New York State Electric & Gas Corporation Jennison Transmission Solution Project Exhibit E-1

Description of Proposed Transmission Facilities

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EXHIBIT E-1: DESCRIPTION OF PROPOSED TRANSMISSION FACILITIES

E-1.1 Design Standards

The Project¹ will be designed to meet or exceed all requirements for electrical clearances and mechanical strength for Grade B Construction set forth in the American National Standard Institute (ANSI C2, 2017 edition) and the NESC, both as in effect at the time of design. Conductor-to-ground electrical clearances at short-time emergency New York Power Pool ratings used in the design of the Project will also meet those recommended in the NESC.

Table E-1-1: Design Standards

Table E-1-1. Design Standards
Proposed Line 734 – 6.66 miles
Proposed Line 946 – 14.71 miles
Proposed Line 949 – 25.36 miles
Proposed Line 943 – 0.13 mile
Proposed Line 954 – 0.49 mile
Proposed Line 919 – 0.08 mile
Proposed Line 756 – 0.07 mile
(Temp) 949 Bypass – 4.5 miles
(Temp) 946/949 Bypass – 0.3 mile
Total Length (Excluding Temp) – 47.5 miles
All Lines 115 kV
All Lines 115 kV
All Lines 115 kV
All Lines Besides 949 Temp: Aluminum Conductor, Steel Reinforced (ACSR)1192 circular mil (kcmil) 45/7 "Bunting"
949 Temp Bypass: Aluminum Conductor, Steel Reinforced, (ASCR) 336 circular mil (kemil) 26/7 "Linnet"
3 per circuit, 1 per phase (3 phases)
All Lines Besides 949 Temp: 1.302 inches 949 Temp Bypass: 0.720 inch

For clarity and consistency, the Application includes a Master Glossary of Terms that defines terms and acronyms used throughout the Application.

Cross Sectional Area:	All Lines Besides 949 Temp: 1.001 square inches 949 Temp Bypass: 0.070 square inch
Rated Strength:	All Lines Besides 949 Temp: 32,000 pounds 949 Temp Bypass: 14,100 pounds
STATIC WIRE	
Type, Material:	All Lines Besides Temp Bypasses: OPGW 72 Fibers DNO-11467 or equivalent 949 and 949/946 Temp Bypass: OHSW 7#7 Alumoweld
Diameter:	All Lines Besides Temp Bypasses: 0.583 inch 949 and 946/949Temp Bypass: 0.433 inch
Quantity:	1 per circuit
Rated Strength:	All Lines Besides Temp Bypasses: 20,723 pounds 949 and 946/949 Temp Bypass: 19,060 pounds
INSULATOR	
Type, Material:	Toughened Glass Bells
Diameter:	10 inches Suspension 11 inches Strain
Quantity:	Suspension: 8–11 insulator units per phase, 3 insulator strings per circuit Strain: 8–11 insulator units per phase, 6 insulator strings per circuit
Rated Strength:	30,000 – 40,000 pounds
Types/Design:	Toughened Glass Suspension
Color:	Clear
Type, Material:	Polymer Braced Post
Diameter:	6.2 inches
Rated Strength:	Vertical: 10,590 pounds Transverse Tension: 12,500 pounds Compression: 12,120 pounds Longitudinal: 2,360 pounds
Types/Design:	Polymer Braced Post
Color:	Grey
STRUCTURES - LIGHT DUT	YSTEEL
Types:	Tangent suspension Tangent suspension H-frame Tangent braced post Angle suspension Angle braced post Angle dead-end Angle dead-end on davit arms Three pole dead-end
Material:	Steel

Typical Height Above Ground:	90.5 feet			
Preservative Treatment:	Self-Weathering			
Color:	Rust			
(949 TEMP) STRUCTURES – V	VOOD MONOPOLE			
Types:	Tangent braced post Angle suspension Angle braced post Angle dead-end			
Material:	Treated Wood			
Typical Height Above Ground:	65.5 feet			
DAVIT ARMS				
Material:	Steel			
Preservative Treatment:	Self-Weathering			
Color:	Rust			

E-1.2 Design References

The design of the Project will be in accordance with all applicable federal, state, and local codes and industry standards, unless stated otherwise. The industry codes and standards shall include, but shall not be limited to, the following:

- NESC 2023
- ANSI C2
- American Society of Civil Engineers /Structural Engineering Institute (SEI) 48-19, Design of Steel Transmission Pole Structures
- ASCE 74, Guidelines for Electrical Transmission Lines Structural Loads

The Project will be designed in accordance with the NYSEG Electric Transmission Construction Standards Manual, except to the extent otherwise indicated in the EM&CP.

E-1.3 Insulator, Foundation and Typical Structure Designs

Figure E-1-1 illustrates the design standards the Applicant proposes to use for insulators on the Project. Figure E-1-2 illustrates the design standards the Applicant proposes to use for structure foundations on the Project. Figure E-1-3 illustrates the design standards the Applicant proposes to use for typical structure types on the Project.

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New York State Electric & Gas Corporation Jennison Transmission Solution Project Exhibit E-1

Description of Proposed Transmission Facilities

Figures

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New York State Electric & Gas Corporation Jennison Transmission Solution Project

Exhibit E-1

Description of Proposed Transmission Facilities

Figure E-1-1

Typical Insulator Details

5-3/4" X 10" TOUGHENED GLASS DISC INSULATORS ANSI CLASS 52-3H TYPICALLY USED FOR 35kV, 46kV & 69kV

# of DISCS	Compatible Unit (CU)	WEIGHT (pounds)	LENGTH (feet)
3	U*CT-TI-9T-D3-3	25	1.44
4	U*CT-TI-9T-D3-4	33	1.92
5	U*CT-TI-9T-D3-5	41	2.40
6	U*CT-TI-9T-D3-6	49	2.88
7	U*CT-TI-9T-D3-7	57	3.35

10,000# MINIMUM TEST LOAD PROOF 20.000# MINIMUM M&E RATING MID 30054286

Manufacturer and part number: SEDIVER/SEVES N100/146DC

5-3/4" X 10" TOUGHENED GLASS DISC INSULATORS ANSI CLASS 52-5H TYPICALLY USED FOR 115kV & 230kV

# of	Compatible Unit	WEIGHT	LENGTH
DISCS	(CU)	(pounds)	(feet)
7	U*CT-TI-9T-D5-7	71	3.35
8	U*CT-TI-9T-D5-8	81	3.83
9	U*CT-TI-9T-D5-9	91	4.31
10	U*CT-TI-9T-D5-10	101	4.79
11	U*CT-TI-9T-D5-11	112	5.27
13	U*CT-TI-9T-D5-13	132	6.23
14	U*CT-TI-9T-D5-14	142	6.71
15	U*CT-TI-9T-D5-15	152	7.19
16	U*CT-TI-9T-D5-16	162	7.67
17	U*CT-TI-9T-D5-17	172	8.15
18	U*CT-TI-9T-D5-18	182	8.63

