

True-Up Report: FiRM C221 Section F

1/09/2020

Prepared For:

San Diego Gas & Electric

FiRM Program

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EXECUTIVE SUMMARY

This True-Up Report details and summarizes post-construction photographic and LiDAR findings for Section F of Circuit C221. The following failures, deficiencies, violations, and concerns were discovered during our as-built assessment of C221-F.

- Total poles not built per design = 11
- Total pole structural utilization failures = 4
- Total structures that do not meet avian protection requirements = 2
- Total pole embedments that do not meet G095 minimum requirements for soil = 1
- Total poles that do not comply with current SDG&E Standards = 7
- Total poles with lean resultant greater than 2° = 10
- Total poles with SDGE wire clearance violations = 31
- Total poles with G095 wire clearance violations = 27
- Total poles with catenary constants greater than 4,700' at 60°F = 0

The following FIRM Program Inspection Codes, with the quantity in parentheses, have been identified in this submittal's Engineer's Pole List (EPL) spreadsheet. Recommendations for mitigation, when applicable, are also included in the EPL spreadsheet.

- (10) TU-720: Excessive Pole Lean/Deflection
- (4) TU-730: Overloaded Pole Structure
- (1) TU-740: Pole Embedment Depth too Shallow
- (12) OH-254: Wire Clearance Issue w/ SDGE Wires
- (29) OH-438: CIP Not Transferred to New Pole
- (8) OH-459: CIP Insufficient Ground Clearance CIP Wires – Vehicular Traffic
- (1) PC-905: Not Installed per Standards
- (4) OH-460: CIP Insufficient Ground Clearance CIP Wires
- (4) PC-901: Design Not Followed

- (4) PC-906: Missing Pole Caps and Plugs

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C221-F Vicinity Map	Error! Bookmark not defined.
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APPENDIX

Engineer's Pole List (EPL)
 As-built PLS-CADD Model (.bak)
 Crossarm Calculation Spreadsheets
 PRG Output

1.0 INTRODUCTION

This True-Up Report details and summarizes post-construction photographic and LiDAR findings for Section F of Circuit C221, i.e. C221-F. This True-Up Report is the summarizing component of NV5's True-Up Submittal for C221-F. For additional information, refer to appendix documents provided.

1.1 LOCATION

C221-F, is located in Julian, CA. The main roadway intersection for C221-F is the 78 and Manzanita Drive. C221-F is one of 22 sections created for this specific phase of fire risk mitigation designs.

1.2 TRUE-UP SCOPE

C221-F is comprised of 46 in-scope poles over approximately 3504 linear feet. After including 11 "+1' poles, this True-Up Report covers 57 total poles.

1.3 ENERGIZED DATE

After reviewing as-built documentation on the FiRM FTP, specifically the file "C221 F Redlines", we have determined the energized date for C221-F to be 06/28/2018.

1.4 LIDAR ACQUISITION DATE

The LiDAR data that covered the majority of C221-F had an acquisition date of 05/23/2019, per the weather data spreadsheet provided by FiRM. Since this LiDAR data was captured more than 6 months after the energized date, the existing electrical conductors will be sagged at Creep FE conditions in the PLS-CADD model.

2.0 PLS-CADD MODELING APPROACH

NV5 built all PLS-POLE models from scratch using current SDGE approved criteria and component files to match the LiDAR and/or design documents provided. The conductors were graphically sagged to the LiDAR provided at the ambient temperature +10 °F for primary and secondary wires and at ambient temperature for all communication wires under Creep FE (Reference Energized Date 1.3).

2.1 ASSUMPTIONS

NV5 assumes the "sign-off" date for materials checked off in the DPSS redlines as-built PDF is the actual "energized" date when all conductors had been strung, sagged, and successfully energized. NV5 also, with the aid of pictures, prior job walk notes, and SDG&E GIS, has assumed certain unknown secondary conductor and communication cables at various locations across C221-F. These, and other PLS-CADD modeling assumptions, have been listed in greater detail inside the PLS-CADD .bak file's Criteria Notes section.

2.1.1 INCOMPLETE COMMUNICATION TRANSFERS

All communication cable transfers were not completed before this section's LiDAR data was acquired. Please note the following communication cable transfers were assumed when attempting to provide accurate as-built analyses for the "final" condition of the following poles:

- P110711J – assumed communication transfer at same height
- P110714J – assumed communication transfer at same height
- P110713 – assumed communication transfer at same height
- P110215 – assumed communication transfer at same height
- P166201 – assumed communication transfer at same height
- P110214 – assumed communication transfer at same height
- P166114 – assumed communication transfer at same height
- P310182 – assumed communication transfer at same height
- P110218 – assumed communication transfer at same height
- P110219 – assumed communication transfer at same height
- P210484 – assumed communication transfer at same height
- P110707 – assumed communication transfer at same height
- P110708J – assumed communication transfer at same height
- P110709 – assumed communication transfer at same height
- P817174 – assumed communication transfer at same height
- P817172 – assumed communication transfer at same height
- P817173 – assumed communication transfer at same height
- P412434 – assumed communication transfer at same height
- P412433 – assumed communication transfer at same height
- P511485 – assumed communication transfer at same height
- P412432 – assumed communication transfer at same height

- P611283 – assumed communication transfer at same height
- P110221 – assumed communication transfer at same height
- P416139 – assumed communication transfer at same height
- P416138 – assumed communication transfer at same height
- P410411 – assumed communication transfer at same height
- P410410 – assumed communication transfer at same height
- P117927 – assumed communication transfer at same height
- P117926 – assumed communication transfer at same height

2.2 METHODOLOGY

The following bullets highlight our general PLS-CADD modeling approach for the True-Up process. Please reach out to NV5's FiRM PLS-CADD Lead Corey McCartney for additional details on this engineering analysis approach.

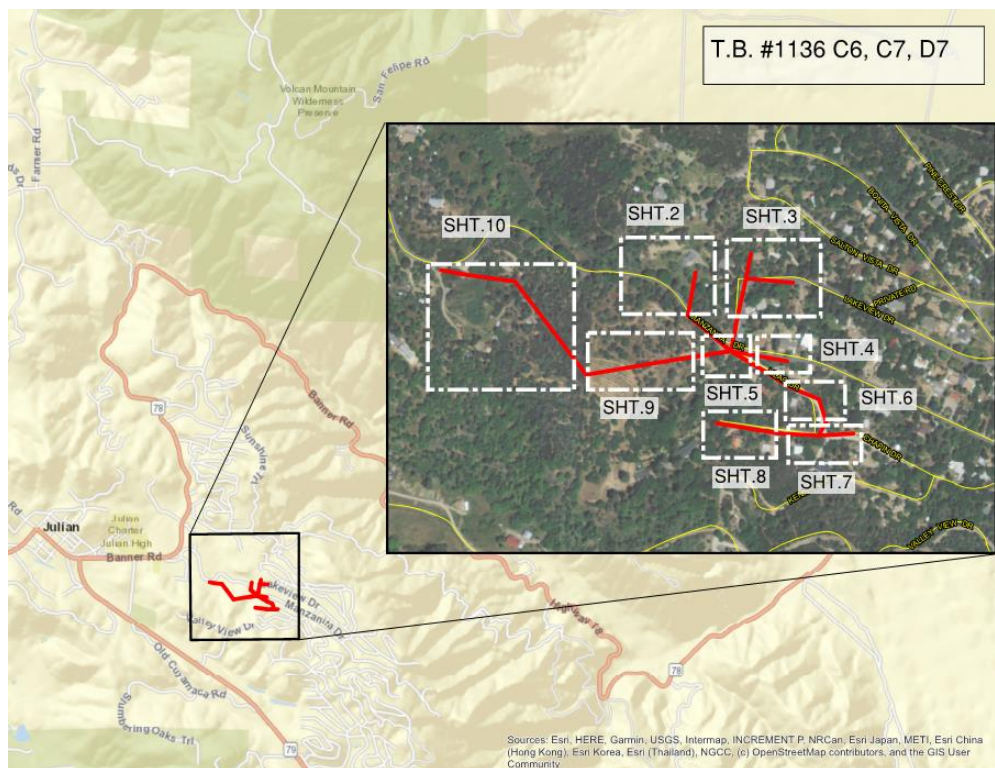
- Create new PLS-CADD .xyz model
- Import SDG&E PLS-CADD “setup” files, including:
 - Criteria file – must be compliant with TE-0002 and ET&DE Std 12100
 - Feature Code file – must be compliant with TE-0135
 - Schema file – must be compliant with FiRM documentation requirements
- Import applicable LiDAR data that was provided by FiRM at the following FTP location: \C221\Sec-F\PLS-CADD_Setup
- Create overhead alignment, P.I. points, and branches, where applicable
- Create M4 and M1 structures, where applicable
 - Snap pole bases to surveyed location
 - Lean pole tops to match LiDAR points
 - Position crossarms to match LiDAR data points

- Raise or lower conductor and cable attachments to align with LiDAR points
- Update wire colors to display all conductors as “existing”, per TE-0002
- Attach oblique structure photos provided by FiRM, if available, from the following FTP location: \C221\Sec-F\Recv\Post Construction Data\04_Oblique Imagery
- String applicable electric primary, electric secondary, and communication cables across in-scope, “+1”, and “+2” poles. Utilize conductor file naming conventions detailed in TE-0002.
- Graphically sag conductors and cables, per TE-0002, utilizing weather and wind data provided by FiRM in the file “C221_A_F_G_O_P_Q_R_S_T_U_W_Y_Weather”
 - Primary and secondary electric conductors to be sagged at ambient temperature plus 10°F
 - “Creep FE” sag condition to be utilized due to the duration between energized date and LiDAR acquisition being greater than 6 months
 - Communication cables and span guy wires to be sagged at ambient temperature
 - If communication cable is transferred, graph sag communication cable to match LiDAR data
 - If communication cable is not transferred, model transfer of communication at the current elevation or at an elevation that eliminates G095 infractions (these transfer assumptions will be detailed in the PLS-CADD model’s criteria notes, when applicable)
 - Communication dead end attachments were added to poles if it allowed for a better graph sag fit to the lidar points in the span.
- Utilize FiRM-provided design and construction documents to aid in as-built modeling accuracy, including:
 - Construction Drawing
 - RFI Responses
 - FCO Drawings
 - SCO Drawings
 - As-built DPSS Redlines
- Evaluate structures utilizing “at replacement” load cases, for applicable loading districts
 - SAPS Finite Element Sag-Tension Level 4 was limited to guyed or otherwise asymmetrical structures

- Update Crossarm Calculation Spreadsheets
 - Pin Spacing calcs were determined using the Ruling Span method.
 - Crossarm utilization limits were determined by L3/L4 loads
- Revised first 10 rows of PLS-CADD structure comments with updated values

3.0 VICINITY MAP

The vicinity map below shows the approximate area for this project’s scope of work, including Thomas Bros. map numbers and the corresponding overhead design sheet numbers.



4.0 GENERAL FINDINGS

Twenty-seven (27) G095 violations were found throughout the PLS-CADD model. One (1) pole replacement is recommended.

APPENDIX

Please review the remainder of our C221-F True-Up Submittal, which includes the following additional deliverables:

- Engineer's Pole List (EPL), which includes:
 - Summary of conditions by pole ID
 - Pole plumb calculations
 - Pole utilizations
 - Section usages
- As-built PLS-CADD Model (.bak)
- Crossarm Calculation Spreadsheets
- PRG Output



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Appendix C - Pole Plumb Calculations

Model	Structure	Pole Lean resultant (DEG)	Pole Lean Resultant based on STD Embedment (ft)	Percent Pole Lean based on AGH	Deg about X	Deg about Y	Pole Height (ft)
Section F	P110711J	0.41	0.34	0.72%	0.0611919	0.408748	55
Section F	P516083	0.84	0.63	1.47%	-0.834055	0.0974601	50
Section F	P112625	0.79	0.59	1.38%	-0.617935	-0.48879	50
Section F	P110714J	1.25	0.94	2.18%	1.0205	0.721182	50
Section F	P110715	0.13	0.08	0.23%	-0.00721927	-0.129431	40
Section F	P246355	0.24	0.14	0.42%	0.220818	-0.101929	40
Section F	P110713	0.48	0.39	0.83%	0.139802	0.454814	55
Section F	P713311	2.89	2.17	5.04%	0.101242	-2.88948	50
Section F	P713310	4.17	2.80	7.27%	0.835888	-4.08295	45
Section F	P516084	1.17	0.88	2.05%	0.957871	-0.680158	50
Section F	P110215	0.42	0.35	0.74%	-0.413045	-0.0993509	55
Section F	P166201	0.25	0.21	0.44%	-0.245971	0.0629108	55
Section F	P110214	0.71	0.54	1.25%	0.197499	0.687148	50
Section F	P166114	1.18	0.88	2.05%	-0.133213	1.16975	50
Section F	P310182	0.99	0.82	1.73%	-0.398091	0.908081	55
Section F	P110218	1.97	1.78	3.43%	-0.660277	1.85232	60
Section F	P258360	0.22	0.15	0.38%	0.206551	-0.063541	45
Section F	P110219	0.63	0.57	1.09%	-0.0750575	-0.622175	60
Section F	P210482	0.63	0.48	1.11%	0.609513	0.172231	50
Section F	P210483	0.94	0.63	1.64%	-0.926186	-0.14937	45
Section F	P210484	1.57	1.06	2.75%	1.49175	0.505062	45
Section F	P110707	1.12	0.84	1.95%	-0.891064	0.677236	50
Section F	P110708J	0.18	0.15	0.31%	-0.0862301	-0.153667	55
Section F	P110709	0.50	0.46	0.88%	0.497671	0.0611346	60
Section F	P817174	1.75	1.31	3.05%	-0.0667496	-1.74775	50
Section F	P817172	1.16	0.87	2.03%	-0.155386	-1.14998	50
Section F	P817173	1.56	1.17	2.72%	-1.49891	-0.432067	50
Section F	P412434	0.26	0.19	0.45%	-0.207754	0.150974	50
Section F	P412433	0.67	0.56	1.17%	-0.374199	-0.556743	55
Section F	P511485	1.18	0.79	2.05%	-0.133213	1.16975	45
Section F	P412432	2.91	1.96	5.08%	2.90576	0.200593	45
Section F	P136641	0.10	0.07	0.17%	0.0567801	0.0790109	50
Section F	P210713	0.19	0.16	0.33%	-0.141922	0.126394	55
Section F	P223189	3.26	1.42	5.69%	-3.14519	-0.869463	30
Section F	P611283	0.24	0.18	0.41%	-0.222365	-0.0775785	50
Section F	P110221	1.33	1.10	2.32%	0.0433156	-1.33138	55
Section F	P110220	1.44	0.97	2.52%	1.43841	-0.0920743	45
Section F	P712369	1.38	1.04	2.41%	0.306876	-1.34742	50
Section F	P416139	0.74	0.61	1.29%	-0.0742553	0.734704	55
Section F	P416138	0.55	0.45	0.96%	0.474581	-0.2729	55
Section F	P410411	0.42	0.38	0.73%	0.113503	0.400326	60
Section F	P246353	2.12	1.26	3.70%	-1.93923	-0.854337	40
Section F	P410410	1.11	1.01	1.94%	-0.153954	1.0991	60
Section F	P117927	0.71	0.59	1.24%	-0.266253	0.657469	55
Section F	P117926	0.81	0.61	1.42%	-0.6208	-0.52523	50
Section F	P110710	2.22	1.31	3.87%	-2.20451	-0.217036	40
Section F	P111234	3.13	1.36	5.45%	0.346181	-3.10681	30
Section F	P110712	3.18	1.39	5.54%	-3.1684	0.22947	30
Section F	P102881	1.21	0.81	2.11%	-0.40531	1.13663	45
Section F	P112798	0.94	0.49	1.65%	-0.724448	0.603668	35
Section F	P719436	4.76	3.20	8.31%	3.36659	-3.37105	45
Section F	P511486	3.09	1.59	5.39%	3.03605	0.582813	35
Section F	P519114	0.80	0.41	1.40%	-0.575651	0.556399	35
Section F	P117928	1.67	0.86	2.92%	0.557774	1.57667	35
Section F	P719103	0.88	0.45	1.53%	0.650364	0.591235	35

Appendix D - Maximum Pole Utilizations By Weather Case

Pole	Weather Case	Maximum Utilization (%)
P110711J	GO95HVY GRD A+ AT REPLACEMENT,S NA	24.6
P516083	KNOWN LOCAL WIND HEAVY GRD A 85+ AT	11.98
P112625	KNOWN LOCAL WIND HEAVY GRD A 85- AT	15.17
P110714J	GO95HVY GRD A- AT REPLACEMENT,S NA	22.69
P110715	KNOWN LOCAL WIND HEAVY GRD A 85+ AT	29.25
P246355	KNOWN LOCAL WIND HEAVY GRD A 85+ AT	9.25
P110713	GO95HVY GRD A+ AT REPLACEMENT,S NA	29.95
P713311	KNOWN LOCAL WIND HEAVY GRD A 85- AT	31.18
P713310	KNOWN LOCAL WIND HEAVY GRD A 85- AT	23.29
P516084	KNOWN LOCAL WIND HEAVY GRD A 85- AT	25.9
P110215	GO95HVY GRD A+ AT REPLACEMENT,S NA	19.57
P166201	KNOWN LOCAL WIND HEAVY GRD A 85- AT	31.66
P110214	KNOWN LOCAL WIND HEAVY GRD A 85+ AT	46
P166114	KNOWN LOCAL WIND HEAVY GRD A 85+ AT	37.1
P310182	KNOWN LOCAL WIND HEAVY GRD A 85- AT	45.17
P110218	GO95HVY GRD A+ AT REPLACEMENT,S NA	48.78
P258360	GO95HVY GRD A+ AT REPLACEMENT,S NA	47.91
P110219	KNOWN LOCAL WIND HEAVY GRD A 85+ AT	27.17
P210482	KNOWN LOCAL WIND HEAVY GRD A 85- AT	37.84
P210483	KNOWN LOCAL WIND HEAVY GRD A 85- AT	27.65
P210484	KNOWN LOCAL WIND HEAVY GRD A 85- AT	16.19
P110707	GO95HVY GRD A- AT REPLACEMENT,S NA	33.69
P110708J	KNOWN LOCAL WIND HEAVY GRD A 85- AT	22.3
P110709	GO95HVY GRD A- AT REPLACEMENT,S NA	11.15
P817174	KNOWN LOCAL WIND HEAVY GRD A 85- AT	34.81
P817172	KNOWN LOCAL WIND HEAVY GRD A 85+ AT	35.27
P817173	KNOWN LOCAL WIND HEAVY GRD A 85- AT	31.53
P412434	GO95HVY GRD A+ AT REPLACEMENT,S NA	24.98
P412433	KNOWN LOCAL WIND HEAVY GRD A 85+ AT	24.35
P511485	KNOWN LOCAL WIND HEAVY GRD A 85- AT	28.78
P412432	KNOWN LOCAL WIND HEAVY GRD A 85+ AT	24.51
P136641	KNOWN LOCAL WIND HEAVY GRD A 85+ AT	38.69
P210713	GO95HVY GRD A+ AT REPLACEMENT,S NA	10.73
P223189	GO95HVY GRD A- AT REPLACEMENT,S NA	15.5
P611283	GO95HVY GRD A+ AT REPLACEMENT,S NA	23.14
P110221	GO95HVY GRD A- AT REPLACEMENT,S NA	25.18
P110220	KNOWN LOCAL WIND HEAVY GRD A 85- AT	18.76
P712369	KNOWN LOCAL WIND HEAVY GRD A 85- AT	22.97
P416139	KNOWN LOCAL WIND HEAVY GRD A 85+ AT	24.67
P416138	KNOWN LOCAL WIND HEAVY GRD A 85- AT	52.03
P410411	KNOWN LOCAL WIND HEAVY GRD A 85- AT	39.38
P246353	KNOWN LOCAL WIND HEAVY GRD A 85+ AT	9.8
P410410	KNOWN LOCAL WIND HEAVY GRD A 85+ AT	40.91
P117927	KNOWN LOCAL WIND HEAVY GRD A 85+ AT	22.79
P117926	KNOWN LOCAL WIND HEAVY GRD A 85+ AT	23.7
P110710	KNOWN LOCAL WIND HEAVY GRD A 85- AT	16.91
P111234	GO95HVY GRD A- AT REPLACEMENT,S NA	40.91
P110712	GO95HVY GRD A- AT REPLACEMENT,S NA	44.56
P102881	GO95HVY GRD A- AT REPLACEMENT,S NA	99.57
P112798	GO95HVY GRD A+ AT REPLACEMENT,S NA	21.59
P719436	GO95HVY GRD A- AT REPLACEMENT,S NA	103.4
P511486	GO95HVY GRD A+ AT REPLACEMENT,S NA	95.18
P519114	GO95HVY GRD A- AT REPLACEMENT,S NA	39.45
P246354	KNOWN LOCAL WIND HEAVY GRD A 85+ AT	7.77
P117928	GO95HVY GRD A+ AT REPLACEMENT,S NA	34.04
P719103	GO95HVY GRD A- AT REPLACEMENT,S NA	52.24

Appendix E - Section Usage

Row #	Sec No.	Cable Name	From Str.	To Str.	Weather Case Description	Condition	Actual Catenary (ft)	% of Allowable Capacity	OK or NG.
1	1	1-0 AWG_RTS Triplex_msgr	P110711J	P110709	GO95 Heavy	Initial FE	765.3	27.1	OK *
2	1	1-0 AWG_RTS Triplex_msgr	P110711J	P110709	Known Local Wind Heavy 85	Creep FE	755.9	24.6	OK
3	1	1-0 AWG_RTS Triplex_msgr	P110711J	P110709	60 Deg F	Creep FE	872.9	18.6	OK
4	2	no2 AWG_Triplex SSC AL_C	P110711J	P110712	GO95 Heavy	Initial FE	318.6	32.7	OK *
5	2	no2 AWG_Triplex SSC AL_C	P110711J	P110712	Known Local Wind Heavy 85	Creep FE	319.8	28.6	OK
6	2	no2 AWG_Triplex SSC AL_C	P110711J	P110712	60 Deg F	Creep FE	325.1	9.1	OK
7	3	1 in FIRM Design Cable.wir	P110711J	P110709	GO95 Heavy	Initial FE	1154	61.5	OK *
8	3	1 in FIRM Design Cable.wir	P110711J	P110709	Known Local Wind Heavy 85	Creep FE	1114.3	59.9	OK
9	3	1 in FIRM Design Cable.wir	P110711J	P110709	60 Deg F	Creep FE	1668.8	35.5	OK
10	4	1 in FIRM Design Cable.wir	P110711J	P110709	GO95 Heavy	Initial FE	919.2	49.1	OK *
11	4	1 in FIRM Design Cable.wir	P110711J	P110709	Known Local Wind Heavy 85	Creep FE	895.3	48.3	OK
12	4	1 in FIRM Design Cable.wir	P110711J	P110709	60 Deg F	Creep FE	1080.7	23	OK
13	5	1 in FIRM Design Cable.wir	P516083	P110713	GO95 Heavy	Initial FE	934.5	52.3	OK
14	5	1 in FIRM Design Cable.wir	P516083	P110713	Known Local Wind Heavy 85	Creep FE	962.2	52.6	OK *
15	5	1 in FIRM Design Cable.wir	P516083	P110713	60 Deg F	Creep FE	1061.5	22.6	OK
16	6	no2 AWG_5over2_AWAC_G0	P717422 STI	P112625	GO95 Heavy	Initial FE	1682.5	70.5	OK
17	6	no2 AWG_5over2_AWAC_G0	P717422 STI	P112625	Known Local Wind Heavy 85	Creep FE	2204.2	52.3	OK
18	6	no2 AWG_5over2_AWAC_G0	P717422 STI	P112625	60 Deg F	Creep FE	3592.4	76.4	OK *
19	7	no2 AWG_5over2_AWAC_G0	P112625	P110714J	GO95 Heavy	Initial FE	1423.5	59.6	OK *
20	7	no2 AWG_5over2_AWAC_G0	P112625	P110714J	Known Local Wind Heavy 85	Creep FE	1763.4	41.9	OK
21	7	no2 AWG_5over2_AWAC_G0	P112625	P110714J	60 Deg F	Creep FE	2786.3	59.3	OK
22	8	1-0_AWG_Triplex SSC AL_N	P112625	SVC DRO	GO95 Heavy	Initial FE	116.4	10.5	OK *
23	8	1-0_AWG_Triplex SSC AL_N	P112625	SVC DRO	Known Local Wind Heavy 85	Creep FE	122.9	9.6	OK
24	8	1-0_AWG_Triplex SSC AL_N	P112625	SVC DRO	60 Deg F	Creep FE	113	3.8	OK
25	9	no2 AWG_5over2_AWAC_G0	P110714J	P110709	GO95 Heavy	Initial FE	1691.3	70.5	OK
26	9	no2 AWG_5over2_AWAC_G0	P110714J	P110709	Known Local Wind Heavy 85	Creep FE	2243.6	53.2	OK
27	9	no2 AWG_5over2_AWAC_G0	P110714J	P110709	60 Deg F	Creep FE	4170.4	88.7	OK *
28	10	no2 AWG_5over2_AWAC_G0	P110714J	P110715	GO95 Heavy	Initial FE	1285.5	54.1	OK *
29	10	no2 AWG_5over2_AWAC_G0	P110714J	P110715	Known Local Wind Heavy 85	Creep FE	1536.7	36.6	OK
30	10	no2 AWG_5over2_AWAC_G0	P110714J	P110715	60 Deg F	Creep FE	2045.7	43.5	OK
31	11	1 in FIRM Design Cable.wir	P110714J	P246355	GO95 Heavy	Initial FE	67	3.8	OK *
32	11	1 in FIRM Design Cable.wir	P110714J	P246355	Known Local Wind Heavy 85	Creep FE	66.7	3.7	OK
33	11	1 in FIRM Design Cable.wir	P110714J	P246355	60 Deg F	Creep FE	63.2	1.3	OK
34	12	1 in FIRM Design Cable.wir	P110714J	P110713	GO95 Heavy	Initial FE	1129.1	60.1	OK
35	12	1 in FIRM Design Cable.wir	P110714J	P110713	Known Local Wind Heavy 85	Creep FE	1138.3	61.1	OK *
36	12	1 in FIRM Design Cable.wir	P110714J	P110713	60 Deg F	Creep FE	1831.3	39	OK
37	13	1 in FIRM Design Cable.wir	P110714J	P110713	GO95 Heavy	Initial FE	849.2	45.4	OK
38	13	1 in FIRM Design Cable.wir	P110714J	P110713	Known Local Wind Heavy 85	Creep FE	853.2	46	OK *
39	13	1 in FIRM Design Cable.wir	P110714J	P110713	60 Deg F	Creep FE	1019.8	21.7	OK
40	14	1 in FIRM Design Cable.wir	P110714J	CMM	GO95 Heavy	Initial FE	725.2	39.2	OK *
41	14	1 in FIRM Design Cable.wir	P110714J	CMM	Known Local Wind Heavy 85	Creep FE	717	38.7	OK
42	14	1 in FIRM Design Cable.wir	P110714J	CMM	60 Deg F	Creep FE	797.5	17	OK
43	15	3_8-7_strand_ehs_steel_sdge	P110714J	P246355	GO95 Heavy	Initial FE	110	2.1	OK *
44	15	3_8-7_strand_ehs_steel_sdge	P110714J	P246355	Known Local Wind Heavy 85	Creep FE	92.8	1	OK
45	15	3_8-7_strand_ehs_steel_sdge	P110714J	P246355	60 Deg F	Creep FE	73.2	1.6	OK
46	16	3_8-7_strand_ehs_steel_sdge	P110714J	P110713	GO95 Heavy	Initial FE	1102.4	20.4	OK
47	16	3_8-7_strand_ehs_steel_sdge	P110714J	P110713	Known Local Wind Heavy 85	Creep FE	1248.9	13.5	OK
48	16	3_8-7_strand_ehs_steel_sdge	P110714J	P110713	60 Deg F	Creep FE	1174.8	25	OK *
49	17	1-0_AWG_Triplex SSC AL_N	P110715	SVC DRO	GO95 Heavy	Initial FE	406.4	32.2	OK *
50	17	1-0_AWG_Triplex SSC AL_N	P110715	SVC DRO	Known Local Wind Heavy 85	Creep FE	392.8	29	OK
51	17	1-0_AWG_Triplex SSC AL_N	P110715	SVC DRO	60 Deg F	Creep FE	280.2	8	OK
52	18	1 in FIRM Design Cable.wir	P110715	CMM	GO95 Heavy	Initial FE	425.9	22.7	OK *
53	18	1 in FIRM Design Cable.wir	P110715	CMM	Known Local Wind Heavy 85	Creep FE	414.5	22.3	OK
54	18	1 in FIRM Design Cable.wir	P110715	CMM	60 Deg F	Creep FE	352.4	7.5	OK
55	19	1-0 AWG_RTS Triplex_msgr	P110713	P110711J	GO95 Heavy	Initial FE	962.2	33.8	OK *
56	19	1-0 AWG_RTS Triplex_msgr	P110713	P110711J	Known Local Wind Heavy 85	Creep FE	959.7	31	OK
57	19	1-0 AWG_RTS Triplex_msgr	P110713	P110711J	60 Deg F	Creep FE	1246.9	26.5	OK
58	20	1 in FIRM Design Cable.wir	P110713	P110711J	GO95 Heavy	Initial FE	799	42.9	OK *
59	20	1 in FIRM Design Cable.wir	P110713	P110711J	Known Local Wind Heavy 85	Creep FE	778	42.1	OK
60	20	1 in FIRM Design Cable.wir	P110713	P110711J	60 Deg F	Creep FE	865.1	18.4	OK
61	21	1 in FIRM Design Cable.wir	P110713	P110711J	GO95 Heavy	Initial FE	1092.7	58.3	OK *
62	21	1 in FIRM Design Cable.wir	P110713	P110711J	Known Local Wind Heavy 85	Creep FE	1041.8	56.1	OK
63	21	1 in FIRM Design Cable.wir	P110713	P110711J	60 Deg F	Creep FE	1406.6	29.9	OK
64	22	1 in FIRM Design Cable.wir	P110713	P111234	GO95 Heavy	Initial FE	481.1	25.9	OK *
65	22	1 in FIRM Design Cable.wir	P110713	P111234	Known Local Wind Heavy 85	Creep FE	460.1	24.8	OK
66	22	1 in FIRM Design Cable.wir	P110713	P111234	60 Deg F	Creep FE	483.8	10.3	OK
67	23	3_8-7_strand_ehs_steel_sdge	P110713	P246354	GO95 Heavy	Initial FE	135.1	2.6	OK
68	23	3_8-7_strand_ehs_steel_sdge	P110713	P246354	Known Local Wind Heavy 85	Creep FE	142.4	1.6	OK
69	23	3_8-7_strand_ehs_steel_sdge	P110713	P246354	60 Deg F	Creep FE	136	2.9	OK *
70	24	1-0_AWG_Triplex SSC AL_N	NIS STICK	P110715	GO95 Heavy	Initial FE	296.7	24.2	OK *
71	24	1-0_AWG_Triplex SSC AL_N	NIS STICK	P110715	Known Local Wind Heavy 85	Creep FE	305.9	23	OK
72	24	1-0_AWG_Triplex SSC AL_N	NIS STICK	P110715	60 Deg F	Creep FE	287.1	8.5	OK
73	25	no2 AWG_5over2_AWAC_G0	P713311	P713310	GO95 Heavy	Initial FE	1622.6	70.4	OK
74	25	no2 AWG_5over2_AWAC_G0	P713311	P713310	Known Local Wind Heavy 85	Creep FE	2309.5	55	OK

75	25	no2 AWG_5over2_AWAC_G0	P713311	P713310	60 Deg F	Creep FE	3475.2	73.9	OK *
76	26	1 in FIRM Design Cable.wir	P713311	P713310	GO95 Heavy	Initial FE	927	52.4	OK *
77	26	1 in FIRM Design Cable.wir	P713311	P713310	Known Local Wind Heavy 85	Creep FE	945.6	51.4	OK
78	26	1 in FIRM Design Cable.wir	P713311	P713310	60 Deg F	Creep FE	1171.9	24.9	OK
79	27	no2 AWG_5over2_AWAC_G0	P713310	P110713	GO95 Heavy	Initial FE	1429.4	61.2	OK
80	27	no2 AWG_5over2_AWAC_G0	P713310	P110713	Known Local Wind Heavy 85	Creep FE	1926.3	45.9	OK
81	27	no2 AWG_5over2_AWAC_G0	P713310	P110713	60 Deg F	Creep FE	2913.3	62	OK *
82	28	1 in FIRM Design Cable.wir	P713310	P516084	GO95 Heavy	Initial FE	814.5	44.7	OK *
83	28	1 in FIRM Design Cable.wir	P713310	P516084	Known Local Wind Heavy 85	Creep FE	810.2	43.8	OK
84	28	1 in FIRM Design Cable.wir	P713310	P516084	60 Deg F	Creep FE	1098	23.4	OK
85	29	no2 AWG_Triplex SSC AL_C	P516084	SVC DRO	GO95 Heavy	Initial FE	35.4	5.1	OK *
86	29	no2 AWG_Triplex SSC AL_C	P516084	SVC DRO	Known Local Wind Heavy 85	Creep FE	41.4	4.2	OK
87	29	no2 AWG_Triplex SSC AL_C	P516084	SVC DRO	60 Deg F	Creep FE	29.1	1.4	OK
88	30	1 in FIRM Design Cable.wir	P516084	P516083	GO95 Heavy	Initial FE	935.2	50.8	OK *
89	30	1 in FIRM Design Cable.wir	P516084	P516083	Known Local Wind Heavy 85	Creep FE	916.9	49.4	OK
90	30	1 in FIRM Design Cable.wir	P516084	P516083	60 Deg F	Creep FE	1214.8	25.8	OK
91	31	no4 AWG_3-Strand_Hard Dra	P111234	SVC	GO95 Heavy	Initial FE	503.9	47	OK *
92	31	no4 AWG_3-Strand_Hard Dra	P111234	SVC	Known Local Wind Heavy 85	Creep FE	570.3	25.1	OK
93	31	no4 AWG_3-Strand_Hard Dra	P111234	SVC	60 Deg F	Creep FE	525.7	11.2	OK
94	32	1 in FIRM Design Cable.wir	P111234	CMM	GO95 Heavy	Initial FE	409.6	22	OK *
95	32	1 in FIRM Design Cable.wir	P111234	CMM	Known Local Wind Heavy 85	Creep FE	396.4	21.4	OK
96	32	1 in FIRM Design Cable.wir	P111234	CMM	60 Deg F	Creep FE	400	8.5	OK
97	33	no2 AWG_Triplex SSC AL_C	P110712	SVC DRO	GO95 Heavy	Initial FE	312.9	31.9	OK *
98	33	no2 AWG_Triplex SSC AL_C	P110712	SVC DRO	Known Local Wind Heavy 85	Creep FE	314.4	28	OK
99	33	no2 AWG_Triplex SSC AL_C	P110712	SVC DRO	60 Deg F	Creep FE	308	8.6	OK
100	34	no2 AWG_Triplex SSC AL_C	SVC DROP	P110711J	GO95 Heavy	Initial FE	382.4	40.2	OK *
101	34	no2 AWG_Triplex SSC AL_C	SVC DROP	P110711J	Known Local Wind Heavy 85	Creep FE	389.4	34.8	OK
102	34	no2 AWG_Triplex SSC AL_C	SVC DROP	P110711J	60 Deg F	Creep FE	362.8	10.7	OK
103	35	1-0_AWG_Triplex SSC AL_N	SVC DROP	SVC DRO	GO95 Heavy	Initial FE	132.9	12	OK *
104	35	1-0_AWG_Triplex SSC AL_N	SVC DROP	SVC DRO	Known Local Wind Heavy 85	Creep FE	137.8	10.9	OK
105	35	1-0_AWG_Triplex SSC AL_N	SVC DROP	SVC DRO	60 Deg F	Creep FE	127.8	4.3	OK
106	36	1-0_AWG_Triplex SSC AL_N	SVC DROP	P117928	GO95 Heavy	Initial FE	155.6	13	OK *
107	36	1-0_AWG_Triplex SSC AL_N	SVC DROP	P117928	Known Local Wind Heavy 85	Creep FE	162.1	12.4	OK
108	36	1-0_AWG_Triplex SSC AL_N	SVC DROP	P117928	60 Deg F	Creep FE	136	4.2	OK
109	37	1-0_AWG_Triplex SSC AL_N	SVC DROP	SVC DRO	GO95 Heavy	Initial FE	134.4	11.2	OK *
110	37	1-0_AWG_Triplex SSC AL_N	SVC DROP	SVC DRO	Known Local Wind Heavy 85	Creep FE	134.4	10.3	OK
111	37	1-0_AWG_Triplex SSC AL_N	SVC DROP	SVC DRO	60 Deg F	Creep FE	131.1	3.9	OK
112	38	336kcmil_LINNET_ACSR_AV	P110215	P310182	GO95 Heavy	Initial FE	1526.3	33.7	OK *
113	38	336kcmil_LINNET_ACSR_AV	P110215	P310182	Known Local Wind Heavy 85	Creep FE	1511.9	27	OK
114	38	336kcmil_LINNET_ACSR_AV	P110215	P310182	60 Deg F	Creep FE	1506.4	32.1	OK
115	39	no2 AWG_5over2_AWAC_G0	P110215	P102882	GO95 Heavy	Initial FE	1660.8	69.5	OK *
116	39	no2 AWG_5over2_AWAC_G0	P110215	P102882	Known Local Wind Heavy 85	Creep FE	2173.9	51.6	OK
117	39	no2 AWG_5over2_AWAC_G0	P110215	P102882	60 Deg F	Creep FE	3091.5	65.8	OK
118	40	1 in FIRM Design Cable.wir	P110215	P310182	GO95 Heavy	Initial FE	1260.7	67.9	OK *
119	40	1 in FIRM Design Cable.wir	P110215	P310182	Known Local Wind Heavy 85	Creep FE	1244.3	67.6	OK
120	40	1 in FIRM Design Cable.wir	P110215	P310182	60 Deg F	Creep FE	1462.7	31.1	OK
121	41	1 in FIRM Design Cable.wir	P110215	P102881	GO95 Heavy	Initial FE	1286.1	68.8	OK *
122	41	1 in FIRM Design Cable.wir	P110215	P102881	Known Local Wind Heavy 85	Creep FE	1259	67.9	OK
123	41	1 in FIRM Design Cable.wir	P110215	P102881	60 Deg F	Creep FE	1778.3	37.8	OK
124	42	1 in FIRM Design Cable.wir	P102881	P102882	GO95 Heavy	Initial FE	1345.4	72	OK *
125	42	1 in FIRM Design Cable.wir	P102881	P102882	Known Local Wind Heavy 85	Creep FE	1315.7	70.9	OK
126	42	1 in FIRM Design Cable.wir	P102881	P102882	60 Deg F	Creep FE	1921.4	40.9	OK
127	43	336kcmil_LINNET_ACSR_AV	P166201	P110215	GO95 Heavy	Initial FE	1615.1	35.3	OK *
128	43	336kcmil_LINNET_ACSR_AV	P166201	P110215	Known Local Wind Heavy 85	Creep FE	1589.1	28.1	OK
129	43	336kcmil_LINNET_ACSR_AV	P166201	P110215	60 Deg F	Creep FE	1474	31.4	OK
130	44	no2 AWG_Triplex SSC AL_C	P166201	NIS STICH	GO95 Heavy	Initial FE	75.5	9.1	OK *
131	44	no2 AWG_Triplex SSC AL_C	P166201	NIS STICH	Known Local Wind Heavy 85	Creep FE	91.3	8.5	OK
132	44	no2 AWG_Triplex SSC AL_C	P166201	NIS STICH	60 Deg F	Creep FE	66.5	2.4	OK
133	45	1 in FIRM Design Cable.wir	P166201	P110214	GO95 Heavy	Initial FE	665.5	36.1	OK *
134	45	1 in FIRM Design Cable.wir	P166201	P110214	Known Local Wind Heavy 85	Creep FE	662.2	35.9	OK
135	45	1 in FIRM Design Cable.wir	P166201	P110214	60 Deg F	Creep FE	744.9	15.8	OK
136	46	1-0_AWG_RTS Triplex_msgr	P110214	P166114	GO95 Heavy	Initial FE	261.6	9.4	OK *
137	46	1-0_AWG_RTS Triplex_msgr	P110214	P166114	Known Local Wind Heavy 85	Creep FE	259.7	8.5	OK
138	46	1-0_AWG_RTS Triplex_msgr	P110214	P166114	60 Deg F	Creep FE	264.5	5.6	OK
139	47	1 in FIRM Design Cable.wir	P110214	P166114	GO95 Heavy	Initial FE	677.2	36	OK *
140	47	1 in FIRM Design Cable.wir	P110214	P166114	Known Local Wind Heavy 85	Creep FE	653.6	35.1	OK
141	47	1 in FIRM Design Cable.wir	P110214	P166114	60 Deg F	Creep FE	838.3	17.8	OK
142	48	1 in FIRM Design Cable.wir	P166114	P110215	GO95 Heavy	Initial FE	775.2	41.5	OK *
143	48	1 in FIRM Design Cable.wir	P166114	P110215	Known Local Wind Heavy 85	Creep FE	747.1	40.2	OK
144	48	1 in FIRM Design Cable.wir	P166114	P110215	60 Deg F	Creep FE	831.3	17.7	OK
145	49	336kcmil_LINNET_ACSR_AV	P310182	P110218	GO95 Heavy	Initial FE	1599.8	35.7	OK *
146	49	336kcmil_LINNET_ACSR_AV	P310182	P110218	Known Local Wind Heavy 85	Creep FE	1596.1	28.5	OK
147	49	336kcmil_LINNET_ACSR_AV	P310182	P110218	60 Deg F	Creep FE	1592	33.9	OK
148	50	1 in FIRM Design Cable.wir	P310182	NIS CMM	GO95 Heavy	Initial FE	368.3	19.6	OK
149	50	1 in FIRM Design Cable.wir	P310182	NIS CMM	Known Local Wind Heavy 85	Creep FE	373	20	OK *
150	50	1 in FIRM Design Cable.wir	P310182	NIS CMM	60 Deg F	Creep FE	313.9	6.7	OK
151	51	1 in FIRM Design Cable.wir	P310182	NIS CMM	GO95 Heavy	Initial FE	447.3	23.8	OK
152	51	1 in FIRM Design Cable.wir	P310182	NIS CMM	Known Local Wind Heavy 85	Creep FE	450.8	24.2	OK *
153	51	1 in FIRM Design Cable.wir	P310182	NIS CMM	60 Deg F	Creep FE	381.1	8.1	OK

154	52	1 in FIRM Design Cable.wir	NIS CMM ST	P110218	GO95 Heavy	Initial FE	834.8	45.6	OK *
155	52	1 in FIRM Design Cable.wir	NIS CMM ST	P110218	Known Local Wind Heavy 85	Creep FE	826.5	44.7	OK
156	52	1 in FIRM Design Cable.wir	NIS CMM ST	P110218	60 Deg F	Creep FE	934	19.9	OK
157	53	336kcmil_LINNET_ACSR_AV	P110218	P110636	GO95 Heavy	Initial FE	1560.2	34.4	OK *
158	53	336kcmil_LINNET_ACSR_AV	P110218	P110636	Known Local Wind Heavy 85	Creep FE	1550.3	27.5	OK
159	53	336kcmil_LINNET_ACSR_AV	P110218	P110636	60 Deg F	Creep FE	1590.8	33.8	OK
160	54	1-0 AWG_RTS Triplex_msgr	P110218	P112798	GO95 Heavy	Initial FE	374.9	13.8	OK *
161	54	1-0 AWG_RTS Triplex_msgr	P110218	P112798	Known Local Wind Heavy 85	Creep FE	391.7	12.8	OK
162	54	1-0 AWG_RTS Triplex_msgr	P110218	P112798	60 Deg F	Creep FE	381.5	8.1	OK
163	55	1 in FIRM Design Cable.wir	P110218	P110636	GO95 Heavy	Initial FE	610.4	32.7	OK
164	55	1 in FIRM Design Cable.wir	P110218	P110636	Known Local Wind Heavy 85	Creep FE	606.9	32.8	OK *
165	55	1 in FIRM Design Cable.wir	P110218	P110636	60 Deg F	Creep FE	688	14.6	OK
166	56	3_8-7_strand_ehs_steel_sdge	P110218	P258360	GO95 Heavy	Initial FE	2659.9	54.8	OK *
167	56	3_8-7_strand_ehs_steel_sdge	P110218	P258360	Known Local Wind Heavy 85	Creep FE	4005.6	44.7	OK
168	56	3_8-7_strand_ehs_steel_sdge	P110218	P258360	60 Deg F	Creep FE	554.8	11.8	OK
169	57	3_8-7_strand_ehs_steel_sdge	P110218	P258360	GO95 Heavy	Initial FE	281	5.6	OK
170	57	3_8-7_strand_ehs_steel_sdge	P110218	P258360	Known Local Wind Heavy 85	Creep FE	1089.6	12	OK
171	57	3_8-7_strand_ehs_steel_sdge	P110218	P258360	60 Deg F	Creep FE	1606.6	34.2	OK *
172	58	1-0_AWG_Triplex SSC AL_N	SVC DROP \$	SVC DRO	GO95 Heavy	Initial FE	148.1	12.1	OK *
173	58	1-0_AWG_Triplex SSC AL_N	SVC DROP \$	SVC DRO	Known Local Wind Heavy 85	Creep FE	147.6	11.1	OK
174	58	1-0_AWG_Triplex SSC AL_N	SVC DROP \$	SVC DRO	60 Deg F	Creep FE	141.3	4.2	OK
175	59	1-0_AWG_Triplex SSC AL_N	SVC DROP \$	SVC DRO	GO95 Heavy	Initial FE	268.2	21.6	OK *
176	59	1-0_AWG_Triplex SSC AL_N	SVC DROP \$	SVC DRO	Known Local Wind Heavy 85	Creep FE	264.4	19.6	OK
177	59	1-0_AWG_Triplex SSC AL_N	SVC DROP \$	SVC DRO	60 Deg F	Creep FE	252.1	7.3	OK
178	60	1-0_AWG_Triplex SSC AL_N	SVC DROP \$	SVC DRO	GO95 Heavy	Initial FE	68.4	6	OK *
179	60	1-0_AWG_Triplex SSC AL_N	SVC DROP \$	SVC DRO	Known Local Wind Heavy 85	Creep FE	70	5.4	OK
180	60	1-0_AWG_Triplex SSC AL_N	SVC DROP \$	SVC DRO	60 Deg F	Creep FE	65.8	2.1	OK
181	61	1-0 AWG_RTS Triplex_msgr	P110219	P110218	GO95 Heavy	Initial FE	500.7	18.2	OK *
182	61	1-0 AWG_RTS Triplex_msgr	P110219	P110218	Known Local Wind Heavy 85	Creep FE	515.2	17.1	OK
183	61	1-0 AWG_RTS Triplex_msgr	P110219	P110218	60 Deg F	Creep FE	564.2	12	OK
184	62	1-0_AWG_Triplex SSC AL_N	P110219	SVC DRO	GO95 Heavy	Initial FE	104.8	9.5	OK *
185	62	1-0_AWG_Triplex SSC AL_N	P110219	SVC DRO	Known Local Wind Heavy 85	Creep FE	106.4	8.6	OK
186	62	1-0_AWG_Triplex SSC AL_N	P110219	SVC DRO	60 Deg F	Creep FE	101.1	3.4	OK
187	63	1 in FIRM Design Cable.wir	P110219	P110218	GO95 Heavy	Initial FE	677.3	36.9	OK
188	63	1 in FIRM Design Cable.wir	P110219	P110218	Known Local Wind Heavy 85	Creep FE	688.8	37.5	OK *
189	63	1 in FIRM Design Cable.wir	P110219	P110218	60 Deg F	Creep FE	785.2	16.7	OK
190	64	1 in FIRM Design Cable.wir	P210482	P210483	GO95 Heavy	Initial FE	810.4	44.2	OK *
191	64	1 in FIRM Design Cable.wir	P210482	P210483	Known Local Wind Heavy 85	Creep FE	803.7	44.1	OK
192	64	1 in FIRM Design Cable.wir	P210482	P210483	60 Deg F	Creep FE	841.6	17.9	OK
193	65	1 in FIRM Design Cable.wir	P210483	P210484	GO95 Heavy	Initial FE	603	32.2	OK *
194	65	1 in FIRM Design Cable.wir	P210483	P210484	Known Local Wind Heavy 85	Creep FE	561.8	30.2	OK
195	65	1 in FIRM Design Cable.wir	P210483	P210484	60 Deg F	Creep FE	533.7	11.4	OK
196	66	1-0_AWG_Triplex SSC AL_N	P210484	SVC DRO	GO95 Heavy	Initial FE	357.3	28.8	OK *
197	66	1-0_AWG_Triplex SSC AL_N	P210484	SVC DRO	Known Local Wind Heavy 85	Creep FE	354.2	26.3	OK
198	66	1-0_AWG_Triplex SSC AL_N	P210484	SVC DRO	60 Deg F	Creep FE	320.5	9.4	OK
199	67	1-0_AWG_Triplex SSC AL_N	P210484	SVC DRO	GO95 Heavy	Initial FE	188.7	16.1	OK *
200	67	1-0_AWG_Triplex SSC AL_N	P210484	SVC DRO	Known Local Wind Heavy 85	Creep FE	201.4	15.3	OK
201	67	1-0_AWG_Triplex SSC AL_N	P210484	SVC DRO	60 Deg F	Creep FE	170.6	5.4	OK
202	68	1-0_AWG_Triplex SSC AL_N	P210484	SVC DRO	GO95 Heavy	Initial FE	192.6	15.6	OK *
203	68	1-0_AWG_Triplex SSC AL_N	P210484	SVC DRO	Known Local Wind Heavy 85	Creep FE	190.5	14.3	OK
204	68	1-0_AWG_Triplex SSC AL_N	P210484	SVC DRO	60 Deg F	Creep FE	176.7	5.2	OK
205	69	1 in FIRM Design Cable.wir	P210484	CMM SVC	GO95 Heavy	Initial FE	383.8	20.5	OK *
206	69	1 in FIRM Design Cable.wir	P210484	CMM SVC	Known Local Wind Heavy 85	Creep FE	368	19.8	OK
207	69	1 in FIRM Design Cable.wir	P210484	CMM SVC	60 Deg F	Creep FE	358.1	7.6	OK
208	70	no2 AWG_5over2_AWAC_G0	P110707	P110218	GO95 Heavy	Initial FE	1395.6	58.4	OK
209	70	no2 AWG_5over2_AWAC_G0	P110707	P110218	Known Local Wind Heavy 85	Creep FE	1797.6	42.7	OK
210	70	no2 AWG_5over2_AWAC_G0	P110707	P110218	60 Deg F	Creep FE	3244.6	69	OK *
211	71	no2 AWG_5over2_AWAC_G0	P110707	P210484	GO95 Heavy	Initial FE	1845.1	77.3	OK
212	71	no2 AWG_5over2_AWAC_G0	P110707	P210484	Known Local Wind Heavy 85	Creep FE	2478.8	58.7	OK
213	71	no2 AWG_5over2_AWAC_G0	P110707	P210484	60 Deg F	Creep FE	4284.1	91.2	OK *
214	72	1 in FIRM Design Cable.wir	P110707	P110219	GO95 Heavy	Initial FE	636.2	34.4	OK *
215	72	1 in FIRM Design Cable.wir	P110707	P110219	Known Local Wind Heavy 85	Creep FE	627.6	34.2	OK
216	72	1 in FIRM Design Cable.wir	P110707	P110219	60 Deg F	Creep FE	640.2	13.6	OK
217	73	1 in FIRM Design Cable.wir	P110707	P210482	GO95 Heavy	Initial FE	1140	61.8	OK *
218	73	1 in FIRM Design Cable.wir	P110707	P210482	Known Local Wind Heavy 85	Creep FE	1134.1	61.5	OK
219	73	1 in FIRM Design Cable.wir	P110707	P210482	60 Deg F	Creep FE	1403.1	29.9	OK
220	74	1 in FIRM Design Cable.wir	P110707	CMM	GO95 Heavy	Initial FE	560	30.2	OK *
221	74	1 in FIRM Design Cable.wir	P110707	CMM	Known Local Wind Heavy 85	Creep FE	525.6	28.3	OK
222	74	1 in FIRM Design Cable.wir	P110707	CMM	60 Deg F	Creep FE	496	10.6	OK
223	75	no2 AWG_5over2_AWAC_G0	P110708J	P110707	GO95 Heavy	Initial FE	1420.9	59.7	OK *
224	75	no2 AWG_5over2_AWAC_G0	P110708J	P110707	Known Local Wind Heavy 85	Creep FE	1784.5	42.4	OK
225	75	no2 AWG_5over2_AWAC_G0	P110708J	P110707	60 Deg F	Creep FE	2565.3	54.6	OK
226	76	1 in FIRM Design Cable.wir	P110708J	P110707	GO95 Heavy	Initial FE	1284.2	68.7	OK *
227	76	1 in FIRM Design Cable.wir	P110708J	P110707	Known Local Wind Heavy 85	Creep FE	1265.4	68.2	OK
228	76	1 in FIRM Design Cable.wir	P110708J	P110707	60 Deg F	Creep FE	1852.8	39.4	OK
229	77	no2 AWG_5over2_AWAC_G0	P110709	P110708J	GO95 Heavy	Initial FE	1466.2	61.2	OK
230	77	no2 AWG_5over2_AWAC_G0	P110709	P110708J	Known Local Wind Heavy 85	Creep FE	1898.6	45	OK
231	77	no2 AWG_5over2_AWAC_G0	P110709	P110708J	60 Deg F	Creep FE	3112.7	66.2	OK *
232	78	1-0 AWG_RTS Triplex_msgr	P110709	P110708J	GO95 Heavy	Initial FE	729.8	25.8	OK *

233	78	1-0 AWG_RTS Triplex_msgr	P110709	P110708J	Known Local Wind Heavy 85	Creep FE	716.7	23.2	OK
234	78	1-0 AWG_RTS Triplex_msgr	P110709	P110708J	60 Deg F	Creep FE	896.3	19.1	OK
235	79	1-0 AWG_RTS Triplex_msgr	P110709	P110710	GO95 Heavy	Initial FE	217.4	8.1	OK *
236	79	1-0 AWG_RTS Triplex_msgr	P110709	P110710	Known Local Wind Heavy 85	Creep FE	218.7	7.4	OK
237	79	1-0 AWG_RTS Triplex_msgr	P110709	P110710	60 Deg F	Creep FE	218.4	4.6	OK
238	80	1 in FIRM Design Cable.wir	P110709	P110708J	GO95 Heavy	Initial FE	925.7	49.4	OK *
239	80	1 in FIRM Design Cable.wir	P110709	P110708J	Known Local Wind Heavy 85	Creep FE	897.9	48.3	OK
240	80	1 in FIRM Design Cable.wir	P110709	P110708J	60 Deg F	Creep FE	1179.9	25.1	OK
241	81	1 in FIRM Design Cable.wir	P110709	P110708J	GO95 Heavy	Initial FE	1003.3	53.5	OK *
242	81	1 in FIRM Design Cable.wir	P110709	P110708J	Known Local Wind Heavy 85	Creep FE	970.9	52.2	OK
243	81	1 in FIRM Design Cable.wir	P110709	P110708J	60 Deg F	Creep FE	1404.4	29.9	OK
244	82	1 in FIRM Design Cable.wir	P110709	P110710	GO95 Heavy	Initial FE	504.1	27.1	OK *
245	82	1 in FIRM Design Cable.wir	P110709	P110710	Known Local Wind Heavy 85	Creep FE	500.8	27	OK
246	82	1 in FIRM Design Cable.wir	P110709	P110710	60 Deg F	Creep FE	532.2	11.3	OK
247	83	1-0_AWG_Triplex SSC AL_N	SVC DROP \$	SVC DRO	GO95 Heavy	Initial FE	61.5	6.6	OK
248	83	1-0_AWG_Triplex SSC AL_N	SVC DROP \$	SVC DRO	Known Local Wind Heavy 85	Creep FE	87.3	6.8	OK *
249	83	1-0_AWG_Triplex SSC AL_N	SVC DROP \$	SVC DRO	60 Deg F	Creep FE	40.4	2	OK
250	84	1-0_AWG_Triplex SSC AL_N	SVC DROP \$	SVC DRO	GO95 Heavy	Initial FE	300.8	25.6	OK *
251	84	1-0_AWG_Triplex SSC AL_N	SVC DROP \$	SVC DRO	Known Local Wind Heavy 85	Creep FE	313.8	23.6	OK
252	84	1-0_AWG_Triplex SSC AL_N	SVC DROP \$	SVC DRO	60 Deg F	Creep FE	280.3	8.8	OK
253	85	no2 AWG_5over2_AWAC_G0	P817174	P412434	GO95 Heavy	Initial FE	1661.5	69.4	OK
254	85	no2 AWG_5over2_AWAC_G0	P817174	P412434	Known Local Wind Heavy 85	Creep FE	2142.5	50.8	OK
255	85	no2 AWG_5over2_AWAC_G0	P817174	P412434	60 Deg F	Creep FE	3399.9	72.3	OK *
256	86	1 in FIRM Design Cable.wir	P817174	NIS CMM	GO95 Heavy	Initial FE	861.7	46	OK *
257	86	1 in FIRM Design Cable.wir	P817174	NIS CMM	Known Local Wind Heavy 85	Creep FE	853	46	OK
258	86	1 in FIRM Design Cable.wir	P817174	NIS CMM	60 Deg F	Creep FE	1025.7	21.8	OK
259	87	1 in FIRM Design Cable.wir	P817174	NIS CMM	GO95 Heavy	Initial FE	894.2	47.8	OK *
260	87	1 in FIRM Design Cable.wir	P817174	NIS CMM	Known Local Wind Heavy 85	Creep FE	883.8	47.6	OK
261	87	1 in FIRM Design Cable.wir	P817174	NIS CMM	60 Deg F	Creep FE	1087.6	23.1	OK
262	88	1 in FIRM Design Cable.wir	P817174	NIS CMM	GO95 Heavy	Initial FE	832.7	44.5	OK *
263	88	1 in FIRM Design Cable.wir	P817174	NIS CMM	Known Local Wind Heavy 85	Creep FE	823	44.4	OK
264	88	1 in FIRM Design Cable.wir	P817174	NIS CMM	60 Deg F	Creep FE	966.1	20.6	OK
265	89	1 in FIRM Design Cable.wir	P817172	NIS CMM	GO95 Heavy	Initial FE	752.9	40.4	OK *
266	89	1 in FIRM Design Cable.wir	P817172	NIS CMM	Known Local Wind Heavy 85	Creep FE	732.8	39.4	OK
267	89	1 in FIRM Design Cable.wir	P817172	NIS CMM	60 Deg F	Creep FE	926.9	19.7	OK
268	90	1 in FIRM Design Cable.wir	P817172	NIS CMM	GO95 Heavy	Initial FE	745	40	OK *
269	90	1 in FIRM Design Cable.wir	P817172	NIS CMM	Known Local Wind Heavy 85	Creep FE	725.3	39.1	OK
270	90	1 in FIRM Design Cable.wir	P817172	NIS CMM	60 Deg F	Creep FE	910.1	19.4	OK
271	91	1 in FIRM Design Cable.wir	P817172	NIS CMM	GO95 Heavy	Initial FE	672.8	36.2	OK *
272	91	1 in FIRM Design Cable.wir	P817172	NIS CMM	Known Local Wind Heavy 85	Creep FE	657.4	35.4	OK
273	91	1 in FIRM Design Cable.wir	P817172	NIS CMM	60 Deg F	Creep FE	769	16.4	OK
274	92	1 in FIRM Design Cable.wir	P817173	NIS CMM	GO95 Heavy	Initial FE	770.3	41.2	OK *
275	92	1 in FIRM Design Cable.wir	P817173	NIS CMM	Known Local Wind Heavy 85	Creep FE	741.2	39.9	OK
276	92	1 in FIRM Design Cable.wir	P817173	NIS CMM	60 Deg F	Creep FE	984.8	21	OK
277	93	1 in FIRM Design Cable.wir	P817173	NIS CMM	GO95 Heavy	Initial FE	750.4	40.1	OK *
278	93	1 in FIRM Design Cable.wir	P817173	NIS CMM	Known Local Wind Heavy 85	Creep FE	723.2	38.9	OK
279	93	1 in FIRM Design Cable.wir	P817173	NIS CMM	60 Deg F	Creep FE	938.2	20	OK
280	94	1 in FIRM Design Cable.wir	P817173	NIS CMM	GO95 Heavy	Initial FE	681.9	36.5	OK *
281	94	1 in FIRM Design Cable.wir	P817173	NIS CMM	Known Local Wind Heavy 85	Creep FE	660.3	35.6	OK
282	94	1 in FIRM Design Cable.wir	P817173	NIS CMM	60 Deg F	Creep FE	798.1	17	OK
283	95	no2 AWG_5over2_AWAC_G0	P412434	P210713	GO95 Heavy	Initial FE	1473.8	61.4	OK
284	95	no2 AWG_5over2_AWAC_G0	P412434	P210713	Known Local Wind Heavy 85	Creep FE	1882.9	44.6	OK
285	95	no2 AWG_5over2_AWAC_G0	P412434	P210713	60 Deg F	Creep FE	2988.3	63.6	OK *
286	96	no2 AWG_5over2_AWAC_G0	P412434	P719436	GO95 Heavy	Initial FE	152.6	6.6	OK *
287	96	no2 AWG_5over2_AWAC_G0	P412434	P719436	Known Local Wind Heavy 85	Creep FE	147	3.5	OK
288	96	no2 AWG_5over2_AWAC_G0	P412434	P719436	60 Deg F	Creep FE	156.9	3.3	OK
289	97	no4 AWG_Triplex SSC AL_P	P412434	P719436	GO95 Heavy	Initial FE	46.9	7.5	OK *
290	97	no4 AWG_Triplex SSC AL_P	P412434	P719436	Known Local Wind Heavy 85	Creep FE	47.6	6.1	OK
291	97	no4 AWG_Triplex SSC AL_P	P412434	P719436	60 Deg F	Creep FE	46.7	1.6	OK
292	98	1-0 AWG_RTS Triplex_msgr	P412434	P412433	GO95 Heavy	Initial FE	689.8	24.3	OK *
293	98	1-0 AWG_RTS Triplex_msgr	P412434	P412433	Known Local Wind Heavy 85	Creep FE	689.5	22.4	OK
294	98	1-0 AWG_RTS Triplex_msgr	P412434	P412433	60 Deg F	Creep FE	818.1	17.4	OK
295	99	1 in FIRM Design Cable.wir	P412434	P719436	GO95 Heavy	Initial FE	244.2	13.2	OK
296	99	1 in FIRM Design Cable.wir	P412434	P719436	Known Local Wind Heavy 85	Creep FE	293	15.8	OK *
297	99	1 in FIRM Design Cable.wir	P412434	P719436	60 Deg F	Creep FE	348.6	7.4	OK
298	100	1 in FIRM Design Cable.wir	P412434	NIS CMM	GO95 Heavy	Initial FE	628.8	33.4	OK *
299	100	1 in FIRM Design Cable.wir	P412434	NIS CMM	Known Local Wind Heavy 85	Creep FE	614.1	32.9	OK
300	100	1 in FIRM Design Cable.wir	P412434	NIS CMM	60 Deg F	Creep FE	867.2	18.5	OK
301	101	1 in FIRM Design Cable.wir	P412434	NIS CMM	GO95 Heavy	Initial FE	635.4	33.8	OK *
302	101	1 in FIRM Design Cable.wir	P412434	NIS CMM	Known Local Wind Heavy 85	Creep FE	621.7	33.3	OK
303	101	1 in FIRM Design Cable.wir	P412434	NIS CMM	60 Deg F	Creep FE	890	18.9	OK
304	102	1 in FIRM Design Cable.wir	P412434	P719436	GO95 Heavy	Initial FE	111.3	6.2	OK
305	102	1 in FIRM Design Cable.wir	P412434	P719436	Known Local Wind Heavy 85	Creep FE	117.5	6.5	OK *
306	102	1 in FIRM Design Cable.wir	P412434	P719436	60 Deg F	Creep FE	113.7	2.4	OK
307	103	1 in FIRM Design Cable.wir	P412434	NIS CMM	GO95 Heavy	Initial FE	705.2	37.5	OK *
308	103	1 in FIRM Design Cable.wir	P412434	NIS CMM	Known Local Wind Heavy 85	Creep FE	685	36.7	OK
309	103	1 in FIRM Design Cable.wir	P412434	NIS CMM	60 Deg F	Creep FE	1132.1	24.1	OK
310	104	no2 AWG_5over2_AWAC_G0	P719436	P412435	GO95 Heavy	Initial FE	1057.2	44.4	OK *
311	104	no2 AWG_5over2_AWAC_G0	P719436	P412435	Known Local Wind Heavy 85	Creep FE	1371.8	32.6	OK

312	104	no2 AWG_5over2_AWAC_G0	P719436	P412435	60 Deg F	Creep FE	1796.1	38.2	OK
313	105	no4 AWG_Triplex SSC AL_P	P719436	P412435	GO95 Heavy	Initial FE	400.6	56	OK *
314	105	no4 AWG_Triplex SSC AL_P	P719436	P412435	Known Local Wind Heavy 85	Creep FE	408.3	47.1	OK
315	105	no4 AWG_Triplex SSC AL_P	P719436	P412435	60 Deg F	Creep FE	424.6	12.2	OK
316	106	1 in FIRM Design Cable.wir	P719436	P412435	GO95 Heavy	Initial FE	552.4	30	OK
317	106	1 in FIRM Design Cable.wir	P719436	P412435	Known Local Wind Heavy 85	Creep FE	553.3	30	OK *
318	106	1 in FIRM Design Cable.wir	P719436	P412435	60 Deg F	Creep FE	578.3	12.3	OK
319	107	1-0 AWG_RTS Triplex_msgr	P412433	P511485	GO95 Heavy	Initial FE	479.3	17	OK *
320	107	1-0 AWG_RTS Triplex_msgr	P412433	P511485	Known Local Wind Heavy 85	Creep FE	463.9	15.1	OK
321	107	1-0 AWG_RTS Triplex_msgr	P412433	P511485	60 Deg F	Creep FE	612.3	13	OK
322	108	1 in FIRM Design Cable.wir	P412433	P511485	GO95 Heavy	Initial FE	710	37.7	OK *
323	108	1 in FIRM Design Cable.wir	P412433	P511485	Known Local Wind Heavy 85	Creep FE	674.7	36.2	OK
324	108	1 in FIRM Design Cable.wir	P412433	P511485	60 Deg F	Creep FE	928.4	19.8	OK
325	109	1 in FIRM Design Cable.wir	P412433	P511485	GO95 Heavy	Initial FE	672.2	35.8	OK *
326	109	1 in FIRM Design Cable.wir	P412433	P511485	Known Local Wind Heavy 85	Creep FE	640.9	34.4	OK
327	109	1 in FIRM Design Cable.wir	P412433	P511485	60 Deg F	Creep FE	837.4	17.8	OK
328	110	1 in FIRM Design Cable.wir	P412433	P511485	GO95 Heavy	Initial FE	742.6	39.5	OK *
329	110	1 in FIRM Design Cable.wir	P412433	P511485	Known Local Wind Heavy 85	Creep FE	705.2	37.8	OK
330	110	1 in FIRM Design Cable.wir	P412433	P511485	60 Deg F	Creep FE	1028.8	21.9	OK
331	111	1 in FIRM Design Cable.wir	P511485	P412432	GO95 Heavy	Initial FE	676.1	35.9	OK *
332	111	1 in FIRM Design Cable.wir	P511485	P412432	Known Local Wind Heavy 85	Creep FE	639.2	34.3	OK
333	111	1 in FIRM Design Cable.wir	P511485	P412432	60 Deg F	Creep FE	798	17	OK
334	112	1 in FIRM Design Cable.wir	P511485	P412432	GO95 Heavy	Initial FE	661.9	35.2	OK *
335	112	1 in FIRM Design Cable.wir	P511485	P412432	Known Local Wind Heavy 85	Creep FE	627.4	33.7	OK
336	112	1 in FIRM Design Cable.wir	P511485	P412432	60 Deg F	Creep FE	776.6	16.5	OK
337	113	1 in FIRM Design Cable.wir	P511485	P412432	GO95 Heavy	Initial FE	754.8	40.1	OK *
338	113	1 in FIRM Design Cable.wir	P511485	P412432	Known Local Wind Heavy 85	Creep FE	711.9	38.2	OK
339	113	1 in FIRM Design Cable.wir	P511485	P412432	60 Deg F	Creep FE	1025.5	21.8	OK
340	114	no4 AWG_Triplex SSC AL_P	P511486	SVC DRO	GO95 Heavy	Initial FE	259	36.5	OK *
341	114	no4 AWG_Triplex SSC AL_P	P511486	SVC DRO	Known Local Wind Heavy 85	Creep FE	281.3	32	OK
342	114	no4 AWG_Triplex SSC AL_P	P511486	SVC DRO	60 Deg F	Creep FE	191.1	5.7	OK
343	115	1 in FIRM Design Cable.wir	P511486	P412432	GO95 Heavy	Initial FE	347	18.7	OK *
344	115	1 in FIRM Design Cable.wir	P511486	P412432	Known Local Wind Heavy 85	Creep FE	344.1	18.6	OK
345	115	1 in FIRM Design Cable.wir	P511486	P412432	60 Deg F	Creep FE	506.8	10.8	OK
346	116	1 in FIRM Design Cable.wir	P412432	NIS STICH	GO95 Heavy	Initial FE	836.8	44.6	OK *
347	116	1 in FIRM Design Cable.wir	P412432	NIS STICH	Known Local Wind Heavy 85	Creep FE	826.8	44.5	OK
348	116	1 in FIRM Design Cable.wir	P412432	NIS STICH	60 Deg F	Creep FE	1049.3	22.3	OK
349	117	1 in FIRM Design Cable.wir	P412432	NIS STICH	GO95 Heavy	Initial FE	836.8	44.6	OK *
350	117	1 in FIRM Design Cable.wir	P412432	NIS STICH	Known Local Wind Heavy 85	Creep FE	825.4	44.4	OK
351	117	1 in FIRM Design Cable.wir	P412432	NIS STICH	60 Deg F	Creep FE	1044.4	22.2	OK
352	118	1 in FIRM Design Cable.wir	P412432	NIS STICH	GO95 Heavy	Initial FE	829.1	44.2	OK *
353	118	1 in FIRM Design Cable.wir	P412432	NIS STICH	Known Local Wind Heavy 85	Creep FE	816.2	43.9	OK
354	118	1 in FIRM Design Cable.wir	P412432	NIS STICH	60 Deg F	Creep FE	1023.7	21.8	OK
355	119	1 in FIRM Design Cable.wir	P412432	CMM	GO95 Heavy	Initial FE	551.5	29.4	OK *
356	119	1 in FIRM Design Cable.wir	P412432	CMM	Known Local Wind Heavy 85	Creep FE	547.2	29.4	OK
357	119	1 in FIRM Design Cable.wir	P412432	CMM	60 Deg F	Creep FE	321.3	6.8	OK
358	120	no2 AWG_5over2_AWAC_G0	P210713	P110215	GO95 Heavy	Initial FE	1516.5	63.6	OK
359	120	no2 AWG_5over2_AWAC_G0	P210713	P110215	Known Local Wind Heavy 85	Creep FE	2121.2	50.3	OK
360	120	no2 AWG_5over2_AWAC_G0	P210713	P110215	60 Deg F	Creep FE	3491.2	74.3	OK *
361	121	no2 AWG_5over2_AWAC_G0	P210713	P611283	GO95 Heavy	Initial FE	1272.1	53.2	OK *
362	121	no2 AWG_5over2_AWAC_G0	P210713	P611283	Known Local Wind Heavy 85	Creep FE	1575.4	37.4	OK
363	121	no2 AWG_5over2_AWAC_G0	P210713	P611283	60 Deg F	Creep FE	2345.4	49.9	OK
364	122	3_8-7_strand_ehs_steel_sdge	P210713	P223189	GO95 Heavy	Initial FE	4173.8	82.9	OK *
365	122	3_8-7_strand_ehs_steel_sdge	P210713	P223189	Known Local Wind Heavy 85	Creep FE	6088.3	67.1	OK
366	122	3_8-7_strand_ehs_steel_sdge	P210713	P223189	60 Deg F	Creep FE	3266	69.5	OK
367	123	1-0_AWG_Triplex SSC AL_N	P611283	SVC DRO	GO95 Heavy	Initial FE	212.1	19	OK *
368	123	1-0_AWG_Triplex SSC AL_N	P611283	SVC DRO	Known Local Wind Heavy 85	Creep FE	200.9	15.1	OK
369	123	1-0_AWG_Triplex SSC AL_N	P611283	SVC DRO	60 Deg F	Creep FE	125.6	4.5	OK
370	124	1 in FIRM Design Cable.wir	P611283	CMM DRG	GO95 Heavy	Initial FE	45.5	3	OK *
371	124	1 in FIRM Design Cable.wir	P611283	CMM DRG	Known Local Wind Heavy 85	Creep FE	49	2.9	OK
372	124	1 in FIRM Design Cable.wir	P611283	CMM DRG	60 Deg F	Creep FE	42.7	1	OK
373	125	#8 cu weld Duplex	P110221	SVC DRO	GO95 Heavy	Initial FE	82.6	27	OK *
374	125	#8 cu weld Duplex	P110221	SVC DRO	Known Local Wind Heavy 85	Creep FE	89.5	16.7	OK
375	125	#8 cu weld Duplex	P110221	SVC DRO	60 Deg F	Creep FE	63	4.1	OK
376	126	#8 cu weld Duplex	P110221	P519114	GO95 Heavy	Initial FE	545.7	140.6	NG *
377	126	#8 cu weld Duplex	P110221	P519114	Known Local Wind Heavy 85	Creep FE	535.4	91.6	OK
378	126	#8 cu weld Duplex	P110221	P519114	60 Deg F	Creep FE	638.6	27.3	OK
379	127	no4 AWG_3-Strand_Hard Dra	P519114	P223140	GO95 Heavy	Initial FE	484.3	45.3	OK *
380	127	no4 AWG_3-Strand_Hard Dra	P519114	P223140	Known Local Wind Heavy 85	Creep FE	516	22.9	OK
381	127	no4 AWG_3-Strand_Hard Dra	P519114	P223140	60 Deg F	Creep FE	378.4	8.1	OK
382	128	1-0_AWG_Triplex SSC AL_N	P110220	NIS STICH	GO95 Heavy	Initial FE	84.2	7.4	OK *
383	128	1-0_AWG_Triplex SSC AL_N	P110220	NIS STICH	Known Local Wind Heavy 85	Creep FE	81.9	6.4	OK
384	128	1-0_AWG_Triplex SSC AL_N	P110220	NIS STICH	60 Deg F	Creep FE	71.7	2.4	OK
385	129	no2 AWG_5over2_AWAC_G0	P712369	P416139	GO95 Heavy	Initial FE	1577.6	66.5	OK
386	129	no2 AWG_5over2_AWAC_G0	P712369	P416139	Known Local Wind Heavy 85	Creep FE	2076	49.3	OK
387	129	no2 AWG_5over2_AWAC_G0	P712369	P416139	60 Deg F	Creep FE	3150.9	67	OK *
388	130	1-0_AWG_Triplex SSC AL_N	P712369	SVC DRO	GO95 Heavy	Initial FE	107.8	8.9	OK
389	130	1-0_AWG_Triplex SSC AL_N	P712369	SVC DRO	Known Local Wind Heavy 85	Creep FE	142.6	10.6	OK *
390	130	1-0_AWG_Triplex SSC AL_N	P712369	SVC DRO	60 Deg F	Creep FE	80	2.4	OK

391	131	1-0 AWG_RTS Triplex_msgr	P712369	P416139	GO95 Heavy	Initial FE	871.8	31.4	OK *
392	131	1-0 AWG_RTS Triplex_msgr	P712369	P416139	Known Local Wind Heavy 85	Creep FE	879.2	28.8	OK
393	131	1-0 AWG_RTS Triplex_msgr	P712369	P416139	60 Deg F	Creep FE	1007.4	21.4	OK
394	132	no2 AWG_5over2_AWAC_G0	P416139	P410410	GO95 Heavy	Initial FE	1627.9	67.9	OK
395	132	no2 AWG_5over2_AWAC_G0	P416139	P410410	Known Local Wind Heavy 85	Creep FE	2302.5	54.6	OK
396	132	no2 AWG_5over2_AWAC_G0	P416139	P410410	60 Deg F	Creep FE	3487.2	74.2	OK *
397	133	1 in FIRM Design Cable.wir	P416139	P416138	GO95 Heavy	Initial FE	1231.9	66.6	OK *
398	133	1 in FIRM Design Cable.wir	P416139	P416138	Known Local Wind Heavy 85	Creep FE	1211.3	65.4	OK
399	133	1 in FIRM Design Cable.wir	P416139	P416138	60 Deg F	Creep FE	1833.5	39	OK
400	134	1 in FIRM Design Cable.wir	P416139	P416138	GO95 Heavy	Initial FE	1082.5	58.7	OK *
401	134	1 in FIRM Design Cable.wir	P416139	P416138	Known Local Wind Heavy 85	Creep FE	1068.1	57.8	OK
402	134	1 in FIRM Design Cable.wir	P416139	P416138	60 Deg F	Creep FE	1389	29.6	OK
403	135	1 in FIRM Design Cable.wir	P416139	P416138	GO95 Heavy	Initial FE	949.6	51.7	OK *
404	135	1 in FIRM Design Cable.wir	P416139	P416138	Known Local Wind Heavy 85	Creep FE	940.2	51	OK
405	135	1 in FIRM Design Cable.wir	P416139	P416138	60 Deg F	Creep FE	1115.1	23.7	OK
406	136	1 in FIRM Design Cable.wir	P416138	P410411	GO95 Heavy	Initial FE	1050.8	56.4	OK *
407	136	1 in FIRM Design Cable.wir	P416138	P410411	Known Local Wind Heavy 85	Creep FE	1038.9	56.1	OK
408	136	1 in FIRM Design Cable.wir	P416138	P410411	60 Deg F	Creep FE	1357.4	28.9	OK
409	137	1 in FIRM Design Cable.wir	P416138	P410411	GO95 Heavy	Initial FE	980.4	52.7	OK *
410	137	1 in FIRM Design Cable.wir	P416138	P410411	Known Local Wind Heavy 85	Creep FE	970.4	52.5	OK
411	137	1 in FIRM Design Cable.wir	P416138	P410411	60 Deg F	Creep FE	1197	25.5	OK
412	138	1 in FIRM Design Cable.wir	P416138	P410411	GO95 Heavy	Initial FE	897.8	48.4	OK *
413	138	1 in FIRM Design Cable.wir	P416138	P410411	Known Local Wind Heavy 85	Creep FE	889.8	48.2	OK
414	138	1 in FIRM Design Cable.wir	P416138	P410411	60 Deg F	Creep FE	1040.6	22.1	OK
415	139	1 in FIRM Design Cable.wir	P410411	NIS STICH	GO95 Heavy	Initial FE	1140.4	60.8	OK
416	139	1 in FIRM Design Cable.wir	P410411	NIS STICH	Known Local Wind Heavy 85	Creep FE	1141.8	61.4	OK *
417	139	1 in FIRM Design Cable.wir	P410411	NIS STICH	60 Deg F	Creep FE	1254.2	26.7	OK
418	140	1 in FIRM Design Cable.wir	P410411	P410410	GO95 Heavy	Initial FE	727.9	39.4	OK
419	140	1 in FIRM Design Cable.wir	P410411	P410410	Known Local Wind Heavy 85	Creep FE	726	39.5	OK *
420	140	1 in FIRM Design Cable.wir	P410411	P410410	60 Deg F	Creep FE	752.9	16	OK
421	141	1 in FIRM Design Cable.wir	P410411	NIS STICH	GO95 Heavy	Initial FE	883.9	47.3	OK
422	141	1 in FIRM Design Cable.wir	P410411	NIS STICH	Known Local Wind Heavy 85	Creep FE	884.9	47.7	OK *
423	141	1 in FIRM Design Cable.wir	P410411	NIS STICH	60 Deg F	Creep FE	890.8	19	OK
424	142	1 in FIRM Design Cable.wir	P410411	CMM	GO95 Heavy	Initial FE	71.2	4.1	OK
425	142	1 in FIRM Design Cable.wir	P410411	CMM	Known Local Wind Heavy 85	Creep FE	74.2	4.2	OK *
426	142	1 in FIRM Design Cable.wir	P410411	CMM	60 Deg F	Creep FE	77.6	1.7	OK
427	143	3_8-7_strand_ehs_steel_sdge	P410411	P246353	GO95 Heavy	Initial FE	1434.1	27.9	OK *
428	143	3_8-7_strand_ehs_steel_sdge	P410411	P246353	Known Local Wind Heavy 85	Creep FE	1970.2	21.6	OK
429	143	3_8-7_strand_ehs_steel_sdge	P410411	P246353	60 Deg F	Creep FE	1016.7	21.6	OK
430	144	1-0_AWG_Triplex SSC AL_N	P117928	SVC DRO	GO95 Heavy	Initial FE	340.9	28.5	OK *
431	144	1-0_AWG_Triplex SSC AL_N	P117928	SVC DRO	Known Local Wind Heavy 85	Creep FE	360.3	26.7	OK
432	144	1-0_AWG_Triplex SSC AL_N	P117928	SVC DRO	60 Deg F	Creep FE	212.6	6.7	OK
433	145	1-0_AWG_Triplex SSC AL_N	P719103	SVC DRO	GO95 Heavy	Initial FE	168.8	13.9	OK *
434	145	1-0_AWG_Triplex SSC AL_N	P719103	SVC DRO	Known Local Wind Heavy 85	Creep FE	172	13	OK
435	145	1-0_AWG_Triplex SSC AL_N	P719103	SVC DRO	60 Deg F	Creep FE	193.2	5.7	OK
436	146	no2 AWG_5over2_AWAC_G0	P410410	P117926	GO95 Heavy	Initial FE	1008.2	42.1	OK *
437	146	no2 AWG_5over2_AWAC_G0	P410410	P117926	Known Local Wind Heavy 85	Creep FE	1297.9	30.8	OK
438	146	no2 AWG_5over2_AWAC_G0	P410410	P117926	60 Deg F	Creep FE	1772	37.7	OK
439	147	1-0_AWG_Triplex SSC AL_N	P410410	P719103	GO95 Heavy	Initial FE	68.5	5.8	OK *
440	147	1-0_AWG_Triplex SSC AL_N	P410410	P719103	Known Local Wind Heavy 85	Creep FE	67.7	5.6	OK
441	147	1-0_AWG_Triplex SSC AL_N	P410410	P719103	60 Deg F	Creep FE	71.3	2.1	OK
442	148	1 in FIRM Design Cable.wir	P410410	P117927	GO95 Heavy	Initial FE	803.1	43	OK *
443	148	1 in FIRM Design Cable.wir	P410410	P117927	Known Local Wind Heavy 85	Creep FE	790.4	42.6	OK
444	148	1 in FIRM Design Cable.wir	P410410	P117927	60 Deg F	Creep FE	944	20.1	OK
445	149	1 in FIRM Design Cable.wir	P410410	P117927	GO95 Heavy	Initial FE	766.9	41.1	OK *
446	149	1 in FIRM Design Cable.wir	P410410	P117927	Known Local Wind Heavy 85	Creep FE	755.1	40.7	OK
447	149	1 in FIRM Design Cable.wir	P410410	P117927	60 Deg F	Creep FE	876.4	18.6	OK
448	150	1 in FIRM Design Cable.wir	P410410	P117927	GO95 Heavy	Initial FE	780	41.7	OK *
449	150	1 in FIRM Design Cable.wir	P410410	P117927	Known Local Wind Heavy 85	Creep FE	767.9	41.4	OK
450	150	1 in FIRM Design Cable.wir	P410410	P117927	60 Deg F	Creep FE	902.3	19.2	OK
451	151	1 in FIRM Design Cable.wir	NIS STICK	P410410	GO95 Heavy	Initial FE	172.2	9.3	OK *
452	151	1 in FIRM Design Cable.wir	NIS STICK	P410410	Known Local Wind Heavy 85	Creep FE	170.7	9.3	OK
453	151	1 in FIRM Design Cable.wir	NIS STICK	P410410	60 Deg F	Creep FE	160.2	3.4	OK
454	152	1 in FIRM Design Cable.wir	NIS STICK	P410410	GO95 Heavy	Initial FE	103.2	5.7	OK *
455	152	1 in FIRM Design Cable.wir	NIS STICK	P410410	Known Local Wind Heavy 85	Creep FE	103.2	5.7	OK
456	152	1 in FIRM Design Cable.wir	NIS STICK	P410410	60 Deg F	Creep FE	100.4	2.1	OK
457	153	1-0_AWG_Triplex SSC AL_N	P117927	P117928	GO95 Heavy	Initial FE	341.6	27.3	OK *
458	153	1-0_AWG_Triplex SSC AL_N	P117927	P117928	Known Local Wind Heavy 85	Creep FE	352.8	26.3	OK
459	153	1-0_AWG_Triplex SSC AL_N	P117927	P117928	60 Deg F	Creep FE	343.3	9.8	OK
460	154	1 in FIRM Design Cable.wir	P117927	P117926	GO95 Heavy	Initial FE	656.9	35.6	OK *
461	154	1 in FIRM Design Cable.wir	P117927	P117926	Known Local Wind Heavy 85	Creep FE	648.5	35.2	OK
462	154	1 in FIRM Design Cable.wir	P117927	P117926	60 Deg F	Creep FE	725.6	15.4	OK
463	155	1 in FIRM Design Cable.wir	P117927	P117926	GO95 Heavy	Initial FE	708.1	38.2	OK *
464	155	1 in FIRM Design Cable.wir	P117927	P117926	Known Local Wind Heavy 85	Creep FE	697.3	37.8	OK
465	155	1 in FIRM Design Cable.wir	P117927	P117926	60 Deg F	Creep FE	801.8	17.1	OK
466	156	1 in FIRM Design Cable.wir	P117927	P117926	GO95 Heavy	Initial FE	833.5	44.8	OK *
467	156	1 in FIRM Design Cable.wir	P117927	P117926	Known Local Wind Heavy 85	Creep FE	818	44.2	OK
468	156	1 in FIRM Design Cable.wir	P117927	P117926	60 Deg F	Creep FE	1020.2	21.7	OK
469	157	no2 AWG_5over2_AWAC_G0	P117926	P110708J	GO95 Heavy	Initial FE	1067.4	44.4	OK *

470	157	no2 AWG_5over2_AWAC_G	P117926	P110708J	Known Local Wind Heavy 85	Creep FE	1406.4	33.3	OK
471	157	no2 AWG_5over2_AWAC_G	P117926	P110708J	60 Deg F	Creep FE	1877.8	40	OK
472	158	1 in FIRM Design Cable.wir	P117926	P110708J	GO95 Heavy	Initial FE	732.2	38.9	OK *
473	158	1 in FIRM Design Cable.wir	P117926	P110708J	Known Local Wind Heavy 85	Creep FE	691.9	37.1	OK
474	158	1 in FIRM Design Cable.wir	P117926	P110708J	60 Deg F	Creep FE	1037.1	22.1	OK
475	159	1 in FIRM Design Cable.wir	P117926	P110708J	GO95 Heavy	Initial FE	554.9	29.6	OK *
476	159	1 in FIRM Design Cable.wir	P117926	P110708J	Known Local Wind Heavy 85	Creep FE	534.3	28.7	OK
477	159	1 in FIRM Design Cable.wir	P117926	P110708J	60 Deg F	Creep FE	633.7	13.5	OK
478	160	1 in FIRM Design Cable.wir	P117926	P110708J	GO95 Heavy	Initial FE	573.2	30.6	OK *
479	160	1 in FIRM Design Cable.wir	P117926	P110708J	Known Local Wind Heavy 85	Creep FE	555.1	29.9	OK
480	160	1 in FIRM Design Cable.wir	P117926	P110708J	60 Deg F	Creep FE	685.1	14.6	OK
481	161	1 in FIRM Design Cable.wir	NIS STICK	P410411	GO95 Heavy	Initial FE	858.4	46.1	OK *
482	161	1 in FIRM Design Cable.wir	NIS STICK	P410411	Known Local Wind Heavy 85	Creep FE	837.4	45.3	OK
483	161	1 in FIRM Design Cable.wir	NIS STICK	P410411	60 Deg F	Creep FE	1079	23	OK
484	162	1 in FIRM Design Cable.wir	NIS STICK	P410411	GO95 Heavy	Initial FE	878.2	47.2	OK *
485	162	1 in FIRM Design Cable.wir	NIS STICK	P410411	Known Local Wind Heavy 85	Creep FE	856.8	46.3	OK
486	162	1 in FIRM Design Cable.wir	NIS STICK	P410411	60 Deg F	Creep FE	1118.8	23.8	OK
487	163	1 in FIRM Design Cable.wir	NIS STICK	P410411	GO95 Heavy	Initial FE	780	42.1	OK *
488	163	1 in FIRM Design Cable.wir	NIS STICK	P410411	Known Local Wind Heavy 85	Creep FE	765.6	41.5	OK
489	163	1 in FIRM Design Cable.wir	NIS STICK	P410411	60 Deg F	Creep FE	911	19.4	OK
490	164	1 in FIRM Design Cable.wir	NIS STICK	P611283	GO95 Heavy	Initial FE	373.3	20	OK
491	164	1 in FIRM Design Cable.wir	NIS STICK	P611283	Known Local Wind Heavy 85	Creep FE	378.6	20.5	OK *
492	164	1 in FIRM Design Cable.wir	NIS STICK	P611283	60 Deg F	Creep FE	371.6	7.9	OK
493	165	1-0_AWG_Triplex SSC AL_N	SVC DROP	SVC DRO	GO95 Heavy	Initial FE	72.8	6.8	OK *
494	165	1-0_AWG_Triplex SSC AL_N	SVC DROP	SVC DRO	Known Local Wind Heavy 85	Creep FE	82.3	6.4	OK
495	165	1-0_AWG_Triplex SSC AL_N	SVC DROP	SVC DRO	60 Deg F	Creep FE	63.9	2.3	OK
496	166	no4 AWG_Triplex SSC AL_P	SVC DROP	S511486	GO95 Heavy	Initial FE	190.2	26.6	OK *
497	166	no4 AWG_Triplex SSC AL_P	SVC DROP	S511486	Known Local Wind Heavy 85	Creep FE	190.8	22	OK
498	166	no4 AWG_Triplex SSC AL_P	SVC DROP	S511486	60 Deg F	Creep FE	195.4	5.6	OK
499	167	1 in FIRM Design Cable.wir	NIS CMM ST	P110714J	GO95 Heavy	Initial FE	1145.2	61.3	OK *
500	167	1 in FIRM Design Cable.wir	NIS CMM ST	P110714J	Known Local Wind Heavy 85	Creep FE	1083.7	58.2	OK
501	167	1 in FIRM Design Cable.wir	NIS CMM ST	P110714J	60 Deg F	Creep FE	2284.2	48.6	OK
502	168	1 in FIRM Design Cable.wir	NIS CMM ST	P110714J	GO95 Heavy	Initial FE	686.4	37	OK *
503	168	1 in FIRM Design Cable.wir	NIS CMM ST	P110714J	Known Local Wind Heavy 85	Creep FE	666.4	36	OK
504	168	1 in FIRM Design Cable.wir	NIS CMM ST	P110714J	60 Deg F	Creep FE	787.5	16.8	OK
505	169	1 in FIRM Design Cable.wir	NIS CMM ST	P110714J	GO95 Heavy	Initial FE	480.5	26.2	OK *
506	169	1 in FIRM Design Cable.wir	NIS CMM ST	P110714J	Known Local Wind Heavy 85	Creep FE	474.3	25.9	OK
507	169	1 in FIRM Design Cable.wir	NIS CMM ST	P110714J	60 Deg F	Creep FE	498.9	10.6	OK
508	170	1-0_AWG_Triplex SSC AL_N	SVC DRO	SVC DRO	GO95 Heavy	Initial FE	174.2	15.3	OK *
509	170	1-0_AWG_Triplex SSC AL_N	SVC DRO	SVC DRO	Known Local Wind Heavy 85	Creep FE	178.1	13.9	OK
510	170	1-0_AWG_Triplex SSC AL_N	SVC DRO	SVC DRO	60 Deg F	Creep FE	170.2	5.5	OK
511	171	1 in FIRM Design Cable.wir	P110710	CMM DR	GO95 Heavy	Initial FE	458.4	25.1	OK *
512	171	1 in FIRM Design Cable.wir	P110710	CMM DR	Known Local Wind Heavy 85	Creep FE	446.3	24.2	OK
513	171	1 in FIRM Design Cable.wir	P110710	CMM DR	60 Deg F	Creep FE	505.6	10.8	OK
514	172	1-0_AWG_Triplex SSC AL_N	SVC DROP	SVC DRO	GO95 Heavy	Initial FE	239.7	19.3	OK *
515	172	1-0_AWG_Triplex SSC AL_N	SVC DROP	SVC DRO	Known Local Wind Heavy 85	Creep FE	233.5	17.3	OK
516	172	1-0_AWG_Triplex SSC AL_N	SVC DROP	SVC DRO	60 Deg F	Creep FE	218	6.3	OK
517	173	no4 AWG_3-Strand_Hard Dra	SVC DROP	S111234	GO95 Heavy	Initial FE	458.4	42.7	OK *
518	173	no4 AWG_3-Strand_Hard Dra	SVC DROP	S111234	Known Local Wind Heavy 85	Creep FE	489.8	21.6	OK
519	173	no4 AWG_3-Strand_Hard Dra	SVC DROP	S111234	60 Deg F	Creep FE	464.3	9.9	OK
520	174	1 in FIRM Design Cable.wir	NIS CMM ST	P817173	GO95 Heavy	Initial FE	680.7	36.4	OK *
521	174	1 in FIRM Design Cable.wir	NIS CMM ST	P817173	Known Local Wind Heavy 85	Creep FE	660.8	35.5	OK
522	174	1 in FIRM Design Cable.wir	NIS CMM ST	P817173	60 Deg F	Creep FE	829.8	17.7	OK
523	175	1 in FIRM Design Cable.wir	NIS CMM ST	P817173	GO95 Heavy	Initial FE	677.1	36.2	OK *
524	175	1 in FIRM Design Cable.wir	NIS CMM ST	P817173	Known Local Wind Heavy 85	Creep FE	656.5	35.2	OK
525	175	1 in FIRM Design Cable.wir	NIS CMM ST	P817173	60 Deg F	Creep FE	829.6	17.7	OK
526	176	1 in FIRM Design Cable.wir	NIS CMM ST	P817173	GO95 Heavy	Initial FE	879.5	46.9	OK *
527	176	1 in FIRM Design Cable.wir	NIS CMM ST	P817173	Known Local Wind Heavy 85	Creep FE	846.1	45.4	OK
528	176	1 in FIRM Design Cable.wir	NIS CMM ST	P817173	60 Deg F	Creep FE	1535.4	32.7	OK
529	177	1 in FIRM Design Cable.wir	NIS CMM ST	P817172	GO95 Heavy	Initial FE	794.1	42.4	OK *
530	177	1 in FIRM Design Cable.wir	NIS CMM ST	P817172	Known Local Wind Heavy 85	Creep FE	768	41.3	OK
531	177	1 in FIRM Design Cable.wir	NIS CMM ST	P817172	60 Deg F	Creep FE	1027.1	21.9	OK
532	178	1 in FIRM Design Cable.wir	NIS CMM ST	P817172	GO95 Heavy	Initial FE	753.7	40.3	OK *
533	178	1 in FIRM Design Cable.wir	NIS CMM ST	P817172	Known Local Wind Heavy 85	Creep FE	730.4	39.3	OK
534	178	1 in FIRM Design Cable.wir	NIS CMM ST	P817172	60 Deg F	Creep FE	932.5	19.8	OK
535	179	1 in FIRM Design Cable.wir	NIS CMM ST	P817172	GO95 Heavy	Initial FE	697.2	37.3	OK *
536	179	1 in FIRM Design Cable.wir	NIS CMM ST	P817172	Known Local Wind Heavy 85	Creep FE	677.8	36.5	OK
537	179	1 in FIRM Design Cable.wir	NIS CMM ST	P817172	60 Deg F	Creep FE	817.6	17.4	OK
538	180	1 in FIRM Design Cable.wir	NIS CMM ST	NIS CMM	GO95 Heavy	Initial FE	614.1	32.8	OK *
539	180	1 in FIRM Design Cable.wir	NIS CMM ST	NIS CMM	Known Local Wind Heavy 85	Creep FE	581.9	31.2	OK
540	180	1 in FIRM Design Cable.wir	NIS CMM ST	NIS CMM	60 Deg F	Creep FE	836.5	17.8	OK
541	181	1 in FIRM Design Cable.wir	NIS CMM ST	NIS CMM	GO95 Heavy	Initial FE	582.1	31.1	OK *
542	181	1 in FIRM Design Cable.wir	NIS CMM ST	NIS CMM	Known Local Wind Heavy 85	Creep FE	553.2	29.7	OK
543	181	1 in FIRM Design Cable.wir	NIS CMM ST	NIS CMM	60 Deg F	Creep FE	744	15.8	OK
544	182	1 in FIRM Design Cable.wir	NIS CMM ST	NIS CMM	GO95 Heavy	Initial FE	613.3	32.7	OK *
545	182	1 in FIRM Design Cable.wir	NIS CMM ST	NIS CMM	Known Local Wind Heavy 85	Creep FE	581.3	31.2	OK
546	182	1 in FIRM Design Cable.wir	NIS CMM ST	NIS CMM	60 Deg F	Creep FE	836.8	17.8	OK
547	183	1 in FIRM Design Cable.wir	NIS CMM ST	P412434	GO95 Heavy	Initial FE	633.9	33.7	OK *
548	183	1 in FIRM Design Cable.wir	NIS CMM ST	P412434	Known Local Wind Heavy 85	Creep FE	615.2	33	OK

