PLS-CADD DRAWING

BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

STR 590 - BIG STONE SOUTH SUB

PRELIMINARY SUBJECT TO FINAL REVIEW

20160505
PRELIMINARY
SUBJECT TO
FINAL REVIEW

POWER ENGINEERS

REVISIONS

REV	DESCRIPTION	DWN	DGN	CHK	DATE
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA
CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

BSS+E
Big Stone South to Ellendale

BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

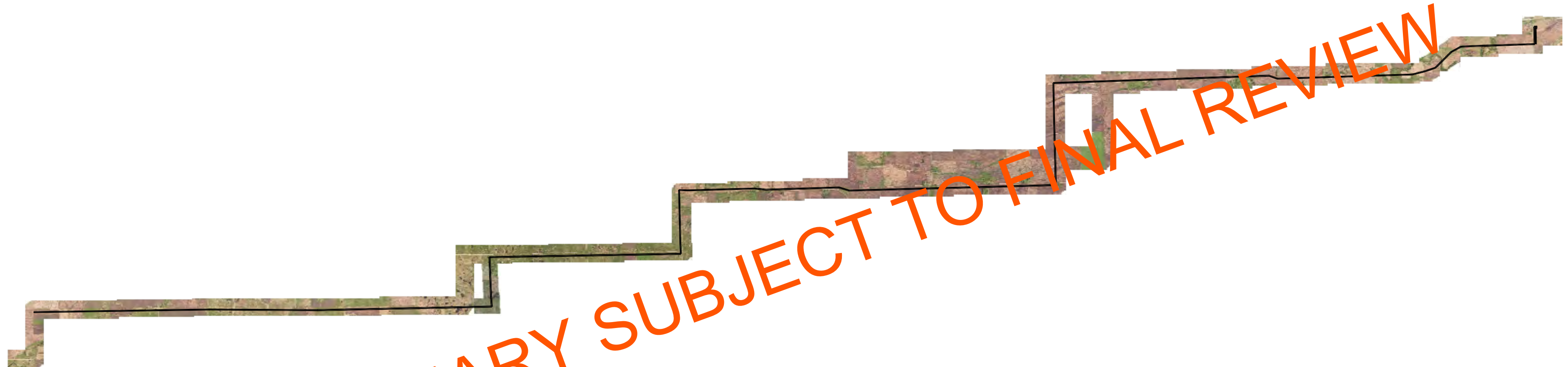
DWG. NO.
BSSE-PP-104-1

REVISION: N

136508

EXHIBIT 4

PLS-CADD DRAWING



PRELIMINARY SUBJECT TO FINAL REVIEW

20160505
PRELIMINARY
SUBJECT TO
FINAL REVIEW

POWER ENGINEERS

REVISIONS					
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15
REV	DESCRIPTION	DWN	DGN	CHK	DATE

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA

CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

BSS+E
Big Stone South to Ellendale

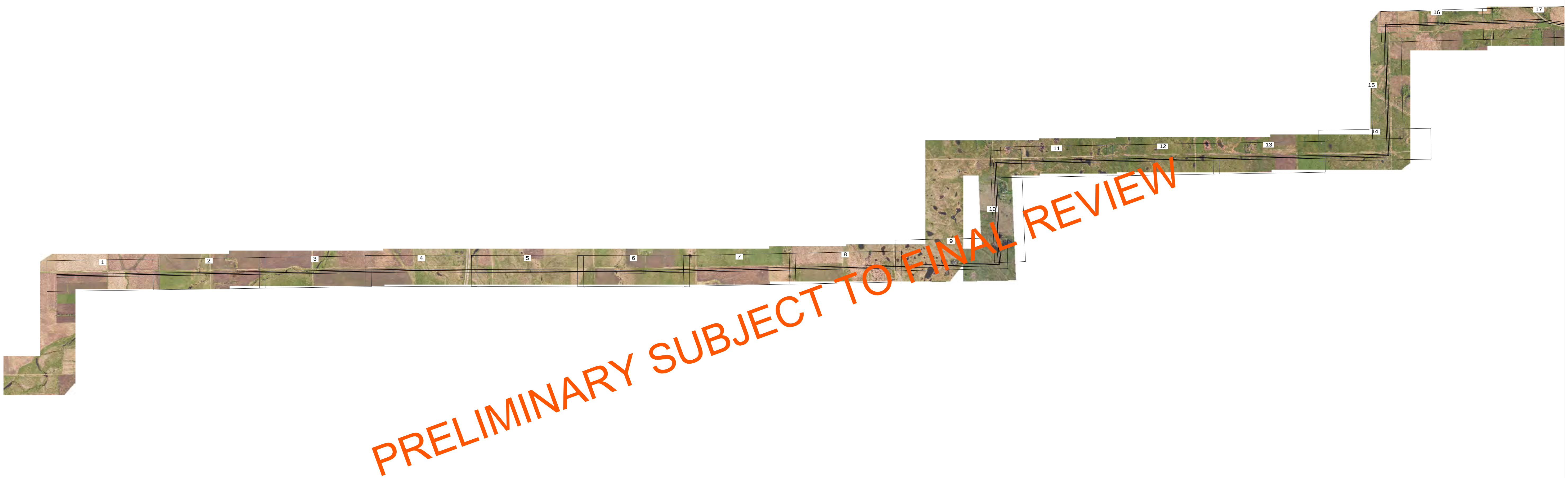
BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

DWG. NO.
BSSE-PP-104-2

REVISION: N

136508

EXHIBIT 4



20160505
PRELIMINARY
SUBJECT TO
FINAL REVIEW

POWER ENGINEERS

REVISIONS					
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15
REV	DESCRIPTION	DWN	DGN	CHK	DATE

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA

CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

BSS+E
Big Stone South to Ellendale

BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

NORTH

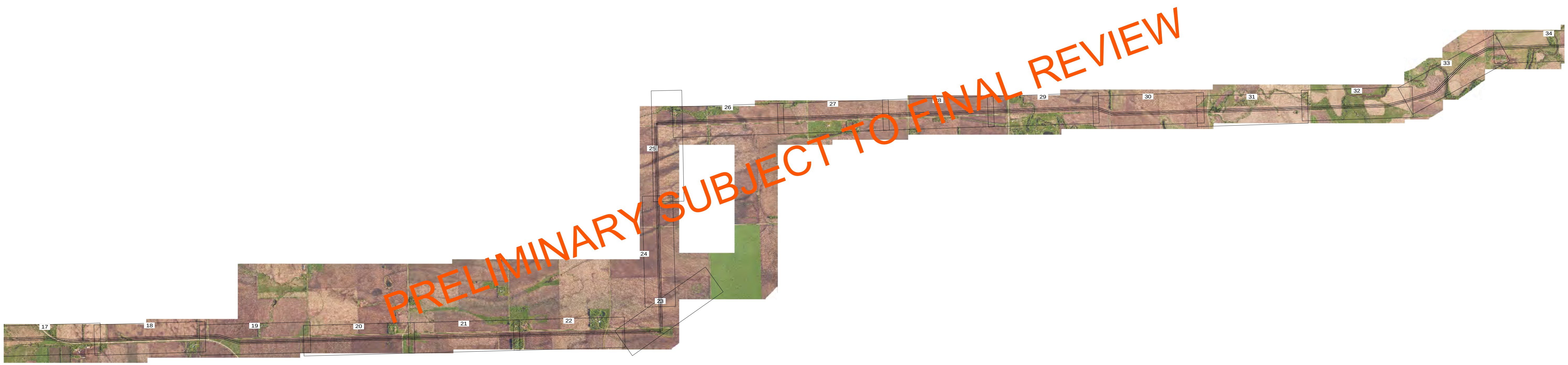
DWG. NO.
BSSE-PP-104-3

REVISION: N

136508

EXHIBIT 4

PLS-CADD DRAWING



20160505
PRELIMINARY
SUBJECT TO
FINAL REVIEW

POWER ENGINEERS

REVISIONS					
REV	DESCRIPTION	DWN	DGN	CHK	DATE
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA

CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

BSS+E
Big Stone South to Ellendale

BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

NORTH

DWG. NO.
BSSE-PP-104-4

REVISION: N

136508

EXHIBIT 4

POWER ENGINEERS

REV	DESCRIPTION	DWN	DGN	CHK	DATE
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA

CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

BSS✦E
Big Stone South to Ellendale

BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

NORTH

DWG. NO.
BSSE-PP-104-5

REVISION: N

136508

EXHIBIT 4

STRS: 590 - 594

20160505
PRELIMINARY
SUBJECT TO
FINAL REVIEW

POWER ENGINEERS

REV	DESCRIPTION	DWN	DGN	CHK	DATE
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA
CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

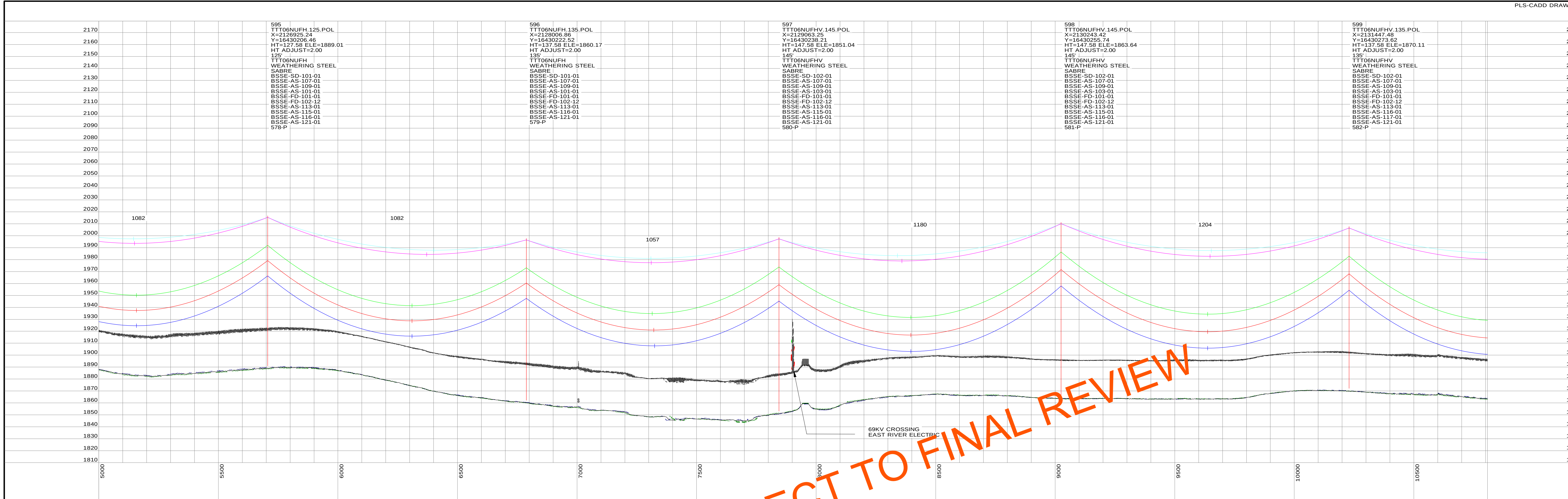
BSSE
Big Stone South to Ellendale

BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT. HORIZ. SCALE
40.0 FT. VERT. SCALE
NORTH

DWG. NO.
BSSE-PP-104-6
REVISION: N
136508

EXHIBIT 4



STRS: 595 - 599

20160505 PRELIMINARY SUBJECT TO FINAL REVIEW	POWER ENGINEERS

REVISIONS

REV	DESCRIPTION	DWN	DGN	CHK	DATE
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA

CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

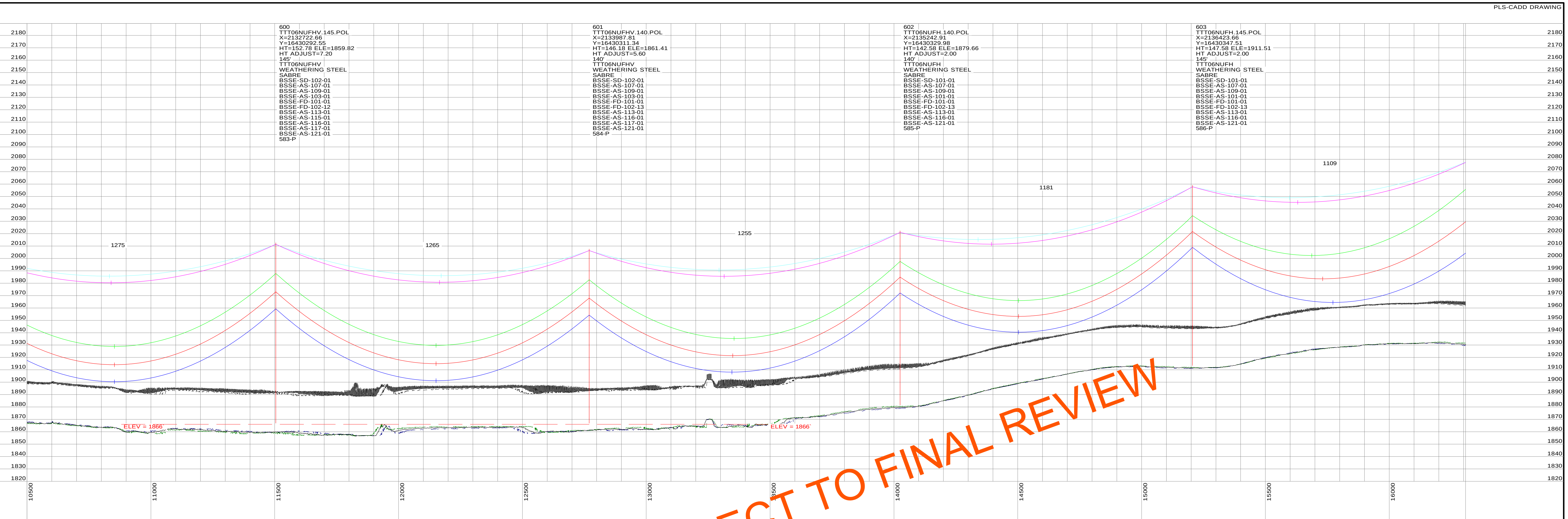
BSS+E Big Stone South to Ellendale

BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT. HORIZ. SCALE
40.0 FT. VERT. SCALE
NORTH

DWG. NO.
BSSE-PP-104-7
REVISION: N
136508

EXHIBIT 4



STRS: 600 - 603

20160505
PRELIMINARY
SUBJECT TO
FINAL REVIEW

POWER ENGINEERS

REVISIONS					
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15
REV	DESCRIPTION	DWN	DGN	CHK	DATE

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA
CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

BSS+E
Big Stone South to Ellendale

BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT. HORIZ. SCALE
40.0 FT. VERT. SCALE
NORTH

DWG. NO.
BSSE-PP-104-8
REVISION: N
136508

EXHIBIT 4

STRS: 604 - 608

20160505
PRELIMINARY
SUBJECT TO
FINAL REVIEW

POWER ENGINEERS

REV	DESCRIPTION	DWN	DGN	CHK	DATE
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15

REVISIONS

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA
CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

BSSE Big Stone South to Ellendale

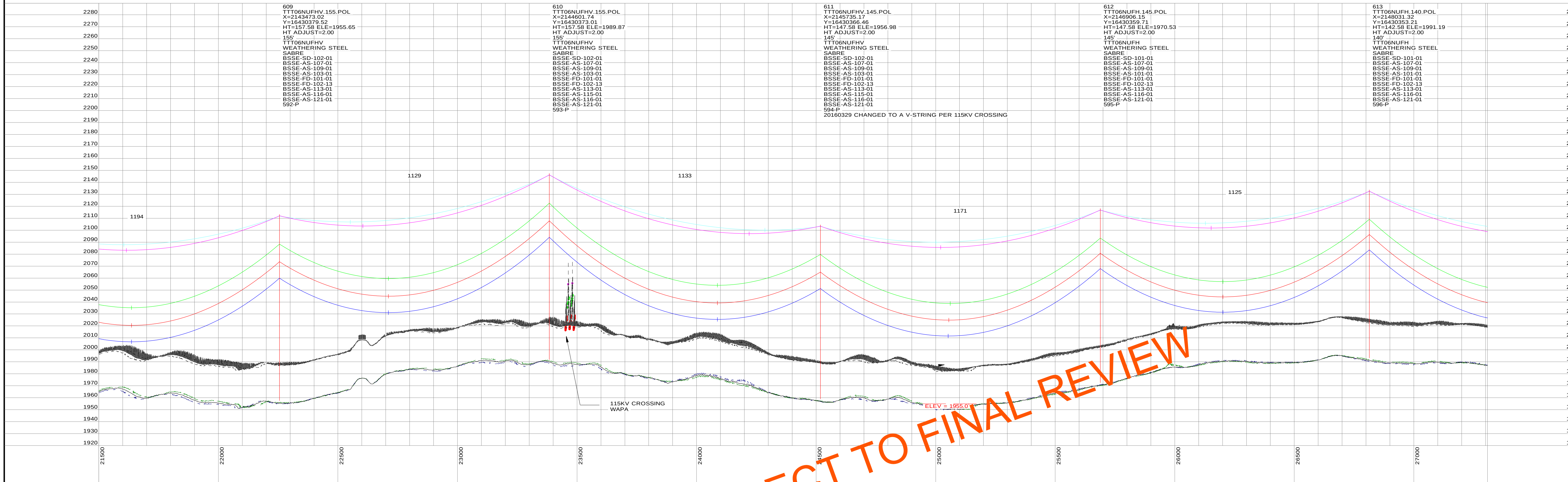
BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT. HORIZ. SCALE
40.0 FT. VERT. SCALE
NORTH