15,000# MINIMUM TEST LOAD PROOF 30,000# MINIMUM M&E RATING MID 30054297

Manufacturer and part number: SEDIVER/SEVES N14/146DC

5-3/4" X 11" TOUGHENED GLASS DISC INSULATORS ANSI CLASS 52-8H TYPICALLY USED FOR 345kV

# of	Compatible Unit	WEIGHT	LENGTH
DISCS	(CU)	(pounds)	(feet)
18	U*CT-TI-9T-D8-18	231	8.63
19	U*CT-TI-9T-D8-19	244	9.10
20	U*CT-TI-9T-D8-20	256	9.58
21	U*CT-TI-9T-D8-21	269	10.06
22	U*CT-TI-9T-D8-22	282	10.54
23	U*CT-TI-9T-D8-23	295	11.02

20,000# MINIMUM TEST LOAD PROOF 40,000# MINIMUM M&E RATING MID 30054355

Manufacturer and part number: SEDIVER/SEVES N180/146DC

TRANSMISSION INSULATOR INFORMATION TOUGHENED GLASS DISC INSULATORS

Figure E-1A-001

Contact Processes & Technologies - Electric Network Standards - Electric Transmission Standards for the creation/revision of transmission standards & CUs.

JENNISON TRANSMISSION SOLUTIONS PROJECT E NORWICH S/S & JENNSION S/S TO STR 949/182 AVANGRID DRAWN BY Date Ck.:

ADR/RUE

Drawing Scale: N/A Revision 0-0B ANSI CLASS - BALL & SOCKET DATE 05/16/24 Approved By: Date App.: File Sheet 1 of 1

DISC INSULATORS PER STRING

Class	AGE	Tanç Suspe or Idler	nsion	Running Suspensi		De	ad End Str	ing
ANSI	VOLTAGE	Wood/ Composite Arm or Pole	Steel Arm or Pole/ Tower	Wood/ Composite Arm or Pole	Steel Arm or Pole/ Tower	Wood/ Composite Arm or Pole	Steel Arm or Pole/ Tower	Substation Bay
	35kV	3	4	4	5	4	5	5
52-3 52-4	46kV	4	5	5	6	5	6	6
	69kV	5	6	6	7	6	7	7
4	115kV	7	8	8	9	9	10	11
52.	230kV	13	15	14	16	15	17	18
52-8 52-11*	345kV	18	20	19	21	20	22	23

^{*} ANSI Class 52-11 used for special applications/long spans

Contact Processes & Technologies - Electric Network Standards - Electric Transmission Standards for the creation/revision of transmission standards & CUs.

Drawing Scale: N/A



JENNISON TRANSMISSION SOLUTIONS PROJECT E NORWICH S/S & JENNSION S/S TO STR 949/182 TRANSMISSION INSULATOR INFO
PORCELAIN AND TOUGHENED GLASS DISC INSULATORS
NUMBER OF INSULATORS PER STRING

0-0B DATE 05/16/24

Revision

DRAWN BY Date Ck.: Approved By: Date App.: File Name: Figure E-1A-001 Sheet 1 of 1

ВІ	BILL OF MATERIAL for 1192.5 ACSR 45/7 Bunting 1.302" diameter								
ITEM NO.	QTY	UOM	GLOBAL IUSA MID	CU: U*CT-TS-SA11-ID					
1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K					
2	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K					
3	3	ST	30926129	CLAMP SUSP AL W/SCKT 25K 1.75-2.27					
4	3	ST	30925810	ROD ARMR PREFRM AL 100 IN 1.270-1.327					

CONNECT TO STEEL VANG, DEAD END TEE OR DAVIT ARM

TYPICAL INSULATOR SET FOR:

