Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(E)			0.000			1/2" Ice	0.426	0.234	0.014
			-3.000			1" Ice	0.509	0.301	0.019
						2" Ice	0.698	0.456	0.032
KRY 112 144/1	B	From Leg	4.000	0.000	184.000	No Ice	0.350	0.175	0.011
(E)			0.000			1/2" Ice	0.426	0.234	0.014
			-3.000			1" Ice	0.509	0.301	0.019
						2" Ice	0.698	0.456	0.032
KRY 112 144/1	C	From Leg	4.000	0.000	184.000	No Ice	0.350	0.175	0.011
(E)			0.000			1/2" Ice	0.426	0.234	0.014
			-3.000			1" Ice	0.509	0.301	0.019
						2" Ice	0.698	0.456	0.032
KRY 112 489/2	A	From Leg	4.000	0.000	184.000	No Ice	0.559	0.365	0.015
(E)			0.000			1/2" Ice	0.658	0.448	0.020
			-3.000			1" Ice	0.764	0.542	0.027
						2" Ice	0.998	0.752	0.046
KRY 112 489/2	B	From Leg	4.000	0.000	184.000	No Ice	0.559	0.365	0.015
(E)			0.000			1/2" Ice	0.658	0.448	0.020
			-3.000			1" Ice	0.764	0.542	0.027
						2" Ice	0.998	0.752	0.046
KRY 112 489/2	C	From Leg	4.000	0.000	184.000	No Ice	0.559	0.365	0.015
(E)			0.000			1/2" Ice	0.658	0.448	0.020
			-3.000			1" Ice	0.764	0.542	0.027
						2" Ice	0.998	0.752	0.046
ATBT-BOTTOM-24V	A	From Leg	4.000	0.000	184.000	No Ice	0.104	0.065	0.003
(E)			0.000			1/2" Ice	0.148	0.102	0.004
			-3.000			1" Ice	0.199	0.147	0.006
						2" Ice	0.323	0.259	0.013
ATBT-BOTTOM-24V	B	From Leg	4.000	0.000	184.000	No Ice	0.104	0.065	0.003
(E)			0.000			1/2" Ice	0.148	0.102	0.004
			-3.000			1" Ice	0.199	0.147	0.006
						2" Ice	0.323	0.259	0.013
ATBT-BOTTOM-24V	C	From Leg	4.000	0.000	184.000	No Ice	0.104	0.065	0.003
(E)			0.000			1/2" Ice	0.148	0.102	0.004
			-3.000			1" Ice	0.199	0.147	0.006
						2" Ice	0.323	0.259	0.013
APXVAARR24_43-U-NA20	A	From Leg	4.000	0.000	184.000	No Ice	14.690	6.870	0.186
w/ Mount Pipe			0.000			1/2" Ice	15.460	7.550	0.315
(R)			-3.000			1" Ice	16.230	8.250	0.458
						2" Ice	17.820	9.670	0.788
APXVAARR24_43-U-NA20	B	From Leg	4.000	0.000	184.000	No Ice	14.690	6.870	0.186
w/ Mount Pipe			0.000			1/2" Ice	15.460	7.550	0.315
(R)			-3.000			1" Ice	16.230	8.250	0.458
						2" Ice	17.820	9.670	0.788
APXVAARR24_43-U-NA20	C	From Leg	4.000	0.000	184.000	No Ice	14.690	6.870	0.186
w/ Mount Pipe			0.000			1/2" Ice	15.460	7.550	0.315
(R)			-3.000			1" Ice	16.230	8.250	0.458
						2" Ice	17.820	9.670	0.788
RADIO 4449 B12/B71	A	From Leg	4.000	0.000	184.000	No Ice	1.650	1.300	0.075
(R)			0.000			1/2" Ice	1.810	1.445	0.092
			-3.000			1" Ice	1.978	1.597	0.112
						2" Ice	2.336	1.924	0.161
RADIO 4449 B12/B71	B	From Leg	4.000	0.000	184.000	No Ice	1.650	1.300	0.075
(R)			0.000			1/2" Ice	1.810	1.445	0.092
			-3.000			1" Ice	1.978	1.597	0.112
						2" Ice	2.336	1.924	0.161
RADIO 4449 B12/B71	C	From Leg	4.000	0.000	184.000	No Ice	1.650	1.300	0.075
(R)			0.000			1/2" Ice	1.810	1.445	0.092

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			-3.000			1" Ice	1.978	1.597	0.112
						2" Ice	2.336	1.924	0.161
4' x 2" Pipe Mount	B	From Leg	4.000	0.000	184.000	No Ice	0.785	0.785	0.029
(E-For Omni)			0.000			1/2" Ice	1.028	1.028	0.035
			0.000			1" Ice	1.281	1.281	0.044
						2" Ice	1.814	1.814	0.072
Platform Mount [LP 405-1]	C	None		0.000	184.000	No Ice	20.800	20.800	1.800
(E)						1/2" Ice	28.100	28.100	2.066
						1" Ice	35.400	35.400	2.332
						2" Ice	50.000	50.000	2.864
LW									
(2) LNX-8513DS-A1M	A	From Leg	4.000	0.000	160.000	No Ice	8.173	5.405	0.039
(E)			0.000			1/2" Ice	8.633	5.863	0.090
			0.000			1" Ice	9.100	6.327	0.146
						2" Ice	10.055	7.278	0.279
(2) LNX-6514DS-A1M	B	From Leg	4.000	0.000	160.000	No Ice	8.173	5.405	0.039
(E)			0.000			1/2" Ice	8.633	5.863	0.089
			0.000			1" Ice	9.100	6.327	0.146
						2" Ice	10.055	7.278	0.278
(2) LNX-8513DS-A1M	C	From Leg	4.000	0.000	160.000	No Ice	8.173	5.405	0.039
(E)			0.000			1/2" Ice	8.633	5.863	0.090
			0.000			1" Ice	9.100	6.327	0.146
						2" Ice	10.055	7.278	0.279
DB-T1-6Z-8AB-0Z	A	From Leg	4.000	0.000	160.000	No Ice	4.800	2.000	0.044
(E)			0.000			1/2" Ice	5.070	2.193	0.080
			0.000			1" Ice	5.348	2.393	0.120
						2" Ice	5.926	2.815	0.213
(2) NNHH-65B-R4	A	From Leg	4.000	0.000	160.000	No Ice	7.620	3.010	0.077
(P)			0.000			1/2" Ice	8.120	3.450	0.150
			0.000			1" Ice	8.630	3.900	0.228
						2" Ice	9.680	4.820	0.407
(2) NNHH-65B-R4	B	From Leg	4.000	0.000	160.000	No Ice	7.620	3.010	0.077
(P)			0.000			1/2" Ice	8.120	3.450	0.150
			0.000			1" Ice	8.630	3.900	0.228
						2" Ice	9.680	4.820	0.407
(2) NNHH-65B-R4	C	From Leg	4.000	0.000	160.000	No Ice	7.620	3.010	0.077
(P)			0.000			1/2" Ice	8.120	3.450	0.150
			0.000			1" Ice	8.630	3.900	0.228
						2" Ice	9.680	4.820	0.407
RFV01U-D1A	A	From Leg	4.000	0.000	160.000	No Ice	1.875	1.250	0.084
(P)			0.000			1/2" Ice	2.045	1.393	0.103
			0.000			1" Ice	2.223	1.543	0.124
						2" Ice	2.601	1.865	0.175
RFV01U-D1A	B	From Leg	4.000	0.000	160.000	No Ice	1.875	1.250	0.084
(P)			0.000			1/2" Ice	2.045	1.393	0.103
			0.000			1" Ice	2.223	1.543	0.124
						2" Ice	2.601	1.865	0.175
RFV01U-D1A	C	From Leg	4.000	0.000	160.000	No Ice	1.875	1.250	0.084
(P)			0.000			1/2" Ice	2.045	1.393	0.103
			0.000			1" Ice	2.223	1.543	0.124
						2" Ice	2.601	1.865	0.175
RFV01U-D2A	A	From Leg	4.000	0.000	160.000	No Ice	1.875	1.013	0.070
(P)			0.000			1/2" Ice	2.045	1.145	0.087
			0.000			1" Ice	2.223	1.284	0.106
						2" Ice	2.601	1.585	0.153
RFV01U-D2A	B	From Leg	4.000	0.000	160.000	No Ice	1.875	1.013	0.070
(P)			0.000			1/2" Ice	2.045	1.145	0.087

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.000			1" Ice	2.223	1.284	0.106
						2" Ice	2.601	1.585	0.153
RFV01U-D2A	C	From Leg	4.000	0.000	160.000	No Ice	1.875	1.013	0.070
(P)			0.000			1/2" Ice	2.045	1.145	0.087
			0.000			1" Ice	2.223	1.284	0.106
						2" Ice	2.601	1.585	0.153
5' x 2" Pipe Mount	A	From Leg	2.000	0.000	160.000	No Ice	1.000	1.000	0.029
(E-per MA)			0.000			1/2" Ice	1.393	1.393	0.037
			0.000			1" Ice	1.703	1.703	0.048
						2" Ice	2.351	2.351	0.082
(4) 8' x 2.375" Mount Pipe	A	From Leg	4.000	0.000	160.000	No Ice	1.900	1.900	0.061
(E-per MA)			0.000			1/2" Ice	2.728	2.728	0.075
			0.000			1" Ice	3.401	3.401	0.095
						2" Ice	4.396	4.396	0.150
(4) 8' x 2.375" Mount Pipe	B	From Leg	4.000	0.000	160.000	No Ice	1.900	1.900	0.061
(E-per MA)			0.000			1/2" Ice	2.728	2.728	0.075
			0.000			1" Ice	3.401	3.401	0.095
						2" Ice	4.396	4.396	0.150
(4) 8' x 2.375" Mount Pipe	C	From Leg	4.000	0.000	160.000	No Ice	1.900	1.900	0.061
(E-per MA)			0.000			1/2" Ice	2.728	2.728	0.075
			0.000			1" Ice	3.401	3.401	0.095
						2" Ice	4.396	4.396	0.150
Platform Mount [LP 303-1]	C	None		0.000	160.000	No Ice	14.660	14.660	1.250
(E)						1/2" Ice	18.870	18.870	1.481
						1" Ice	23.080	23.080	1.713
						2" Ice	31.500	31.500	2.175
LW									
SRL-224NM-4	B	From Leg	6.000	0.000	158.000	No Ice	2.600	2.600	0.035
(E)			0.000			1/2" Ice	4.680	4.680	0.045
			0.000			1" Ice	6.760	6.760	0.056
						2" Ice	10.920	10.920	0.077
DB205-A	C	From Leg	6.000	0.000	158.000	No Ice	1.200	1.200	0.038
(E)			0.000			1/2" Ice	2.160	2.160	0.049
			0.000			1" Ice	3.120	3.120	0.061
						2" Ice	5.040	5.040	0.084
4' x 2" Pipe Mount	B	From Leg	6.000	0.000	158.000	No Ice	0.785	0.785	0.029
(E-For Omni)			0.000			1/2" Ice	1.028	1.028	0.035
			0.000			1" Ice	1.281	1.281	0.044
						2" Ice	1.814	1.814	0.072
4' x 2" Pipe Mount	C	From Leg	6.000	0.000	158.000	No Ice	0.785	0.785	0.029
(E-For Omni)			0.000			1/2" Ice	1.028	1.028	0.035
			0.000			1" Ice	1.281	1.281	0.044
						2" Ice	1.814	1.814	0.072
Side Arm Mount [SO 702-1]	B	From Leg	3.000	0.000	158.000	No Ice	1.000	1.430	0.027
(E)			0.000			1/2" Ice	1.250	2.050	0.038
			0.000			1" Ice	1.500	2.670	0.049
						2" Ice	2.000	3.910	0.071
Side Arm Mount [SO 702-1]	C	From Leg	3.000	0.000	158.000	No Ice	1.000	1.430	0.027
(E)			0.000			1/2" Ice	1.250	2.050	0.038
			0.000			1" Ice	1.500	2.670	0.049
						2" Ice	2.000	3.910	0.071
LW									
7770.00 w/ Mount Pipe	A	From Leg	4.000	0.000	151.000	No Ice	5.746	4.254	0.055
(E)			0.000			1/2" Ice	6.179	5.014	0.103
			0.000			1" Ice	6.607	5.711	0.157
						2" Ice	7.488	7.155	0.287
7770.00 w/ Mount Pipe	B	From Leg	4.000	0.000	151.000	No Ice	5.746	4.254	0.055

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(E)			0.000				1/2" Ice	6.179	5.014	0.103
			0.000				1" Ice	6.607	5.711	0.157
							2" Ice	7.488	7.155	0.287
7770.00 w/ Mount Pipe	C	From Leg	4.000		0.000	151.000	No Ice	5.746	4.254	0.055
(E)			0.000				1/2" Ice	6.179	5.014	0.103
			0.000				1" Ice	6.607	5.711	0.157
							2" Ice	7.488	7.155	0.287
SBNH-1D6565C w/ Mount Pipe	A	From Leg	4.000		0.000	151.000	No Ice	5.560	4.470	0.085
(E)			0.000				1/2" Ice	6.070	4.970	0.167
			0.000				1" Ice	6.590	5.470	0.262
							2" Ice	7.650	6.520	0.495
SBNH-1D6565C w/ Mount Pipe	B	From Leg	4.000		0.000	151.000	No Ice	5.560	4.470	0.085
(E)			0.000				1/2" Ice	6.070	4.970	0.167
			0.000				1" Ice	6.590	5.470	0.262
							2" Ice	7.650	6.520	0.495
SBNH-1D6565C w/ Mount Pipe	C	From Leg	4.000		0.000	151.000	No Ice	5.560	4.470	0.085
(E)			0.000				1/2" Ice	6.070	4.970	0.167
			0.000				1" Ice	6.590	5.470	0.262
							2" Ice	7.650	6.520	0.495
DTMABP7819VG12A	A	From Leg	4.000		0.000	151.000	No Ice	0.976	0.339	0.019
(E)			0.000				1/2" Ice	1.100	0.419	0.026
			0.000				1" Ice	1.232	0.510	0.036
							2" Ice	1.517	0.714	0.060
DTMABP7819VG12A	B	From Leg	4.000		0.000	151.000	No Ice	0.976	0.339	0.019
(E)			0.000				1/2" Ice	1.100	0.419	0.026
			0.000				1" Ice	1.232	0.510	0.036
							2" Ice	1.517	0.714	0.060
DTMABP7819VG12A	C	From Leg	4.000		0.000	151.000	No Ice	0.976	0.339	0.019
(E)			0.000				1/2" Ice	1.100	0.419	0.026
			0.000				1" Ice	1.232	0.510	0.036
							2" Ice	1.517	0.714	0.060
DC6-48-60-18-8F	A	From Leg	4.000		0.000	151.000	No Ice	1.212	1.212	0.033
(E)			0.000				1/2" Ice	1.892	1.892	0.055
			0.000				1" Ice	2.105	2.105	0.080
							2" Ice	2.570	2.570	0.138
TPA-65R-LCUUUU-H8	A	From Leg	4.000		0.000	151.000	No Ice	11.870	7.020	0.082
(R)			0.000				1/2" Ice	12.820	7.910	0.161
			0.000				1" Ice	13.770	8.820	0.248
							2" Ice	15.740	10.680	0.448
TPA-65R-LCUUUU-H8	B	From Leg	4.000		0.000	151.000	No Ice	11.870	7.020	0.082
(R)			0.000				1/2" Ice	12.820	7.910	0.161
			0.000				1" Ice	13.770	8.820	0.248
							2" Ice	15.740	10.680	0.448
TPA-65R-LCUUUU-H8	C	From Leg	4.000		0.000	151.000	No Ice	11.870	7.020	0.082
(R)			0.000				1/2" Ice	12.820	7.910	0.161
			0.000				1" Ice	13.770	8.820	0.248
							2" Ice	15.740	10.680	0.448
RRUS 32	A	From Leg	4.000		0.000	151.000	No Ice	2.857	1.777	0.055
(R)			0.000				1/2" Ice	3.083	1.968	0.077
			0.000				1" Ice	3.316	2.166	0.103
							2" Ice	3.805	2.583	0.165
RRUS 32	B	From Leg	4.000		0.000	151.000	No Ice	2.857	1.777	0.055
(R)			0.000				1/2" Ice	3.083	1.968	0.077
			0.000				1" Ice	3.316	2.166	0.103
							2" Ice	3.805	2.583	0.165
RRUS 32	C	From Leg	4.000		0.000	151.000	No Ice	2.857	1.777	0.055
(R)			0.000				1/2" Ice	3.083	1.968	0.077

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.000			1" Ice	3.316	2.166	0.103
						2" Ice	3.805	2.583	0.165
RRUS 32 B2	A	From Leg	4.000	0.000	151.000	No Ice	2.731	1.668	0.053
(R)			0.000			1/2" Ice	2.953	1.855	0.074
			0.000			1" Ice	3.182	2.049	0.098
						2" Ice	3.663	2.458	0.157
RRUS 32 B2	B	From Leg	4.000	0.000	151.000	No Ice	2.731	1.668	0.053
(R)			0.000			1/2" Ice	2.953	1.855	0.074
			0.000			1" Ice	3.182	2.049	0.098
						2" Ice	3.663	2.458	0.157
RRUS 32 B2	C	From Leg	4.000	0.000	151.000	No Ice	2.731	1.668	0.053
(R)			0.000			1/2" Ice	2.953	1.855	0.074
			0.000			1" Ice	3.182	2.049	0.098
						2" Ice	3.663	2.458	0.157
DBC0062F3V52-1	A	From Leg	4.000	0.000	151.000	No Ice	0.711	0.220	0.013
(R)			0.000			1/2" Ice	0.818	0.289	0.018
			0.000			1" Ice	0.932	0.366	0.025
						2" Ice	1.182	0.543	0.044
DBC0062F3V52-1	B	From Leg	4.000	0.000	151.000	No Ice	0.711	0.220	0.013
(R)			0.000			1/2" Ice	0.818	0.289	0.018
			0.000			1" Ice	0.932	0.366	0.025
						2" Ice	1.182	0.543	0.044
DBC0062F3V52-1	C	From Leg	4.000	0.000	151.000	No Ice	0.711	0.220	0.013
(R)			0.000			1/2" Ice	0.818	0.289	0.018
			0.000			1" Ice	0.932	0.366	0.025
						2" Ice	1.182	0.543	0.044
(3) 10' x 2.875" Pipe Mount	A	From Leg	4.000	0.000	151.000	No Ice	2.875	2.875	0.085
(R - Mount Mod)			0.000			1/2" Ice	3.907	3.907	0.106
			0.000			1" Ice	4.956	4.956	0.134
						2" Ice	6.188	6.188	0.209
(3) 10' x 2.875" Pipe Mount	B	From Leg	4.000	0.000	151.000	No Ice	2.875	2.875	0.085
(R - Mount Mod)			0.000			1/2" Ice	3.907	3.907	0.106
			0.000			1" Ice	4.956	4.956	0.134
						2" Ice	6.188	6.188	0.209
(3) 10' x 2.875" Pipe Mount	C	From Leg	4.000	0.000	151.000	No Ice	2.875	2.875	0.085
(R - Mount Mod)			0.000			1/2" Ice	3.907	3.907	0.106
			0.000			1" Ice	4.956	4.956	0.134
						2" Ice	6.188	6.188	0.209
Miscellaneous [NA 510-1]	C	None		0.000	151.000	No Ice	6.000	6.000	0.256
(R - Mount Mod)						1/2" Ice	8.500	8.500	0.340
						1" Ice	11.000	11.000	0.423
						2" Ice	16.000	16.000	0.591
Miscellaneous [NA 509-3]	C	None		0.000	151.000	No Ice	11.840	11.840	0.275
(R-PRK-1245 - Mount Mod)						1/2" Ice	16.960	16.960	0.296
						1" Ice	22.080	22.080	0.317
						2" Ice	32.320	32.320	0.360
Platform Mount [LP 403-1]	C	None		0.000	151.000	No Ice	18.850	18.850	1.500
(E)						1/2" Ice	24.300	24.300	1.797
						1" Ice	29.750	29.750	2.093
						2" Ice	40.650	40.650	2.686
LW									
DC6-48-60-18-8F	C	From Leg	1.000	0.000	150.000	No Ice	1.212	1.212	0.033
(E)			0.000			1/2" Ice	1.892	1.892	0.055
			2.000			1" Ice	2.105	2.105	0.080
						2" Ice	2.570	2.570	0.138
RRUS 11	A	From Leg	1.000	0.000	150.000	No Ice	2.784	1.187	0.048
(R)			0.000			1/2" Ice	2.992	1.334	0.068

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.000			1" Ice	3.207	1.490	0.092
						2" Ice	3.658	1.833	0.150
RRUS 11	B	From Leg	1.000	0.000	150.000	No Ice	2.784	1.187	0.048
(R)			0.000			1/2" Ice	2.992	1.334	0.068
			0.000			1" Ice	3.207	1.490	0.092
						2" Ice	3.658	1.833	0.150
RRUS 11	C	From Leg	1.000	0.000	150.000	No Ice	2.784	1.187	0.048
(R)			0.000			1/2" Ice	2.992	1.334	0.068
			0.000			1" Ice	3.207	1.490	0.092
						2" Ice	3.658	1.833	0.150
RRUS 12	A	From Leg	1.000	0.000	150.000	No Ice	3.145	1.285	0.058
(R)			0.000			1/2" Ice	3.365	1.438	0.081
			2.000			1" Ice	3.592	1.600	0.108
						2" Ice	4.069	1.954	0.171
RRUS 12	B	From Leg	1.000	0.000	150.000	No Ice	3.145	1.285	0.058
(R)			0.000			1/2" Ice	3.365	1.438	0.081
			2.000			1" Ice	3.592	1.600	0.108
						2" Ice	4.069	1.954	0.171
RRUS 12	C	From Leg	1.000	0.000	150.000	No Ice	3.145	1.285	0.058
(R)			0.000			1/2" Ice	3.365	1.438	0.081
			2.000			1" Ice	3.592	1.600	0.108
						2" Ice	4.069	1.954	0.171
Side Arm Mount [SO 102-3]	C	None		0.000	150.000	No Ice	3.000	3.000	0.081
(E)						1/2" Ice	3.480	3.480	0.111
						1" Ice	3.960	3.960	0.141
						2" Ice	4.920	4.920	0.201
Pipe Mount [PM 601-3]	C	None		0.000	150.000	No Ice	4.390	4.390	0.195
(E)						1/2" Ice	5.480	5.480	0.237
						1" Ice	6.570	6.570	0.280
						2" Ice	8.750	8.750	0.365
LW									
SRL-235-2	B	From Leg	6.000	0.000	132.000	No Ice	7.000	7.000	0.076
(E)			0.000			1/2" Ice	9.037	9.037	0.125
			0.000			1" Ice	11.092	11.092	0.187
						2" Ice	15.250	15.250	0.351
4' x 2" Pipe Mount	B	From Leg	6.000	0.000	132.000	No Ice	0.785	0.785	0.029
(E-For Omni)			0.000			1/2" Ice	1.028	1.028	0.035
			0.000			1" Ice	1.281	1.281	0.044
						2" Ice	1.814	1.814	0.072
Side Arm Mount [SO 702-1]	B	From Leg	3.000	0.000	132.000	No Ice	1.000	1.430	0.027
(E)			0.000			1/2" Ice	1.250	2.050	0.038
			0.000			1" Ice	1.500	2.670	0.049
						2" Ice	2.000	3.910	0.071
Side Arm Mount [SO 104-3]	C	None		0.000	132.000	No Ice	3.300	3.300	0.287
(E-Mount Attachment)						1/2" Ice	4.130	4.130	0.317
						1" Ice	4.960	4.960	0.347
						2" Ice	6.620	6.620	0.407
LW									
PCS 1900 TMA RX	A	From Leg	2.000	0.000	124.000	No Ice	0.539	0.529	0.018
(E)			0.000			1/2" Ice	0.638	0.628	0.023
			0.000			1" Ice	0.745	0.734	0.031
						2" Ice	0.981	0.969	0.052
2' x 2" Pipe Mount	A	From Leg	2.000	0.000	124.000	No Ice	0.023	0.023	0.007
(E-For TMA)			0.000			1/2" Ice	0.049	0.049	0.008
			0.000			1" Ice	0.085	0.085	0.009
						2" Ice	0.186	0.186	0.013
Side Arm Mount [SO 104-3]	C	None		0.000	124.000	No Ice	3.300	3.300	0.287

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(E)						1/2" Ice	4.130	4.130	0.317
						1" Ice	4.960	4.960	0.347
						2" Ice	6.620	6.620	0.407
LW * Sprint* * Clear Wire*									
(2) 6' x 2" Mount Pipe	A	From Leg	4.000	0.000	116.000	No Ice	1.425	1.425	0.022
(E - Per Photo)			0.000			1/2" Ice	1.925	1.925	0.033
			0.000			1" Ice	2.294	2.294	0.048
						2" Ice	3.060	3.060	0.090
6' x 2" Mount Pipe	B	From Leg	4.000	0.000	116.000	No Ice	1.425	1.425	0.022
(E - Per Photo)			0.000			1/2" Ice	1.925	1.925	0.033
			0.000			1" Ice	2.294	2.294	0.048
						2" Ice	3.060	3.060	0.090
8' x 2.375" Mount Pipe	B	From Leg	4.000	0.000	116.000	No Ice	1.900	1.900	0.061
(E - Per Photo(Dia))			0.000			1/2" Ice	2.728	2.728	0.075
			0.000			1" Ice	3.401	3.401	0.095
						2" Ice	4.396	4.396	0.150
(2) 6' x 2" Mount Pipe	C	From Leg	4.000	0.000	116.000	No Ice	1.425	1.425	0.022
(E - Per Photo)			0.000			1/2" Ice	1.925	1.925	0.033
			0.000			1" Ice	2.294	2.294	0.048
						2" Ice	3.060	3.060	0.090
HORIZON DUO	A	From Leg	4.000	0.000	116.000	No Ice	0.469	0.294	0.007
(E - V. Offset Per APP)			0.000			1/2" Ice	0.556	0.365	0.012
			0.000			1" Ice	0.650	0.444	0.018
						2" Ice	0.861	0.624	0.036
NNVV-65B-R4 w/ Mount	A	From Leg	4.000	0.000	116.000	No Ice	12.509	7.413	0.103
Pipe			0.000			1/2" Ice	13.108	8.598	0.194
(R)			2.000			1" Ice	13.672	9.496	0.293
						2" Ice	14.822	11.328	0.520
NNVV-65B-R4 w/ Mount	B	From Leg	4.000	0.000	116.000	No Ice	12.509	7.413	0.103
Pipe			0.000			1/2" Ice	13.108	8.598	0.194
(R)			2.000			1" Ice	13.672	9.496	0.293
						2" Ice	14.822	11.328	0.520
NNVV-65B-R4 w/ Mount	C	From Leg	4.000	0.000	116.000	No Ice	12.509	7.413	0.103
Pipe			0.000			1/2" Ice	13.108	8.598	0.194
(R)			2.000			1" Ice	13.672	9.496	0.293
						2" Ice	14.822	11.328	0.520
AAHC w/ Mount Pipe	A	From Leg	4.000	0.000	116.000	No Ice	4.409	2.691	0.115
(R)			0.000			1/2" Ice	4.727	3.079	0.156
			2.000			1" Ice	5.055	3.486	0.202
						2" Ice	5.743	4.359	0.310
AAHC w/ Mount Pipe	B	From Leg	4.000	0.000	116.000	No Ice	4.409	2.691	0.115
(R)			0.000			1/2" Ice	4.727	3.079	0.156
			2.000			1" Ice	5.055	3.486	0.202
						2" Ice	5.743	4.359	0.310
AAHC w/ Mount Pipe	C	From Leg	4.000	0.000	116.000	No Ice	4.409	2.691	0.115
(R)			0.000			1/2" Ice	4.727	3.079	0.156
			2.000			1" Ice	5.055	3.486	0.202
						2" Ice	5.743	4.359	0.310
800MHZ 2X50W RRH	A	From Leg	4.000	0.000	116.000	No Ice	2.134	1.773	0.053
(R)			0.000			1/2" Ice	2.320	1.946	0.074
			2.000			1" Ice	2.512	2.127	0.098
						2" Ice	2.920	2.510	0.157
(2) 800MHZ 2X50W RRH	B	From Leg	4.000	0.000	116.000	No Ice	2.134	1.773	0.053
(R)			0.000			1/2" Ice	2.320	1.946	0.074
			2.000			1" Ice	2.512	2.127	0.098

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	2.920	2.510	0.157
(3) 800MHZ 2X50W RRH	C	From Leg	4.000	0.000	116.000	No Ice	2.134	1.773	0.053
(R)			0.000			1/2" Ice	2.320	1.946	0.074
			2.000			1" Ice	2.512	2.127	0.098
						2" Ice	2.920	2.510	0.157
(2) PCS 1900MHZ	A	From Leg	4.000	0.000	116.000	No Ice	2.322	2.238	0.060
4X45W-65MHZ			0.000			1/2" Ice	2.527	2.441	0.083
(R)			2.000			1" Ice	2.739	2.651	0.110
						2" Ice	3.185	3.093	0.173
PCS 1900MHZ	B	From Leg	4.000	0.000	116.000	No Ice	2.322	2.238	0.060
4X45W-65MHZ			0.000			1/2" Ice	2.527	2.441	0.083
(R)			2.000			1" Ice	2.739	2.651	0.110
						2" Ice	3.185	3.093	0.173
Miscellaneous [NA 509-3]	C	None		0.000	114.000	No Ice	11.840	11.840	0.275
(R - Site Pro1 - PRK-HD)						1/2" Ice	16.960	16.960	0.296
						1" Ice	22.080	22.080	0.317
						2" Ice	32.320	32.320	0.360
Platform Mount [LP 405-1]	C	None		0.000	116.000	No Ice	20.800	20.800	1.800
(E)						1/2" Ice	28.100	28.100	2.066
						1" Ice	35.400	35.400	2.332
						2" Ice	50.000	50.000	2.864
LW									
DB205-A	B	From Leg	6.000	0.000	90.000	No Ice	1.200	1.200	0.038
(E-Per Photo)			0.000			1/2" Ice	2.160	2.160	0.049
			9.000			1" Ice	3.120	3.120	0.061
						2" Ice	5.040	5.040	0.084
MT-485002 w/ Mount Pipe	C	From Leg	6.000	0.000	90.000	No Ice	1.372	0.473	0.011
(E)			0.000			1/2" Ice	1.574	0.681	0.022
			0.000			1" Ice	1.788	0.902	0.037
						2" Ice	2.253	1.391	0.075
5' x 2" Pipe Mount	B	From Leg	6.000	0.000	90.000	No Ice	1.000	1.000	0.029
(E-For Omni)			0.000			1/2" Ice	1.393	1.393	0.037
			0.000			1" Ice	1.703	1.703	0.048
						2" Ice	2.351	2.351	0.082
Side Arm Mount [SO 104-3]	C	None		0.000	90.000	No Ice	3.300	3.300	0.287
(E-per photo)						1/2" Ice	4.130	4.130	0.317
						1" Ice	4.960	4.960	0.347
						2" Ice	6.620	6.620	0.407
Side Arm Mount [SO 702-1]	B	From Leg	3.000	0.000	90.000	No Ice	1.000	1.430	0.027
(E)			0.000			1/2" Ice	1.250	2.050	0.038
			0.000			1" Ice	1.500	2.670	0.049
						2" Ice	2.000	3.910	0.071
Side Arm Mount [SO 702-1]	C	From Leg	3.000	0.000	90.000	No Ice	1.000	1.430	0.027
(E)			0.000			1/2" Ice	1.250	2.050	0.038
			0.000			1" Ice	1.500	2.670	0.049
						2" Ice	2.000	3.910	0.071
LW									
SRL-235-2	C	From Leg	3.000	0.000	70.000	No Ice	7.000	7.000	0.076
(E)			0.000			1/2" Ice	9.037	9.037	0.125
			0.000			1" Ice	11.092	11.092	0.187
						2" Ice	15.250	15.250	0.351
2" x 2' Omni	C	From Leg	3.000	0.000	70.000	No Ice	0.304	0.304	0.005
(E-Per Photo)			0.000			1/2" Ice	0.432	0.432	0.008
			-6.000			1" Ice	0.578	0.578	0.013
						2" Ice	0.933	0.933	0.028
6' x 2" Mount Pipe	C	From Leg	3.000	0.000	70.000	No Ice	1.425	1.425	0.022
(E-For Omni)			0.000			1/2" Ice	1.925	1.925	0.033

