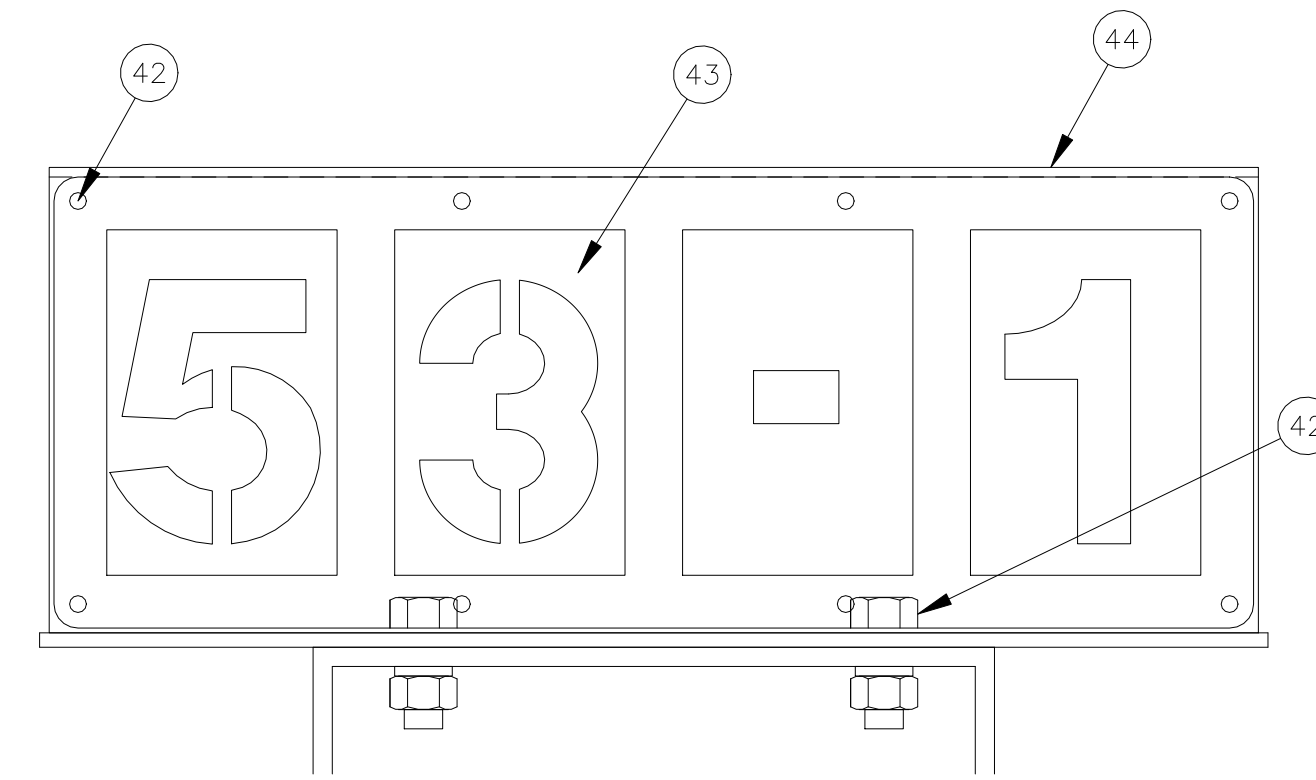
Chugach Electric Association, Inc.
5601 Electron Drive - P.O. Box 196300
Anchorage, Alaska 99519-6300

DRAWING NAME:		138kV TRANSMISSION LINE INTL TRANSMISSION - ROBERT RETHERFORD STRUCTURAL & ASSEMBLY FOUNDATION DETAILS	
CONFIDENTIAL		INSS-SS-0063-0001	
DRAWING NO. - PREVIOUS/REFERENCE		NEW	
DRAWING NO.:		INSS-SS-0063	
SHEET 0001 OF 1		PAGE OF	