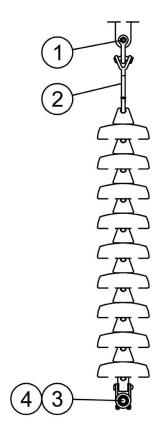
TM2.23.TV1ANVS

TM2.23.TV1ANVX

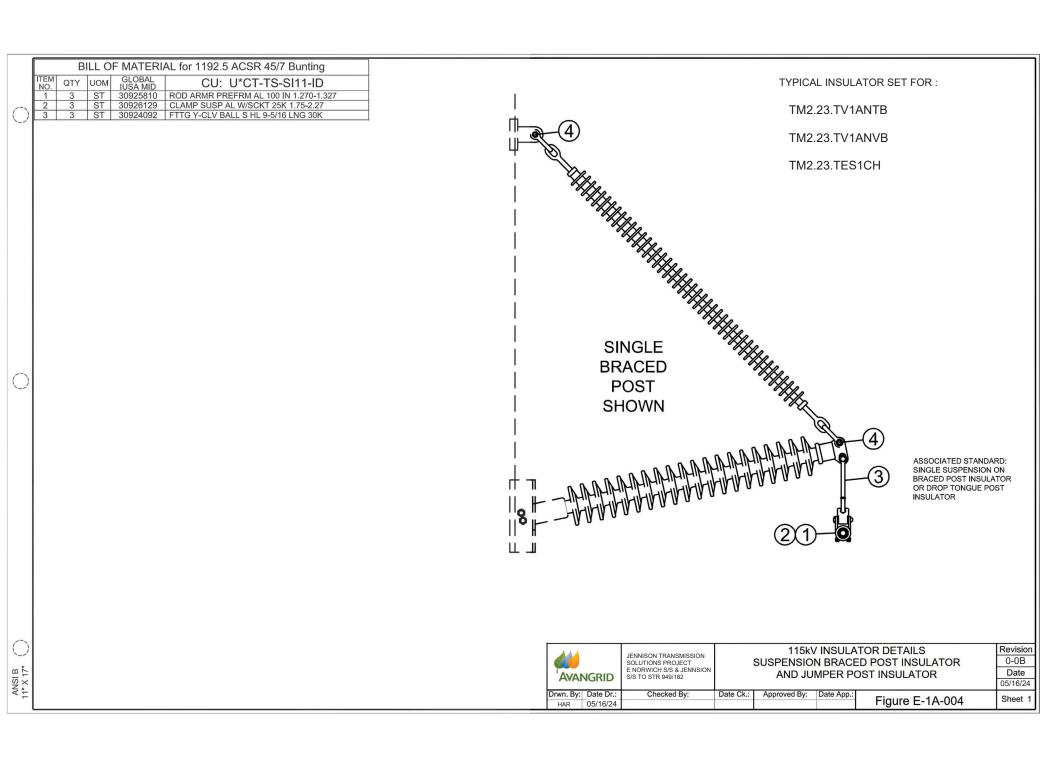
TM2.23.TV1GNTH

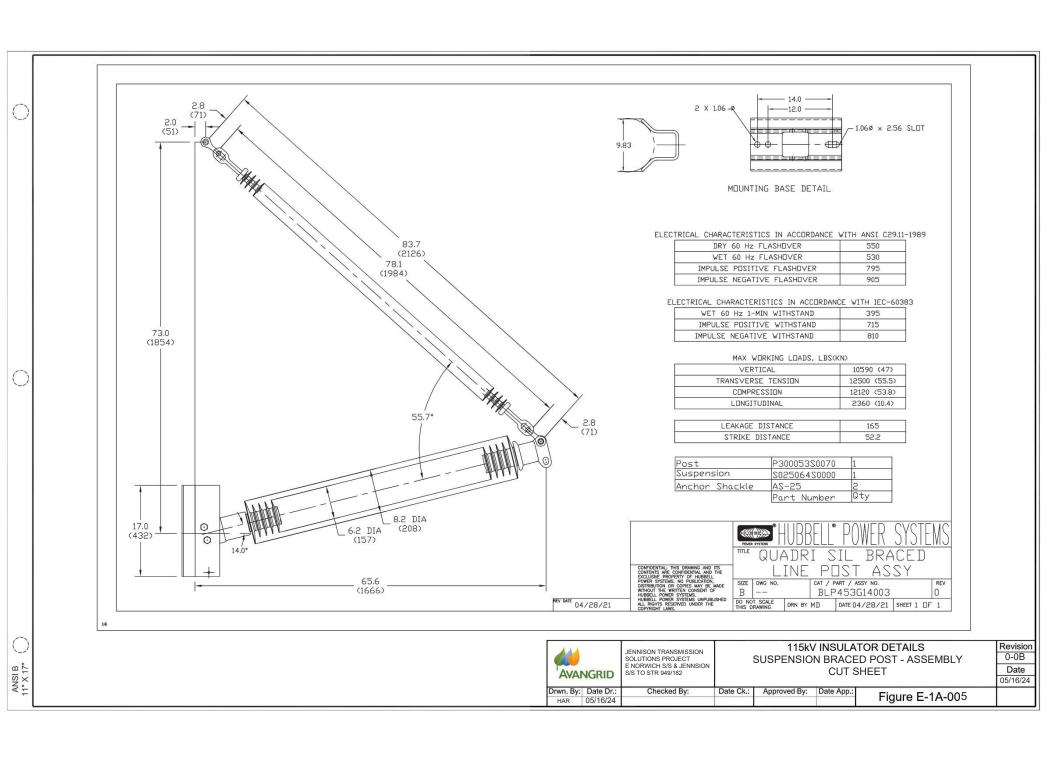
TM2.23.TV1ANTD

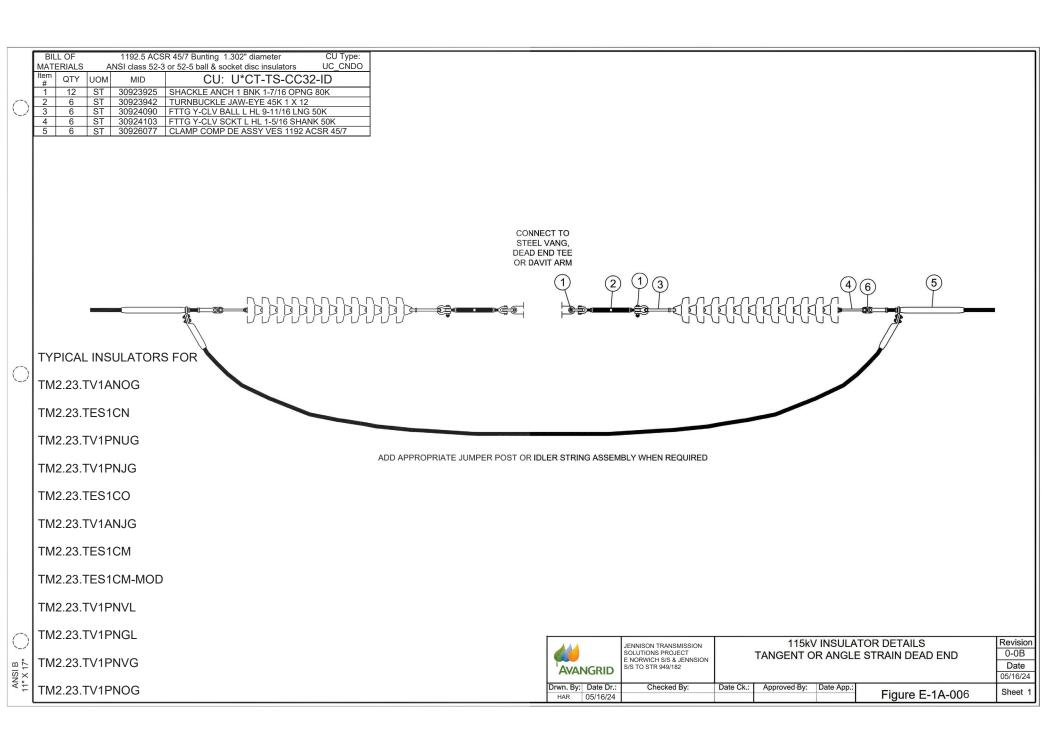
TM2.23.TES1CG

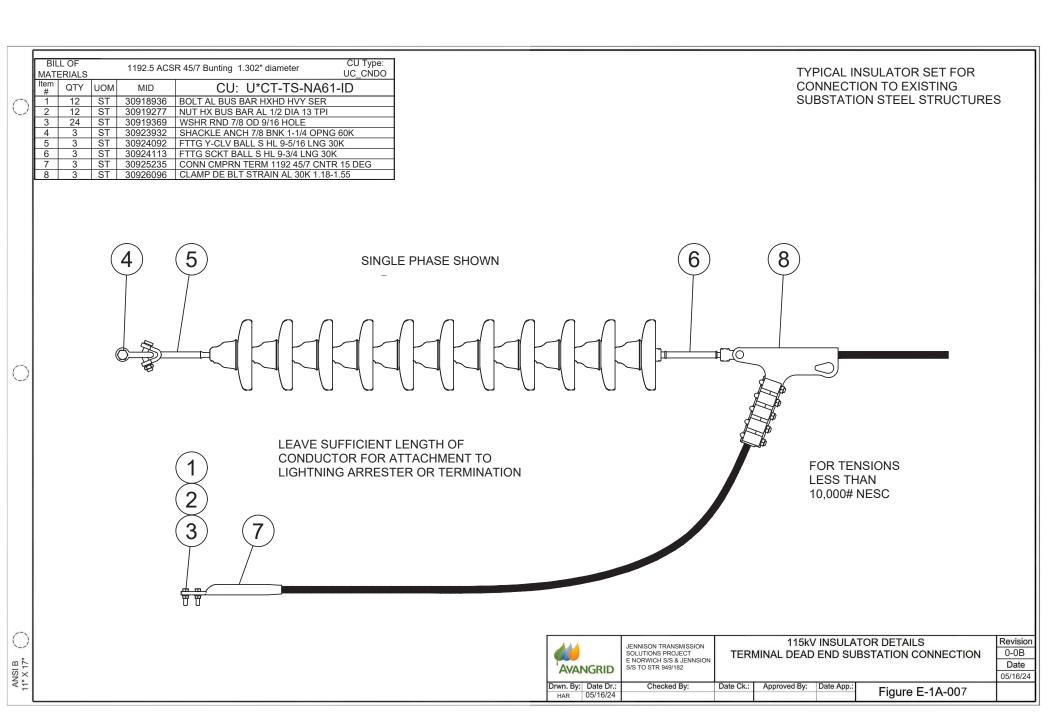


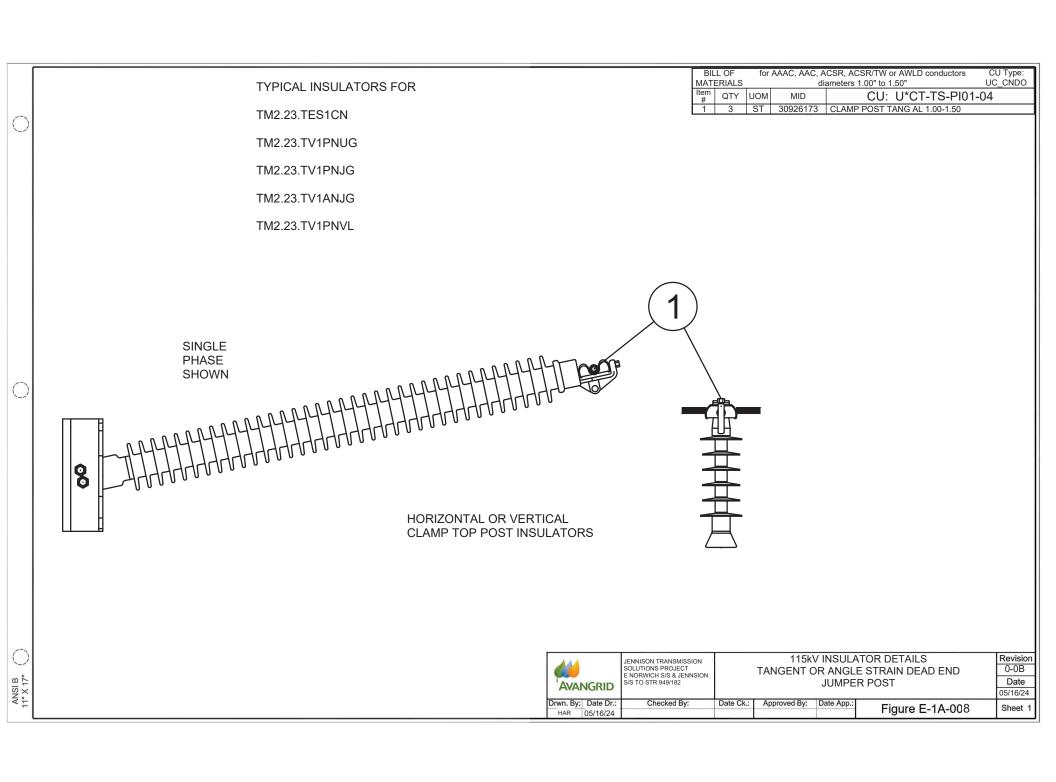
AVANGRID	JENNISON TRANSMISSION SOLUTIONS PROJECT E NORWICH S/S & JENNSION S/S TO STR 949/182				TOR DETAILS LE IN SUSPENSION	Revision 0-0B Date 05/16/24
Drwn. By: Date Dr.: HAR 05/16/24	Checked By:	Date Ck.:	Approved By:	Date App.:	Figure E-1A-003	Sheet 1











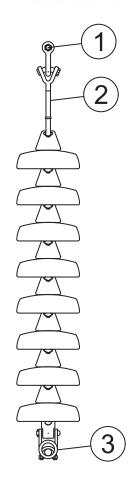
I		L OF ERIALS		for any Alumini	um Conductor 1.25"-1.82" diameter	
