



SWISS

Version 1.2.3
Span Wire Signal Support Design

PROJECT DETAIL

SR 435 & US 35 WB RAMP D

Project Date: 01/30/2024

Author: MJH

Last Revision Date: 02/01/2024

Filename: 4 - SR 435 & 35 WB Ramp_4SIMPLE.xml

Comments: 4 SIMPLE (POLE TO POLE) (using 42psf for wind pressure)



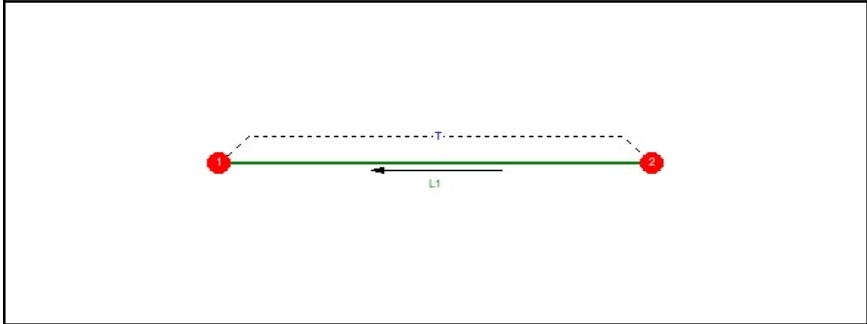
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INPUT VALUES

Sequence #: 1
 Configuration Type: Simple
 Problem Identification: SP1-1 TO SP3-2



Angles (Degrees)

Elevation Differences (ft)

[T]
0.00

Span Lengths (ft)

[L 1]
95.00

Base Elevations (ft)

[Pavement] [Pole 1] [Pole 2]
1073.07 1071.87 1068.02

Signals and Signs
 {Distance (ft) / Weight (lbs)}

Span 1 (19.00/49.30), (71.00/49.30), (90.00/49.30)

Wire Weights (lbs)
 (Assumed)

142.50 Span 1

Design Data

Min. SAG (ft): 2.85 Max. SAG (ft): 4.75 Minimum Clearance (ft): 22.00 Wire Weight (lbs/ft): 1.50
 Sum of Loads (lbs): 147.90 Sum of Areas (ft): 12.30 Wind Pressure (psf): 42.00



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RESULT OF FINAL CALCULATION [MIN SAG]

Sequence #: 1 Configuration Type: Simple Problem Identification: SP1-1 TO SP3-2

Span Results

[SPAN 1]

Tension Relations: _____ 1.00000
 Elevation Differences (ft) _____ 0.00
 Reaction at the end of the span (lbs) _____ -164.66
 Distance from end to low point (ft) _____ 44.04
 SAG below end of span (ft) _____ 2.85

Pole Results

[POLE 1] [POLE 2]

Stringing Tension (lbs): _____ 1012.06 1012.06
 Attachment Height above pole base (ft) _____ 26.05 29.90
 Attachment Elevation (ft) _____ 1097.92 1097.92
 Base Moment (ft/lbs) _____ 105365. 120937.

Other information

Calculated Design Factor : 4.00

Distance between Highest and Lowest Point (ft) : 2.85

Max. Wire Load (lbs): 4097.93

_____ Height of each signal or sign attachment point above the lowest (ft) _____

Span 1 (0.46), (0.00), (1.76)



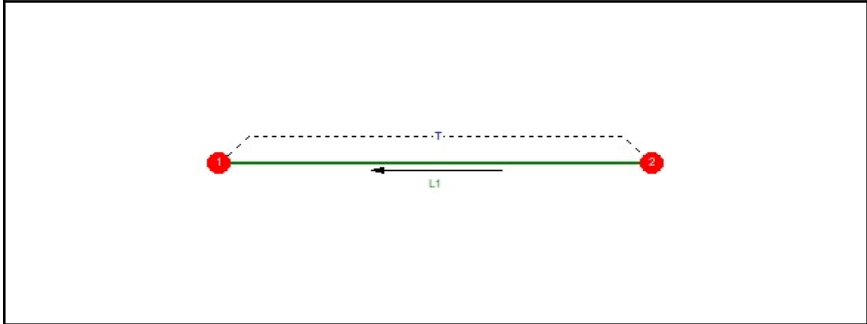
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INPUT VALUES