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.000			1" Ice	2.294	2.294	0.048
						2" Ice	3.060	3.060	0.090
Side Arm Mount [SO 701-1]	C	From Leg	1.500	0.000	70.000	No Ice	0.850	1.670	0.065
(E)			0.000			1/2" Ice	1.140	2.340	0.079
			0.000			1" Ice	1.430	3.010	0.093
						2" Ice	2.010	4.350	0.121
Side Arm Mount [SO 102-3]	C	None		0.000	70.000	No Ice	3.000	3.000	0.081
(E-Mount Attachment)						1/2" Ice	3.480	3.480	0.111
						1" Ice	3.960	3.960	0.141
						2" Ice	4.920	4.920	0.201
LW									
DB909XVTE-M	B	From Leg	3.000	0.000	33.000	No Ice	1.892	1.892	0.024
(E)			0.000			1/2" Ice	2.622	2.622	0.047
			0.000			1" Ice	2.952	2.952	0.073
						2" Ice	3.640	3.640	0.139
2" x 4' Omni	B	From Leg	3.000	0.000	33.000	No Ice	0.304	0.304	0.005
(E-Per Photo)			0.000			1/2" Ice	0.432	0.432	0.008
			0.000			1" Ice	0.578	0.578	0.013
						2" Ice	0.933	0.933	0.028
6' x 2" Mount Pipe	B	From Leg	3.000	0.000	33.000	No Ice	1.425	1.425	0.022
(E-For Yagi)			0.000			1/2" Ice	1.925	1.925	0.033
			0.000			1" Ice	2.294	2.294	0.048
						2" Ice	3.060	3.060	0.090
Side Arm Mount [SO 702-1]	B	From Leg	1.500	0.000	33.000	No Ice	1.000	1.430	0.027
(E)			0.000			1/2" Ice	1.250	2.050	0.038
			0.000			1" Ice	1.500	2.670	0.049
						2" Ice	2.000	3.910	0.071
Side Arm Mount [SO 102-3]	C	None		0.000	33.000	No Ice	3.000	3.000	0.081
(E-Mount Attachment)						1/2" Ice	3.480	3.480	0.111
						1" Ice	3.960	3.960	0.141
						2" Ice	4.920	4.920	0.201
LW									
4' ICE SHIELDS	A	From Leg	0.500	0.000	178.000	No Ice	1.400	0.467	0.030
(E)			0.000			1/2" Ice	1.884	0.640	0.095
			0.000			1" Ice	2.377	0.821	0.167
						2" Ice	3.388	1.210	0.332
4' ICE SHIELDS	A	From Leg	0.500	0.000	138.000	No Ice	1.400	0.467	0.030
(E)			0.000			1/2" Ice	1.884	0.640	0.095
			0.000			1" Ice	2.377	0.821	0.167
						2" Ice	3.388	1.210	0.332
4' ICE SHIELDS	A	From Leg	0.500	0.000	98.000	No Ice	1.400	0.467	0.030
(E)			0.000			1/2" Ice	1.884	0.640	0.095
			0.000			1" Ice	2.377	0.821	0.167
						2" Ice	3.388	1.210	0.332
4' ICE SHIELDS	B	From Leg	0.500	0.000	98.000	No Ice	1.400	0.467	0.030
(E)			0.000			1/2" Ice	1.884	0.640	0.095
			0.000			1" Ice	2.377	0.821	0.167
						2" Ice	3.388	1.210	0.332
4' ICE SHIELDS	C	From Leg	0.500	0.000	98.000	No Ice	1.400	0.467	0.030
(E)			0.000			1/2" Ice	1.884	0.640	0.095
			0.000			1" Ice	2.377	0.821	0.167
						2" Ice	3.388	1.210	0.332
LW									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert (ft)	Azimuth Adjustment (°)	3 dB Beam Width (°)	Elevation (ft)	Outside Diameter (ft)		Aperture Area (ft^2)	Weight (K)
VHLP2-18	B	Paraboloid w/o	From	4.000	0.000		116.000	2.175	No Ice	3.715	0.031
(E)		Radome	Leg	0.000					1/2" Ice	4.006	0.052
				4.000					1" Ice	4.296	0.072
									2" Ice	4.876	0.113
LW											
KP2F-34	B	Grid	From	6.000	5.000		90.000	2.000	No Ice	3.140	0.005
(E)			Leg	0.000					1/2" Ice	3.410	0.023
				0.000					1" Ice	3.680	0.040
									2" Ice	4.276	0.075
LW											

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp

Comb. No.	Description
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	191.667 - 186.667	Pole	Max Tension	48	0.000	-0.000	0.000
			Max. Compression	26	-1.286	-0.896	-0.610
			Max. Mx	8	-0.641	-2.139	-0.215
			Max. My	14	-0.641	-0.301	-2.043
			Max. Vy	20	-0.476	1.487	-0.215
			Max. Vx	2	-0.470	-0.301	1.585
			Max. Torque	4			-0.440
L2	186.667 - 181.567	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-11.614	-2.135	-1.449
			Max. Mx	8	-5.052	-7.120	-0.414
			Max. My	14	-5.050	-0.530	-6.951
			Max. Vy	20	-5.005	5.959	-0.362
			Max. Vx	2	-5.001	-0.476	6.087
			Max. Torque	5			-1.397
L3	181.567 - 176.567	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-13.091	-2.108	-1.041
			Max. Mx	8	-5.773	-32.965	-0.443
			Max. My	14	-5.767	-0.554	-32.851
			Max. Vy	20	-5.353	31.842	-0.337
			Max. Vx	2	-5.392	-0.444	32.006
			Max. Torque	5			-1.397
L4	176.567 - 171.567	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-14.227	-2.084	-1.144
			Max. Mx	8	-6.461	-60.502	-0.524
			Max. My	14	-6.455	-0.578	-60.653
			Max. Vy	20	-5.673	59.419	-0.364
			Max. Vx	2	-5.712	-0.411	59.718
			Max. Torque	5			-1.382
L5	171.567 - 166.567	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-15.361	-2.059	-1.247
			Max. Mx	8	-7.152	-89.619	-0.605
			Max. My	14	-7.146	-0.602	-90.037
			Max. Vy	20	-5.986	88.578	-0.390

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	2	-6.026	-0.377	89.014
			Max. Torque	5			-1.381
L6	166.567 - 161.567	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-16.494	-2.036	-1.350
			Max. Mx	8	-7.846	-120.286	-0.686
			Max. My	14	-7.839	-0.626	-120.972
			Max. Vy	20	-6.294	119.289	-0.416
			Max. Vx	2	-6.333	-0.343	119.862
			Max. Torque	5			-1.381
L7	161.567 - 156.567	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-28.205	-2.087	-1.482
			Max. Mx	8	-12.319	-169.224	-1.035
			Max. My	14	-12.302	-0.623	-170.868
			Max. Vy	20	-11.682	168.294	-0.708
			Max. Vx	2	-11.841	-0.277	169.069
			Max. Torque	5			-2.017
L8	156.567 - 151.567	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-29.508	-2.240	-1.499
			Max. Mx	8	-13.061	-228.299	-1.111
			Max. My	14	-13.045	-0.674	-230.788
			Max. Vy	20	-11.962	227.385	-0.724
			Max. Vx	2	-12.121	-0.264	228.931
			Max. Torque	5			-2.017
L9	151.567 - 146.567	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-43.969	-2.159	-0.945
			Max. Mx	8	-18.956	-316.362	-1.043
			Max. My	14	-18.937	-0.668	-319.619
			Max. Vy	20	-18.534	315.615	-0.594
			Max. Vx	2	-18.695	-0.187	318.026
			Max. Torque	5			-2.016
L10	146.567 - 141.567	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-45.335	-2.326	-0.965
			Max. Mx	8	-19.823	-409.504	-1.121
			Max. My	14	-19.806	-0.724	-413.619
			Max. Vy	20	-18.752	408.791	-0.610
			Max. Vx	2	-18.912	-0.172	411.977
			Max. Torque	5			-1.870
L11	141.567 - 141.417	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-45.376	-2.332	-0.966
			Max. Mx	8	-19.858	-412.314	-1.124
			Max. My	14	-19.840	-0.727	-416.455
			Max. Vy	20	-18.751	411.602	-0.610
			Max. Vx	2	-18.911	-0.172	414.811
			Max. Torque	5			-1.869
L12	141.417 - 136.417	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-47.504	-2.543	-0.324
			Max. Mx	8	-20.989	-507.071	-1.148
			Max. My	14	-20.970	-0.786	-512.074
			Max. Vy	20	-19.182	506.391	-0.572
			Max. Vx	2	-19.382	-0.159	510.495
			Max. Torque	5			-1.869
L13	136.417 - 131.417	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-50.268	-5.870	-2.143

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	8	-22.571	-605.162	-1.715
			Max. My	14	-22.552	-1.666	-610.844
			Max. Vy	20	-20.116	602.631	-1.083
			Max. Vx	2	-20.325	-0.975	608.097
			Max. Torque	5			-4.567
L14	131.417 - 126.417	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-52.133	-6.085	-2.167
			Max. Mx	8	-23.731	-706.620	-1.770
			Max. My	14	-23.713	-1.687	-713.419
			Max. Vy	20	-20.494	704.122	-1.153
			Max. Vx	2	-20.703	-1.000	710.593
			Max. Torque	5			-4.567
L15	126.417 - 121.417	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-55.427	-6.365	-1.989
			Max. Mx	8	-25.957	-810.498	-1.753
			Max. My	14	-25.921	-1.757	-819.250
			Max. Vy	20	-21.446	808.897	-1.150
			Max. Vx	14	21.649	-1.757	-819.250
			Max. Torque	5			-4.566
L16	121.417 - 121.167	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-55.540	-6.379	-1.992
			Max. Mx	8	-26.032	-815.761	-1.757
			Max. My	14	-25.996	-1.760	-824.668
			Max. Vy	20	-21.479	814.260	-1.154
			Max. Vx	14	21.681	-1.760	-824.668
			Max. Torque	5			-4.526
L17	121.167 - 116.167	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-57.971	-7.212	-2.362
			Max. Mx	20	-27.465	923.309	-0.874
			Max. My	14	-27.464	-2.055	-934.701
			Max. Vy	20	-22.124	923.309	-0.874
			Max. Vx	14	22.218	-2.055	-934.701
			Max. Torque	5			-4.873
L18	116.167 - 111.167	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-68.406	-7.828	-2.224
			Max. Mx	20	-32.769	1055.638	-0.378
			Max. My	14	-32.770	-2.443	-1067.785
			Max. Vy	20	-26.279	1055.638	-0.378
			Max. Vx	14	26.363	-2.443	-1067.785
			Max. Torque	5			-4.935
L19	111.167 - 110.042	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-68.924	-7.781	-2.233
			Max. Mx	20	-33.080	1085.240	-0.260
			Max. My	14	-33.082	-2.471	-1097.498
			Max. Vy	20	-26.369	1085.240	-0.260
			Max. Vx	14	26.453	-2.471	-1097.498
			Max. Torque	5			-4.934
L20	110.042 - 109.792	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-69.053	-7.776	-2.237
			Max. Mx	20	-33.169	1091.832	-0.235
			Max. My	14	-33.170	-2.478	-1104.114
			Max. Vy	20	-26.385	1091.832	-0.235
			Max. Vx	14	26.468	-2.478	-1104.114
			Max. Torque	5			-4.934

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L21	109.792 - 105.083	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-71.736	-7.571	-2.282
			Max. Mx	20	-34.835	1216.977	0.254
			Max. My	14	-34.837	-2.591	-1229.731
			Max. Vy	8	26.855	-1213.389	-2.136
			Max. Vx	2	-27.110	1.346	1221.619
			Max. Torque	5			-4.934
L22	105.083 - 104.833	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-71.907	-7.565	-2.287
			Max. Mx	20	-34.945	1223.675	0.278
			Max. My	14	-34.948	-2.598	-1236.455
			Max. Vy	8	26.896	-1220.106	-2.142
			Max. Vx	2	-27.153	1.394	1228.397
			Max. Torque	5			-4.934
L23	104.833 - 100.917	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-75.478	-7.425	-2.360
			Max. Mx	20	-37.372	1330.128	0.654
			Max. My	14	-37.376	-2.674	-1343.284
			Max. Vy	8	27.659	-1326.890	-2.238
			Max. Vx	2	-27.933	2.174	1336.148
			Max. Torque	5			-4.933
L24	100.917 - 100.667	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-75.641	-7.442	-2.364
			Max. Mx	20	-37.481	1337.020	0.679
			Max. My	14	-37.485	-2.680	-1350.198
			Max. Vy	8	27.702	-1333.808	-2.244
			Max. Vx	2	-27.976	2.222	1343.131
			Max. Torque	5			-4.933
L25	100.667 - 95.833	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-79.367	-7.663	-2.398
			Max. Mx	20	-39.316	1472.775	1.171
			Max. My	14	-39.336	-2.794	-1485.272
			Max. Vy	20	-28.598	1472.775	1.171
			Max. Vx	2	-28.523	3.163	1479.555
			Max. Torque	5			-4.933
L26	95.833 - 95.583	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-79.506	-7.681	-2.401
			Max. Mx	20	-39.412	1479.924	1.196
			Max. My	14	-39.432	-2.802	-1492.329
			Max. Vy	20	-28.614	1479.924	1.196
			Max. Vx	2	-28.540	3.211	1486.683
			Max. Torque	5			-4.932
L27	95.583 - 90.583	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-82.313	-7.917	-2.420
			Max. Mx	20	-41.192	1625.223	1.714
			Max. My	14	-41.227	-2.924	-1634.621
			Max. Vy	20	-29.522	1625.223	1.714
			Max. Vx	2	-29.443	4.180	1631.543
			Max. Torque	5			-4.932
L28	90.583 - 89.917	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-83.631	-9.133	-4.060
			Max. Mx	20	-41.928	1644.867	1.251
			Max. My	14	-41.963	-3.423	-1654.774

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	20	-30.056	1644.867	1.251
			Max. Vx	2	-29.960	3.826	1651.071
			Max. Torque	17			5.939
L29	89.917 - 89.667	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-83.805	-9.149	-4.063
			Max. Mx	20	-42.042	1652.386	1.274
			Max. My	14	-42.077	-3.428	-1662.079
			Max. Vy	20	-30.103	1652.386	1.274
			Max. Vx	2	-30.006	3.874	1658.562
			Max. Torque	17			5.939
L30	89.667 - 84.667	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-88.088	-9.207	-4.021
			Max. Mx	20	-44.875	1805.494	1.793
			Max. My	2	-44.878	4.947	1810.979
			Max. Vy	20	-31.104	1805.494	1.793
			Max. Vx	2	-30.981	4.947	1810.979
			Max. Torque	17			5.939
L31	84.667 - 80.833	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-92.464	-9.131	-3.947
			Max. Mx	20	-48.053	1926.429	2.231
			Max. My	2	-48.056	5.887	1931.225
			Max. Vy	20	-31.892	1926.429	2.231
			Max. Vx	2	-31.752	5.887	1931.225
			Max. Torque	17			5.938
L32	80.833 - 80.333	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-92.975	-9.130	-3.941
			Max. Mx	20	-48.436	1942.419	2.286
			Max. My	2	-48.439	6.006	1947.122
			Max. Vy	20	-31.990	1942.419	2.286
			Max. Vx	2	-31.849	6.006	1947.122
			Max. Torque	17			5.938
L33	80.333 - 80.083	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-93.183	-9.140	-3.941
			Max. Mx	20	-48.577	1950.425	2.310
			Max. My	2	-48.579	6.057	1955.087
			Max. Vy	20	-32.043	1950.425	2.310
			Max. Vx	2	-31.902	6.057	1955.087
			Max. Torque	17			5.938
L34	80.083 - 75.083	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-96.972	-9.273	-3.938
			Max. Mx	20	-51.052	2113.203	2.800
			Max. My	2	-51.055	7.068	2117.056
			Max. Vy	20	-33.060	2113.203	2.800
			Max. Vx	2	-32.919	7.068	2117.056
			Max. Torque	17			5.938
L35	75.083 - 70.083	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-101.350	-9.686	-3.966
			Max. Mx	20	-53.953	2280.939	3.266
			Max. My	2	-53.956	7.882	2284.157
			Max. Vy	20	-34.110	2280.939	3.266
			Max. Vx	2	-33.969	7.882	2284.157
			Max. Torque	17			5.937
L36	70.083 - 69.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-102.746	-7.267	-5.398

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	20	-54.633	2301.813	2.879
			Max. My	2	-54.635	8.752	2303.687
			Max. Vy	20	-34.695	2301.813	2.879
			Max. Vx	2	-34.568	8.752	2303.687
			Max. Torque	17			5.937
L37	69.5 - 69.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-103.025	-7.297	-5.401
			Max. Mx	20	-54.821	2310.482	2.905
			Max. My	2	-54.823	8.792	2312.331
			Max. Vy	20	-34.751	2310.482	2.905
			Max. Vx	2	-34.625	8.792	2312.331
			Max. Torque	7			-5.460
L38	69.25 - 64.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-111.431	-8.289	-5.401
			Max. Mx	20	-61.187	2486.549	3.440
			Max. My	2	-61.188	9.167	2488.343
			Max. Vy	20	-35.947	2486.549	3.440
			Max. Vx	2	-35.821	9.167	2488.343
			Max. Torque	7			-5.460
L39	64.25 - 60.583	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-118.237	-9.100	-5.355
			Max. Mx	20	-66.364	2619.405	3.866
			Max. My	2	-66.361	9.402	2621.644
			Max. Vy	20	-36.816	2619.405	3.866
			Max. Vx	2	-36.916	9.402	2621.644
			Max. Torque	7			-5.460
L40	60.583 - 60.333	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-118.521	-9.132	-5.356
			Max. Mx	20	-66.570	2628.602	3.893
			Max. My	2	-66.567	9.443	2630.874
			Max. Vy	20	-36.864	2628.602	3.893
			Max. Vx	2	-36.964	9.443	2630.874
			Max. Torque	7			-5.460
L41	60.333 - 55.333	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-124.059	-9.630	-5.334
			Max. Mx	20	-70.353	2815.482	4.430
			Max. My	2	-70.349	10.243	2818.405
			Max. Vy	20	-37.993	2815.482	4.430
			Max. Vx	2	-38.093	10.243	2818.405
			Max. Torque	7			-5.460
L42	55.333 - 52.167	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-126.248	-9.767	-5.335
			Max. Mx	20	-71.845	2936.635	4.761
			Max. My	2	-71.842	10.876	2939.835
			Max. Vy	20	-38.573	2936.635	4.761
			Max. Vx	2	-38.673	10.876	2939.835
			Max. Torque	7			-5.459
L43	52.167 - 51.917	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-126.442	-9.784	-5.338
			Max. Mx	20	-71.990	2946.280	4.787
			Max. My	2	-71.987	10.926	2949.502
			Max. Vy	20	-38.613	2946.280	4.787
			Max. Vx	2	-38.713	10.926	2949.502
			Max. Torque	7			-5.459
L44	51.917 - 46.917	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-131.017	-10.154	-5.308

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	20	-75.089	3141.689	5.393
			Max. My	2	-75.086	11.863	3145.470
			Max. Vy	20	-39.600	3141.689	5.393
			Max. Vx	2	-39.691	11.863	3145.470
			Max. Torque	7			-5.459
L45	46.917 - 41.917	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-136.954	-10.579	-4.774
			Max. Mx	20	-79.059	3342.231	6.378
			Max. My	2	-79.057	12.784	3346.851
			Max. Vy	20	-40.678	3342.231	6.378
			Max. Vx	2	-40.732	12.784	3346.851
			Max. Torque	7			-5.459
L46	41.917 - 40.333	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-138.789	-10.703	-4.605
			Max. Mx	20	-80.307	3406.873	6.691
			Max. My	2	-80.305	13.081	3411.715
			Max. Vy	20	-41.007	3406.873	6.691
			Max. Vx	2	-41.050	13.081	3411.715
			Max. Torque	7			-5.458
L47	40.333 - 40.083	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-139.050	-10.720	-4.580
			Max. Mx	20	-80.499	3417.126	6.740
			Max. My	2	-80.498	13.132	3421.998
			Max. Vy	20	-41.041	3417.126	6.740
			Max. Vx	2	-41.082	13.132	3421.998
			Max. Torque	7			-5.458
L48	40.083 - 35.083	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-144.326	-10.927	-3.982
			Max. Mx	20	-84.170	3624.591	7.730
			Max. My	2	-84.169	14.156	3630.038
			Max. Vy	20	-41.963	3624.591	7.730
			Max. Vx	2	-42.000	14.156	3630.038
			Max. Torque	7			-5.458
L49	35.083 - 30.083	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-149.145	-12.474	-4.458
			Max. Mx	20	-87.498	3836.454	8.220
			Max. My	2	-87.496	14.756	3842.443
			Max. Vy	20	-42.939	3836.454	8.220
			Max. Vx	2	-42.996	14.756	3842.443
			Max. Torque	7			-6.091
L50	30.083 - 28	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-150.777	-12.541	-4.493
			Max. Mx	20	-88.622	3926.162	8.426
			Max. My	2	-88.620	15.162	3932.252
			Max. Vy	20	-43.236	3926.162	8.426
			Max. Vx	2	-43.304	15.162	3932.252
			Max. Torque	7			-6.091
L51	28 - 27.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-150.997	-12.552	-4.498
			Max. Mx	20	-88.787	3936.971	8.451
			Max. My	2	-88.786	15.211	3943.074
			Max. Vy	20	-43.261	3936.971	8.451
			Max. Vx	2	-43.330	15.211	3943.074
			Max. Torque	7			-6.091
L52	27.75 - 22.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-156.739	-12.790	-4.631

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	20	-92.906	4155.232	8.912
			Max. My	2	-92.905	16.124	4161.701
			Max. Vy	20	-44.092	4155.232	8.912
			Max. Vx	2	-44.187	16.124	4161.701
			Max. Torque	7			-6.091
L53	22.75 - 20.083	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-159.796	-12.920	-4.702
			Max. Mx	20	-95.133	4273.312	9.156
			Max. My	2	-95.131	16.609	4280.025
			Max. Vy	20	-44.526	4273.312	9.156
			Max. Vx	2	-44.631	16.609	4280.025
			Max. Torque	7			-6.091
L54	20.083 - 19.833	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-160.056	-12.935	-4.710
			Max. Mx	20	-95.331	4284.439	9.179
			Max. My	2	-95.330	16.654	4291.176
			Max. Vy	20	-44.548	4284.439	9.179
			Max. Vx	2	-44.653	16.654	4291.176
			Max. Torque	7			-6.091
L55	19.833 - 17	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-163.088	-13.116	-4.859
			Max. Mx	20	-97.480	4411.202	9.439
			Max. My	2	-97.478	17.168	4418.227
			Max. Vy	20	-45.009	4411.202	9.439
			Max. Vx	2	-45.124	17.168	4418.227
			Max. Torque	7			-6.091
L56	17 - 16.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-163.371	-13.139	-4.872
			Max. Mx	20	-97.706	4422.448	9.462
			Max. My	2	-97.704	17.214	4429.499
			Max. Vy	20	-45.024	4422.448	9.462
			Max. Vx	2	-45.140	17.214	4429.499
			Max. Torque	7			-6.091
L57	16.75 - 11.65	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-168.900	-13.512	-5.137
			Max. Mx	20	-101.937	4653.897	9.935
			Max. My	2	-101.936	18.150	4661.574
			Max. Vy	20	-45.788	4653.897	9.935
			Max. Vx	2	-45.936	18.150	4661.574
			Max. Torque	7			-6.091
L58	11.65 - 11.417	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-169.101	-13.526	-5.152
			Max. Mx	20	-102.100	4664.561	9.958
			Max. My	2	-102.099	18.195	4672.272
			Max. Vy	20	-45.786	4664.561	9.958
			Max. Vx	2	-45.955	18.195	4672.272
			Max. Torque	7			-6.091
L59	11.417 - 9.396	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-170.869	-13.630	-5.199
			Max. Mx	20	-103.453	4757.345	10.157
			Max. My	2	-103.452	18.585	4765.383
			Max. Vy	20	-46.067	4757.345	10.157
			Max. Vx	2	-46.248	18.585	4765.383
			Max. Torque	7			-6.091
L60	9.396 - 9.146	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-171.094	-13.645	-5.202
			Max. Mx	20	-103.634	4768.860	10.181
			Max. My	2	-103.633	18.633	4776.940
			Max. Vy	20	-46.086	4768.860	10.181
			Max. Vx	2	-46.268	18.633	4776.940

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	7			-6.090
L61	9.146 - 4.833	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-174.950	-13.868	-5.247
			Max. Mx	20	-106.634	4968.826	10.604
			Max. My	2	-106.633	19.464	4977.682
			Max. Vy	20	-46.673	4968.826	10.604
			Max. Vx	2	-46.877	19.464	4977.682
			Max. Torque	7			-6.090
L62	4.833 - 4.583	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-175.168	-13.881	-5.250
			Max. Mx	20	-106.813	4980.492	10.629
			Max. My	2	-106.812	19.512	4989.396
			Max. Vy	20	-46.689	4980.492	10.629
			Max. Vx	2	-46.895	19.512	4989.396
			Max. Torque	7			-6.090
L63	4.583 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-179.068	-14.127	-5.238
			Max. Mx	20	-109.954	5195.748	11.077
			Max. My	2	-109.954	20.392	5205.562
			Max. Vy	20	-47.284	5195.748	11.077
			Max. Vx	2	-47.502	20.392	5205.562
			Max. Torque	7			-6.090

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	179.068	-0.000	-0.000
	Max. H_x	20	109.965	47.257	0.114
	Max. H_z	2	109.965	0.195	47.476
	Max. M_x	2	5205.562	0.195	47.476
	Max. M_z	8	5077.280	-45.845	-0.002
	Max. Torsion	19	5.826	40.469	-23.245
	Min. Vert	17	82.474	22.526	-39.209
	Min. H_x	8	109.965	-45.845	-0.002
	Min. H_z	14	109.965	-0.022	-45.770
	Min. M_x	14	-5107.594	-0.022	-45.770
	Min. M_z	20	-5195.748	47.257	0.114
	Min. Torsion	7	-6.090	-39.064	22.630

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	91.638	0.000	0.000	2.750	-3.205	-0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	109.965	-0.195	-47.476	-5205.562	20.392	3.986
0.9 Dead+1.0 Wind 0 deg - No Ice	82.474	-0.195	-47.476	-5156.502	21.220	3.991
1.2 Dead+1.0 Wind 30 deg - No Ice	109.965	23.867	-41.503	-4570.615	-2629.148	5.723

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
0.9 Dead+1.0 Wind 30 deg - No Ice	82.474	23.867	-41.503	-4527.701	-2602.989	5.728
1.2 Dead+1.0 Wind 60 deg - No Ice	109.965	39.064	-22.630	-2570.092	-4439.056	6.087
0.9 Dead+1.0 Wind 60 deg - No Ice	82.474	39.064	-22.630	-2546.100	-4395.160	6.090
1.2 Dead+1.0 Wind 90 deg - No Ice	109.965	45.845	0.002	3.948	-5077.280	4.740
0.9 Dead+1.0 Wind 90 deg - No Ice	82.474	45.845	0.002	3.037	-5027.239	4.741
1.2 Dead+1.0 Wind 120 deg - No Ice	109.965	41.034	23.793	2610.823	-4491.678	1.841
0.9 Dead+1.0 Wind 120 deg - No Ice	82.474	41.034	23.793	2584.919	-4447.657	1.840
1.2 Dead+1.0 Wind 150 deg - No Ice	109.965	23.759	41.328	4583.756	-2632.448	-1.552
0.9 Dead+1.0 Wind 150 deg - No Ice	82.474	23.759	41.328	4538.951	-2606.240	-1.556
1.2 Dead+1.0 Wind 180 deg - No Ice	109.965	0.022	45.770	5107.594	-6.942	-4.243
0.9 Dead+1.0 Wind 180 deg - No Ice	82.474	0.022	45.770	5057.308	-5.874	-4.248
1.2 Dead+1.0 Wind 210 deg - No Ice	109.965	-22.526	39.209	4355.710	2491.444	-5.740
0.9 Dead+1.0 Wind 210 deg - No Ice	82.474	-22.526	39.209	4312.596	2468.307	-5.745
1.2 Dead+1.0 Wind 240 deg - No Ice	109.965	-40.469	23.245	2548.030	4423.222	-5.823
0.9 Dead+1.0 Wind 240 deg - No Ice	82.474	-40.469	23.245	2522.623	4381.723	-5.826
1.2 Dead+1.0 Wind 270 deg - No Ice	109.965	-47.257	-0.114	-11.078	5195.748	-4.347
0.9 Dead+1.0 Wind 270 deg - No Ice	82.474	-47.257	-0.114	-11.854	5146.938	-4.349
1.2 Dead+1.0 Wind 300 deg - No Ice	109.965	-39.454	-22.879	-2550.922	4392.183	-1.856
0.9 Dead+1.0 Wind 300 deg - No Ice	82.474	-39.454	-22.879	-2527.091	4350.700	-1.855
1.2 Dead+1.0 Wind 330 deg - No Ice	109.965	-22.784	-39.416	-4362.518	2516.822	1.154
0.9 Dead+1.0 Wind 330 deg - No Ice	82.474	-22.784	-39.416	-4321.112	2493.474	1.158
1.2 Dead+1.0 Ice+1.0 Temp	179.068	0.000	0.000	5.238	-14.127	0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	179.068	-0.063	-11.704	-1484.940	-7.960	1.630
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	179.068	5.747	-10.038	-1279.353	-749.429	2.437
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	179.068	9.905	-5.757	-734.935	-1285.445	2.592
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	179.068	11.470	-0.008	3.954	-1481.608	2.055
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	179.068	10.062	5.849	749.358	-1292.638	0.872
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	179.068	5.743	10.032	1290.484	-748.791	-0.550
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	179.068	-0.003	11.586	1488.401	-13.765	-1.735
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	179.068	-5.713	9.972	1284.389	717.290	-2.434
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	179.068	-10.043	5.766	741.785	1263.469	-2.490

Load Combination	Vertical K	Shear$_x$ K	Shear$_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	179.068	-11.527	-0.038	1.695	1457.438	-1.855
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	179.068	-9.972	-5.801	-737.007	1260.171	-0.840
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	179.068	-5.773	-10.002	-1274.960	722.327	0.391
Dead+Wind 0 deg - Service	91.638	-0.042	-10.302	-1120.727	1.937	0.869
Dead+Wind 30 deg - Service	91.638	5.179	-9.006	-983.780	-569.587	1.247
Dead+Wind 60 deg - Service	91.638	8.477	-4.911	-552.218	-959.927	1.326
Dead+Wind 90 deg - Service	91.638	9.948	0.000	2.975	-1097.578	1.032
Dead+Wind 120 deg - Service	91.638	8.904	5.163	565.279	-971.326	0.400
Dead+Wind 150 deg - Service	91.638	5.156	8.968	990.857	-570.296	-0.339
Dead+Wind 180 deg - Service	91.638	0.005	9.932	1103.774	-3.961	-0.925
Dead+Wind 210 deg - Service	91.638	-4.888	8.508	941.579	534.903	-1.251
Dead+Wind 240 deg - Service	91.638	-8.782	5.044	551.718	951.611	-1.268
Dead+Wind 270 deg - Service	91.638	-10.255	-0.025	-0.268	1118.267	-0.946
Dead+Wind 300 deg - Service	91.638	-8.561	-4.965	-548.080	944.883	-0.403
Dead+Wind 330 deg - Service	91.638	-4.944	-8.553	-938.811	540.385	0.253

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.000	-91.638	0.000	0.000	91.638	0.000	0.000%
2	-0.195	-109.965	-47.476	0.195	109.965	47.476	0.000%
3	-0.195	-82.474	-47.476	0.195	82.474	47.476	0.000%
4	23.867	-109.965	-41.503	-23.867	109.965	41.503	0.000%
5	23.867	-82.474	-41.503	-23.867	82.474	41.503	0.000%
6	39.064	-109.965	-22.630	-39.064	109.965	22.630	0.000%
7	39.064	-82.474	-22.630	-39.064	82.474	22.630	0.000%
8	45.845	-109.965	0.002	-45.845	109.965	-0.002	0.000%
9	45.845	-82.474	0.002	-45.845	82.474	-0.002	0.000%
10	41.034	-109.965	23.793	-41.034	109.965	-23.793	0.000%
11	41.034	-82.474	23.793	-41.034	82.474	-23.793	0.000%
12	23.759	-109.965	41.328	-23.759	109.965	-41.328	0.000%
13	23.759	-82.474	41.328	-23.759	82.474	-41.328	0.000%
14	0.022	-109.965	45.770	-0.022	109.965	-45.770	0.000%
15	0.022	-82.474	45.770	-0.022	82.474	-45.770	0.000%
16	-22.526	-109.965	39.209	22.526	109.965	-39.209	0.000%
17	-22.526	-82.474	39.209	22.526	82.474	-39.209	0.000%
18	-40.469	-109.965	23.245	40.469	109.965	-23.245	0.000%
19	-40.469	-82.474	23.245	40.469	82.474	-23.245	0.000%
20	-47.257	-109.965	-0.114	47.257	109.965	0.114	0.000%
21	-47.257	-82.474	-0.114	47.257	82.474	0.114	0.000%
22	-39.454	-109.965	-22.879	39.454	109.965	22.879	0.000%
23	-39.454	-82.474	-22.879	39.454	82.474	22.879	0.000%
24	-22.784	-109.965	-39.416	22.784	109.965	39.416	0.000%
25	-22.784	-82.474	-39.416	22.784	82.474	39.416	0.000%
26	0.000	-179.068	0.000	-0.000	179.068	-0.000	0.000%
27	-0.063	-179.068	-11.704	0.063	179.068	11.704	0.000%
28	5.747	-179.068	-10.038	-5.747	179.068	10.038	0.000%
29	9.905	-179.068	-5.757	-9.905	179.068	5.757	0.000%
30	11.470	-179.068	-0.008	-11.470	179.068	0.008	0.000%
31	10.062	-179.068	5.849	-10.062	179.068	-5.849	0.000%
32	5.743	-179.068	10.032	-5.743	179.068	-10.032	0.000%
33	-0.003	-179.068	11.586	0.003	179.068	-11.586	0.000%
34	-5.713	-179.068	9.972	5.713	179.068	-9.972	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
35	-10.043	-179.068	5.766	10.043	179.068	-5.766	0.000%
36	-11.527	-179.068	-0.038	11.527	179.068	0.038	0.000%
37	-9.972	-179.068	-5.801	9.972	179.068	5.801	0.000%
38	-5.773	-179.068	-10.002	5.773	179.068	10.002	0.000%
39	-0.042	-91.638	-10.302	0.042	91.638	10.302	0.000%
40	5.179	-91.638	-9.006	-5.179	91.638	9.006	0.000%
41	8.477	-91.638	-4.911	-8.477	91.638	4.911	0.000%
42	9.948	-91.638	0.000	-9.948	91.638	-0.000	0.000%
43	8.904	-91.638	5.163	-8.904	91.638	-5.163	0.000%
44	5.156	-91.638	8.968	-5.156	91.638	-8.968	0.000%
45	0.005	-91.638	9.932	-0.005	91.638	-9.932	0.000%
46	-4.888	-91.638	8.508	4.888	91.638	-8.508	0.000%
47	-8.782	-91.638	5.044	8.782	91.638	-5.044	0.000%
48	-10.255	-91.638	-0.025	10.255	91.638	0.025	0.000%
49	-8.561	-91.638	-4.965	8.561	91.638	4.965	0.000%
50	-4.944	-91.638	-8.553	4.944	91.638	8.553	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000158
2	Yes	5	0.00000001	0.00066540
3	Yes	5	0.00000001	0.00033269
4	Yes	6	0.00000001	0.00028674
5	Yes	6	0.00000001	0.00010491
6	Yes	6	0.00000001	0.00023400
7	Yes	6	0.00000001	0.00008490
8	Yes	5	0.00000001	0.00067030
9	Yes	5	0.00000001	0.00033586
10	Yes	6	0.00000001	0.00025807
11	Yes	6	0.00000001	0.00009395
12	Yes	6	0.00000001	0.00027264
13	Yes	6	0.00000001	0.00009913
14	Yes	5	0.00000001	0.00075745
15	Yes	5	0.00000001	0.00038164
16	Yes	6	0.00000001	0.00022152
17	Yes	6	0.00000001	0.00008063
18	Yes	6	0.00000001	0.00026830
19	Yes	6	0.00000001	0.00009865
20	Yes	5	0.00000001	0.00058770
21	Yes	5	0.00000001	0.00029104
22	Yes	6	0.00000001	0.00024345
23	Yes	6	0.00000001	0.00008890
24	Yes	6	0.00000001	0.00023567
25	Yes	6	0.00000001	0.00008610
26	Yes	4	0.00000001	0.00087125
27	Yes	6	0.00000001	0.00069530
28	Yes	6	0.00000001	0.00076093
29	Yes	6	0.00000001	0.00075411
30	Yes	6	0.00000001	0.00070066
31	Yes	6	0.00000001	0.00076221
32	Yes	6	0.00000001	0.00076356
33	Yes	6	0.00000001	0.00070209
34	Yes	6	0.00000001	0.00074521
35	Yes	6	0.00000001	0.00074654

