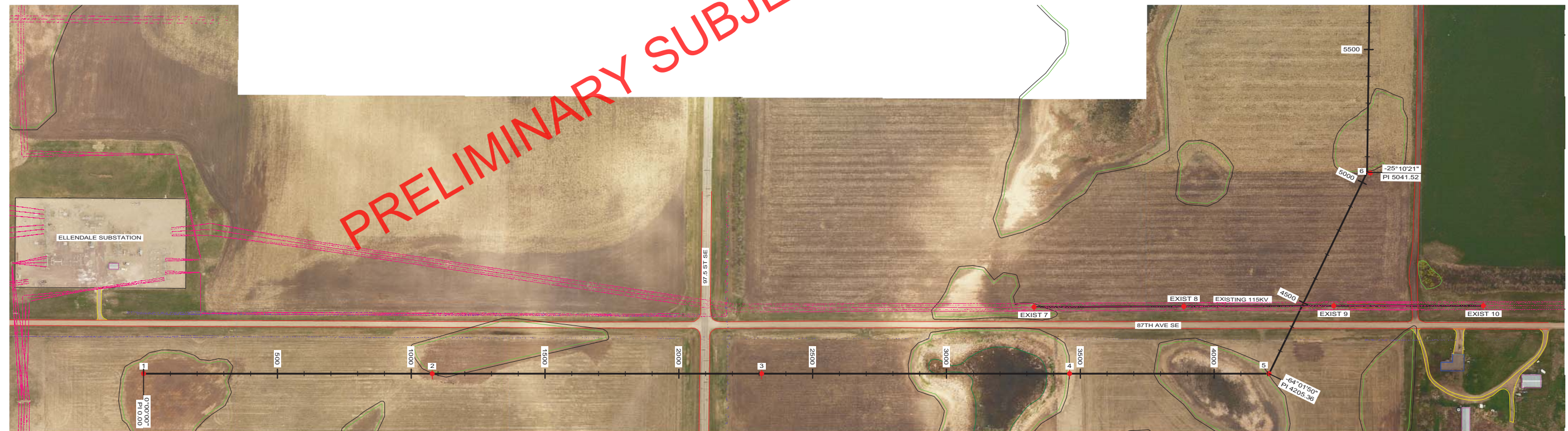
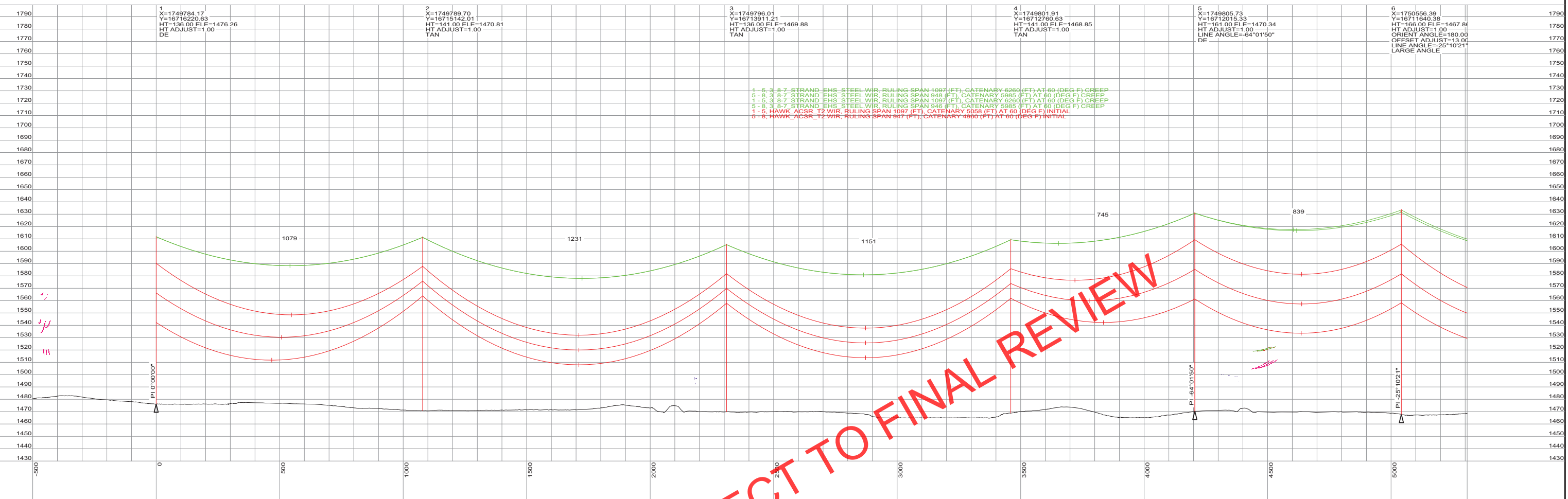


APPENDIX B

PLAN AND PROFILE

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PRELIMINARY
SUBJECT TO
FINAL REVIEW
10/04/2013



REVISIONS					
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E	FOR SD REVIEW / NO ND REVISIONS	JRC	JRC	SMH	09/24/13
D	REISSUED FOR ND REVIEW	JRC	JRC	SMH	09/04/13
C	REISSUED FOR ND REVIEW	JRC	JRC	SMH	08/22/13
B	ISSUED FOR ND REVIEW	JRC	JRC	SMH	06/28/13
REV	DESCRIPTION	DWN	DGN	CHK	DATE

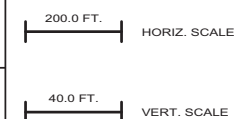
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APPROVED BY:	

DATE
10/04/13
10/04/13
10/04/13

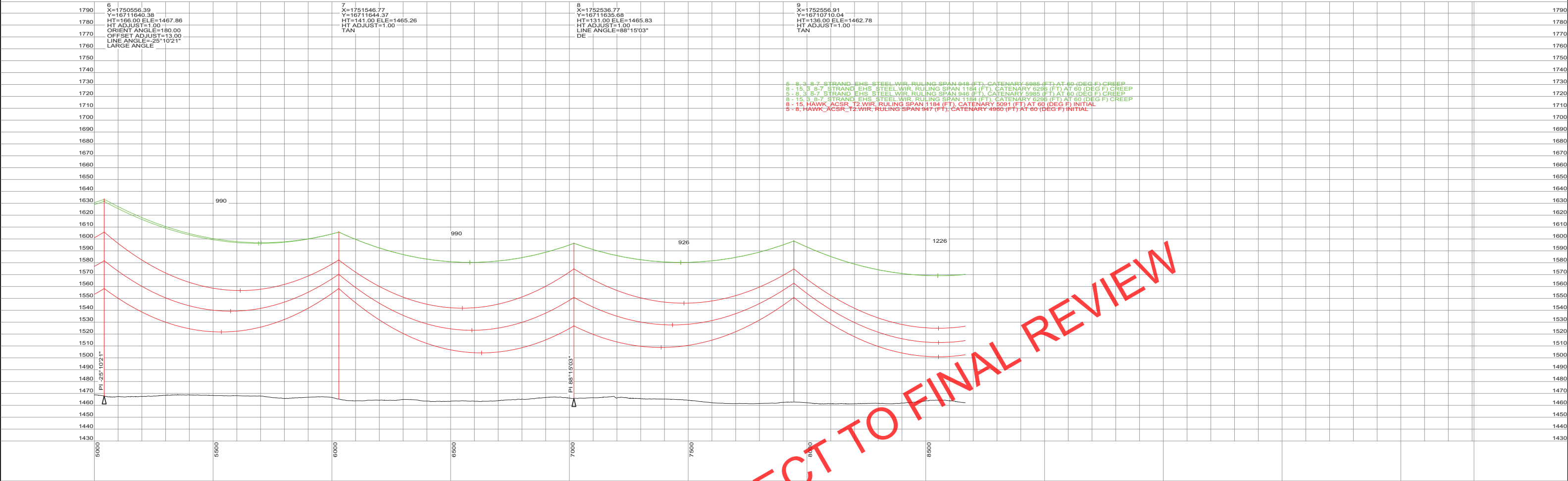
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DESIGN TENSION: 18% @ 0 F, FINAL
SHIELD WIRE: 2-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
MIN. GROUND CLEARANCE: 30 FT
CONDUCTOR SHOWN: 212 F, MAX SAG
COORDINATE SYSTEM: UTM ZONE 14N, US FT



BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE



DWG. NO.
P1-1
REVISION: F
127156



PRELIMINARY
SUBJECT TO
FINAL REVIEW
10/04/2013



REVISIONS				
F	FOR REVIEW, STR 1-7 REVISED	JRC	JRC	SMH 10/04/13
E	FOR SD REVIEW / NO ND REVISIONS	JRC	JRC	SMH 09/24/13
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C	REISSUED FOR ND REVIEW	JRC	JRC	SMH 08/22/13
B	ISSUED FOR ND REVIEW	JRC	JRC	SMH 06/28/13
REV	DESCRIPTION	DWN	DGN	CHK DATE

APPROVALS

DATE

DESIGN DATA



BIG STONE SOUTH - ELLENDALE

345 KV TRANSMISSION LINE

200.0 FT.

HORIZ. SCALE

40.0 FT.

VERT. SCALE

NORTH

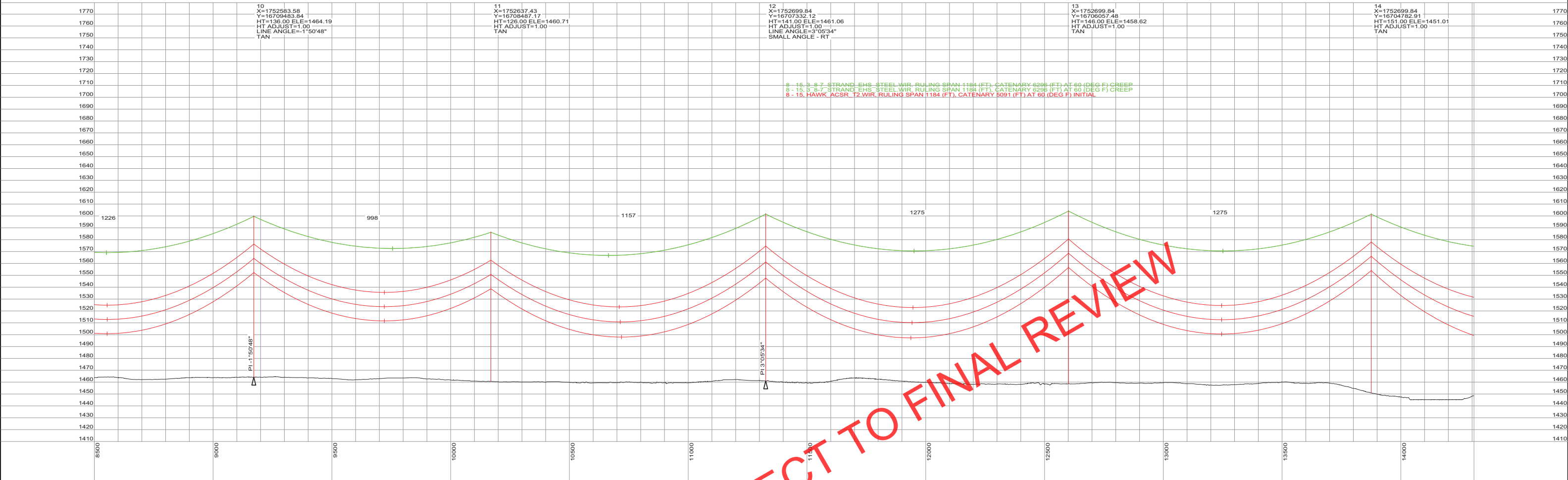
DWG. NO.
P1-2
REVISION: F

127156

Montana-Dakota and Otter Tail Power

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October 2013



PRELIMINARY
SUBJECT TO
FINAL REVIEW
10/04/2013



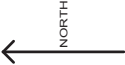
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REV	DESCRIPTION	DWN	DGN	CHK	DATE

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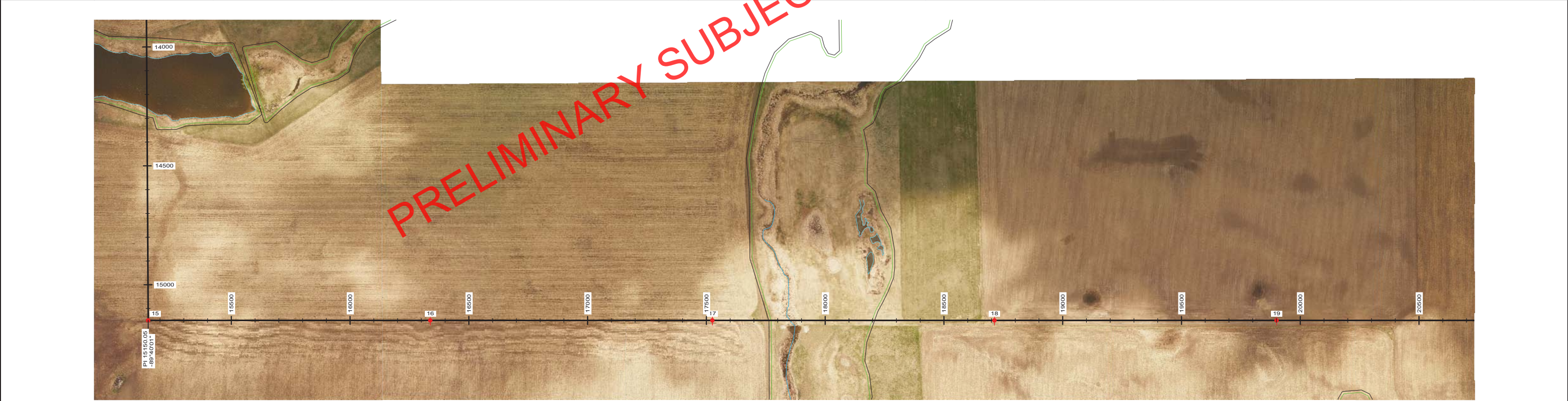
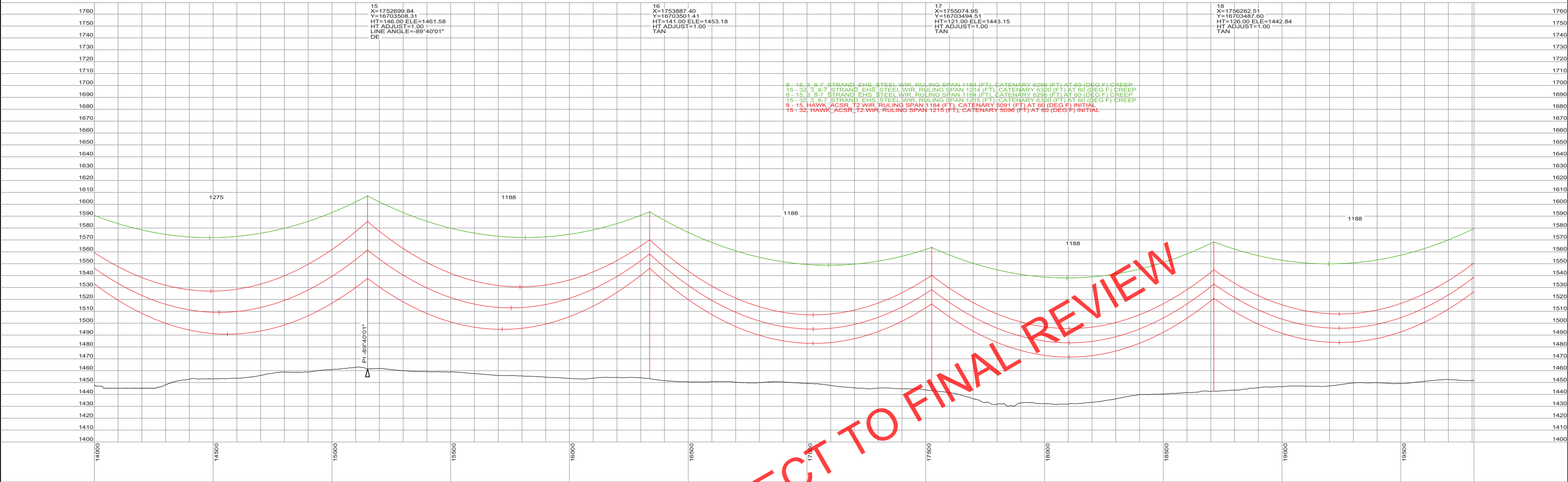
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DESIGN TENSION: 18% @ 0 F, FINAL	
SHIELD WIRE: 2-3/8" 7 STRAND EHS STEEL	
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP	
MIN. GROUND CLEARANCE: 30 FT	
CONDUCTOR SHOWN: 212 F, MAX SAG	
COORDINATE SYSTEM: UTM ZONE 14N, US FT	



