APPALACHIAN POWER COMPANY
BEFORE THE
VIRGINIA STATE CORPORATION COMMISSION
CASE NO. PUR-2021-00001

APPLICATION FOR APPROVAL AND CERTIFICATION OF ELECTRICAL TRANSMISSION LINE

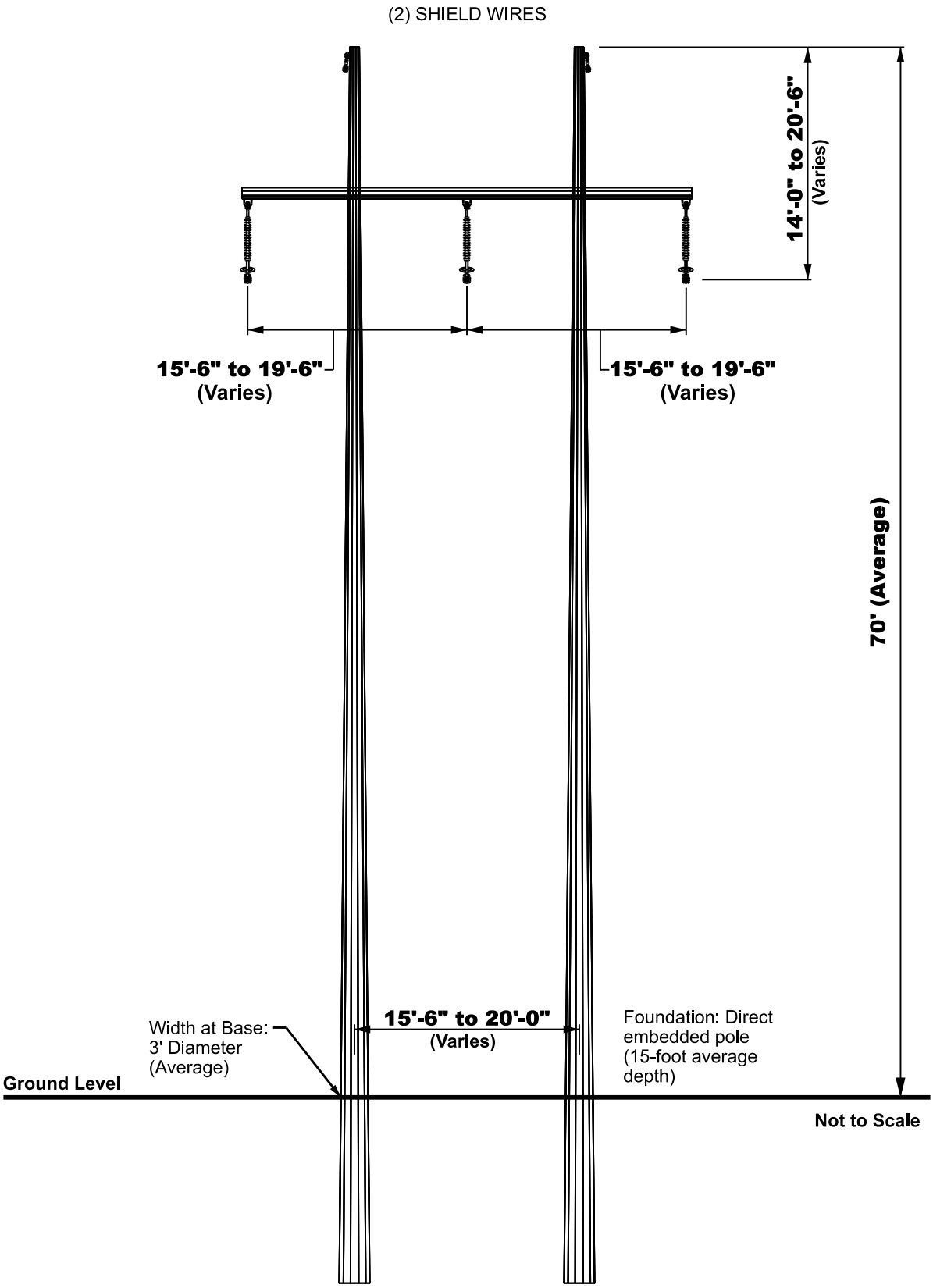
Central Virginia Transmission Reliability Project

VOLUME 1 OF 4

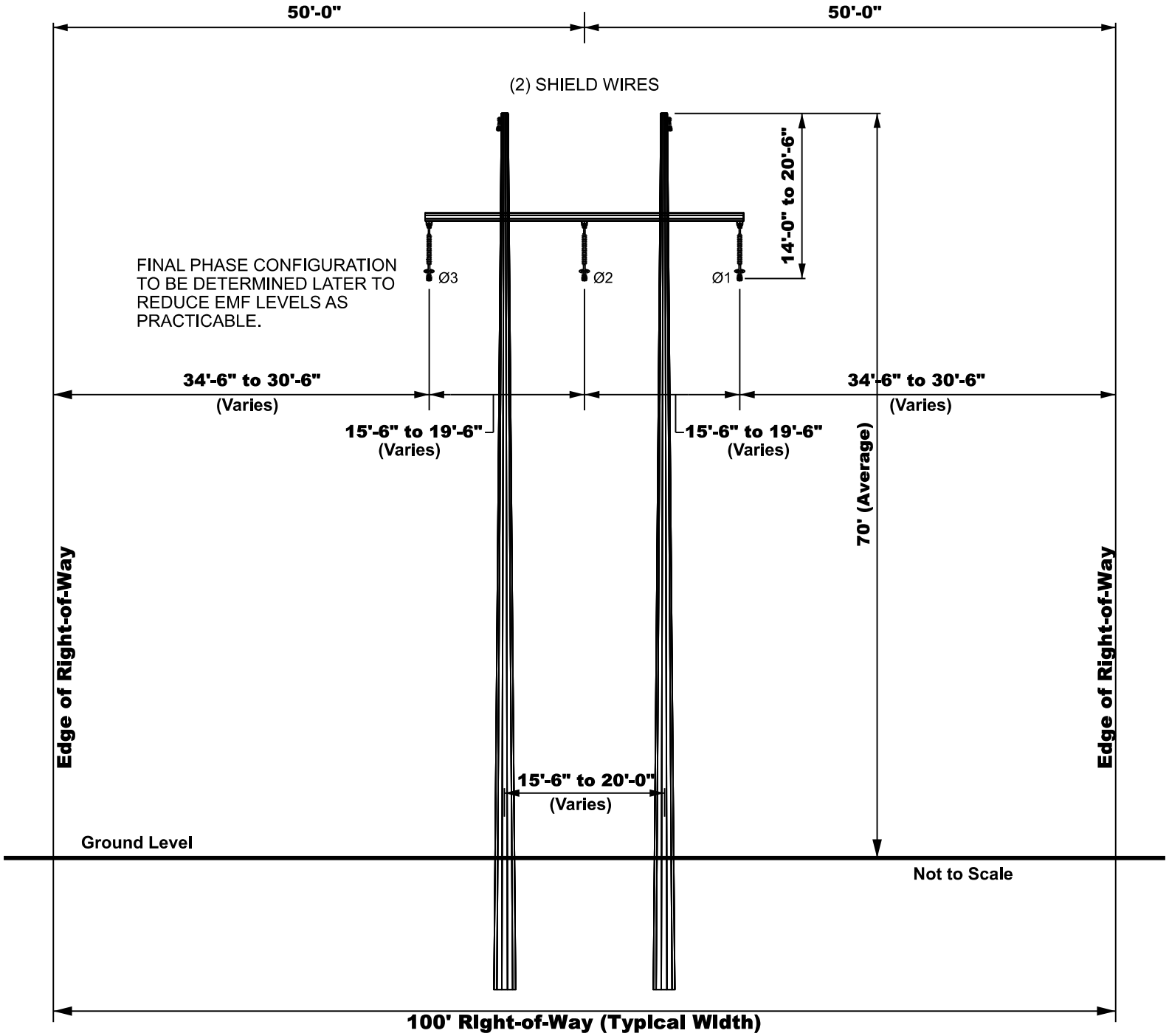
Application, Testimony, Response to Guidelines & Exhibits

January 2021

EXHIBIT 9: 138 KV SINGLE CIRCUIT H-FRAME



TYPICAL SCHEMATIC



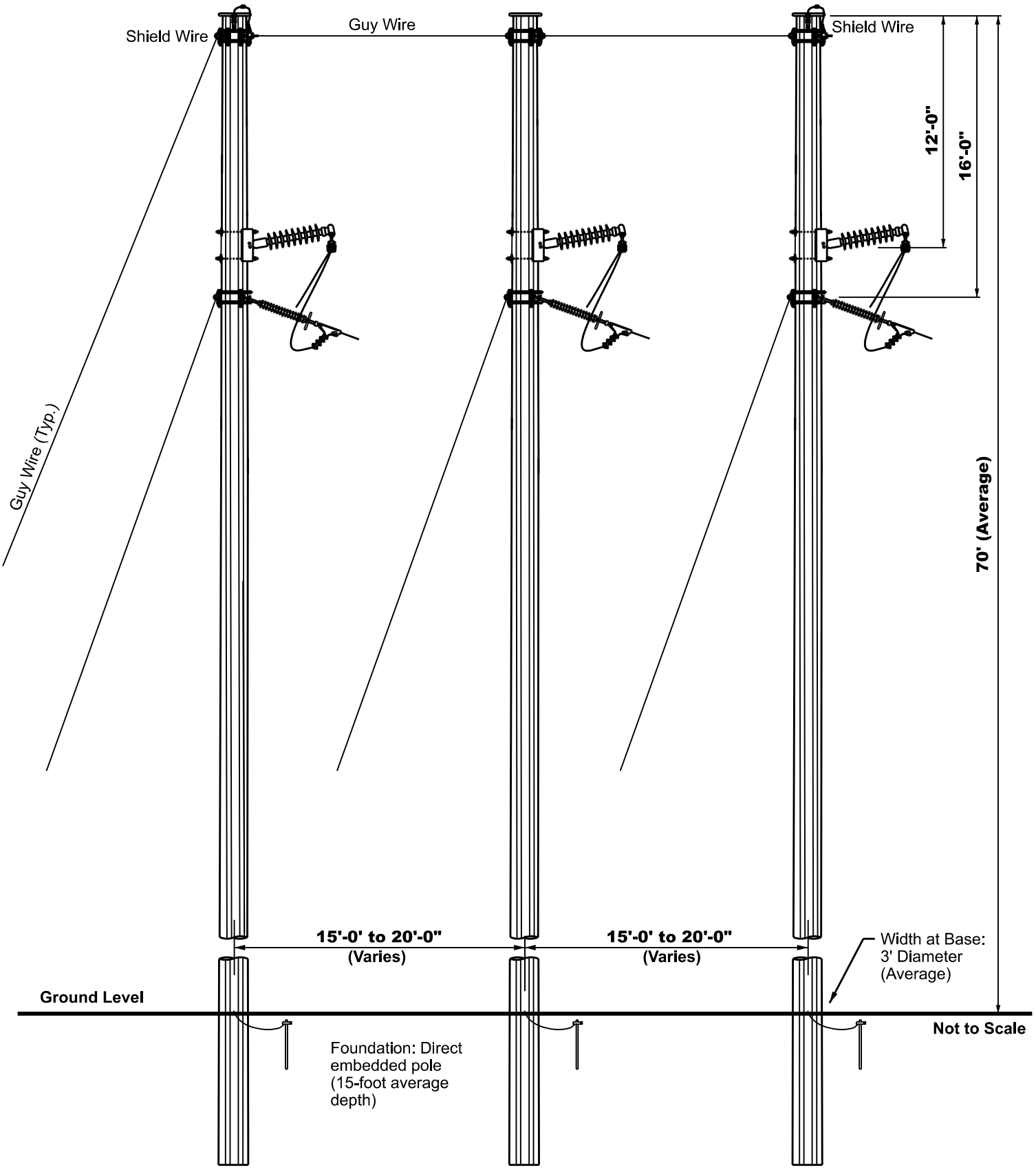
TYPICAL RIGHT-OF-WAY CROSS SECTION

COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

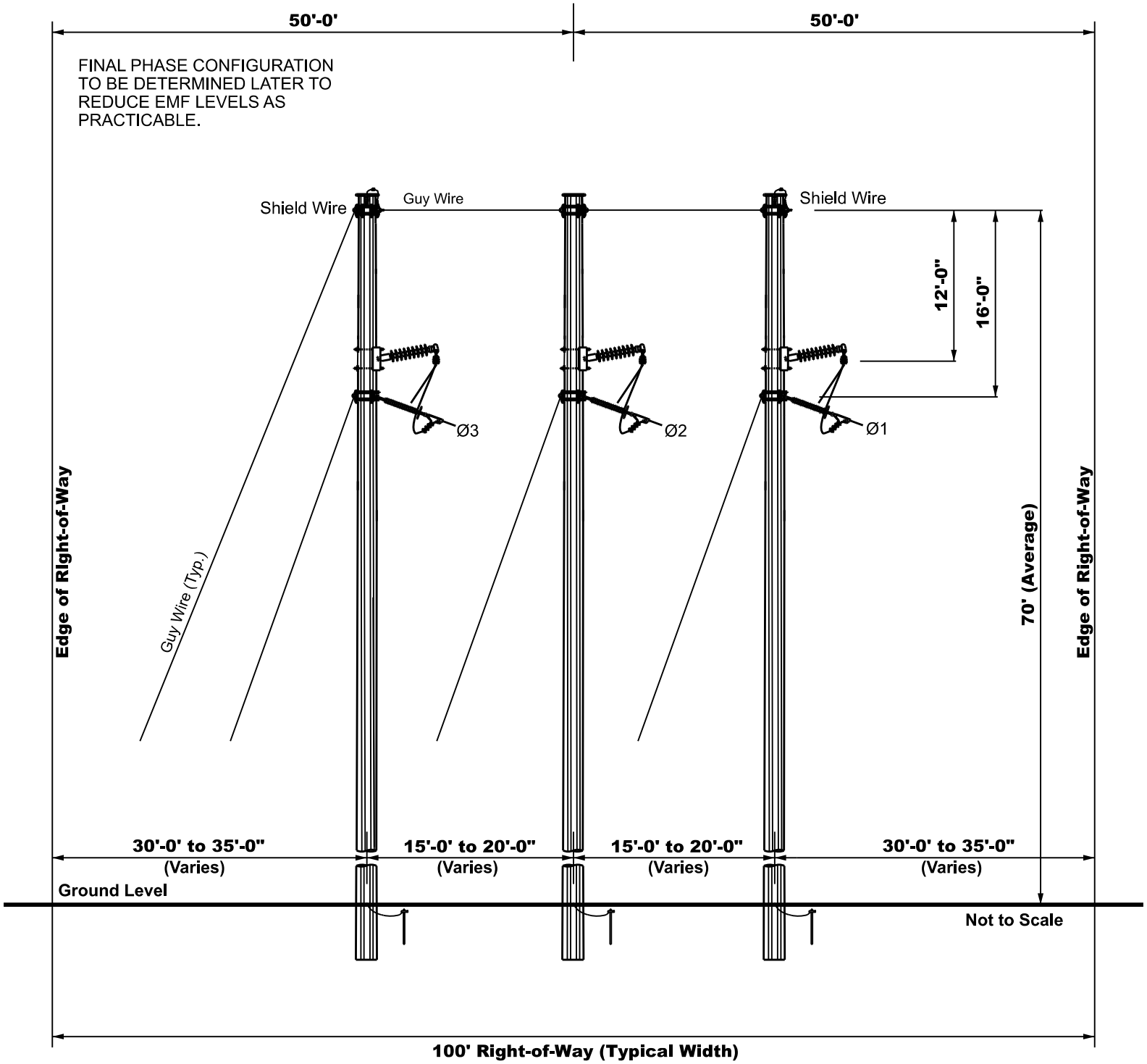
Note: The proposed material for the typical structure will be galvanized steel with a dulled finish (as shown above).

EXHIBIT 10: 138 KV SINGLE CIRCUIT THREE POLE STRUCTURE WITH GUY WIRES

EXHIBIT 10
PROPOSED 138kV TRANSMISSION STRUCTURES (Page 1 of 3)
Three-Pole (Single Circuit)



TYPICAL SCHEMATIC



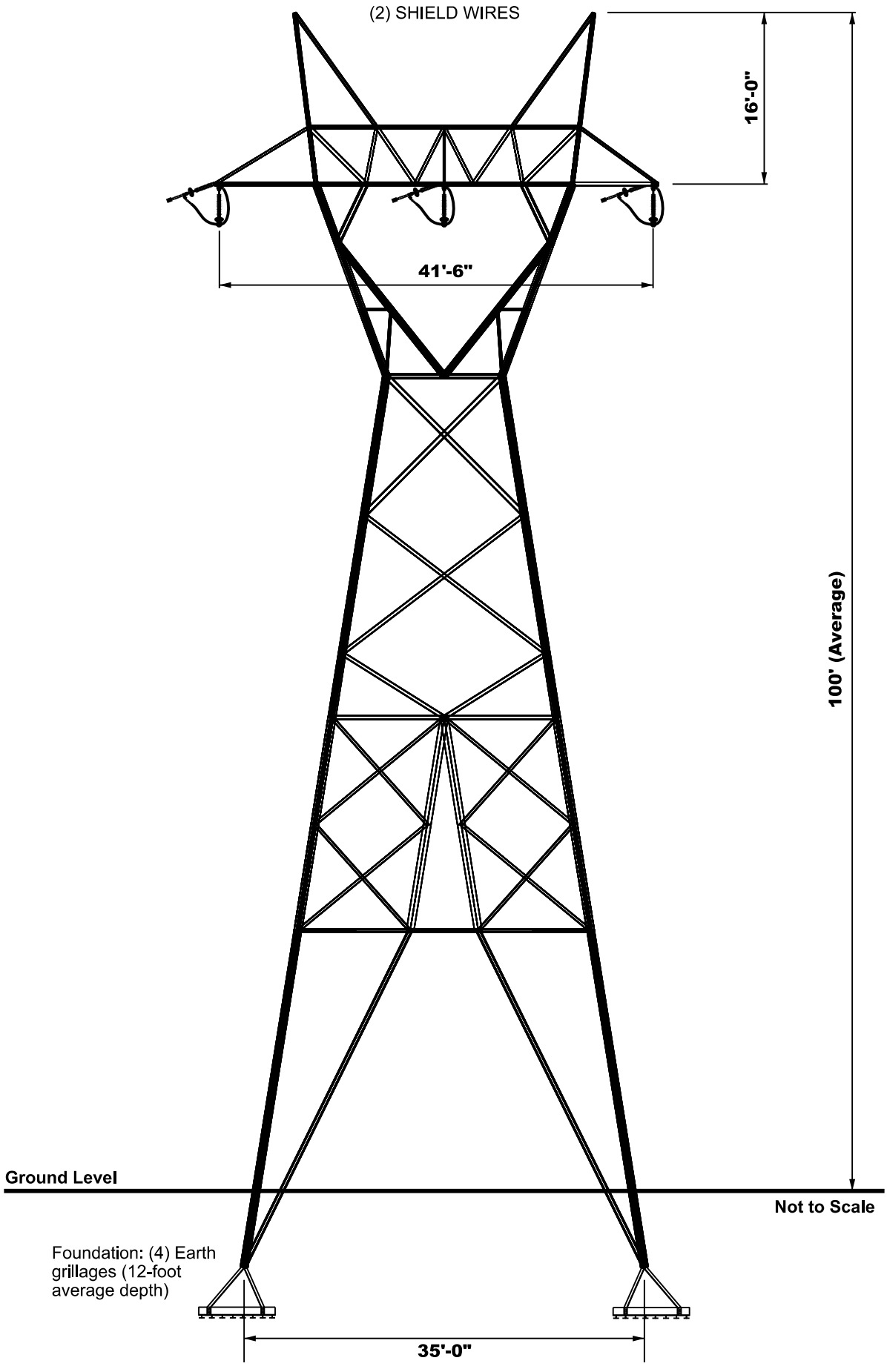
TYPICAL RIGHT-OF-WAY CROSS SECTION

COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

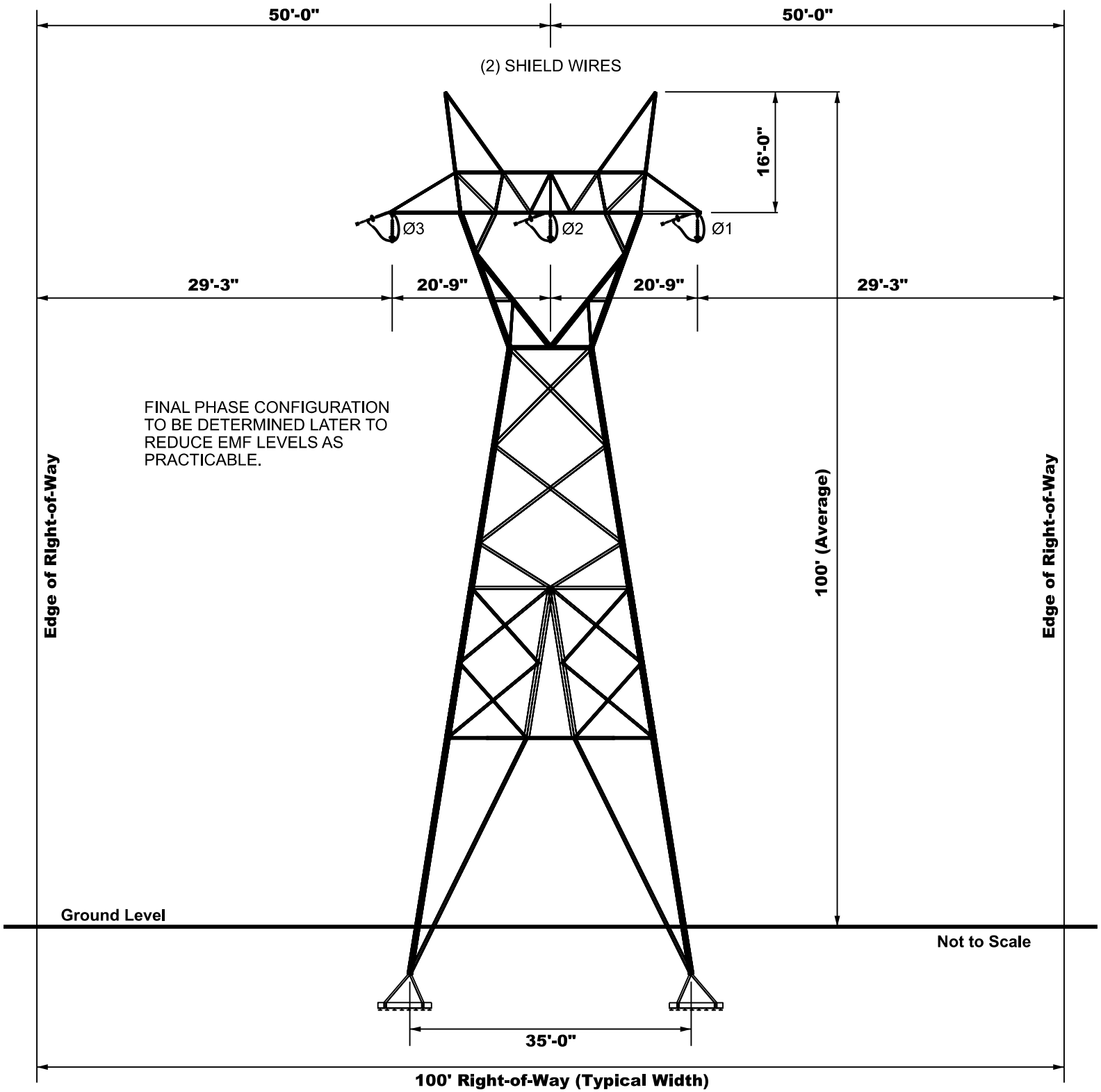
Note: The proposed material for the typical structure will be galvanized steel with a dulled finish (as shown above).