36	Yes	6	0.00000001	0.00068104
37	Yes	6	0.00000001	0.00073424
38	Yes	6	0.00000001	0.00073770
39	Yes	5	0.00000001	0.00004536
40	Yes	5	0.00000001	0.00009123
41	Yes	5	0.00000001	0.00007044
42	Yes	5	0.00000001	0.00004428
43	Yes	5	0.00000001	0.00007592
44	Yes	5	0.00000001	0.00008118
45	Yes	5	0.00000001	0.00004662
46	Yes	5	0.00000001	0.00006781
47	Yes	5	0.00000001	0.00008567
48	Yes	4	0.00000001	0.00099127
49	Yes	5	0.00000001	0.00006910
50	Yes	5	0.00000001	0.00006711

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	191.667 - 186.667	18.482	44	0.882	0.006
L2	186.667 - 181.567	17.558	44	0.882	0.005
L3	181.567 - 176.567	16.617	44	0.881	0.005
L4	176.567 - 171.567	15.696	44	0.878	0.005
L5	171.567 - 166.567	14.780	44	0.870	0.005
L6	166.567 - 161.567	13.875	44	0.858	0.004
L7	161.567 - 156.567	12.986	44	0.841	0.004
L8	156.567 - 151.567	12.116	44	0.818	0.004
L9	151.567 - 146.567	11.276	44	0.786	0.003
L10	146.567 - 141.567	10.474	44	0.743	0.003
L11	141.567 - 141.417	9.725	44	0.685	0.003
L12	141.417 - 136.417	9.704	44	0.683	0.003
L13	136.417 - 131.417	9.000	44	0.661	0.003
L14	131.417 - 126.417	8.320	44	0.635	0.002
L15	126.417 - 121.417	7.670	44	0.605	0.002
L16	121.417 - 121.167	7.055	44	0.569	0.002
L17	121.167 - 116.167	7.025	44	0.568	0.002
L18	116.167 - 111.167	6.444	44	0.542	0.002
L19	111.167 - 110.042	5.892	44	0.513	0.001
L20	110.042 - 109.792	5.772	44	0.506	0.001
L21	109.792 - 105.083	5.745	44	0.505	0.001
L22	105.083 - 104.833	5.259	44	0.480	0.001
L23	104.833 - 100.917	5.234	44	0.479	0.001
L24	100.917 - 100.667	4.850	44	0.459	0.001
L25	100.667 - 95.833	4.826	44	0.458	0.001
L26	95.833 - 95.583	4.375	44	0.431	0.001
L27	95.583 - 90.583	4.353	44	0.430	0.001
L28	90.583 - 89.917	3.915	44	0.406	0.001
L29	89.917 - 89.667	3.859	44	0.402	0.001
L30	89.667 - 84.667	3.838	44	0.401	0.001
L31	84.667 - 80.833	3.429	44	0.379	0.001
L32	80.833 - 80.333	3.133	44	0.360	0.001
L33	80.333 - 80.083	3.095	44	0.358	0.001
L34	80.083 - 75.083	3.076	44	0.357	0.001
L35	75.083 - 70.083	2.713	44	0.336	0.001
L36	70.083 - 69.5	2.374	44	0.312	0.001
L37	69.5 - 69.25	2.336	44	0.309	0.001
L38	69.25 - 64.25	2.320	44	0.308	0.001
L39	64.25 - 60.583	2.008	44	0.287	0.001

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L40	60.583 - 60.333	1.794	44	0.270	0.001
L41	60.333 - 55.333	1.780	44	0.269	0.001
L42	55.333 - 52.167	1.508	44	0.249	0.000
L43	52.167 - 51.917	1.347	44	0.236	0.000
L44	51.917 - 46.917	1.335	44	0.235	0.000
L45	46.917 - 41.917	1.099	44	0.216	0.000
L46	41.917 - 40.333	0.882	44	0.196	0.000
L47	40.333 - 40.083	0.818	44	0.190	0.000
L48	40.083 - 35.083	0.808	44	0.189	0.000
L49	35.083 - 30.083	0.622	44	0.167	0.000
L50	30.083 - 28	0.460	44	0.143	0.000
L51	28 - 27.75	0.400	44	0.133	0.000
L52	27.75 - 22.75	0.393	44	0.132	0.000
L53	22.75 - 20.083	0.266	44	0.110	0.000
L54	20.083 - 19.833	0.208	44	0.098	0.000
L55	19.833 - 17	0.203	44	0.097	0.000
L56	17 - 16.75	0.150	44	0.082	0.000
L57	16.75 - 11.65	0.145	44	0.081	0.000
L58	11.65 - 11.417	0.072	44	0.057	0.000
L59	11.417 - 9.396	0.069	44	0.056	0.000
L60	9.396 - 9.146	0.047	44	0.046	0.000
L61	9.146 - 4.833	0.045	44	0.045	0.000
L62	4.833 - 4.583	0.013	44	0.025	0.000
L63	4.583 - 0	0.012	44	0.024	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
191.667	Lightning Rod 5/8" x 4' on 4' Pole	44	18.482	0.882	0.006	377563
191.000	WB2623 w/ Mount Pipe	44	18.359	0.882	0.006	377563
184.000	OGB4-900D	44	17.066	0.881	0.005	284785
178.000	4' ICE SHIELDS	44	15.959	0.879	0.005	67111
160.000	(2) LNX-8513DS-A1M	44	12.711	0.835	0.004	13214
158.000	SRL-224NM-4	44	12.363	0.825	0.004	11542
151.000	7770.00 w/ Mount Pipe	44	11.182	0.782	0.003	7420
150.000	DC6-48-60-18-8F	44	11.019	0.774	0.003	6971
138.000	4' ICE SHIELDS	44	9.220	0.664	0.003	11665
132.000	SRL-235-2	44	8.398	0.639	0.002	10355
124.000	PCS 1900 TMA RX	44	7.368	0.588	0.002	8434
120.000	VHLP2-18	44	6.887	0.560	0.002	9969
116.000	(2) 6' x 2" Mount Pipe	44	6.425	0.541	0.002	10483
114.000	Miscellaneous [NA 509-3]	44	6.201	0.531	0.002	10014
98.000	4' ICE SHIELDS	44	4.574	0.443	0.001	10728
90.000	KP2F-34	44	3.866	0.403	0.001	12199
70.000	SRL-235-2	44	2.368	0.312	0.001	12626
33.000	DB909XVTE-M	44	0.552	0.157	0.000	12168

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	191.667 - 186.667	85.377	12	4.072	0.026
L2	186.667 - 181.567	81.120	12	4.070	0.025
L3	181.567 - 176.567	76.779	12	4.069	0.024
L4	176.567 - 171.567	72.531	12	4.054	0.023
L5	171.567 - 166.567	68.308	12	4.020	0.022
L6	166.567 - 161.567	64.132	12	3.964	0.020
L7	161.567 - 156.567	60.024	12	3.887	0.019
L8	156.567 - 151.567	56.011	12	3.782	0.018
L9	151.567 - 146.567	52.128	12	3.635	0.016
L10	146.567 - 141.567	48.425	12	3.435	0.014
L11	141.567 - 141.417	44.966	12	3.167	0.012
L12	141.417 - 136.417	44.866	12	3.157	0.012
L13	136.417 - 131.417	41.613	12	3.058	0.012
L14	131.417 - 126.417	38.474	12	2.939	0.011
L15	126.417 - 121.417	35.471	12	2.797	0.010
L16	121.417 - 121.167	32.627	12	2.634	0.009
L17	121.167 - 116.167	32.490	12	2.625	0.009
L18	116.167 - 111.167	29.803	12	2.507	0.008
L19	111.167 - 110.042	27.248	12	2.373	0.007
L20	110.042 - 109.792	26.693	12	2.340	0.007
L21	109.792 - 105.083	26.570	12	2.334	0.007
L22	105.083 - 104.833	24.324	12	2.220	0.006
L23	104.833 - 100.917	24.208	12	2.215	0.006
L24	100.917 - 100.667	22.430	12	2.123	0.006
L25	100.667 - 95.833	22.319	12	2.117	0.005
L26	95.833 - 95.583	20.238	12	1.994	0.005
L27	95.583 - 90.583	20.133	12	1.989	0.005
L28	90.583 - 89.917	18.109	12	1.877	0.005
L29	89.917 - 89.667	17.849	12	1.861	0.004
L30	89.667 - 84.667	17.751	12	1.856	0.004
L31	84.667 - 80.833	15.862	12	1.752	0.004
L32	80.833 - 80.333	14.489	12	1.666	0.004
L33	80.333 - 80.083	14.315	12	1.658	0.004
L34	80.083 - 75.083	14.229	12	1.653	0.004
L35	75.083 - 70.083	12.550	12	1.553	0.003
L36	70.083 - 69.5	10.980	12	1.444	0.003
L37	69.5 - 69.25	10.805	12	1.431	0.003
L38	69.25 - 64.25	10.730	12	1.426	0.003
L39	64.25 - 60.583	9.288	12	1.328	0.003
L40	60.583 - 60.333	8.297	12	1.250	0.002
L41	60.333 - 55.333	8.232	12	1.246	0.002
L42	55.333 - 52.167	6.976	12	1.153	0.002
L43	52.167 - 51.917	6.232	12	1.091	0.002
L44	51.917 - 46.917	6.175	12	1.086	0.002
L45	46.917 - 41.917	5.082	12	1.001	0.002
L46	41.917 - 40.333	4.082	12	0.909	0.002
L47	40.333 - 40.083	3.785	12	0.879	0.002
L48	40.083 - 35.083	3.739	12	0.874	0.002
L49	35.083 - 30.083	2.878	12	0.771	0.001
L50	30.083 - 28	2.128	12	0.661	0.001
L51	28 - 27.75	1.850	12	0.614	0.001
L52	27.75 - 22.75	1.818	12	0.609	0.001
L53	22.75 - 20.083	1.231	12	0.510	0.001
L54	20.083 - 19.833	0.962	12	0.455	0.001
L55	19.833 - 17	0.938	12	0.449	0.001
L56	17 - 16.75	0.692	12	0.380	0.001
L57	16.75 - 11.65	0.672	12	0.374	0.001
L58	11.65 - 11.417	0.331	12	0.265	0.000
L59	11.417 - 9.396	0.318	12	0.260	0.000
L60	9.396 - 9.146	0.218	12	0.215	0.000
L61	9.146 - 4.833	0.206	12	0.209	0.000

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L62	4.833 - 4.583	0.059	12	0.116	0.000
L63	4.583 - 0	0.053	12	0.110	0.000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
191.667	Lightning Rod 5/8" x 4' on 4' Pole	12	85.377	4.072	0.026	132111
191.000	WB2623 w/ Mount Pipe	12	84.809	4.072	0.026	132111
184.000	OGB4-900D	12	78.850	4.070	0.025	90977
178.000	4' ICE SHIELDS	12	73.747	4.060	0.023	15647
160.000	(2) LNX-8513DS-A1M	12	58.755	3.858	0.019	2906
158.000	SRL-224NM-4	12	57.150	3.816	0.018	2536
151.000	7770.00 w/ Mount Pipe	12	51.698	3.615	0.016	1622
150.000	DC6-48-60-18-8F	12	50.946	3.579	0.015	1523
138.000	4' ICE SHIELDS	12	42.631	3.069	0.012	2531
132.000	SRL-235-2	12	38.833	2.956	0.011	2251
124.000	PCS 1900 TMA RX	12	34.075	2.722	0.009	1833
120.000	VHLP2-18	12	31.852	2.589	0.008	2165
116.000	(2) 6' x 2" Mount Pipe	12	29.715	2.503	0.008	2277
114.000	Miscellaneous [NA 509-3]	12	28.678	2.455	0.007	2174
98.000	4' ICE SHIELDS	12	21.155	2.047	0.005	2326
90.000	KP2F-34	12	17.881	1.863	0.004	2644
70.000	SRL-235-2	12	10.955	1.442	0.003	2733
33.000	DB909XVTE-M	12	2.551	0.727	0.001	2630

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	191.667 - 190.667	P18x0.375	5.000	0.000	0.0	20.764	-0.650	784.878	0.001
	190.667 - 189.667					20.764	-0.808	784.878	0.001
	189.667 - 188.667					20.764	-0.966	784.878	0.001
	188.667 - 187.667					20.764	-1.124	784.878	0.001
	187.667 - 186.667					20.764	-0.640	784.878	0.001
L2	186.667 - 185.647	P24x0.375	5.100	0.000	0.0	27.833	-0.771	1052.070	0.001
	185.647 - 184.627					27.833	-0.902	1052.070	0.001
	184.627 - 183.607					27.833	-11.177	1052.070	0.011*

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	183.607 - 182.587					27.833	-11.362	1052.070	0.011
	182.587 - 181.567					27.833	-11.581	1052.070	0.011
L3	181.567 - 180.567	P24x0.375	5.000	0.000	0.0	27.833	-5.186	1052.070	0.005
	180.567 - 179.567					27.833	-5.323	1052.070	0.005
	179.567 - 178.567					27.833	-5.460	1052.070	0.005
	178.567 - 177.567					27.833	-5.631	1052.070	0.005
	177.567 - 176.567					27.833	-5.762	1052.070	0.005
L4	176.567 - 175.567	P24x0.375	5.000	0.000	0.0	27.833	-5.900	1052.070	0.006
	175.567 - 174.567					27.833	-6.037	1052.070	0.006
	174.567 - 173.567					27.833	-6.175	1052.070	0.006
	173.567 - 172.567					27.833	-6.312	1052.070	0.006
	172.567 - 171.567					27.833	-6.450	1052.070	0.006
L5	171.567 - 170.567	P24x0.375	5.000	0.000	0.0	27.833	-6.588	1052.070	0.006
	170.567 - 169.567					27.833	-6.726	1052.070	0.006
	169.567 - 168.567					27.833	-6.864	1052.070	0.007
	168.567 - 167.567					27.833	-7.002	1052.070	0.007
	167.567 - 166.567					27.833	-7.141	1052.070	0.007
L6	166.567 - 165.567	P24x0.375	5.000	0.000	0.0	27.833	-7.279	1052.070	0.007
	165.567 - 164.567					27.833	-7.418	1052.070	0.007
	164.567 - 163.567					27.833	-7.556	1052.070	0.007
	163.567 - 162.567					27.833	-7.695	1052.070	0.007
	162.567 - 161.567					27.833	-7.834	1052.070	0.007
L7	161.567 - 160.567	P24x0.375	5.000	0.000	0.0	27.833	-7.977	1052.070	0.008
	160.567 - 159.567					27.833	-11.661	1052.070	0.011
	159.567 - 158.567					27.833	-11.806	1052.070	0.011
	158.567 - 157.567					27.833	-12.148	1052.070	0.012
	157.567 - 156.567					27.833	-12.294	1052.070	0.012
L8	156.567 - 155.567	P24x0.375	5.000	0.000	0.0	27.833	-12.441	1052.070	0.012
	155.567 - 154.567					27.833	-12.589	1052.070	0.012
	154.567 - 153.567					27.833	-12.738	1052.070	0.012

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	153.567 - 152.567					27.833	-12.895	1052.070	0.012
	152.567 - 151.567					27.833	-13.045	1052.070	0.012
L9	151.567 - 150.567	P24x0.375	5.000	0.000	0.0	27.833	-17.568	1052.070	0.017
	150.567 - 149.567					27.833	-18.435	1052.070	0.018
	149.567 - 148.567					27.833	-18.602	1052.070	0.018
	148.567 - 147.567					27.833	-18.769	1052.070	0.018
	147.567 - 146.567					27.833	-18.937	1052.070	0.018
L10	146.567 - 145.567	P24x0.375	5.000	0.000	0.0	27.833	-19.109	1052.070	0.018
	145.567 - 144.567					27.833	-19.282	1052.070	0.018
	144.567 - 143.567					27.833	-19.455	1052.070	0.018
	143.567 - 142.567					27.833	-19.630	1052.070	0.019
	142.567 - 141.567					27.833	-19.806	1052.070	0.019
L11	141.567 - 141.417 (11)	P24x0.375	0.150	0.000	0.0	27.833	-19.840	1052.070	0.019
L12	141.417 - 140.417	P36x0.375	5.000	0.000	0.0	41.970	-20.058	1490.100	0.013
	140.417 - 139.417					41.970	-20.277	1490.100	0.014
	139.417 - 138.417					41.970	-20.497	1490.100	0.014
	138.417 - 137.417					41.970	-20.749	1490.100	0.014
	137.417 - 136.417					41.970	-20.970	1490.100	0.014
L13	136.417 - 135.417	P36x0.375	5.000	0.000	0.0	41.970	-21.190	1490.100	0.014
	135.417 - 134.417					41.970	-21.411	1490.100	0.014
	134.417 - 133.417					41.970	-21.633	1490.100	0.015
	133.417 - 132.417					41.970	-21.854	1490.100	0.015
	132.417 - 131.417					41.970	-22.552	1490.100	0.015
L14	131.417 - 130.417	P36x0.375	5.000	0.000	0.0	41.970	-22.783	1490.100	0.015
	130.417 - 129.417					41.970	-23.015	1490.100	0.015
	129.417 - 128.417					41.970	-23.247	1490.100	0.016
	128.417 - 127.417					41.970	-23.480	1490.100	0.016
	127.417 - 126.417					41.970	-23.712	1490.100	0.016
L15	126.417 - 125.417	P36x0.375	5.000	0.000	0.0	41.970	-24.080	1490.100	0.016
	125.417 - 124.417					41.970	-24.448	1490.100	0.016

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	124.417 - 123.417					41.970	-25.183	1490.100	0.017
	123.417 - 122.417					41.970	-25.552	1490.100	0.017
	122.417 - 121.417					41.970	-25.921	1490.100	0.017
L16	121.417 - 121.167 (16)	P36x0.375	0.250	0.000	0.0	41.970	-25.996	1490.100	0.017
L17	121.167 - 120.167	P42x0.375	5.000	0.000	0.0	49.038	-26.281	1668.870	0.016
	120.167 - 119.167					49.038	-26.601	1668.870	0.016
	119.167 - 118.167					49.038	-26.888	1668.870	0.016
	118.167 - 117.167					49.038	-27.176	1668.870	0.016
	117.167 - 116.167					49.038	-27.464	1668.870	0.016
L18	116.167 - 115.167	P42x0.375	5.000	0.000	0.0	49.038	-31.358	1668.870	0.019
	115.167 - 114.167					49.038	-31.633	1668.870	0.019
	114.167 - 113.167					49.038	-32.218	1668.870	0.019
	113.167 - 112.167					49.038	-32.494	1668.870	0.019
	112.167 - 111.167					49.038	-32.770	1668.870	0.020
L19	111.167 - 110.042 (19)	P42x0.375	1.125	0.000	0.0	49.038	-33.081	1668.870	0.020
L20	110.042 - 109.792 (20)	P42x0.4875	0.250	0.000	0.0	63.577	-33.170	2332.130	0.014
L21	109.792 - 108.615	P42x0.4875	4.709	0.000	0.0	63.577	-33.550	2332.130	0.014
	108.615 - 107.438					63.577	-33.963	2332.130	0.015
	107.438 - 106.26					63.577	-34.377	2332.130	0.015
	106.26 - 105.083					63.577	-34.791	2332.130	0.015
L22	105.083 - 104.833 (22)	P42x0.5625	0.250	0.000	0.0	73.226	-34.902	2767.950	0.013
L23	104.833 - 103.528	P42x0.5625	3.916	0.000	0.0	73.226	-35.706	2767.950	0.013
	103.528 - 102.222					73.226	-36.516	2767.950	0.013
	102.222 - 100.917					73.226	-37.327	2767.950	0.013
L24	100.917 - 100.667 (24)	P48x0.375	0.250	0.000	0.0	56.107	-37.437	1847.490	0.020
L25	100.667 - 99.4585	P48x0.375	4.834	0.000	0.0	56.107	-37.864	1847.490	0.020
	99.4585 - 98.25					56.107	-38.299	1847.490	0.021
	98.25 - 97.0415					56.107	-38.837	1847.490	0.021
	97.0415 - 95.833					56.107	-39.273	1847.490	0.021
L26	95.833 - 95.583 (26)	P48x0.475	0.250	0.000	0.0	70.920	-39.370	2481.390	0.016

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L27	95.583 - 94.583	P48x0.475	5.000	0.000	0.0	70.920	-39.722	2481.390	0.016
	94.583 - 93.583					70.920	-40.078	2481.390	0.016
	93.583 - 92.583					70.920	-40.435	2481.390	0.016
	92.583 - 91.583					70.920	-40.793	2481.390	0.016
	91.583 - 90.583					70.920	-41.151	2481.390	0.017
L28	90.583 - 89.917 (28)	P48x0.475	0.666	0.000	0.0	70.920	-41.887	2481.390	0.017
L29	89.917 - 89.667 (29)	P48x0.575	0.250	0.000	0.0	85.669	-42.001	3174.020	0.013
L30	89.667 - 88.667	P48x0.575	5.000	0.000	0.0	85.669	-42.564	3174.020	0.013
	88.667 - 87.667					85.669	-43.132	3174.020	0.014
	87.667 - 86.667					85.669	-43.700	3174.020	0.014
	86.667 - 85.667					85.669	-44.268	3174.020	0.014
	85.667 - 84.667					85.669	-44.836	3174.020	0.014
L31	84.667 - 83.389	P48x0.575	3.834	0.000	0.0	85.669	-45.894	3174.020	0.014
	83.389 - 82.111					85.669	-46.955	3174.020	0.015
	82.111 - 80.833					85.669	-48.016	3174.020	0.015
L32	80.833 - 80.333 (32)	P54x0.55	0.500	0.000	0.0	92.355	-48.398	3257.830	0.015
L33	80.333 - 80.083 (33)	P54x0.4875	0.250	0.000	0.0	81.956	-48.539	2797.170	0.017
L34	80.083 - 79.083	P54x0.4875	5.000	0.000	0.0	81.956	-49.031	2797.170	0.018
	79.083 - 78.083					81.956	-49.527	2797.170	0.018
	78.083 - 77.083					81.956	-50.023	2797.170	0.018
	77.083 - 76.083					81.956	-50.519	2797.170	0.018
	76.083 - 75.083					81.956	-51.016	2797.170	0.018
L35	75.083 - 74.083	P54x0.4875	5.000	0.000	0.0	81.956	-51.596	2797.170	0.018
	74.083 - 73.083					81.956	-52.176	2797.170	0.019
	73.083 - 72.083					81.956	-52.757	2797.170	0.019
	72.083 - 71.083					81.956	-53.338	2797.170	0.019
	71.083 - 70.083					81.956	-53.919	2797.170	0.019
L36	70.083 - 69.5 (36)	P54x0.4875	0.583	0.000	0.0	81.956	-54.599	2797.170	0.020
L37	69.5 - 69.25 (37)	P54x0.5875	0.250	0.000	0.0	98.583	-54.787	3545.230	0.015
L38	69.25 - 68.25	P54x0.5875	5.000	0.000	0.0	98.583	-56.056	3545.230	0.016
	68.25 - 67.25					98.583	-57.330	3545.230	0.016

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	67.25 - 66.25					98.583	-58.604	3545.230	0.017
	66.25 - 65.25					98.583	-59.879	3545.230	0.017
	65.25 - 64.25					98.583	-61.154	3545.230	0.017
L39	64.25 - 63.0277	P54x0.5875	3.667	0.000	0.0	98.583	-62.879	3545.230	0.018
	63.0277 - 61.8053					98.583	-64.606	3545.230	0.018
	61.8053 - 60.583					98.583	-66.334	3545.230	0.019
L40	60.583 - 60.333 (40)	P60x0.5125	0.250	0.000	0.0	95.779	-66.540	3222.890	0.021
L41	60.333 - 59.333	P60x0.5125	5.000	0.000	0.0	95.779	-67.292	3222.890	0.021
	59.333 - 58.333					95.779	-68.050	3222.890	0.021
	58.333 - 57.333					95.779	-68.807	3222.890	0.021
	57.333 - 56.333					95.779	-69.565	3222.890	0.022
	56.333 - 55.333					95.779	-70.324	3222.890	0.022
L42	55.333 - 54.2777	P60x0.5125	3.166	0.000	0.0	95.779	-70.821	3222.890	0.022
	54.2777 - 53.2223					95.779	-71.319	3222.890	0.022
	53.2223 - 52.167					95.779	-71.817	3222.890	0.022
L43	52.167 - 51.917 (43)	P60x0.625	0.250	0.000	0.0	116.583	-71.963	4139.150	0.017
L44	51.917 - 50.917	P60x0.625	5.000	0.000	0.0	116.583	-72.579	4139.150	0.018
	50.917 - 49.917					116.583	-73.200	4139.150	0.018
	49.917 - 48.917					116.583	-73.821	4139.150	0.018
	48.917 - 47.917					116.583	-74.442	4139.150	0.018
	47.917 - 46.917					116.583	-75.064	4139.150	0.018
L45	46.917 - 45.917	P60x0.625	5.000	0.000	0.0	116.583	-75.858	4139.150	0.018
	45.917 - 44.917					116.583	-76.652	4139.150	0.019
	44.917 - 43.917					116.583	-77.447	4139.150	0.019
	43.917 - 42.917					116.583	-78.242	4139.150	0.019
	42.917 - 41.917					116.583	-79.037	4139.150	0.019
L46	41.917 - 40.333 (46)	P60x0.625	1.584	0.000	0.0	116.583	-80.285	4139.150	0.019
L47	40.333 - 40.083 (47)	P60x0.6	0.250	0.000	0.0	111.966	-80.478	3929.110	0.020
L48	40.083 - 39.083	P60x0.6	5.000	0.000	0.0	111.966	-81.207	3929.110	0.021
	39.083 - 38.083					111.966	-81.943	3929.110	0.021
	38.083 - 37.083					111.966	-82.679	3929.110	0.021
	37.083 -					111.966	-83.415	3929.110	0.021

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	36.083								
	36.083 - 35.083					111.966	-84.151	3929.110	0.021
L49	35.083 - 34.083	P60x0.6	5.000	0.000	0.0	111.966	-84.779	3929.110	0.022
	34.083 - 33.083					111.966	-85.407	3929.110	0.022
	33.083 - 32.083					111.966	-86.223	3929.110	0.022
	32.083 - 31.083					111.966	-86.852	3929.110	0.022
	31.083 - 30.083					111.966	-87.481	3929.110	0.022
L50	30.083 - 29.0415	P60x0.6	2.083	0.000	0.0	111.966	-88.043	3929.110	0.022
	29.0415 - 28					111.966	-88.606	3929.110	0.023
L51	28 - 27.75 (51)	P60x0.725	0.250	0.000	0.0	135.008	-88.772	5015.910	0.018
L52	27.75 - 26.75	P60x0.725	5.000	0.000	0.0	135.008	-89.592	5015.910	0.018
	26.75 - 25.75					135.008	-90.417	5015.910	0.018
	25.75 - 24.75					135.008	-91.242	5015.910	0.018
	24.75 - 23.75					135.008	-92.067	5015.910	0.018
	23.75 - 22.75					135.008	-92.893	5015.910	0.019
L53	22.75 - 21.4165	P60x0.725	2.667	0.000	0.0	135.008	-94.005	5015.910	0.019
	21.4165 - 20.083					135.008	-95.121	5015.910	0.019
L54	20.083 - 19.833 (54)	P60x0.625	0.250	0.000	0.0	116.583	-95.320	4139.150	0.023
L55	19.833 - 18.4165	P60x0.625	2.833	0.000	0.0	116.583	-96.389	4139.150	0.023
	18.4165 - 17					116.583	-97.470	4139.150	0.024
L56	17 - 16.75 (56)	P60x0.725	0.250	0.000	0.0	135.008	-97.696	5015.910	0.019
L57	16.75 - 15.73	P60x0.75	5.100	0.000	0.0	139.605	-98.537	5244.230	0.019
	15.73 - 14.71					139.605	-99.385	5244.230	0.019
	14.71 - 13.69					139.605	-100.233	5244.230	0.019
	13.69 - 12.67					139.605	-101.081	5244.230	0.019
	12.67 - 11.65					139.605	-101.930	5244.230	0.019
L58	11.65 - 11.417 (58)	P60x0.75	0.233	0.000	0.0	139.605	-102.094	5244.230	0.019
L59	11.417 - 10.4065	P60x0.75	2.021	0.000	0.0	139.605	-102.768	5244.230	0.020
	10.4065 - 9.396					139.605	-103.448	5244.230	0.020
L60	9.396 - 9.146 (60)	P60x0.8	0.250	0.000	0.0	148.786	-103.630	5624.100	0.018
L61	9.146 - 8.06775	P60x0.8	4.313	0.000	0.0	148.786	-104.374	5624.100	0.019
	8.06775 - 6.9895					148.786	-105.126	5624.100	0.019
	6.9895 - 5.91125					148.786	-105.878	5624.100	0.019
	5.91125 - 4.833					148.786	-106.631	5624.100	0.019
L62	4.833 - 4.583 (62)	P60x0.75	0.250	0.000	0.0	139.605	-106.810	5244.230	0.020
L63	4.583 - 3.43725	P60x0.75	4.583	0.000	0.0	139.605	-107.589	5244.230	0.021
	3.43725 - 2.2915					139.605	-108.377	5244.230	0.021
	2.2915 -					139.605	-109.165	5244.230	0.021

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
	1.14575 1.14575 - 0					139.605	-109.954	5244.230	0.021