DWG. NO.
BSSE-PP-104-9
REVISION: N
136508

EXHIBIT 4

PLS-CADD DRAWING



STRS: 609 - 613

20160505
PRELIMINARY
SUBJECT TO
FINAL REVIEW

POWER ENGINEERS

REVISIONS					
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15
REV	DESCRIPTION	DWN	DGN	CHK	DATE

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA
CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

BSS+E Big Stone South to Ellendale

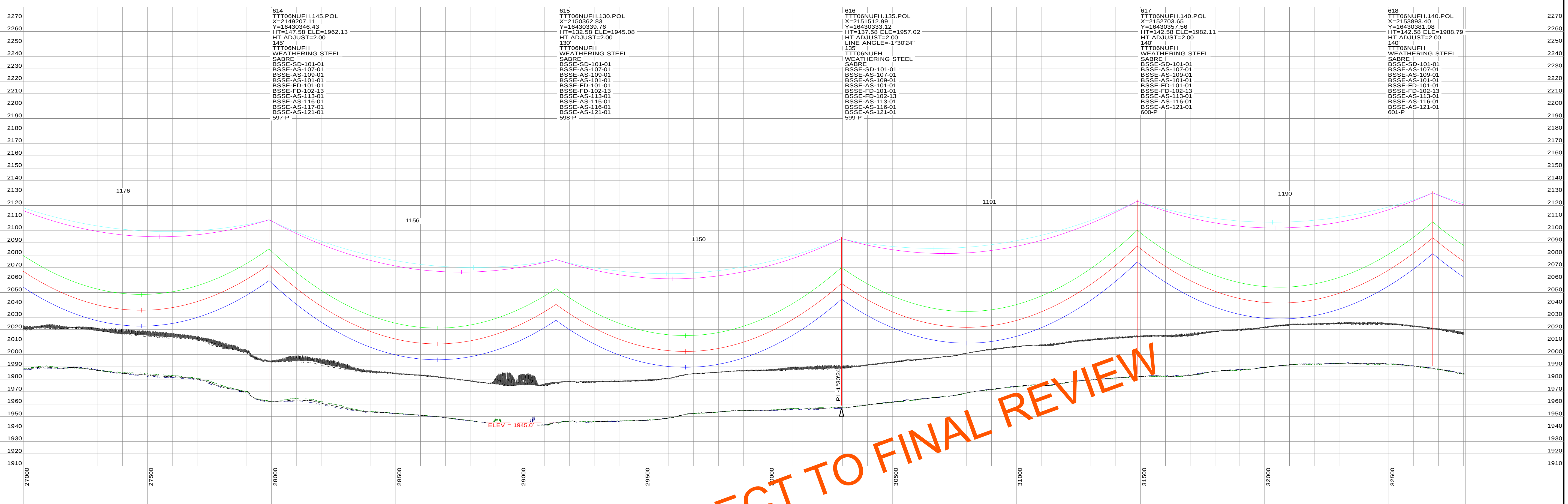
BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

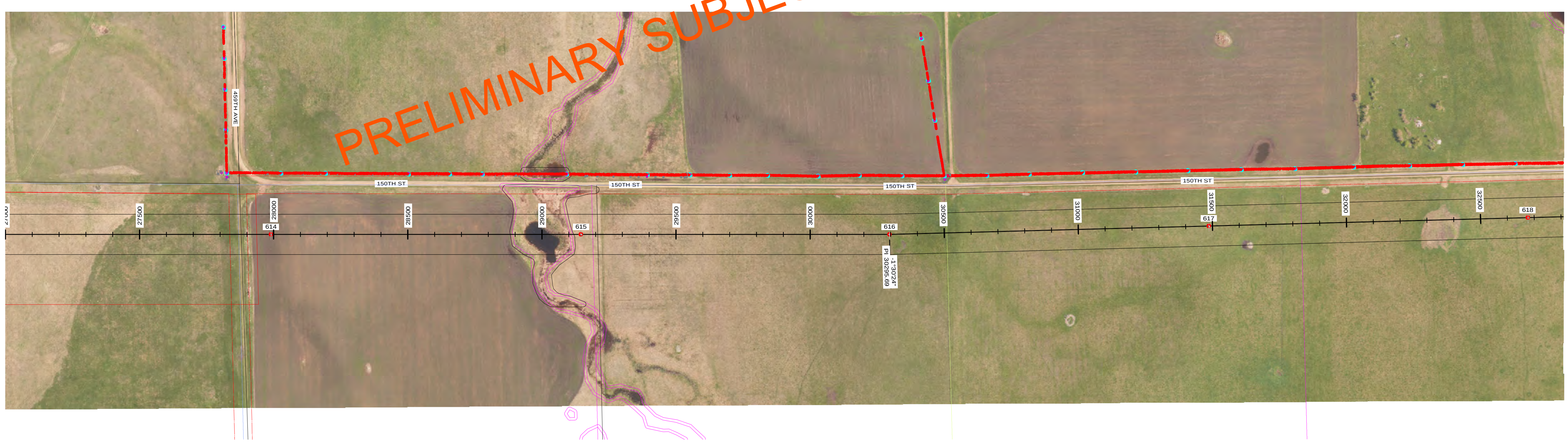
200.0 FT. HORIZ. SCALE
40.0 FT. VERT. SCALE
NORTH

DWG. NO.
BSSE-PP-104-10
REVISION: N
136508

EXHIBIT 4

PLS-CADD DRAWING





STRS: 614 - 618

20160505
PRELIMINARY
SUBJECT TO
FINAL REVIEW

POWER ENGINEERS

REVISIONS					
REV	DESCRIPTION	DWN	DGN	CHK	DATE
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA
CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

BSSE
Big Stone South to Ellendale

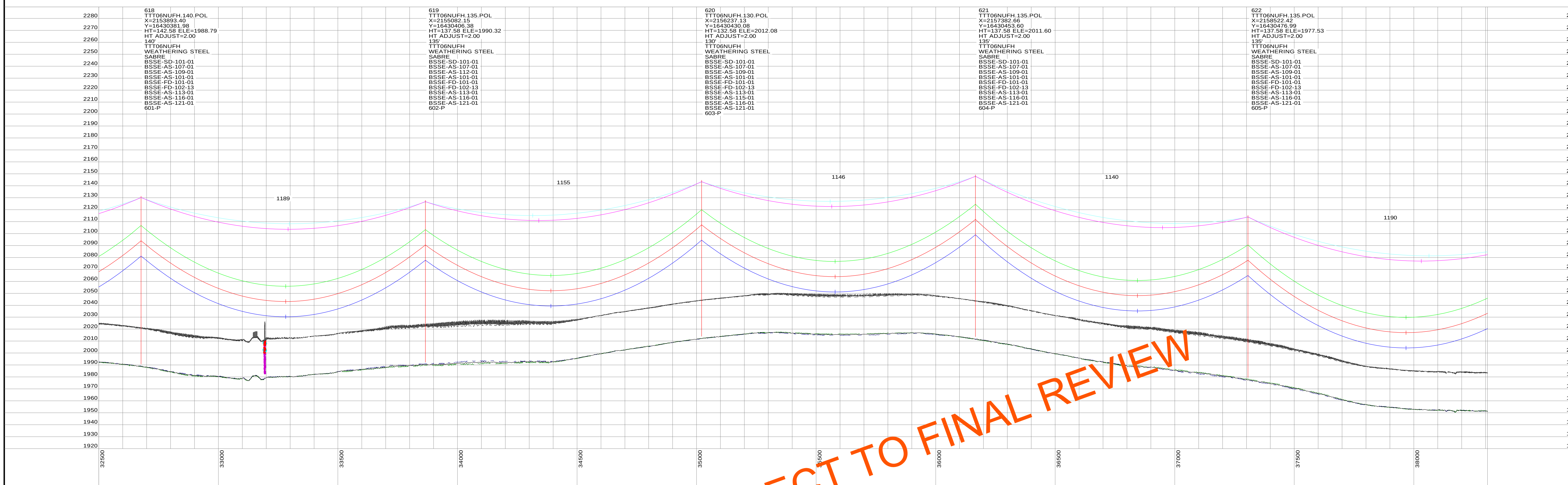
BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT. HORIZ. SCALE
40.0 FT. VERT. SCALE
NORTH

DWG. NO.
BSSE-PP-104-11
REVISION: N
136508

EXHIBIT 4

PLS-CADD DRAWING



PRELIMINARY SUBJECT TO FINAL REVIEW

STRS: 618 - 622

20160505
PRELIMINARY
SUBJECT TO
FINAL REVIEW

POWER ENGINEERS

REVISIONS					
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15
REV	DESCRIPTION	DWN	DGN	CHK	DATE

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA
CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

BSS+E
Big Stone South to Ellendale

BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

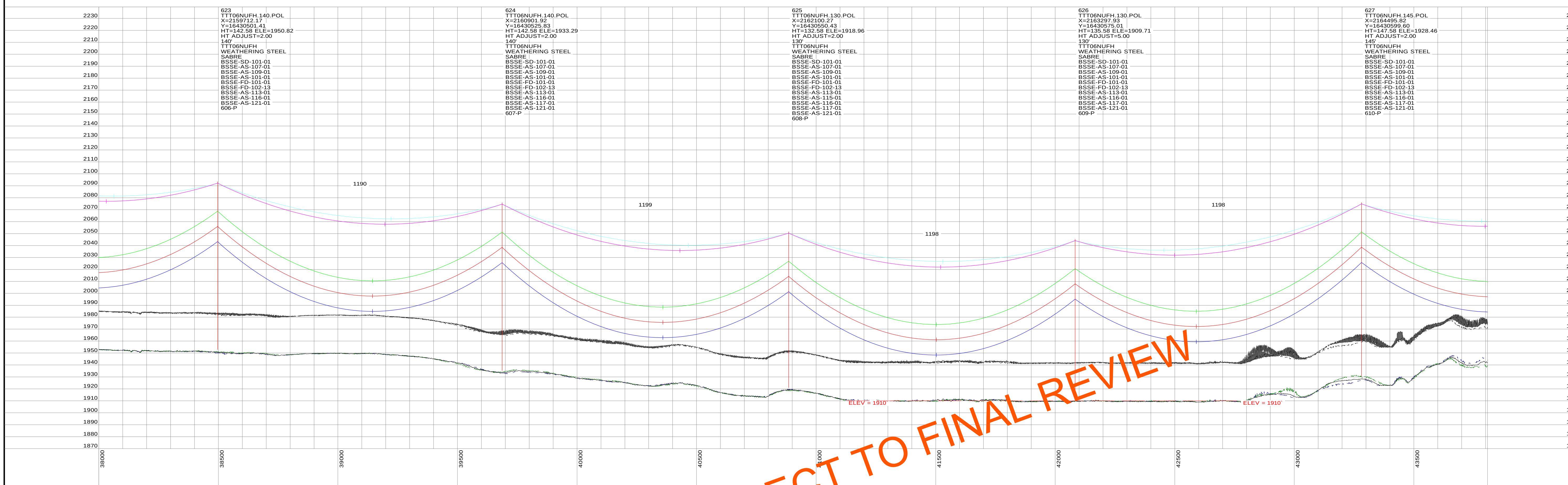
200.0 FT. HORIZ. SCALE
40.0 FT. VERT. SCALE

NORTH

DWG. NO.
BSSE-PP-104-12
REVISION: N
136508

EXHIBIT 4

PLS-CADD DRAWING



PRELIMINARY SUBJECT TO FINAL REVIEW

STRS: 623 - 627

20160505
PRELIMINARY
SUBJECT TO
FINAL REVIEW

POWER ENGINEERS

REV	DESCRIPTION	DWN	DGN	CHK	DATE
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15

REVISIONS

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA
CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

BSS+E
Big Stone South to Ellendale

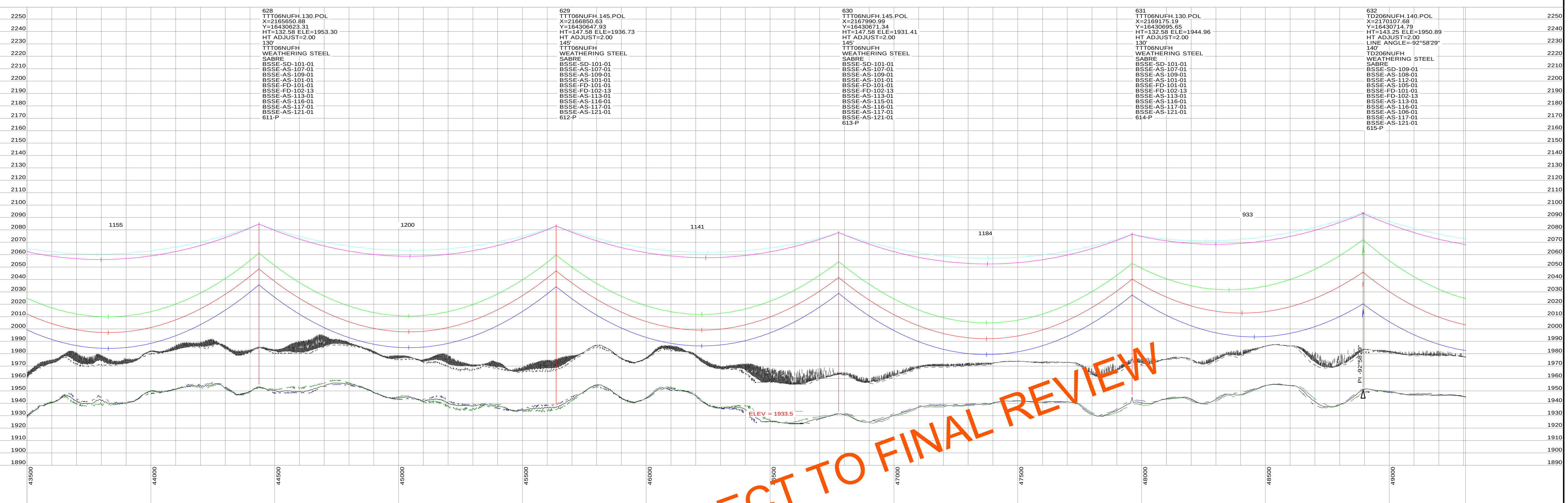
BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT. HORIZ. SCALE
40.0 FT. VERT. SCALE
NORTH

DWG. NO.
BSSE-PP-104-13
REVISION: N
136508

EXHIBIT 4

PLS-CADD DRAWING



STRS: 628 - 632

20160505
PRELIMINARY
SUBJECT TO
FINAL REVIEW

POWER ENGINEERS

REV	DESCRIPTION	DWN	DGN	CHK	DATE
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15