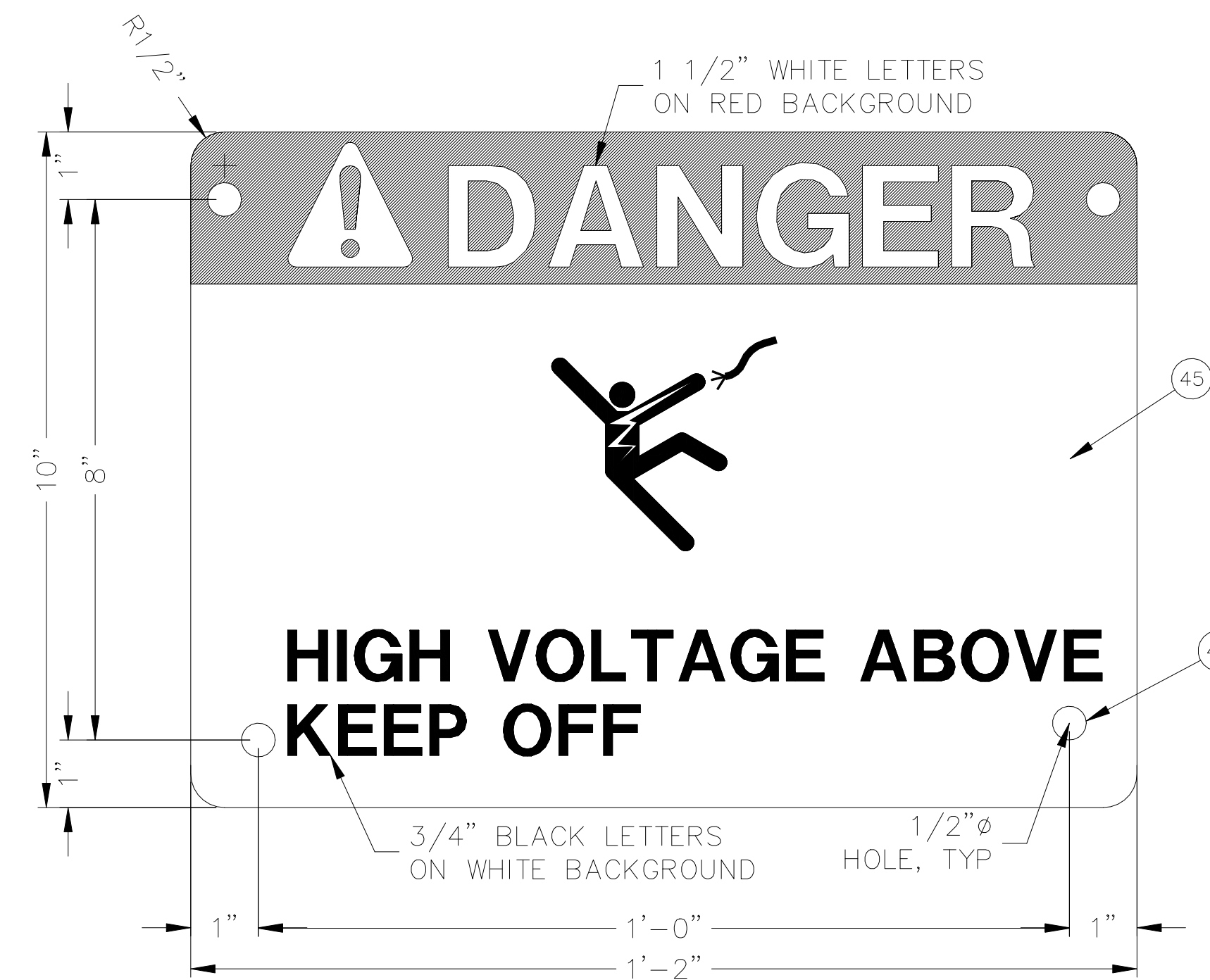
LIST OF MATERIALS FOR SM52-3, SM52-3B & SM52-3T

ITEM	QTY./ASM			DESCRIPTION	MANUFACTURE/CATALOG #
	SM52-3	SM52-3B	SM52-3T		
* 40	3	-	-	POLE DECAL/NUMBER, HDPE, 5" X 7"	-
* 41	1	-	-	POLE NUMBER BASE PLATE, 1/8" ALUMINUM W/ YELLOW REFLECTIVE SHEETING	-
* 42	4	4	20	MACHINE BOLT, 3/8" DIA, WITH NUT AND SPLIT LOCK WASHER	-
* 43	-	-	2	CUT OUT STRUCTURE SIGN, ALUMINUM, SEE DETAIL THIS DWG.	-
* 44	-	-	1	AERIAL SIGN BRACKET, ALUMINUM, WELDED NUT MOUNT, SEE DETAIL THIS DWG.	-
* 45	-	1	-	DANGER SIGN, ALUMINUM	-