l	Item #	QTY	UOM	MID	CU: U*CT-TS-SA10-04	
ŀ	1	3	ST	30923932	SHACKLE ANCH 7/8 BNK 1-1/4 OPNG 60K	
l	2	3	ST	30924092	FTTG Y-CLV BALL S HL 9-5/16 LNG 30K	П

TYPICAL INSULATORS FOR

TM2.23.TES1CM

TM2.23.TES1CM-MOD

CONNECT TO STEEL VANG, DEAD END TEE OR DAVIT ARM



AVANGRID		JENNISON TRANSMISSION SOLUTIONS PROJECT E NORWICH S/S & JENNSION S/S TO STR 949/182				TOR DETAILS N DAVIT ARMS	Revision 0-0B Date 05/16/24
	Drwn. By: Date Dr.: HAR 05/16/24	Checked By:	Date Ck.:	Approved By:	Date App.:	Figure E-1A-009	Sheet 1

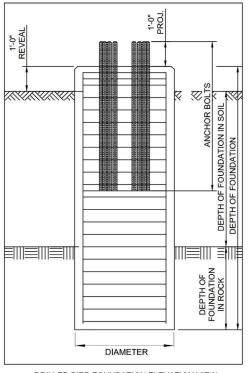
New York State Electric & Gas Corporation Jennison Transmission Solution Project