REVISIONS

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA

CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

BSS+E
Big Stone South to Ellendale

BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT. HORIZ. SCALE

40.0 FT. VERT. SCALE

NORTH

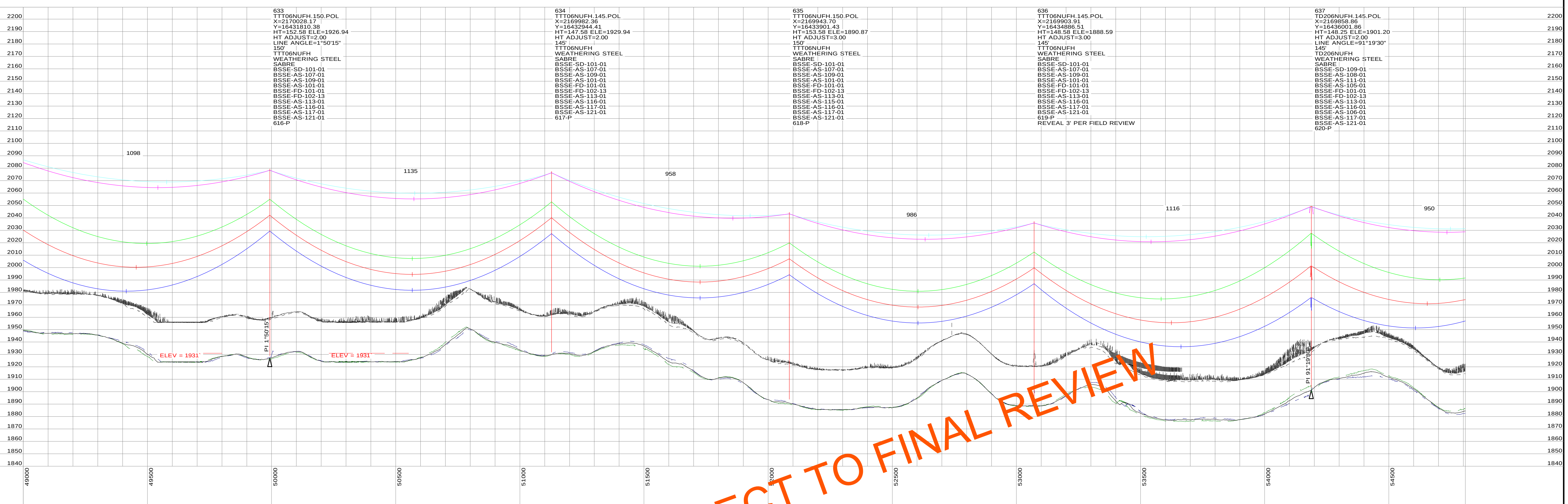
DWG. NO.
BSSE-PP-104-14

REVISION: N

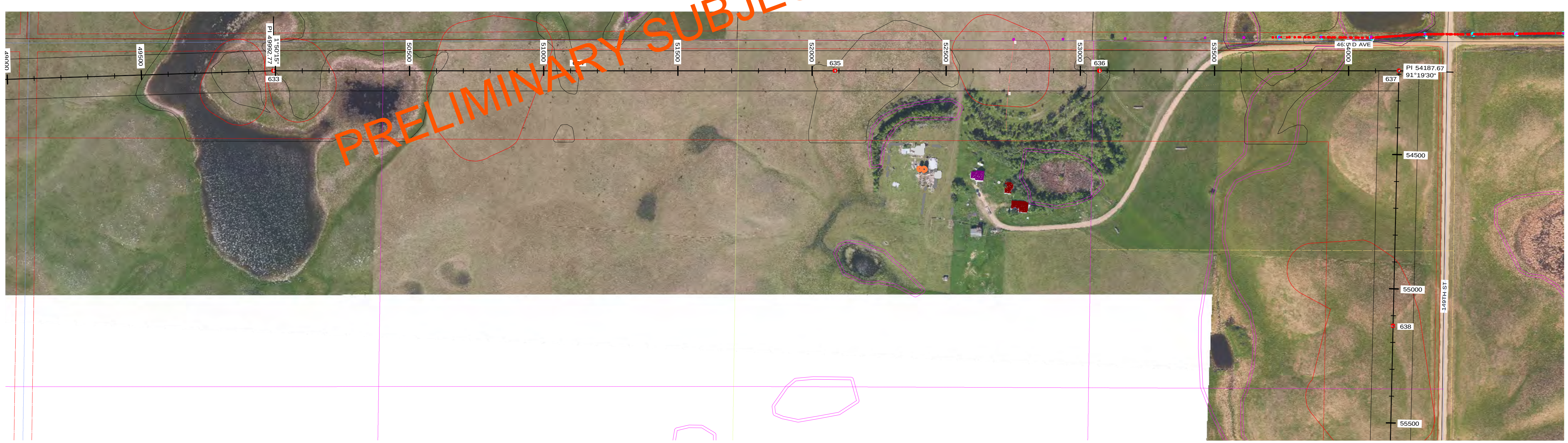
136508

EXHIBIT 4

PLS-CADD DRAWING



PRELIMINARY SUBJECT TO FINAL REVIEW



STRS: 633 - 637

20160505
PRELIMINARY
SUBJECT TO
FINAL REVIEW

POWER ENGINEERS

REV	DESCRIPTION	DWN	DGN	CHK	DATE
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15

REVISIONS

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA
CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

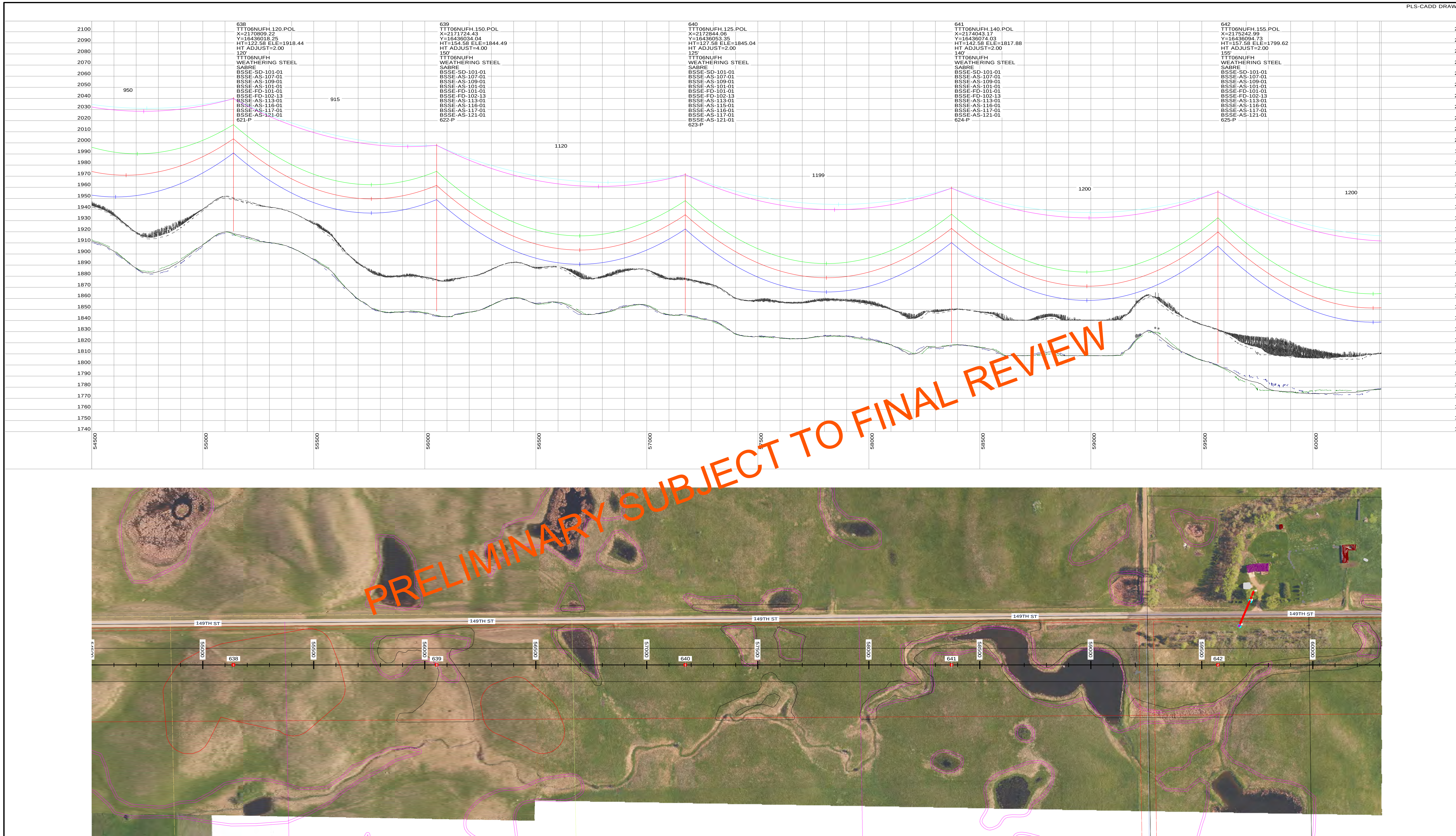
BSSE
Big Stone South to Ellendale

BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT. HORIZ. SCALE
40.0 FT. VERT. SCALE
NORTH

DWG. NO.
BSSE-PP-104-15
REVISION: N
136508

EXHIBIT 4



STRS: 638 - 642

20160505
PRELIMINARY
SUBJECT TO
FINAL REVIEW

POWER ENGINEERS

REVISIONS					
REV	DESCRIPTION	DWN	DGN	CHK	DATE
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA
CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

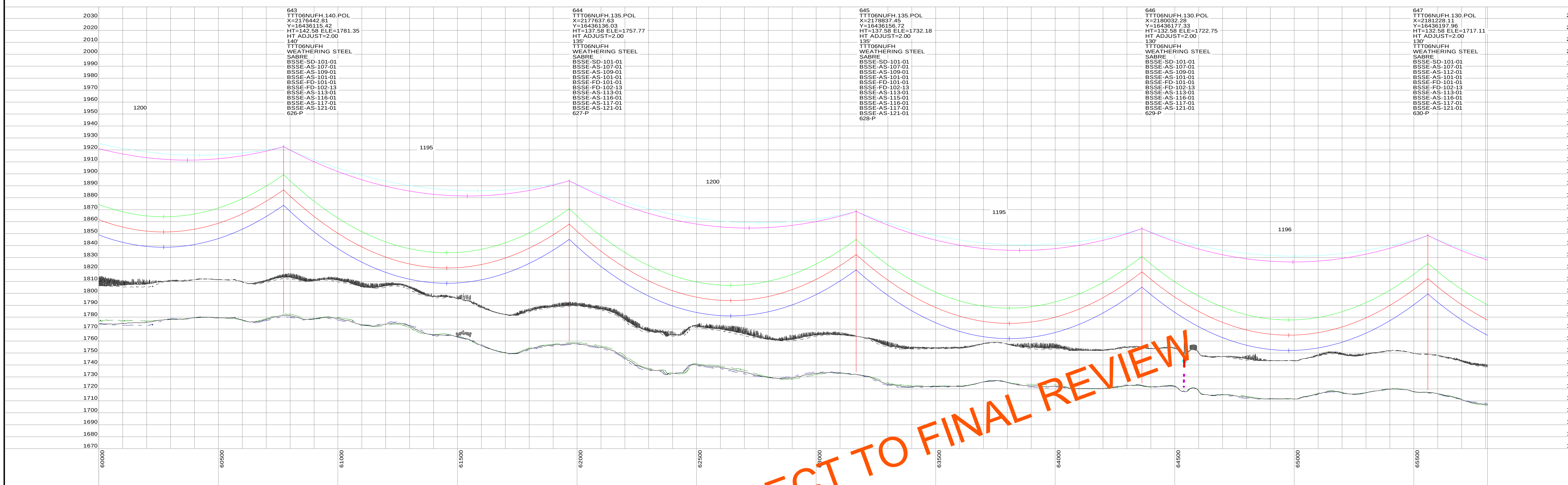
BSSE Big Stone South to Ellendale

BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT. HORIZ. SCALE
40.0 FT. VERT. SCALE
NORTH

DWG. NO.
BSSE-PP-104-16
REVISION: N
136508

EXHIBIT 4



STRS: 643 - 647

20160505
PRELIMINARY
SUBJECT TO
FINAL REVIEW

POWER ENGINEERS

REVISIONS

REV	DESCRIPTION	DWN	DGN	CHK	DATE
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA
CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

BSSE
Big Stone South to Ellendale

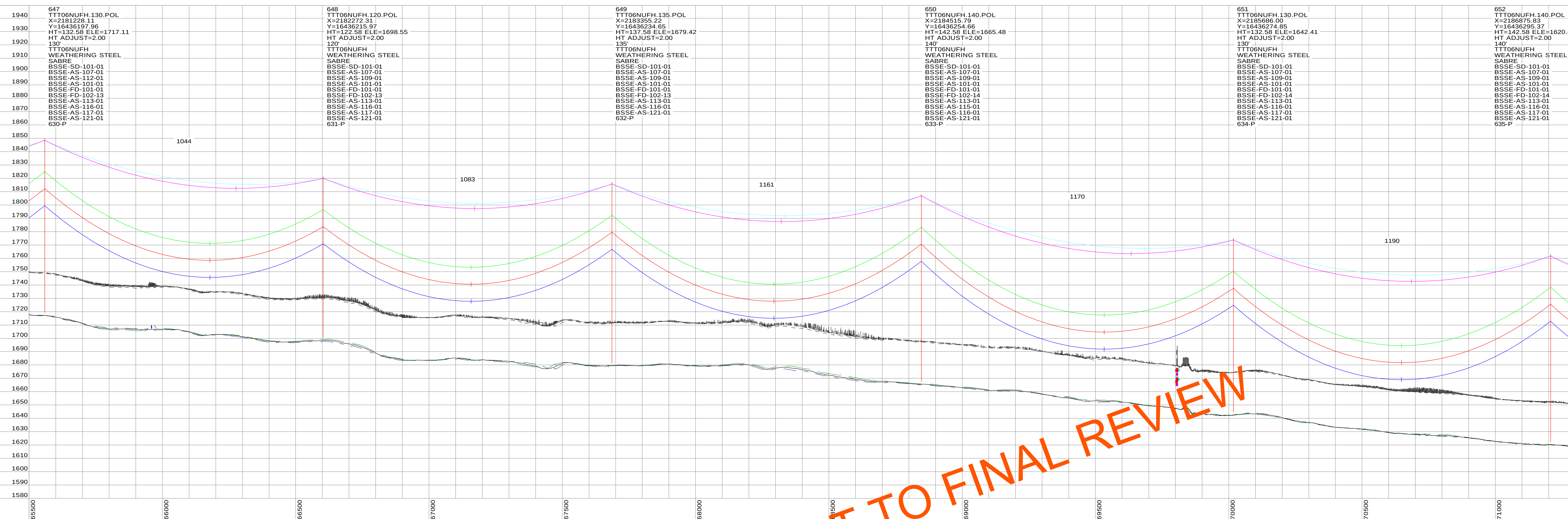
BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT. HORIZ. SCALE
40.0 FT. VERT. SCALE
NORTH

DWG. NO.
BSSE-PP-104-17
REVISION: N
136508

EXHIBIT 4

PLS-CADD DRAWING



PRELIMINARY SUBJECT TO FINAL REVIEW

STRS: 647 - 652

20160505
PRELIMINARY
SUBJECT TO
FINAL REVIEW

POWER ENGINEERS

REVISIONS					
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15
REV	DESCRIPTION	DWN	DGN	CHK	DATE

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA
CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