EXHIBIT 11: 138 KV SINGLE CIRCUIT LATTICE TOWER (JAMES RIVER CROSSING)

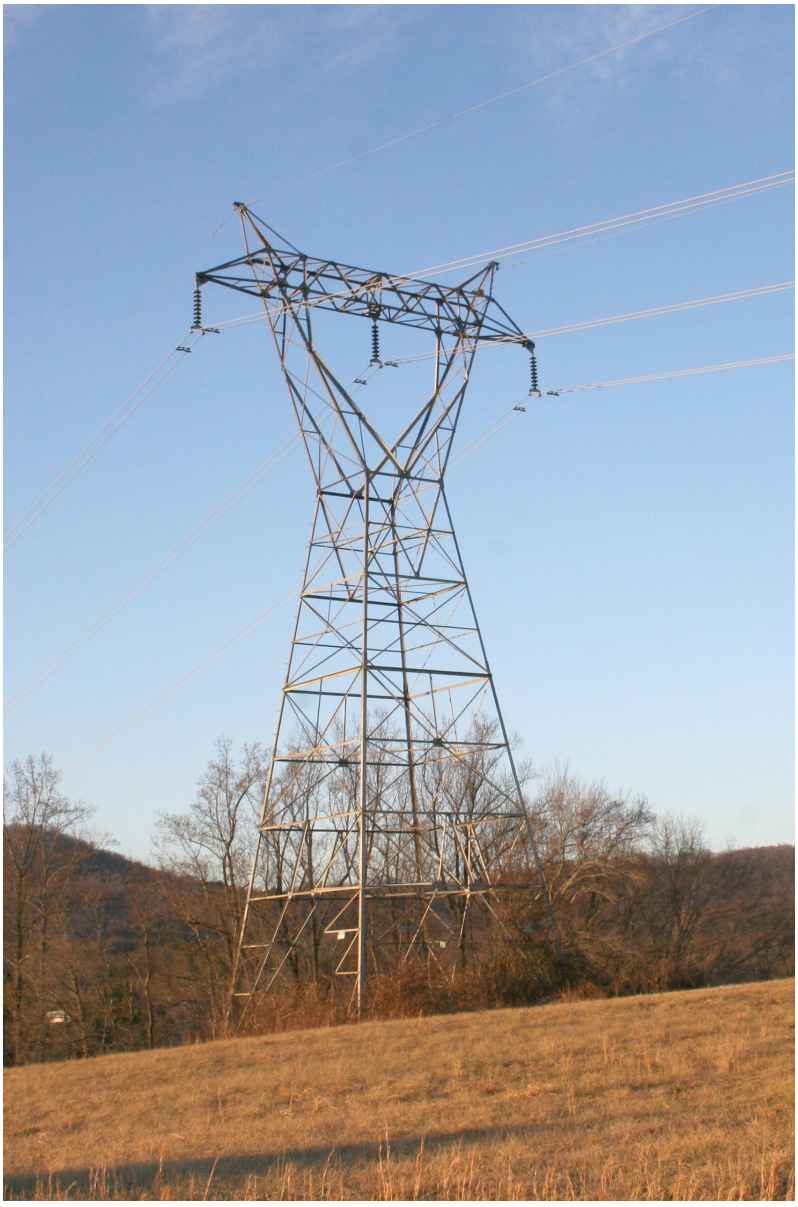
EXHIBIT 11
PROPOSED 138kV TRANSMISSION STRUCTURES (Page 1 of 3)
Self-Supporting Lattice Tower (Single Circuit)



TYPICAL SCHEMATIC



TYPICAL RIGHT-OF-WAY CROSS SECTION

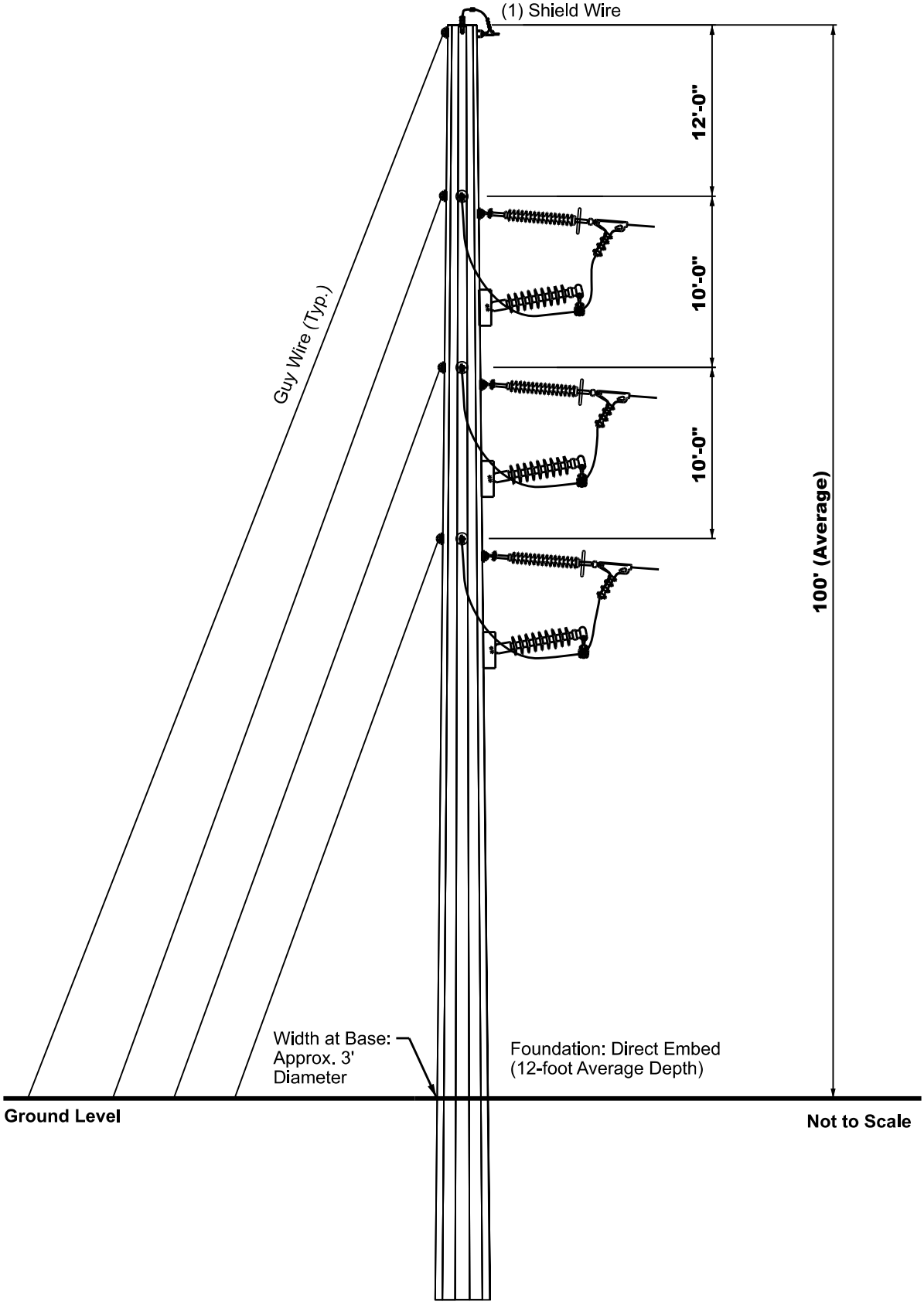


COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

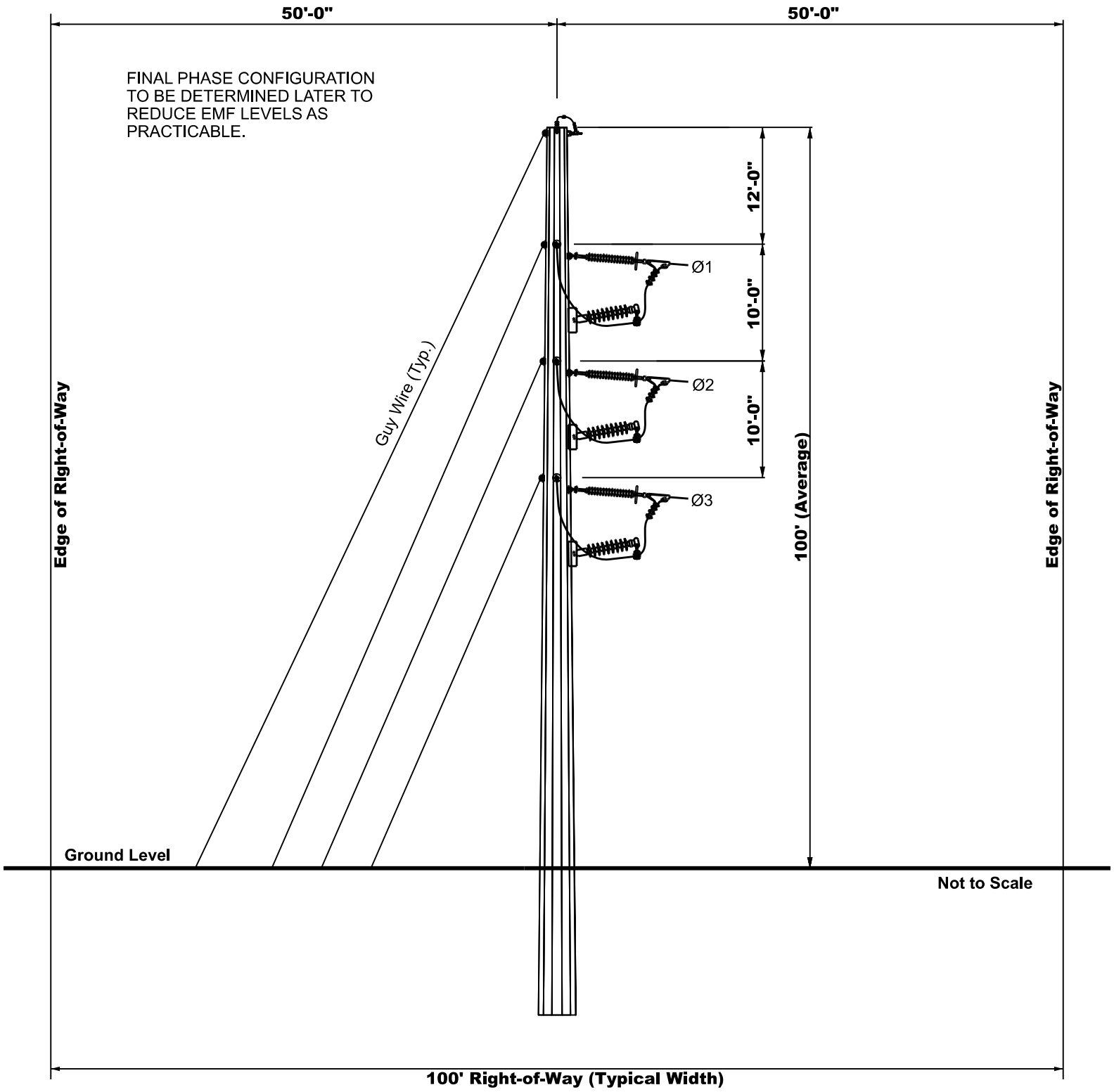
Note: The proposed material for the typical structure will be galvanized steel with a dulled finish (as shown above).

EXHIBIT 12: 138 KV SINGLE CIRCUIT MONOPOLE DEAD-END (DIRECT EMBED WITH GUY WIRES)

EXHIBIT 12
PROPOSED 138kV TRANSMISSION STRUCTURES (Page 1 of 3)
Guyed Monopole Dead-End (Single Circuit)



TYPICAL SCHEMATIC



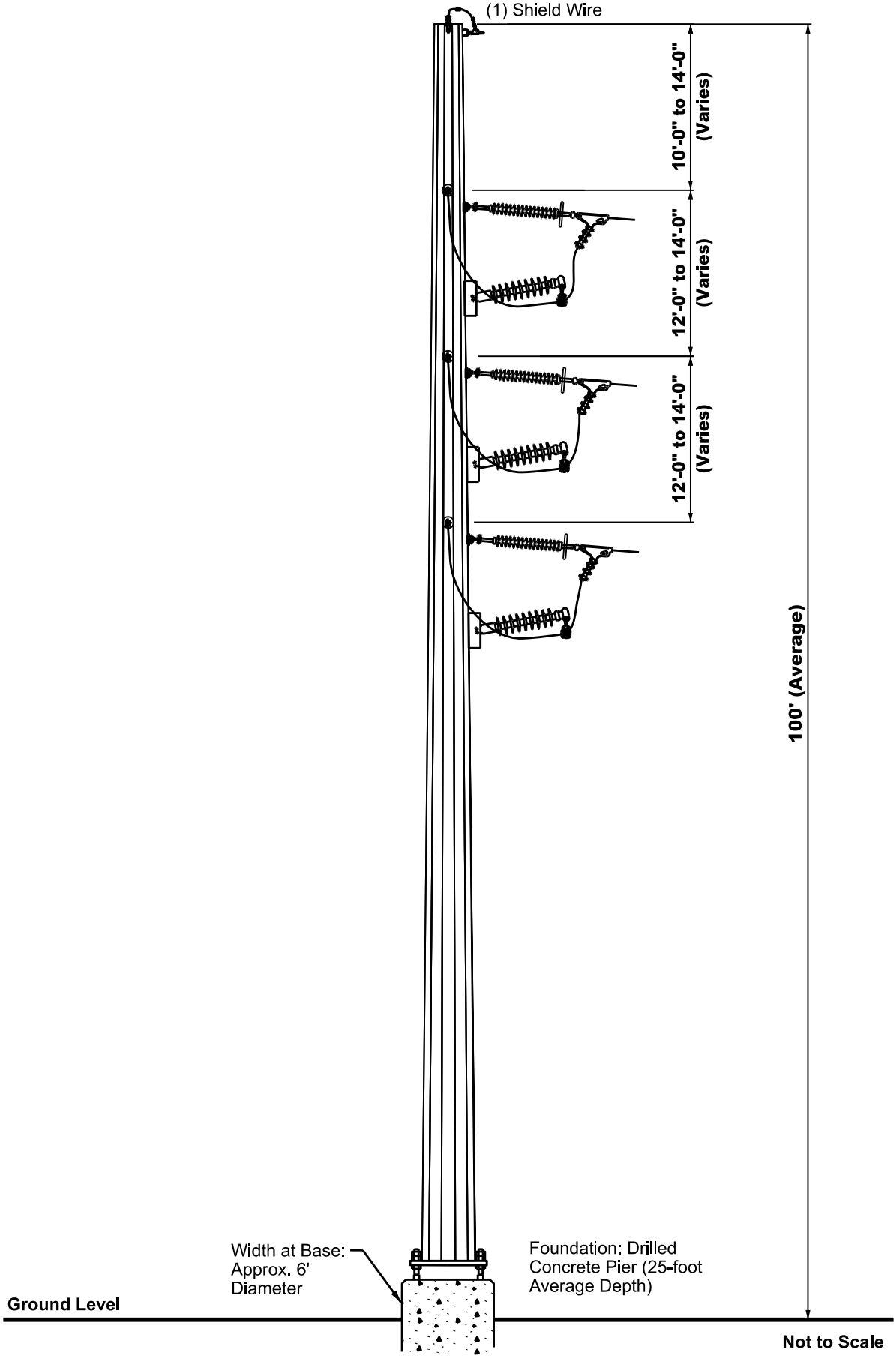
TYPICAL RIGHT-OF-WAY CROSS SECTION

COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

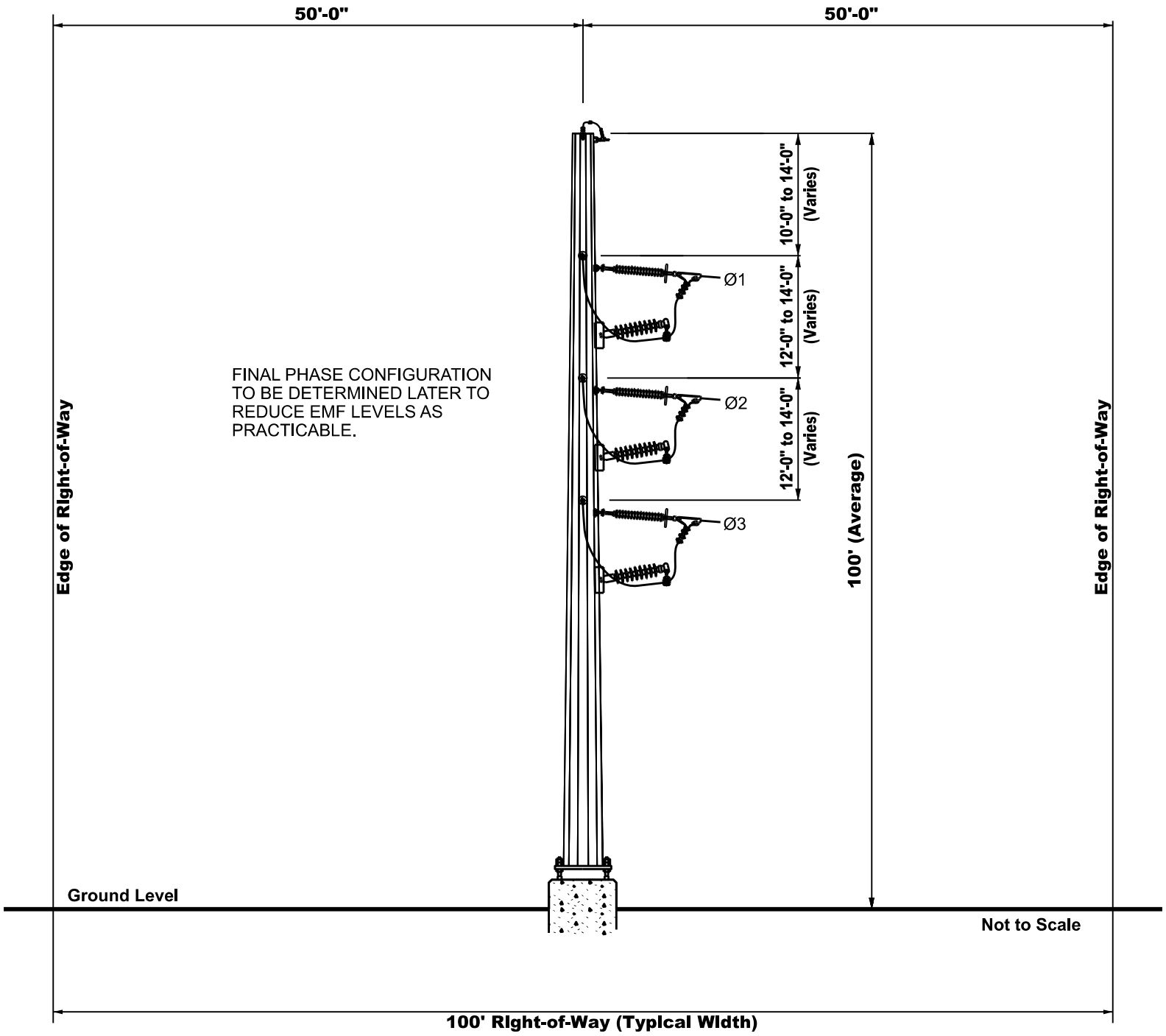
Note: The proposed material for the typical structure will be galvanized steel with a dulled finish (as shown above).

EXHIBIT 13: 138 KV SINGLE CIRCUIT MONOPOLE DEAD-END (PIER FOUNDATION)

EXHIBIT 13
PROPOSED 138kV TRANSMISSION STRUCTURES (Page 1 of 3)
Monopole Dead-End (Single Circuit)



TYPICAL SCHEMATIC



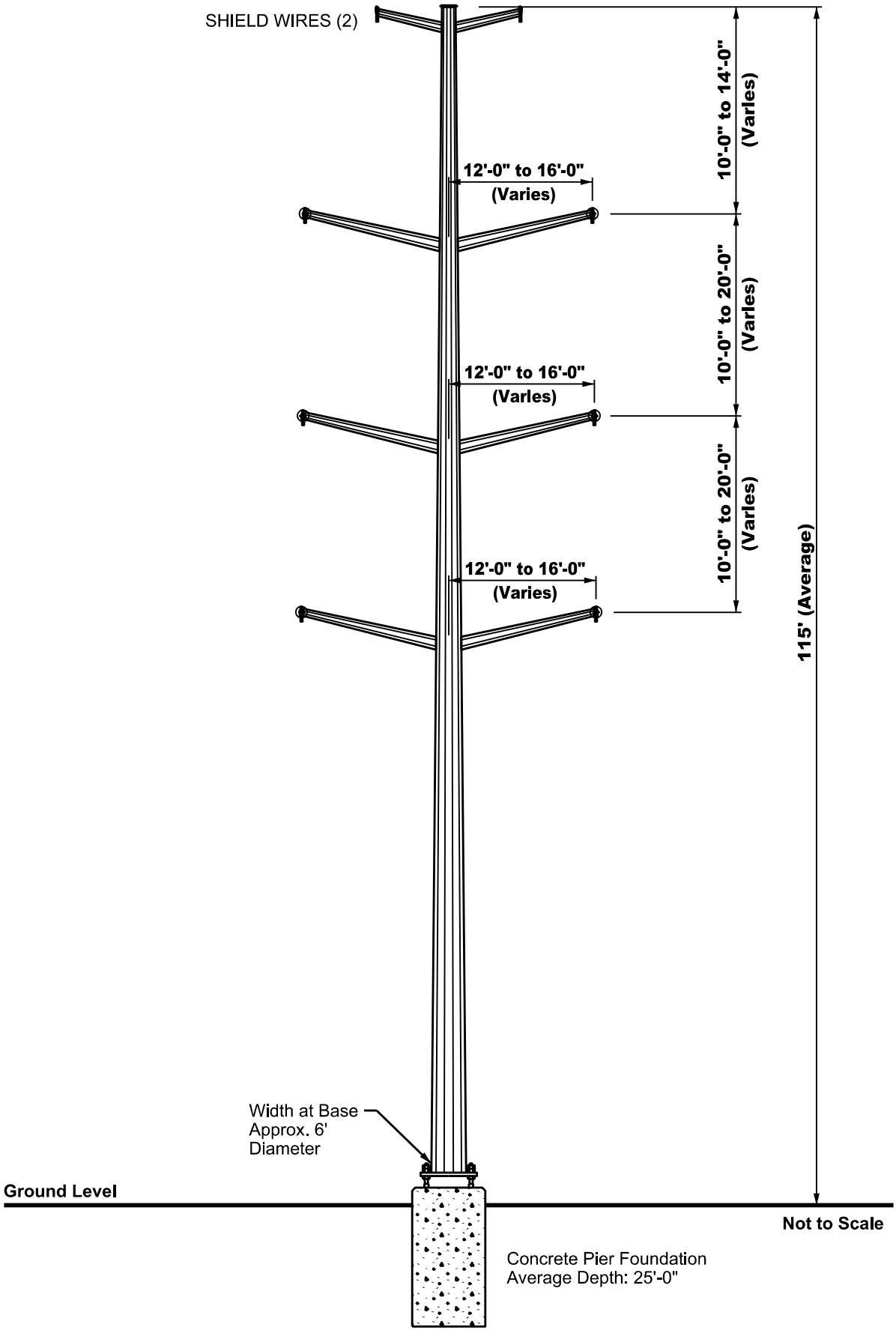
TYPICAL RIGHT-OF-WAY CROSS SECTION

COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

Note: The proposed material for the typical structure will be galvanized steel with a dulled finish (as shown above).