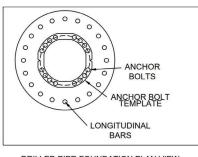
Exhibit E-1

Description of Proposed Transmission Facilities

Figure E-1-2

Typical Foundation Details





DRILLED PIER FOUNDATION PLAN VIEW

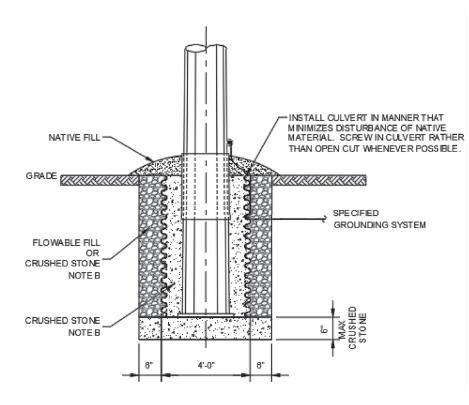
DRILLED PIER FOUNDATION ELEVATION VIEW

ANSI B 11" X 17"

TYPICAL CONCRETE FOUNDATION FOR 115KV SINGLE CIRCUIT STEEL POLES

TM2.23.TE S1CN TM2.23.TE S1CO TM2.23.TE S1CM TM2.23.TE S1CM-MOD TM2.23.TE S1CH TM2.23.TE S1CG

ESTIMATED GENERAL PIER DIAMETER WILL BE BETWEEN 8 AND 9 FEET WIDE DEPENDING ON STRUCTURE SIZE AND LINE ANGLE ESTIMATED GENERAL PIER DEPTH WILL BE BETWEEN 20 AND 24 FEET DEEP DEPENDING ON STRUCTURE SIZE AND LINE ANGLE



TYPICAL FOUNDATION FOR DIRECT EMBEDDED 115KV SINGLE CIRCUIT STEEL POLES

TM2.23.TV1ANVD TM2.23.TV1ANTD TM2.23.TV1PNVL TM2.23.TV1PNGL TM2.23.TV1PNOG TM2.23.TV1ANVB TM2.23.TV1ANVB TM2.23.TV1ANVS TM2.23.TV1ANVX TM2.23.TV1ANOG TM2.23.TV1PNUG TM2.23.TV1PNUG TM2.23.TV1PNUG TM2.23.TV1PNUG TM2.23.TV1PNUG TM2.23.TV1ANVG

ESTIMATED GENERAL BORE DIAMETER WILL BE 4 FEET WIDE DEPENDING ON POLE BASE DIMENSIONS ESTIMATED GENERAL EXCAVATION DEPTH WILL BE 14 FEET DEEP DEPENDING ON POLE LENGTH

	444		JENNISON TRANSMISSION SOLUTION PROJECT 115kV LINE 734/946/949 E. NORWICH S/S TO STR 949/182	STRUCTURE STANDARDS - STEEL				Revision
				FOUNDATION DETAIL				0-0B
	AVANGRID			FOR STEEL POLES				Date
								05/16/24
	Drwn. By:	Date Dr.:	Checked By:	Date Ck.:	Approved By:	Date App.:	Figure F 1P 001	Sheet 1
	HAR	05/16/24					Figure E-1B-001	Officet 1