BSSE
Big Stone South to Ellendale

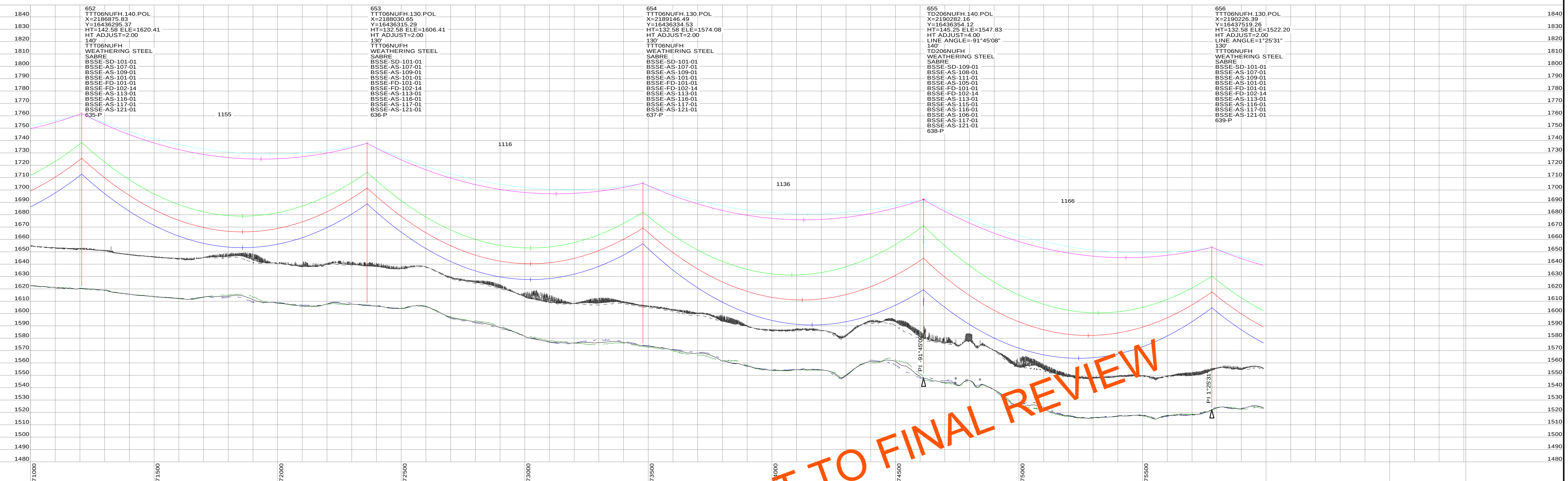
BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT. HORIZ. SCALE
40.0 FT. VERT. SCALE
NORTH

DWG. NO.
BSSE-PP-104-18
REVISION: N
136508

EXHIBIT 4

PLS-CADD DRAWING



PRELIMINARY SUBJECT TO FINAL REVIEW

STRS: 652 - 656

20160505
PRELIMINARY
SUBJECT TO
FINAL REVIEW

POWER ENGINEERS

REVISIONS					
REV	DESCRIPTION	DWN	DGN	CHK	DATE
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA

CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

BSS+E
Big Stone South to Ellendale

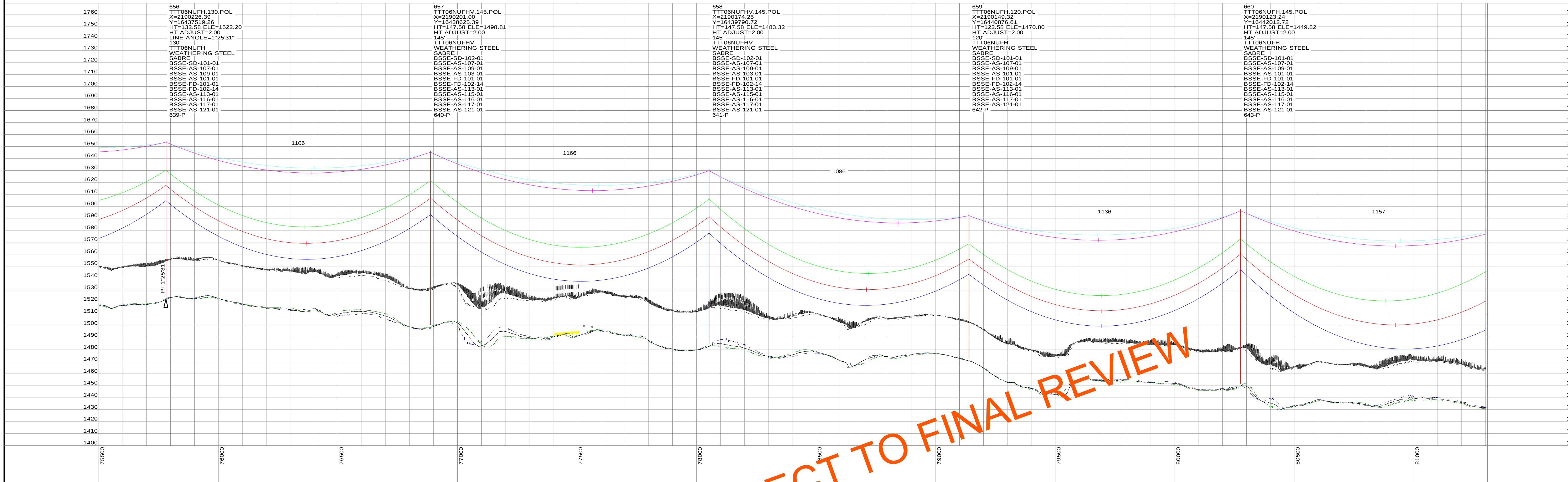
BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT. HORIZ. SCALE
40.0 FT. VERT. SCALE
NORTH

DWG. NO.
BSSE-PP-104-19
REVISION: N
136508

EXHIBIT 4

PLS-CADD DRAWING



PRELIMINARY SUBJECT TO FINAL REVIEW

STRS: 656 - 660

20160505
PRELIMINARY
SUBJECT TO
FINAL REVIEW

POWER ENGINEERS

REVISIONS					
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15
REV	DESCRIPTION	DWN	DGN	CHK	DATE

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA
CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

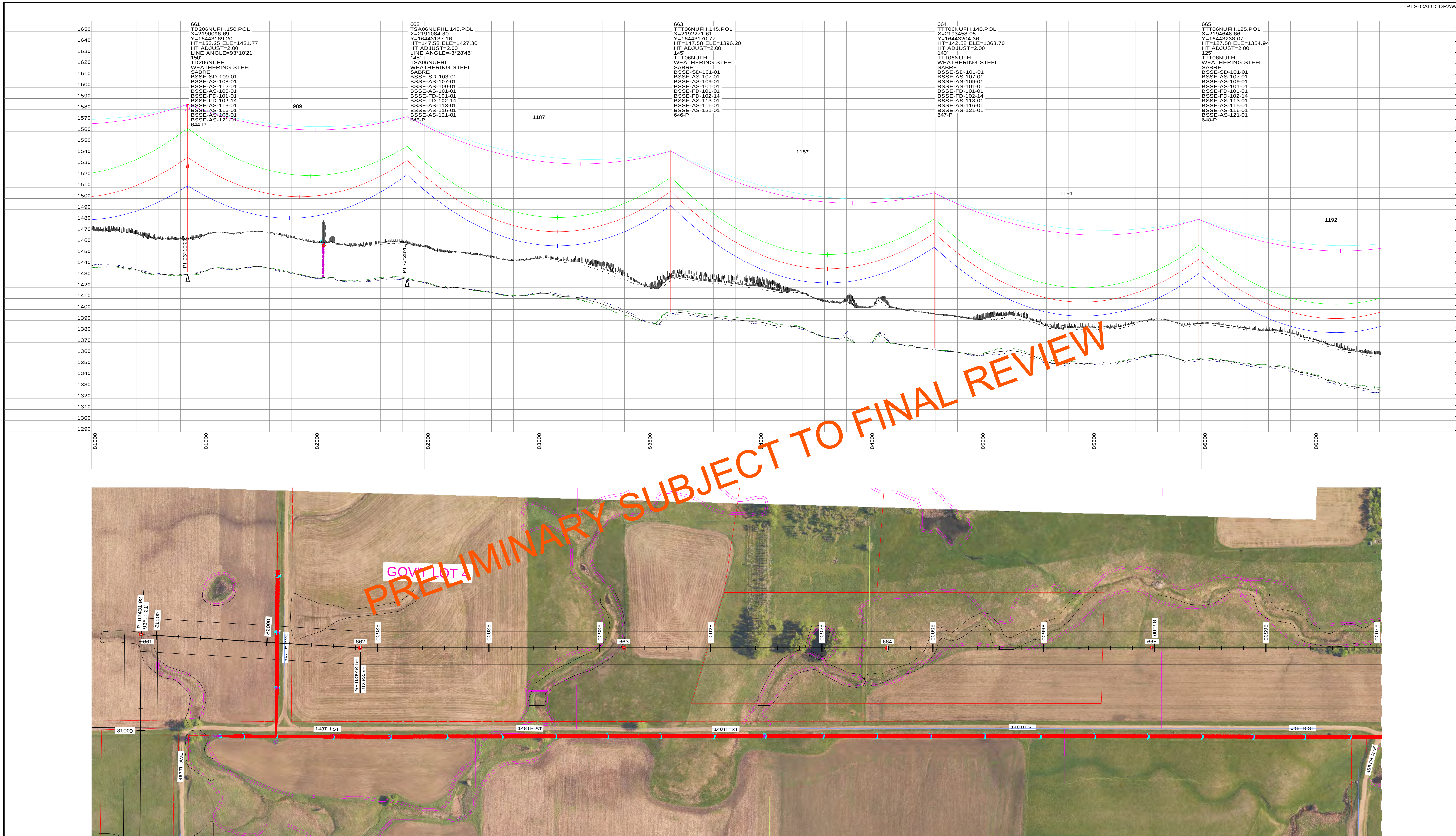
BSSE
Big Stone South to Ellendale

BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT. HORIZ. SCALE
40.0 FT. VERT. SCALE
NORTH

DWG. NO.
BSSE-PP-104-20
REVISION: N
136508

EXHIBIT 4



STRS: 661 - 665

20160505
PRELIMINARY
SUBJECT TO
FINAL REVIEW

POWER ENGINEERS

REV	DESCRIPTION	DWN	DGN	CHK	DATE
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA
CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

BSS+E Big Stone South to Ellendale

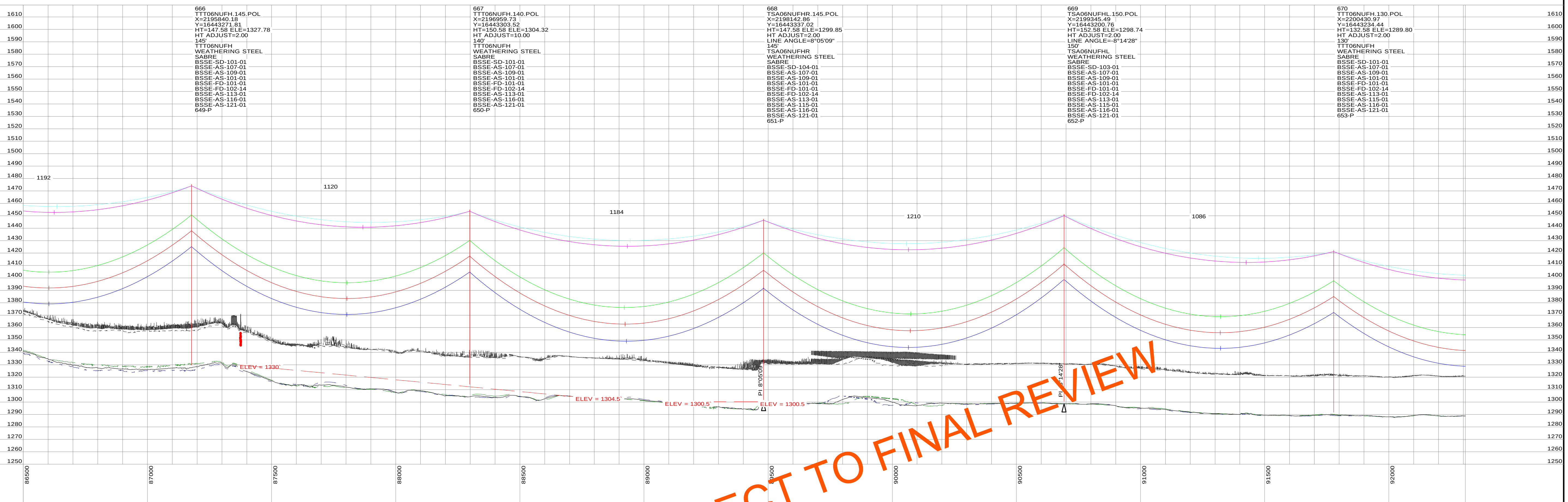
BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

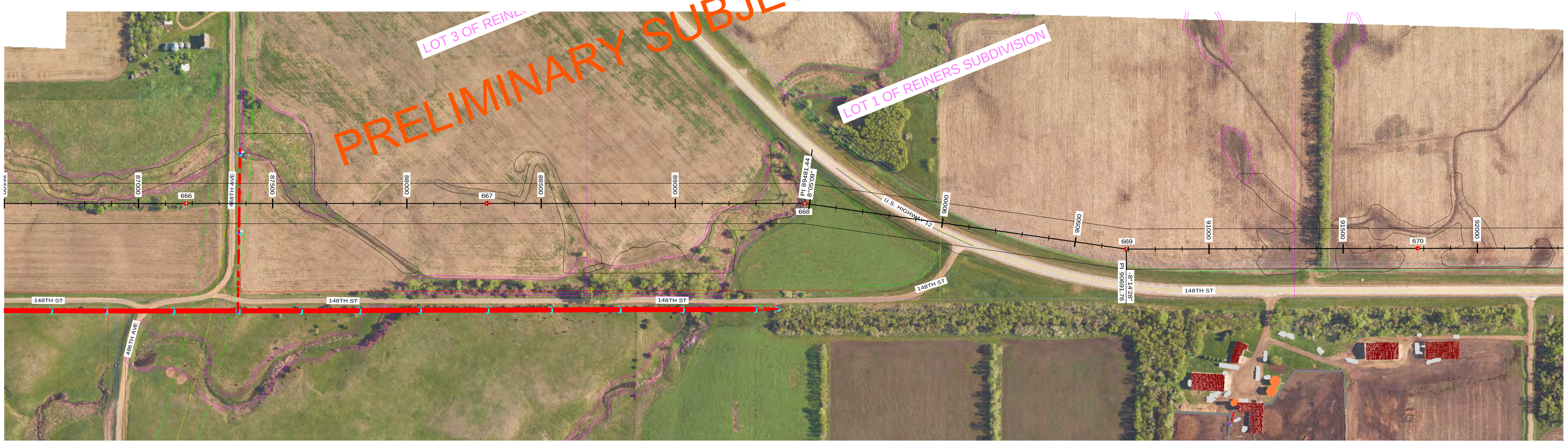
200.0 FT. HORIZ. SCALE
40.0 FT. VERT. SCALE
NORTH

DWG. NO.
BSSE-PP-104-21
REVISION: N
136508

EXHIBIT 4

PLS-CADD DRAWING





STRS: 666 - 670

20160505 PRELIMINARY SUBJECT TO FINAL REVIEW

POWER ENGINEERS

REVISIONS					
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15
REV	DESCRIPTION	DWN	DGN	CHK	DATE

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA

CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

BSSE Big Stone South to Ellendale

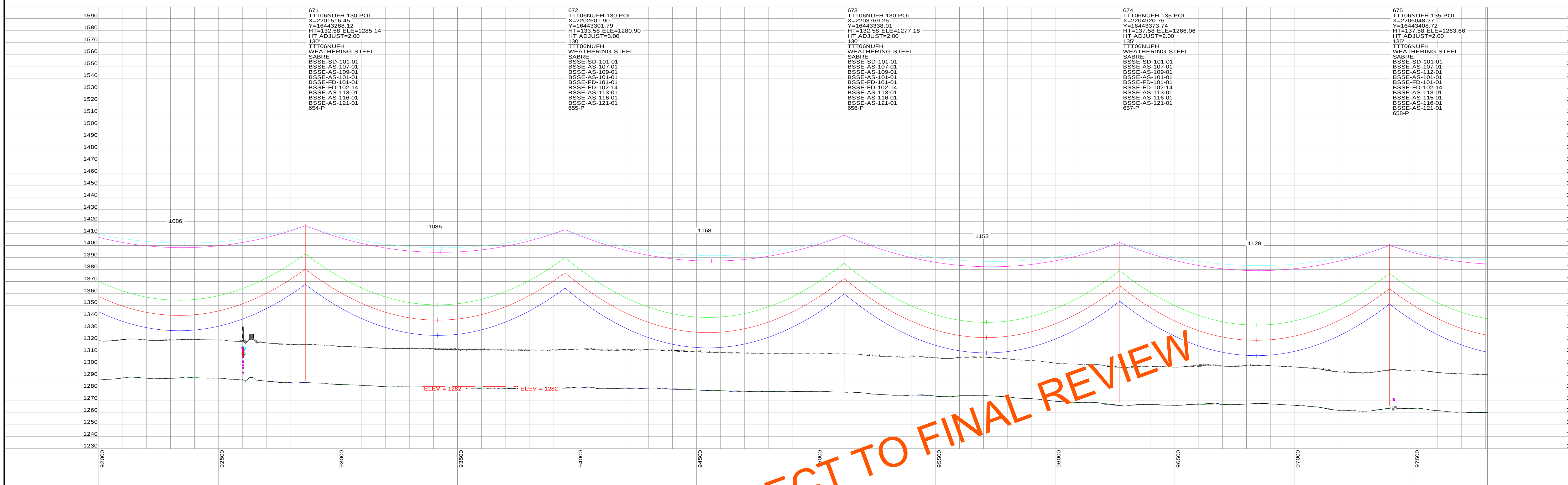
BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