549	183	1 in FiRM Design Cable.wir	NIS CMM ST	P412434	60 Deg F	Creep FE	785.7	16.7	OK
550	184	1 in FiRM Design Cable.wir	NIS CMM ST	P412434	GO95 Heavy	Initial FE	730.5	38.8	OK *
551	184	1 in FiRM Design Cable.wir	NIS CMM ST	P412434	Known Local Wind Heavy 85	Creep FE	705.1	37.8	OK
552	184	1 in FiRM Design Cable.wir	NIS CMM ST	P412434	60 Deg F	Creep FE	1105	23.5	OK
553	185	1 in FiRM Design Cable.wir	NIS CMM ST	P412434	GO95 Heavy	Initial FE	713.1	37.9	OK *
554	185	1 in FiRM Design Cable.wir	NIS CMM ST	P412434	Known Local Wind Heavy 85	Creep FE	687.4	36.8	OK
555	185	1 in FiRM Design Cable.wir	NIS CMM ST	P412434	60 Deg F	Creep FE	1056.1	22.5	OK
556	186	1 in FiRM Design Cable.wir	NIS CMM ST	P412433	GO95 Heavy	Initial FE	601.5	32.1	OK
557	186	1 in FiRM Design Cable.wir	NIS CMM ST	P412433	Known Local Wind Heavy 85	Creep FE	608	32.6	OK *
558	186	1 in FiRM Design Cable.wir	NIS CMM ST	P412433	60 Deg F	Creep FE	733.1	15.6	OK
559	187	1 in FiRM Design Cable.wir	NIS CMM ST	P412433	GO95 Heavy	Initial FE	539	28.8	OK
560	187	1 in FiRM Design Cable.wir	NIS CMM ST	P412433	Known Local Wind Heavy 85	Creep FE	542.6	29.1	OK *
561	187	1 in FiRM Design Cable.wir	NIS CMM ST	P412433	60 Deg F	Creep FE	606.2	12.9	OK
562	188	1 in FiRM Design Cable.wir	NIS CMM ST	P412433	GO95 Heavy	Initial FE	725.5	38.7	OK
563	188	1 in FiRM Design Cable.wir	NIS CMM ST	P412433	Known Local Wind Heavy 85	Creep FE	726.3	38.9	OK *
564	188	1 in FiRM Design Cable.wir	NIS CMM ST	P412433	60 Deg F	Creep FE	1110	23.6	OK
565	189	1 in FiRM Design Cable.wir	CMM	P817174	GO95 Heavy	Initial FE	938	50.4	OK *
566	189	1 in FiRM Design Cable.wir	CMM	P817174	Known Local Wind Heavy 85	Creep FE	916.9	49.6	OK
567	189	1 in FiRM Design Cable.wir	CMM	P817174	60 Deg F	Creep FE	1029.1	21.9	OK
568	190	1 in FiRM Design Cable.wir	CMM	P817174	GO95 Heavy	Initial FE	905.4	48.6	OK *
569	190	1 in FiRM Design Cable.wir	CMM	P817174	Known Local Wind Heavy 85	Creep FE	886.6	48	OK
570	190	1 in FiRM Design Cable.wir	CMM	P817174	60 Deg F	Creep FE	983.8	20.9	OK
571	191	1 in FiRM Design Cable.wir	CMM	P817174	GO95 Heavy	Initial FE	901.3	48.4	OK *
572	191	1 in FiRM Design Cable.wir	CMM	P817174	Known Local Wind Heavy 85	Creep FE	883.4	47.9	OK
573	191	1 in FiRM Design Cable.wir	CMM	P817174	60 Deg F	Creep FE	981	20.9	OK
574	192	1-0_AWG_Triplex SSC AL_N	SVC	SVC DRO	GO95 Heavy	Initial FE	246.4	20	OK *
575	192	1-0_AWG_Triplex SSC AL_N	SVC	SVC DRO	Known Local Wind Heavy 85	Creep FE	245.4	18.3	OK
576	192	1-0_AWG_Triplex SSC AL_N	SVC	SVC DRO	60 Deg F	Creep FE	235.4	6.9	OK
577	193	1 in FiRM Design Cable.wir	CMM	P110715	GO95 Heavy	Initial FE	272.1	14.9	OK
578	193	1 in FiRM Design Cable.wir	CMM	P110715	Known Local Wind Heavy 85	Creep FE	273.4	15.1	OK *
579	193	1 in FiRM Design Cable.wir	CMM	P110715	60 Deg F	Creep FE	271.7	5.8	OK
580	194	1 in FiRM Design Cable.wir	CMM	CMM	GO95 Heavy	Initial FE	428	23.2	OK *
581	194	1 in FiRM Design Cable.wir	CMM	CMM	Known Local Wind Heavy 85	Creep FE	424	23.1	OK
582	194	1 in FiRM Design Cable.wir	CMM	CMM	60 Deg F	Creep FE	434.9	9.3	OK

Fiberglass Arm Loading



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Crossarm Inputs

PLS Structure Number	Pole Number	At Installation/At Replacement	Pole Material	Arm Material	Length	Arm Type	# of Wires	Dist. Only or Underbuild?	Try Angle Pins?	Force Double Arm Check?	Ruling Span	Ruling Span Sag	Arm Take-Off Angle	Controlling Span	Minimum Required Arm Length
P110711J	P110711J	At Replacement	Steel	Fiberglass	10'	Tan	3	Dist. Only	Yes	No	219.3	5.45	8.97	219.3	8' Fiberglass
P516083	P516083	At Replacement	Steel	Fiberglass	10'	Tan	2	Dist. Only	No	No	299.25	8.28	6.99	299.25	6' Fiberglass
P112625	P112625	At Replacement	Steel	Fiberglass	10'	DE	3	Dist. Only	No	No	327.14	9.98	23.33	327.14	12' Fiberglass
P110714J_T	P110714J_T	At Replacement	Steel	Fiberglass	10'	DE	3	Dist. Only	No	No	327.14	9.98	14.32	327.14	10' Fiberglass
P110714J_B	P110714J_B	At Replacement	Steel	Fiberglass	10'	DE	2	Dist. Only	No	No	287.57	9.29	-23.45	287.57	6' Fiberglass
P110715	P110715	At Replacement	Steel	Fiberglass	10'	DE	2	Dist. Only	No	No	287.57	9.29	0.69	287.57	6' Fiberglass
P110713_T	P110713_T	At Replacement	Steel	Fiberglass	10'	Tan	3	Dist. Only	No	Yes	215.62	5.17	-12.37	215.62	8' Fiberglass
P110713_B	P110713_B	At Replacement	Steel	Fiberglass	10'	DE	2	Dist. Only	No	No	299.25	8.28	31.49	299.25	6' Fiberglass
P713311	P713311	At Replacement	Steel	Fiberglass	10'	DE	2	Dist. Only	No	No	213.98	5.5	11.17	213.98	6' Fiberglass
P713310	P713310	At Replacement	Steel	Fiberglass	10'	DE	2	Dist. Only	No	No	213.98	5.5	-35.24	213.98	6' Fiberglass
P516084	P516084	At Replacement	Steel	Fiberglass	10'	Tan	2	Dist. Only	No	No	144.85	3.21	2.98	144.85	6' Fiberglass
P110215_T	P110215_T	At Replacement	Steel	Fiberglass	10'	DE	2	Dist. Only	No	No	435.08	21.2	-3.68	435.08	6' Fiberglass
P110215_B	P110215_B	At Replacement	Steel	Fiberglass	10'	DE	3	Dist. Only	No	No	293.86	8.59	1.57	293.86	8' Fiberglass
P102881	P102881	At Replacement	Wood	Wood	6'	Tan	2	Dist. Only	No	No	293.86	8.59	0.84	293.86	6' Wood
P166201	P166201	At Replacement	Steel	Fiberglass	10'	DE	2	Dist. Only	No	Yes	190.62	5.5	4.11	190.62	6' Fiberglass

Crossarm Results

PLS Number	Pole Number	Will Selected Arm Work?	Arm Description	Max. Percent Usage:	Vertical Load (lb)	Transverse Load (lb)	Horizontal Load (lb)	Max Uplift (lbs)	Min. Pin Spacing	Comments
P110711J	P110711J	Yes, Single Arm	10' Tan FG w/ Angle Pins	24.06%	176	694	69	36	22.6	Angle Pins Required!
P516083	P516083	Yes, Single Arm	10' Tan FG w/ Straight Pins	26.61%	180	455	-65	40	26.8	1-3/8 in. Pins Required!
P112625	P112625	Yes, Single Arm	10' DE FG	53.06%	-68	909	-313	-68	31.4	
P110714J_T	P110714J_T	Yes, Single Arm	10' DE FG	28.07%	101	-550.1864081	-119.1604539	-16	29.8	
P110714J_B	P110714J_B	Yes, Single Arm	10' DE FG	20.57%	8	-525.8738523	-970.9133285	-46	30.5	
P110715	P110715	Yes, Single Arm	10' DE FG	15.56%	178	96	1182	26	28.0	
P110713_T	P110713_T	Yes, Double Arms	10' Tan FG w/ Straight Pins	45.78%	103	737	-460	-15	22.3	Angle Pins Required!
P110713_B	P110713_B	Yes, Single Arm	10' DE FG	28.81%	-158	-706.089054	959.4833233	-194	31.2	
P713311	P713311	Yes, Single Arm	10' DE FG	33.33%	573	-340.6400667	-1406.223789	57	22.8	
P713310	P713310	Yes, Single Arm	10' DE FG	33.55%	-178	-1117.775027	118.8727705	-218	27.4	
P516084	P516084	Yes, Single Arm	10' Tan FG w/ Straight Pins	16.44%	133	-147	-124	21	18.0	
P110215_T	P110215_T	Yes, Single Arm	10' DE FG	17.12%	316	-305	-199	0	40.5	
P110215_B	P110215_B	Yes, Double Arms	10' DE FG	60.73%	-43	-147.2423707	1254.441981	-84	27.1	
P102881	P102881	Try Something Else	#N/A	100.00%	0	0	0	N/A	27.0	NO ALLOWABLES FOR 6' WOOD ARMS. CROSS ARM ANALYZE
P166201	P166201	Yes, Double Arms	10' DE FG	19.44%	271	-220.2665351	-1928.192847	0	22.4	

NOTE:

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Fiberglass Arm Loading



Project Description: C221-F CROSSARM CHECK TRUE-UP L4
 DPSS: 454107-070 WO: 2420491

PLS Analyst: NV5-MM
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Crossarm Inputs

PLS Structure Number	Pole Number	At Installation/At Replacement	Pole Material	Arm Material	Length	Arm Type	# of Wires	Dist. Only or Underbuild?	Try Angle Pins?	Force Double Arm Check?	Ruling Span	Ruling Span Sag	Arm Take-Off Angle	Controlling Span	Minimum Required Arm Length
P110214	P110214	At Replacement	Steel	Fiberglass	10'	Tan	3	Dist. Only	Yes	No	190.62	5.5	3.02	190.62	8' Fiberglass
P166114	P166114	At Replacement	Steel	Fiberglass	10'	Tan	3	Dist. Only	No	No	141.64	2.49	0.3	141.64	8' Fiberglass
P310182	P310182	At Replacement	Steel	Fiberglass	10'	DE	2	Dist. Only	No	No	435.08	21.2	0.74	435.08	6' Fiberglass
P110218_T	P110218_T	At Replacement	Steel	Fiberglass	10'	DE	2	Dist. Only	No	No	252.26	7.4	-7.61	252.26	6' Fiberglass
P110218_B	P110218_B	At Replacement	Steel	Fiberglass	10'	DE	3	Dist. Only	No	No	227.52	6.64	-23.36	227.52	8' Fiberglass
P110219	P110219	At Replacement	Steel	Fiberglass	10'	Tan	3	Dist. Only	No	No	227.52	6.64	4.46	227.52	8' Fiberglass
P210482	P210482	At Replacement	Steel	Fiberglass	8'	Tan	2	Dist. Only	No	No	353.25	8.79	-3.71	353.25	6' Fiberglass
P210483	P210483	At Replacement	Steel	Fiberglass	10'	Tan	2	Dist. Only	No	No	353.25	8.79	-2.7	353.25	6' Fiberglass
P210484	P210484	At Replacement	Steel	Fiberglass	10'	DE	2	Dist. Only	No	No	97.81	0.88	1.41	97.81	6' Fiberglass
P110707_T	P110707_T	At Replacement	Steel	Fiberglass	10'	DE	2	Dist. Only	No	No	297.39	9.06	15.62	297.39	6' Fiberglass
P110707_B	P110707_B	At Replacement	Steel	Fiberglass	10'	DE	2	Dist. Only	No	No	337.2	8.78	0.71	337.2	6' Fiberglass
P110708J_T	P110708J_T	At Replacement	Steel	Fiberglass	10'	DE	2	Dist. Only	No	No	297.39	9.06	-20.3	297.39	6' Fiberglass
P110708J_B	P110708J_B	At Replacement	Steel	Fiberglass	10'	DE	2	Dist. Only	No	No	114.8	2.68	3.7	114.8	6' Fiberglass
P110709	P110709	At Replacement	Steel	Fiberglass	10'	DE	3	Dist. Only	No	No	219.3	5.45	9.71	219.3	8' Fiberglass
P817174	P817174	At Replacement	Steel	Fiberglass	10'	DE	2	Dist. Only	No	No	293.43	7.9	-3.01	293.43	6' Fiberglass

Crossarm Results

PLS Number	Pole Number	Will Selected Arm Work?	Arm Description	Max. Percent Usage:	Vertical Load (lb)	Transverse Load (lb)	Horizontal Load (lb)	Max Uplift (lbs)	Min. Pin Spacing	Comments
P110214	P110214	Yes, Single Arm	10' Tan FG w/ Angle Pins	22.17%	115	124	242	6	22.4	
P166114	P166114	Yes, Single Arm	10' Tan FG w/ Straight Pins	20.45%	119	-86	193	34	18.0	
P310182	P310182	Yes, Single Arm	10' DE FG	14.48%	-160	-391	-79	-168	40.4	
P110218_T	P110218_T	Yes, Single Arm	10' DE FG	44.34%	861	-863.5104219	-114.8464696	0	25.6	
P110218_B	P110218_B	Yes, Single Arm	10' DE FG	90.20%	-24	-315.1556252	920.4357294	-54	26.4	
P110219	P110219	Yes, Single Arm	10' Tan FG w/ Straight Pins	42.84%	312	-268	303	50	24.3	
P210482	P210482	Yes, Single Arm	8' Tan FG w/ Straight Pins	14.42%	-109	-175	-143	-110	27.4	
P210483	P210483	Yes, Single Arm	10' Tan FG w/ Straight Pins	9.31%	47	-166	-30	-52	27.3	
P210484	P210484	Yes, Single Arm	10' DE FG	19.23%	212	-72.58105875	1647.712654	25	18.0	
P110707_T	P110707_T	Yes, Single Arm	10' DE FG	26.43%	14	-987.8698583	159.0615422	-78	28.7	
P110707_B	P110707_B	Yes, Single Arm	10' DE FG	20.55%	232	-133	1551	38	27.3	
P110708J_T	P110708J_T	Yes, Single Arm	10' DE FG	24.82%	157	-793.986695	114.1555071	0	29.5	
P110708J_B	P110708J_B	Yes, Single Arm	10' DE FG	10.82%	49	-99.51370877	966.5955834	7	18.0	
P110709	P110709	Yes, Single Arm	10' DE FG	37.37%	215	721	-129	0	22.6	
P817174	P817174	Yes, Single Arm	10' DE FG	16.24%	87	-167.693382	-1342.046545	14	26.1	

NOTE:

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Fiberglass Arm Loading



Project Description: C221-F CROSSARM CHECK TRUE-UP L4
 DPSS: 454107-070 WO: 2420491

PLS Analyst: NV5-MM
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Crossarm Inputs

PLS Structure Number	Pole Number	At Installation/At Replacement	Pole Material	Arm Material	Length	Arm Type	# of Wires	Dist. Only or Underbuild?	Try Angle Pins?	Force Double Arm Check?	Ruling Span	Ruling Span Sag	Arm Take-Off Angle	Controlling Span	Minimum Required Arm Length
P817172	P817172	At Replacement	Steel	Fiberglass	10'	Tan	2	Dist. Only	No	No	296.86	7.21	2.27	296.86	6' Fiberglass
P817173	P817173	At Replacement	Steel	Fiberglass	10'	Tan	2	Dist. Only	No	No	293.43	7.9	-1.02	293.43	6' Fiberglass
P412434 T	P412434 T	At Replacement	Steel	Fiberglass	10'	DE	2	Dist. Only	No	No	296.86	7.21	2.65	296.86	6' Fiberglass
P412434 B	P412434 B	At Replacement	Steel	Fiberglass	10'	DE	2	Dist. Only	No	No	48.46	2.25	-13.39	48.46	6' Fiberglass
P719436	P719436	At Replacement	Wood	Wood	10'	DE	2	Dist. Only	No	Yes	170.19	4.67	-6.67	170.19	6' Wood
P412433	P412433	At Replacement	Steel	Fiberglass	10'	Tan	3	Dist. Only	No	No	167.92	4.5	1.5	167.92	8' Fiberglass
P511485	P511485	At Replacement	Steel	Fiberglass	10'	Tan	3	Dist. Only	No	No	114.51	2.65	0.48	114.51	8' Fiberglass
P412432	P412432	At Replacement	Steel	Fiberglass	10'	Tan	3	Dist. Only	No	No	237.21	6.96	5.06	237.21	8' Fiberglass
P136641	P136641	At Replacement	Steel	Fiberglass	10'	Tan	3	Dist. Only	No	No	237.21	6.96	4.1	237.21	8' Fiberglass
P210713 T	P210713 T	At Replacement	Steel	Fiberglass	10'	DE	3	Dist. Only	No	No	215.01	5.53	-2.55	215.01	8' Fiberglass
P210713 B	P210713 B	At Replacement	Steel	Fiberglass	10'	DE	3	Dist. Only	No	No	239.81	7.04	14.15	239.81	8' Fiberglass
P611283	P611283	At Replacement	Steel	Fiberglass	10'	DE	2	Dist. Only	No	No	239.81	7.04	4.13	239.81	6' Fiberglass
P110221	P110221	At Replacement	Steel	Fiberglass	10'	Tan	3	Dist. Only	No	No	237.35	6.16	2.59	237.35	8' Fiberglass
P110220	P110220	At Replacement	Steel	Fiberglass	10'	Tan	3	Dist. Only	No	No	237.35	6.16	-4.59	237.35	8' Fiberglass
P712369	P712369	At Replacement	Steel	Fiberglass	10'	DE	2	Dist. Only	No	No	256.89	6.72	2.59	256.89	6' Fiberglass

Crossarm Results

PLS Number	Pole Number	Will Selected Arm Work?	Arm Description	Max. Percent Usage:	Vertical Load (lb)	Transverse Load (lb)	Horizontal Load (lb)	Max Uplift (lbs)	Min. Pin Spacing	Comments
P817172	P817172	Yes, Single Arm	10' Tan FG w/ Straight Pins	20.79%	230	-246	64	44	25.1	
P817173	P817173	Yes, Single Arm	10' Tan FG w/ Straight Pins	18.83%	185	-192	-99	38	26.1	
P412434 T	P412434 T	Yes, Single Arm	10' DE FG	10.24%	100	-175	452	-5	25.1	
P412434 B	P412434 B	Yes, Single Arm	10' DE FG	1.72%	-8	16	152	-10	18.0	
P719436	P719436	Yes	10' Dbl. Wood DE	7.90%	37	-16	134	0	21.0	
P412433	P412433	Yes, Single Arm	10' Tan FG w/ Straight Pins	13.75%	143	113	48	24	20.6	
P511485	P511485	Yes, Single Arm	10' Tan FG w/ Straight Pins	8.45%	-42	-46	79	-42	18.0	
P412432	P412432	Yes, Single Arm	10' Tan FG w/ Straight Pins	13.09%	143	148	-16	26	24.8	
P136641	P136641	Yes, Single Arm	10' Tan FG w/ Straight Pins	14.83%	165	111	-50	27	24.8	
P210713 T	P210713 T	Yes, Double Arms	10' DE FG	62.44%	82	-130	-1271	0	22.4	
P210713 B	P210713 B	Yes, Single Arm	10' DE FG	22.96%	69	61	-214	-7	25.6	
P611283	P611283	Yes, Single Arm	10' DE FG	13.86%	39	-165.1971378	1191.197257	-14	24.9	
P110221	P110221	Yes, Single Arm	10' Tan FG w/ Straight Pins	26.19%	304	147	108	47	23.5	
P110220	P110220	Yes, Single Arm	10' Tan FG w/ Straight Pins	12.29%	89	-172	30	-20	23.5	
P712369	P712369	Yes, Single Arm	10' DE FG	20.15%	259	-145.5099776	-1359.819049	33	24.4	

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Fiberglass Arm Loading



Project Description: C221-F CROSSARM CHECK TRUE-UP L4
 DPSS: 454107-070 WO: 2420491

PLS Analyst: NV5-MM
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Crossarm Inputs

PLS Structure Number	Pole Number	At Installation/At Replacement	Pole Material	Arm Material	Length	Arm Type	# of Wires	Dist. Only or Underbuild?	Try Angle Pins?	Force Double Arm Check?	Ruling Span	Ruling Span Sag	Arm Take-Off Angle	Controlling Span	Minimum Required Arm Length
P416139	P416139	At Replacement	Steel	Fiberglass	10'	DE	2	Dist. Only	No	No	256.89	6.72	-19.65	256.89	6' Fiberglass
P416138	P416138	At Replacement	Steel	Fiberglass	10'	Tan	2	Dist. Only	No	No	273.98	7.46	0.8	273.98	6' Fiberglass
P410411	P410411	At Replacement	Steel	Fiberglass	10'	Tan	2	Dist. Only	No	Yes	269.43	7.33	4.05	269.43	6' Fiberglass
P410410_T	P410410_T	At Replacement	Steel	Fiberglass	10'	DE	2	Dist. Only	No	No	194.75	5.87	-14.91	194.75	6' Fiberglass
P410410_B	P410410_B	At Replacement	Steel	Fiberglass	10'	DE	2	Dist. Only	No	No	256.04	5.19	-9.2	256.04	6' Fiberglass
P117927	P117927	At Replacement	Steel	Fiberglass	10'	Tan	2	Dist. Only	No	Yes	203.24	6.13	8.35	203.24	6' Fiberglass
P117926	P117926	At Replacement	Steel	Fiberglass	10'	DE	2	Dist. Only	No	No	203.24	6.13	10.5	203.24	6' Fiberglass

Crossarm Results

PLS Number	Pole Number	Will Selected Arm Work?	Arm Description	Max. Percent Usage:	Vertical Load (lb)	Transverse Load (lb)	Horizontal Load (lb)	Max Uplift (lbs)	Min. Pin Spacing	Comments
P416139	P416139	Yes, Single Arm	10' DE FG	22.45%	98	762	-103	-25	25.8	
P416138	P416138	Yes, Single Arm	10' Tan FG w/ Straight Pins	14.69%	123	-208	-50	-7	25.5	
P410411	P410411	Yes, Double Arms	10' Tan FG w/ Straight Pins	25.63%	33	540	-189	-23	25.3	1-3/8 in. Pins Required!
P410410_T	P410410_T	Yes, Single Arm	10' DE FG	15.41%	64	-296.2127024	-863.8721172	11	23.8	
P410410_B	P410410_B	Yes, Single Arm	10' DE FG	20.58%	100	-311.1506812	1395.195418	17	22.1	
P117927	P117927	Yes, Double Arms	10' Tan FG w/ Straight Pins	5.12%	57	-64	-26	-16	23.7	
P117926	P117926	Yes, Single Arm	10' DE FG	21.46%	127	692	-109	0	23.8	

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Structure P112625
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage	42 %	Clearances OK?	Yes
Pole Usage	15 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	20 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	40 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	42 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage	3 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P112625_EXISTING.pol
Project File C221_SEC F_TRUEUP.xy

Structure Details

Ahead Span 328 ft **Latitude** 33.07457848°
Back Span 192 ft **Longitude** -116.58638314°
Ahead Span Az. 122° **Elevation** 4219 ft
Line Angle -134° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P112625	50	1	Corten Steel	43.9	6.5		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	18	15	6.6	1.0	0
P112625	50	1	Corten Steel	43.9	6.5		100	G.O.95 Heavy Grade A at Replacement	11	11	9.0	1.0	42

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	20	42.5	0.33	0.11	1	190	191	1185
12	No2 AWG 5Over2 AWAC GCC	20	42.5	0.33	0.11	1	191	191	1185
12	No2 AWG 5Over2 AWAC GCC	20	42.5	0.33	0.11	1	194	191	1185
12	No2 AWG 5Over2 AWAC GCC	157	42.5	0.33	0.11	1	327	328	976
12	No2 AWG 5Over2 AWAC GCC	157	42.5	0.33	0.11	1	328	328	976
12	No2 AWG 5Over2 AWAC GCC	157	42.5	0.33	0.11	1	328	328	976
	1-0 AWG Triplex SSC AL Neritina GCC	203	32	0.97	0.41	1	72	68	179

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	20	42.5	P112625	18	11.3	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	20	42.5	P112625	18	11.1	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	20	42.5	P112625	20	10.1	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	157	42.5	P112625	18	11.3	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	157	42.5	P112625	18	11.4	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	157	42.5	P112625	17	11.6	2.0	G.O.95 Heavy Grade A at Replacement

Guis and Cables

†Length = Lead Length for Down Guis, Wire Length for Span Guis

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	24.75	265	42	P112625	40	3.3	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	16" CROSSPLATE MG				P112625	42	3.2	1.3	G.O.95 Heavy Grade A at Replacement

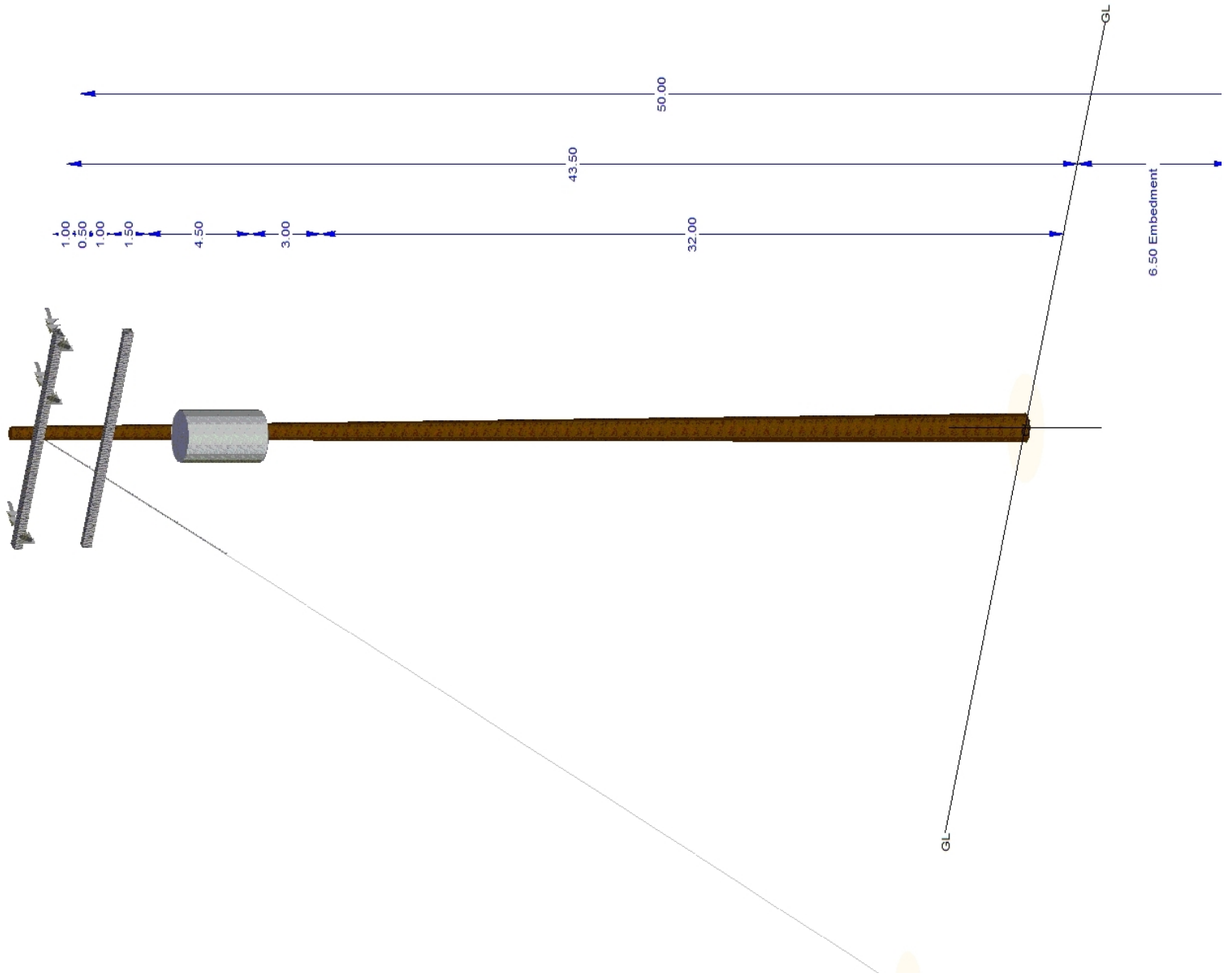
Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	25 kVA Transformer	157	35	P112625				
X-Arm	10' EQUIPMENT FG ARM (4TF)	90	39.5	P112625		1333.3	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
X-Arm	10' DE FG ARM (4DF)	90	42.5	P112625	3	44.4	1.3	G.O.95 Heavy Grade A at Replacement

*Max Usage Location Measured From Groundline **Direction in degrees: 0 Degrees = Structure Longitudinal Axis towards Ahead Span CW+ ***Attach Height Measured From Groundline, GSI from Top of Guy



0.47





Structure P111234
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage 41 % **Clearances OK?** Yes
Pole Usage 41 % G.O.95 Heavy Grade A at Replacement
Insulator Usage
Guy Usage
Anchor Usage
Arm Usage 8 % G.O.95 Heavy Grade A at Replacement

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L3
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P111234_EXISTING.pol
Project File C221_SEC_F_TRUEUP.xyz

Structure Details

Ahead Span 83 ft **Latitude** 33.07495131°
Back Span 109 ft **Longitude** -116.58838765°
Ahead Span Az. 96° **Elevation** 4226 ft
Line Angle 180° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P111234	30	5	DF - Douglas Fir	27.7	4.4	12/11/2019	80	G.O.95 Heavy Grade A at Replacement	6	41	6.4	2.6	0
P111234	30	5	DF - Douglas Fir	27.7	4.4	12/11/2019	80	Known Local Wind Heavy 85 MPH Grade A at Replacement	9	32	4.2	1.3	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
	1 In Firm Design Cable	171	18.83	1.13	0.40	1	84	84	561
	No4 AWG 3-Strand Hard Drawn Bare CU-None	173	24.56	0.25	0.13	1	83	83	302
	No4 AWG 3-Strand Hard Drawn Bare CU-None	348	24.56	0.25	0.13	1	105	104	267
	1 In Firm Design Cable	354	18.83	1.13	0.40	1	108	107	658

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Guys and Cables

†Length = Lead Length for Down Guys, Wire Length for Span Guys

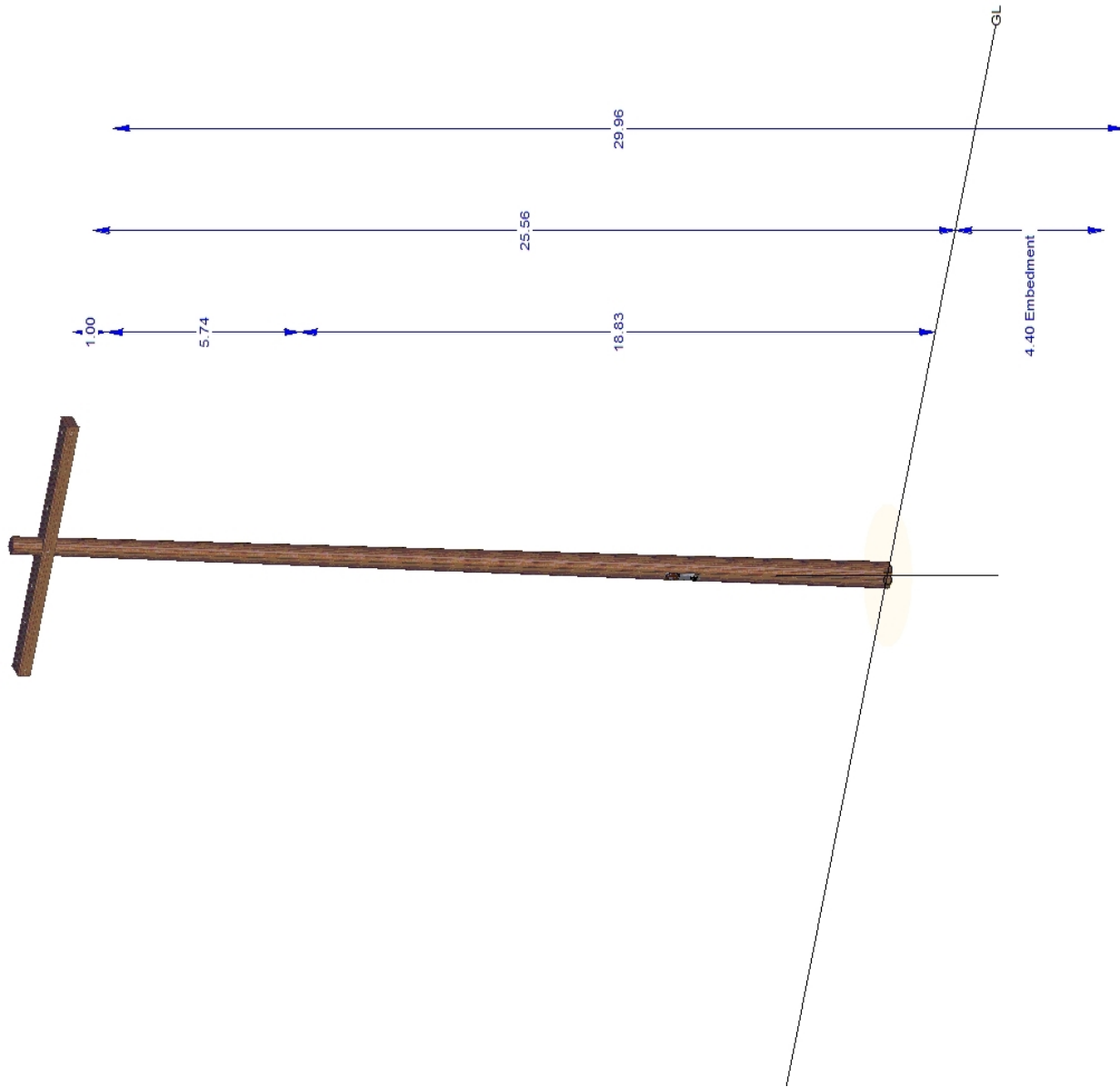
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	8' DBL WOOD ARMS (--)	90	24.56	P111234	8	16.3	1.3	G.O.95 Heavy Grade A at Replacement



0.15





Structure P246354
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [Redacted]
Engineer NV5 [Redacted]

Usage Summary

Max Usage 8% **Clearances OK?** Yes
Pole Usage 8% Known Local Wind Heavy 85 MPH Grade A at Replacement
Insulator Usage
Guy Usage 1% G.O.95 Heavy Grade A at Replacement
Anchor Usage
Arm Usage

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L3
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P246354_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span **Latitude** 33.07507069°
Back Span 46 ft **Longitude** -116.58798897°
Ahead Span Az. 0° **Elevation** 4212 ft
Line Angle 0° **Tangent/DE** Terminal Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P246354	40	1	Corten Steel	37.2	9.02		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	7	8	12.8	1.0	0
P246354	40	1	Corten Steel	37.2	9.02		100	G.O.95 Heavy Grade A at Replacement	5	6	18.2	1.0	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
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Wire Tension Condition

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Guys and Cables

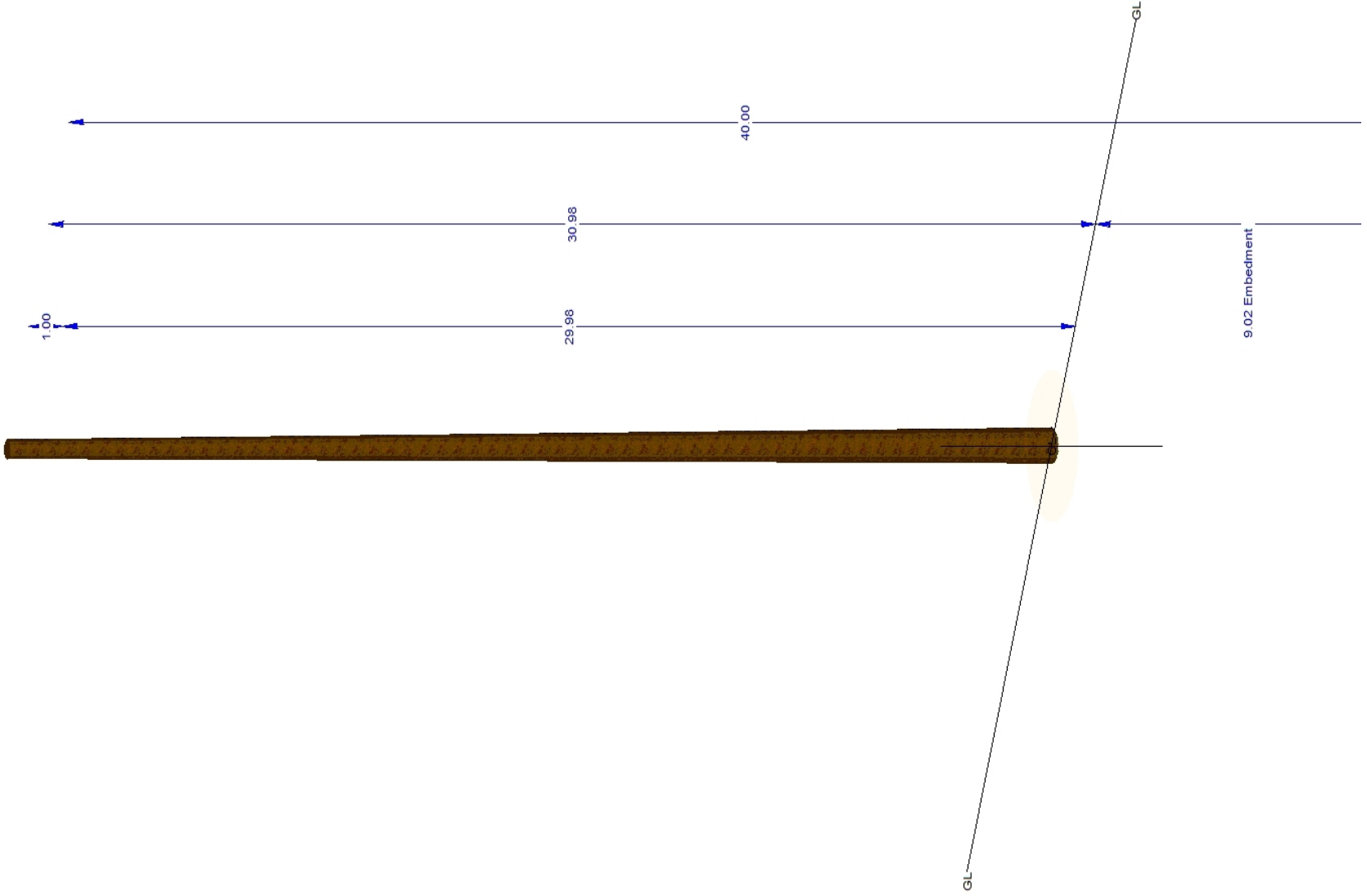
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Span	3 8-7 Strand Ehs Steel Sdge	46	197	29.98	P246354	1			G.O.95 Heavy Grade A at Replacement

†Length = Lead Length for Down Guys, Wire Length for Span Guys

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Structure P110709
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage	34 %	Clearances OK?	Yes
Pole Usage	11 %	G.O.95 Heavy Grade A at Replacement	
Insulator Usage	21 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	29 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	34 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage	2 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P110709_AS-BUILT.pol
Project File C221_SEC_F_TRUEUP.xyz

Structure Details

Ahead Span 171 ft **Latitude** 33.07610248°
Back Span 219 ft **Longitude** -116.58823488°
Ahead Span Az. 173° **Elevation** 4217 ft
Line Angle 117° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P110709	60	H2	Corten Steel	52.5	7.4		100	G.O.95 Heavy Grade A at Replacement	8	11	8.9	1.0	38.6
P110709	60	H2	Corten Steel	52.5	7.4		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	15	8	12.0	1.0	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	10	51.6	0.33	0.11	1	219	212	1180
12	No2 AWG 5Over2 AWAC GCC	10	51.6	0.33	0.11	1	219	212	1180
12	No2 AWG 5Over2 AWAC GCC	10	51.6	0.33	0.11	1	219	212	1180
12	No2 AWG 5Over2 AWAC GCC	166	51.6	0.33	0.11	1	169	170	1018
12	No2 AWG 5Over2 AWAC GCC	166	51.6	0.33	0.11	1	170	170	1018
12	No2 AWG 5Over2 AWAC GCC	167	51.6	0.33	0.11	1	170	170	1018
	1-0 AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	10	40	0.98	0.48	1	219	219	1082
	1 In Firm Design Cable	10	25.11	1.13	0.40	1	219	219	1669
	1 In Firm Design Cable	10	24.03	1.13	0.40	1	219	219	1311
	1-0 AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	103	40	0.98	0.48	1	128	127	320
	1 In Firm Design Cable	103	23.56	1.13	0.40	1	127	127	704
	1-0 AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	166	39.8	0.98	0.48	1	171	171	1032
	1 In Firm Design Cable	166	25.11	1.13	0.40	1	171	171	1322
	1 In Firm Design Cable	166	24.03	1.13	0.40	1	171	171	1444

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	10	51.6	P110709	20	9.8	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	10	51.6	P110709	19	10.7	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	10	51.6	P110709	21	9.7	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	166	51.6	P110709	19	10.4	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	166	51.6	P110709	19	10.4	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	167	51.6	P110709	19	10.3	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

+Length = Lead Length for Down Guys, Wire Length for Span Guys

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	21.01	268	51.1	P110709	29	4.6	1.3	G.O.95 Heavy Grade A at Replacement

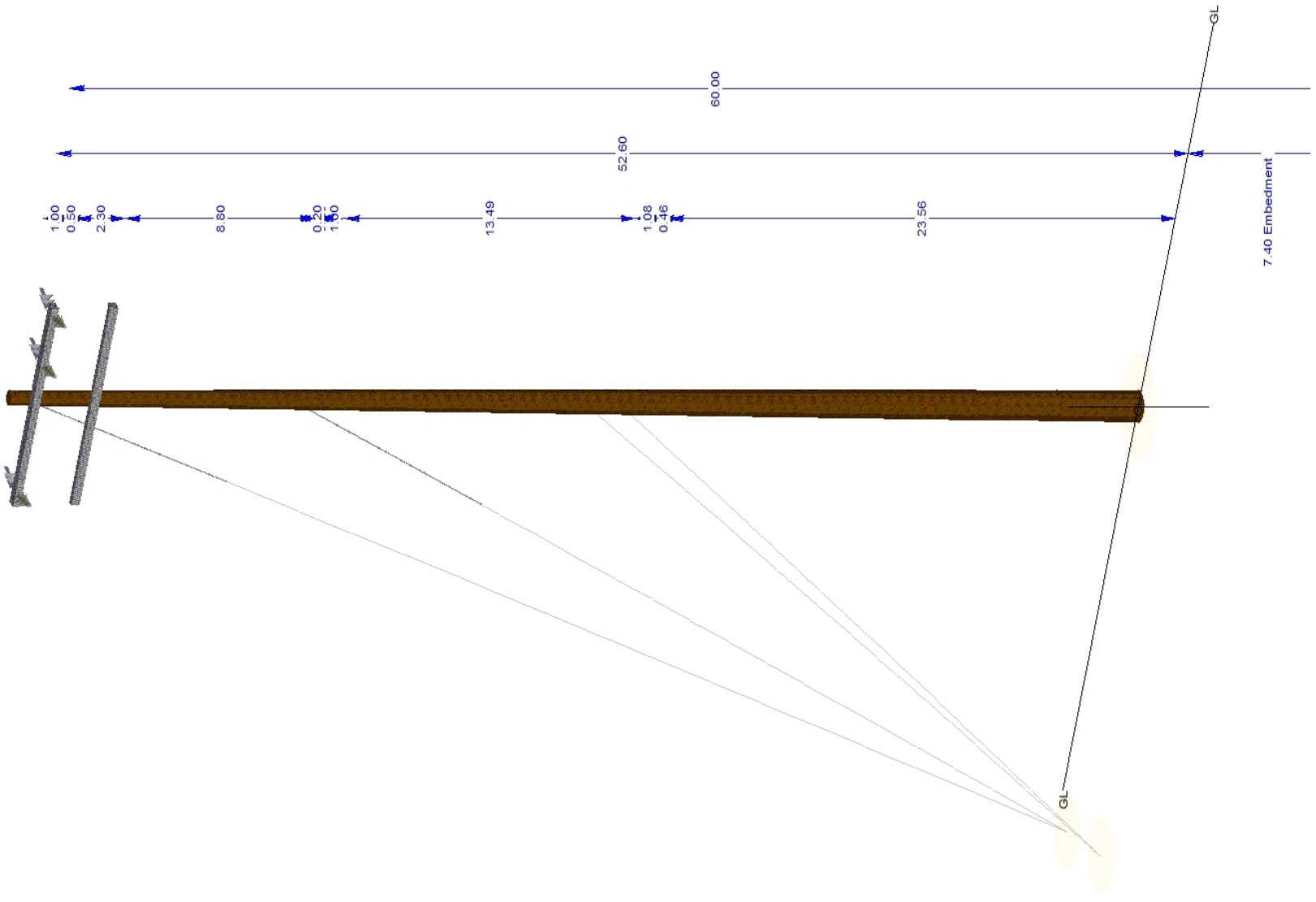
Down Anchor	7/16" 7 Strand EHS (7/16G) 24" CROSSPLATE MG	21.01	268	38.6	P110709 P110709	23 34	5.7 4.0	1.3 1.3	G.O.95 Heavy Grade A at Replacement G.O.95 Heavy Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	19.82	253	25.11	P110709	16	8.1	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	19.82	253	23.56	P110709	16	8.4	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	16" CROSSPLATE MG				P110709	25	5.4	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10' DE FG ARM (4DF)	90	51.6	P110709	2	70.2	1.3	G.O.95 Heavy Grade A at Replacement
X-Arm	10' EQUIPMENT FG ARM (4TF)	90	48.8	P110709			1.3	G.O.95 Heavy Grade A at Replacement



0.46





Structure P117926
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage	48 %	Clearances OK?	Yes
Pole Usage	24 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	12 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	32 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Anchor Usage	48 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Arm Usage	1 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P117926_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 111 ft **Latitude** 33.07683617°
Back Span 202 ft **Longitude** -116.58853396°
Ahead Span Az. 43° **Elevation** 4211 ft
Line Angle 42° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P117926	50	1	Corten Steel	43.2	7.85		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	25	24	4.2	1.0	0
P117926	50	1	Corten Steel	43.2	7.85		100	G.O.95 Heavy Grade A at Replacement	22	22	4.7	1.0	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	122	41.15	0.33	0.11	1	115	112	709
12	No2 AWG 5Over2 AWAC GCC	122	41.15	0.33	0.11	1	110	112	709
12	No2 AWG 5Over2 AWAC GCC	259	41.15	0.33	0.11	1	203	198	658
12	No2 AWG 5Over2 AWAC GCC	259	41.15	0.33	0.11	1	200	198	658
	1 In Firm Design Cable	122	26.21	1.13	0.40	1	112	112	1036
	1 In Firm Design Cable	122	25.15	1.13	0.40	1	112	112	777
	1 In Firm Design Cable	122	22.11	1.13	0.40	1	112	112	810
	1 In Firm Design Cable	259	26.21	1.13	0.40	1	201	201	948
	1 In Firm Design Cable	259	25.15	1.13	0.40	1	201	201	1022
	1 In Firm Design Cable	259	22.11	1.13	0.40	1	201	201	1205

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	122	41.15	P117926	12	16.8	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	122	41.15	P117926	12	16.3	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	259	41.15	P117926	12	17.1	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	259	41.15	P117926	11	17.7	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	.94	1	10	P117926	25	5.4	1.3	G.O.95 Heavy Grade A at Replacement
Down	7/16" 7 Strand EHS (7/16G)	.94	1	10	P117926	25	5.4	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	20" CROSSPLATE MG				P117926	39	3.4	1.3	G.O.95 Heavy Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	8.32	32	24.15	P117926	31	4.3	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	8.32	32	22.11	P117926	32	4.2	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	16" CROSSPLATE MG				P117926	48	2.8	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement

†Length = Lead Length for Down Guys, Wire Length for Span Guys

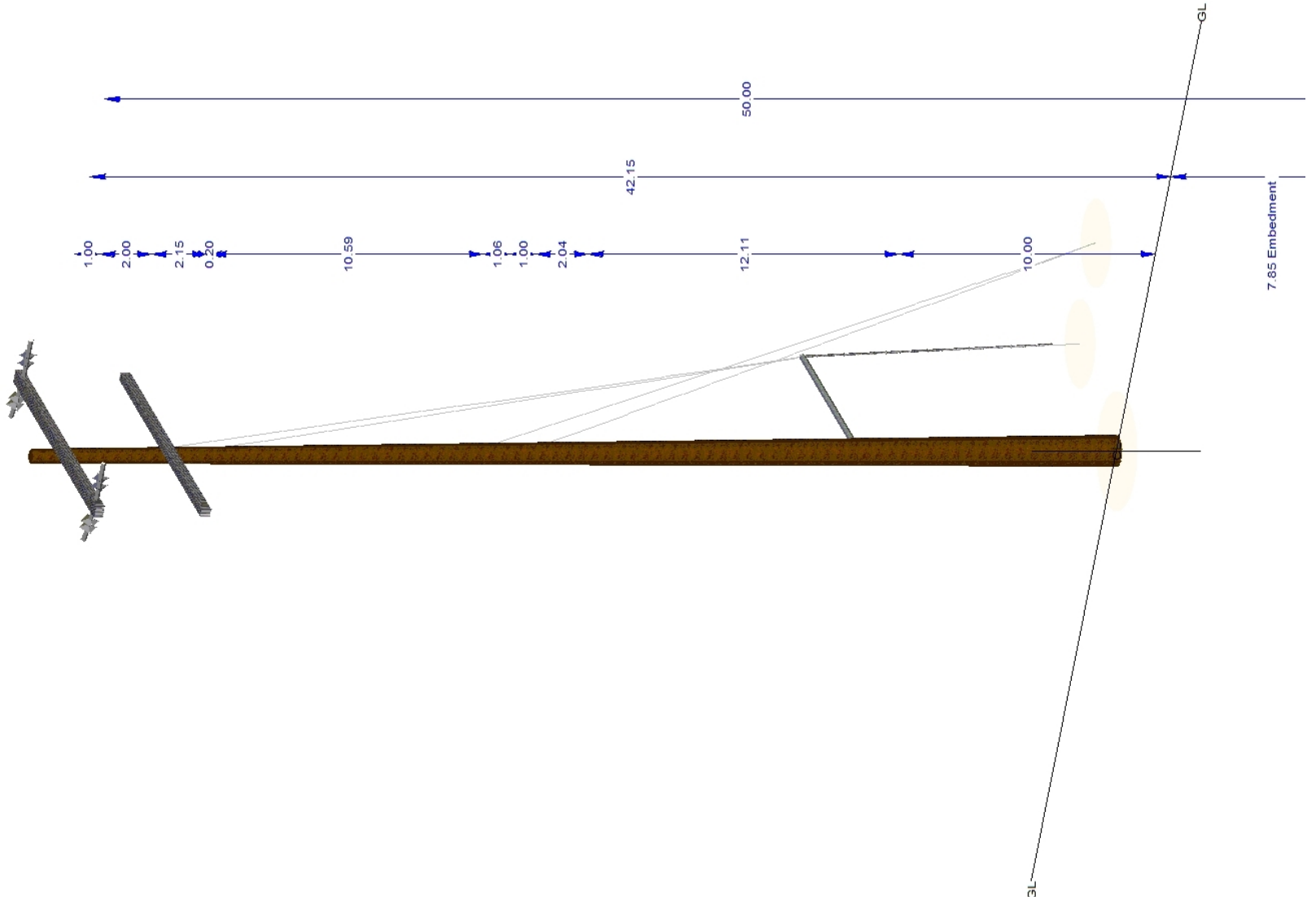
Cable	7/16" 7 Strand EHS (7/16G)	29.9	182	39.15, 10	P117926	25	5.3	1.3	G.O.95 Heavy Grade A at Replacement
Cable	7/16" 7 Strand EHS (7/16G)	27.63	182	36.8, 10	P117926	25	5.3	1.3	G.O.95 Heavy Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10' DE FG ARM (4DF)	0	41.15	P117926	1	133.3	1.3	G.O.95 Heavy Grade A at Replacement
X-Arm	10' EQUIPMENT FG ARM (4TF)	0	37	P117926			1.3	G.O.95 Heavy Grade A at Replacement
Tubular X-Arm	7' SW Anchor Strut	0	10	P117926	1	83.3	1.0	G.O.95 Heavy Grade A at Replacement



0.46





Structure P110219
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage	82 %	Clearances OK?	No
Pole Usage	27 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	82 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	22 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	18 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage	1 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P110219_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 227 ft **Latitude** 33.07787775°
Back Span 228 ft **Longitude** -116.58869927°
Ahead Span Az. 324° **Elevation** 4205 ft
Line Angle 124° **Tangent/DE** Tangent
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P110219	60	1	Corten Steel	47.4	8.33		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	40	27	3.7	1.0	0
P110219	60	1	Corten Steel	47.4	8.33		100	G.O.95 Heavy Grade A at Replacement	9	17	6.0	1.0	46.2

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	183	51.57	0.33	0.11	1	230	227	994
12	No2 AWG 5Over2 AWAC GCC	184	51.57	0.33	0.11	1	227	227	994
12	No2 AWG 5Over2 AWAC GCC	184	51.57	0.33	0.11	1	231	227	994
12	No2 AWG 5Over2 AWAC GCC	358	51.57	0.33	0.11	1	228	227	994
12	No2 AWG 5Over2 AWAC GCC	358	51.57	0.33	0.11	1	227	227	994
12	No2 AWG 5Over2 AWAC GCC	358	51.57	0.33	0.11	1	225	227	994
	1-0 AWG Triplex SSC AL Neritina GCC	128	37.01	0.97	0.41	1	83	81	161
	1 In Firm Design Cable	184	29.86	1.13	0.40	1	229	229	903
	1-0 AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	358	38.93	0.98	0.48	1	226	226	737
	1 In Firm Design Cable	358	29.86	1.13	0.40	1	227	226	994

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1" Pin)	12		50.67	P110219	57	3.5	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1" Pin)	12		50.67	P110219	71	2.8	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1" Pin)	12		50.67	P110219	82	2.4	2.0	G.O.95 Heavy Grade A at Replacement

Guis and Cables

+Length = Lead Length for Down Guis, Wire Length for Span Guis

Type	Wire Type	Length+ (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	15.04	93	46.17	P110219	22	6.0	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	20" CROSSPLATE MG				P110219	18	7.5	1.3	G.O.95 Heavy Grade A at Replacement
Down	7/16" 7 Strand EHS (7/16G)	15.94	178	39.67	P110219	12	11.6	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	20" CROSSPLATE MG				P110219	9	14.6	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	50 kVA Transformer	0	42.67	P110219				

*Max Usage Location Measured From Groundline **Direction in degrees: 0 Degrees = Structure Longitudinal Axis towards Ahead Span CW+ ***Attach Height Measured From Groundline, GSI from Top of Guy

X-Arm

10' TAN FG ARM (4TF)

272

50.67

P110219

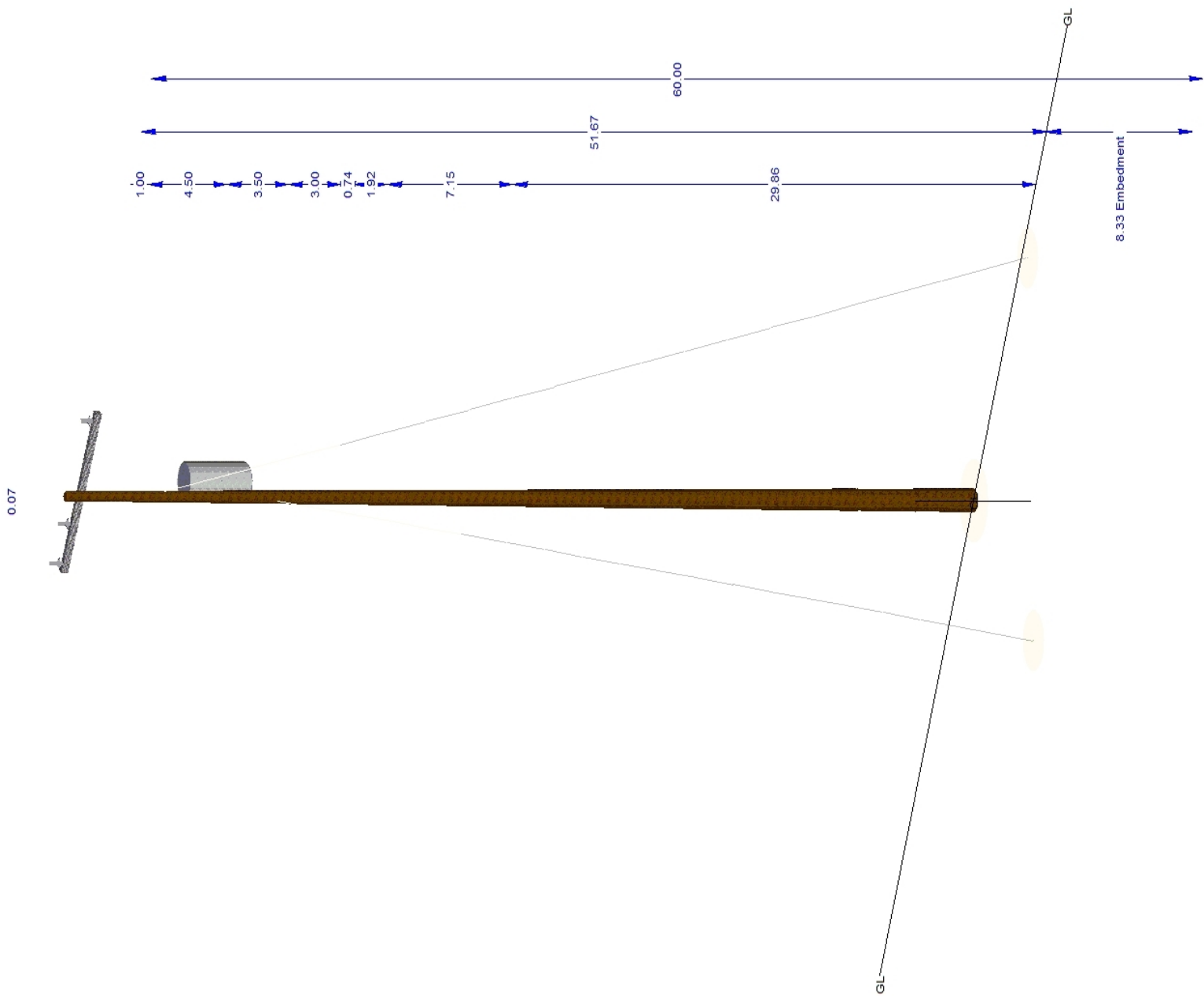
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148.1

1.3

G.O.95 Heavy Grade A at Replacement







Structure P713310
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage	33 %	Clearances OK?	Yes
Pole Usage	23 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	20 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	32 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	33 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage	2 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P713310_AS-BUILT.pol
Project File C221_SEC_F_TRUEUP.xyz

Structure Details

Ahead Span 148 ft **Latitude** 33.07334840°
Back Span 211 ft **Longitude** -116.58836617°
Ahead Span Az. 11° **Elevation** 4340 ft
Line Angle -46° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P713310	45	1	Corten Steel	39.9	8.98		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	24	23	4.3	1.0	0
P713310	45	1	Corten Steel	39.9	8.98		100	G.O.95 Heavy Grade A at Replacement	23	23	4.4	1.0	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	220	34.93	0.33	0.11	1	211	200	1140
12	No2 AWG 5Over2 AWAC GCC	220	34.93	0.33	0.11	1	214	200	1140
12	No2 AWG 5Over2 AWAC GCC	354	34.93	0.33	0.11	1	145	229	1002
12	No2 AWG 5Over2 AWAC GCC	354	34.93	0.33	0.11	1	147	229	1002
	1 In Firm Design Cable	220	21.68	1.13	0.40	1	211	202	1410
	1 In Firm Design Cable	354	21.68	1.13	0.40	1	147	143	1198

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	220	34.93	P713310	19	10.5	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	220	34.93	P713310	20	10.0	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	354	34.93	P713310	16	12.6	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	354	34.93	P713310	15	13.1	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

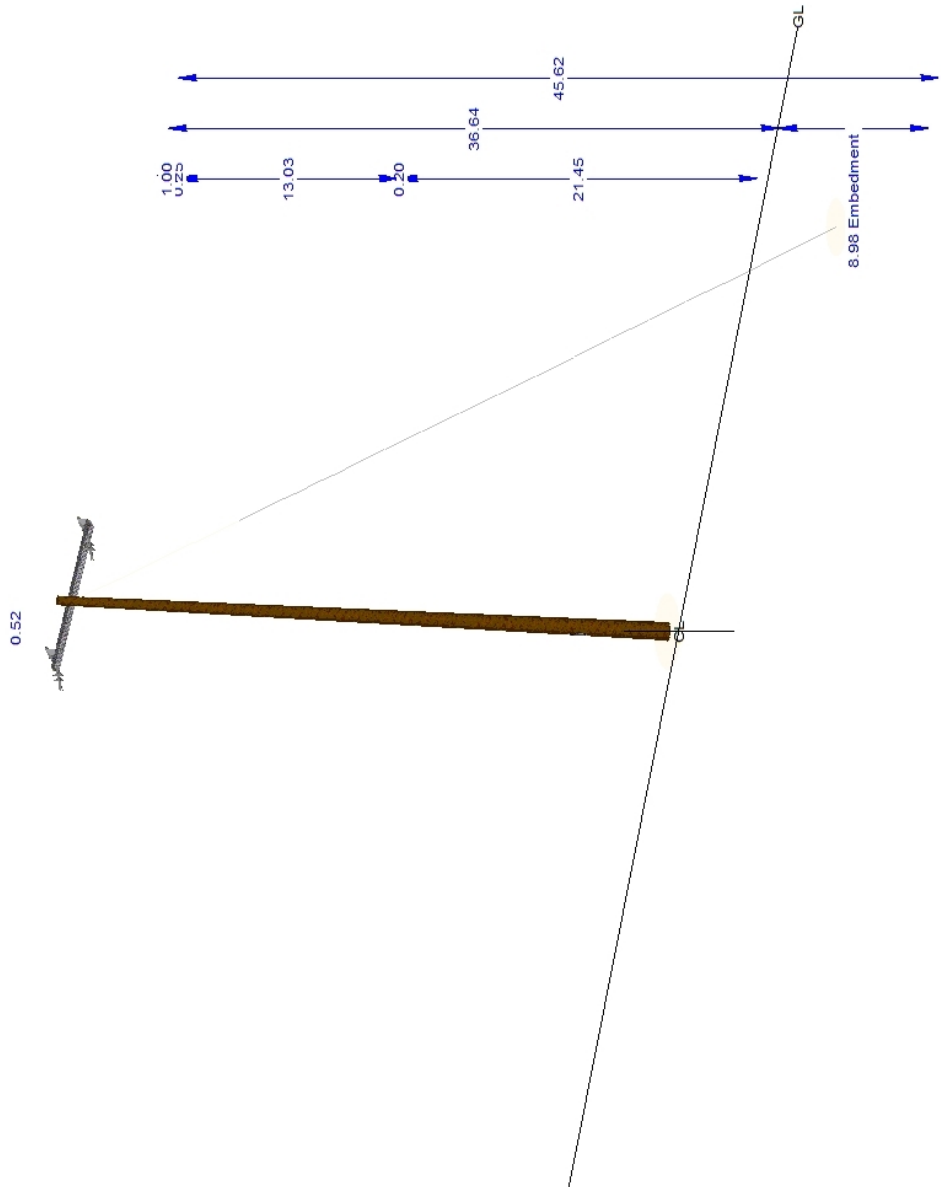
Type	Wire Type	Length+ (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	24.91	93	34.68	P713310	32	4.2	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	16" CROSSPLATE MG				P713310	33	4.1	1.3	G.O.95 Heavy Grade A at Replacement

+Length = Lead Length for Down Guys, Wire Length for Span Guys

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10' DE FG ARM (4DF)	275	34.93	P713310	2	88.9	1.3	G.O.95 Heavy Grade A at Replacement







Structure P516084
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]

Engineer NV5
 [REDACTED]

Usage Summary

Max Usage 39 % **Clearances OK?** Yes
Pole Usage 26 % Known Local Wind Heavy 85 MPH Grade A at Replacement
Insulator Usage 39 % G.O.95 Heavy Grade A at Replacement
Guy Usage
Anchor Usage
Arm Usage G.O.95 Heavy Grade A at Replacement

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P516084_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 151 ft **Latitude** 33.07375267°
Back Span 148 ft **Longitude** -116.58832307°
Ahead Span Az. 0° **Elevation** 4306 ft
Line Angle -105° **Tangent/DE** Tangent
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P516084	50	1	Corten Steel	43.0	8.17		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	32	26	3.9	1.0	0
P516084	50	1	Corten Steel	43.0	8.17		100	G.O.95 Heavy Grade A at Replacement	25	20	4.9	1.0	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	2	41.73	0.33	0.11	1	151	229	1002
12	No2 AWG 5Over2 AWAC GCC	2	41.73	0.33	0.11	1	150	229	1002
12	No2 AWG 5Over2 AWAC GCC	185	41.73	0.33	0.11	1	145	229	1002
12	No2 AWG 5Over2 AWAC GCC	185	41.73	0.33	0.11	1	147	229	1002
	1 In Firm Design Cable	2	24.97	1.13	0.40	1	151	149	1353
	1 In Firm Design Cable	185	24.97	1.13	0.40	1	147	143	1198
	No2 AWG Triplex SSC AL Conch GCC	259	31.85	0.77	0.26	1	31	26	52

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1" Pin)	12		40.82	P516084	34	6.0	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1" Pin)	12		40.82	P516084	39	5.1	2.0	G.O.95 Heavy Grade A at Replacement

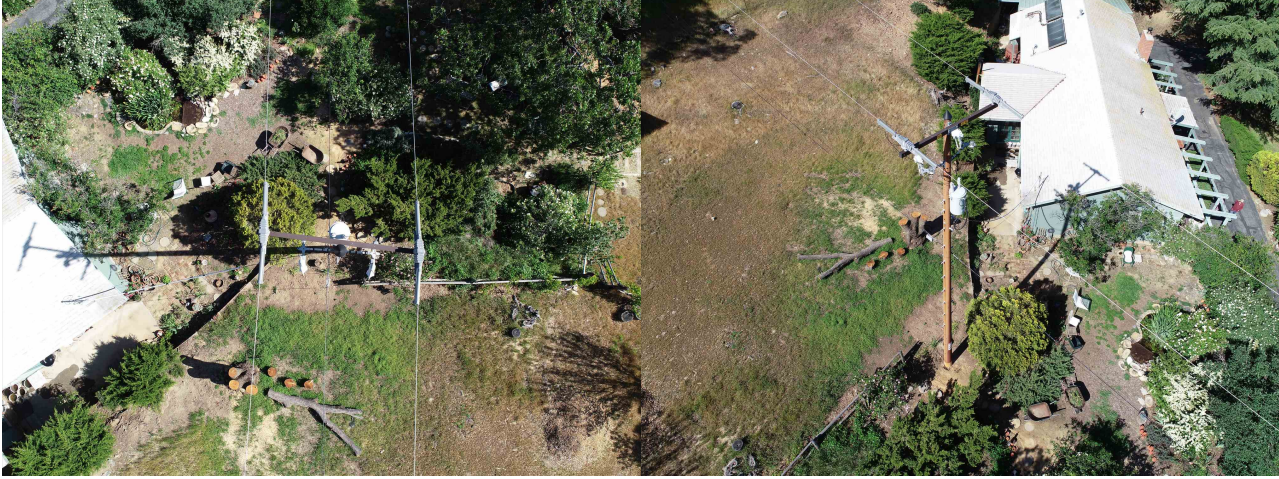
Guys and Cables

*Length = Lead Length for Down Guys, Wire Length for Span Guys

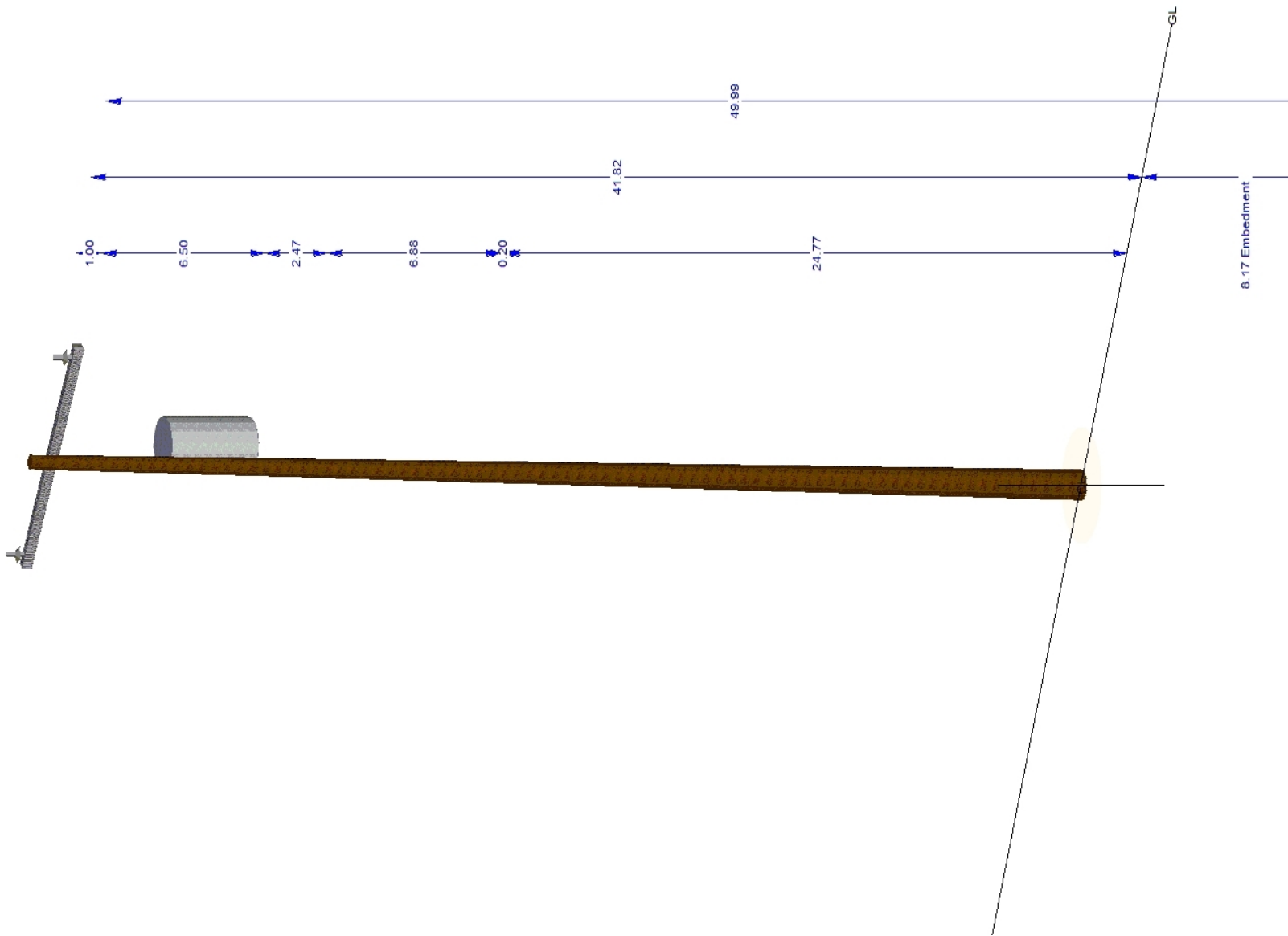
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	25 kVA Transformer	0	34.32	P516084				
X-Arm	10' TAN FG ARM (4TF)	275	40.82	P516084		666.7	1.3	G.O.95 Heavy Grade A at Replacement



0.70





Structure P516083
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5
 [REDACTED]

Usage Summary

Max Usage	49 %	Clearances OK?	Yes
Pole Usage	12 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	49 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	17 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	13 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage	1 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P516083_AS-BUILT.pol
Project File C221_SEC_F_TRUEUP.xyz

Structure Details

Ahead Span 296 ft **Latitude** 33.07416814°
Back Span 151 ft **Longitude** -116.58830358°
Ahead Span Az. 16° **Elevation** 4274 ft
Line Angle 14° **Tangent/DE** Tangent
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P516083	50	1	Corten Steel	43.4	7.5		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	14	12	8.3	1.0	29.8
P516083	50	1	Corten Steel	43.4	7.5		100	G.O.95 Heavy Grade A at Replacement	11	10	10.4	1.0	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	7	42.46	0.33	0.11	1	299	229	1002
12	No2 AWG 5Over2 AWAC GCC	7	42.46	0.33	0.11	1	293	229	1002
12	No2 AWG 5Over2 AWAC GCC	173	42.46	0.33	0.11	1	151	229	1002
12	No2 AWG 5Over2 AWAC GCC	173	42.46	0.33	0.11	1	150	229	1002
	1 In Firm Design Cable	7	29.75	1.13	0.40	1	296	289	1409
	1 In Firm Design Cable	173	29.75	1.13	0.40	1	151	149	1353

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1-3/8" Pin)	12		41.5	P516083	49	4.1	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1-3/8" Pin)	12		41.5	P516083	47	4.2	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	23.28	-88	41.25	P516083	17	8.0	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	20" CROSSPLATE MG				P516083	13	10.0	1.3	G.O.95 Heavy Grade A at Replacement

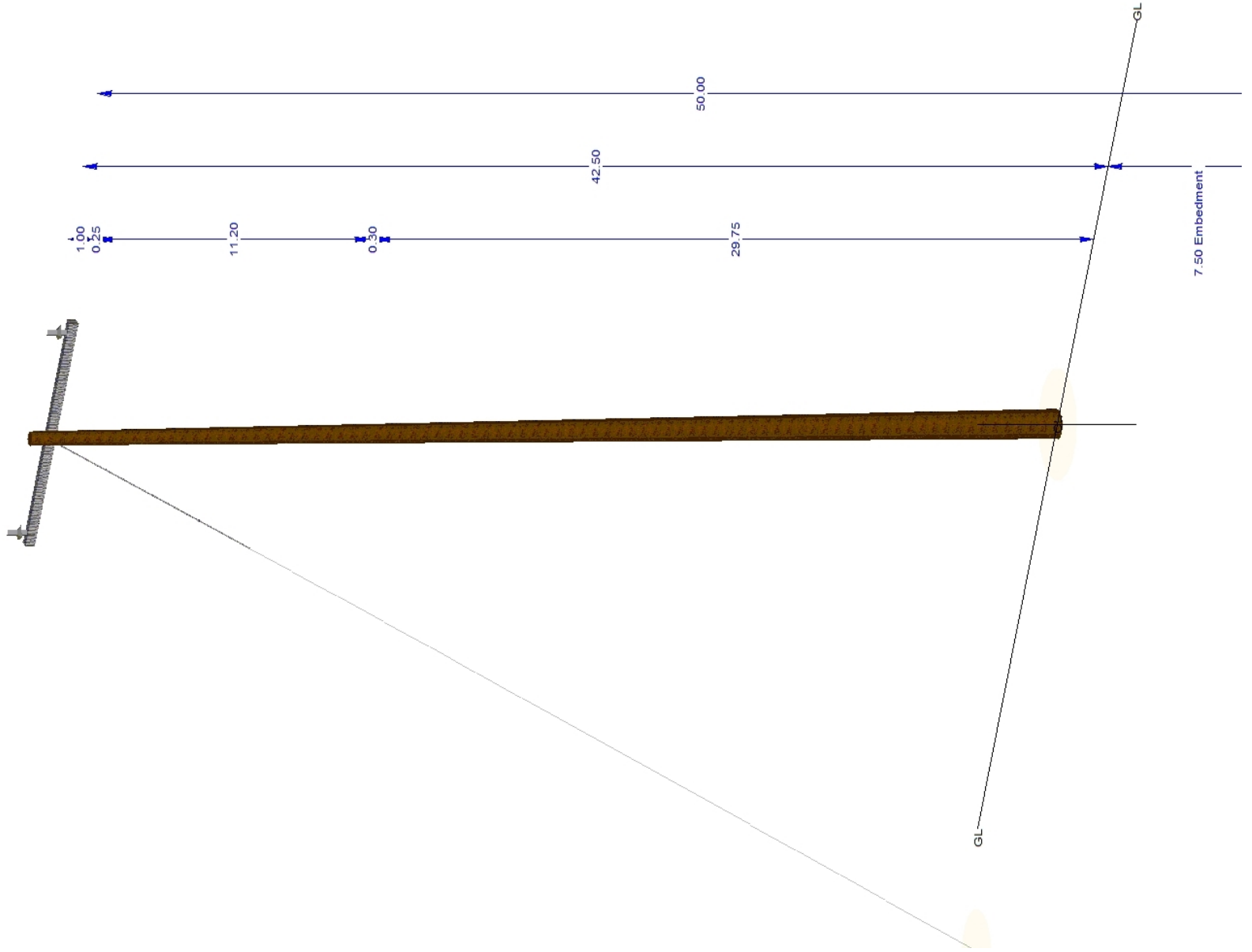
†Length = Lead Length for Down Guys, Wire Length for Span Guys

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10' TAN FG ARM (4TF)	270	41.5	P516083	1	222.2	1.3	G.O.95 Heavy Grade A at Replacement



0.62





Structure P110713
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage	63 %	Clearances OK?	No
Pole Usage	30 %	G.O.95 Heavy Grade A at Replacement	
Insulator Usage	63 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	35 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	29 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage	3 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P110713_AS-BUILT.pol
Project File C221_SEC_F_TRUEUP.xyz

Structure Details

Ahead Span 213 ft **Latitude** 33.07494983°
Back Span 296 ft **Longitude** -116.58803316°
Ahead Span Az. 328° **Elevation** 4213 ft
Line Angle -143° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P110713	55	1	Corten Steel	47.9	7.5		100	G.O.95 Heavy Grade A at Replacement	24	30	3.3	1.0	39.7
P110713	55	1	Corten Steel	47.9	7.5		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	24	23	4.4	1.0	39.7

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	12	47.47	0.33	0.11	1	216	212	1180
12	No2 AWG 5Over2 AWAC GCC	12	47.47	0.33	0.11	1	215	212	1180
12	No2 AWG 5Over2 AWAC GCC	12	47.47	0.33	0.11	1	212	212	1180
12	No2 AWG 5Over2 AWAC GCC	147	47.47	0.33	0.11	1	198	212	1180
12	No2 AWG 5Over2 AWAC GCC	148	47.47	0.33	0.11	1	203	212	1180
12	No2 AWG 5Over2 AWAC GCC	148	47.47	0.33	0.11	1	201	212	1180
12	No2 AWG 5Over2 AWAC GCC	229	39.7	0.33	0.11	1	299	229	1002
12	No2 AWG 5Over2 AWAC GCC	229	39.7	0.33	0.11	1	293	229	1002
	1-0 AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	12	31.76	0.98	0.48	1	213	213	1338
	1 In Firm Design Cable	12	24.96	1.13	0.40	1	213	213	1565
	1 In Firm Design Cable	12	22.34	1.13	0.40	1	213	213	1137
	1 In Firm Design Cable	147	24.96	1.13	0.40	1	201	201	1637
	1 In Firm Design Cable	147	23.19	1.13	0.40	1	201	201	1211
	1 In Firm Design Cable	229	23.98	1.13	0.40	1	296	289	1409
	1 In Firm Design Cable	302	23.19	1.13	0.40	1	108	107	658

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1-3/8" Pin) DBL	12		46.5	P110713	63	3.2	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1-3/8" Pin) DBL	12		46.5	P110713	60	3.3	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1-3/8" Pin) DBL	12		46.5	P110713	63	3.2	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	229	39.7	P110713	17	11.7	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	229	39.7	P110713	17	12.0	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

+Length = Lead Length for Down Guys, Wire Length for Span Guys

Type	Wire Type	Length+ (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	19.77	260	45.5	P110713	35	3.9	1.3	G.O.95 Heavy Grade A at Replacement

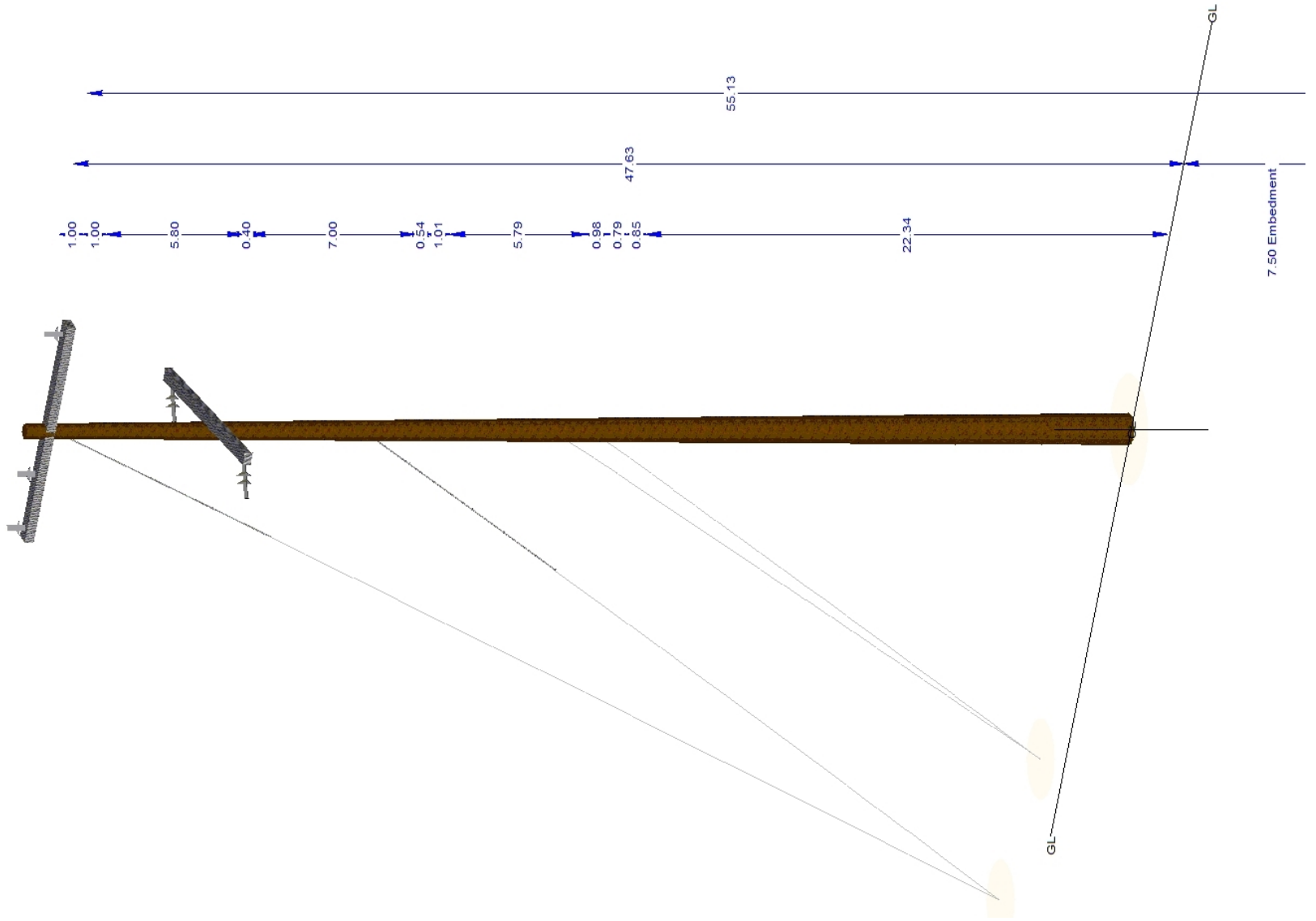
Down Anchor	7/16" 7 Strand EHS (7/16G) 24" CROSSPLATE MG	19.77	260	32.3	P110713 P110713	11 29	12.7 4.6	1.3 1.3	G.O.95 Heavy Grade A at Replacement G.O.95 Heavy Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	13.6	260	23.98	P110713	5	25.0	1.3	G.O.95 Heavy Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	13.6	260	22.34	P110713	5	26.3	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	16" CROSSPLATE MG				P110713	8	16.9	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Span	3 8-7 Strand Ehs Steel Sdge	46	49	39.3	P110713, P246354	1			G.O.95 Heavy Grade A at Replacement
Span	3 8-7 Strand Ehs Steel Sdge	201	147	30.75	P110713	10			G.O.95 Heavy Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10' DE FG ARM (4DF)	350	39.7	P110713	1	95.2	1.3	G.O.95 Heavy Grade A at Replacement
X-Arm	10' DBL TAN FG ARMS (4TF-2)	90	46.5	P110713	3	44.4	1.3	G.O.95 Heavy Grade A at Replacement



0.12





Structure P416139
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage	50 %	Clearances OK?	Yes
Pole Usage	25 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	19 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	41 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	50 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Arm Usage	1 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P416139_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xy

Structure Details

Ahead Span 274 ft **Latitude** 33.07495273°
Back Span 257 ft **Longitude** -116.59006776°
Ahead Span Az. 267° **Elevation** 4224 ft
Line Angle 25° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P416139	55	1	Corten Steel	48.3	6.7		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	34	25	4.0	1.0	0
P416139	55	1	Corten Steel	48.3	6.7		100	G.O.95 Heavy Grade A at Replacement	26	20	5.0	1.0	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	96	47.3	0.33	0.11	1	274	267	1102
12	No2 AWG 5Over2 AWAC GCC	96	47.3	0.33	0.11	1	274	267	1102
12	No2 AWG 5Over2 AWAC GCC	250	47.3	0.33	0.11	1	257	253	1078
12	No2 AWG 5Over2 AWAC GCC	250	47.3	0.33	0.11	1	253	253	1078
	1 In Firm Design Cable	96	29.1	1.13	0.40	1	274	272	1839
	1 In Firm Design Cable	96	28.4	1.13	0.40	1	274	272	1600
	1 In Firm Design Cable	96	27.49	1.13	0.40	1	274	272	1396
	1-0 AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	250	36.68	0.98	0.48	1	256	254	1259

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	96	47.3	P416139	17	11.7	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	96	47.3	P416139	18	11.4	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	250	47.3	P416139	18	10.9	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	250	47.3	P416139	19	10.6	2.0	G.O.95 Heavy Grade A at Replacement

Guis and Cables

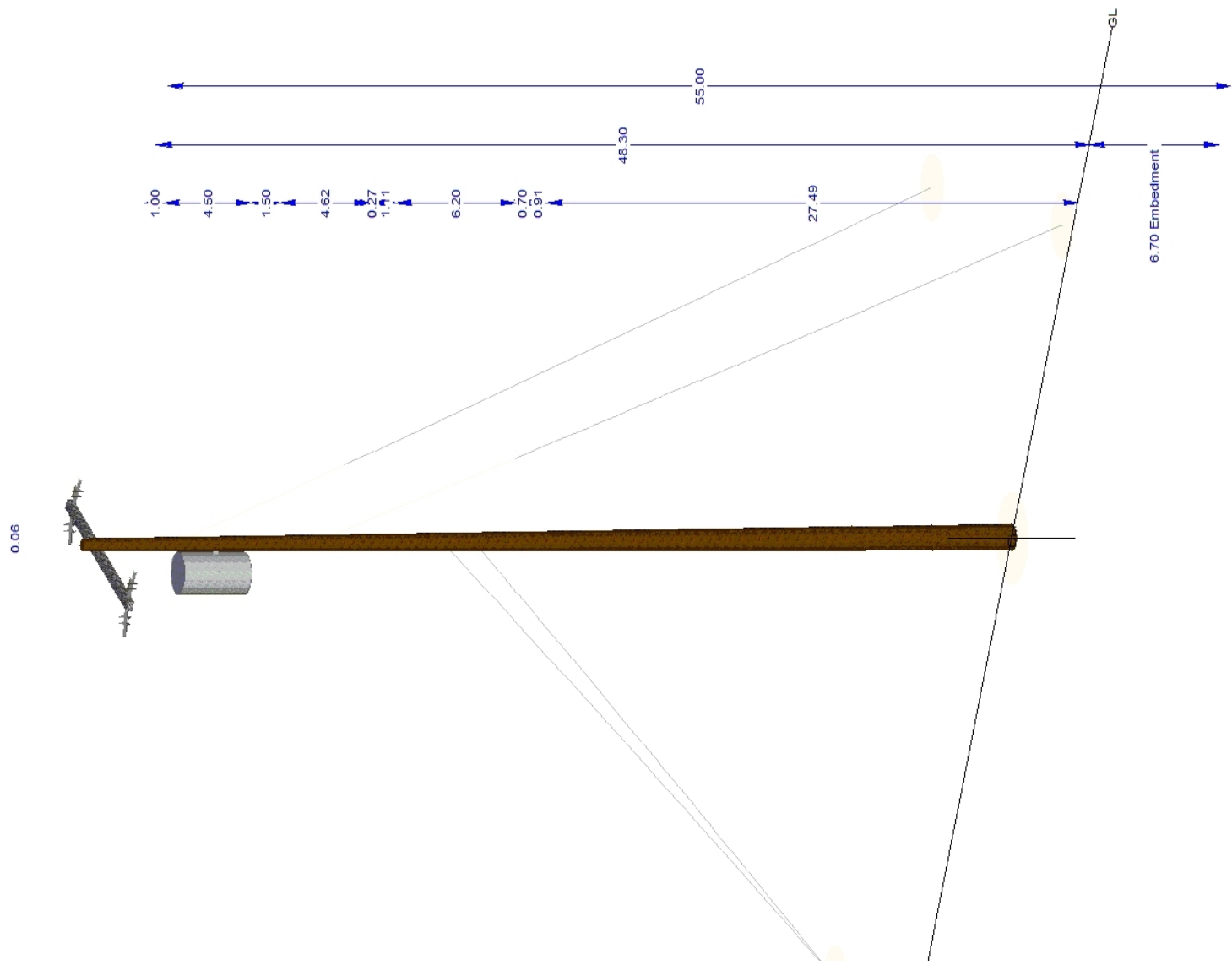
*Length = Lead Length for Down Guis, Wire Length for Span Guis

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	20.38	27	42.8	P416139	41	3.3	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	16" CROSSPLATE MG				P416139	42	3.2	1.3	G.O.95 Heavy Grade A at Replacement
Down	7/16" 7 Strand EHS (7/16G)	15.22	68	35.3	P416139	3	49.9	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	24" CROSSPLATE MG				P416139	2	79.8	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	24.54	-88	29.1	P416139	33	4.1	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	24.54	-88	27.49	P416139	32	4.2	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	16" CROSSPLATE MG				P416139	50	2.7	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	25 kVA Transformer	270	41.3	P416139				
X-Arm	10' DE FG ARM (4DF)	180	47.3	P416139	1	133.3	1.3	G.O.95 Heavy Grade A at Replacement







Structure P416138
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage 52 % **Clearances OK?** No
Pole Usage 52 % Known Local Wind Heavy 85 MPH Grade A at Replacement
Insulator Usage 22 % G.O.95 Heavy Grade A at Replacement
Guy Usage
Anchor Usage
Arm Usage G.O.95 Heavy Grade A at Replacement

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P416138_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 271 ft **Latitude** 33.07570477°
Back Span 274 ft **Longitude** -116.59002977°
Ahead Span Az. 0° **Elevation** 4198 ft
Line Angle -2° **Tangent/DE** Tangent
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P416138	55	1	Corten Steel	48.3	6.7		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	81	52	1.9	1.0	0
P416138	55	1	Corten Steel	48.3	6.7		100	G.O.95 Heavy Grade A at Replacement	55	36	2.8	1.0	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	1	48.27	0.33	0.11	1	272	267	1102
12	No2 AWG 5Over2 AWAC GCC	1	48.27	0.33	0.11	1	269	267	1102
12	No2 AWG 5Over2 AWAC GCC	183	48.27	0.33	0.11	1	274	267	1102
12	No2 AWG 5Over2 AWAC GCC	183	48.27	0.33	0.11	1	274	267	1102
	1 In Firm Design Cable	1	24.29	1.13	0.40	1	271	270	1529
	1 In Firm Design Cable	1	23.37	1.13	0.40	1	271	270	1422
	1 In Firm Design Cable	1	22.45	1.13	0.40	1	271	270	1299
	1 In Firm Design Cable	183	24.29	1.13	0.40	1	274	272	1839
	1 In Firm Design Cable	183	23.37	1.13	0.40	1	274	272	1600
	1 In Firm Design Cable	183	22.45	1.13	0.40	1	274	272	1396

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1-3/8" Pin)	12		47.3	P416138	21	9.3	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1-3/8" Pin)	12		47.3	P416138	22	9.1	2.0	G.O.95 Heavy Grade A at Replacement

Guis and Cables

+Length = Lead Length for Down Guis, Wire Length for Span Guis

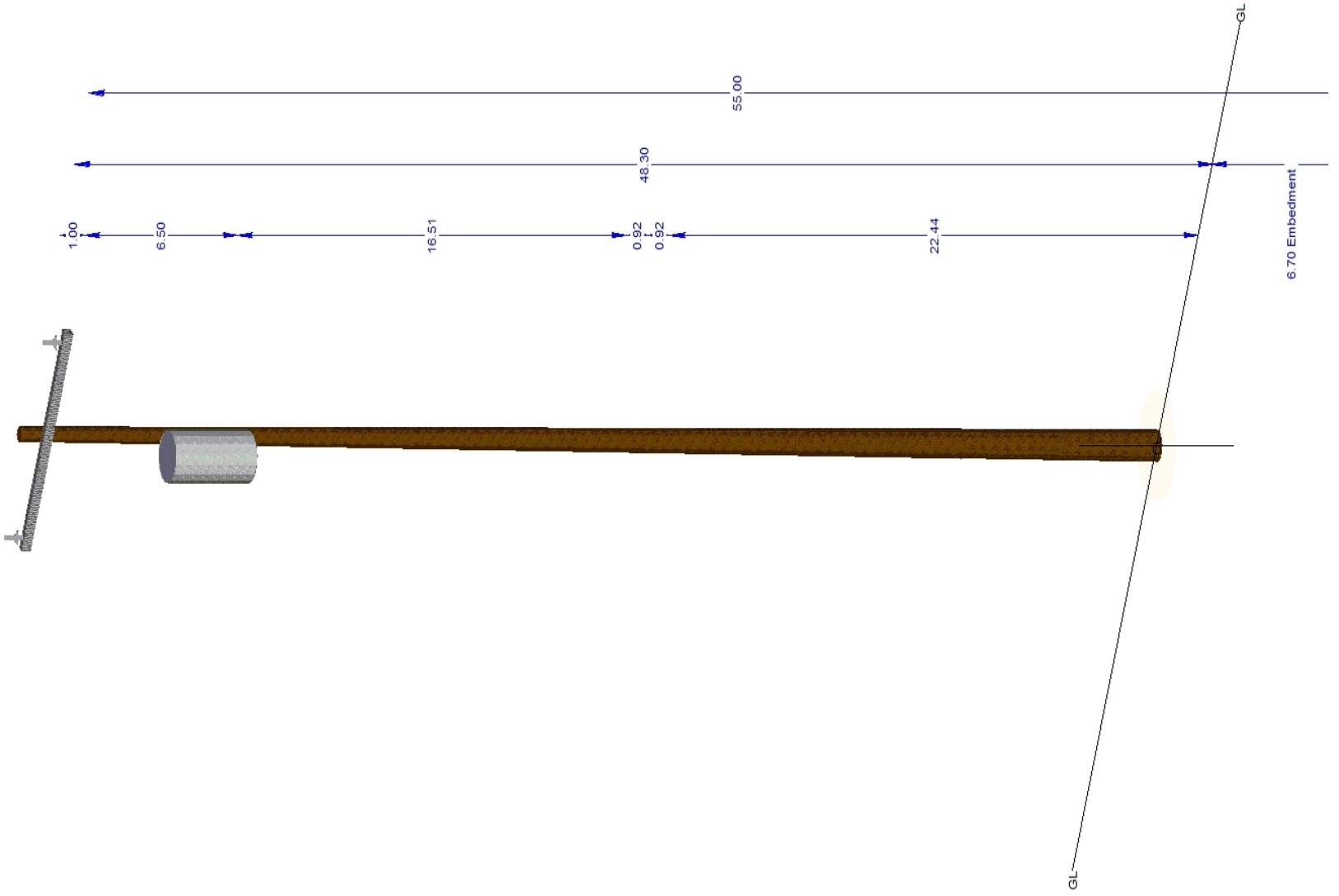
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	25 kVA Transformer	180	40.8	P416138				
X-Arm	10' TAN FG ARM (4TF)	90	47.3	P416138		444.4	1.3	G.O.95 Heavy Grade A at Replacement



0.40





Structure P410411
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage	46 %	Clearances OK?	No
Pole Usage	39 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	32 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	46 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Anchor Usage	35 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Arm Usage	1 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P410411_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 256 ft **Latitude** 33.07644918°
Back Span 271 ft **Longitude** -116.59001689°
Ahead Span Az. 22° **Elevation** 4182 ft
Line Angle 169° **Tangent/DE** Tangent
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P410411	60	1	Corten Steel	47.5	8.2		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	58	39	2.5	1.0	0
P410411	60	1	Corten Steel	47.5	8.2		100	G.O.95 Heavy Grade A at Replacement	47	33	3.1	1.0	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	-1	51.77	0.33	0.11	1	255	267	1102
12	No2 AWG 5Over2 AWAC GCC	-1	51.77	0.33	0.11	1	256	267	1102
12	No2 AWG 5Over2 AWAC GCC	159	51.77	0.33	0.11	1	272	267	1102
12	No2 AWG 5Over2 AWAC GCC	159	51.77	0.33	0.11	1	269	267	1102
	1 In Firm Design Cable	-1	25.79	1.13	0.40	1	255	255	1043
	1 In Firm Design Cable	159	28	1.13	0.40	1	271	270	1529
	1 In Firm Design Cable	159	26.93	1.13	0.40	1	271	270	1422
	1 In Firm Design Cable	159	25.79	1.13	0.40	1	271	270	1299
	1 In Firm Design Cable	172	24.05	1.13	0.40	1	39	39	109
	1 In Firm Design Cable	230	28.2	1.13	0.40	1	224	224	1247
	1 In Firm Design Cable	230	26.73	1.13	0.40	1	224	224	1276
	1 In Firm Design Cable	230	24.05	1.13	0.40	1	224	224	1131
	1 In Firm Design Cable	348	26.93	1.13	0.40	1	226	226	1584
	1 In Firm Design Cable	348	26.73	1.13	0.40	1	227	227	1226

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1-3/8" Pin) DBL	12		50.8	P410411	32	6.2	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1-3/8" Pin) DBL	12		50.8	P410411	32	6.2	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