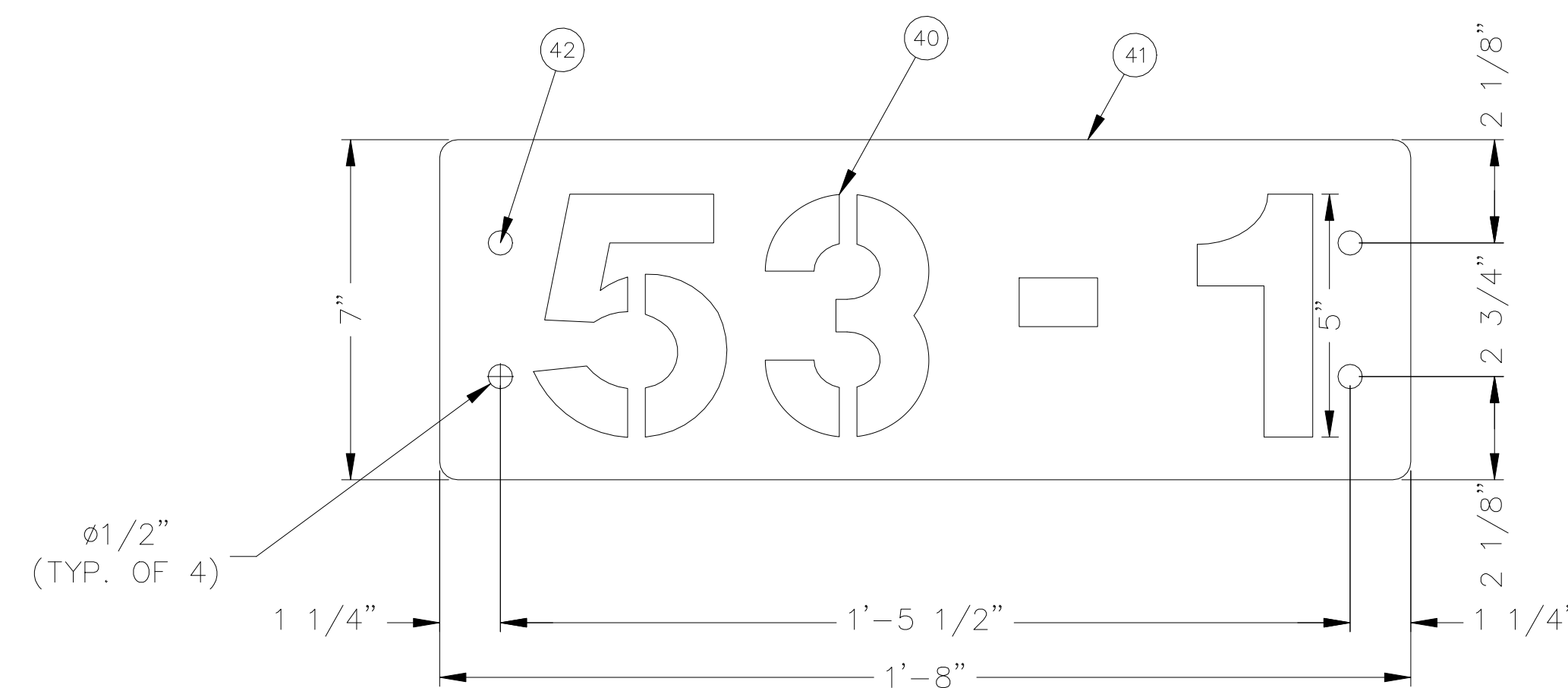
* FURNISHED BY CONSTRUCTION CONTRACTOR



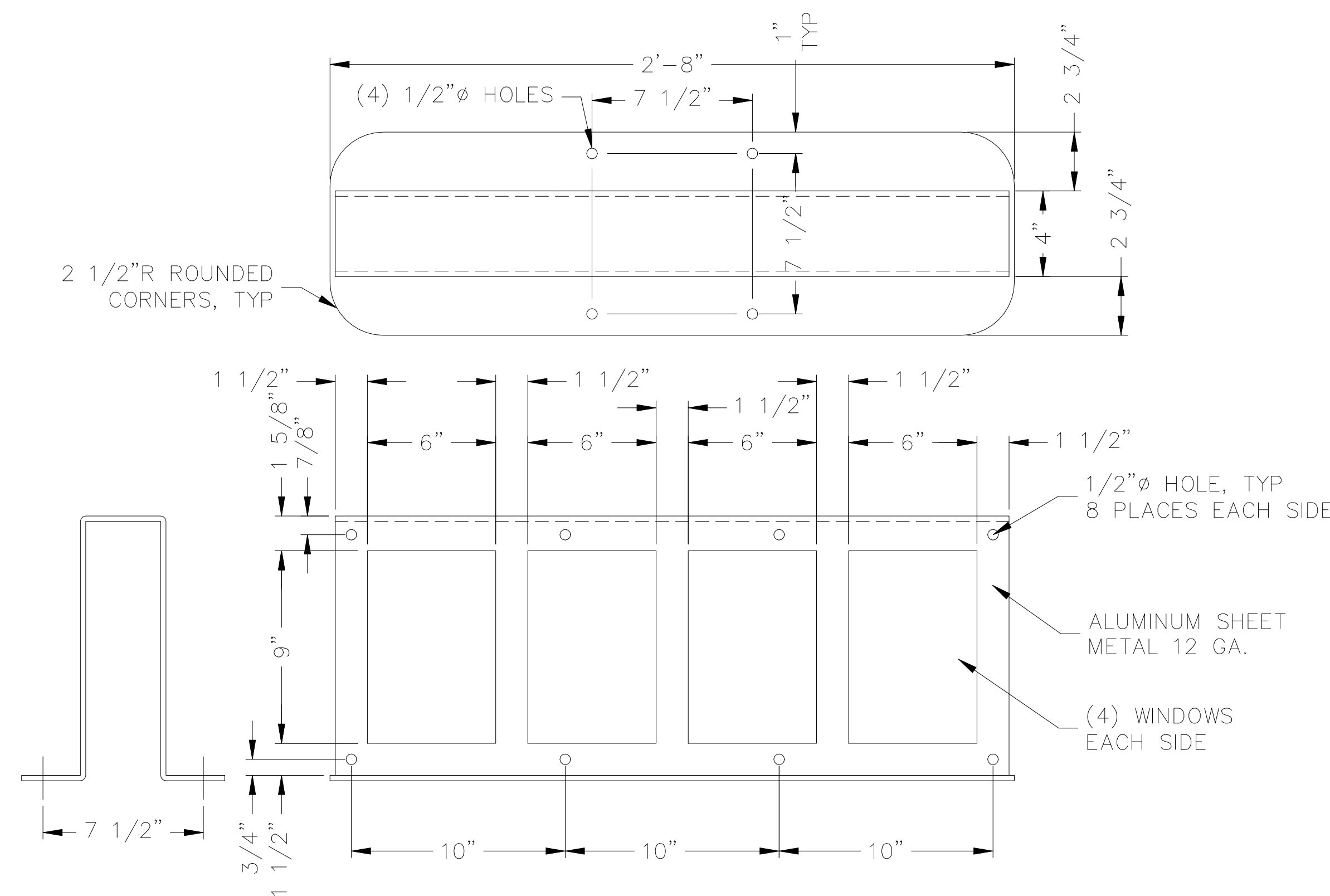
E3 SM52-3T
AERIAL PATROL SIGN FOR
STEEL POLE TOPS



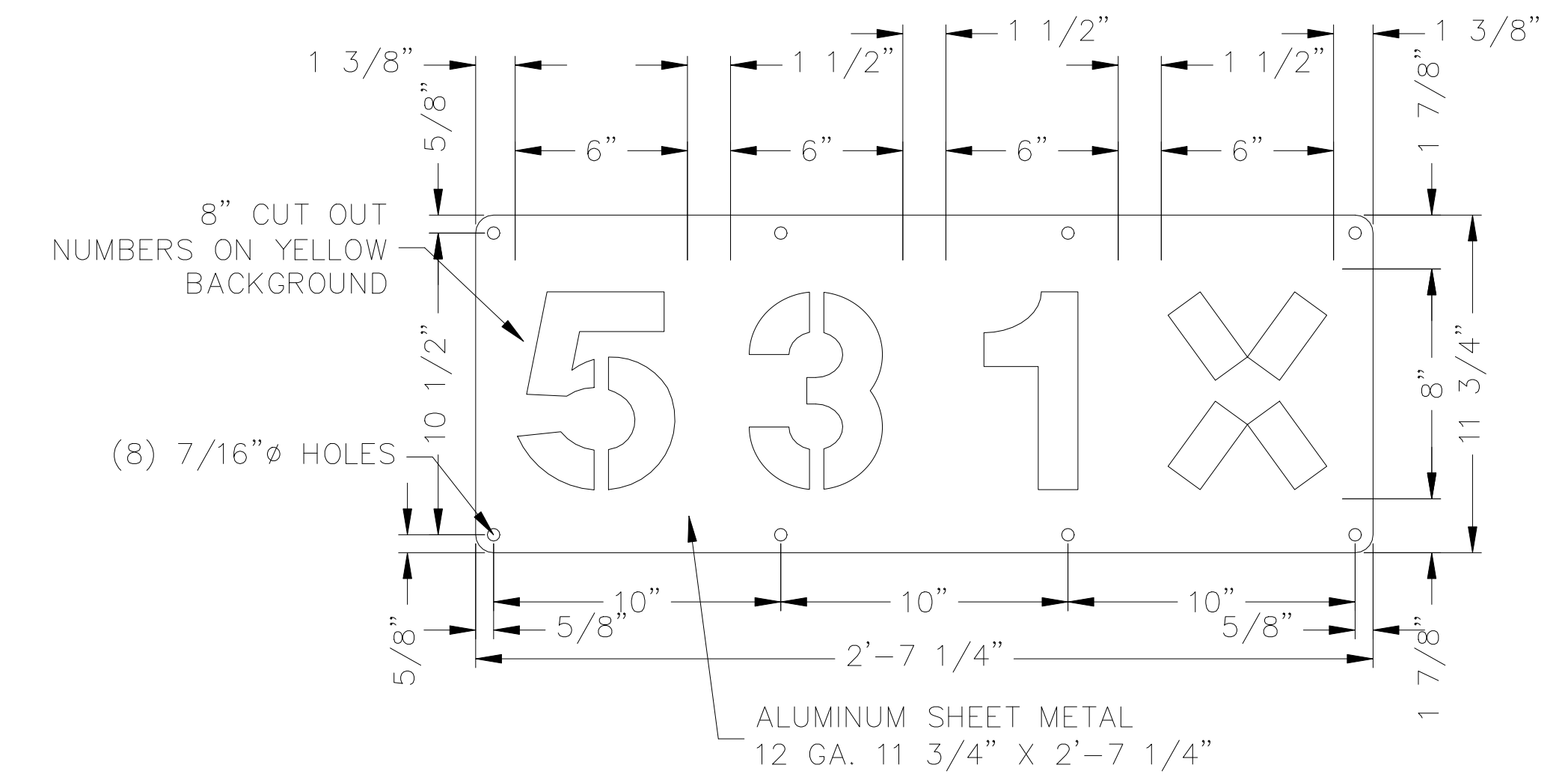
E6 SM52-3B
DANGER SIGN ASSEMBLY



E5 SM52-3
STRUCTURE NUMBER ASSEMBLY
FOR WOOD & STEEL POLES



AERIAL SIGN BRACKET MOUNT, ITEM 44



CUT OUT STRUCTURE SIGN, ITEM 43

NOTES:

- SIGNS SHALL BE FABRICATED WITH 3M 3931 YELLOW TYPE IV REFLECTIVE SHEETING WITH BLACK NUMBERS ON .125" THICK ALUMINUM.
- THESE MATERIALS CONFORM TO STATE OF ALASKA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION AS REQUIRED UNDER SECTIONS 615 AND 730.
- SIGN NUMBERS SHALL MATCH STRUCTURE NUMBER INDICATED ON STRUCTURE SCHEDULE. SEE DWGS. GWD-PP-0016 THROUGH GWD-PP-0020.

PROJECT: SOUTH CAMPUS POLE RELOCATION - PHASE 2				