Sequence #: 2
 Configuration Type: Simple
 Problem Identification: SP3-1 TO SP4-2



Angles (Degrees)

Span Lengths (ft)

[L 1]
96.00

Elevation Differences (ft)

Base Elevations (ft)

[T]
0.00

[Pavement] [Pole 1] [Pole 2]
1070.66 1068.02 1069.67

Signals and Signs
{Distance (ft) / Weight (lbs)}

Wire Weights (lbs)
(Assumed)

Span 1 (37.00/49.30), [42.00/20.80], (49.00/49.30), [83.00/11.80]

144.00 Span 1

Design Data

Min. SAG (ft):	2.88	Max. SAG (ft):	4.80	Minimum Clearance (ft):	22.00	Wire Weight (lbs/ft):	1.50
Sum of Loads (lbs):	131.20	Sum of Areas (ft):	10.60	Wind Pressure (psf):	42.00		



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RESULT OF FINAL CALCULATION [MAX SAG]

Sequence #: 2 Configuration Type: Simple Problem Identification: SP3-1 TO SP4-2

Span Results

[SPAN 1]

Tension Relations: _____ 1.00000
 Elevation Differences (ft) _____ 0.00
 Reaction at the end of the span (lbs) _____ -135.47
 Distance from end to low point (ft) _____ 49.58
 SAG below end of span (ft) _____ 4.80

Pole Results

Other information

[POLE 1] [POLE 2]

Stringing Tension (lbs): _____ 898.74 898.74
 Attachment Height above pole base (ft) _____ 29.44 27.79
 Attachment Elevation (ft) _____ 1097.46 1097.46
 Base Moment (ft/lbs) _____ 102960. 97190.19

Calculated Design Factor : 3.89

Distance between Highest and Lowest Point (ft) : 4.80

Max. Wire Load (lbs): 3539.33

_____ Height of each signal or sign attachment point above the lowest (ft) _____

Span 1 (0.18), [0.01], (0.00), [2.98]



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RESULT OF FINAL CALCULATION [MIN SAG]

Sequence #: 2 Configuration Type: Simple Problem Identification: SP3-1 TO SP4-2

Span Results

[SPAN 1]

Tension Relations: _____ 1.00000
 Elevation Differences (ft) _____ 0.00
 Reaction at the end of the span (lbs) _____ -135.47
 Distance from end to low point (ft) _____ 49.58
 SAG below end of span (ft) _____ 2.88

Pole Results

[POLE 1] [POLE 2]

Stringing Tension (lbs): _____ 1497.91 1497.91
 Attachment Height above pole base (ft) _____ 27.52 25.87
 Attachment Elevation (ft) _____ 1095.54 1095.54
 Base Moment (ft/lbs) _____ 160409. 150792.

Other information

Calculated Design Factor : 3.89

Distance between Highest and Lowest Point (ft) : 2.88

Max. Wire Load (lbs): 5854.15

_____ Height of each signal or sign attachment point above the lowest (ft) _____

Span 1 (0.11), [0.01], (0.00), [1.79]



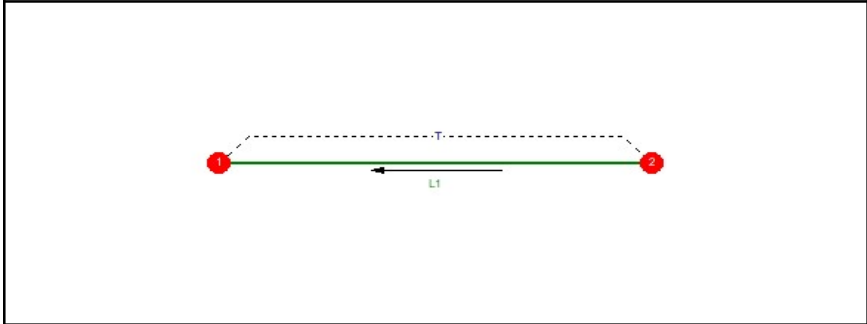
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INPUT VALUES