*Length = Lead Length for Down Guys, Wire Length for Span Guys

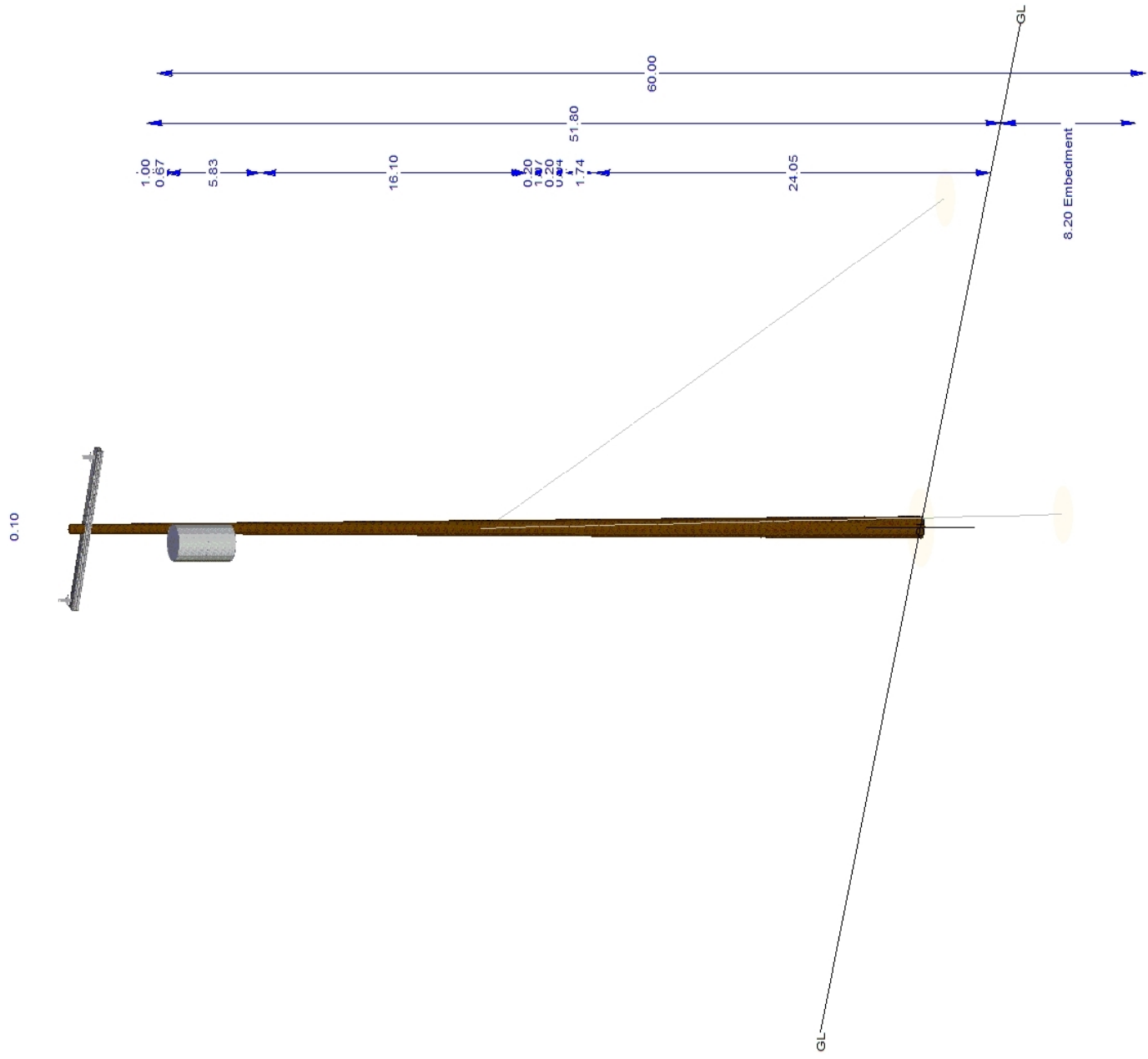
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	3/8" 7 Strand EHS (3/8G)	26.99	148	26.93	P410411	1	173.2	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	16" CROSSPLATE MG				P410411	1	242.4	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	19.13	76	25.79	P410411	46	2.9	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	16" CROSSPLATE MG				P410411	35	3.8	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement

Span 3 8-7 Strand Ehs Steel Sdge 39 273 50.13 P410411, P246353 12 G.O.95 Heavy Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	25 kVA Transformer	180	44.3	P410411				
X-Arm	10' DBL TAN FG ARMS (4TF-2)	85	50.8	P410411	1	166.7	1.3	G.O.95 Heavy Grade A at Replacement







Structure P246353
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage 18 % **Clearances OK?** Yes
Pole Usage 10 % Known Local Wind Heavy 85 MPH Grade A at Replacement
Insulator Usage
Guy Usage 18 % G.O.95 Heavy Grade A at Replacement
Anchor Usage 15 % G.O.95 Heavy Grade A at Replacement
Arm Usage

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P246353_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span **Latitude** 33.07649125°
Back Span 38 ft **Longitude** -116.59012932°
Ahead Span Az. 0° **Elevation** 4180 ft
Line Angle 0° **Tangent/DE** Terminal Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P246353	40	1	Corten Steel	39.3	5.15		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	10	10	10.2	1.0	0
P246353	40	1	Corten Steel	39.3	5.15		100	G.O.95 Heavy Grade A at Replacement	5	6	15.9	1.0	33.9

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
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Wire Tension Condition

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Guys and Cables

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	16.14	-64	34.33	P246353	18	7.3	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	20" CROSSPLATE MG				P246353	15	9.2	1.3	G.O.95 Heavy Grade A at Replacement
Span	3 8-7 Strand Ehs Steel Sdgc	39	115	33.83	P246353	13			G.O.95 Heavy Grade A at Replacement

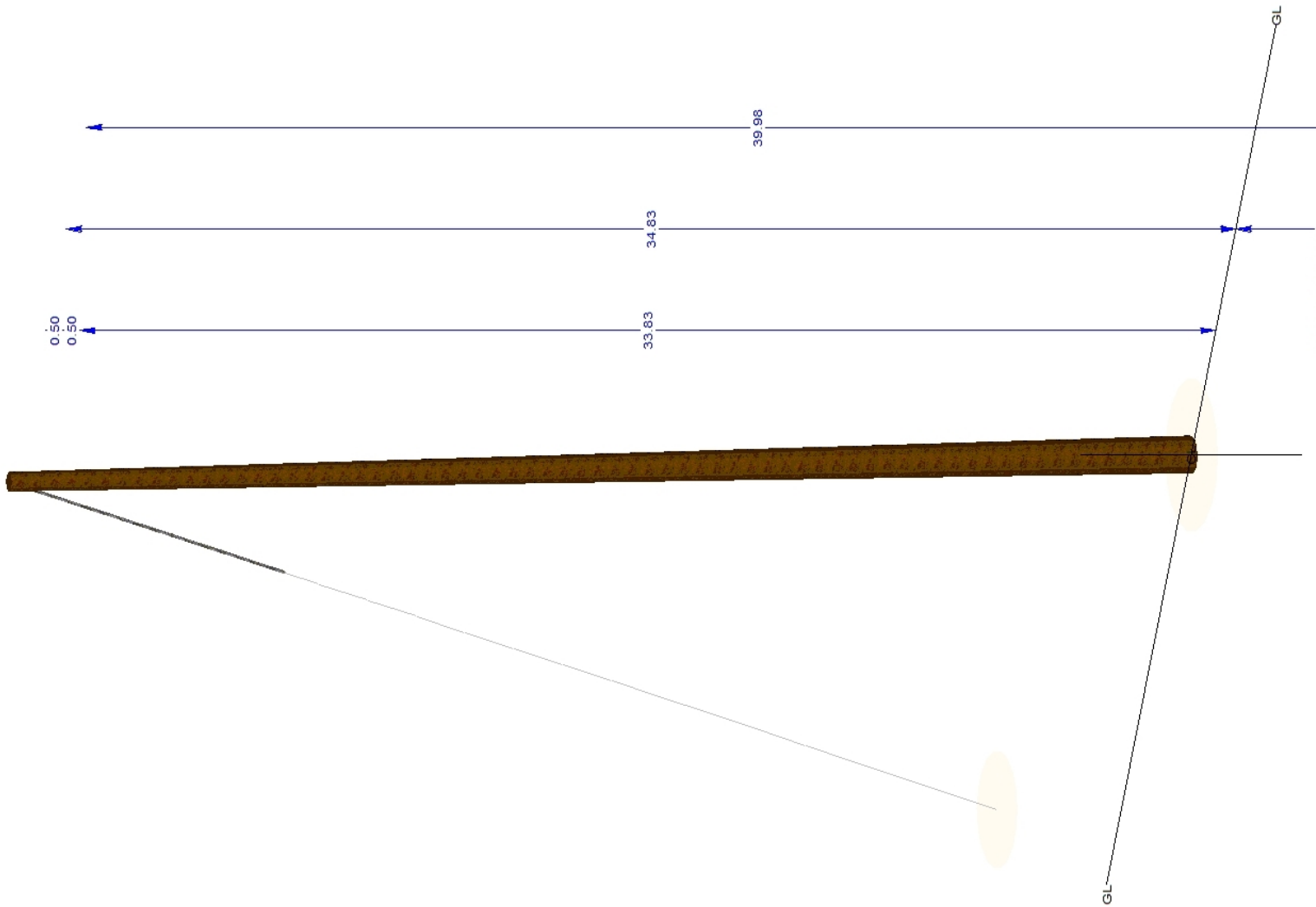
†Length = Lead Length for Down Guys, Wire Length for Span Guys

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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1.18





Structure P223189
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage 83 % **Clearances OK?** Yes
Pole Usage 16 % G.O.95 Heavy Grade A at Replacement
Insulator Usage
Guy Usage 41 % G.O.95 Heavy Grade A at Replacement
Anchor Usage 83 % G.O.95 Heavy Grade A at Replacement
Arm Usage

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P223189_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span **Latitude** 33.07636188°
Back Span 35 ft **Longitude** -116.59155703°
Ahead Span Az. 0° **Elevation** 4206 ft
Line Angle 0° **Tangent/DE** Terminal Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P223189	30	1	Corten Steel	34.1	4.8		100	G.O.95 Heavy Grade A at Replacement	8	16	6.5	1.0	22.4
P223189	30	1	Corten Steel	34.1	4.8		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	7	11	9.3	1.0	22.4

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
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Wire Tension Condition

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Guys and Cables

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	7.38	175	23.91	P223189	41	3.2	1.3	G.O.95 Heavy Grade A at Replacement
Down	7/16" 7 Strand EHS (7/16G)	7.38	175	22.31	P223189	39	3.4	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	16" CROSSPLATE MG				P223189	83	1.6	1.3	G.O.95 Heavy Grade A at Replacement
Span	3 8-7 Strand Ehs Steel Sdge	35	3	24.56	P223189	34			G.O.95 Heavy Grade A at Replacement

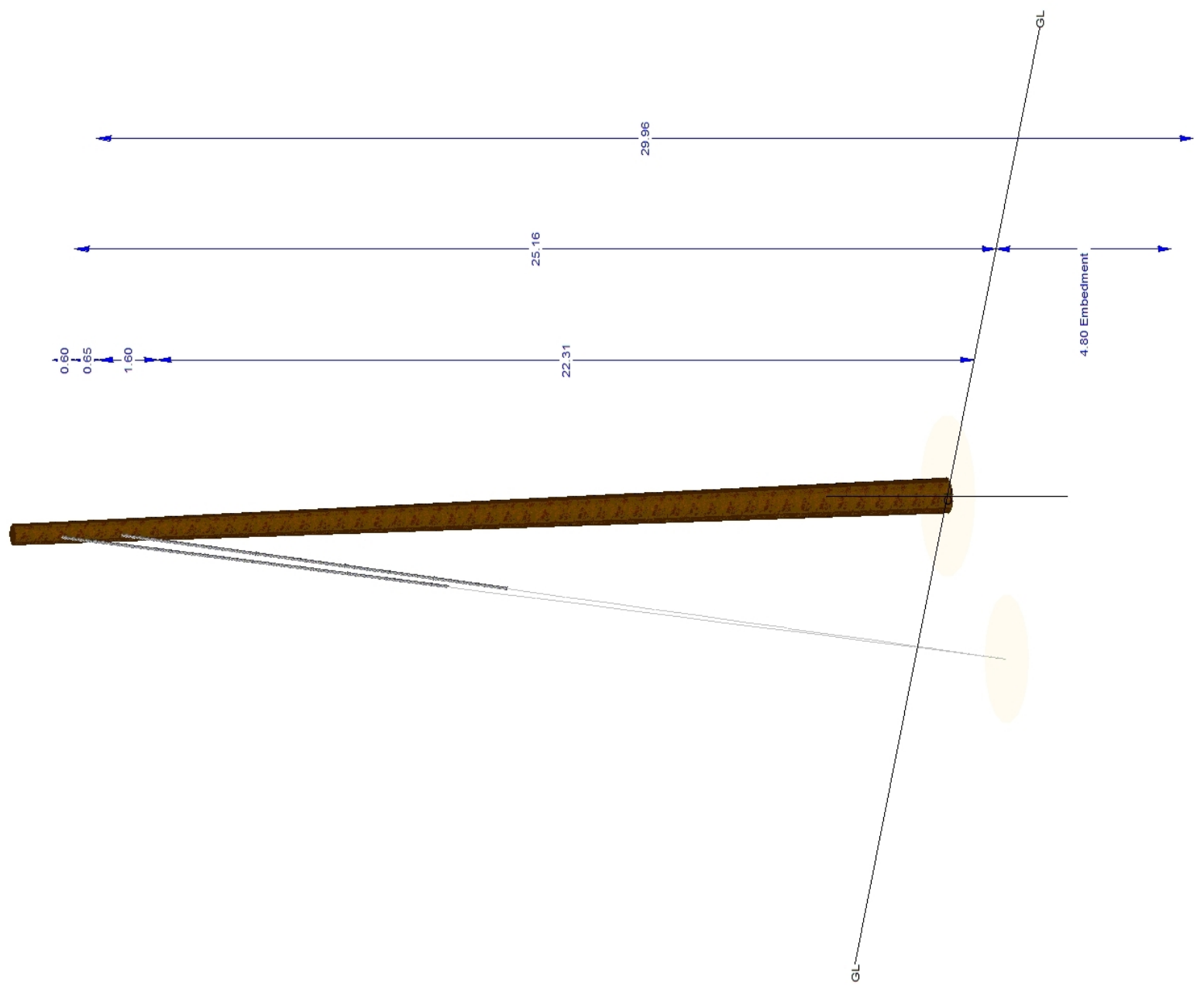
†Length = Lead Length for Down Guys, Wire Length for Span Guys

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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1.38





Structure P410410
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage	64 %	Clearances OK?	No
Pole Usage	41 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	19 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	64 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	51 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage	2 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P410410_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 193 ft **Latitude** 33.07710551°
Back Span 256 ft **Longitude** -116.58971978°
Ahead Span Az. 15° **Elevation** 4194 ft
Line Angle 167° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P410410	60	1	Corten Steel	47.4	8.4		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	56	41	2.4	1.0	0
P410410	60	1	Corten Steel	47.4	8.4		100	G.O.95 Heavy Grade A at Replacement	50	38	2.6	1.0	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	72	50.59	0.33	0.11	1	195	198	658
12	No2 AWG 5Over2 AWAC GCC	72	50.59	0.33	0.11	1	193	198	658
12	No2 AWG 5Over2 AWAC GCC	186	43.34	0.33	0.11	1	255	267	1102
12	No2 AWG 5Over2 AWAC GCC	186	43.34	0.33	0.11	1	256	267	1102
	1 In Firm Design Cable	72	24.37	1.13	0.40	1	193	193	1137
	1 In Firm Design Cable	72	23.69	1.13	0.40	1	193	193	1104
	1 In Firm Design Cable	72	22.31	1.13	0.40	1	193	193	1086
	1-0 AWG Triplex SSC AL Neritina GCC	172	31.51	0.97	0.41	1	49	49	98
	1 In Firm Design Cable	186	23.69	1.13	0.40	1	255	255	1043
	1 In Firm Design Cable	240	24.37	1.13	0.40	1	55	55	241
	1 In Firm Design Cable	240	22.31	1.13	0.40	1	54	54	151

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	72	50.59	P410410	12	16.4	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	72	50.59	P410410	12	16.7	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	186	43.34	P410410	19	10.5	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	186	43.34	P410410	19	10.4	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

*Length = Lead Length for Down Guys, Wire Length for Span Guys

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	15.52	255	49.19	P410410	40	3.3	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	20" CROSSPLATE MG				P410410	32	4.2	1.3	G.O.95 Heavy Grade A at Replacement
Down	7/16" 7 Strand EHS (7/16G)	16.45	7	43.09	P410410	64	2.1	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	20" CROSSPLATE MG				P410410	51	2.6	1.3	G.O.95 Heavy Grade A at Replacement

*Max Usage Location Measured From Groundline **Direction in degrees: 0 Degrees = Structure Longitudinal Axis towards Ahead Span CW+ ***Attach Height Measured From Groundline, GSI from Top of Guy

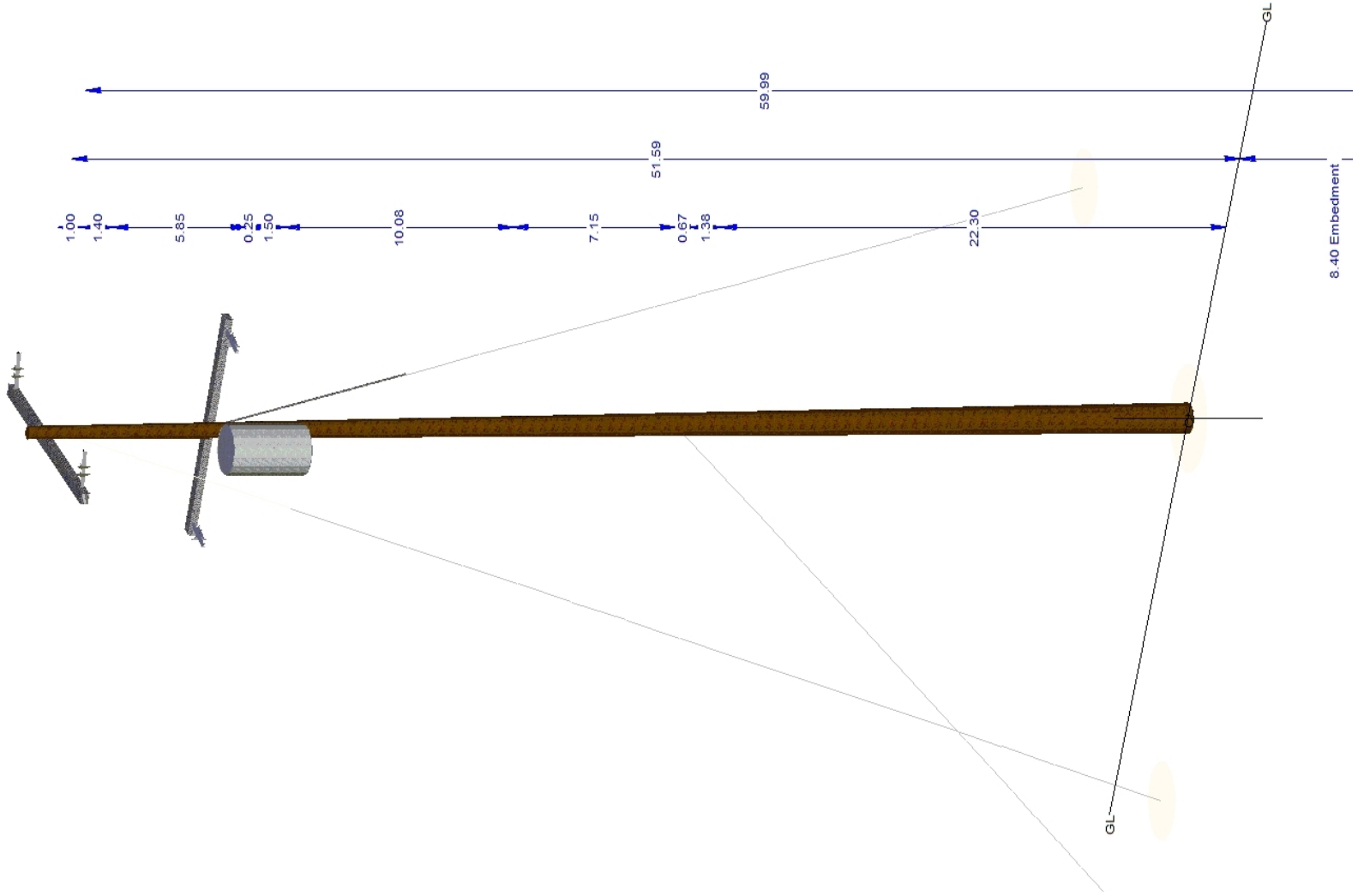
Down	3/8" 7 Strand EHS (3/8G)	21.38	250	22.31	P410410	33	4.1	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	16" CROSSPLATE MG				P410410	25	5.3	1.3	G.O.95 Heavy Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	25 kVA Transformer	180	41.59	P410410				
X-Arm	10' DE FG ARM (4DF)	177	50.59	P410410	1	111.1	1.3	G.O.95 Heavy Grade A at Replacement
X-Arm	10' DE FG ARM (4DF)	267	43.34	P410410	2	70.2	1.3	G.O.95 Heavy Grade A at Replacement



0.14





Structure P117927
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage	37 %	Clearances OK?	Yes
Pole Usage	23 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	33 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	29 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	37 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage	1 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P117927_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 202 ft **Latitude** 33.07713286°
Back Span 193 ft **Longitude** -116.58908958°
Ahead Span Az. 16° **Elevation** 4196 ft
Line Angle 116° **Tangent/DE** Tangent
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P117927	55	1	Corten Steel	47.6	8.07		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	30	23	4.4	1.0	0
P117927	55	1	Corten Steel	47.6	8.07		100	G.O.95 Heavy Grade A at Replacement	20	17	6.0	1.0	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	106	46.89	0.33	0.11	1	203	198	658
12	No2 AWG 5Over2 AWAC GCC	106	46.89	0.33	0.11	1	200	198	658
12	No2 AWG 5Over2 AWAC GCC	251	46.89	0.33	0.11	1	195	198	658
12	No2 AWG 5Over2 AWAC GCC	251	46.89	0.33	0.11	1	193	198	658
	1 In Firm Design Cable	106	26.12	1.13	0.40	1	201	201	948
	1 In Firm Design Cable	106	25.33	1.13	0.40	1	201	201	1022
	1 In Firm Design Cable	106	24.58	1.13	0.40	1	201	201	1205
	1-0 AWG Triplex SSC AL Neritina GCC	170	34.93	0.97	0.41	1	136	136	439
	1 In Firm Design Cable	251	26.12	1.13	0.40	1	193	193	1137
	1 In Firm Design Cable	251	25.33	1.13	0.40	1	193	193	1104
	1 In Firm Design Cable	251	24.58	1.13	0.40	1	193	193	1086

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-AI (1-3/8" Pin) DBL	12		45.93	P117927	33	6.1	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-AI (1-3/8" Pin) DBL	12		45.93	P117927	32	6.2	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

†Length = Lead Length for Down Guys, Wire Length for Span Guys

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	12.84	0	41.73	P117927	29	4.6	1.3	G.O.95 Heavy Grade A at Replacement
Down	7/16" 7 Strand EHS (7/16G)	12.84	0	35.13	P117927	29	4.6	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	24" CROSSPLATE MG				P117927	37	3.6	1.3	G.O.95 Heavy Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	9.13	12	21.93	P117927	22	6.2	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	9.13	12	24.58	P117927	21	6.5	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	16" CROSSPLATE MG				P117927	32	4.1	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement

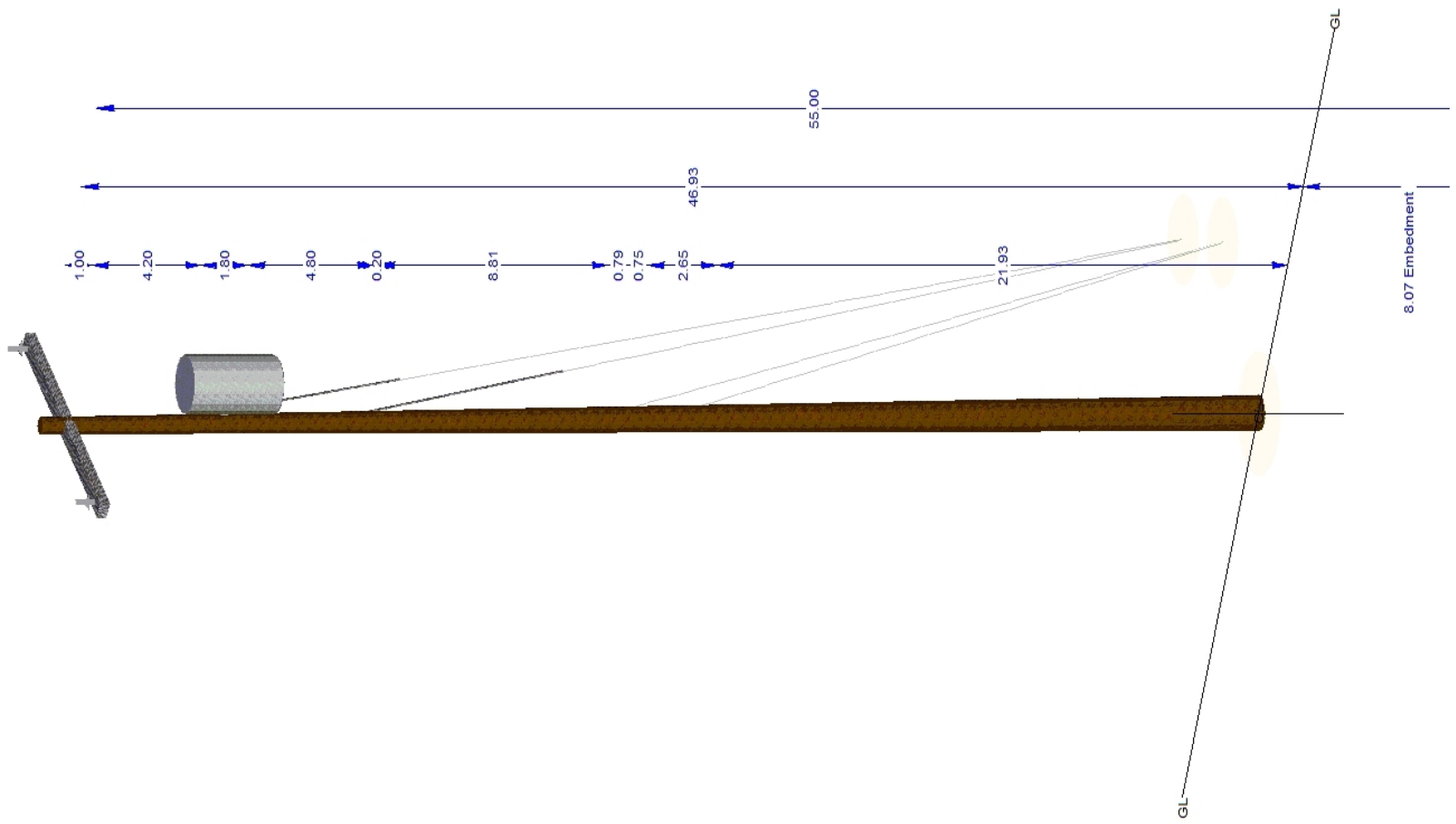
Crossarms and Equipment

*Max Usage Location Measured From Groundline **Direction in degrees: 0 Degrees = Structure Longitudinal Axis towards Ahead Span CW+ ***Attach Height Measured From Groundline, GSI from Top of Guy

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	25 kVA Transformer	90	39.93	P117927				
X-Arm	10' DBL TAN FG ARMS (4TF-2)	8	45.93	P117927	1	166.7	1.3	G.O.95 Heavy Grade A at Replacement



0.22





Structure P110708J
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [Redacted]
Engineer NV5 [Redacted]

Usage Summary

Max Usage	38 %	Clearances OK?	Yes
Pole Usage	22 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	18 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	38 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	31 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage	1 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P110708J_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 297 ft **Latitude** 33.07654096°
Back Span 171 ft **Longitude** -116.58843674°
Ahead Span Az. 88° **Elevation** 4214 ft
Line Angle -156° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P110708J	55	1	Corten Steel	47.9	7.5		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	31	22	4.5	1.0	0
P110708J	55	1	Corten Steel	47.9	7.5		100	G.O.95 Heavy Grade A at Replacement	27	20	5.0	1.0	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	71	46	0.33	0.11	1	169	170	1018
12	No2 AWG 5Over2 AWAC GCC	71	46	0.33	0.11	1	170	170	1018
12	No2 AWG 5Over2 AWAC GCC	72	47	0.33	0.11	1	170	170	1018
12	No2 AWG 5Over2 AWAC GCC	257	39	0.33	0.11	1	115	112	709
12	No2 AWG 5Over2 AWAC GCC	257	39	0.33	0.11	1	110	112	709
12	No2 AWG 5Over2 AWAC GCC	280	47	0.33	0.11	1	296	296	973
12	No2 AWG 5Over2 AWAC GCC	280	46	0.33	0.11	1	297	296	973
12	No2 AWG 5Over2 AWAC GCC	280	46	0.33	0.11	1	297	296	973
	1-0 AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	71	31.5	0.98	0.48	1	171	171	1032
	1 In Firm Design Cable	71	21.8	1.13	0.40	1	171	171	1322
	1 In Firm Design Cable	71	20.18	1.13	0.40	1	171	171	1444
	1 In Firm Design Cable	257	21.98	1.13	0.40	1	112	112	1036
	1 In Firm Design Cable	257	21.5	1.13	0.40	1	112	112	777
	1 In Firm Design Cable	257	21	1.13	0.40	1	112	112	810
	1 In Firm Design Cable	280	21.5	1.13	0.40	1	296	296	1878

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	71	46	P110708J	18	11.2	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	71	46	P110708J	18	11.0	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	72	47	P110708J	18	11.0	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	257	39	P110708J	13	15.4	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	257	39	P110708J	14	14.7	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	280	47	P110708J	17	11.8	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	280	46	P110708J	17	11.7	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	280	46	P110708J	17	11.6	2.0	G.O.95 Heavy Grade A at Replacement

Guy and Cables

+Length = Lead Length for Down Guys, Wire Length for Span Guys

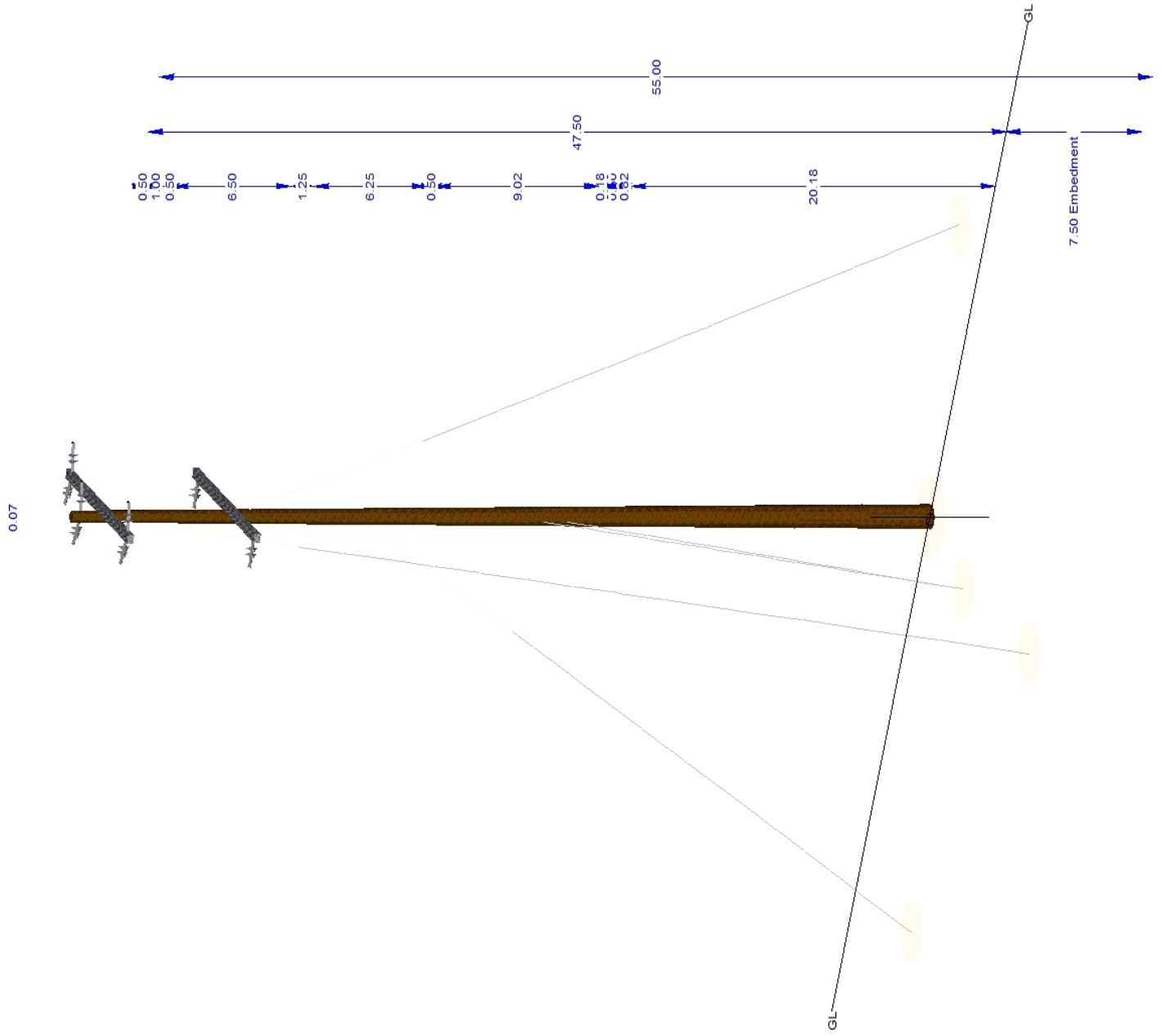
*Max Usage Location Measured From Groundline **Direction in degrees: 0 Degrees = Structure Longitudinal Axis towards Ahead Span CW+ ***Attach Height Measured From Groundline, GSI from Top of Guy

Type	Wire Type	Length* (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	17.73	173	45.5	P110708J	38	3.5	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	20" CROSSPLATE MG				P110708J	31	4.4	1.3	G.O.95 Heavy Grade A at Replacement
Down	7/16" 7 Strand EHS (7/16G)	15.81	80	37.75	P110708J	33	4.1	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	20" CROSSPLATE MG				P110708J	26	5.1	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Down	7/16" 7 Strand EHS (7/16G)	21.38	248	31	P110708J	6	20.5	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	20" CROSSPLATE MG				P110708J	5	26.0	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	6.58	182	21.5	P110708J	15	8.8	1.3	G.O.95 Heavy Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	6.58	182	20.18	P110708J	15	8.9	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	16" CROSSPLATE MG				P110708J	23	5.8	1.3	G.O.95 Heavy Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10' DE FG ARM (4DF)	350	46	P110708J	1	121.2	1.3	G.O.95 Heavy Grade A at Replacement
X-Arm	10' DE FG ARM (4DF)	350	39	P110708J	1	95.2	1.3	G.O.95 Heavy Grade A at Replacement







Structure P817174
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage	42 %	Clearances OK?	No
Pole Usage	35 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	18 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	42 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	27 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage	2 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P817174_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 294 ft **Latitude** 33.07637701°
Back Span 279 ft **Longitude** -116.59665621°
Ahead Span Az. 82° **Elevation** 4219 ft
Line Angle 179° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P817174	50	1	Corten Steel	43.7	7		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	43	35	2.9	1.0	0
P817174	50	1	Corten Steel	43.7	7		100	G.O.95 Heavy Grade A at Replacement	36	30	3.4	1.0	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	7	41.98	0.33	0.11	1	293	288	1158
12	No2 AWG 5Over2 AWAC GCC	7	41.98	0.33	0.11	1	294	288	1158
	1 In Firm Design Cable	6	25.66	1.13	0.40	1	211	211	1230
	1 In Firm Design Cable	6	24.87	1.13	0.40	1	211	211	1279
	1 In Firm Design Cable	6	23.46	1.13	0.40	1	212	212	1188
	1 In Firm Design Cable	187	25.66	1.13	0.40	1	279	279	1342
	1 In Firm Design Cable	187	24.87	1.13	0.40	1	279	279	1295
	1 In Firm Design Cable	187	23.46	1.13	0.40	1	279	279	1290

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	7	41.98	P817174	18	10.9	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	7	41.98	P817174	18	10.9	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

Type	Wire Type	Length+ (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	20.64	190	40.63	P817174	42	3.2	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	24" CROSSPLATE MG				P817174	27	4.9	1.3	G.O.95 Heavy Grade A at Replacement

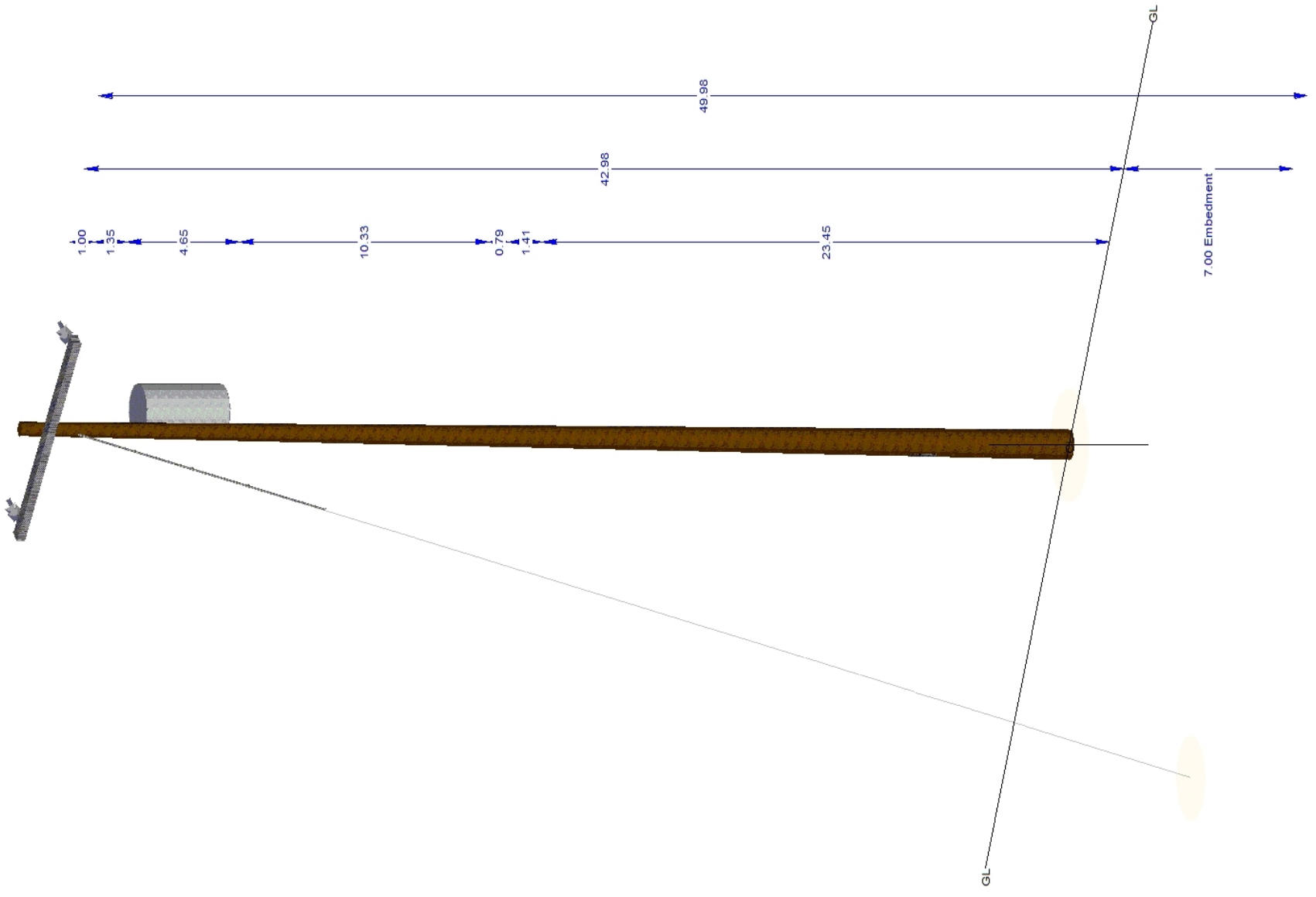
+Length = Lead Length for Down Guys, Wire Length for Span Guys

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	25 kVA Transformer	0	35.98	P817174				
X-Arm	10' DE FG ARM (4DF)	100	41.98	P817174	2	70.2	1.3	G.O.95 Heavy Grade A at Replacement



0.05





Structure P817173
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]

Engineer NV5
 [REDACTED]

Usage Summary

Max Usage 32 % **Clearances OK?** Yes
Pole Usage 32 % Known Local Wind Heavy 85 MPH Grade A at Replacement
Insulator Usage 22 % G.O.95 Heavy Grade A at Replacement
Guy Usage
Anchor Usage
Arm Usage G.O.95 Heavy Grade A at Replacement

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L3
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P817173_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 274 ft **Latitude** 33.07638981°
Back Span 294 ft **Longitude** -116.59569800°
Ahead Span Az. 90° **Elevation** 4218 ft
Line Angle 180° **Tangent/DE** Tangent
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P817173	50	1	Corten Steel	43.7	7		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	40	32	3.2	1.0	0
P817173	50	1	Corten Steel	43.7	7		100	G.O.95 Heavy Grade A at Replacement	35	27	3.6	1.0	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	-1	42.95	0.33	0.11	1	272	288	1158
12	No2 AWG 5Over2 AWAC GCC	-1	42.95	0.33	0.11	1	272	288	1158
12	No2 AWG 5Over2 AWAC GCC	179	42.95	0.33	0.11	1	293	288	1158
12	No2 AWG 5Over2 AWAC GCC	179	42.95	0.33	0.11	1	294	288	1158
	1 In Firm Design Cable	-1	32.45	1.13	0.40	1	140	140	1078
	1 In Firm Design Cable	181	32.45	1.13	0.40	1	82	81	941
	1 In Firm Design Cable	181	31.2	1.13	0.40	1	82	81	937
	1 In Firm Design Cable	181	29.76	1.13	0.40	1	82	81	1255
	1 In Firm Design Cable	358	31.2	1.13	0.40	1	140	140	1051
	1 In Firm Design Cable	358	29.76	1.13	0.40	1	140	140	955

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1-3/8" Pin)	12		41.98	P817173	22	9.1	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1-3/8" Pin)	12		41.98	P817173	21	9.3	2.0	G.O.95 Heavy Grade A at Replacement

Guis and Cables

*Length = Lead Length for Down Guis, Wire Length for Span Guis

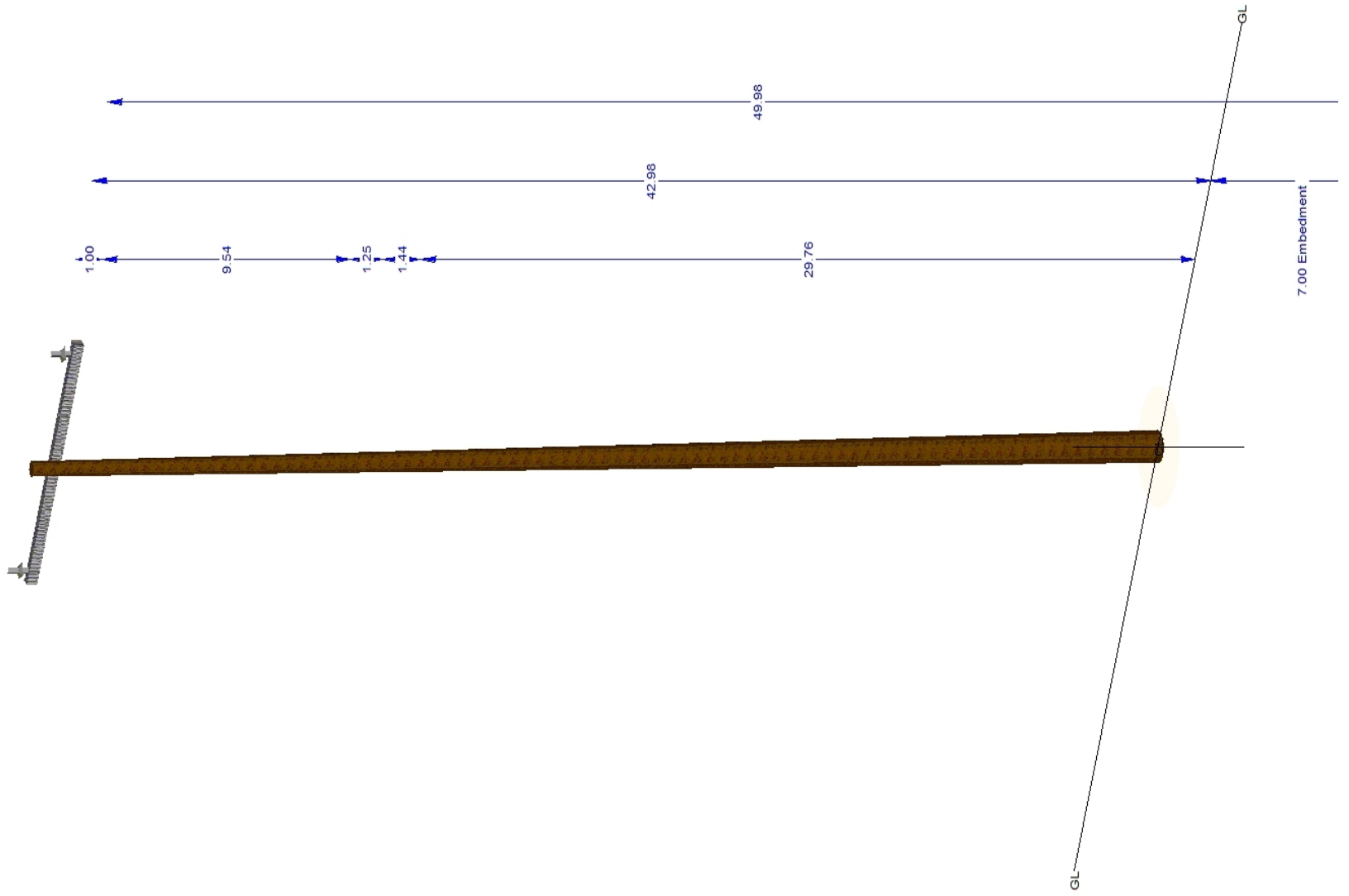
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10' TAN FG ARM (4TF)	270	41.98	P817173	444.4	1.3		G.O.95 Heavy Grade A at Replacement



1.12





Structure P817172
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage 35 % **Clearances OK?** Yes
Pole Usage 35 % Known Local Wind Heavy 85 MPH Grade A at Replacement
Insulator Usage 26 % G.O.95 Heavy Grade A at Replacement
Guy Usage
Anchor Usage
Arm Usage G.O.95 Heavy Grade A at Replacement

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L3
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P817172_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 296 ft **Latitude** 33.07640934°
Back Span 274 ft **Longitude** -116.59480348°
Ahead Span Az. 269° **Elevation** 4220 ft
Line Angle -180° **Tangent/DE** Tangent
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P817172	50	1	Corten Steel	43.3	7.75		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	44	35	2.8	1.0	0
P817172	50	1	Corten Steel	43.3	7.75		100	G.O.95 Heavy Grade A at Replacement	39	32	3.2	1.0	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	0	42.21	0.33	0.11	1	272	288	1158
12	No2 AWG 5Over2 AWAC GCC	0	42.21	0.33	0.11	1	272	288	1158
12	No2 AWG 5Over2 AWAC GCC	182	42.21	0.33	0.11	1	297	288	1158
12	No2 AWG 5Over2 AWAC GCC	182	42.21	0.33	0.11	1	296	288	1158
	1 In Firm Design Cable	0	31.4	1.13	0.40	1	133	133	1122
	1 In Firm Design Cable	0	30.54	1.13	0.40	1	133	133	1063
	1 In Firm Design Cable	0	29.46	1.13	0.40	1	133	133	982
	1 In Firm Design Cable	183	31.4	1.13	0.40	1	138	137	1066
	1 In Firm Design Cable	183	30.54	1.13	0.40	1	138	137	1055
	1 In Firm Design Cable	183	29.46	1.13	0.40	1	138	137	952

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1-3/8" Pin)	12		41.24	P817172	26	7.8	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1-3/8" Pin)	12		41.24	P817172	26	7.8	2.0	G.O.95 Heavy Grade A at Replacement

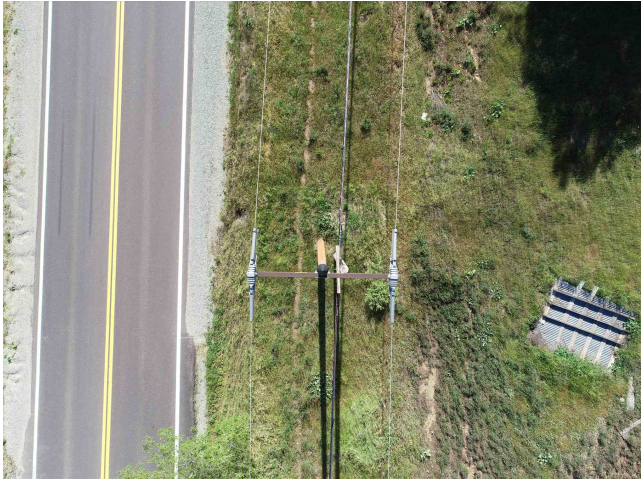
Guis and Cables

*Length = Lead Length for Down Guis, Wire Length for Span Guis

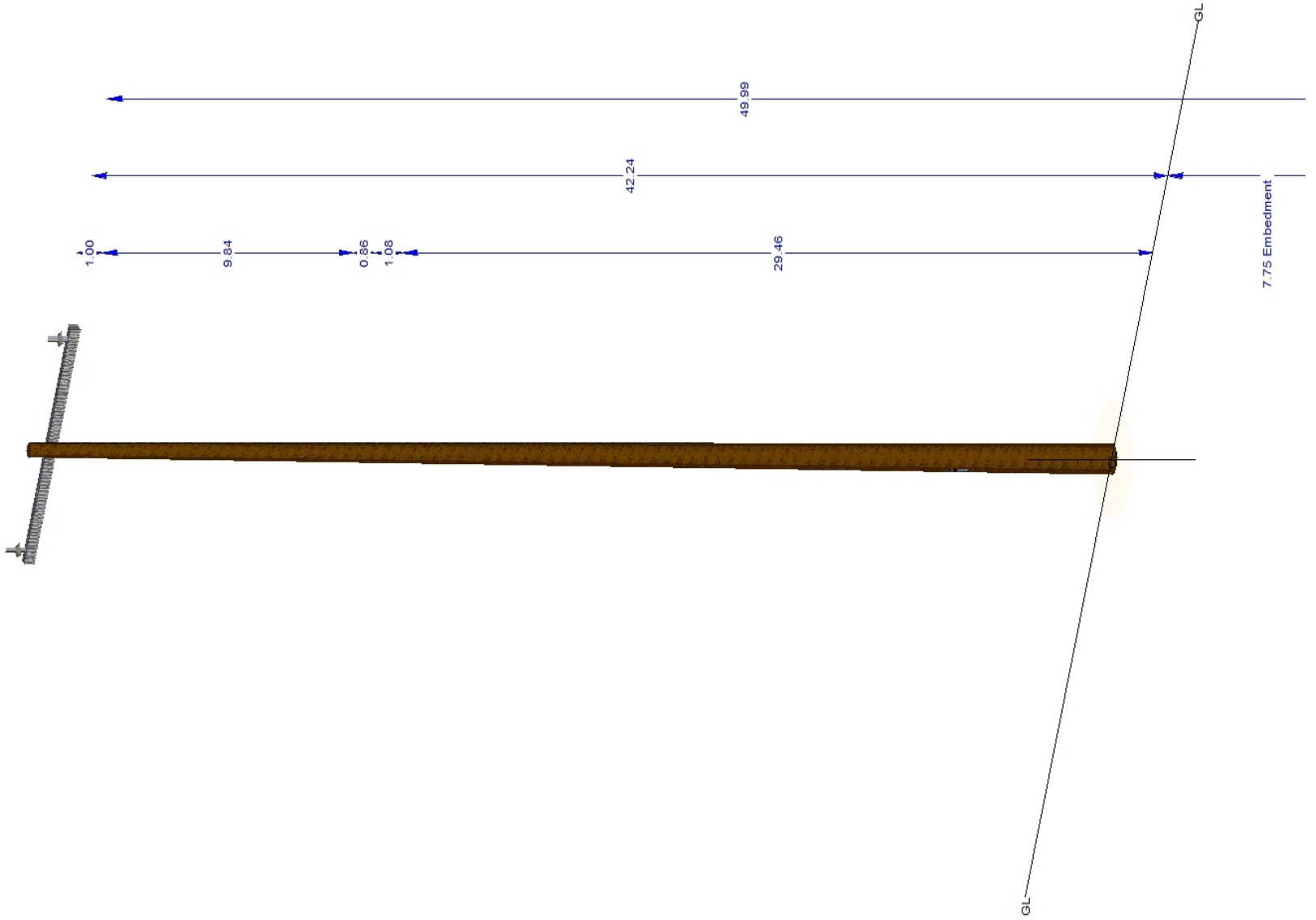
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10' TAN FG ARM (4TF)	270	41.24	P817172	444.4	1.3		G.O.95 Heavy Grade A at Replacement



0.11





Structure P412434
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]

Engineer NV5
 [REDACTED]

Usage Summary

Max Usage	25 %	Clearances OK?	No
Pole Usage	25 %	G.O.95 Heavy Grade A at Replacement	
Insulator Usage	20 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	7 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Anchor Usage	9 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Arm Usage	1 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type	Finite Element L4
Analysis Software	PLS-CADD
Software Version	16.01
PRG Version	2019.3.4
Structure File	P412434_AS-BUILT.pol
Project File	C221_SEC_F_TRUEUP.xyz

Structure Details

Ahead Span	166 ft	Latitude	33.07639317°
Back Span	296 ft	Longitude	-116.59383788°
Ahead Span Az.	94°	Elevation	4213 ft
Line Angle	180°	Tangent/DE	Dead End
Framing			
Notes			

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P412434	50	1	Corten Steel	43.3	7.73		100	G.O.95 Heavy Grade A at Replacement	30	25	4.0	1.0	0
P412434	50	1	Corten Steel	43.3	7.73		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	29	24	4.2	1.0	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	103	34.17	0.33	0.11	1	48	47	86
12	No2 AWG 5Over2 AWAC GCC	104	34.17	0.33	0.11	1	47	47	86
12	No2 AWG 5Over2 AWAC GCC	177	40.47	0.33	0.11	1	297	288	1158
12	No2 AWG 5Over2 AWAC GCC	177	40.47	0.33	0.11	1	296	288	1158
12	No2 AWG 5Over2 AWAC GCC	354	41.77	0.33	0.11	1	167	173	990
12	No2 AWG 5Over2 AWAC GCC	355	40.47	0.33	0.11	1	167	173	990
12	No2 AWG 5Over2 AWAC GCC	355	40.47	0.33	0.11	1	168	173	990
	No4 AWG Triplex SSC AL Periwinkle GCC	104	28.53	0.64	0.17	1	48	47	49
	1 In Firm Design Cable	105	20.11	1.13	0.40	1	48	48	357
	1 In Firm Design Cable	105	17.55	1.13	0.40	1	48	48	163
	1 In Firm Design Cable	177	20.11	1.13	0.40	1	78	78	872
	1 In Firm Design Cable	177	18.93	1.13	0.40	1	78	78	1021
	1 In Firm Design Cable	177	17.97	1.13	0.40	1	78	78	998
	1-0 AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	355	28.08	0.98	0.48	1	167	167	972
	1 In Firm Design Cable	355	19.47	1.13	0.40	1	87	87	888
	1 In Firm Design Cable	355	18.73	1.13	0.40	1	87	87	878
	1 In Firm Design Cable	355	17.77	1.13	0.40	1	87	87	994

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	103	34.17	P412434	2	112.4	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	104	34.17	P412434	2	98.5	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	177	40.47	P412434	20	10.0	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	177	40.47	P412434	20	9.9	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	354	41.77	P412434	15	13.4	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	355	40.47	P412434	15	13.5	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	355	40.47	P412434	15	13.3	2.0	G.O.95 Heavy Grade A at Replacement

*Max Usage Location Measured From Groundline **Direction in degrees: 0 Degrees = Structure Longitudinal Axis towards Ahead Span CW+ ***Attach Height Measured From Groundline, GSI from Top of Guy

Guys and Cables

+Length = Lead Length for Down Guys, Wire Length for Span Guys

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	18.78	175	39.87	P412434	7	19.4	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Down	7/16" 7 Strand EHS (7/16G)	18.78	175	39.37	P412434	7	18.8	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	24" CROSSPLATE MG				P412434	9	14.9	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10' DE FG ARM (4DF)	90	40.47	P412434	1	222.2	1.3	G.O.95 Heavy Grade A at Replacement
X-Arm	10' DE FG ARM (4DF)	180	34.17	P412434		666.7	1.3	G.O.95 Heavy Grade A at Replacement





Structure P511485
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage	29 %	Clearances OK?	No
Pole Usage	29 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	20 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	9 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	6 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage		G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P511485_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 97 ft **Latitude** 33.07640761°
Back Span 115 ft **Longitude** -116.59292039°
Ahead Span Az. 269° **Elevation** 4212 ft
Line Angle 1° **Tangent/DE** Tangent
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P511485	45	1	Corten Steel	40.4	8		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	31	29	3.5	1.0	0
P511485	45	1	Corten Steel	40.4	8		100	G.O.95 Heavy Grade A at Replacement	21	20	5.0	1.0	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	0	36.9	0.33	0.11	1	114	173	990
12	No2 AWG 5Over2 AWAC GCC	0	36.9	0.33	0.11	1	114	173	990
12	No2 AWG 5Over2 AWAC GCC	0	36.9	0.33	0.11	1	115	173	990
12	No2 AWG 5Over2 AWAC GCC	180	36.9	0.33	0.11	1	97	173	990
12	No2 AWG 5Over2 AWAC GCC	180	36.9	0.33	0.11	1	97	173	990
12	No2 AWG 5Over2 AWAC GCC	180	36.9	0.33	0.11	1	97	173	990
	1-0 AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	0	29.34	0.98	0.48	1	115	115	684
	1 In Firm Design Cable	0	24.37	1.13	0.40	1	115	115	1001
	1 In Firm Design Cable	0	23.33	1.13	0.40	1	115	115	946
	1 In Firm Design Cable	0	21.79	1.13	0.40	1	115	115	1053
	1 In Firm Design Cable	180	24.37	1.13	0.40	1	96	96	948
	1 In Firm Design Cable	180	23.33	1.13	0.40	1	96	96	927
	1 In Firm Design Cable	180	21.79	1.13	0.40	1	96	96	1069

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1" Pin)	12		35.99	P511485	20	9.8	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1" Pin)	12		35.99	P511485	16	12.2	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1" Pin)	12		35.99	P511485	18	10.8	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

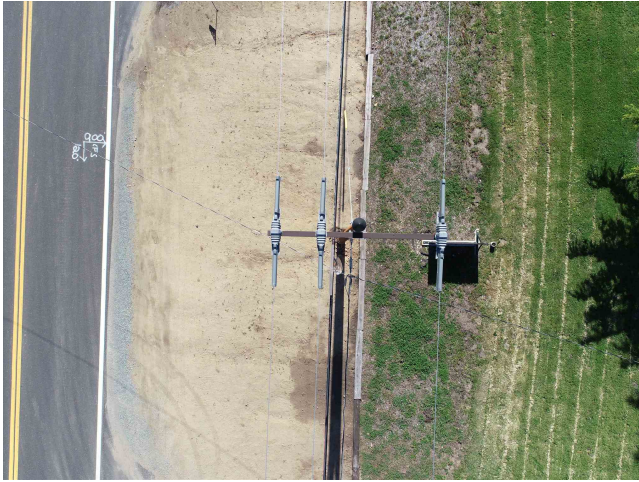
†Length = Lead Length for Down Guys, Wire Length for Span Guys

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	16.01	181	29.54	P511485	9	15.3	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	24" CROSSPLATE MG				P511485	6	23.8	1.3	G.O.95 Heavy Grade A at Replacement

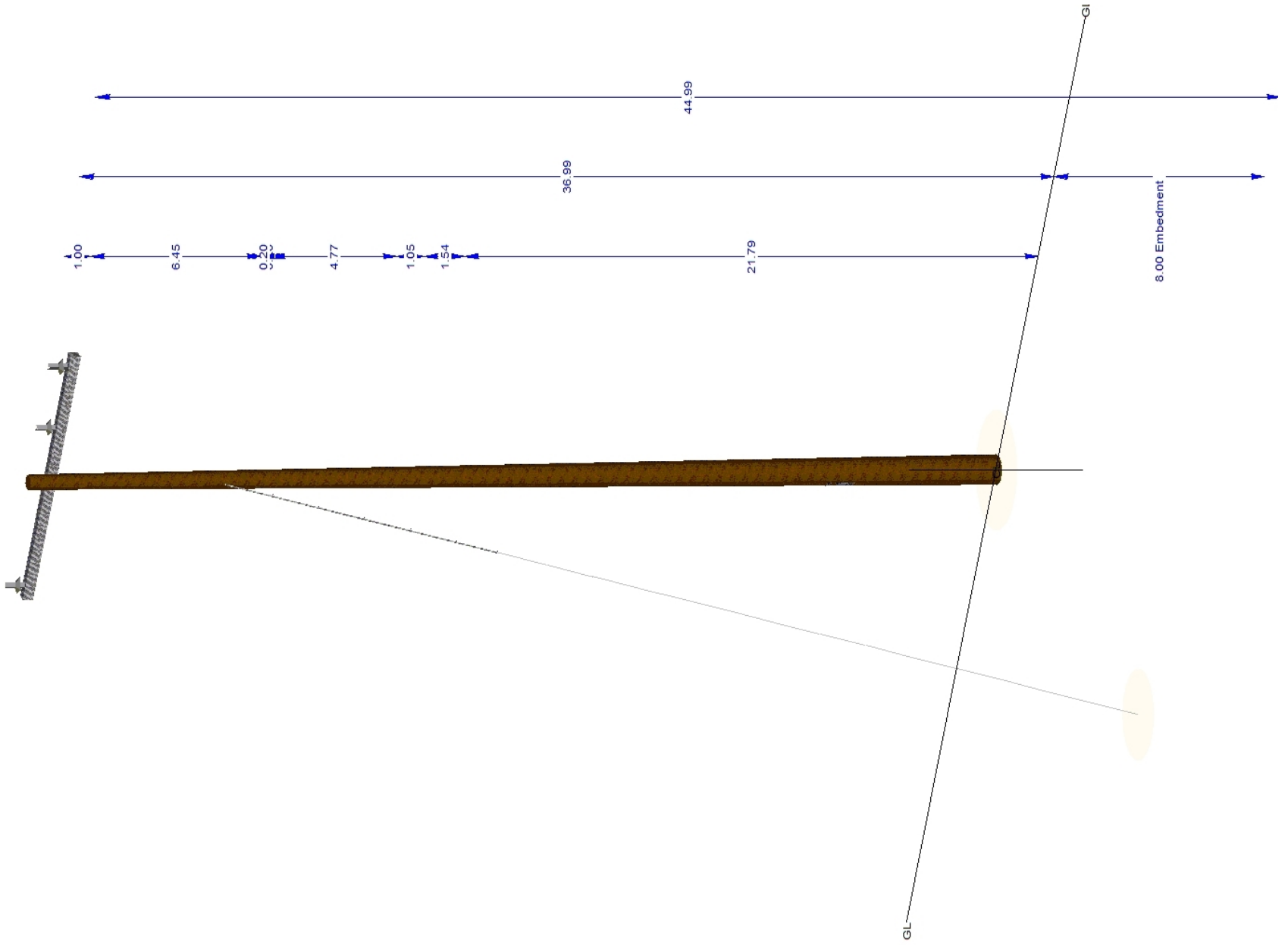
Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10" TAN FG ARM (4TF)	270	35.99	P511485		666.7	1.3	G.O.95 Heavy Grade A at Replacement

*Max Usage Location Measured From Groundline **Direction in degrees: 0 Degrees = Structure Longitudinal Axis towards Ahead Span CW+ ***Attach Height Measured From Groundline, GSI from Top of Guy



0.09





Structure P412433
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]

Engineer NV5
 [REDACTED]

Usage Summary

Max Usage 28 % **Clearances OK?** No
Pole Usage 24 % Known Local Wind Heavy 85 MPH Grade A at Replacement
Insulator Usage 28 % Known Local Wind Heavy 85 MPH Grade A at Replacement
Guy Usage
Anchor Usage
Arm Usage G.O.95 Heavy Grade A at Replacement

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P412433_AS-BUILT.pol
Project File C221_SEC_F_TRUEUP.xyz

Structure Details

Ahead Span 115 ft **Latitude** 33.07640242°
Back Span 166 ft **Longitude** -116.59329555°
Ahead Span Az. 89° **Elevation** 4210 ft
Line Angle -180° **Tangent/DE** Tangent
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P412433	55	1	Corten Steel	46.7	9.85		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	35	24	4.1	1.0	0
P412433	55	1	Corten Steel	46.7	9.85		100	G.O.95 Heavy Grade A at Replacement	28	20	5.1	1.0	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	0	45.05	0.33	0.11	1	114	173	990
12	No2 AWG 5Over2 AWAC GCC	0	45.05	0.33	0.11	1	114	173	990
12	No2 AWG 5Over2 AWAC GCC	0	45.05	0.33	0.11	1	115	173	990
12	No2 AWG 5Over2 AWAC GCC	179	45.05	0.33	0.11	1	167	173	990
12	No2 AWG 5Over2 AWAC GCC	180	45.05	0.33	0.11	1	167	173	990
12	No2 AWG 5Over2 AWAC GCC	180	45.05	0.33	0.11	1	168	173	990
	1-0 AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	0	32.85	0.98	0.48	1	115	115	684
	1 In Firm Design Cable	0	26.83	1.13	0.40	1	115	115	1001
	1 In Firm Design Cable	0	25.85	1.13	0.40	1	115	115	946
	1 In Firm Design Cable	0	24.67	1.13	0.40	1	115	115	1053
	1-0 AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	180	33.05	0.98	0.48	1	167	167	972
	1 In Firm Design Cable	180	26.83	1.13	0.40	1	79	79	819
	1 In Firm Design Cable	180	25.85	1.13	0.40	1	79	79	734
	1 In Firm Design Cable	180	24.67	1.13	0.40	1	79	79	1002

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1" Pin)	12		44.15	P412433	20	9.9	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1" Pin)	12		44.15	P412433	20	9.8	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1" Pin)	12		44.15	P412433	28	7.3	2.0	Known Local Wind Heavy 85 MPH Grade A at Replacement

Guis and Cables

+Length = Lead Length for Down Guys, Wire Length for Span Guys

Type	Wire Type	Length+ (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	25 kVA Transformer	0	36.15	P412433				

*Max Usage Location Measured From Groundline **Direction in degrees: 0 Degrees = Structure Longitudinal Axis towards Ahead Span CW+ ***Attach Height Measured From Groundline, GSI from Top of Guy

X-Arm

10' TAN FG ARM (4TF)

272

44.15

P412433

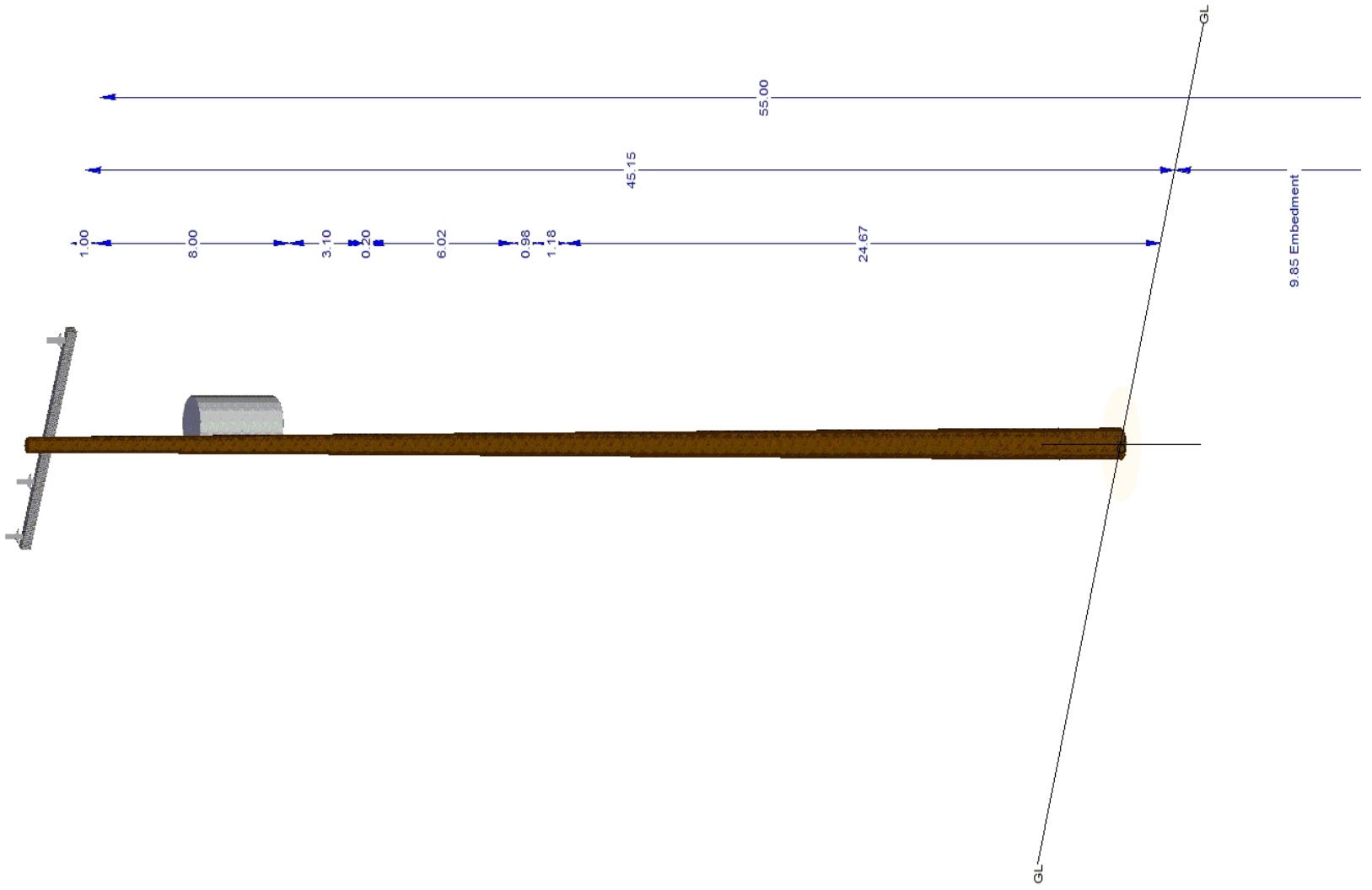
333.3

1.3

G.O.95 Heavy Grade A at Replacement



0.29





Structure P412432
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]

Engineer NV5
 [REDACTED]

Usage Summary

Max Usage 31 % **Clearances OK?** No
Pole Usage 25 % Known Local Wind Heavy 85 MPH Grade A at Replacement
Insulator Usage 31 % G.O.95 Heavy Grade A at Replacement
Guy Usage
Anchor Usage
Arm Usage G.O.95 Heavy Grade A at Replacement

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L3
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P412432_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 238 ft **Latitude** 33.07640758°
Back Span 97 ft **Longitude** -116.59260497°
Ahead Span Az. 272° **Elevation** 4213 ft
Line Angle 177° **Tangent/DE** Tangent
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P412432	45	1	Corten Steel	41.2	6.5		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	28	25	4.1	1.0	0
P412432	45	1	Corten Steel	41.2	6.5		100	G.O.95 Heavy Grade A at Replacement	21	19	5.3	1.0	3.5

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	175	38.36	0.33	0.11	1	237	173	990
12	No2 AWG 5Over2 AWAC GCC	175	38.36	0.33	0.11	1	237	173	990
12	No2 AWG 5Over2 AWAC GCC	175	38.36	0.33	0.11	1	237	173	990
12	No2 AWG 5Over2 AWAC GCC	357	38.36	0.33	0.11	1	97	173	990
12	No2 AWG 5Over2 AWAC GCC	357	38.36	0.33	0.11	1	97	173	990
12	No2 AWG 5Over2 AWAC GCC	357	38.36	0.33	0.11	1	97	173	990
	1 In Firm Design Cable	47	22.11	1.13	0.40	1	102	102	494
	1 In Firm Design Cable	178	24.77	1.13	0.40	1	170	170	1184
	1 In Firm Design Cable	178	23.75	1.13	0.40	1	170	170	1183
	1 In Firm Design Cable	178	22.32	1.13	0.40	1	170	170	1172
	1 In Firm Design Cable	278	21.91	1.13	0.40	1	78	78	483
	1 In Firm Design Cable	357	24.77	1.13	0.40	1	96	96	948
	1 In Firm Design Cable	357	23.75	1.13	0.40	1	96	96	927
	1 In Firm Design Cable	357	22.32	1.13	0.40	1	96	96	1069

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1" Pin)	12		37.45	P412432	31	6.5	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1" Pin)	12		37.45	P412432	30	6.6	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1" Pin)	12		37.45	P412432	30	6.6	2.0	G.O.95 Heavy Grade A at Replacement

Guis and Cables

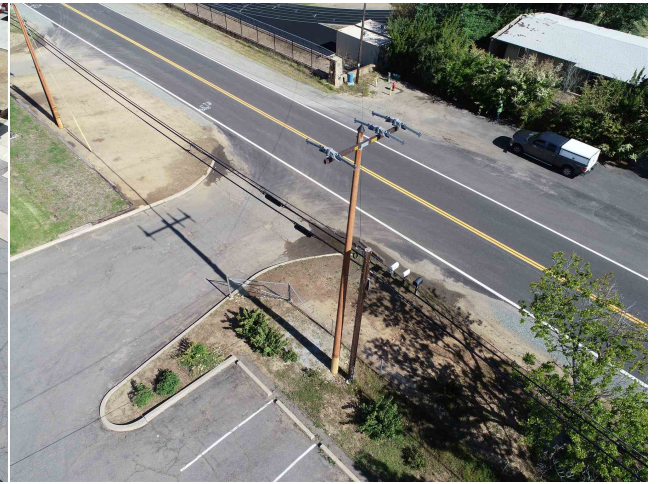
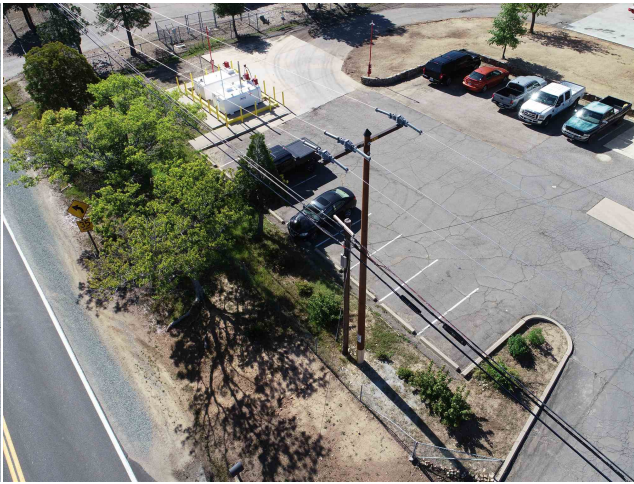
+Length = Lead Length for Down Guis, Wire Length for Span Guis

Type	Wire Type	Length+ (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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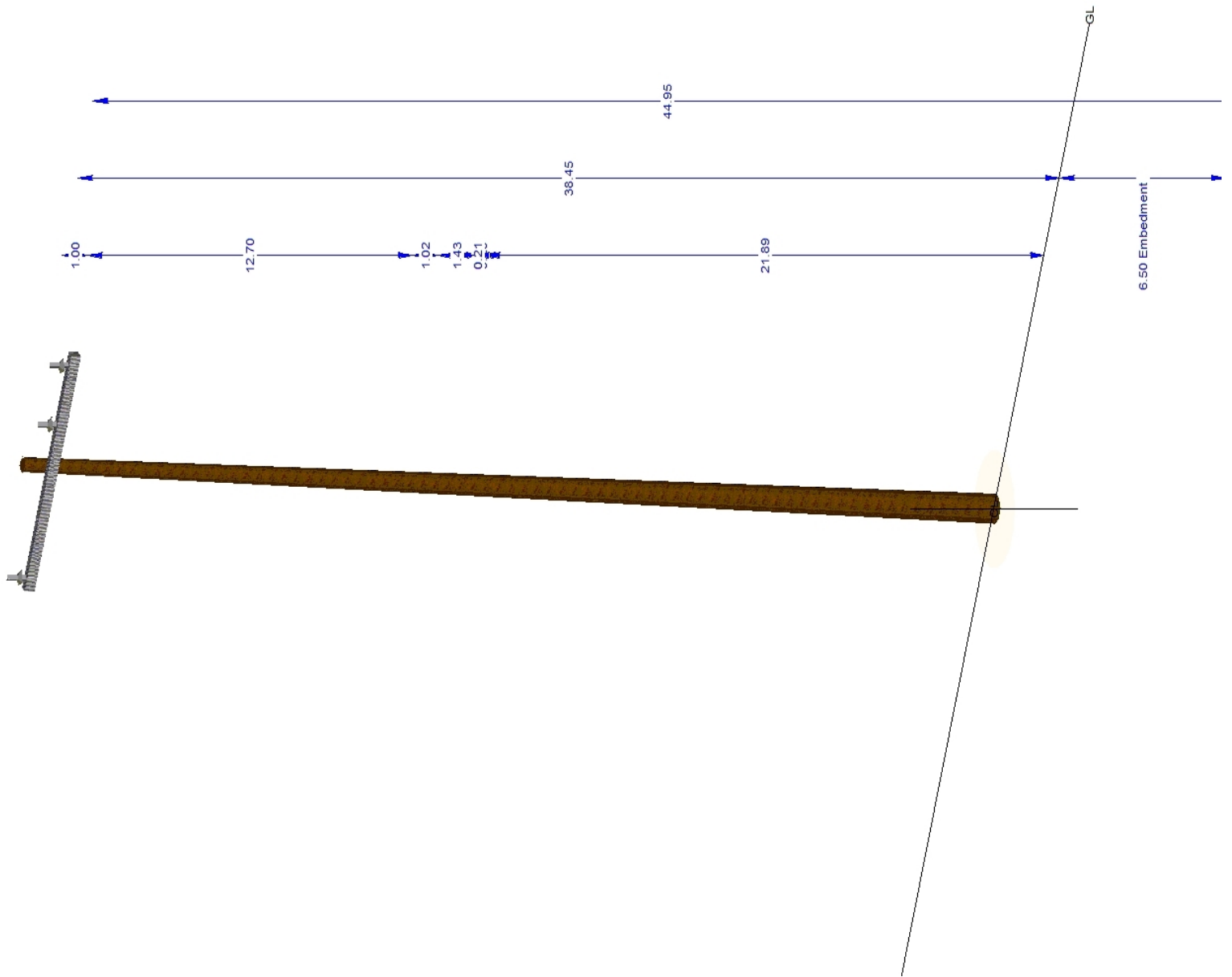
Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10" TAN FG ARM (4TF)	90	37.45	P412432		333.3	1.3	G.O.95 Heavy Grade A at Replacement

*Max Usage Location Measured From Groundline **Direction in degrees: 0 Degrees = Structure Longitudinal Axis towards Ahead Span CW+ ***Attach Height Measured From Groundline, GSI from Top of Guy



* 1.95 *





Structure P136641
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]

Engineer NV5
 [REDACTED]

Usage Summary

Max Usage	39 %	Clearances OK?	Yes
Pole Usage	39 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	25 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage			
Anchor Usage			
Arm Usage	1 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type	Finite Element L4
Analysis Software	PLS-CADD
Software Version	16.01
PRG Version	2019.3.4
Structure File	P136641_AS-BUILT.pol
Project File	C221_SEC_F_TRUEUP.xy

Structure Details

Ahead Span	83 ft	Latitude	33.07644933°
Back Span	238 ft	Longitude	-116.59182822°
Ahead Span Az.	92°	Elevation	4207 ft
Line Angle	1°	Tangent/DE	Tangent
Framing			
Notes			

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P136641	50	1	Corten Steel	43.4	7.55		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	48	39	2.6	1.0	0
P136641	50	1	Corten Steel	43.4	7.55		100	G.O.95 Heavy Grade A at Replacement	27	22	4.5	1.0	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	175	42.36	0.33	0.11	1	237	173	990
12	No2 AWG 5Over2 AWAC GCC	175	42.36	0.33	0.11	1	237	173	990
12	No2 AWG 5Over2 AWAC GCC	175	42.36	0.33	0.11	1	237	173	990
12	No2 AWG 5Over2 AWAC GCC	356	42.36	0.33	0.11	1	85	173	990
12	No2 AWG 5Over2 AWAC GCC	356	42.36	0.33	0.11	1	85	173	990
12	No2 AWG 5Over2 AWAC GCC	356	42.36	0.33	0.11	1	84	173	990

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1" Pin)	12		41.45	P136641	23	8.5	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1" Pin)	12		41.45	P136641	25	8.1	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1" Pin)	12		41.45	P136641	24	8.4	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

†Length = Lead Length for Down Guys, Wire Length for Span Guys

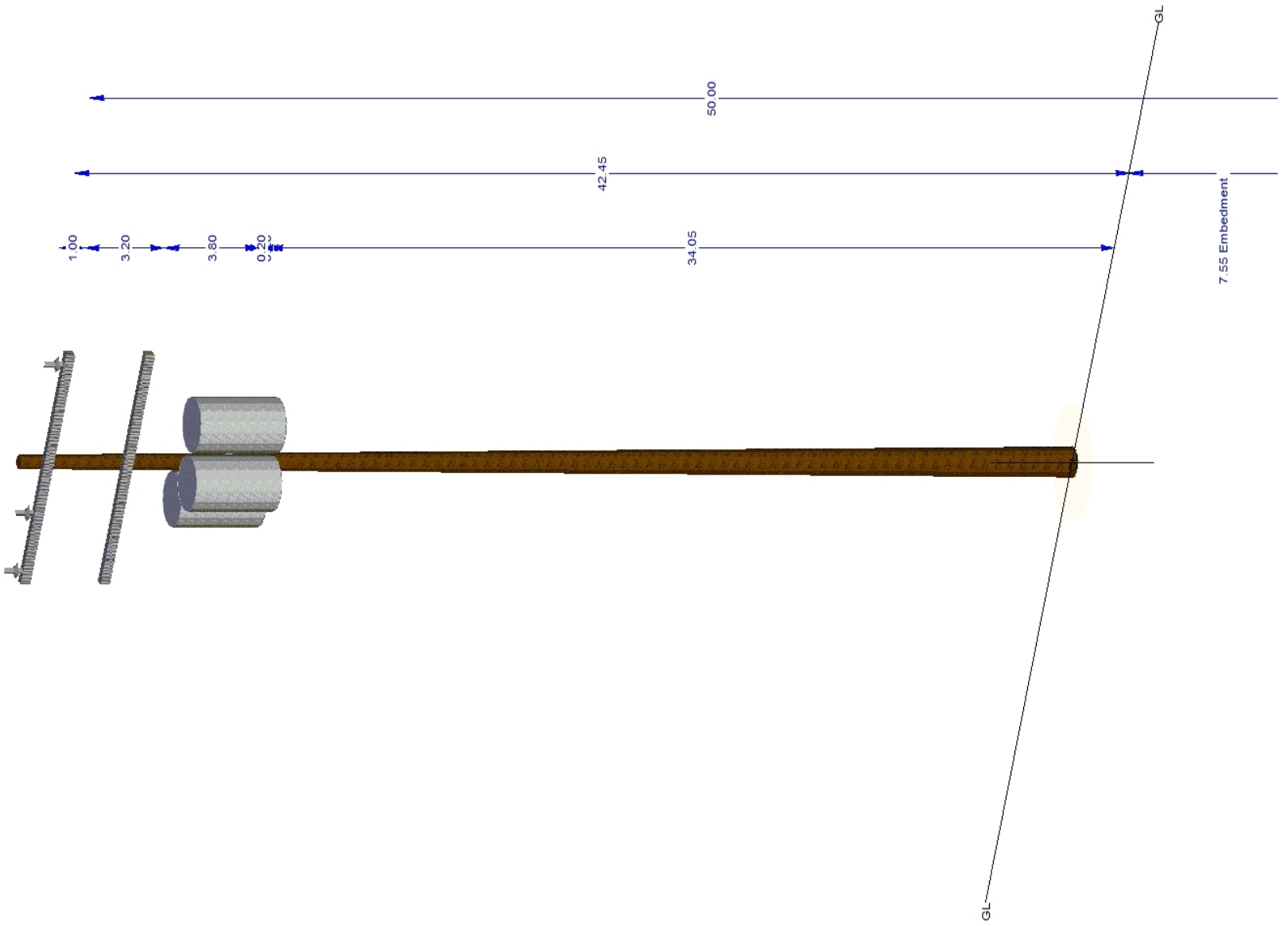
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	25 kVA Transformer	180	34.45	P136641				
Equipment	25 kVA Transformer	270	34.25	P136641				
Equipment	25 kVA Transformer	90	34.05	P136641				
X-Arm	10' TAN FG ARM (4TF)	90	41.45	P136641	1	266.7	1.3	G.O.95 Heavy Grade A at Replacement
X-Arm	10' EQUIPMENT FG ARM (4TF)	90	38.25	P136641			1.3	G.O.95 Heavy Grade A at Replacement



0.04





Structure P611283
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage	69 %	Clearances OK?	Yes
Pole Usage	23 %	G.O.95 Heavy Grade A at Replacement	
Insulator Usage	16 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	35 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	69 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage	2 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P611283_AS-BUILT.pol
Project File C221_SEC_F_TRUEUP.xyz

Structure Details

Ahead Span 35 ft **Latitude** 33.07654273°
Back Span 241 ft **Longitude** -116.59077651°
Ahead Span Az. 354° **Elevation** 4197 ft
Line Angle 180° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P611283	50	1	Corten Steel	43.2	7.8		100	G.O.95 Heavy Grade A at Replacement	26	23	4.3	1.0	0
P611283	50	1	Corten Steel	43.2	7.8		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	26	22	4.5	1.0	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	269	41.7	0.33	0.11	1	240	240	844
12	No2 AWG 5Over2 AWAC GCC	269	40.7	0.33	0.11	1	240	240	844
12	No2 AWG 5Over2 AWAC GCC	269	40.7	0.33	0.11	1	241	240	844
	1-0 AWG Triplex SSC AL Neritina GCC	96	31.21	0.97	0.41	1	35	29	250
	1 In Firm Design Cable	96	19.53	1.13	0.40	1	34	32	79
	1 In Firm Design Cable	176	20.28	1.13	0.40	1	108	108	489

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	269	41.7	P611283	16	12.8	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	269	40.7	P611283	16	12.4	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	269	40.7	P611283	16	12.6	2.0	G.O.95 Heavy Grade A at Replacement

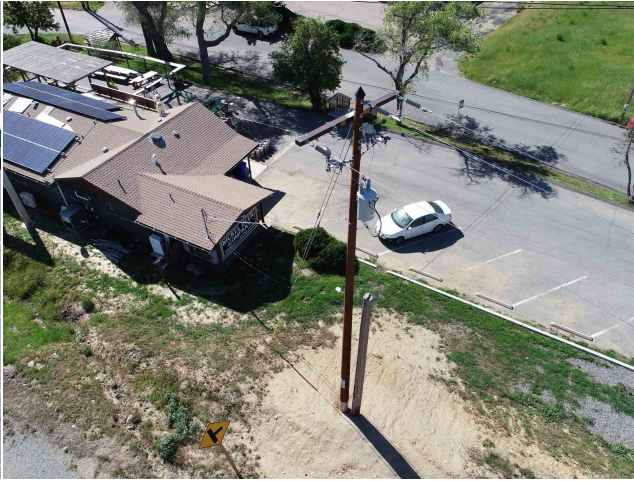
Guys and Cables

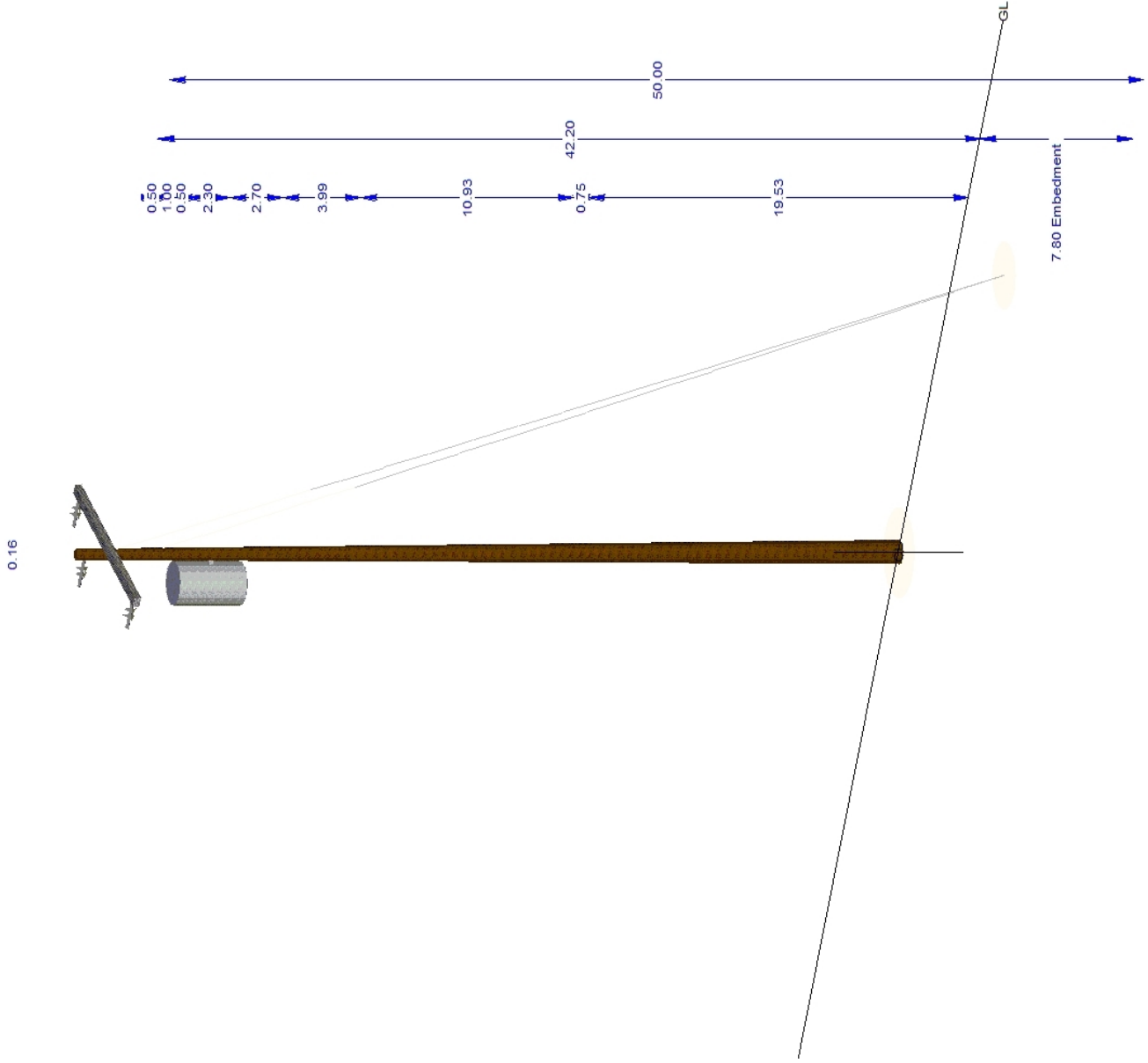
†Length = Lead Length for Down Guys, Wire Length for Span Guys

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	15.3	90	40.2	P611283	35	3.8	1.3	G.O.95 Heavy Grade A at Replacement
Down	7/16" 7 Strand EHS (7/16G)	15.3	90	37.9	P611283	31	4.3	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	16" CROSSPLATE MG				P611283	69	1.9	1.3	G.O.95 Heavy Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	25 kVA Transformer	270	35.2	P611283				
X-Arm	10' DE FG ARM (4DF)	3	40.7	P611283	2	83.3	1.3	G.O.95 Heavy Grade A at Replacement







Structure P210713
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]

Engineer NV5
 [REDACTED]

Usage Summary

Max Usage	34 %	Clearances OK?	Yes
Pole Usage	11 %	G.O.95 Heavy Grade A at Replacement	
Insulator Usage	17 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	34 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage			
Arm Usage	3 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type	Finite Element L4
Analysis Software	PLS-CADD
Software Version	16.01
PRG Version	2019.3.4
Structure File	P210713_AS-BUILT.pol
Project File	C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span	241 ft	Latitude	33.07645899°
Back Span	83 ft	Longitude	-116.59155590°
Ahead Span Az.	7°	Elevation	4205 ft
Line Angle	102°	Tangent/DE	Dead End
Framing			
Notes			

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P210713	55	1	Corten Steel	47.6	8		100	G.O.95 Heavy Grade A at Replacement	8	11	9.3	1.0	45.5
P210713	55	1	Corten Steel	47.6	8		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	14	10	10.3	1.0	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	76	39.15	0.33	0.11	1	240	240	844
12	No2 AWG 5Over2 AWAC GCC	76	39.15	0.33	0.11	1	240	240	844
12	No2 AWG 5Over2 AWAC GCC	76	39.15	0.33	0.11	1	241	240	844
12	No2 AWG 5Over2 AWAC GCC	261	39.15	0.33	0.11	1	85	173	990
12	No2 AWG 5Over2 AWAC GCC	261	39.15	0.33	0.11	1	85	173	990
12	No2 AWG 5Over2 AWAC GCC	261	39.15	0.33	0.11	1	84	173	990
12	No2 AWG 5Over2 AWAC GCC	358	46	0.33	0.11	1	215	223	1052
12	No2 AWG 5Over2 AWAC GCC	358	46	0.33	0.11	1	215	223	1052
12	No2 AWG 5Over2 AWAC GCC	358	46	0.33	0.11	1	215	223	1052

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	76	39.15	P210713	16	12.6	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	76	39.15	P210713	15	13.0	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	76	39.15	P210713	16	12.7	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	261	39.15	P210713	15	13.0	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	261	39.15	P210713	15	13.0	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	261	39.15	P210713	17	11.7	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	358	46	P210713	17	11.6	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	358	46	P210713	17	11.9	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	358	46	P210713	15	13.0	2.0	G.O.95 Heavy Grade A at Replacement

Guis and Cables

†Length = Lead Length for Down Guys, Wire Length for Span Guys

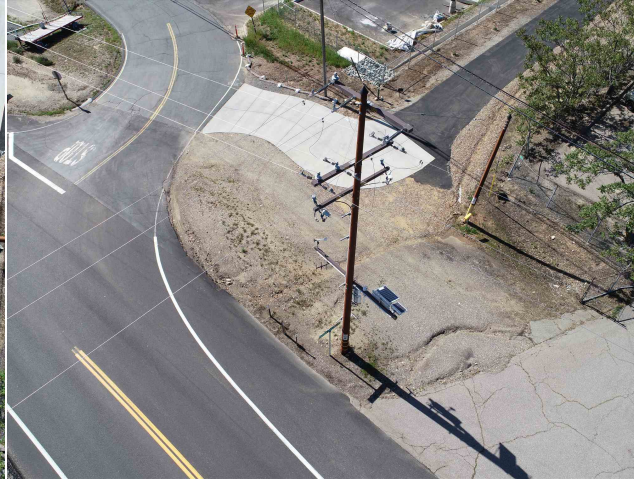
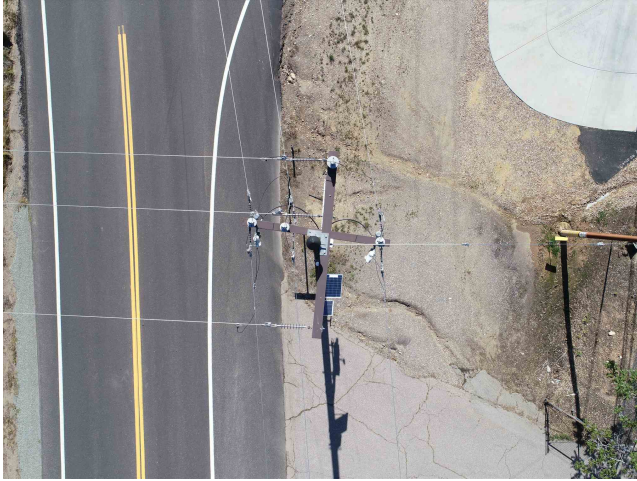
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Span	3 8-7 Strand Ehs Steel Sdge	35	176	45.5	P210713, P223189	34			G.O.95 Heavy Grade A at Replacement

Crossarms and Equipment

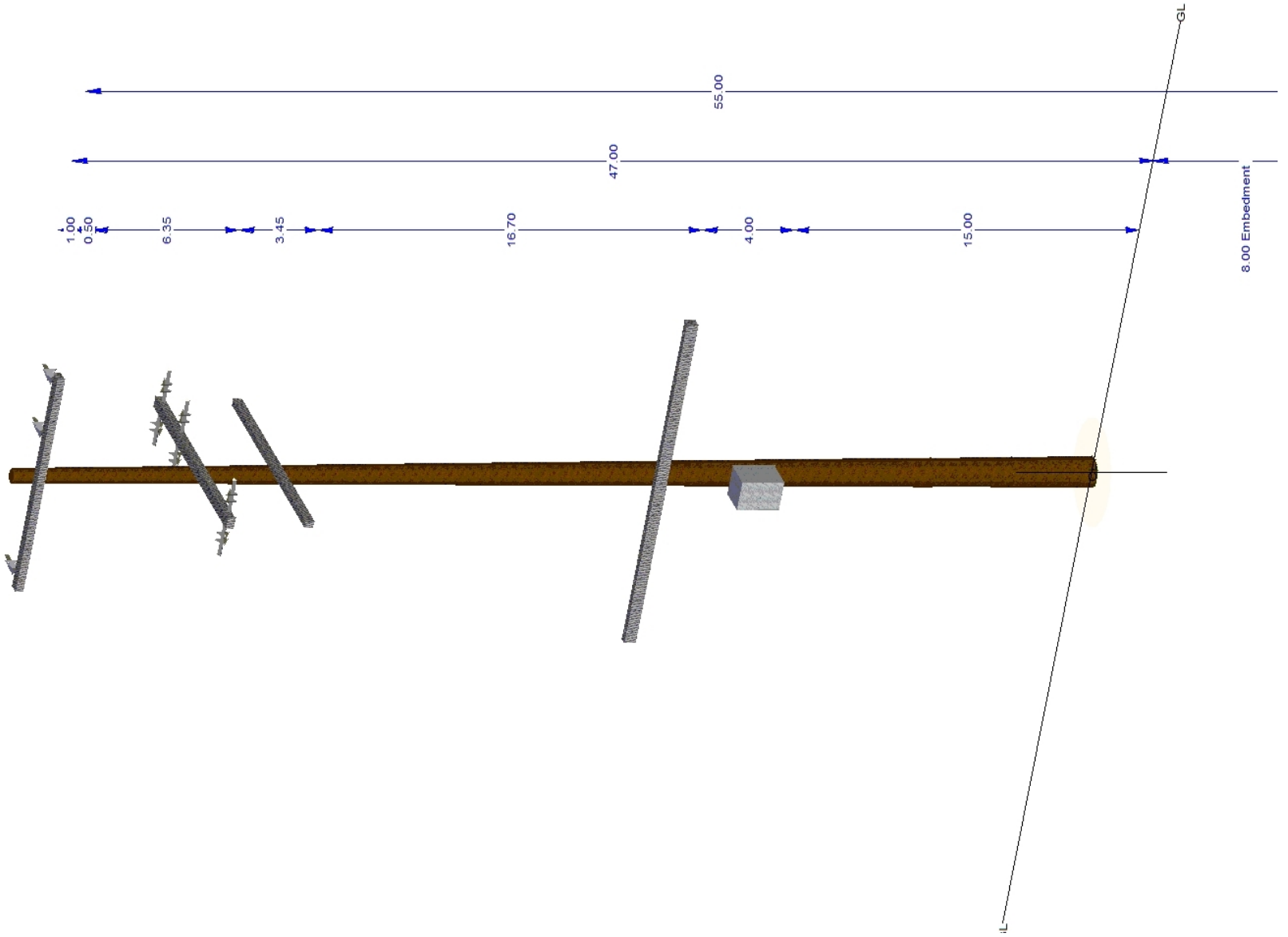
Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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*Max Usage Location Measured From Groundline **Direction in degrees: 0 Degrees = Structure Longitudinal Axis towards Ahead Span CW+ ***Attach Height Measured From Groundline, GSI from Top of Guy