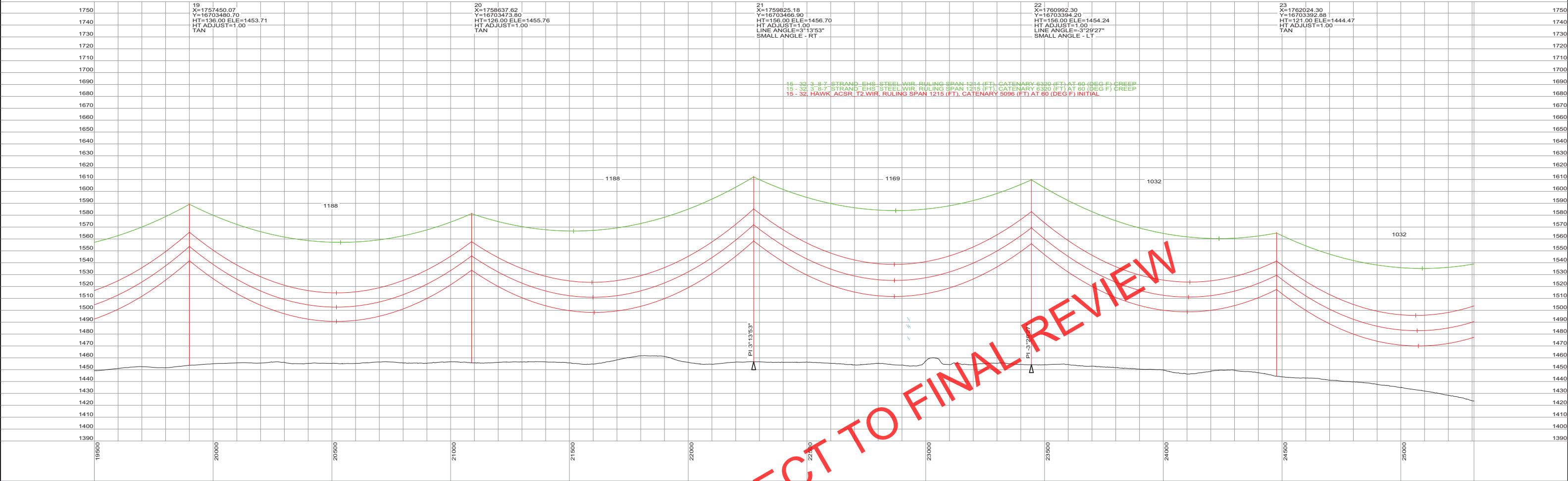
BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE



DWG. NO.
P1-3
REVISION: F
127156



PRELIMINARY SUBJECT TO FINAL REVIEW 10/04/2013		REVISIONS					APPROVALS	DATE	DESIGN DATA	 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. P1-4 REVISION: F 127156	
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		C	REISSUED FOR ND REVIEW	JRC	JRC	SMH	08/22/13	CHECKED BY: SMH	10/04/13				
		B	ISSUED FOR ND REVIEW	JRC	JRC	SMH	06/28/13						
		REV	DESCRIPTION	DWN	DGN	CHK	DATE	APPROVED BY:					



PRELIMINARY
SUBJECT TO
FINAL REVIEW
10/04/2013



REVISIONS				
F	FOR REVIEW, STR 1-7 REVISED	JRC	JRC	SMH 10/04/13
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C	REISSUED FOR ND REVIEW	JRC	JRC	SMH 08/22/13
B	ISSUED FOR ND REVIEW	JRC	JRC	SMH 06/28/13
REV	DESCRIPTION	DWN	DGN	CHK DATE

APPROVALS	DATE	DESIGN DATA
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DESIGN BY: JRC	10/04/13	
CHECKED BY: SMH	10/04/13	
APPROVED BY:		



BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT.
HORIZ. SCALE

40.0 FT.
VERT. SCALE



NORTH

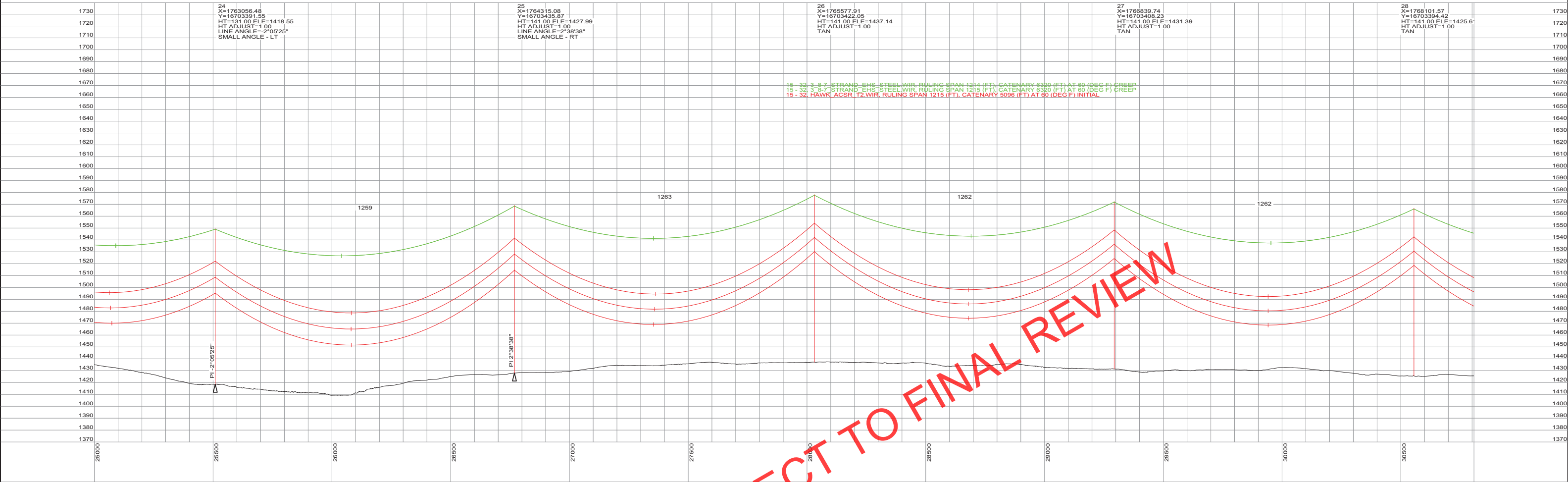
DWG. NO.
P1-5
REVISION: F

127156

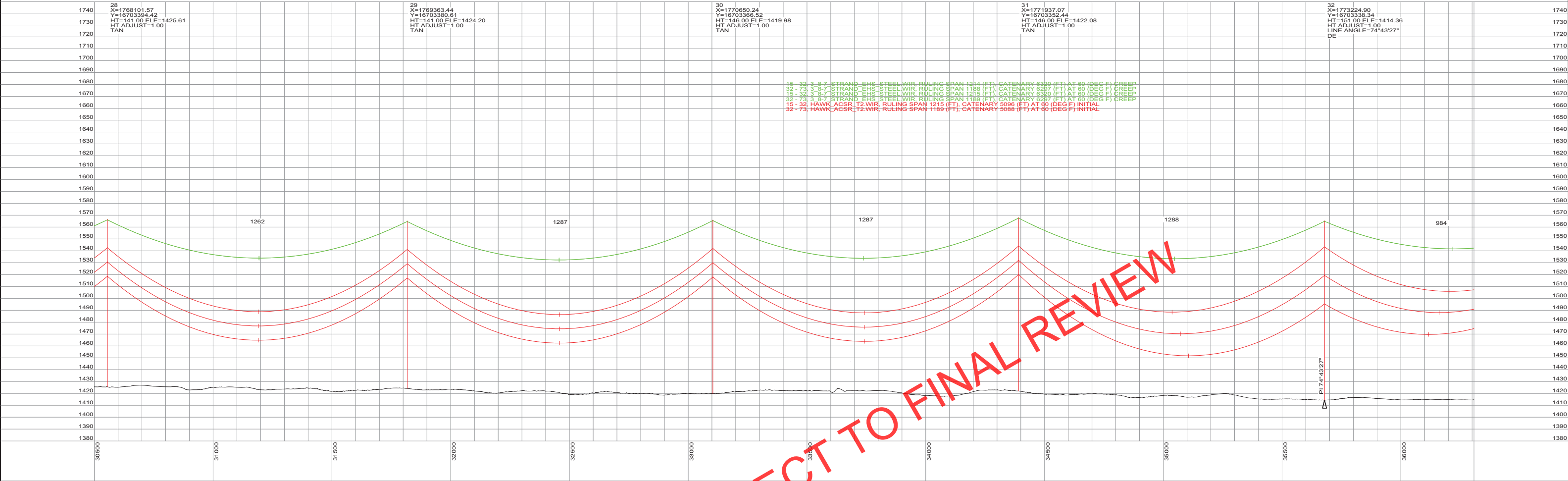
Montana-Dakota and Otter Tail Power

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October 2013



PRELIMINARY SUBJECT TO FINAL REVIEW 10/04/2013			REVISIONS					APPROVALS	DATE	DESIGN DATA	 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. P1-6 REVISION: F			
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			E	FOR SD REVIEW / NO ND REVISIONS	JRC	JRC	SMH	09/24/13	DESIGN BY: JRC	10/04/13							DWG. NO.	
			D	REISSUED FOR ND REVIEW	JRC	JRC	SMH	09/04/13										P1-6
			C	REISSUED FOR ND REVIEW	JRC	JRC	SMH	08/22/13										
			B	ISSUED FOR ND REVIEW	JRC	JRC	SMH	06/28/13	CHECKED BY: SMH	10/04/13					APPROVED BY:			127156
			REV	DESCRIPTION	DWN	DGN	CHK	DATE										



PRELIMINARY
SUBJECT TO
FINAL REVIEW
10/04/2013



REVISIONS					APPROVALS		DATE	DESIGN DATA
F	FOR REVIEW, STR 1-7 REVISED	JRC	JRC	SMH	10/04/13		CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR DESIGN TENSION: 18% @ 0 F, FINAL SHIELD WIRE: 2-3/8" 7 STRAND EHS STEEL DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP MIN. GROUND CLEARANCE: 30 FT CONDUCTOR SHOWN: 212 F, MAX SAG COORDINATE SYSTEM: UTM ZONE 14N, US FT	
E	FOR SD REVIEW / NO ND REVISIONS	JRC	JRC	SMH	09/24/13			
D	REISSUED FOR ND REVIEW	JRC	JRC	SMH	09/04/13			
C	REISSUED FOR ND REVIEW	JRC	JRC	SMH	08/22/13			
B	ISSUED FOR ND REVIEW	JRC	JRC	SMH	06/28/13			
REV	DESCRIPTION	DWN	DGN	CHK	DATE	APPROVED BY:		



BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT.
HORIZ. SCALE

40.0 FT.
VERT. SCALE

↑
NORTH

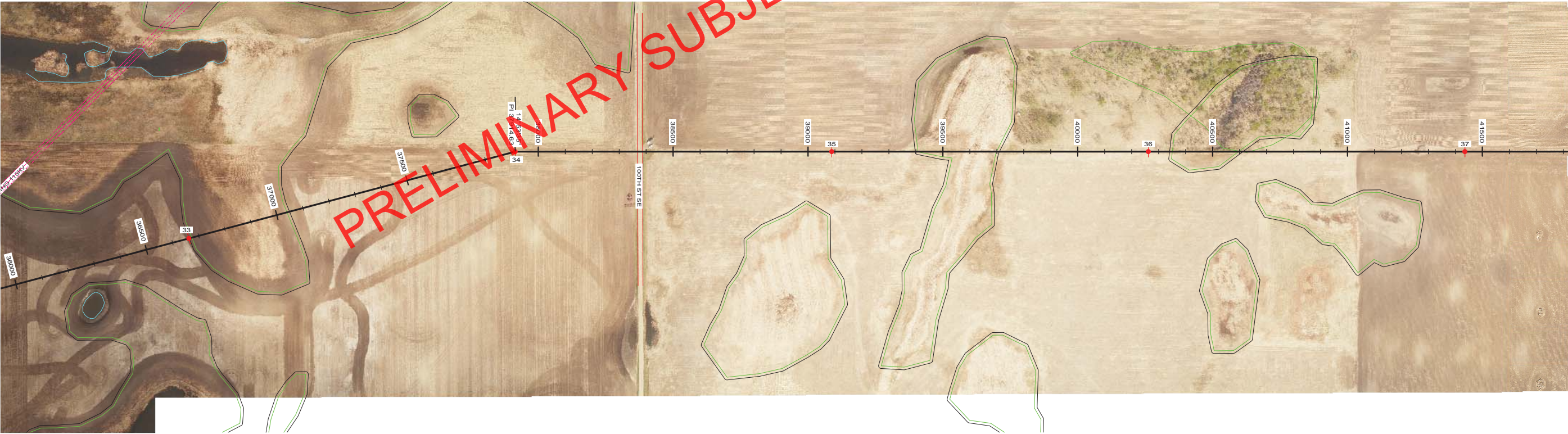
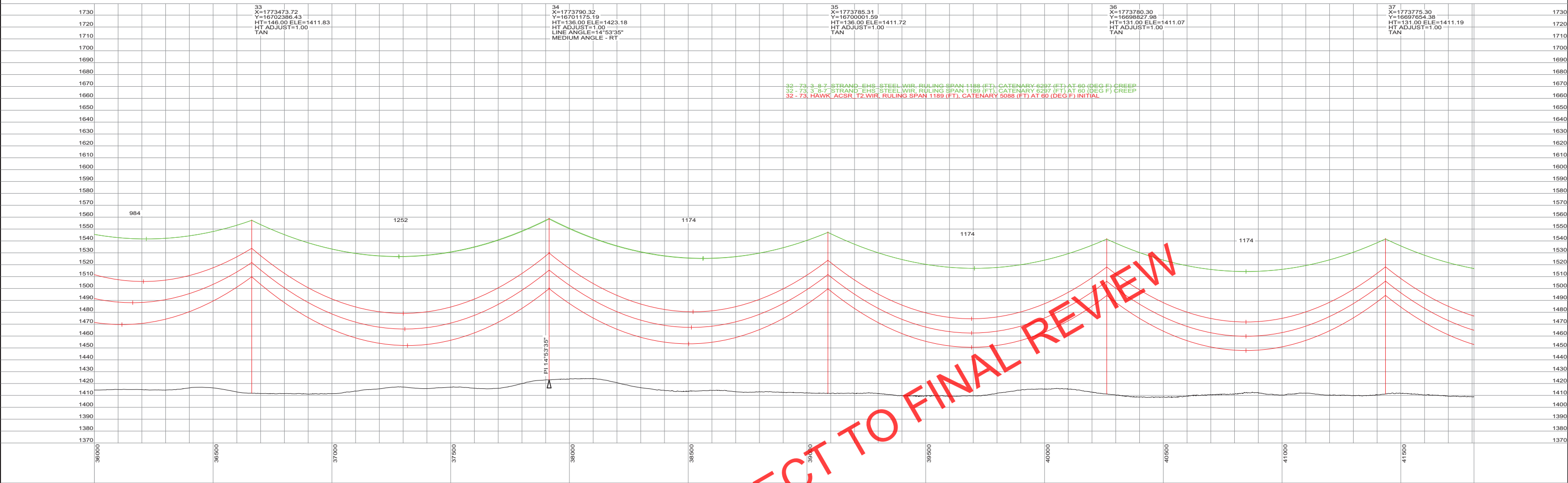
DWG. NO.
P1-7
REVISION: F