ENG./DESIGN.: SUPAT CHANONTO (CEA) / GREG HUFFMAN (EPS) W.O. # E2420080				
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN. BY/DATE	REVIEWED MGR./SUPV./DATE	APPROVED DIRECTOR/DATE
0	ISSUED FOR CONSTRUCTION	KER 01/30/25	GDH 01/30/25	

NO.	RECORD REVISION	CAD DRAWN BY	W.P.#	W.O. NUMBER	RECORD APPROVED	DATE
1	X	XX	-	-	XXX	XX/XX/XX



Chugach Electric Association, Inc.
5601 Electron Drive - P.O. Box 196300
Anchorage, Alaska 99519-6300

DRAWING NAME:		138kV TRANSMISSION LINE INTL TRANSMISSION - ROBERT RETHERFORD STRUCTURAL & ASSEMBLY STRUCTURE SIGN ASSEMBLIES	
CONFIDENTIAL		INSS-SS-0064-0001	
DRAWING NO. - PREVIOUS/REFERENCE		NEW	
DRAWING NO.:		INSS-SS-0064	
SHEET 0001 OF 1		PAGE OF	

LOADING CRITERIA

LOAD CASE	TEMP F°	RADIAL ICE, IN	WIND PSF	LOAD FACTORS		
				VERTICAL	WIND	TENSION
NESC HEAVY	0	0.5	4	1.5	2.5	1.65
EXTREME WIND	60	-	29	1.0	1.0	1.0
EXTREME ICE	32	1.0	-	1.1	-	1.1