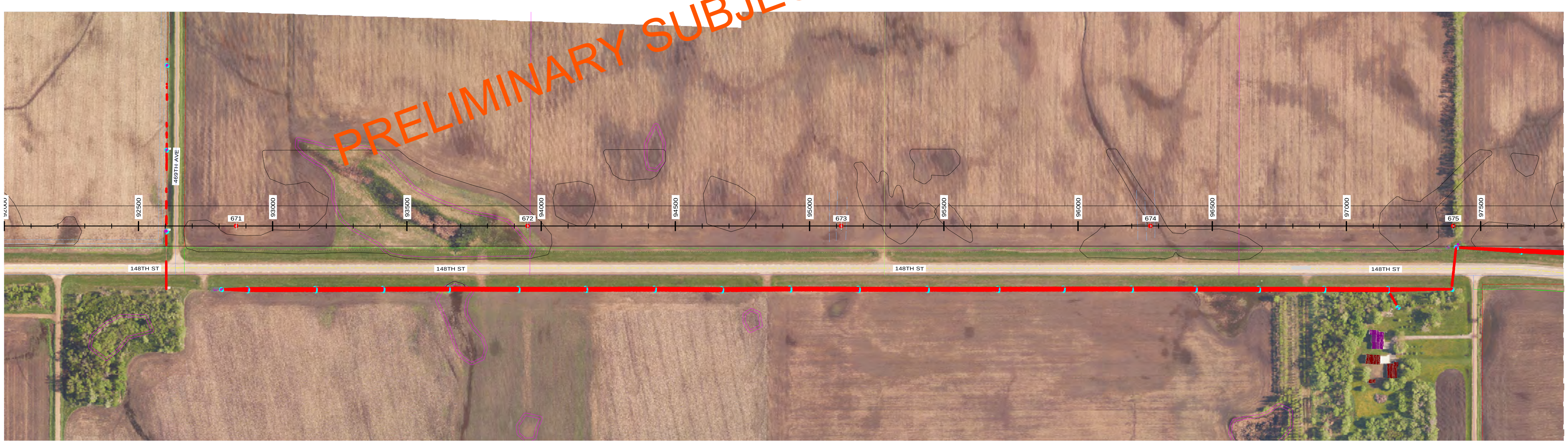
200.0 FT. HORIZ. SCALE
40.0 FT. VERT. SCALE
NORTH

DWG. NO.
BSSE-PP-104-22
REVISION: N
136508

EXHIBIT 4

PLS-CADD DRAWING





STRS: 671 - 675

20160505 PRELIMINARY SUBJECT TO FINAL REVIEW	POWER ENGINEERS

REVISIONS					
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15
REV	DESCRIPTION	DWN	DGN	CHK	DATE

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA

CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

BSS+E Big Stone South to Ellendale

BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT. HORIZ. SCALE

40.0 FT. VERT. SCALE

NORTH

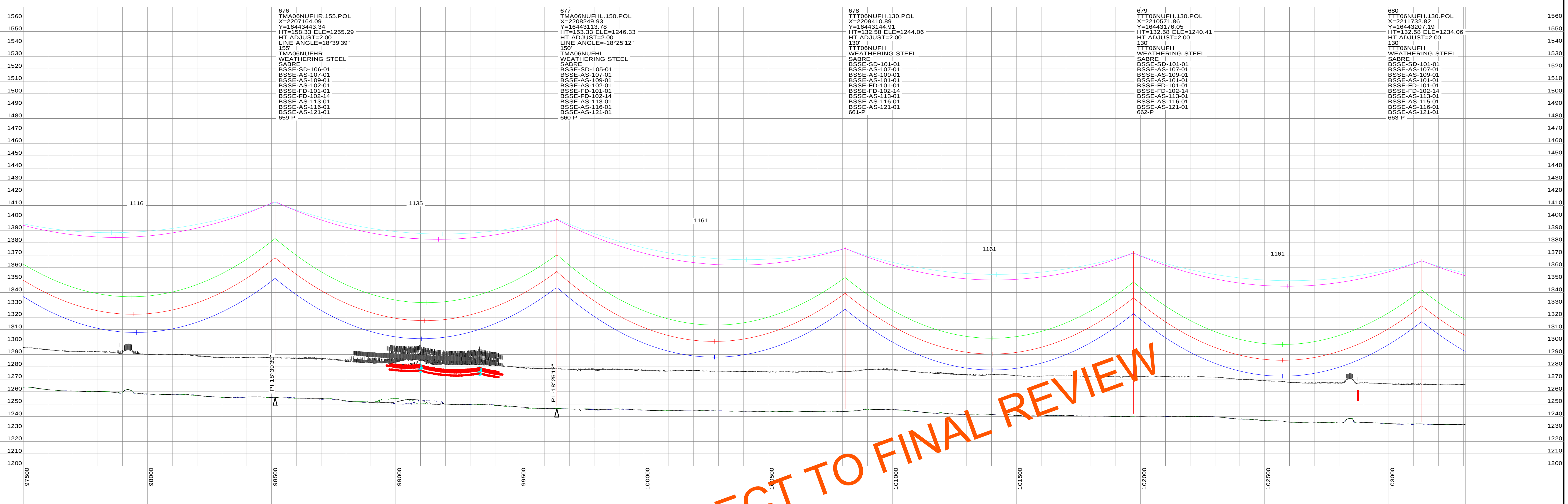
DWG. NO.
BSSE-PP-104-23

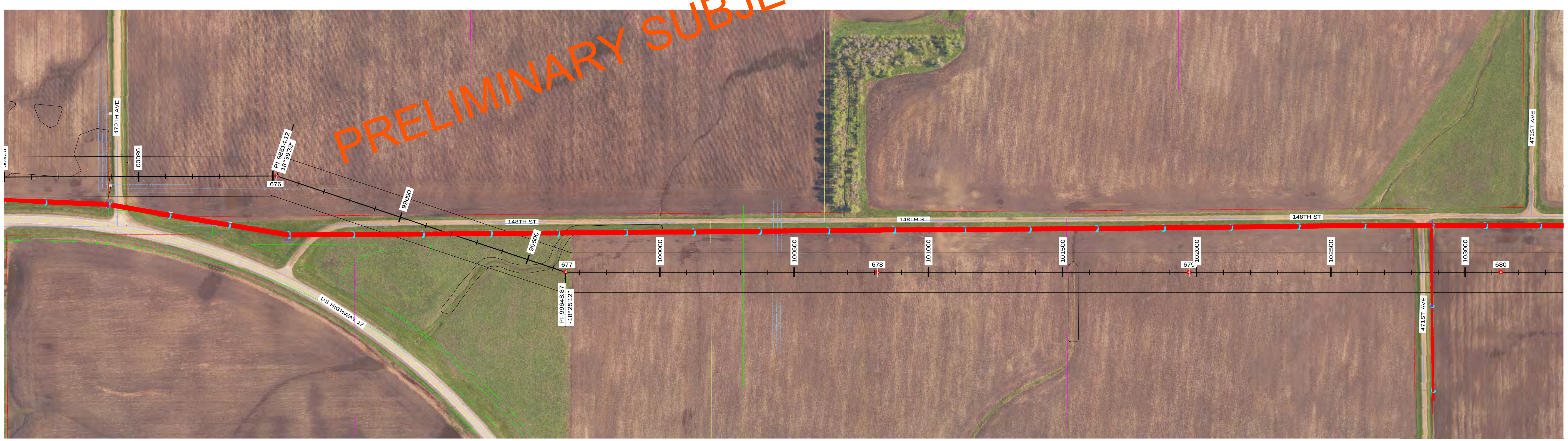
REVISION: N

136508

EXHIBIT 4

PLS-CADD DRAWING





PRELIMINARY SUBJECT TO FINAL REVIEW

STRS: 676 - 680

20160505
PRELIMINARY
SUBJECT TO
FINAL REVIEW

POWER ENGINEERS

REVISIONS					
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15
REV	DESCRIPTION	DWN	DGN	CHK	DATE

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA
CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

BSSE
Big Stone South to Ellendale

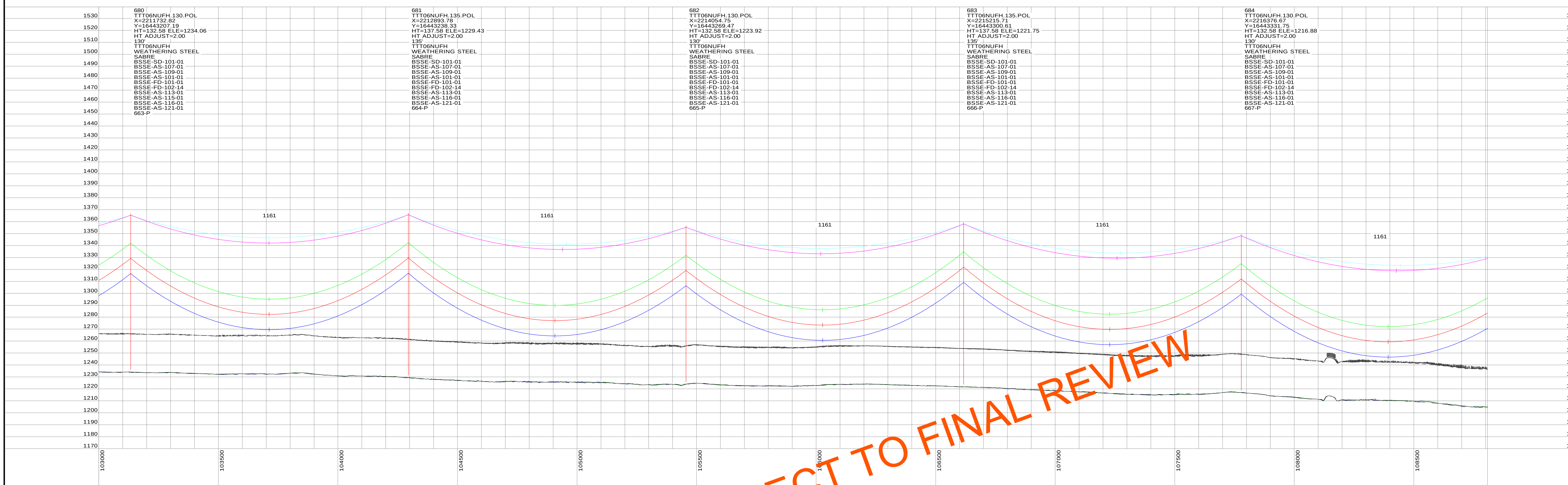
BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

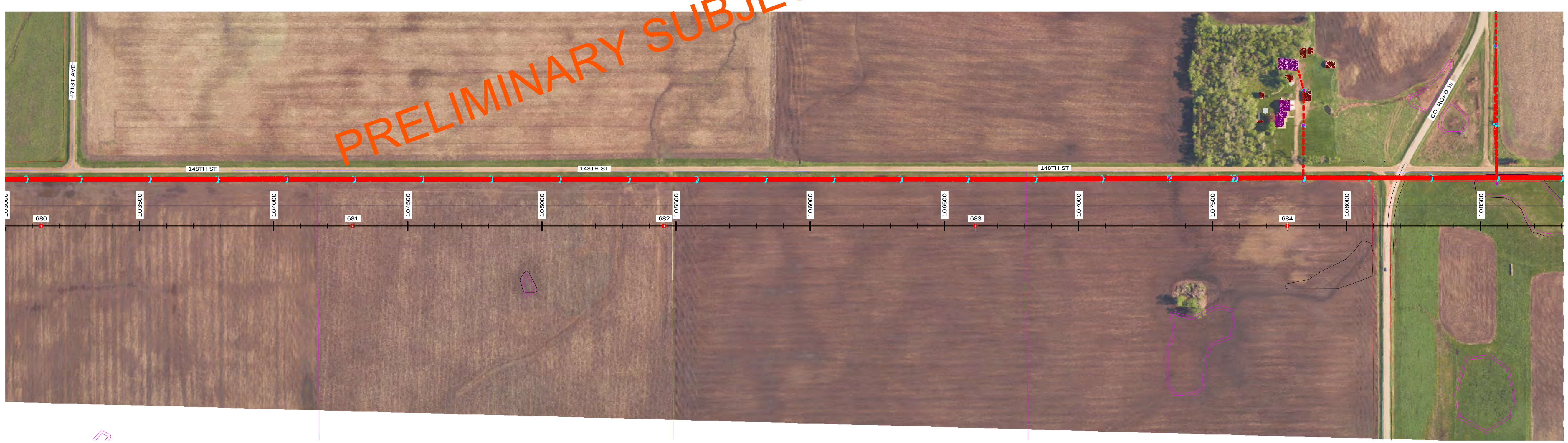
200.0 FT. HORIZ. SCALE
40.0 FT. VERT. SCALE
NORTH

DWG. NO.
BSSE-PP-104-24
REVISION: N
136508

EXHIBIT 4

PLS-CADD DRAWING





STRS: 680 - 684

20160505 PRELIMINARY SUBJECT TO FINAL REVIEW

POWER ENGINEERS

REV	DESCRIPTION	DWN	DGN	CHK	DATE
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15

REVISIONS

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA
CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

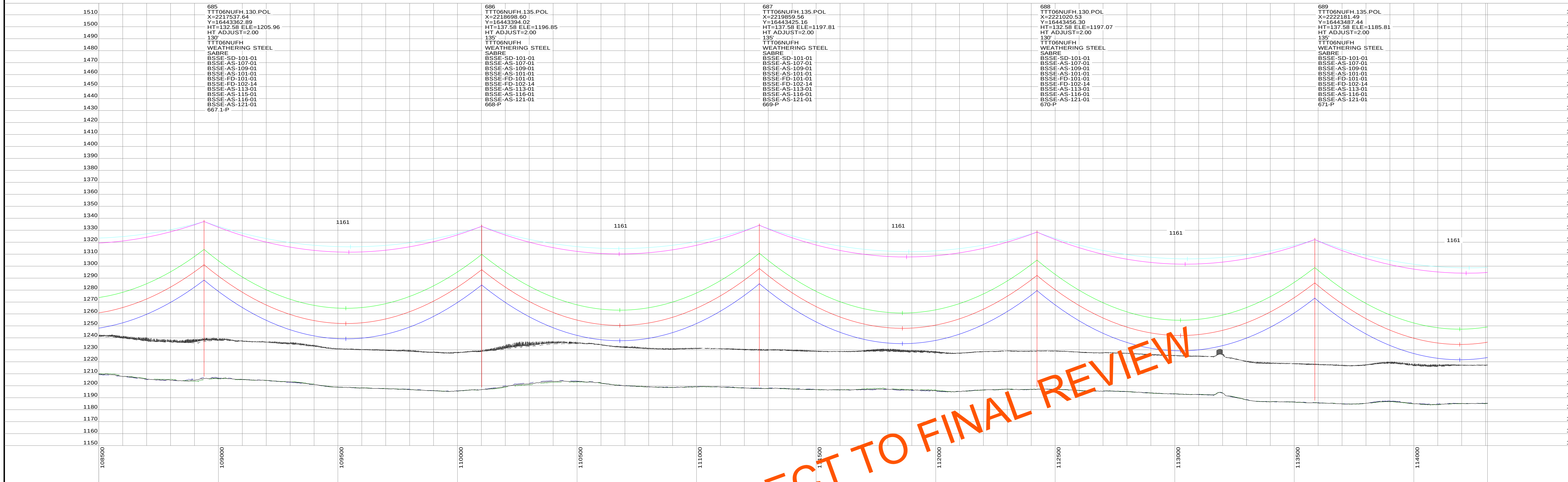
BSS+E
Big Stone South to Ellendale

BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT. HORIZ. SCALE
40.0 FT. VERT. SCALE
NORTH