Equipment	SOLAR SCADA REPEATER STATION OH546	180	15	P210713				
X-Arm	10' DE FG ARM (4DF)	90	46	P210713	3	41.7	1.3	G.O.95 Heavy Grade A at Replacement
X-Arm	10' DE FG ARM (4DF)	0	39.15	P210713	1	222.2	1.3	G.O.95 Heavy Grade A at Replacement
X-Arm	10' EQUIPMENT FG ARM (4TF)	0	35.7	P210713			1.3	G.O.95 Heavy Grade A at Replacement
X-Arm	15' EQUIPMENT FG ARM (6LTF)	90	19	P210713		1333.3	1.3	G.O.95 Heavy Grade A at Replacement



0.12





Structure P110221
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]

Engineer NV5
 [REDACTED]

Usage Summary

Max Usage 39 % **Clearances OK?** Yes
Pole Usage 25 % G.O.95 Heavy Grade A at Replacement
Insulator Usage 39 % Known Local Wind Heavy 85 MPH Grade A at Replacement
Guy Usage
Anchor Usage
Arm Usage 1% G.O.95 Heavy Grade A at Replacement

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P110221_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 235 ft **Latitude** 33.07705056°
Back Span 216 ft **Longitude** -116.59150196°
Ahead Span Az. 185° **Elevation** 4203 ft
Line Angle 146° **Tangent/DE** Tangent
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P110221	55	1	Corten Steel	47.6	8		100	G.O.95 Heavy Grade A at Replacement	37	25	4.0	1.0	0
P110221	55	1	Corten Steel	47.6	8		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	36	24	4.1	1.0	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	0	46.89	0.33	0.11	1	215	223	1052
12	No2 AWG 5Over2 AWAC GCC	0	46.89	0.33	0.11	1	215	223	1052
12	No2 AWG 5Over2 AWAC GCC	0	46.89	0.33	0.11	1	215	223	1052
12	No2 AWG 5Over2 AWAC GCC	180	46.89	0.33	0.11	1	237	223	1052
12	No2 AWG 5Over2 AWAC GCC	180	46.89	0.33	0.11	1	237	223	1052
12	No2 AWG 5Over2 AWAC GCC	180	46.89	0.33	0.11	1	237	223	1052
	#8 Cu Weld Duplex	93	35.39	0.42	0.12	1	157	157	339
	#8 Cu Weld Duplex	213	36.53	0.42	0.12	1	55	47	75

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1" Pin)	12		45.99	P110221	38	5.3	2.0	Known Local Wind Heavy 85 MPH Grade A at Replacement
Post	12kV Clamp Top-Al (1" Pin)	12		45.99	P110221	37	5.5	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1" Pin)	12		45.99	P110221	39	5.2	2.0	Known Local Wind Heavy 85 MPH Grade A at Replacement

Guis and Cables

†Length = Lead Length for Down Guys, Wire Length for Span Guys

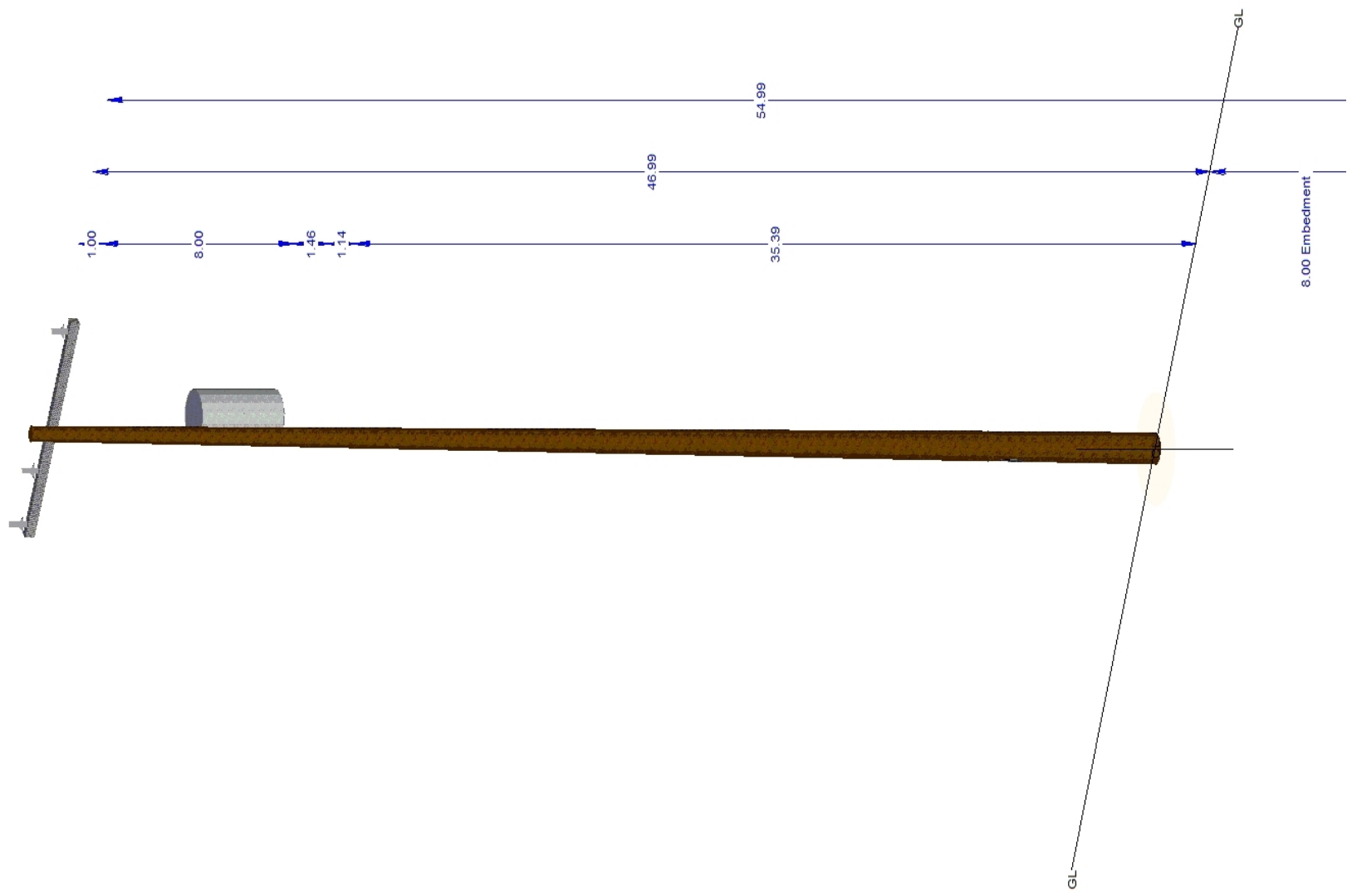
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	25 kVA Transformer	0	37.99	P110221				
X-Arm	10' TAN FG ARM (4TF)	272	45.99	P110221	1	166.7	1.3	G.O.95 Heavy Grade A at Replacement



0.04





Structure P110220
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]

Engineer NV5
 [REDACTED]

Usage Summary

Max Usage	36 %	Clearances OK?	Yes
Pole Usage	19 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	36 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage			
Anchor Usage			
Arm Usage	1 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type	Finite Element L4
Analysis Software	PLS-CADD
Software Version	16.01
PRG Version	2019.3.4
Structure File	P110220_AS-BUILT.pol
Project File	C221_SEC_F_TRUEUP.xy

Structure Details

Ahead Span	218 ft	Latitude	33.07769554°
Back Span	235 ft	Longitude	-116.59144695°
Ahead Span Az.	6°	Elevation	4179 ft
Line Angle	-129°	Tangent/DE	Tangent
Framing			
Notes			

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P110220	45	1	Corten Steel	41.2	6.5		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	21	19	5.3	1.0	0
P110220	45	1	Corten Steel	41.2	6.5		100	G.O.95 Heavy Grade A at Replacement	18	16	6.3	1.0	6.4

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	179	38.39	0.33	0.11	1	237	223	1052
12	No2 AWG 5Over2 AWAC GCC	179	38.39	0.33	0.11	1	237	223	1052
12	No2 AWG 5Over2 AWAC GCC	179	38.39	0.33	0.11	1	237	223	1052
12	No2 AWG 5Over2 AWAC GCC	358	38.39	0.33	0.11	1	218	223	1052
12	No2 AWG 5Over2 AWAC GCC	358	38.39	0.33	0.11	1	218	223	1052
12	No2 AWG 5Over2 AWAC GCC	358	38.39	0.33	0.11	1	218	223	1052
	1-0 AWG Triplex SSC AL Neritina GCC	48	26.38	0.97	0.41	1	47	46	114

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1" Pin)	12		37.49	P110220	36	5.6	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1" Pin)	12		37.49	P110220	35	5.7	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1" Pin)	12		37.49	P110220	35	5.7	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

+Length = Lead Length for Down Guys, Wire Length for Span Guys

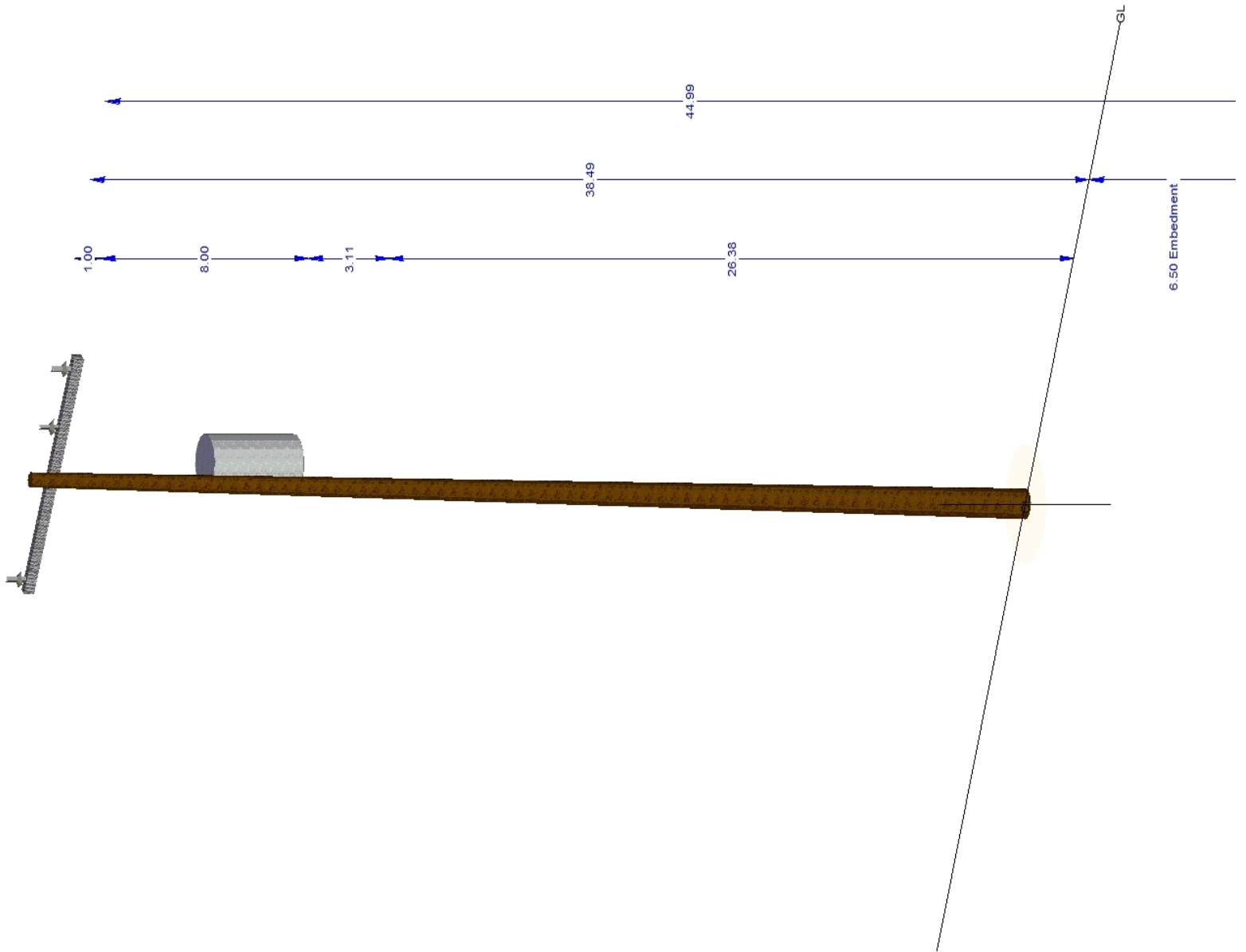
Type	Wire Type	Length+ (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	25 kVA Transformer		0	29.49	P110220				
X-Arm	10' TAN FG ARM (4TF)		272	37.49	P110220	1	266.7	1.3	G.O.95 Heavy Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	25 kVA Transformer	0	29.49	P110220				
X-Arm	10' TAN FG ARM (4TF)	272	37.49	P110220	1	266.7	1.3	G.O.95 Heavy Grade A at Replacement



0.97





Structure P110215
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage	40 %	Clearances OK?	No
Pole Usage	20 %	G.O.95 Heavy Grade A at Replacement	
Insulator Usage	32 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	40 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Anchor Usage	31 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Arm Usage	2 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P110215_AS-BUILT.pol
Project File C221_SEC_F_TRUEUP.xyz

Structure Details

Ahead Span 435 ft **Latitude** 33.07829231°
Back Span 218 ft **Longitude** -116.59140301°
Ahead Span Az. 92° **Elevation** 4159 ft
Line Angle -98° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P110215	55	1	Corten Steel	48.4	6.56		100	G.O.95 Heavy Grade A at Replacement	28	20	5.1	1.0	0
P110215	55	1	Corten Steel	48.4	6.56		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	25	18	5.6	1.0	39

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	92	39.44	0.33	0.11	1	218	223	1052
12	No2 AWG 5Over2 AWAC GCC	92	39.44	0.33	0.11	1	218	223	1052
12	No2 AWG 5Over2 AWAC GCC	92	39.44	0.33	0.11	1	218	223	1052
12	336Kcmil LINNET ACSR AW2 GCC	177	47.94	0.72	0.44	1	142	158	1796
12	336Kcmil LINNET ACSR AW2 GCC	177	46.94	0.72	0.44	1	142	158	1796
12	336Kcmil LINNET ACSR AW2 GCC	177	46.94	0.72	0.44	1	142	158	1796
12	No2 AWG 5Over2 AWAC GCC	273	39.44	0.33	0.11	1	294	293	1110
12	No2 AWG 5Over2 AWAC GCC	274	39.44	0.33	0.11	1	294	293	1110
12	336Kcmil LINNET ACSR AW2 GCC	356	47.94	0.72	0.44	1	434	435	1792
12	336Kcmil LINNET ACSR AW2 GCC	356	46.94	0.72	0.44	1	435	435	1792
12	336Kcmil LINNET ACSR AW2 GCC	356	46.94	0.72	0.44	1	436	435	1792
	1 In Firm Design Cable	177	24.47	1.13	0.40	1	142	142	1068
	1 In Firm Design Cable	274	24.06	1.13	0.40	1	295	295	1882
	1 In Firm Design Cable	356	24.47	1.13	0.40	1	435	435	1828

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	92	39.44	P110215	19	10.8	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	92	39.44	P110215	17	11.9	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	92	39.44	P110215	16	12.2	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	177	47.94	P110215	32	6.2	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	177	46.94	P110215	31	6.5	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	177	46.94	P110215	29	6.9	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	273	39.44	P110215	19	10.5	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	274	39.44	P110215	20	9.9	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	356	47.94	P110215	27	7.4	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	356	46.94	P110215	30	6.6	2.0	G.O.95 Heavy Grade A at Replacement

*Max Usage Location Measured From Groundline **Direction in degrees: 0 Degrees = Structure Longitudinal Axis towards Ahead Span CW+ ***Attach Height Measured From Groundline, GSI from Top of Guy

Strain	12kV Long DE	12	356	46.94	P110215	30	6.6	2.0	G.O.95 Heavy Grade A at Replacement
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Guys and Cables

+Length = Lead Length for Down Guys, Wire Length for Span Guys

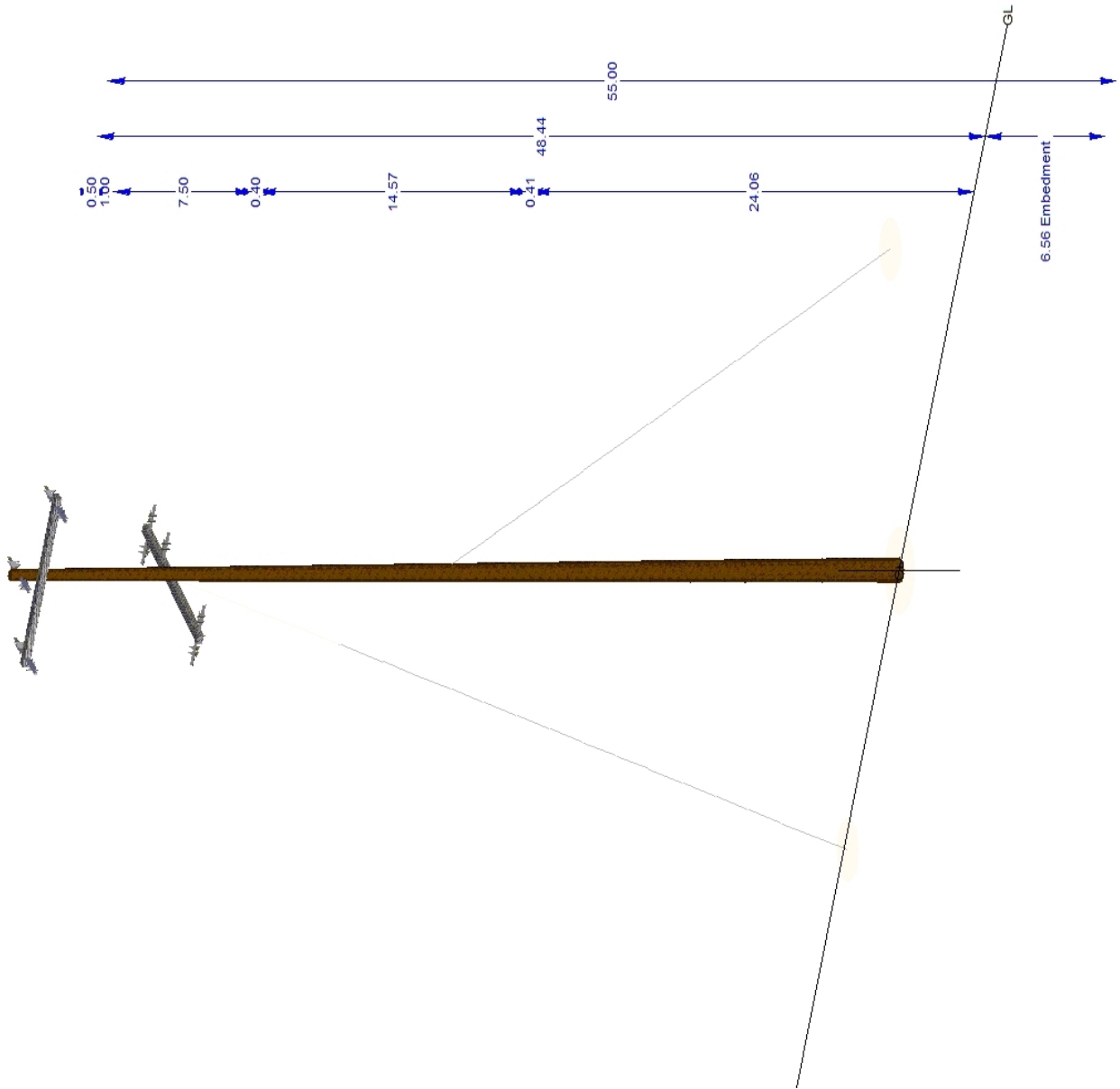
Type	Wire Type	Length ⁺ (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	15.79	269	39.04	P110215	24	5.5	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	20" CROSSPLATE MG				P110215	19	6.9	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	18.17	87	24.47	P110215	40	3.4	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	16" CROSSPLATE MG				P110215	31	4.4	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10' DE FG ARM (4DF)	90	46.94	P110215	1	266.7	1.3	G.O.95 Heavy Grade A at Replacement
X-Arm	10' DE FG ARM (4DF)	185	39.44	P110215	2	83.3	1.3	G.O.95 Heavy Grade A at Replacement



0.35





Structure P102881
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]

Engineer NV5
 [REDACTED]

Usage Summary

Max Usage 100 % **Clearances OK?** Yes
Pole Usage 100 % G.O.95 Heavy Grade A at Replacement
Insulator Usage 47 % G.O.95 Heavy Grade A at Replacement
Guy Usage
Anchor Usage
Arm Usage 6 % G.O.95 Heavy Grade A at Replacement

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L3
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P102881_EXISTING.pol
Project File C221_SEC_F_TRUEUP.xyz

Structure Details

Ahead Span 295 ft **Latitude** 33.07910006°
Back Span 295 ft **Longitude** -116.59130674°
Ahead Span Az. 5° **Elevation** 4146 ft
Line Angle -2° **Tangent/DE** Tangent
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P102881	45	3	DF - Douglas Fir	37.3	6.9	12/7/2019	80	G.O.95 Heavy Grade A at Replacement	32	100	2.6	2.6	0
P102881	45	3	DF - Douglas Fir	37.3	6.9	12/7/2019	80	Known Local Wind Heavy 85 MPH Grade A at Replacement	39	61	2.2	1.3	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	-1	38	0.33	0.11	1	293	293	1110
12	No2 AWG 5Over2 AWAC GCC	-1	38	0.33	0.11	1	292	293	1110
12	No2 AWG 5Over2 AWAC GCC	180	38	0.33	0.11	1	294	293	1110
12	No2 AWG 5Over2 AWAC GCC	181	38	0.33	0.11	1	294	293	1110
	1 In Firm Design Cable	-1	27.53	1.13	0.40	1	296	296	1973
	1 In Firm Design Cable	181	27.53	1.13	0.40	1	295	295	1882

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1" Pin)	12		37.09	P102881	47	4.3	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1" Pin)	12		37.09	P102881	43	4.7	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

†Length = Lead Length for Down Guys, Wire Length for Span Guys

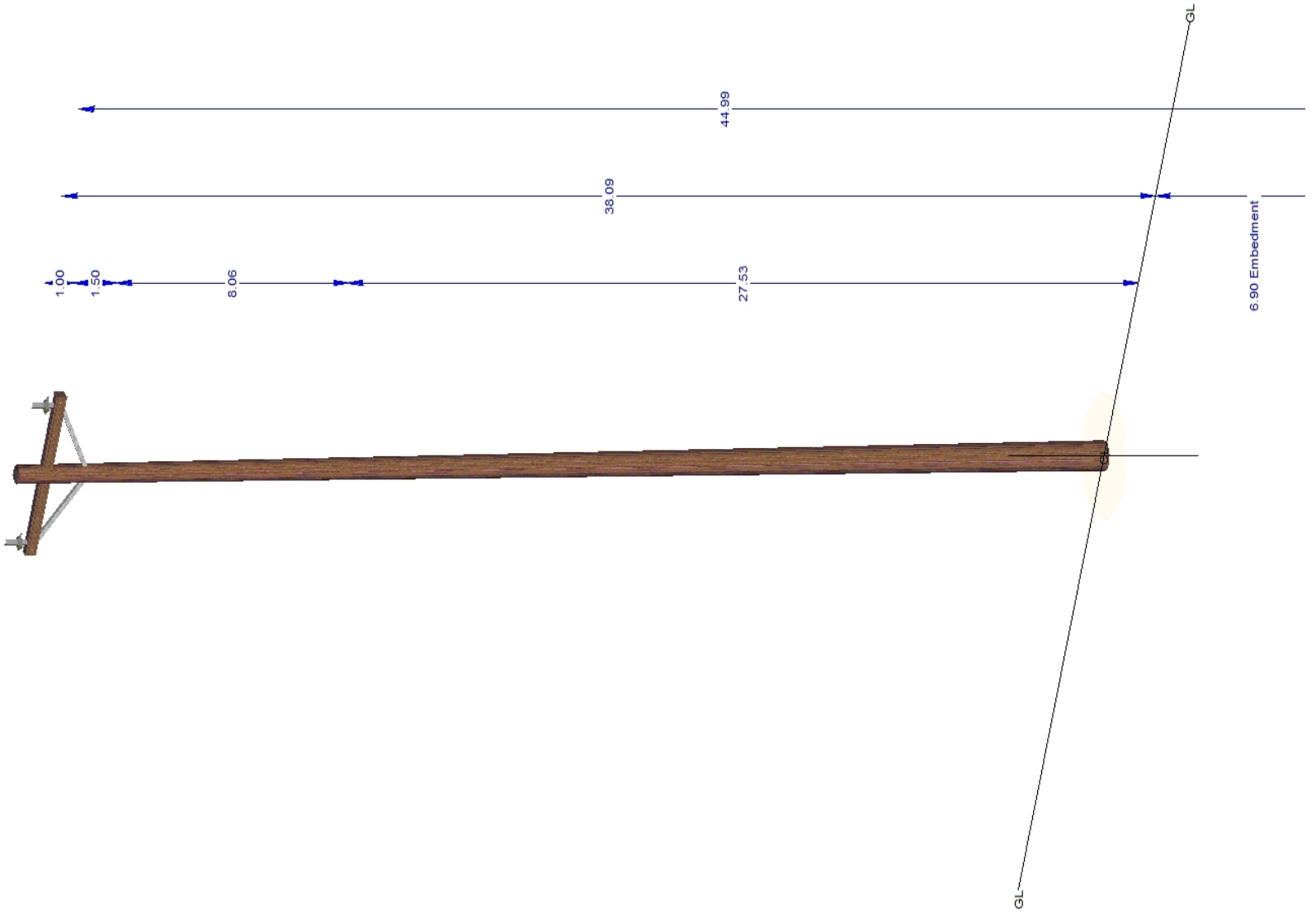
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	6' WOOD ARM (2)	90	37.09	P102881	6	24.2	1.3	G.O.95 Heavy Grade A at Replacement



0.27





Structure P110707
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [Redacted]
Engineer NV5
 [Redacted]

Usage Summary

Max Usage	34 %	Clearances OK?	No
Pole Usage	34 %	G.O.95 Heavy Grade A at Replacement	
Insulator Usage	21 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	29 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	22 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage	2 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P110707_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 337 ft **Latitude** 33.07734826°
Back Span 297 ft **Longitude** -116.58830180°
Ahead Span Az. 273° **Elevation** 4202 ft
Line Angle -141° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P110707	50	1	Corten Steel	43.5	7.3		100	G.O.95 Heavy Grade A at Replacement	13	34	3.0	1.0	33.5
P110707	50	1	Corten Steel	43.5	7.3		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	9	23	4.3	1.0	33.5

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	54	42.19	0.33	0.11	1	230	227	994
12	No2 AWG 5Over2 AWAC GCC	55	40.28	0.33	0.11	1	227	227	994
12	No2 AWG 5Over2 AWAC GCC	55	40.28	0.33	0.11	1	231	227	994
12	No2 AWG 5Over2 AWAC GCC	180	33.53	0.33	0.11	1	337	324	1322
12	No2 AWG 5Over2 AWAC GCC	181	33.53	0.33	0.11	1	338	324	1322
12	No2 AWG 5Over2 AWAC GCC	275	42.19	0.33	0.11	1	296	296	973
12	No2 AWG 5Over2 AWAC GCC	275	40.28	0.33	0.11	1	297	296	973
12	No2 AWG 5Over2 AWAC GCC	275	40.28	0.33	0.11	1	297	296	973
	1 In Firm Design Cable	55	28.33	1.13	0.40	1	229	229	903
	1 In Firm Design Cable	93	28.13	1.13	0.40	1	78	77	730
	1 In Firm Design Cable	180	27.16	1.13	0.40	1	337	336	1683
	1 In Firm Design Cable	275	27.16	1.13	0.40	1	296	296	1878

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	54	42.19	P110707	17	11.9	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	55	40.28	P110707	14	14.3	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	55	40.28	P110707	15	13.0	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	180	33.53	P110707	21	9.6	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	181	33.53	P110707	21	9.4	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	275	42.19	P110707	16	12.3	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	275	40.28	P110707	16	12.2	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	275	40.28	P110707	17	12.0	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

+Length = Lead Length for Down Guys, Wire Length for Span Guys

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	13.8	164	40.69	P110707	23	5.9	1.3	G.O.95 Heavy Grade A at Replacement

Anchor	20" CROSSPLATE MG				P110707	18	7.4	1.3	G.O.95 Heavy Grade A at Replacement
Down	7/16" 7 Strand EHS (7/16G)	14.88	-2	32.94	P110707	17	7.9	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	20" CROSSPLATE MG				P110707	14	9.9	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	18.02	3	28.33	P110707	29	4.6	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	16" CROSSPLATE MG				P110707	22	5.9	1.3	G.O.95 Heavy Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	11.19	100	27.16	P110707	27	4.9	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	16" CROSSPLATE MG				P110707	21	6.4	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10' DE FG ARM (4DF)	350	40.28	P110707	1	102.6	1.3	G.O.95 Heavy Grade A at Replacement
X-Arm	10' DE FG ARM (4DF)	270	33.53	P110707	2	63.5	1.3	G.O.95 Heavy Grade A at Replacement





Structure P210482
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]

Engineer NV5
 [REDACTED]

Usage Summary

Max Usage 38 % **Clearances OK?** Yes
Pole Usage 38 % Known Local Wind Heavy 85 MPH Grade A at Replacement
Insulator Usage 27 % G.O.95 Heavy Grade A at Replacement
Guy Usage
Anchor Usage
Arm Usage G.O.95 Heavy Grade A at Replacement

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L3
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P210482_AS-BUILT.pol
Project File C221_SEC_F_TRUEUP.xyz

Structure Details

Ahead Span 353 ft **Latitude** 33.07729428°
Back Span 337 ft **Longitude** -116.58720272°
Ahead Span Az. 0° **Elevation** 4165 ft
Line Angle 0° **Tangent/DE** Tangent
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P210482	50	1	Corten Steel	43.7	7		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	48	38	2.6	1.0	0
P210482	50	1	Corten Steel	43.7	7		100	G.O.95 Heavy Grade A at Replacement	37	29	3.4	1.0	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	93	42.97	0.33	0.11	1	352	324	1322
12	No2 AWG 5Over2 AWAC GCC	94	42.97	0.33	0.11	1	353	324	1322
12	No2 AWG 5Over2 AWAC GCC	273	42.97	0.33	0.11	1	337	324	1322
12	No2 AWG 5Over2 AWAC GCC	274	42.97	0.33	0.11	1	338	324	1322
	1 In Firm Design Cable	93	33.85	1.13	0.40	1	352	352	1175
	1 In Firm Design Cable	273	33.85	1.13	0.40	1	337	336	1683

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1-3/8" Pin)	12		42	P210482	26	7.7	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1-3/8" Pin)	12		42	P210482	27	7.4	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

†Length = Lead Length for Down Guys, Wire Length for Span Guys

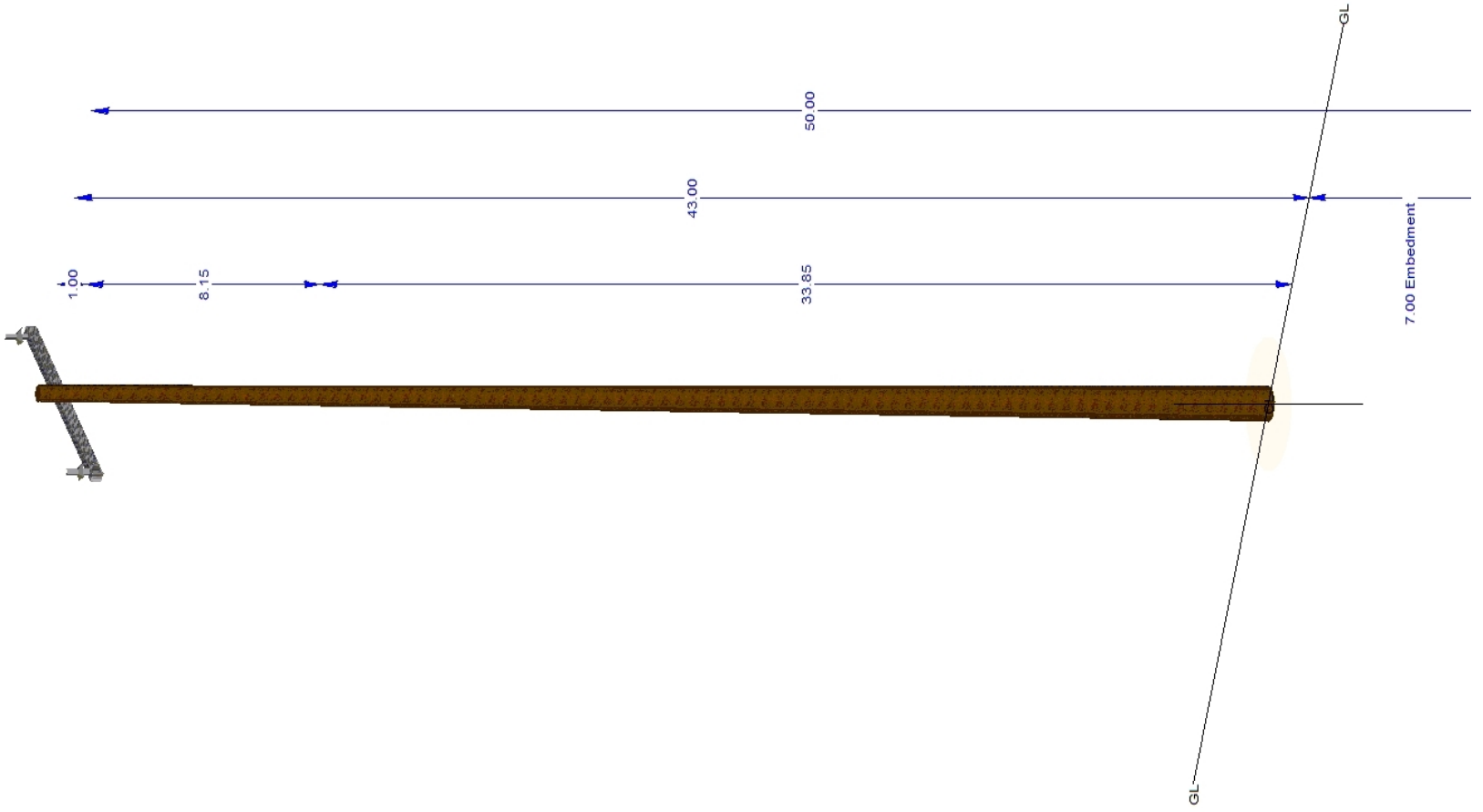
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	8" TAN FG ARM (8FT)	187	42	P210482		444.4	1.3	G.O.95 Heavy Grade A at Replacement



0.46





Structure P210483
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]

Engineer NV5
 [REDACTED]

Usage Summary

Max Usage 28 % **Clearances OK?** Yes
Pole Usage 28 % Known Local Wind Heavy 85 MPH Grade A at Replacement
Insulator Usage 18 % G.O.95 Heavy Grade A at Replacement
Guy Usage
Anchor Usage
Arm Usage G.O.95 Heavy Grade A at Replacement

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L3
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P210483_AS-BUILT.pol
Project File C221_SEC_F_TRUEUP.xyz

Structure Details

Ahead Span 97 ft **Latitude** 33.07723997°
Back Span 353 ft **Longitude** -116.58605233°
Ahead Span Az. 0° **Elevation** 4186 ft
Line Angle 0° **Tangent/DE** Tangent
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P210483	45	1	Corten Steel	41.4	6.25		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	32	28	3.6	1.0	0
P210483	45	1	Corten Steel	41.4	6.25		100	G.O.95 Heavy Grade A at Replacement	25	22	4.5	1.0	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	93	38.71	0.33	0.11	1	98	324	1322
12	No2 AWG 5Over2 AWAC GCC	93	38.71	0.33	0.11	1	98	324	1322
12	No2 AWG 5Over2 AWAC GCC	273	38.71	0.33	0.11	1	352	324	1322
12	No2 AWG 5Over2 AWAC GCC	274	38.71	0.33	0.11	1	353	324	1322
	1 In Firm Design Cable	93	23.94	1.13	0.40	1	98	98	803
	1 In Firm Design Cable	273	23.94	1.13	0.40	1	352	352	1175

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1-3/8" Pin)	12		37.74	P210483	17	11.6	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1-3/8" Pin)	12		37.74	P210483	18	11.1	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

†Length = Lead Length for Down Guys, Wire Length for Span Guys

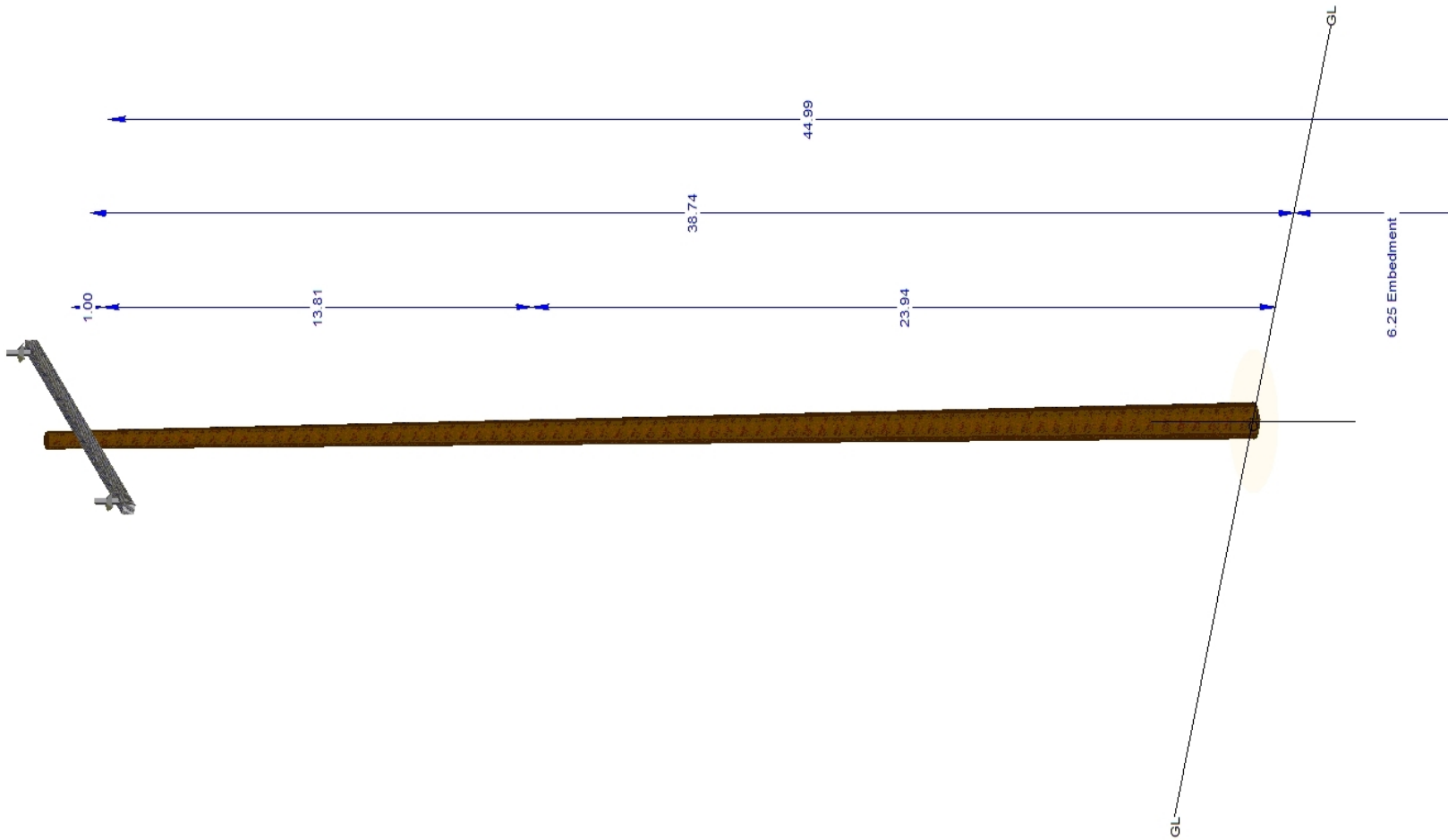
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10' TAN FG ARM (4TF)	0	37.74	P210483		666.7	1.3	G.O.95 Heavy Grade A at Replacement



0.63





Structure P210484
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage	38 %	Clearances OK?	No
Pole Usage	16 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	22 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	38 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	31 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage	2 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P210484_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xy

Structure Details

Ahead Span 81 ft **Latitude** 33.07722522°
Back Span 97 ft **Longitude** -116.58573535°
Ahead Span Az. 264° **Elevation** 4198 ft
Line Angle 179° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P210484	45	1	Corten Steel	41.1	6.65		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	17	16	6.2	1.0	0
P210484	45	1	Corten Steel	41.1	6.65		100	G.O.95 Heavy Grade A at Replacement	8	14	7.4	1.0	27.4

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	9	37.34	0.33	0.11	1	98	324	1322
12	No2 AWG 5Over2 AWAC GCC	9	37.34	0.33	0.11	1	98	324	1322
	1 In Firm Design Cable	9	18.54	1.13	0.40	1	98	98	803
	1-0 AWG Triplex SSC AL Neritina GCC	82	27.84	0.97	0.41	1	80	77	255
	1-0 AWG Triplex SSC AL Neritina GCC	181	27.41	0.97	0.41	1	100	99	463
	1 In Firm Design Cable	215	18.54	1.13	0.40	1	79	79	506
	1-0 AWG Triplex SSC AL Neritina GCC	216	27.2	0.97	0.41	1	81	81	254

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	9	37.34	P210484	22	9.0	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	9	37.34	P210484	22	9.0	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

*Length = Lead Length for Down Guys, Wire Length for Span Guys

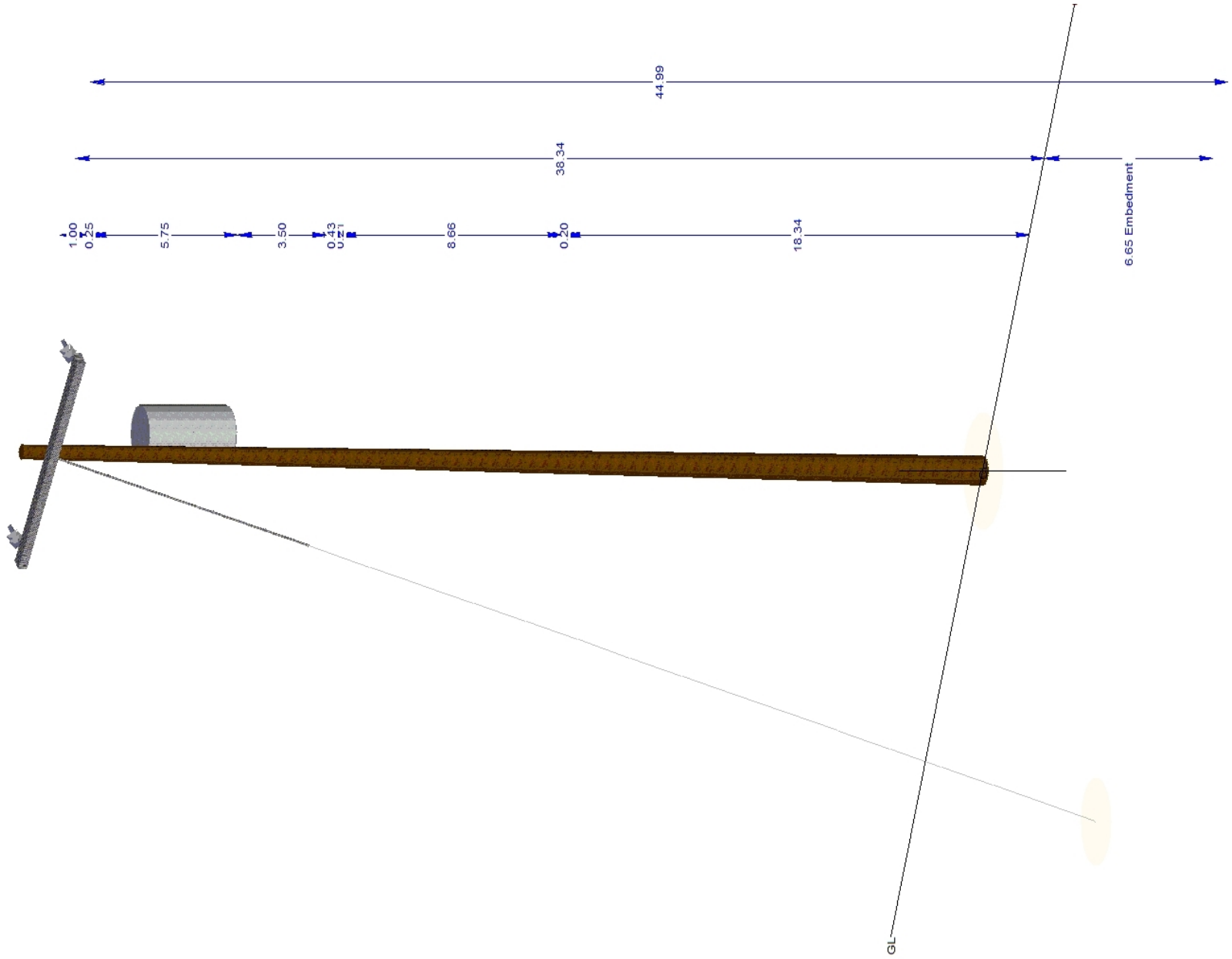
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	20.11	192	37.09	P210484	38	3.5	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	20" CROSSPLATE MG				P210484	31	4.3	1.3	G.O.95 Heavy Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	25 kVA Transformer	0	31.34	P210484				
X-Arm	10' DE FG ARM (4DF)	100	37.34	P210484	2	60.6	1.3	G.O.95 Heavy Grade A at Replacement



1.00





Structure P246355
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage 9 % **Clearances OK?** Yes
Pole Usage 9 % Known Local Wind Heavy 85 MPH Grade A at Replacement
Insulator Usage
Guy Usage 5 % G.O.95 Heavy Grade A at Replacement
Anchor Usage 5 % G.O.95 Heavy Grade A at Replacement
Arm Usage

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P246355_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span **Latitude** 33.07481421°
Back Span 36 ft **Longitude** -116.58744563°
Ahead Span Az. 0° **Elevation** 4207 ft
Line Angle 0° **Tangent/DE** Terminal Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P246355	40	1	Corten Steel	38.9	6		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	9	9	10.9	1.0	0
P246355	40	1	Corten Steel	38.9	6		100	G.O.95 Heavy Grade A at Replacement	4	4	25.6	1.0	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
1 In Firm Design Cable		178	22.51	1.13	0.40	1	36	36	97

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Guys and Cables

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	7.57	-2	32.91	P246355	5	29.3	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	16" CROSSPLATE MG				P246355	5	28.7	1.3	G.O.95 Heavy Grade A at Replacement
Span	3 8-7 Strand Ehs Steel Sdge	36	177	32.91	P246355	1			G.O.95 Heavy Grade A at Replacement

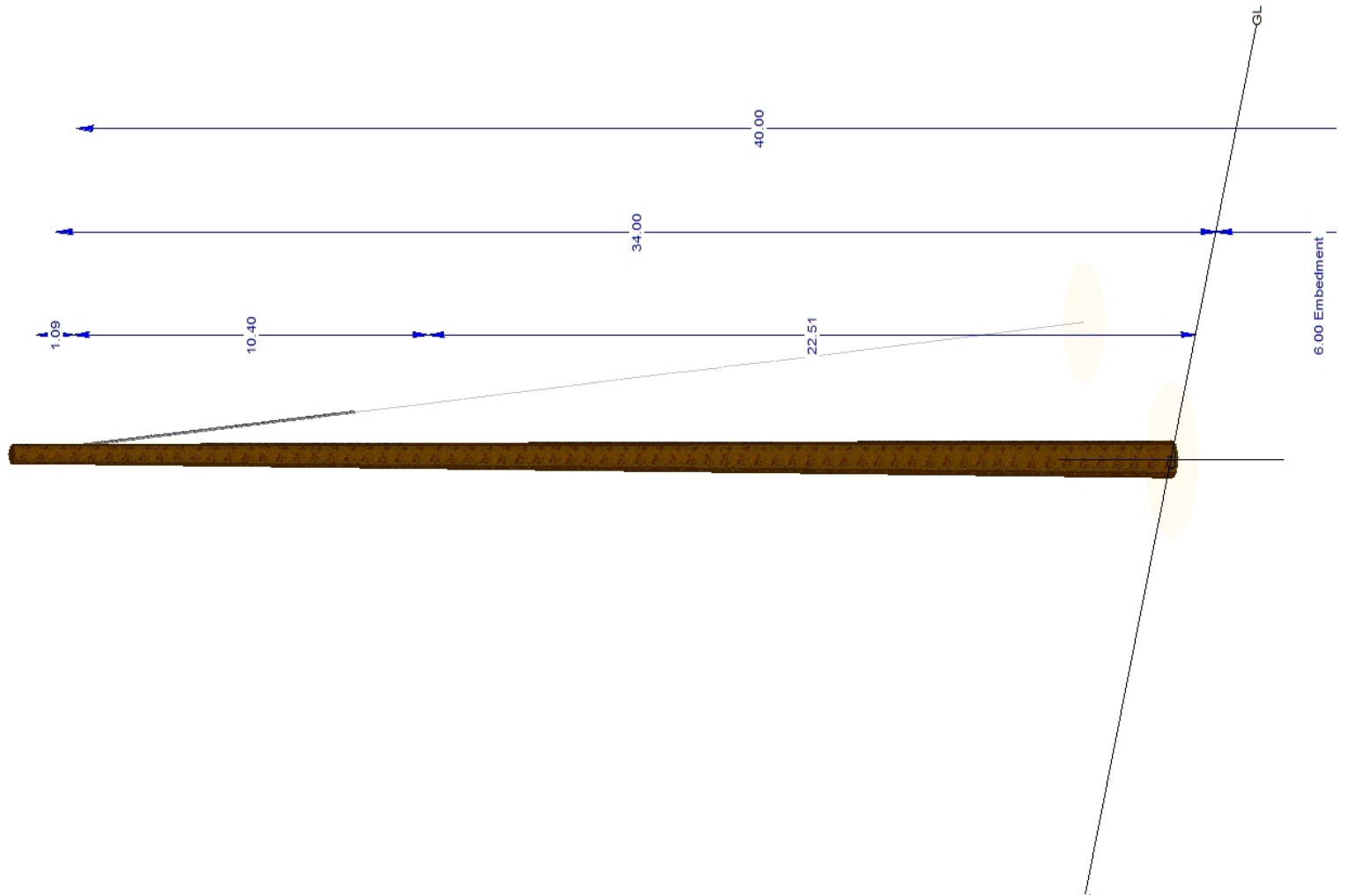
†Length = Lead Length for Down Guys, Wire Length for Span Guys

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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0.13





Structure P110714J
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]

Engineer NV5
 [REDACTED]

Usage Summary

Max Usage	44 %	Clearances OK?	No
Pole Usage	23 %	G.O.95 Heavy Grade A at Replacement	
Insulator Usage	18 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	21 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Anchor Usage	44 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Arm Usage	2 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type	Finite Element L4
Analysis Software	PLS-CADD
Software Version	16.01
PRG Version	2019.3.4
Structure File	P110714J_AS-BUILT.pol
Project File	C221_SEC_F_TRUEUP.xyz

Structure Details

Ahead Span	289 ft	Latitude	33.07471591°
Back Span	328 ft	Longitude	-116.58744108°
Ahead Span Az.	18°	Elevation	4213 ft
Line Angle	-169°	Tangent/DE	Dead End
Framing			
Notes			

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P110714J	50	1	Corten Steel	43.6	7.1		100	G.O.95 Heavy Grade A at Replacement	15	23	4.4	1.0	21.9
P110714J	50	1	Corten Steel	43.6	7.1		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	12	19	5.3	1.0	21.9

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	81	41.89	0.33	0.11	1	327	328	976
12	No2 AWG 5Over2 AWAC GCC	81	41.89	0.33	0.11	1	328	328	976
12	No2 AWG 5Over2 AWAC GCC	81	41.89	0.33	0.11	1	328	328	976
12	No2 AWG 5Over2 AWAC GCC	152	35.64	0.33	0.11	1	288	289	883
12	No2 AWG 5Over2 AWAC GCC	152	35.64	0.33	0.11	1	291	289	883
12	No2 AWG 5Over2 AWAC GCC	277	41.89	0.33	0.11	1	198	212	1180
12	No2 AWG 5Over2 AWAC GCC	278	41.89	0.33	0.11	1	203	212	1180
12	No2 AWG 5Over2 AWAC GCC	278	41.89	0.33	0.11	1	201	212	1180
	1 In Firm Design Cable	39	22.11	1.13	0.40	1	177	176	1657
	1 In Firm Design Cable	39	21.91	1.13	0.40	1	172	171	973
	1 In Firm Design Cable	39	20.09	1.13	0.40	1	173	173	690
	1 In Firm Design Cable	163	22.76	1.13	0.40	1	164	163	1029
	1 In Firm Design Cable	277	21.91	1.13	0.40	1	201	201	1637
	1 In Firm Design Cable	277	20.09	1.13	0.40	1	201	201	1211
	1 In Firm Design Cable	340	22.11	1.13	0.40	1	36	36	97

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	81	41.89	P110714J	17	11.6	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	81	41.89	P110714J	17	11.7	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	81	41.89	P110714J	17	11.9	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	152	35.64	P110714J	15	13.7	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	152	35.64	P110714J	16	12.7	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	277	41.89	P110714J	18	11.4	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	278	41.89	P110714J	18	11.2	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	278	41.89	P110714J	18	11.3	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

+Length = Lead Length for Down Guys, Wire Length for Span Guys

*Max Usage Location Measured From Groundline **Direction in degrees: 0 Degrees = Structure Longitudinal Axis towards Ahead Span CW+ ***Attach Height Measured From Groundline, GSI from Top of Guy

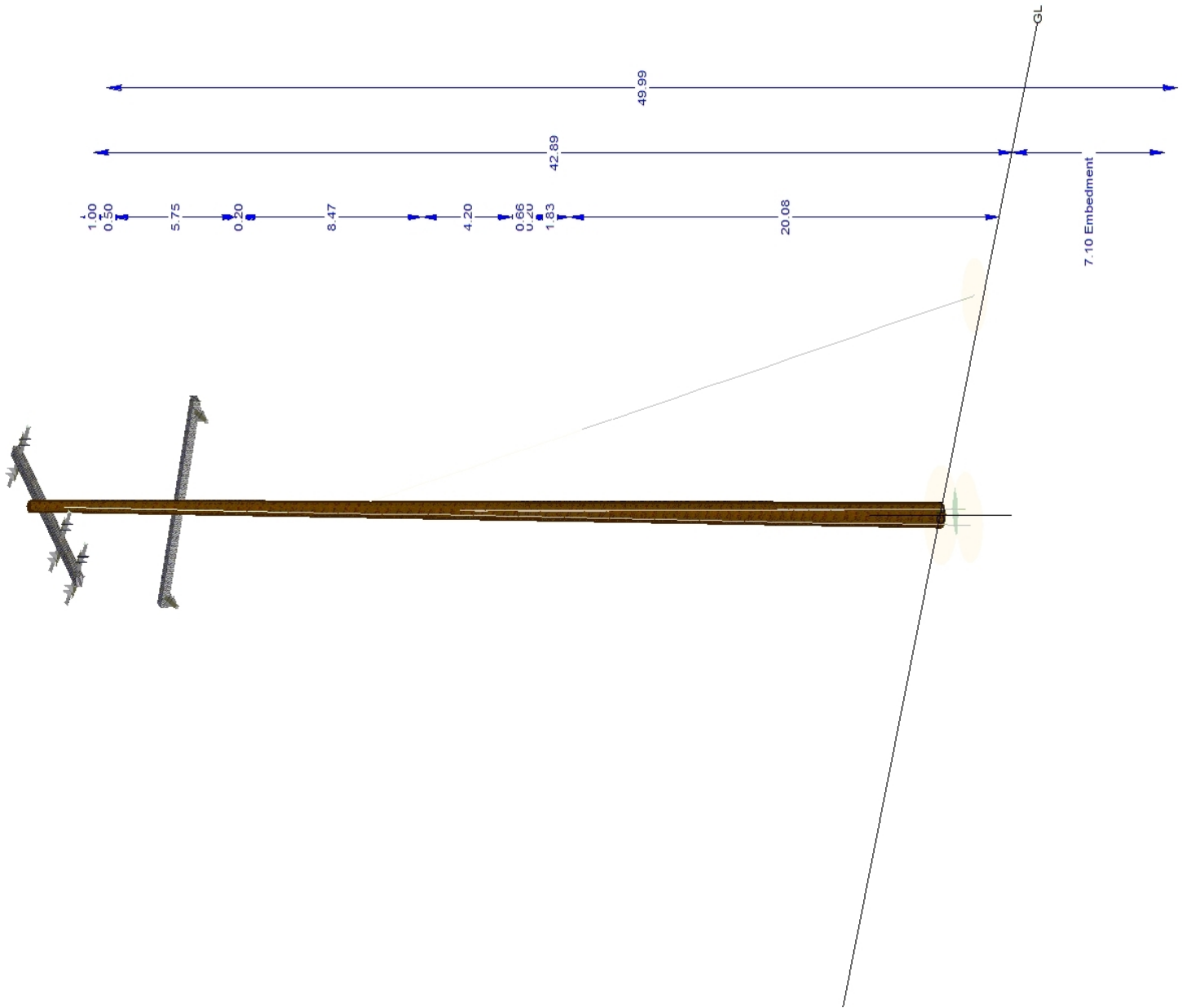
Type	Wire Type	Length+ (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	8.5	155	41.39	P110714J	18	7.6	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	16" CROSSPLATE MG				P110714J	18	7.4	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Down	7/16" 7 Strand EHS (7/16G)	10.34	89	26.97	P110714J	1	102.6	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	20" CROSSPLATE MG				P110714J	1	136.1	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	5.6	149	22.11	P110714J	19	7.2	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	5.6	149	22.76	P110714J	18	7.5	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	5.6	149	20.09	P110714J	21	6.5	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	16" CROSSPLATE MG				P110714J	44	3.0	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Span	3 8-7 Strand Ehs Steel Sdge	36	339	35.44	P110714J, P246355	1			G.O.95 Heavy Grade A at Replacement
Span	3 8-7 Strand Ehs Steel Sdge	201	277	26.97	P110714J, P110713	10			G.O.95 Heavy Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10' DE FG ARM (4DF)	185	41.89	P110714J	1	95.2	1.3	G.O.95 Heavy Grade A at Replacement
X-Arm	10' DE FG ARM (4DF)	265	35.64	P110714J	2	88.9	1.3	G.O.95 Heavy Grade A at Replacement



0.76





Structure P110715
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5
 [REDACTED]

Usage Summary

Max Usage	30 %	Clearances OK?	No
Pole Usage	29 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	16 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	29 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	30 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage	18 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P110715_EXISTING.pol
Project File C221_SEC_F_TRUEUP.xyz

Structure Details

Ahead Span 87 ft **Latitude** 33.07393479°
Back Span 289 ft **Longitude** -116.58726842°
Ahead Span Az. 340° **Elevation** 4238 ft
Line Angle -180° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

<i>Pole Label</i>	<i>Height (ft)</i>	<i>Class</i>	<i>Material</i>	<i>Groundline Circum. (in)</i>	<i>Embed. (ft)</i>	<i>Date Intrusive</i>	<i>Material Capacity %</i>	<i>Load Case</i>	<i>Max Moment (ft-k)</i>	<i>Usage %</i>	<i>Calc SF</i>	<i>Req SF</i>	<i>Max Usage Point (ft)*</i>
P110715	40	3	Corten Steel	36.5	6.1		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	18	29	3.4	1.0	0
P110715	40	3	Corten Steel	36.5	6.1		100	G.O.95 Heavy Grade A at Replacement	14	27	3.6	1.0	19.3

Wires

<i>Voltage (kV)</i>	<i>Wire Type</i>	<i>Direction (deg)**</i>	<i>Attach Height*** (ft)</i>	<i>Diameter (in)</i>	<i>Unit Weight (lbs/ft)</i>	<i># of Wires</i>	<i>Span Length (ft)</i>	<i>Ruling Span (ft)</i>	<i>Tension (lbs)</i>
12	No2 AWG 5Over2 AWAC GCC	10	32.9	0.33	0.11	1	288	289	883
12	No2 AWG 5Over2 AWAC GCC	10	32.9	0.33	0.11	1	291	289	883
	1-0 AWG Triplex SSC AL Neritina GCC	168	26	0.97	0.41	1	87	87	421
	1 In Firm Design Cable	168	19.26	1.13	0.40	1	84	84	514
	1-0 AWG Triplex SSC AL Neritina GCC	348	26.2	0.97	0.41	1	133	132	395
	1 In Firm Design Cable	355	19.26	1.13	0.40	1	130	130	390

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

<i>Type</i>	<i>Description</i>	<i>Voltage (kV)</i>	<i>Direction (deg)</i>	<i>Attach Height (ft)</i>	<i>Origin Pole</i>	<i>Usage %</i>	<i>Calc SF</i>	<i>Req SF</i>	<i>Load Case</i>
Strain	12kV Long DE	12	10	32.9	P110715	15	13.5	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	10	32.9	P110715	16	12.5	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

<i>Type</i>	<i>Wire Type</i>	<i>Length† (ft)</i>	<i>Direction (deg)</i>	<i>Attach Height (ft)</i>	<i>Origin Pole</i>	<i>Usage %</i>	<i>Calc SF</i>	<i>Req SF</i>	<i>Load Case</i>
Down	7/16" 7 Strand EHS (7/16G)	15.78	195	32.4	P110715	29	4.6	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	16" CROSSPLATE MG				P110715	30	4.4	1.3	G.O.95 Heavy Grade A at Replacement

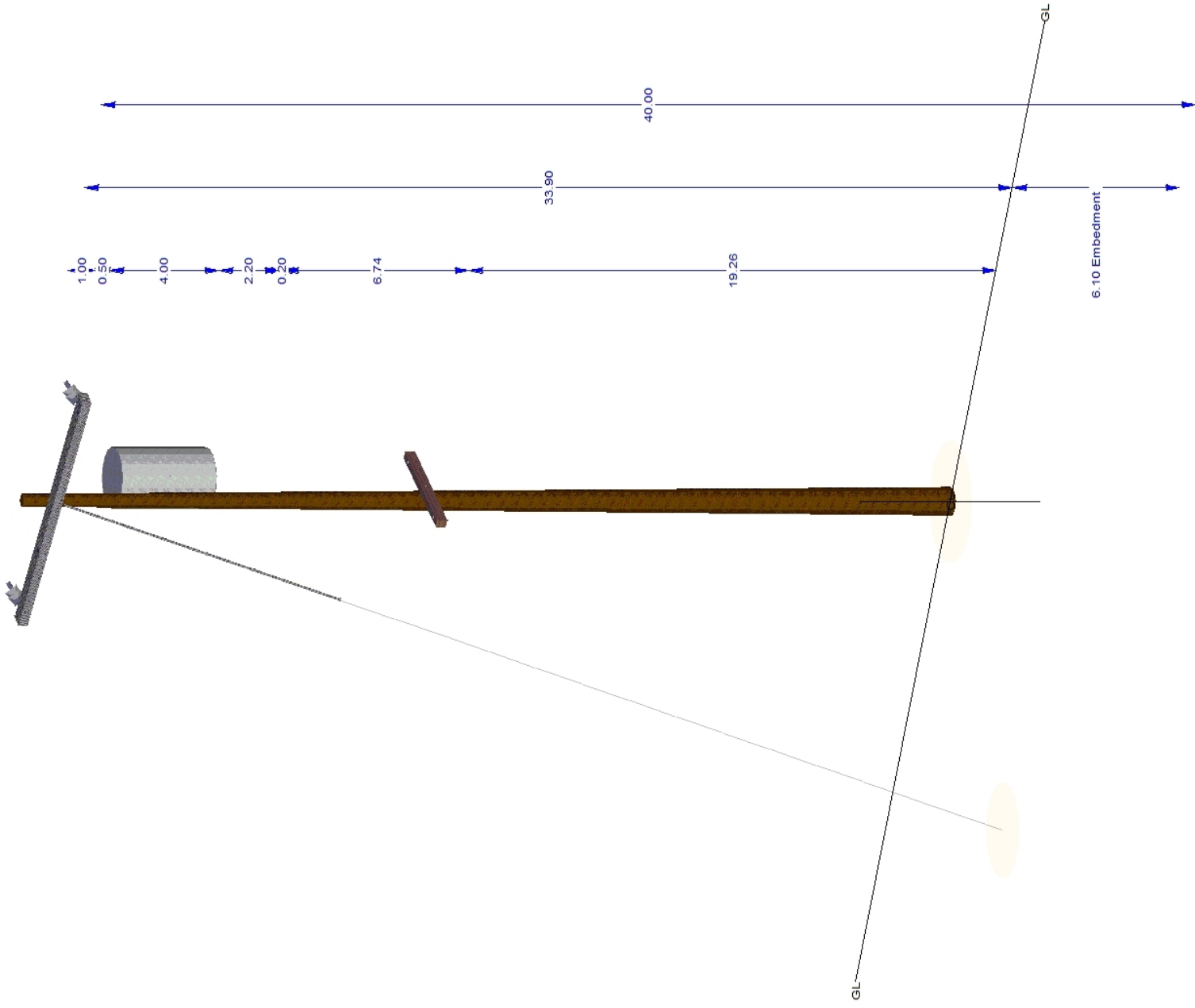
†Length = Lead Length for Down Guys, Wire Length for Span Guys

Crossarms and Equipment

<i>Type</i>	<i>Description</i>	<i>Direction (deg)</i>	<i>Attach Height (ft)</i>	<i>Origin Pole</i>	<i>Usage %</i>	<i>Calc SF</i>	<i>Req SF</i>	<i>Load Case</i>
Equipment	25 kVA Transformer	0	28.4	P110715				
X-Arm	10' DE FG ARM (4DF)	100	32.9	P110715	2	83.3	1.3	G.O.95 Heavy Grade A at Replacement
X-Arm	4' WOOD ARM	6	19.26	P110715	18	7.6	1.3	G.O.95 Heavy Grade A at Replacement



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Structure P110711J
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage	49 %	Clearances OK?	No
Pole Usage	25 %	G.O.95 Heavy Grade A at Replacement	
Insulator Usage	49 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	30 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	24 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Arm Usage	2 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P110711J_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 219 ft **Latitude** 33.07550140°
Back Span 213 ft **Longitude** -116.58826782°
Ahead Span Az. 3° **Elevation** 4220 ft
Line Angle 22° **Tangent/DE** Tangent
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P110711J	55	1	Corten Steel	47.8	7.62		100	G.O.95 Heavy Grade A at Replacement	11	25	4.1	1.0	42.4
P110711J	55	1	Corten Steel	47.8	7.62		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	9	19	5.2	1.0	42.4

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	11	47.35	0.33	0.11	1	219	212	1180
12	No2 AWG 5Over2 AWAC GCC	11	47.35	0.33	0.11	1	219	212	1180
12	No2 AWG 5Over2 AWAC GCC	11	47.35	0.33	0.11	1	219	212	1180
12	No2 AWG 5Over2 AWAC GCC	169	47.35	0.33	0.11	1	216	212	1180
12	No2 AWG 5Over2 AWAC GCC	169	47.35	0.33	0.11	1	215	212	1180
12	No2 AWG 5Over2 AWAC GCC	169	47.35	0.33	0.11	1	212	212	1180
	1-0 AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	11	36	0.98	0.48	1	219	219	1082
	1 In Firm Design Cable	11	25.4	1.13	0.40	1	219	219	1669
	1 In Firm Design Cable	11	24.35	1.13	0.40	1	219	219	1311
	No2 AWG Triplex SSC AL Conch GCC	98	35.76	0.77	0.26	1	117	116	341
	1-0 AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	169	36	0.98	0.48	1	213	213	1338
	1 In Firm Design Cable	169	25.4	1.13	0.40	1	213	213	1565
	1 In Firm Design Cable	169	24.35	1.13	0.40	1	213	213	1137
	No2 AWG Triplex SSC AL Conch GCC	263	35.38	0.77	0.26	1	103	100	412

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12KV ANGLE PIN	12		46.38	P110711J	49	4.1	2.0	G.O.95 Heavy Grade A at Replacement
Post	12KV ANGLE PIN	12		46.38	P110711J	49	4.1	2.0	G.O.95 Heavy Grade A at Replacement
Post	12KV ANGLE PIN	12		46.38	P110711J	47	4.3	2.0	G.O.95 Heavy Grade A at Replacement

Guy and Cables

+Length = Lead Length for Down Guys, Wire Length for Span Guys

Type	Wire Type	Length+ (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	20.66	-86	42.38	P110711J	30	4.5	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	24" CROSSPLATE MG				P110711J	19	6.9	1.3	G.O.95 Heavy Grade A at Replacement
Down	7/16" 7 Strand EHS (7/16G)	17.11	-86	38.18	P110711J	22	6.0	1.3	G.O.95 Heavy Grade A at Replacement

Anchor	24" CROSSPLATE MG				P110711J	14	9.3	1.3	G.O.95 Heavy Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	14.64	-86	25.4	P110711J	16	8.4	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	14.64	-86	24.35	P110711J	16	8.4	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	16" CROSSPLATE MG				P110711J	24	5.5	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	25 kVA Transformer	0	38.38	P110711J				
X-Arm	10' TAN FG ARM (4TF)	272	46.38	P110711J	2	70.2	1.3	G.O.95 Heavy Grade A at Replacement





Structure P117928
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage 34 % **Clearances OK?** Yes
Pole Usage 34 % G.O.95 Heavy Grade A at Replacement
Insulator Usage
Guy Usage
Anchor Usage
Arm Usage

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L3
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P117928_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 39 ft **Latitude** 33.07676138°
Back Span 136 ft **Longitude** -116.58913943°
Ahead Span Az. 0° **Elevation** 4208 ft
Line Angle 97° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P117928	35	5	DF - Douglas Fir	29.0	5.5	12/11/2019	80	G.O.95 Heavy Grade A at Replacement	5	34	7.7	2.6	0
P117928	35	5	DF - Douglas Fir	29.0	5.5	12/11/2019	80	Known Local Wind Heavy 85 MPH Grade A at Replacement	8	26	5.1	1.3	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
	1-0 AWG Triplex SSC AL Neritina GCC	6	28.93	0.97	0.41	1	136	136	439
	1-0 AWG Triplex SSC AL Neritina GCC	89	28.73	0.97	0.41	1	82	81	205
	1-0 AWG Triplex SSC AL Neritina GCC	217	28.93	0.97	0.41	1	39	35	447

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Guys and Cables

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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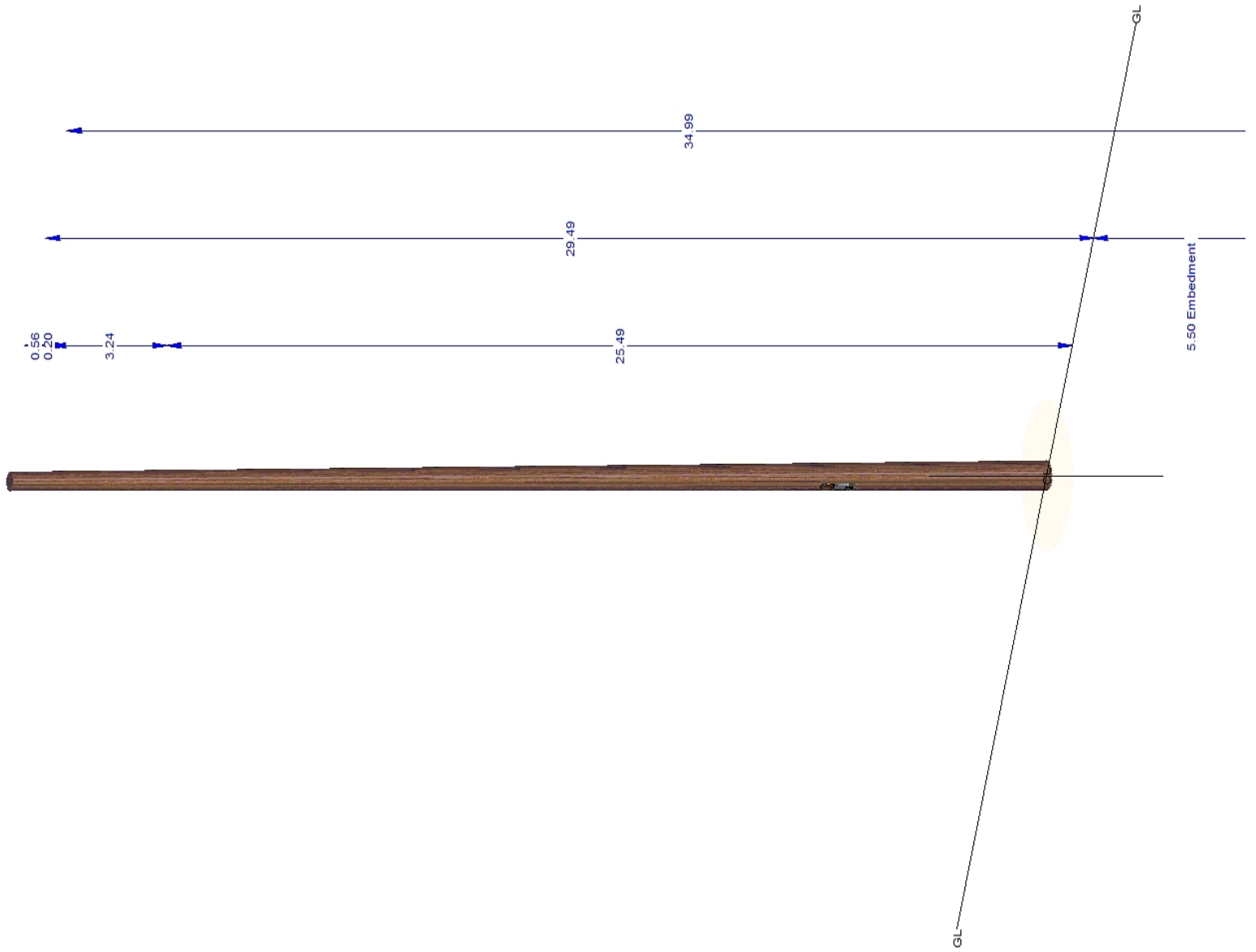
†Length = Lead Length for Down Guys, Wire Length for Span Guys

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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0.29





Structure P110712
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage 45 % **Clearances OK?** Yes
Pole Usage 45 % G.O.95 Heavy Grade A at Replacement
Insulator Usage
Guy Usage
Anchor Usage
Arm Usage

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L3
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P110712_EXISTING.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 87 ft **Latitude** 33.07550526°
Back Span 118 ft **Longitude** -116.58788214°
Ahead Span Az. 0° **Elevation** 4221 ft
Line Angle -15° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P110712	30	5	DF - Douglas Fir	27.5	5	12/11/2019	80	G.O.95 Heavy Grade A at Replacement	6	45	5.9	2.6	0
P110712	30	5	DF - Douglas Fir	27.5	5	12/11/2019	80	Known Local Wind Heavy 85 MPH Grade A at Replacement	9	32	4.2	1.3	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
	No2 AWG Triplex SSC AL Conch GCC	74	24.16	0.77	0.26	1	88	88	327
	No2 AWG Triplex SSC AL Conch GCC	269	23.96	0.77	0.26	1	117	116	341

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Guys and Cables

†Length = Lead Length for Down Guys, Wire Length for Span Guys

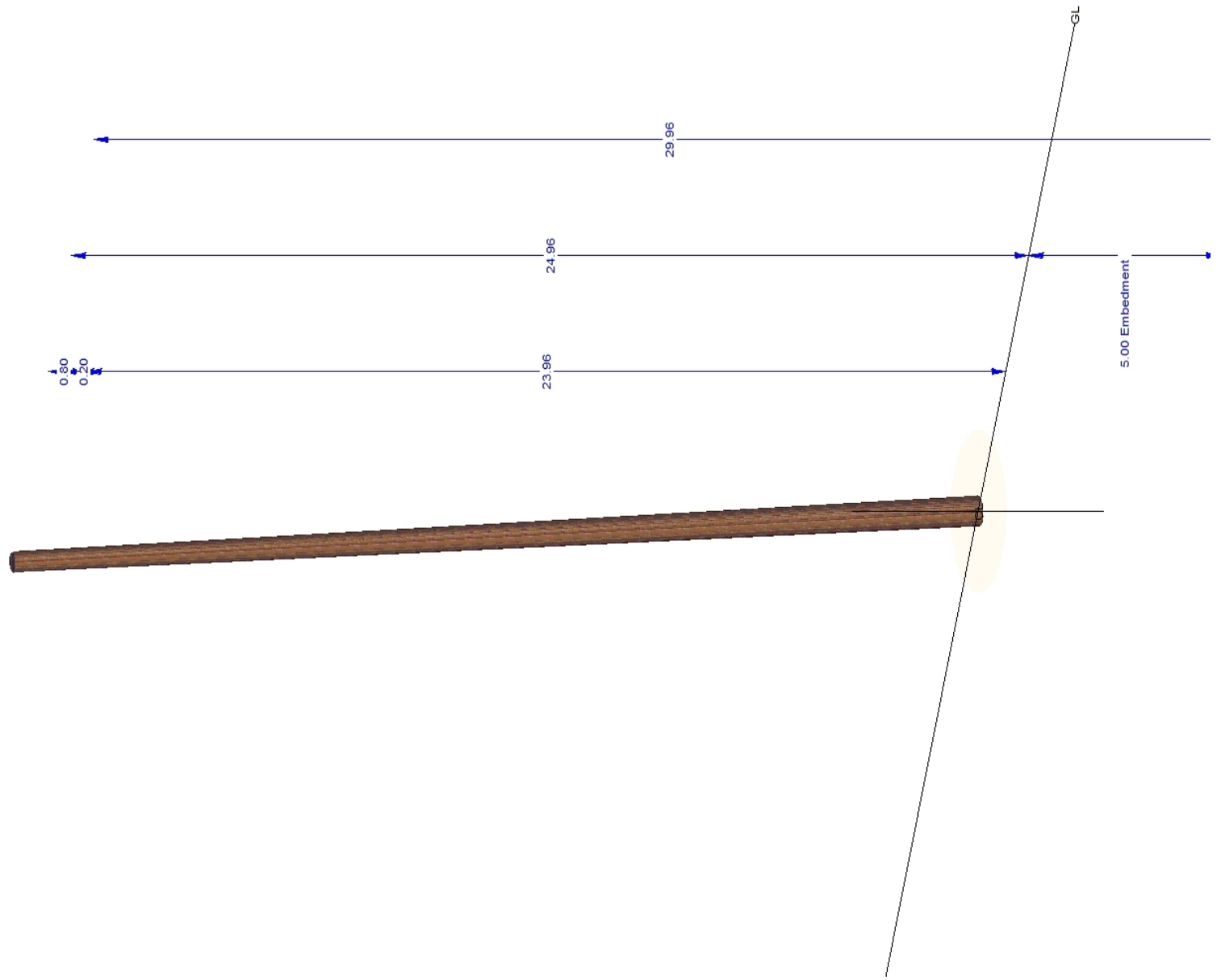
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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1.38





Structure P712369
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage	54 %	Clearances OK?	Yes
Pole Usage	23 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	19 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	32 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	54 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage	2 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P712369_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 257 ft **Latitude** 33.07430161°
Back Span **Longitude** -116.58974415°
Ahead Span Az. 0° **Elevation** 4262 ft
Line Angle -67° **Tangent/DE** Terminal Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P712369	50	1	Corten Steel	43.7	7		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	27	23	4.3	1.0	0
P712369	50	1	Corten Steel	43.7	7		100	G.O.95 Heavy Grade A at Replacement	20	17	5.8	1.0	2.8

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	337	41.99	0.33	0.11	1	257	253	1078
12	No2 AWG 5Over2 AWAC GCC	337	41.99	0.33	0.11	1	253	253	1078
	1-0 AWG Triplex SSC AL Neritina GCC	224	31.13	0.97	0.41	1	39	38	113
	1-0 AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	337	30.61	0.98	0.48	1	256	254	1259

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	337	41.99	P712369	19	10.6	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	337	41.99	P712369	19	10.3	2.0	G.O.95 Heavy Grade A at Replacement

Guis and Cables

*Length = Lead Length for Down Guis, Wire Length for Span Guis

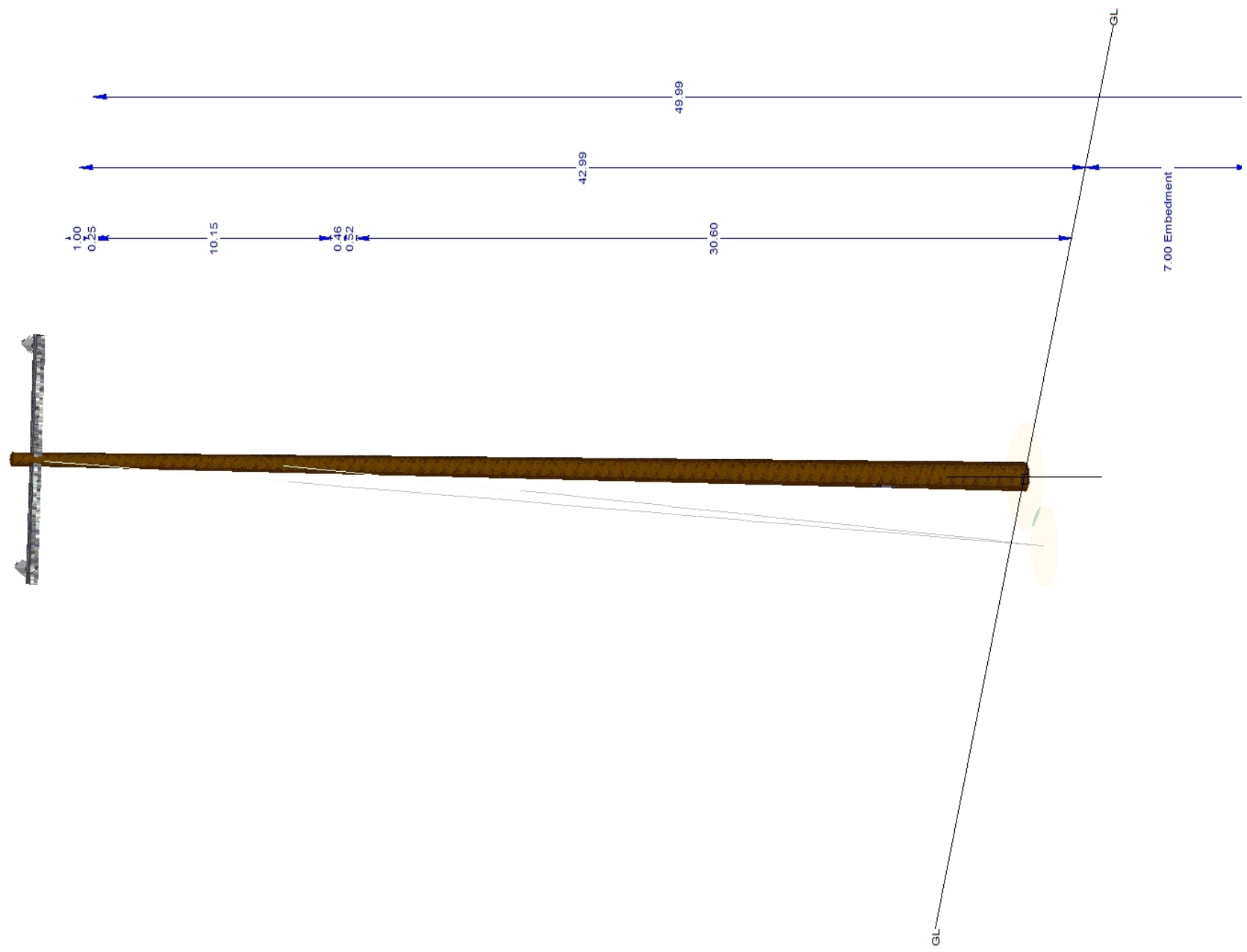
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	19.85	160	41.74	P712369	32	4.2	1.3	G.O.95 Heavy Grade A at Replacement
Down	7/16" 7 Strand EHS (7/16G)	19.85	160	31.59	P712369	21	6.3	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	16" CROSSPLATE MG				P712369	54	2.5	1.3	G.O.95 Heavy Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10' DE FG ARM (4DF)	245	41.99	P712369	2	70.2	1.3	G.O.95 Heavy Grade A at Replacement



0.23





Structure P719103
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage 52 % **Clearances OK?** Yes
Pole Usage 52 % G.O.95 Heavy Grade A at Replacement
Insulator Usage
Guy Usage
Anchor Usage
Arm Usage

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L3
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P719103_EXISTING.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 85 ft **Latitude** 33.07697202°
Back Span 49 ft **Longitude** -116.58974143°
Ahead Span Az. 0° **Elevation** 4192 ft
Line Angle -36° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P719103	35	5	DF - Douglas Fir	28.8	5.95	12/11/2019	80	G.O.95 Heavy Grade A at Replacement	8	52	5.0	2.6	0
P719103	35	5	DF - Douglas Fir	28.8	5.95	12/11/2019	80	Known Local Wind Heavy 85 MPH Grade A at Replacement	11	37	3.6	1.3	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
	1-0 AWG Triplex SSC AL Neritina GCC	7	28.15	0.97	0.41	1	49	49	98
	1-0 AWG Triplex SSC AL Neritina GCC	152	28.45	0.97	0.41	1	84	84	239

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Guys and Cables

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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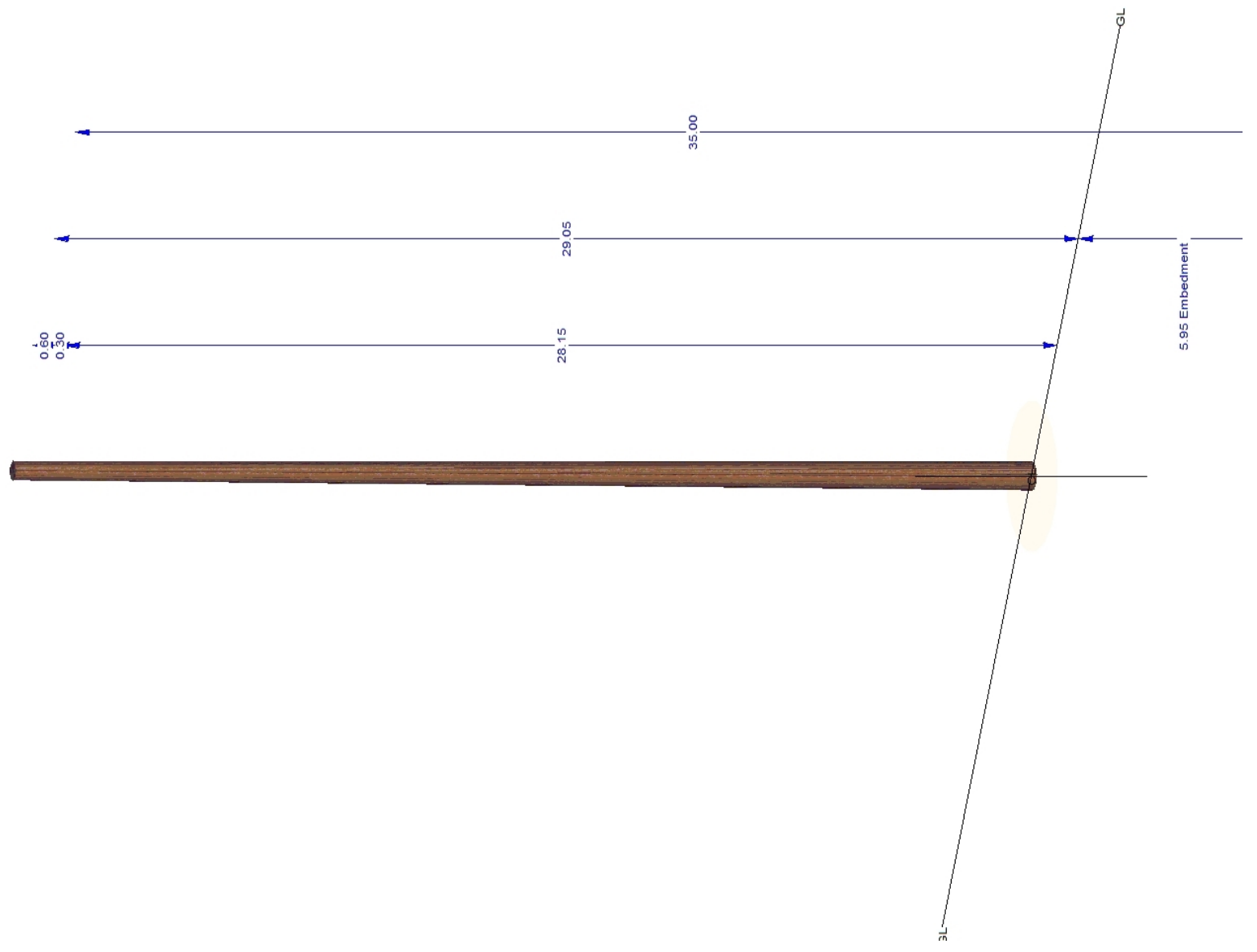
†Length = Lead Length for Down Guys, Wire Length for Span Guys

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Structure P110710
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage 17 % **Clearances OK?** No
Pole Usage 17 % Known Local Wind Heavy 85 MPH Grade A at Replacement
Insulator Usage
Guy Usage 5 % Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor Usage 5 % Known Local Wind Heavy 85 MPH Grade A at Replacement
Arm Usage

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P110710_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 97 ft **Latitude** 33.07613931°
Back Span 127 ft **Longitude** -116.58864660°
Ahead Span Az. 0° **Elevation** 4216 ft
Line Angle 171° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P110710	40	1	Corten Steel	38.9	6		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	17	17	5.9	1.0	0
P110710	40	1	Corten Steel	38.9	6		100	G.O.95 Heavy Grade A at Replacement	16	16	6.1	1.0	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
1-0	AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	96	32.48	0.98	0.48	1	128	127	320
1	In Firm Design Cable	96	17.87	1.13	0.40	1	127	127	704
1	In Firm Design Cable	242	17.87	1.13	0.40	1	101	100	656
1-0	AWG Triplex SSC AL Neritina GCC	251	31.98	0.97	0.41	1	104	101	259

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Guys and Cables

†Length = Lead Length for Down Guys, Wire Length for Span Guys

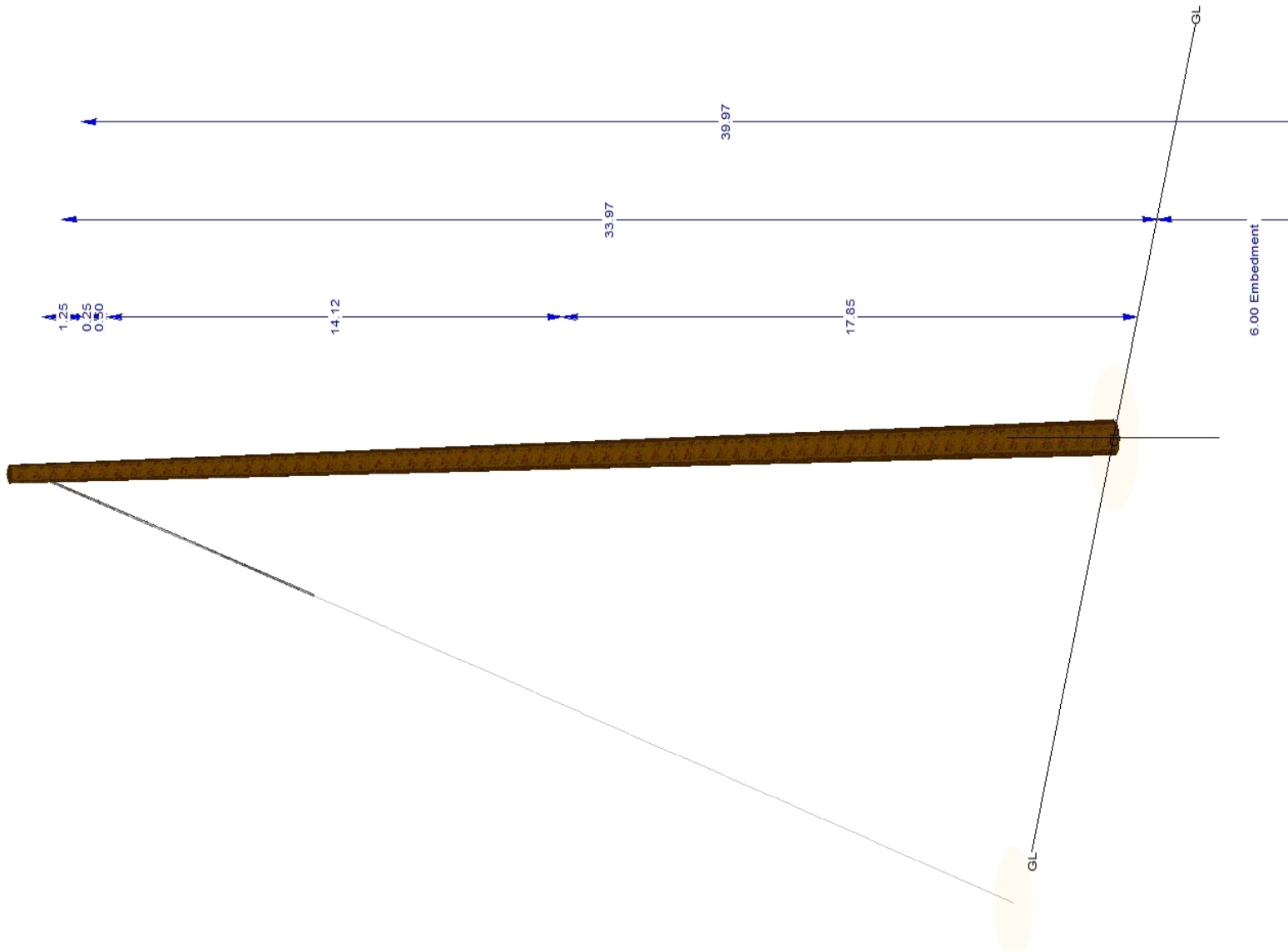
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	15.3	-84	32.73	P110710	5	28.1	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	16" CROSSPLATE MG				P110710	5	27.4	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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1.31 .