127156

Montana-Dakota and Otter Tail Power

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October 2013



PRELIMINARY
SUBJECT TO
FINAL REVIEW
10/04/2013



REVISIONS					
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E	FOR SD REVIEW / NO ND REVISIONS	JRC	JRC	SMH	09/24/13
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APPROVED BY:

DATE

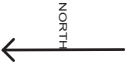
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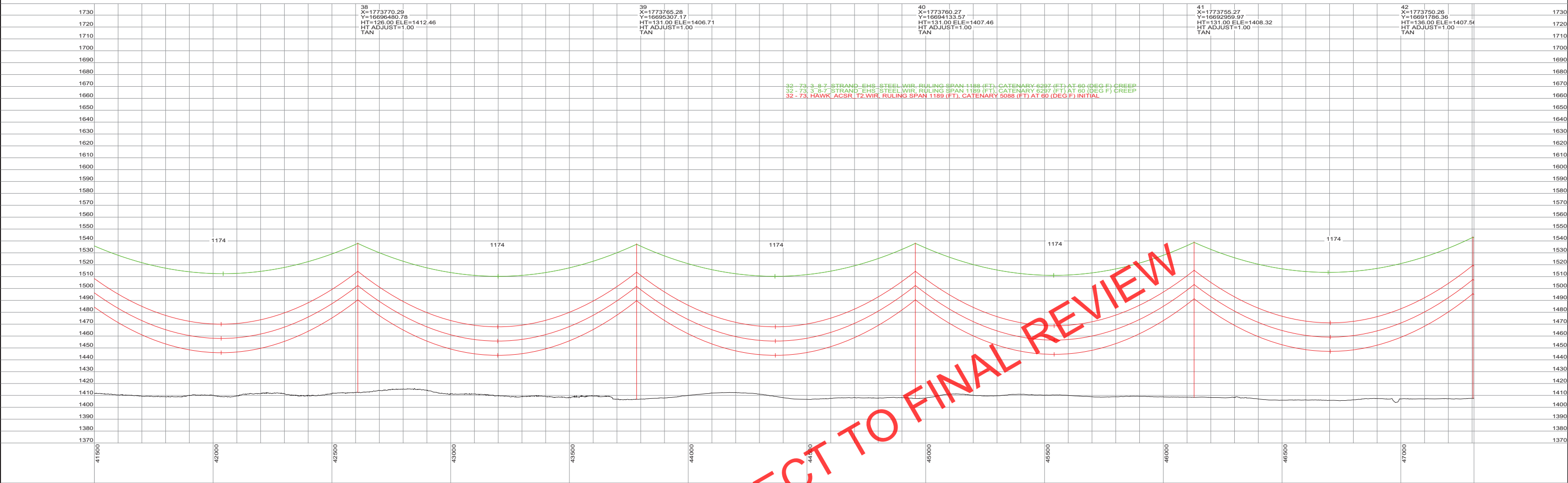
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DESIGN TENSION: 18% @ 0 F, FINAL
SHIELD WIRE: 2-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
MIN. GROUND CLEARANCE: 30 FT
CONDUCTOR SHOWN: 212 F, MAX SAG
COORDINATE SYSTEM: UTM ZONE 14N, US FT



BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE



DWG. NO.
P1-8
REVISION: F
127156



PRELIMINARY SUBJECT TO FINAL REVIEW 10/04/2013		REVISIONS				APPROVALS		DATE	DESIGN DATA CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR DESIGN TENSION: 18% @ 0 F, FINAL SHIELD WIRE: 2-3/8" 7 STRAND EHS STEEL DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP MIN. GROUND CLEARANCE: 30 FT CONDUCTOR SHOWN: 212 F, MAX SAG COORDINATE SYSTEM: UTM ZONE 14N, US FT
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		B	ISSUED FOR ND REVIEW	JRC	JRC	SMH	06/28/13		
		REV	DESCRIPTION	DWN	DGN	CHK	DATE		

BSS E

Big Stone South to Ellendale

BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT.

HORIZ. SCALE

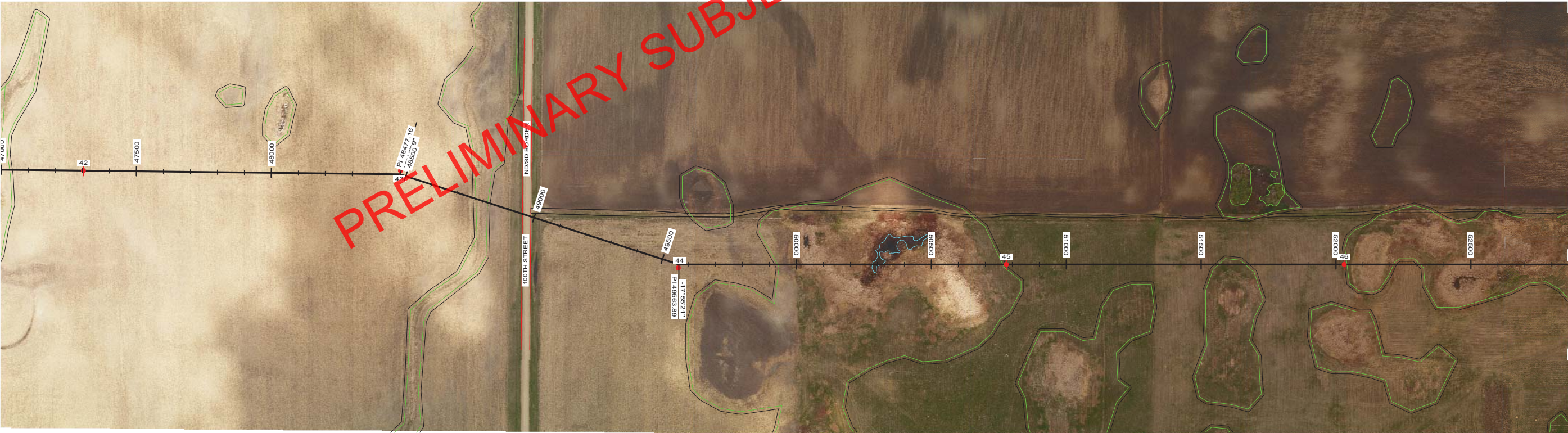
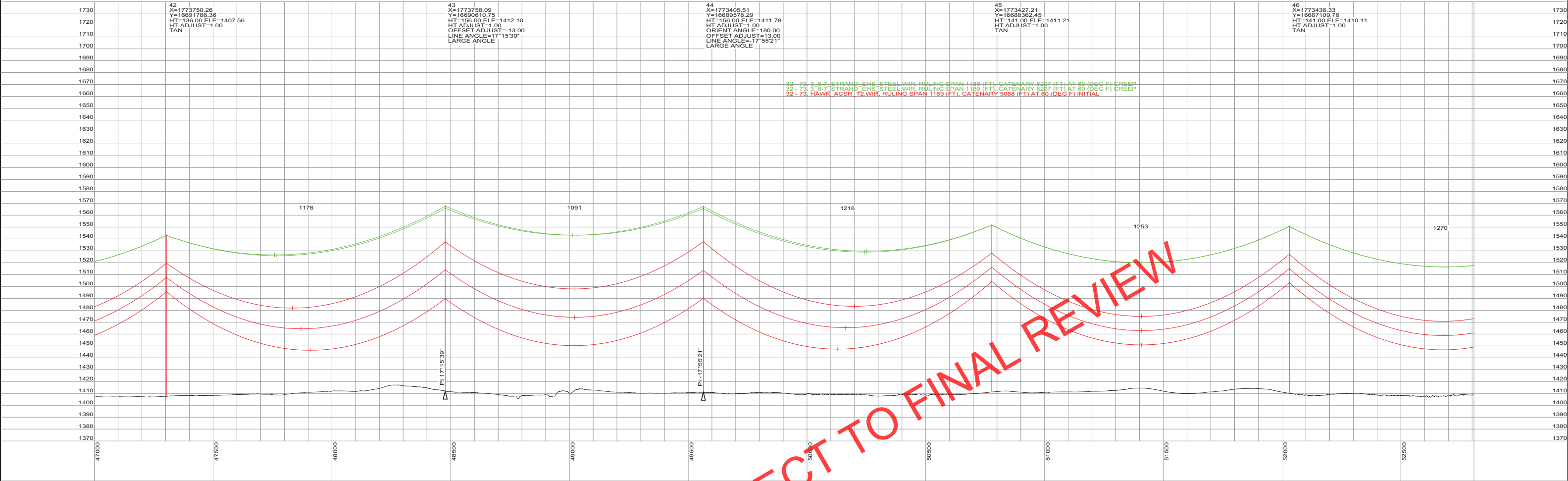
40.0 FT.

VERT. SCALE

NORTH

DWG. NO.
P1-9
REVISION: F

127156



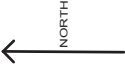
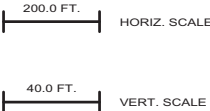
PRELIMINARY
SUBJECT TO
FINAL REVIEW
10/04/2013



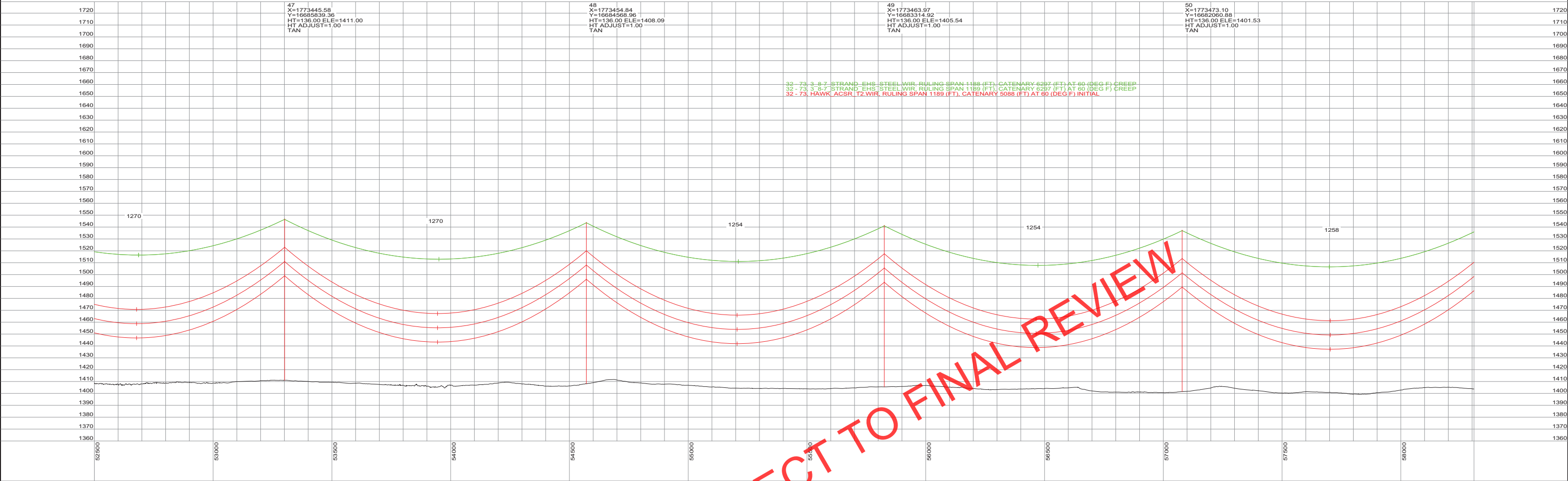
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BIG STONE SOUTH - ELENDALE
345 KV TRANSMISSION LINE



DWG. NO.
P1-10
REVISION: F
127156



PRELIMINARY
SUBJECT TO
FINAL REVIEW
10/04/2013

REVISIONS				
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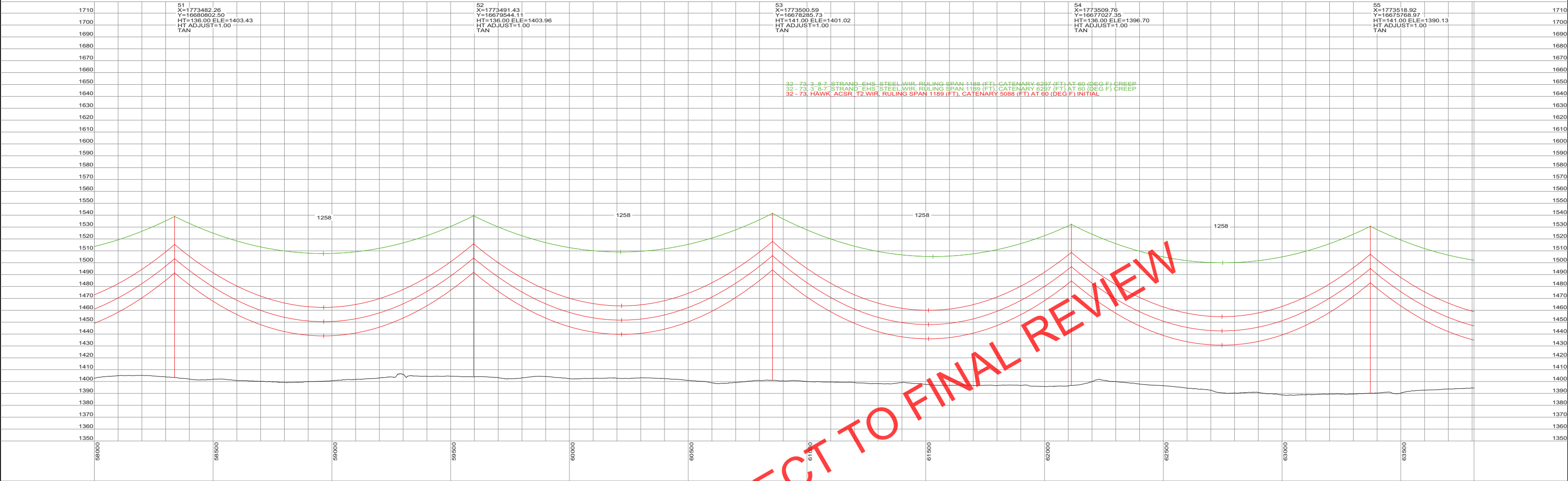
Big Stone South to Ellendale

BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT.
HORIZ. SCALE

40.0 FT.
VERT. SCALE

DWG. NO.
P1-11
REVISION: F
127156



PRELIMINARY
SUBJECT TO
FINAL REVIEW
10/04/2013



REVISIONS					APPROVALS		DATE	DESIGN DATA
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B	ISSUED FOR ND REVIEW	JRC	JRC	SMH	06/28/13			
REV	DESCRIPTION	DWN	DGN	CHK	DATE	APPROVED BY:		



BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT.