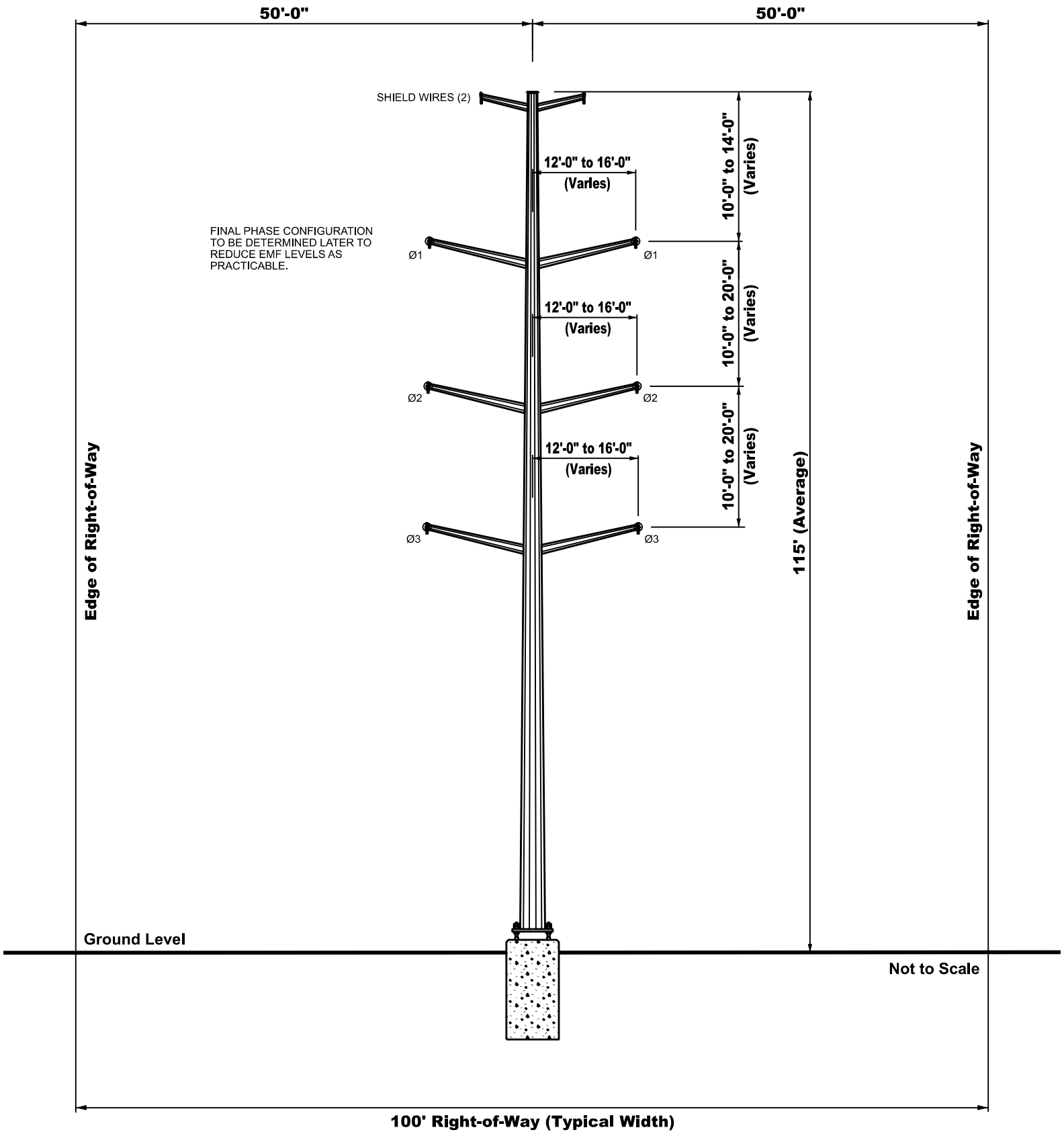
EXHIBIT 14: 138 KV DOUBLE CIRCUIT MONOPOLE WITH DAVIT ARMS

EXHIBIT 14
PROPOSED 138kV TRANSMISSION STRUCTURES (Page 1 of 3)
Monopole with Davit Arms (Double Circuit)



TYPICAL SCHEMATIC

EXHIBIT 14
PROPOSED 138kV TRANSMISSION STRUCTURES (Page 2 of 3)
Monopole with Davit Arms (Double Circuit)

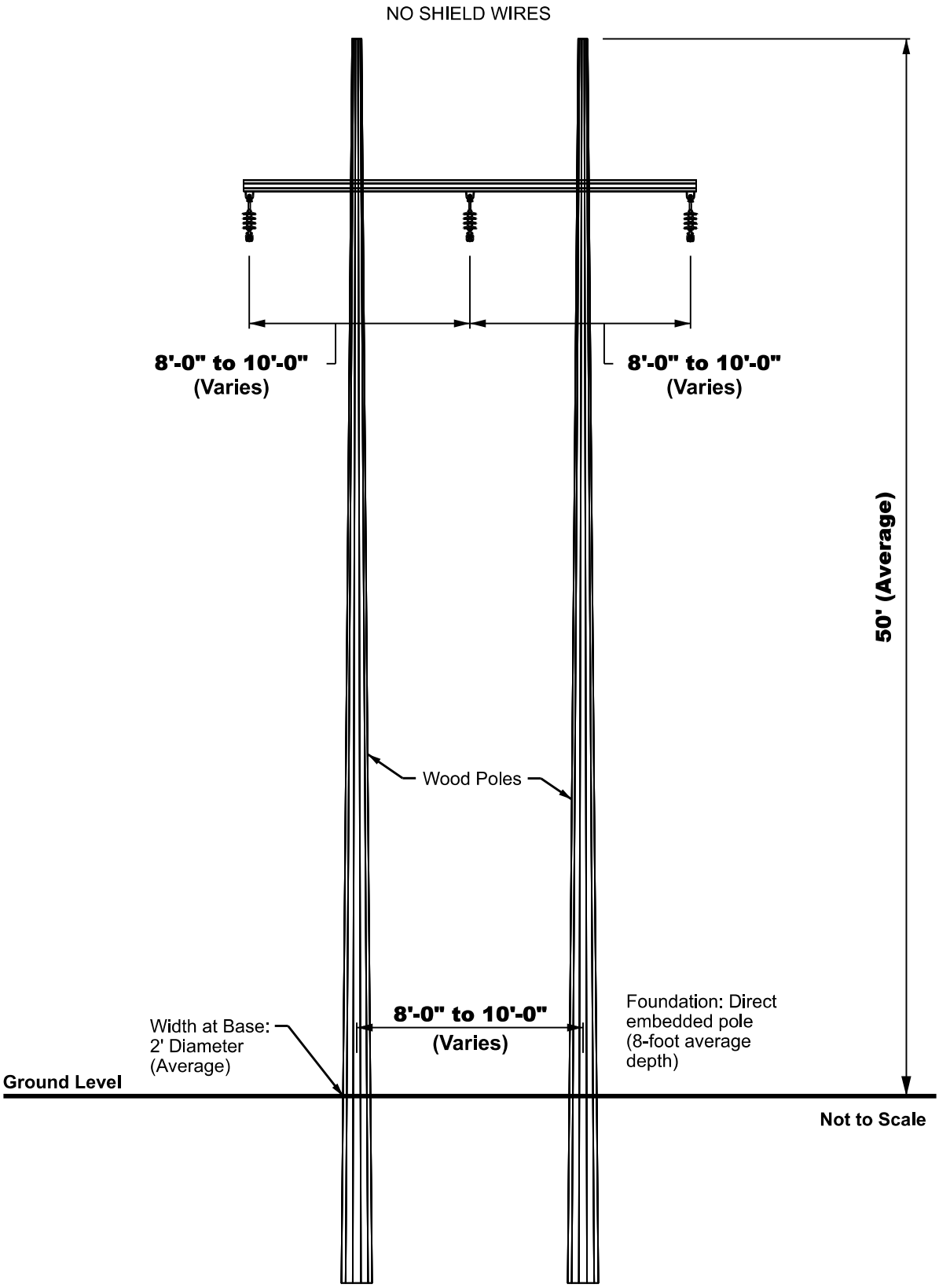


TYPICAL RIGHT-OF-WAY CROSS SECTION

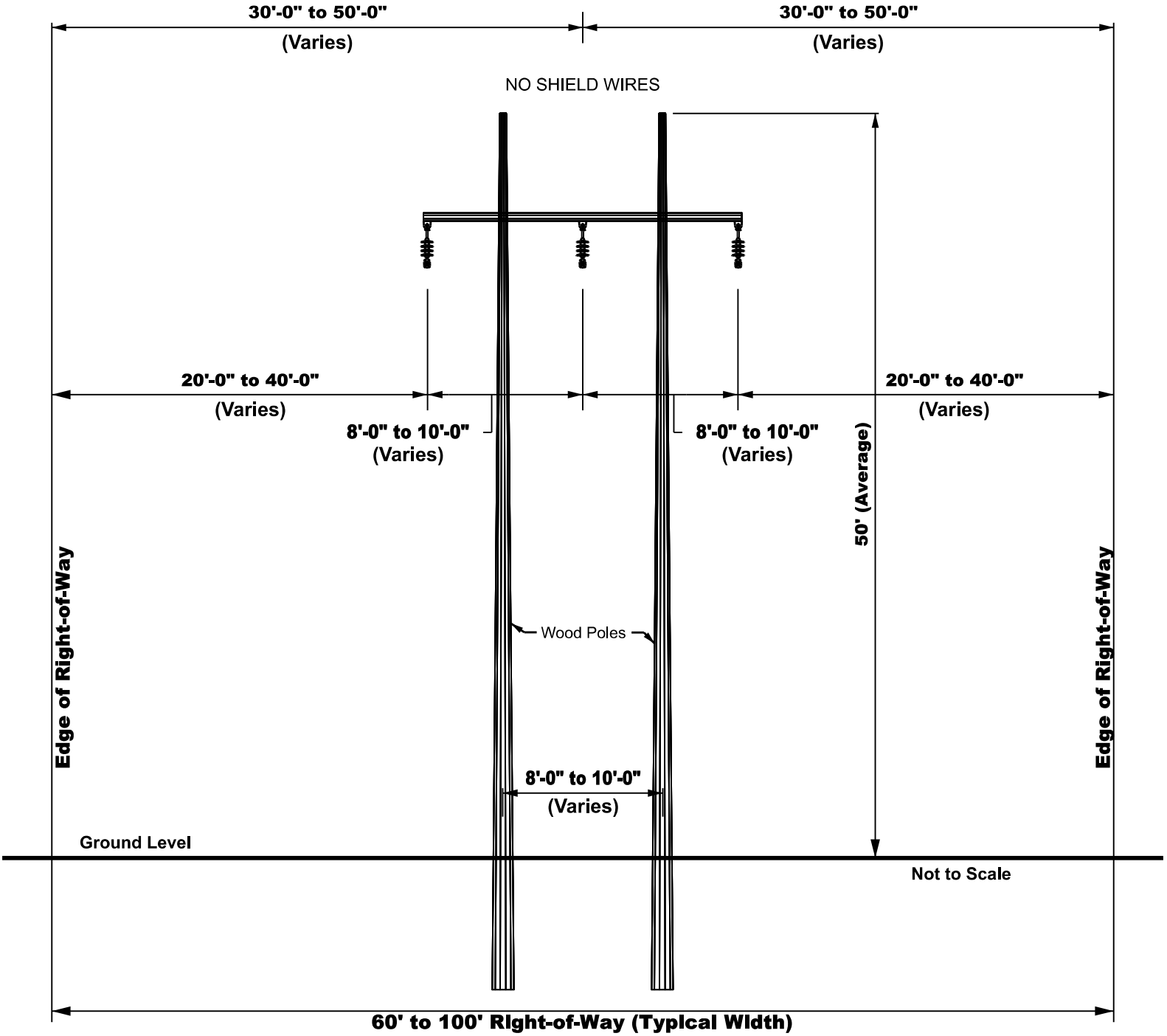
COMPARABLE STRUCTURE PHOTOGRAPH

Note: The proposed material for the typical structure will be galvanized steel with a dulled finish (as shown above).

EXHIBIT 15: 69 KV SINGLE CIRCUIT H-FRAME (EXISTING ROW AND STRUCTURE)



TYPICAL SCHEMATIC

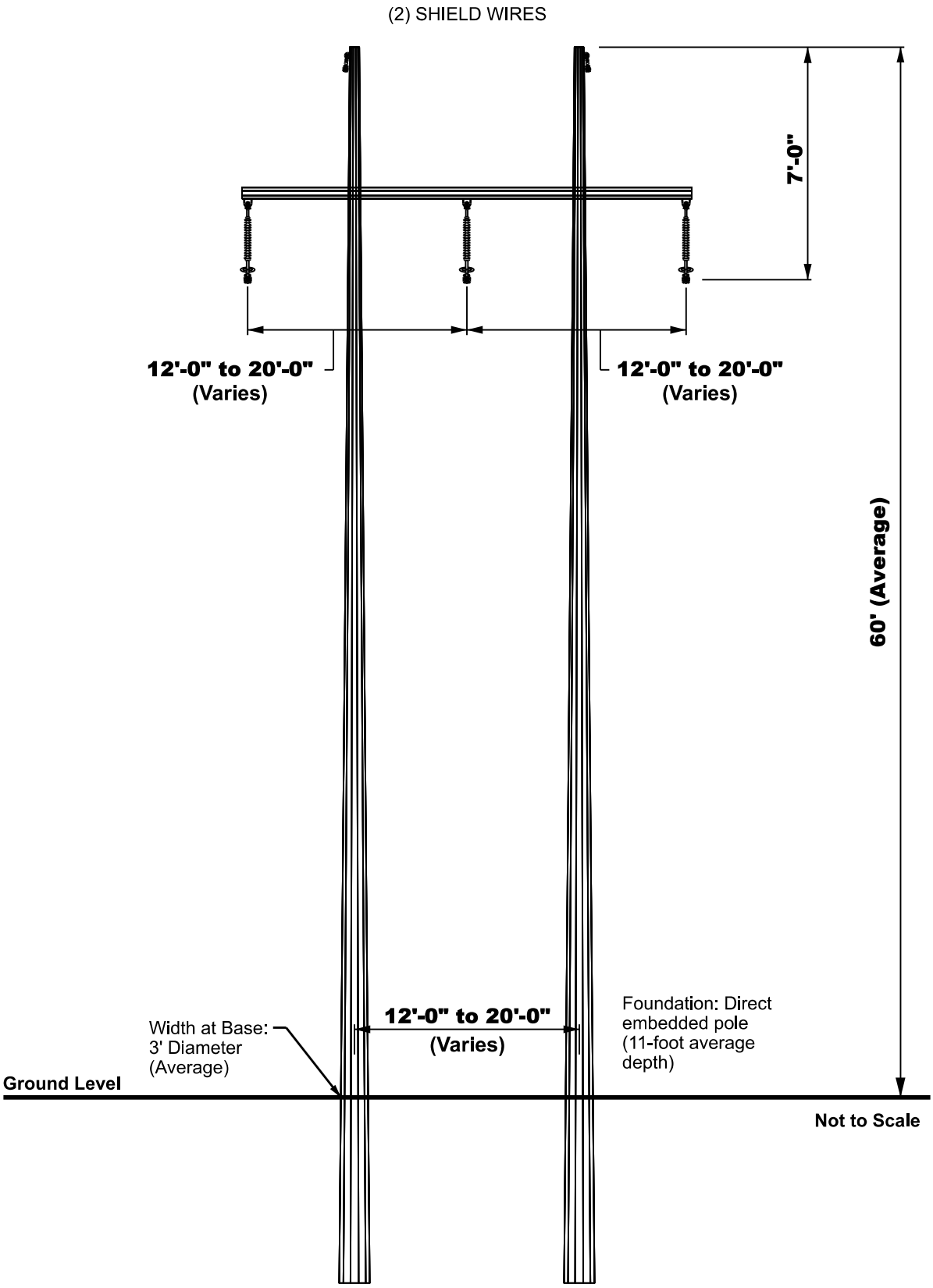


TYPICAL RIGHT-OF-WAY CROSS SECTION

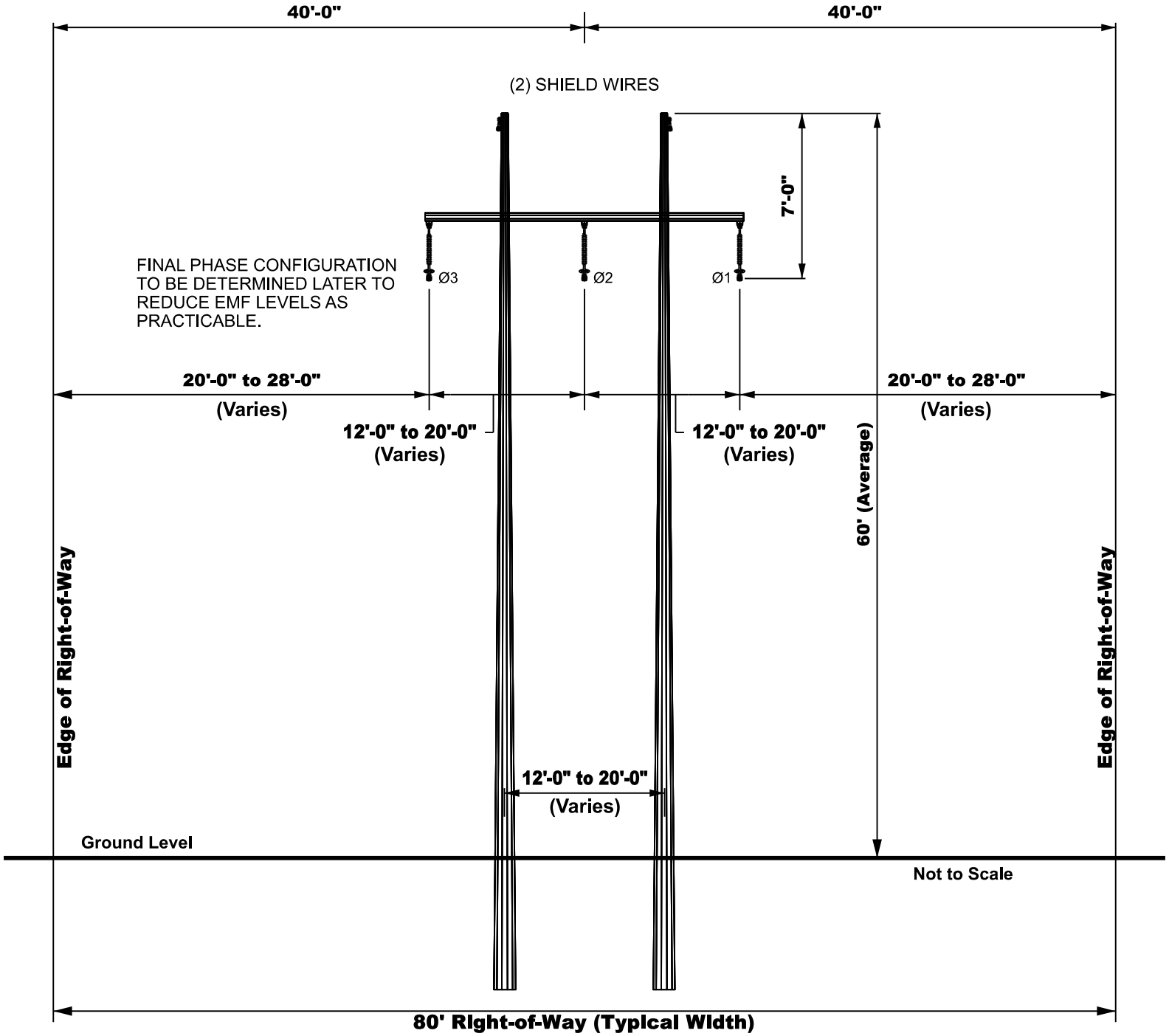
COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

Note: The material for the existing typical structure is wood (as shown above).

EXHIBIT 16: 69 KV SINGLE CIRCUIT H- FRAME



TYPICAL SCHEMATIC



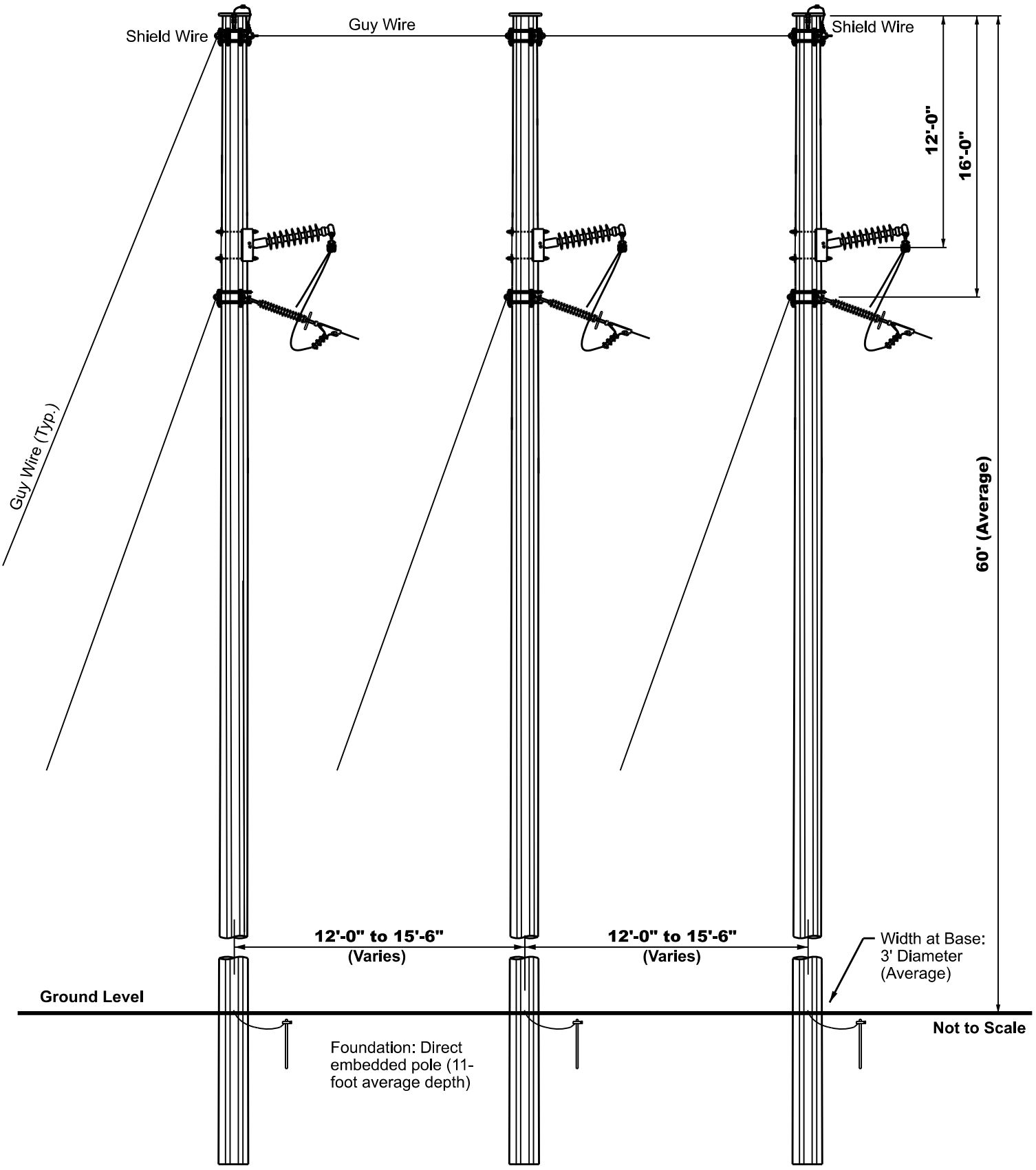
TYPICAL RIGHT-OF-WAY CROSS SECTION

COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

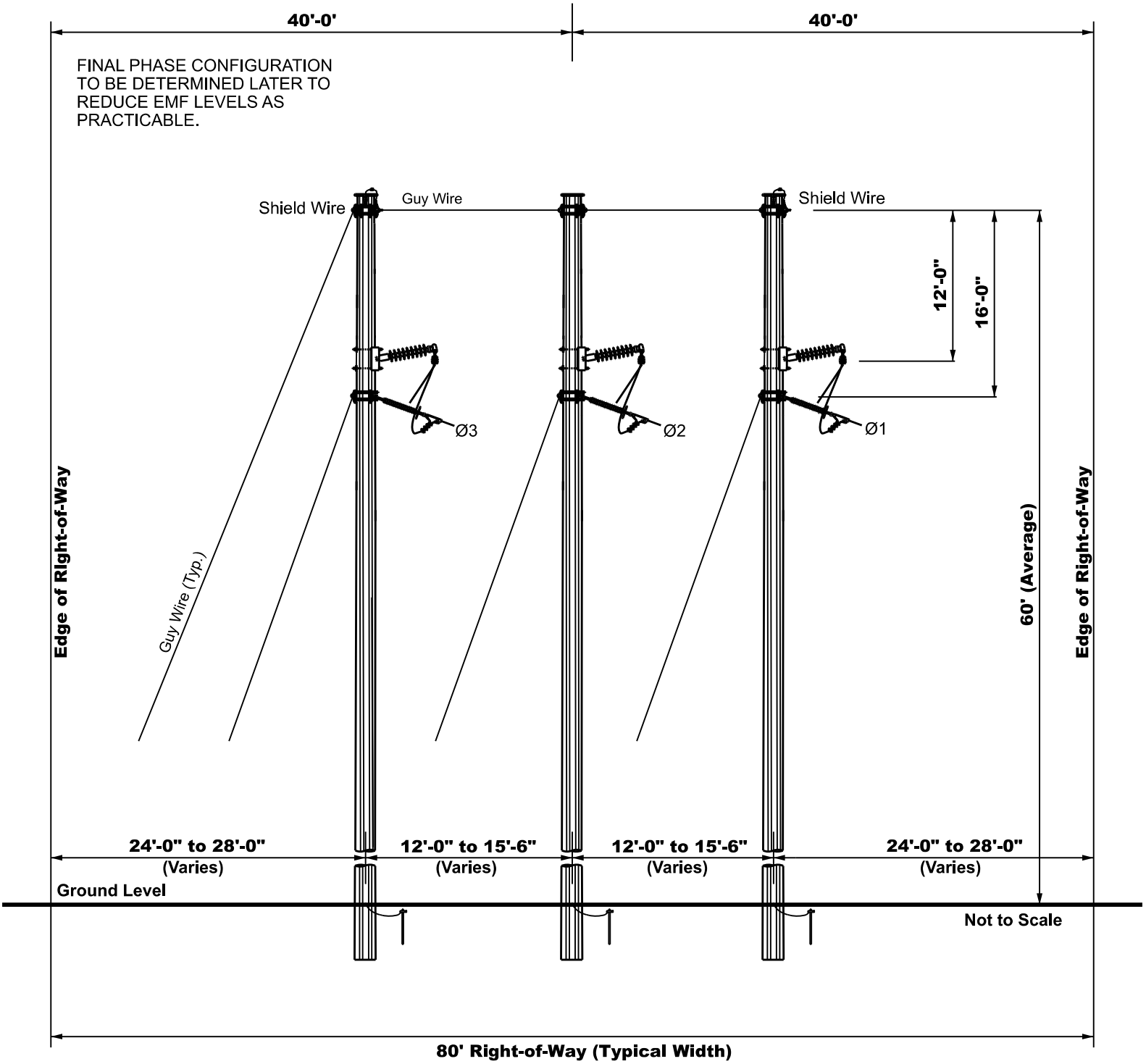
Note: The proposed material for the typical structure will be galvanized steel with a dulled finish (as shown above).