Sequence #: 3
 Configuration Type: Simple
 Problem Identification: SP4-1 TO SP2-2



Angles (Degrees)

Span Lengths (ft)

[L 1]
105.00

Elevation Differences (ft)

Base Elevations (ft)

[T]
0.00

[Pavement] [Pole 1] [Pole 2]
0.00 0.00 0.00

Signals and Signs

{Distance (ft) / Weight (lbs)}

Wire Weights (lbs)

(Assumed)

Span 1 No signals or signs attached at this span.

157.50 Span 1

Design Data

Min. SAG (ft):	3.15	Max. SAG (ft):	5.25	Minimum Clearance (ft):	22.00	Wire Weight (lbs/ft):	1.50
Sum of Loads (lbs):	0.00	Sum of Areas (ft):	0.00	Wind Pressure (psf):	42.00		



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RESULT OF FINAL CALCULATION [MAX SAG]

Sequence #: 3 Configuration Type: Simple Problem Identification: SP4-1 TO SP2-2

Span Results

[SPAN 1]

Tension Relations: 1.00000
Elevation Differences (ft) 0.00
Reaction at the end of the span (lbs) -78.75
Distance from end to low point (ft) 52.50
SAG below end of span (ft) 5.25

Pole Results

[POLE 1] [POLE 2]

Stringing Tension (lbs): 393.75 393.75
Attachment Height above pole base (ft) 27.25 27.25
Attachment Elevation (ft) 27.25 27.25
Base Moment (ft/lbs) 19313.44 19313.44

Other information

Calculated Design Factor : 0.00
Warning: using default 1.8

Distance between Highest and Lowest Point (ft) : 5.25
Max. Wire Load (lbs): 722.79

Height of each signal or sign attachment point above the lowest (ft)

Span 1 No signals or signs attached at this span.



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RESULT OF FINAL CALCULATION [MIN SAG]

Sequence #: 3 Configuration Type: Simple Problem Identification: SP4-1 TO SP2-2

Span Results

[SPAN 1]

Tension Relations: _____ 1.00000
Elevation Differences (ft) _____ 0.00
Reaction at the end of the span (lbs) _____ -78.75
Distance from end to low point (ft) _____ 52.50
SAG below end of span (ft) _____ 3.15

Pole Results

[POLE 1] [POLE 2]

Stringing Tension (lbs): _____ 656.25 656.25
Attachment Height above pole base (ft) _____ 25.15 25.15
Attachment Elevation (ft) _____ 25.15 25.15
Base Moment (ft/lbs) _____ 29708.44 29708.44

Other information

Calculated Design Factor : 0.00
Warning: using default 1.8

Distance between Highest and Lowest Point (ft) : 3.15
Max. Wire Load (lbs): 1189.72

_____ Height of each signal or sign attachment point above the lowest (ft) _____

Span 1 No signals or signs attached at this span.



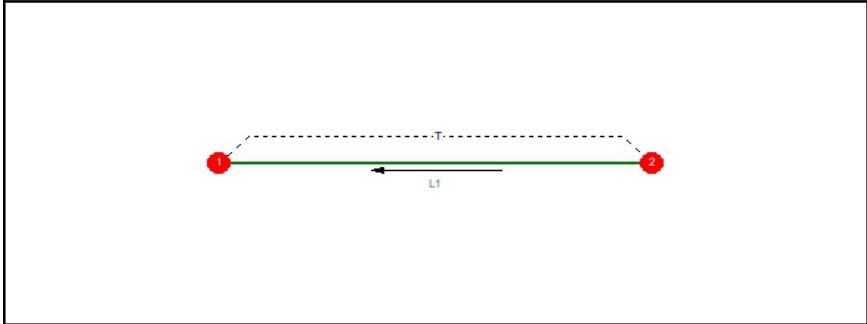
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INPUT VALUES