DWG. NO.
BSSE-PP-104-25
REVISION: N
136508

EXHIBIT 4



STRS: 685 - 689

20160505
PRELIMINARY
SUBJECT TO
FINAL REVIEW

POWER ENGINEERS

REVISIONS					
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15
REV	DESCRIPTION	DWN	DGN	CHK	DATE

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA
CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

BSS+E
Big Stone South to Ellendale

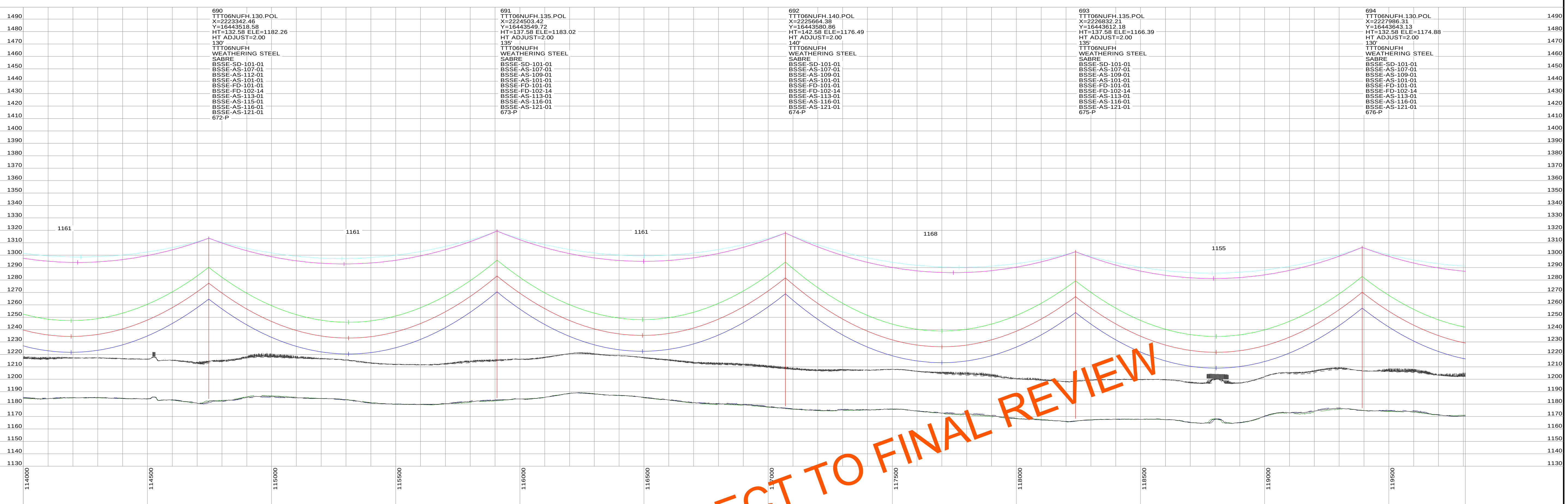
BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT. HORIZ. SCALE
40.0 FT. VERT. SCALE
NORTH

DWG. NO.
BSSE-PP-104-26
REVISION: N
136508

EXHIBIT 4

PLS-CADD DRAWING



STRS: 690 - 694

20160505
PRELIMINARY
SUBJECT TO
FINAL REVIEW

POWER ENGINEERS

REVISIONS					
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15
REV	DESCRIPTION	DWN	DGN	CHK	DATE

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA

CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

BSSE
Big Stone South to Ellendale

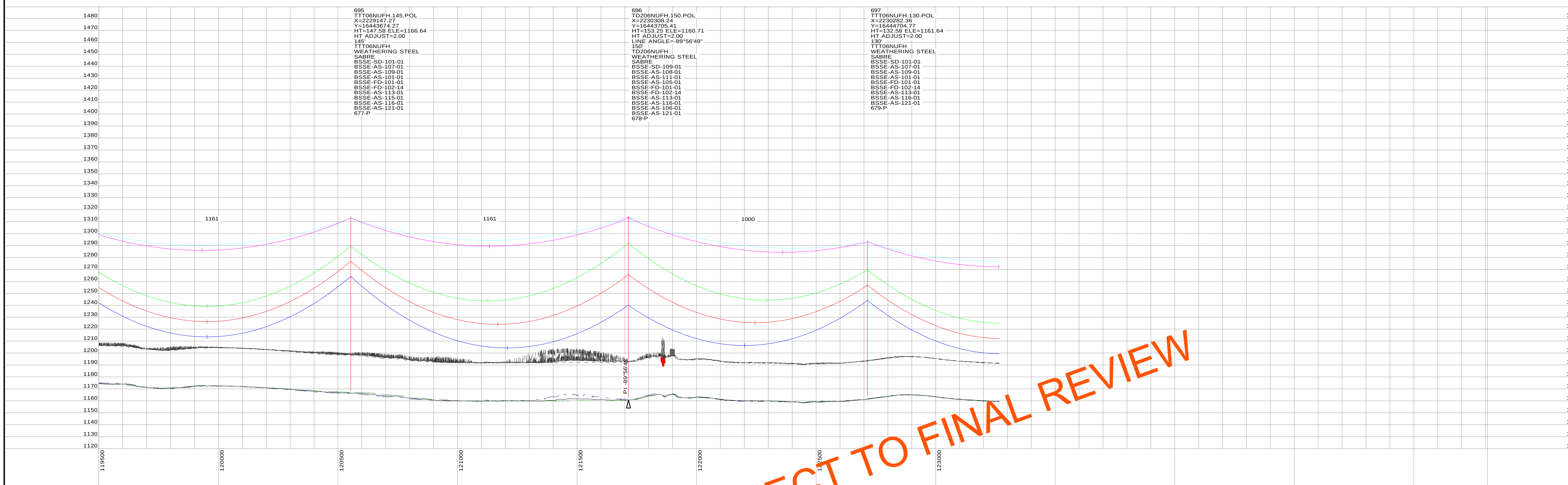
BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT. HORIZ. SCALE
40.0 FT. VERT. SCALE
NORTH

DWG. NO.
BSSE-PP-104-27
REVISION: N
136508

EXHIBIT 4

PLS-CADD DRAWING



PRELIMINARY SUBJECT TO FINAL REVIEW

STRS: 695 - 697

20160505
PRELIMINARY
SUBJECT TO
FINAL REVIEW

POWER ENGINEERS

REVISIONS					
REV	DESCRIPTION	DWN	DGN	CHK	DATE
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA
CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

BSS+E
Big Stone South to Ellendale

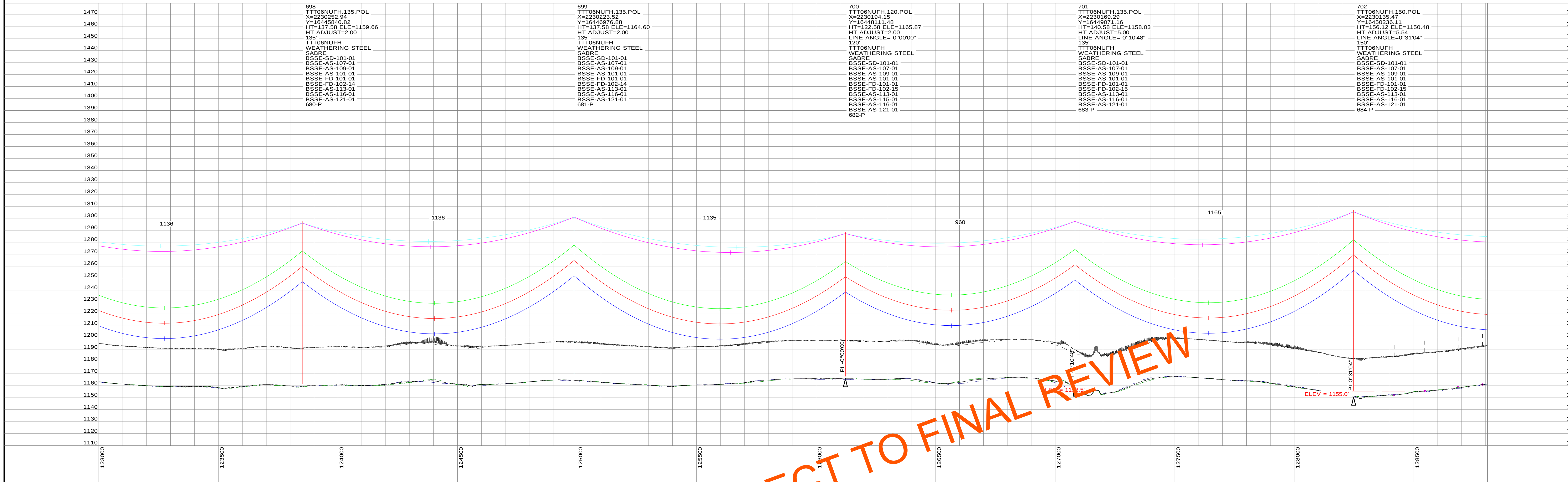
BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT. HORIZ. SCALE
40.0 FT. VERT. SCALE
NORTH

DWG. NO.
BSSE-PP-104-28
REVISION: N
136508

EXHIBIT 4

PLS-CADD DRAWING



PRELIMINARY SUBJECT TO FINAL REVIEW

STRS: 698 - 702

20160505
PRELIMINARY
SUBJECT TO
FINAL REVIEW

POWER ENGINEERS

REVISIONS					
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15
REV	DESCRIPTION	DWN	DGN	CHK	DATE

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA
CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

BSSE Big Stone South to Ellendale

BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT. HORIZ. SCALE
40.0 FT. VERT. SCALE
NORTH

DWG. NO.
BSSE-PP-104-29
REVISION: N
136508

EXHIBIT 4

STRS: 703 - 707

20160505
PRELIMINARY
SUBJECT TO
FINAL REVIEW

POWER ENGINEERS

REV	REVISIONS DESCRIPTION	DWN	DGN	CHK	DATE
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA
CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

BSSE Big Stone South to Ellendale

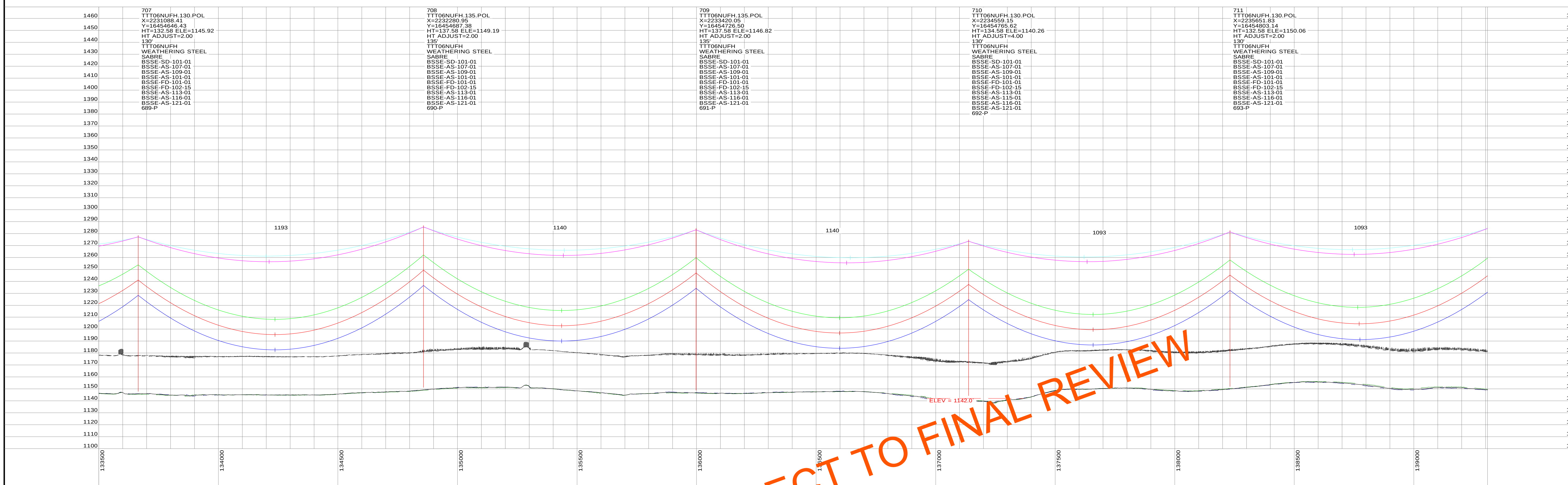
BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT. HORIZ. SCALE
40.0 FT. VERT. SCALE
NORTH

DWG. NO.
BSSE-PP-104-30
REVISION: N
136508

EXHIBIT 4

PLS-CADD DRAWING



STRS: 707 - 711

20160505
PRELIMINARY
SUBJECT TO
FINAL REVIEW

POWER ENGINEERS

REVISIONS

REV	DESCRIPTION	DWN	DGN	CHK	DATE
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA

CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

BSS+E
Big Stone South to Ellendale

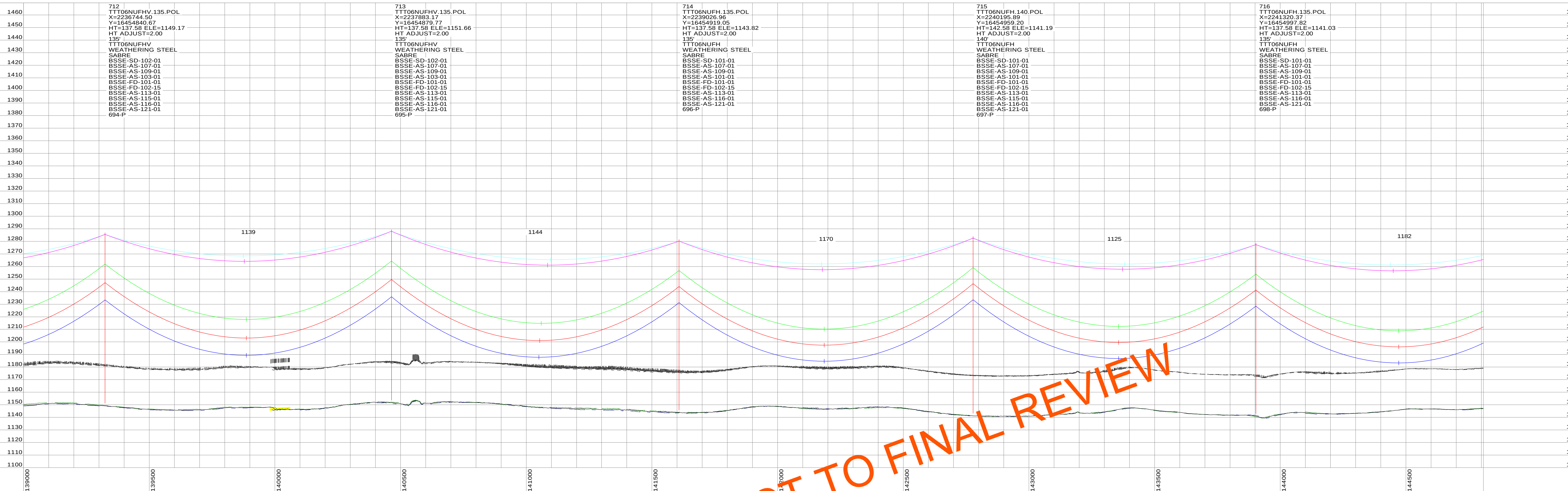
BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT. HORIZ. SCALE
40.0 FT. VERT. SCALE
NORTH