HORIZ. SCALE

40.0 FT.

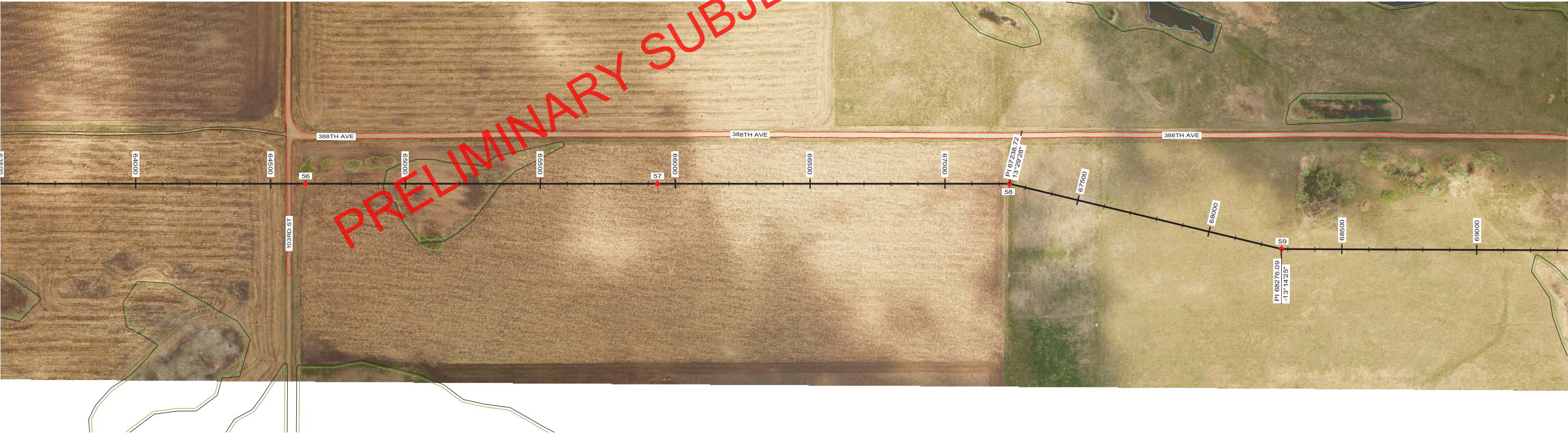
VERT. SCALE

NORTH

←

DWG. NO.
P1-12
REVISION: F

127156



PRELIMINARY
SUBJECT TO
FINAL REVIEW
10/04/2013



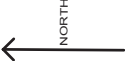
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B	ISSUED FOR ND REVIEW	JRC	JRC	SMH	06/28/13
REV	DESCRIPTION	DWN	DGN	CHK	DATE

APPROVALS		DATE
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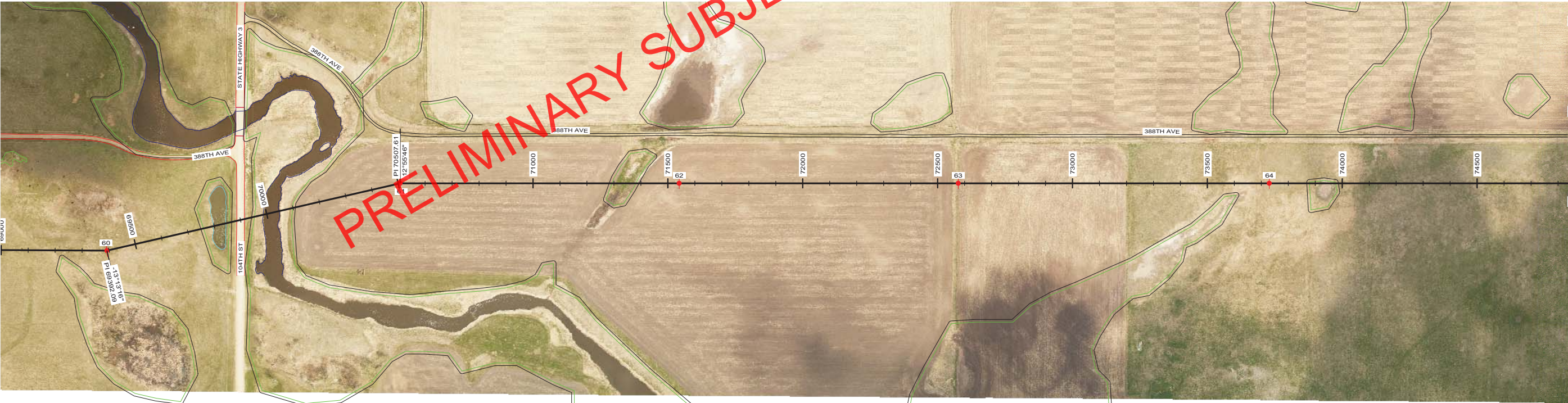
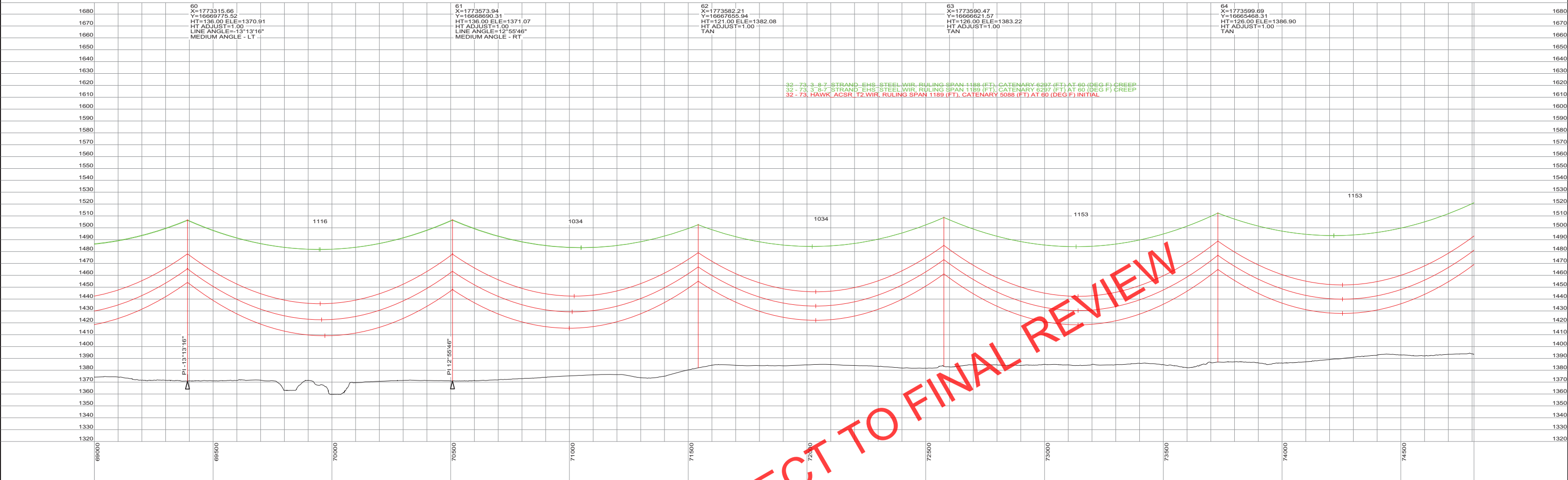
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SHIELD WIRE: 2-3/8" 7 STRAND EHS STEEL	
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP	
MIN. GROUND CLEARANCE: 30 FT	
CONDUCTOR SHOWN: 212 F, MAX SAG	
COORDINATE SYSTEM: UTM ZONE 14N, US FT	



BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE



DWG. NO.
P1-13
REVISION: F
127156



PRELIMINARY
SUBJECT TO
FINAL REVIEW
10/04/2013

REVISIONS				
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C	REISSUED FOR ND REVIEW	JRC	JRC	SMH 08/22/13
B	ISSUED FOR ND REVIEW	JRC	JRC	SMH 06/28/13
REV	DESCRIPTION	DWN	DGN	CHK DATE

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DESIGN BY: JRC		10/04/13	
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APPROVED BY:			

Big Stone South to Ellendale

BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT.

HORIZ. SCALE

40.0 FT.

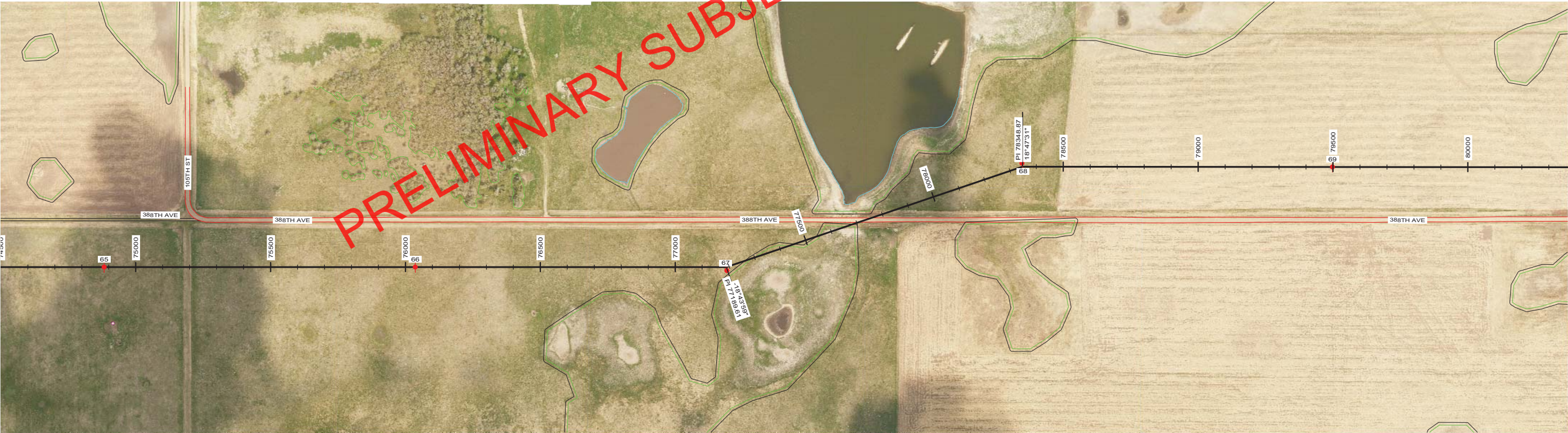
VERT. SCALE

NORTH

←

DWG. NO.
P1-14
REVISION: F

127156



PRELIMINARY
SUBJECT TO
FINAL REVIEW
10/04/2013

REVISIONS					APPROVALS	DATE	DESIGN DATA
F	FOR REVIEW, STR 1-7 REVISED	JRC	JRC	SMH	10/04/13	CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR DESIGN TENSION: 18% @ 0 F, FINAL SHIELD WIRE: 2-3/8" 7 STRAND EHS STEEL DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP MIN. GROUND CLEARANCE: 30 FT CONDUCTOR SHOWN: 212 F, MAX SAG COORDINATE SYSTEM: UTM ZONE 14N, US FT	
E	FOR SD REVIEW / NO ND REVISIONS	JRC	JRC	SMH	09/24/13		
D	REISSUED FOR ND REVIEW	JRC	JRC	SMH	09/04/13		
C	REISSUED FOR ND REVIEW	JRC	JRC	SMH	08/22/13		
B	ISSUED FOR ND REVIEW	JRC	JRC	SMH	06/28/13		
REV	DESCRIPTION	DWN	DGN	CHK	DATE	APPROVED BY:	

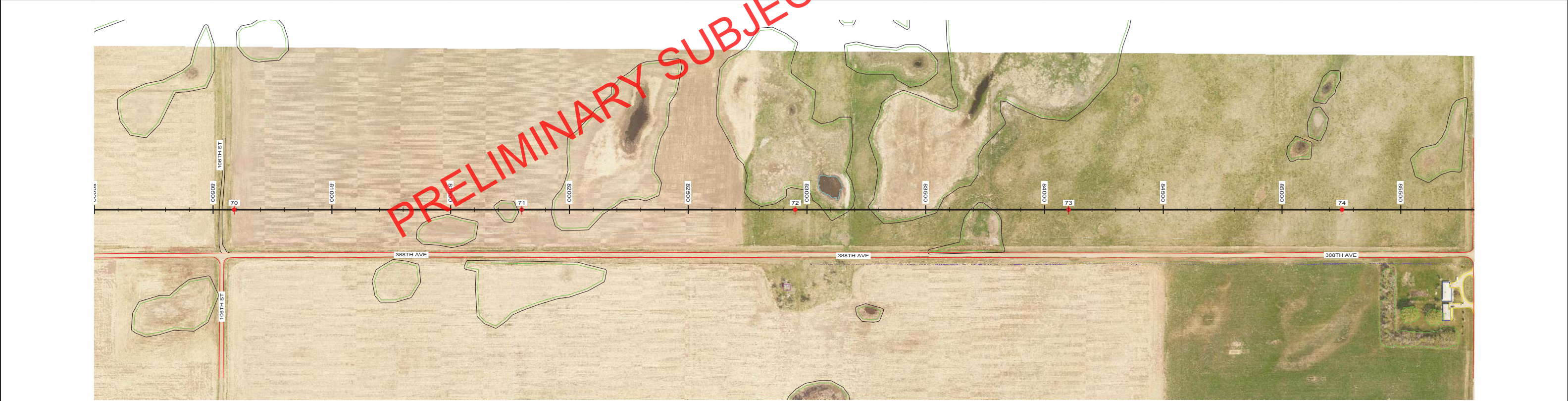
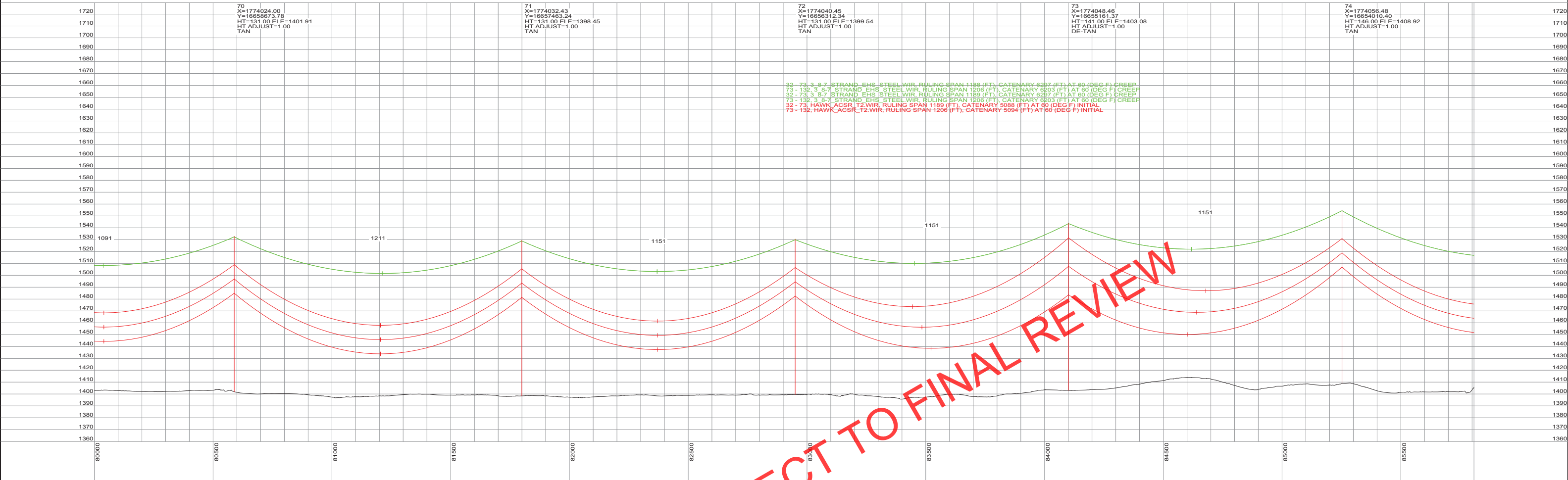
Big Stone South to Ellendale

BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

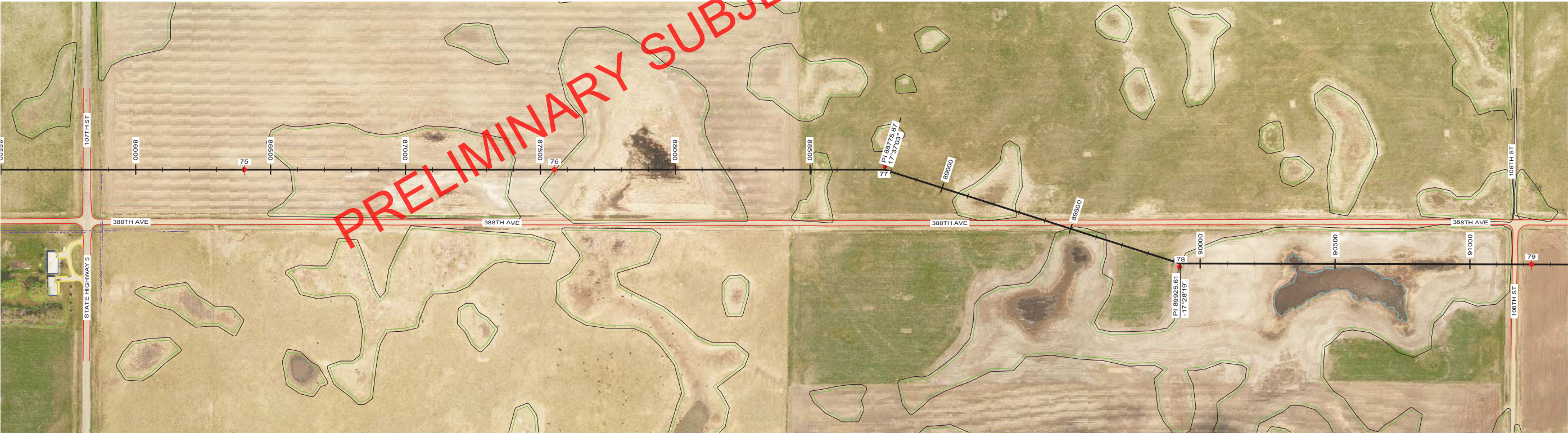
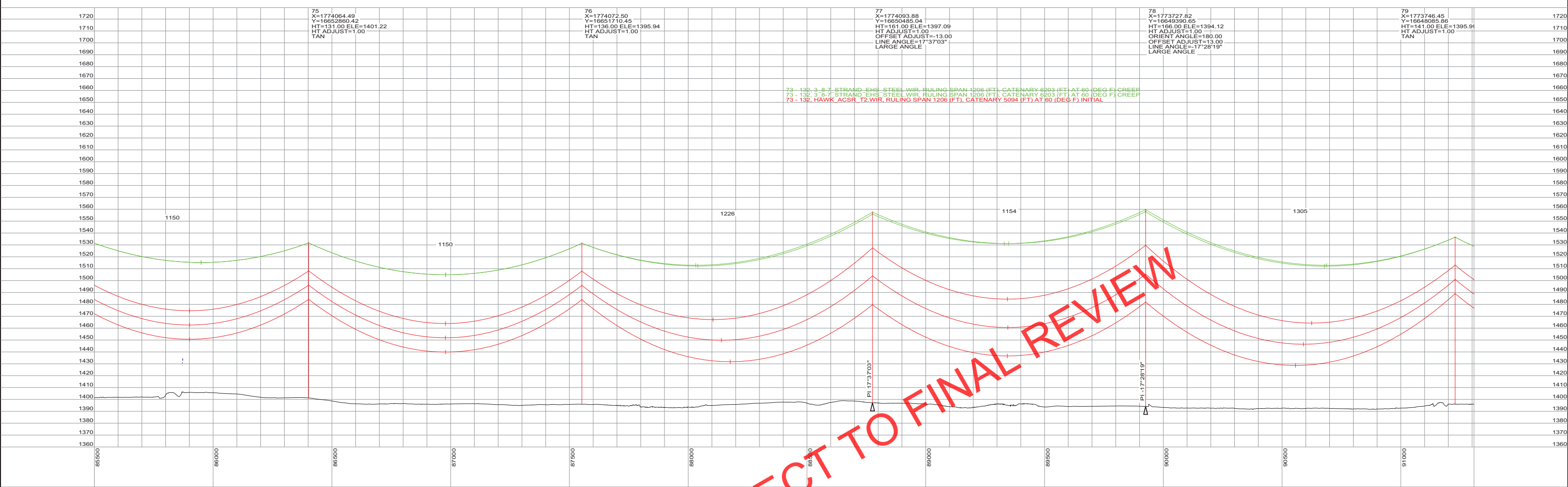
200.0 FT.
HORIZ. SCALE

40.0 FT.
VERT. SCALE

DWG. NO.
P1-15
REVISION: F
127156



PRELIMINARY SUBJECT TO FINAL REVIEW 10/04/2013		REVISIONS					APPROVALS	DATE	DESIGN DATA	 BIG STONE SOUTH - ELLENDALE 345 KV TRANSMISSION LINE	 HORIZ. SCALE  VERT. SCALE 	DWG. NO. P1-16 REVISION: F 127156	
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		E	FOR SD REVIEW / NO ND REVISIONS	JRC	JRC	SMH	09/24/13	DESIGN BY: JRC	10/04/13				
		D	REISSUED FOR ND REVIEW	JRC	JRC	SMH	09/04/13						
		C	REISSUED FOR ND REVIEW	JRC	JRC	SMH	08/22/13	CHECKED BY: SMH	10/04/13				
		B	ISSUED FOR ND REVIEW	JRC	JRC	SMH	06/28/13						
		REV	DESCRIPTION	DWN	DGN	CHK	DATE	APPROVED BY:					



PRELIMINARY
SUBJECT TO
FINAL REVIEW
10/04/2013

REVISIONS				
F	FOR REVIEW, STR 1-7 REVISED	JRC	JRC	SMH 10/04/13
E	FOR SD REVIEW / NO ND REVISIONS	JRC	JRC	SMH 09/24/13
D	REISSUED FOR ND REVIEW	JRC	JRC	SMH 09/04/13
C	REISSUED FOR ND REVIEW	JRC	JRC	SMH 08/22/13
B	ISSUED FOR ND REVIEW	JRC	JRC	SMH 06/28/13
REV	DESCRIPTION	DWN	DGN	CHK DATE

APPROVALS		DATE	DESIGN DATA
DRAWN BY: JRC		10/04/13	CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR DESIGN TENSION: 18% @ 0 F, FINAL SHIELD WIRE: 2-3/8" 7 STRAND EHS STEEL DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP MIN. GROUND CLEARANCE: 30 FT CONDUCTOR SHOWN: 212 F, MAX SAG COORDINATE SYSTEM: UTM ZONE 14N, US FT
DESIGN BY: JRC		10/04/13	
CHECKED BY: SMH		10/04/13	
APPROVED BY:			

Big Stone South to Ellendale

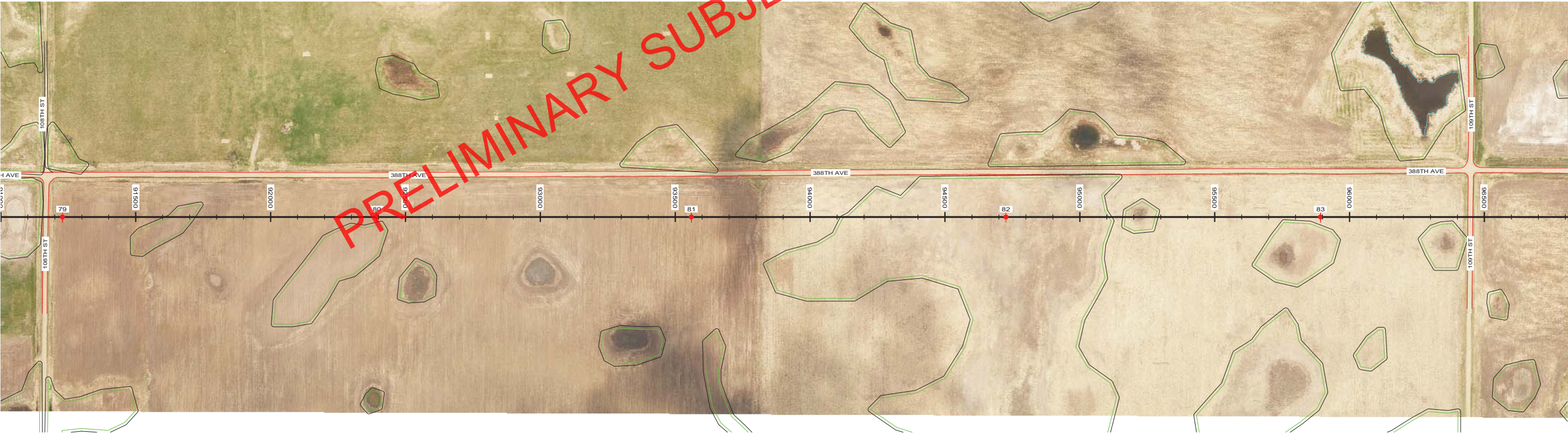
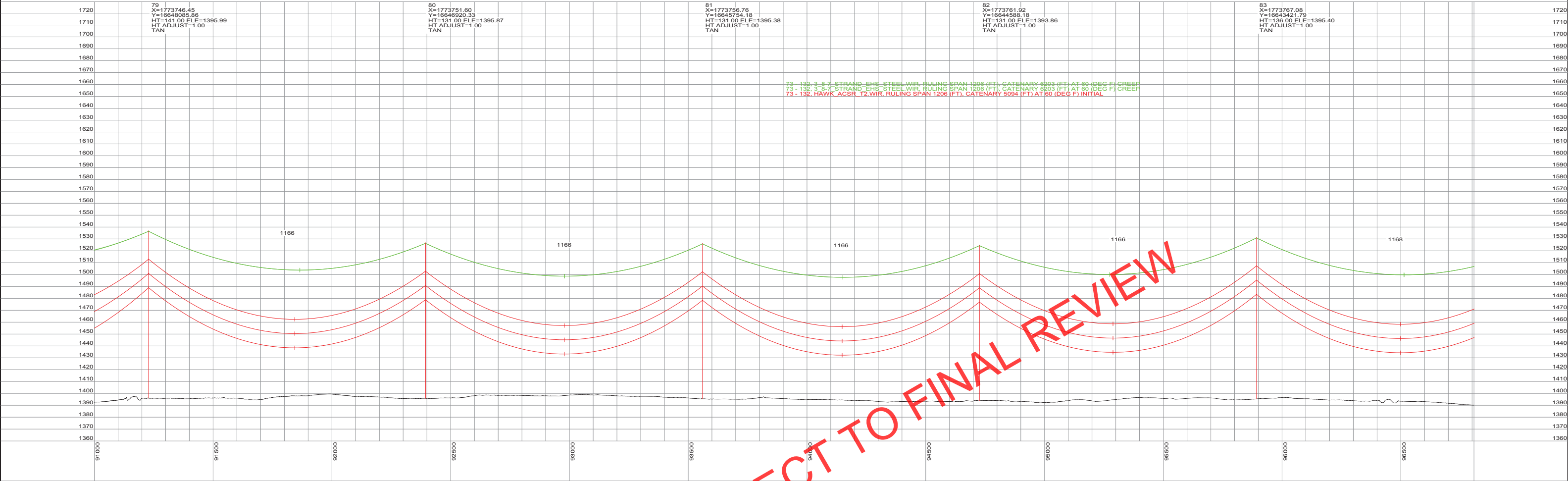
BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT.
HORIZ. SCALE

40.0 FT.
VERT. SCALE

DWG. NO.
P1-17
REVISION: F

127156



PRELIMINARY
SUBJECT TO
FINAL REVIEW
10/04/2013



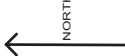
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F	FOR REVIEW, STR 1-7 REVISED	JRC	JRC	SMH	10/04/13		CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR DESIGN TENSION: 18% @ 0 F, FINAL SHIELD WIRE: 2-3/8" 7 STRAND EHS STEEL DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP MIN. GROUND CLEARANCE: 30 FT CONDUCTOR SHOWN: 212 F, MAX SAG COORDINATE SYSTEM: UTM ZONE 14N, US FT	
E	FOR SD REVIEW / NO ND REVISIONS	JRC	JRC	SMH	09/24/13			
D	REISSUED FOR ND REVIEW	JRC	JRC	SMH	09/04/13			
C	REISSUED FOR ND REVIEW	JRC	JRC	SMH	08/22/13			
B	ISSUED FOR ND REVIEW	JRC	JRC	SMH	06/28/13			
REV	DESCRIPTION	DWN	DGN	CHK	DATE	APPROVED BY:		



BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT.
HORIZ. SCALE

40.0 FT.
VERT. SCALE

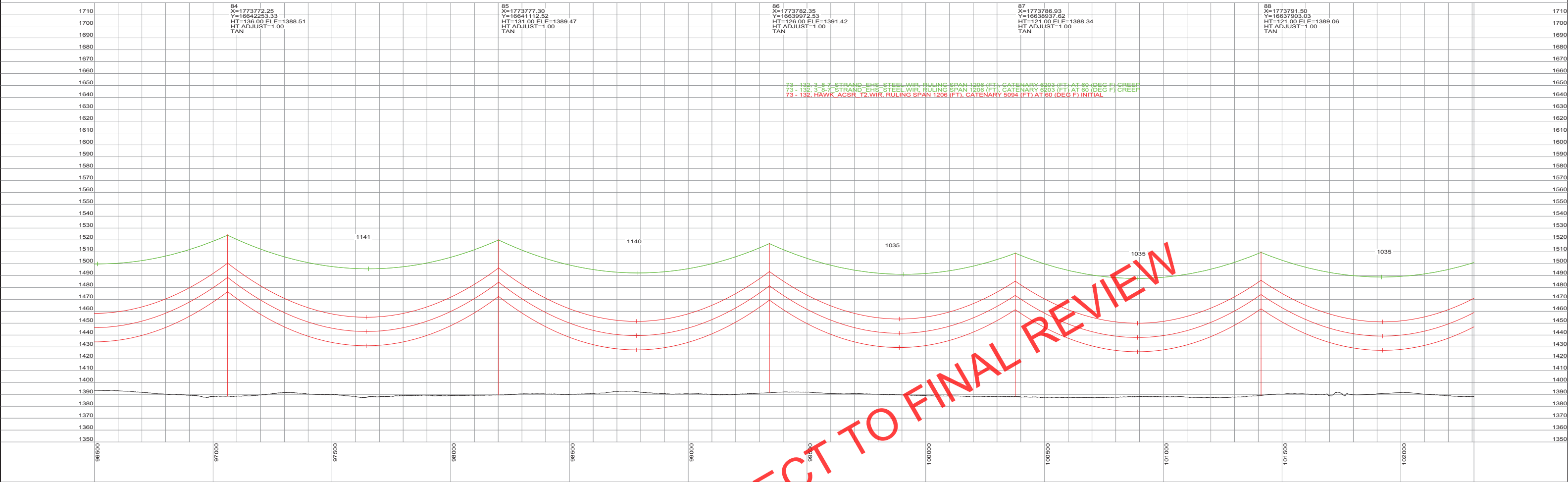


DWG. NO.
P1-18
REVISION: F
127156

Montana-Dakota and Otter Tail Power

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October 2013



PRELIMINARY
SUBJECT TO
FINAL REVIEW
10/04/2013

REVISIONS				
F	FOR REVIEW, STR 1-7 REVISED	JRC	JRC	SMH 10/04/13
E	FOR SD REVIEW / NO ND REVISIONS	JRC	JRC	SMH 09/24/13
D	REISSUED FOR ND REVIEW	JRC	JRC	SMH 09/04/13
C	REISSUED FOR ND REVIEW	JRC	JRC	SMH 08/22/13
B	ISSUED FOR ND REVIEW	JRC	JRC	SMH 06/28/13
REV	DESCRIPTION	DWN	DGN	CHK DATE