New York State Electric & Gas Corporation Jennison Transmission Solution Project

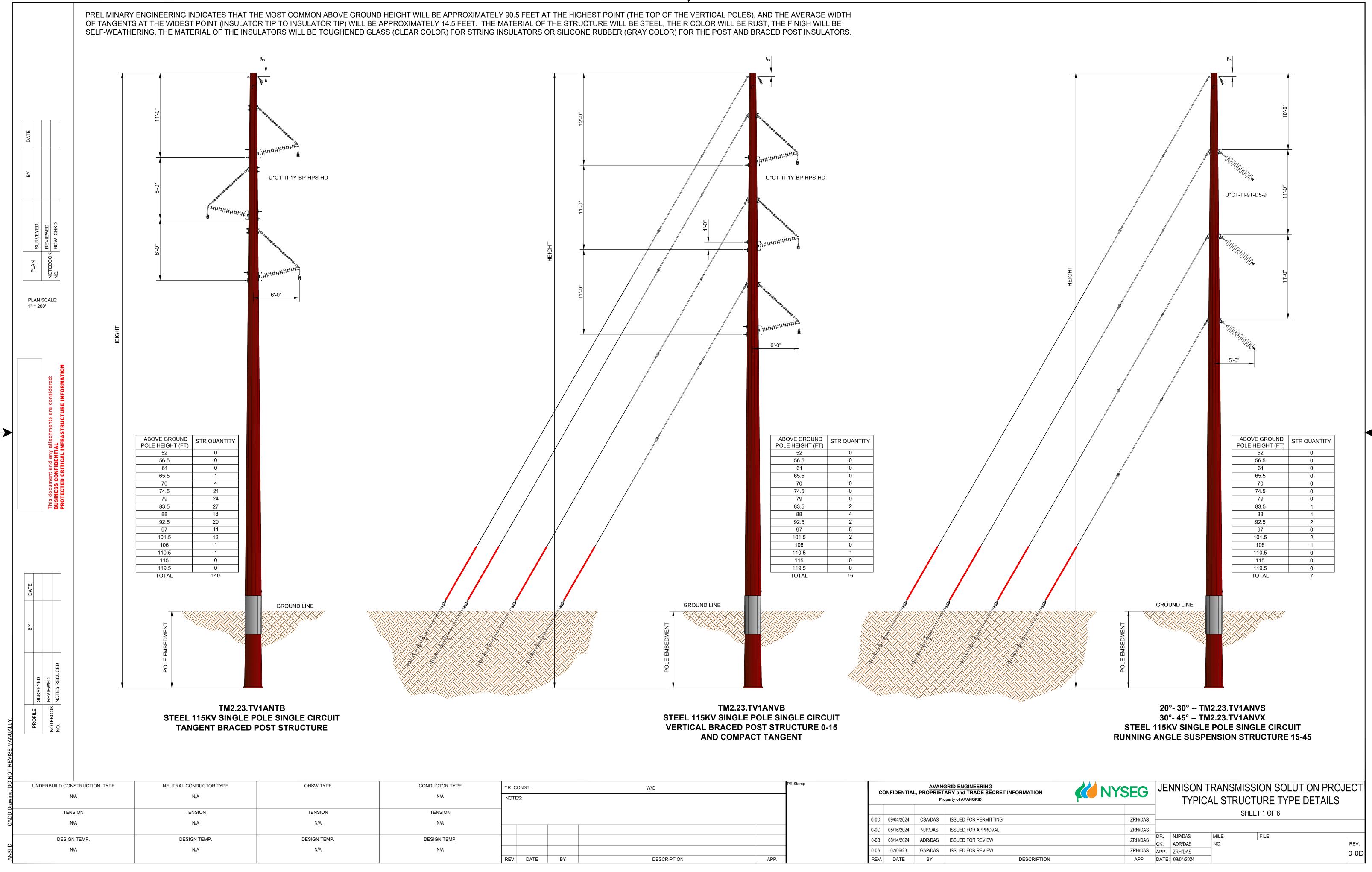
Exhibit E-1

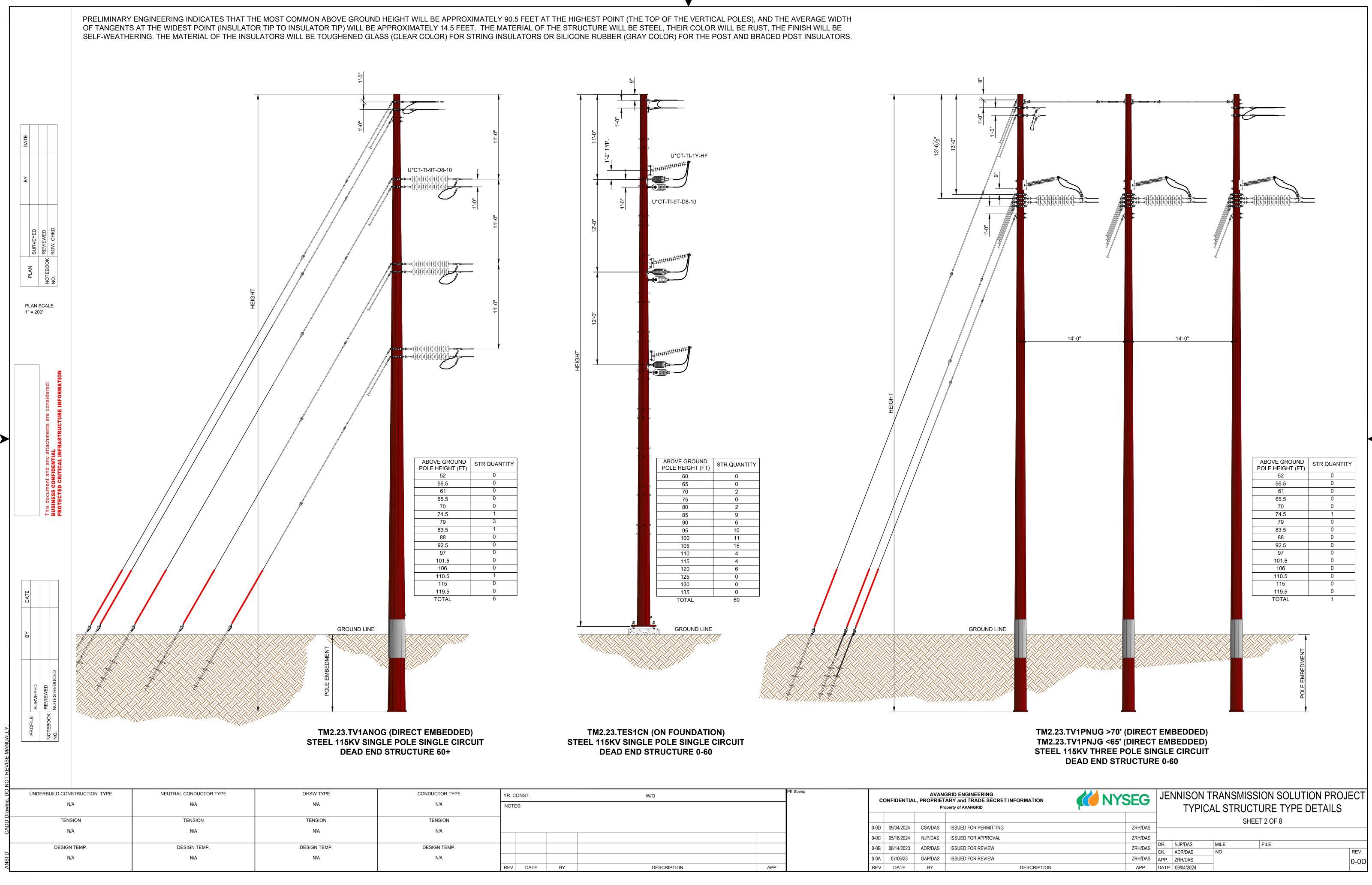
Description of Proposed Transmission Facilities