DWG. NO.
BSSE-PP-104-31
REVISION: N
136508

EXHIBIT 4

PLS-CADD DRAWING



PRELIMINARY SUBJECT TO FINAL REVIEW

STRS: 712 - 716

20160505
PRELIMINARY
SUBJECT TO
FINAL REVIEW

POWER ENGINEERS

REVISIONS					
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15
REV	DESCRIPTION	DWN	DGN	CHK	DATE

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA

CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

BSS+E
Big Stone South to Ellendale

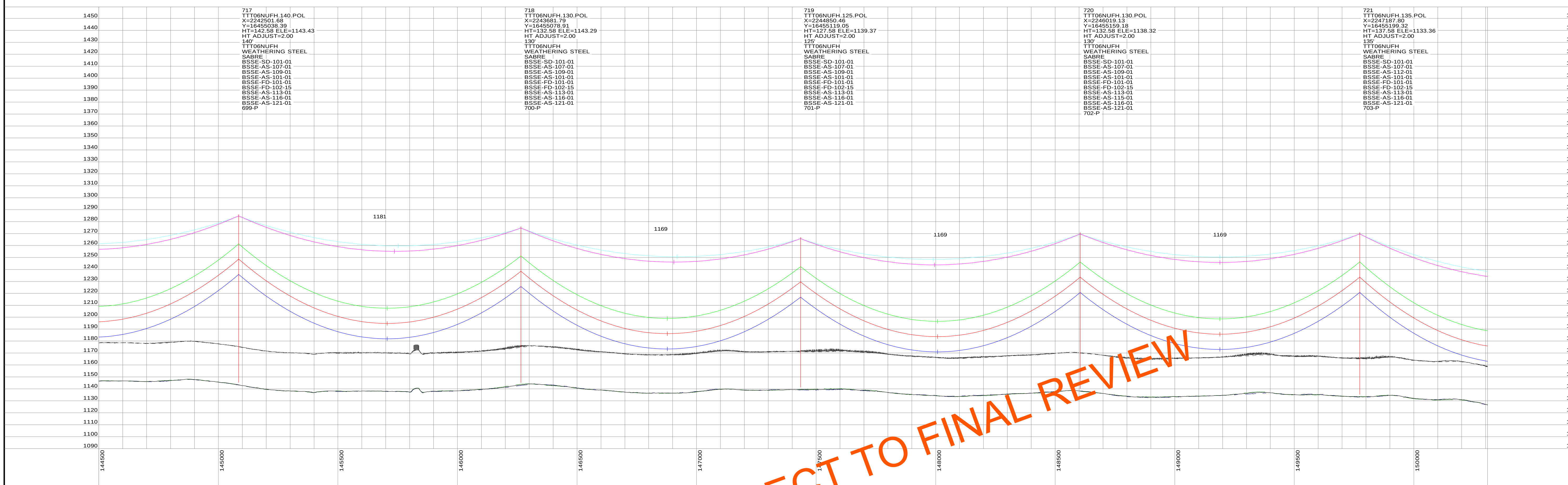
BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT. HORIZ. SCALE
40.0 FT. VERT. SCALE
NORTH

DWG. NO.
BSSE-PP-104-32
REVISION: N
136508

EXHIBIT 4

PLS-CADD DRAWING



PRELIMINARY SUBJECT TO FINAL REVIEW

STRS: 717 - 721

20160505
PRELIMINARY
SUBJECT TO
FINAL REVIEW

POWER ENGINEERS

REVISIONS					
REV	DESCRIPTION	DWN	DGN	CHK	DATE
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA
CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

BSS+E Big Stone South to Ellendale

BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT. HORIZ. SCALE
40.0 FT. VERT. SCALE
NORTH

DWG. NO.
BSSE-PP-104-33
REVISION: N
136508

EXHIBIT 4

STRS: 722 - 726

20160505
PRELIMINARY
SUBJECT TO
FINAL REVIEW

POWER ENGINEERS

REV	DESCRIPTION	DWN	DGN	CHK	DATE
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA
CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

BSS+E Big Stone South to Ellendale

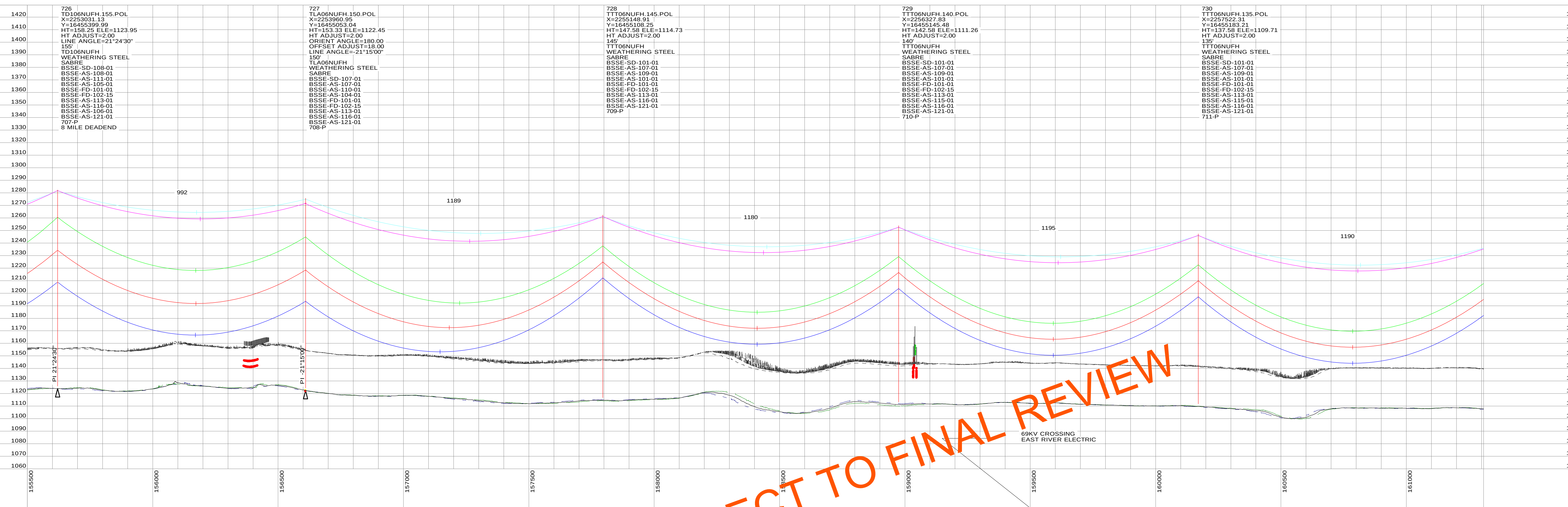
BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

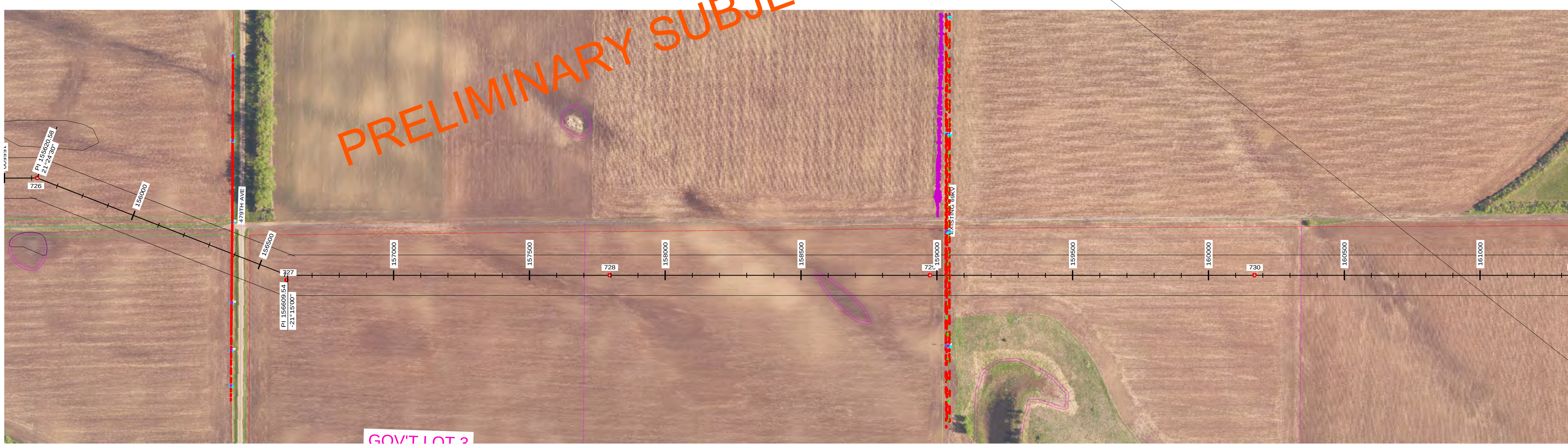
200.0 FT. HORIZ. SCALE
40.0 FT. VERT. SCALE
NORTH

DWG. NO.
BSSE-PP-104-34
REVISION: N
136508

EXHIBIT 4

PLS-CADD DRAWING





STRS: 726 - 730

20160505
PRELIMINARY
SUBJECT TO
FINAL REVIEW

POWER ENGINEERS

REVISIONS					
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15
REV	DESCRIPTION	DWN	DGN	CHK	DATE

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA
CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

BSS+E Big Stone South to Ellendale

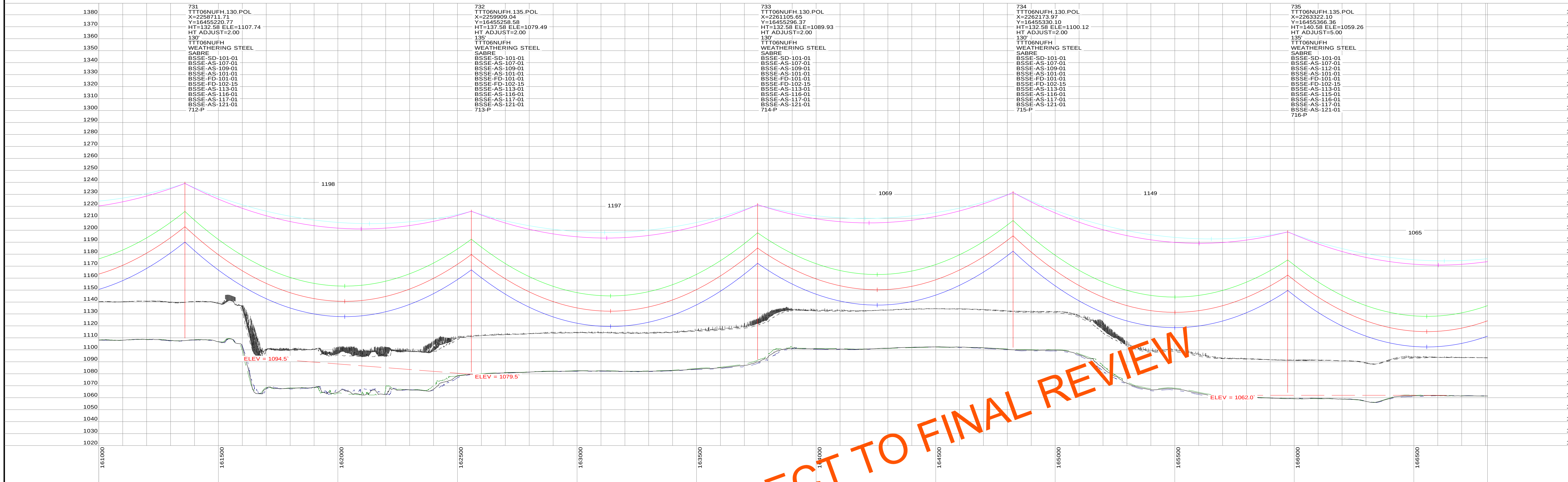
BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT. HORIZ. SCALE
40.0 FT. VERT. SCALE
NORTH

DWG. NO.
BSSE-PP-104-35
REVISION: N
136508

EXHIBIT 4

PLS-CADD DRAWING



STRS: 731 - 735

20160505
PRELIMINARY
SUBJECT TO
FINAL REVIEW

POWER ENGINEERS

REVISIONS					
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15
REV	DESCRIPTION	DWN	DGN	CHK	DATE

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA
CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

BSSE
Big Stone South to Ellendale

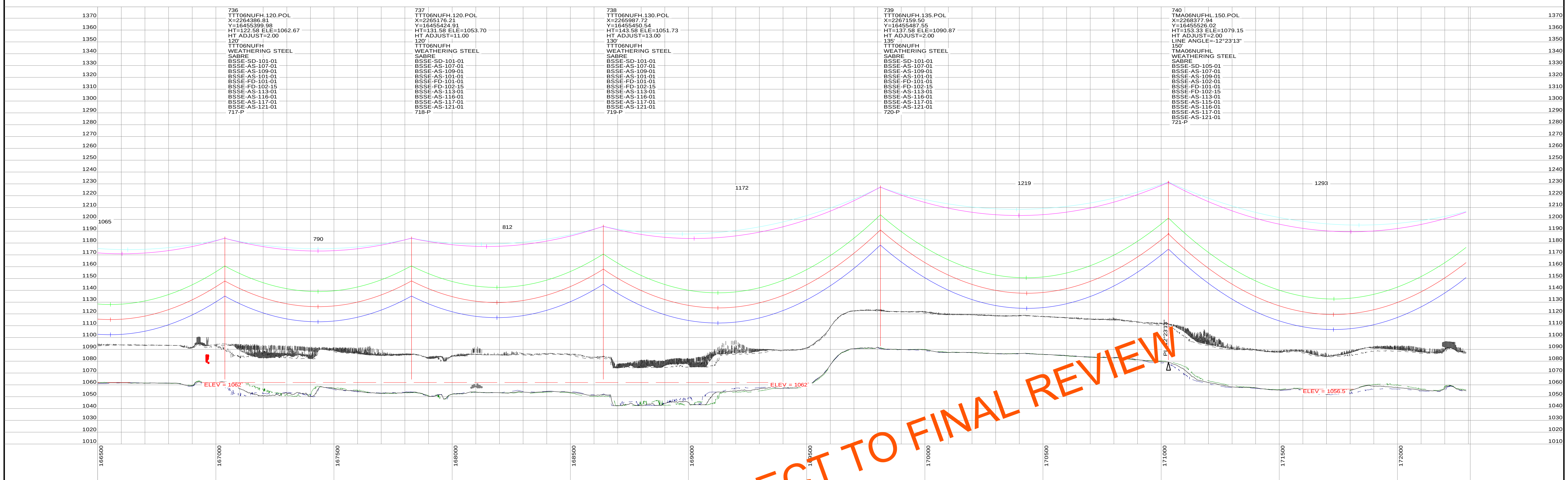
BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT. HORIZ. SCALE
40.0 FT. VERT. SCALE
NORTH

DWG. NO.
BSSE-PP-104-36
REVISION: N
136508

EXHIBIT 4

PLS-CADD DRAWING



PRELIMINARY SUBJECT TO FINAL REVIEW

STRS: 736 - 740

20160505
PRELIMINARY
SUBJECT TO
FINAL REVIEW

POWER ENGINEERS

REVISIONS					
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15
REV	DESCRIPTION	DWN	DGN	CHK	DATE

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA

CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

BSS+E
Big Stone South to Ellendale

BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT. HORIZ. SCALE
40.0 FT. VERT. SCALE

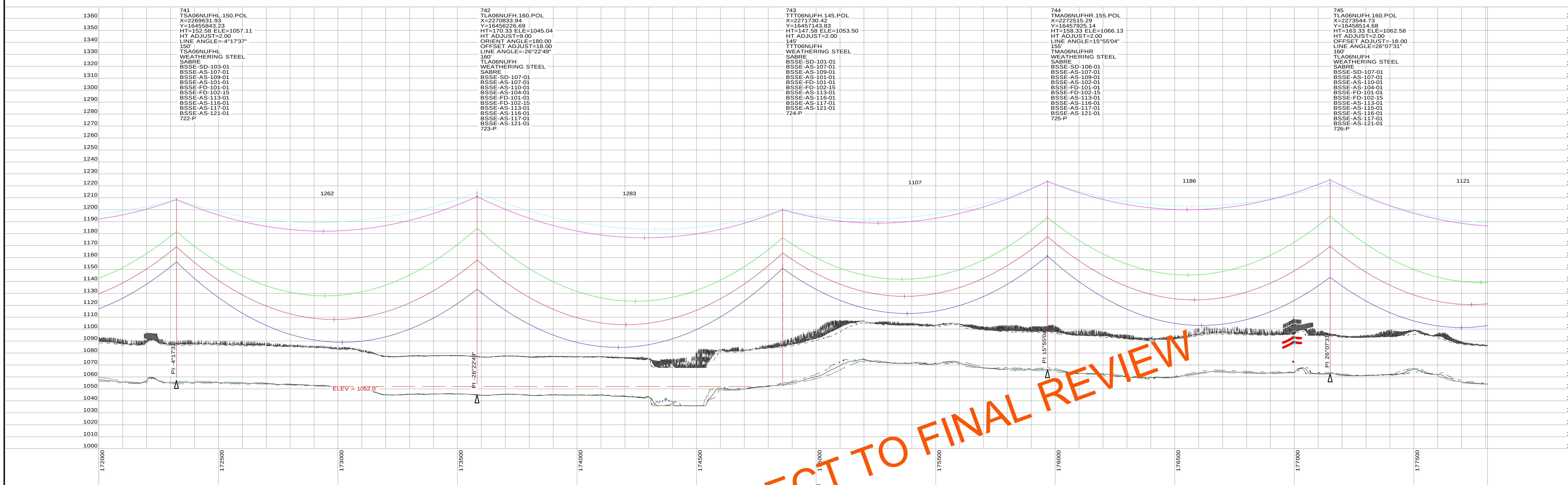
NORTH

DWG. NO.
BSSE-PP-104-37

REVISION: N

136508

EXHIBIT 4



STRS: 741 - 745

20160505
PRELIMINARY
SUBJECT TO
FINAL REVIEW

POWER ENGINEERS

REV	DESCRIPTION	DWN	DGN	CHK	DATE
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15