EXHIBIT 17: 69 KV SINGLE CIRCUIT THREE POLE WITH GUY WIRES

EXHIBIT 17
PROPOSED 69kV TRANSMISSION STRUCTURES (Page 1 of 3)
Three-Pole (Single Circuit)



TYPICAL SCHEMATIC



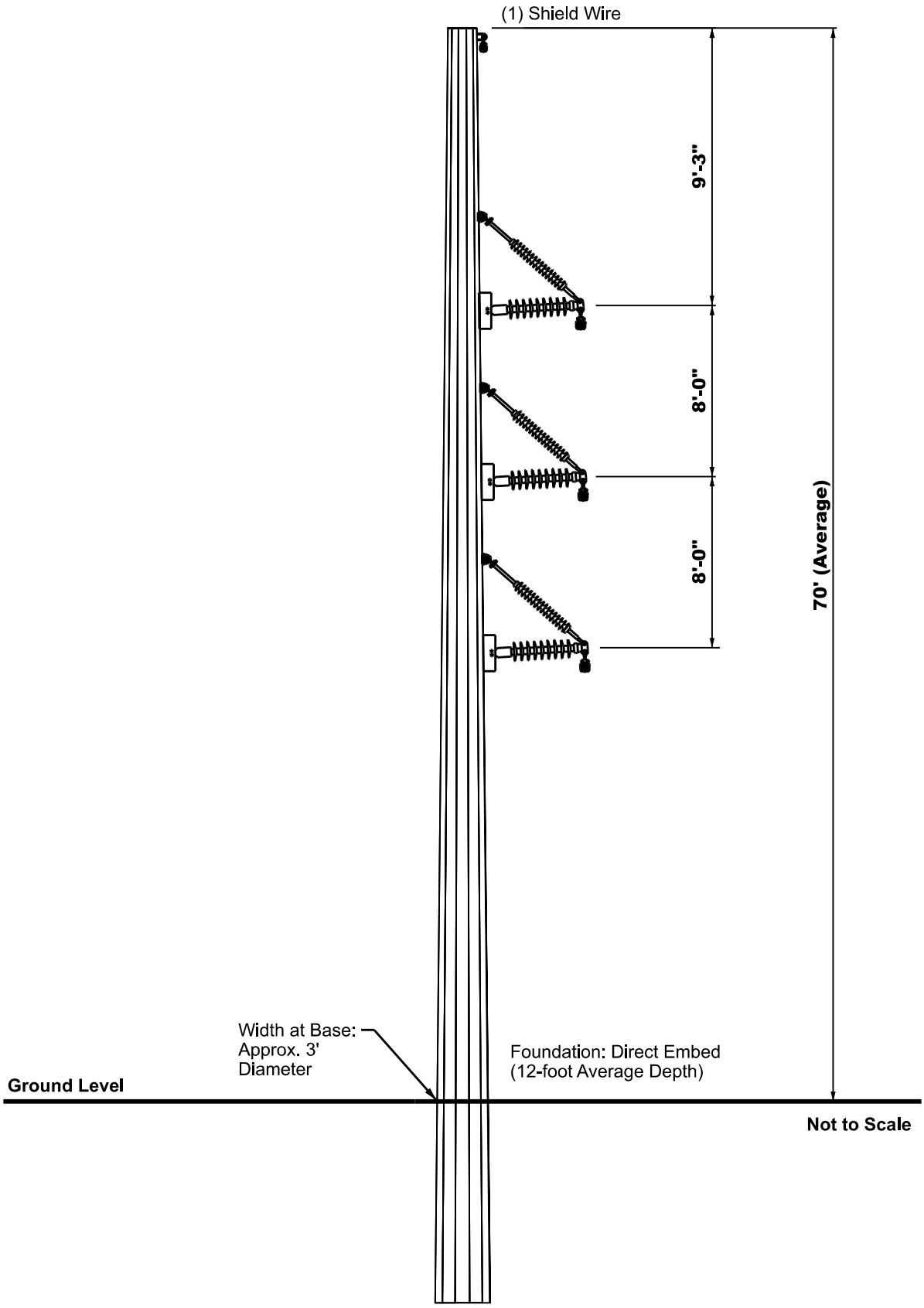
TYPICAL RIGHT-OF-WAY CROSS SECTION

COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

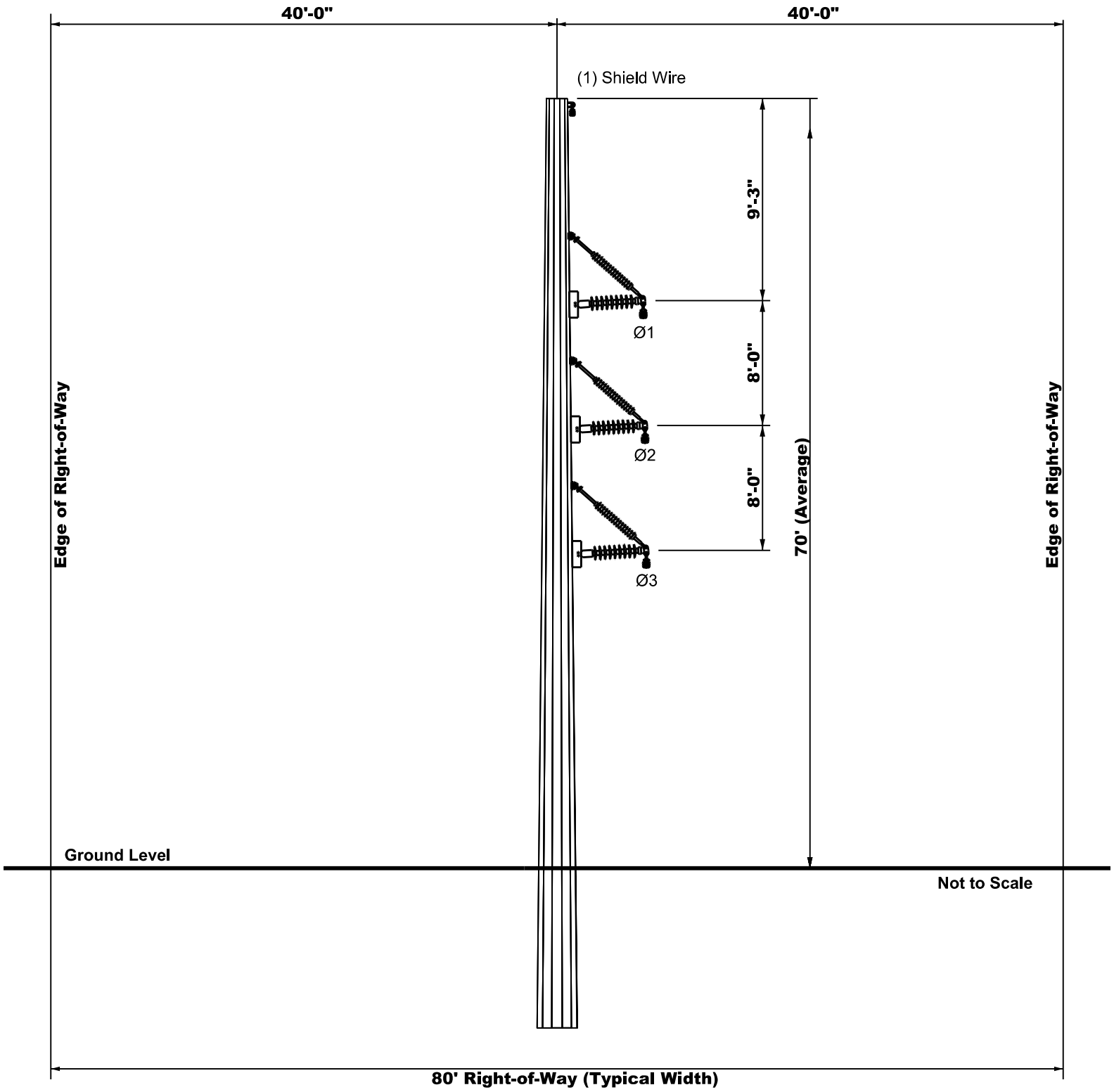
Note: The proposed material for the typical structure will be galvanized steel with a dulled finish (as shown above).

EXHIBIT 18: 69 KV SINGLE CIRCUIT BRACED MONOPOLE

EXHIBIT 18
PROPOSED 69kV TRANSMISSION STRUCTURES (Page 1 of 3)
Monopole Brace Post (Single Circuit)



TYPICAL SCHEMATIC



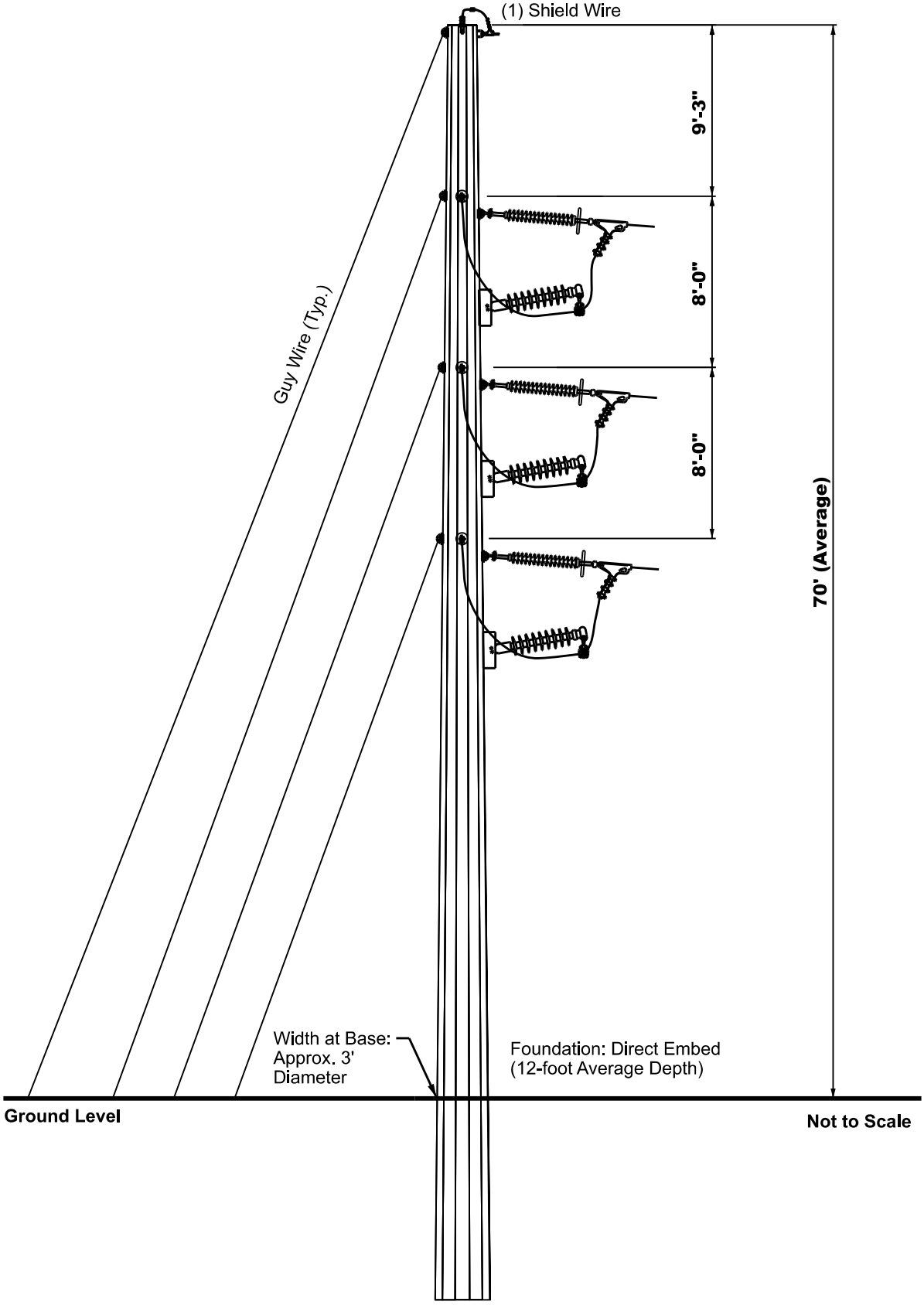
TYPICAL RIGHT-OF-WAY CROSS SECTION

COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

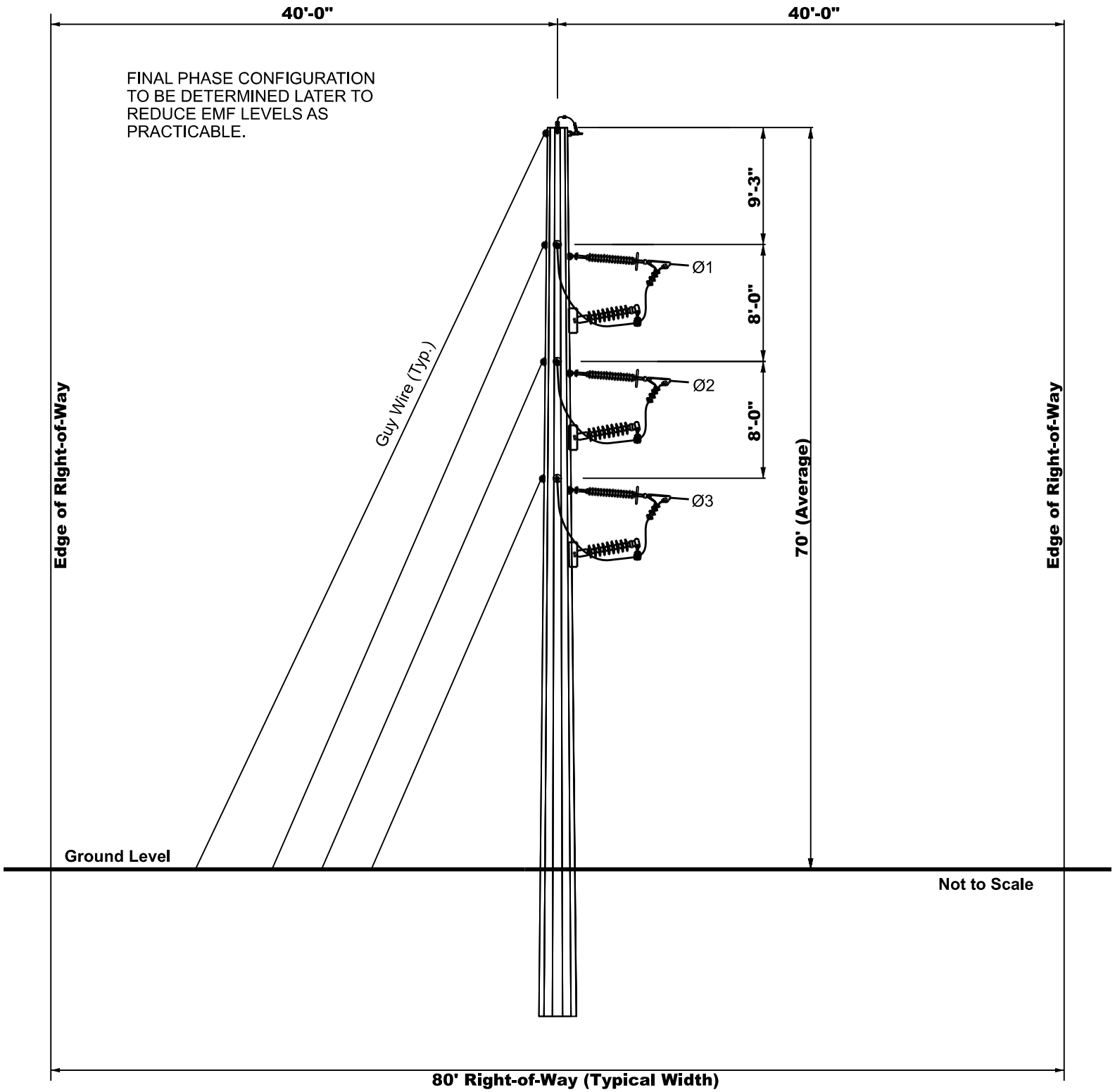
Note: The proposed material for the typical structure will be galvanized steel with a dulled finish (as shown above).

EXHIBIT 19: 69 KV SINGLE CIRCUIT MONOPOLE WITH GUY WIRES

EXHIBIT 19
PROPOSED 69kV TRANSMISSION STRUCTURES (Page 1 of 3)
Guyed Monopole Dead-End (Single Circuit)



TYPICAL SCHEMATIC



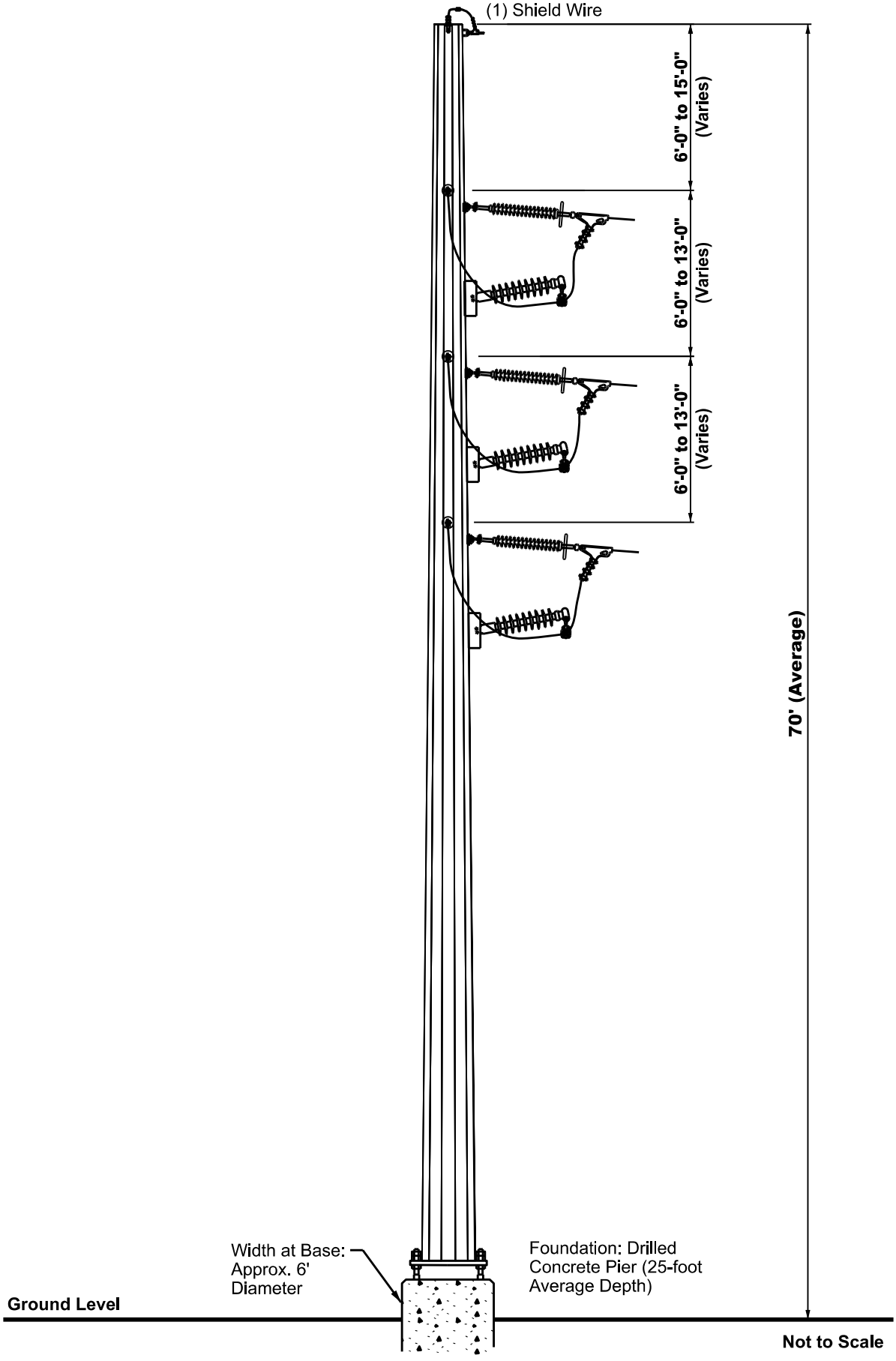
TYPICAL RIGHT-OF-WAY CROSS SECTION

COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

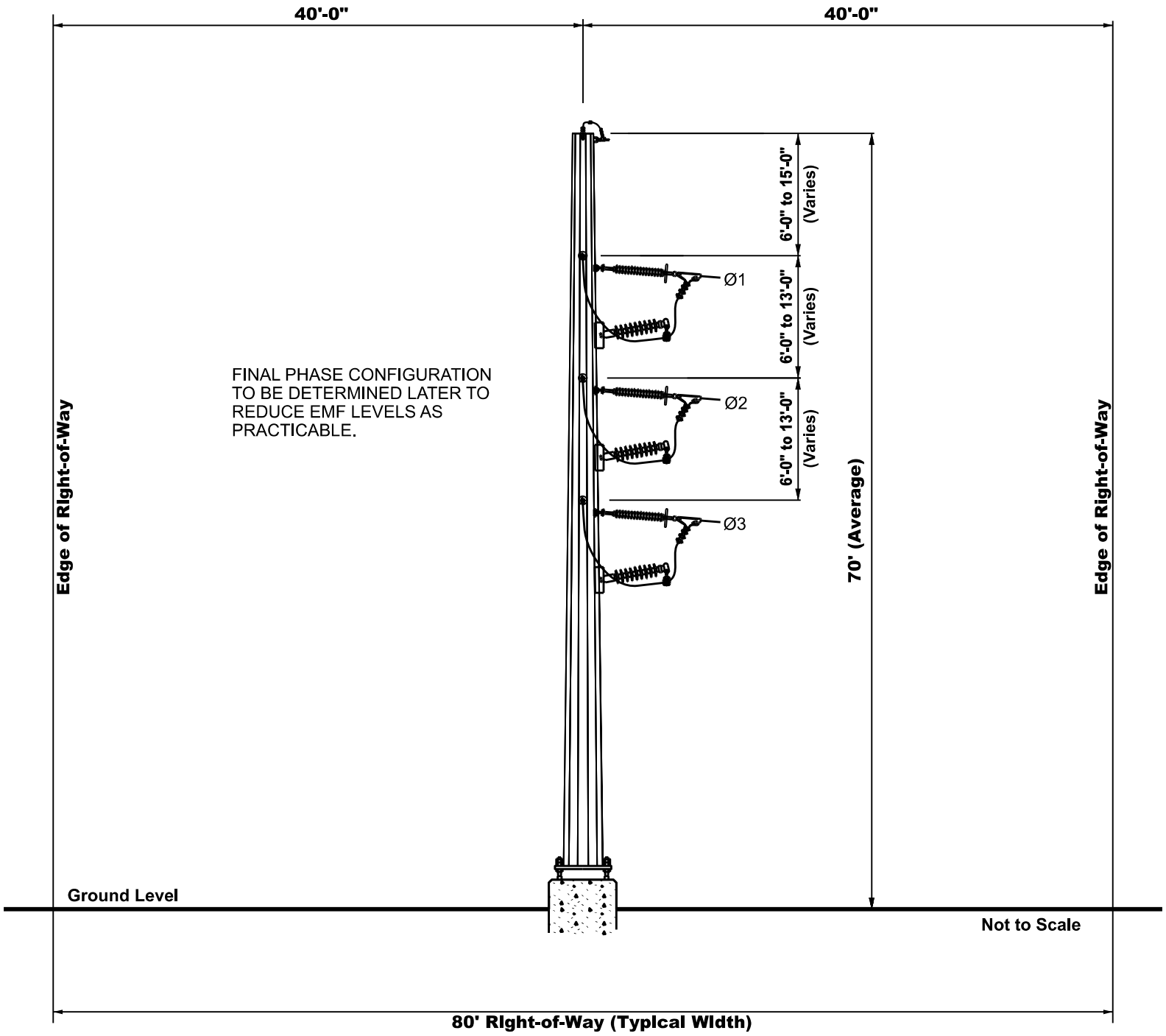
Note: The proposed material for the typical structure will be galvanized steel with a dulled finish (as shown above).