* DL controls

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	191.667 - 190.667	P18x0.375	1.185	367.000	0.003	0.000	367.000	0.000
	190.667 - 189.667		1.312	367.000	0.004	0.000	367.000	0.000
	189.667 - 188.667		1.460	367.000	0.004	0.000	367.000	0.000
	188.667 - 187.667		1.628	367.000	0.004	0.000	367.000	0.000
	187.667 - 186.667		2.211	367.000	0.006	0.000	367.000	0.000
L2	186.667 - 185.647	P24x0.375	2.737	623.717	0.004	0.000	623.717	0.000
	185.647 - 184.627		3.331	623.717	0.005	0.000	623.717	0.000
	184.627 - 183.607		2.552	623.717	0.004	0.000	623.717	0.000
	183.607 - 182.587		3.988	623.717	0.006	0.000	623.717	0.000
	182.587 - 181.567		5.611	623.717	0.009	0.000	623.717	0.000
L3	181.567 - 180.567	P24x0.375	12.327	623.717	0.020	0.000	623.717	0.000
	180.567 - 179.567		17.436	623.717	0.028	0.000	623.717	0.000
	179.567 - 178.567		22.609	623.717	0.036	0.000	623.717	0.000
	178.567 - 177.567		27.835	623.717	0.045	0.000	623.717	0.000
	177.567 - 176.567		33.162	623.717	0.053	0.000	623.717	0.000
L4	176.567 - 175.567	P24x0.375	38.592	623.717	0.062	0.000	623.717	0.000
	175.567 - 174.567		44.086	623.717	0.071	0.000	623.717	0.000
	174.567 - 173.567		49.644	623.717	0.080	0.000	623.717	0.000
	173.567 - 172.567		55.266	623.717	0.089	0.000	623.717	0.000
	172.567 - 171.567		60.952	623.717	0.098	0.000	623.717	0.000
L5	171.567 - 170.567	P24x0.375	66.701	623.717	0.107	0.000	623.717	0.000
	170.567 - 169.567		72.513	623.717	0.116	0.000	623.717	0.000
	169.567 - 168.567		78.389	623.717	0.126	0.000	623.717	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
	168.567 - 167.567		84.327	623.717	0.135	0.000	623.717	0.000
	167.567 - 166.567		90.328	623.717	0.145	0.000	623.717	0.000
L6	166.567 - 165.567	P24x0.375	96.391	623.717	0.155	0.000	623.717	0.000
	165.567 - 164.567		102.515	623.717	0.164	0.000	623.717	0.000
	164.567 - 163.567		108.702	623.717	0.174	0.000	623.717	0.000
	163.567 - 162.567		114.949	623.717	0.184	0.000	623.717	0.000
	162.567 - 161.567		121.258	623.717	0.194	0.000	623.717	0.000
L7	161.567 - 160.567	P24x0.375	127.628	623.717	0.205	0.000	623.717	0.000
	160.567 - 159.567		135.827	623.717	0.218	0.000	623.717	0.000
	159.567 - 158.567		147.135	623.717	0.236	0.000	623.717	0.000
	158.567 - 157.567		159.237	623.717	0.255	0.000	623.717	0.000
	157.567 - 156.567		171.028	623.717	0.274	0.000	623.717	0.000
L8	156.567 - 155.567	P24x0.375	182.876	623.717	0.293	0.000	623.717	0.000
	155.567 - 154.567		194.780	623.717	0.312	0.000	623.717	0.000
	154.567 - 153.567		206.741	623.717	0.331	0.000	623.717	0.000
	153.567 - 152.567		218.694	623.717	0.351	0.000	623.717	0.000
	152.567 - 151.567		230.789	623.717	0.370	0.000	623.717	0.000
L9	151.567 - 150.567	P24x0.375	245.119	623.717	0.393	0.000	623.717	0.000
	150.567 - 149.567		263.762	623.717	0.423	0.000	623.717	0.000
	149.567 - 148.567		282.333	623.717	0.453	0.000	623.717	0.000
	148.567 - 147.567		300.953	623.717	0.483	0.000	623.717	0.000
	147.567 - 146.567		319.620	623.717	0.512	0.000	623.717	0.000
L10	146.567 - 145.567	P24x0.375	338.333	623.717	0.542	0.000	623.717	0.000
	145.567 - 144.567		357.091	623.717	0.573	0.000	623.717	0.000
	144.567 - 143.567		375.892	623.717	0.603	0.000	623.717	0.000
	143.567 - 142.567		394.735	623.717	0.633	0.000	623.717	0.000
	142.567 - 141.567		413.619	623.717	0.663	0.000	623.717	0.000
L11	141.567 - 141.417 (11)	P24x0.375	416.456	623.717	0.668	0.000	623.717	0.000
L12	141.417 - 140.417	P36x0.375	435.411	1338.808	0.325	0.000	1338.808	0.000
	140.417 - 139.417		454.447	1338.808	0.339	0.000	1338.808	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
	139.417 - 138.417		473.567	1338.808	0.354	0.000	1338.808	0.000
	138.417 - 137.417		492.732	1338.808	0.368	0.000	1338.808	0.000
	137.417 - 136.417		512.075	1338.808	0.382	0.000	1338.808	0.000
L13	136.417 - 135.417	P36x0.375	531.498	1338.808	0.397	0.000	1338.808	0.000
	135.417 - 134.417		551.002	1338.808	0.412	0.000	1338.808	0.000
	134.417 - 133.417		570.582	1338.808	0.426	0.000	1338.808	0.000
	133.417 - 132.417		590.242	1338.808	0.441	0.000	1338.808	0.000
	132.417 - 131.417		610.846	1338.808	0.456	0.000	1338.808	0.000
L14	131.417 - 130.417	P36x0.375	631.210	1338.808	0.471	0.000	1338.808	0.000
	130.417 - 129.417		651.650	1338.808	0.487	0.000	1338.808	0.000
	129.417 - 128.417		672.166	1338.808	0.502	0.000	1338.808	0.000
	128.417 - 127.417		692.756	1338.808	0.517	0.000	1338.808	0.000
	127.417 - 126.417		713.421	1338.808	0.533	0.000	1338.808	0.000
L15	126.417 - 125.417	P36x0.375	734.207	1338.808	0.548	0.000	1338.808	0.000
	125.417 - 124.417		755.148	1338.808	0.564	0.000	1338.808	0.000
	124.417 - 123.417		776.243	1338.808	0.580	0.000	1338.808	0.000
	123.417 - 122.417		797.671	1338.808	0.596	0.000	1338.808	0.000
	122.417 - 121.417		819.252	1338.808	0.612	0.000	1338.808	0.000
L16	121.417 - 121.167 (16)	P36x0.375	824.670	1338.808	0.616	0.000	1338.808	0.000
L17	121.167 - 120.167	P42x0.375	846.408	1796.558	0.471	0.000	1796.558	0.000
	120.167 - 119.167		868.417	1796.558	0.483	0.000	1796.558	0.000
	119.167 - 118.167		890.425	1796.558	0.496	0.000	1796.558	0.000
	118.167 - 117.167		912.525	1796.558	0.508	0.000	1796.558	0.000
	117.167 - 116.167		934.700	1796.558	0.520	0.000	1796.558	0.000
L18	116.167 - 115.167	P42x0.375	963.542	1796.558	0.536	0.000	1796.558	0.000
	115.167 - 114.167		989.133	1796.558	0.551	0.000	1796.558	0.000
	114.167 - 113.167		1015.217	1796.558	0.565	0.000	1796.558	0.000
	113.167 - 112.167		1041.458	1796.558	0.580	0.000	1796.558	0.000
	112.167 - 111.167		1067.792	1796.558	0.594	0.000	1796.558	0.000
L19	111.167 - 110.042 (19)	P42x0.375	1097.500	1796.558	0.611	0.000	1796.558	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L20	110.042 - 109.792 (20)	P42x0.4875	1104.117	2395.433	0.461	0.000	2395.433	0.000
L21	109.792 - 108.615	P42x0.4875	1135.642	2395.433	0.474	0.000	2395.433	0.000
	108.615 - 107.438		1167.350	2395.433	0.487	0.000	2395.433	0.000
	107.438 - 106.26		1199.308	2395.433	0.501	0.000	2395.433	0.000
	106.26 - 105.083		1231.517	2395.433	0.514	0.000	2395.433	0.000
L22	105.083 - 104.833 (22)	P42x0.5625	1238.392	2809.308	0.441	0.000	2809.308	0.000
L23	104.833 - 103.528	P42x0.5625	1274.483	2809.308	0.454	0.000	2809.308	0.000
	103.528 - 102.222		1310.917	2809.308	0.467	0.000	2809.308	0.000
	102.222 - 100.917		1347.692	2809.308	0.480	0.000	2809.308	0.000
L24	100.917 - 100.667 (24)	P48x0.375	1354.775	2321.108	0.584	0.000	2321.108	0.000
L25	100.667 - 99.4585	P48x0.375	1389.167	2321.108	0.598	0.000	2321.108	0.000
	99.4585 - 98.25		1423.825	2321.108	0.613	0.000	2321.108	0.000
	98.25 - 97.0415		1458.858	2321.108	0.629	0.000	2321.108	0.000
	97.0415 - 95.833		1494.192	2321.108	0.644	0.000	2321.108	0.000
L26	95.833 - 95.583 (26)	P48x0.475	1501.525	2999.958	0.501	0.000	2999.958	0.000
L27	95.583 - 94.583	P48x0.475	1530.983	2999.958	0.510	0.000	2999.958	0.000
	94.583 - 93.583		1560.617	2999.958	0.520	0.000	2999.958	0.000
	93.583 - 92.583		1590.433	2999.958	0.530	0.000	2999.958	0.000
	92.583 - 91.583		1620.433	2999.958	0.540	0.000	2999.958	0.000
	91.583 - 90.583		1650.617	2999.958	0.550	0.000	2999.958	0.000
L28	90.583 - 89.917 (28)	P48x0.475	1672.008	2999.958	0.557	0.000	2999.958	0.000
L29	89.917 - 89.667 (29)	P48x0.575	1679.708	3702.967	0.454	0.000	3702.967	0.000
L30	89.667 - 88.667	P48x0.575	1710.633	3702.967	0.462	0.000	3702.967	0.000
	88.667 - 87.667		1741.758	3702.967	0.470	0.000	3702.967	0.000
	87.667 - 86.667		1773.083	3702.967	0.479	0.000	3702.967	0.000
	86.667 - 85.667		1804.608	3702.967	0.487	0.000	3702.967	0.000
	85.667 - 84.667		1836.333	3702.967	0.496	0.000	3702.967	0.000
L31	84.667 - 83.389	P48x0.575	1877.142	3702.967	0.507	0.000	3702.967	0.000
	83.389 - 82.111		1918.283	3702.967	0.518	0.000	3702.967	0.000
	82.111 - 80.833		1959.758	3702.967	0.529	0.000	3702.967	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L32	80.833 - 80.333 (32)	P54x0.55	1976.075	4408.408	0.448	0.000	4408.408	0.000
L33	80.333 - 80.083 (33)	P54x0.4875	1984.267	3864.467	0.513	0.000	3864.467	0.000
L34	80.083 - 79.083	P54x0.4875	2017.142	3864.467	0.522	0.000	3864.467	0.000
	79.083 - 78.083		2050.225	3864.467	0.531	0.000	3864.467	0.000
	78.083 - 77.083		2083.508	3864.467	0.539	0.000	3864.467	0.000
	77.083 - 76.083		2116.992	3864.467	0.548	0.000	3864.467	0.000
	76.083 - 75.083		2150.683	3864.467	0.557	0.000	3864.467	0.000
L35	75.083 - 74.083	P54x0.4875	2184.600	3864.467	0.565	0.000	3864.467	0.000
	74.083 - 73.083		2218.733	3864.467	0.574	0.000	3864.467	0.000
	73.083 - 72.083		2253.067	3864.467	0.583	0.000	3864.467	0.000
	72.083 - 71.083		2287.617	3864.467	0.592	0.000	3864.467	0.000
	71.083 - 70.083		2322.375	3864.467	0.601	0.000	3864.467	0.000
L36	70.083 - 69.5 (36)	P54x0.4875	2342.917	3864.467	0.606	0.000	3864.467	0.000
L37	69.5 - 69.25 (37)	P54x0.5875	2351.800	4739.867	0.496	0.000	4739.867	0.000
L38	69.25 - 68.25	P54x0.5875	2387.492	4739.867	0.504	0.000	4739.867	0.000
	68.25 - 67.25		2423.433	4739.867	0.511	0.000	4739.867	0.000
	67.25 - 66.25		2459.608	4739.867	0.519	0.000	4739.867	0.000
	66.25 - 65.25		2496.025	4739.867	0.527	0.000	4739.867	0.000
	65.25 - 64.25		2532.675	4739.867	0.534	0.000	4739.867	0.000
L39	64.25 - 63.0277	P54x0.5875	2577.792	4739.867	0.544	0.000	4739.867	0.000
	63.0277 - 61.8053		2623.258	4739.867	0.553	0.000	4739.867	0.000
	61.8053 - 60.583		2669.075	4739.867	0.563	0.000	4739.867	0.000
L40	60.583 - 60.333 (40)	P60x0.5125	2678.483	4992.042	0.537	0.000	4992.042	0.000
L41	60.333 - 59.333	P60x0.5125	2716.233	4992.042	0.544	0.000	4992.042	0.000
	59.333 - 58.333		2754.217	4992.042	0.552	0.000	4992.042	0.000
	58.333 - 57.333		2792.425	4992.042	0.559	0.000	4992.042	0.000
	57.333 - 56.333		2830.858	4992.042	0.567	0.000	4992.042	0.000
	56.333 - 55.333		2869.517	4992.042	0.575	0.000	4992.042	0.000
L42	55.333 - 54.2777	P60x0.5125	2910.508	4992.042	0.583	0.000	4992.042	0.000
	54.2777 - 53.2223		2951.708	4992.042	0.591	0.000	4992.042	0.000
	53.2223 - 52.167		2993.117	4992.042	0.600	0.000	4992.042	0.000
L43	52.167 - 51.917 (43)	P60x0.625	3002.950	6198.183	0.484	0.000	6198.183	0.000
L44	51.917 -	P60x0.625	3042.417	6198.183	0.491	0.000	6198.183	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
	50.917							
	50.917 - 49.917		3082.067	6198.183	0.497	0.000	6198.183	0.000
	49.917 - 48.917		3121.917	6198.183	0.504	0.000	6198.183	0.000
	48.917 - 47.917		3161.950	6198.183	0.510	0.000	6198.183	0.000
	47.917 - 46.917		3202.183	6198.183	0.517	0.000	6198.183	0.000
L45	46.917 - 45.917	P60x0.625	3242.550	6198.183	0.523	0.000	6198.183	0.000
	45.917 - 44.917		3283.125	6198.183	0.530	0.000	6198.183	0.000
	44.917 - 43.917		3323.900	6198.183	0.536	0.000	6198.183	0.000
	43.917 - 42.917		3364.892	6198.183	0.543	0.000	6198.183	0.000
	42.917 - 41.917		3406.092	6198.183	0.550	0.000	6198.183	0.000
L46	41.917 - 40.333 (46)	P60x0.625	3471.758	6198.183	0.560	0.000	6198.183	0.000
L47	40.333 - 40.083 (47)	P60x0.6	3482.158	5926.841	0.588	0.000	5926.841	0.000
L48	40.083 - 39.083	P60x0.6	3523.900	5926.841	0.595	0.000	5926.841	0.000
	39.083 - 38.083		3565.817	5926.841	0.602	0.000	5926.841	0.000
	38.083 - 37.083		3607.908	5926.841	0.609	0.000	5926.841	0.000
	37.083 - 36.083		3650.183	5926.841	0.616	0.000	5926.841	0.000
	36.083 - 35.083		3692.642	5926.841	0.623	0.000	5926.841	0.000
L49	35.083 - 34.083	P60x0.6	3735.300	5926.841	0.630	0.000	5926.841	0.000
	34.083 - 33.083		3778.117	5926.841	0.637	0.000	5926.841	0.000
	33.083 - 32.083		3821.692	5926.841	0.645	0.000	5926.841	0.000
	32.083 - 31.083		3865.025	5926.841	0.652	0.000	5926.841	0.000
	31.083 - 30.083		3908.517	5926.841	0.659	0.000	5926.841	0.000
L50	30.083 - 29.0415	P60x0.6	3954.000	5926.841	0.667	0.000	5926.841	0.000
	29.0415 - 28		3999.633	5926.841	0.675	0.000	5926.841	0.000
L51	28 - 27.75 (51)	P60x0.725	4010.617	7302.233	0.549	0.000	7302.233	0.000
L52	27.75 - 26.75	P60x0.725	4054.633	7302.233	0.555	0.000	7302.233	0.000
	26.75 - 25.75		4098.825	7302.233	0.561	0.000	7302.233	0.000
	25.75 - 24.75		4143.175	7302.233	0.567	0.000	7302.233	0.000
	24.75 - 23.75		4187.692	7302.233	0.573	0.000	7302.233	0.000
	23.75 - 22.75		4232.375	7302.233	0.580	0.000	7302.233	0.000
L53	22.75 - 21.4165	P60x0.725	4292.208	7302.233	0.588	0.000	7302.233	0.000
	21.4165 - 20.083		4352.317	7302.233	0.596	0.000	7302.233	0.000
L54	20.083 - 19.833 (54)	P60x0.625	4363.625	6198.183	0.704	0.000	6198.183	0.000
L55	19.833 - 18.4165	P60x0.625	4427.833	6198.183	0.714	0.000	6198.183	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
	18.4165 - 17		4492.350	6198.183	0.725	0.000	6198.183	0.000
L56	17 - 16.75 (56)	P60x0.725	4503.767	7302.233	0.617	0.000	7302.233	0.000
L57	16.75 - 15.73	P60x0.75	4550.442	7582.875	0.600	0.000	7582.875	0.000
	15.73 - 14.71		4597.258	7582.875	0.606	0.000	7582.875	0.000
	14.71 - 13.69		4644.233	7582.875	0.612	0.000	7582.875	0.000
	13.69 - 12.67		4691.342	7582.875	0.619	0.000	7582.875	0.000
	12.67 - 11.65		4738.608	7582.875	0.625	0.000	7582.875	0.000
L58	11.65 - 11.417 (58)	P60x0.75	4749.417	7582.875	0.626	0.000	7582.875	0.000
L59	11.417 - 10.4065	P60x0.75	4796.333	7582.875	0.633	0.000	7582.875	0.000
	10.4065 - 9.396		4843.300	7582.875	0.639	0.000	7582.875	0.000
L60	9.396 - 9.146 (60)	P60x0.8	4854.933	8149.650	0.596	0.000	8149.650	0.000
L61	9.146 - 8.06775	P60x0.8	4905.183	8149.650	0.602	0.000	8149.650	0.000
	8.06775 - 6.9895		4955.583	8149.650	0.608	0.000	8149.650	0.000
	6.9895 - 5.91125		5006.133	8149.650	0.614	0.000	8149.650	0.000
	5.91125 - 4.833		5056.842	8149.650	0.620	0.000	8149.650	0.000
L62	4.833 - 4.583 (62)	P60x0.75	5068.617	7582.875	0.668	0.000	7582.875	0.000
L63	4.583 - 3.43725	P60x0.75	5122.692	7582.875	0.676	0.000	7582.875	0.000
	3.43725 - 2.2915		5176.933	7582.875	0.683	0.000	7582.875	0.000
	2.2915 - 1.14575		5231.325	7582.875	0.690	0.000	7582.875	0.000
	1.14575 - 0		5285.883	7582.875	0.697	0.000	7582.875	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	191.667 - 190.667	P18x0.375	0.108	235.463	0.000	0.000	364.865	0.000
	190.667 - 189.667		0.128	235.463	0.001	0.000	364.865	0.000
	189.667 - 188.667		0.148	235.463	0.001	0.000	364.865	0.000
	188.667 - 187.667		0.169	235.463	0.001	0.000	364.865	0.000
	187.667 - 186.667		0.479	235.463	0.002	0.000	364.865	0.000
L2	186.667 - 185.647	P24x0.375	0.545	315.621	0.002	0.000	655.568	0.000
	185.647 - 184.627		0.612	315.621	0.002	0.000	655.568	0.000
	184.627 - 183.607		0.007	315.621	0.000	0.000	655.568	0.000
	183.607 - 182.587		1.574	315.621	0.005	0.000	655.568	0.000

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
	182.587 - 181.567		1.600	315.621	0.005	0.000	655.568	0.000
L3	181.567 - 180.567	P24x0.375	5.074	315.621	0.016	0.001	655.568	0.000
	180.567 - 179.567		5.139	315.621	0.016	0.001	655.568	0.000
	179.567 - 178.567		5.204	315.621	0.016	0.001	655.568	0.000
	178.567 - 177.567		5.303	315.621	0.017	0.028	655.568	0.000
	177.567 - 176.567		5.392	315.621	0.017	0.714	655.568	0.001
L4	176.567 - 175.567	P24x0.375	5.456	315.621	0.017	0.714	655.568	0.001
	175.567 - 174.567		5.520	315.621	0.017	0.714	655.568	0.001
	174.567 - 173.567		5.584	315.621	0.018	0.714	655.568	0.001
	173.567 - 172.567		5.648	315.621	0.018	0.714	655.568	0.001
	172.567 - 171.567		5.712	315.621	0.018	0.714	655.568	0.001
L5	171.567 - 170.567	P24x0.375	5.775	315.621	0.018	0.714	655.568	0.001
	170.567 - 169.567		5.838	315.621	0.018	0.714	655.568	0.001
	169.567 - 168.567		5.901	315.621	0.019	0.714	655.568	0.001
	168.567 - 167.567		5.964	315.621	0.019	0.714	655.568	0.001
	167.567 - 166.567		6.026	315.621	0.019	0.714	655.568	0.001
L6	166.567 - 165.567	P24x0.375	6.088	315.621	0.019	0.714	655.568	0.001
	165.567 - 164.567		6.150	315.621	0.019	0.714	655.568	0.001
	164.567 - 163.567		6.212	315.621	0.020	0.714	655.568	0.001
	163.567 - 162.567		6.273	315.621	0.020	0.714	655.568	0.001
	162.567 - 161.567		6.334	315.621	0.020	0.714	655.568	0.001
L7	161.567 - 160.567	P24x0.375	6.395	315.621	0.020	0.714	655.568	0.001
	160.567 - 159.567		11.274	315.621	0.036	0.940	655.568	0.001
	159.567 - 158.567		11.333	315.621	0.036	0.940	655.568	0.001
	158.567 - 157.567		11.758	315.621	0.037	0.940	655.568	0.001
	157.567 - 156.567		11.816	315.621	0.037	0.733	655.568	0.001
L8	156.567 - 155.567	P24x0.375	11.873	315.621	0.038	0.733	655.568	0.001
	155.567 - 154.567		11.930	315.621	0.038	0.733	655.568	0.001
	154.567 - 153.567		11.986	315.621	0.038	0.733	655.568	0.001
	153.567 - 152.567		12.064	315.621	0.038	1.585	655.568	0.002

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
	152.567 - 151.567		12.119	315.621	0.038	1.585	655.568	0.002
L9	151.567 - 150.567	P24x0.375	17.666	315.621	0.056	1.585	655.568	0.002
	150.567 - 149.567		18.546	315.621	0.059	1.585	655.568	0.002
	149.567 - 148.567		18.595	315.621	0.059	1.513	655.568	0.002
	148.567 - 147.567		18.644	315.621	0.059	1.513	655.568	0.002
	147.567 - 146.567		18.691	315.621	0.059	1.513	655.568	0.002
L10	146.567 - 145.567	P24x0.375	18.737	315.621	0.059	1.513	655.568	0.002
	145.567 - 144.567		18.782	315.621	0.060	1.512	655.568	0.002
	144.567 - 143.567		18.825	315.621	0.060	1.512	655.568	0.002
	143.567 - 142.567		18.867	315.621	0.060	1.512	655.568	0.002
	142.567 - 141.567		18.908	315.621	0.060	1.512	655.568	0.002
L11	141.567 - 141.417 (11)	P24x0.375	18.907	315.621	0.060	1.512	655.568	0.002
L12	141.417 - 140.417	P36x0.375	18.989	454.187	0.042	1.512	1094.275	0.001
	140.417 - 139.417		19.072	454.187	0.042	1.512	1094.275	0.001
	139.417 - 138.417		19.153	454.187	0.042	1.512	1094.275	0.001
	138.417 - 137.417		19.297	454.187	0.042	1.512	1094.275	0.001
	137.417 - 136.417		19.378	454.187	0.043	1.512	1094.275	0.001
L13	136.417 - 135.417	P36x0.375	19.457	454.187	0.043	1.511	1094.275	0.001
	135.417 - 134.417		19.536	454.187	0.043	1.511	1094.275	0.001
	134.417 - 133.417		19.615	454.187	0.043	1.511	1094.275	0.001
	133.417 - 132.417		19.693	454.187	0.043	1.511	1094.275	0.001
	132.417 - 131.417		20.320	454.187	0.045	3.860	1094.275	0.004
L14	131.417 - 130.417	P36x0.375	20.397	454.187	0.045	3.860	1094.275	0.004
	130.417 - 129.417		20.473	454.187	0.045	3.859	1094.275	0.004
	129.417 - 128.417		20.548	454.187	0.045	3.859	1094.275	0.004
	128.417 - 127.417		20.623	454.187	0.045	3.859	1094.275	0.004
	127.417 - 126.417		20.698	454.187	0.046	3.859	1094.275	0.004
L15	126.417 - 125.417	P36x0.375	20.854	454.187	0.046	3.859	1094.275	0.004
	125.417 - 124.417		21.009	454.187	0.046	3.859	1094.275	0.004
	124.417 - 123.417		21.342	454.187	0.047	3.859	1094.275	0.004

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
	123.417 - 122.417		21.496	454.187	0.047	3.858	1094.275	0.004
	122.417 - 121.417		21.649	454.187	0.048	3.858	1094.275	0.004
L16	121.417 - 121.167 (16)	P36x0.375	21.681	454.187	0.048	3.858	1094.275	0.004
L17	121.167 - 120.167	P42x0.375	21.771	421.127	0.052	3.858	1185.508	0.003
	120.167 - 119.167		21.956	421.127	0.052	4.308	1185.508	0.004
	119.167 - 118.167		22.044	421.127	0.052	4.308	1185.508	0.004
	118.167 - 117.167		22.131	421.127	0.053	4.308	1185.508	0.004
	117.167 - 116.167		22.218	421.127	0.053	4.308	1185.508	0.004
L18	116.167 - 115.167	P42x0.375	25.545	421.127	0.061	4.462	1185.508	0.004
	115.167 - 114.167		25.628	421.127	0.061	4.462	1185.508	0.004
	114.167 - 113.167		26.202	421.127	0.062	4.462	1185.508	0.004
	113.167 - 112.167		26.283	421.127	0.062	4.462	1185.508	0.004
	112.167 - 111.167		26.363	421.127	0.063	4.462	1185.508	0.004
L19	111.167 - 110.042 (19)	P42x0.375	26.453	421.127	0.063	4.462	1185.508	0.004
L20	110.042 - 109.792 (20)	P42x0.4875	26.468	720.969	0.037	4.462	2272.017	0.002
L21	109.792 - 108.615	P42x0.4875	26.823	720.969	0.037	2.749	2272.017	0.001
	108.615 - 107.438		27.037	720.969	0.038	2.749	2272.017	0.001
	107.438 - 106.26		27.250	720.969	0.038	2.749	2272.017	0.001
	106.26 - 105.083		27.462	720.969	0.038	2.749	2272.017	0.001
L22	105.083 - 104.833 (22)	P42x0.5625	27.508	830.384	0.033	2.749	3025.183	0.001
L23	104.833 - 103.528	P42x0.5625	27.774	830.384	0.033	2.749	3025.183	0.001
	103.528 - 102.222		28.036	830.384	0.034	2.748	3025.183	0.001
	102.222 - 100.917		28.296	830.384	0.034	2.748	3025.183	0.001
L24	100.917 - 100.667 (24)	P48x0.375	28.339	394.372	0.072	2.748	1270.217	0.002
L25	100.667 - 99.4585	P48x0.375	28.566	394.372	0.072	2.748	1270.217	0.002
	99.4585 - 98.25		28.787	394.372	0.073	2.748	1270.217	0.002
	98.25 - 97.0415		29.120	394.372	0.074	2.748	1270.217	0.002
	97.0415 - 95.833		29.340	394.372	0.074	2.748	1270.217	0.002
L26	95.833 - 95.583 (26)	P48x0.475	29.356	710.639	0.041	2.748	2284.058	0.001
L27	95.583 - 94.583	P48x0.475	29.541	710.639	0.042	2.748	2284.058	0.001

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
	94.583 - 93.583		29.722	710.639	0.042	2.748	2284.058	0.001
	93.583 - 92.583		29.903	710.639	0.042	2.748	2284.058	0.001
	92.583 - 91.583		30.084	710.639	0.042	2.748	2284.058	0.001
	91.583 - 90.583		30.263	710.639	0.043	2.748	2284.058	0.001
L28	90.583 - 89.917 (28)	P48x0.475	30.789	710.639	0.043	3.030	2284.058	0.001
L29	89.917 - 89.667 (29)	P48x0.575	30.837	971.490	0.032	3.030	3667.025	0.001
L30	89.667 - 88.667	P48x0.575	31.040	971.490	0.032	3.030	3667.025	0.001
	88.667 - 87.667		31.241	971.490	0.032	3.029	3667.025	0.001
	87.667 - 86.667		31.441	971.490	0.032	3.029	3667.025	0.001
	86.667 - 85.667		31.640	971.490	0.033	3.029	3667.025	0.001
	85.667 - 84.667		31.839	971.490	0.033	3.029	3667.025	0.001
L31	84.667 - 83.389	P48x0.575	32.104	971.490	0.033	3.029	3667.025	0.001
	83.389 - 82.111		32.366	971.490	0.033	3.029	3667.025	0.001
	82.111 - 80.833		32.627	971.490	0.034	3.029	3667.025	0.001
L32	80.833 - 80.333 (32)	P54x0.55	32.724	966.315	0.034	3.029	3493.033	0.001
L33	80.333 - 80.083 (33)	P54x0.4875	32.777	729.657	0.045	3.029	2639.000	0.001
L34	80.083 - 79.083	P54x0.4875	32.984	729.657	0.045	3.029	2639.000	0.001
	79.083 - 78.083		33.188	729.657	0.045	3.029	2639.000	0.001
	78.083 - 77.083		33.391	729.657	0.046	3.029	2639.000	0.001
	77.083 - 76.083		33.593	729.657	0.046	3.029	2639.000	0.001
	76.083 - 75.083		33.794	729.657	0.046	3.029	2639.000	0.001
L35	75.083 - 74.083	P54x0.4875	34.006	729.657	0.047	3.029	2639.000	0.001
	74.083 - 73.083		34.216	729.657	0.047	3.029	2639.000	0.001
	73.083 - 72.083		34.426	729.657	0.047	3.029	2639.000	0.001
	72.083 - 71.083		34.635	729.657	0.047	3.029	2639.000	0.001
	71.083 - 70.083		34.844	729.657	0.048	3.029	2639.000	0.001
L36	70.083 - 69.5 (36)	P54x0.4875	35.450	729.657	0.049	3.029	2639.000	0.001
L37	69.5 - 69.25 (37)	P54x0.5875	35.505	1117.930	0.032	1.187	4113.450	0.000
L38	69.25 - 68.25	P54x0.5875	35.751	1117.930	0.032	1.187	4113.450	0.000
	68.25 - 67.25		35.990	1117.930	0.032	1.187	4113.450	0.000
	67.25 - 66.25		36.229	1117.930	0.032	1.187	4113.450	0.000
	66.25 - 65.25		36.466	1117.930	0.033	1.187	4113.450	0.000

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
	65.25 - 64.25		36.702	1117.930	0.033	1.187	4113.450	0.000
L39	64.25 - 63.0277	P54x0.5875	36.994	1117.930	0.033	1.187	4113.450	0.000
	63.0277 - 61.8053		37.282	1117.930	0.033	1.187	4113.450	0.000
	61.8053 - 60.583		37.569	1117.930	0.034	1.187	4113.450	0.000
L40	60.583 - 60.333 (40)	P60x0.5125	37.613	838.764	0.045	1.187	3372.333	0.000
L41	60.333 - 59.333	P60x0.5125	37.846	838.764	0.045	1.187	3372.333	0.000
	59.333 - 58.333		38.072	838.764	0.045	1.187	3372.333	0.000
	58.333 - 57.333		38.297	838.764	0.046	1.187	3372.333	0.000
	57.333 - 56.333		38.521	838.764	0.046	1.187	3372.333	0.000
	56.333 - 55.333		38.744	838.764	0.046	1.187	3372.333	0.000
L42	55.333 - 54.2777	P60x0.5125	38.939	838.764	0.046	1.187	3372.333	0.000
	54.2777 - 53.2223		39.132	838.764	0.047	1.187	3372.333	0.000
	53.2223 - 52.167		39.324	838.764	0.047	1.187	3372.333	0.000
L43	52.167 - 51.917 (43)	P60x0.625	39.361	1308.390	0.030	1.187	5250.550	0.000
L44	51.917 - 50.917	P60x0.625	39.560	1308.390	0.030	1.187	5250.550	0.000
	50.917 - 49.917		39.753	1308.390	0.030	1.187	5250.550	0.000
	49.917 - 48.917		39.945	1308.390	0.031	1.187	5250.550	0.000
	48.917 - 47.917		40.136	1308.390	0.031	1.187	5250.550	0.000
	47.917 - 46.917		40.327	1308.390	0.031	1.187	5250.550	0.000
L45	46.917 - 45.917	P60x0.625	40.537	1308.390	0.031	1.187	5250.550	0.000
	45.917 - 44.917		40.746	1308.390	0.031	1.187	5250.550	0.000
	44.917 - 43.917		40.955	1308.390	0.031	1.187	5250.550	0.000
	43.917 - 42.917		41.162	1308.390	0.031	1.187	5250.550	0.000
	42.917 - 41.917		41.369	1308.390	0.032	1.187	5250.550	0.000
L46	41.917 - 40.333 (46)	P60x0.625	41.688	1308.390	0.032	1.187	5250.550	0.000
L47	40.333 - 40.083 (47)	P60x0.6	41.717	1194.070	0.035	1.187	4793.808	0.000
L48	40.083 - 39.083	P60x0.6	41.908	1194.070	0.035	1.187	4793.808	0.000
	39.083 - 38.083		42.088	1194.070	0.035	1.187	4793.808	0.000
	38.083 - 37.083		42.268	1194.070	0.035	1.187	4793.808	0.000
	37.083 - 36.083		42.446	1194.070	0.036	1.187	4793.808	0.000
	36.083 -		42.624	1194.070	0.036	1.187	4793.808	0.000