Structure P519114
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage 40 % **Clearances OK?** Yes
Pole Usage 40 % G.O.95 Heavy Grade A at Replacement
Insulator Usage
Guy Usage
Anchor Usage
Arm Usage

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P519114_EXISTING.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 130 ft **Latitude** 33.07710597°
Back Span 157 ft **Longitude** -116.59200951°
Ahead Span Az. 0° **Elevation** 4205 ft
Line Angle -3° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P519114	35	5	DF - Douglas Fir	29.0	5.5	12/5/2019	80	G.O.95 Heavy Grade A at Replacement	6	40	6.7	2.6	0
P519114	35	5	DF - Douglas Fir	29.0	5.5	12/5/2019	80	Known Local Wind Heavy 85 MPH Grade A at Replacement	10	32	4.1	1.3	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
	#8 Cu Weld Duplex	98	28.94	0.42	0.12	1	157	157	339
	No4 AWG 3-Strand Hard Drawn Bare CU-None	275	26.94	0.25	0.13	1	128	128	264

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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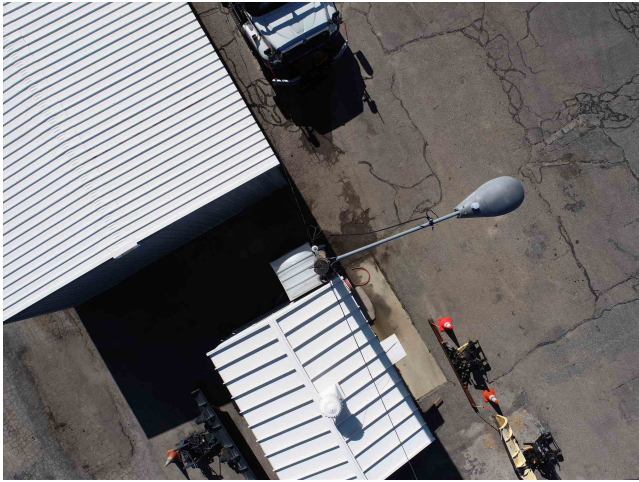
Guys and Cables

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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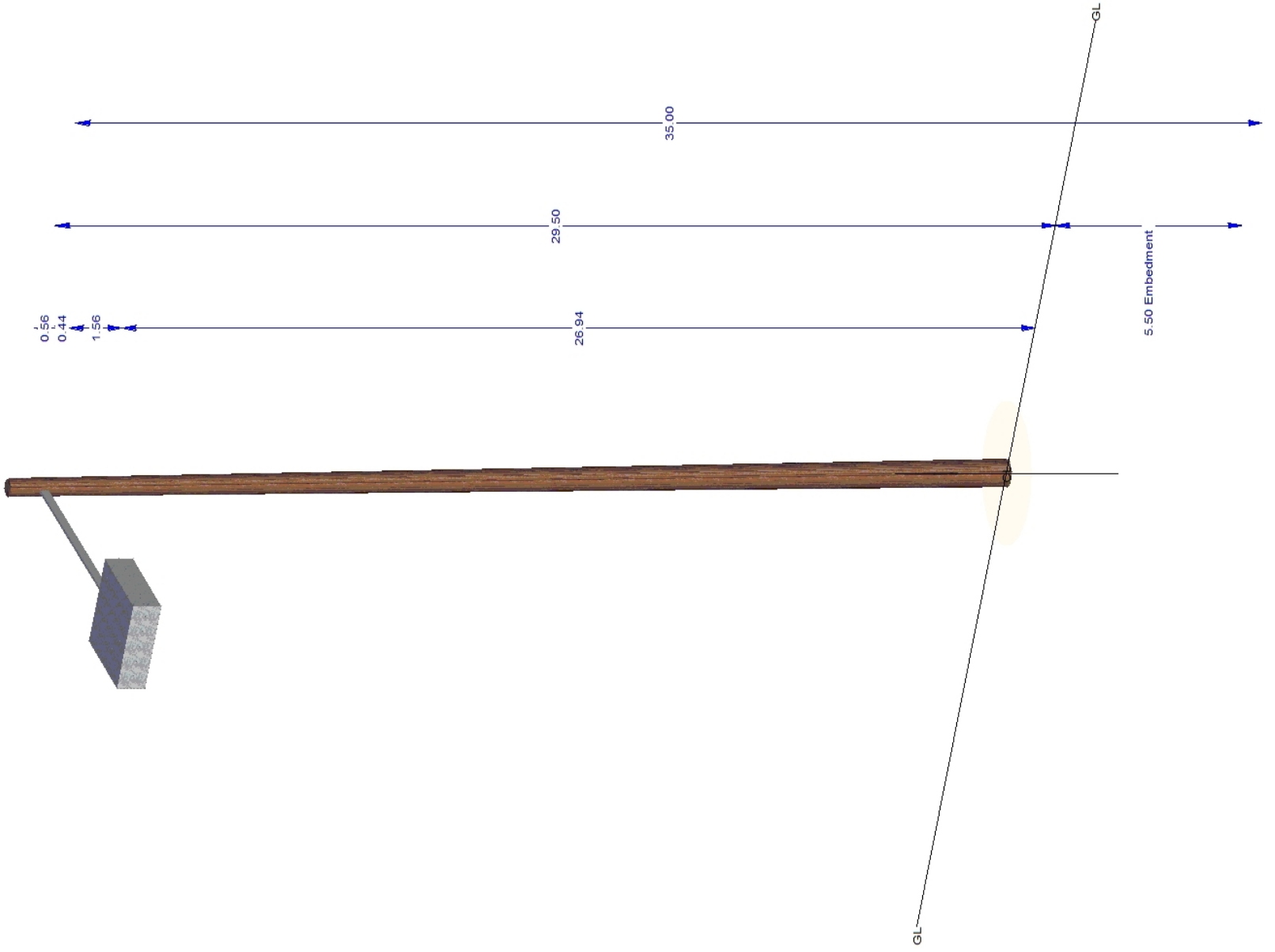
†Length = Lead Length for Down Guys, Wire Length for Span Guys

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	Street Light	180	28.5	P519114				



0.30





Structure P511486
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage 95 % **Clearances OK?** Yes
Pole Usage 95 % G.O.95 Heavy Grade A at Replacement
Insulator Usage
Guy Usage
Anchor Usage
Arm Usage

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L3
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P511486_EXISTING.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 103 ft **Latitude** 33.07662112°
Back Span 85 ft **Longitude** -116.59282740°
Ahead Span Az. 0° **Elevation** 4209 ft
Line Angle 117° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P511486	35	5	DF - Douglas Fir	28.7	6.4	12/2/2019	80	G.O.95 Heavy Grade A at Replacement	14	95	2.8	2.6	0
P511486	35	5	DF - Douglas Fir	28.7	6.4	12/2/2019	80	Known Local Wind Heavy 85 MPH Grade A at Replacement	17	56	2.4	1.3	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
	No4 AWG Triplex SSC AL Periwinkle GCC	19	28.16	0.64	0.17	1	62	61	214
	1 In Firm Design Cable	139	20.53	1.13	0.40	1	102	102	494
	No4 AWG Triplex SSC AL Periwinkle GCC	203	27.92	0.64	0.17	1	85	85	169

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Guys and Cables

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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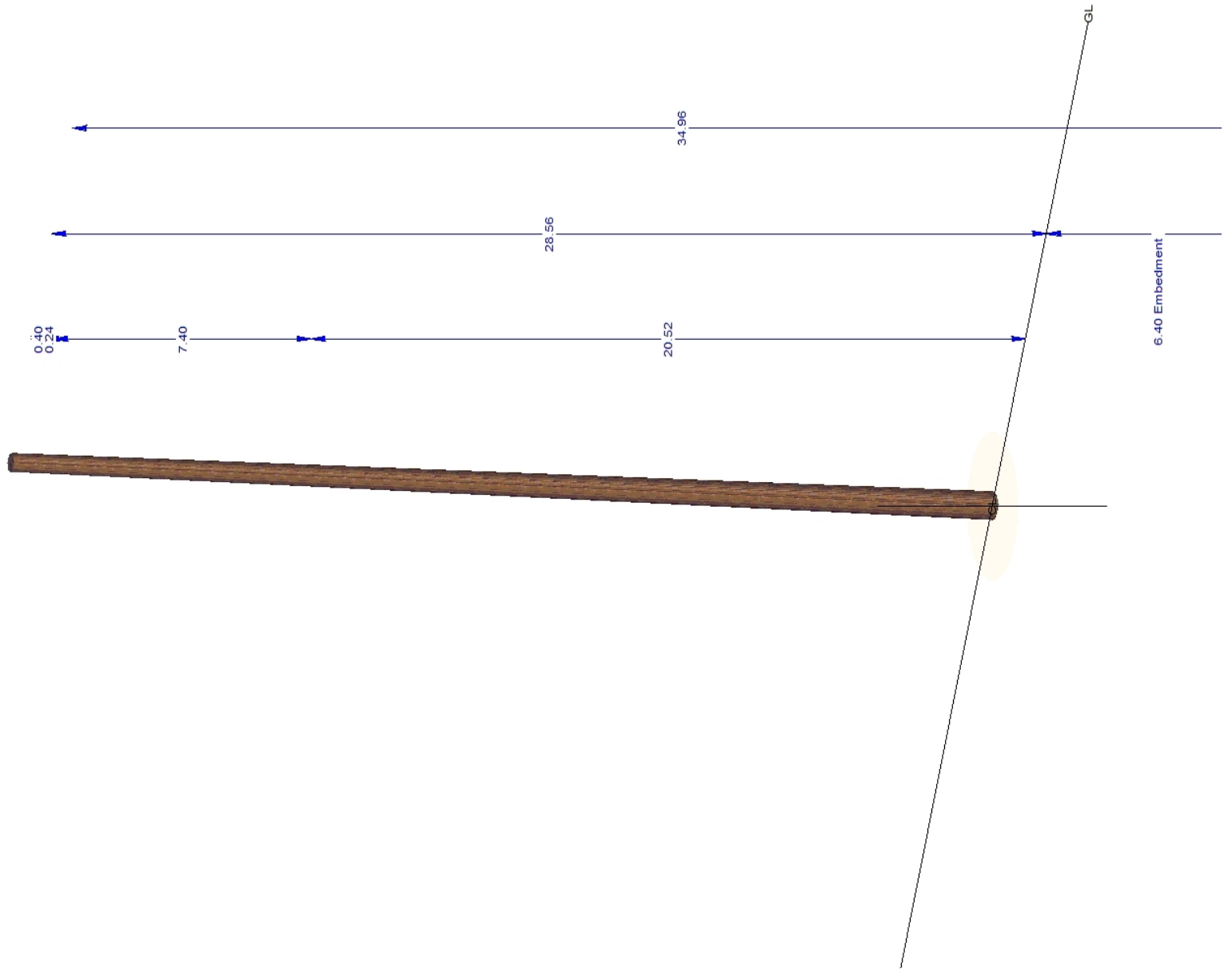
†Length = Lead Length for Down Guys, Wire Length for Span Guys

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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1.51





Structure P719436
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5
 [REDACTED]

Usage Summary

Max Usage	103 %	Clearances OK?	No
Pole Usage	103 %	G.O.95 Heavy Grade A at Replacement	
Insulator Usage	27 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	31 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	31 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage	20 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P719436_EXISTING.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 169 ft **Latitude** 33.07626480°
Back Span 50 ft **Longitude** -116.59389284°
Ahead Span Az. 14° **Elevation** 4216 ft
Line Angle -16° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P719436	45	5	DF - Douglas Fir	32.5	6.5	12/2/2019	80	G.O.95 Heavy Grade A at Replacement	21	103	2.5	2.6	5.5
P719436	45	5	DF - Douglas Fir	32.5	6.5	12/2/2019	80	Known Local Wind Heavy 85 MPH Grade A at Replacement	27	64	2.1	1.3	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	3	38.28	0.33	0.11	1	48	47	86
12	No2 AWG 5Over2 AWAC GCC	4	38.28	0.33	0.11	1	47	47	86
12	No2 AWG 5Over2 AWAC GCC	170	37.37	0.33	0.11	1	170	170	683
12	No2 AWG 5Over2 AWAC GCC	170	37.37	0.33	0.11	1	172	170	683
	No4 AWG Triplex SSC AL Periwinkle GCC	4	31.2	0.64	0.17	1	48	47	49
	1 In Firm Design Cable	5	21.84	1.13	0.40	1	48	48	357
	1 In Firm Design Cable	5	20.43	1.13	0.40	1	48	48	163
	No4 AWG Triplex SSC AL Periwinkle GCC	170	31.2	0.64	0.17	1	170	170	367
	1 In Firm Design Cable	170	21.84	1.13	0.40	1	170	169	787

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1" Pin)	12		37.37	P719436	24	8.2	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1" Pin)	12		37.37	P719436	27	7.4	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV DE	12	170	37.37	P719436	12	16.4	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV DE	12	170	37.37	P719436	12	16.5	2.0	G.O.95 Heavy Grade A at Replacement

Guis and Cables

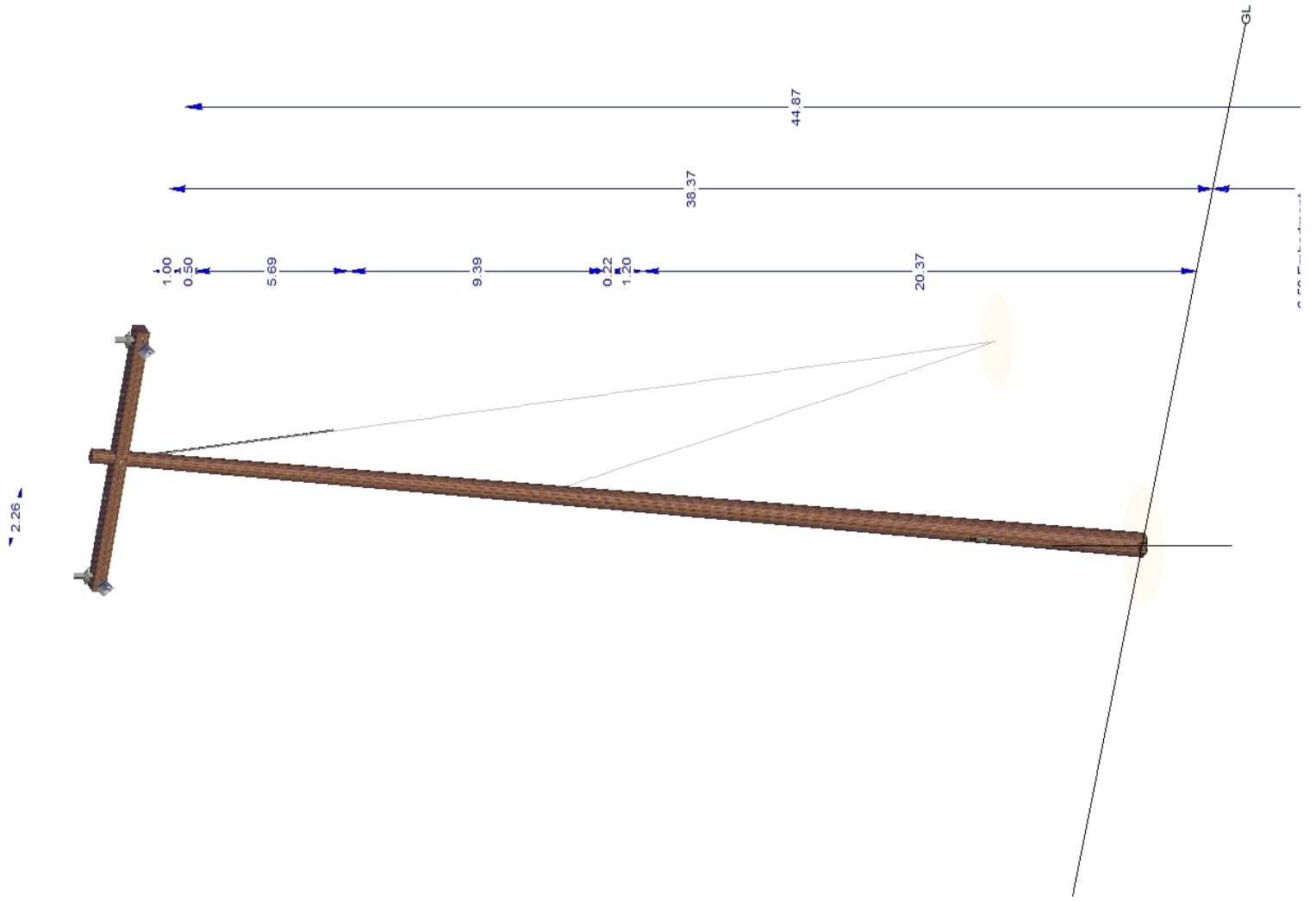
+Length = Lead Length for Down Guis, Wire Length for Span Guis

Type	Wire Type	Length+ (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	3/8" 7 Strand EHS (3/8G)	18.86	-18	36.87	P719436	31	4.3	1.3	G.O.95 Heavy Grade A at Replacement
Down	1/4" 7 Strand EHS (1/4G)	18.86	-18	21.63	P719436	20	6.7	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	16" CROSSPLATE MG				P719436	31	4.4	1.3	G.O.95 Heavy Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10' DBL WOOD ARMS (D4)	87	37.37	P719436	20	6.8	1.3	G.O.95 Heavy Grade A at Replacement







Structure P166201
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5
 [REDACTED]

Usage Summary

Max Usage	91 %	Clearances OK?	Yes
Pole Usage	32 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	27 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	45 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	91 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage	3 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P166201_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 190 ft **Latitude** 33.07826073°
Back Span **Longitude** -116.59281719°
Ahead Span Az. 169° **Elevation** 4186 ft
Line Angle -142° **Tangent/DE** Terminal Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P166201	55	1	Corten Steel	46.9	9.5		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	42	32	3.2	1.0	0
P166201	55	1	Corten Steel	46.9	9.5		100	G.O.95 Heavy Grade A at Replacement	33	26	3.8	1.0	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	336Kcmil LINNET ACSR AW2 GCC	279	45	0.72	0.44	1	191	158	1796
12	336Kcmil LINNET ACSR AW2 GCC	279	44	0.72	0.44	1	192	158	1796
12	336Kcmil LINNET ACSR AW2 GCC	279	44	0.72	0.44	1	191	158	1796
	No2 AWG Triplex SSC AL Conch GCC	240	28.91	0.77	0.26	1	43	39	89
	1 In Firm Design Cable	279	25.5	1.13	0.40	1	191	190	962

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	279	45	P166201	26	7.7	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	279	44	P166201	27	7.4	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	279	44	P166201	27	7.3	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

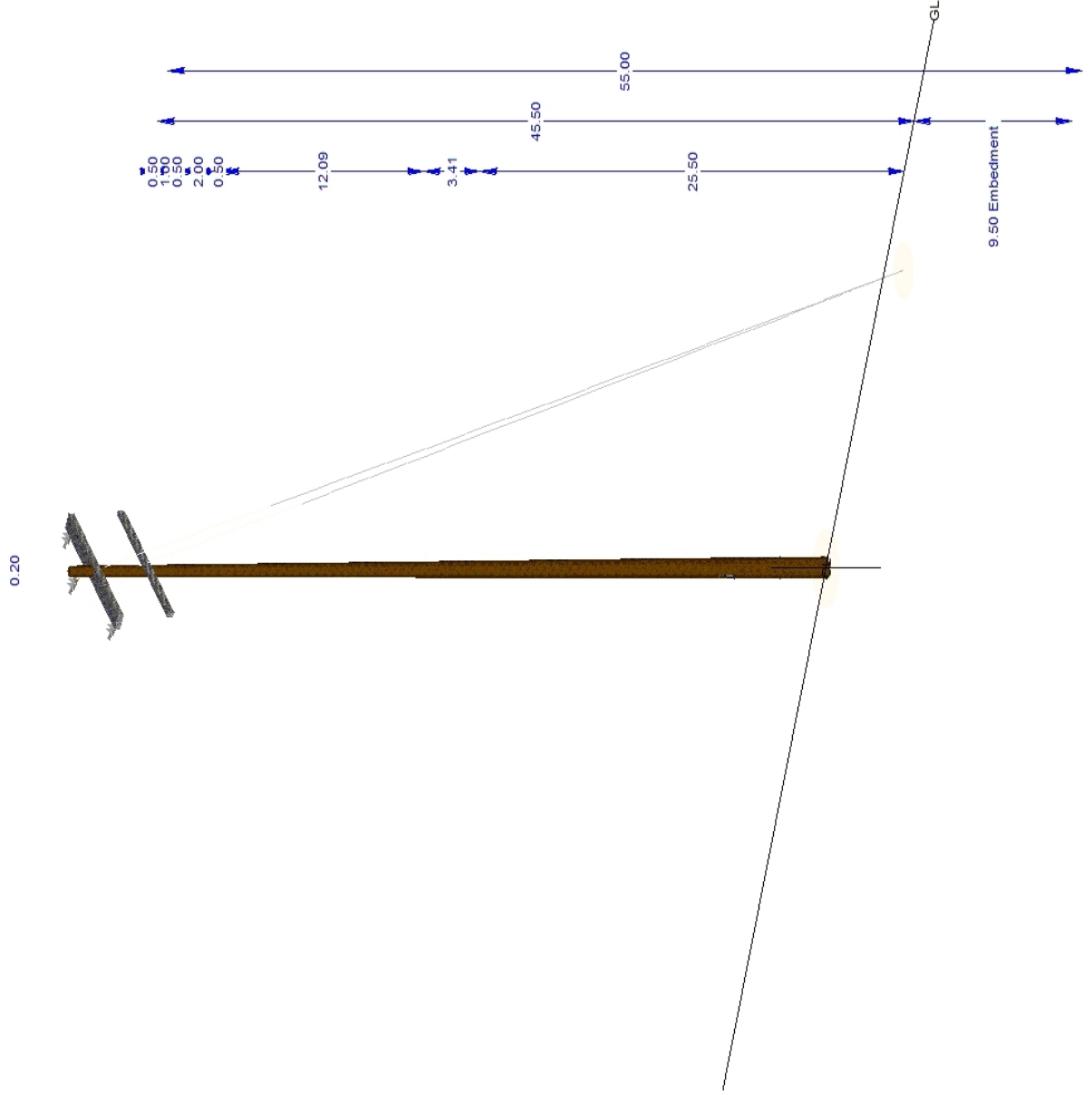
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	22.2	101	43.5	P166201	45	3.0	1.3	G.O.95 Heavy Grade A at Replacement
Down	7/16" 7 Strand EHS (7/16G)	22.2	101	41.5	P166201	43	3.1	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	16" CROSSPLATE MG				P166201	91	1.5	1.3	G.O.95 Heavy Grade A at Replacement

†Length = Lead Length for Down Guys, Wire Length for Span Guys

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10' DBL DE FG ARMS (4DF-2)	185	44	P166201	3	49.4	1.3	G.O.95 Heavy Grade A at Replacement
X-Arm	10' EQUIPMENT FG ARM (4TF)	5	41	P166201		1333.3	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement







Structure P110214
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5
 [REDACTED]

Usage Summary

Max Usage	46 %	Clearances OK?	No
Pole Usage	46 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	19 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Guy Usage	19 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	15 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage	1 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P110214_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 100 ft **Latitude** 33.07828183°
Back Span 190 ft **Longitude** -116.59219586°
Ahead Span Az. 272° **Elevation** 4172 ft
Line Angle 1° **Tangent/DE** Tangent
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P110214	50	1	Corten Steel	43.8	6.65		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	59	46	2.2	1.0	0
P110214	50	1	Corten Steel	43.8	6.65		100	G.O.95 Heavy Grade A at Replacement	36	29	3.5	1.0	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	336Kcmil LINNET ACSR AW2 GCC	177	43.32	0.72	0.44	1	99	158	1796
12	336Kcmil LINNET ACSR AW2 GCC	177	43.32	0.72	0.44	1	100	158	1796
12	336Kcmil LINNET ACSR AW2 GCC	177	43.32	0.72	0.44	1	100	158	1796
12	336Kcmil LINNET ACSR AW2 GCC	356	43.32	0.72	0.44	1	192	158	1796
12	336Kcmil LINNET ACSR AW2 GCC	356	43.32	0.72	0.44	1	191	158	1796
12	336Kcmil LINNET ACSR AW2 GCC	356	43.32	0.72	0.44	1	191	158	1796
	1-0 AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	177	26.44	0.98	0.48	1	100	100	367
	1 In Firm Design Cable	177	23.35	1.13	0.40	1	100	100	919
	1 In Firm Design Cable	356	23.35	1.13	0.40	1	191	190	962

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12KV ANGLE PIN	12		42.35	P110214	13	15.8	2.0	Known Local Wind Heavy 85 MPH Grade A at Replacement
Post	12KV ANGLE PIN	12		42.35	P110214	14	14.3	2.0	Known Local Wind Heavy 85 MPH Grade A at Replacement
Post	12KV ANGLE PIN	12		42.35	P110214	19	10.7	2.0	Known Local Wind Heavy 85 MPH Grade A at Replacement

*Length = Lead Length for Down Guys, Wire Length for Span Guys

Guys and Cables

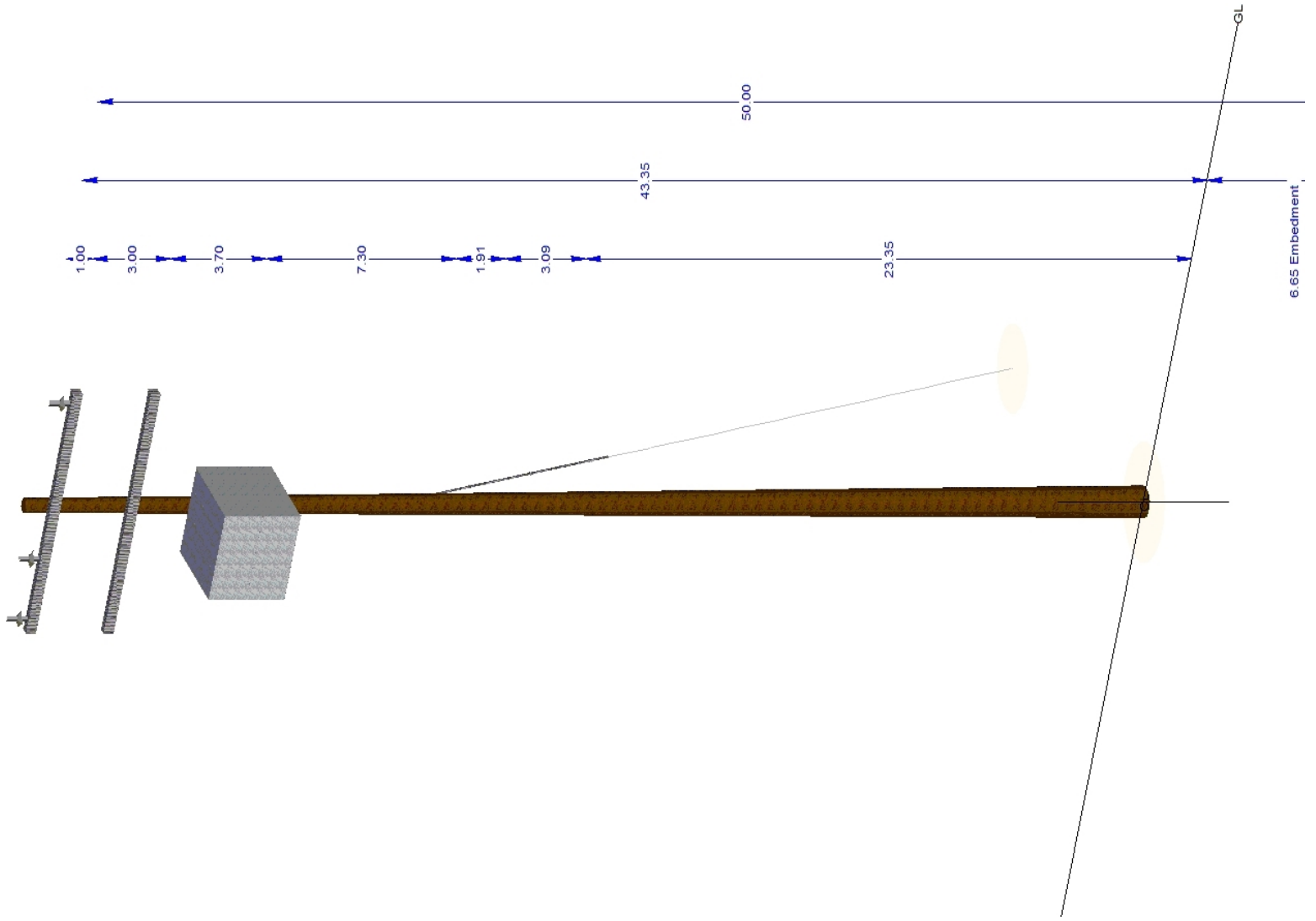
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	12.64	-8	28.35	P110214	19	6.9	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	20" CROSSPLATE MG				P110214	15	8.6	1.3	G.O.95 Heavy Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	SIEMENS RECLOSER AND SCADA OH1274	180	35.65	P110214				
X-Arm	10' TAN FG ARM (4TF)	90	42.35	P110214	1	266.7	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
X-Arm	10' EQUIPMENT FG ARM (4TF)	90	39.35	P110214			1.3	G.O.95 Heavy Grade A at Replacement



0.15





Structure P166114
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]

Engineer NV5
 [REDACTED]

Usage Summary

Max Usage	37 %	Clearances OK?	Yes
Pole Usage	37 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	22 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	3 %	Uplift	
Anchor Usage	2 %	Uplift	
Arm Usage		G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type	Finite Element L4
Analysis Software	PLS-CADD
Software Version	16.01
PRG Version	2019.3.4
Structure File	P166114_AS-BUILT.pol
Project File	C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span	143 ft	Latitude	33.07828787°
Back Span	100 ft	Longitude	-116.59186933°
Ahead Span Az.	268°	Elevation	4168 ft
Line Angle	1°	Tangent/DE	Tangent
Framing			
Notes			

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P166114	50	1	Corten Steel	43.6	7.1		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	47	37	2.7	1.0	0
P166114	50	1	Corten Steel	43.6	7.1		100	G.O.95 Heavy Grade A at Replacement	27	21	4.7	1.0	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	336Kcmil LINNET ACSR AW2 GCC	1	42.86	0.72	0.44	1	99	158	1796
12	336Kcmil LINNET ACSR AW2 GCC	1	42.86	0.72	0.44	1	100	158	1796
12	336Kcmil LINNET ACSR AW2 GCC	1	42.86	0.72	0.44	1	100	158	1796
12	336Kcmil LINNET ACSR AW2 GCC	181	42.86	0.72	0.44	1	142	158	1796
12	336Kcmil LINNET ACSR AW2 GCC	181	42.86	0.72	0.44	1	142	158	1796
12	336Kcmil LINNET ACSR AW2 GCC	181	42.86	0.72	0.44	1	142	158	1796
	1-0 AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	1	32.38	0.98	0.48	1	100	100	367
	1 In Firm Design Cable	1	24.39	1.13	0.40	1	100	100	919
	1 In Firm Design Cable	181	24.39	1.13	0.40	1	142	142	1068

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1-3/8" Pin)	12		41.89	P166114	14	13.9	2.0	Known Local Wind Heavy 85 MPH Grade A at Replacement
Post	12kV Clamp Top-Al (1-3/8" Pin)	12		41.89	P166114	17	11.6	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1-3/8" Pin)	12		41.89	P166114	22	9.3	2.0	G.O.95 Heavy Grade A at Replacement

*Length = Lead Length for Down Guys, Wire Length for Span Guys

Guys and Cables

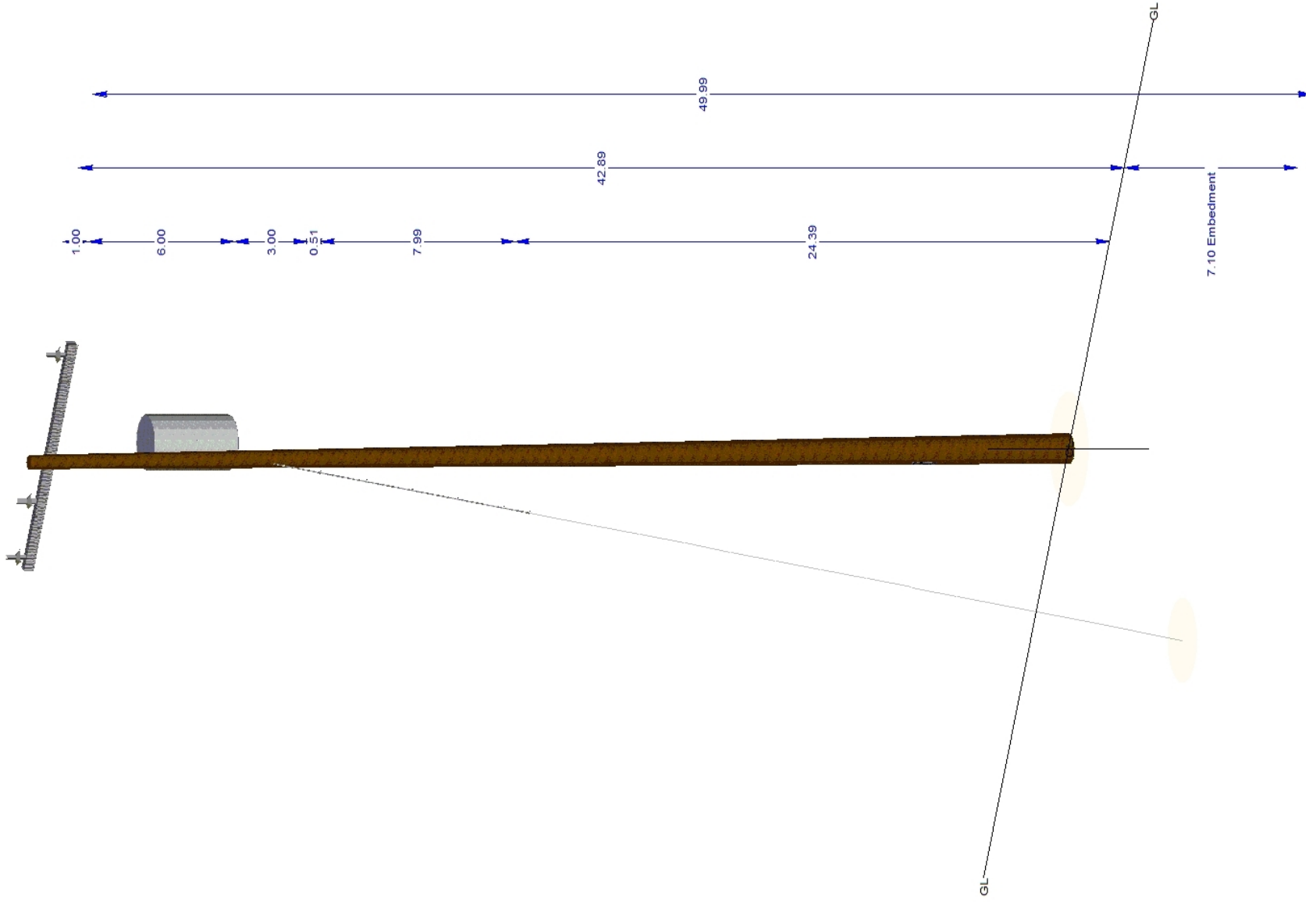
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	13.35	181	32.89	P166114	3	35.0	1.0	Uplift
Anchor	20" CROSSPLATE MG				P166114	2	44.6	1.0	Uplift

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	25 kVA Transformer	0	35.89	P166114				
X-Arm	10' TAN FG ARM (4TF)	270	41.89	P166114		333.3	1.3	G.O.95 Heavy Grade A at Replacement



0.10





Structure P310182
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage 45 % **Clearances OK?** No
Pole Usage 45 % Known Local Wind Heavy 85 MPH Grade A at Replacement
Insulator Usage 30 % G.O.95 Heavy Grade A at Replacement
Guy Usage
Anchor Usage
Arm Usage 1 % Known Local Wind Heavy 85 MPH Grade A at Replacement

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L3
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P310182_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 253 ft **Latitude** 33.07832939°
Back Span 435 ft **Longitude** -116.58998359°
Ahead Span Az. 89° **Elevation** 4154 ft
Line Angle -178° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P310182	55	1	Corten Steel	47.9	7.4		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	69	45	2.2	1.0	0
P310182	55	1	Corten Steel	47.9	7.4		100	G.O.95 Heavy Grade A at Replacement	54	35	2.8	1.0	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	336Kcmil LINNET ACSR AW2 GCC	179	47.09	0.72	0.44	1	434	435	1792
12	336Kcmil LINNET ACSR AW2 GCC	179	46.09	0.72	0.44	1	435	435	1792
12	336Kcmil LINNET ACSR AW2 GCC	179	46.09	0.72	0.44	1	436	435	1792
12	336Kcmil LINNET ACSR AW2 GCC	358	47.09	0.72	0.44	1	253	250	1905
12	336Kcmil LINNET ACSR AW2 GCC	358	46.09	0.72	0.44	1	252	250	1905
12	336Kcmil LINNET ACSR AW2 GCC	358	46.09	0.72	0.44	1	254	250	1905
	1 In Firm Design Cable	179	26.38	1.13	0.40	1	435	435	1828
	1 In Firm Design Cable	356	26.38	1.13	0.40	1	60	60	480
	1 In Firm Design Cable	356	25.03	1.13	0.40	1	60	60	577

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	179	47.09	P310182	26	7.6	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	179	46.09	P310182	30	6.8	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	179	46.09	P310182	29	6.8	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	358	47.09	P310182	29	6.8	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	358	46.09	P310182	30	6.6	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	358	46.09	P310182	28	7.1	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

†Length = Lead Length for Down Guys, Wire Length for Span Guys

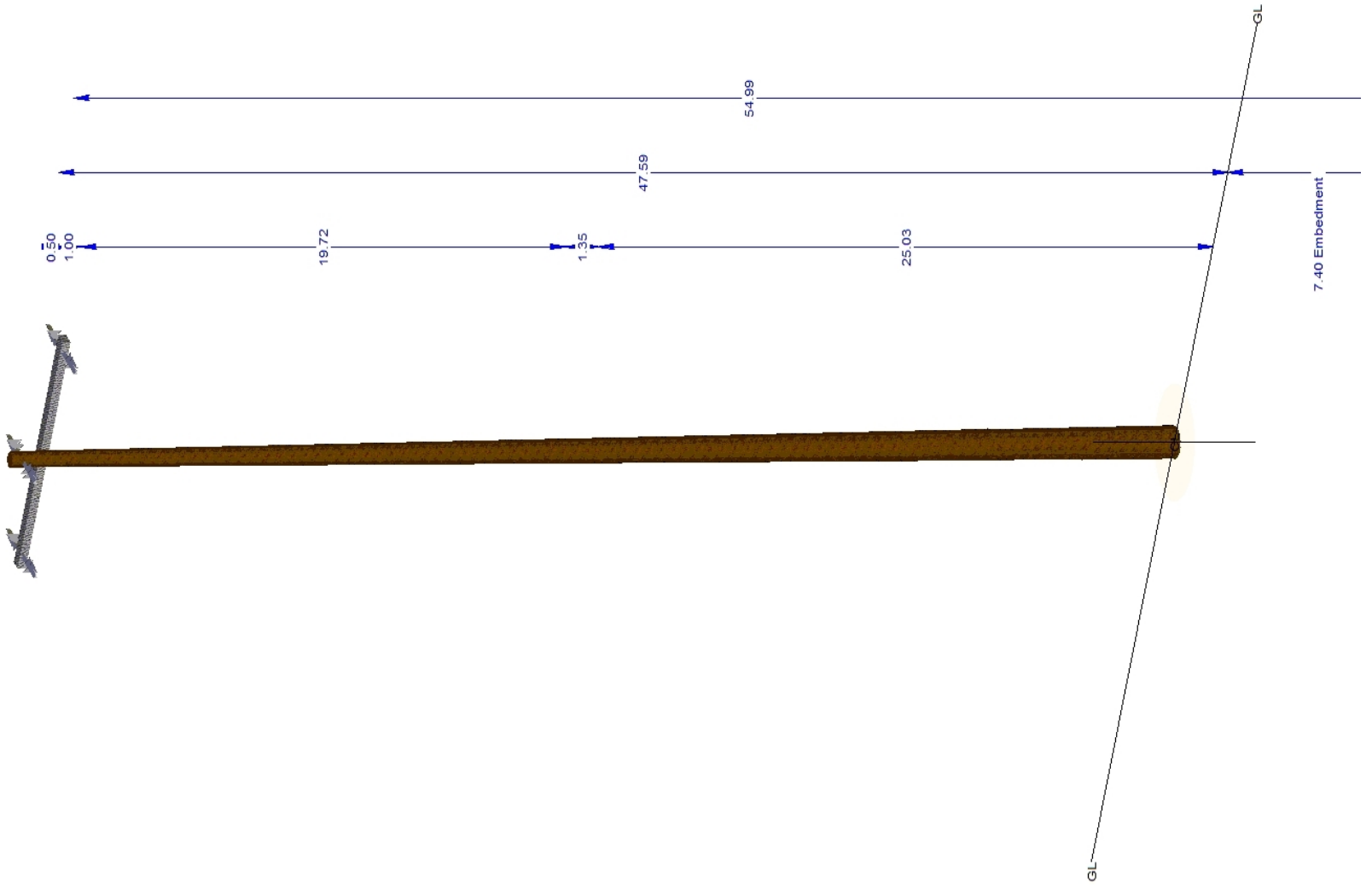
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10' DE FG ARM (4DF)	270	46.09	P310182	1	266.7	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement



0.33





Structure P713311
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage	36 %	Clearances OK?	Yes
Pole Usage	31 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	21 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	34 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	36 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage	2 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P713311_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 211 ft **Latitude** 33.07298274°
Back Span **Longitude** -116.58890112°
Ahead Span Az. 30° **Elevation** 4408 ft
Line Angle 0° **Tangent/DE** Terminal Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P713311	50	1	Corten Steel	43.8	6.65		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	39	31	3.2	1.0	0
P713311	50	1	Corten Steel	43.8	6.65		100	G.O.95 Heavy Grade A at Replacement	28	24	4.2	1.0	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	21	42.3	0.33	0.11	1	211	200	1140
12	No2 AWG 5Over2 AWAC GCC	21	42.3	0.33	0.11	1	214	200	1140
	1 In Firm Design Cable	21	21.83	1.13	0.40	1	211	202	1410

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	21	42.3	P713311	20	10.1	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	21	42.3	P713311	21	9.6	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

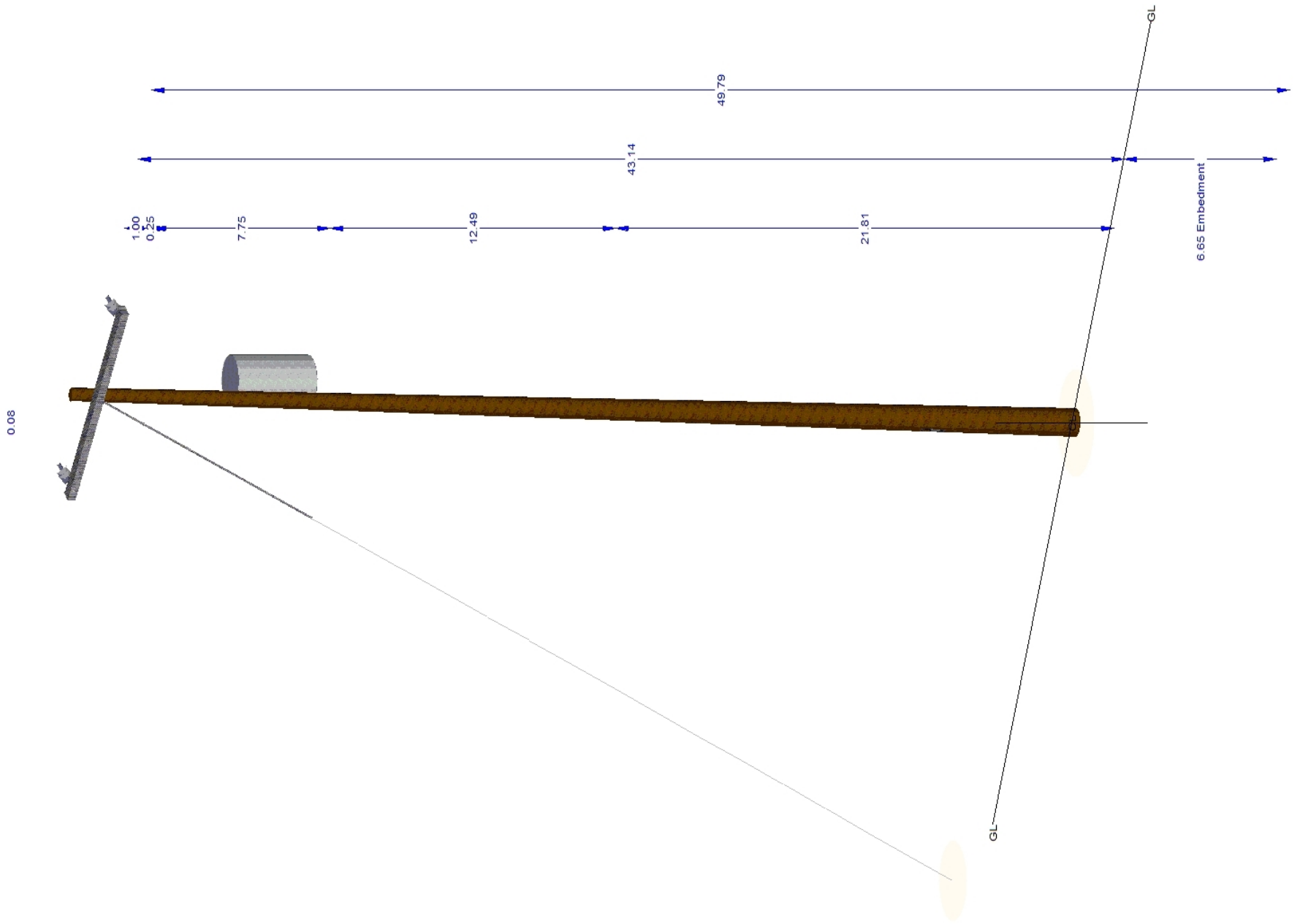
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	25.97	200	42.05	P713311	34	3.9	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	16" CROSSPLATE MG				P713311	36	3.7	1.3	G.O.95 Heavy Grade A at Replacement

†Length = Lead Length for Down Guys, Wire Length for Span Guys

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	25 kVA Transformer	0	34.31	P713311				
X-Arm	10' DE FG ARM (4DF)	100	42.3	P713311	2	70.2	1.3	G.O.95 Heavy Grade A at Replacement







Structure P112798
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5
 [REDACTED]

Usage Summary

Max Usage 22 % **Clearances OK?** No
Pole Usage 22 % G.O.95 Heavy Grade A at Replacement
Insulator Usage
Guy Usage 10 % G.O.95 Heavy Grade A at Replacement
Anchor Usage 7 % G.O.95 Heavy Grade A at Replacement
Arm Usage

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P112798_EXISTING.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span **Latitude** 33.07880537°
Back Span 166 ft **Longitude** -116.58930993°
Ahead Span Az. 0° **Elevation** 4169 ft
Line Angle 0° **Tangent/DE** Terminal Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P112798	35	3	DF - Douglas Fir	33.7	6.3	12/13/2019	80	G.O.95 Heavy Grade A at Replacement	5	22	12.2	2.6	0
P112798	35	3	DF - Douglas Fir	33.7	6.3	12/13/2019	80	Known Local Wind Heavy 85 MPH Grade A at Replacement	10	21	6.3	1.3	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
1-0 AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC		164	27.88	0.98	0.48	1	167	164	496

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Guys and Cables

†Length = Lead Length for Down Guys, Wire Length for Span Guys

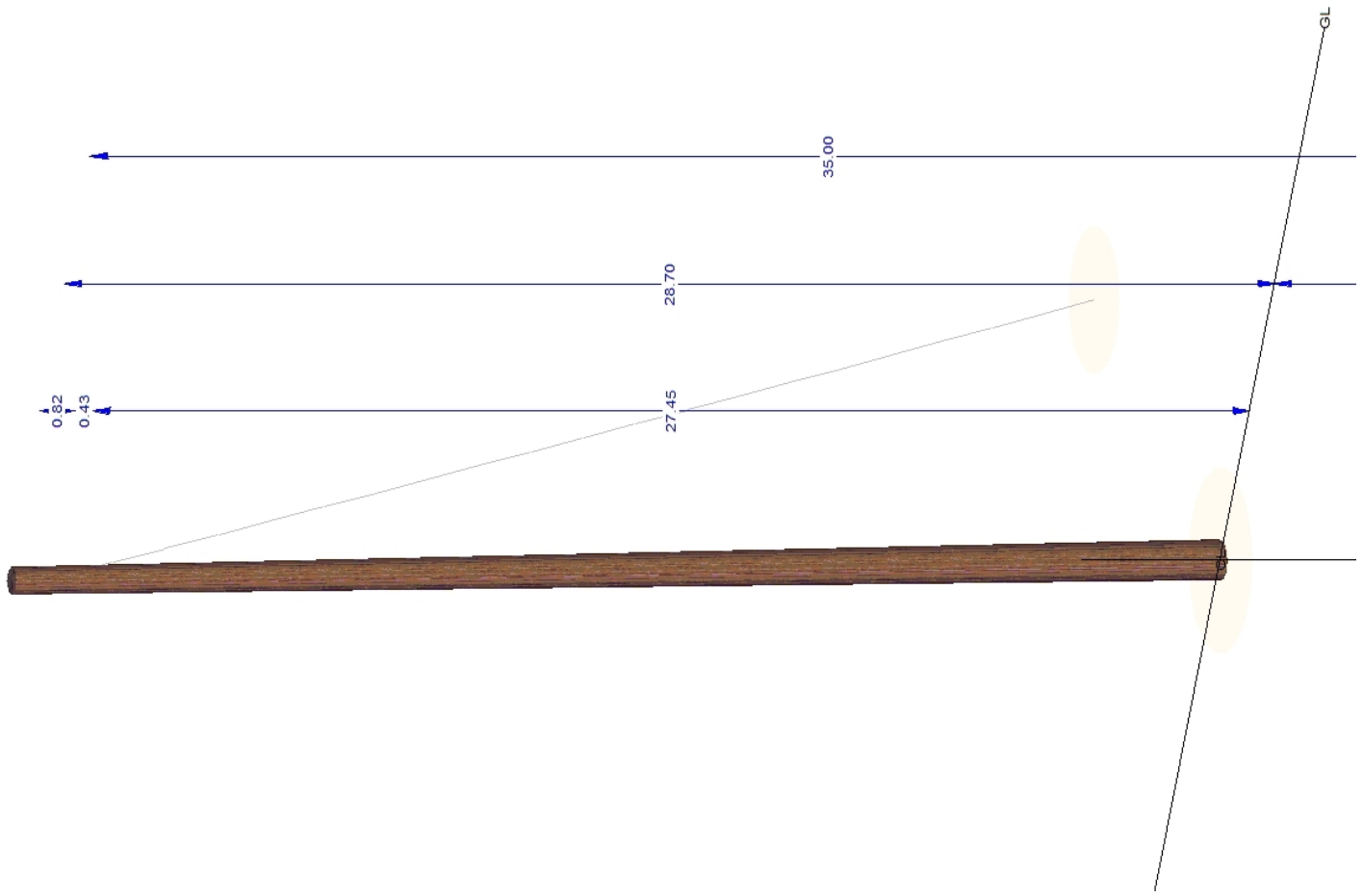
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	3/8" 7 Strand EHS (3/8G)	20.67	-13	27.45	P112798	10	13.9	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	16" CROSSPLATE MG				P112798	7	18.2	1.3	G.O.95 Heavy Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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0.36





Structure P258360
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage 48 % **Clearances OK?** Yes
Pole Usage 48 % G.O.95 Heavy Grade A at Replacement
Insulator Usage
Guy Usage 22 % G.O.95 Heavy Grade A at Replacement
Anchor Usage
Arm Usage

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L3
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P258360_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span **Latitude** 33.07841537°
Back Span 23 ft **Longitude** -116.58921062°
Ahead Span Az. 0° **Elevation** 4189 ft
Line Angle 0° **Tangent/DE** Terminal Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P258360	45	H2	Corten Steel	44.6	9		100	G.O.95 Heavy Grade A at Replacement	74	48	2.1	1.0	0
P258360	45	H2	Corten Steel	44.6	9		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	62	40	2.5	1.0	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
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Wire Tension Condition

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Guys and Cables

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Span	3 8-7 Strand Ehs Steel Sdge	24	141	28	P258360	22			G.O.95 Heavy Grade A at Replacement
Span	3 8-7 Strand Ehs Steel Sdge	24	141	27.4	P258360	5			Known Local Wind Heavy 85 MPH Grade A at Replacement

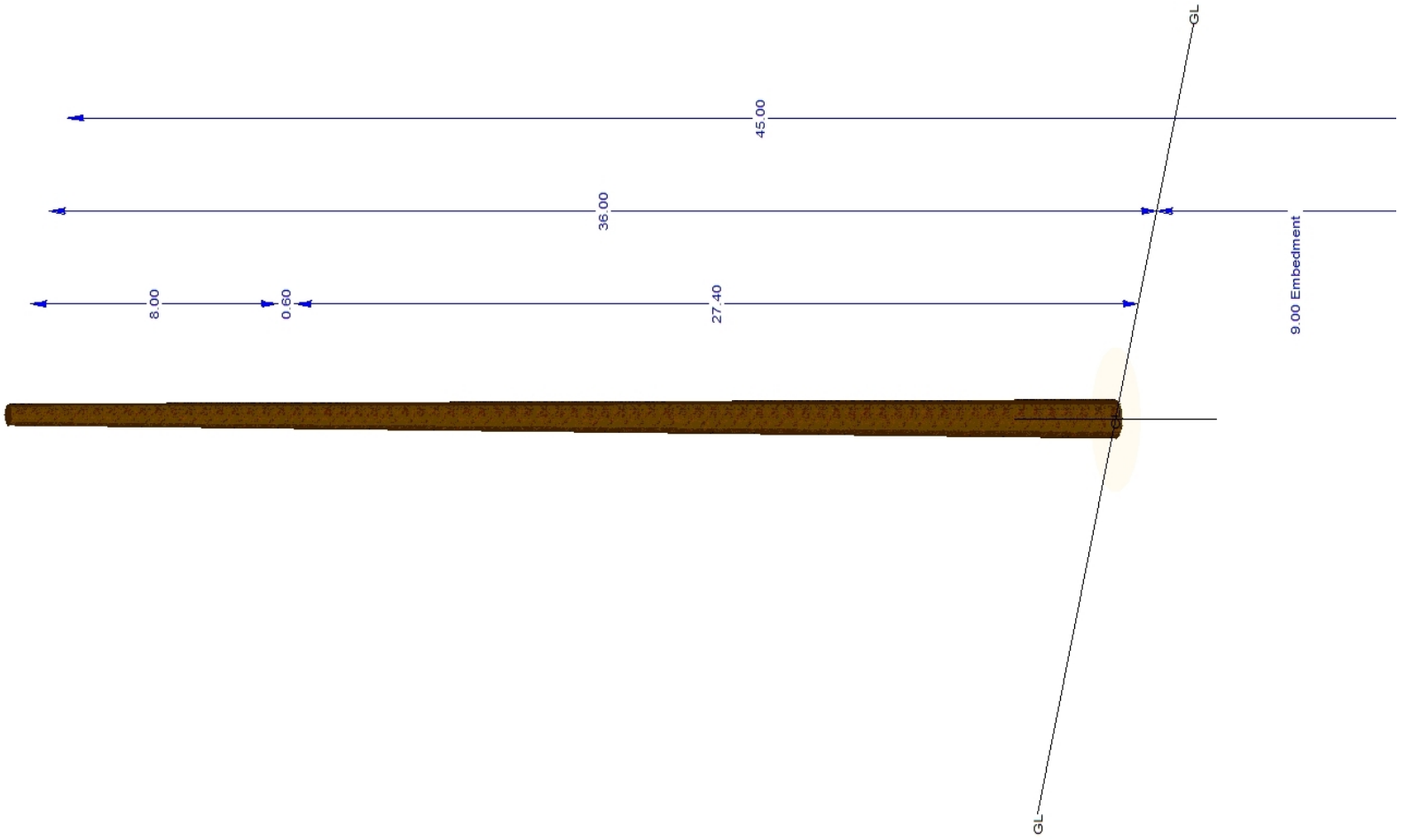
†Length = Lead Length for Down Guys, Wire Length for Span Guys

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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0.13





Structure P110218
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]

Engineer NV5
 [REDACTED]

Usage Summary

Max Usage	49 %	Clearances OK?	No
Pole Usage	49 %	G.O.95 Heavy Grade A at Replacement	
Insulator Usage	33 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	24 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage			
Arm Usage	2 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type	Finite Element L3
Analysis Software	PLS-CADD
Software Version	16.01
PRG Version	2019.3.4
Structure File	P110218_AS-BUILT.pol
Project File	C221_SEC_F_TRUEUP.xyz

Structure Details

Ahead Span	154 ft	Latitude	33.07836810°
Back Span	253 ft	Longitude	-116.58915915°
Ahead Span Az.	0°	Elevation	4191 ft
Line Angle	-179°	Tangent/DE	Dead End
Framing			
Notes			

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P110218	60	1	Corten Steel	47.5	8.3		100	G.O.95 Heavy Grade A at Replacement	71	49	2.0	1.0	0
P110218	60	1	Corten Steel	47.5	8.3		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	66	45	2.2	1.0	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	336Kcmil LINNET ACSR AW2 GCC	89	50.17	0.72	0.44	1	156	154	1773
12	336Kcmil LINNET ACSR AW2 GCC	89	50.17	0.72	0.44	1	154	154	1773
12	336Kcmil LINNET ACSR AW2 GCC	90	51.17	0.72	0.44	1	155	154	1773
12	No2 AWG 5Over2 AWAC GCC	142	43.47	0.33	0.11	1	228	227	994
12	No2 AWG 5Over2 AWAC GCC	142	43.47	0.33	0.11	1	227	227	994
12	No2 AWG 5Over2 AWAC GCC	142	43.47	0.33	0.11	1	225	227	994
12	336Kcmil LINNET ACSR AW2 GCC	267	51.17	0.72	0.44	1	253	250	1905
12	336Kcmil LINNET ACSR AW2 GCC	267	50.17	0.72	0.44	1	252	250	1905
12	336Kcmil LINNET ACSR AW2 GCC	267	50.17	0.72	0.44	1	254	250	1905
	1 In Firm Design Cable	90	24.29	1.13	0.40	1	155	155	863
	1-0 AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	142	36.38	0.98	0.48	1	226	226	737
	1 In Firm Design Cable	142	24.08	1.13	0.40	1	227	226	994
	1 In Firm Design Cable	268	24.29	1.13	0.40	1	193	190	1203
	1-0 AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	344	37.18	0.98	0.48	1	167	164	496

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	89	50.17	P110218	33	6.1	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	89	50.17	P110218	27	7.5	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	90	51.17	P110218	24	8.4	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	142	43.47	P110218	13	15.9	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	142	43.47	P110218	13	15.3	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	142	43.47	P110218	13	15.7	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	267	51.17	P110218	31	6.5	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	267	50.17	P110218	32	6.2	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	267	50.17	P110218	30	6.7	2.0	G.O.95 Heavy Grade A at Replacement

Guy and Cables

+Length = Lead Length for Down Guys, Wire Length for Span Guys

*Max Usage Location Measured From Groundline **Direction in degrees: 0 Degrees = Structure Longitudinal Axis towards Ahead Span CW+ ***Attach Height Measured From Groundline, GSI from Top of Guy

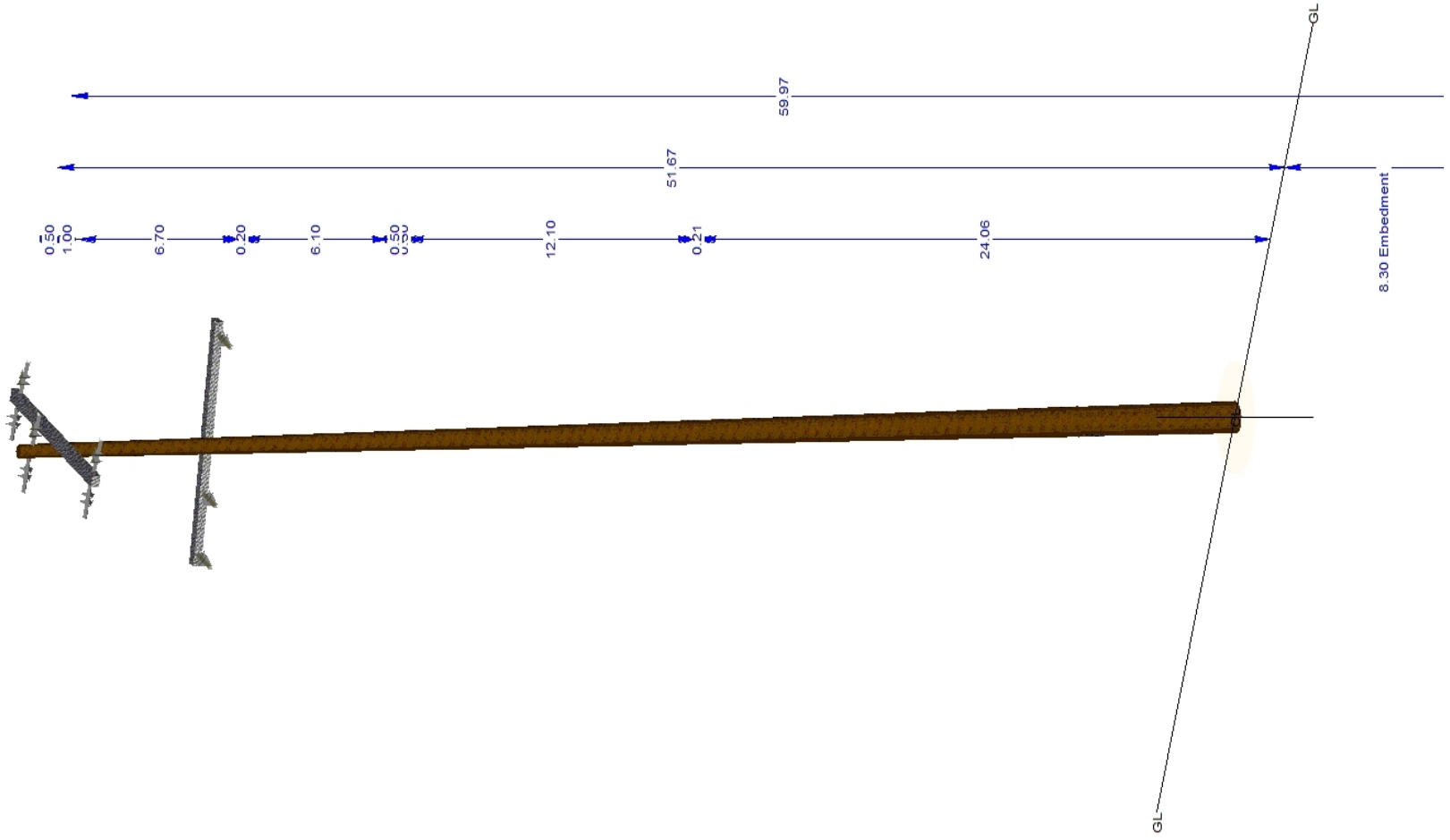
Type	Wire Type	Length* (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Span	3 8-7 Strand Ehs Steel Sdge	24	321	43.27	P110218, P258360	24			G.O.95 Heavy Grade A at Replacement
Span	3 8-7 Strand Ehs Steel Sdge	24	321	36.68	P110218, P258360	6			Known Local Wind Heavy 85 MPH Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10' DE FG ARM (4DF)	350	50.17	P110218	1	111.1	1.3	G.O.95 Heavy Grade A at Replacement
X-Arm	10' DE FG ARM (4DF)	255	43.47	P110218	2	55.6	1.3	G.O.95 Heavy Grade A at Replacement



0.60





Structure P112625
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage	42 %	Clearances OK?	Yes
Pole Usage	15 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	20 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	40 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	42 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage	3 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P112625_EXISTING.pol
Project File C221_SEC F_TRUEUP.xy

Structure Details

Ahead Span 328 ft **Latitude** 33.07457848°
Back Span 192 ft **Longitude** -116.58638314°
Ahead Span Az. 122° **Elevation** 4219 ft
Line Angle -134° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P112625	50	1	Corten Steel	43.9	6.5		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	18	15	6.6	1.0	0
P112625	50	1	Corten Steel	43.9	6.5		100	G.O.95 Heavy Grade A at Replacement	11	11	9.0	1.0	42

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	20	42.5	0.33	0.11	1	190	191	1185
12	No2 AWG 5Over2 AWAC GCC	20	42.5	0.33	0.11	1	191	191	1185
12	No2 AWG 5Over2 AWAC GCC	20	42.5	0.33	0.11	1	194	191	1185
12	No2 AWG 5Over2 AWAC GCC	157	42.5	0.33	0.11	1	327	328	976
12	No2 AWG 5Over2 AWAC GCC	157	42.5	0.33	0.11	1	328	328	976
12	No2 AWG 5Over2 AWAC GCC	157	42.5	0.33	0.11	1	328	328	976
	1-0 AWG Triplex SSC AL Neritina GCC	203	32	0.97	0.41	1	72	68	179

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	20	42.5	P112625	18	11.3	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	20	42.5	P112625	18	11.1	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	20	42.5	P112625	20	10.1	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	157	42.5	P112625	18	11.3	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	157	42.5	P112625	18	11.4	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	157	42.5	P112625	17	11.6	2.0	G.O.95 Heavy Grade A at Replacement

Guis and Cables

†Length = Lead Length for Down Guis, Wire Length for Span Guis

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	24.75	265	42	P112625	40	3.3	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	16" CROSSPLATE MG				P112625	42	3.2	1.3	G.O.95 Heavy Grade A at Replacement

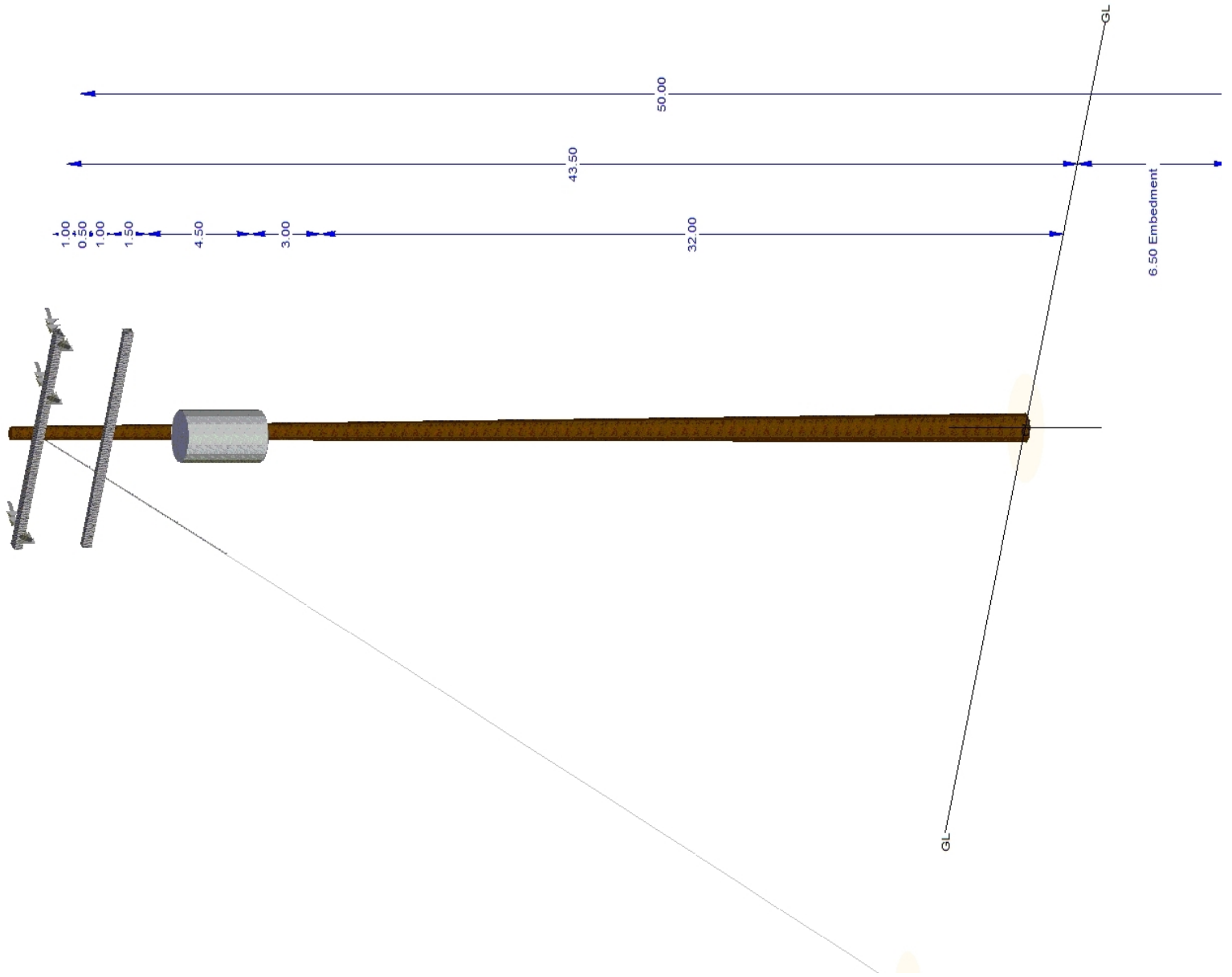
Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	25 kVA Transformer	157	35	P112625				
X-Arm	10' EQUIPMENT FG ARM (4TF)	90	39.5	P112625		1333.3	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
X-Arm	10' DE FG ARM (4DF)	90	42.5	P112625	3	44.4	1.3	G.O.95 Heavy Grade A at Replacement

*Max Usage Location Measured From Groundline **Direction in degrees: 0 Degrees = Structure Longitudinal Axis towards Ahead Span CW+ ***Attach Height Measured From Groundline, GSI from Top of Guy



0.47





Structure P111234
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]

Engineer NV5
 [REDACTED]

Usage Summary

Max Usage 41 % **Clearances OK?** Yes
Pole Usage 41 % G.O.95 Heavy Grade A at Replacement
Insulator Usage
Guy Usage
Anchor Usage
Arm Usage 8 % G.O.95 Heavy Grade A at Replacement

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L3
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P111234_EXISTING.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 83 ft **Latitude** 33.07495131°
Back Span 109 ft **Longitude** -116.58838765°
Ahead Span Az. 96° **Elevation** 4226 ft
Line Angle 180° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P111234	30	5	DF - Douglas Fir	27.7	4.4	12/11/2019	80	G.O.95 Heavy Grade A at Replacement	6	41	6.4	2.6	0
P111234	30	5	DF - Douglas Fir	27.7	4.4	12/11/2019	80	Known Local Wind Heavy 85 MPH Grade A at Replacement	9	32	4.2	1.3	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
	1 In Firm Design Cable	171	18.83	1.13	0.40	1	84	84	561
	No4 AWG 3-Strand Hard Drawn Bare CU-None	173	24.56	0.25	0.13	1	83	83	302
	No4 AWG 3-Strand Hard Drawn Bare CU-None	348	24.56	0.25	0.13	1	105	104	267
	1 In Firm Design Cable	354	18.83	1.13	0.40	1	108	107	658

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Guys and Cables

†Length = Lead Length for Down Guys, Wire Length for Span Guys

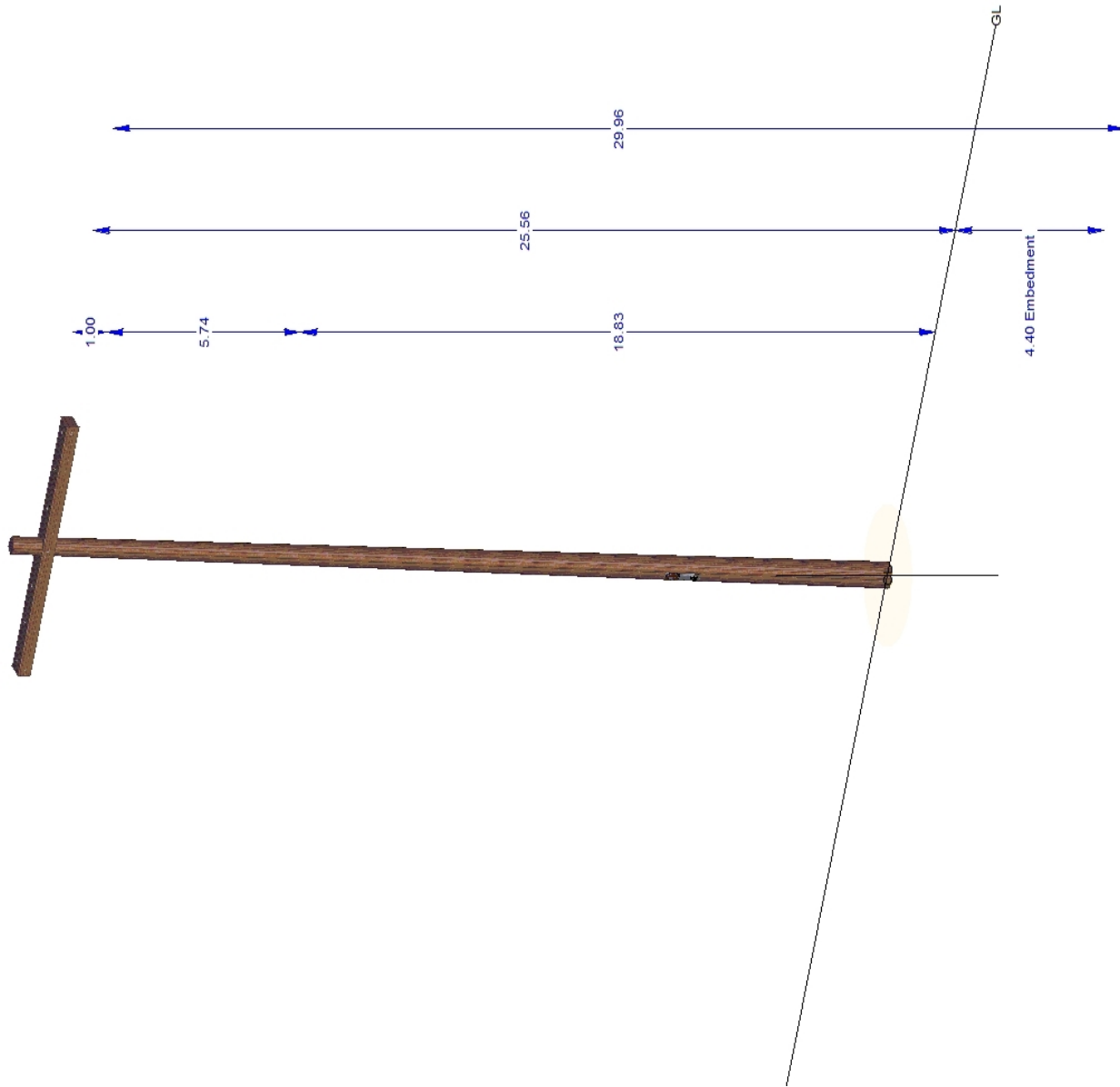
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	8' DBL WOOD ARMS (--)	90	24.56	P111234	8	16.3	1.3	G.O.95 Heavy Grade A at Replacement



0.15





Structure P246354
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [Redacted]
Engineer NV5 [Redacted]

Usage Summary

Max Usage 8% **Clearances OK?** Yes
Pole Usage 8% Known Local Wind Heavy 85 MPH Grade A at Replacement
Insulator Usage
Guy Usage 1% G.O.95 Heavy Grade A at Replacement
Anchor Usage
Arm Usage

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L3
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P246354_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span **Latitude** 33.07507069°
Back Span 46 ft **Longitude** -116.58798897°
Ahead Span Az. 0° **Elevation** 4212 ft
Line Angle 0° **Tangent/DE** Terminal Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P246354	40	1	Corten Steel	37.2	9.02		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	7	8	12.8	1.0	0
P246354	40	1	Corten Steel	37.2	9.02		100	G.O.95 Heavy Grade A at Replacement	5	6	18.2	1.0	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
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Wire Tension Condition

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Guys and Cables

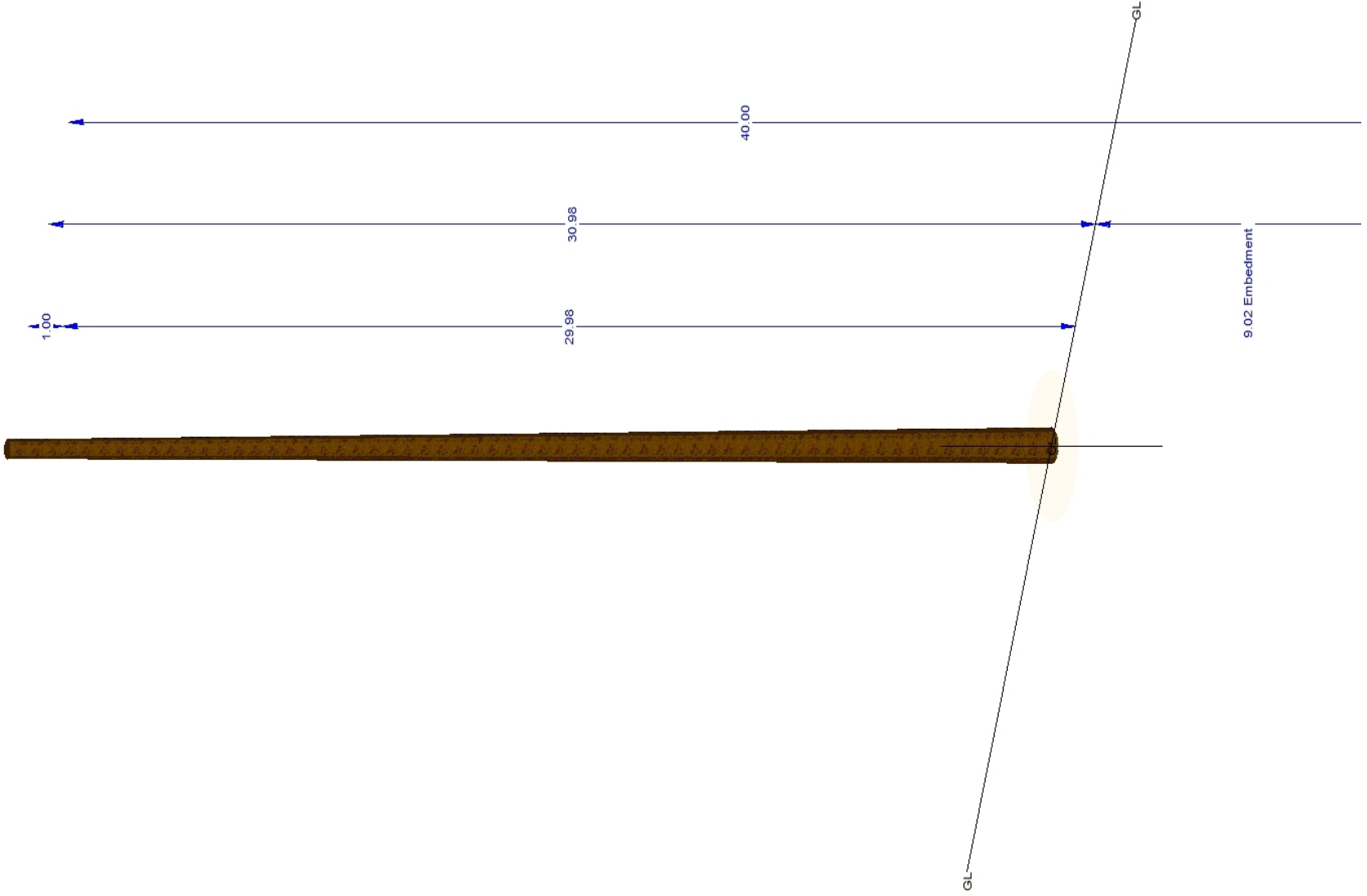
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Span	3 8-7 Strand Ehs Steel Sdge	46	197	29.98	P246354	1			G.O.95 Heavy Grade A at Replacement

†Length = Lead Length for Down Guys, Wire Length for Span Guys

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Structure P110709
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [Redacted]
Engineer NV5 [Redacted]

Usage Summary

Max Usage	34 %	Clearances OK?	Yes
Pole Usage	11 %		G.O.95 Heavy Grade A at Replacement
Insulator Usage	21 %		G.O.95 Heavy Grade A at Replacement
Guy Usage	29 %		G.O.95 Heavy Grade A at Replacement
Anchor Usage	34 %		G.O.95 Heavy Grade A at Replacement
Arm Usage	2 %		G.O.95 Heavy Grade A at Replacement

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P110709_AS-BUILT.pol
Project File C221_SEC_F_TRUEUP.xyz

Structure Details

Ahead Span 171 ft **Latitude** 33.07610248°
Back Span 219 ft **Longitude** -116.58823488°
Ahead Span Az. 173° **Elevation** 4217 ft
Line Angle 117° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P110709	60	H2	Corten Steel	52.5	7.4		100	G.O.95 Heavy Grade A at Replacement	8	11	8.9	1.0	38.6
P110709	60	H2	Corten Steel	52.5	7.4		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	15	8	12.0	1.0	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	10	51.6	0.33	0.11	1	219	212	1180
12	No2 AWG 5Over2 AWAC GCC	10	51.6	0.33	0.11	1	219	212	1180
12	No2 AWG 5Over2 AWAC GCC	10	51.6	0.33	0.11	1	219	212	1180
12	No2 AWG 5Over2 AWAC GCC	166	51.6	0.33	0.11	1	169	170	1018
12	No2 AWG 5Over2 AWAC GCC	166	51.6	0.33	0.11	1	170	170	1018
12	No2 AWG 5Over2 AWAC GCC	167	51.6	0.33	0.11	1	170	170	1018
	1-0 AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	10	40	0.98	0.48	1	219	219	1082
	1 In Firm Design Cable	10	25.11	1.13	0.40	1	219	219	1669
	1 In Firm Design Cable	10	24.03	1.13	0.40	1	219	219	1311
	1-0 AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	103	40	0.98	0.48	1	128	127	320
	1 In Firm Design Cable	103	23.56	1.13	0.40	1	127	127	704
	1-0 AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	166	39.8	0.98	0.48	1	171	171	1032
	1 In Firm Design Cable	166	25.11	1.13	0.40	1	171	171	1322
	1 In Firm Design Cable	166	24.03	1.13	0.40	1	171	171	1444

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	10	51.6	P110709	20	9.8	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	10	51.6	P110709	19	10.7	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	10	51.6	P110709	21	9.7	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	166	51.6	P110709	19	10.4	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	166	51.6	P110709	19	10.4	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	167	51.6	P110709	19	10.3	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

+Length = Lead Length for Down Guys, Wire Length for Span Guys

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	21.01	268	51.1	P110709	29	4.6	1.3	G.O.95 Heavy Grade A at Replacement

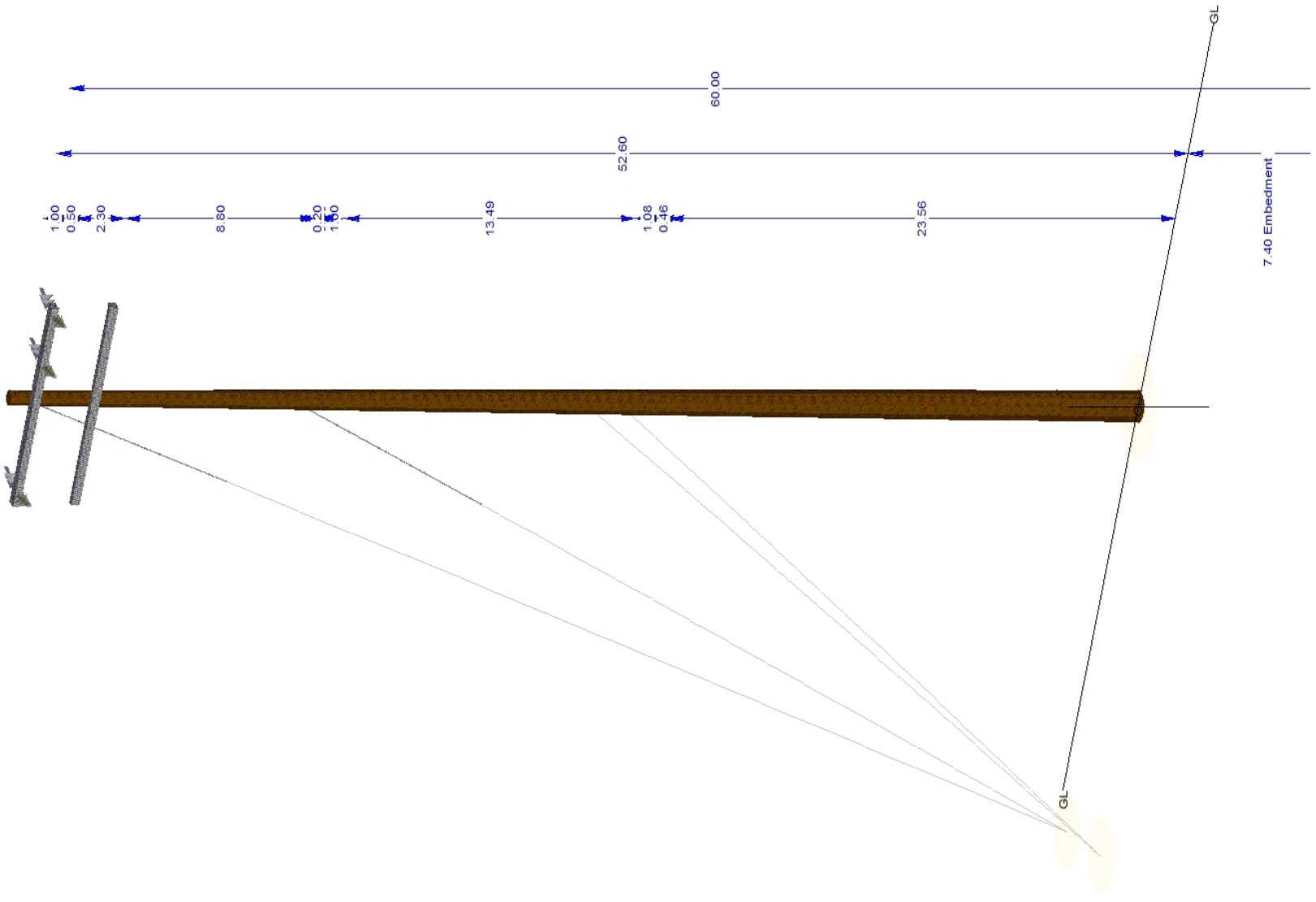
Down Anchor	7/16" 7 Strand EHS (7/16G) 24" CROSSPLATE MG	21.01	268	38.6	P110709 P110709	23 34	5.7 4.0	1.3 1.3	G.O.95 Heavy Grade A at Replacement G.O.95 Heavy Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	19.82	253	25.11	P110709	16	8.1	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	19.82	253	23.56	P110709	16	8.4	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Down Anchor	16" CROSSPLATE MG				P110709	25	5.4	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10' DE FG ARM (4DF)	90	51.6	P110709	2	70.2	1.3	G.O.95 Heavy Grade A at Replacement
X-Arm	10' EQUIPMENT FG ARM (4TF)	90	48.8	P110709			1.3	G.O.95 Heavy Grade A at Replacement



0.46





Structure P117926
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5
 [REDACTED]

Usage Summary

Max Usage	48 %	Clearances OK?	Yes
Pole Usage	24 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	12 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	32 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Anchor Usage	48 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Arm Usage	1 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P117926_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 111 ft **Latitude** 33.07683617°
Back Span 202 ft **Longitude** -116.58853396°
Ahead Span Az. 43° **Elevation** 4211 ft
Line Angle 42° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P117926	50	1	Corten Steel	43.2	7.85		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	25	24	4.2	1.0	0
P117926	50	1	Corten Steel	43.2	7.85		100	G.O.95 Heavy Grade A at Replacement	22	22	4.7	1.0	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	122	41.15	0.33	0.11	1	115	112	709
12	No2 AWG 5Over2 AWAC GCC	122	41.15	0.33	0.11	1	110	112	709
12	No2 AWG 5Over2 AWAC GCC	259	41.15	0.33	0.11	1	203	198	658
12	No2 AWG 5Over2 AWAC GCC	259	41.15	0.33	0.11	1	200	198	658
	1 In Firm Design Cable	122	26.21	1.13	0.40	1	112	112	1036
	1 In Firm Design Cable	122	25.15	1.13	0.40	1	112	112	777
	1 In Firm Design Cable	122	22.11	1.13	0.40	1	112	112	810
	1 In Firm Design Cable	259	26.21	1.13	0.40	1	201	201	948
	1 In Firm Design Cable	259	25.15	1.13	0.40	1	201	201	1022
	1 In Firm Design Cable	259	22.11	1.13	0.40	1	201	201	1205

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	122	41.15	P117926	12	16.8	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	122	41.15	P117926	12	16.3	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	259	41.15	P117926	12	17.1	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	259	41.15	P117926	11	17.7	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

†Length = Lead Length for Down Guys, Wire Length for Span Guys

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	.94	1	10	P117926	25	5.4	1.3	G.O.95 Heavy Grade A at Replacement
Down	7/16" 7 Strand EHS (7/16G)	.94	1	10	P117926	25	5.4	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	20" CROSSPLATE MG				P117926	39	3.4	1.3	G.O.95 Heavy Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	8.32	32	24.15	P117926	31	4.3	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	8.32	32	22.11	P117926	32	4.2	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	16" CROSSPLATE MG				P117926	48	2.8	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement

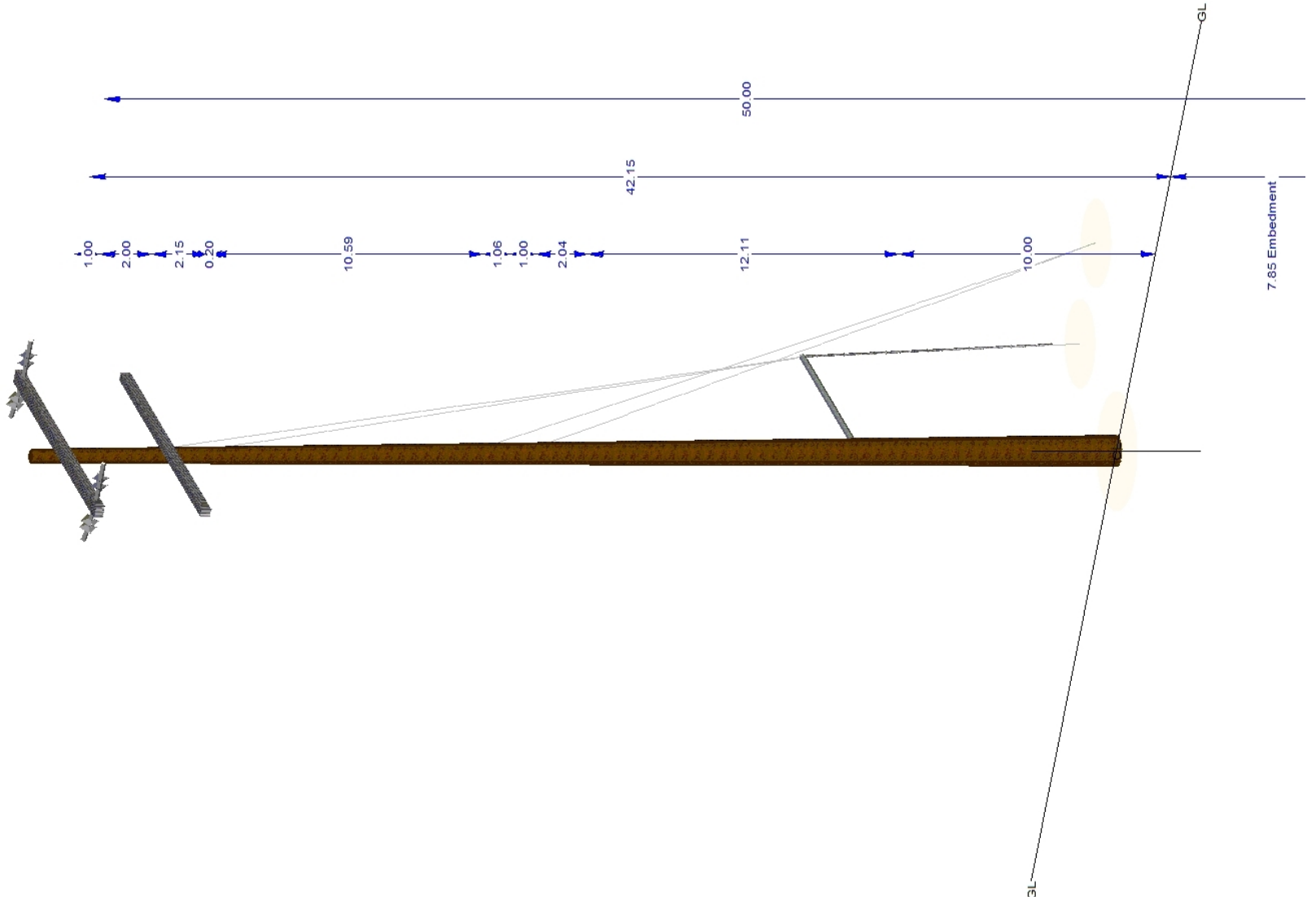
Cable	7/16" 7 Strand EHS (7/16G)	29.9	182	39.15, 10	P117926	25	5.3	1.3	G.O.95 Heavy Grade A at Replacement
Cable	7/16" 7 Strand EHS (7/16G)	27.63	182	36.8, 10	P117926	25	5.3	1.3	G.O.95 Heavy Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10' DE FG ARM (4DF)	0	41.15	P117926	1	133.3	1.3	G.O.95 Heavy Grade A at Replacement
X-Arm	10' EQUIPMENT FG ARM (4TF)	0	37	P117926			1.3	G.O.95 Heavy Grade A at Replacement
Tubular X-Arm	7' SW Anchor Strut	0	10	P117926	1	83.3	1.0	G.O.95 Heavy Grade A at Replacement



0.46





Structure P110219
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage	82 %	Clearances OK?	No
Pole Usage	27 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	82 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	22 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	18 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage	1 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P110219_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 227 ft **Latitude** 33.07787775°
Back Span 228 ft **Longitude** -116.58869927°
Ahead Span Az. 324° **Elevation** 4205 ft
Line Angle 124° **Tangent/DE** Tangent
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P110219	60	1	Corten Steel	47.4	8.33		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	40	27	3.7	1.0	0
P110219	60	1	Corten Steel	47.4	8.33		100	G.O.95 Heavy Grade A at Replacement	9	17	6.0	1.0	46.2

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	183	51.57	0.33	0.11	1	230	227	994
12	No2 AWG 5Over2 AWAC GCC	184	51.57	0.33	0.11	1	227	227	994
12	No2 AWG 5Over2 AWAC GCC	184	51.57	0.33	0.11	1	231	227	994
12	No2 AWG 5Over2 AWAC GCC	358	51.57	0.33	0.11	1	228	227	994
12	No2 AWG 5Over2 AWAC GCC	358	51.57	0.33	0.11	1	227	227	994
12	No2 AWG 5Over2 AWAC GCC	358	51.57	0.33	0.11	1	225	227	994
	1-0 AWG Triplex SSC AL Neritina GCC	128	37.01	0.97	0.41	1	83	81	161
	1 In Firm Design Cable	184	29.86	1.13	0.40	1	229	229	903
	1-0 AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	358	38.93	0.98	0.48	1	226	226	737
	1 In Firm Design Cable	358	29.86	1.13	0.40	1	227	226	994

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1" Pin)	12		50.67	P110219	57	3.5	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1" Pin)	12		50.67	P110219	71	2.8	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1" Pin)	12		50.67	P110219	82	2.4	2.0	G.O.95 Heavy Grade A at Replacement

Guis and Cables

+Length = Lead Length for Down Guis, Wire Length for Span Guis

Type	Wire Type	Length+ (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	15.04	93	46.17	P110219	22	6.0	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	20" CROSSPLATE MG				P110219	18	7.5	1.3	G.O.95 Heavy Grade A at Replacement
Down	7/16" 7 Strand EHS (7/16G)	15.94	178	39.67	P110219	12	11.6	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	20" CROSSPLATE MG				P110219	9	14.6	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	50 kVA Transformer	0	42.67	P110219				

*Max Usage Location Measured From Groundline **Direction in degrees: 0 Degrees = Structure Longitudinal Axis towards Ahead Span CW+ ***Attach Height Measured From Groundline, GSI from Top of Guy

X-Arm

10' TAN FG ARM (4TF)

272

50.67

P110219

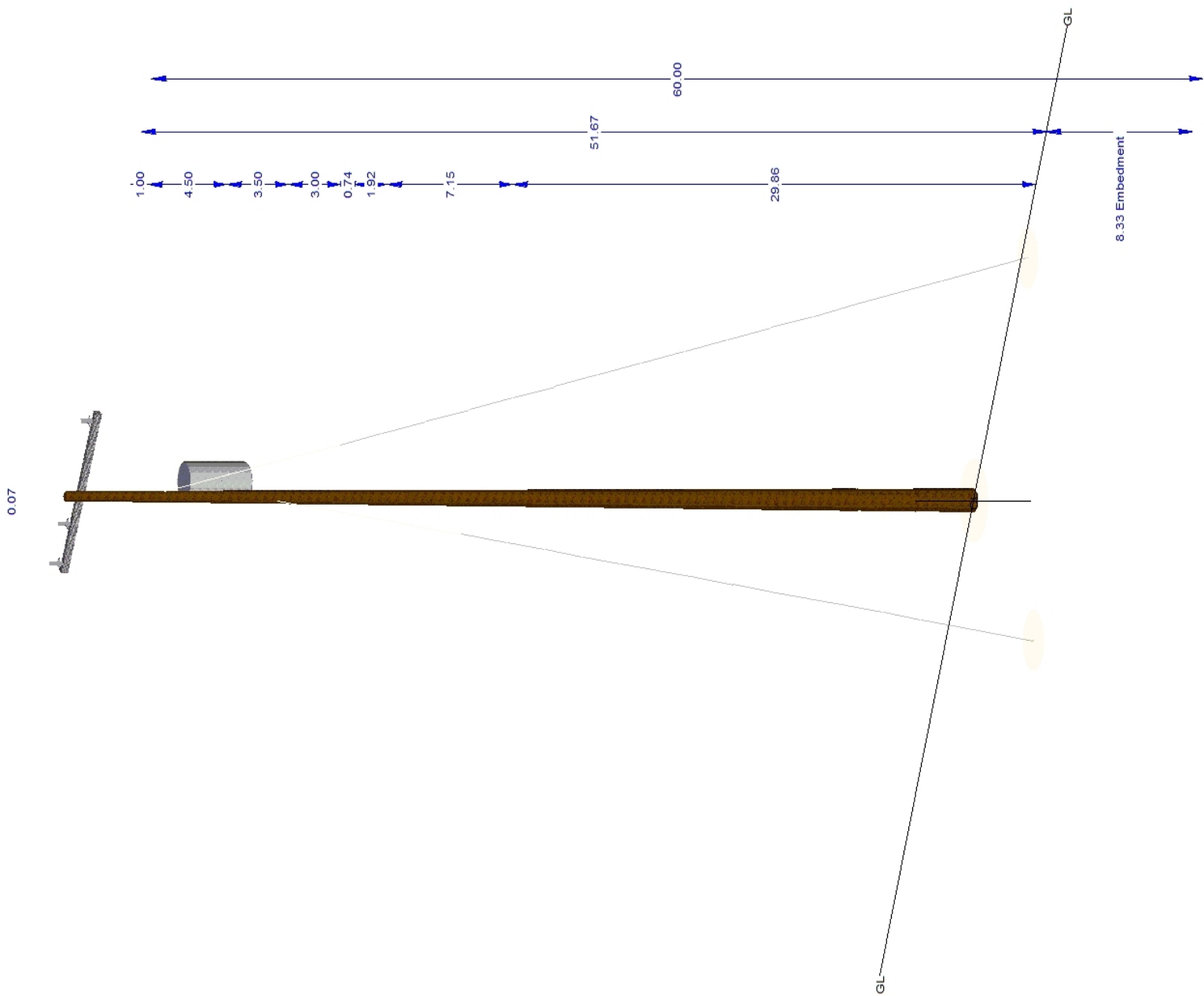
1

148.1

1.3

G.O.95 Heavy Grade A at Replacement







Structure P713310
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage	33 %	Clearances OK?	Yes
Pole Usage	23 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	20 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	32 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	33 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage	2 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P713310_AS-BUILT.pol
Project File C221_SEC_F_TRUEUP.xyz

Structure Details

Ahead Span 148 ft **Latitude** 33.07334840°
Back Span 211 ft **Longitude** -116.58836617°
Ahead Span Az. 11° **Elevation** 4340 ft
Line Angle -46° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P713310	45	1	Corten Steel	39.9	8.98		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	24	23	4.3	1.0	0
P713310	45	1	Corten Steel	39.9	8.98		100	G.O.95 Heavy Grade A at Replacement	23	23	4.4	1.0	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	220	34.93	0.33	0.11	1	211	200	1140
12	No2 AWG 5Over2 AWAC GCC	220	34.93	0.33	0.11	1	214	200	1140
12	No2 AWG 5Over2 AWAC GCC	354	34.93	0.33	0.11	1	145	229	1002
12	No2 AWG 5Over2 AWAC GCC	354	34.93	0.33	0.11	1	147	229	1002
	1 In Firm Design Cable	220	21.68	1.13	0.40	1	211	202	1410
	1 In Firm Design Cable	354	21.68	1.13	0.40	1	147	143	1198

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	220	34.93	P713310	19	10.5	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	220	34.93	P713310	20	10.0	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	354	34.93	P713310	16	12.6	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	354	34.93	P713310	15	13.1	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