CONDUCTOR: 795kcmil ACSR "DRAKE" FOR 138kV
 556 KCMIL AAC "DAHLIA" FOR 35kV
 4/0 AWG ACSR "PENGUIN" FOR 12.5kV

LOAD TABLE FOR ITPM2 1-1/ITUV 1-1

LOAD CASE	LOAD PT. A1, 3 PLACES			LOAD PT. A2, 3 PLACES			LOAD PT. A3, 3 PLACES			LOAD PT. A4, 3 PLACES			STRUCTURE		
	V,KIP	T,KIP	L,KIP	V,KIP	T,KIP	L,KIP	V,KIP	T,KIP	L,KIP	V,KIP	T,KIP	L,KIP	W,PSF	Ø	K
1. NESC HEAVY	0.5	-0.7	2.4	0.5	-0.2	2.4	-0.4	-3.7	-4.3	0.5	0.1	-5.3	10	0	1.5
2. EXTREME WIND	0.3	-0.6	1.5	0.3	-0.3	1.5	-0.4	-2.7	-2.7	0.2	-0.1	-3.1	29	0	1.0
3. EXTREME ICE	0.6	-0.5	2.2	0.6	-0.1	2.2	-0.3	-3.0	-3.5	0.6	0.3	-4.6	-	-	1.1

LOAD TABLE FOR 100-07

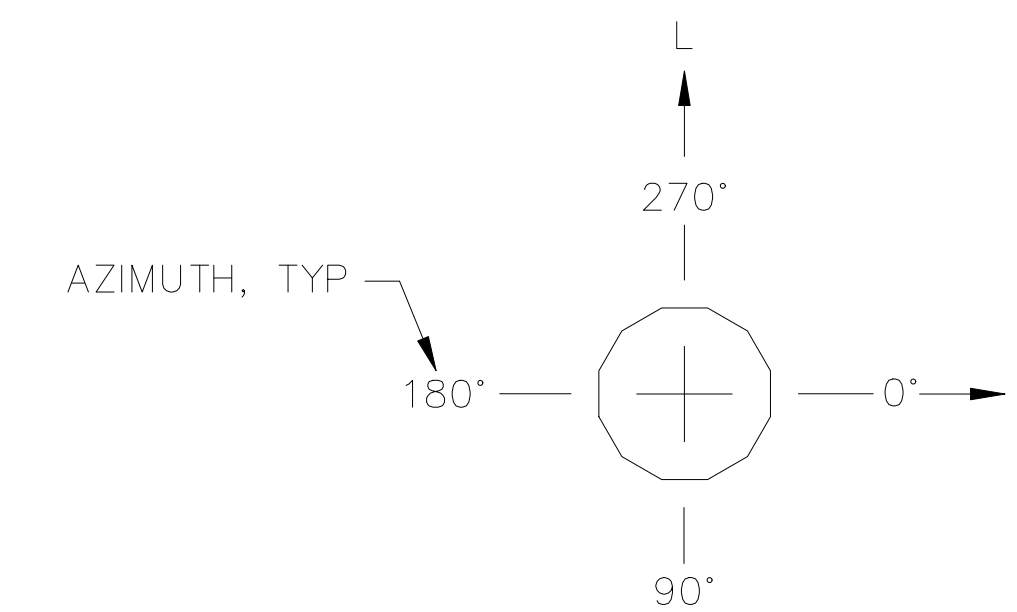
LOAD CASE	LOAD PT. A1, 3 PLACES			LOAD PT. A2, 3 PLACES			LOAD PT. B, 6 PLACES			LOAD PT. C, 4 PLACES			STRUCTURE		
	V,KIP	T,KIP	L,KIP	V,KIP	T,KIP	L,KIP	V,KIP	T,KIP	L,KIP	V,KIP	T,KIP	L,KIP	W,PSF	Ø	K
1. NESC HEAVY	0.4	5.3	-0.4	0.5	0.2	-10.3	0.4	0.5	0.0	0.3	0.2	0.0	10	180	1.5
2. EXTREME WIND	0.2	3.1	-0.4	0.3	0.2	-4.8	0.1	0.4	0.0	0.1	0.2	0.0	29	180	1.0
3. EXTREME ICE	0.5	4.6	-0.2	0.6	0.0	-6.8	0.5	0.2	0.0	0.4	0.1	0.0	-	-	1.1

NOTES:

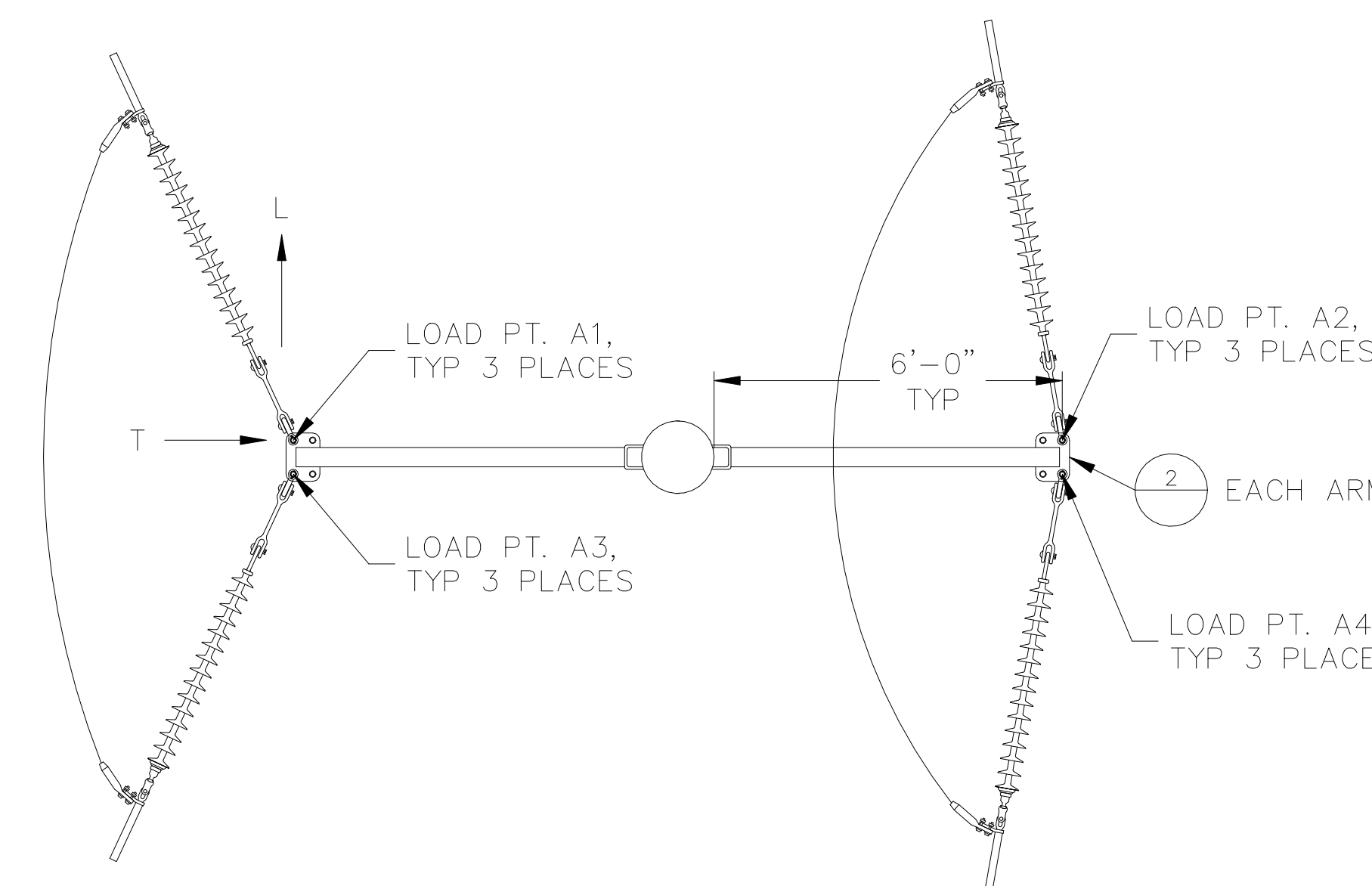
- THE INDICATED LOADS ARE ULTIMATE LOADS WHICH INCLUDE ALL LOAD FACTORS.
- V, T, & L ARE, RESPECTIVELY, THE VERTICAL, TRANSVERSE, AND LONGITUDINAL WIRE LOADS. WEIGHT OF INSULATORS ARE INCLUDED.
- Ø IS THE ORIENTATION OF THE WIND DIRECTION. "W" IS THE WIND PRESSURE INCLUDING LOAD FACTORS TO BE APPLIED TO THE STRUCTURE. THESE WIND PRESSURES SHALL BE MULTIPLIED BY THE SHAPE FACTOR LISTED BELOW. "K" IS THE LOAD FACTOR BY WHICH THE DEAD LOAD OF THE STRUCTURE SHALL BE MULTIPLIED.

CROSS SECTION	SHAPE FACTOR
CIRCULAR	1.0
12-SIDED POLY	1.0
OCTAGONAL	1.2
SQUARE	1.6

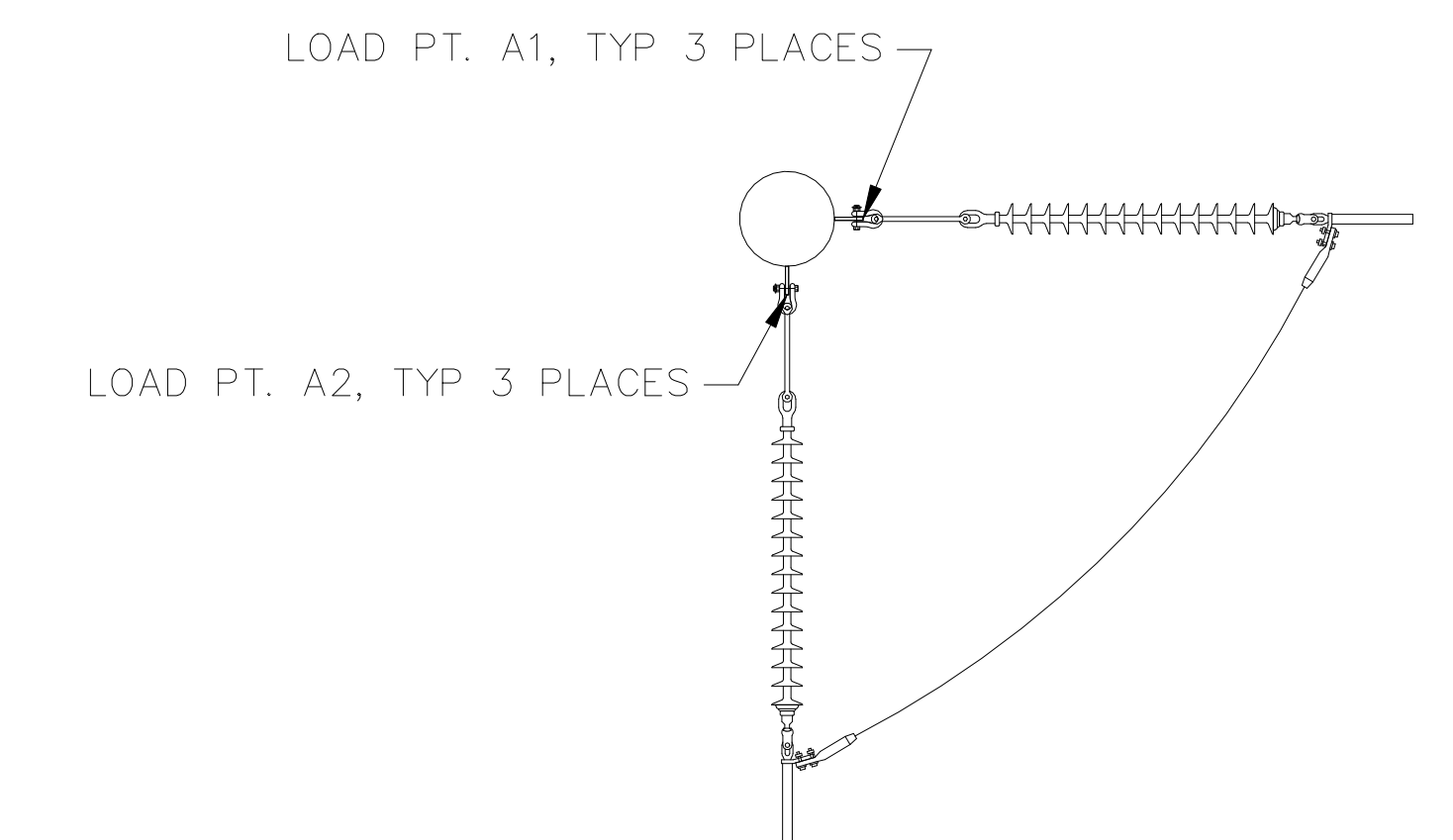
- STRUCTURE ITPM2 1-1/ITUV 1-1 SHALL BE DESIGNED FOR ALL LOAD POINTS INTACT AND FOR LOAD POINTS A1 AND A2 REMOVED.
- STRUCTURE 100-07 SHALL BE DESIGNED FOR ALL LOADS INTACT AND FOR LOAD POINTS A1 REMOVED.
- ARMS FOR STRUCTURE 100-07 SHALL BE DESIGNED FOR A LONGITUDINAL (L) = 3.0 KIP LOAD APPLIED TO THE OUTER-MOST LOAD POINT.