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
	35.083							
L49	35.083 - 34.083	P60x0.6	42.776	1194.070	0.036	1.187	4793.808	0.000
	34.083 - 33.083		42.927	1194.070	0.036	1.187	4793.808	0.000
	33.083 - 32.083		43.300	1194.070	0.036	1.553	4793.808	0.000
	32.083 - 31.083		43.450	1194.070	0.036	1.553	4793.808	0.000
	31.083 - 30.083		43.598	1194.070	0.037	1.553	4793.808	0.000
L50	30.083 - 29.0415	P60x0.6	43.747	1194.070	0.037	1.553	4793.808	0.000
	29.0415 - 28		43.894	1194.070	0.037	1.553	4793.808	0.000
L51	28 - 27.75 (51)	P60x0.725	43.917	1530.990	0.029	1.553	7317.325	0.000
L52	27.75 - 26.75	P60x0.725	44.094	1530.990	0.029	1.553	7317.325	0.000
	26.75 - 25.75		44.258	1530.990	0.029	1.553	7317.325	0.000
	25.75 - 24.75		44.423	1530.990	0.029	1.553	7317.325	0.000
	24.75 - 23.75		44.586	1530.990	0.029	1.553	7317.325	0.000
	23.75 - 22.75		44.748	1530.990	0.029	1.553	7317.325	0.000
L53	22.75 - 21.4165	P60x0.725	44.968	1530.990	0.029	1.553	7317.325	0.000
	21.4165 - 20.083		45.181	1530.990	0.030	1.553	7317.325	0.000
L54	20.083 - 19.833 (54)	P60x0.625	45.200	1308.390	0.035	1.553	5250.550	0.000
L55	19.833 - 18.4165	P60x0.625	45.439	1308.390	0.035	1.553	5250.550	0.000
	18.4165 - 17		45.652	1308.390	0.035	1.553	5250.550	0.000
L56	17 - 16.75 (56)	P60x0.725	45.663	1530.990	0.030	1.553	7317.325	0.000
L57	16.75 - 15.73	P60x0.75	45.823	1583.120	0.029	1.553	7957.825	0.000
	15.73 - 14.71		45.969	1583.120	0.029	1.553	7957.825	0.000
	14.71 - 13.69		46.114	1583.120	0.029	1.553	7957.825	0.000
	13.69 - 12.67		46.257	1583.120	0.029	1.553	7957.825	0.000
	12.67 - 11.65		46.400	1583.120	0.029	1.553	7957.825	0.000
L58	11.65 - 11.417 (58)	P60x0.75	46.395	1583.120	0.029	1.553	7957.825	0.000
L59	11.417 - 10.4065	P60x0.75	46.458	1583.120	0.029	1.553	7957.825	0.000
	10.4065 - 9.396		46.504	1583.120	0.029	1.553	7957.825	0.000
L60	9.396 - 9.146 (60)	P60x0.8	46.521	1687.230	0.028	1.553	8781.667	0.000
L61	9.146 - 8.06775	P60x0.8	46.679	1687.230	0.028	1.553	8781.667	0.000
	8.06775 - 6.9895		46.820	1687.230	0.028	1.553	8781.667	0.000
	6.9895 - 5.91125		46.960	1687.230	0.028	1.553	8781.667	0.000
	5.91125 - 4.833		47.099	1687.230	0.028	1.553	8781.667	0.000
L62	4.833 - 4.583 (62)	P60x0.75	47.114	1583.120	0.030	1.552	7957.825	0.000
L63	4.583 - 3.43725	P60x0.75	47.276	1583.120	0.030	1.552	7957.825	0.000
	3.43725 - 2.2915		47.418	1583.120	0.030	1.552	7957.825	0.000
	2.2915 - 1.14575		47.559	1583.120	0.030	1.552	7957.825	0.000
	1.14575 - 0		47.698	1583.120	0.030	1.552	7957.825	0.000

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	191.667 - 190.667	0.001	0.003	0.000	0.000	0.000	0.004 ✔	1.050	4.8.2 ✔
	190.667 - 189.667	0.001	0.004	0.000	0.001	0.000	0.005 ✔	1.050	4.8.2 ✔
	189.667 - 188.667	0.001	0.004	0.000	0.001	0.000	0.005 ✔	1.050	4.8.2 ✔
	188.667 - 187.667	0.001	0.004	0.000	0.001	0.000	0.006 ✔	1.050	4.8.2 ✔
	187.667 - 186.667	0.001	0.006	0.000	0.002	0.000	0.007 ✔	1.050	4.8.2 ✔
L2	186.667 - 185.647	0.001	0.004	0.000	0.002	0.000	0.005 ✔	1.050	4.8.2 ✔
	185.647 - 184.627	0.001	0.005	0.000	0.002	0.000	0.006 ✔	1.050	4.8.2 ✔
	184.627 - 183.607	0.011	0.004	0.000	0.000	0.000	0.015* ✔	1.000	4.8.2 ✔
	183.607 - 182.587	0.011	0.006	0.000	0.005	0.000	0.017 ✔	1.050	4.8.2 ✔
	182.587 - 181.567	0.011	0.009	0.000	0.005	0.000	0.020 ✔	1.050	4.8.2 ✔
L3	181.567 - 180.567	0.005	0.020	0.000	0.016	0.000	0.025 ✔	1.050	4.8.2 ✔
	180.567 - 179.567	0.005	0.028	0.000	0.016	0.000	0.033 ✔	1.050	4.8.2 ✔
	179.567 - 178.567	0.005	0.036	0.000	0.016	0.000	0.042 ✔	1.050	4.8.2 ✔
	178.567 - 177.567	0.005	0.045	0.000	0.017	0.000	0.050 ✔	1.050	4.8.2 ✔
	177.567 - 176.567	0.005	0.053	0.000	0.017	0.001	0.059 ✔	1.050	4.8.2 ✔
L4	176.567 - 175.567	0.006	0.062	0.000	0.017	0.001	0.068 ✔	1.050	4.8.2 ✔
	175.567 - 174.567	0.006	0.071	0.000	0.017	0.001	0.077 ✔	1.050	4.8.2 ✔
	174.567 - 173.567	0.006	0.080	0.000	0.018	0.001	0.086 ✔	1.050	4.8.2 ✔
	173.567 - 172.567	0.006	0.089	0.000	0.018	0.001	0.095 ✔	1.050	4.8.2 ✔
	172.567 - 171.567	0.006	0.098	0.000	0.018	0.001	0.104 ✔	1.050	4.8.2 ✔
L5	171.567 - 170.567	0.006	0.107	0.000	0.018	0.001	0.114 ✔	1.050	4.8.2 ✔

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	170.567 - 169.567	0.006	0.116	0.000	0.018	0.001	0.123 ✔	1.050	4.8.2 ✔
	169.567 - 168.567	0.007	0.126	0.000	0.019	0.001	0.133 ✔	1.050	4.8.2 ✔
	168.567 - 167.567	0.007	0.135	0.000	0.019	0.001	0.142 ✔	1.050	4.8.2 ✔
	167.567 - 166.567	0.007	0.145	0.000	0.019	0.001	0.152 ✔	1.050	4.8.2 ✔
L6	166.567 - 165.567	0.007	0.155	0.000	0.019	0.001	0.162 ✔	1.050	4.8.2 ✔
	165.567 - 164.567	0.007	0.164	0.000	0.019	0.001	0.172 ✔	1.050	4.8.2 ✔
	164.567 - 163.567	0.007	0.174	0.000	0.020	0.001	0.182 ✔	1.050	4.8.2 ✔
	163.567 - 162.567	0.007	0.184	0.000	0.020	0.001	0.192 ✔	1.050	4.8.2 ✔
	162.567 - 161.567	0.007	0.194	0.000	0.020	0.001	0.202 ✔	1.050	4.8.2 ✔
L7	161.567 - 160.567	0.008	0.205	0.000	0.020	0.001	0.213 ✔	1.050	4.8.2 ✔
	160.567 - 159.567	0.011	0.218	0.000	0.036	0.001	0.230 ✔	1.050	4.8.2 ✔
	159.567 - 158.567	0.011	0.236	0.000	0.036	0.001	0.249 ✔	1.050	4.8.2 ✔
	158.567 - 157.567	0.012	0.255	0.000	0.037	0.001	0.268 ✔	1.050	4.8.2 ✔
	157.567 - 156.567	0.012	0.274	0.000	0.037	0.001	0.287 ✔	1.050	4.8.2 ✔
L8	156.567 - 155.567	0.012	0.293	0.000	0.038	0.001	0.307 ✔	1.050	4.8.2 ✔
	155.567 - 154.567	0.012	0.312	0.000	0.038	0.001	0.326 ✔	1.050	4.8.2 ✔
	154.567 - 153.567	0.012	0.331	0.000	0.038	0.001	0.345 ✔	1.050	4.8.2 ✔
	153.567 - 152.567	0.012	0.351	0.000	0.038	0.002	0.365 ✔	1.050	4.8.2 ✔
	152.567 - 151.567	0.012	0.370	0.000	0.038	0.002	0.384 ✔	1.050	4.8.2 ✔
L9	151.567 - 150.567	0.017	0.393	0.000	0.056	0.002	0.413 ✔	1.050	4.8.2 ✔
	150.567 - 149.567	0.018	0.423	0.000	0.059	0.002	0.444 ✔	1.050	4.8.2 ✔
	149.567 - 148.567	0.018	0.453	0.000	0.059	0.002	0.474 ✔	1.050	4.8.2 ✔
	148.567 - 147.567	0.018	0.483	0.000	0.059	0.002	0.504 ✔	1.050	4.8.2 ✔
	147.567 - 146.567	0.018	0.512	0.000	0.059	0.002	0.534 ✔	1.050	4.8.2 ✔
L10	146.567 - 145.567	0.018	0.542	0.000	0.059	0.002	0.564 ✔	1.050	4.8.2 ✔
	145.567 - 144.567	0.018	0.573	0.000	0.060	0.002	0.595 ✔	1.050	4.8.2 ✔

Section No.	Elevation ft	Ratio $P_u / \phi P_n$	Ratio $M_{ux} / \phi M_{nx}$	Ratio $M_{uy} / \phi M_{ny}$	Ratio $V_u / \phi V_n$	Ratio $T_u / \phi T_n$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	144.567 - 143.567	0.018	0.603	0.000	0.060	0.002	0.625 ✔	1.050	4.8.2 ✔
	143.567 - 142.567	0.019	0.633	0.000	0.060	0.002	0.655 ✔	1.050	4.8.2 ✔
	142.567 - 141.567	0.019	0.663	0.000	0.060	0.002	0.686 ✔	1.050	4.8.2 ✔
L11	141.567 - 141.417 (11)	0.019	0.668	0.000	0.060	0.002	0.690 ✔	1.050	4.8.2 ✔
L12	141.417 - 140.417	0.013	0.325	0.000	0.042	0.001	0.341 ✔	1.050	4.8.2 ✔
	140.417 - 139.417	0.014	0.339	0.000	0.042	0.001	0.355 ✔	1.050	4.8.2 ✔
	139.417 - 138.417	0.014	0.354	0.000	0.042	0.001	0.369 ✔	1.050	4.8.2 ✔
	138.417 - 137.417	0.014	0.368	0.000	0.042	0.001	0.384 ✔	1.050	4.8.2 ✔
	137.417 - 136.417	0.014	0.382	0.000	0.043	0.001	0.398 ✔	1.050	4.8.2 ✔
L13	136.417 - 135.417	0.014	0.397	0.000	0.043	0.001	0.413 ✔	1.050	4.8.2 ✔
	135.417 - 134.417	0.014	0.412	0.000	0.043	0.001	0.428 ✔	1.050	4.8.2 ✔
	134.417 - 133.417	0.015	0.426	0.000	0.043	0.001	0.443 ✔	1.050	4.8.2 ✔
	133.417 - 132.417	0.015	0.441	0.000	0.043	0.001	0.458 ✔	1.050	4.8.2 ✔
	132.417 - 131.417	0.015	0.456	0.000	0.045	0.004	0.474 ✔	1.050	4.8.2 ✔
L14	131.417 - 130.417	0.015	0.471	0.000	0.045	0.004	0.489 ✔	1.050	4.8.2 ✔
	130.417 - 129.417	0.015	0.487	0.000	0.045	0.004	0.505 ✔	1.050	4.8.2 ✔
	129.417 - 128.417	0.016	0.502	0.000	0.045	0.004	0.520 ✔	1.050	4.8.2 ✔
	128.417 - 127.417	0.016	0.517	0.000	0.045	0.004	0.536 ✔	1.050	4.8.2 ✔
	127.417 - 126.417	0.016	0.533	0.000	0.046	0.004	0.551 ✔	1.050	4.8.2 ✔
L15	126.417 - 125.417	0.016	0.548	0.000	0.046	0.004	0.567 ✔	1.050	4.8.2 ✔
	125.417 - 124.417	0.016	0.564	0.000	0.046	0.004	0.583 ✔	1.050	4.8.2 ✔
	124.417 - 123.417	0.017	0.580	0.000	0.047	0.004	0.599 ✔	1.050	4.8.2 ✔
	123.417 - 122.417	0.017	0.596	0.000	0.047	0.004	0.616 ✔	1.050	4.8.2 ✔
	122.417 - 121.417	0.017	0.612	0.000	0.048	0.004	0.632 ✔	1.050	4.8.2 ✔
L16	121.417 - 121.167 (16)	0.017	0.616	0.000	0.048	0.004	0.636 ✔	1.050	4.8.2 ✔
L17	121.167 - 120.167	0.016	0.471	0.000	0.052	0.003	0.490 ✔	1.050	4.8.2 ✔

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	120.167 - 119.167	0.016	0.483	0.000	0.052	0.004	0.502 ✔	1.050	4.8.2 ✔
	119.167 - 118.167	0.016	0.496	0.000	0.052	0.004	0.515 ✔	1.050	4.8.2 ✔
	118.167 - 117.167	0.016	0.508	0.000	0.053	0.004	0.527 ✔	1.050	4.8.2 ✔
	117.167 - 116.167	0.016	0.520	0.000	0.053	0.004	0.540 ✔	1.050	4.8.2 ✔
L18	116.167 - 115.167	0.019	0.536	0.000	0.061	0.004	0.559 ✔	1.050	4.8.2 ✔
	115.167 - 114.167	0.019	0.551	0.000	0.061	0.004	0.574 ✔	1.050	4.8.2 ✔
	114.167 - 113.167	0.019	0.565	0.000	0.062	0.004	0.589 ✔	1.050	4.8.2 ✔
	113.167 - 112.167	0.019	0.580	0.000	0.062	0.004	0.604 ✔	1.050	4.8.2 ✔
	112.167 - 111.167	0.020	0.594	0.000	0.063	0.004	0.618 ✔	1.050	4.8.2 ✔
L19	111.167 - 110.042 (19)	0.020	0.611	0.000	0.063	0.004	0.635 ✔	1.050	4.8.2 ✔
L20	110.042 - 109.792 (20)	0.014	0.461	0.000	0.037	0.002	0.477 ✔	1.050	4.8.2 ✔
L21	109.792 - 108.615	0.014	0.474	0.000	0.037	0.001	0.490 ✔	1.050	4.8.2 ✔
	108.615 - 107.438	0.015	0.487	0.000	0.038	0.001	0.503 ✔	1.050	4.8.2 ✔
	107.438 - 106.26	0.015	0.501	0.000	0.038	0.001	0.517 ✔	1.050	4.8.2 ✔
	106.26 - 105.083	0.015	0.514	0.000	0.038	0.001	0.531 ✔	1.050	4.8.2 ✔
L22	105.083 - 104.833 (22)	0.013	0.441	0.000	0.033	0.001	0.455 ✔	1.050	4.8.2 ✔
L23	104.833 - 103.528	0.013	0.454	0.000	0.033	0.001	0.468 ✔	1.050	4.8.2 ✔
	103.528 - 102.222	0.013	0.467	0.000	0.034	0.001	0.481 ✔	1.050	4.8.2 ✔
	102.222 - 100.917	0.013	0.480	0.000	0.034	0.001	0.494 ✔	1.050	4.8.2 ✔
L24	100.917 - 100.667 (24)	0.020	0.584	0.000	0.072	0.002	0.609 ✔	1.050	4.8.2 ✔
L25	100.667 - 99.4585	0.020	0.598	0.000	0.072	0.002	0.625 ✔	1.050	4.8.2 ✔
	99.4585 - 98.25	0.021	0.613	0.000	0.073	0.002	0.640 ✔	1.050	4.8.2 ✔
	98.25 - 97.0415	0.021	0.629	0.000	0.074	0.002	0.655 ✔	1.050	4.8.2 ✔
	97.0415 - 95.833	0.021	0.644	0.000	0.074	0.002	0.671 ✔	1.050	4.8.2 ✔
L26	95.833 - 95.583 (26)	0.016	0.501	0.000	0.041	0.001	0.518 ✔	1.050	4.8.2 ✔
L27	95.583 - 94.583	0.016	0.510	0.000	0.042	0.001	0.528 ✔	1.050	4.8.2 ✔

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	94.583 - 93.583	0.016	0.520	0.000	0.042	0.001	0.538 ✔	1.050	4.8.2 ✔
	93.583 - 92.583	0.016	0.530	0.000	0.042	0.001	0.548 ✔	1.050	4.8.2 ✔
	92.583 - 91.583	0.016	0.540	0.000	0.042	0.001	0.558 ✔	1.050	4.8.2 ✔
	91.583 - 90.583	0.017	0.550	0.000	0.043	0.001	0.569 ✔	1.050	4.8.2 ✔
L28	90.583 - 89.917 (28)	0.017	0.557	0.000	0.043	0.001	0.576 ✔	1.050	4.8.2 ✔
L29	89.917 - 89.667 (29)	0.013	0.454	0.000	0.032	0.001	0.468 ✔	1.050	4.8.2 ✔
L30	89.667 - 88.667	0.013	0.462	0.000	0.032	0.001	0.476 ✔	1.050	4.8.2 ✔
	88.667 - 87.667	0.014	0.470	0.000	0.032	0.001	0.485 ✔	1.050	4.8.2 ✔
	87.667 - 86.667	0.014	0.479	0.000	0.032	0.001	0.494 ✔	1.050	4.8.2 ✔
	86.667 - 85.667	0.014	0.487	0.000	0.033	0.001	0.502 ✔	1.050	4.8.2 ✔
	85.667 - 84.667	0.014	0.496	0.000	0.033	0.001	0.511 ✔	1.050	4.8.2 ✔
L31	84.667 - 83.389	0.014	0.507	0.000	0.033	0.001	0.523 ✔	1.050	4.8.2 ✔
	83.389 - 82.111	0.015	0.518	0.000	0.033	0.001	0.534 ✔	1.050	4.8.2 ✔
	82.111 - 80.833	0.015	0.529	0.000	0.034	0.001	0.546 ✔	1.050	4.8.2 ✔
L32	80.833 - 80.333 (32)	0.015	0.448	0.000	0.034	0.001	0.464 ✔	1.050	4.8.2 ✔
L33	80.333 - 80.083 (33)	0.017	0.513	0.000	0.045	0.001	0.533 ✔	1.050	4.8.2 ✔
L34	80.083 - 79.083	0.018	0.522	0.000	0.045	0.001	0.542 ✔	1.050	4.8.2 ✔
	79.083 - 78.083	0.018	0.531	0.000	0.045	0.001	0.550 ✔	1.050	4.8.2 ✔
	78.083 - 77.083	0.018	0.539	0.000	0.046	0.001	0.559 ✔	1.050	4.8.2 ✔
	77.083 - 76.083	0.018	0.548	0.000	0.046	0.001	0.568 ✔	1.050	4.8.2 ✔
	76.083 - 75.083	0.018	0.557	0.000	0.046	0.001	0.577 ✔	1.050	4.8.2 ✔
L35	75.083 - 74.083	0.018	0.565	0.000	0.047	0.001	0.586 ✔	1.050	4.8.2 ✔
	74.083 - 73.083	0.019	0.574	0.000	0.047	0.001	0.595 ✔	1.050	4.8.2 ✔
	73.083 - 72.083	0.019	0.583	0.000	0.047	0.001	0.604 ✔	1.050	4.8.2 ✔
	72.083 - 71.083	0.019	0.592	0.000	0.047	0.001	0.613 ✔	1.050	4.8.2 ✔
	71.083 - 70.083	0.019	0.601	0.000	0.048	0.001	0.623 ✔	1.050	4.8.2 ✔

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L36	70.083 - 69.5 (36)	0.020	0.606	0.000	0.049	0.001	0.628 ✔	1.050	4.8.2 ✔
L37	69.5 - 69.25 (37)	0.015	0.496	0.000	0.032	0.000	0.513 ✔	1.050	4.8.2 ✔
L38	69.25 - 68.25	0.016	0.504	0.000	0.032	0.000	0.521 ✔	1.050	4.8.2 ✔
	68.25 - 67.25	0.016	0.511	0.000	0.032	0.000	0.529 ✔	1.050	4.8.2 ✔
	67.25 - 66.25	0.017	0.519	0.000	0.032	0.000	0.537 ✔	1.050	4.8.2 ✔
	66.25 - 65.25	0.017	0.527	0.000	0.033	0.000	0.545 ✔	1.050	4.8.2 ✔
	65.25 - 64.25	0.017	0.534	0.000	0.033	0.000	0.553 ✔	1.050	4.8.2 ✔
L39	64.25 - 63.0277	0.018	0.544	0.000	0.033	0.000	0.563 ✔	1.050	4.8.2 ✔
	63.0277 - 61.8053	0.018	0.553	0.000	0.033	0.000	0.573 ✔	1.050	4.8.2 ✔
	61.8053 - 60.583	0.019	0.563	0.000	0.034	0.000	0.583 ✔	1.050	4.8.2 ✔
L40	60.583 - 60.333 (40)	0.021	0.537	0.000	0.045	0.000	0.559 ✔	1.050	4.8.2 ✔
L41	60.333 - 59.333	0.021	0.544	0.000	0.045	0.000	0.567 ✔	1.050	4.8.2 ✔
	59.333 - 58.333	0.021	0.552	0.000	0.045	0.000	0.575 ✔	1.050	4.8.2 ✔
	58.333 - 57.333	0.021	0.559	0.000	0.046	0.000	0.583 ✔	1.050	4.8.2 ✔
	57.333 - 56.333	0.022	0.567	0.000	0.046	0.000	0.591 ✔	1.050	4.8.2 ✔
	56.333 - 55.333	0.022	0.575	0.000	0.046	0.000	0.599 ✔	1.050	4.8.2 ✔
L42	55.333 - 54.2777	0.022	0.583	0.000	0.046	0.000	0.607 ✔	1.050	4.8.2 ✔
	54.2777 - 53.2223	0.022	0.591	0.000	0.047	0.000	0.616 ✔	1.050	4.8.2 ✔
	53.2223 - 52.167	0.022	0.600	0.000	0.047	0.000	0.624 ✔	1.050	4.8.2 ✔
L43	52.167 - 51.917 (43)	0.017	0.484	0.000	0.030	0.000	0.503 ✔	1.050	4.8.2 ✔
L44	51.917 - 50.917	0.018	0.491	0.000	0.030	0.000	0.509 ✔	1.050	4.8.2 ✔
	50.917 - 49.917	0.018	0.497	0.000	0.030	0.000	0.516 ✔	1.050	4.8.2 ✔
	49.917 - 48.917	0.018	0.504	0.000	0.031	0.000	0.522 ✔	1.050	4.8.2 ✔
	48.917 - 47.917	0.018	0.510	0.000	0.031	0.000	0.529 ✔	1.050	4.8.2 ✔
	47.917 - 46.917	0.018	0.517	0.000	0.031	0.000	0.536 ✔	1.050	4.8.2 ✔
L45	46.917 - 45.917	0.018	0.523	0.000	0.031	0.000	0.542 ✔	1.050	4.8.2 ✔

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	45.917 - 44.917	0.019	0.530	0.000	0.031	0.000	0.549 ✔	1.050	4.8.2 ✔
	44.917 - 43.917	0.019	0.536	0.000	0.031	0.000	0.556 ✔	1.050	4.8.2 ✔
	43.917 - 42.917	0.019	0.543	0.000	0.031	0.000	0.563 ✔	1.050	4.8.2 ✔
	42.917 - 41.917	0.019	0.550	0.000	0.032	0.000	0.570 ✔	1.050	4.8.2 ✔
L46	41.917 - 40.333 (46)	0.019	0.560	0.000	0.032	0.000	0.581 ✔	1.050	4.8.2 ✔
L47	40.333 - 40.083 (47)	0.020	0.588	0.000	0.035	0.000	0.609 ✔	1.050	4.8.2 ✔
L48	40.083 - 39.083	0.021	0.595	0.000	0.035	0.000	0.616 ✔	1.050	4.8.2 ✔
	39.083 - 38.083	0.021	0.602	0.000	0.035	0.000	0.624 ✔	1.050	4.8.2 ✔
	38.083 - 37.083	0.021	0.609	0.000	0.035	0.000	0.631 ✔	1.050	4.8.2 ✔
	37.083 - 36.083	0.021	0.616	0.000	0.036	0.000	0.638 ✔	1.050	4.8.2 ✔
	36.083 - 35.083	0.021	0.623	0.000	0.036	0.000	0.646 ✔	1.050	4.8.2 ✔
L49	35.083 - 34.083	0.022	0.630	0.000	0.036	0.000	0.653 ✔	1.050	4.8.2 ✔
	34.083 - 33.083	0.022	0.637	0.000	0.036	0.000	0.661 ✔	1.050	4.8.2 ✔
	33.083 - 32.083	0.022	0.645	0.000	0.036	0.000	0.668 ✔	1.050	4.8.2 ✔
	32.083 - 31.083	0.022	0.652	0.000	0.036	0.000	0.676 ✔	1.050	4.8.2 ✔
	31.083 - 30.083	0.022	0.659	0.000	0.037	0.000	0.683 ✔	1.050	4.8.2 ✔
L50	30.083 - 29.0415	0.022	0.667	0.000	0.037	0.000	0.691 ✔	1.050	4.8.2 ✔
	29.0415 - 28	0.023	0.675	0.000	0.037	0.000	0.699 ✔	1.050	4.8.2 ✔
L51	28 - 27.75 (51)	0.018	0.549	0.000	0.029	0.000	0.568 ✔	1.050	4.8.2 ✔
L52	27.75 - 26.75	0.018	0.555	0.000	0.029	0.000	0.574 ✔	1.050	4.8.2 ✔
	26.75 - 25.75	0.018	0.561	0.000	0.029	0.000	0.580 ✔	1.050	4.8.2 ✔
	25.75 - 24.75	0.018	0.567	0.000	0.029	0.000	0.586 ✔	1.050	4.8.2 ✔
	24.75 - 23.75	0.018	0.573	0.000	0.029	0.000	0.593 ✔	1.050	4.8.2 ✔
	23.75 - 22.75	0.019	0.580	0.000	0.029	0.000	0.599 ✔	1.050	4.8.2 ✔
L53	22.75 - 21.4165	0.019	0.588	0.000	0.029	0.000	0.607 ✔	1.050	4.8.2 ✔
	21.4165 - 20.083	0.019	0.596	0.000	0.030	0.000	0.616 ✔	1.050	4.8.2 ✔

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L54	20.083 - 19.833 (54)	0.023	0.704	0.000	0.035	0.000	0.728 ✔	1.050	4.8.2 ✔
L55	19.833 - 18.4165	0.023	0.714	0.000	0.035	0.000	0.739 ✔	1.050	4.8.2 ✔
	18.4165 - 17	0.024	0.725	0.000	0.035	0.000	0.750 ✔	1.050	4.8.2 ✔
L56	17 - 16.75 (56)	0.019	0.617	0.000	0.030	0.000	0.637 ✔	1.050	4.8.2 ✔
L57	16.75 - 15.73	0.019	0.600	0.000	0.029	0.000	0.620 ✔	1.050	4.8.2 ✔
	15.73 - 14.71	0.019	0.606	0.000	0.029	0.000	0.626 ✔	1.050	4.8.2 ✔
	14.71 - 13.69	0.019	0.612	0.000	0.029	0.000	0.632 ✔	1.050	4.8.2 ✔
	13.69 - 12.67	0.019	0.619	0.000	0.029	0.000	0.639 ✔	1.050	4.8.2 ✔
	12.67 - 11.65	0.019	0.625	0.000	0.029	0.000	0.645 ✔	1.050	4.8.2 ✔
L58	11.65 - 11.417 (58)	0.019	0.626	0.000	0.029	0.000	0.647 ✔	1.050	4.8.2 ✔
L59	11.417 - 10.4065	0.020	0.633	0.000	0.029	0.000	0.653 ✔	1.050	4.8.2 ✔
	10.4065 - 9.396	0.020	0.639	0.000	0.029	0.000	0.659 ✔	1.050	4.8.2 ✔
L60	9.396 - 9.146 (60)	0.018	0.596	0.000	0.028	0.000	0.615 ✔	1.050	4.8.2 ✔
L61	9.146 - 8.06775	0.019	0.602	0.000	0.028	0.000	0.621 ✔	1.050	4.8.2 ✔
	8.06775 - 6.9895	0.019	0.608	0.000	0.028	0.000	0.628 ✔	1.050	4.8.2 ✔
	6.9895 - 5.91125	0.019	0.614	0.000	0.028	0.000	0.634 ✔	1.050	4.8.2 ✔
	5.91125 - 4.833	0.019	0.620	0.000	0.028	0.000	0.640 ✔	1.050	4.8.2 ✔
L62	4.833 - 4.583 (62)	0.020	0.668	0.000	0.030	0.000	0.690 ✔	1.050	4.8.2 ✔
L63	4.583 - 3.43725	0.021	0.676	0.000	0.030	0.000	0.697 ✔	1.050	4.8.2 ✔
	3.43725 - 2.2915	0.021	0.683	0.000	0.030	0.000	0.704 ✔	1.050	4.8.2 ✔
	2.2915 - 1.14575	0.021	0.690	0.000	0.030	0.000	0.712 ✔	1.050	4.8.2 ✔
	1.14575 - 0	0.021	0.697	0.000	0.030	0.000	0.719 ✔	1.050	4.8.2 ✔

* DL controls

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	191.667 - 186.667	Pole	P18x0.375	1	-0.640	824.122	**	**
L2	186.667 - 181.567	Pole	P24x0.375	2	-11.581	1104.673	**	**
L3	181.567 - 176.567	Pole	P24x0.375	3	-5.762	1104.673	**	**
L4	176.567 - 171.567	Pole	P24x0.375	4	-6.450	1104.673	**	**
L5	171.567 - 166.567	Pole	P24x0.375	5	-7.141	1104.673	**	**
L6	166.567 - 161.567	Pole	P24x0.375	6	-7.834	1104.673	**	**
L7	161.567 - 156.567	Pole	P24x0.375	7	-12.294	1104.673	**	**
L8	156.567 - 151.567	Pole	P24x0.375	8	-13.045	1104.673	**	**
L9	151.567 - 146.567	Pole	P24x0.375	9	-18.937	1104.673	**	**
L10	146.567 - 141.567	Pole	P24x0.375	10	-19.806	1104.673	**	**
L11	141.567 - 141.417	Pole	P24x0.375	11	-19.840	1104.673	**	**
L12	141.417 - 136.417	Pole	P36x0.375	12	-20.970	1564.605	**	**
L13	136.417 - 131.417	Pole	P36x0.375	13	-22.552	1564.605	**	**
L14	131.417 - 126.417	Pole	P36x0.375	14	-23.712	1564.605	**	**
L15	126.417 - 121.417	Pole	P36x0.375	15	-25.921	1564.605	**	**
L16	121.417 - 121.167	Pole	P36x0.375	16	-25.996	1564.605	**	**
L17	121.167 - 116.167	Pole	P42x0.375	17	-27.464	1752.313	**	**
L18	116.167 - 111.167	Pole	P42x0.375	18	-32.770	1752.313	**	**
L19	111.167 - 110.042	Pole	P42x0.375	19	-33.081	1752.313	**	**
L20	110.042 - 109.792	Pole	P42x0.4875	20	-33.170	2448.736	**	**
L21	109.792 - 105.083	Pole	P42x0.4875	21	-34.791	2448.736	**	**
L22	105.083 - 104.833	Pole	P42x0.5625	22	-34.902	2906.347	**	**
L23	104.833 - 100.917	Pole	P42x0.5625	23	-37.327	2906.347	**	**
L24	100.917 - 100.667	Pole	P48x0.375	24	-37.437	1939.864	**	**
L25	100.667 - 95.833	Pole	P48x0.375	25	-39.273	1939.864	**	**
L26	95.833 - 95.583	Pole	P48x0.475	26	-39.370	2605.459	**	**
L27	95.583 - 90.583	Pole	P48x0.475	27	-41.151	2605.459	**	**
L28	90.583 - 89.917	Pole	P48x0.475	28	-41.887	2605.459	**	**
L29	89.917 - 89.667	Pole	P48x0.575	29	-42.001	3332.721	**	**
L30	89.667 - 84.667	Pole	P48x0.575	30	-44.836	3332.721	**	**
L31	84.667 - 80.833	Pole	P48x0.575	31	-48.016	3332.721	**	**
L32	80.833 - 80.333	Pole	P54x0.55	32	-48.398	3420.721	**	**
L33	80.333 - 80.083	Pole	P54x0.4875	33	-48.539	2937.028	**	**
L34	80.083 - 75.083	Pole	P54x0.4875	34	-51.016	2937.028	**	**