EXHIBIT 20: 69 KV SINGLE CIRCUIT MONOPOLE SELF SUPPORTING

EXHIBIT 20
PROPOSED 69kV TRANSMISSION STRUCTURES (Page 1 of 3)
Monopole Dead-End (Single Circuit)



TYPICAL SCHEMATIC



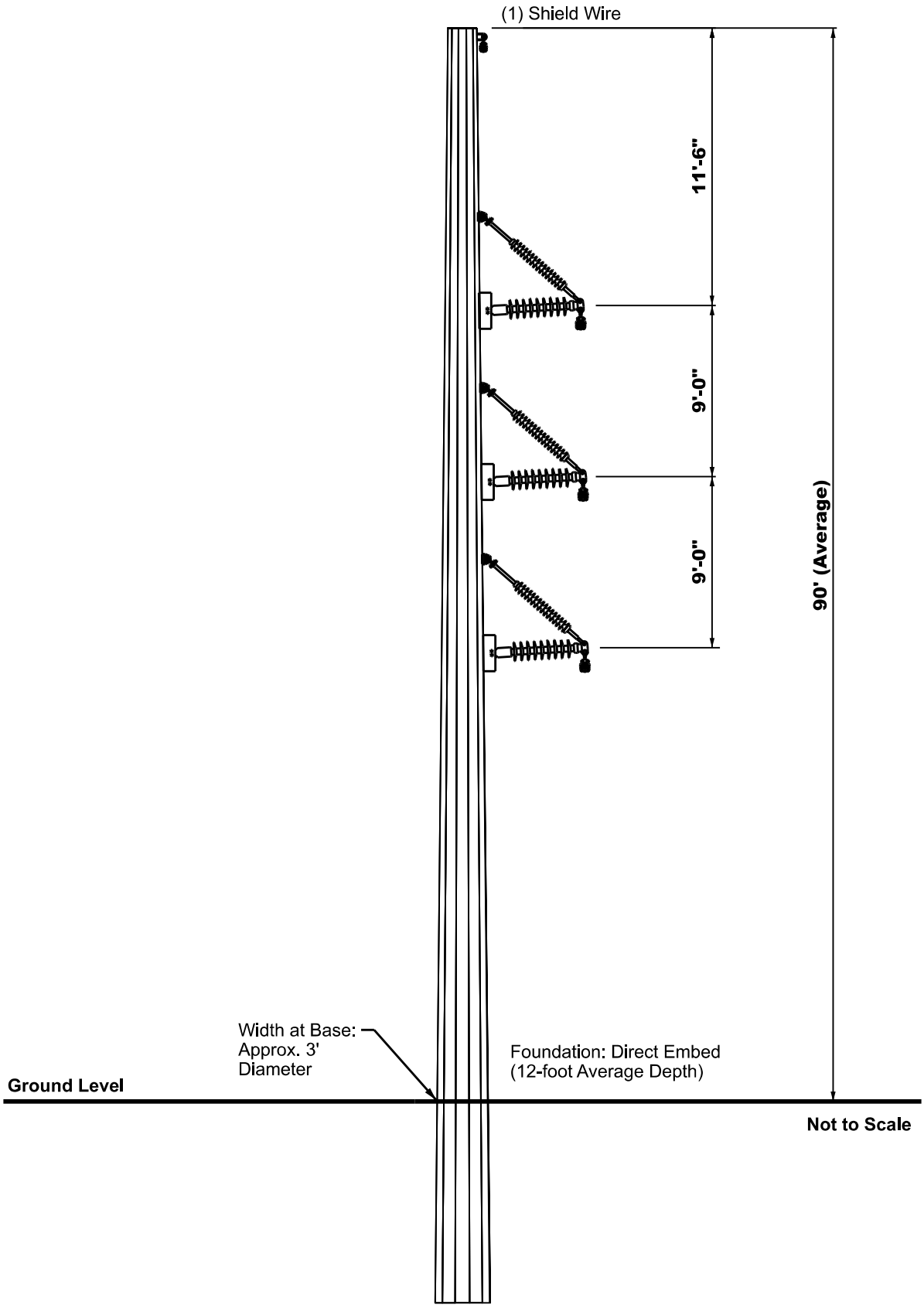
TYPICAL RIGHT-OF-WAY CROSS SECTION

COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

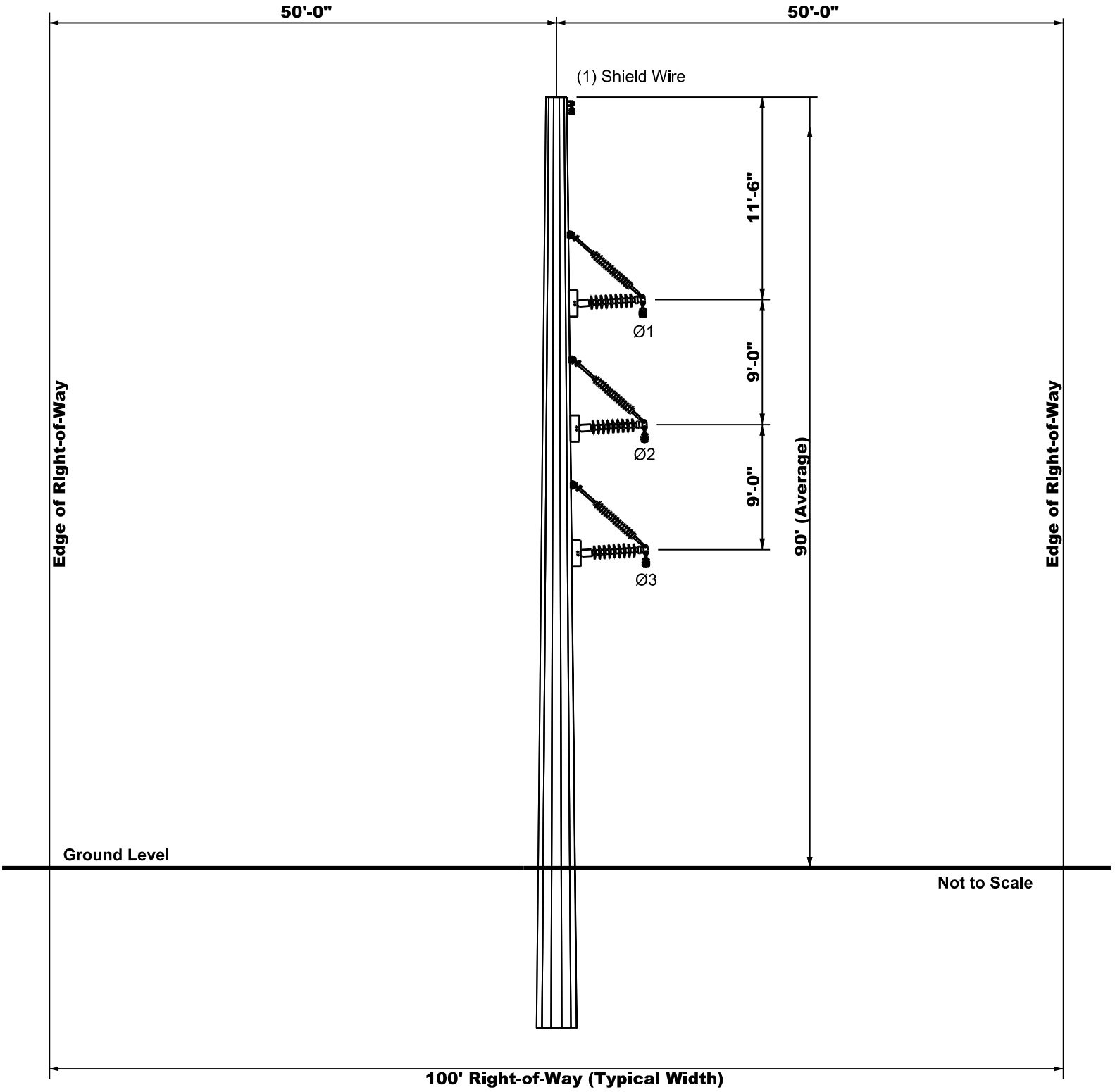
Note: The proposed material for the typical structure will be galvanized steel with a dulled finish (as shown above).

EXHIBIT 21: 138 KV SINGLE CIRCUIT MONOPOLE WITH BRACED POSTS

EXHIBIT 21
PROPOSED 138kV TRANSMISSION STRUCTURES (Page 1 of 3)
Monopole Brace Post (Single Circuit)



TYPICAL SCHEMATIC



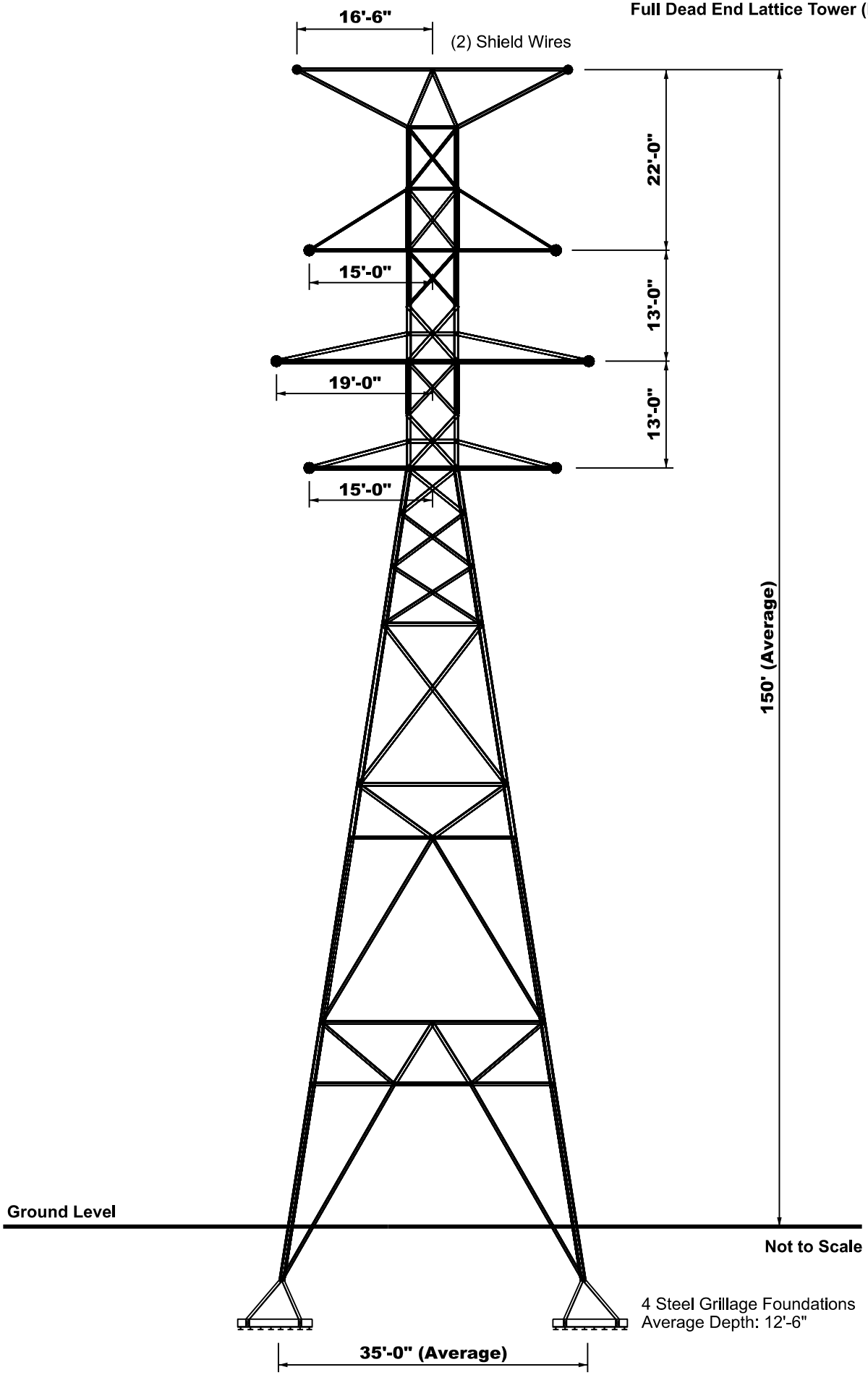
TYPICAL RIGHT-OF-WAY CROSS SECTION

COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

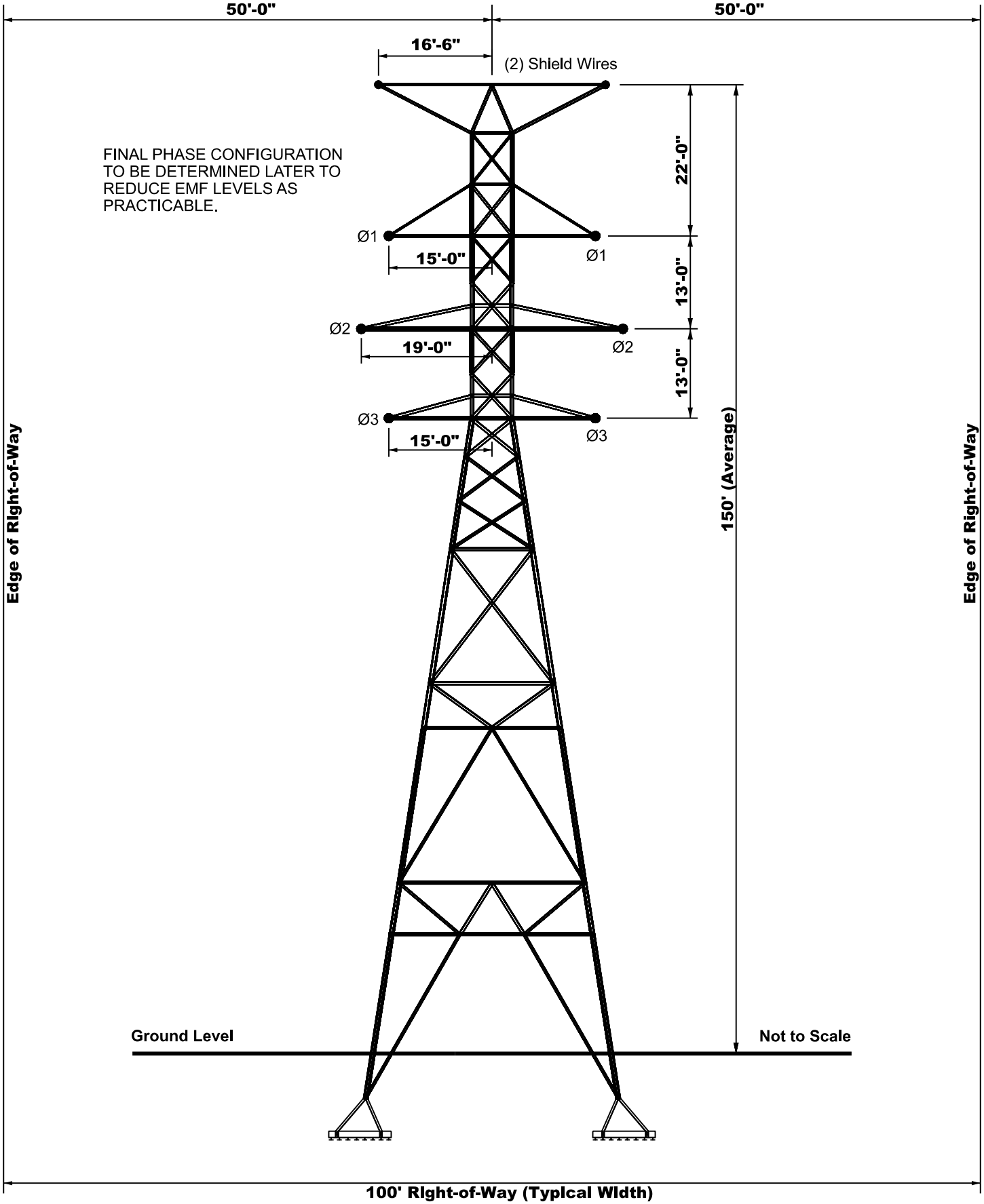
Note: The proposed material for the typical structure will be galvanized steel with a dulled finish (as shown above).

EXHIBIT 22: 69KV /138 KV DOUBLE CIRCUIT LATTICE TOWER (JAMES RIVER CROSSING)

EXHIBIT 22
PROPOSED 69kV/138kV TRANSMISSION STRUCTURES (Page 1 of 3)
Full Dead End Lattice Tower (Double Circuit)



TYPICAL SCHEMATIC



TYPICAL RIGHT-OF-WAY CROSS SECTION

COMPARABLE EXISTING STRUCTURE PHOTOGRAPH

Note: The proposed material for the typical structure will be galvanized steel with a dulled finish (as shown above).

EXHIBIT 23: EXISTING AMHERST - REUSENS 69 KV TRANSMISSION LINE STRUCTURE PHOTOGRAPHS (TO BE REMOVED)

Component 4: Amherst – Reusens 69 kV Transmission Line Rebuild

Existing H-Frame Structure with Guy-Wires

Existing H-Frame Structure Self- Supporting

Existing Double Circuit Lattice Structures at the James River Crossing

EXHIBIT 24: VISUAL SIMULATIONS

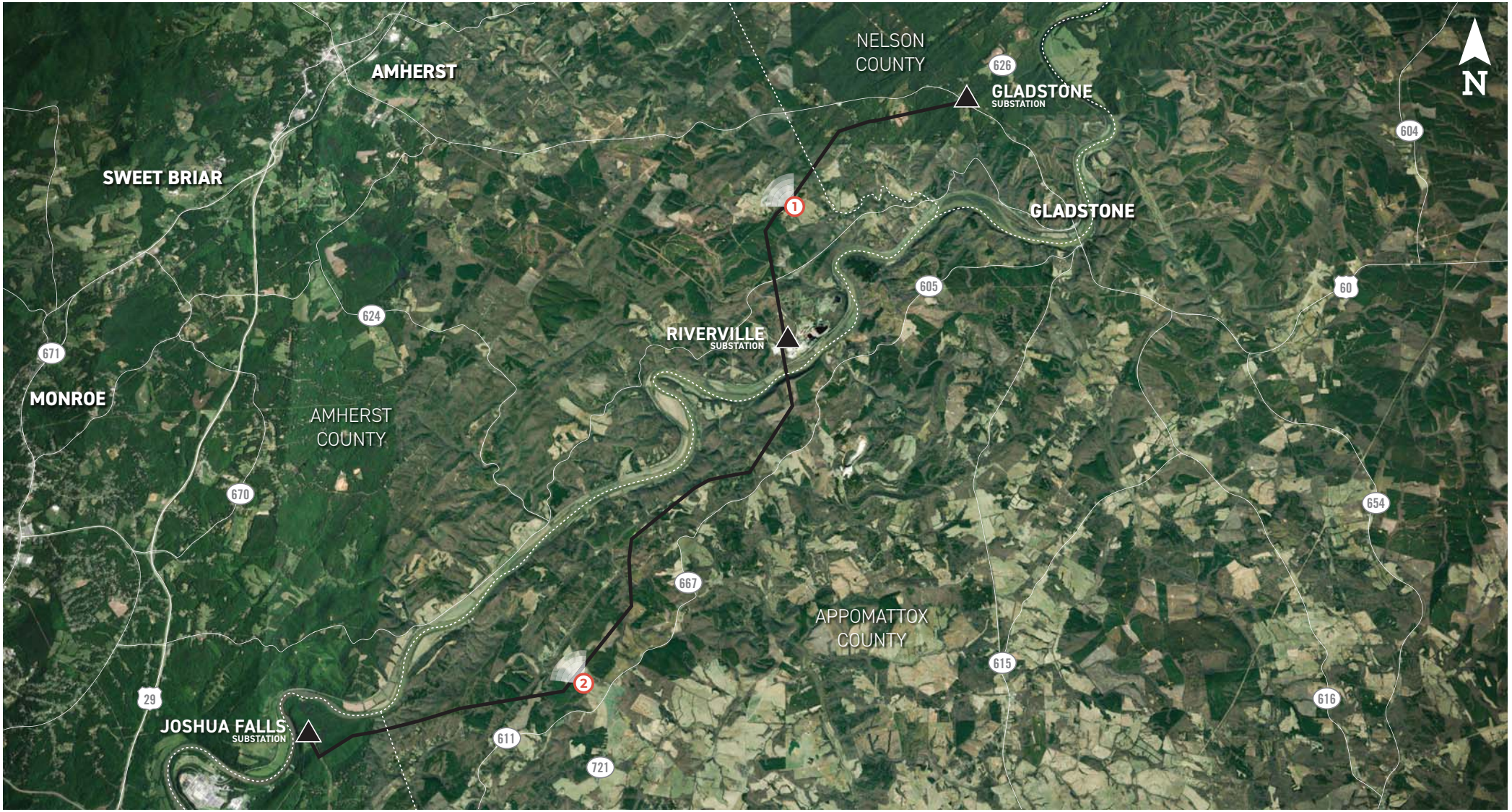
CENTRAL VIRGINIA TRANSMISSION RELIABILITY PROJECT:

JOSHUA FALLS - GLADSTONE PHASE

VIEWPOINT LOCATION MAP

— TRANSMISSION LINE
▲ EXISTING SUBSTATION
① PHOTO VIEWPOINT LOCATION

APPALACHIAN POWER
An AEP Company
BOUNDLESS ENERGY



CENTRAL VIRGINIA TRANSMISSION RELIABILITY PROJECT:

JOSHUA FALLS - GLADSTONE PHASE

PHOTO VIEWPOINT 1

DATE: 07/29/2020
TIME: 12:01 PM
DIRECTION: NORTHWEST

TRANSMISSION LINE
SUBSTATION
PHOTO VIEWPOINT LOCATION

APPALACHIAN POWER
An AEP Company
BOUNDLESS ENERGY

EXISTING CONDITIONS

PROPOSED CONDITIONS

PHOTO SIMULATIONS ARE FOR VISUALIZATION PURPOSES ONLY. FINAL DESIGN IS SUBJECT TO CHANGE PENDING PUBLIC, UTILITY, AND REGULATORY REVIEW.