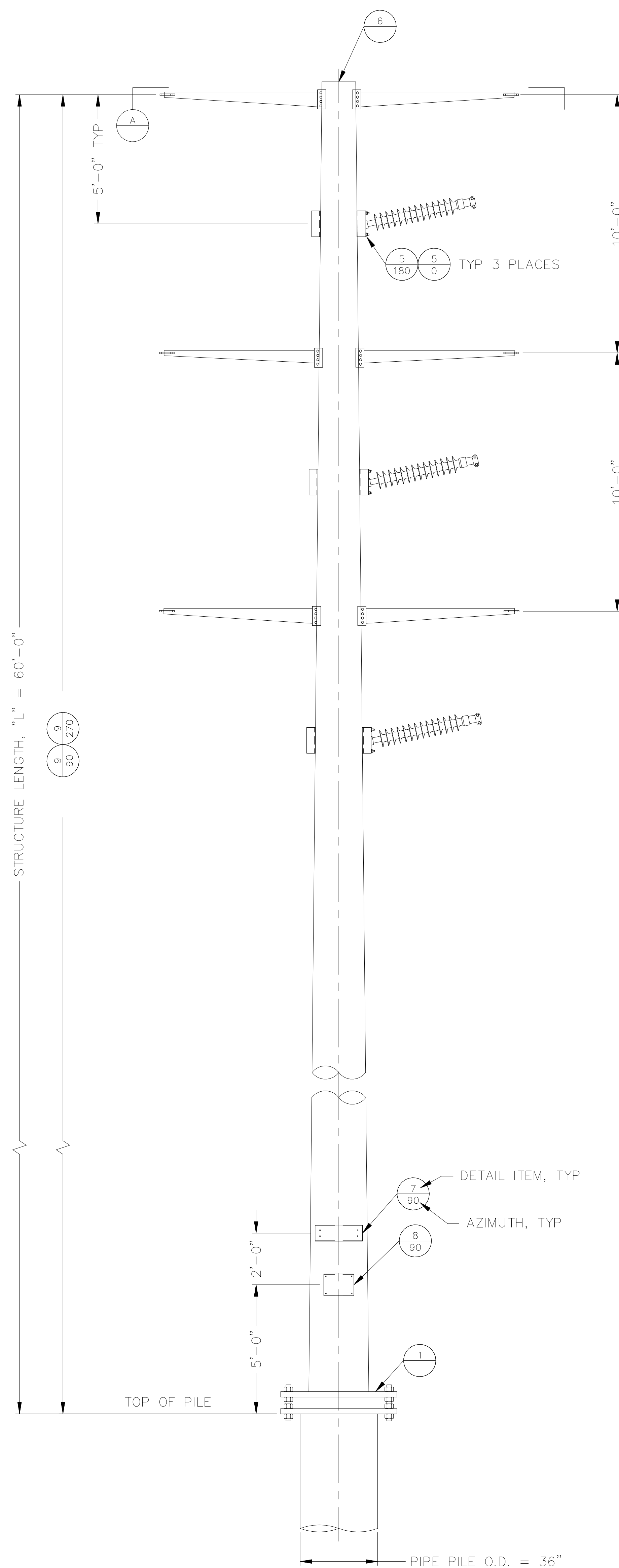
ORIENTATION PLAN



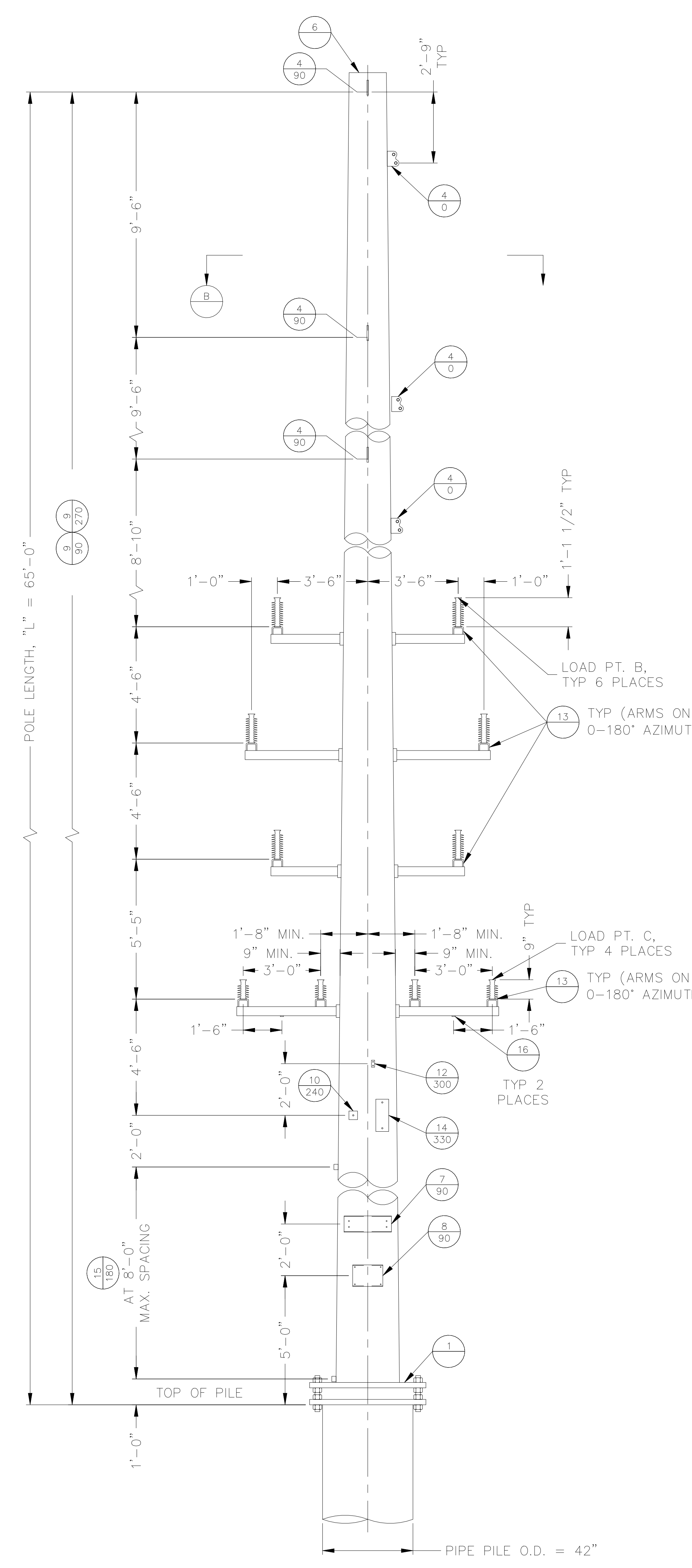
A SECTION



B SECTION



STR. ITPM2 1-1/ITUV 1-1
(1 REQ'D)



STR. 100-07
(1 REQ'D)

ISSUED FOR REFERENCE ONLY
- DO NOT EDIT -

NO.	DRAWING NO./SHEET	REFERENCE DRAWING/DETAIL/PLAN/SECTION DESCRIPTION	NO.	DRAWING NO./SHEET	REFERENCE DRAWING/DETAIL/PLAN/SECTION DESCRIPTION
1	INSS-SS-0060/1	DETAIL - CONNECTION TO PIPE PILE FDN.	13	INSS-SS-0060/1	DETAIL - 35kV PIN INSULATOR BRACKET
2	INSS-SS-0060/1	DETAIL - 138KV ARM DEADEND PLATE	14	INSS-SS-0060/1	DETAIL - TRANSFORMER BRACKET
4	INSS-SS-0060/1	DETAIL - CONDUCTOR ATTACHMENTS	15	INSS-SS-0060/1	DETAIL - RISER BRACKET
5	INSS-SS-0060/1	DETAIL - POST INSULATOR BRACKET	16	INSS-SS-0060/1	DETAIL - ARRESTER BRACKET
6	INSS-SS-0060/1	DETAIL - AERIAL PATROL SIGN MOUNT	A	-	SECTION
7	INSS-SS-0060/1	DETAIL - STRUCTURE NUMBER BRACKET	B	-	SECTION
8	INSS-SS-0060/1	DETAIL - DANGER SIGN BRACKET			