REVISIONS

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA

CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

BSS+E Big Stone South to Ellendale

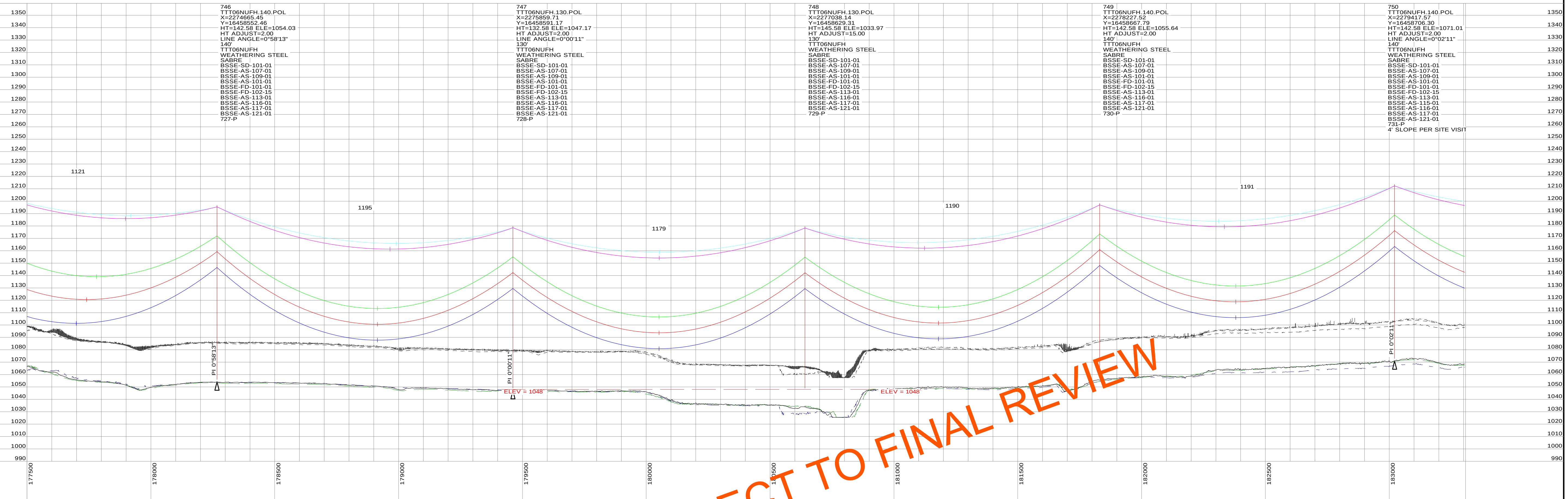
BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

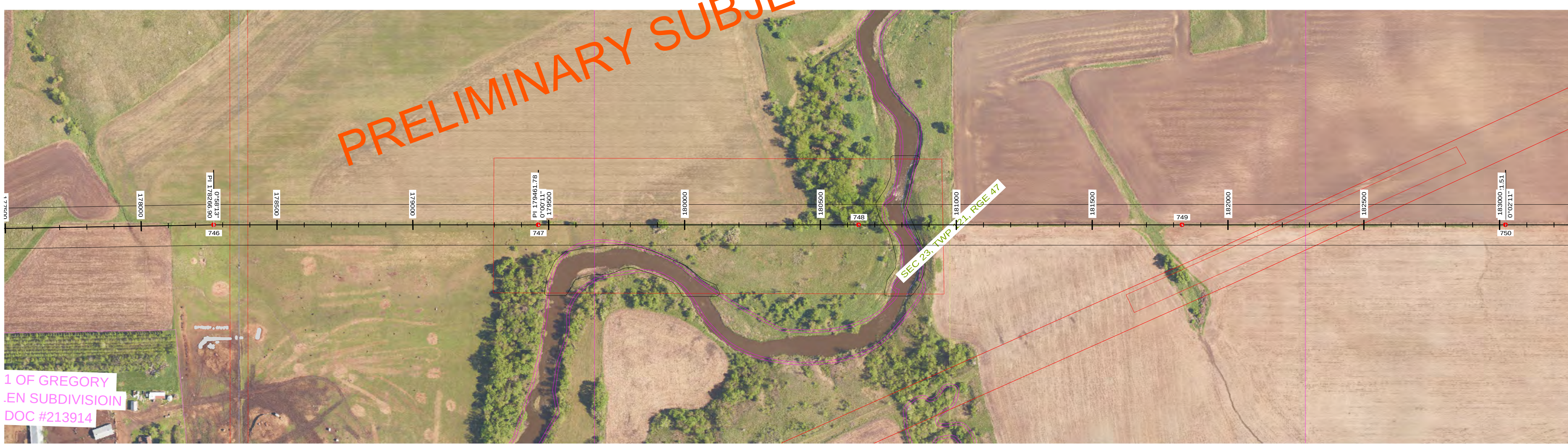
200.0 FT. HORIZ. SCALE
40.0 FT. VERT. SCALE
NORTH

DWG. NO.
BSSE-PP-104-38
REVISION: N
136508

EXHIBIT 4

PLS-CADD DRAWING





STRS: 746 - 750

20160505
PRELIMINARY
SUBJECT TO
FINAL REVIEW

POWER ENGINEERS

REVISIONS					
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15
REV	DESCRIPTION	DWN	DGN	CHK	DATE

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA
CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

BSSE
Big Stone South to Ellendale

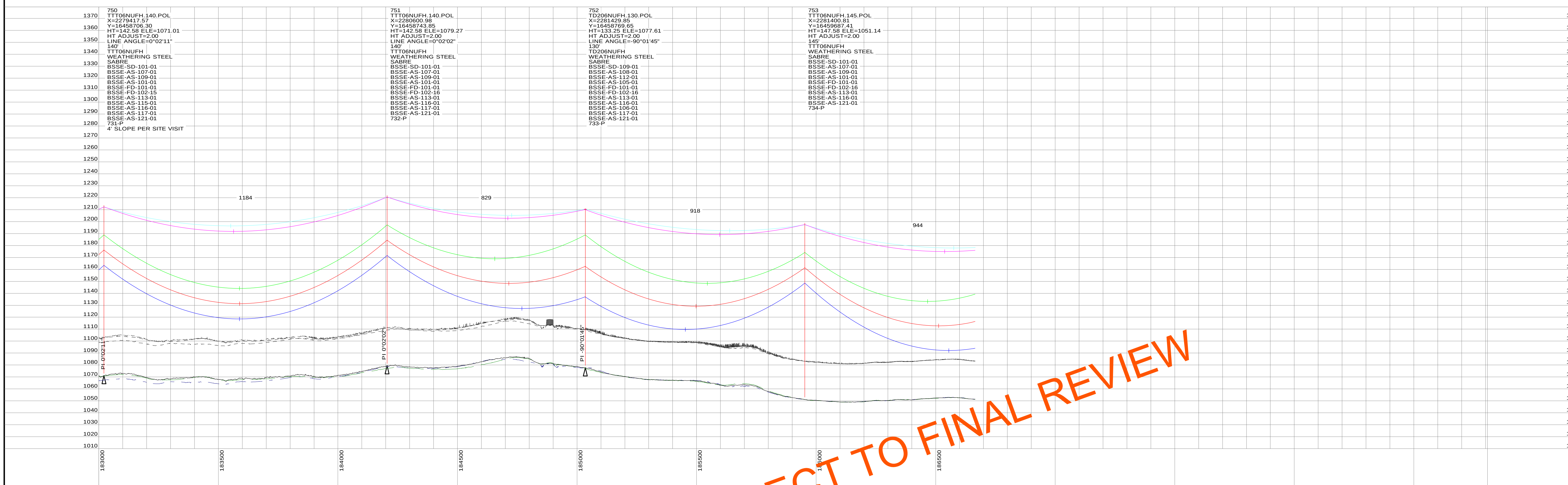
BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT. HORIZ. SCALE
40.0 FT. VERT. SCALE
NORTH

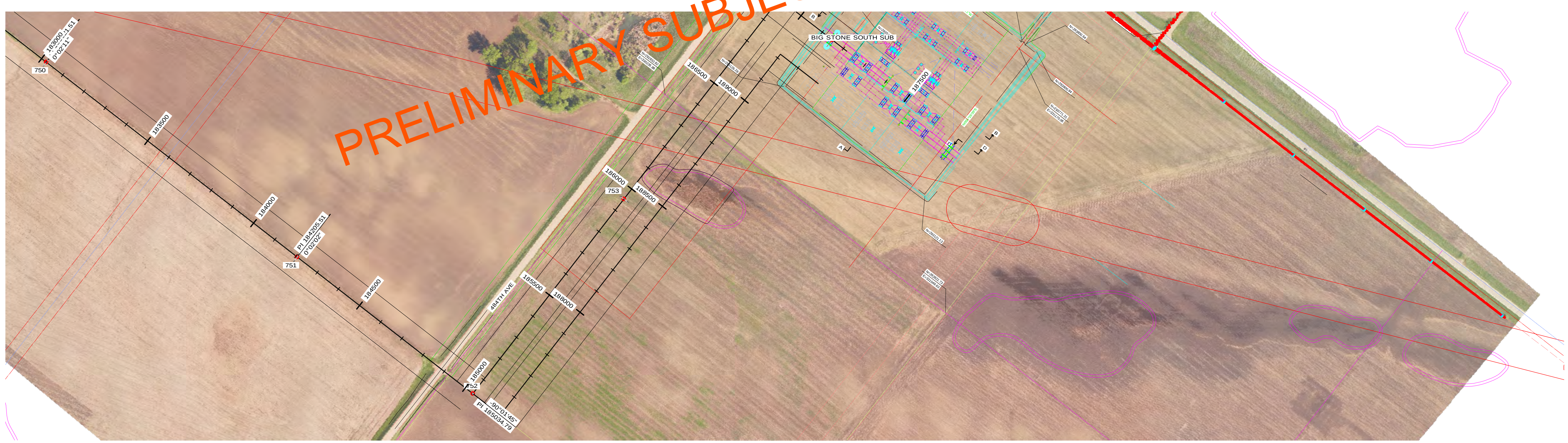
DWG. NO.
BSSE-PP-104-39
REVISION: N
136508

EXHIBIT 4

PLS-CADD DRAWING



PRELIMINARY SUBJECT TO FINAL REVIEW



STRS: 750 - 753

20160505
PRELIMINARY
SUBJECT TO
FINAL REVIEW

POWER ENGINEERS

REV	DESCRIPTION	DWN	DGN	CHK	DATE
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15

REVISIONS

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA

CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
SHIELD WIRE: 1-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
OPGW: 1-DN0-10523
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
GROUND CLEARANCE LINE: 30 FT
COORDINATE SYSTEM: UTM ZONE 14N, US FT

BSS+E
Big Stone South to Ellendale

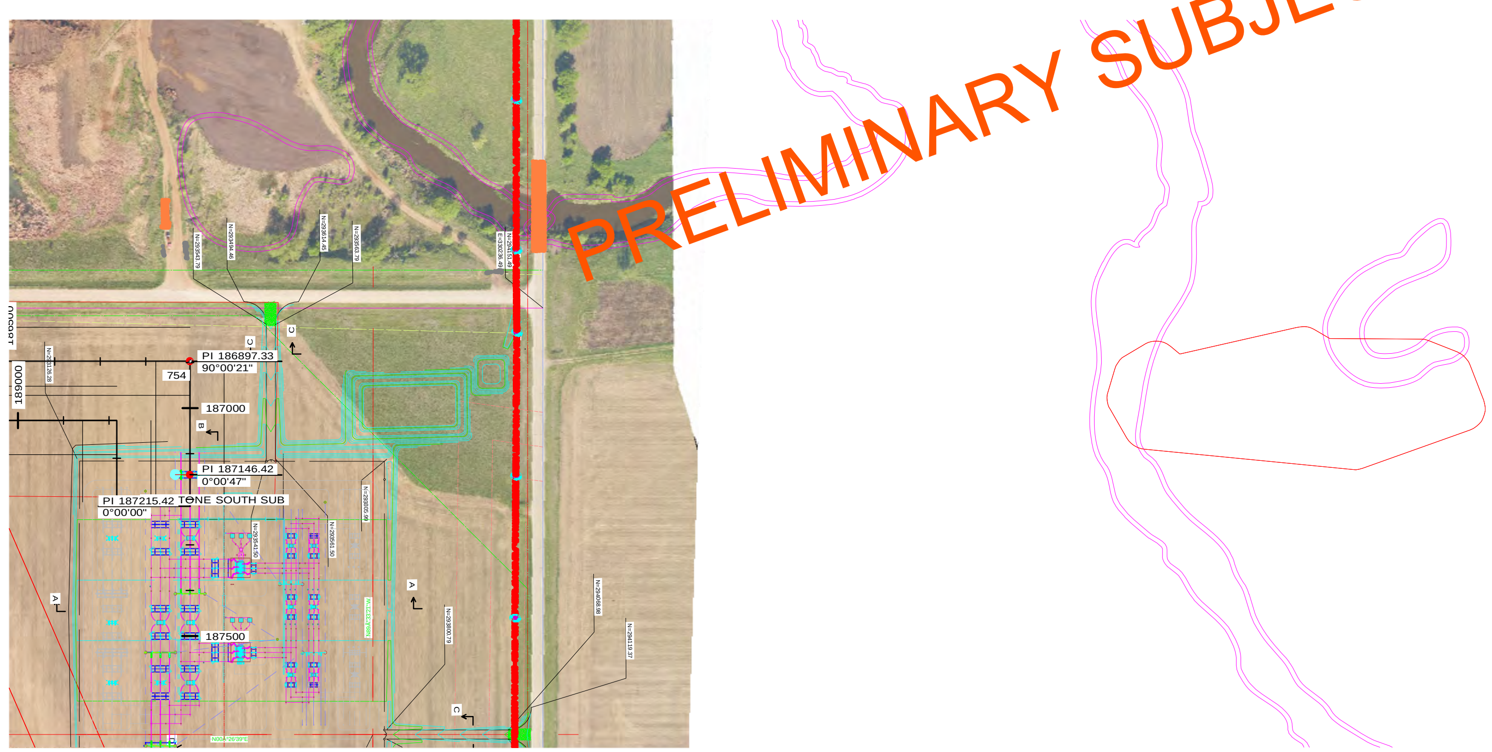
BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT. HORIZ. SCALE
40.0 FT. VERT. SCALE
NORTH

DWG. NO.
BSSE-PP-104-40
REVISION: N
136508

EXHIBIT 4

PLS-CADD DRAWING



STRS: 754 - BIG STONE SOUTH SUB

20160505
PRELIMINARY
SUBJECT TO
FINAL REVIEW

POWER ENGINEERS

REV	DESCRIPTION	DWN	DGN	CHK	DATE
N	V24: REVISED PER REVIEW	GMD	GMD		05/05/16
M	V23: ISSUED FOR ELECTRICAL BID	GMD	GMD	DJF	02/18/16
L	V22: REVISED STRS 683-P & 684-P	GMD	GMD		12/10/15
K	V21: REVISED STR 735-P LOCATION	GMD	GMD		11/13/15
J	V20: REVISED PER FIELD REVIEW	GMD	GMD		08/28/15

APPROVALS	DATE
DRAWN BY: ---	
DESIGN BY: ---	
CHECKED BY: ---	
APPROVED BY: ---	

DESIGN DATA
CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, CREEP
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GROUND CLEARANCE LINE: 30 FT
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BSS+E
Big Stone South to Ellendale

BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT. HORIZ. SCALE
40.0 FT. VERT. SCALE
NORTH

DWG. NO.
BSSE-PP-104-41
REVISION: N
136508

EXHIBIT 4