Sequence #: 4
 Configuration Type: Simple
 Problem Identification: SP1-1 TO SP2-2



Angles (Degrees)

Span Lengths (ft)

[L 1]
96.00

Elevation Differences (ft)

Base Elevations (ft)

[T]
0.00

[Pavement] [Pole 1] [Pole 2]
1074.63 1071.87 1073.47

Signals and Signs
{Distance (ft) / Weight (lbs)}

Wire Weights (lbs)
(Assumed)

Span 1 [26.00/11.80], (61.00/49.30), [66.00/20.80], (73.00/49.30)

144.00 Span 1

Design Data

Min. SAG (ft):	2.88	Max. SAG (ft):	4.80	Minimum Clearance (ft):	22.00	Wire Weight (lbs/ft):	1.50
Sum of Loads (lbs):	131.20	Sum of Areas (ft):	10.60	Wind Pressure (psf):	42.00		



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RESULT OF FINAL CALCULATION [MAX SAG]

Sequence #: 4 Configuration Type: Simple Problem Identification: SP1-1 TO SP2-2

Span Results

[SPAN 1]

Tension Relations: _____ 1.00000
 Elevation Differences (ft) _____ 0.00
 Reaction at the end of the span (lbs) _____ -158.31
 Distance from end to low point (ft) _____ 35.00
 SAG below end of span (ft) _____ 4.80

Pole Results

[POLE 1] [POLE 2]

Stringing Tension (lbs): _____ 818.02 818.02
 Attachment Height above pole base (ft) _____ 29.56 27.96
 Attachment Elevation (ft) _____ 1101.43 1101.43
 Base Moment (ft/lbs) _____ 94095.47 89002.35

Other information

Calculated Design Factor : 3.89

Distance between Highest and Lowest Point (ft) : 4.80

Max. Wire Load (lbs): 3242.27

_____ Height of each signal or sign attachment point above the lowest (ft) _____

Span 1 [1.70], (0.00), [0.24], (0.83)



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RESULT OF FINAL CALCULATION [MIN SAG]

Sequence #: 4 Configuration Type: Simple Problem Identification: SP1-1 TO SP2-2

Span Results

[SPAN 1]

Tension Relations: _____ 1.00000
 Elevation Differences (ft) _____ 0.00
 Reaction at the end of the span (lbs) _____ -158.31
 Distance from end to low point (ft) _____ 35.00
 SAG below end of span (ft) _____ 2.88

Pole Results

[POLE 1] [POLE 2]

Stringing Tension (lbs): _____ 1363.37 1363.37
 Attachment Height above pole base (ft) _____ 27.64 26.04
 Attachment Elevation (ft) _____ 1099.51 1099.51
 Base Moment (ft/lbs) _____ 146639. 138151.

Other information

Calculated Design Factor : 3.89

Distance between Highest and Lowest Point (ft) : 2.88

Max. Wire Load (lbs): 5340.98

_____ Height of each signal or sign attachment point above the lowest (ft) _____

Span 1 [1.02], (0.00), [0.14], (0.50)



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RESULT OF COMBINATION CALCULATION

FIRST POLE		SECOND POLE		ANGLE (degree)	MAX SAG		MIN SAG	
[Pole #]	[Sequence #]	[Pole #]	[Sequence #]		BASE MOMENT (ft*lbs)	ANGLE OF RESULTANT (Span to 2nd Pole)	BASE MOMENT (ft*lbs)	ANGLE OF RESULTANT (Span to 2nd Pole)
2	1	1	2	96.00	122047.34	38.97	190529.91	39.14
2	2	1	3	84.00	101051.27	73.04	156708.12	73.13
2	3	2	1	90.00	79553.65	14.05	124533.27	13.80
2	1	1	2	96.00	122047.34	38.97	190529.91	39.14