9	INSS-SS-0060/1	DETAIL - LADDER CLIPS FOR CLIMBING AND WORKING PROVISIONS			
10	INSS-SS-0060/1	DETAIL - SECONDARY ATTACHMENT BRACKET			
12	INSS-SS-0060/1	DETAIL - GROUNDING PAD			

PROJECT: SOUTH CAMPUS POLE RELOCATION - PHASE 2				
ENG./DESIGN.: SUPAT CHANONTO (CEA) / GREG HUFFMAN (EPS) W.O. # E2420080				
NO.	DESIGN/CONSTRUCTION/ASBUILT REVISION	DWN. BY/DATE	REVIEWED MGR./SUPV./DATE	APPROVED DIRECTOR/DATE
0	ISSUED FOR PROCUREMENT BID	KER 03/15/24	GDH 03/15/24	
0-1	ISSUED FOR CONSTRUCTION REFERENCE	KER 01/30/25	GDH 01/30/25	

NO.	RECORD REVISION	CAD DRAWN BY	W.P.#	W.O. NUMBER	RECORD APPROVED	DATE
1	X	XX	-	-	XXX	XX/XX/XX



Chugach Electric Association, Inc.
 5601 Electron Drive - P.O. Box 196300
 Anchorage, Alaska 99519-6300

DRAWING NAME:	
138kV TRANSMISSION LINE INTERNATIONAL TRANSMISSION SUBSTATION STEEL STRUCTURES ITPM2 1-1/ITUV 1-1 AND 100-07	
CONFIDENTIAL	INSS-SS-02XX-0001
DRAWING NO. - PREVIOUS/REFERENCE	
DRAWING NO.:	INSS-SS-02XX
SHEET 0001 OF 1	PAGE _____ OF _____