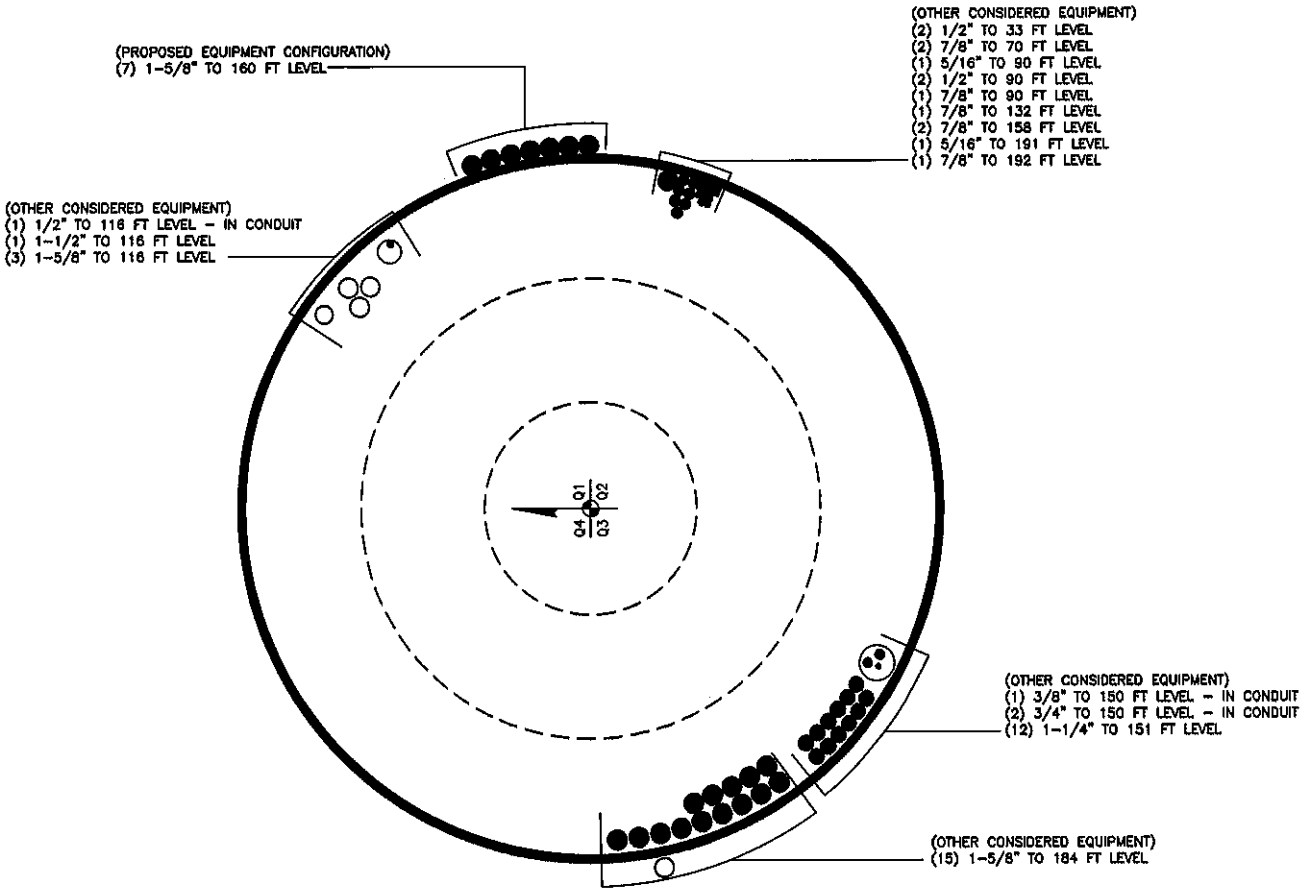
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$øP_{allow}$ K	% Capacity	Pass Fail
L35	75.083 - 70.083	Pole	P54x0.4875	35	-53.919	2937.028	**	**
L36	70.083 - 69.5	Pole	P54x0.4875	36	-54.599	2937.028	**	**
L37	69.5 - 69.25	Pole	P54x0.5875	37	-54.787	3722.491	**	**
L38	69.25 - 64.25	Pole	P54x0.5875	38	-61.154	3722.491	**	**
L39	64.25 - 60.583	Pole	P54x0.5875	39	-66.334	3722.491	**	**
L40	60.583 - 60.333	Pole	P60x0.5125	40	-66.540	3384.034	**	**
L41	60.333 - 55.333	Pole	P60x0.5125	41	-70.324	3384.034	**	**
L42	55.333 - 52.167	Pole	P60x0.5125	42	-71.817	3384.034	**	**
L43	52.167 - 51.917	Pole	P60x0.625	43	-71.963	4346.107	**	**
L44	51.917 - 46.917	Pole	P60x0.625	44	-75.064	4346.107	**	**
L45	46.917 - 41.917	Pole	P60x0.625	45	-79.037	4346.107	**	**
L46	41.917 - 40.333	Pole	P60x0.625	46	-80.285	4346.107	**	**
L47	40.333 - 40.083	Pole	P60x0.6	47	-80.478	4125.565	**	**
L48	40.083 - 35.083	Pole	P60x0.6	48	-84.151	4125.565	**	**
L49	35.083 - 30.083	Pole	P60x0.6	49	-87.481	4125.565	**	**
L50	30.083 - 28	Pole	P60x0.6	50	-88.606	4125.565	**	**
L51	28 - 27.75	Pole	P60x0.725	51	-88.772	5266.705	**	**
L52	27.75 - 22.75	Pole	P60x0.725	52	-92.893	5266.705	**	**
L53	22.75 - 20.083	Pole	P60x0.725	53	-95.121	5266.705	**	**
L54	20.083 - 19.833	Pole	P60x0.625	54	-95.320	4346.107	**	**
L55	19.833 - 17	Pole	P60x0.625	55	-97.470	4346.107	**	**
L56	17 - 16.75	Pole	P60x0.725	56	-97.696	5266.705	**	**
L57	16.75 - 11.65	Pole	P60x0.75	57	-101.930	5506.441	**	**
L58	11.65 - 11.417	Pole	P60x0.75	58	-102.094	5506.441	**	**
L59	11.417 - 9.396	Pole	P60x0.75	59	-103.448	5506.441	**	**
L60	9.396 - 9.146	Pole	P60x0.8	60	-103.630	5905.305	**	**
L61	9.146 - 4.833	Pole	P60x0.8	61	-106.631	5905.305	**	**
L62	4.833 - 4.583	Pole	P60x0.75	62	-106.810	5506.441	**	**
L63	4.583 - 0	Pole	P60x0.75	63	-109.954	5506.441	**	**
							Summary	
						Pole (L55)	**	**
						RATING =	**	**

**See Additional Calculations

Program Version 8.0.5.0

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 826217

APPENDIX C

ADDITIONAL CALCULATIONS

CCIpole

per TIA-222- H

Site BU: 826217

Work Order: 1762750

CROWN CASTLE

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Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	191.667	10.084		0	18	18	0.375		A53-B-42
2	181.583	40.166		0	24.00	24	0.375		A53-B-42
3	141.417	20.25		0	36.00	36	0.375		A53-B-42
4	121.167	20.25		0	42.00	42	0.375		A53-B-42
5	100.917	20.084		0	48.00	48	0.375		A53-B-42
6	80.833	20.25		0	54.00	54	0.375		A53-B-42
7	60.583	20.25		0	60.00	60	0.375		A53-B-42
8	40.333	20.25		0	60.00	60	0.5		A53-B-42
9	20.083	20.083		0	60.00	60	0.625		A53-B-42

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	0	9.396	plate	CCI-AFP-040075	2				70												313		
2	20.083	40.333	plate	CCI-SFP-060100	3				66						189						312		
3	40.333	60.583	plate	CCI-SFP-065125	3				67.5						188						307		
4	60.583	80.333	plate	CCI-SFP-060100	3				67.5						190						307		
5	80.333	89.917	plate	CCI-SFP-045100	3				72						192						312		
6	100.917	105.083	plate	CCI-AFP-040075	3			53						178							303		
7	4.833	11.667	plate	CCI-AFP-040075	1										198								
8	0	17	plate	CCI-SFP-060100	4		36				113						223			294			
9	20.083	28	plate	CCI-SFP-060100	4			53					157					247				339	
10	40.333	52.167	plate	CCI-SFP-060100	4		36					126					234			294			
11	60.583	69.5	plate	CCI-SFP-045100	4				80				155					254					341
12	80.333	95.833	plate	CCI-SFP-045100	3					93						213						333	
13	100.917	110.042	plate	CCI-SFP-045100	3		30							150					270				
14																							

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Length (in)	Top Termination Length (in)	L_u (in)	Net Area (in^2)	Bolt Hole Size (in)	Reinforcement Material
1	4	0.75	3	0.375	18.000	18.000	16.000	2.063	1.1875	A572-65
2	6	1	6	0.5	24.000	24.000	16.000	4.750	1.1875	A572-65
3	6.5	1.25	8.125	0.625	33.000	33.000	19.000	6.563	1.1875	A572-65
4	6	1	6	0.5	24.000	24.000	16.000	4.750	1.1875	A572-65
5	4.5	1	4.5	0.5	18.000	18.000	20.000	3.250	1.1875	A572-65
6	4	0.75	3	0.375	18.000	18.000	16.000	2.063	1.1875	A572-65
7	4	0.75	3	0.375	18.000	18.000	16.000	2.063	1.1875	A572-65
8	6	1	6	0.5	24.000	24.000	16.000	4.750	1.1875	A572-65
9	6	1	6	0.5	24.000	24.000	16.000	4.750	1.1875	A572-65
10	6	1	6	0.5	24.000	24.000	16.000	4.750	1.1875	A572-65
11	4.5	1	4.5	0.5	18.000	18.000	20.000	3.250	1.1875	A572-65
12	4.5	1	4.5	0.5	18.000	18.000	20.000	3.250	1.1875	A572-65
13	4.5	1	4.5	0.5	18.000	18.000	20.000	3.250	1.1875	A572-65

TNX Geometry Input

Increment (ft): 5

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	191.667 - 186.667	5	0	0	18.000	18.000	0.375	A53-B-42	1.000
2	186.667 - 181.567	5.1		0	24.000	24.000	0.375	A53-B-42	1.000
3	181.567 - 176.567	5		0	24.000	24.000	0.375	A53-B-42	1.000
4	176.567 - 171.567	5		0	24.000	24.000	0.375	A53-B-42	1.000
5	171.567 - 166.567	5		0	24.000	24.000	0.375	A53-B-42	1.000
6	166.567 - 161.567	5		0	24.000	24.000	0.375	A53-B-42	1.000
7	161.567 - 156.567	5		0	24.000	24.000	0.375	A53-B-42	1.000
8	156.567 - 151.567	5		0	24.000	24.000	0.375	A53-B-42	1.000
9	151.567 - 146.567	5		0	24.000	24.000	0.375	A53-B-42	1.000
10	146.567 - 141.567	5		0	24.000	24.000	0.375	A53-B-42	1.000
11	141.567 - 141.417	0.15	0	0	24.000	24.000	0.375	A53-B-42	1.000
12	141.417 - 136.417	5		0	36.000	36.000	0.375	A53-B-42	1.000
13	136.417 - 131.417	5		0	36.000	36.000	0.375	A53-B-42	1.000
14	131.417 - 126.417	5		0	36.000	36.000	0.375	A53-B-42	1.000
15	126.417 - 121.417	5		0	36.000	36.000	0.375	A53-B-42	1.000
16	121.417 - 121.167	0.25	0	0	36.000	36.000	0.375	A53-B-42	1.000
17	121.167 - 116.167	5		0	42.000	42.000	0.375	A53-B-42	1.000
18	116.167 - 111.167	5		0	42.000	42.000	0.375	A53-B-42	1.000
19	111.167 - 110.042	1.125		0	42.000	42.000	0.375	A53-B-42	1.000
20	110.042 - 109.792	0.25		0	42.000	42.000	0.4875	A53-B-42	0.984
21	109.792 - 105.083	4.709		0	42.000	42.000	0.4875	A53-B-42	0.984
22	105.083 - 104.833	0.25		0	42.000	42.000	0.5625	A53-B-42	0.977
23	104.833 - 100.917	3.916	0	0	42.000	42.000	0.5625	A53-B-42	0.977
24	100.917 - 100.667	0.25		0	48.000	48.000	0.375	A53-B-42	1.000
25	100.667 - 95.833	4.834		0	48.000	48.000	0.375	A53-B-42	1.000
26	95.833 - 95.583	0.25		0	48.000	48.000	0.475	A53-B-42	0.981
27	95.583 - 90.583	5		0	48.000	48.000	0.475	A53-B-42	0.981
28	90.583 - 89.917	0.666		0	48.000	48.000	0.475	A53-B-42	0.981
29	89.917 - 89.667	0.25		0	48.000	48.000	0.575	A53-B-42	0.970
30	89.667 - 84.667	5		0	48.000	48.000	0.575	A53-B-42	0.970
31	84.667 - 80.833	3.834	0	0	48.000	48.000	0.575	A53-B-42	0.970
32	80.833 - 80.333	0.5		0	54.000	54.000	0.55	A53-B-42	0.976
33	80.333 - 80.083	0.25		0	54.000	54.000	0.4875	A53-B-42	0.990
34	80.083 - 75.083	5		0	54.000	54.000	0.4875	A53-B-42	0.990
35	75.083 - 70.083	5		0	54.000	54.000	0.4875	A53-B-42	0.990
36	70.083 - 69.5	0.583		0	54.000	54.000	0.4875	A53-B-42	0.990
37	69.5 - 69.25	0.25		0	54.000	54.000	0.5875	A53-B-42	1.006
38	69.25 - 64.25	5		0	54.000	54.000	0.5875	A53-B-42	1.006
39	64.25 - 60.583	3.667	0	0	54.000	54.000	0.5875	A53-B-42	1.006
40	60.583 - 60.333	0.25		0	60.000	60.000	0.5125	A53-B-42	0.988
41	60.333 - 55.333	5		0	60.000	60.000	0.5125	A53-B-42	0.988
42	55.333 - 52.167	3.166		0	60.000	60.000	0.5125	A53-B-42	0.988
43	52.167 - 51.917	0.25		0	60.000	60.000	0.625	A53-B-42	1.017
44	51.917 - 46.917	5		0	60.000	60.000	0.625	A53-B-42	1.017
45	46.917 - 41.917	5		0	60.000	60.000	0.625	A53-B-42	1.017
46	41.917 - 40.333	1.584	0	0	60.000	60.000	0.625	A53-B-42	1.017
47	40.333 - 40.083	0.25		0	60.000	60.000	0.6	A53-B-42	0.995
48	40.083 - 35.083	5		0	60.000	60.000	0.6	A53-B-42	0.995
49	35.083 - 30.083	5		0	60.000	60.000	0.6	A53-B-42	0.995
50	30.083 - 28	2.083		0	60.000	60.000	0.6	A53-B-42	0.995
51	28 - 27.75	0.25		0	60.000	60.000	0.725	A53-B-42	1.003
52	27.75 - 22.75	5		0	60.000	60.000	0.725	A53-B-42	1.003
53	22.75 - 20.083	2.667	0	0	60.000	60.000	0.725	A53-B-42	1.003
54	20.083 - 19.833	0.25		0	60.000	60.000	0.625	A53-B-42	1.000
55	19.833 - 17	2.833		0	60.000	60.000	0.625	A53-B-42	1.000
56	17 - 16.75	0.25		0	60.000	60.000	0.725	A53-B-42	1.041
57	16.75 - 11.65	5.1		0	60.000	60.000	0.75	A53-B-42	1.028
58	11.65 - 11.417	0.233		0	60.000	60.000	0.75	A53-B-42	1.028
59	11.417 - 9.396	2.021		0	60.000	60.000	0.75	A53-B-42	1.028
60	9.396 - 9.146	0.25		0	60.000	60.000	0.8	A53-B-42	1.005
61	9.146 - 4.833	4.313		0	60.000	60.000	0.8	A53-B-42	1.005
62	4.833 - 4.583	0.25		0	60.000	60.000	0.75	A53-B-42	1.050
63	4.583 - 0	4.583		0	60.000	60.000	0.75	A53-B-42	1.050

TNX Section Forces

Increment (ft): 5

	Section Height (ft)	TNX Output P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	191.667 - 186.667	0.64	2.21	0.48
2	186.667 - 181.567	5.05	7.28	5.01
3	181.567 - 176.567	5.77	33.17	5.37
4	176.567 - 171.567	6.45	60.95	5.71
5	171.567 - 166.567	7.14	90.33	6.03
6	166.567 - 161.567	7.83	121.26	6.33
7	161.567 - 156.567	12.29	171.03	11.82
8	156.567 - 151.567	13.04	230.83	12.10
9	151.567 - 146.567	18.94	319.62	18.69
10	146.567 - 141.567	19.81	413.62	18.91
11	141.567 - 141.417	19.84	416.46	18.91
12	141.417 - 136.417	20.97	512.08	19.38
13	136.417 - 131.417	22.54	610.86	20.29
14	131.417 - 126.417	23.71	713.42	20.70
15	126.417 - 121.417	25.92	819.25	21.65
16	121.417 - 121.167	26.00	824.67	21.68
17	121.167 - 116.167	27.46	934.70	22.22
18	116.167 - 111.167	32.77	1067.79	26.36
19	111.167 - 110.042	33.05	1097.54	26.57
20	110.042 - 109.792	33.14	1104.19	26.61
21	109.792 - 105.083	34.79	1231.52	27.46
22	105.083 - 104.833	34.90	1238.39	27.51
23	104.833 - 100.917	37.33	1347.69	28.30
24	100.917 - 100.667	37.44	1354.77	28.34
25	100.667 - 95.833	39.27	1494.19	29.34
26	95.833 - 95.583	39.37	1501.53	29.36
27	95.583 - 90.583	41.15	1650.61	30.26
28	90.583 - 89.917	41.89	1672.01	30.79
29	89.917 - 89.667	42.00	1679.71	30.84
30	89.667 - 84.667	44.84	1836.33	31.84
31	84.667 - 80.833	48.02	1959.76	32.63
32	80.833 - 80.333	48.40	1976.08	32.72
33	80.333 - 80.083	48.54	1984.26	32.78
34	80.083 - 75.083	51.02	2150.68	33.79
35	75.083 - 70.083	53.92	2322.37	34.84
36	70.083 - 69.5	54.60	2342.92	35.45
37	69.5 - 69.25	54.79	2351.80	35.51
38	69.25 - 64.25	61.15	2532.67	36.70
39	64.25 - 60.583	66.33	2669.08	37.57
40	60.583 - 60.333	66.54	2678.48	37.61
41	60.333 - 55.333	70.32	2869.52	38.74
42	55.333 - 52.167	71.82	2993.11	39.32
43	52.167 - 51.917	71.96	3002.95	39.36
44	51.917 - 46.917	75.06	3202.18	40.33
45	46.917 - 41.917	79.04	3406.09	41.37
46	41.917 - 40.333	80.28	3471.76	41.69
47	40.333 - 40.083	80.48	3482.16	41.72
48	40.083 - 35.083	84.15	3692.64	42.62
49	35.083 - 30.083	87.48	3908.51	43.60
50	30.083 - 28	88.61	3999.63	43.89
51	28 - 27.75	88.77	4010.61	43.92
52	27.75 - 22.75	92.89	4232.37	44.75
53	22.75 - 20.083	95.12	4352.32	45.18
54	20.083 - 19.833	95.32	4363.62	45.20
55	19.833 - 17	97.47	4492.35	45.65
56	17 - 16.75	97.70	4503.76	45.66
57	16.75 - 11.65	101.93	4738.61	46.40
58	11.65 - 11.417	102.09	4749.42	46.40
59	11.417 - 9.396	103.45	4843.30	46.50
60	9.396 - 9.146	103.63	4854.93	46.52
61	9.146 - 4.833	106.63	5056.84	47.10
62	4.833 - 4.583	106.81	5068.62	47.11
63	4.583 - 0	109.95	5285.89	47.70

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
191.67 - 186.67	Pole	TP18x18x0.375	Pole	0.7%	Pass
186.67 - 181.57	Pole	TP24x24x0.375	Pole	1.6%	Pass
181.57 - 176.57	Pole	TP24x24x0.375	Pole	5.6%	Pass
176.57 - 171.57	Pole	TP24x24x0.375	Pole	9.9%	Pass
171.57 - 166.57	Pole	TP24x24x0.375	Pole	14.5%	Pass
166.57 - 161.57	Pole	TP24x24x0.375	Pole	19.2%	Pass
161.57 - 156.57	Pole	TP24x24x0.375	Pole	27.3%	Pass
156.57 - 151.57	Pole	TP24x24x0.375	Pole	36.5%	Pass
151.57 - 146.57	Pole	TP24x24x0.375	Pole	50.6%	Pass
146.57 - 141.57	Pole	TP24x24x0.375	Pole	65.1%	Pass
141.57 - 141.42	Pole	TP24x24x0.375	Pole	65.5%	Pass
141.42 - 136.42	Pole	TP36x36x0.375	Pole	37.8%	Pass
136.42 - 131.42	Pole	TP36x36x0.375	Pole	45.0%	Pass
131.42 - 126.42	Pole	TP36x36x0.375	Pole	52.3%	Pass
126.42 - 121.42	Pole	TP36x36x0.375	Pole	60.0%	Pass
121.42 - 121.17	Pole	TP36x36x0.375	Pole	60.4%	Pass
121.17 - 116.17	Pole	TP42x42x0.375	Pole	51.2%	Pass
116.17 - 111.17	Pole	TP42x42x0.375	Pole	58.6%	Pass
111.17 - 110.04	Pole	TP42x42x0.375	Pole	60.2%	Pass
110.04 - 109.79	Pole + Reinf.	TP42x42x0.4875	Reinf. 13 Tension Rupture	47.0%	Pass
109.79 - 105.08	Pole + Reinf.	TP42x42x0.4875	Reinf. 13 Tension Rupture	52.3%	Pass
105.08 - 104.83	Pole + Reinf.	TP42x42x0.5625	Reinf. 6 Tension Rupture	47.7%	Pass
104.83 - 100.92	Pole + Reinf.	TP42x42x0.5625	Reinf. 6 Tension Rupture	51.9%	Pass
100.92 - 100.67	Pole	TP48x48x0.375	Pole	57.6%	Pass
100.67 - 95.83	Pole	TP48x48x0.375	Pole	63.4%	Pass
95.83 - 95.58	Pole + Reinf.	TP48x48x0.475	Pole	50.7%	Pass
95.58 - 90.58	Pole + Reinf.	TP48x48x0.475	Pole	55.6%	Pass
90.58 - 89.92	Pole + Reinf.	TP48x48x0.475	Pole	56.3%	Pass
89.92 - 89.67	Pole + Reinf.	TP48x48x0.575	Pole	47.0%	Pass
89.67 - 84.67	Pole + Reinf.	TP48x48x0.575	Pole	51.3%	Pass
84.67 - 80.83	Pole + Reinf.	TP48x48x0.575	Pole	54.8%	Pass
80.83 - 80.33	Pole + Reinf.	TP54x54x0.55	Pole	46.0%	Pass
80.33 - 80.08	Pole + Reinf.	TP54x54x0.4875	Pole	52.0%	Pass
80.08 - 75.08	Pole + Reinf.	TP54x54x0.4875	Pole	56.3%	Pass
75.08 - 70.08	Pole + Reinf.	TP54x54x0.4875	Pole	60.8%	Pass
70.08 - 69.5	Pole + Reinf.	TP54x54x0.4875	Pole	61.3%	Pass
69.5 - 69.25	Pole + Reinf.	TP54x54x0.5875	Pole	50.9%	Pass
69.25 - 64.25	Pole + Reinf.	TP54x54x0.5875	Pole	54.8%	Pass
64.25 - 60.58	Pole + Reinf.	TP54x54x0.5875	Pole	57.8%	Pass
60.58 - 60.33	Pole + Reinf.	TP60x60x0.5125	Pole	54.3%	Pass
60.33 - 55.33	Pole + Reinf.	TP60x60x0.5125	Pole	58.1%	Pass
55.33 - 52.17	Pole + Reinf.	TP60x60x0.5125	Pole	60.6%	Pass
52.17 - 51.92	Pole + Reinf.	TP60x60x0.625	Pole	50.8%	Pass
51.92 - 46.92	Pole + Reinf.	TP60x60x0.625	Pole	54.1%	Pass
46.92 - 41.92	Pole + Reinf.	TP60x60x0.625	Pole	57.5%	Pass
41.92 - 40.33	Pole + Reinf.	TP60x60x0.625	Pole	58.6%	Pass
40.33 - 40.08	Pole + Reinf.	TP60x60x0.6	Pole	59.3%	Pass
40.08 - 35.08	Pole + Reinf.	TP60x60x0.6	Pole	62.8%	Pass
35.08 - 30.08	Pole + Reinf.	TP60x60x0.6	Pole	66.5%	Pass
30.08 - 28	Pole + Reinf.	TP60x60x0.6	Pole	68.0%	Pass
28 - 27.75	Pole + Reinf.	TP60x60x0.725	Pole	57.2%	Pass
27.75 - 22.75	Pole + Reinf.	TP60x60x0.725	Pole	60.4%	Pass
22.75 - 20.08	Pole + Reinf.	TP60x60x0.725	Pole	62.1%	Pass
20.08 - 19.83	Pole	TP60x60x0.625	Pole	69.3%	Pass
19.83 - 17	Pole	TP60x60x0.625	Pole	71.3%	Pass
17 - 16.75	Pole + Reinf.	TP60x60x0.725	Pole	61.8%	Pass
16.75 - 11.65	Pole + Reinf.	TP60x60x0.75	Pole	63.5%	Pass
11.65 - 11.42	Pole + Reinf.	TP60x60x0.75	Pole	63.7%	Pass
11.42 - 9.4	Pole + Reinf.	TP60x60x0.75	Pole	64.9%	Pass
9.4 - 9.15	Pole + Reinf.	TP60x60x0.8	Reinf. 7 Tension Rupture	64.6%	Pass
9.15 - 4.83	Pole + Reinf.	TP60x60x0.8	Reinf. 7 Tension Rupture	67.3%	Pass
4.83 - 4.58	Pole + Reinf.	TP60x60x0.75	Pole	68.8%	Pass
4.58 - 0	Pole + Reinf.	TP60x60x0.75	Pole	71.7%	Pass
				Summary	
			Pole	71.7%	Pass
			Reinforcement	69.8%	Pass
			Overall	71.7%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity*													
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13
191.67 - 186.67	807	n/a	807	20.76	n/a	20.76	0.7%													
186.67 - 181.57	1942	n/a	1942	27.83	n/a	27.83	1.6%													
181.57 - 176.57	1942	n/a	1942	27.83	n/a	27.83	5.6%													
176.57 - 171.57	1942	n/a	1942	27.83	n/a	27.83	9.9%													
171.57 - 166.57	1942	n/a	1942	27.83	n/a	27.83	14.5%													
166.57 - 161.57	1942	n/a	1942	27.83	n/a	27.83	19.2%													
161.57 - 156.57	1942	n/a	1942	27.83	n/a	27.83	27.3%													
156.57 - 151.57	1942	n/a	1942	27.83	n/a	27.83	36.5%													
151.57 - 146.57	1942	n/a	1942	27.83	n/a	27.83	50.6%													
146.57 - 141.57	1942	n/a	1942	27.83	n/a	27.83	65.1%													
141.57 - 141.42	1942	n/a	1942	27.83	n/a	27.83	65.5%													
141.42 - 136.42	6659	n/a	6659	41.97	n/a	41.97	37.8%													
136.42 - 131.42	6659	n/a	6659	41.97	n/a	41.97	46.0%													
131.42 - 126.42	6659	n/a	6659	41.97	n/a	41.97	52.3%													
126.42 - 121.42	6659	n/a	6659	41.97	n/a	41.97	60.0%													
121.42 - 121.17	6659	n/a	6659	41.97	n/a	41.97	60.4%													
121.17 - 116.17	10622	n/a	10622	49.04	n/a	49.04	51.2%													
116.17 - 111.17	10622	n/a	10622	49.04	n/a	49.04	58.6%													
111.17 - 110.04	10622	n/a	10622	49.04	n/a	49.04	60.2%													
110.04 - 109.79	10622	3132	13754	49.04	13.50	62.54	46.6%													47.0%
109.79 - 105.08	10622	3132	13754	49.04	13.50	62.54	51.9%													52.3%
105.08 - 104.83	10622	5106	15728	49.04	22.50	71.54	45.8%						47.7%							46.3%
104.83 - 100.92	10622	5106	15728	49.04	22.50	71.54	49.8%						51.9%							50.4%
100.92 - 100.67	15908	n/a	15908	56.11	n/a	56.11	57.6%													
100.67 - 95.83	15908	n/a	15908	56.11	n/a	56.11	83.4%													
95.83 - 95.58	15908	4064	19972	56.11	13.50	69.61	50.7%												50.1%	
95.58 - 90.58	15908	4064	19972	56.11	13.50	69.61	55.6%												55.0%	
90.58 - 89.92	15908	4064	19972	56.11	13.50	69.61	56.3%												55.8%	
89.92 - 89.67	15908	8127	24036	56.11	27.00	83.11	47.0%					46.5%							46.5%	
89.67 - 84.67	15908	8127	24036	56.11	27.00	83.11	51.3%					50.8%							50.8%	
84.67 - 80.83	15908	8127	24036	56.11	27.00	83.11	54.8%					54.2%							54.2%	
80.83 - 80.33	22710	10233	32943	63.18	27.00	90.18	46.0%					44.9%							44.9%	
80.33 - 80.08	22710	6614	29324	63.18	18.00	81.18	52.0%				46.2%									
80.08 - 75.08	22710	6614	29324	63.18	18.00	81.18	56.3%				50.0%									
75.08 - 70.08	22710	6614	29324	63.18	18.00	81.18	60.6%				53.9%									
70.08 - 69.5	22710	6614	29324	63.18	18.00	81.18	61.3%				54.4%									
69.5 - 69.25	22710	12688	35398	63.18	36.00	99.18	50.9%				45.2%							48.8%		
69.25 - 64.25	22710	12688	35398	63.18	36.00	99.18	54.8%				48.7%							52.6%		
64.25 - 60.58	22710	12688	35398	63.18	36.00	99.18	57.8%				51.4%							55.4%		
60.58 - 60.33	31217	11364	42581	70.24	24.38	94.62	54.3%			47.2%										
60.33 - 55.33	31217	11364	42581	70.24	24.38	94.62	58.1%			50.5%										
55.33 - 52.17	31217	11364	42581	70.24	24.38	94.62	60.6%			52.7%										
52.17 - 51.92	31219	19812	51030	70.24	48.38	118.62	50.8%			43.8%							43.1%			
51.92 - 46.92	31219	19812	51030	70.24	48.38	118.62	54.1%			46.7%							46.0%			
46.92 - 41.92	31219	19812	51030	70.24	48.38	118.62	57.5%			49.6%							48.9%			
41.92 - 40.33	31219	19812	51030	70.24	48.38	118.62	58.6%			50.6%							49.8%			
40.33 - 40.08	41363	7892	49255	93.46	18.00	111.46	59.3%		53.4%											
40.08 - 35.08	41363	7892	49255	93.46	18.00	111.46	62.8%		56.6%											
35.08 - 30.08	41363	7892	49255	93.46	18.00	111.46	66.5%		59.9%											
30.08 - 28	41363	7892	49255	93.46	18.00	111.46	68.0%		61.2%											
28 - 27.75	41368	17587	58955	93.46	42.00	135.46	57.2%		50.4%							50.5%				
27.75 - 22.75	41368	17587	58955	93.46	42.00	135.46	60.4%		53.2%							53.3%				
22.75 - 20.08	41368	17587	58955	93.46	42.00	135.46	62.1%		54.7%							54.8%				
20.08 - 19.83	51381	n/a	51381	116.58	n/a	116.58	69.3%													
19.83 - 17	51381	n/a	51381	116.58	n/a	116.58	71.3%													
17 - 16.75	51383	8145	59528	116.58	24.00	140.58	61.8%								54.4%					
16.75 - 11.65	51395	9920	61315	116.58	27.00	143.58	63.5%							63.3%	56.8%					
11.65 - 11.42	51395	9920	61315	116.58	27.00	143.58	63.7%							63.4%	56.9%					
11.42 - 9.4	51395	9920	61315	116.58	27.00	143.58	64.9%							64.7%	58.0%					
9.4 - 9.15	51382	13787	65169	116.58	33.00	149.58	60.8%	64.1%						64.6%	55.2%					
9.15 - 4.83	51382	13787	65169	116.58	33.00	149.58	63.3%	66.7%						67.3%	57.5%					
4.83 - 4.58	51446	9839	61284	116.58	30.00	146.58	68.8%	67.0%							59.9%					
4.58 - 0	51446	9839	61284	116.58	30.00	146.58	71.7%	69.8%							62.4%					

Note: Section capacity checked in 5 degree increments.
Rating per TIA-222-H Section 15.5.

Monopole Flange Plate Connection

Elevation = 181.583 ft.

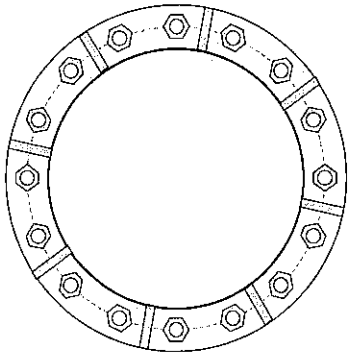
BU #	826217
Site Name	Newington_1, CT
Order #	498392, Rev# 0

TIA-222 Revision	H

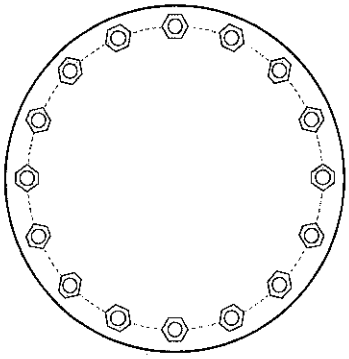
Applied Loads	
Moment (kip-ft)	7.28
Axial Force (kips)	5.05
Shear Force (kips)	5.01

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(16) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 21" BC

Top Plate Data

24" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Plate Data

24" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

(8) 5"H x 3"W x 0.625"T, Notch: 0.75"
plate: Fy= 36 ksi ; weld: Fy= 70 ksi
horiz. weld: 0.3125" fillet
vert. weld: 0.3125" fillet

Bottom Stiffener Data

N/A

Top Pole Data

18" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Pole Data

24" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	0.72	
Allowable (kips)	54.54	
Stress Rating:	**1.3%**	**Pass**

Top Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	**N/A**
Tension Side Stress Rating:	**N/A**

Bottom Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	**N/A**
Tension Side Stress Rating:	**N/A**

Top Stiffener Capacity

Horizontal Weld:	**N/A**
Vertical Weld:	**N/A**
Plate Flexure+Shear:	**N/A**
Plate Tension+Shear:	**N/A**
Plate Compression:	**N/A**

Bottom Stiffener Capacity

Horizontal Weld:	**N/A**
Vertical Weld:	**N/A**
Plate Flexure+Shear:	**N/A**
Plate Tension+Shear:	**N/A**
Plate Compression:	**N/A**

Top Pole Capacity

Punching Shear:	**N/A**

Bottom Pole Capacity

Punching Shear:	**N/A**

Monopole Flange Plate Connection

Elevation = 141.417 ft.