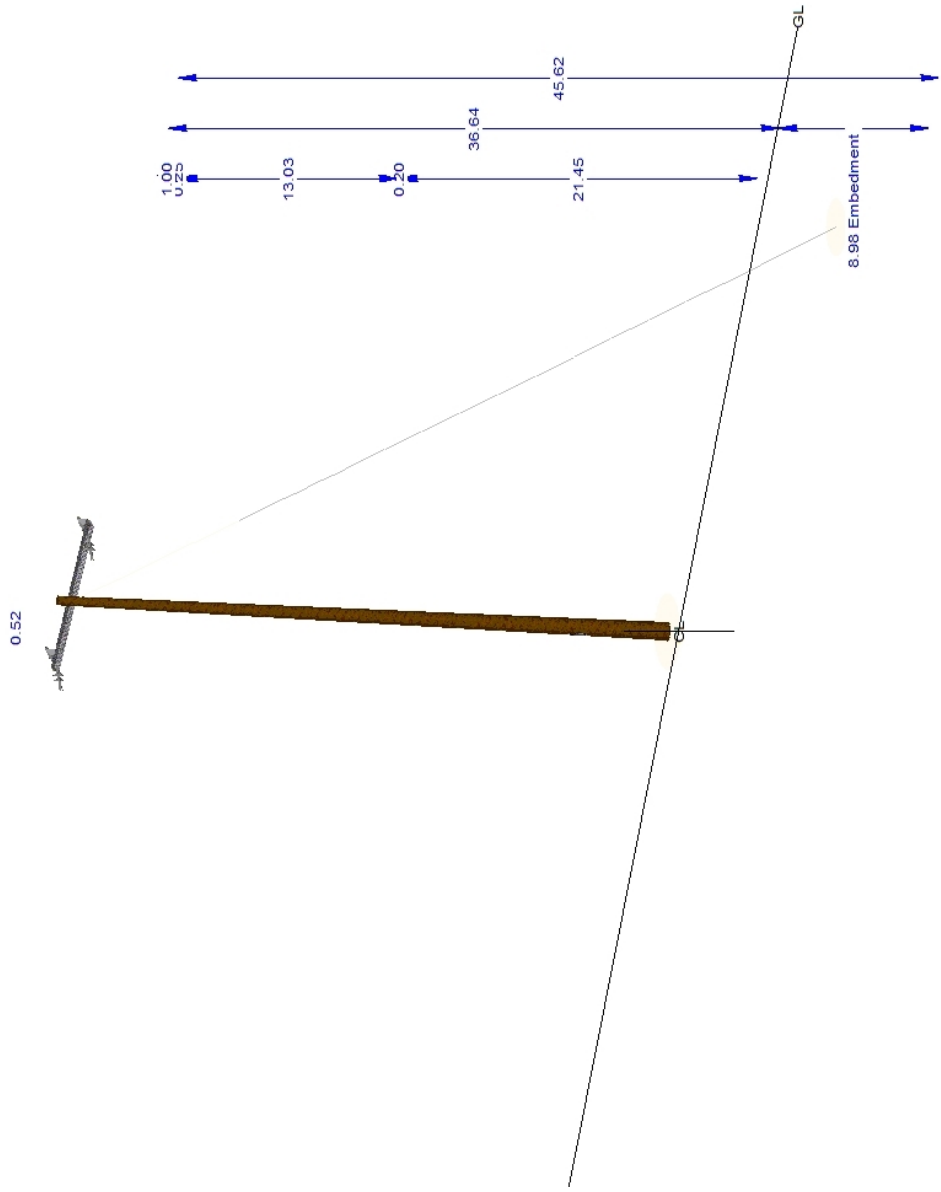
Type	Wire Type	Length+ (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	24.91	93	34.68	P713310	32	4.2	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	16" CROSSPLATE MG				P713310	33	4.1	1.3	G.O.95 Heavy Grade A at Replacement

+Length = Lead Length for Down Guys, Wire Length for Span Guys

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10' DE FG ARM (4DF)	275	34.93	P713310	2	88.9	1.3	G.O.95 Heavy Grade A at Replacement







Structure P516084
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]

Engineer NV5
 [REDACTED]

Usage Summary

Max Usage 39 % **Clearances OK?** Yes
Pole Usage 26 % Known Local Wind Heavy 85 MPH Grade A at Replacement
Insulator Usage 39 % G.O.95 Heavy Grade A at Replacement
Guy Usage
Anchor Usage
Arm Usage G.O.95 Heavy Grade A at Replacement

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P516084_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 151 ft **Latitude** 33.07375267°
Back Span 148 ft **Longitude** -116.58832307°
Ahead Span Az. 0° **Elevation** 4306 ft
Line Angle -105° **Tangent/DE** Tangent
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P516084	50	1	Corten Steel	43.0	8.17		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	32	26	3.9	1.0	0
P516084	50	1	Corten Steel	43.0	8.17		100	G.O.95 Heavy Grade A at Replacement	25	20	4.9	1.0	0

Wires

Wire Tension Condition	32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element												
Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)				
12	No2 AWG 5Over2 AWAC GCC	2	41.73	0.33	0.11	1	151	229	1002				
12	No2 AWG 5Over2 AWAC GCC	2	41.73	0.33	0.11	1	150	229	1002				
12	No2 AWG 5Over2 AWAC GCC	185	41.73	0.33	0.11	1	145	229	1002				
12	No2 AWG 5Over2 AWAC GCC	185	41.73	0.33	0.11	1	147	229	1002				
	1 In Firm Design Cable	2	24.97	1.13	0.40	1	151	149	1353				
	1 In Firm Design Cable	185	24.97	1.13	0.40	1	147	143	1198				
	No2 AWG Triplex SSC AL Conch GCC	259	31.85	0.77	0.26	1	31	26	52				

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1" Pin)	12		40.82	P516084	34	6.0	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1" Pin)	12		40.82	P516084	39	5.1	2.0	G.O.95 Heavy Grade A at Replacement

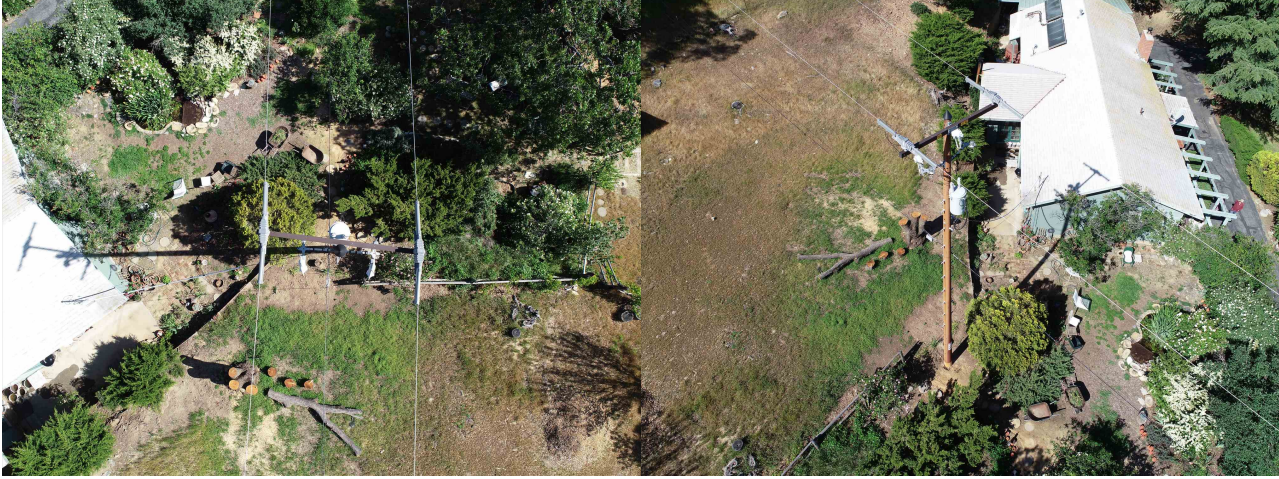
Guys and Cables

*Length = Lead Length for Down Guys, Wire Length for Span Guys

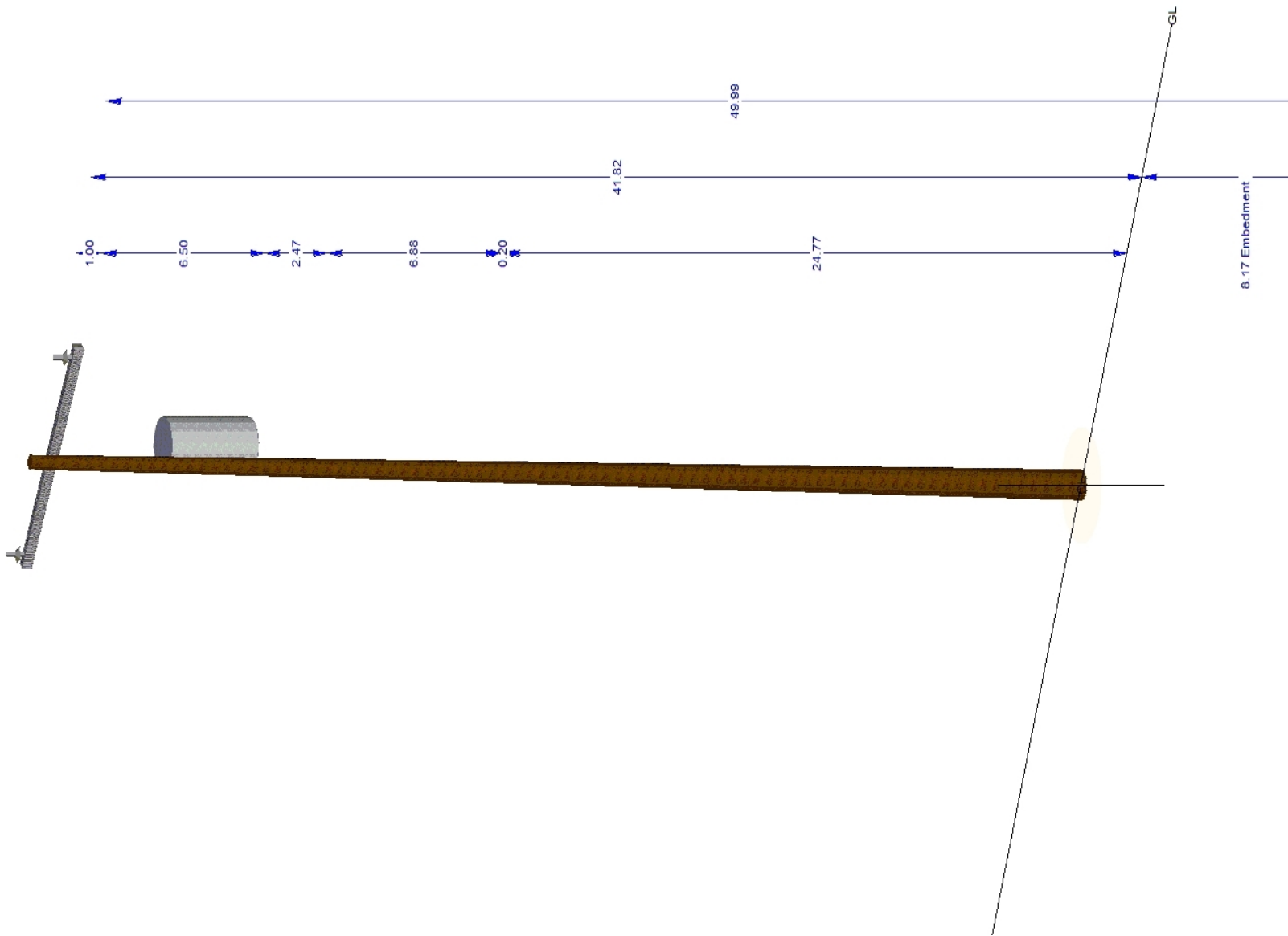
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	25 kVA Transformer	0	34.32	P516084				
X-Arm	10' TAN FG ARM (4TF)	275	40.82	P516084		666.7	1.3	G.O.95 Heavy Grade A at Replacement



0.70





Structure P516083
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage	49 %	Clearances OK?	Yes
Pole Usage	12 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	49 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	17 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	13 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage	1 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P516083_AS-BUILT.pol
Project File C221_SEC_F_TRUEUP.xyz

Structure Details

Ahead Span 296 ft **Latitude** 33.07416814°
Back Span 151 ft **Longitude** -116.58830358°
Ahead Span Az. 16° **Elevation** 4274 ft
Line Angle 14° **Tangent/DE** Tangent
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P516083	50	1	Corten Steel	43.4	7.5		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	14	12	8.3	1.0	29.8
P516083	50	1	Corten Steel	43.4	7.5		100	G.O.95 Heavy Grade A at Replacement	11	10	10.4	1.0	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	7	42.46	0.33	0.11	1	299	229	1002
12	No2 AWG 5Over2 AWAC GCC	7	42.46	0.33	0.11	1	293	229	1002
12	No2 AWG 5Over2 AWAC GCC	173	42.46	0.33	0.11	1	151	229	1002
12	No2 AWG 5Over2 AWAC GCC	173	42.46	0.33	0.11	1	150	229	1002
	1 In Firm Design Cable	7	29.75	1.13	0.40	1	296	289	1409
	1 In Firm Design Cable	173	29.75	1.13	0.40	1	151	149	1353

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1-3/8" Pin)	12		41.5	P516083	49	4.1	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1-3/8" Pin)	12		41.5	P516083	47	4.2	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	23.28	-88	41.25	P516083	17	8.0	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	20" CROSSPLATE MG				P516083	13	10.0	1.3	G.O.95 Heavy Grade A at Replacement

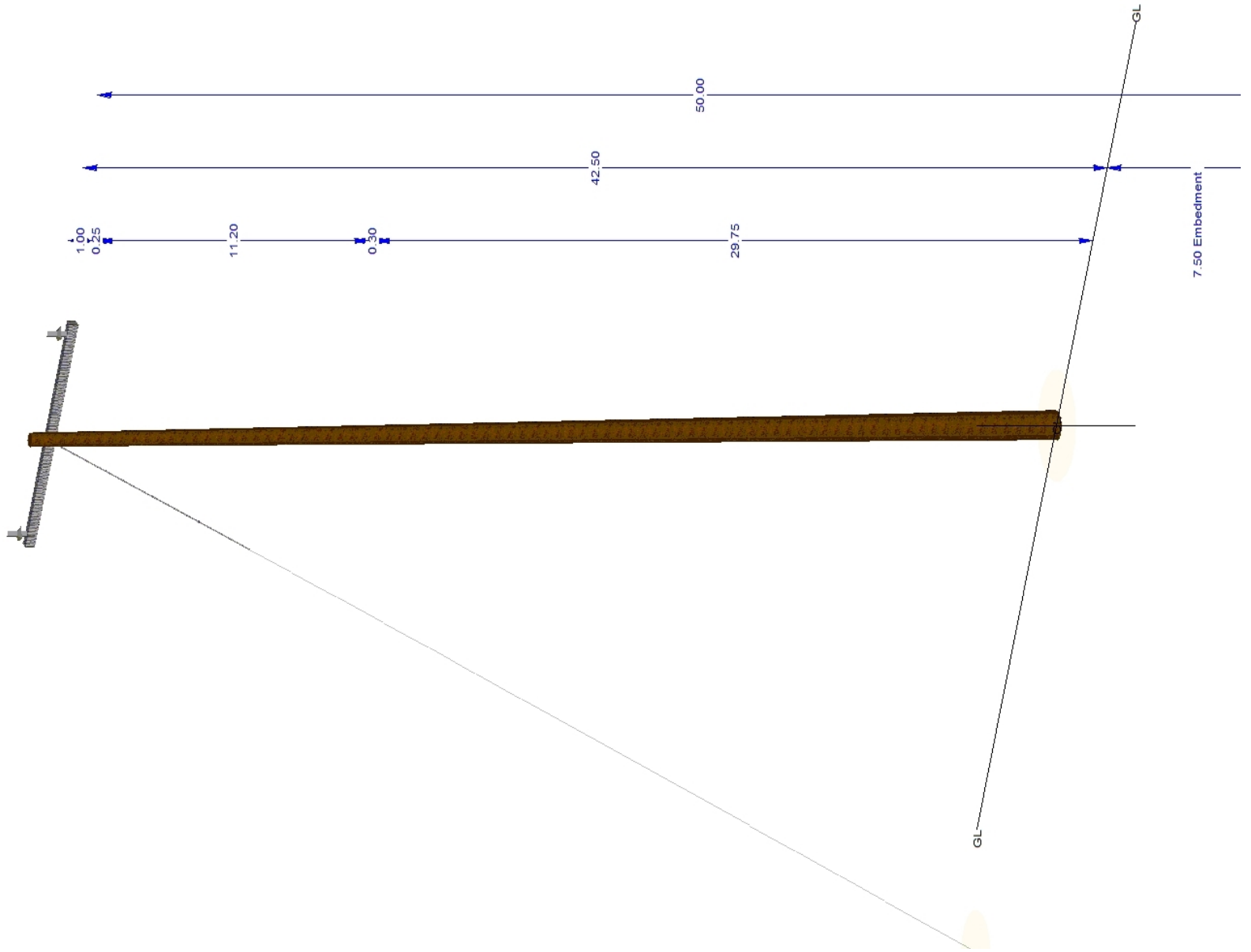
†Length = Lead Length for Down Guys, Wire Length for Span Guys

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10' TAN FG ARM (4TF)	270	41.5	P516083	1	222.2	1.3	G.O.95 Heavy Grade A at Replacement



0.62





Structure P110713
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5
 [REDACTED]

Usage Summary

Max Usage	63 %	Clearances OK?	No
Pole Usage	30 %	G.O.95 Heavy Grade A at Replacement	
Insulator Usage	63 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	35 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	29 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage	3 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P110713_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 213 ft **Latitude** 33.07494983°
Back Span 296 ft **Longitude** -116.58803316°
Ahead Span Az. 328° **Elevation** 4213 ft
Line Angle -143° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

<i>Pole Label</i>	<i>Height (ft)</i>	<i>Class</i>	<i>Material</i>	<i>Groundline Circum. (in)</i>	<i>Embed. (ft)</i>	<i>Date Intrusive</i>	<i>Material Capacity %</i>	<i>Load Case</i>	<i>Max Moment (ft-k)</i>	<i>Usage %</i>	<i>Calc SF</i>	<i>Req SF</i>	<i>Max Usage Point (ft)*</i>
P110713	55	1	Corten Steel	47.9	7.5		100	G.O.95 Heavy Grade A at Replacement	24	30	3.3	1.0	39.7
P110713	55	1	Corten Steel	47.9	7.5		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	24	23	4.4	1.0	39.7

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

<i>Voltage (kV)</i>	<i>Wire Type</i>	<i>Direction (deg)**</i>	<i>Attach Height*** (ft)</i>	<i>Diameter (in)</i>	<i>Unit Weight (lbs/ft)</i>	<i># of Wires</i>	<i>Span Length (ft)</i>	<i>Ruling Span (ft)</i>	<i>Tension (lbs)</i>
12	No2 AWG 5Over2 AWAC GCC	12	47.47	0.33	0.11	1	216	212	1180
12	No2 AWG 5Over2 AWAC GCC	12	47.47	0.33	0.11	1	215	212	1180
12	No2 AWG 5Over2 AWAC GCC	12	47.47	0.33	0.11	1	212	212	1180
12	No2 AWG 5Over2 AWAC GCC	147	47.47	0.33	0.11	1	198	212	1180
12	No2 AWG 5Over2 AWAC GCC	148	47.47	0.33	0.11	1	203	212	1180
12	No2 AWG 5Over2 AWAC GCC	148	47.47	0.33	0.11	1	201	212	1180
12	No2 AWG 5Over2 AWAC GCC	229	39.7	0.33	0.11	1	299	229	1002
12	No2 AWG 5Over2 AWAC GCC	229	39.7	0.33	0.11	1	293	229	1002
	1-0 AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	12	31.76	0.98	0.48	1	213	213	1338
	1 In Firm Design Cable	12	24.96	1.13	0.40	1	213	213	1565
	1 In Firm Design Cable	12	22.34	1.13	0.40	1	213	213	1137
	1 In Firm Design Cable	147	24.96	1.13	0.40	1	201	201	1637
	1 In Firm Design Cable	147	23.19	1.13	0.40	1	201	201	1211
	1 In Firm Design Cable	229	23.98	1.13	0.40	1	296	289	1409
	1 In Firm Design Cable	302	23.19	1.13	0.40	1	108	107	658

Insulators

<i>Type</i>	<i>Description</i>	<i>Voltage (kV)</i>	<i>Direction (deg)</i>	<i>Attach Height (ft)</i>	<i>Origin Pole</i>	<i>Usage %</i>	<i>Calc SF</i>	<i>Req SF</i>	<i>Load Case</i>
Post	12kV Clamp Top-Al (1-3/8" Pin) DBL	12		46.5	P110713	63	3.2	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1-3/8" Pin) DBL	12		46.5	P110713	60	3.3	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1-3/8" Pin) DBL	12		46.5	P110713	63	3.2	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	229	39.7	P110713	17	11.7	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	229	39.7	P110713	17	12.0	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

+Length = Lead Length for Down Guys, Wire Length for Span Guys

<i>Type</i>	<i>Wire Type</i>	<i>Length† (ft)</i>	<i>Direction (deg)</i>	<i>Attach Height (ft)</i>	<i>Origin Pole</i>	<i>Usage %</i>	<i>Calc SF</i>	<i>Req SF</i>	<i>Load Case</i>
Down	7/16" 7 Strand EHS (7/16G)	19.77	260	45.5	P110713	35	3.9	1.3	G.O.95 Heavy Grade A at Replacement

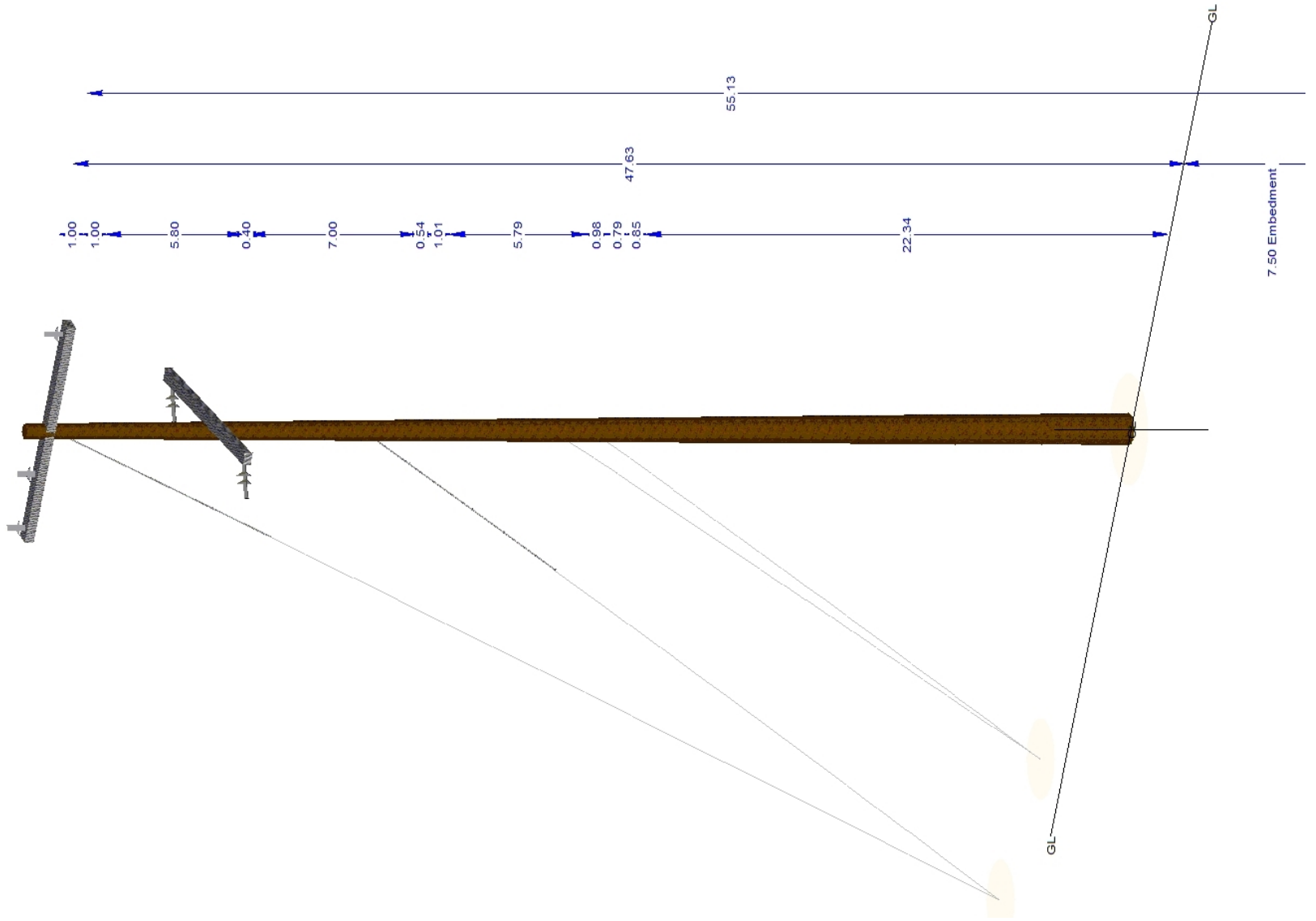
Down Anchor	7/16" 7 Strand EHS (7/16G) 24" CROSSPLATE MG	19.77	260	32.3	P110713 P110713	11 29	12.7 4.6	1.3 1.3	G.O.95 Heavy Grade A at Replacement G.O.95 Heavy Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	13.6	260	23.98	P110713	5	25.0	1.3	G.O.95 Heavy Grade A at Replacement
Down Anchor	3/8" 7 Strand EHS (3/8G) 16" CROSSPLATE MG	13.6	260	22.34	P110713 P110713	5 8	26.3 16.9	1.3 1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement Known Local Wind Heavy 85 MPH Grade A at Replacement
Span	3 8-7 Strand Ehs Steel Sdgc	46	49	39.3	P110713, P246354	1			G.O.95 Heavy Grade A at Replacement
Span	3 8-7 Strand Ehs Steel Sdgc	201	147	30.75	P110713	10			G.O.95 Heavy Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10' DE FG ARM (4DF)	350	39.7	P110713	1	95.2	1.3	G.O.95 Heavy Grade A at Replacement
X-Arm	10' DBL TAN FG ARMS (4TF-2)	90	46.5	P110713	3	44.4	1.3	G.O.95 Heavy Grade A at Replacement



0.12





Structure P416139
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage	50 %	Clearances OK?	Yes
Pole Usage	25 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	19 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	41 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	50 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Arm Usage	1 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P416139_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xy

Structure Details

Ahead Span 274 ft **Latitude** 33.07495273°
Back Span 257 ft **Longitude** -116.59006776°
Ahead Span Az. 267° **Elevation** 4224 ft
Line Angle 25° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P416139	55	1	Corten Steel	48.3	6.7		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	34	25	4.0	1.0	0
P416139	55	1	Corten Steel	48.3	6.7		100	G.O.95 Heavy Grade A at Replacement	26	20	5.0	1.0	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	96	47.3	0.33	0.11	1	274	267	1102
12	No2 AWG 5Over2 AWAC GCC	96	47.3	0.33	0.11	1	274	267	1102
12	No2 AWG 5Over2 AWAC GCC	250	47.3	0.33	0.11	1	257	253	1078
12	No2 AWG 5Over2 AWAC GCC	250	47.3	0.33	0.11	1	253	253	1078
	1 In Firm Design Cable	96	29.1	1.13	0.40	1	274	272	1839
	1 In Firm Design Cable	96	28.4	1.13	0.40	1	274	272	1600
	1 In Firm Design Cable	96	27.49	1.13	0.40	1	274	272	1396
	1-0 AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	250	36.68	0.98	0.48	1	256	254	1259

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	96	47.3	P416139	17	11.7	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	96	47.3	P416139	18	11.4	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	250	47.3	P416139	18	10.9	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	250	47.3	P416139	19	10.6	2.0	G.O.95 Heavy Grade A at Replacement

Guis and Cables

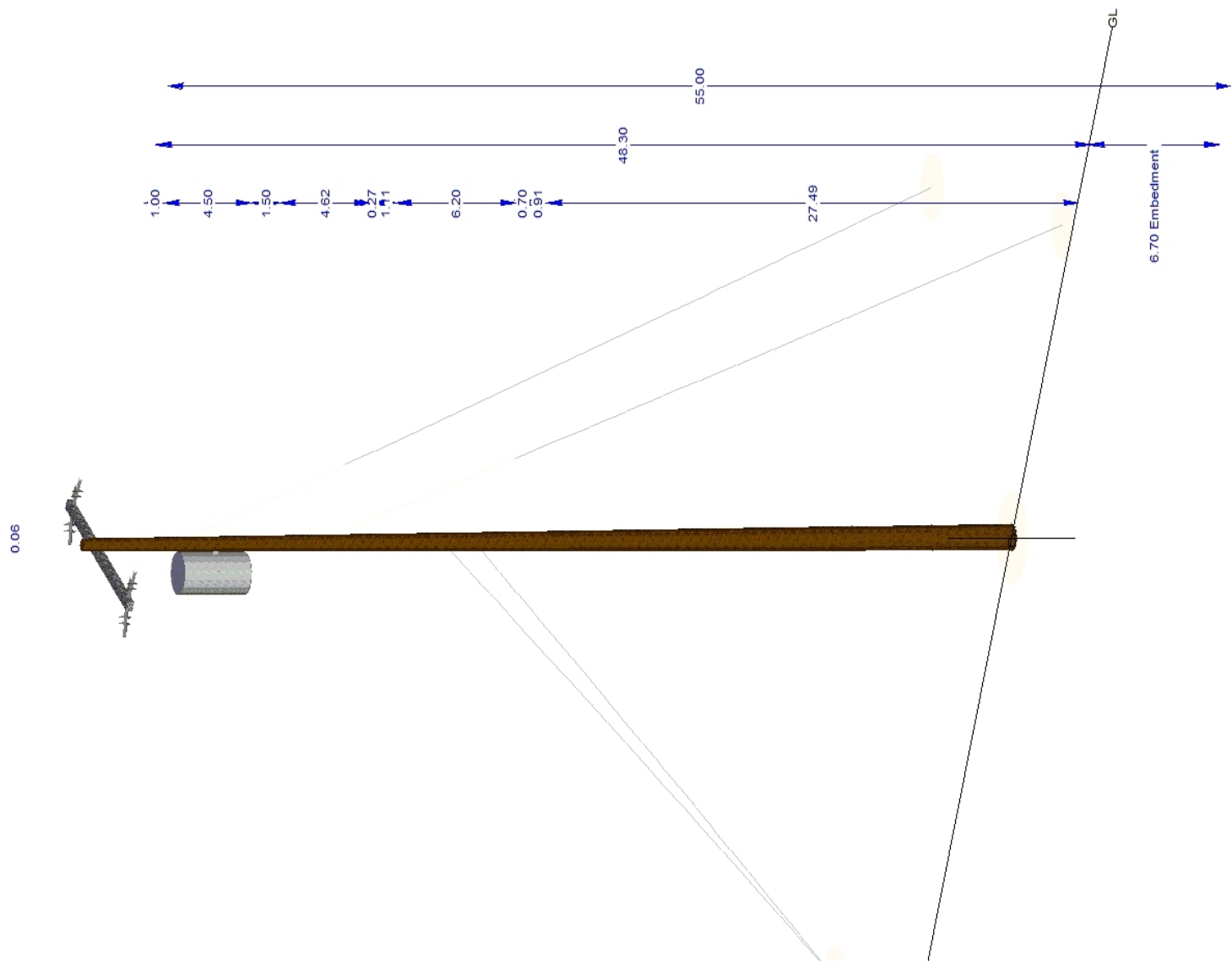
*Length = Lead Length for Down Guis, Wire Length for Span Guis

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	20.38	27	42.8	P416139	41	3.3	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	16" CROSSPLATE MG				P416139	42	3.2	1.3	G.O.95 Heavy Grade A at Replacement
Down	7/16" 7 Strand EHS (7/16G)	15.22	68	35.3	P416139	3	49.9	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	24" CROSSPLATE MG				P416139	2	79.8	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	24.54	-88	29.1	P416139	33	4.1	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	24.54	-88	27.49	P416139	32	4.2	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	16" CROSSPLATE MG				P416139	50	2.7	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	25 kVA Transformer	270	41.3	P416139				
X-Arm	10' DE FG ARM (4DF)	180	47.3	P416139	1	133.3	1.3	G.O.95 Heavy Grade A at Replacement







Structure P416138
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [Redacted]
Engineer NV5 [Redacted]

Usage Summary

Max Usage 52 % **Clearances OK?** No
Pole Usage 52 % Known Local Wind Heavy 85 MPH Grade A at Replacement
Insulator Usage 22 % G.O.95 Heavy Grade A at Replacement
Guy Usage
Anchor Usage
Arm Usage G.O.95 Heavy Grade A at Replacement

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P416138_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 271 ft **Latitude** 33.07570477°
Back Span 274 ft **Longitude** -116.59002977°
Ahead Span Az. 0° **Elevation** 4198 ft
Line Angle -2° **Tangent/DE** Tangent
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P416138	55	1	Corten Steel	48.3	6.7		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	81	52	1.9	1.0	0
P416138	55	1	Corten Steel	48.3	6.7		100	G.O.95 Heavy Grade A at Replacement	55	36	2.8	1.0	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	1	48.27	0.33	0.11	1	272	267	1102
12	No2 AWG 5Over2 AWAC GCC	1	48.27	0.33	0.11	1	269	267	1102
12	No2 AWG 5Over2 AWAC GCC	183	48.27	0.33	0.11	1	274	267	1102
12	No2 AWG 5Over2 AWAC GCC	183	48.27	0.33	0.11	1	274	267	1102
	1 In Firm Design Cable	1	24.29	1.13	0.40	1	271	270	1529
	1 In Firm Design Cable	1	23.37	1.13	0.40	1	271	270	1422
	1 In Firm Design Cable	1	22.45	1.13	0.40	1	271	270	1299
	1 In Firm Design Cable	183	24.29	1.13	0.40	1	274	272	1839
	1 In Firm Design Cable	183	23.37	1.13	0.40	1	274	272	1600
	1 In Firm Design Cable	183	22.45	1.13	0.40	1	274	272	1396

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1-3/8" Pin)	12		47.3	P416138	21	9.3	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1-3/8" Pin)	12		47.3	P416138	22	9.1	2.0	G.O.95 Heavy Grade A at Replacement

Guis and Cables

*Length = Lead Length for Down Guis, Wire Length for Span Guis

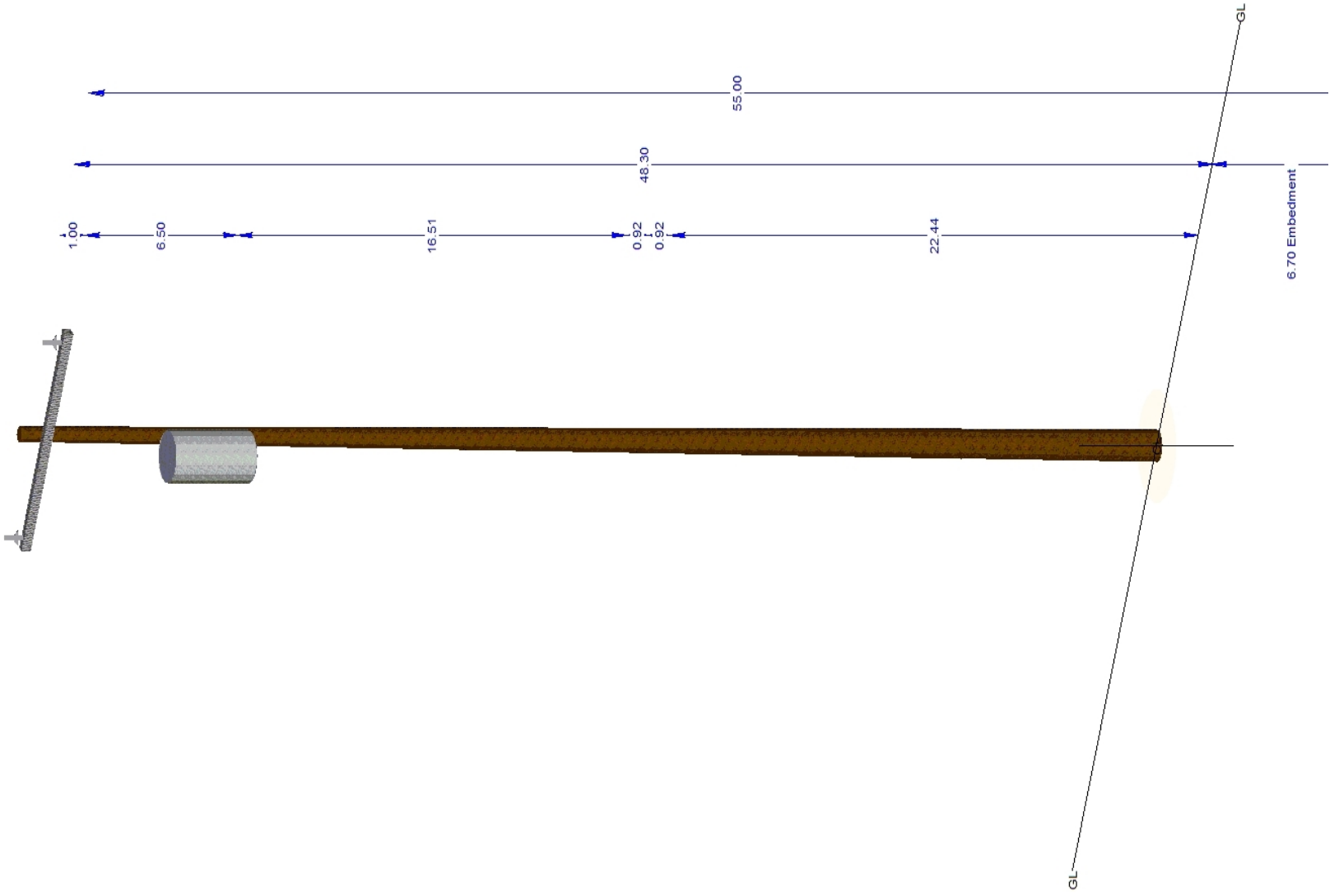
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	25 kVA Transformer	180	40.8	P416138				
X-Arm	10' TAN FG ARM (4TF)	90	47.3	P416138		444.4	1.3	G.O.95 Heavy Grade A at Replacement



0.40





Structure P410411
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5
 [REDACTED]

Usage Summary

Max Usage	46 %	Clearances OK?	No
Pole Usage	39 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	32 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	46 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Anchor Usage	35 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Arm Usage	1 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P410411_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 256 ft **Latitude** 33.07644918°
Back Span 271 ft **Longitude** -116.59001689°
Ahead Span Az. 22° **Elevation** 4182 ft
Line Angle 169° **Tangent/DE** Tangent
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P410411	60	1	Corten Steel	47.5	8.2		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	58	39	2.5	1.0	0
P410411	60	1	Corten Steel	47.5	8.2		100	G.O.95 Heavy Grade A at Replacement	47	33	3.1	1.0	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	-1	51.77	0.33	0.11	1	255	267	1102
12	No2 AWG 5Over2 AWAC GCC	-1	51.77	0.33	0.11	1	256	267	1102
12	No2 AWG 5Over2 AWAC GCC	159	51.77	0.33	0.11	1	272	267	1102
12	No2 AWG 5Over2 AWAC GCC	159	51.77	0.33	0.11	1	269	267	1102
	1 In Firm Design Cable	-1	25.79	1.13	0.40	1	255	255	1043
	1 In Firm Design Cable	159	28	1.13	0.40	1	271	270	1529
	1 In Firm Design Cable	159	26.93	1.13	0.40	1	271	270	1422
	1 In Firm Design Cable	159	25.79	1.13	0.40	1	271	270	1299
	1 In Firm Design Cable	172	24.05	1.13	0.40	1	39	39	109
	1 In Firm Design Cable	230	28.2	1.13	0.40	1	224	224	1247
	1 In Firm Design Cable	230	26.73	1.13	0.40	1	224	224	1276
	1 In Firm Design Cable	230	24.05	1.13	0.40	1	224	224	1131
	1 In Firm Design Cable	348	26.93	1.13	0.40	1	226	226	1584
	1 In Firm Design Cable	348	26.73	1.13	0.40	1	227	227	1226

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1-3/8" Pin) DBL	12		50.8	P410411	32	6.2	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1-3/8" Pin) DBL	12		50.8	P410411	32	6.2	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

*Length = Lead Length for Down Guys, Wire Length for Span Guys

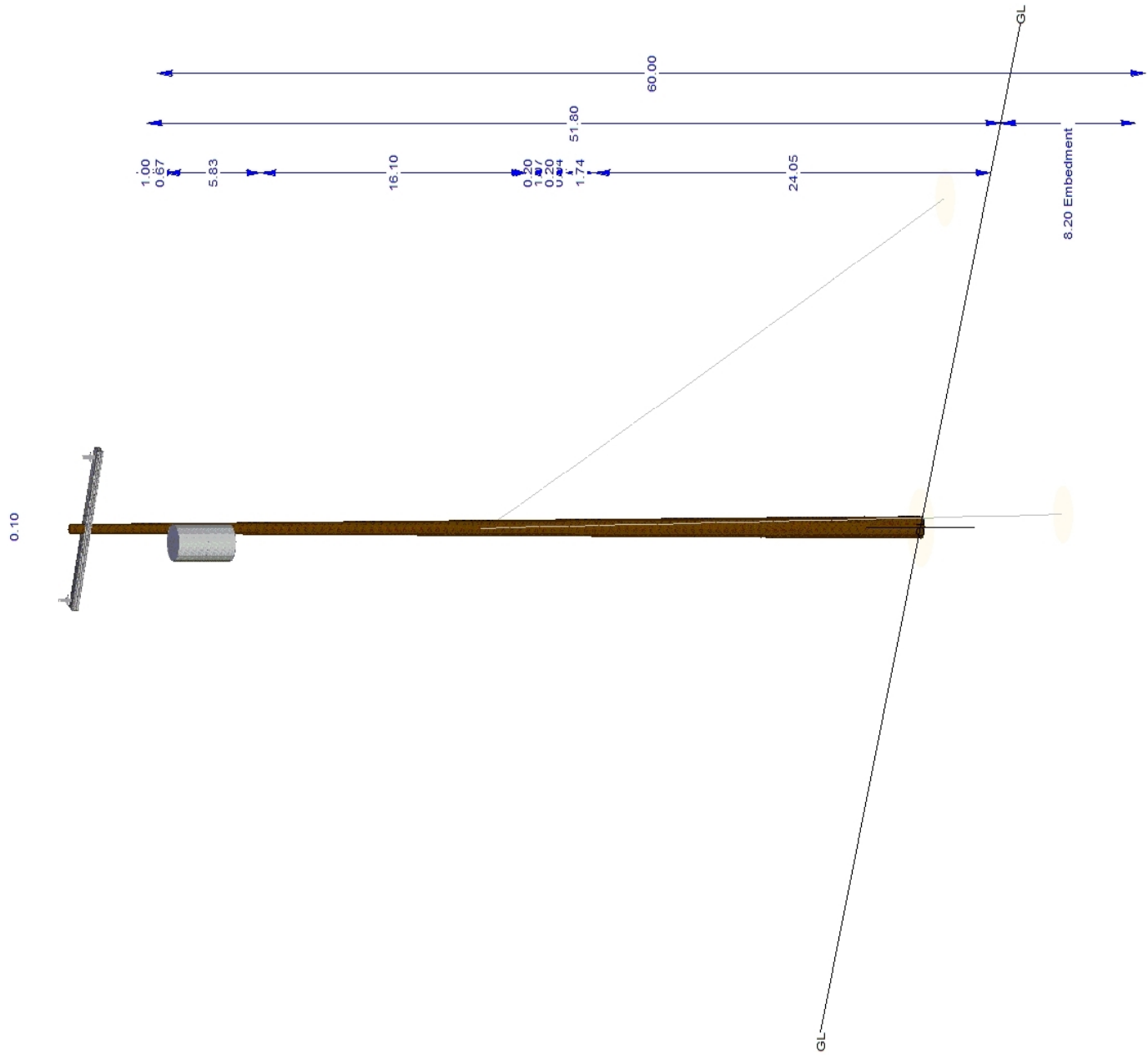
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	3/8" 7 Strand EHS (3/8G)	26.99	148	26.93	P410411	1	173.2	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	16" CROSSPLATE MG				P410411	1	242.4	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	19.13	76	25.79	P410411	46	2.9	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	16" CROSSPLATE MG				P410411	35	3.8	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement

Span 3 8-7 Strand Ehs Steel Sdge 39 273 50.13 P410411, P246353 12 G.O.95 Heavy Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	25 kVA Transformer	180	44.3	P410411				
X-Arm	10' DBL TAN FG ARMS (4TF-2)	85	50.8	P410411	1	166.7	1.3	G.O.95 Heavy Grade A at Replacement







Structure P246353
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5
 [REDACTED]

Usage Summary

Max Usage 18 % **Clearances OK?** Yes
Pole Usage 10 % Known Local Wind Heavy 85 MPH Grade A at Replacement
Insulator Usage
Guy Usage 18 % G.O.95 Heavy Grade A at Replacement
Anchor Usage 15 % G.O.95 Heavy Grade A at Replacement
Arm Usage

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P246353_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span **Latitude** 33.07649125°
Back Span 38 ft **Longitude** -116.59012932°
Ahead Span Az. 0° **Elevation** 4180 ft
Line Angle 0° **Tangent/DE** Terminal Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P246353	40	1	Corten Steel	39.3	5.15		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	10	10	10.2	1.0	0
P246353	40	1	Corten Steel	39.3	5.15		100	G.O.95 Heavy Grade A at Replacement	5	6	15.9	1.0	33.9

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
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Wire Tension Condition

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Guys and Cables

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	16.14	-64	34.33	P246353	18	7.3	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	20" CROSSPLATE MG				P246353	15	9.2	1.3	G.O.95 Heavy Grade A at Replacement
Span	3 8-7 Strand Ehs Steel Sdgc	39	115	33.83	P246353	13			G.O.95 Heavy Grade A at Replacement

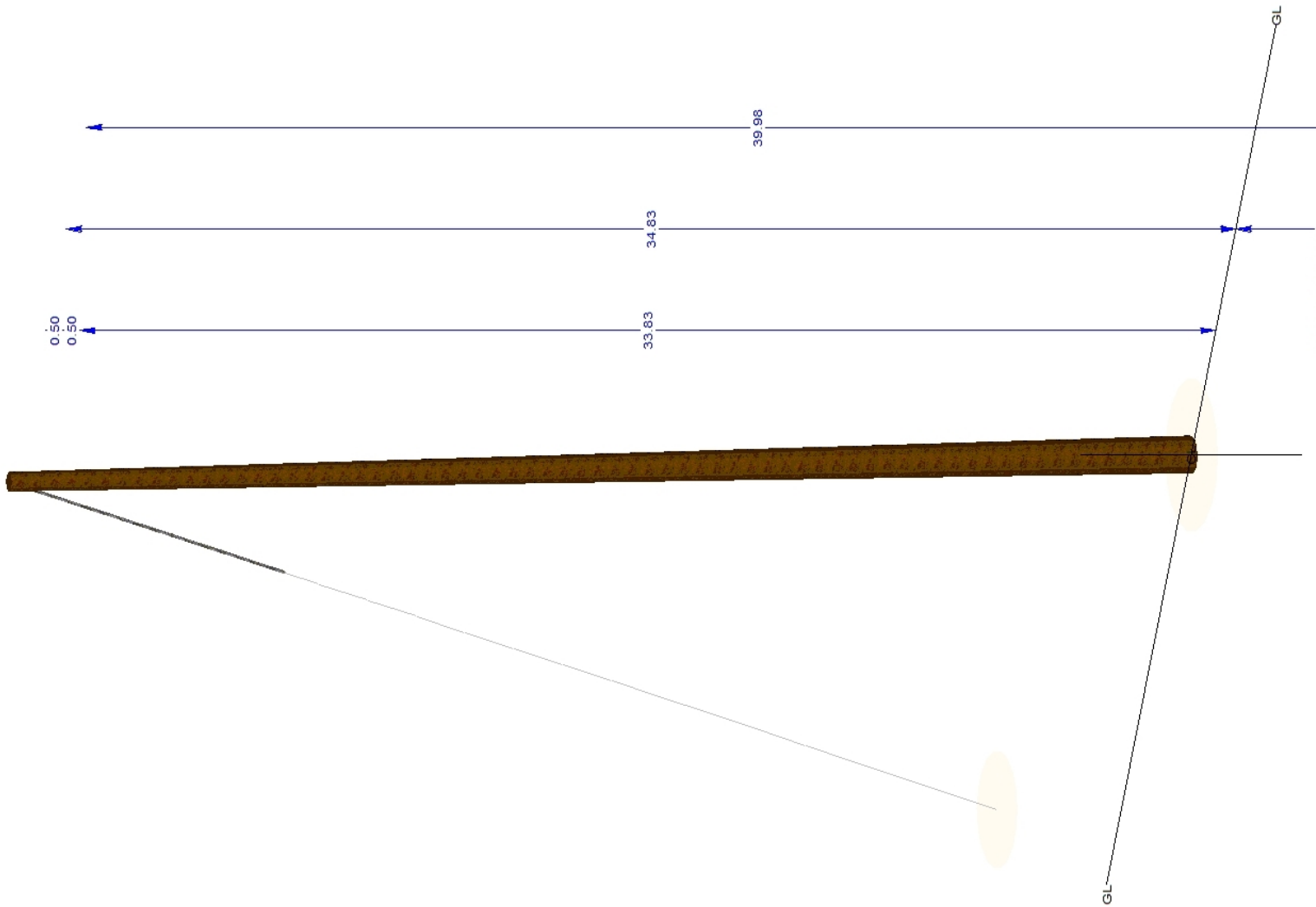
†Length = Lead Length for Down Guys, Wire Length for Span Guys

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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1.18





Structure P223189
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage 83 % **Clearances OK?** Yes
Pole Usage 16 % G.O.95 Heavy Grade A at Replacement
Insulator Usage
Guy Usage 41 % G.O.95 Heavy Grade A at Replacement
Anchor Usage 83 % G.O.95 Heavy Grade A at Replacement
Arm Usage

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P223189_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span **Latitude** 33.07636188°
Back Span 35 ft **Longitude** -116.59155703°
Ahead Span Az. 0° **Elevation** 4206 ft
Line Angle 0° **Tangent/DE** Terminal Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P223189	30	1	Corten Steel	34.1	4.8		100	G.O.95 Heavy Grade A at Replacement	8	16	6.5	1.0	22.4
P223189	30	1	Corten Steel	34.1	4.8		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	7	11	9.3	1.0	22.4

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
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Wire Tension Condition

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Guys and Cables

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	7.38	175	23.91	P223189	41	3.2	1.3	G.O.95 Heavy Grade A at Replacement
Down	7/16" 7 Strand EHS (7/16G)	7.38	175	22.31	P223189	39	3.4	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	16" CROSSPLATE MG				P223189	83	1.6	1.3	G.O.95 Heavy Grade A at Replacement
Span	3 8-7 Strand Ehs Steel Sdge	35	3	24.56	P223189	34			G.O.95 Heavy Grade A at Replacement

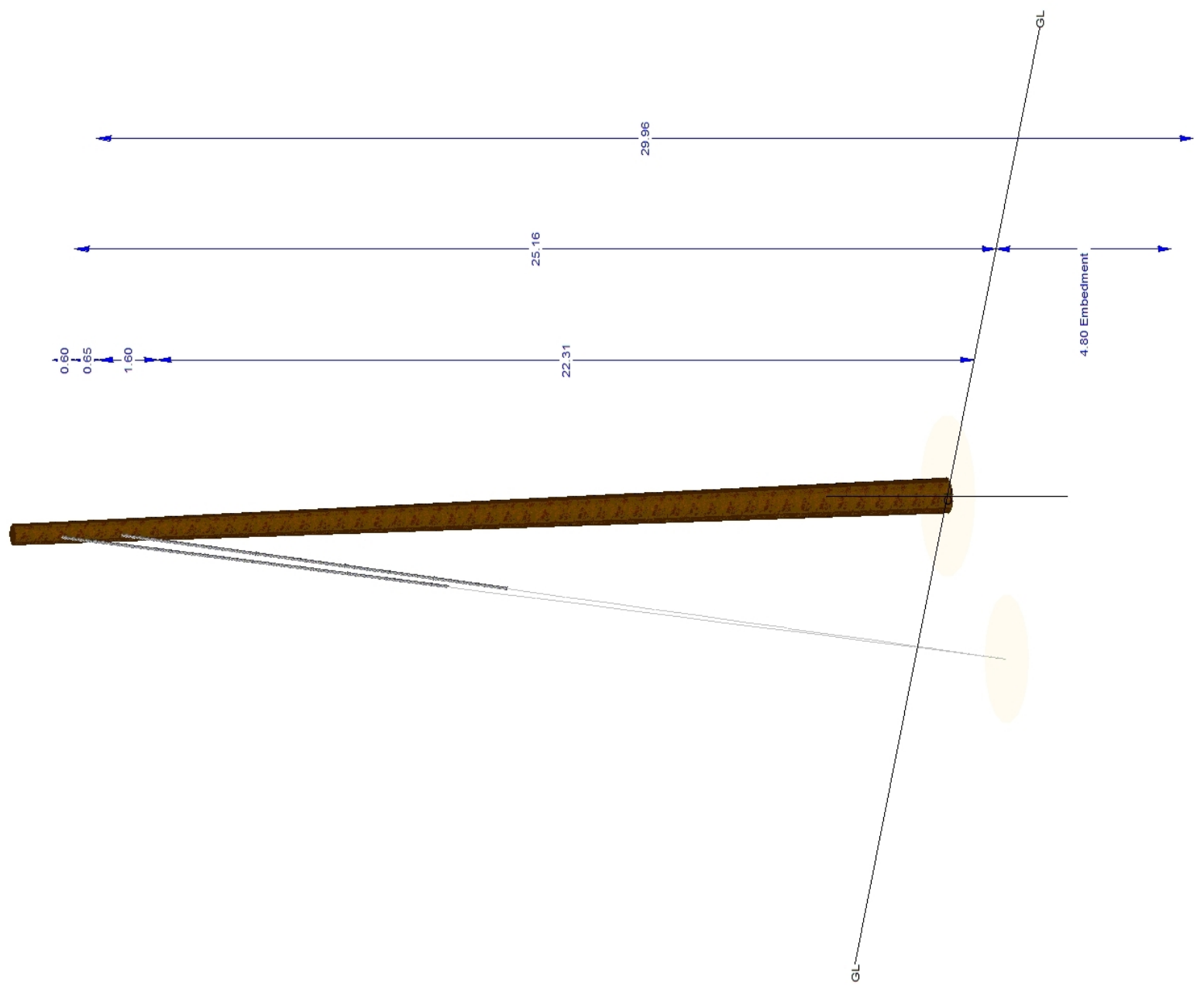
†Length = Lead Length for Down Guys, Wire Length for Span Guys

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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1.38





Structure P410410
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage	64 %	Clearances OK?	No
Pole Usage	41 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	19 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	64 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	51 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage	2 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P410410_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 193 ft **Latitude** 33.07710551°
Back Span 256 ft **Longitude** -116.58971978°
Ahead Span Az. 15° **Elevation** 4194 ft
Line Angle 167° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P410410	60	1	Corten Steel	47.4	8.4		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	56	41	2.4	1.0	0
P410410	60	1	Corten Steel	47.4	8.4		100	G.O.95 Heavy Grade A at Replacement	50	38	2.6	1.0	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	72	50.59	0.33	0.11	1	195	198	658
12	No2 AWG 5Over2 AWAC GCC	72	50.59	0.33	0.11	1	193	198	658
12	No2 AWG 5Over2 AWAC GCC	186	43.34	0.33	0.11	1	255	267	1102
12	No2 AWG 5Over2 AWAC GCC	186	43.34	0.33	0.11	1	256	267	1102
	1 In Firm Design Cable	72	24.37	1.13	0.40	1	193	193	1137
	1 In Firm Design Cable	72	23.69	1.13	0.40	1	193	193	1104
	1 In Firm Design Cable	72	22.31	1.13	0.40	1	193	193	1086
	1-0 AWG Triplex SSC AL Neritina GCC	172	31.51	0.97	0.41	1	49	49	98
	1 In Firm Design Cable	186	23.69	1.13	0.40	1	255	255	1043
	1 In Firm Design Cable	240	24.37	1.13	0.40	1	55	55	241
	1 In Firm Design Cable	240	22.31	1.13	0.40	1	54	54	151

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	72	50.59	P410410	12	16.4	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	72	50.59	P410410	12	16.7	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	186	43.34	P410410	19	10.5	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	186	43.34	P410410	19	10.4	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

*Length = Lead Length for Down Guys, Wire Length for Span Guys

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	15.52	255	49.19	P410410	40	3.3	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	20" CROSSPLATE MG				P410410	32	4.2	1.3	G.O.95 Heavy Grade A at Replacement
Down	7/16" 7 Strand EHS (7/16G)	16.45	7	43.09	P410410	64	2.1	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	20" CROSSPLATE MG				P410410	51	2.6	1.3	G.O.95 Heavy Grade A at Replacement

*Max Usage Location Measured From Groundline **Direction in degrees: 0 Degrees = Structure Longitudinal Axis towards Ahead Span CW+ ***Attach Height Measured From Groundline, GSI from Top of Guy

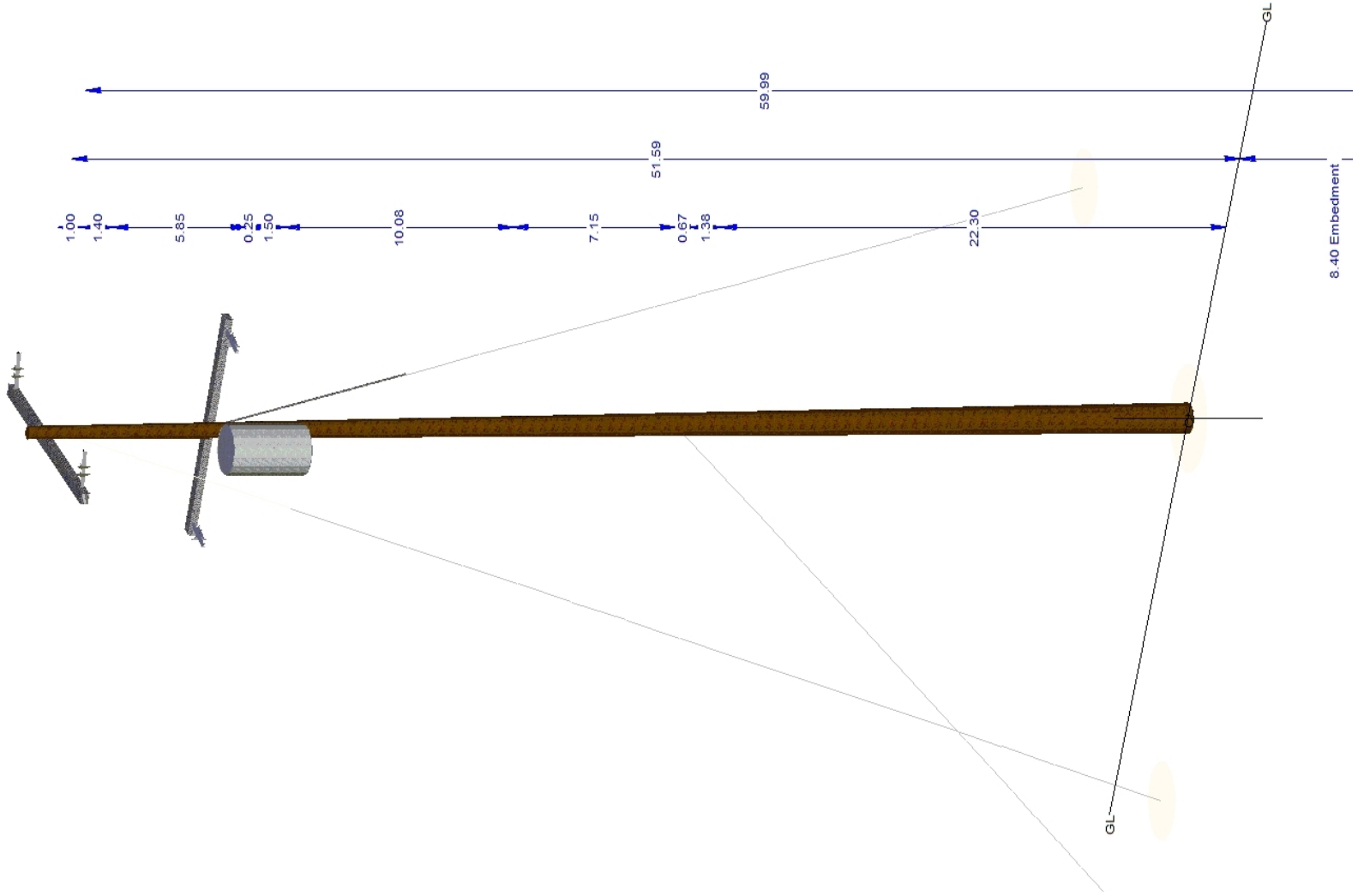
Down	3/8" 7 Strand EHS (3/8G)	21.38	250	22.31	P410410	33	4.1	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	16" CROSSPLATE MG				P410410	25	5.3	1.3	G.O.95 Heavy Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	25 kVA Transformer	180	41.59	P410410				
X-Arm	10' DE FG ARM (4DF)	177	50.59	P410410	1	111.1	1.3	G.O.95 Heavy Grade A at Replacement
X-Arm	10' DE FG ARM (4DF)	267	43.34	P410410	2	70.2	1.3	G.O.95 Heavy Grade A at Replacement



0.14





Structure P117927
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage	37 %	Clearances OK?	Yes
Pole Usage	23 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	33 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	29 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	37 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage	1 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P117927_AS-BUILT.pol
Project File C221_SEC_F_TRUEUP.xyz

Structure Details

Ahead Span 202 ft **Latitude** 33.07713286°
Back Span 193 ft **Longitude** -116.58908958°
Ahead Span Az. 16° **Elevation** 4196 ft
Line Angle 116° **Tangent/DE** Tangent
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P117927	55	1	Corten Steel	47.6	8.07		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	30	23	4.4	1.0	0
P117927	55	1	Corten Steel	47.6	8.07		100	G.O.95 Heavy Grade A at Replacement	20	17	6.0	1.0	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	106	46.89	0.33	0.11	1	203	198	658
12	No2 AWG 5Over2 AWAC GCC	106	46.89	0.33	0.11	1	200	198	658
12	No2 AWG 5Over2 AWAC GCC	251	46.89	0.33	0.11	1	195	198	658
12	No2 AWG 5Over2 AWAC GCC	251	46.89	0.33	0.11	1	193	198	658
	1 In Firm Design Cable	106	26.12	1.13	0.40	1	201	201	948
	1 In Firm Design Cable	106	25.33	1.13	0.40	1	201	201	1022
	1 In Firm Design Cable	106	24.58	1.13	0.40	1	201	201	1205
	1-0 AWG Triplex SSC AL Neritina GCC	170	34.93	0.97	0.41	1	136	136	439
	1 In Firm Design Cable	251	26.12	1.13	0.40	1	193	193	1137
	1 In Firm Design Cable	251	25.33	1.13	0.40	1	193	193	1104
	1 In Firm Design Cable	251	24.58	1.13	0.40	1	193	193	1086

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1-3/8" Pin) DBL	12		45.93	P117927	33	6.1	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1-3/8" Pin) DBL	12		45.93	P117927	32	6.2	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	12.84	0	41.73	P117927	29	4.6	1.3	G.O.95 Heavy Grade A at Replacement
Down	7/16" 7 Strand EHS (7/16G)	12.84	0	35.13	P117927	29	4.6	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	24" CROSSPLATE MG				P117927	37	3.6	1.3	G.O.95 Heavy Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	9.13	12	21.93	P117927	22	6.2	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	9.13	12	24.58	P117927	21	6.5	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	16" CROSSPLATE MG				P117927	32	4.1	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement

†Length = Lead Length for Down Guys, Wire Length for Span Guys

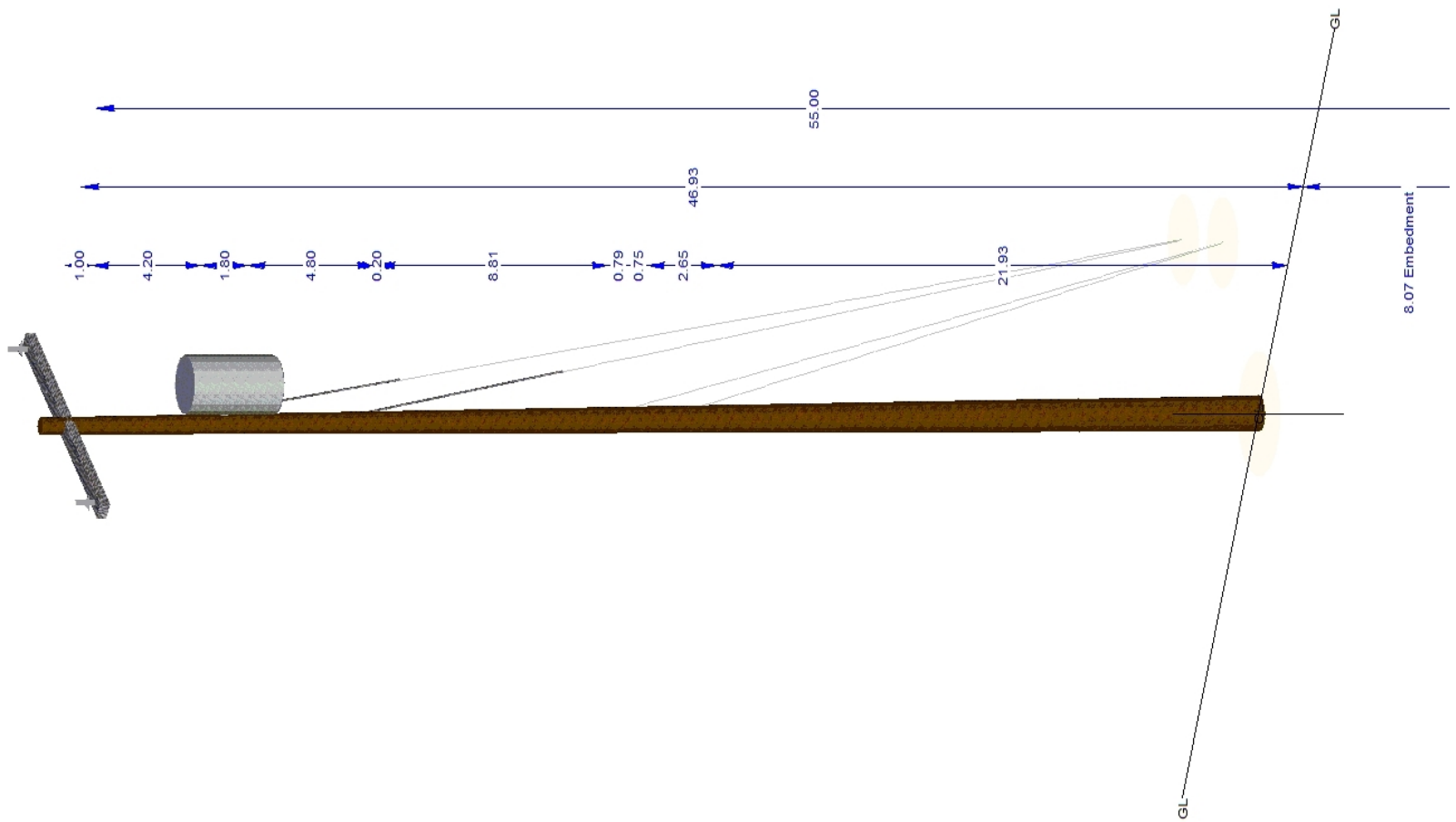
Crossarms and Equipment

*Max Usage Location Measured From Groundline **Direction in degrees: 0 Degrees = Structure Longitudinal Axis towards Ahead Span CW+ ***Attach Height Measured From Groundline, GSI from Top of Guy

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	25 kVA Transformer	90	39.93	P117927				
X-Arm	10' DBL TAN FG ARMS (4TF-2)	8	45.93	P117927	1	166.7	1.3	G.O.95 Heavy Grade A at Replacement



0.22





Structure P110708J
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage	38 %	Clearances OK?	Yes
Pole Usage	22 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	18 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	38 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	31 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage	1 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P110708J_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 297 ft **Latitude** 33.07654096°
Back Span 171 ft **Longitude** -116.58843674°
Ahead Span Az. 88° **Elevation** 4214 ft
Line Angle -156° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P110708J	55	1	Corten Steel	47.9	7.5		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	31	22	4.5	1.0	0
P110708J	55	1	Corten Steel	47.9	7.5		100	G.O.95 Heavy Grade A at Replacement	27	20	5.0	1.0	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	71	46	0.33	0.11	1	169	170	1018
12	No2 AWG 5Over2 AWAC GCC	71	46	0.33	0.11	1	170	170	1018
12	No2 AWG 5Over2 AWAC GCC	72	47	0.33	0.11	1	170	170	1018
12	No2 AWG 5Over2 AWAC GCC	257	39	0.33	0.11	1	115	112	709
12	No2 AWG 5Over2 AWAC GCC	257	39	0.33	0.11	1	110	112	709
12	No2 AWG 5Over2 AWAC GCC	280	47	0.33	0.11	1	296	296	973
12	No2 AWG 5Over2 AWAC GCC	280	46	0.33	0.11	1	297	296	973
12	No2 AWG 5Over2 AWAC GCC	280	46	0.33	0.11	1	297	296	973
	1-0 AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	71	31.5	0.98	0.48	1	171	171	1032
	1 In Firm Design Cable	71	21.8	1.13	0.40	1	171	171	1322
	1 In Firm Design Cable	71	20.18	1.13	0.40	1	171	171	1444
	1 In Firm Design Cable	257	21.98	1.13	0.40	1	112	112	1036
	1 In Firm Design Cable	257	21.5	1.13	0.40	1	112	112	777
	1 In Firm Design Cable	257	21	1.13	0.40	1	112	112	810
	1 In Firm Design Cable	280	21.5	1.13	0.40	1	296	296	1878

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	71	46	P110708J	18	11.2	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	71	46	P110708J	18	11.0	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	72	47	P110708J	18	11.0	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	257	39	P110708J	13	15.4	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	257	39	P110708J	14	14.7	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	280	47	P110708J	17	11.8	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	280	46	P110708J	17	11.7	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	280	46	P110708J	17	11.6	2.0	G.O.95 Heavy Grade A at Replacement

Guy and Cables

+Length = Lead Length for Down Guys, Wire Length for Span Guys

*Max Usage Location Measured From Groundline **Direction in degrees: 0 Degrees = Structure Longitudinal Axis towards Ahead Span CW+ ***Attach Height Measured From Groundline, GSI from Top of Guy

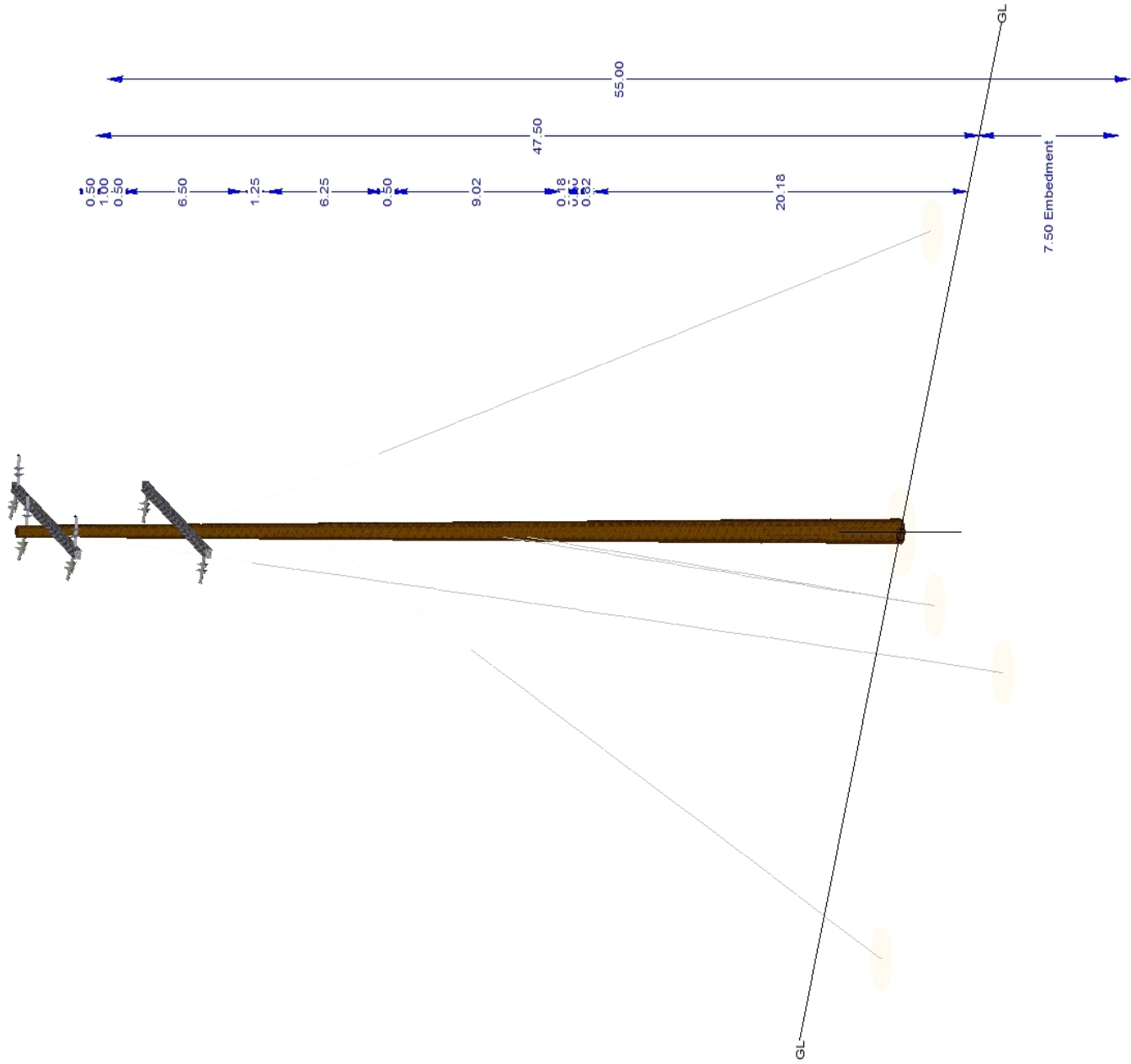
Type	Wire Type	Length* (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	17.73	173	45.5	P110708J	38	3.5	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	20" CROSSPLATE MG				P110708J	31	4.4	1.3	G.O.95 Heavy Grade A at Replacement
Down	7/16" 7 Strand EHS (7/16G)	15.81	80	37.75	P110708J	33	4.1	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	20" CROSSPLATE MG				P110708J	26	5.1	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Down	7/16" 7 Strand EHS (7/16G)	21.38	248	31	P110708J	6	20.5	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	20" CROSSPLATE MG				P110708J	5	26.0	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	6.58	182	21.5	P110708J	15	8.8	1.3	G.O.95 Heavy Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	6.58	182	20.18	P110708J	15	8.9	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	16" CROSSPLATE MG				P110708J	23	5.8	1.3	G.O.95 Heavy Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10' DE FG ARM (4DF)	350	46	P110708J	1	121.2	1.3	G.O.95 Heavy Grade A at Replacement
X-Arm	10' DE FG ARM (4DF)	350	39	P110708J	1	95.2	1.3	G.O.95 Heavy Grade A at Replacement



0.07





Structure P817174
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage	42 %	Clearances OK?	No
Pole Usage	35 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	18 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	42 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	27 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage	2 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P817174_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 294 ft **Latitude** 33.07637701°
Back Span 279 ft **Longitude** -116.59665621°
Ahead Span Az. 82° **Elevation** 4219 ft
Line Angle 179° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P817174	50	1	Corten Steel	43.7	7		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	43	35	2.9	1.0	0
P817174	50	1	Corten Steel	43.7	7		100	G.O.95 Heavy Grade A at Replacement	36	30	3.4	1.0	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	7	41.98	0.33	0.11	1	293	288	1158
12	No2 AWG 5Over2 AWAC GCC	7	41.98	0.33	0.11	1	294	288	1158
	1 In Firm Design Cable	6	25.66	1.13	0.40	1	211	211	1230
	1 In Firm Design Cable	6	24.87	1.13	0.40	1	211	211	1279
	1 In Firm Design Cable	6	23.46	1.13	0.40	1	212	212	1188
	1 In Firm Design Cable	187	25.66	1.13	0.40	1	279	279	1342
	1 In Firm Design Cable	187	24.87	1.13	0.40	1	279	279	1295
	1 In Firm Design Cable	187	23.46	1.13	0.40	1	279	279	1290

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	7	41.98	P817174	18	10.9	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	7	41.98	P817174	18	10.9	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

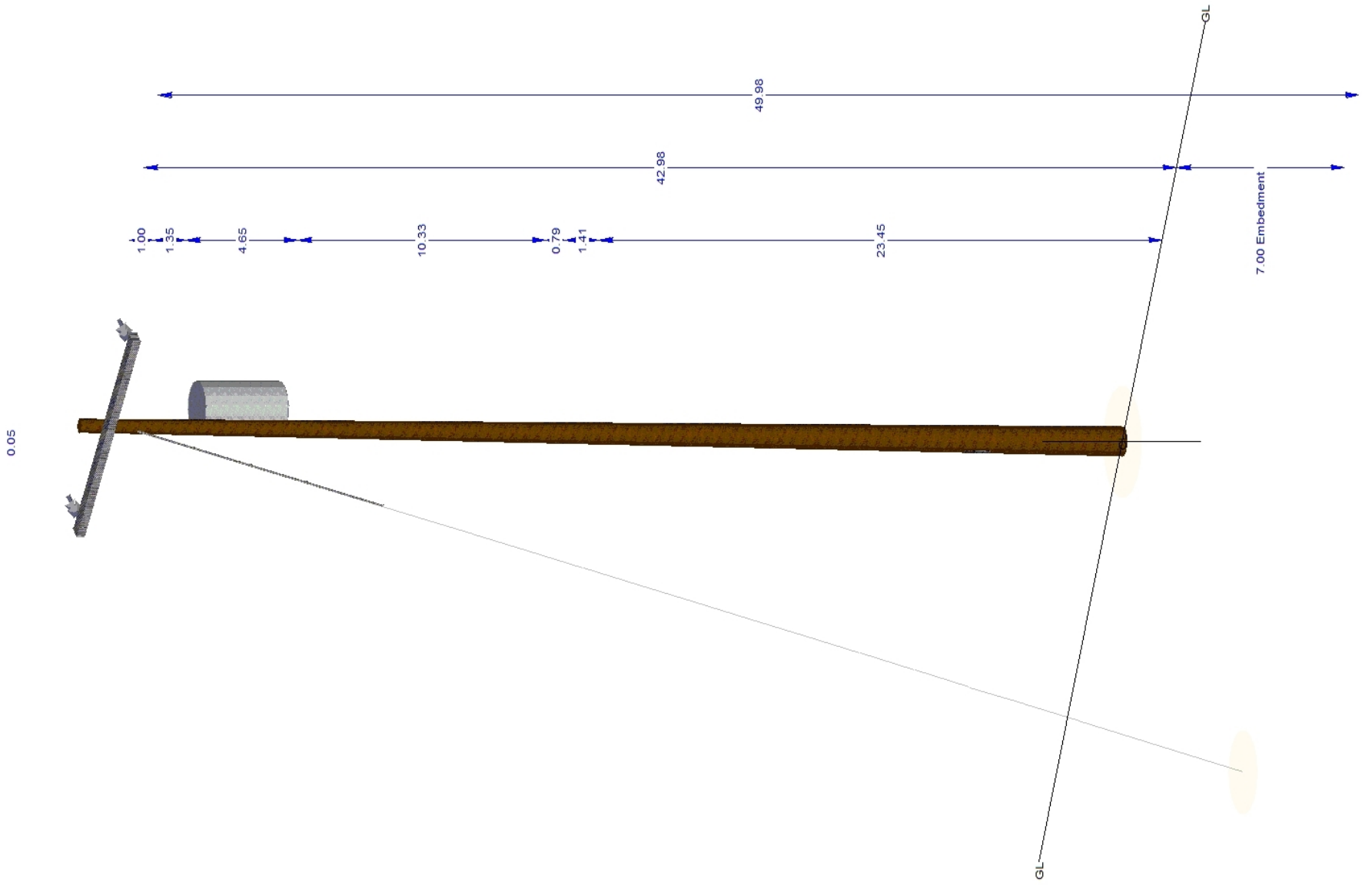
Type	Wire Type	Length+ (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	20.64	190	40.63	P817174	42	3.2	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	24" CROSSPLATE MG				P817174	27	4.9	1.3	G.O.95 Heavy Grade A at Replacement

+Length = Lead Length for Down Guys, Wire Length for Span Guys

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	25 kVA Transformer	0	35.98	P817174				
X-Arm	10' DE FG ARM (4DF)	100	41.98	P817174	2	70.2	1.3	G.O.95 Heavy Grade A at Replacement







Structure P817173
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]

Engineer NV5
 [REDACTED]

Usage Summary

Max Usage 32 % **Clearances OK?** Yes
Pole Usage 32 % Known Local Wind Heavy 85 MPH Grade A at Replacement
Insulator Usage 22 % G.O.95 Heavy Grade A at Replacement
Guy Usage
Anchor Usage
Arm Usage G.O.95 Heavy Grade A at Replacement

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L3
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P817173_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 274 ft **Latitude** 33.07638981°
Back Span 294 ft **Longitude** -116.59569800°
Ahead Span Az. 90° **Elevation** 4218 ft
Line Angle 180° **Tangent/DE** Tangent
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P817173	50	1	Corten Steel	43.7	7		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	40	32	3.2	1.0	0
P817173	50	1	Corten Steel	43.7	7		100	G.O.95 Heavy Grade A at Replacement	35	27	3.6	1.0	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	-1	42.95	0.33	0.11	1	272	288	1158
12	No2 AWG 5Over2 AWAC GCC	-1	42.95	0.33	0.11	1	272	288	1158
12	No2 AWG 5Over2 AWAC GCC	179	42.95	0.33	0.11	1	293	288	1158
12	No2 AWG 5Over2 AWAC GCC	179	42.95	0.33	0.11	1	294	288	1158
	1 In Firm Design Cable	-1	32.45	1.13	0.40	1	140	140	1078
	1 In Firm Design Cable	181	32.45	1.13	0.40	1	82	81	941
	1 In Firm Design Cable	181	31.2	1.13	0.40	1	82	81	937
	1 In Firm Design Cable	181	29.76	1.13	0.40	1	82	81	1255
	1 In Firm Design Cable	358	31.2	1.13	0.40	1	140	140	1051
	1 In Firm Design Cable	358	29.76	1.13	0.40	1	140	140	955

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1-3/8" Pin)	12		41.98	P817173	22	9.1	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1-3/8" Pin)	12		41.98	P817173	21	9.3	2.0	G.O.95 Heavy Grade A at Replacement

Guis and Cables

*Length = Lead Length for Down Guis, Wire Length for Span Guis

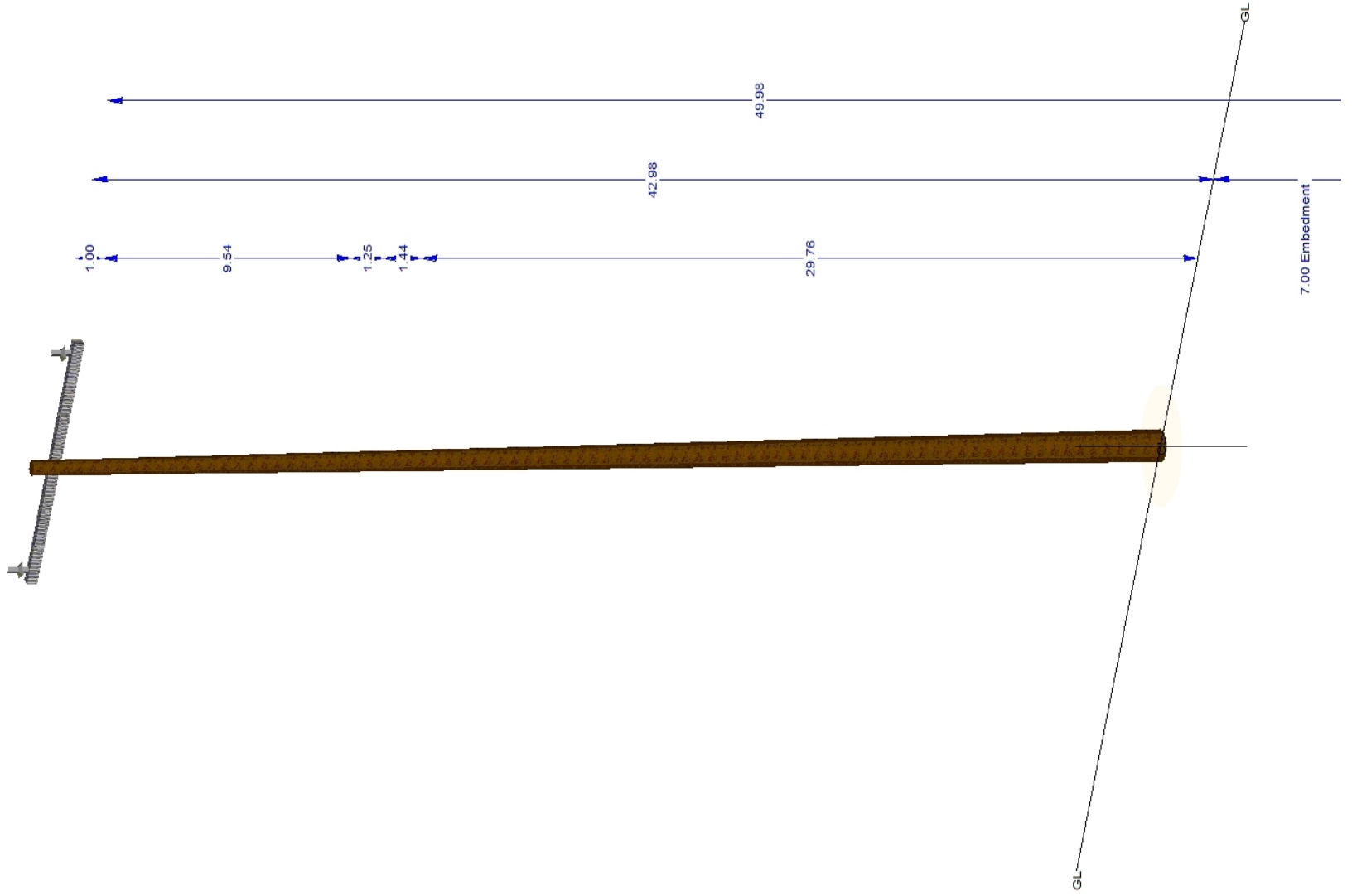
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10' TAN FG ARM (4TF)	270	41.98	P817173	444.4	1.3		G.O.95 Heavy Grade A at Replacement



1.12





Structure P817172
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [Redacted]
Engineer NV5 [Redacted]

Usage Summary

Max Usage 35 % **Clearances OK?** Yes
Pole Usage 35 % Known Local Wind Heavy 85 MPH Grade A at Replacement
Insulator Usage 26 % G.O.95 Heavy Grade A at Replacement
Guy Usage
Anchor Usage
Arm Usage G.O.95 Heavy Grade A at Replacement

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L3
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P817172_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 296 ft **Latitude** 33.07640934°
Back Span 274 ft **Longitude** -116.59480348°
Ahead Span Az. 269° **Elevation** 4220 ft
Line Angle -180° **Tangent/DE** Tangent
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P817172	50	1	Corten Steel	43.3	7.75		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	44	35	2.8	1.0	0
P817172	50	1	Corten Steel	43.3	7.75		100	G.O.95 Heavy Grade A at Replacement	39	32	3.2	1.0	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	0	42.21	0.33	0.11	1	272	288	1158
12	No2 AWG 5Over2 AWAC GCC	0	42.21	0.33	0.11	1	272	288	1158
12	No2 AWG 5Over2 AWAC GCC	182	42.21	0.33	0.11	1	297	288	1158
12	No2 AWG 5Over2 AWAC GCC	182	42.21	0.33	0.11	1	296	288	1158
	1 In Firm Design Cable	0	31.4	1.13	0.40	1	133	133	1122
	1 In Firm Design Cable	0	30.54	1.13	0.40	1	133	133	1063
	1 In Firm Design Cable	0	29.46	1.13	0.40	1	133	133	982
	1 In Firm Design Cable	183	31.4	1.13	0.40	1	138	137	1066
	1 In Firm Design Cable	183	30.54	1.13	0.40	1	138	137	1055
	1 In Firm Design Cable	183	29.46	1.13	0.40	1	138	137	952

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1-3/8" Pin)	12		41.24	P817172	26	7.8	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1-3/8" Pin)	12		41.24	P817172	26	7.8	2.0	G.O.95 Heavy Grade A at Replacement

Guis and Cables

*Length = Lead Length for Down Guis, Wire Length for Span Guis

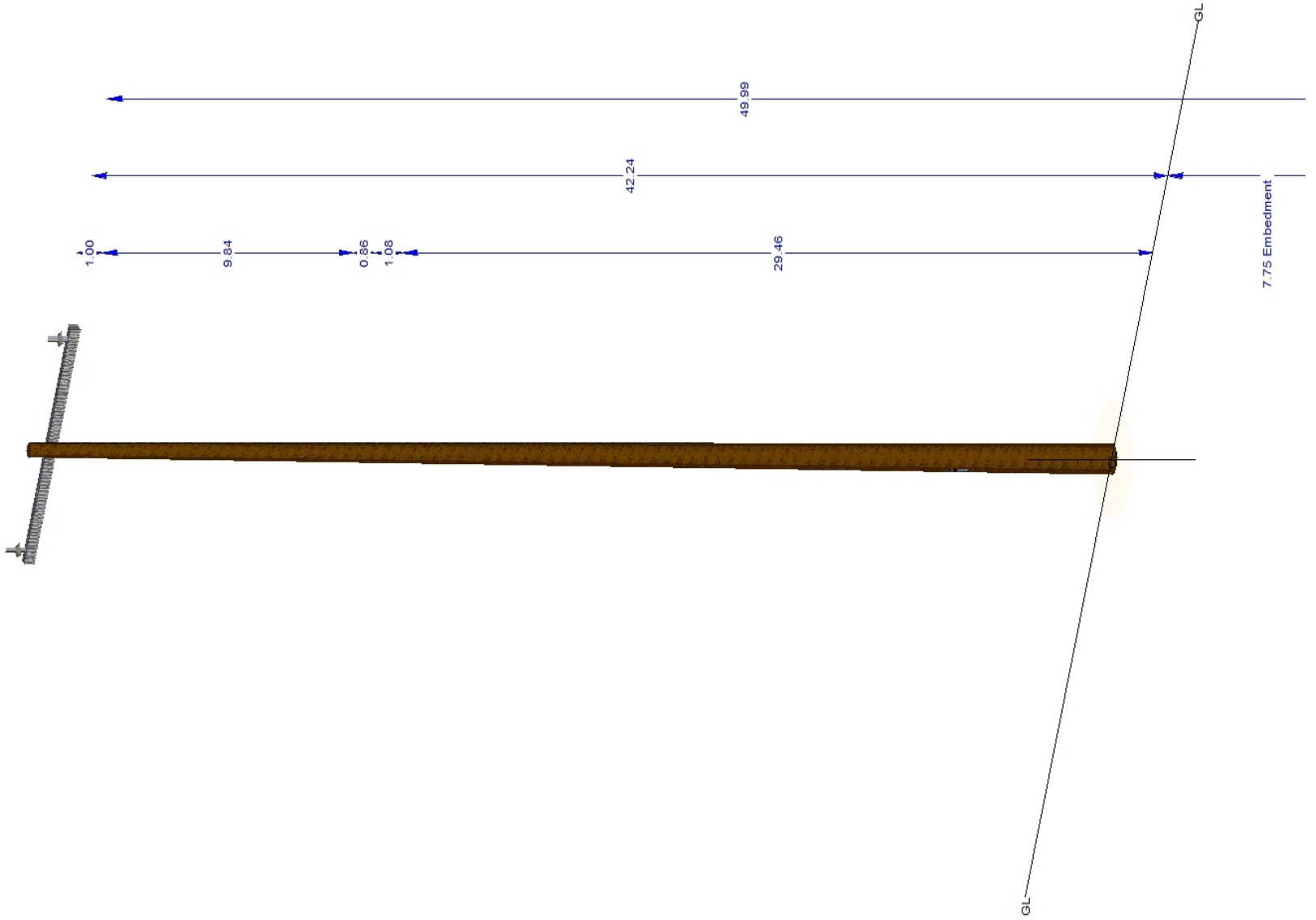
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10' TAN FG ARM (4TF)	270	41.24	P817172	444.4	1.3		G.O.95 Heavy Grade A at Replacement



0.11





Structure P412434
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]

Engineer NV5
 [REDACTED]

Usage Summary

Max Usage	25 %	Clearances OK?	No
Pole Usage	25 %	G.O.95 Heavy Grade A at Replacement	
Insulator Usage	20 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	7 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Anchor Usage	9 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Arm Usage	1 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type	Finite Element L4
Analysis Software	PLS-CADD
Software Version	16.01
PRG Version	2019.3.4
Structure File	P412434_AS-BUILT.pol
Project File	C221_SEC_F_TRUEUP.xyz

Structure Details

Ahead Span	166 ft	Latitude	33.07639317°
Back Span	296 ft	Longitude	-116.59383788°
Ahead Span Az.	94°	Elevation	4213 ft
Line Angle	180°	Tangent/DE	Dead End
Framing			
Notes			

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P412434	50	1	Corten Steel	43.3	7.73		100	G.O.95 Heavy Grade A at Replacement	30	25	4.0	1.0	0
P412434	50	1	Corten Steel	43.3	7.73		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	29	24	4.2	1.0	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	103	34.17	0.33	0.11	1	48	47	86
12	No2 AWG 5Over2 AWAC GCC	104	34.17	0.33	0.11	1	47	47	86
12	No2 AWG 5Over2 AWAC GCC	177	40.47	0.33	0.11	1	297	288	1158
12	No2 AWG 5Over2 AWAC GCC	177	40.47	0.33	0.11	1	296	288	1158
12	No2 AWG 5Over2 AWAC GCC	354	41.77	0.33	0.11	1	167	173	990
12	No2 AWG 5Over2 AWAC GCC	355	40.47	0.33	0.11	1	167	173	990
12	No2 AWG 5Over2 AWAC GCC	355	40.47	0.33	0.11	1	168	173	990
	No4 AWG Triplex SSC AL Periwinkle GCC	104	28.53	0.64	0.17	1	48	47	49
	1 In Firm Design Cable	105	20.11	1.13	0.40	1	48	48	357
	1 In Firm Design Cable	105	17.55	1.13	0.40	1	48	48	163
	1 In Firm Design Cable	177	20.11	1.13	0.40	1	78	78	872
	1 In Firm Design Cable	177	18.93	1.13	0.40	1	78	78	1021
	1 In Firm Design Cable	177	17.97	1.13	0.40	1	78	78	998
	1-0 AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	355	28.08	0.98	0.48	1	167	167	972
	1 In Firm Design Cable	355	19.47	1.13	0.40	1	87	87	888
	1 In Firm Design Cable	355	18.73	1.13	0.40	1	87	87	878
	1 In Firm Design Cable	355	17.77	1.13	0.40	1	87	87	994

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	103	34.17	P412434	2	112.4	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	104	34.17	P412434	2	98.5	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	177	40.47	P412434	20	10.0	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	177	40.47	P412434	20	9.9	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	354	41.77	P412434	15	13.4	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	355	40.47	P412434	15	13.5	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	355	40.47	P412434	15	13.3	2.0	G.O.95 Heavy Grade A at Replacement

*Max Usage Location Measured From Groundline **Direction in degrees: 0 Degrees = Structure Longitudinal Axis towards Ahead Span CW+ ***Attach Height Measured From Groundline, GSI from Top of Guy

Guys and Cables

+Length = Lead Length for Down Guys, Wire Length for Span Guys

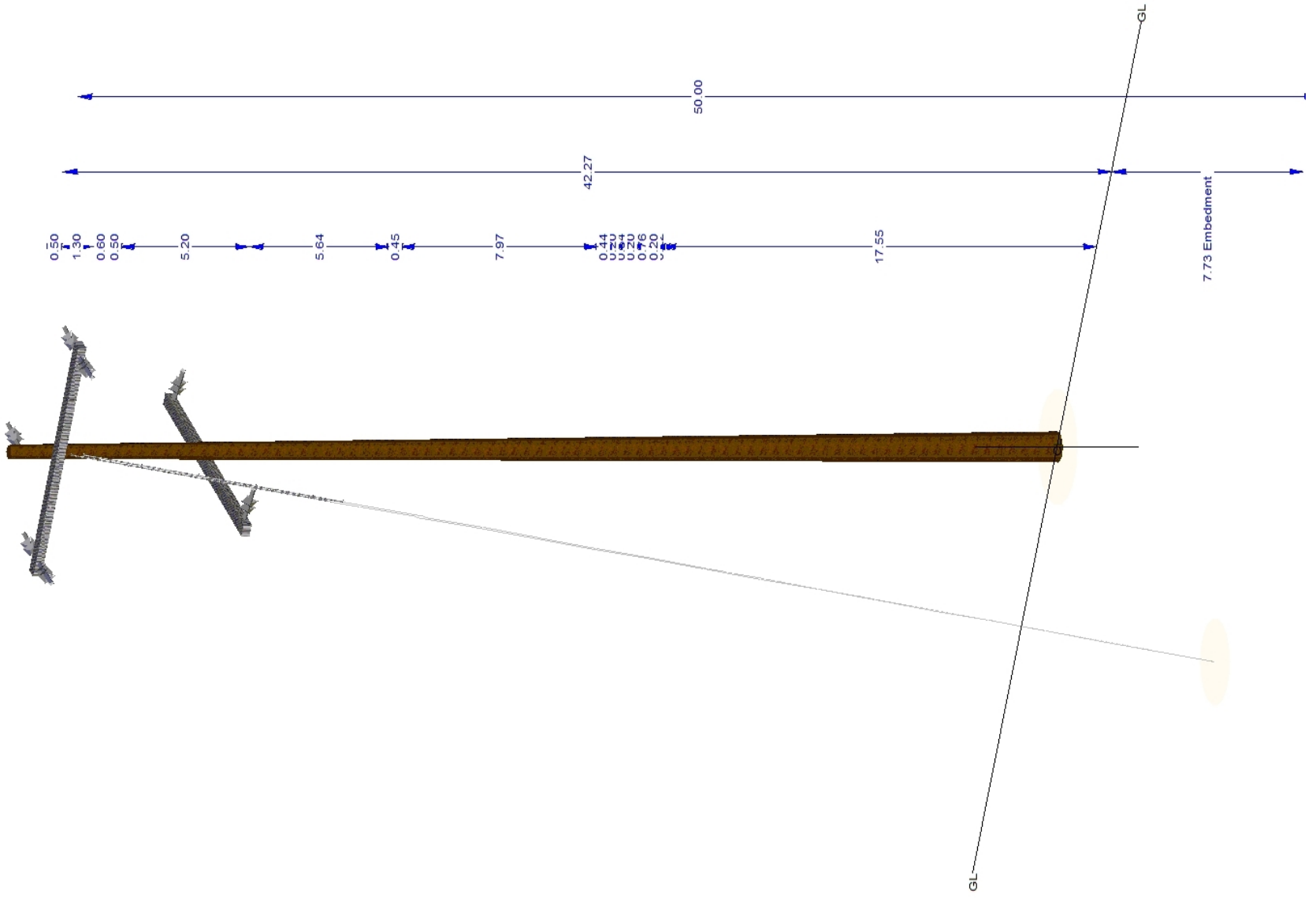
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	18.78	175	39.87	P412434	7	19.4	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Down	7/16" 7 Strand EHS (7/16G)	18.78	175	39.37	P412434	7	18.8	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	24" CROSSPLATE MG				P412434	9	14.9	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10' DE FG ARM (4DF)	90	40.47	P412434	1	222.2	1.3	G.O.95 Heavy Grade A at Replacement
X-Arm	10' DE FG ARM (4DF)	180	34.17	P412434		666.7	1.3	G.O.95 Heavy Grade A at Replacement