CENTRAL VIRGINIA TRANSMISSION RELIABILITY PROJECT:

JOSHUA FALLS - GLADSTONE PHASE

PHOTO VIEWPOINT 2

DATE: 06/01/2020
TIME: 1:29 PM
DIRECTION: NORTHWEST

TRANSMISSION LINE
SUBSTATION
PHOTO VIEWPOINT LOCATION

APPALACHIAN POWER
An AEP Company
BOUNDLESS ENERGY

EXISTING CONDITIONS

PROPOSED CONDITIONS

PHOTO SIMULATIONS ARE FOR VISUALIZATION PURPOSES ONLY. FINAL DESIGN IS SUBJECT TO CHANGE PENDING PUBLIC, UTILITY, AND REGULATORY REVIEW.

COMPARABLE SIMULATION

TRANSMISSION LINE PROJECT

PHOTO VIEWPOINT

COMPARABLE
REPRESENTATION OF THE
AMHERST - REUSENS 69 KV
TRANSMISSION LINE REBUILD

APPALACHIAN POWER
An AEP Company
BOUNDLESS ENERGY

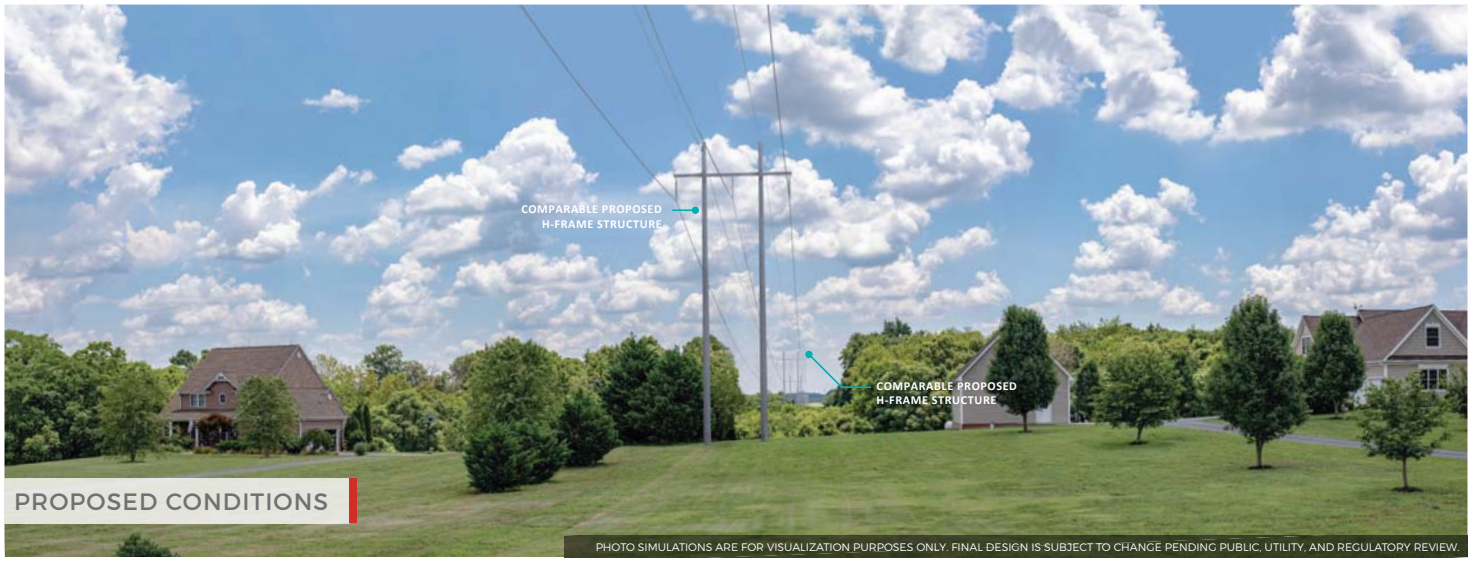
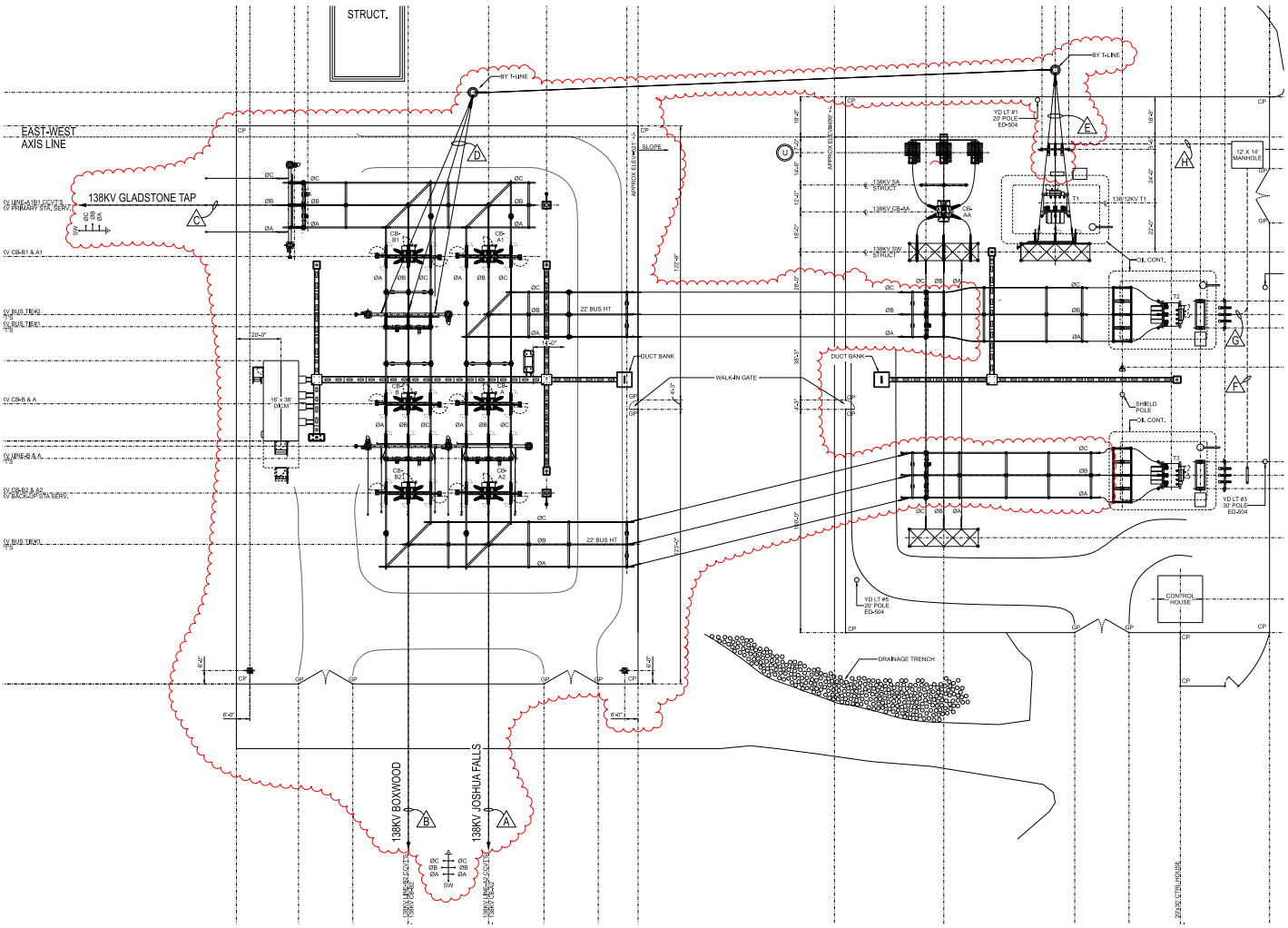


EXHIBIT 25: IMPROVEMENTS AT RIVERVILLE 138 KV SUBSTATION



PROPOSED SUBSTATION LAYOUT

SUBSTATION LOCATION MAP

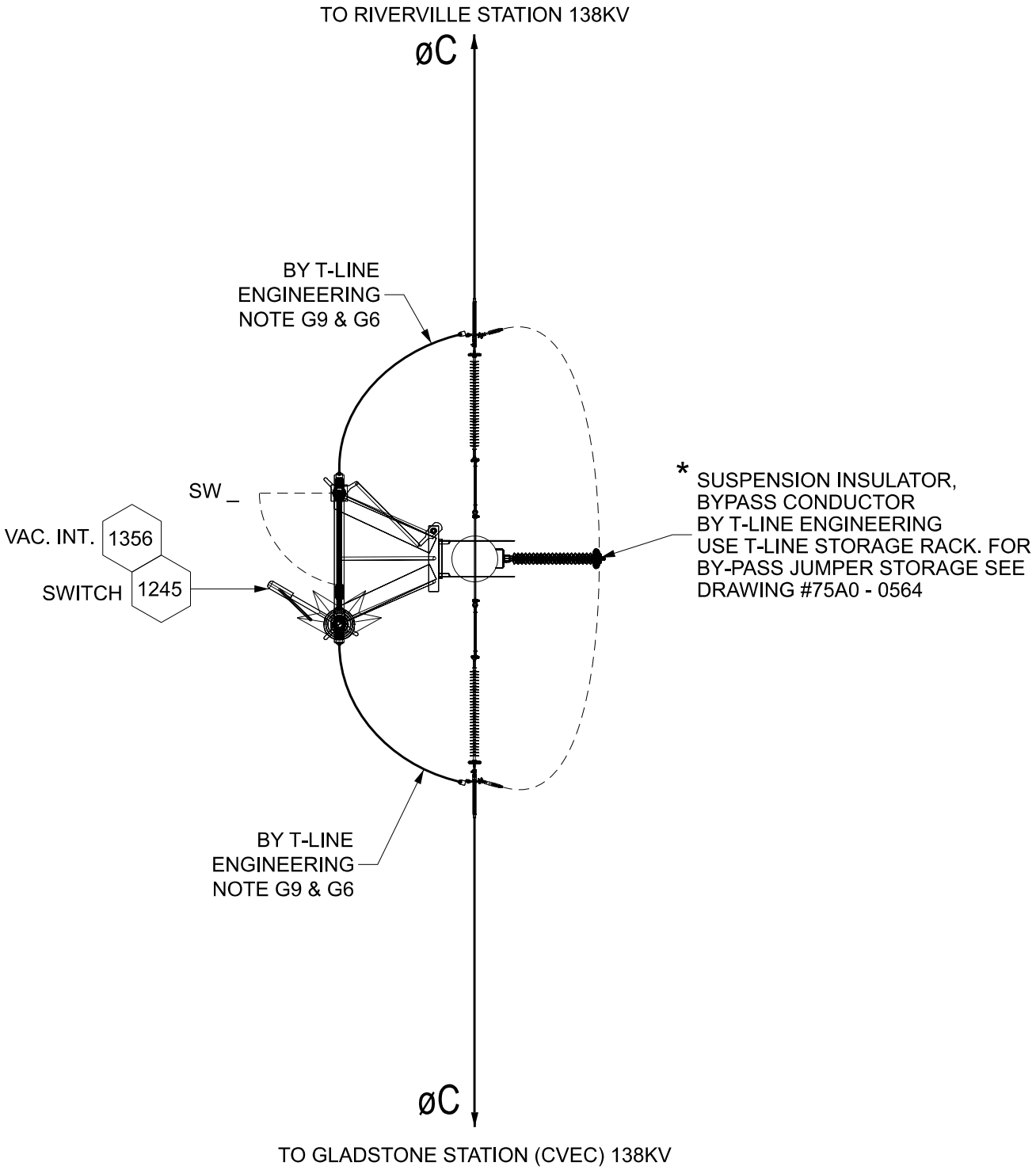
EXISTING RIVERVILLE SUBSTATION (VIEWING TO THE EAST)