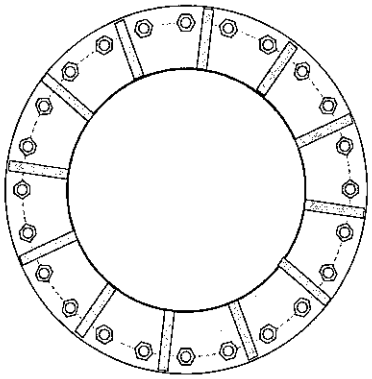
BU #	826217
Site Name	Newington_1, CT
Order #	498392, Rev# 0

TIA-222 Revision	H

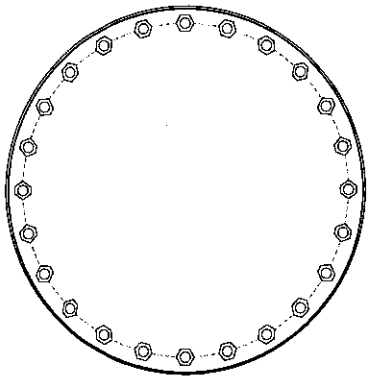
Applied Loads	
Moment (kip-ft)	416.46
Axial Force (kips)	19.84
Shear Force (kips)	18.91

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(24) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 33" BC

Top Plate Data

36.375" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Plate Data

36.375" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

(12) 8"H x 6"W x 1"T, Notch: 1"
plate: Fy= 36 ksi ; weld: Fy= 70 ksi
horiz. weld: 0.3125" fillet
vert. weld: 0.3125" fillet

Bottom Stiffener Data

N/A

Top Pole Data

24" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Pole Data

36" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	24.40	
Allowable (kips)	54.53	
Stress Rating:	**42.6%**	**Pass**

Top Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	**N/A**
Tension Side Stress Rating:	**N/A**

Bottom Plate Capacity

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	**N/A**
Tension Side Stress Rating:	**N/A**

Top Stiffener Capacity

Horizontal Weld:	**N/A**
Vertical Weld:	**N/A**
Plate Flexure+Shear:	**N/A**
Plate Tension+Shear:	**N/A**
Plate Compression:	**N/A**

Bottom Stiffener Capacity

Horizontal Weld:	**N/A**
Vertical Weld:	**N/A**
Plate Flexure+Shear:	**N/A**
Plate Tension+Shear:	**N/A**
Plate Compression:	**N/A**

Top Pole Capacity

Punching Shear:	**N/A**

Bottom Pole Capacity

Punching Shear:	**N/A**

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Bolted Bridge Stiffeners Reinforcement Check

Assumptions / Notes:

1. For design purposes, it is assumed that the proposed bridge stiffeners are to take the full load.
2. The plastification of the pole is not considered.
3. All shear and axial loads are taken by the flange bolts.

1. PARAMETERS

Rev. H

Elevation 121.167 ft Apply TIA-222-H Section 15.5? Yes

1.1 tnxTower Reactions

Moment (M)	824.67	k-ft
Axial Load (P)	25.996	kip
Shear Load (V)	21.681	kips

1.2 Shaft Properties at the Flange

Upper Shaft Diameter (Dshaft1)	36	in
Upper Shaft Thichkness (t1)	0.375	in
Lower Shaft Diameter (Dshaft2)	42	in
Lower Shaft Thickness (t2)	0.375	in
Shaft Grade:		
Fyshaft	42	ksi
Fushaft	63	ksi

1.3 Existing Bridge Stiffeners Properties

(Verify existing bolted connection for reduced moment.)

Number of Proposed Bridge Stiffeners (Nexist)	3	
Thickness of Proposed Bridge Stiffeners (texist)	1	in
Width of Proposed Bridge Stiffeners (wexist)	4.5	in
Existing Bridge Stiffener Grade:		
Fyex	65	ksi
Fuex	80	ksi
Diameter to the centroid of Existing Bridge Stiffeners (BCexist)	44	in
Gross Area of One Existing Bridge Stiffener (Ag_exist)	4.5	in^2
Radius of Gyration about x-axis (rx)	0.289	in
Moment of Inertia of Existing Bridge Stiffeners (Iexist)	3267	in^4

1.4 Flange Bolt Properties

Number of Flange Bolts (Nbolts)	28	
Diameter of Flange Bolts	1	in
Bolt Circle of Flange Bolts (BCbolts)	39	in
Gross Area of One Flange Bolt (Ag_bolts)	0.785	in^2
Moment of Inertia of Flange Bolts (Ibolts)	4181	in^4

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1.5 Division of Forces

Total Gross Area (Ag_total)	35.49 in^2
Total Moment of Inertia (Itotal)	7448 in^4

1.6 Reactions to Existing Bridge Stiffeners

Moment Reaction to Existing Bridge Stiffeners (Mexist)	361.7 kip-ft
Axial Reaction to Existing Bridge Stiffeners (Pexist)	0.0 kips
Shear Reaction to Flange Bolts (Vexist)	0.0 kips

1.7 Reactions to Flange Bolts

(It is assumed that all shear and axial loads are taken by the flange bolts)

Moment Reaction to Flange Bolts (Mbolts)	462.9 kip-ft	**Check Flange Connection with these Reactions**
Axial Reaction to Flange Bolts (Pbolts)	26.0 kips	
Shear Reaction to Flange Bolts (Vbolts)	21.7 kips	

2. Existing Bridge Stiffener

2.1 Maximum Axial Forces in Single Existing

Outer Radius of Bolt Circle (C)	22 in
Critical Compression Bending Stress (Pcomp)	131.5 kips
Critical Tension Bending Stress (Ptens)	131.5 kips

2.2 Available Compression Strength

[AISC 15th Edition E3-1]

Resistance Factor (φc)	0.9	
Unbraced Length (Lu)	16 in	
Effective Length Factor (K)	1	
Strength of Bridge Stiffener:		
Fy	65 ksi	
Fu	80 ksi	
Effective Length of Member (Lc)	16.00 in	[AISC 15th Edition E3-2]
Elastic Buckling Stress (Fe)	93.2 ksi	[AISC 15th Edition,Eq. E3-4]
Limit	99.5	
Determination of Crticial Stress (Fcr)	48.5 ksi	
[AISC 15th Edition,Eqs. E3-2 and E3-3]		
Allowable Compressive Strength (φPn)	196.6 kips	
[AISC 15th Ed., Eqs. J4-6 and E3-1]		
Check Compressive Strength (Checkcomp)	[redacted]	

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2.3 Available Tension Strength

Gross Section Yield

Available Tension Yield Strength (φPty) [AISC 15th Ed., Ch.D2]	263.3 kips

Net Section Fracture

Bolt Hole Diameter (BH)	1.188 in
Thickness (T)	1.00 in
Net Area (Anet)	3.250 in^2
Net Area Limitation (Ae)	3.250 in^2
Available Fractile Strength (φPtr)	195.0 kips

Tension Check

Controlling Mode of Failure (Check mode)	Fracture Controls
(φPnt)	195.0 kips
Controlling Tension Mode Check (Checktension)	64.2% Pass

SUMMARY

tnxTower Reactions

M	824.7 kip-ft
P	26.0 kip
V	21.7 kip

Flange Bolts

Diameter of Flange Bolts (Dbolts)	1.00 in
Bolt Circle of Flange Bolts (BCbolts)	39.0 in
Loads to Flange Bolts	
Mbolts	462.9 kip-ft
P	26.0 kip
V	21.7 kip

See Flange tool for Flange Bolt and Plate Capacities

Existing Jump Plates

Moment to Existing Bridge Stiffeners (Mexist)	361.7 kip-ft
Number of Existing Bridge Stiffeners (Nexist)	3
Thickness (texist)	1.00 in
Width (wexist)	4.50 in
Controlling Capacity of Existing Bridge Stiffeners (Capacitymax)	64.2% Pass

Monopole Flange Plate Connection

Elevation = 121.167 ft.

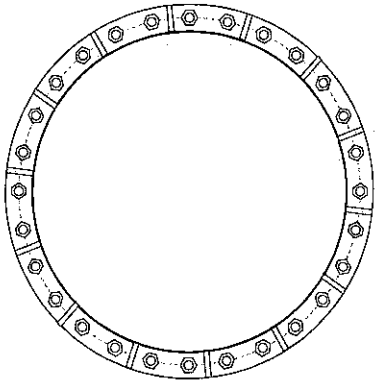
BU #	826217
Site Name	Newington_1, CT
Order #	498392, Rev# 0

TIA-222 Revision	H

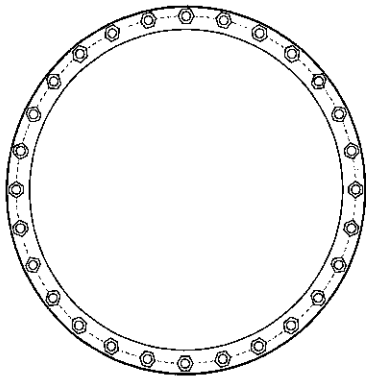
Applied Loads	
Moment (kip-ft)	462.90
Axial Force (kips)	26.00
Shear Force (kips)	21.70

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(28) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 39" BC

Top Plate Data

42" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Plate Data

36" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

(14) 5"H x 3"W x 0.625"T, Notch: 0.75"
plate: Fy= 36 ksi ; weld: Fy= 70 ksi
horiz. weld: 0.3125" fillet
vert. weld: 0.3125" fillet

Bottom Stiffener Data

N/A

Top Pole Data

36" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Pole Data

42" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	19.41	
Allowable (kips)	54.53	
Stress Rating:	**33.9%**	**Pass**

Top Plate Capacity

Max Stress (ksi):	12.73	(Flexural (b/Le>2))
Allowable Stress (ksi):	32.40	
Stress Rating:	**37.4%**	**Pass**
Tension Side Stress Rating:	**12.9%**	**Pass**

Bottom Plate Capacity

Max Stress (ksi):	13.24	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**38.9%**	**Pass**
Tension Side Stress Rating:	**N/A**	

Top Stiffener Capacity

Horizontal Weld:	**53.2%**	**Pass**
Vertical Weld:	**34.1%**	**Pass**
Plate Flexure+Shear:	**23.0%**	**Pass**
Plate Tension+Shear:	**39.4%**	**Pass**
Plate Compression:	**50.7%**	**Pass**

Bottom Stiffener Capacity

Horizontal Weld:	**N/A**
Vertical Weld:	**N/A**
Plate Flexure+Shear:	**N/A**
Plate Tension+Shear:	**N/A**
Plate Compression:	**N/A**

Top Pole Capacity

Punching Shear:	**17.4%**	**Pass**

Bottom Pole Capacity

Punching Shear:	**N/A**

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Bolted Bridge Stiffeners Reinforcement Check

Assumptions / Notes:

1. For design purposes, it is assumed that the proposed bridge stiffeners are to take the full load.
2. The plastification of the pole is not considered.
3. All shear and axial loads are taken by the flange bolts.

1. PARAMETERS

Rev. H

Elevation 100.917 ft Apply TIA-222-H Section 15.5? Yes

1.1 tnxTower Reactions

Moment (M)	1347.692	k-ft
Axial Load (P)	37.327	kip
Shear Load (V)	28.296	kips

1.2 Shaft Properties at the Flange

Upper Shaft Diameter (Dshaft1)	42	in
Upper Shaft Thichkness (t1)	0.375	in
Lower Shaft Diameter (Dshaft2)	48	in
Lower Shaft Thickness (t2)	0.375	in
Shaft Grade:		
Fyshaft	42	ksi
Fushaft	63	ksi

1.3 Existing Bridge Stiffeners Properties

(Verify existing bolted connection for reduced moment.)

Number of Proposed Bridge Stiffeners (Nexist)	6	
Thickness of Proposed Bridge Stiffeners (texist)	1	in
Width of Proposed Bridge Stiffeners (wexist)	4.5	in
Existing Bridge Stiffener Grade:		
Fyex	65	ksi
Fuex	80	ksi
Diameter to the centroid of Existing Bridge Stiffeners (BCexist)	49	in
Gross Area of One Existing Bridge Stiffener (Ag_exist)	4.5	in^2
Radius of Gyration about x-axis (rx)	0.289	in
Moment of Inertia of Existing Bridge Stiffeners (Iexist)	7660	in^4

1.4 Flange Bolt Properties

Number of Flange Bolts (Nbolts)	32	
Diameter of Flange Bolts	1	in
Bolt Circle of Flange Bolts (BCbolts)	45	in
Gross Area of One Flange Bolt (Ag_bolts)	0.785	in^2
Moment of Inertia of Flange Bolts (Ibolts)	6362	in^4

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1.5 Division of Forces

Total Gross Area (Ag_total)	52.13 in^2
Total Moment of Inertia (Itotal)	14023 in^4

1.6 Reactions to Existing Bridge Stiffeners

Moment Reaction to Existing Bridge Stiffeners (Mexist)	736.1 kip-ft
Axial Reaction to Existing Bridge Stiffeners (Pexist)	0.0 kips
Shear Reaction to Flange Bolts (Vexist)	0.0 kips

1.7 Reactions to Flange Bolts

(It is assumed that all shear and axial loads are taken by the flange bolts)

Moment Reaction to Flange Bolts (Mbolts)	611.4 kip-ft	**Check Flange Connection with these Reactions**
Axial Reaction to Flange Bolts (Pbolts)	37.3 kips	
Shear Reaction to Flange Bolts (Vbolts)	28.3 kips	

2. Existing Bridge Stiffener

2.1 Maximum Axial Forces in Single Existing

Outer Radius of Bolt Circle (C)	24.5 in
Critical Compression Bending Stress (Pcomp)	127.1 kips
Critical Tension Bending Stress (Ptens)	127.1 kips

2.2 Available Compression Strength

[AISC 15th Edition E3-1]

Resistance Factor (φc)	0.9	
Unbraced Length (Lu)	16.5 in	
Effective Length Factor (K)	1	
Strength of Bridge Stiffener:		
Fy	65 ksi	
Fu	80 ksi	
Effective Length of Member (Lc)	16.50 in	[AISC 15th Edition E3-2]
Elastic Buckling Stress (Fe)	87.6 ksi	[AISC 15th Edition,Eq. E3-4]
Limit	99.5	
Determination of Crticial Stress (Fcr)	47.6 ksi	
[AISC 15th Edition,Eqs. E3-2 and E3-3]		
Allowable Compressive Strength (φPn)	193.0 kips	
[AISC 15th Ed., Eqs. J4-6 and E3-1]		
Check Compressive Strength (Checkcomp)	[redacted]	[redacted]

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2.3 Available Tension Strength

Gross Section Yield

Available Tension Yield Strength (φPty) [AISC 15th Ed., Ch.D2]	263.3 kips

Net Section Fracture

Bolt Hole Diameter (BH)	1.188 in
Thickness (T)	1.00 in
Net Area (Anet)	3.250 in^2
Net Area Limitation (Ae)	3.250 in^2
Available Fractile Strength (φPtr)	195.0 kips

Tension Check

Controlling Mode of Failure (Check mode)	Fracture Controls
(φPnt)	195.0 kips
Controlling Tension Mode Check (Checktension)	62.1% [redacted]

SUMMARY

tnxTower Reactions

M	1347.7 kip-ft
P	37.3 kip
V	28.3 kip

Flange Bolts

Diameter of Flange Bolts (Dbolts)	1.00 in
Bolt Circle of Flange Bolts (BCbolts)	45.0 in
Loads to Flange Bolts	
Mbolts	611.4 kip-ft
P	37.3 kip
V	28.3 kip

See Flange tool for Flange Bolt and Plate Capacities

Existing Jump Plates

Moment to Existing Bridge Stiffeners (Mexist)	736.1 kip-ft
Number of Existing Bridge Stiffeners (Nexist)	6
Thickness (texist)	1.00 in
Width (wexist)	4.50 in
Controlling Capacity of Existing Bridge Stiffeners (Capacitymax)	62.7% [redacted]

Monopole Flange Plate Connection

Elevation = 100.917 ft.

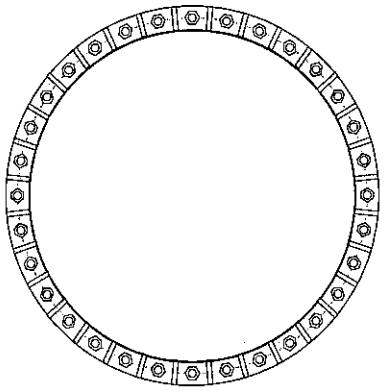
BU #	826217
Site Name	Newington_1, CT
Order #	498392; Rev# 0

TIA-222 Revision	H

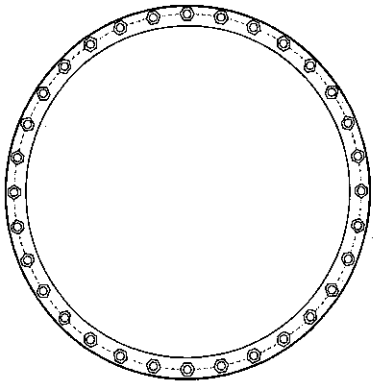
Applied Loads	
Moment (kip-ft)	611.40
Axial Force (kips)	37.30
Shear Force (kips)	28.30

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(32) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 45" BC

Top Plate Data

48" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Plate Data

42" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

(32) 5"H x 3"W x 0.625"T, Notch: 0.75"
plate: Fy= 36 ksi ; weld: Fy= 70 ksi
horiz. weld: 0.3125" fillet
vert. weld: 0.3125" fillet

Bottom Stiffener Data

N/A

Top Pole Data

42" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Pole Data

48" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	19.21	
Allowable (kips)	54.52	
Stress Rating:	**33.6%**	**Pass**

Top Plate Capacity

Max Stress (ksi):	12.76	(Roark's Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**37.5%**	**Pass**
Tension Side Stress Rating:	**N/A**	

Bottom Plate Capacity

Max Stress (ksi):	13.37	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**39.3%**	**Pass**
Tension Side Stress Rating:	**N/A**	

Top Stiffener Capacity

Horizontal Weld:	**38.5%**	**Pass**
Vertical Weld:	**24.7%**	**Pass**
Plate Flexure+Shear:	**15.3%**	**Pass**
Plate Tension+Shear:	**27.0%**	**Pass**
Plate Compression:	**36.7%**	**Pass**

Bottom Stiffener Capacity

Horizontal Weld:	**N/A**
Vertical Weld:	**N/A**
Plate Flexure+Shear:	**N/A**
Plate Tension+Shear:	**N/A**
Plate Compression:	**N/A**

Top Pole Capacity

Punching Shear:	**12.6%**	**Pass**

Bottom Pole Capacity

Punching Shear:	**N/A**

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Bolted Bridge Stiffeners Reinforcement Check

Assumptions / Notes:

1. For design purposes, it is assumed that the proposed bridge stiffeners are to take the full load.
2. The plastification of the pole is not considered.
3. All shear and axial loads are taken by the flange bolts.

1. PARAMETERS

Rev. H

Elevation 80.833 ft Apply TIA-222-H Section 15.5? Yes

1.1 tnxTower Reactions

Moment (M)	1959.755	k-ft
Axial Load (P)	48.015	kip
Shear Load (V)	32.626	kips

1.2 Shaft Properties at the Flange

Upper Shaft Diameter (Dshaft1)	48	in
Upper Shaft Thichkness (t1)	0.375	in
Lower Shaft Diameter (Dshaft2)	54	in
Lower Shaft Thickness (t2)	0.375	in
Shaft Grade:		
Fyshaft	42	ksi
Fushaft	63	ksi

1.3 Existing Bridge Stiffeners Properties

(Verify existing bolted connection for reduced moment.)

Number of Proposed Bridge Stiffeners (Nexist)	3		3	
Thickness of Proposed Bridge Stiffeners (texist)	1	in	1.25	in
Width of Proposed Bridge Stiffeners (wexist)	4.5	in	6.5	in
Existing Bridge Stiffener Grade:				
Fyex	65	ksi	65	ksi
Fuex	80	ksi	80	ksi
Diameter to the centroid of Existing Bridge Stiffeners (BCexist)	55	in	55.126	in
Gross Area of One Existing Bridge Stiffener (Ag_exist)	4.5	in^2	8.125	in^2
Radius of Gyration about x-axis (rx)	0.289	in	0.361	in
Moment of Inertia of Existing Bridge Stiffeners (Iexist)	14462	in^4		

1.4 Flange Bolt Properties

Number of Flange Bolts (Nbolts)	36	
Diameter of Flange Bolts	1	in
Bolt Circle of Flange Bolts (BCbolts)	51	in
Gross Area of One Flange Bolt (Ag_bolts)	0.785	in^2
Moment of Inertia of Flange Bolts (Ibolts)	9193	in^4

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1.5 Division of Forces

Total Gross Area (Ag_total)	41.77 in^2
Total Moment of Inertia (Itotal)	23655 in^4

1.6 Reactions to Existing Bridge Stiffeners

Moment Reaction to Existing Bridge Stiffeners (Mexist)	1198.2 kip-ft
Axial Reaction to Existing Bridge Stiffeners (Pexist)	0.0 kips
Shear Reaction to Flange Bolts (Vexist)	0.0 kips

1.7 Reactions to Flange Bolts

(It is assumed that all shear and axial loads are taken by the flange bolts)

Moment Reaction to Flange Bolts (Mbolts)	761.6 kip-ft	**Check Flange Connection with these Reactions**
Axial Reaction to Flange Bolts (Pbolts)	48.0 kips	
Shear Reaction to Flange Bolts (Vbolts)	32.6 kips	

2. Existing Bridge Stiffener

2.1 Maximum Axial Forces in Single Existing Bridge

Outer Radius of Bolt Circle (C)	27.5 in
Critical Compression Bending Stress (Pcomp)	123.0 kips
Critical Tension Bending Stress (Ptens)	123.0 kips

2.2 Available Compression Strength

[AISC 15th Edition E3-1]

Resistance Factor (φc)	0.9	
Unbraced Length (Lu)	16 in	
Effective Length Factor (K)	1	
Strength of Bridge Stiffener:		
Fy	65 ksi	
Fu	80 ksi	
Effective Length of Member (Lc)	16.00 in	[AISC 15th Edition E3-2]
Elastic Buckling Stress (Fe)	93.2 ksi	[AISC 15th Edition,Eq. E3-4]
Limit	99.5	
Determination of Crticial Stress (Fcr)	48.5 ksi	
[AISC 15th Edition,Eqs. E3-2 and E3-3]		
Allowable Compressive Strength (φPn)	196.6 kips	
[AISC 15th Ed., Eqs. J4-6 and E3-1]		
Check Compressive Strength (Checkcomp)	[redacted]	[redacted]

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2.3 Available Tension Strength

Gross Section Yield

Available Tension Yield Strength (φPty) [AISC 15th Ed., Ch.D2]	263.3 kips

Net Section Fracture

Bolt Hole Diameter (BH)	1.188 in
Thickness (T)	1.00 in
Net Area (Anet)	3.250 in^2
Net Area Limitation (Ae)	3.250 in^2
Available Fractile Strength (φPtr)	195.0 kips

Tension Check

Controlling Mode of Failure (Check mode)	Fracture Controls
(φPnt)	195.0 kips
Controlling Tension Mode Check (Checktension)	[redacted]

SUMMARY

tnxTower Reactions

M	1959.8 kip-ft
P	48.0 kip
V	32.6 kip

Flange Bolts

Diameter of Flange Bolts (Dbolts)	1.00 in
Bolt Circle of Flange Bolts (BCbolts)	51.0 in
Loads to Flange Bolts	
Mbolts	761.6 kip-ft
P	48.0 kip
V	32.6 kip

See Flange tool for Flange Bolt and Plate Capacities

Existing Jump Plates

Moment to Existing Bridge Stiffeners (Mexist)	1198.2 kip-ft
Number of Existing Bridge Stiffeners (Nexist)	3
Thickness (texist)	1.00 in
Width (wexist)	4.50 in
Controlling Capacity of Existing Bridge Stiffeners (Capacitymax)	[redacted]

Monopole Flange Plate Connection

Elevation = 80.833 ft.

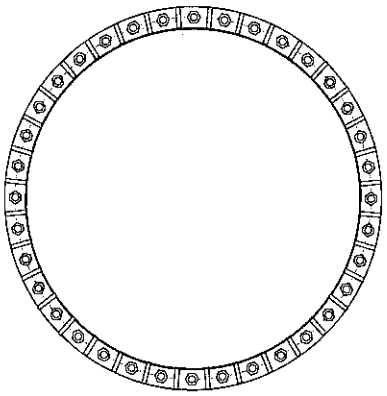
BU #	826217
Site Name	Newington_1, CT
Order #	498392, Rev# 0

TIA-222 Revision	H

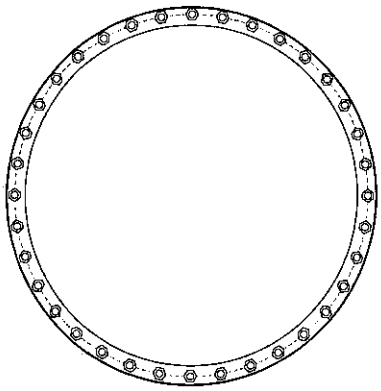
Applied Loads	
Moment (kip-ft)	761.60
Axial Force (kips)	48.00
Shear Force (kips)	32.60

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(36) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 51" BC

Top Plate Data

54" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Plate Data

48" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

(36) 5"H x 3"W x 0.625"T, Notch: 0.75"
plate: Fy= 36 ksi ; weld: Fy= 70 ksi
horiz. weld: 0.3125" fillet
vert. weld: 0.3125" fillet

Bottom Stiffener Data

N/A

Top Pole Data

48" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Pole Data

54" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	18.57	
Allowable (kips)	54.52	
Stress Rating:	**32.4%**	**Pass**

Top Plate Capacity

Max Stress (ksi):	12.58	(Roark's Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**37.0%**	**Pass**
Tension Side Stress Rating:	**N/A**	

Bottom Plate Capacity

Max Stress (ksi):	13.16	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**38.7%**	**Pass**
Tension Side Stress Rating:	**N/A**	

Top Stiffener Capacity

Horizontal Weld:	**37.3%**	**Pass**
Vertical Weld:	**24.0%**	**Pass**
Plate Flexure+Shear:	**14.8%**	**Pass**
Plate Tension+Shear:	**26.1%**	**Pass**
Plate Compression:	**35.6%**	**Pass**

Bottom Stiffener Capacity

Horizontal Weld:	**N/A**
Vertical Weld:	**N/A**
Plate Flexure+Shear:	**N/A**
Plate Tension+Shear:	**N/A**
Plate Compression:	**N/A**

Top Pole Capacity

Punching Shear:	**12.2%**	**Pass**

Bottom Pole Capacity

Punching Shear:	**N/A**

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Bolted Bridge Stiffeners Reinforcement Check

Assumptions / Notes:

1. For design purposes, it is assumed that the proposed bridge stiffeners are to take the full load.
2. The plastification of the pole is not considered.
3. All shear and axial loads are taken by the flange bolts.

1. PARAMETERS

Rev. H

Elevation 60.58 ft Apply TIA-222-H Section 15.5? Yes

1.1 tnxTower Reactions

Moment (M)	2669.076	k-ft
Axial Load (P)	66.333	kip
Shear Load (V)	37.568	kips

1.2 Shaft Properties at the Flange

Upper Shaft Diameter (Dshaft1)	54	in
Upper Shaft Thichkness (t1)	0.375	in
Lower Shaft Diameter (Dshaft2)	60	in
Lower Shaft Thickness (t2)	0.375	in
Shaft Grade:		
Fyshaft	42	ksi
Fushaft	63	ksi

1.3 Existing Bridge Stiffeners Properties

(Verify existing bolted connection for reduced moment.)

Number of Proposed Bridge Stiffeners (Nexist)	4		6	
Thickness of Proposed Bridge Stiffeners (texist)	1	in	1.25	in
Width of Proposed Bridge Stiffeners (wexist)	4.5	in	8.5	in
Existing Bridge Stiffener Grade:				
Fyex	65	ksi	65	ksi
Fuex	80	ksi	80	ksi
Diameter to the centroid of Existing Bridge Stiffeners (BCexist)	61	in	61.836	in
Gross Area of One Existing Bridge Stiffener (Ag_exist)	4.5	in^2	10.625	in^2
Radius of Gyration about x-axis (rx)	0.289	in	0.361	in
Moment of Inertia of Existing Bridge Stiffeners (Iexist)	34387	in^4		

1.4 Flange Bolt Properties

Number of Flange Bolts (Nbolts)	48	
Diameter of Flange Bolts	1	in
Bolt Circle of Flange Bolts (BCbolts)	57	in
Gross Area of One Flange Bolt (Ag_bolts)	0.785	in^2
Moment of Inertia of Flange Bolts (Ibolts)	15311	in^4

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1.5 Division of Forces

Total Gross Area (Ag_total)	119.45	in^2
Total Moment of Inertia (Itotal)	49737	in^4

1.6 Reactions to Existing Bridge Stiffeners

Moment Reaction to Existing Bridge Stiffeners (Mexist)	1845.4	kip-ft
Axial Reaction to Existing Bridge Stiffeners (Pexist)	0.0	kips
Shear Reaction to Flange Bolts (Vexist)	0.0	kips

1.7 Reactions to Flange Bolts

(It is assumed that all shear and axial loads are taken by the flange bolts)

Moment Reaction to Flange Bolts (Mbolts)	821.6	kip-ft	**Check Flange Connection with these Reactions**
Axial Reaction to Flange Bolts (Pbolts)	66.3	kips	
Shear Reaction to Flange Bolts (Vbolts)	37.6	kips	

2. Existing Bridge Stiffener

2.1 Maximum Axial Forces in Single Existing

Outer Radius of Bolt Circle (C)	30.5	in
Critical Compression Bending Stress (Pcomp)	88.4	kips
Critical Tension Bending Stress (Ptens)	88.4	kips

2.2 Available Compression Strength

[AISC 15th Edition E3-1]

Resistance Factor (φc)	0.9		
Unbraced Length (Lu)	16.5	in	
Effective Length Factor (K)	1		
Strength of Bridge Stiffener:			
Fy	65	ksi	
Fu	80	ksi	
Effective Length of Member (Lc)	16.50	in	[AISC 15th Edition E3-2]
Elastic Buckling Stress (Fe)	87.6	ksi	[AISC 15th Edition,Eq. E3-4]
Limit	99.5		
Determination of Crticial Stress (Fcr)	47.6	ksi	
[AISC 15th Edition,Eqs. E3-2 and E3-3]			
Allowable Compressive Strength (φPn)	193.0	kips	
[AISC 15th Ed., Eqs. J4-6 and E3-1]			
Check Compressive Strength (Checkcomp)	43.6%	Pass	

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2.3 Available Tension Strength

Gross Section Yield

Available Tension Yield Strength (φPty) [AISC 15th Ed., Ch.D2]	263.3 kips

Net Section Fracture

Bolt Hole Diameter (BH)	1.188 in
Thickness (T)	1.00 in
Net Area (Anet)	3.250 in^2
Net Area Limitation (Ae)	3.250 in^2
Available Fractile Strength (φPtr)	195.0 kips

Tension Check

Controlling Mode of Failure (Check mode)	Fracture Controls	
(φPnt)	195.0 kips	
Controlling Tension Mode Check (Checktension)	[redacted]	[redacted]

SUMMARY

tnxTower Reactions

M	2669.1 kip-ft
P	66.3 kip
V	37.6 kip

Flange Bolts

Diameter of Flange Bolts (Dbolts)	1.00 in
Bolt Circle of Flange Bolts (BCbolts)	57.0 in
Loads to Flange Bolts	
Mbolts	821.6 kip-ft
P	66.3 kip
V	37.6 kip

See Flange tool for Flange Bolt and Plate Capacities

Existing Jump Plates

Moment to Existing Bridge Stiffeners (Mexist)	1845.4 kip-ft	
Number of Existing Bridge Stiffeners (Nexist)	4	
Thickness (texist)	1.00 in	
Width (wexist)	4.50 in	
Controlling Capacity of Existing Bridge Stiffeners (Capacitymax)	[redacted]	[redacted]

Monopole Flange Plate Connection

Elevation = 60.583 ft.

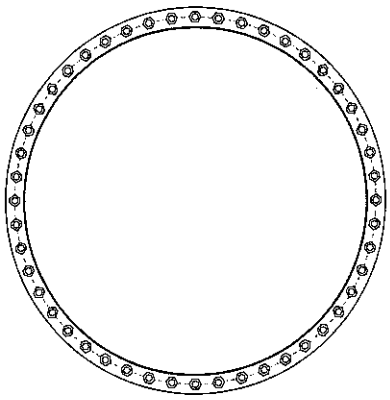
BU #	826217
Site Name	Newington_1, CT
Order #	498392, Rev# 0

TIA-222 Revision	H

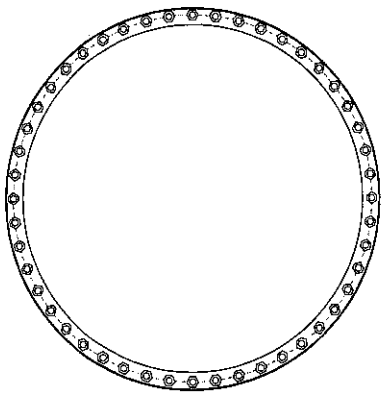
Applied Loads	
Moment (kip-ft)	821.60
Axial Force (kips)	66.30
Shear Force (kips)	37.60

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - Internal



Connection Properties

Bolt Data

(48) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 57" BC

Top Plate Data

60" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Plate Data

54" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Bottom Stiffener Data

N/A

Top Pole Data

54" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Pole Data

60" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	13.03	
Allowable (kips)	54.53	
Stress Rating:	**22.8%**	**Pass**

Top Plate Capacity

Max Stress (ksi):	11.12	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**32.7%**	**Pass**
Tension Side Stress Rating:	**10.1%**	**Pass**

Bottom Plate Capacity

Max Stress (ksi):	11.73	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**34.5%**	**Pass**
Tension Side Stress Rating:	**N/A**	

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Bolted Bridge Stiffeners Reinforcement Check

Assumptions / Notes:

1. For design purposes, it is assumed that the proposed bridge stiffeners are to take the full load.
2. The plastification of the pole is not considered.
3. All shear and axial loads are taken by the flange bolts.