APPROVALS		DATE	DESIGN DATA
DRAWN BY: JRC		10/04/13	CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR DESIGN TENSION: 18% @ 0 F, FINAL SHIELD WIRE: 2-3/8" 7 STRAND EHS STEEL DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP MIN. GROUND CLEARANCE: 30 FT CONDUCTOR SHOWN: 212 F, MAX SAG COORDINATE SYSTEM: UTM ZONE 14N, US FT
DESIGN BY: JRC		10/04/13	
CHECKED BY: SMH		10/04/13	
APPROVED BY:			

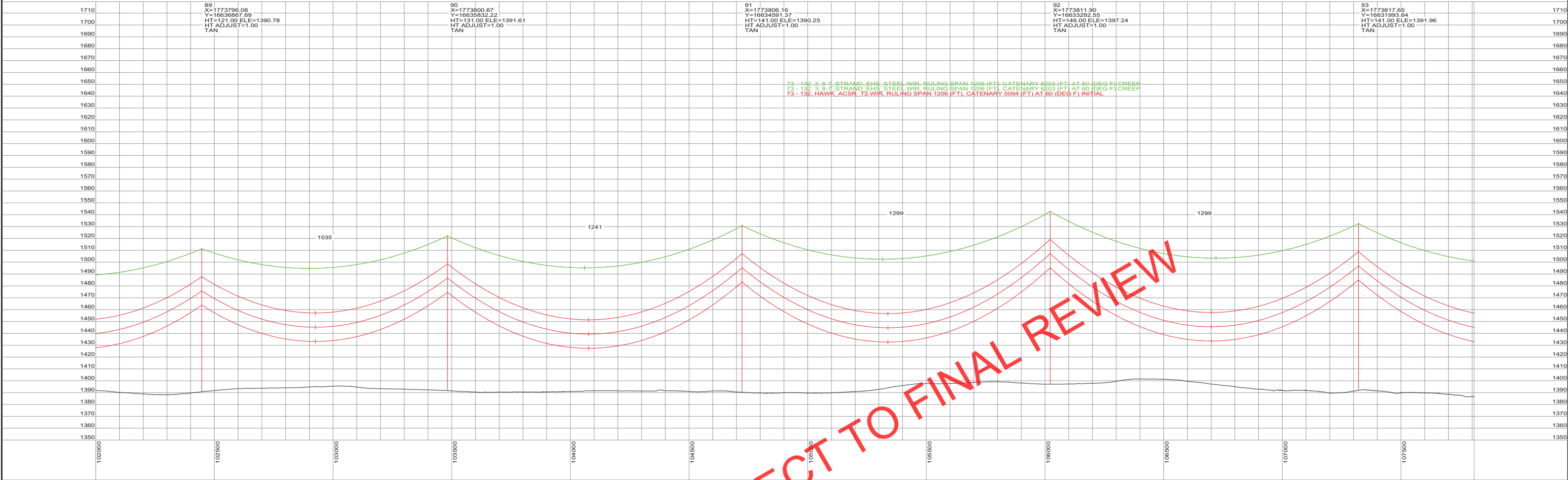
BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT.
HORIZ. SCALE

40.0 FT.
VERT. SCALE

DWG. NO.
P1-19
REVISION: F

127156



PRELIMINARY
SUBJECT TO
FINAL REVIEW
10/04/2013

REVISIONS				
F	FOR REVIEW, STR 1-7 REVISED	JRC	JRC	SMH 10/04/13
E	FOR SD REVIEW / NO ND REVISIONS	JRC	JRC	SMH 09/24/13
D	REISSUED FOR ND REVIEW	JRC	JRC	SMH 09/04/13
C	REISSUED FOR ND REVIEW	JRC	JRC	SMH 08/22/13
B	ISSUED FOR ND REVIEW	JRC	JRC	SMH 06/28/13
REV	DESCRIPTION	DWN	DGN	CHK DATE

APPROVALS	DATE
DRAWN BY: JRC	10/04/13
DESIGN BY: JRC	10/04/13
CHECKED BY: SMH	10/04/13
APPROVED BY:	

DESIGN DATA	
CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR	
DESIGN TENSION: 18% @ 0 F, FINAL	
SHIELD WIRE: 2-3/8" 7 STRAND EHS STEEL	
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP	
MIN. GROUND CLEARANCE: 30 FT	
CONDUCTOR SHOWN: 212 F, MAX SAG	
COORDINATE SYSTEM: UTM ZONE 14N, US FT	

Big Stone South to Ellendale

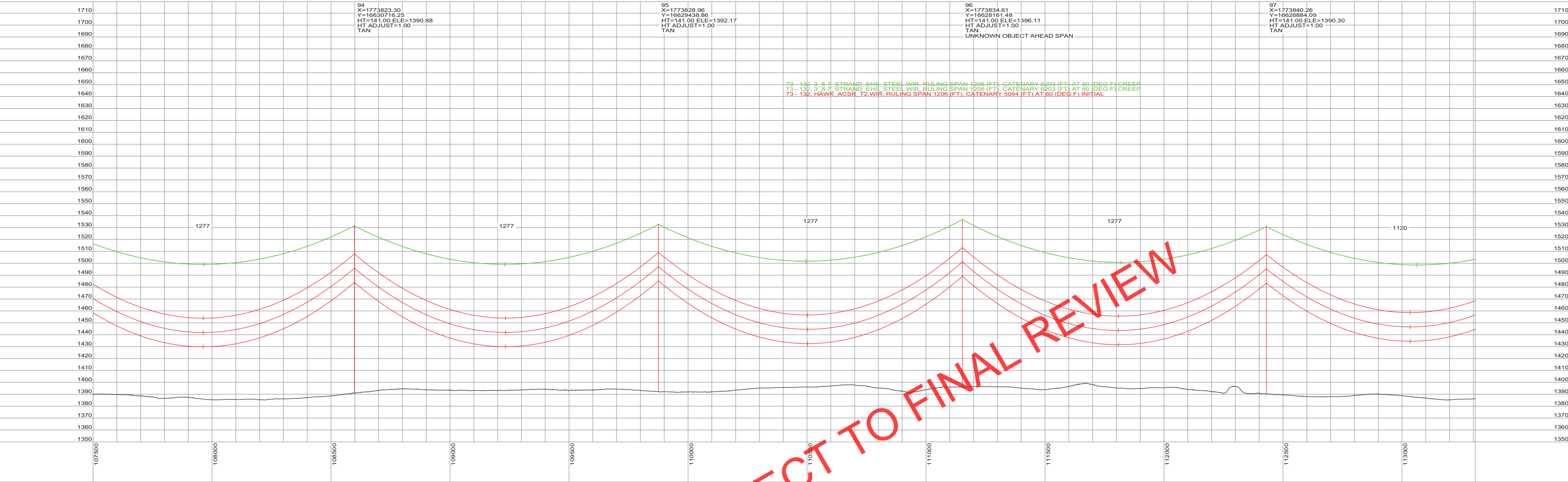
BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT.
HORIZ. SCALE

40.0 FT.
VERT. SCALE

DWG. NO.
P1-20
REVISION: F

127156



PRELIMINARY
SUBJECT TO
FINAL REVIEW
10/04/2013



REVISIONS					
F	FOR REVIEW, STR 1-7 REVISED	JRC	JRC	SMH	10/04/13
E	FOR SD REVIEW / NO ND REVISIONS	JRC	JRC	SMH	09/24/13
D	REISSUED FOR ND REVIEW	JRC	JRC	SMH	09/04/13
C	REISSUED FOR ND REVIEW	JRC	JRC	SMH	08/22/13
B	ISSUED FOR ND REVIEW	JRC	JRC	SMH	06/28/13
REV	DESCRIPTION	DWN	DGN	CHK	DATE

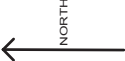
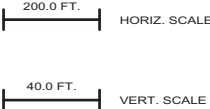
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DRAWN BY:	JRC
DESIGN BY:	JRC
CHECKED BY:	SMH
APPROVED BY:	

DATE
10/04/13
10/04/13
10/04/13

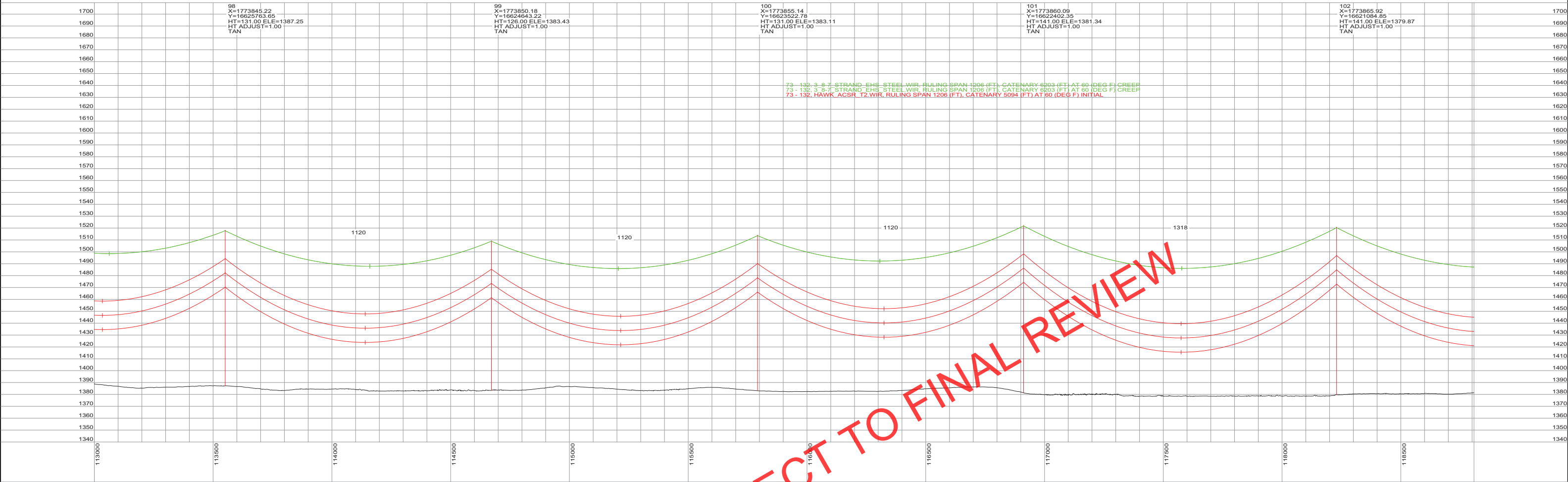
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DESIGN TENSION: 18% @ 0 F, FINAL
SHIELD WIRE: 2-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
MIN. GROUND CLEARANCE: 30 FT
CONDUCTOR SHOWN: 212 F, MAX SAG
COORDINATE SYSTEM: UTM ZONE 14N, US FT



BIG STONE SOUTH - ELENDALE
345 KV TRANSMISSION LINE



DWG. NO.
P1-21
REVISION: F
127156



PRELIMINARY
SUBJECT TO
FINAL REVIEW
10/04/2013



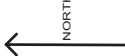
REVISIONS					APPROVALS		DATE	DESIGN DATA
F	FOR REVIEW, STR 1-7 REVISED	JRC	JRC	SMH	10/04/13		CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR DESIGN TENSION: 18% @ 0 F, FINAL SHIELD WIRE: 2-3/8" 7 STRAND EHS STEEL DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP MIN. GROUND CLEARANCE: 30 FT CONDUCTOR SHOWN: 212 F, MAX SAG COORDINATE SYSTEM: UTM ZONE 14N, US FT	
E	FOR SD REVIEW / NO ND REVISIONS	JRC	JRC	SMH	09/24/13			
D	REISSUED FOR ND REVIEW	JRC	JRC	SMH	09/04/13			
C	REISSUED FOR ND REVIEW	JRC	JRC	SMH	08/22/13			
B	ISSUED FOR ND REVIEW	JRC	JRC	SMH	06/28/13			
REV	DESCRIPTION	DWN	DGN	CHK	DATE	APPROVED BY:		



BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

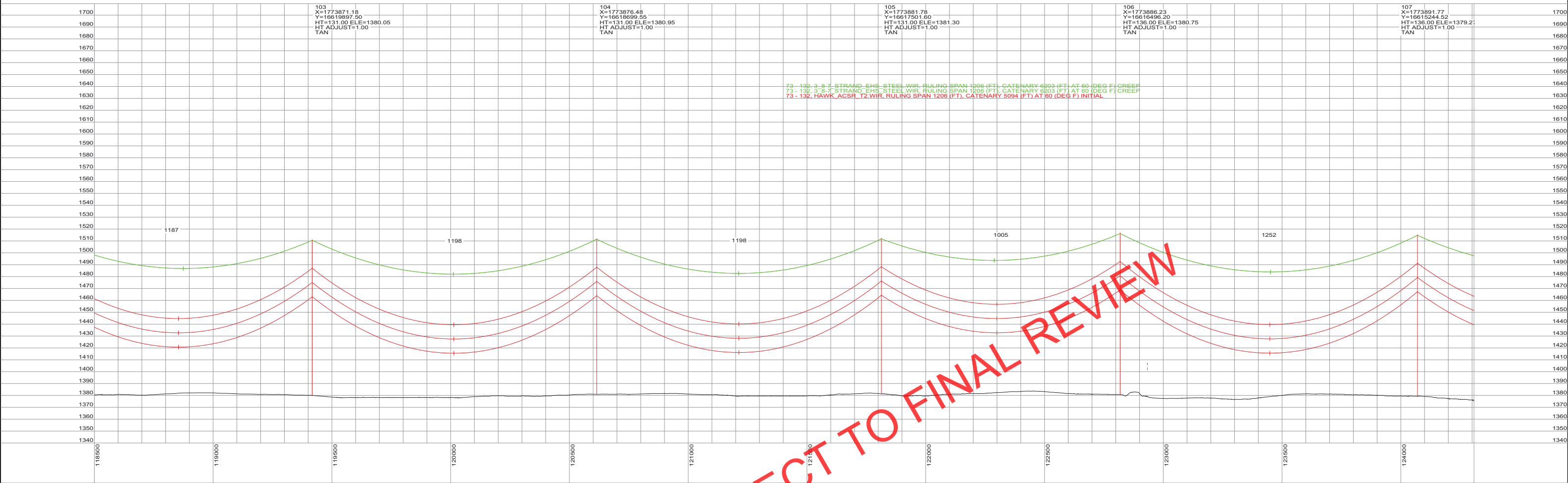
200.0 FT.
HORIZ. SCALE

40.0 FT.
VERT. SCALE

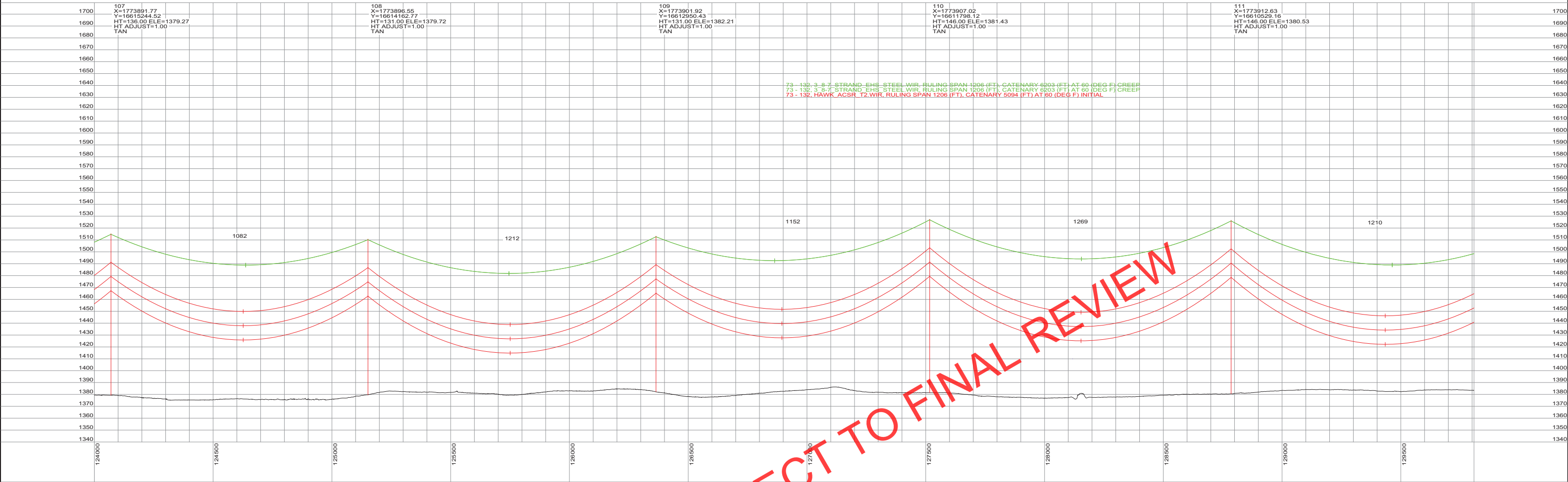


DWG. NO.
P1-22
REVISION: F

127156



PRELIMINARY SUBJECT TO FINAL REVIEW 10/04/2013		REVISIONS						APPROVALS	DATE	DESIGN DATA	 Big Stone South to Ellendale	BIG STONE SOUTH - ELLENDALE 345 KV TRANSMISSION LINE	 HORIZ. SCALE  VERT. SCALE 	DWG. NO. P1-23 REVISION: F
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		E	FOR SD REVIEW / NO ND REVISIONS	JRC	JRC	SMH	09/24/13	DESIGN BY: JRC	10/04/13					
		D	REISSUED FOR ND REVIEW	JRC	JRC	SMH	09/04/13							
		C	REISSUED FOR ND REVIEW	JRC	JRC	SMH	08/22/13							
		B	ISSUED FOR ND REVIEW	JRC	JRC	SMH	06/28/13							
		REV	DESCRIPTION	DWN	DGN	CHK	DATE	APPROVED BY:						



PRELIMINARY
SUBJECT TO
FINAL REVIEW
10/04/2013

REVISIONS				
F	FOR REVIEW, STR 1-7 REVISED	JRC	JRC	SMH 10/04/13
E	FOR SD REVIEW / NO ND REVISIONS	JRC	JRC	SMH 09/24/13
D	REISSUED FOR ND REVIEW	JRC	JRC	SMH 09/04/13
C	REISSUED FOR ND REVIEW	JRC	JRC	SMH 08/22/13
B	ISSUED FOR ND REVIEW	JRC	JRC	SMH 06/28/13
REV	DESCRIPTION	DWN	DGN	CHK DATE

APPROVALS		DATE	DESIGN DATA
DRAWN BY: JRC		10/04/13	CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR DESIGN TENSION: 18% @ 0 F, FINAL SHIELD WIRE: 2-3/8" 7 STRAND EHS STEEL DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP MIN. GROUND CLEARANCE: 30 FT CONDUCTOR SHOWN: 212 F, MAX SAG COORDINATE SYSTEM: UTM ZONE 14N, US FT
DESIGN BY: JRC		10/04/13	
CHECKED BY: SMH		10/04/13	
APPROVED BY:			

Big Stone South to Ellendale

BIG STONE SOUTH - ELENDALE
345 KV TRANSMISSION LINE

200.0 FT.

HORIZ. SCALE

40.0 FT.

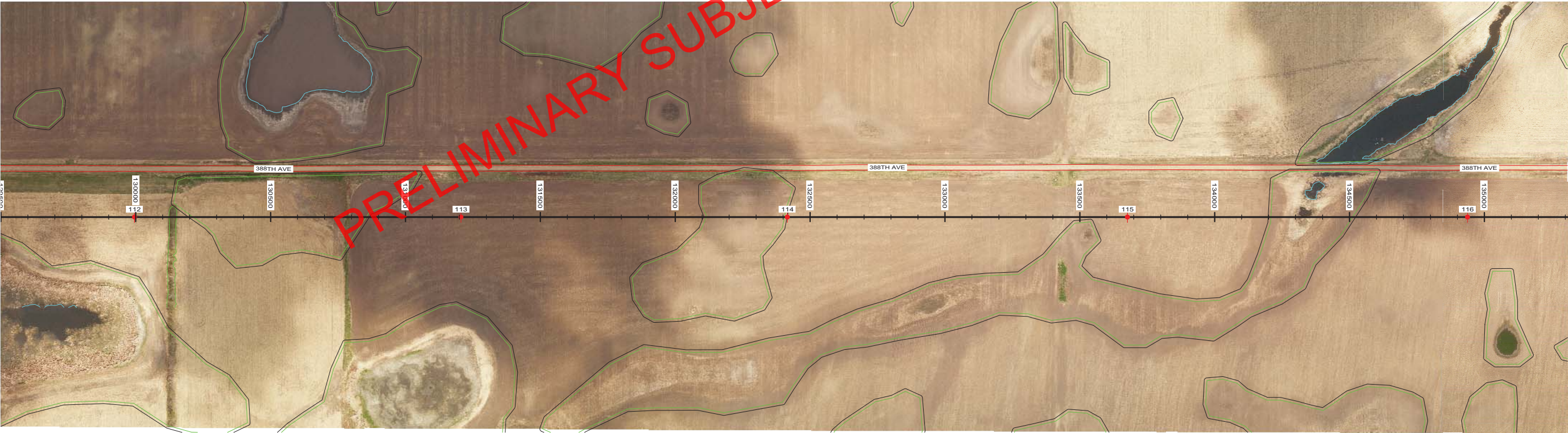
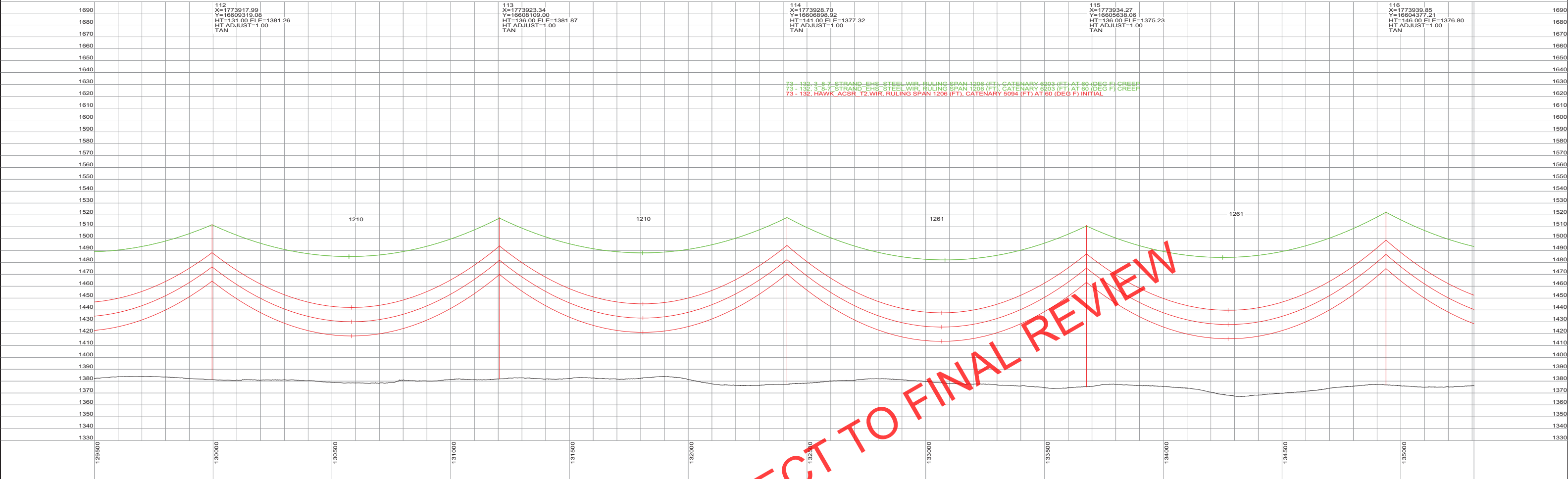
VERT. SCALE

NORTH

←

DWG. NO.
P1-24
REVISION: F

127156



PRELIMINARY
SUBJECT TO
FINAL REVIEW
10/04/2013

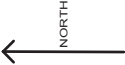


REVISIONS					APPROVALS		DATE
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E	FOR SD REVIEW / NO ND REVISIONS	JRC	JRC	SMH	09/24/13	DESIGN BY: JRC	10/04/13
D	REISSUED FOR ND REVIEW	JRC	JRC	SMH	09/04/13	CHECKED BY: SMH	10/04/13
C	REISSUED FOR ND REVIEW	JRC	JRC	SMH	08/22/13	APPROVED BY:	
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REV	DESCRIPTION	DWN	DGN	CHK	DATE		

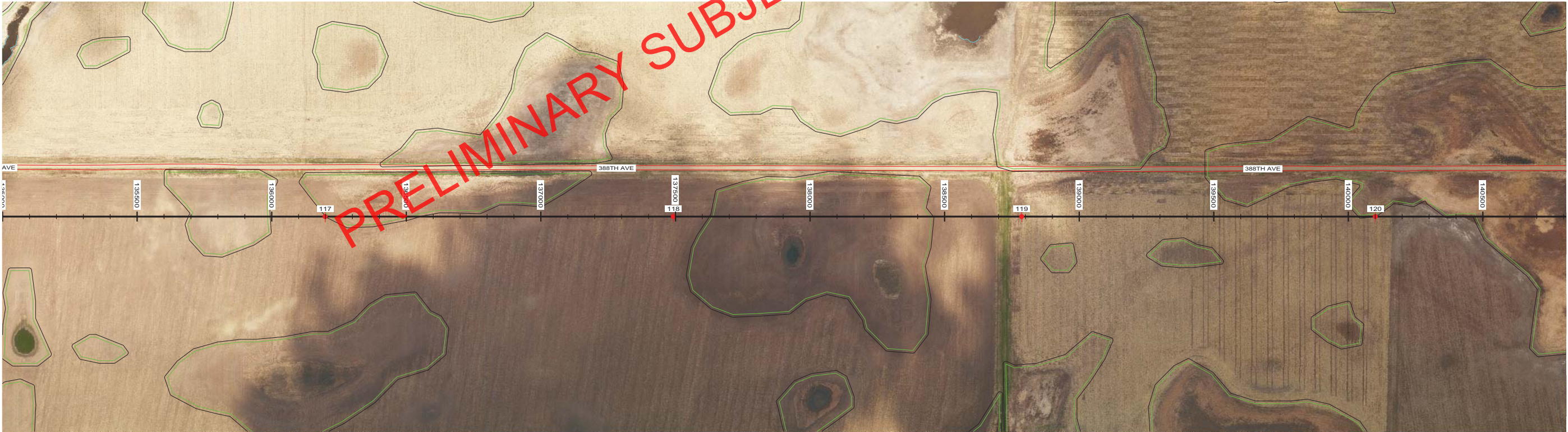
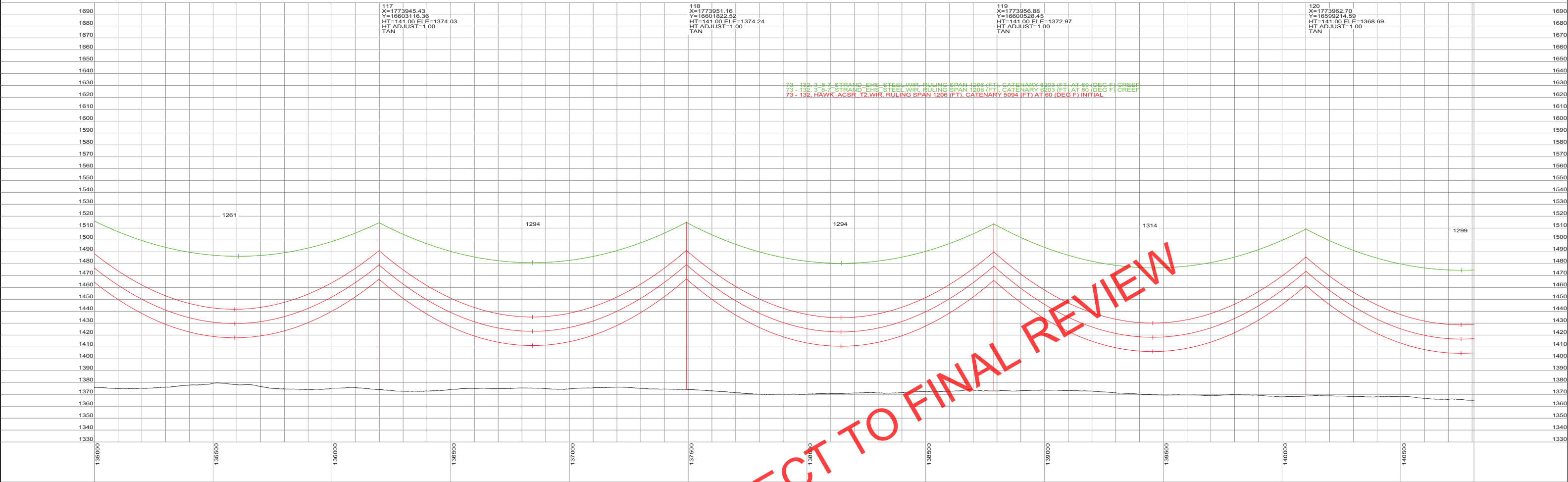
DESIGN DATA	
CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR	
DESIGN TENSION: 18% @ 0 F, FINAL	
SHIELD WIRE: 2-3/8" 7 STRAND EHS STEEL	
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP	
MIN. GROUND CLEARANCE: 30 FT	
CONDUCTOR SHOWN: 212 F, MAX SAG	
COORDINATE SYSTEM: UTM ZONE 14N, US FT	



BIG STONE SOUTH - ELENDALE
345 KV TRANSMISSION LINE



DWG. NO.
P1-25
REVISION: F
127156



PRELIMINARY
SUBJECT TO
FINAL REVIEW
10/04/2013

REVISIONS					APPROVALS		DATE	DESIGN DATA
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E	FOR SD REVIEW / NO ND REVISIONS	JRC	JRC	SMH	09/24/13			
D	REISSUED FOR ND REVIEW	JRC	JRC	SMH	09/04/13			
C	REISSUED FOR ND REVIEW	JRC	JRC	SMH	08/22/13			
B	ISSUED FOR ND REVIEW	JRC	JRC	SMH	06/28/13			
REV	DESCRIPTION	DWN	DGN	CHK	DATE	APPROVED BY:		