CONFIDENTIAL INFORMATION

SEE CONFIDENTIAL APPENDIX - EXHIBIT 25-C FOR ONE-LINE DIAGRAM

PROPOSED SUBSTATION ONE-LINE

EXHIBIT 26: PROPOSED FIVE FORKS SWITCH



PLAN VIEW A-A

PHASE C ONLY

PROPOSED SWITCH LAYOUT

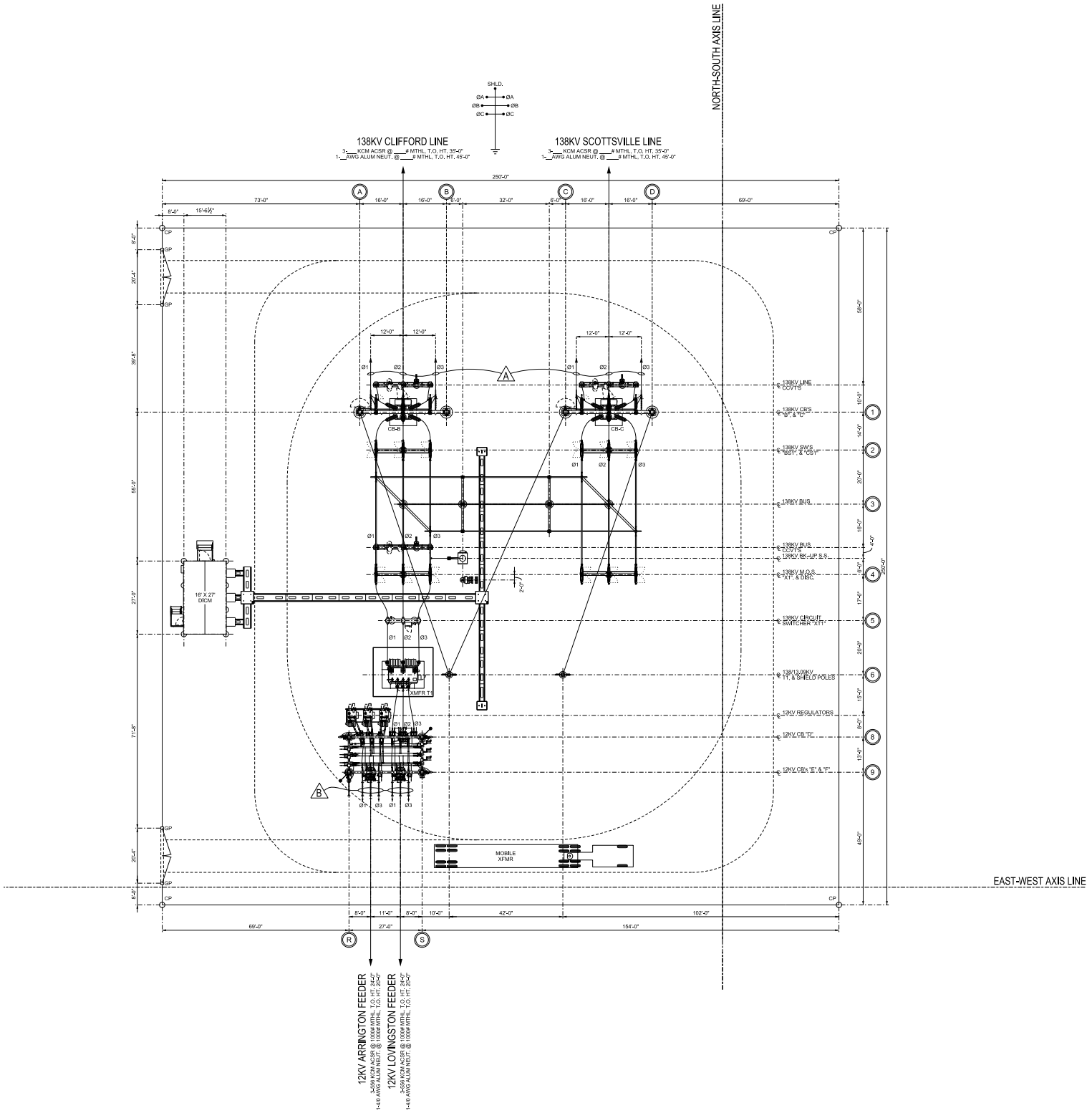
COMPARABLE SWITCH PHOTOGRAPH

CONFIDENTIAL INFORMATION

SEE CONFIDENTIAL APPENDIX - EXHIBIT 26-C FOR ONE-LINE DIAGRAM

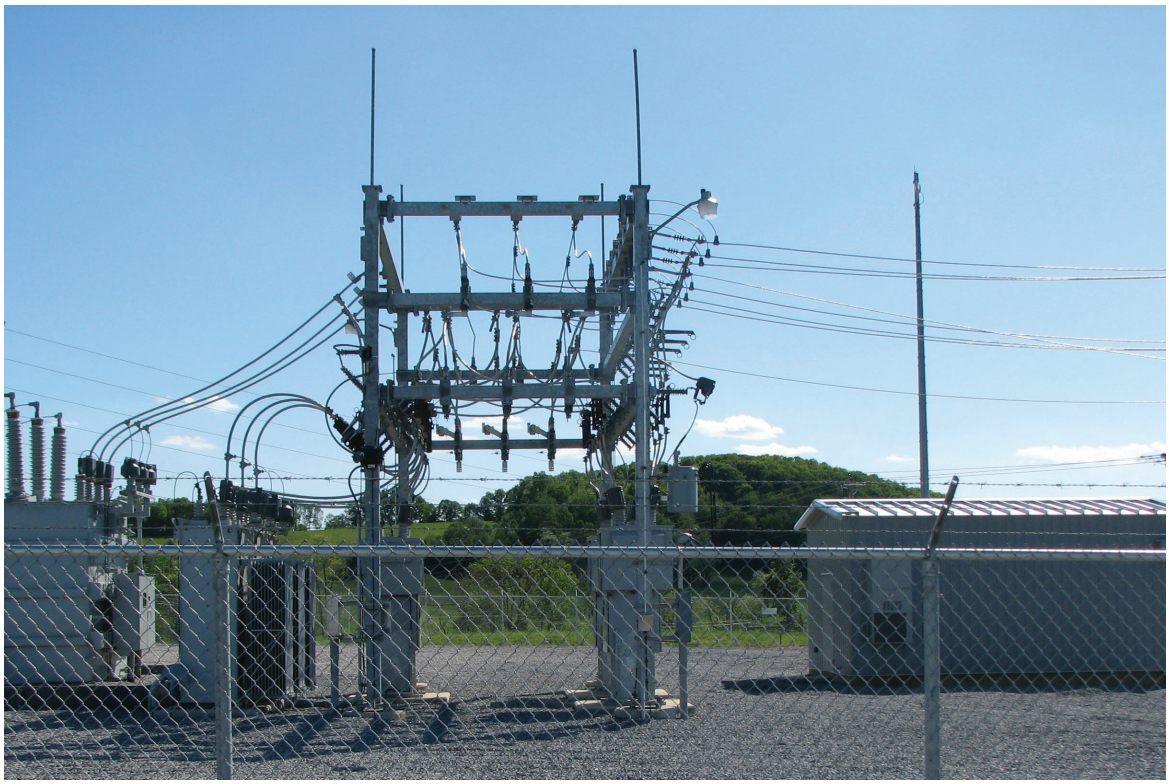
PROPOSED SWITCH ONE-LINE

EXHIBIT 27: PROPOSED JAMES RIVER 138 KV SUBSTATION



PROPOSED SUBSTATION LAYOUT

SUBSTATION LOCATION MAP



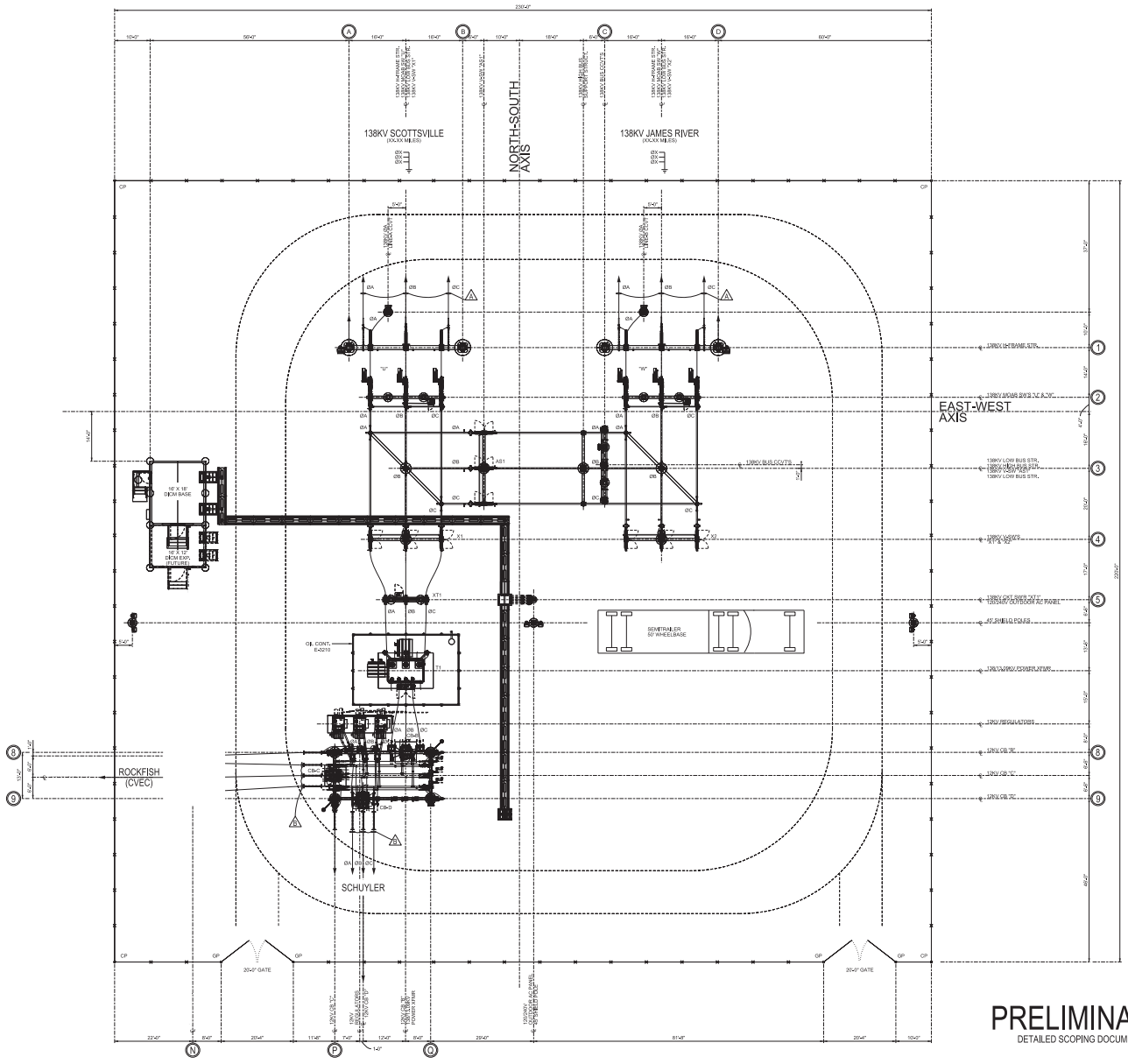
COMPARABLE SUBSTATION PHOTOGRAPH

CONFIDENTIAL INFORMATION

SEE CONFIDENTIAL APPENDIX - EXHIBIT 27-C FOR ONE-LINE DIAGRAM

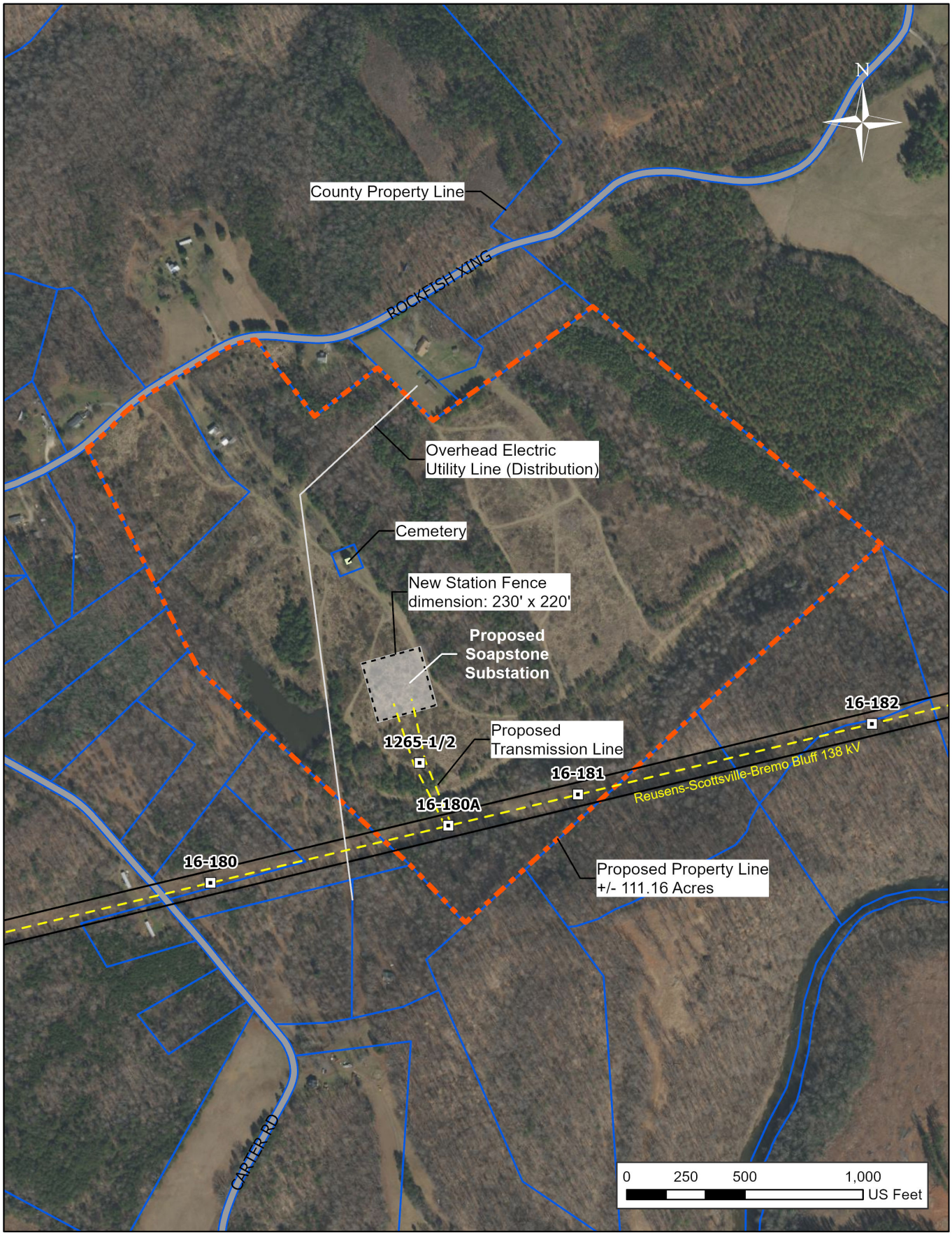
PROPOSED SUBSTATION ONE-LINE

EXHIBIT 28: PROPOSED SOAPSTONE 138 KV SUBSTATION

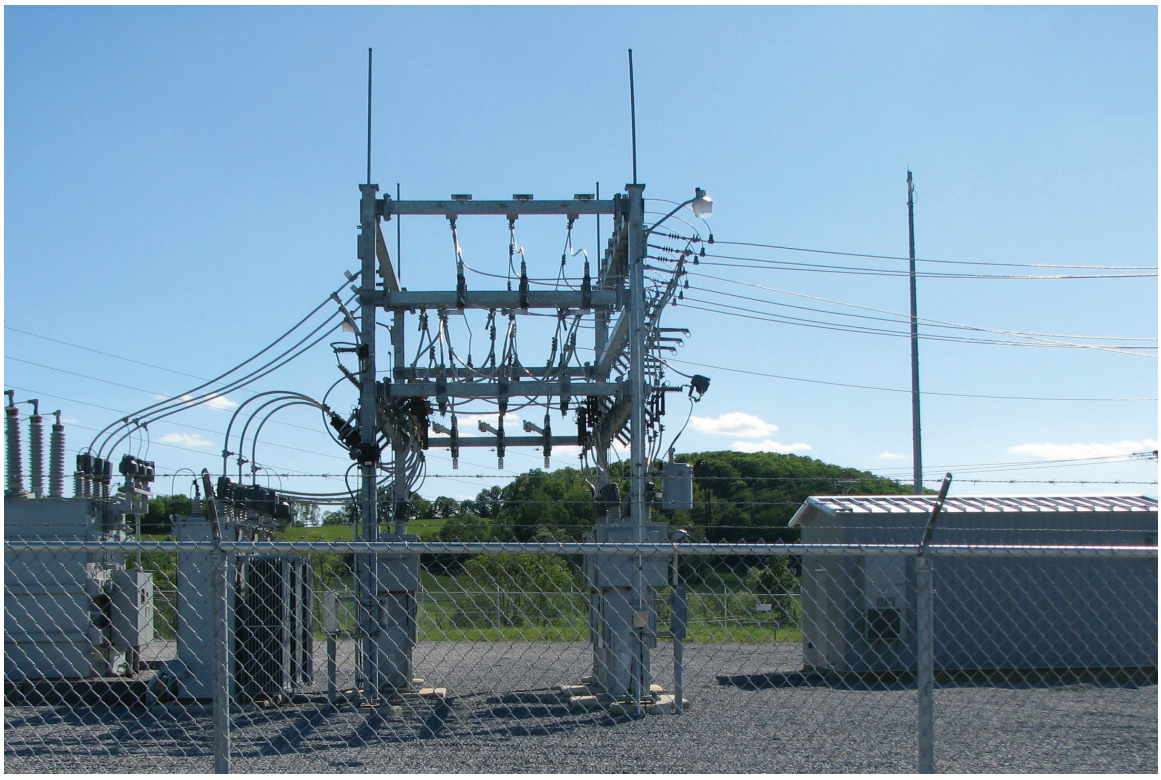


PRELIMINARY
DETAILED SCOPING DOCUMENT

PROPOSED SUBSTATION LAYOUT



SUBSTATION LOCATION MAP



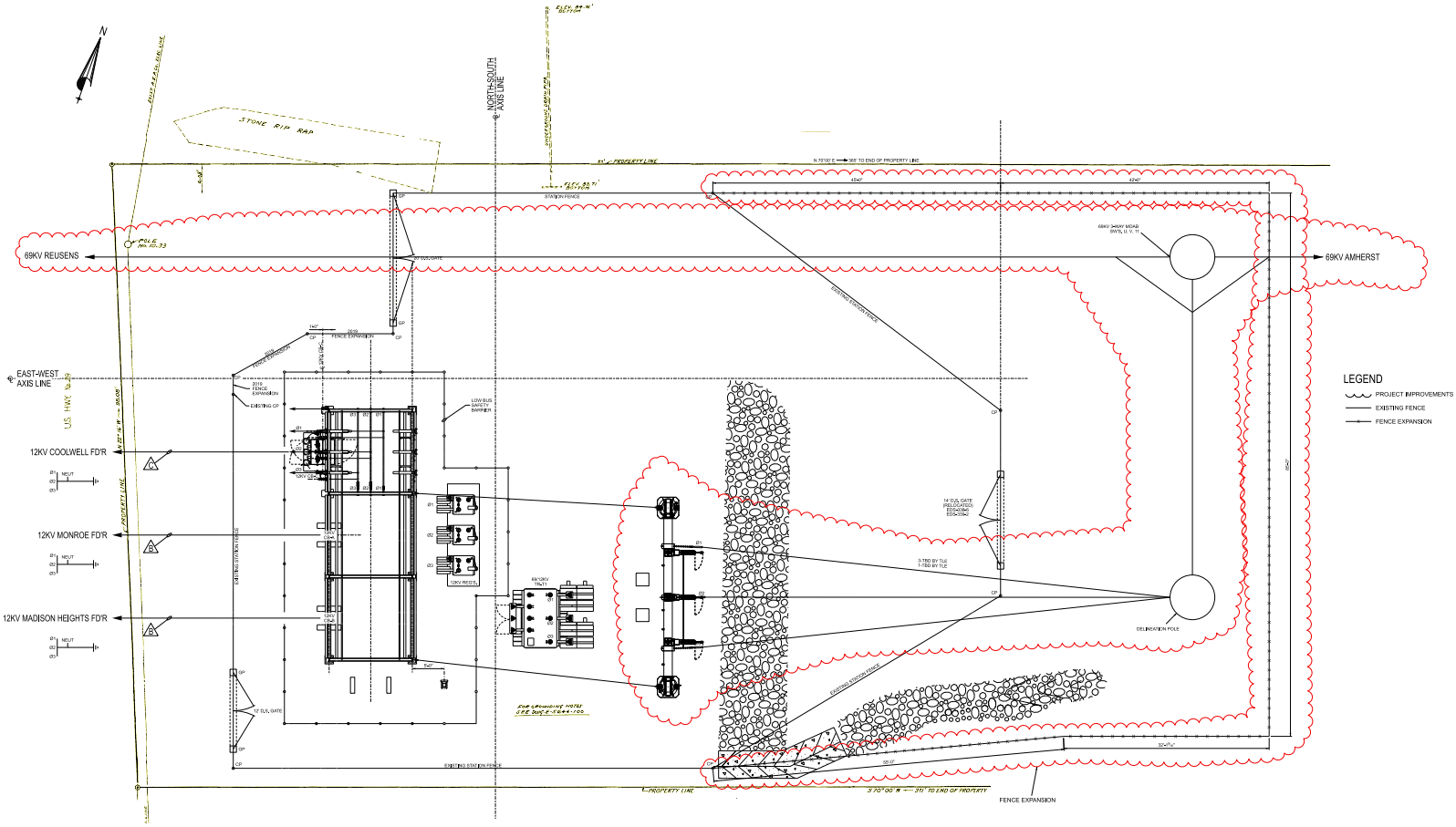
COMPARABLE SUBSTATION PHOTOGRAPH

CONFIDENTIAL INFORMATION

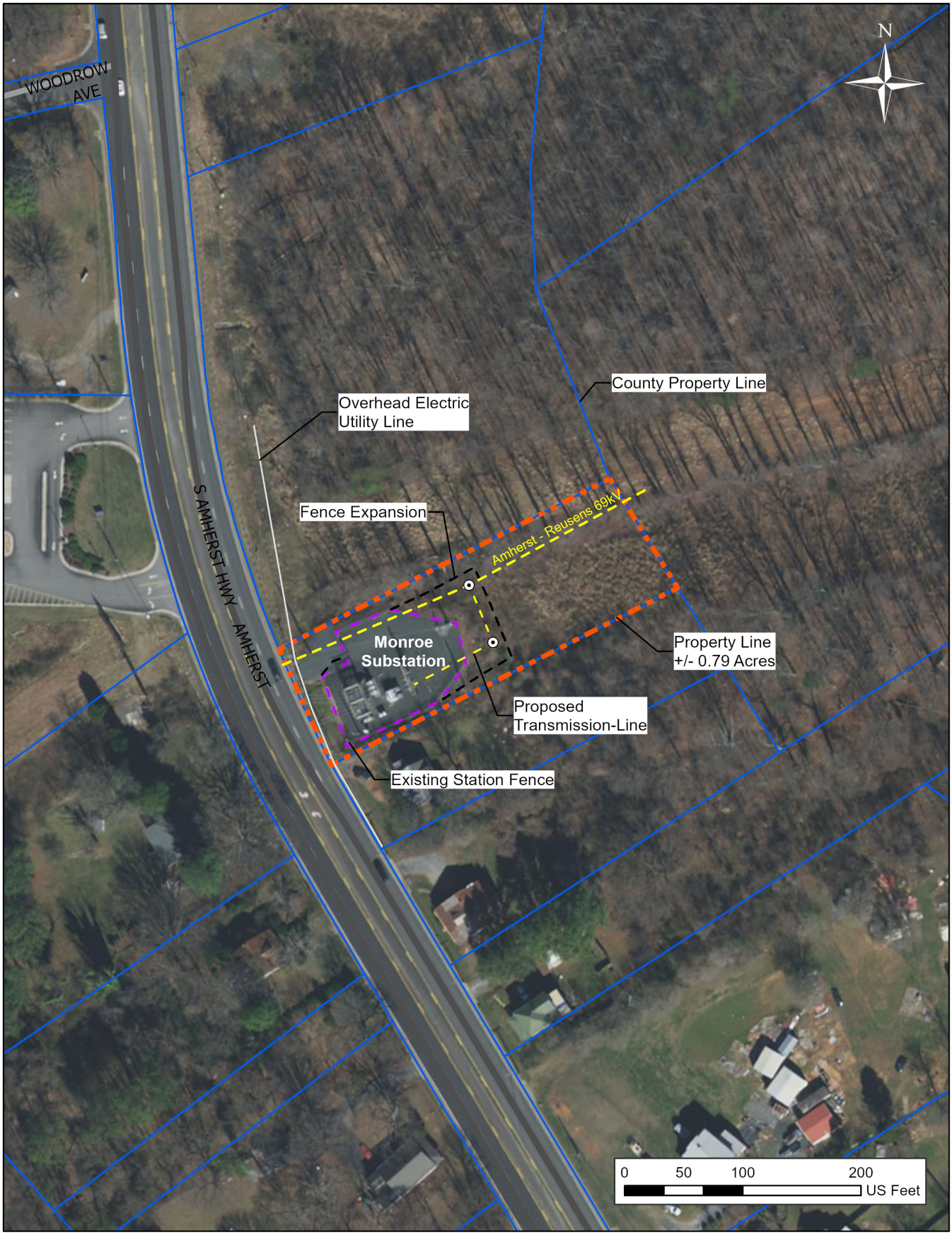
SEE CONFIDENTIAL APPENDIX - EXHIBIT 28-C FOR ONE-LINE DIAGRAM

PROPOSED SUBSTATION ONE-LINE

EXHIBIT 29: IMPROVEMENTS AT MONROE 69 KV SUBSTATION



PROPOSED SUBSTATION LAYOUT



SUBSTATION LOCATION MAP

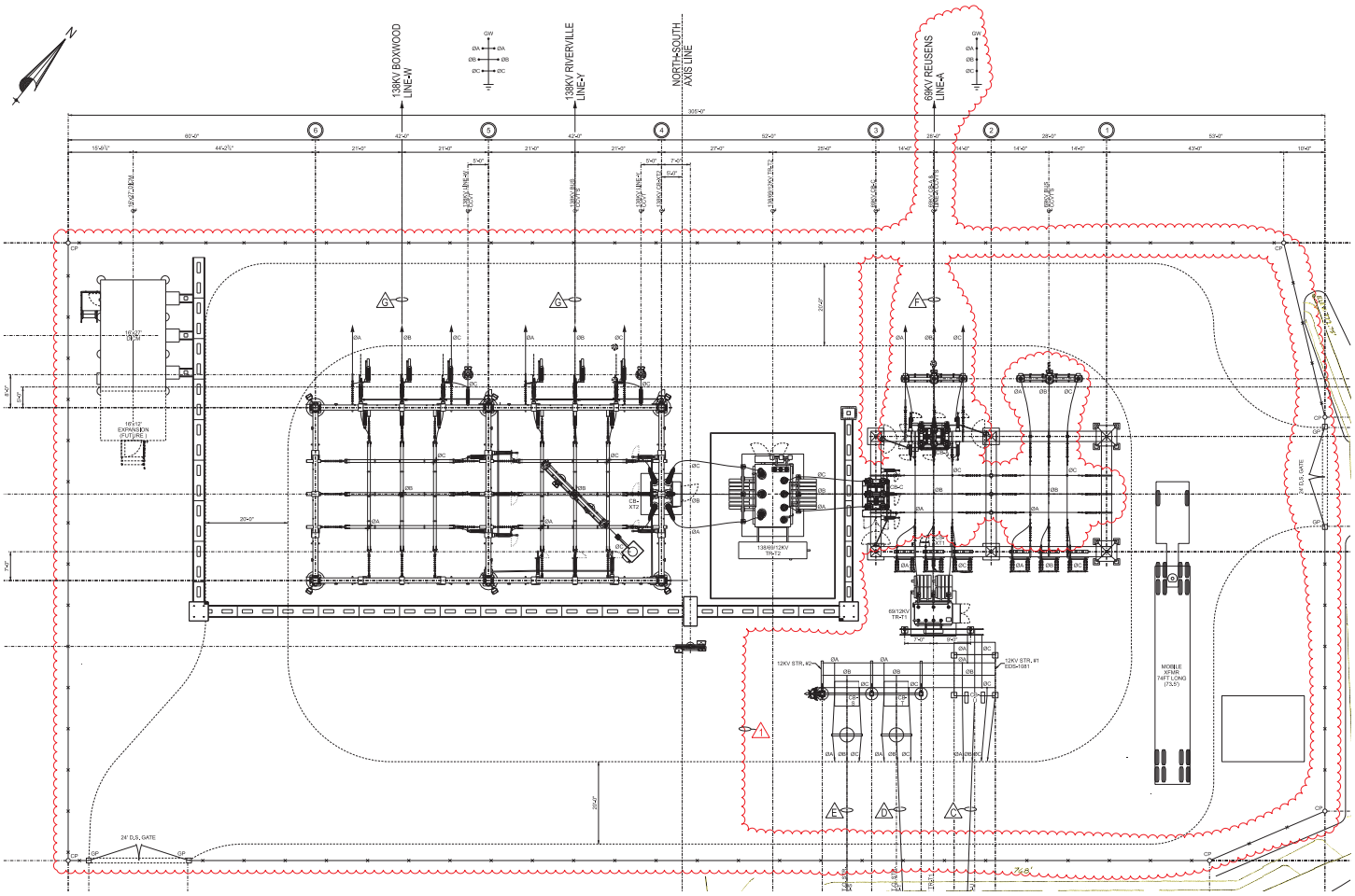
EXISTING MONROE SUBSTATION (VIEWING TO THE EAST)

CONFIDENTIAL INFORMATION

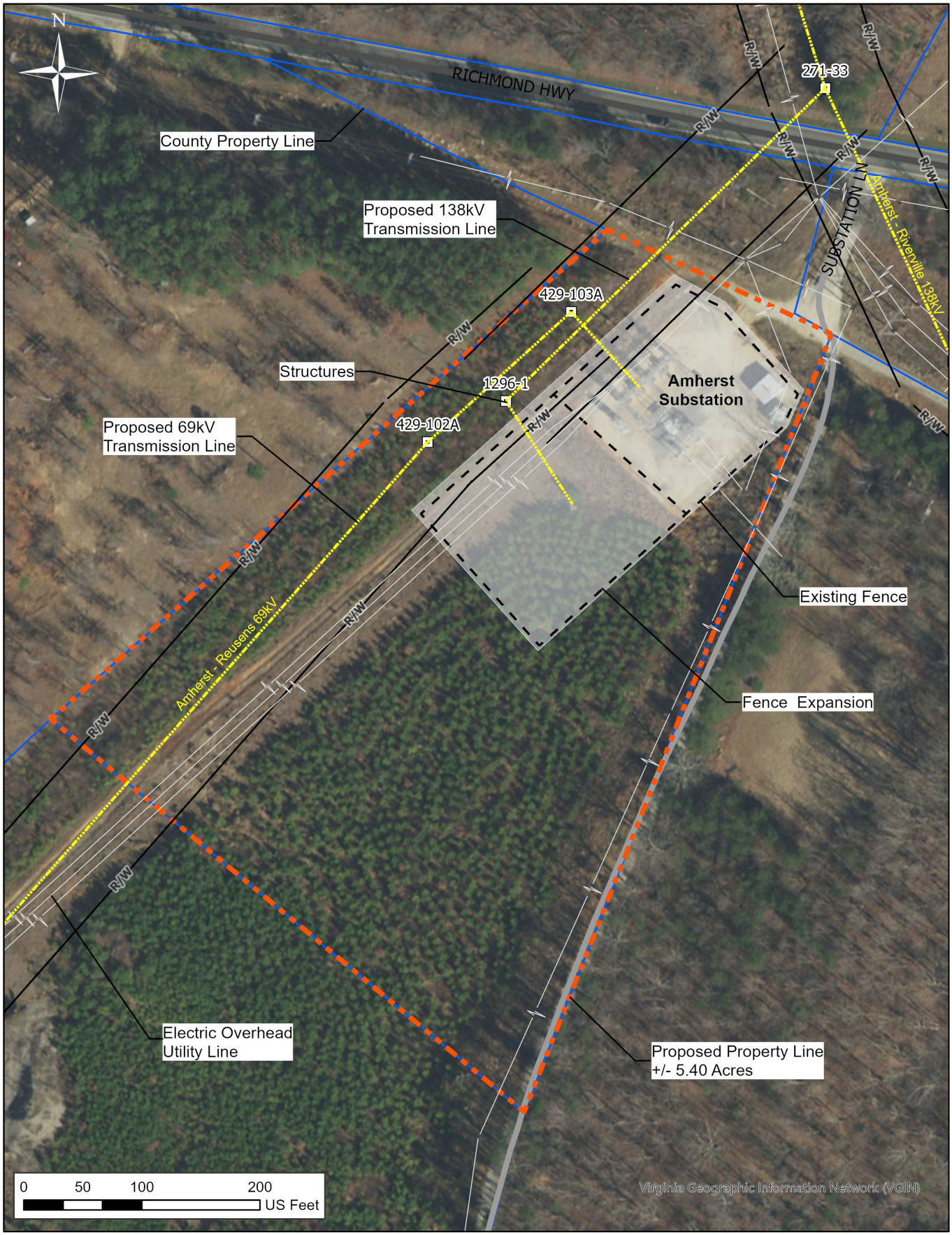
SEE CONFIDENTIAL APPENDIX - EXHIBIT 29-C FOR ONE-LINE DIAGRAM

PROPOSED SUBSTATION ONE-LINE

EXHIBIT 30: IMPROVEMENTS AT AMHERST 69 KV SUBSTATION



PROPOSED SUBSTATION LAYOUT



SUBSTATION LOCATION MAP

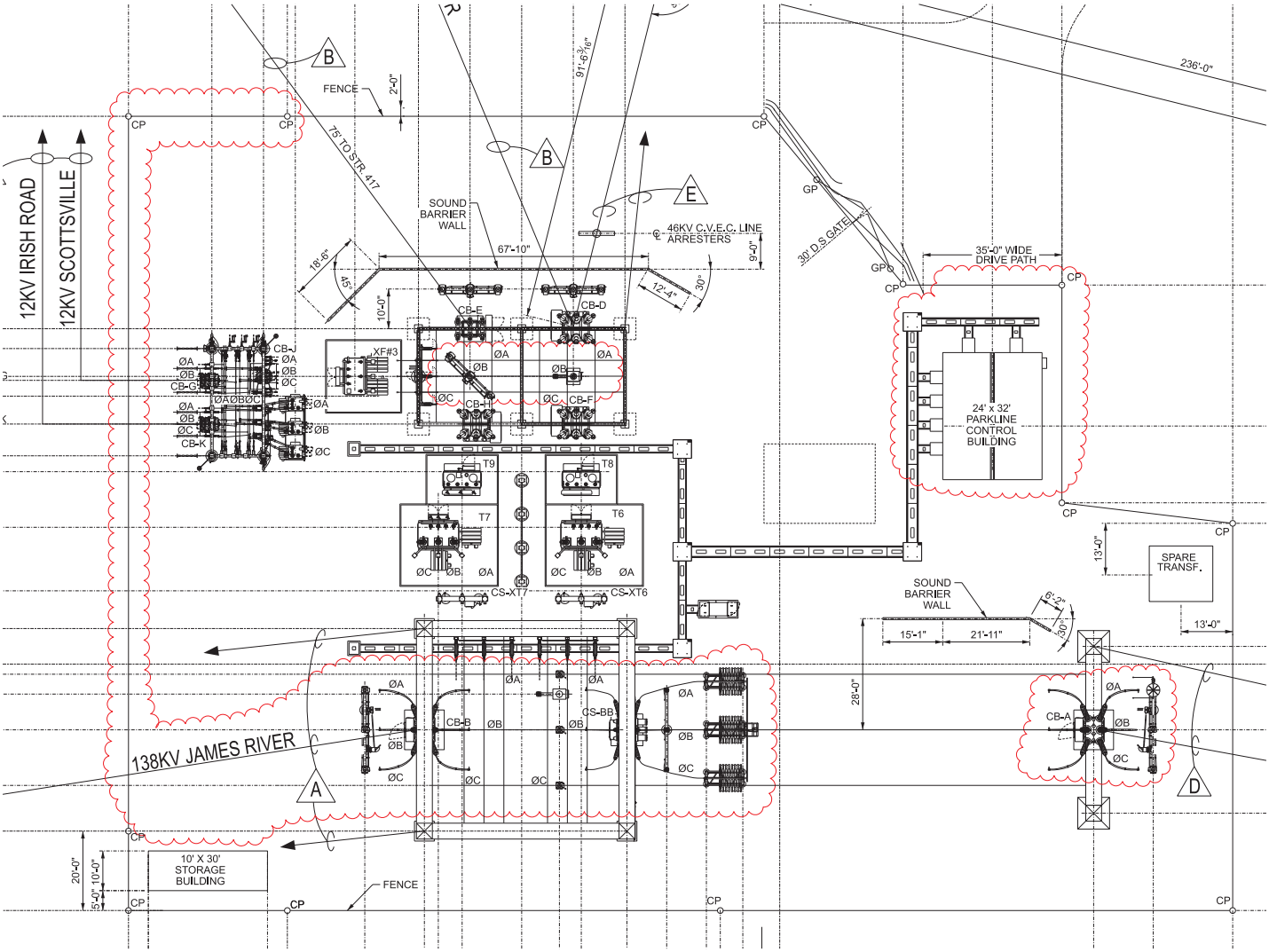
EXISTING AMHERST SUBSTATION (VIEWING TO THE SOUTHWEST)