0.15





Structure P511485
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage	29 %	Clearances OK?	No
Pole Usage	29 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	20 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	9 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	6 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage		G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P511485_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xy

Structure Details

Ahead Span 97 ft **Latitude** 33.07640761°
Back Span 115 ft **Longitude** -116.59292039°
Ahead Span Az. 269° **Elevation** 4212 ft
Line Angle 1° **Tangent/DE** Tangent
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P511485	45	1	Corten Steel	40.4	8		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	31	29	3.5	1.0	0
P511485	45	1	Corten Steel	40.4	8		100	G.O.95 Heavy Grade A at Replacement	21	20	5.0	1.0	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	0	36.9	0.33	0.11	1	114	173	990
12	No2 AWG 5Over2 AWAC GCC	0	36.9	0.33	0.11	1	114	173	990
12	No2 AWG 5Over2 AWAC GCC	0	36.9	0.33	0.11	1	115	173	990
12	No2 AWG 5Over2 AWAC GCC	180	36.9	0.33	0.11	1	97	173	990
12	No2 AWG 5Over2 AWAC GCC	180	36.9	0.33	0.11	1	97	173	990
12	No2 AWG 5Over2 AWAC GCC	180	36.9	0.33	0.11	1	97	173	990
	1-0 AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	0	29.34	0.98	0.48	1	115	115	684
	1 In Firm Design Cable	0	24.37	1.13	0.40	1	115	115	1001
	1 In Firm Design Cable	0	23.33	1.13	0.40	1	115	115	946
	1 In Firm Design Cable	0	21.79	1.13	0.40	1	115	115	1053
	1 In Firm Design Cable	180	24.37	1.13	0.40	1	96	96	948
	1 In Firm Design Cable	180	23.33	1.13	0.40	1	96	96	927
	1 In Firm Design Cable	180	21.79	1.13	0.40	1	96	96	1069

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1" Pin)	12		35.99	P511485	20	9.8	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1" Pin)	12		35.99	P511485	16	12.2	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1" Pin)	12		35.99	P511485	18	10.8	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

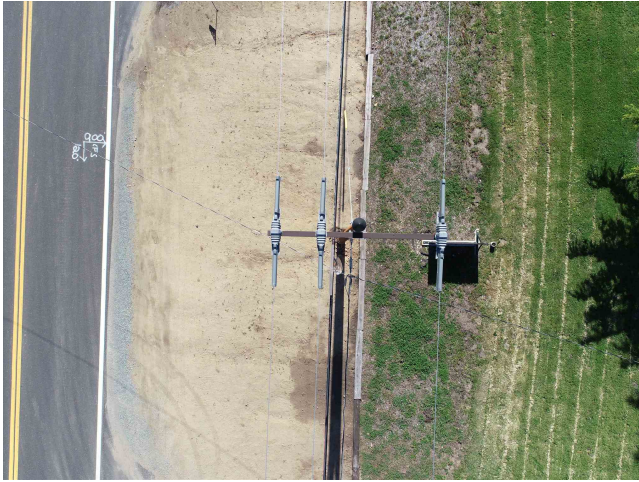
†Length = Lead Length for Down Guys, Wire Length for Span Guys

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	16.01	181	29.54	P511485	9	15.3	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	24" CROSSPLATE MG				P511485	6	23.8	1.3	G.O.95 Heavy Grade A at Replacement

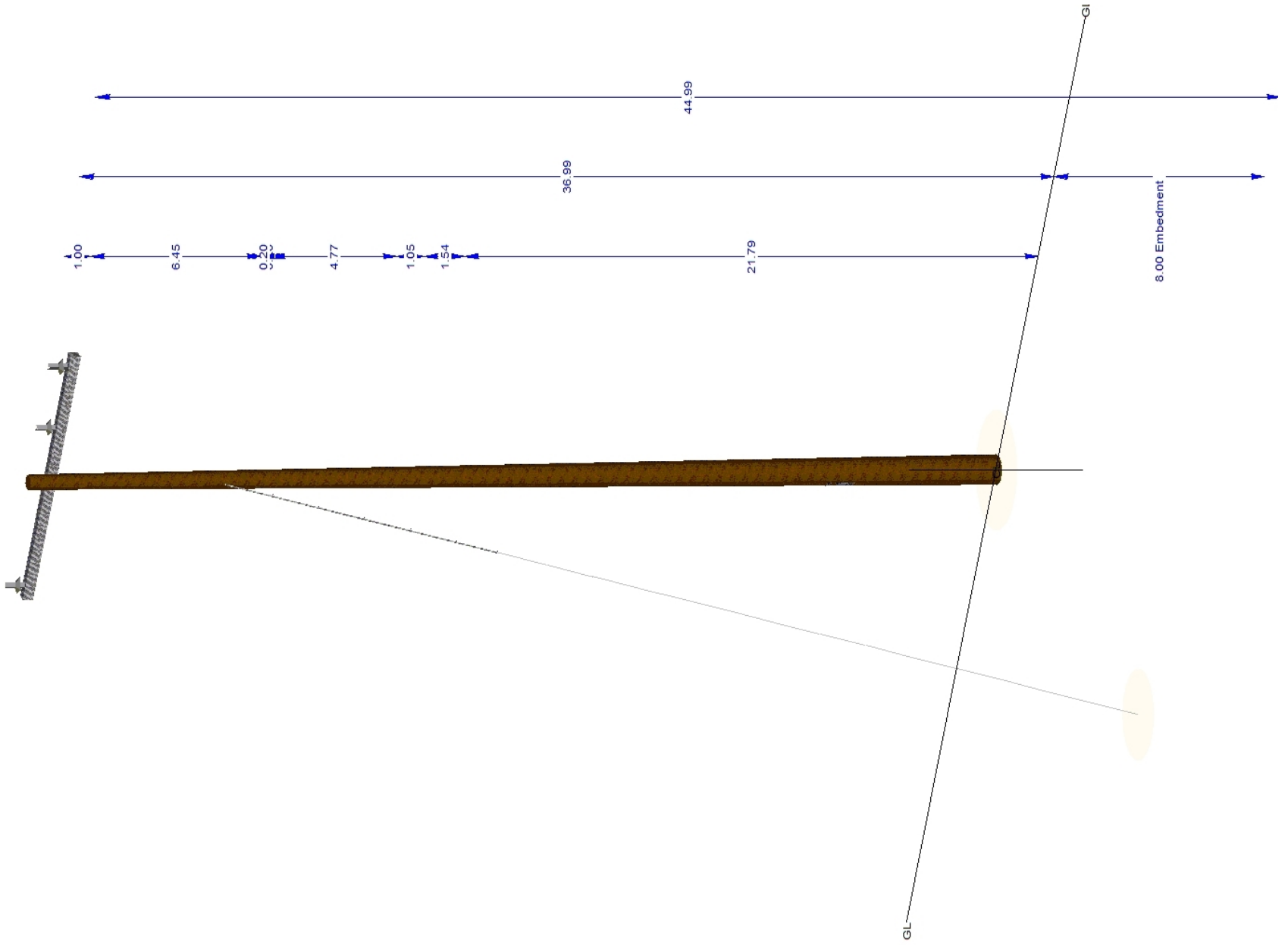
Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10" TAN FG ARM (4TF)	270	35.99	P511485		666.7	1.3	G.O.95 Heavy Grade A at Replacement

*Max Usage Location Measured From Groundline **Direction in degrees: 0 Degrees = Structure Longitudinal Axis towards Ahead Span CW+ ***Attach Height Measured From Groundline, GSI from Top of Guy



0.09





Structure P412433
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]

Engineer NV5
 [REDACTED]

Usage Summary

Max Usage 28 % **Clearances OK?** No
Pole Usage 24 % Known Local Wind Heavy 85 MPH Grade A at Replacement
Insulator Usage 28 % Known Local Wind Heavy 85 MPH Grade A at Replacement
Guy Usage
Anchor Usage
Arm Usage G.O.95 Heavy Grade A at Replacement

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P412433_AS-BUILT.pol
Project File C221_SEC_F_TRUEUP.xyz

Structure Details

Ahead Span 115 ft **Latitude** 33.07640242°
Back Span 166 ft **Longitude** -116.59329555°
Ahead Span Az. 89° **Elevation** 4210 ft
Line Angle -180° **Tangent/DE** Tangent
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P412433	55	1	Corten Steel	46.7	9.85		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	35	24	4.1	1.0	0
P412433	55	1	Corten Steel	46.7	9.85		100	G.O.95 Heavy Grade A at Replacement	28	20	5.1	1.0	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	0	45.05	0.33	0.11	1	114	173	990
12	No2 AWG 5Over2 AWAC GCC	0	45.05	0.33	0.11	1	114	173	990
12	No2 AWG 5Over2 AWAC GCC	0	45.05	0.33	0.11	1	115	173	990
12	No2 AWG 5Over2 AWAC GCC	179	45.05	0.33	0.11	1	167	173	990
12	No2 AWG 5Over2 AWAC GCC	180	45.05	0.33	0.11	1	167	173	990
12	No2 AWG 5Over2 AWAC GCC	180	45.05	0.33	0.11	1	168	173	990
	1-0 AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	0	32.85	0.98	0.48	1	115	115	684
	1 In Firm Design Cable	0	26.83	1.13	0.40	1	115	115	1001
	1 In Firm Design Cable	0	25.85	1.13	0.40	1	115	115	946
	1 In Firm Design Cable	0	24.67	1.13	0.40	1	115	115	1053
	1-0 AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	180	33.05	0.98	0.48	1	167	167	972
	1 In Firm Design Cable	180	26.83	1.13	0.40	1	79	79	819
	1 In Firm Design Cable	180	25.85	1.13	0.40	1	79	79	734
	1 In Firm Design Cable	180	24.67	1.13	0.40	1	79	79	1002

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1" Pin)	12		44.15	P412433	20	9.9	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1" Pin)	12		44.15	P412433	20	9.8	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1" Pin)	12		44.15	P412433	28	7.3	2.0	Known Local Wind Heavy 85 MPH Grade A at Replacement

Guis and Cables

+Length = Lead Length for Down Guis, Wire Length for Span Guis

Type	Wire Type	Length+ (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	25 kVA Transformer	0	36.15	P412433				

*Max Usage Location Measured From Groundline **Direction in degrees: 0 Degrees = Structure Longitudinal Axis towards Ahead Span CW+ ***Attach Height Measured From Groundline, GSI from Top of Guy

X-Arm

10' TAN FG ARM (4TF)

272

44.15

P412433

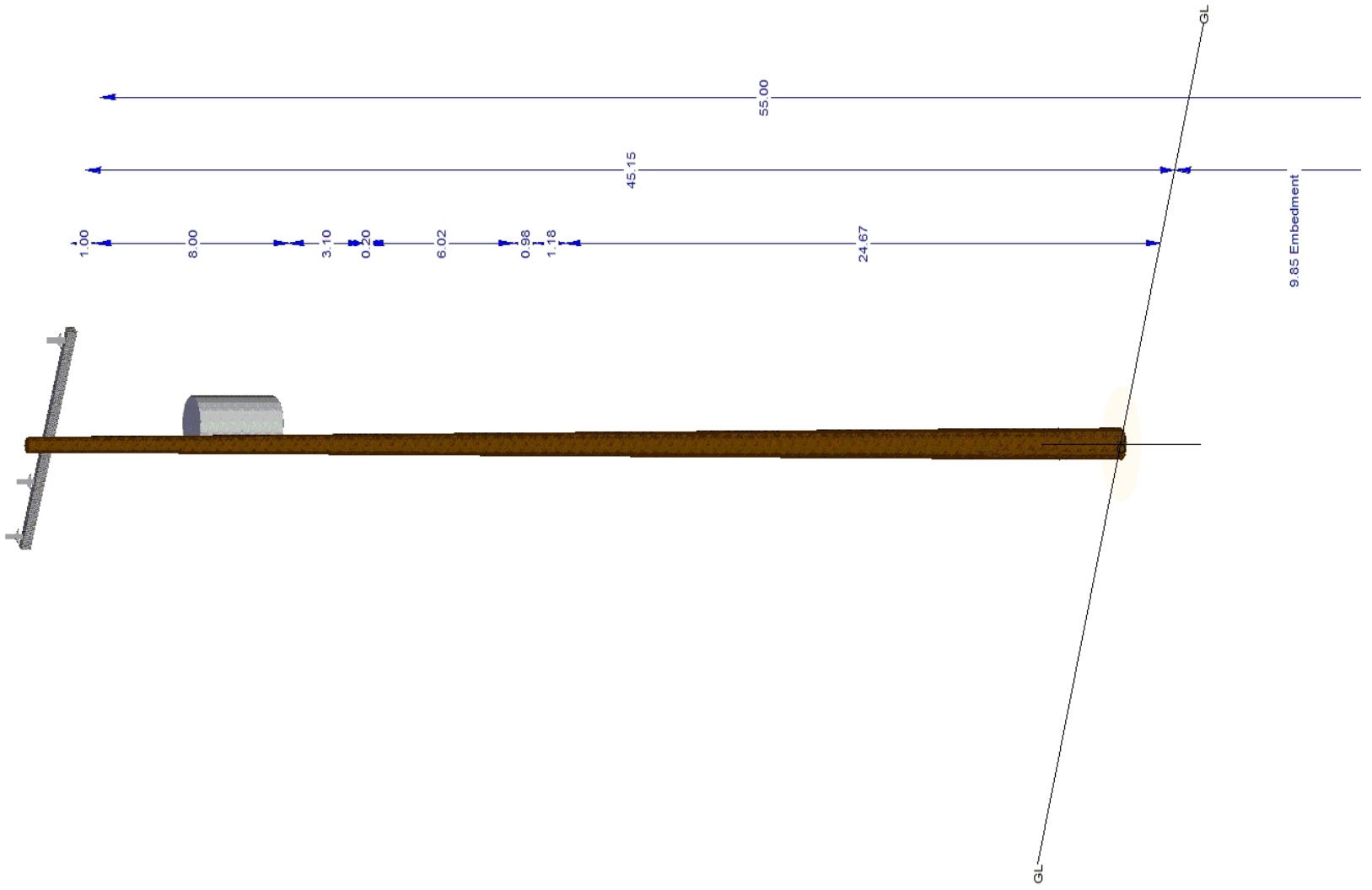
333.3

1.3

G.O.95 Heavy Grade A at Replacement



0.29





Structure P412432
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]

Engineer NV5
 [REDACTED]

Usage Summary

Max Usage 31 % **Clearances OK?** No
Pole Usage 25 % Known Local Wind Heavy 85 MPH Grade A at Replacement
Insulator Usage 31 % G.O.95 Heavy Grade A at Replacement
Guy Usage
Anchor Usage
Arm Usage G.O.95 Heavy Grade A at Replacement

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L3
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P412432_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 238 ft **Latitude** 33.07640758°
Back Span 97 ft **Longitude** -116.59260497°
Ahead Span Az. 272° **Elevation** 4213 ft
Line Angle 177° **Tangent/DE** Tangent
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P412432	45	1	Corten Steel	41.2	6.5		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	28	25	4.1	1.0	0
P412432	45	1	Corten Steel	41.2	6.5		100	G.O.95 Heavy Grade A at Replacement	21	19	5.3	1.0	3.5

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	175	38.36	0.33	0.11	1	237	173	990
12	No2 AWG 5Over2 AWAC GCC	175	38.36	0.33	0.11	1	237	173	990
12	No2 AWG 5Over2 AWAC GCC	175	38.36	0.33	0.11	1	237	173	990
12	No2 AWG 5Over2 AWAC GCC	357	38.36	0.33	0.11	1	97	173	990
12	No2 AWG 5Over2 AWAC GCC	357	38.36	0.33	0.11	1	97	173	990
12	No2 AWG 5Over2 AWAC GCC	357	38.36	0.33	0.11	1	97	173	990
	1 In Firm Design Cable	47	22.11	1.13	0.40	1	102	102	494
	1 In Firm Design Cable	178	24.77	1.13	0.40	1	170	170	1184
	1 In Firm Design Cable	178	23.75	1.13	0.40	1	170	170	1183
	1 In Firm Design Cable	178	22.32	1.13	0.40	1	170	170	1172
	1 In Firm Design Cable	278	21.91	1.13	0.40	1	78	78	483
	1 In Firm Design Cable	357	24.77	1.13	0.40	1	96	96	948
	1 In Firm Design Cable	357	23.75	1.13	0.40	1	96	96	927
	1 In Firm Design Cable	357	22.32	1.13	0.40	1	96	96	1069

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1" Pin)	12		37.45	P412432	31	6.5	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1" Pin)	12		37.45	P412432	30	6.6	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1" Pin)	12		37.45	P412432	30	6.6	2.0	G.O.95 Heavy Grade A at Replacement

Guis and Cables

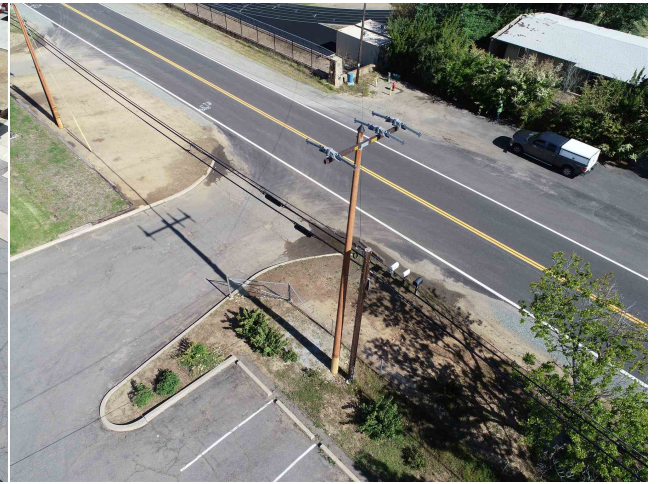
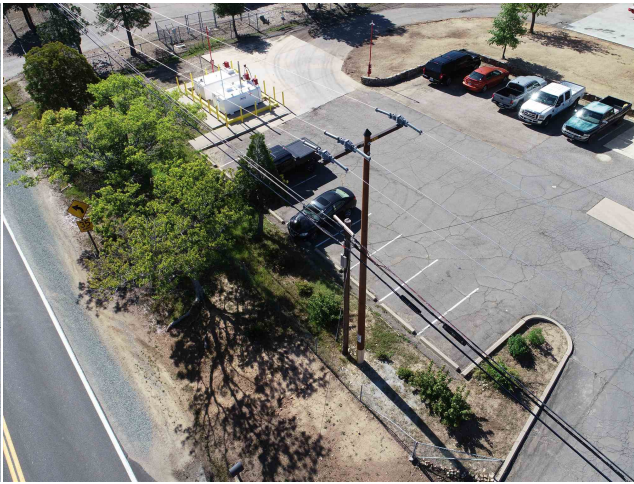
+Length = Lead Length for Down Guis, Wire Length for Span Guis

Type	Wire Type	Length+ (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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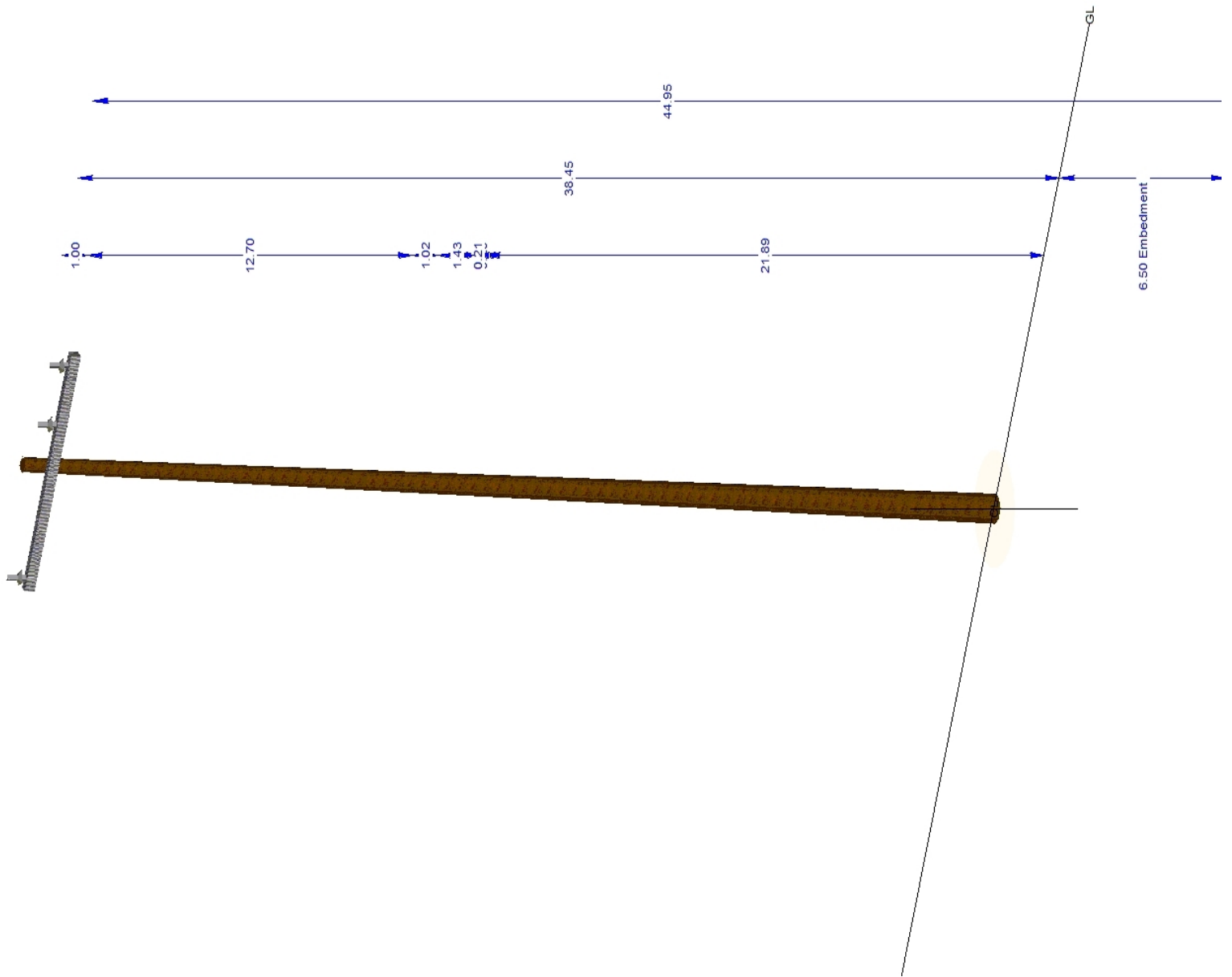
Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10" TAN FG ARM (4TF)	90	37.45	P412432		333.3	1.3	G.O.95 Heavy Grade A at Replacement

*Max Usage Location Measured From Groundline **Direction in degrees: 0 Degrees = Structure Longitudinal Axis towards Ahead Span CW+ ***Attach Height Measured From Groundline, GSI from Top of Guy



* 1.95 *





Structure P136641
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]

Engineer NV5
 [REDACTED]

Usage Summary

Max Usage	39 %	Clearances OK?	Yes
Pole Usage	39 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	25 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage			
Anchor Usage			
Arm Usage	1 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type	Finite Element L4
Analysis Software	PLS-CADD
Software Version	16.01
PRG Version	2019.3.4
Structure File	P136641_AS-BUILT.pol
Project File	C221_SEC_F_TRUEUP.xy

Structure Details

Ahead Span	83 ft	Latitude	33.07644933°
Back Span	238 ft	Longitude	-116.59182822°
Ahead Span Az.	92°	Elevation	4207 ft
Line Angle	1°	Tangent/DE	Tangent
Framing			
Notes			

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P136641	50	1	Corten Steel	43.4	7.55		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	48	39	2.6	1.0	0
P136641	50	1	Corten Steel	43.4	7.55		100	G.O.95 Heavy Grade A at Replacement	27	22	4.5	1.0	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	175	42.36	0.33	0.11	1	237	173	990
12	No2 AWG 5Over2 AWAC GCC	175	42.36	0.33	0.11	1	237	173	990
12	No2 AWG 5Over2 AWAC GCC	175	42.36	0.33	0.11	1	237	173	990
12	No2 AWG 5Over2 AWAC GCC	356	42.36	0.33	0.11	1	85	173	990
12	No2 AWG 5Over2 AWAC GCC	356	42.36	0.33	0.11	1	85	173	990
12	No2 AWG 5Over2 AWAC GCC	356	42.36	0.33	0.11	1	84	173	990

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1" Pin)	12		41.45	P136641	23	8.5	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1" Pin)	12		41.45	P136641	25	8.1	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1" Pin)	12		41.45	P136641	24	8.4	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

*Length = Lead Length for Down Guys, Wire Length for Span Guys

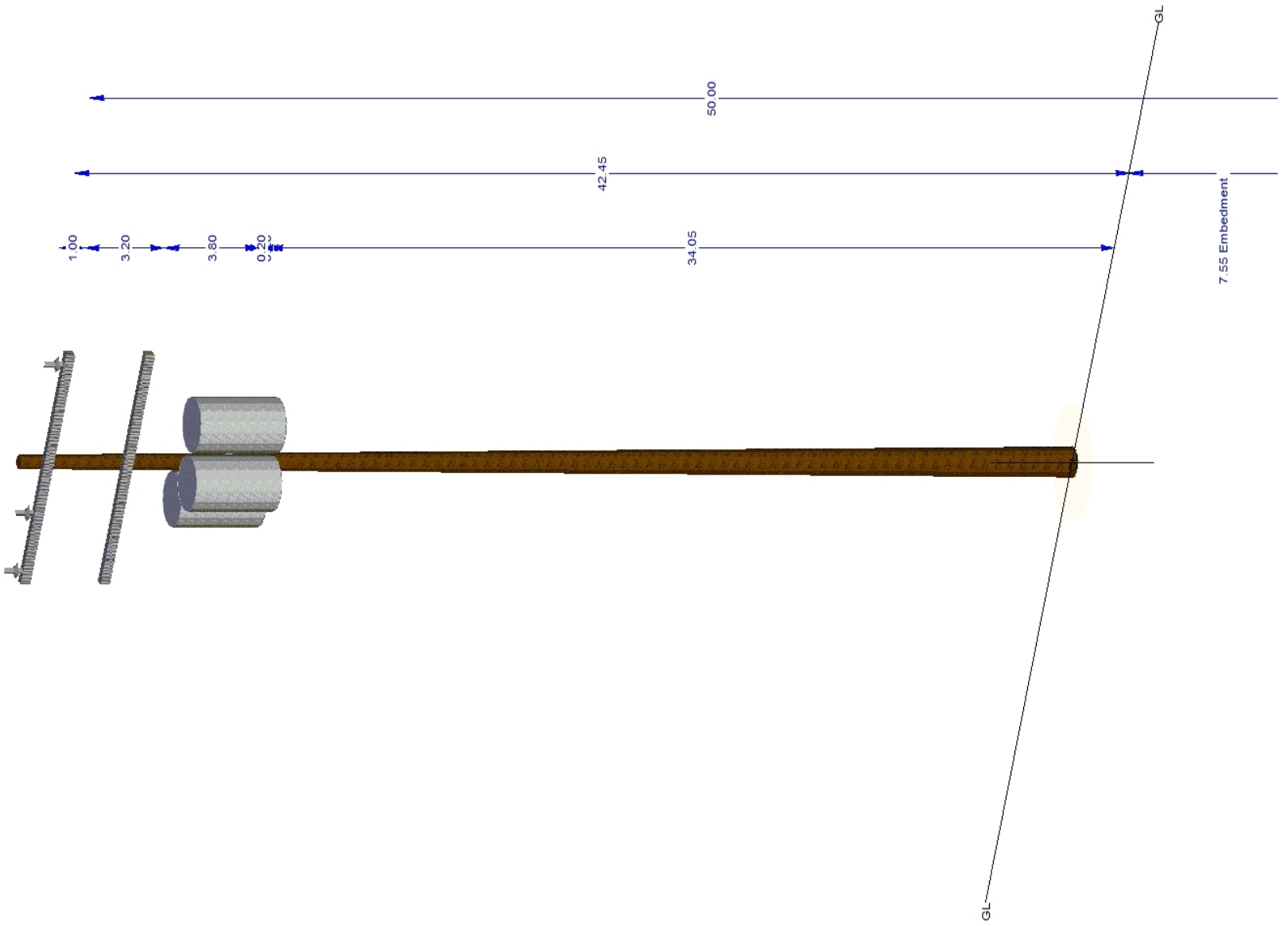
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	25 kVA Transformer	180	34.45	P136641				
Equipment	25 kVA Transformer	270	34.25	P136641				
Equipment	25 kVA Transformer	90	34.05	P136641				
X-Arm	10' TAN FG ARM (4TF)	90	41.45	P136641	1	266.7	1.3	G.O.95 Heavy Grade A at Replacement
X-Arm	10' EQUIPMENT FG ARM (4TF)	90	38.25	P136641			1.3	G.O.95 Heavy Grade A at Replacement



0.04





Structure P611283
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5
 [REDACTED]

Usage Summary

Max Usage	69 %	Clearances OK?	Yes
Pole Usage	23 %	G.O.95 Heavy Grade A at Replacement	
Insulator Usage	16 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	35 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	69 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage	2 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P611283_AS-BUILT.pol
Project File C221_SEC_F_TRUEUP.xyz

Structure Details

Ahead Span 35 ft **Latitude** 33.07654273°
Back Span 241 ft **Longitude** -116.59077651°
Ahead Span Az. 354° **Elevation** 4197 ft
Line Angle 180° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

<i>Pole Label</i>	<i>Height (ft)</i>	<i>Class</i>	<i>Material</i>	<i>Groundline Circum. (in)</i>	<i>Embed. (ft)</i>	<i>Date Intrusive</i>	<i>Material Capacity %</i>	<i>Load Case</i>	<i>Max Moment (ft-k)</i>	<i>Usage %</i>	<i>Calc SF</i>	<i>Req SF</i>	<i>Max Usage Point (ft)*</i>
P611283	50	1	Corten Steel	43.2	7.8		100	G.O.95 Heavy Grade A at Replacement	26	23	4.3	1.0	0
P611283	50	1	Corten Steel	43.2	7.8		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	26	22	4.5	1.0	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

<i>Voltage (kV)</i>	<i>Wire Type</i>	<i>Direction (deg)**</i>	<i>Attach Height*** (ft)</i>	<i>Diameter (in)</i>	<i>Unit Weight (lbs/ft)</i>	<i># of Wires</i>	<i>Span Length (ft)</i>	<i>Ruling Span (ft)</i>	<i>Tension (lbs)</i>
12	No2 AWG 5Over2 AWAC GCC	269	41.7	0.33	0.11	1	240	240	844
12	No2 AWG 5Over2 AWAC GCC	269	40.7	0.33	0.11	1	240	240	844
12	No2 AWG 5Over2 AWAC GCC	269	40.7	0.33	0.11	1	241	240	844
	1-0 AWG Triplex SSC AL Neritina GCC	96	31.21	0.97	0.41	1	35	29	250
	1 In Firm Design Cable	96	19.53	1.13	0.40	1	34	32	79
	1 In Firm Design Cable	176	20.28	1.13	0.40	1	108	108	489

Insulators

<i>Type</i>	<i>Description</i>	<i>Voltage (kV)</i>	<i>Direction (deg)</i>	<i>Attach Height (ft)</i>	<i>Origin Pole</i>	<i>Usage %</i>	<i>Calc SF</i>	<i>Req SF</i>	<i>Load Case</i>
Strain	12kV Long DE	12	269	41.7	P611283	16	12.8	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	269	40.7	P611283	16	12.4	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	269	40.7	P611283	16	12.6	2.0	G.O.95 Heavy Grade A at Replacement

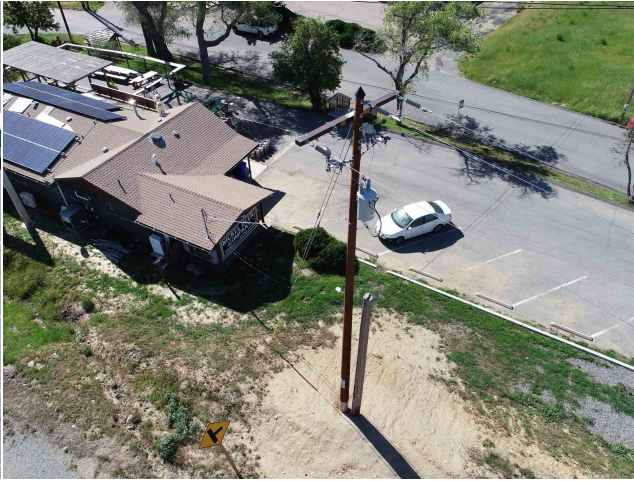
Guys and Cables

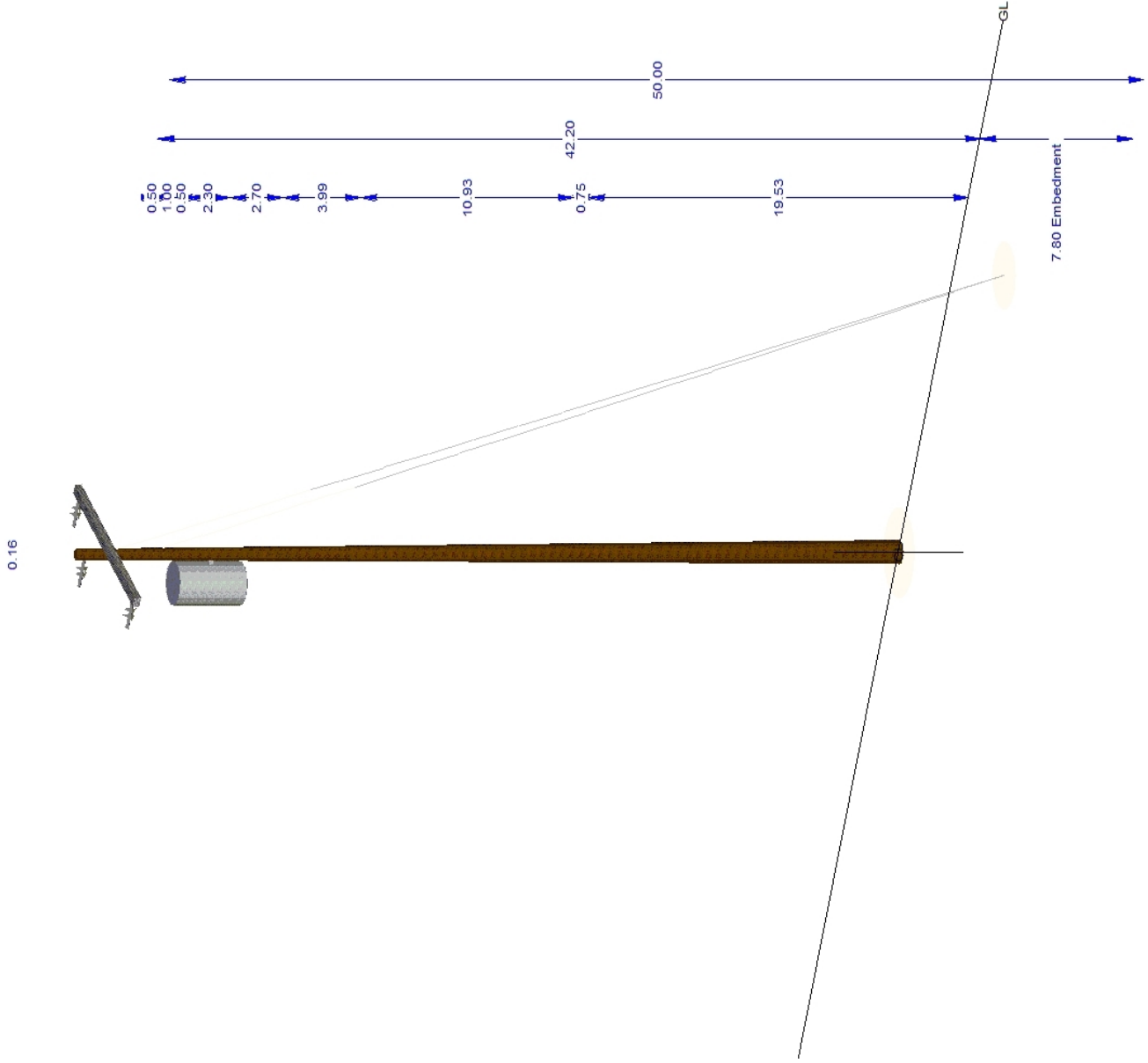
†Length = Lead Length for Down Guys, Wire Length for Span Guys

<i>Type</i>	<i>Wire Type</i>	<i>Length† (ft)</i>	<i>Direction (deg)</i>	<i>Attach Height (ft)</i>	<i>Origin Pole</i>	<i>Usage %</i>	<i>Calc SF</i>	<i>Req SF</i>	<i>Load Case</i>
Down	7/16" 7 Strand EHS (7/16G)	15.3	90	40.2	P611283	35	3.8	1.3	G.O.95 Heavy Grade A at Replacement
Down	7/16" 7 Strand EHS (7/16G)	15.3	90	37.9	P611283	31	4.3	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	16" CROSSPLATE MG				P611283	69	1.9	1.3	G.O.95 Heavy Grade A at Replacement

Crossarms and Equipment

<i>Type</i>	<i>Description</i>	<i>Direction (deg)</i>	<i>Attach Height (ft)</i>	<i>Origin Pole</i>	<i>Usage %</i>	<i>Calc SF</i>	<i>Req SF</i>	<i>Load Case</i>
Equipment	25 kVA Transformer	270	35.2	P611283				
X-Arm	10' DE FG ARM (4DF)	3	40.7	P611283	2	83.3	1.3	G.O.95 Heavy Grade A at Replacement







Structure P210713
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]

Engineer NV5 [REDACTED]

Usage Summary

Max Usage	34 %	Clearances OK?	Yes
Pole Usage	11 %	G.O.95 Heavy Grade A at Replacement	
Insulator Usage	17 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	34 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage			
Arm Usage	3 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type	Finite Element L4
Analysis Software	PLS-CADD
Software Version	16.01
PRG Version	2019.3.4
Structure File	P210713_AS-BUILT.pol
Project File	C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span	241 ft	Latitude	33.07645899°
Back Span	83 ft	Longitude	-116.59155590°
Ahead Span Az.	7°	Elevation	4205 ft
Line Angle	102°	Tangent/DE	Dead End
Framing			
Notes			

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P210713	55	1	Corten Steel	47.6	8		100	G.O.95 Heavy Grade A at Replacement	8	11	9.3	1.0	45.5
P210713	55	1	Corten Steel	47.6	8		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	14	10	10.3	1.0	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	76	39.15	0.33	0.11	1	240	240	844
12	No2 AWG 5Over2 AWAC GCC	76	39.15	0.33	0.11	1	240	240	844
12	No2 AWG 5Over2 AWAC GCC	76	39.15	0.33	0.11	1	241	240	844
12	No2 AWG 5Over2 AWAC GCC	261	39.15	0.33	0.11	1	85	173	990
12	No2 AWG 5Over2 AWAC GCC	261	39.15	0.33	0.11	1	85	173	990
12	No2 AWG 5Over2 AWAC GCC	261	39.15	0.33	0.11	1	84	173	990
12	No2 AWG 5Over2 AWAC GCC	358	46	0.33	0.11	1	215	223	1052
12	No2 AWG 5Over2 AWAC GCC	358	46	0.33	0.11	1	215	223	1052
12	No2 AWG 5Over2 AWAC GCC	358	46	0.33	0.11	1	215	223	1052

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	76	39.15	P210713	16	12.6	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	76	39.15	P210713	15	13.0	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	76	39.15	P210713	16	12.7	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	261	39.15	P210713	15	13.0	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	261	39.15	P210713	15	13.0	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	261	39.15	P210713	17	11.7	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	358	46	P210713	17	11.6	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	358	46	P210713	17	11.9	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	358	46	P210713	15	13.0	2.0	G.O.95 Heavy Grade A at Replacement

Guis and Cables

†Length = Lead Length for Down Guys, Wire Length for Span Guys

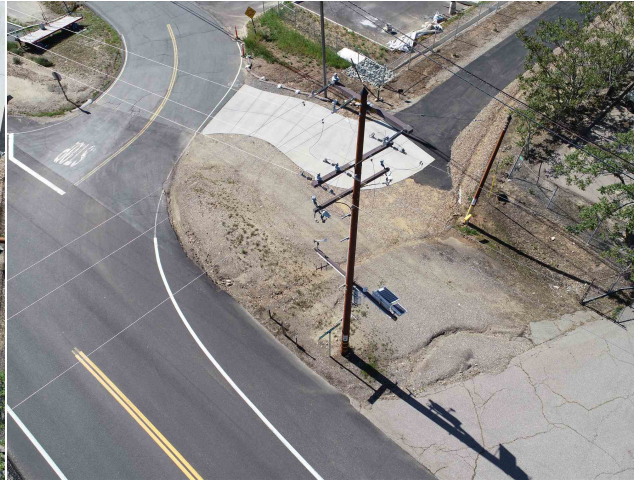
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Span	3 8-7 Strand Ehs Steel Sdge	35	176	45.5	P210713, P223189	34			G.O.95 Heavy Grade A at Replacement

Crossarms and Equipment

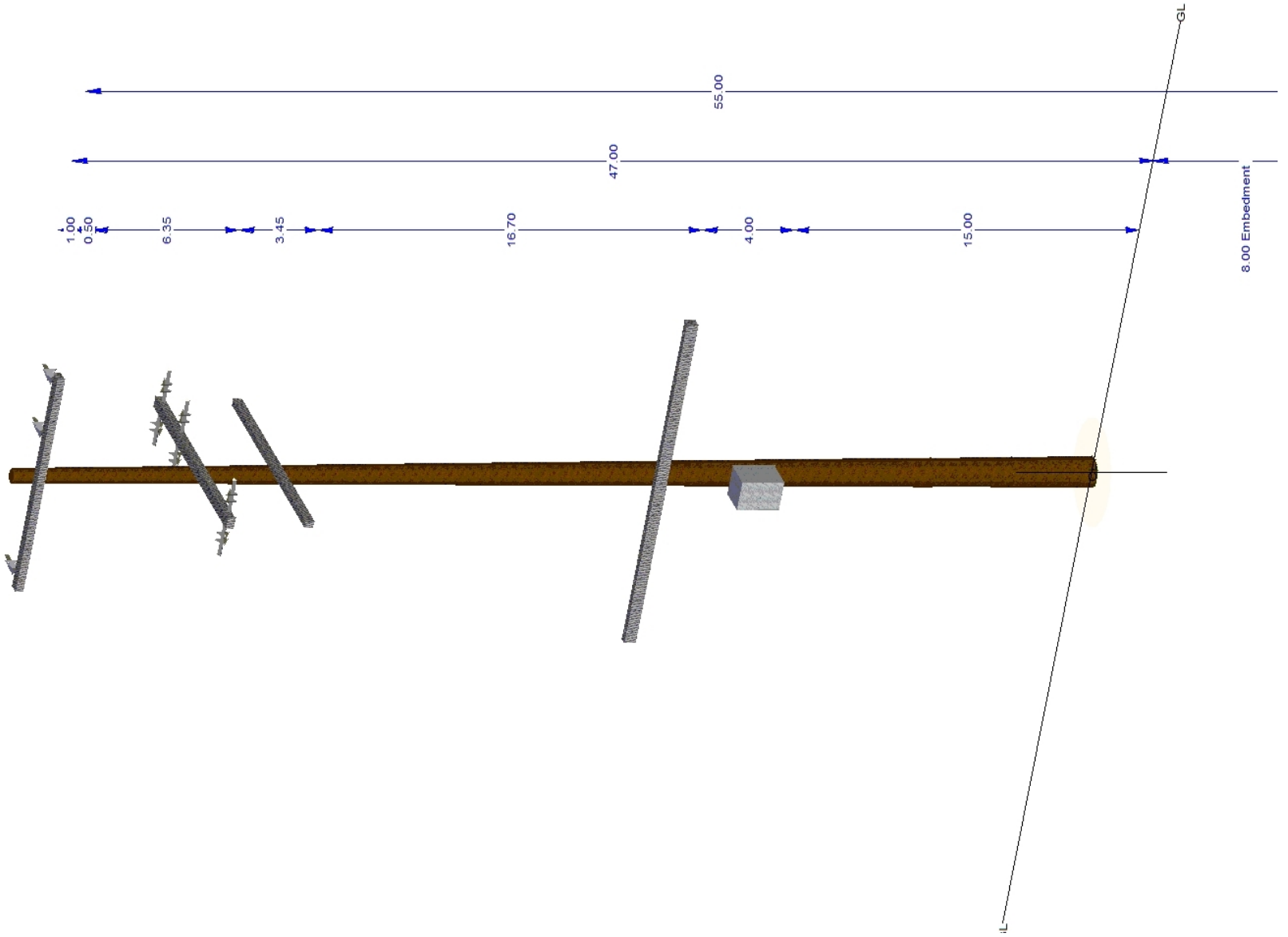
Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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*Max Usage Location Measured From Groundline **Direction in degrees: 0 Degrees = Structure Longitudinal Axis towards Ahead Span CW+ ***Attach Height Measured From Groundline, GSI from Top of Guy

Equipment	SOLAR SCADA REPEATER STATION OH546	180	15	P210713				
X-Arm	10' DE FG ARM (4DF)	90	46	P210713	3	41.7	1.3	G.O.95 Heavy Grade A at Replacement
X-Arm	10' DE FG ARM (4DF)	0	39.15	P210713	1	222.2	1.3	G.O.95 Heavy Grade A at Replacement
X-Arm	10' EQUIPMENT FG ARM (4TF)	0	35.7	P210713			1.3	G.O.95 Heavy Grade A at Replacement
X-Arm	15' EQUIPMENT FG ARM (6LTF)	90	19	P210713		1333.3	1.3	G.O.95 Heavy Grade A at Replacement



0.12





Structure P110221
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]

Engineer NV5
 [REDACTED]

Usage Summary

Max Usage 39 % **Clearances OK?** Yes
Pole Usage 25 % G.O.95 Heavy Grade A at Replacement
Insulator Usage 39 % Known Local Wind Heavy 85 MPH Grade A at Replacement
Guy Usage
Anchor Usage
Arm Usage 1% G.O.95 Heavy Grade A at Replacement

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P110221_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 235 ft **Latitude** 33.07705056°
Back Span 216 ft **Longitude** -116.59150196°
Ahead Span Az. 185° **Elevation** 4203 ft
Line Angle 146° **Tangent/DE** Tangent
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P110221	55	1	Corten Steel	47.6	8		100	G.O.95 Heavy Grade A at Replacement	37	25	4.0	1.0	0
P110221	55	1	Corten Steel	47.6	8		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	36	24	4.1	1.0	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	0	46.89	0.33	0.11	1	215	223	1052
12	No2 AWG 5Over2 AWAC GCC	0	46.89	0.33	0.11	1	215	223	1052
12	No2 AWG 5Over2 AWAC GCC	0	46.89	0.33	0.11	1	215	223	1052
12	No2 AWG 5Over2 AWAC GCC	180	46.89	0.33	0.11	1	237	223	1052
12	No2 AWG 5Over2 AWAC GCC	180	46.89	0.33	0.11	1	237	223	1052
12	No2 AWG 5Over2 AWAC GCC	180	46.89	0.33	0.11	1	237	223	1052
	#8 Cu Weld Duplex	93	35.39	0.42	0.12	1	157	157	339
	#8 Cu Weld Duplex	213	36.53	0.42	0.12	1	55	47	75

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1" Pin)	12		45.99	P110221	38	5.3	2.0	Known Local Wind Heavy 85 MPH Grade A at Replacement
Post	12kV Clamp Top-Al (1" Pin)	12		45.99	P110221	37	5.5	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1" Pin)	12		45.99	P110221	39	5.2	2.0	Known Local Wind Heavy 85 MPH Grade A at Replacement

Guis and Cables

†Length = Lead Length for Down Guys, Wire Length for Span Guys

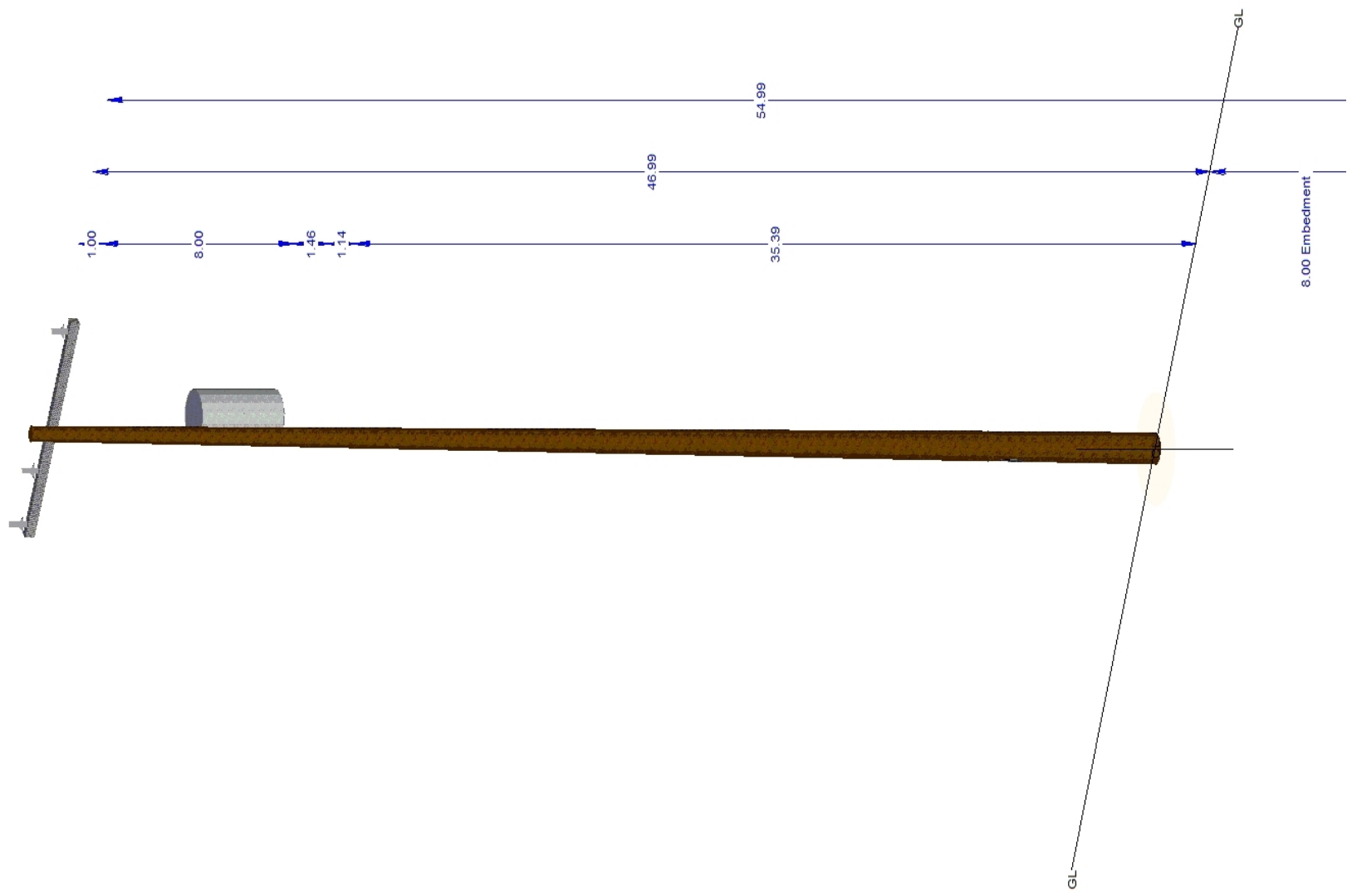
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	25 kVA Transformer	0	37.99	P110221				
X-Arm	10' TAN FG ARM (4TF)	272	45.99	P110221	1	166.7	1.3	G.O.95 Heavy Grade A at Replacement



0.04





Structure P110220
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]

Engineer NV5
 [REDACTED]

Usage Summary

Max Usage	36 %	Clearances OK?	Yes
Pole Usage	19 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	36 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage			
Anchor Usage			
Arm Usage	1 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type	Finite Element L4
Analysis Software	PLS-CADD
Software Version	16.01
PRG Version	2019.3.4
Structure File	P110220_AS-BUILT.pol
Project File	C221_SEC_F_TRUEUP.xy

Structure Details

Ahead Span	218 ft	Latitude	33.07769554°
Back Span	235 ft	Longitude	-116.59144695°
Ahead Span Az.	6°	Elevation	4179 ft
Line Angle	-129°	Tangent/DE	Tangent
Framing			
Notes			

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P110220	45	1	Corten Steel	41.2	6.5		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	21	19	5.3	1.0	0
P110220	45	1	Corten Steel	41.2	6.5		100	G.O.95 Heavy Grade A at Replacement	18	16	6.3	1.0	6.4

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	179	38.39	0.33	0.11	1	237	223	1052
12	No2 AWG 5Over2 AWAC GCC	179	38.39	0.33	0.11	1	237	223	1052
12	No2 AWG 5Over2 AWAC GCC	179	38.39	0.33	0.11	1	237	223	1052
12	No2 AWG 5Over2 AWAC GCC	358	38.39	0.33	0.11	1	218	223	1052
12	No2 AWG 5Over2 AWAC GCC	358	38.39	0.33	0.11	1	218	223	1052
12	No2 AWG 5Over2 AWAC GCC	358	38.39	0.33	0.11	1	218	223	1052
	1-0 AWG Triplex SSC AL Neritina GCC	48	26.38	0.97	0.41	1	47	46	114

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1" Pin)	12		37.49	P110220	36	5.6	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1" Pin)	12		37.49	P110220	35	5.7	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1" Pin)	12		37.49	P110220	35	5.7	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

+Length = Lead Length for Down Guys, Wire Length for Span Guys

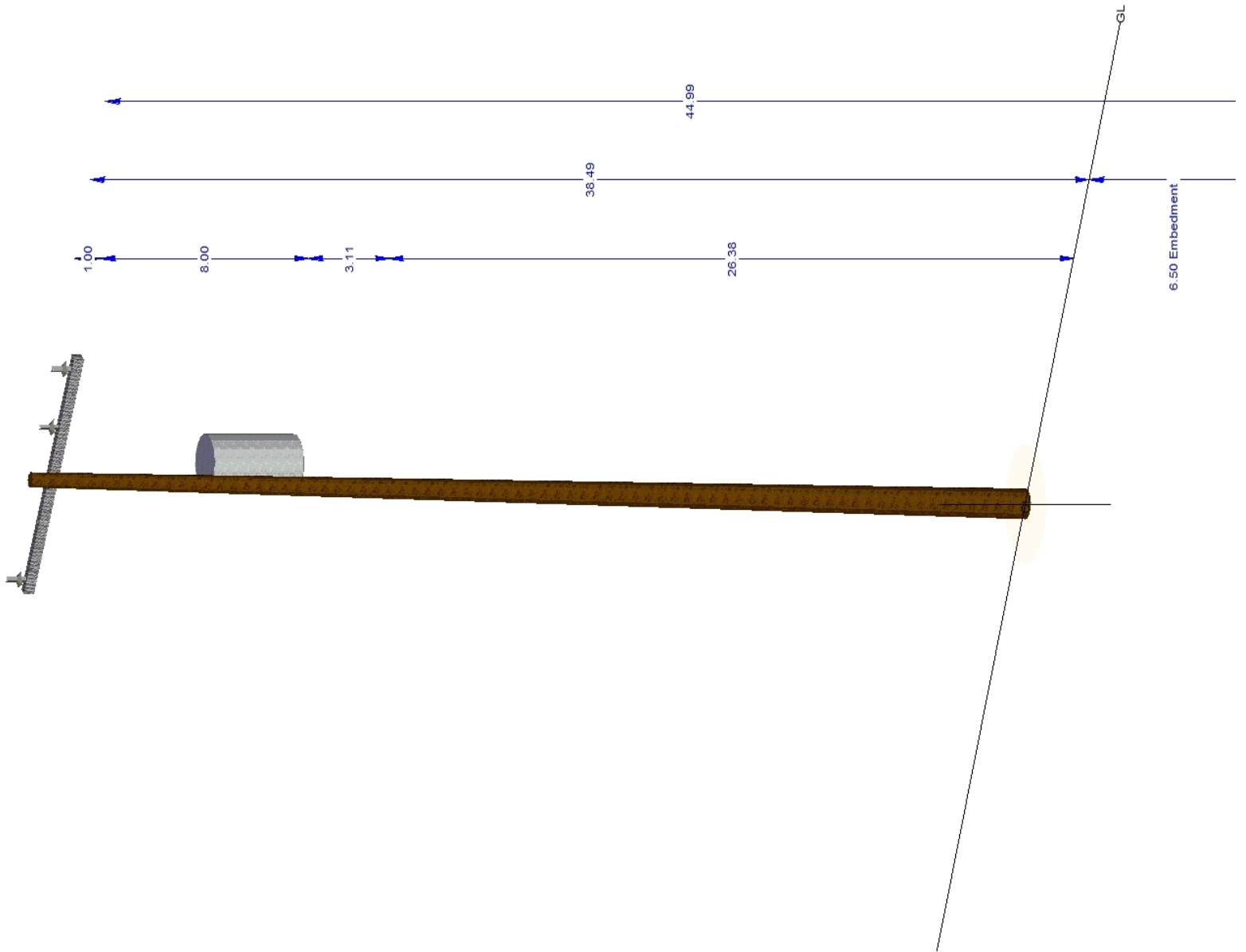
Type	Wire Type	Length+ (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	25 kVA Transformer		0	29.49	P110220				
X-Arm	10" TAN FG ARM (4TF)		272	37.49	P110220	1	266.7	1.3	G.O.95 Heavy Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	25 kVA Transformer	0	29.49	P110220				
X-Arm	10" TAN FG ARM (4TF)	272	37.49	P110220	1	266.7	1.3	G.O.95 Heavy Grade A at Replacement



0.97





Structure P110215
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage	40 %	Clearances OK?	No
Pole Usage	20 %	G.O.95 Heavy Grade A at Replacement	
Insulator Usage	32 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	40 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Anchor Usage	31 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Arm Usage	2 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P110215_AS-BUILT.pol
Project File C221_SEC_F_TRUEUP.xyz

Structure Details

Ahead Span 435 ft **Latitude** 33.07829231°
Back Span 218 ft **Longitude** -116.59140301°
Ahead Span Az. 92° **Elevation** 4159 ft
Line Angle -98° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P110215	55	1	Corten Steel	48.4	6.56		100	G.O.95 Heavy Grade A at Replacement	28	20	5.1	1.0	0
P110215	55	1	Corten Steel	48.4	6.56		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	25	18	5.6	1.0	39

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	92	39.44	0.33	0.11	1	218	223	1052
12	No2 AWG 5Over2 AWAC GCC	92	39.44	0.33	0.11	1	218	223	1052
12	No2 AWG 5Over2 AWAC GCC	92	39.44	0.33	0.11	1	218	223	1052
12	336Kcmil LINNET ACSR AW2 GCC	177	47.94	0.72	0.44	1	142	158	1796
12	336Kcmil LINNET ACSR AW2 GCC	177	46.94	0.72	0.44	1	142	158	1796
12	336Kcmil LINNET ACSR AW2 GCC	177	46.94	0.72	0.44	1	142	158	1796
12	No2 AWG 5Over2 AWAC GCC	273	39.44	0.33	0.11	1	294	293	1110
12	No2 AWG 5Over2 AWAC GCC	274	39.44	0.33	0.11	1	294	293	1110
12	336Kcmil LINNET ACSR AW2 GCC	356	47.94	0.72	0.44	1	434	435	1792
12	336Kcmil LINNET ACSR AW2 GCC	356	46.94	0.72	0.44	1	435	435	1792
12	336Kcmil LINNET ACSR AW2 GCC	356	46.94	0.72	0.44	1	436	435	1792
	1 In Firm Design Cable	177	24.47	1.13	0.40	1	142	142	1068
	1 In Firm Design Cable	274	24.06	1.13	0.40	1	295	295	1882
	1 In Firm Design Cable	356	24.47	1.13	0.40	1	435	435	1828

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	92	39.44	P110215	19	10.8	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	92	39.44	P110215	17	11.9	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	92	39.44	P110215	16	12.2	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	177	47.94	P110215	32	6.2	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	177	46.94	P110215	31	6.5	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	177	46.94	P110215	29	6.9	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	273	39.44	P110215	19	10.5	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	274	39.44	P110215	20	9.9	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	356	47.94	P110215	27	7.4	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	356	46.94	P110215	30	6.6	2.0	G.O.95 Heavy Grade A at Replacement

*Max Usage Location Measured From Groundline **Direction in degrees: 0 Degrees = Structure Longitudinal Axis towards Ahead Span CW+ ***Attach Height Measured From Groundline, GSI from Top of Guy

Strain	12kV Long DE	12	356	46.94	P110215	30	6.6	2.0	G.O.95 Heavy Grade A at Replacement
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Guys and Cables

+Length = Lead Length for Down Guys, Wire Length for Span Guys

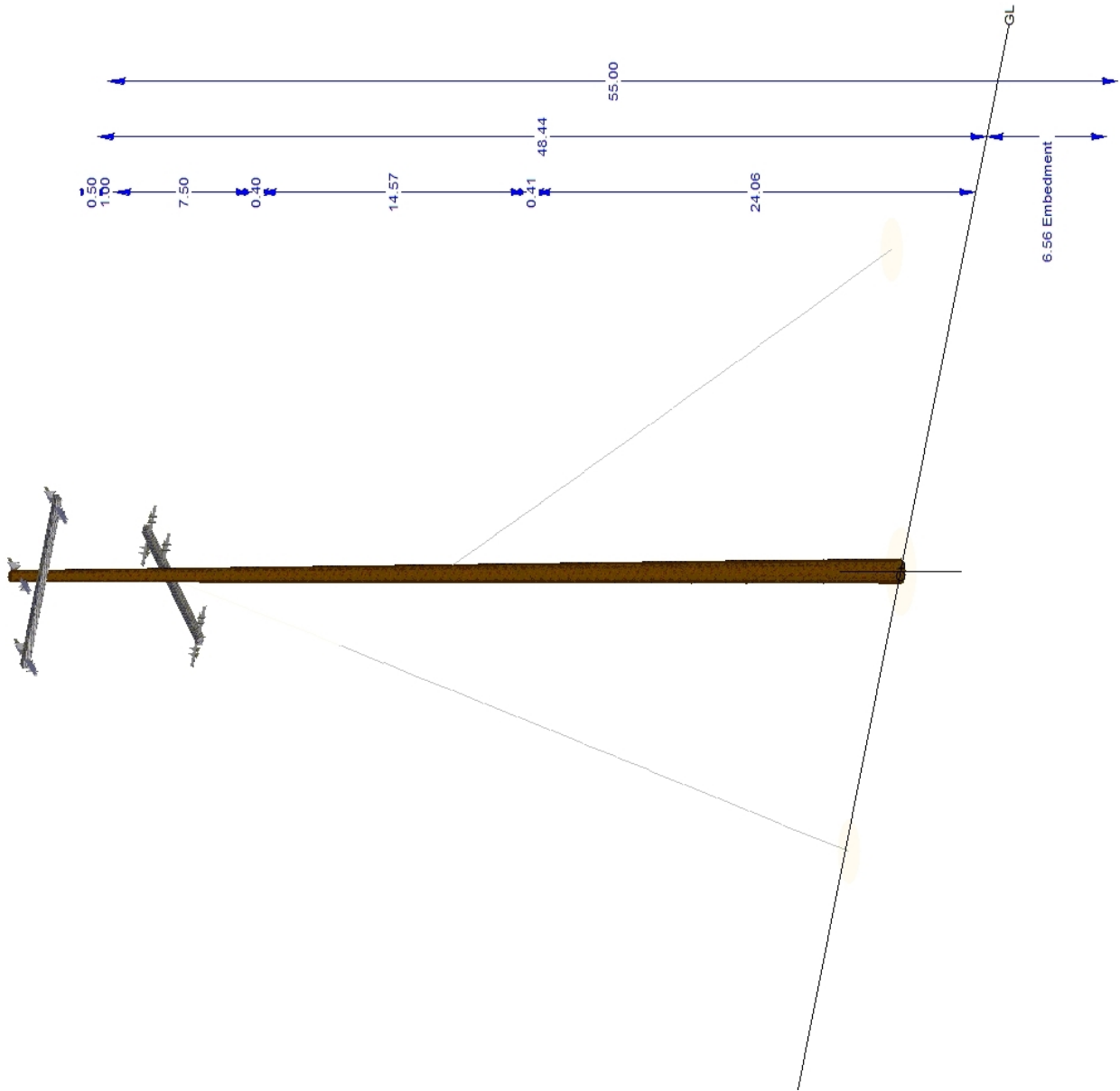
Type	Wire Type	Length ⁺ (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	15.79	269	39.04	P110215	24	5.5	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	20" CROSSPLATE MG				P110215	19	6.9	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	18.17	87	24.47	P110215	40	3.4	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	16" CROSSPLATE MG				P110215	31	4.4	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10' DE FG ARM (4DF)	90	46.94	P110215	1	266.7	1.3	G.O.95 Heavy Grade A at Replacement
X-Arm	10' DE FG ARM (4DF)	185	39.44	P110215	2	83.3	1.3	G.O.95 Heavy Grade A at Replacement



0.35





Structure P102881
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]

Engineer NV5
 [REDACTED]

Usage Summary

Max Usage 100 % **Clearances OK?** Yes
Pole Usage 100 % G.O.95 Heavy Grade A at Replacement
Insulator Usage 47 % G.O.95 Heavy Grade A at Replacement
Guy Usage
Anchor Usage
Arm Usage 6 % G.O.95 Heavy Grade A at Replacement

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L3
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P102881_EXISTING.pol
Project File C221_SEC_F_TRUEUP.xyz

Structure Details

Ahead Span 295 ft **Latitude** 33.07910006°
Back Span 295 ft **Longitude** -116.59130674°
Ahead Span Az. 5° **Elevation** 4146 ft
Line Angle -2° **Tangent/DE** Tangent
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P102881	45	3	DF - Douglas Fir	37.3	6.9	12/7/2019	80	G.O.95 Heavy Grade A at Replacement	32	100	2.6	2.6	0
P102881	45	3	DF - Douglas Fir	37.3	6.9	12/7/2019	80	Known Local Wind Heavy 85 MPH Grade A at Replacement	39	61	2.2	1.3	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	-1	38	0.33	0.11	1	293	293	1110
12	No2 AWG 5Over2 AWAC GCC	-1	38	0.33	0.11	1	292	293	1110
12	No2 AWG 5Over2 AWAC GCC	180	38	0.33	0.11	1	294	293	1110
12	No2 AWG 5Over2 AWAC GCC	181	38	0.33	0.11	1	294	293	1110
	1 In Firm Design Cable	-1	27.53	1.13	0.40	1	296	296	1973
	1 In Firm Design Cable	181	27.53	1.13	0.40	1	295	295	1882

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1" Pin)	12		37.09	P102881	47	4.3	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1" Pin)	12		37.09	P102881	43	4.7	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

†Length = Lead Length for Down Guys, Wire Length for Span Guys

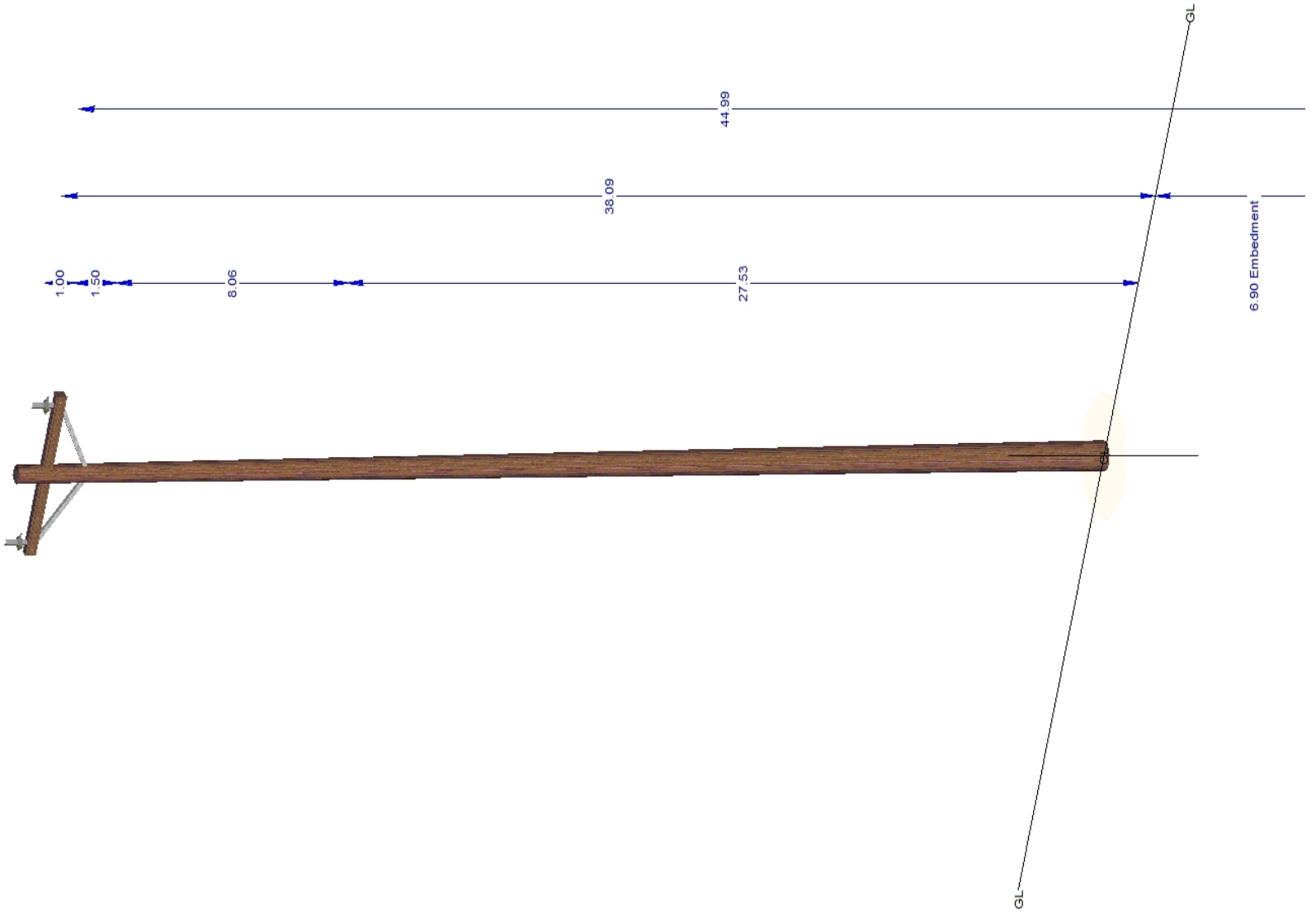
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	6' WOOD ARM (2)	90	37.09	P102881	6	24.2	1.3	G.O.95 Heavy Grade A at Replacement



0.27





Structure P110707
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage	34 %	Clearances OK?	No
Pole Usage	34 %	G.O.95 Heavy Grade A at Replacement	
Insulator Usage	21 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	29 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	22 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage	2 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P110707_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 337 ft **Latitude** 33.07734826°
Back Span 297 ft **Longitude** -116.58830180°
Ahead Span Az. 273° **Elevation** 4202 ft
Line Angle -141° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P110707	50	1	Corten Steel	43.5	7.3		100	G.O.95 Heavy Grade A at Replacement	13	34	3.0	1.0	33.5
P110707	50	1	Corten Steel	43.5	7.3		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	9	23	4.3	1.0	33.5

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	54	42.19	0.33	0.11	1	230	227	994
12	No2 AWG 5Over2 AWAC GCC	55	40.28	0.33	0.11	1	227	227	994
12	No2 AWG 5Over2 AWAC GCC	55	40.28	0.33	0.11	1	231	227	994
12	No2 AWG 5Over2 AWAC GCC	180	33.53	0.33	0.11	1	337	324	1322
12	No2 AWG 5Over2 AWAC GCC	181	33.53	0.33	0.11	1	338	324	1322
12	No2 AWG 5Over2 AWAC GCC	275	42.19	0.33	0.11	1	296	296	973
12	No2 AWG 5Over2 AWAC GCC	275	40.28	0.33	0.11	1	297	296	973
12	No2 AWG 5Over2 AWAC GCC	275	40.28	0.33	0.11	1	297	296	973
	1 In Firm Design Cable	55	28.33	1.13	0.40	1	229	229	903
	1 In Firm Design Cable	93	28.13	1.13	0.40	1	78	77	730
	1 In Firm Design Cable	180	27.16	1.13	0.40	1	337	336	1683
	1 In Firm Design Cable	275	27.16	1.13	0.40	1	296	296	1878

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	54	42.19	P110707	17	11.9	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	55	40.28	P110707	14	14.3	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	55	40.28	P110707	15	13.0	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	180	33.53	P110707	21	9.6	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	181	33.53	P110707	21	9.4	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	275	42.19	P110707	16	12.3	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	275	40.28	P110707	16	12.2	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	275	40.28	P110707	17	12.0	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

+Length = Lead Length for Down Guys, Wire Length for Span Guys

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	13.8	164	40.69	P110707	23	5.9	1.3	G.O.95 Heavy Grade A at Replacement

Anchor	20" CROSSPLATE MG				P110707	18	7.4	1.3	G.O.95 Heavy Grade A at Replacement
Down	7/16" 7 Strand EHS (7/16G)	14.88	-2	32.94	P110707	17	7.9	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	20" CROSSPLATE MG				P110707	14	9.9	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	18.02	3	28.33	P110707	29	4.6	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	16" CROSSPLATE MG				P110707	22	5.9	1.3	G.O.95 Heavy Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	11.19	100	27.16	P110707	27	4.9	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	16" CROSSPLATE MG				P110707	21	6.4	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10' DE FG ARM (4DF)	350	40.28	P110707	1	102.6	1.3	G.O.95 Heavy Grade A at Replacement
X-Arm	10' DE FG ARM (4DF)	270	33.53	P110707	2	63.5	1.3	G.O.95 Heavy Grade A at Replacement





Structure P210482
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]

Engineer NV5
 [REDACTED]

Usage Summary

Max Usage 38 % **Clearances OK?** Yes
Pole Usage 38 % Known Local Wind Heavy 85 MPH Grade A at Replacement
Insulator Usage 27 % G.O.95 Heavy Grade A at Replacement
Guy Usage
Anchor Usage
Arm Usage G.O.95 Heavy Grade A at Replacement

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L3
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P210482_AS-BUILT.pol
Project File C221_SEC_F_TRUEUP.xyz

Structure Details

Ahead Span 353 ft **Latitude** 33.07729428°
Back Span 337 ft **Longitude** -116.58720272°
Ahead Span Az. 0° **Elevation** 4165 ft
Line Angle 0° **Tangent/DE** Tangent
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P210482	50	1	Corten Steel	43.7	7		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	48	38	2.6	1.0	0
P210482	50	1	Corten Steel	43.7	7		100	G.O.95 Heavy Grade A at Replacement	37	29	3.4	1.0	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	93	42.97	0.33	0.11	1	352	324	1322
12	No2 AWG 5Over2 AWAC GCC	94	42.97	0.33	0.11	1	353	324	1322
12	No2 AWG 5Over2 AWAC GCC	273	42.97	0.33	0.11	1	337	324	1322
12	No2 AWG 5Over2 AWAC GCC	274	42.97	0.33	0.11	1	338	324	1322
	1 In Firm Design Cable	93	33.85	1.13	0.40	1	352	352	1175
	1 In Firm Design Cable	273	33.85	1.13	0.40	1	337	336	1683

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1-3/8" Pin)	12		42	P210482	26	7.7	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1-3/8" Pin)	12		42	P210482	27	7.4	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

†Length = Lead Length for Down Guys, Wire Length for Span Guys

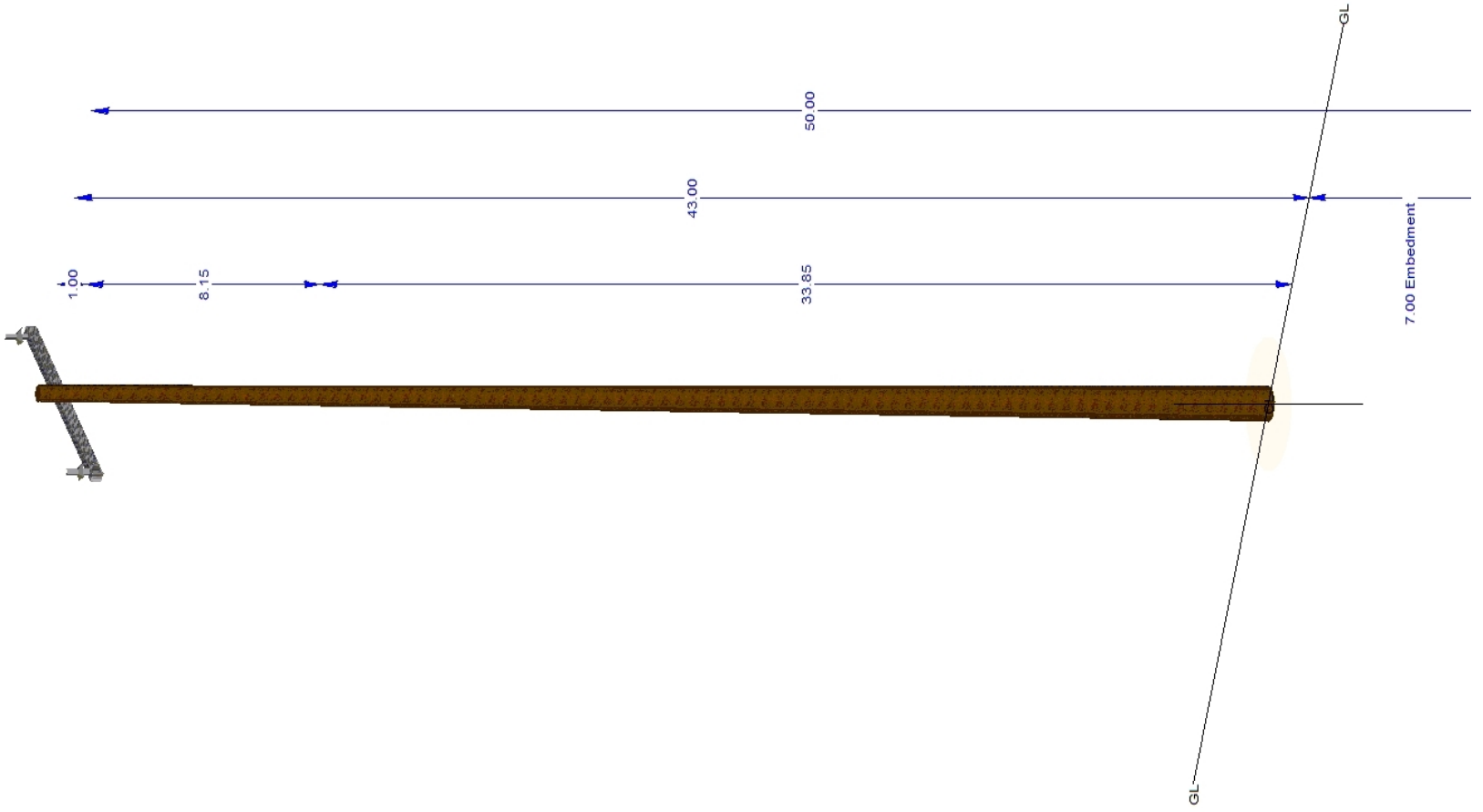
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	8' TAN FG ARM (8FT)	187	42	P210482		444.4	1.3	G.O.95 Heavy Grade A at Replacement



0.46





Structure P210483
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]

Engineer NV5
 [REDACTED]

Usage Summary

Max Usage 28 % **Clearances OK?** Yes
Pole Usage 28 % Known Local Wind Heavy 85 MPH Grade A at Replacement
Insulator Usage 18 % G.O.95 Heavy Grade A at Replacement
Guy Usage
Anchor Usage
Arm Usage G.O.95 Heavy Grade A at Replacement

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L3
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P210483_AS-BUILT.pol
Project File C221_SEC_F_TRUEUP.xyz

Structure Details

Ahead Span 97 ft **Latitude** 33.07723997°
Back Span 353 ft **Longitude** -116.58605233°
Ahead Span Az. 0° **Elevation** 4186 ft
Line Angle 0° **Tangent/DE** Tangent
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P210483	45	1	Corten Steel	41.4	6.25		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	32	28	3.6	1.0	0
P210483	45	1	Corten Steel	41.4	6.25		100	G.O.95 Heavy Grade A at Replacement	25	22	4.5	1.0	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	93	38.71	0.33	0.11	1	98	324	1322
12	No2 AWG 5Over2 AWAC GCC	93	38.71	0.33	0.11	1	98	324	1322
12	No2 AWG 5Over2 AWAC GCC	273	38.71	0.33	0.11	1	352	324	1322
12	No2 AWG 5Over2 AWAC GCC	274	38.71	0.33	0.11	1	353	324	1322
	1 In Firm Design Cable	93	23.94	1.13	0.40	1	98	98	803
	1 In Firm Design Cable	273	23.94	1.13	0.40	1	352	352	1175

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1-3/8" Pin)	12		37.74	P210483	17	11.6	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1-3/8" Pin)	12		37.74	P210483	18	11.1	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

†Length = Lead Length for Down Guys, Wire Length for Span Guys

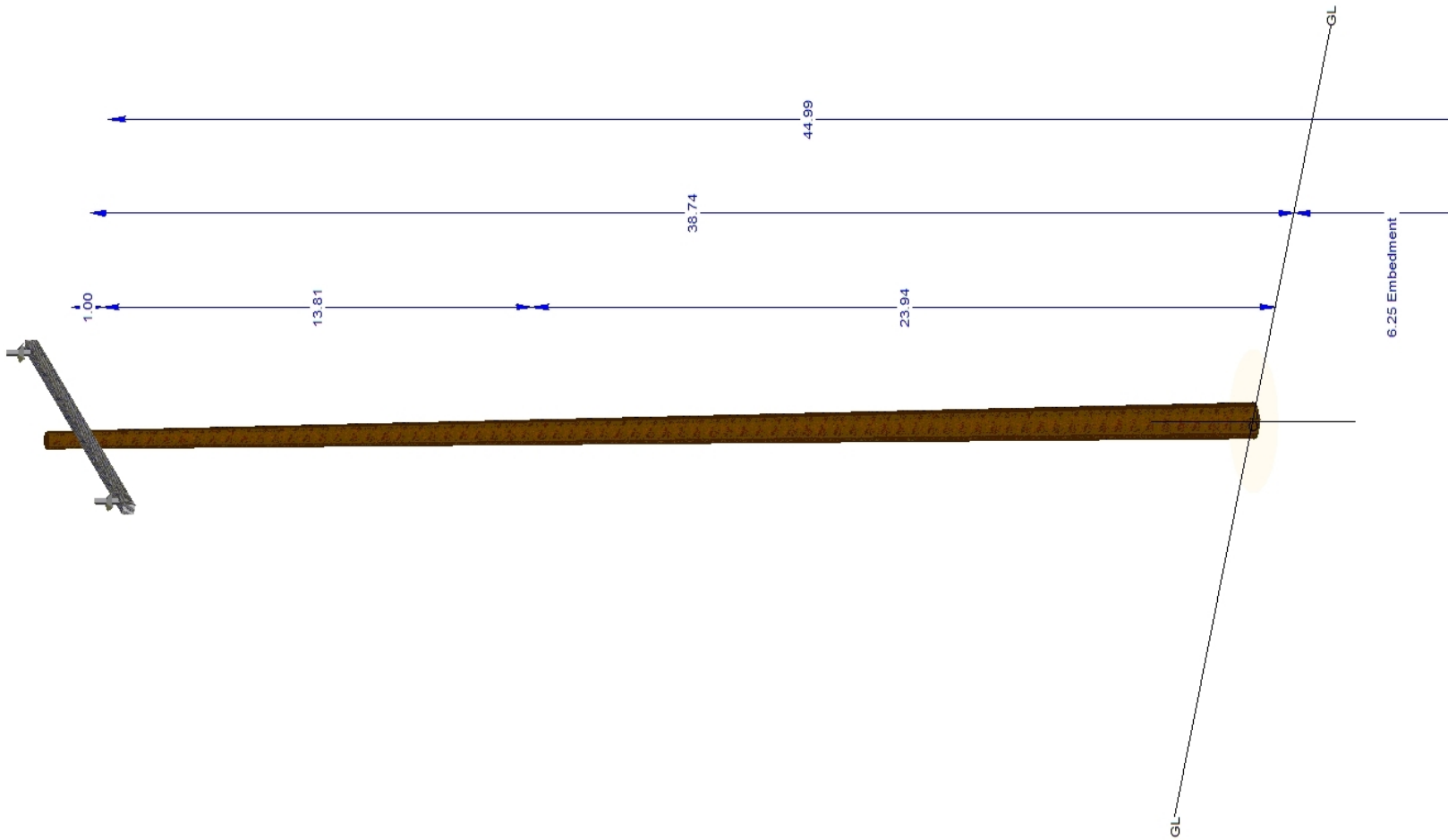
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10' TAN FG ARM (4TF)	0	37.74	P210483		666.7	1.3	G.O.95 Heavy Grade A at Replacement



0.63





Structure P210484
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage	38 %	Clearances OK?	No
Pole Usage	16 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	22 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	38 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	31 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage	2 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P210484_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xy

Structure Details

Ahead Span 81 ft **Latitude** 33.07722522°
Back Span 97 ft **Longitude** -116.58573535°
Ahead Span Az. 264° **Elevation** 4198 ft
Line Angle 179° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P210484	45	1	Corten Steel	41.1	6.65		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	17	16	6.2	1.0	0
P210484	45	1	Corten Steel	41.1	6.65		100	G.O.95 Heavy Grade A at Replacement	8	14	7.4	1.0	27.4

Wires

Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12 No2 AWG 5Over2 AWAC GCC	9	37.34	0.33	0.11	1	98	324	1322
12 No2 AWG 5Over2 AWAC GCC	9	37.34	0.33	0.11	1	98	324	1322
1 In Firm Design Cable	9	18.54	1.13	0.40	1	98	98	803
1-0 AWG Triplex SSC AL Neritina GCC	82	27.84	0.97	0.41	1	80	77	255
1-0 AWG Triplex SSC AL Neritina GCC	181	27.41	0.97	0.41	1	100	99	463
1 In Firm Design Cable	215	18.54	1.13	0.40	1	79	79	506
1-0 AWG Triplex SSC AL Neritina GCC	216	27.2	0.97	0.41	1	81	81	254

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	9	37.34	P210484	22	9.0	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	9	37.34	P210484	22	9.0	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	20.11	192	37.09	P210484	38	3.5	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	20" CROSSPLATE MG				P210484	31	4.3	1.3	G.O.95 Heavy Grade A at Replacement

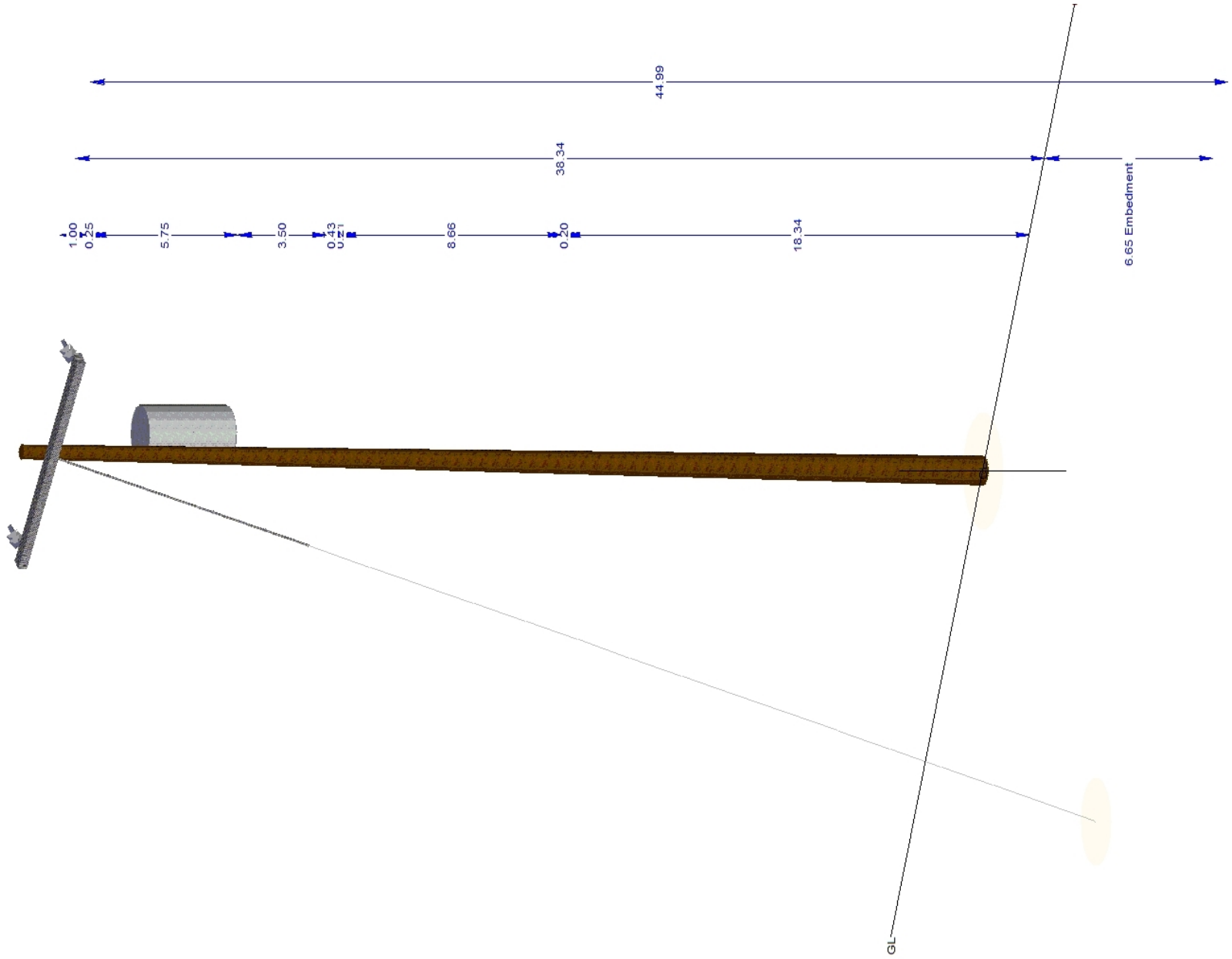
†Length = Lead Length for Down Guys, Wire Length for Span Guys

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	25 kVA Transformer	0	31.34	P210484				
X-Arm	10' DE FG ARM (4DF)	100	37.34	P210484	2	60.6	1.3	G.O.95 Heavy Grade A at Replacement



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Structure P246355
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage 9 % **Clearances OK?** Yes
Pole Usage 9 % Known Local Wind Heavy 85 MPH Grade A at Replacement
Insulator Usage
Guy Usage 5 % G.O.95 Heavy Grade A at Replacement
Anchor Usage 5 % G.O.95 Heavy Grade A at Replacement
Arm Usage

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P246355_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span **Latitude** 33.07481421°
Back Span 36 ft **Longitude** -116.58744563°
Ahead Span Az. 0° **Elevation** 4207 ft
Line Angle 0° **Tangent/DE** Terminal Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P246355	40	1	Corten Steel	38.9	6		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	9	9	10.9	1.0	0
P246355	40	1	Corten Steel	38.9	6		100	G.O.95 Heavy Grade A at Replacement	4	4	25.6	1.0	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
1 In Firm Design Cable		178	22.51	1.13	0.40	1	36	36	97

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Guys and Cables

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	7.57	-2	32.91	P246355	5	29.3	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	16" CROSSPLATE MG				P246355	5	28.7	1.3	G.O.95 Heavy Grade A at Replacement
Span	3 8-7 Strand Ehs Steel Sdge	36	177	32.91	P246355	1			G.O.95 Heavy Grade A at Replacement

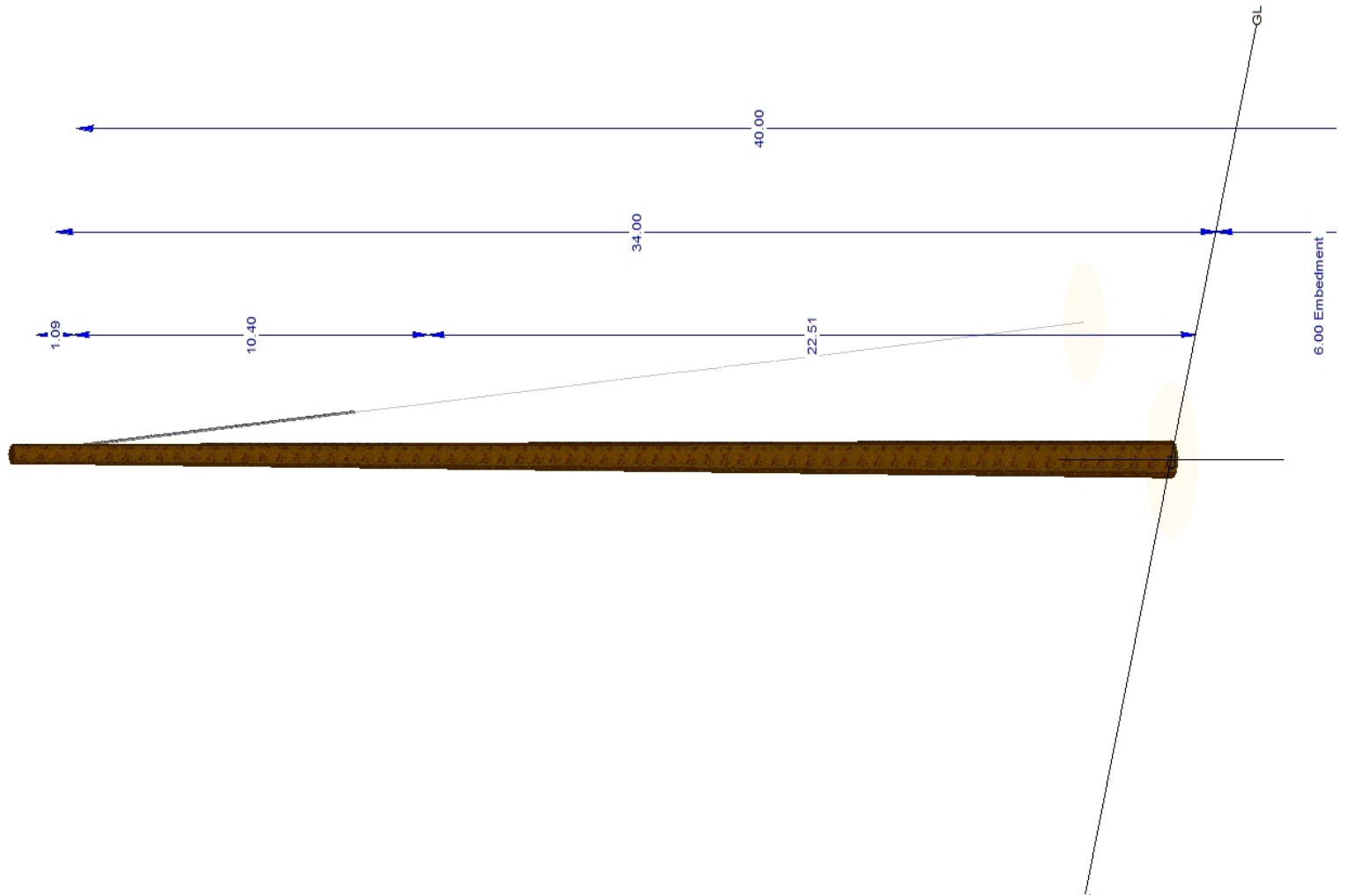
†Length = Lead Length for Down Guys, Wire Length for Span Guys

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Structure P110714J
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]

Engineer NV5
 [REDACTED]

Usage Summary

Max Usage	44 %	Clearances OK?	No
Pole Usage	23 %	G.O.95 Heavy Grade A at Replacement	
Insulator Usage	18 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	21 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Anchor Usage	44 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Arm Usage	2 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type	Finite Element L4
Analysis Software	PLS-CADD
Software Version	16.01
PRG Version	2019.3.4
Structure File	P110714J_AS-BUILT.pol
Project File	C221_SEC_F_TRUEUP.xyz

Structure Details

Ahead Span	289 ft	Latitude	33.07471591°
Back Span	328 ft	Longitude	-116.58744108°
Ahead Span Az.	18°	Elevation	4213 ft
Line Angle	-169°	Tangent/DE	Dead End
Framing			
Notes			

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P110714J	50	1	Corten Steel	43.6	7.1		100	G.O.95 Heavy Grade A at Replacement	15	23	4.4	1.0	21.9
P110714J	50	1	Corten Steel	43.6	7.1		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	12	19	5.3	1.0	21.9

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	81	41.89	0.33	0.11	1	327	328	976
12	No2 AWG 5Over2 AWAC GCC	81	41.89	0.33	0.11	1	328	328	976
12	No2 AWG 5Over2 AWAC GCC	81	41.89	0.33	0.11	1	328	328	976
12	No2 AWG 5Over2 AWAC GCC	152	35.64	0.33	0.11	1	288	289	883
12	No2 AWG 5Over2 AWAC GCC	152	35.64	0.33	0.11	1	291	289	883
12	No2 AWG 5Over2 AWAC GCC	277	41.89	0.33	0.11	1	198	212	1180
12	No2 AWG 5Over2 AWAC GCC	278	41.89	0.33	0.11	1	203	212	1180
12	No2 AWG 5Over2 AWAC GCC	278	41.89	0.33	0.11	1	201	212	1180
	1 In Firm Design Cable	39	22.11	1.13	0.40	1	177	176	1657
	1 In Firm Design Cable	39	21.91	1.13	0.40	1	172	171	973
	1 In Firm Design Cable	39	20.09	1.13	0.40	1	173	173	690
	1 In Firm Design Cable	163	22.76	1.13	0.40	1	164	163	1029
	1 In Firm Design Cable	277	21.91	1.13	0.40	1	201	201	1637
	1 In Firm Design Cable	277	20.09	1.13	0.40	1	201	201	1211
	1 In Firm Design Cable	340	22.11	1.13	0.40	1	36	36	97