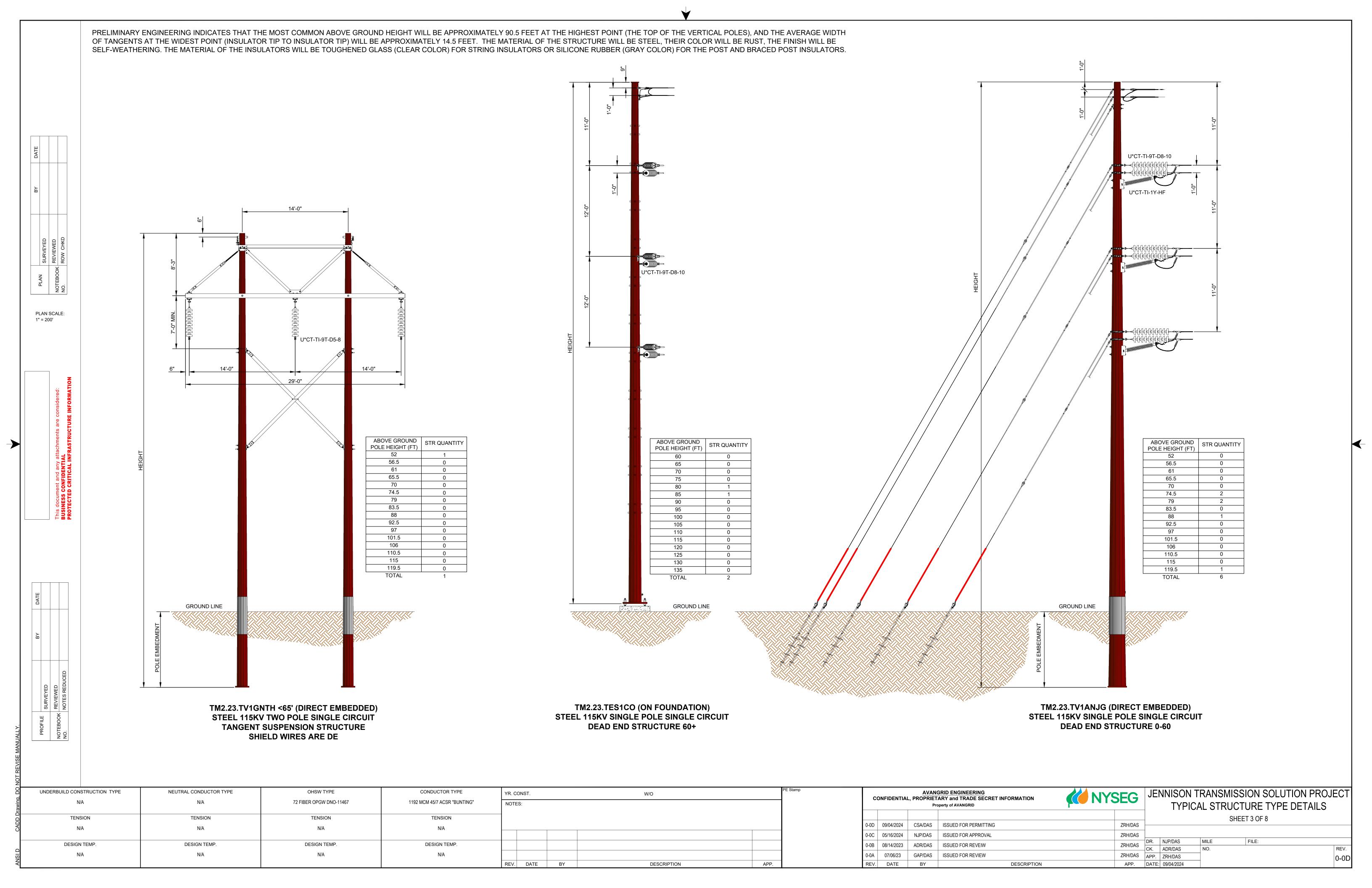
Figure E-1-3

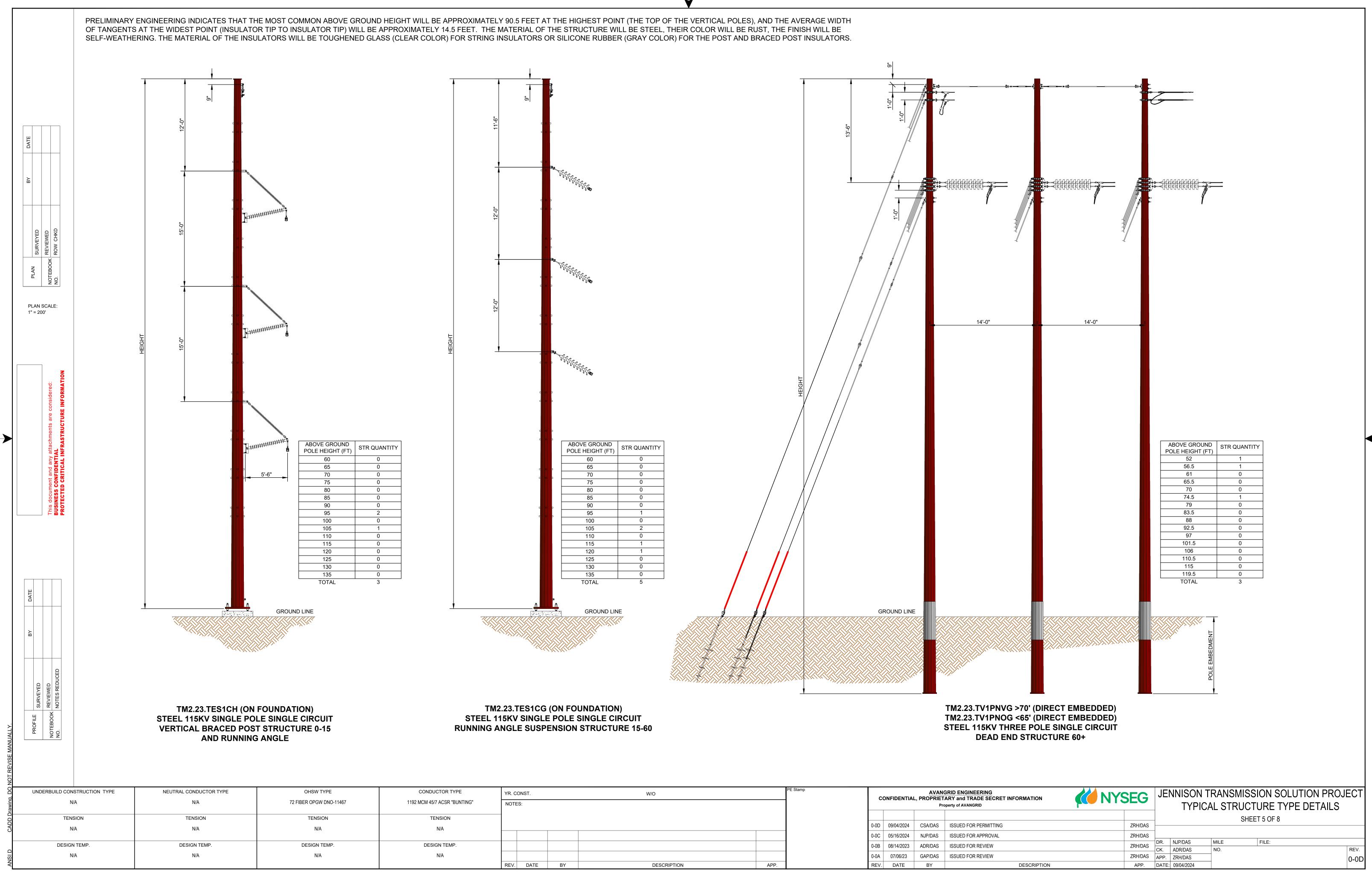
Typical Structure Type Details

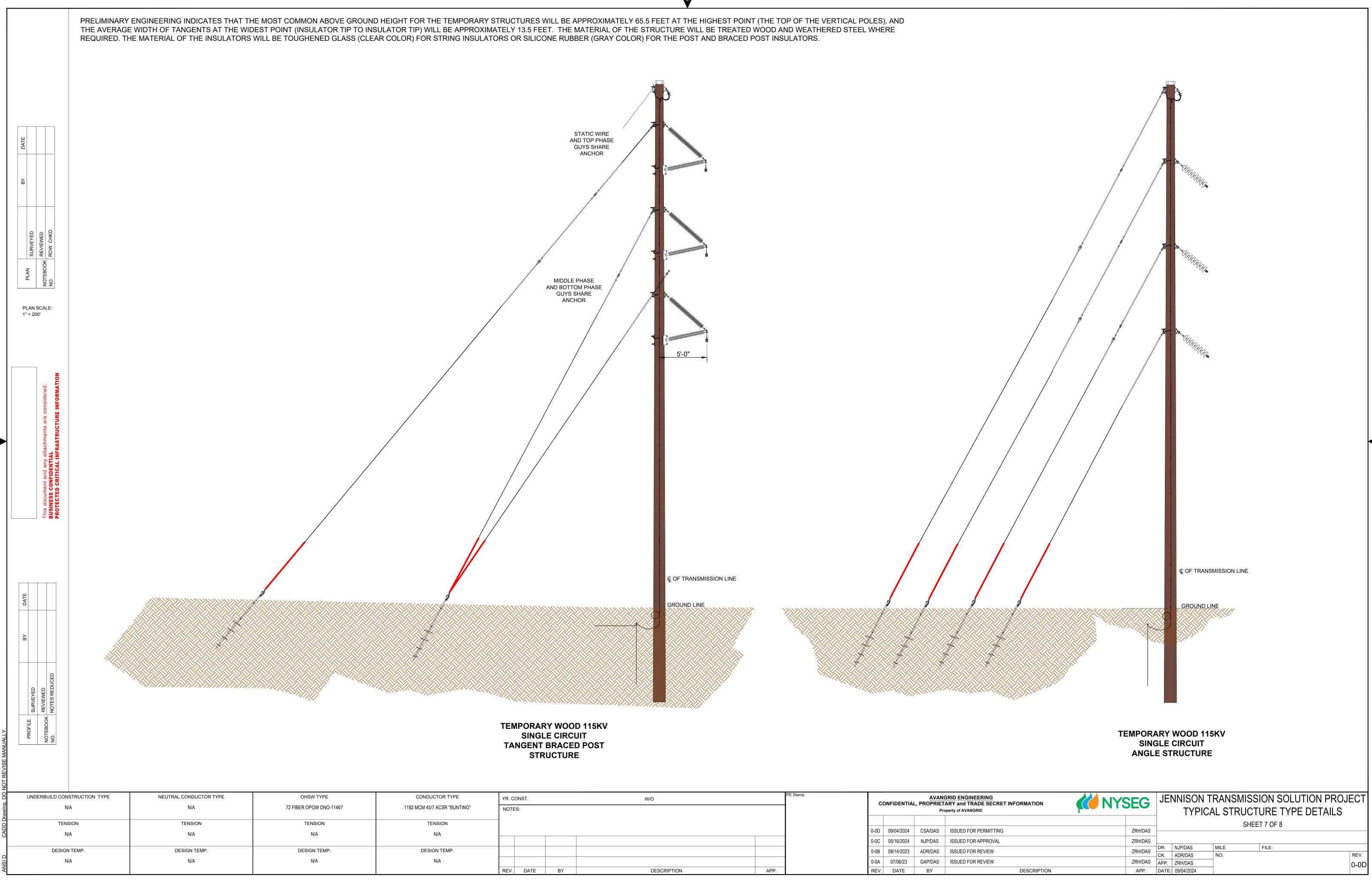