CONFIDENTIAL INFORMATION

SEE CONFIDENTIAL APPENDIX - EXHIBIT 30-C FOR ONE-LINE DIAGRAM

PROPOSED SUBSTATION ONE-LINE

EXHIBIT 31: IMPROVEMENTS AT SCOTTSVILLE 138 KV SUBSTATION



PROPOSED SUBSTATION LAYOUT

EXISTING SCOTTSVILLE SUBSTATION (VIEWING TO THE WEST)

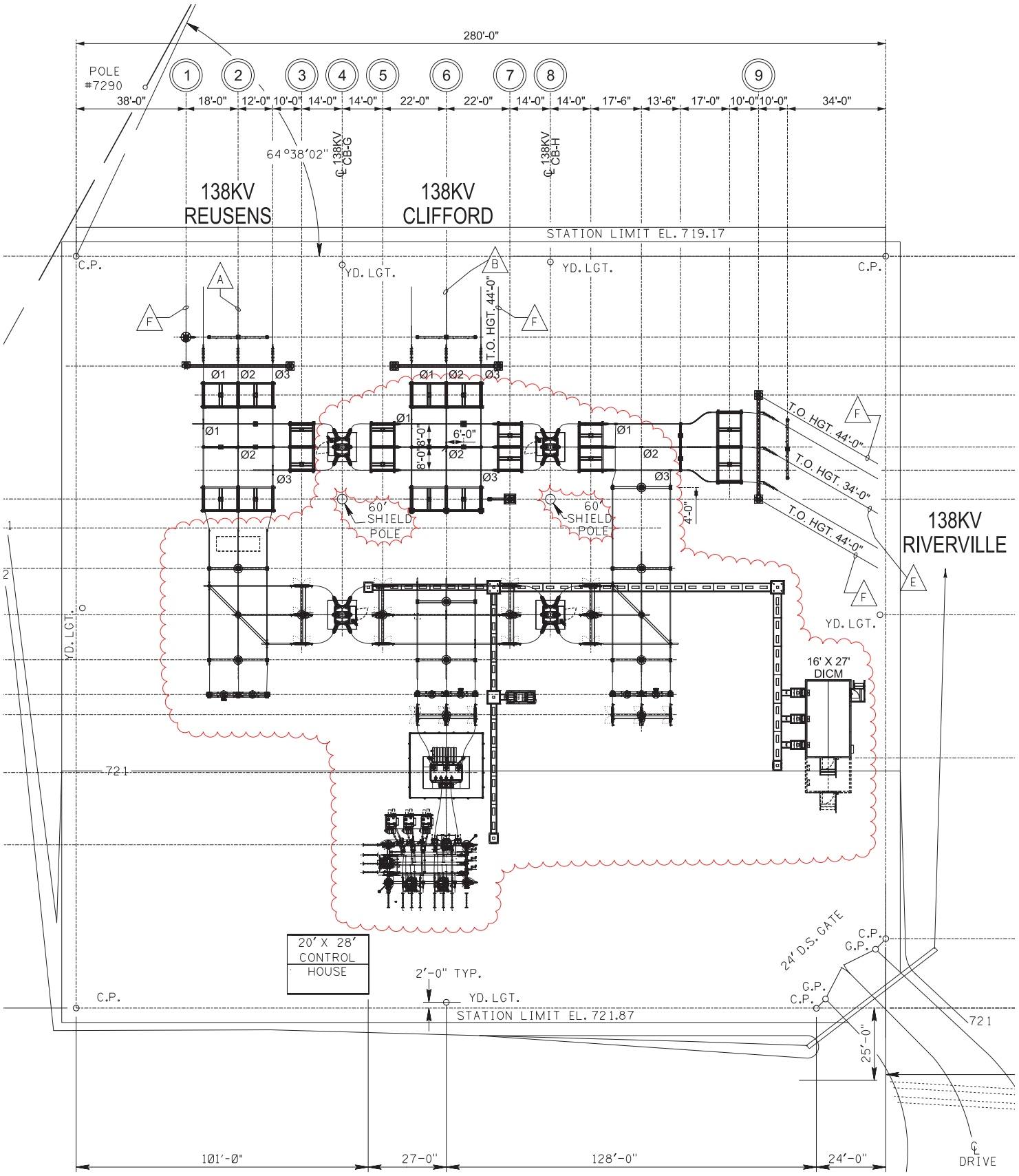
EXISTING SCOTTSVILLE SUBSTATION (VIEWING TO THE NORTHWEST)

CONFIDENTIAL INFORMATION

SEE CONFIDENTIAL APPENDIX - EXHIBIT 31-C FOR ONE-LINE DIAGRAM

PROPOSED SUBSTATION ONE-LINE

EXHIBIT 32: IMPROVEMENTS AT BOXWOOD 138 KV SUBSTATION



PROPOSED SUBSTATION LAYOUT

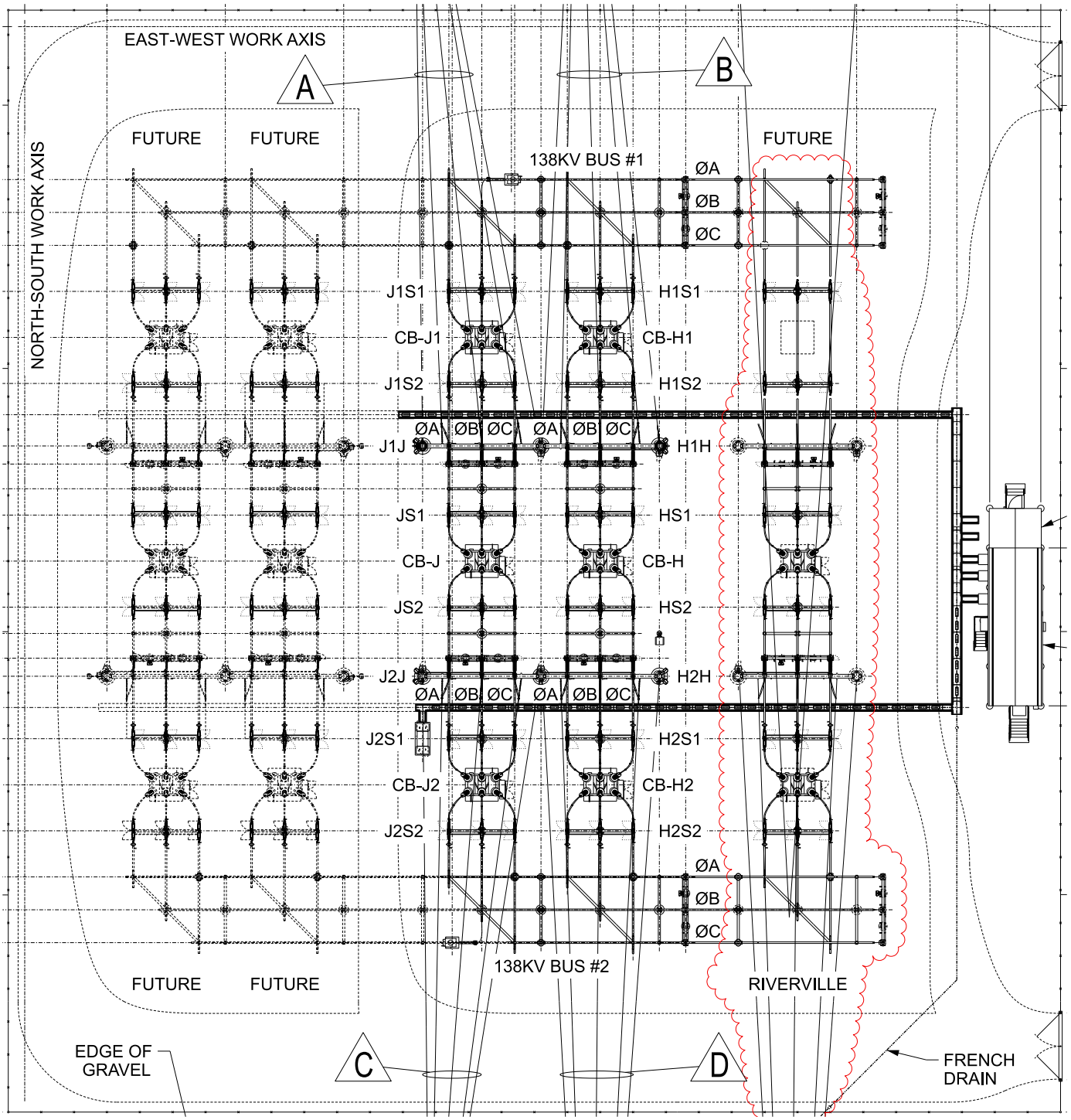
EXISTING BOXWOOD SUBSTATION (VIEWING TO THE NORTH)

CONFIDENTIAL INFORMATION

SEE CONFIDENTIAL APPENDIX - EXHIBIT 32-C FOR ONE-LINE DIAGRAM

PROPOSED SUBSTATION ONE-LINE

EXHIBIT 33: IMPROVEMENTS AT JOSHUA FALLS 138 KV SUBSTATION



PROPOSED SUBSTATION LAYOUT

EXISTING JOSHUA FALLS SUBSTATION (VIEWING TO THE NORTH)

CONFIDENTIAL INFORMATION

SEE CONFIDENTIAL APPENDIX - EXHIBIT 33-C FOR ONE-LINE DIAGRAM

PROPOSED SUBSTATION ONE-LINE

EXHIBIT 34: IMPROVEMENTS AT CLIFFORD 138 KV SUBSTATION

PROPOSED SUBSTATION LAYOUT

EXISTING CLIFFORD SUBSTATION (VIEWING TO THE NORTHEAST)

CONFIDENTIAL INFORMATION

SEE CONFIDENTIAL APPENDIX - EXHIBIT 34-C FOR ONE-LINE DIAGRAM

PROPOSED SUBSTATION ONE-LINE

EXHIBIT 35: PUBLIC NOTICE MAP

CENTRAL VIRGINA
TRANSMISSION RELIABILITY PROJECT

APPALACHIAN POWER
An AEP Company
BOUNDLESS ENERGY

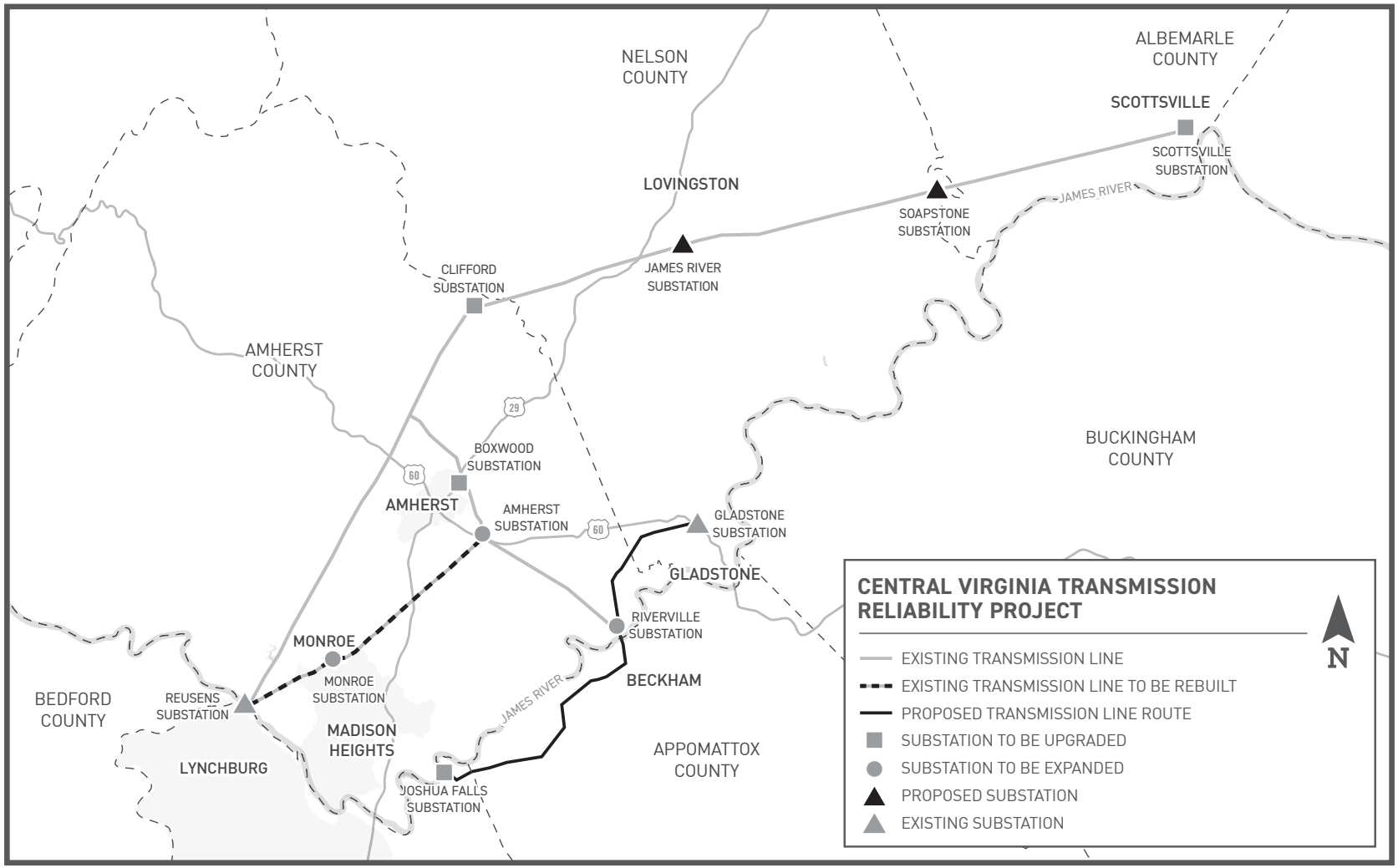
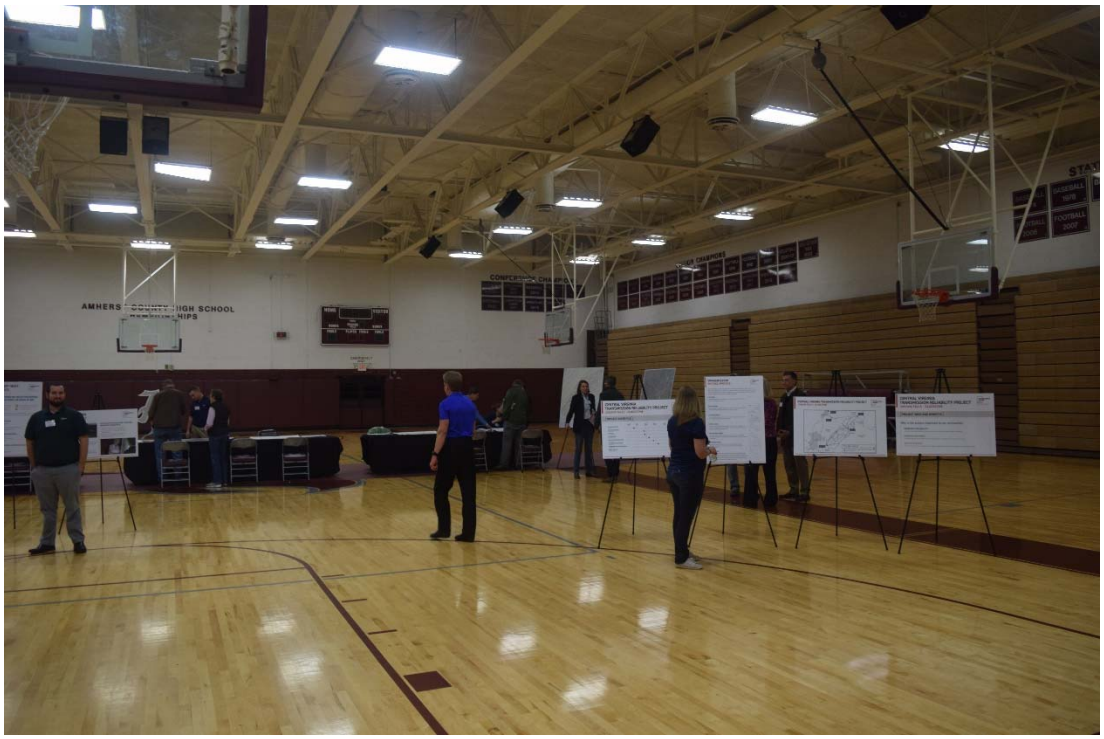


EXHIBIT 36: OPEN HOUSE PHOTOGRAPHS

Component 1: Joshua Falls – Riverville – Gladstone 138 kV Transmission Lines

November 6, 2019 Open House Appomattox County

November 6, 2019 Open House Amherst County



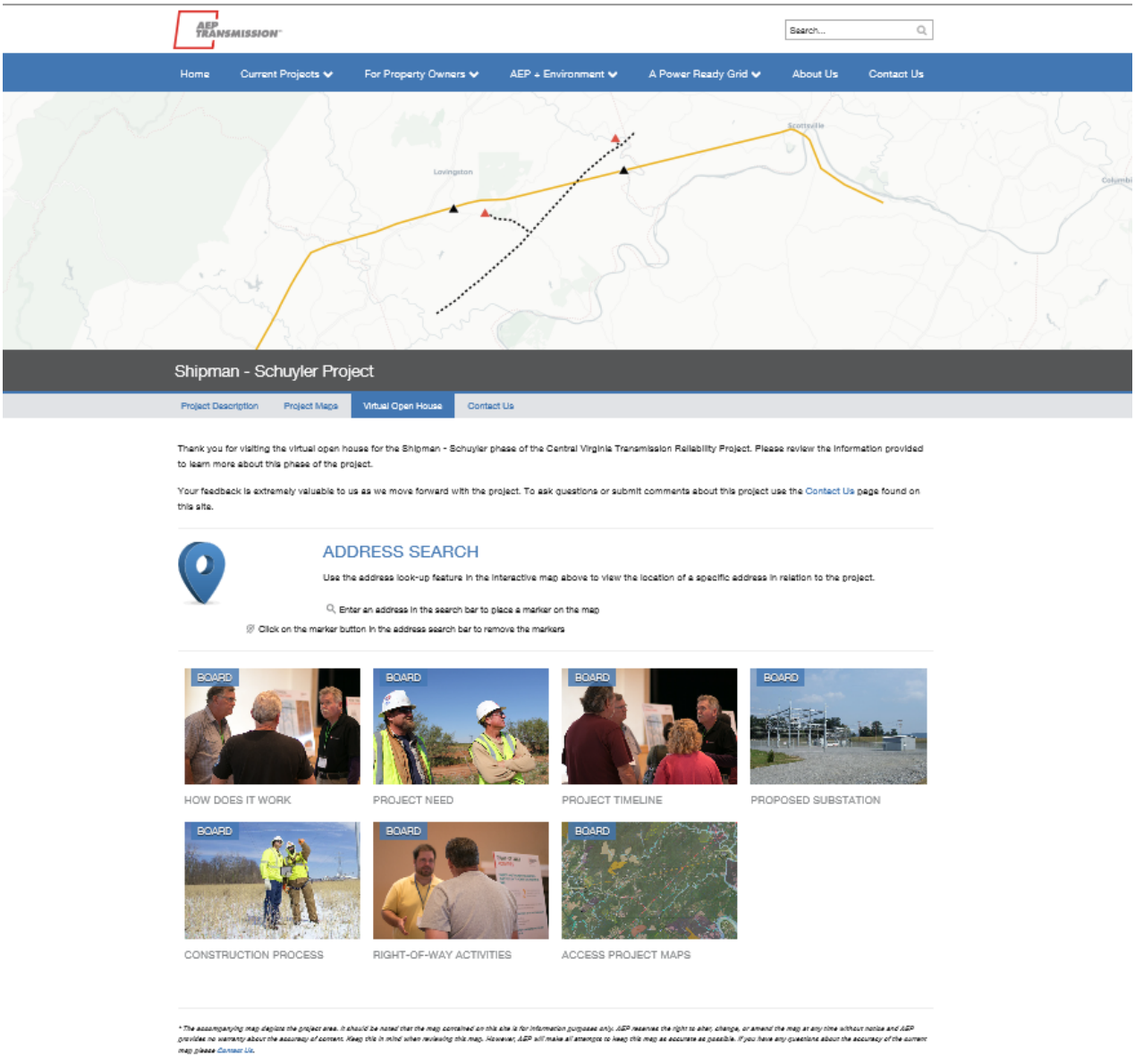
February 26, 2020 Open House Appomattox County

February 27, 2020 Open House Amherst County

[No photographs available]

Components 2 and 3: James River and Soapstone 138 kV Substations

Presented together as Shipman – Schuyler in a Virtual Open House July 2020



Component 4: Amherst – Reusens 69 kV Transmission Line Rebuild

Presented in a Virtual Open House July 2020