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	81	41.89	P110714J	17	11.6	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	81	41.89	P110714J	17	11.7	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	81	41.89	P110714J	17	11.9	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	152	35.64	P110714J	15	13.7	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	152	35.64	P110714J	16	12.7	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	277	41.89	P110714J	18	11.4	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	278	41.89	P110714J	18	11.2	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	278	41.89	P110714J	18	11.3	2.0	G.O.95 Heavy Grade A at Replacement

Guyes and Cables

+Length = Lead Length for Down Guyes, Wire Length for Span Guyes

*Max Usage Location Measured From Groundline **Direction in degrees: 0 Degrees = Structure Longitudinal Axis towards Ahead Span CW+ ***Attach Height Measured From Groundline, GSI from Top of Guy

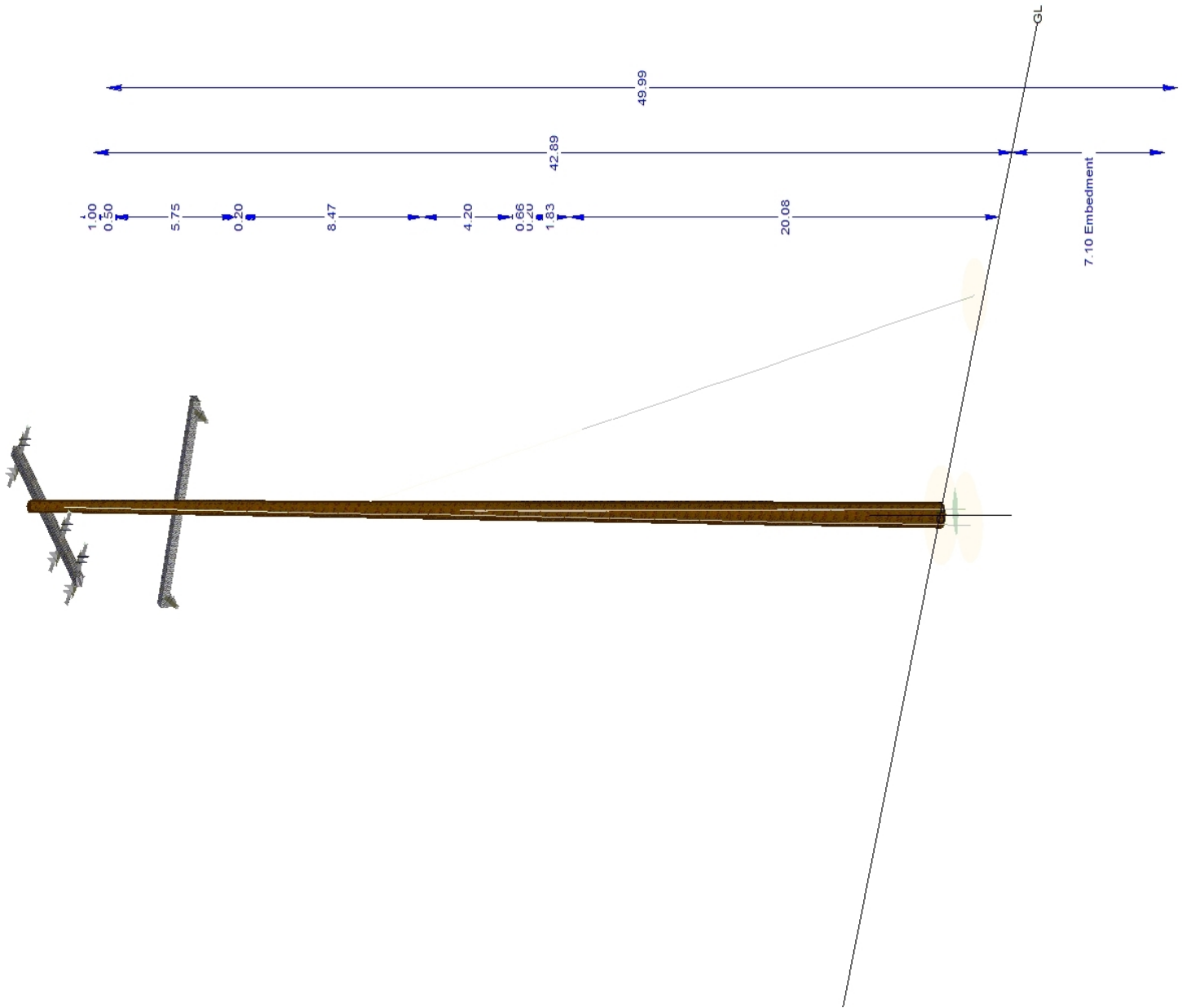
Type	Wire Type	Length+ (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	8.5	155	41.39	P110714J	18	7.6	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	16" CROSSPLATE MG				P110714J	18	7.4	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Down	7/16" 7 Strand EHS (7/16G)	10.34	89	26.97	P110714J	1	102.6	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	20" CROSSPLATE MG				P110714J	1	136.1	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	5.6	149	22.11	P110714J	19	7.2	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	5.6	149	22.76	P110714J	18	7.5	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	5.6	149	20.09	P110714J	21	6.5	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	16" CROSSPLATE MG				P110714J	44	3.0	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Span	3 8-7 Strand Ehs Steel Sdge	36	339	35.44	P110714J, P246355	1			G.O.95 Heavy Grade A at Replacement
Span	3 8-7 Strand Ehs Steel Sdge	201	277	26.97	P110714J, P110713	10			G.O.95 Heavy Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10' DE FG ARM (4DF)	185	41.89	P110714J	1	95.2	1.3	G.O.95 Heavy Grade A at Replacement
X-Arm	10' DE FG ARM (4DF)	265	35.64	P110714J	2	88.9	1.3	G.O.95 Heavy Grade A at Replacement



0.76





Structure P110715
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5
 [REDACTED]

Usage Summary

Max Usage	30 %	Clearances OK?	No
Pole Usage	29 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	16 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	29 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	30 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage	18 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P110715_EXISTING.pol
Project File C221_SEC_F_TRUEUP.xyz

Structure Details

Ahead Span 87 ft **Latitude** 33.07393479°
Back Span 289 ft **Longitude** -116.58726842°
Ahead Span Az. 340° **Elevation** 4238 ft
Line Angle -180° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P110715	40	3	Corten Steel	36.5	6.1		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	18	29	3.4	1.0	0
P110715	40	3	Corten Steel	36.5	6.1		100	G.O.95 Heavy Grade A at Replacement	14	27	3.6	1.0	19.3

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	10	32.9	0.33	0.11	1	288	289	883
12	No2 AWG 5Over2 AWAC GCC	10	32.9	0.33	0.11	1	291	289	883
	1-0 AWG Triplex SSC AL Neritina GCC	168	26	0.97	0.41	1	87	87	421
	1 In Firm Design Cable	168	19.26	1.13	0.40	1	84	84	514
	1-0 AWG Triplex SSC AL Neritina GCC	348	26.2	0.97	0.41	1	133	132	395
	1 In Firm Design Cable	355	19.26	1.13	0.40	1	130	130	390

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	10	32.9	P110715	15	13.5	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	10	32.9	P110715	16	12.5	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	15.78	195	32.4	P110715	29	4.6	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	16" CROSSPLATE MG				P110715	30	4.4	1.3	G.O.95 Heavy Grade A at Replacement

†Length = Lead Length for Down Guys, Wire Length for Span Guys

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	25 kVA Transformer	0	28.4	P110715				
X-Arm	10' DE FG ARM (4DF)	100	32.9	P110715	2	83.3	1.3	G.O.95 Heavy Grade A at Replacement
X-Arm	4' WOOD ARM	6	19.26	P110715	18	7.6	1.3	G.O.95 Heavy Grade A at Replacement





Structure P110711J
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage	49 %	Clearances OK?	No
Pole Usage	25 %	G.O.95 Heavy Grade A at Replacement	
Insulator Usage	49 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	30 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	24 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Arm Usage	2 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P110711J_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 219 ft **Latitude** 33.07550140°
Back Span 213 ft **Longitude** -116.58826782°
Ahead Span Az. 3° **Elevation** 4220 ft
Line Angle 22° **Tangent/DE** Tangent
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P110711J	55	1	Corten Steel	47.8	7.62		100	G.O.95 Heavy Grade A at Replacement	11	25	4.1	1.0	42.4
P110711J	55	1	Corten Steel	47.8	7.62		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	9	19	5.2	1.0	42.4

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	11	47.35	0.33	0.11	1	219	212	1180
12	No2 AWG 5Over2 AWAC GCC	11	47.35	0.33	0.11	1	219	212	1180
12	No2 AWG 5Over2 AWAC GCC	11	47.35	0.33	0.11	1	219	212	1180
12	No2 AWG 5Over2 AWAC GCC	169	47.35	0.33	0.11	1	216	212	1180
12	No2 AWG 5Over2 AWAC GCC	169	47.35	0.33	0.11	1	215	212	1180
12	No2 AWG 5Over2 AWAC GCC	169	47.35	0.33	0.11	1	212	212	1180
	1-0 AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	11	36	0.98	0.48	1	219	219	1082
	1 In Firm Design Cable	11	25.4	1.13	0.40	1	219	219	1669
	1 In Firm Design Cable	11	24.35	1.13	0.40	1	219	219	1311
	No2 AWG Triplex SSC AL Conch GCC	98	35.76	0.77	0.26	1	117	116	341
	1-0 AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	169	36	0.98	0.48	1	213	213	1338
	1 In Firm Design Cable	169	25.4	1.13	0.40	1	213	213	1565
	1 In Firm Design Cable	169	24.35	1.13	0.40	1	213	213	1137
	No2 AWG Triplex SSC AL Conch GCC	263	35.38	0.77	0.26	1	103	100	412

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12KV ANGLE PIN	12		46.38	P110711J	49	4.1	2.0	G.O.95 Heavy Grade A at Replacement
Post	12KV ANGLE PIN	12		46.38	P110711J	49	4.1	2.0	G.O.95 Heavy Grade A at Replacement
Post	12KV ANGLE PIN	12		46.38	P110711J	47	4.3	2.0	G.O.95 Heavy Grade A at Replacement

Guy and Cables

+Length = Lead Length for Down Guys, Wire Length for Span Guys

Type	Wire Type	Length+ (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	20.66	-86	42.38	P110711J	30	4.5	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	24" CROSSPLATE MG				P110711J	19	6.9	1.3	G.O.95 Heavy Grade A at Replacement
Down	7/16" 7 Strand EHS (7/16G)	17.11	-86	38.18	P110711J	22	6.0	1.3	G.O.95 Heavy Grade A at Replacement

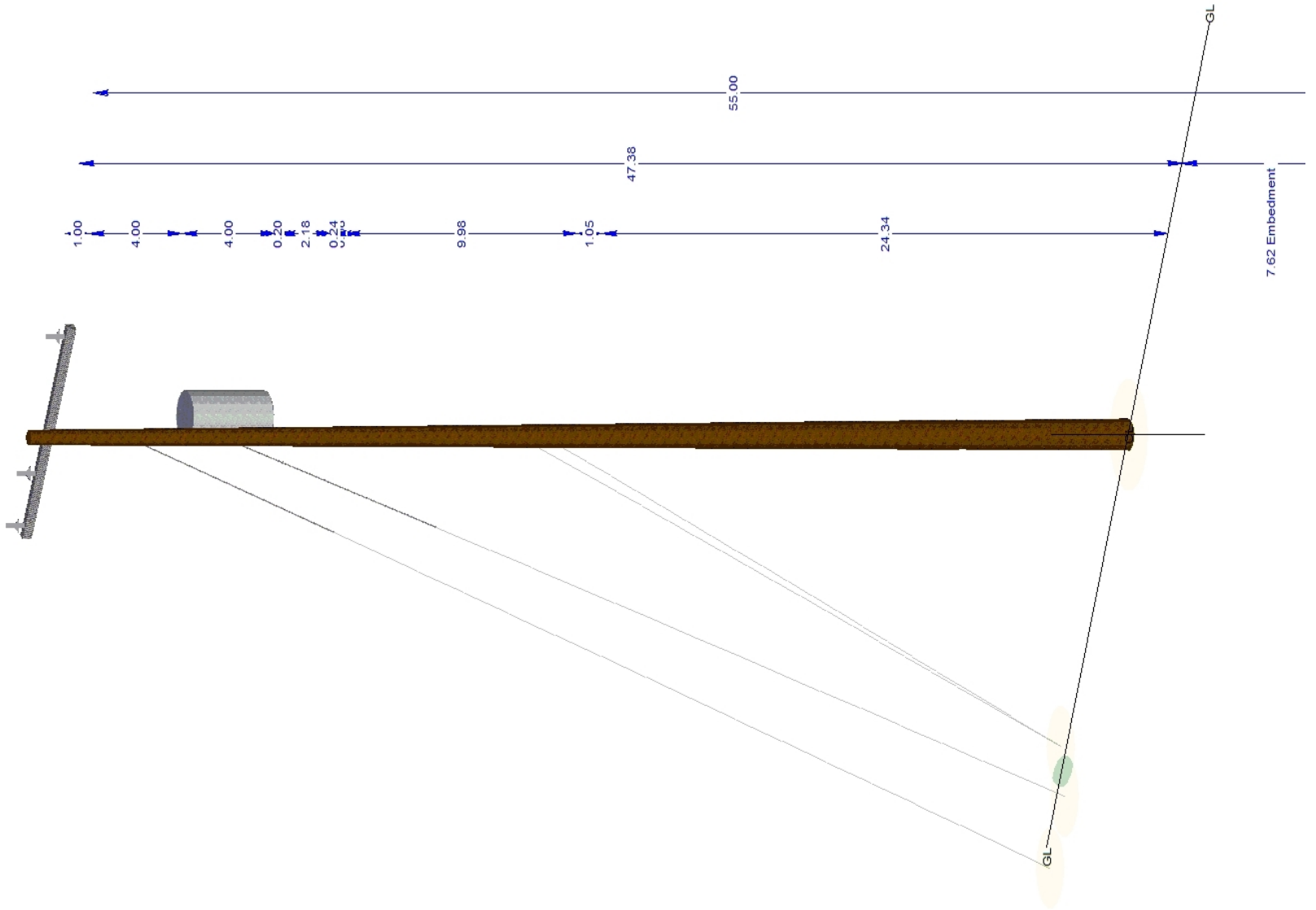
Anchor	24" CROSSPLATE MG				P11071J	14	9.3	1.3	G.O.95 Heavy Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	14.64	-86	25.4	P11071J	16	8.4	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Down	3/8" 7 Strand EHS (3/8G)	14.64	-86	24.35	P11071J	16	8.4	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	16" CROSSPLATE MG				P11071J	24	5.5	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	25 kVA Transformer	0	38.38	P11071J				
X-Arm	10' TAN FG ARM (4TF)	272	46.38	P11071J	2	70.2	1.3	G.O.95 Heavy Grade A at Replacement



0.05





Structure P117928
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage 34 % **Clearances OK?** Yes
Pole Usage 34 % G.O.95 Heavy Grade A at Replacement
Insulator Usage
Guy Usage
Anchor Usage
Arm Usage

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L3
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P117928_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 39 ft **Latitude** 33.07676138°
Back Span 136 ft **Longitude** -116.58913943°
Ahead Span Az. 0° **Elevation** 4208 ft
Line Angle 97° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P117928	35	5	DF - Douglas Fir	29.0	5.5	12/11/2019	80	G.O.95 Heavy Grade A at Replacement	5	34	7.7	2.6	0
P117928	35	5	DF - Douglas Fir	29.0	5.5	12/11/2019	80	Known Local Wind Heavy 85 MPH Grade A at Replacement	8	26	5.1	1.3	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
	1-0 AWG Triplex SSC AL Neritina GCC	6	28.93	0.97	0.41	1	136	136	439
	1-0 AWG Triplex SSC AL Neritina GCC	89	28.73	0.97	0.41	1	82	81	205
	1-0 AWG Triplex SSC AL Neritina GCC	217	28.93	0.97	0.41	1	39	35	447

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Guys and Cables

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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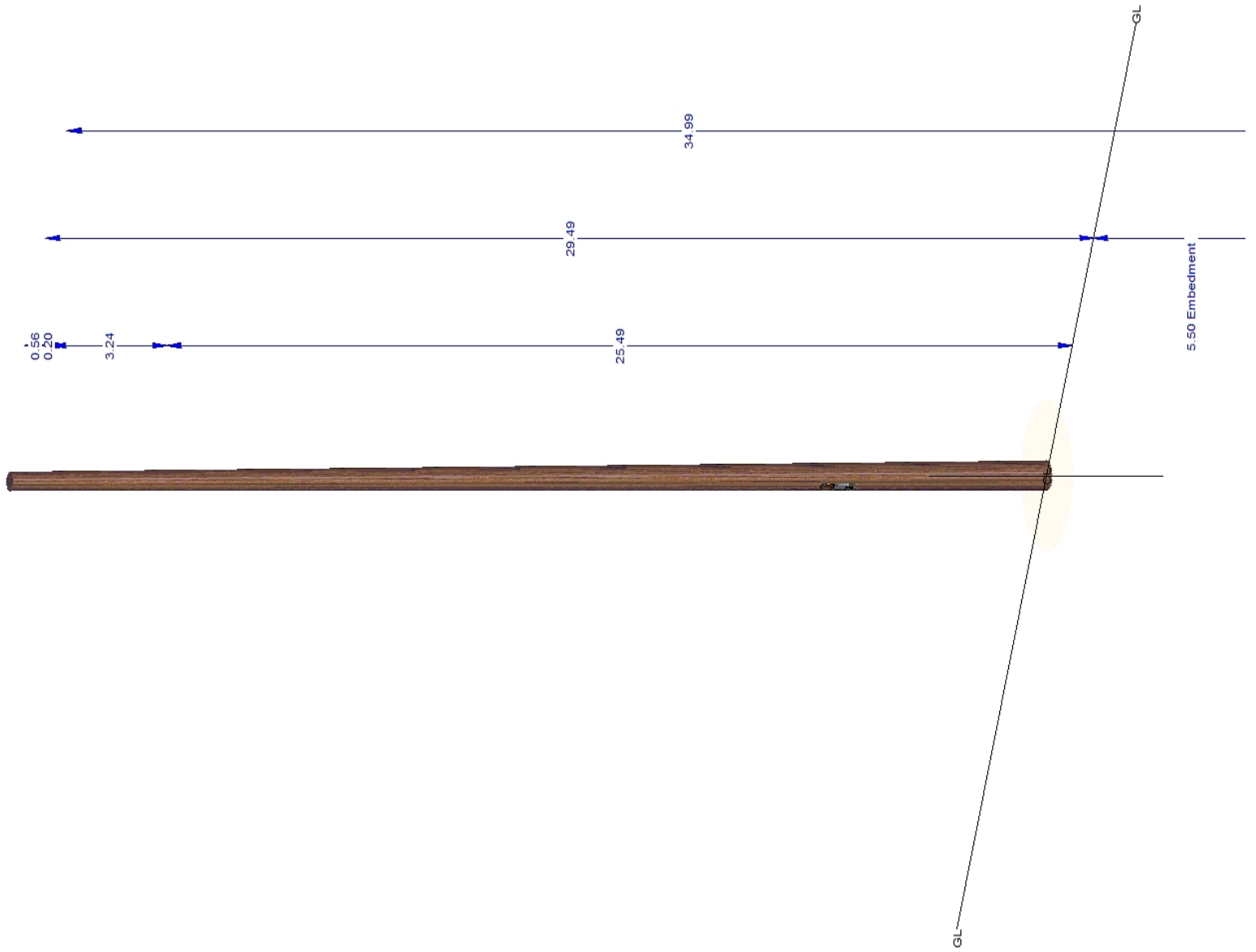
†Length = Lead Length for Down Guys, Wire Length for Span Guys

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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0.29





Structure P110712
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage 45 % **Clearances OK?** Yes
Pole Usage 45 % G.O.95 Heavy Grade A at Replacement
Insulator Usage
Guy Usage
Anchor Usage
Arm Usage

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L3
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P110712_EXISTING.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 87 ft **Latitude** 33.07550526°
Back Span 118 ft **Longitude** -116.58788214°
Ahead Span Az. 0° **Elevation** 4221 ft
Line Angle -15° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P110712	30	5	DF - Douglas Fir	27.5	5	12/11/2019	80	G.O.95 Heavy Grade A at Replacement	6	45	5.9	2.6	0
P110712	30	5	DF - Douglas Fir	27.5	5	12/11/2019	80	Known Local Wind Heavy 85 MPH Grade A at Replacement	9	32	4.2	1.3	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
	No2 AWG Triplex SSC AL Conch GCC	74	24.16	0.77	0.26	1	88	88	327
	No2 AWG Triplex SSC AL Conch GCC	269	23.96	0.77	0.26	1	117	116	341

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Guys and Cables

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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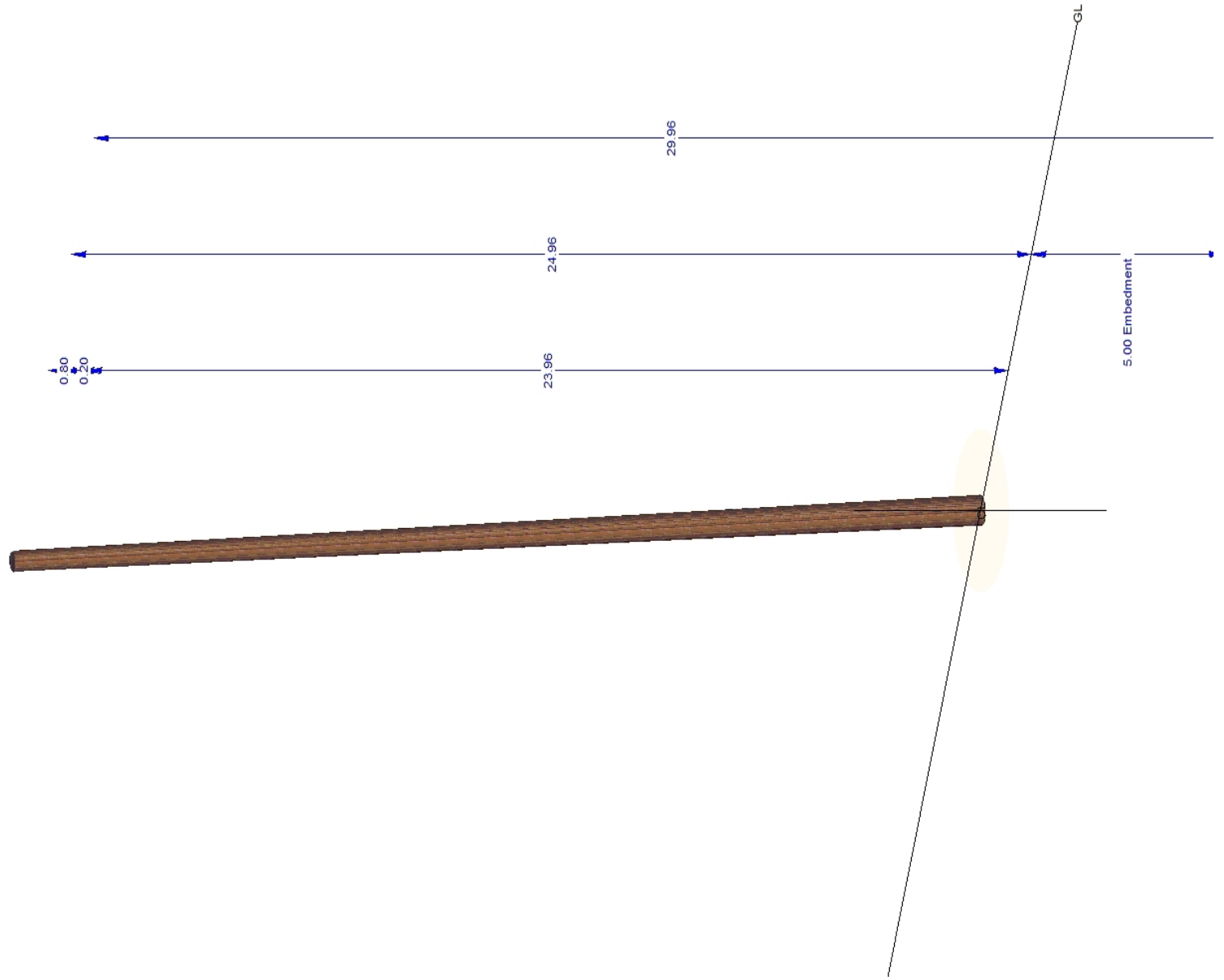
†Length = Lead Length for Down Guys, Wire Length for Span Guys

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Structure P712369
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage	54 %	Clearances OK?	Yes
Pole Usage	23 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	19 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	32 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	54 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage	2 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P712369_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 257 ft **Latitude** 33.07430161°
Back Span **Longitude** -116.58974415°
Ahead Span Az. 0° **Elevation** 4262 ft
Line Angle -67° **Tangent/DE** Terminal Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P712369	50	1	Corten Steel	43.7	7		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	27	23	4.3	1.0	0
P712369	50	1	Corten Steel	43.7	7		100	G.O.95 Heavy Grade A at Replacement	20	17	5.8	1.0	2.8

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	337	41.99	0.33	0.11	1	257	253	1078
12	No2 AWG 5Over2 AWAC GCC	337	41.99	0.33	0.11	1	253	253	1078
	1-0 AWG Triplex SSC AL Neritina GCC	224	31.13	0.97	0.41	1	39	38	113
	1-0 AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	337	30.61	0.98	0.48	1	256	254	1259

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	337	41.99	P712369	19	10.6	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	337	41.99	P712369	19	10.3	2.0	G.O.95 Heavy Grade A at Replacement

Guis and Cables

*Length = Lead Length for Down Guys, Wire Length for Span Guys

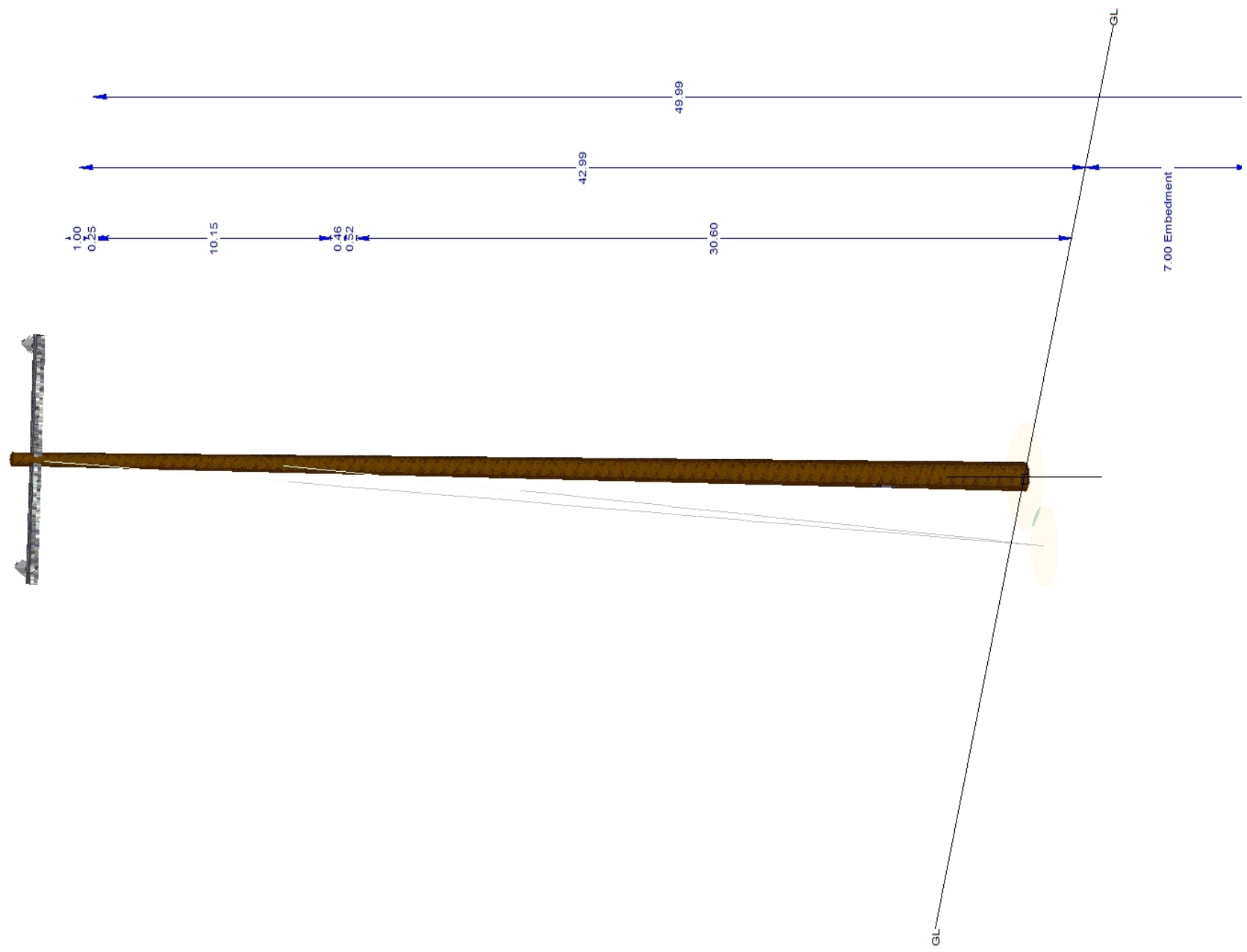
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	19.85	160	41.74	P712369	32	4.2	1.3	G.O.95 Heavy Grade A at Replacement
Down	7/16" 7 Strand EHS (7/16G)	19.85	160	31.59	P712369	21	6.3	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	16" CROSSPLATE MG				P712369	54	2.5	1.3	G.O.95 Heavy Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10' DE FG ARM (4DF)	245	41.99	P712369	2	70.2	1.3	G.O.95 Heavy Grade A at Replacement



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Structure P719103
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage 52 % **Clearances OK?** Yes
Pole Usage 52 % G.O.95 Heavy Grade A at Replacement
Insulator Usage
Guy Usage
Anchor Usage
Arm Usage

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L3
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P719103_EXISTING.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 85 ft **Latitude** 33.07697202°
Back Span 49 ft **Longitude** -116.58974143°
Ahead Span Az. 0° **Elevation** 4192 ft
Line Angle -36° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P719103	35	5	DF - Douglas Fir	28.8	5.95	12/11/2019	80	G.O.95 Heavy Grade A at Replacement	8	52	5.0	2.6	0
P719103	35	5	DF - Douglas Fir	28.8	5.95	12/11/2019	80	Known Local Wind Heavy 85 MPH Grade A at Replacement	11	37	3.6	1.3	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
	1-0 AWG Triplex SSC AL Neritina GCC	7	28.15	0.97	0.41	1	49	49	98
	1-0 AWG Triplex SSC AL Neritina GCC	152	28.45	0.97	0.41	1	84	84	239

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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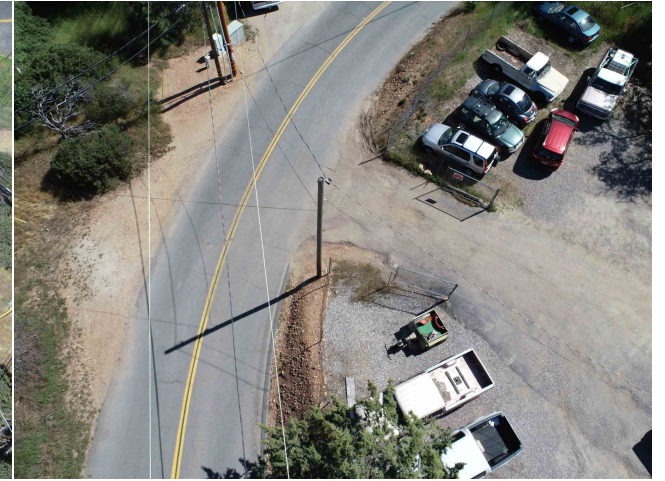
Guys and Cables

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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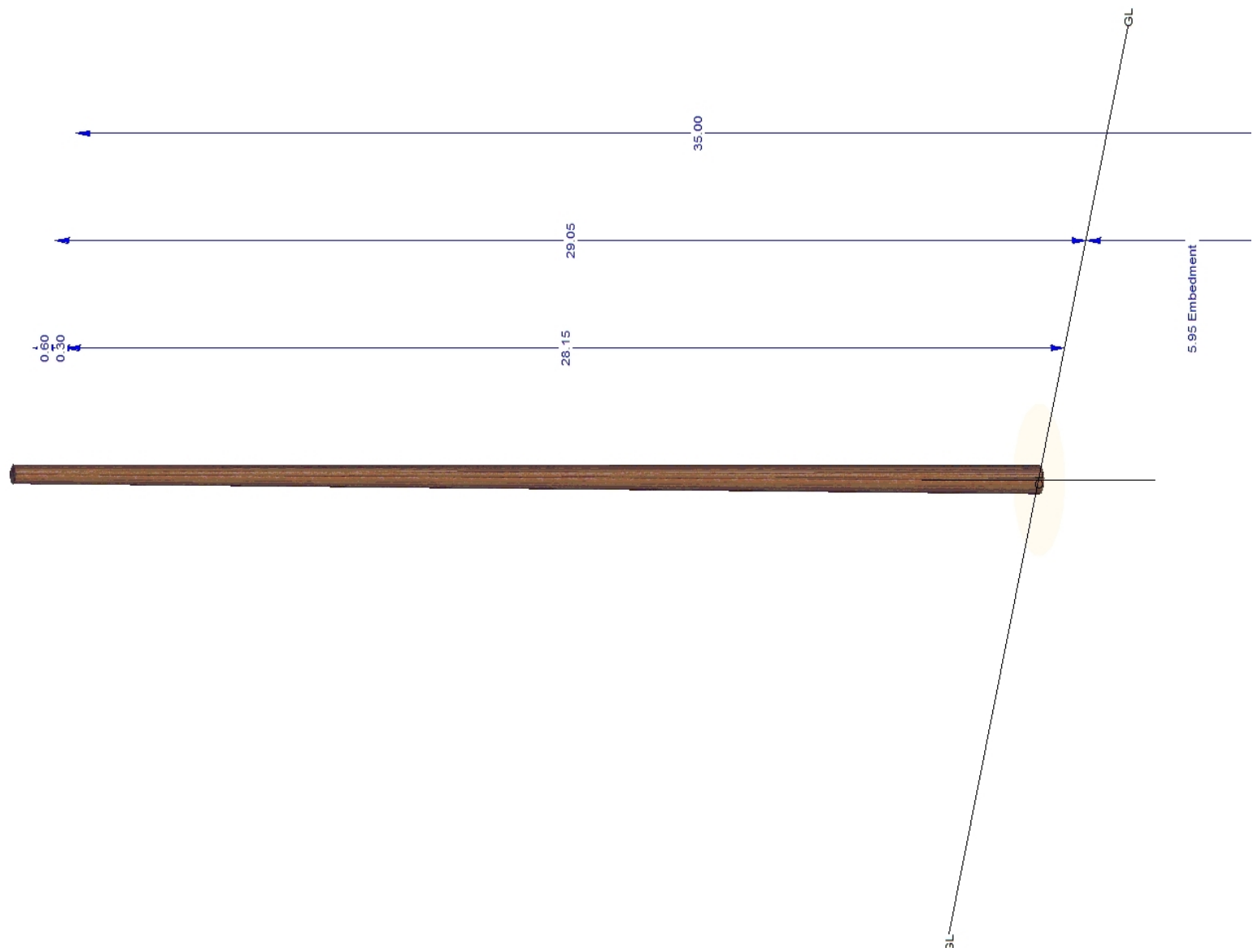
†Length = Lead Length for Down Guys, Wire Length for Span Guys

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Structure P110710
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage 17 % **Clearances OK?** No
Pole Usage 17 % Known Local Wind Heavy 85 MPH Grade A at Replacement
Insulator Usage
Guy Usage 5 % Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor Usage 5 % Known Local Wind Heavy 85 MPH Grade A at Replacement
Arm Usage

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P110710_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 97 ft **Latitude** 33.07613931°
Back Span 127 ft **Longitude** -116.58864660°
Ahead Span Az. 0° **Elevation** 4216 ft
Line Angle 171° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P110710	40	1	Corten Steel	38.9	6		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	17	17	5.9	1.0	0
P110710	40	1	Corten Steel	38.9	6		100	G.O.95 Heavy Grade A at Replacement	16	16	6.1	1.0	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
1-0	AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	96	32.48	0.98	0.48	1	128	127	320
1	In Firm Design Cable	96	17.87	1.13	0.40	1	127	127	704
1	In Firm Design Cable	242	17.87	1.13	0.40	1	101	100	656
1-0	AWG Triplex SSC AL Neritina GCC	251	31.98	0.97	0.41	1	104	101	259

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Guys and Cables

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	15.3	-84	32.73	P110710	5	28.1	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
Anchor	16" CROSSPLATE MG				P110710	5	27.4	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement

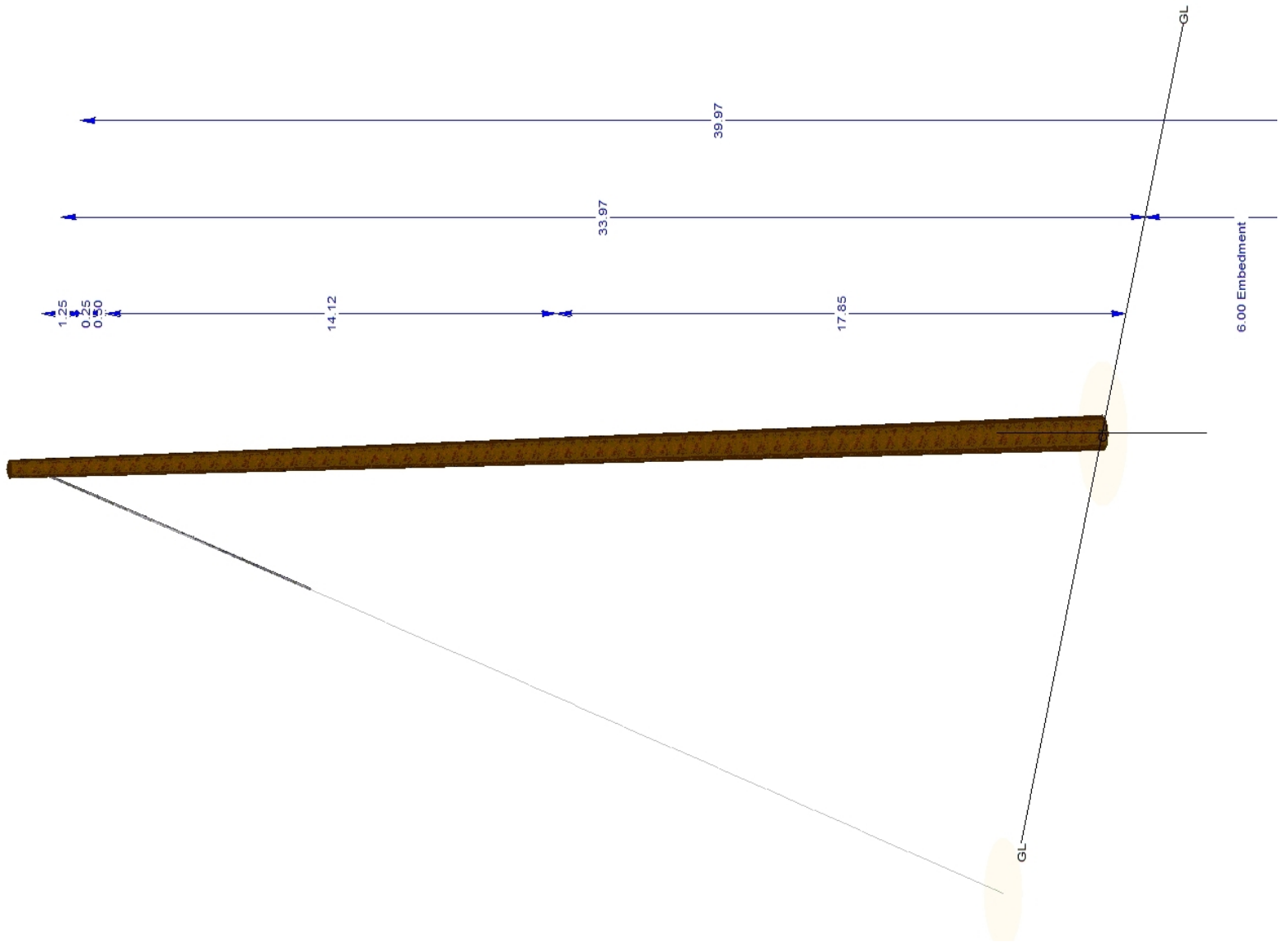
†Length = Lead Length for Down Guys, Wire Length for Span Guys

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Structure P519114
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage 40 % **Clearances OK?** Yes
Pole Usage 40 % G.O.95 Heavy Grade A at Replacement
Insulator Usage
Guy Usage
Anchor Usage
Arm Usage

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P519114_EXISTING.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 130 ft **Latitude** 33.07710597°
Back Span 157 ft **Longitude** -116.59200951°
Ahead Span Az. 0° **Elevation** 4205 ft
Line Angle -3° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P519114	35	5	DF - Douglas Fir	29.0	5.5	12/5/2019	80	G.O.95 Heavy Grade A at Replacement	6	40	6.7	2.6	0
P519114	35	5	DF - Douglas Fir	29.0	5.5	12/5/2019	80	Known Local Wind Heavy 85 MPH Grade A at Replacement	10	32	4.1	1.3	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
	#8 Cu Weld Duplex	98	28.94	0.42	0.12	1	157	157	339
	No4 AWG 3-Strand Hard Drawn Bare CU-None	275	26.94	0.25	0.13	1	128	128	264

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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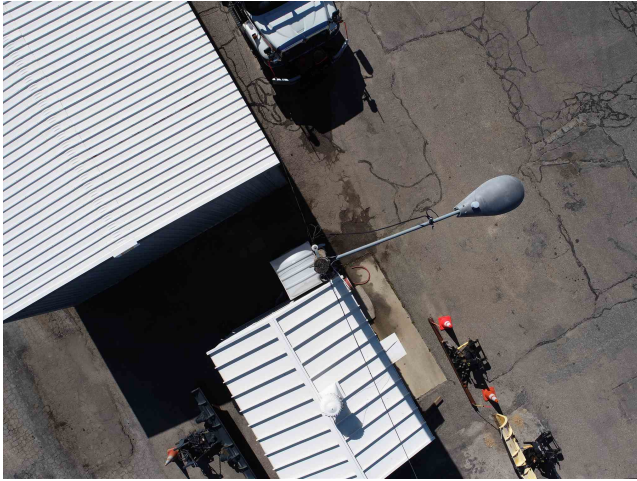
Guys and Cables

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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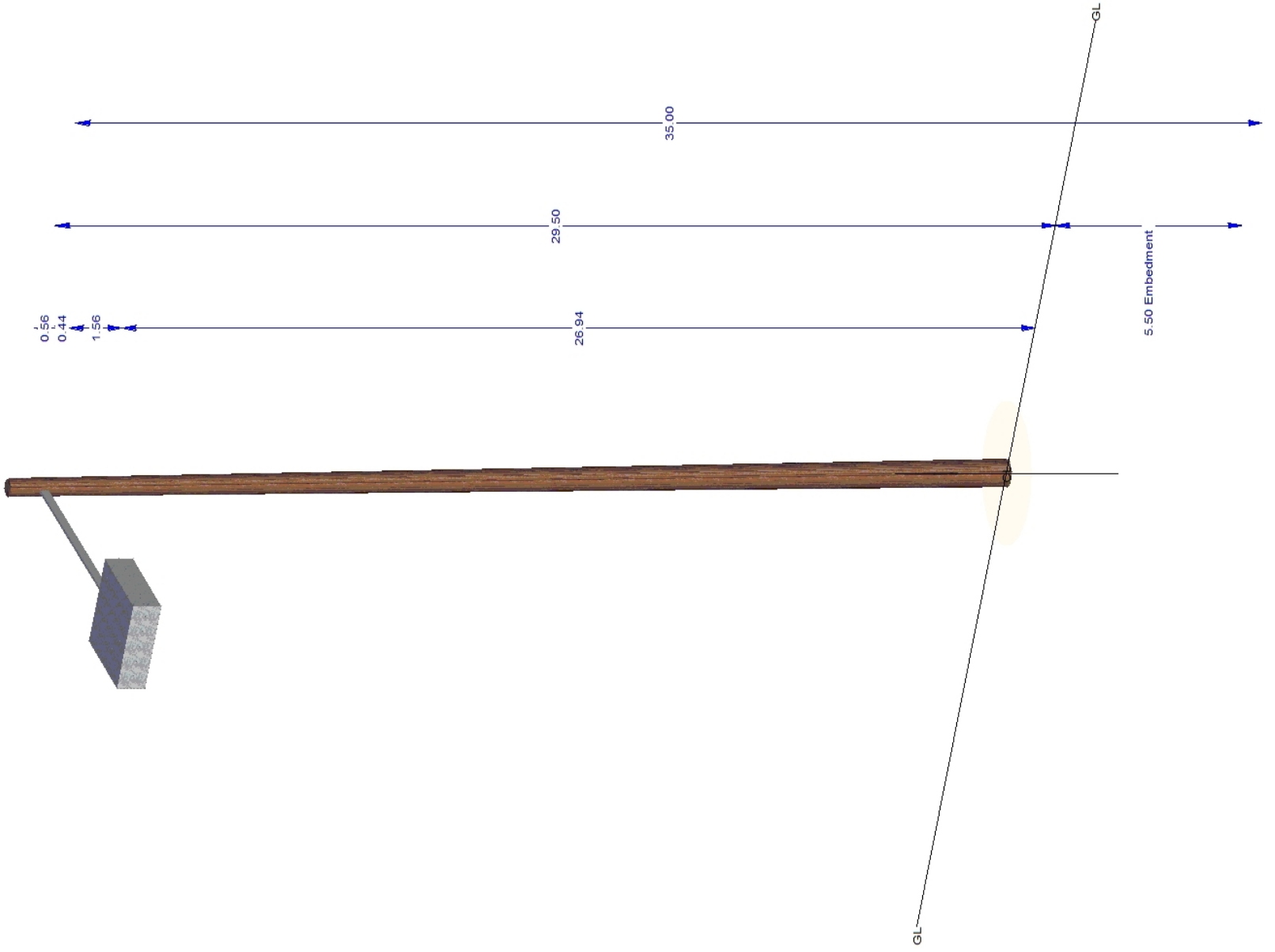
†Length = Lead Length for Down Guys, Wire Length for Span Guys

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	Street Light	180	28.5	P519114				



0.30





Structure P511486
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage 95 % **Clearances OK?** Yes
Pole Usage 95 % G.O.95 Heavy Grade A at Replacement
Insulator Usage
Guy Usage
Anchor Usage
Arm Usage

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L3
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P511486_EXISTING.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 103 ft **Latitude** 33.07662112°
Back Span 85 ft **Longitude** -116.59282740°
Ahead Span Az. 0° **Elevation** 4209 ft
Line Angle 117° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P511486	35	5	DF - Douglas Fir	28.7	6.4	12/2/2019	80	G.O.95 Heavy Grade A at Replacement	14	95	2.8	2.6	0
P511486	35	5	DF - Douglas Fir	28.7	6.4	12/2/2019	80	Known Local Wind Heavy 85 MPH Grade A at Replacement	17	56	2.4	1.3	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
	No4 AWG Triplex SSC AL Periwinkle GCC	19	28.16	0.64	0.17	1	62	61	214
	1 In Firm Design Cable	139	20.53	1.13	0.40	1	102	102	494
	No4 AWG Triplex SSC AL Periwinkle GCC	203	27.92	0.64	0.17	1	85	85	169

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Guys and Cables

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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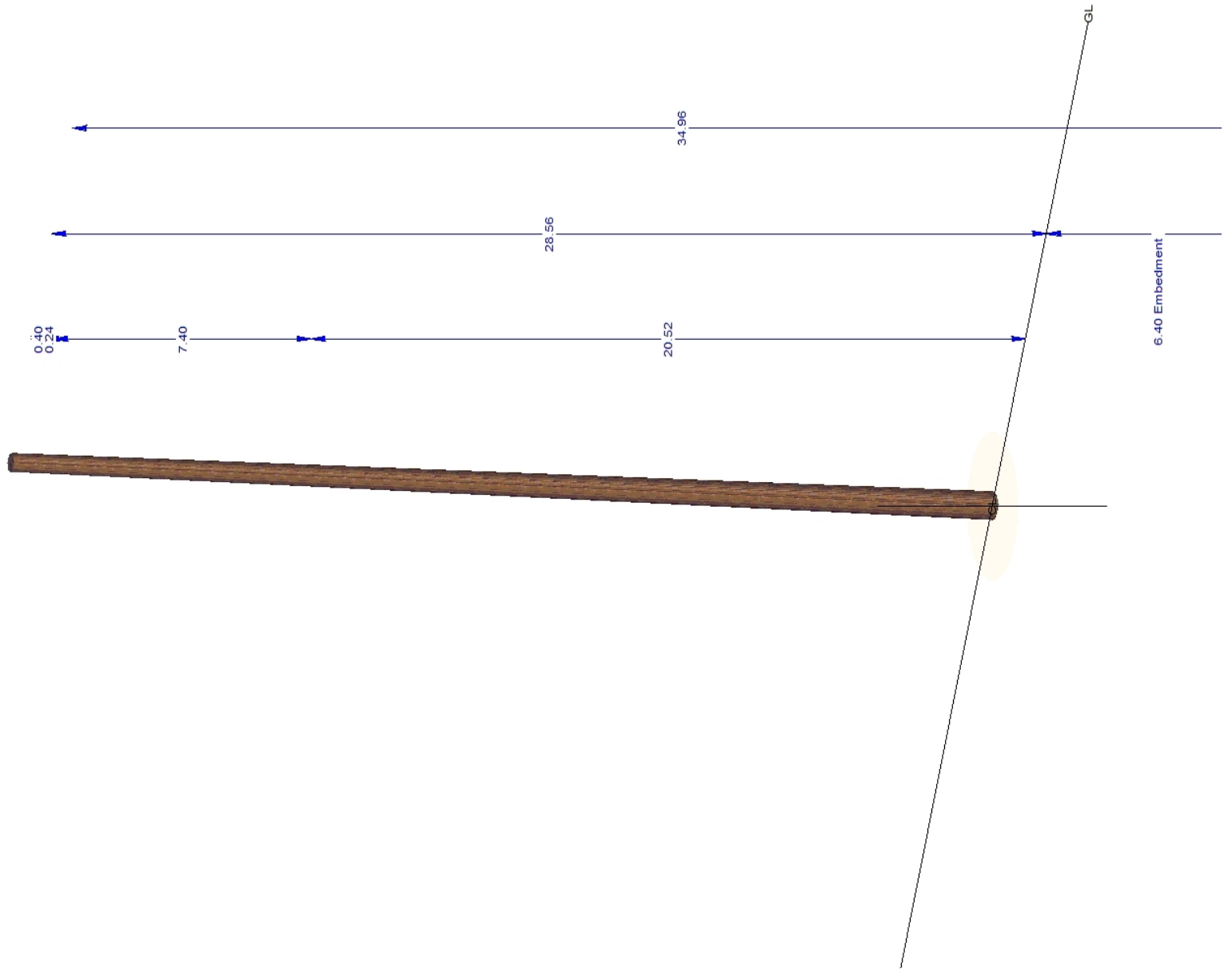
†Length = Lead Length for Down Guys, Wire Length for Span Guys

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Structure P719436
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5
 [REDACTED]

Usage Summary

Max Usage	103 %	Clearances OK?	No
Pole Usage	103 %	G.O.95 Heavy Grade A at Replacement	
Insulator Usage	27 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	31 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	31 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage	20 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P719436_EXISTING.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 169 ft **Latitude** 33.07626480°
Back Span 50 ft **Longitude** -116.59389284°
Ahead Span Az. 14° **Elevation** 4216 ft
Line Angle -16° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P719436	45	5	DF - Douglas Fir	32.5	6.5	12/2/2019	80	G.O.95 Heavy Grade A at Replacement	21	103	2.5	2.6	5.5
P719436	45	5	DF - Douglas Fir	32.5	6.5	12/2/2019	80	Known Local Wind Heavy 85 MPH Grade A at Replacement	27	64	2.1	1.3	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	3	38.28	0.33	0.11	1	48	47	86
12	No2 AWG 5Over2 AWAC GCC	4	38.28	0.33	0.11	1	47	47	86
12	No2 AWG 5Over2 AWAC GCC	170	37.37	0.33	0.11	1	170	170	683
12	No2 AWG 5Over2 AWAC GCC	170	37.37	0.33	0.11	1	172	170	683
	No4 AWG Triplex SSC AL Periwinkle GCC	4	31.2	0.64	0.17	1	48	47	49
	1 In Firm Design Cable	5	21.84	1.13	0.40	1	48	48	357
	1 In Firm Design Cable	5	20.43	1.13	0.40	1	48	48	163
	No4 AWG Triplex SSC AL Periwinkle GCC	170	31.2	0.64	0.17	1	170	170	367
	1 In Firm Design Cable	170	21.84	1.13	0.40	1	170	169	787

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1" Pin)	12		37.37	P719436	24	8.2	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1" Pin)	12		37.37	P719436	27	7.4	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV DE	12	170	37.37	P719436	12	16.4	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV DE	12	170	37.37	P719436	12	16.5	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

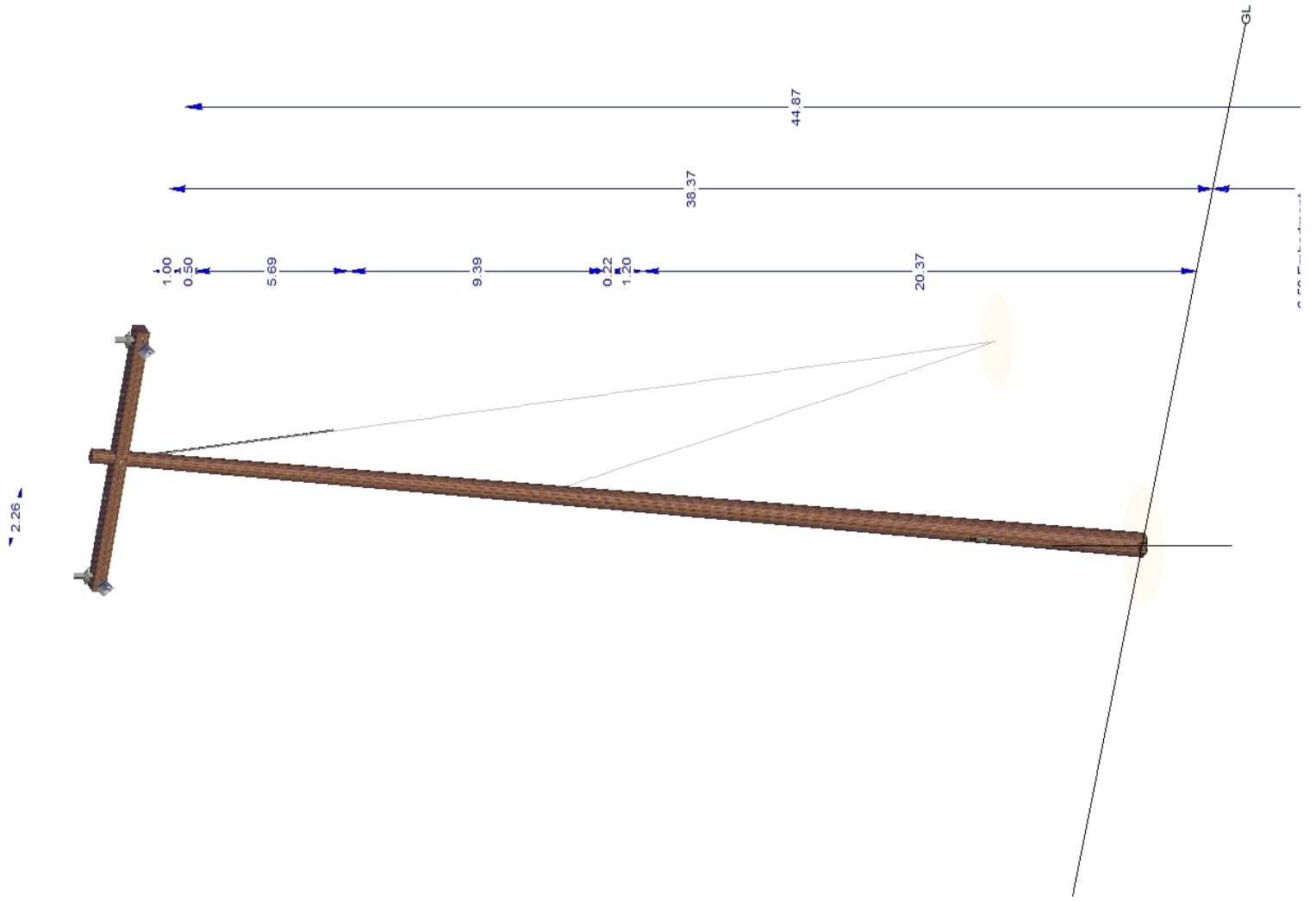
*Length = Lead Length for Down Guys, Wire Length for Span Guys

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	3/8" 7 Strand EHS (3/8G)	18.86	-18	36.87	P719436	31	4.3	1.3	G.O.95 Heavy Grade A at Replacement
Down	1/4" 7 Strand EHS (1/4G)	18.86	-18	21.63	P719436	20	6.7	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	16" CROSSPLATE MG				P719436	31	4.4	1.3	G.O.95 Heavy Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10' DBL WOOD ARMS (D4)	87	37.37	P719436	20	6.8	1.3	G.O.95 Heavy Grade A at Replacement







Structure P166201
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage	91 %	Clearances OK?	Yes
Pole Usage	32 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	27 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	45 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	91 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage	3 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P166201_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 190 ft **Latitude** 33.07826073°
Back Span **Longitude** -116.59281719°
Ahead Span Az. 169° **Elevation** 4186 ft
Line Angle -142° **Tangent/DE** Terminal Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P166201	55	1	Corten Steel	46.9	9.5		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	42	32	3.2	1.0	0
P166201	55	1	Corten Steel	46.9	9.5		100	G.O.95 Heavy Grade A at Replacement	33	26	3.8	1.0	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	336Kcmil LINNET ACSR AW2 GCC	279	45	0.72	0.44	1	191	158	1796
12	336Kcmil LINNET ACSR AW2 GCC	279	44	0.72	0.44	1	192	158	1796
12	336Kcmil LINNET ACSR AW2 GCC	279	44	0.72	0.44	1	191	158	1796
	No2 AWG Triplex SSC AL Conch GCC	240	28.91	0.77	0.26	1	43	39	89
	1 In Firm Design Cable	279	25.5	1.13	0.40	1	191	190	962

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	279	45	P166201	26	7.7	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	279	44	P166201	27	7.4	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	279	44	P166201	27	7.3	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

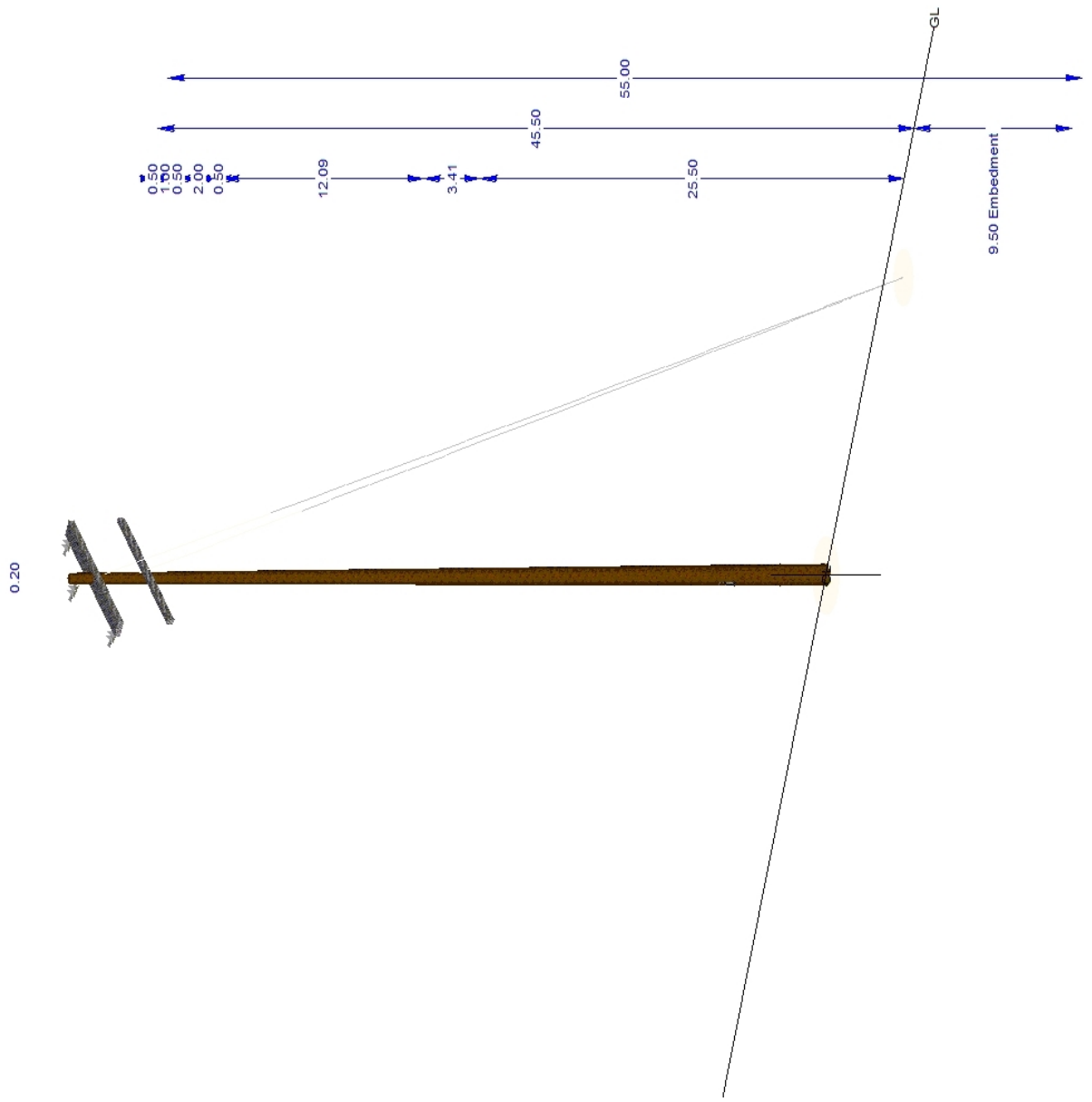
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	22.2	101	43.5	P166201	45	3.0	1.3	G.O.95 Heavy Grade A at Replacement
Down	7/16" 7 Strand EHS (7/16G)	22.2	101	41.5	P166201	43	3.1	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	16" CROSSPLATE MG				P166201	91	1.5	1.3	G.O.95 Heavy Grade A at Replacement

†Length = Lead Length for Down Guys, Wire Length for Span Guys

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10' DBL DE FG ARMS (4DF-2)	185	44	P166201	3	49.4	1.3	G.O.95 Heavy Grade A at Replacement
X-Arm	10' EQUIPMENT FG ARM (4TF)	5	41	P166201		1333.3	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement







Structure P110214
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage	46 %	Clearances OK?	No
Pole Usage	46 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	19 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Guy Usage	19 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	15 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage	1 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P110214_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 100 ft **Latitude** 33.07828183°
Back Span 190 ft **Longitude** -116.59219586°
Ahead Span Az. 272° **Elevation** 4172 ft
Line Angle 1° **Tangent/DE** Tangent
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P110214	50	1	Corten Steel	43.8	6.65		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	59	46	2.2	1.0	0
P110214	50	1	Corten Steel	43.8	6.65		100	G.O.95 Heavy Grade A at Replacement	36	29	3.5	1.0	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	336Kcmil LINNET ACSR AW2 GCC	177	43.32	0.72	0.44	1	99	158	1796
12	336Kcmil LINNET ACSR AW2 GCC	177	43.32	0.72	0.44	1	100	158	1796
12	336Kcmil LINNET ACSR AW2 GCC	177	43.32	0.72	0.44	1	100	158	1796
12	336Kcmil LINNET ACSR AW2 GCC	356	43.32	0.72	0.44	1	192	158	1796
12	336Kcmil LINNET ACSR AW2 GCC	356	43.32	0.72	0.44	1	191	158	1796
12	336Kcmil LINNET ACSR AW2 GCC	356	43.32	0.72	0.44	1	191	158	1796
	1-0 AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	177	26.44	0.98	0.48	1	100	100	367
	1 In Firm Design Cable	177	23.35	1.13	0.40	1	100	100	919
	1 In Firm Design Cable	356	23.35	1.13	0.40	1	191	190	962

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12KV ANGLE PIN	12		42.35	P110214	13	15.8	2.0	Known Local Wind Heavy 85 MPH Grade A at Replacement
Post	12KV ANGLE PIN	12		42.35	P110214	14	14.3	2.0	Known Local Wind Heavy 85 MPH Grade A at Replacement
Post	12KV ANGLE PIN	12		42.35	P110214	19	10.7	2.0	Known Local Wind Heavy 85 MPH Grade A at Replacement

*Length = Lead Length for Down Guys, Wire Length for Span Guys

Guys and Cables

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	12.64	-8	28.35	P110214	19	6.9	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	20" CROSSPLATE MG				P110214	15	8.6	1.3	G.O.95 Heavy Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	SIEMENS RECLOSER AND SCADA OH1274	180	35.65	P110214				
X-Arm	10' TAN FG ARM (4TF)	90	42.35	P110214	1	266.7	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement
X-Arm	10' EQUIPMENT FG ARM (4TF)	90	39.35	P110214			1.3	G.O.95 Heavy Grade A at Replacement





Structure P166114
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]

Engineer NV5
 [REDACTED]

Usage Summary

Max Usage	37 %	Clearances OK?	Yes
Pole Usage	37 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	22 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	3 %	Uplift	
Anchor Usage	2 %	Uplift	
Arm Usage		G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type	Finite Element L4
Analysis Software	PLS-CADD
Software Version	16.01
PRG Version	2019.3.4
Structure File	P166114_AS-BUILT.pol
Project File	C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span	143 ft	Latitude	33.07828787°
Back Span	100 ft	Longitude	-116.59186933°
Ahead Span Az.	268°	Elevation	4168 ft
Line Angle	1°	Tangent/DE	Tangent
Framing			
Notes			

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P166114	50	1	Corten Steel	43.6	7.1		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	47	37	2.7	1.0	0
P166114	50	1	Corten Steel	43.6	7.1		100	G.O.95 Heavy Grade A at Replacement	27	21	4.7	1.0	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	336Kcmil LINNET ACSR AW2 GCC	1	42.86	0.72	0.44	1	99	158	1796
12	336Kcmil LINNET ACSR AW2 GCC	1	42.86	0.72	0.44	1	100	158	1796
12	336Kcmil LINNET ACSR AW2 GCC	1	42.86	0.72	0.44	1	100	158	1796
12	336Kcmil LINNET ACSR AW2 GCC	181	42.86	0.72	0.44	1	142	158	1796
12	336Kcmil LINNET ACSR AW2 GCC	181	42.86	0.72	0.44	1	142	158	1796
12	336Kcmil LINNET ACSR AW2 GCC	181	42.86	0.72	0.44	1	142	158	1796
	1-0 AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	1	32.38	0.98	0.48	1	100	100	367
	1 In Firm Design Cable	1	24.39	1.13	0.40	1	100	100	919
	1 In Firm Design Cable	181	24.39	1.13	0.40	1	142	142	1068

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Post	12kV Clamp Top-Al (1-3/8" Pin)	12		41.89	P166114	14	13.9	2.0	Known Local Wind Heavy 85 MPH Grade A at Replacement
Post	12kV Clamp Top-Al (1-3/8" Pin)	12		41.89	P166114	17	11.6	2.0	G.O.95 Heavy Grade A at Replacement
Post	12kV Clamp Top-Al (1-3/8" Pin)	12		41.89	P166114	22	9.3	2.0	G.O.95 Heavy Grade A at Replacement

*Length = Lead Length for Down Guys, Wire Length for Span Guys

Guys and Cables

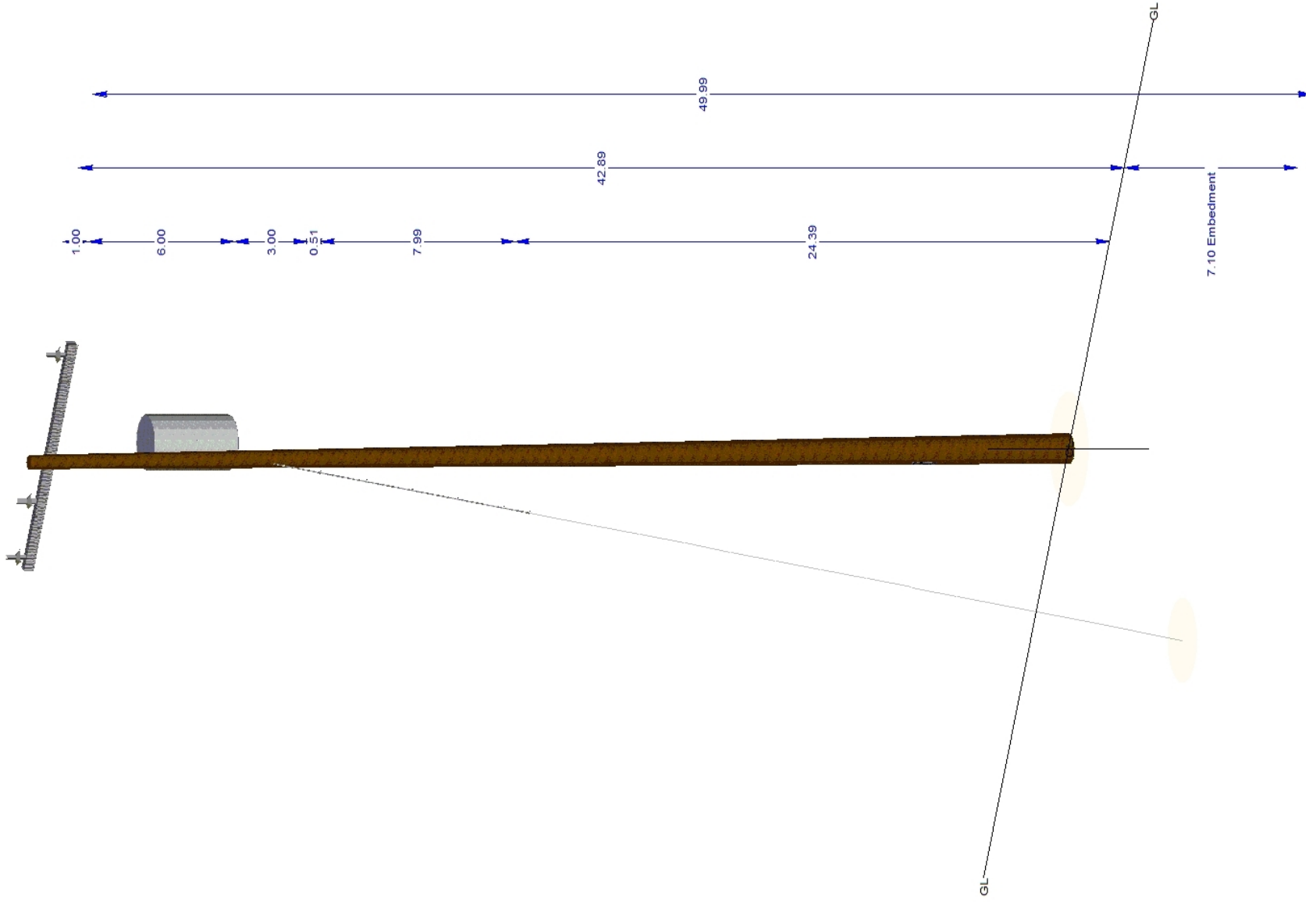
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	13.35	181	32.89	P166114	3	35.0	1.0	Uplift
Anchor	20" CROSSPLATE MG				P166114	2	44.6	1.0	Uplift

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	25 kVA Transformer	0	35.89	P166114				
X-Arm	10' TAN FG ARM (4TF)	270	41.89	P166114		333.3	1.3	G.O.95 Heavy Grade A at Replacement



0.10





Structure P310182
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage 45 % **Clearances OK?** No
Pole Usage 45 % Known Local Wind Heavy 85 MPH Grade A at Replacement
Insulator Usage 30 % G.O.95 Heavy Grade A at Replacement
Guy Usage
Anchor Usage
Arm Usage 1 % Known Local Wind Heavy 85 MPH Grade A at Replacement

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L3
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P310182_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 253 ft **Latitude** 33.07832939°
Back Span 435 ft **Longitude** -116.58998359°
Ahead Span Az. 89° **Elevation** 4154 ft
Line Angle -178° **Tangent/DE** Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P310182	55	1	Corten Steel	47.9	7.4		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	69	45	2.2	1.0	0
P310182	55	1	Corten Steel	47.9	7.4		100	G.O.95 Heavy Grade A at Replacement	54	35	2.8	1.0	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	336Kcmil LINNET ACSR AW2 GCC	179	47.09	0.72	0.44	1	434	435	1792
12	336Kcmil LINNET ACSR AW2 GCC	179	46.09	0.72	0.44	1	435	435	1792
12	336Kcmil LINNET ACSR AW2 GCC	179	46.09	0.72	0.44	1	436	435	1792
12	336Kcmil LINNET ACSR AW2 GCC	358	47.09	0.72	0.44	1	253	250	1905
12	336Kcmil LINNET ACSR AW2 GCC	358	46.09	0.72	0.44	1	252	250	1905
12	336Kcmil LINNET ACSR AW2 GCC	358	46.09	0.72	0.44	1	254	250	1905
	1 In Firm Design Cable	179	26.38	1.13	0.40	1	435	435	1828
	1 In Firm Design Cable	356	26.38	1.13	0.40	1	60	60	480
	1 In Firm Design Cable	356	25.03	1.13	0.40	1	60	60	577

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	179	47.09	P310182	26	7.6	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	179	46.09	P310182	30	6.8	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	179	46.09	P310182	29	6.8	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	358	47.09	P310182	29	6.8	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	358	46.09	P310182	30	6.6	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	358	46.09	P310182	28	7.1	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

†Length = Lead Length for Down Guys, Wire Length for Span Guys

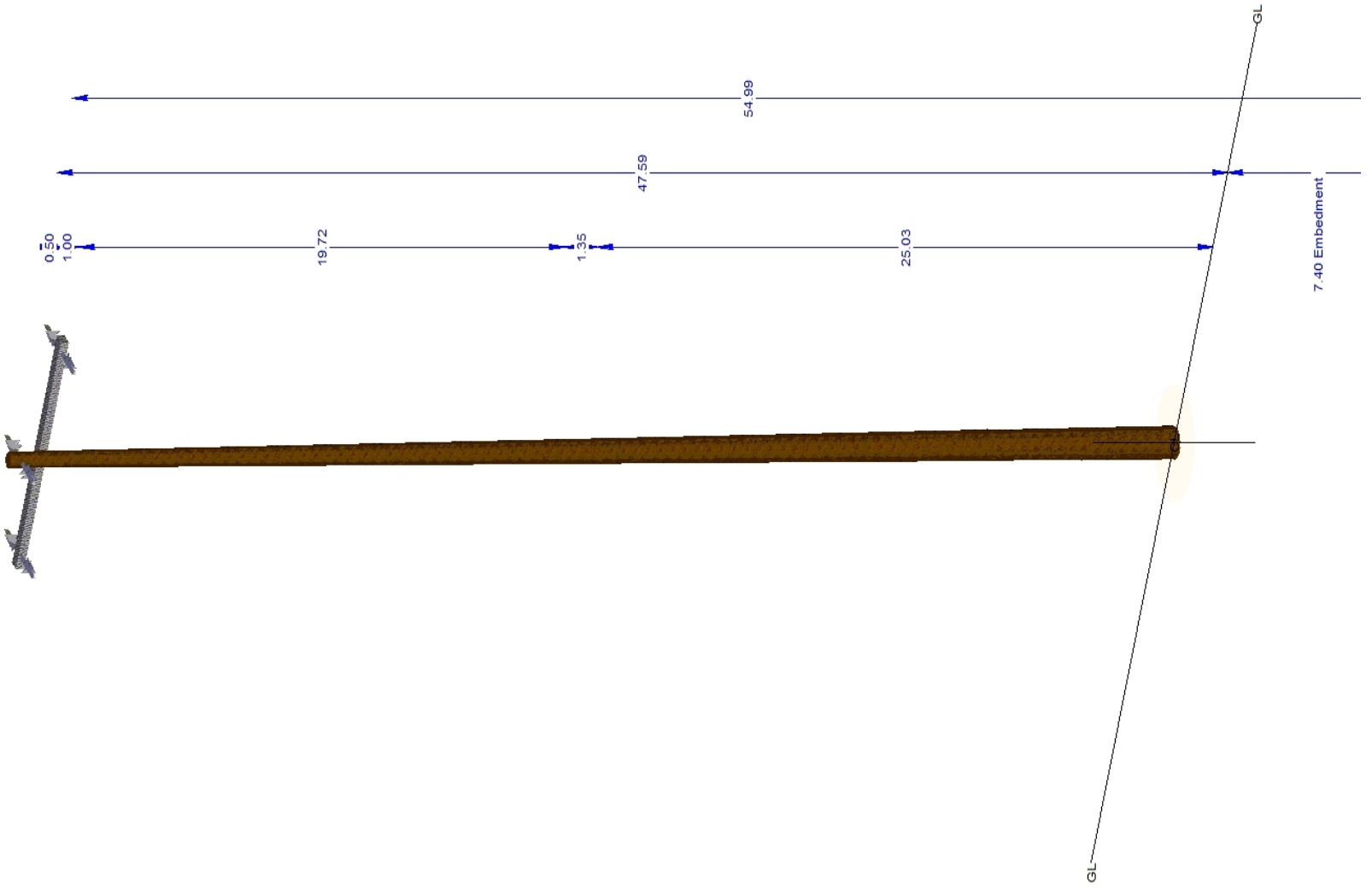
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10' DE FG ARM (4DF)	270	46.09	P310182	1	266.7	1.3	Known Local Wind Heavy 85 MPH Grade A at Replacement



0.33





Structure P713311
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5 [REDACTED]

Usage Summary

Max Usage	36 %	Clearances OK?	Yes
Pole Usage	31 %	Known Local Wind Heavy 85 MPH Grade A at Replacement	
Insulator Usage	21 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	34 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage	36 %	G.O.95 Heavy Grade A at Replacement	
Arm Usage	2 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P713311_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span 211 ft **Latitude** 33.07298274°
Back Span **Longitude** -116.58890112°
Ahead Span Az. 30° **Elevation** 4408 ft
Line Angle 0° **Tangent/DE** Terminal Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P713311	50	1	Corten Steel	43.8	6.65		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	39	31	3.2	1.0	0
P713311	50	1	Corten Steel	43.8	6.65		100	G.O.95 Heavy Grade A at Replacement	28	24	4.2	1.0	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	No2 AWG 5Over2 AWAC GCC	21	42.3	0.33	0.11	1	211	200	1140
12	No2 AWG 5Over2 AWAC GCC	21	42.3	0.33	0.11	1	214	200	1140
	1 In Firm Design Cable	21	21.83	1.13	0.40	1	211	202	1410

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	21	42.3	P713311	20	10.1	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	21	42.3	P713311	21	9.6	2.0	G.O.95 Heavy Grade A at Replacement

Guys and Cables

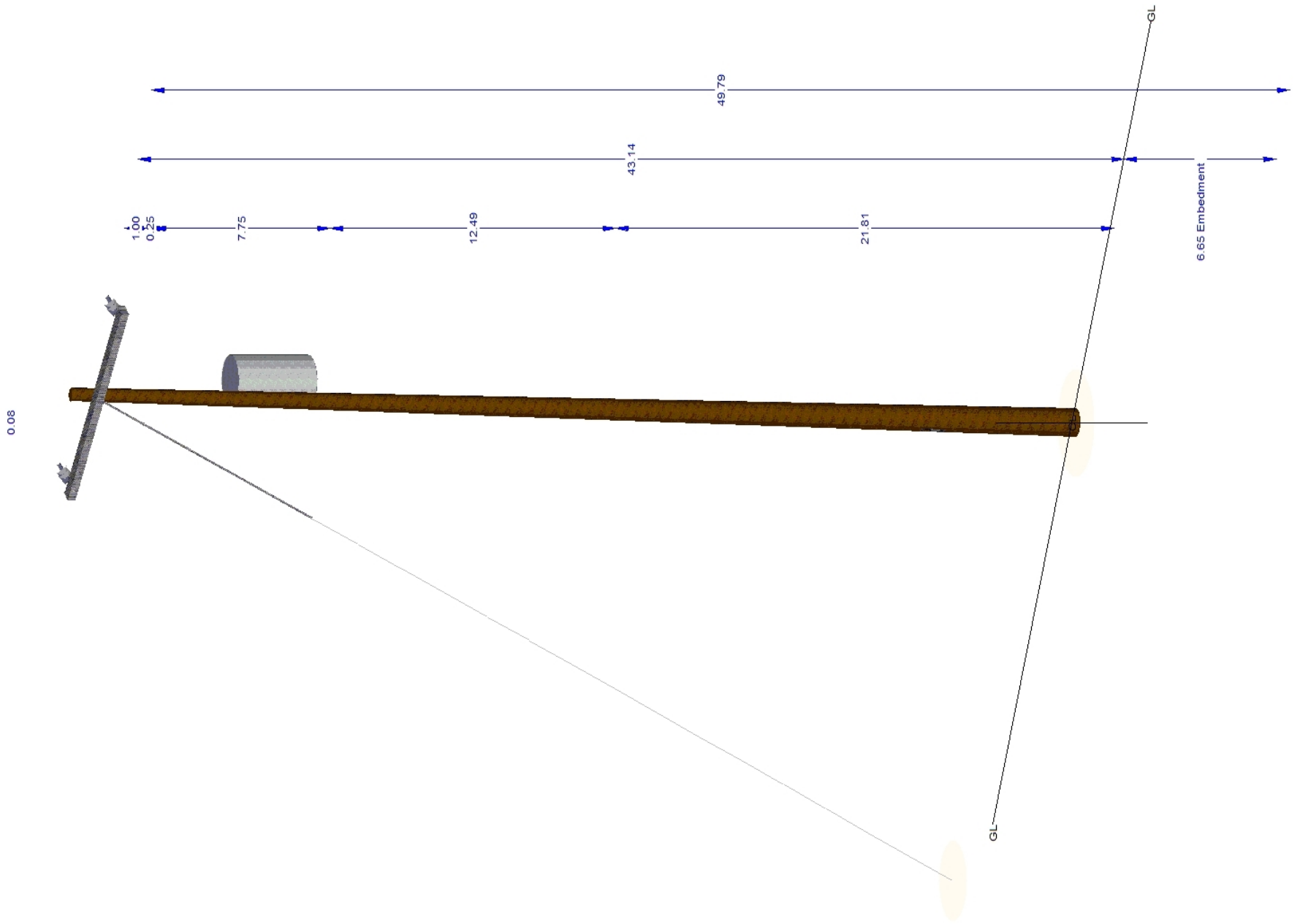
Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	7/16" 7 Strand EHS (7/16G)	25.97	200	42.05	P713311	34	3.9	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	16" CROSSPLATE MG				P713311	36	3.7	1.3	G.O.95 Heavy Grade A at Replacement

†Length = Lead Length for Down Guys, Wire Length for Span Guys

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Equipment	25 kVA Transformer	0	34.31	P713311				
X-Arm	10' DE FG ARM (4DF)	100	42.3	P713311	2	70.2	1.3	G.O.95 Heavy Grade A at Replacement







Structure P112798
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]
Engineer NV5
 [REDACTED]

Usage Summary

Max Usage 22 % **Clearances OK?** No
Pole Usage 22 % G.O.95 Heavy Grade A at Replacement
Insulator Usage
Guy Usage 10 % G.O.95 Heavy Grade A at Replacement
Anchor Usage 7 % G.O.95 Heavy Grade A at Replacement
Arm Usage

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L4
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P112798_EXISTING.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span **Latitude** 33.07880537°
Back Span 166 ft **Longitude** -116.58930993°
Ahead Span Az. 0° **Elevation** 4169 ft
Line Angle 0° **Tangent/DE** Terminal Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P112798	35	3	DF - Douglas Fir	33.7	6.3	12/13/2019	80	G.O.95 Heavy Grade A at Replacement	5	22	12.2	2.6	0
P112798	35	3	DF - Douglas Fir	33.7	6.3	12/13/2019	80	Known Local Wind Heavy 85 MPH Grade A at Replacement	10	21	6.3	1.3	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
1-0	AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	164	27.88	0.98	0.48	1	167	164	496

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Guys and Cables

+Length = Lead Length for Down Guys, Wire Length for Span Guys

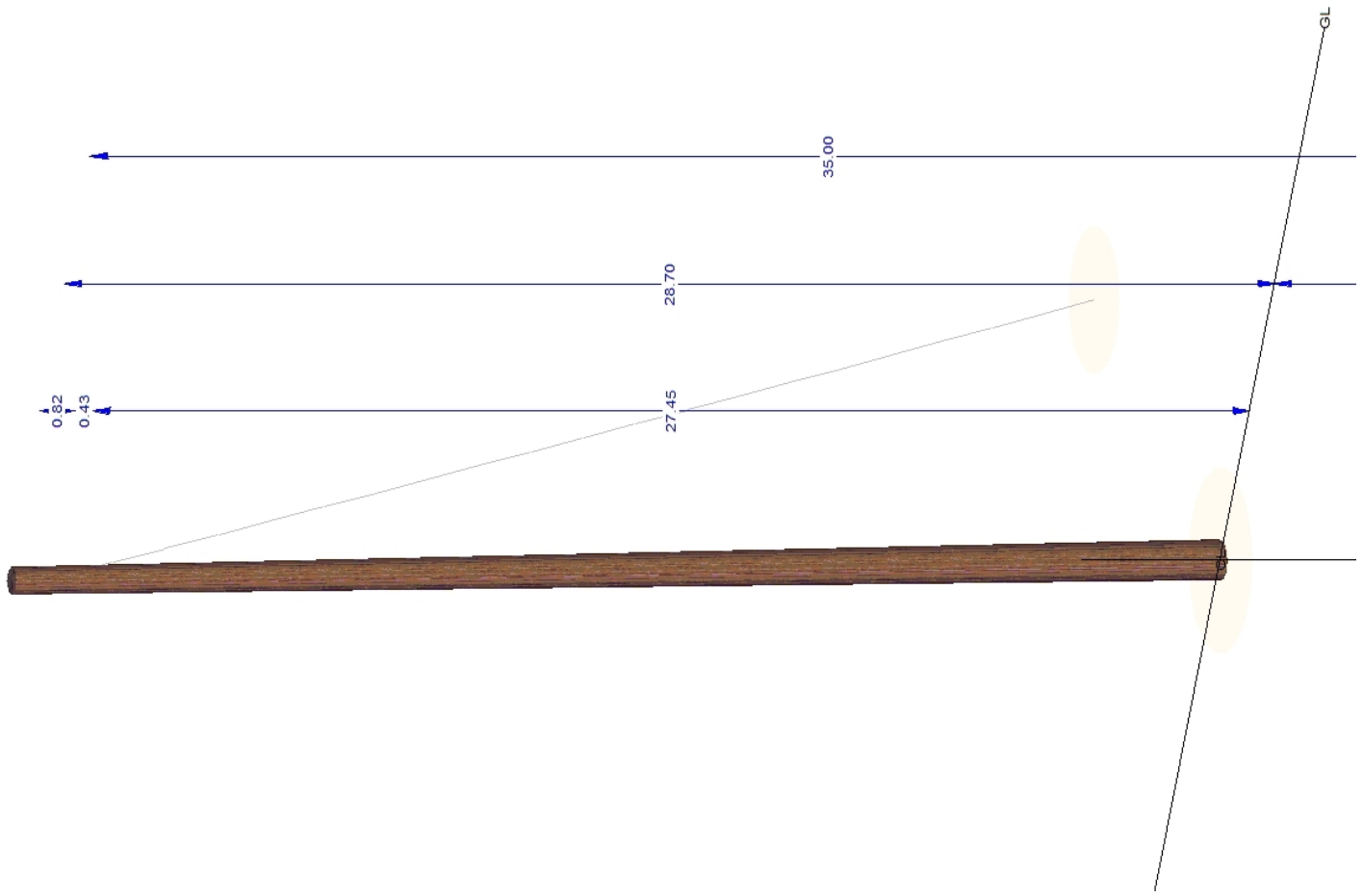
Type	Wire Type	Length+ (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Down	3/8" 7 Strand EHS (3/8G)	20.67	-13	27.45	P112798	10	13.9	1.3	G.O.95 Heavy Grade A at Replacement
Anchor	16" CROSSPLATE MG				P112798	7	18.2	1.3	G.O.95 Heavy Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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0.36





Structure P258360
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [Redacted]
Engineer NV5 [Redacted]

Usage Summary

Max Usage 48 % **Clearances OK?** Yes
Pole Usage 48 % G.O.95 Heavy Grade A at Replacement
Insulator Usage
Guy Usage 22 % G.O.95 Heavy Grade A at Replacement
Anchor Usage
Arm Usage

Analysis Information **Date** 1/13/2020

Analysis Type Finite Element L3
Analysis Software PLS-CADD
Software Version 16.01
PRG Version 2019.3.4
Structure File P258360_AS-BUILT.pol
Project File C221_SEC F_TRUEUP.xyz

Structure Details

Ahead Span **Latitude** 33.07841537°
Back Span 23 ft **Longitude** -116.58921062°
Ahead Span Az. 0° **Elevation** 4189 ft
Line Angle 0° **Tangent/DE** Terminal Dead End
Framing
Notes

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P258360	45	H2	Corten Steel	44.6	9		100	G.O.95 Heavy Grade A at Replacement	74	48	2.1	1.0	0
P258360	45	H2	Corten Steel	44.6	9		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	62	40	2.5	1.0	0

Wires

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
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Wire Tension Condition

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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Guys and Cables

Type	Wire Type	Length† (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Span	3 8-7 Strand Ehs Steel Sdge	24	141	28	P258360	22			G.O.95 Heavy Grade A at Replacement
Span	3 8-7 Strand Ehs Steel Sdge	24	141	27.4	P258360	5			Known Local Wind Heavy 85 MPH Grade A at Replacement

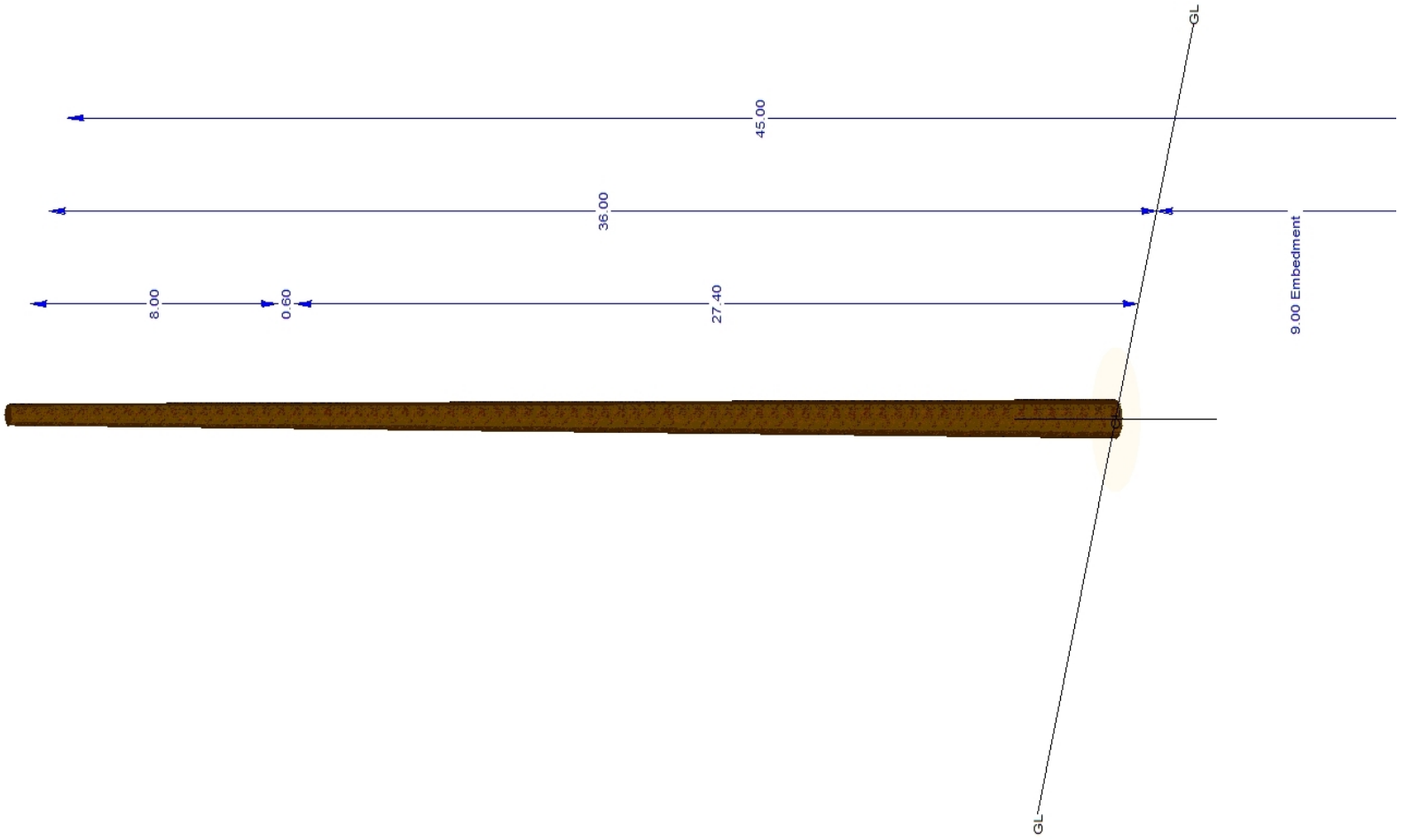
†Length = Lead Length for Down Guys, Wire Length for Span Guys

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
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0.13





Structure P110218
Circuit C221-F
Job # 2420491

Field Collection Date 5/23/2019 **Build Status** As-Built (New Construction)

Requestor [REDACTED]

Engineer NV5
 [REDACTED]

Usage Summary

Max Usage	49 %	Clearances OK?	No
Pole Usage	49 %	G.O.95 Heavy Grade A at Replacement	
Insulator Usage	33 %	G.O.95 Heavy Grade A at Replacement	
Guy Usage	24 %	G.O.95 Heavy Grade A at Replacement	
Anchor Usage			
Arm Usage	2 %	G.O.95 Heavy Grade A at Replacement	

Analysis Information **Date** 1/13/2020

Analysis Type	Finite Element L3
Analysis Software	PLS-CADD
Software Version	16.01
PRG Version	2019.3.4
Structure File	P110218_AS-BUILT.pol
Project File	C221_SEC_F_TRUEUP.xyz

Structure Details

Ahead Span	154 ft	Latitude	33.07836810°
Back Span	253 ft	Longitude	-116.58915915°
Ahead Span Az.	0°	Elevation	4191 ft
Line Angle	-179°	Tangent/DE	Dead End
Framing			
Notes			

Pole Loading Details

Pole Label	Height (ft)	Class	Material	Groundline Circum. (in)	Embed. (ft)	Date Intrusive	Material Capacity %	Load Case	Max Moment (ft-k)	Usage %	Calc SF	Req SF	Max Usage Point (ft)*
P110218	60	1	Corten Steel	47.5	8.3		100	G.O.95 Heavy Grade A at Replacement	71	49	2.0	1.0	0
P110218	60	1	Corten Steel	47.5	8.3		100	Known Local Wind Heavy 85 MPH Grade A at Replacement	66	45	2.2	1.0	0

Wires

Wire Tension Condition | 32 Deg F + 0.5" Ice : Initial Condition Max Tension : Finite Element

Voltage (kV)	Wire Type	Direction (deg)**	Attach Height*** (ft)	Diameter (in)	Unit Weight (lbs/ft)	# of Wires	Span Length (ft)	Ruling Span (ft)	Tension (lbs)
12	336Kcmil LINNET ACSR AW2 GCC	89	50.17	0.72	0.44	1	156	154	1773
12	336Kcmil LINNET ACSR AW2 GCC	89	50.17	0.72	0.44	1	154	154	1773
12	336Kcmil LINNET ACSR AW2 GCC	90	51.17	0.72	0.44	1	155	154	1773
12	No2 AWG 5Over2 AWAC GCC	142	43.47	0.33	0.11	1	228	227	994
12	No2 AWG 5Over2 AWAC GCC	142	43.47	0.33	0.11	1	227	227	994
12	No2 AWG 5Over2 AWAC GCC	142	43.47	0.33	0.11	1	225	227	994
12	336Kcmil LINNET ACSR AW2 GCC	267	51.17	0.72	0.44	1	253	250	1905
12	336Kcmil LINNET ACSR AW2 GCC	267	50.17	0.72	0.44	1	252	250	1905
12	336Kcmil LINNET ACSR AW2 GCC	267	50.17	0.72	0.44	1	254	250	1905
	1 In Firm Design Cable	90	24.29	1.13	0.40	1	155	155	863
	1-0 AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	142	36.38	0.98	0.48	1	226	226	737
	1 In Firm Design Cable	142	24.08	1.13	0.40	1	227	226	994
	1 In Firm Design Cable	268	24.29	1.13	0.40	1	193	190	1203
	1-0 AWG RTS Triplex Msgr AWAC No2 AWG 3-4 GCC	344	37.18	0.98	0.48	1	167	164	496

Insulators

Type	Description	Voltage (kV)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Strain	12kV Long DE	12	89	50.17	P110218	33	6.1	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	89	50.17	P110218	27	7.5	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	90	51.17	P110218	24	8.4	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	142	43.47	P110218	13	15.9	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	142	43.47	P110218	13	15.3	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	142	43.47	P110218	13	15.7	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	267	51.17	P110218	31	6.5	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	267	50.17	P110218	32	6.2	2.0	G.O.95 Heavy Grade A at Replacement
Strain	12kV Long DE	12	267	50.17	P110218	30	6.7	2.0	G.O.95 Heavy Grade A at Replacement

Guy and Cables

+Length = Lead Length for Down Guys, Wire Length for Span Guys

*Max Usage Location Measured From Groundline **Direction in degrees: 0 Degrees = Structure Longitudinal Axis towards Ahead Span CW+ ***Attach Height Measured From Groundline, GSI from Top of Guy

Type	Wire Type	Length* (ft)	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
Span	3 8-7 Strand Ehs Steel Sdge	24	321	43.27	P110218, P258360	24			G.O.95 Heavy Grade A at Replacement
Span	3 8-7 Strand Ehs Steel Sdge	24	321	36.68	P110218, P258360	6			Known Local Wind Heavy 85 MPH Grade A at Replacement

Crossarms and Equipment

Type	Description	Direction (deg)	Attach Height (ft)	Origin Pole	Usage %	Calc SF	Req SF	Load Case
X-Arm	10' DE FG ARM (4DF)	350	50.17	P110218	1	111.1	1.3	G.O.95 Heavy Grade A at Replacement
X-Arm	10' DE FG ARM (4DF)	255	43.47	P110218	2	55.6	1.3	G.O.95 Heavy Grade A at Replacement



0.60