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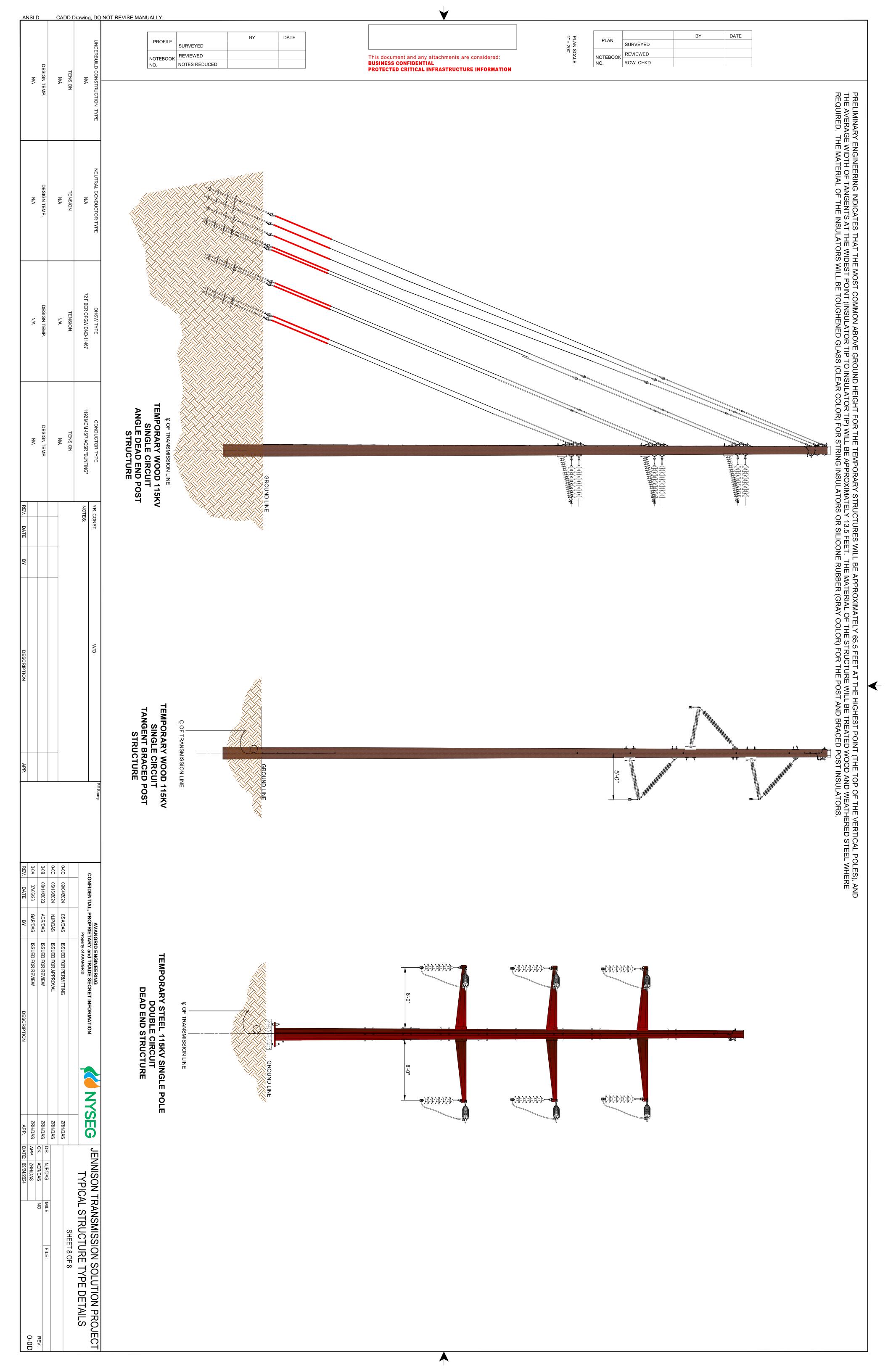












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