1. PARAMETERS

Rev. H

Elevation 40.33 ft New Apply TIA-222-H Section 15.5? Yes

1.1 tnxTower Reactions

Moment (M)	3471.755	k-ft
Axial Load (P)	80.284	kip
Shear Load (V)	41.688	kips

1.2 Shaft Properties at the Flange

Upper Shaft Diameter (Dshaft1)	60	in
Upper Shaft Thichkness (t1)	0.375	in
Lower Shaft Diameter (Dshaft2)	60	in
Lower Shaft Thickness (t2)	0.5	in
Shaft Grade:		
Fyshaft	42	ksi
Fushaft	63	ksi

1.3 Existing Bridge Stiffeners Properties

(Verify existing bolted connection for reduced moment.)

Number of Proposed Bridge Stiffeners (Nexist)	6		4	
Thickness of Proposed Bridge Stiffeners (texist)	1.25	in	1	in
Width of Proposed Bridge Stiffeners (wexist)	6.5	in	6	in
Existing Bridge Stiffener Grade:				
Fyex	65	ksi	65	ksi
Fuex	80	ksi	80	ksi
Diameter to the centroid of Existing Bridge Stiffeners (BCexist)	63.75	in	63.5	in
Gross Area of One Existing Bridge Stiffener (Ag_exist)	8.125	in^	6	in^2
Radius of Gyration about x-axis (rx)	0.361	in	0.289	in
Moment of Inertia of Existing Bridge Stiffeners (Iexist)	33930	in^4		

1.4 Flange Bolt Properties

Number of Flange Bolts (Nbolts)	32		32	
Diameter of Flange Bolts	1 1/4	in	1 1/4	in
Bolt Circle of Flange Bolts (BCbolts)	47	in	53	in
Gross Area of One Flange Bolt (Ag_bolts)	1.227	in^2	1.227	in^2
Moment of Inertia of Flange Bolts (Ibolts)	31535	in^4		

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1.5 Division of Forces

Total Gross Area (Ag_total)	151.29	in^2
Total Moment of Inertia (Itotal)	65466	in^4

1.6 Reactions to Existing Bridge Stiffeners

Moment Reaction to Existing Bridge Stiffeners (Mexist)	1799.4	kip-ft
Axial Reaction to Existing Bridge Stiffeners (Pexist)	0.0	kips
Shear Reaction to Flange Bolts (Vexist)	0.0	kips

1.7 Reactions to Flange Bolts

(It is assumed that all shear and axial loads are taken by the flange bolts)

Moment Reaction to Flange Bolts (Mbolts)	1672.4	kip-ft	**Check Flange Connection with these Reactions**
Axial Reaction to Flange Bolts (Pbolts)	80.3	kips	
Shear Reaction to Flange Bolts (Vbolts)	41.7	kips	

2. Existing Bridge Stiffener

2.1 Maximum Axial Forces in Single Existing

Outer Radius of Bolt Circle (C)	31.875	in
Critical Compression Bending Stress (Pcomp)	164.8	kips
Critical Tension Bending Stress (Ptens)	164.8	kips

2.2 Available Compression Strength

[AISC 15th Edition E3-1]

Resistance Factor (φc)	0.9		
Unbraced Length (Lu)	16	in	
Effective Length Factor (K)	1		
Strength of Bridge Stiffener:			
Fy	65	ksi	
Fu	80	ksi	
Effective Length of Member (Lc)	16.00	in	[AISC 15th Edition E3-2]
Elastic Buckling Stress (Fe)	145.6	ksi	[AISC 15th Edition,Eq. E3-4]
Limit	99.5		
Determination of Crticial Stress (Fcr)	53.9	ksi	
[AISC 15th Edition,Eqs. E3-2 and E3-3]			
Allowable Compressive Strength (φPn)	394.3	kips	
[AISC 15th Ed., Eqs. J4-6 and E3-1]			
Check Compressive Strength (Checkcomp)	[redacted]		

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2.3 Available Tension Strength

Gross Section Yield

Available Tension Yield Strength (φPty) [AISC 15th Ed., Ch.D2]	475.3 kips

Net Section Fracture

Bolt Hole Diameter (BH)	1.188 in
Thickness (T)	1.25 in
Net Area (Anet)	6.563 in^2
Net Area Limitation (Ae)	6.563 in^2
Available Fractile Strength (φPtr)	393.8 kips

Tension Check

Controlling Mode of Failure (Check mode)	Fracture Controls
(φPnt)	393.8 kips
Controlling Tension Mode Check (Checktension)	[redacted]

SUMMARY

tnxTower Reactions

M	3471.8 kip-ft
P	80.3 kip
V	41.7 kip

Flange Bolts

Diameter of Flange Bolts (Dbolts)	1.25 in
Bolt Circle of Flange Bolts (BCbolts)	47.0 in
Loads to Flange Bolts	
Mbolts	1672.4 kip-ft
P	80.3 kip
V	41.7 kip

See Flange tool for Flange Bolt and Plate Capacities

Existing Jump Plates

Moment to Existing Bridge Stiffeners (Mexist)	1799.4 kip-ft
Number of Existing Bridge Stiffeners (Nexist)	6
Thickness (texist)	1.25 in
Width (wexist)	6.50 in
Controlling Capacity of Existing Bridge Stiffeners (Capacitymax)	[redacted]

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Bolted Bridge Stiffeners Reinforcement Check

Assumptions / Notes:

1. For design purposes, it is assumed that the proposed bridge stiffeners are to take the full load.
2. The plastification of the pole is not considered.
3. All shear and axial loads are taken by the flange bolts.

1. PARAMETERS

Rev. H

Elevation 40.33 ft Apply TIA-222-H Section 15.5? Yes

1.1 tnxTower Reactions

Moment (M)	3471.755	k-ft
Axial Load (P)	80.284	kip
Shear Load (V)	41.688	kips

1.2 Shaft Properties at the Flange

Upper Shaft Diameter (Dshaft1)	60	in
Upper Shaft Thichkness (t1)	0.375	in
Lower Shaft Diameter (Dshaft2)	60	in
Lower Shaft Thickness (t2)	0.5	in
Shaft Grade:		
Fyshaft	42	ksi
Fushaft	63	ksi

1.3 Existing Bridge Stiffeners Properties

(Verify existing bolted connection for reduced moment.)

Number of Proposed Bridge Stiffeners (Nexist)	6		4	
Thickness of Proposed Bridge Stiffeners (texist)	1.25	in	1	in
Width of Proposed Bridge Stiffeners (wexist)	6.5	in	6	in
Existing Bridge Stiffener Grade:				
Fyex	65	ksi	65	ksi
Fuex	80	ksi	80	ksi
Diameter to the centroid of Existing Bridge Stiffeners (BCexist)	63.75	in	63.5	in
Gross Area of One Existing Bridge Stiffener (Ag_exist)	8.125	in^	6	in^2
Radius of Gyration about x-axis (rx)	0.361	in	0.289	in
Moment of Inertia of Existing Bridge Stiffeners (Iexist)	33930	in^4		

1.4 Flange Bolt Properties

Number of Flange Bolts (Nbolts)	32		32	
Diameter of Flange Bolts	1 1/4	in	1 1/4	in
Bolt Circle of Flange Bolts (BCbolts)	47	in	53	in
Gross Area of One Flange Bolt (Ag_bolts)	1.227	in^2	1.227	in^2
Moment of Inertia of Flange Bolts (Ibolts)	31535	in^4		

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1.5 Division of Forces

Total Gross Area (Ag_total)	151.29 in^2
Total Moment of Inertia (Itotal)	65466 in^4

1.6 Reactions to Existing Bridge Stiffeners

Moment Reaction to Existing Bridge Stiffeners (Mexist)	1799.4 kip-ft
Axial Reaction to Existing Bridge Stiffeners (Pexist)	0.0 kips
Shear Reaction to Flange Bolts (Vexist)	0.0 kips

1.7 Reactions to Flange Bolts

(It is assumed that all shear and axial loads are taken by the flange bolts)

Moment Reaction to Flange Bolts (Mbolts)	1672.4 kip-ft	**Check Flange Connection with these Reactions**
Axial Reaction to Flange Bolts (Pbolts)	80.3 kips	
Shear Reaction to Flange Bolts (Vbolts)	41.7 kips	

2. Existing Bridge Stiffener

2.1 Maximum Axial Forces in Single Existing

Outer Radius of Bolt Circle (C)	31.875 in
Critical Compression Bending Stress (Pcomp)	164.8 kips
Critical Tension Bending Stress (Ptens)	164.8 kips

2.2 Available Compression Strength

[AISC 15th Edition E3-1]

Resistance Factor (φc)	0.9	
Unbraced Length (Lu)	25 in	
Effective Length Factor (K)	1	
Strength of Bridge Stiffener:		
Fy	65 ksi	
Fu	80 ksi	
Effective Length of Member (Lc)	25.00 in	[AISC 15th Edition E3-2]
Elastic Buckling Stress (Fe)	59.6 ksi	[AISC 15th Edition,Eq. E3-4]
Limit	99.5	
Determination of Crticial Stress (Fcr)	41.2 ksi	
[AISC 15th Edition,Eqs. E3-2 and E3-3]		
Allowable Compressive Strength (φPn)	301.2 kips	
[AISC 15th Ed., Eqs. J4-6 and E3-1]		
Check Compressive Strength (Checkcomp)	52.1%	Pass

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2.3 Available Tension Strength

Gross Section Yield

Available Tension Yield Strength (φPty) [AISC 15th Ed., Ch.D2]	475.3 kips

Net Section Fracture

Bolt Hole Diameter (BH)	1.188 in
Thickness (T)	1.25 in
Net Area (Anet)	6.563 in^2
Net Area Limitation (Ae)	6.563 in^2
Available Fractile Strength (φPtr)	393.8 kips

Tension Check

Controlling Mode of Failure (Check mode)	Fracture Controls
(φPnt)	393.8 kips
Controlling Tension Mode Check (Checktension)	[redacted]

SUMMARY

tnxTower Reactions

M	3471.8 kip-ft
P	80.3 kip
V	41.7 kip

Flange Bolts

Diameter of Flange Bolts (Dbolts)	1.25 in
Bolt Circle of Flange Bolts (BCbolts)	47.0 in
Loads to Flange Bolts	
Mbolts	1672.4 kip-ft
P	80.3 kip
V	41.7 kip

See Flange tool for Flange Bolt and Plate Capacities

Existing Jump Plates

Moment to Existing Bridge Stiffeners (Mexist)	1799.4 kip-ft
Number of Existing Bridge Stiffeners (Nexist)	6
Thickness (texist)	1.25 in
Width (wexist)	6.50 in
Controlling Capacity of Existing Bridge Stiffeners (Capacitymax)	[redacted]

Monopole Flange Plate Connection

Elevation = 40.333 ft.

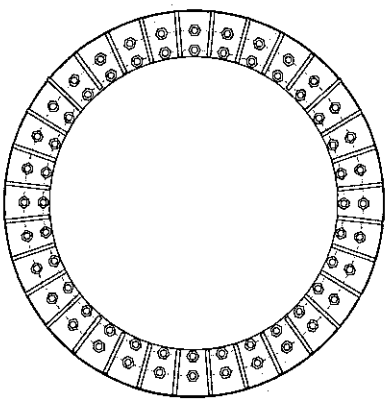
BU #	826217
Site Name	Newington_1, CT
Order #	498392, Rev# 0

TIA-222 Revision	H

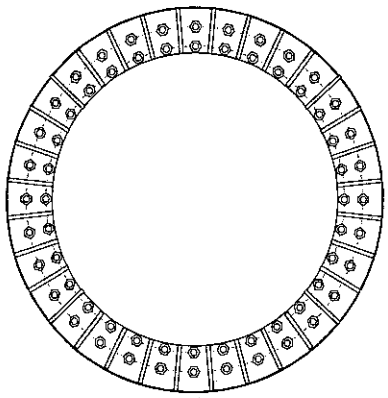
Applied Loads	
Moment (kip-ft)	1672.40
Axial Force (kips)	80.30
Shear Force (kips)	41.70

**TIA-222-H Section 15.5 Applied*

Top Plate - Internal



Bottom Plate - Internal



Connection Properties

Bolt Data

GROUP 1: (32) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 53" BC
GROUP 2: (32) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 47" BC

Top Plate Data

45" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Plate Data

45" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

(32) 10"H x 7"W x 0.625"T, Notch: 0.5"
plate: Fy= 36 ksi ; weld: Fy= 70 ksi
horiz. weld: 0.3125" fillet
vert. weld: 0.3125" fillet

Bottom Stiffener Data

(32) 10"H x 7"W x 0.625"T, Notch: 0.5"
plate: Fy= 36 ksi ; weld: Fy= 70 ksi
horiz. weld: 0.3125" fillet
vert. weld: 0.3125" fillet

Top Pole Data

60" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Pole Data

60" x 0.5" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	25.24	
Allowable (kips)	54.53	
Stress Rating:	**44.1%**	Pass

Top Plate Capacity

Max Stress (ksi):	15.20	(Roark's Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**44.7%**	**Pass**
Tension Side Stress Rating:	**N/A**	

Bottom Plate Capacity

Max Stress (ksi):	15.45	(Roark's Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**45.4%**	**Pass**
Tension Side Stress Rating:	**N/A**	

Top Stiffener Capacity

Horizontal Weld:	**35.9%**	**Pass**
Vertical Weld:	**31.4%**	**Pass**
Plate Flexure+Shear:	**20.9%**	**Pass**
Plate Tension+Shear:	**25.0%**	**Pass**
Plate Compression:	**51.7%**	**Pass**

Bottom Stiffener Capacity

Horizontal Weld:	**31.7%**	**Pass**
Vertical Weld:	**27.7%**	**Pass**
Plate Flexure+Shear:	**17.9%**	**Pass**
Plate Tension+Shear:	**21.7%**	**Pass**
Plate Compression:	**45.6%**	**Pass**

Top Pole Capacity

Punching Shear:	**16.9%**	**Pass**

Bottom Pole Capacity

Punching Shear:	**11.2%**	**Pass**

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Bolted Bridge Stiffeners Reinforcement Check

Assumptions / Notes:

1. For design purposes, it is assumed that the proposed bridge stiffeners are to take the full load.
2. The plastification of the pole is not considered.
3. All shear and axial loads are taken by the flange bolts.

1. PARAMETERS

Rev. H

Elevation 20.08 ft Apply TIA-222-H Section 15.5? Yes

1.1 tnxTower Reactions

Moment (M)	4352.32	k-ft
Axial Load (P)	95.121	kip
Shear Load (V)	45.18	kips

1.2 Shaft Properties at the Flange

Upper Shaft Diameter (Dshaft1)	60	in
Upper Shaft Thichkness (t1)	0.5	in
Lower Shaft Diameter (Dshaft2)	60	in
Lower Shaft Thickness (t2)	0.625	in
Shaft Grade:		
Fyshaft	42	ksi
Fushaft	63	ksi

1.3 Existing Bridge Stiffeners Properties

(Verify existing bolted connection for reduced moment.)

Number of Proposed Bridge Stiffeners (Nexist)	6		4	
Thickness of Proposed Bridge Stiffeners (texist)	1.25	in	1	in
Width of Proposed Bridge Stiffeners (wexist)	6.5	in	6	in
Existing Bridge Stiffener Grade:				
Fyex	65	ksi	65	ksi
Fuex	80	ksi	80	ksi
Diameter to the centroid of Existing Bridge Stiffeners (BCexist)	63.75	in	63.5	in
Gross Area of One Existing Bridge Stiffener (Ag_exist)	8.125	in^2	6	in^2
Radius of Gyration about x-axis (rx)	0.361	in	0.289	in
Moment of Inertia of Existing Bridge Stiffeners (Iexist)	35505	in^4		

1.4 Flange Bolt Properties

Number of Flange Bolts (Nbolts)	32		32	
Diameter of Flange Bolts	1 1/4	in	1 1/4	in
Bolt Circle of Flange Bolts (BCbolts)	47	in	53	in
Gross Area of One Flange Bolt (Ag_bolts)	1.227	in^2	1.227	in^2
Moment of Inertia of Flange Bolts (Ibolts)	49270	in^4		

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1.5 Division of Forces

Total Gross Area (Ag_total)	151.29 in^2
Total Moment of Inertia (Itotal)	84837 in^4

1.6 Reactions to Existing Bridge Stiffeners

Moment Reaction to Existing Bridge Stiffeners (Mexist)	1821.5 kip-ft
Axial Reaction to Existing Bridge Stiffeners (Pexist)	0.0 kips
Shear Reaction to Flange Bolts (Vexist)	0.0 kips

1.7 Reactions to Flange Bolts

(It is assumed that all shear and axial loads are taken by the flange bolts)

Moment Reaction to Flange Bolts (Mbolts)	2527.7 kip-ft	**Check Flange Connection with these Reactions**
Axial Reaction to Flange Bolts (Pbolts)	95.1 kips	
Shear Reaction to Flange Bolts (Vbolts)	45.2 kips	

2. Existing Bridge Stiffener

2.1 Maximum Axial Forces in Single Existing

Outer Radius of Bolt Circle (C)	31.875 in
Critical Compression Bending Stress (Pcomp)	159.4 kips
Critical Tension Bending Stress (Ptens)	159.4 kips

2.2 Available Compression Strength

[AISC 15th Edition E3-1]

Resistance Factor (φc)	0.9	
Unbraced Length (Lu)	16 in	
Effective Length Factor (K)	1	
Strength of Bridge Stiffener:		
Fy	65 ksi	
Fu	80 ksi	
Effective Length of Member (Lc)	16.00 in	[AISC 15th Edition E3-2]
Elastic Buckling Stress (Fe)	145.6 ksi	[AISC 15th Edition,Eq. E3-4]
Limit	99.5	
Determination of Crticial Stress (Fcr)	53.9 ksi	
[AISC 15th Edition,Eqs. E3-2 and E3-3]		
Allowable Compressive Strength (φPn)	394.3 kips	
[AISC 15th Ed., Eqs. J4-6 and E3-1]		
Check Compressive Strength (Checkcomp)	38.9%	Pass

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2.3 Available Tension Strength

Gross Section Yield

Available Tension Yield Strength (φPty) [AISC 15th Ed., Ch.D2]	475.3 kips

Net Section Fracture

Bolt Hole Diameter (BH)	1.188 in
Thickness (T)	1.25 in
Net Area (Anet)	6.563 in^2
Net Area Limitation (Ae)	6.563 in^2
Available Fractile Strength (φPtr)	393.8 kips

Tension Check

Controlling Mode of Failure (Check mode)	Fracture Controls
(φPnt)	393.8 kips
Controlling Tension Mode Check (Checktension)	[redacted]

SUMMARY

tnxTower Reactions

M	4352.3 kip-ft
P	95.1 kip
V	45.2 kip

Flange Bolts

Diameter of Flange Bolts (Dbolts)	1.25 in
Bolt Circle of Flange Bolts (BCbolts)	47.0 in
Loads to Flange Bolts	
Mbolts	2527.7 kip-ft
P	95.1 kip
V	45.2 kip

See Flange tool for Flange Bolt and Plate Capacities

Existing Jump Plates

Moment to Existing Bridge Stiffeners (Mexist)	1821.5 kip-ft
Number of Existing Bridge Stiffeners (Nexist)	6
Thickness (texist)	1.25 in
Width (wexist)	6.50 in
Controlling Capacity of Existing Bridge Stiffeners (Capacitymax)	[redacted]

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Bolted Bridge Stiffeners Reinforcement Check

Assumptions / Notes:

1. For design purposes, it is assumed that the proposed bridge stiffeners are to take the full load.
2. The plastification of the pole is not considered.
3. All shear and axial loads are taken by the flange bolts.

1. PARAMETERS

Rev. H

Elevation 20.08 ft Apply TIA-222-H Section 15.5? Yes

1.1 tnxTower Reactions

Moment (M)	4352.32	k-ft
Axial Load (P)	95.121	kip
Shear Load (V)	45.18	kips

1.2 Shaft Properties at the Flange

Upper Shaft Diameter (Dshaft1)	60	in
Upper Shaft Thichkness (t1)	0.5	in
Lower Shaft Diameter (Dshaft2)	60	in
Lower Shaft Thickness (t2)	0.625	in
Shaft Grade:		
Fyshaft	42	ksi
Fushaft	63	ksi

1.3 Existing Bridge Stiffeners Properties

(Verify existing bolted connection for reduced moment.)

Number of Proposed Bridge Stiffeners (Nexist)	6		4	
Thickness of Proposed Bridge Stiffeners (texist)	1.25	in	1	in
Width of Proposed Bridge Stiffeners (wexist)	6.5	in	6	in
Existing Bridge Stiffener Grade:				
Fyex	65	ksi	65	ksi
Fuex	80	ksi	80	ksi
Diameter to the centroid of Existing Bridge Stiffeners (BCexist)	63.75	in	63.5	in
Gross Area of One Existing Bridge Stiffener (Ag_exist)	8.125	in^2	6	in^2
Radius of Gyration about x-axis (rx)	0.361	in	0.289	in
Moment of Inertia of Existing Bridge Stiffeners (Iexist)	35505	in^4		

1.4 Flange Bolt Properties

Number of Flange Bolts (Nbolts)	32		32	
Diameter of Flange Bolts	1 1/4	in	1 1/4	in
Bolt Circle of Flange Bolts (BCbolts)	47	in	53	in
Gross Area of One Flange Bolt (Ag_bolts)	1.227	in^2	1.227	in^2
Moment of Inertia of Flange Bolts (Ibolts)	49270	in^4		

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1.5 Division of Forces

Total Gross Area (Ag_total)	151.29 in^2
Total Moment of Inertia (Itotal)	84837 in^4

1.6 Reactions to Existing Bridge Stiffeners

Moment Reaction to Existing Bridge Stiffeners (Mexist)	1821.5 kip-ft
Axial Reaction to Existing Bridge Stiffeners (Pexist)	0.0 kips
Shear Reaction to Flange Bolts (Vexist)	0.0 kips

1.7 Reactions to Flange Bolts

(It is assumed that all shear and axial loads are taken by the flange bolts)

Moment Reaction to Flange Bolts (Mbolts)	2527.7 kip-ft	**Check Flange Connection with these Reactions**
Axial Reaction to Flange Bolts (Pbolts)	95.1 kips	
Shear Reaction to Flange Bolts (Vbolts)	45.2 kips	

2. Existing Bridge Stiffener

2.1 Maximum Axial Forces in Single Existing

Outer Radius of Bolt Circle (C)	31.875 in
Critical Compression Bending Stress (Pcomp)	159.4 kips
Critical Tension Bending Stress (Ptens)	159.4 kips

2.2 Available Compression Strength

[AISC 15th Edition E3-1]

Resistance Factor (φc)	0.9	
Unbraced Length (Lu)	24 in	
Effective Length Factor (K)	1	
Strength of Bridge Stiffener:		
Fy	65 ksi	
Fu	80 ksi	
Effective Length of Member (Lc)	24.00 in	[AISC 15th Edition E3-2]
Elastic Buckling Stress (Fe)	64.7 ksi	[AISC 15th Edition,Eq. E3-4]
Limit	99.5	
Determination of Crticial Stress (Fcr)	42.7 ksi	
[AISC 15th Edition,Eqs. E3-2 and E3-3]		
Allowable Compressive Strength (φPn)	312.2 kips	
[AISC 15th Ed., Eqs. J4-6 and E3-1]		
Check Compressive Strength (Checkcomp)	48.6%	Pass

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2.3 Available Tension Strength

Gross Section Yield

Available Tension Yield Strength (φPty) [AISC 15th Ed., Ch.D2]	475.3 kips

Net Section Fracture

Bolt Hole Diameter (BH)	1.188 in
Thickness (T)	1.25 in
Net Area (Anet)	6.563 in^2
Net Area Limitation (Ae)	6.563 in^2
Available Fractile Strength (φPtr)	393.8 kips

Tension Check

Controlling Mode of Failure (Check mode)	Fracture Controls
(φPnt)	393.8 kips
Controlling Tension Mode Check (Checktension)	[redacted]

SUMMARY

tnxTower Reactions

M	4352.3 kip-ft
P	95.1 kip
V	45.2 kip

Flange Bolts

Diameter of Flange Bolts (Dbolts)	1.25 in
Bolt Circle of Flange Bolts (BCbolts)	47.0 in
Loads to Flange Bolts	
Mbolts	2527.7 kip-ft
P	95.1 kip
V	45.2 kip

See Flange tool for Flange Bolt and Plate Capacities

Existing Jump Plates

Moment to Existing Bridge Stiffeners (Mexist)	1821.5 kip-ft
Number of Existing Bridge Stiffeners (Nexist)	6
Thickness (texist)	1.25 in
Width (wexist)	6.50 in
Controlling Capacity of Existing Bridge Stiffeners (Capacitymax)	[redacted]

Monopole Flange Plate Connection

Elevation = 20.083 ft.

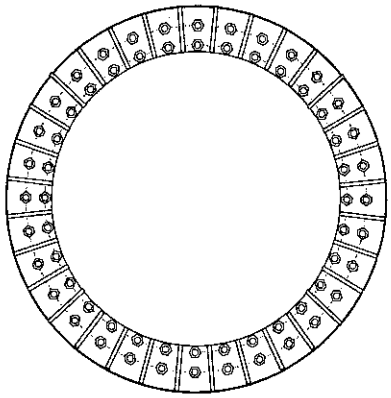
BU #	826217
Site Name	Newington_1, CT
Order #	498392, Rev# 0

TIA-222 Revision	H

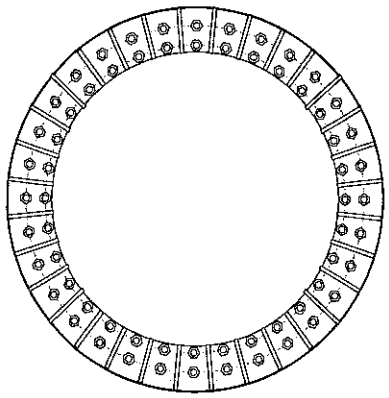
Applied Loads	
Moment (kip-ft)	2527.70
Axial Force (kips)	95.10
Shear Force (kips)	45.20

**TIA-222-H Section 15.5 Applied*

Top Plate - Internal



Bottom Plate - Internal



Connection Properties

Bolt Data

GROUP 1: (32) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 53" BC
GROUP 2: (32) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 47" BC

Top Plate Data

45" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Plate Data

45" ID x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

(32) 10"H x 7"W x 0.625"T, Notch: 0.5"
plate: Fy= 36 ksi ; weld: Fy= 70 ksi
horiz. weld: 0.3125" fillet
vert. weld: 0.3125" fillet

Bottom Stiffener Data

(32) 10"H x 7"W x 0.625"T, Notch: 0.5"
plate: Fy= 36 ksi ; weld: Fy= 70 ksi
horiz. weld: 0.3125" fillet
vert. weld: 0.3125" fillet

Top Pole Data

60" x 0.5" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Pole Data

60" x 0.625" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	38.55	
Allowable (kips)	54.53	
Stress Rating:	**67.3%**	**Pass**

Top Plate Capacity

Max Stress (ksi):	23.12	(Roark's Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**67.9%**	**Pass**
Tension Side Stress Rating:	**N/A**	

Bottom Plate Capacity

Max Stress (ksi):	23.51	(Roark's Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**69.1%**	**Pass**
Tension Side Stress Rating:	**N/A**	

Top Stiffener Capacity

Horizontal Weld:	**47.3%**	**Pass**
Vertical Weld:	**41.3%**	**Pass**
Plate Flexure+Shear:	**29.6%**	**Pass**
Plate Tension+Shear:	**34.3%**	**Pass**
Plate Compression:	**68.1%**	**Pass**

Bottom Stiffener Capacity

Horizontal Weld:	**42.5%**	**Pass**
Vertical Weld:	**36.2%**	**Pass**
Plate Flexure+Shear:	**25.0%**	**Pass**
Plate Tension+Shear:	**30.3%**	**Pass**
Plate Compression:	**60.3%**	**Pass**

Top Pole Capacity

Punching Shear:	**16.7%**	**Pass**

Bottom Pole Capacity

Punching Shear:	**11.6%**	**Pass**

Monopole Base Plate Connection

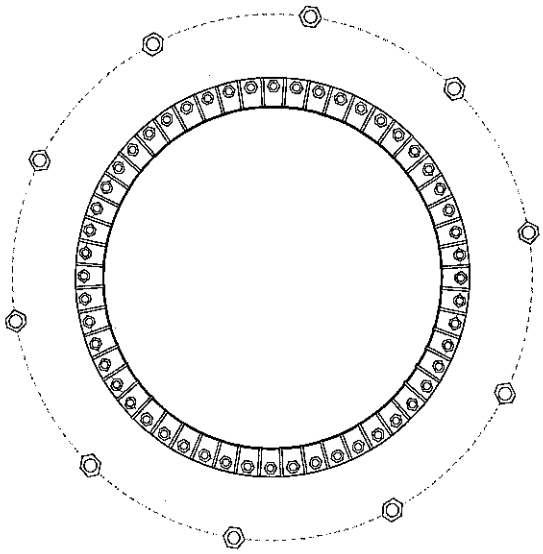
CROWN CASTLE

Site Info	
BU #	826217
Site Name	Newington_1, CT
Order #	498392, Rev# 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	1.25

Applied Loads	
Moment (kip-ft)	5285.89
Axial Force (kips)	109.95
Shear Force (kips)	47.70

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

GROUP 1: (52) 1-1/4" ø bolts (A687 N; Fy=105 ksi, Fu=125 ksi) on 67" BC
GROUP 2: (10) 2-1/4" ø bolts (A687 N; Fy=105 ksi, Fu=125 ksi) on 92.3" BC

Base Plate Data

70" OD x 1.25" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Stiffener Data

(52) 6"H x 5"W x 0.5"T, Notch: 0.5"
plate: Fy= 36 ksi ; weld: Fy= 70 ksi
horiz. weld: 0.3125" fillet
vert. weld: 0.3125" fillet

Pole Data

60" x 0.625" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Anchor Rod Summary *(units of kips, kip-in)*

GROUP 1:		
Pu_c = 34.85	ϕPn_c = 101.75	**Stress Rating**
Vu = 0.92	ϕVn = 30.52	**32.7%**
Mu = n/a	ϕMn = n/a	**Pass**
GROUP 2:		
Pu_c = 151.26	ϕPn_c = 341.25	**Stress Rating**
Vu = 0	ϕVn = 102.38	**42.2%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary		
Max Stress (ksi):	2.79	(Shear)
Allowable Stress (ksi):	21.6	
Stress Rating:	**12.3%**	**Pass**

Stiffener Summary		
Horizontal Weld:	**35.8%**	**Pass**
Vertical Weld:	**39.0%**	**Pass**
Plate Flexure+Shear:	**36.4%**	**Pass**
Plate Tension+Shear:	**32.5%**	**Pass**
Plate Compression:	**77.8%**	**Pass**
Pole Summary		
Punching Shear:	**13.5%**	**Pass**

PROJECT	**87581.023.01 - Newington_1, CT**
SUBJECT	**Anchor Rod Bracket Analysis**
DATE	**07-13-19**

V3.3.0

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Analysis Criteria		
Design or Analysis?	Analysis	
AR Load Considered	Current Load	
Current load	151.26	kips
AR Capacity	341.3	kips

Tower Type	Monopole	

Post-Installed Adhesive AR Modification		
Size	2.25	in
Quantity	10	
Bolt Circle	92.3	in
Grade	F1554-105	
Fy	105	ksi
Fu	125	ksi

TIA-222 Rev.	H
Apply TIA-222-H Section 15.5?	Yes

Anchor Rod Bracket Analysis Checks		
Tube Bearing	[redacted]	-
Tube Compression	N/A	
Gusset Shear Yield	[redacted]	-
Gusset Shear Rupture	[redacted]	-
Gusset Flexure	N/A	-
Welds: Gusset to Tower and BP	[redacted]	-
Welds: Gusset to Tube	[redacted]	-
Welds: Geometry	N/A	
Tower Punching	[redacted]	-
Tube Punching	[redacted]	-
Utilization	[redacted]	

Manufacturers Tower Properties			
Pole Thickness		0.625	in
Pole Grade		Custom	
Fy	42	42	ksi
Fu	63	63	ksi
Base Plate Gr.		A36	
Fy		36	ksi
Fu		58	ksi
Anchor Rods			
Size		1.25	in
Quantity		52	
Bolt Circle		67	in
Grade		A687	
Fy		105	ksi
Fu		125	ksi

Bracket Properties

Gusset		
Thickness	1.25	in
Width at Tube	14.875	in
Height at Pole	36	in
Height at Tube	10.5	in
Grade	A572-65	
Fy	65	ksi
Fu	80	ksi

Pipe/Tube		
Size	4 XXS Pipe	
Total Length	10.5	in
Length above Gusset	0	in
Length below Gusset	0	in
Grade	Custom	
Fy	50	50 ksi
Fu	65	65 ksi

Weld - Gusset to Tower		
FEXX	70	ksi
Weld Type	Double Fillet	
Fillet Size	3/8	in
Length	36	in
Load Angle	45	deg.

Weld - Gusset to Pipe/Tube		
FEXX	80	ksi
Weld Type	Double Bevel+Fillet	
Fillet Size	1/2	in
Bevel Depth	1/2	in

Weld - Gusset to Base Plate		
FEXX	70	ksi
Weld Type	Double Bevel+Fillet	
Fillet Size	1/2	in
Bevel Depth	1/2	in
Gap	0	in
Notch (horiz)	0.75	in
Notch (vert)	0.75	in
Pipe/Tube Welded to Base/Footpad?	Yes	
Fillet Size	1/2	in