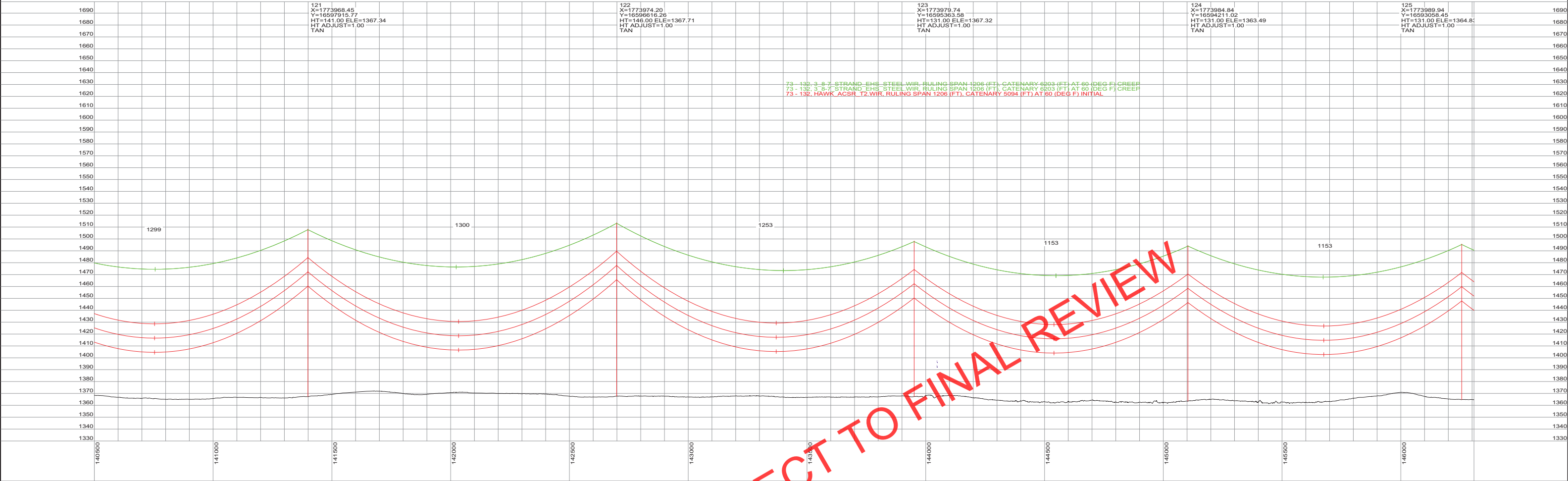
BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT.
HORIZ. SCALE

40.0 FT.
VERT. SCALE

DWG. NO.
P1-26
REVISION: F

127156



PRELIMINARY
SUBJECT TO
FINAL REVIEW
10/04/2013

REVISIONS				
F	FOR REVIEW, STR 1-7 REVISED	JRC	JRC	SMH 10/04/13
E	FOR SD REVIEW / NO ND REVISIONS	JRC	JRC	SMH 09/24/13
D	REISSUED FOR ND REVIEW	JRC	JRC	SMH 09/04/13
C	REISSUED FOR ND REVIEW	JRC	JRC	SMH 08/22/13
B	ISSUED FOR ND REVIEW	JRC	JRC	SMH 06/28/13
REV	DESCRIPTION	DWN	DGN	CHK DATE

APPROVALS		DATE	DESIGN DATA
DRAWN BY: JRC		10/04/13	CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR DESIGN TENSION: 18% @ 0 F, FINAL SHIELD WIRE: 2-3/8" 7 STRAND EHS STEEL DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP MIN. GROUND CLEARANCE: 30 FT CONDUCTOR SHOWN: 212 F, MAX SAG COORDINATE SYSTEM: UTM ZONE 14N, US FT
DESIGN BY: JRC		10/04/13	
CHECKED BY: SMH		10/04/13	
APPROVED BY:			

BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT.
40.0 FT.

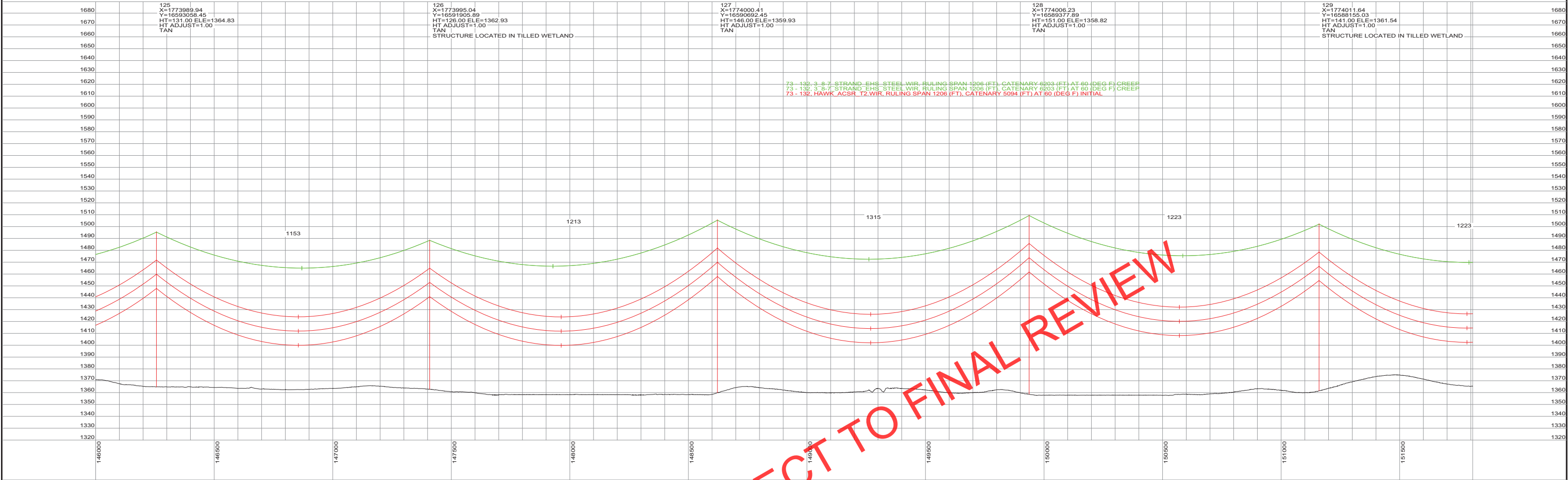
HORIZ. SCALE
VERT. SCALE

NORTH

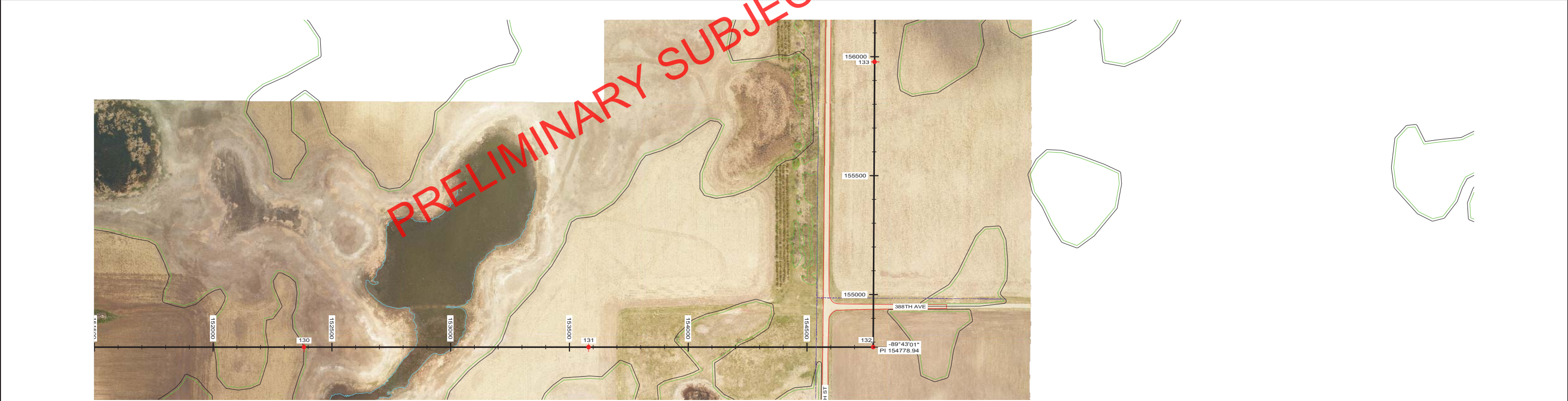
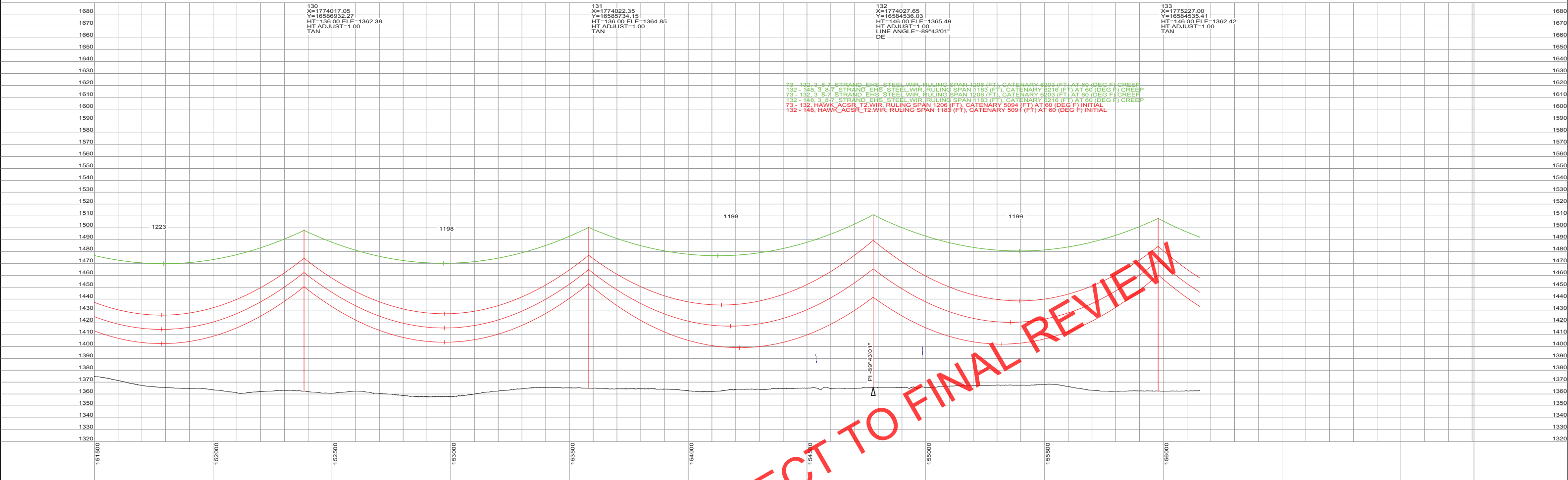
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DWG. NO.
P1-27
REVISION: F

127156



PRELIMINARY SUBJECT TO FINAL REVIEW 10/04/2013		REVISIONS					APPROVALS	DATE	DESIGN DATA	 Big Stone South to Ellendale	BIG STONE SOUTH - ELLENDALE 345 KV TRANSMISSION LINE		DWG. NO. P1-28 REVISION: F	
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		E	FOR SD REVIEW / NO ND REVISIONS	JRC	JRC	SMH	09/24/13	DESIGN BY: JRC	10/04/13					
		D	REISSUED FOR ND REVIEW	JRC	JRC	SMH	09/04/13	CHECKED BY: SMH	10/04/13					
		C	REISSUED FOR ND REVIEW	JRC	JRC	SMH	08/22/13	APPROVED BY:						
		B	ISSUED FOR ND REVIEW	JRC	JRC	SMH	06/28/13							
		REV	DESCRIPTION	DWN	DGN	CHK	DATE							
 Big Stone South to Ellendale														127156



PRELIMINARY
SUBJECT TO
FINAL REVIEW
10/04/2013



REVISIONS					APPROVALS		DATE	DESIGN DATA
F	FOR REVIEW, STR 1-7 REVISED	JRC	JRC	SMH	10/04/13		CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR DESIGN TENSION: 18% @ 0 F, FINAL SHIELD WIRE: 2-3/8" 7 STRAND EHS STEEL DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP MIN. GROUND CLEARANCE: 30 FT CONDUCTOR SHOWN: 212 F, MAX SAG COORDINATE SYSTEM: UTM ZONE 14N, US FT	
E	FOR SD REVIEW / NO ND REVISIONS	JRC	JRC	SMH	09/24/13			
D	REISSUED FOR ND REVIEW	JRC	JRC	SMH	09/04/13			
C	REISSUED FOR ND REVIEW	JRC	JRC	SMH	08/22/13			
B	ISSUED FOR ND REVIEW	JRC	JRC	SMH	06/28/13			
REV	DESCRIPTION	DWN	DGN	CHK	DATE	APPROVED BY:		



BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT.
HORIZ. SCALE

40.0 FT.
VERT. SCALE

NORTH

←

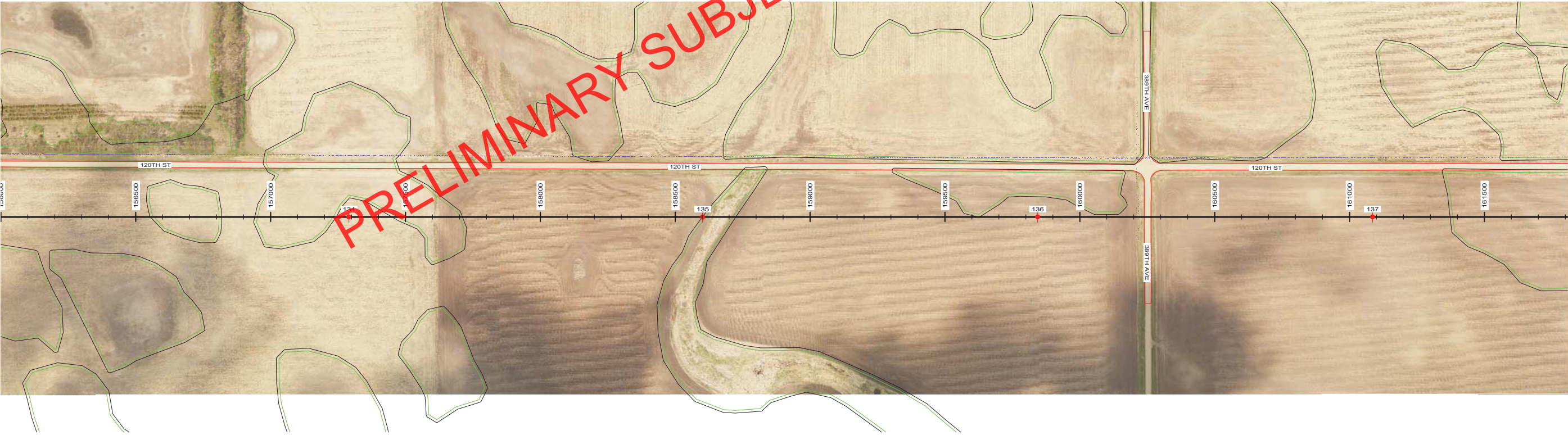
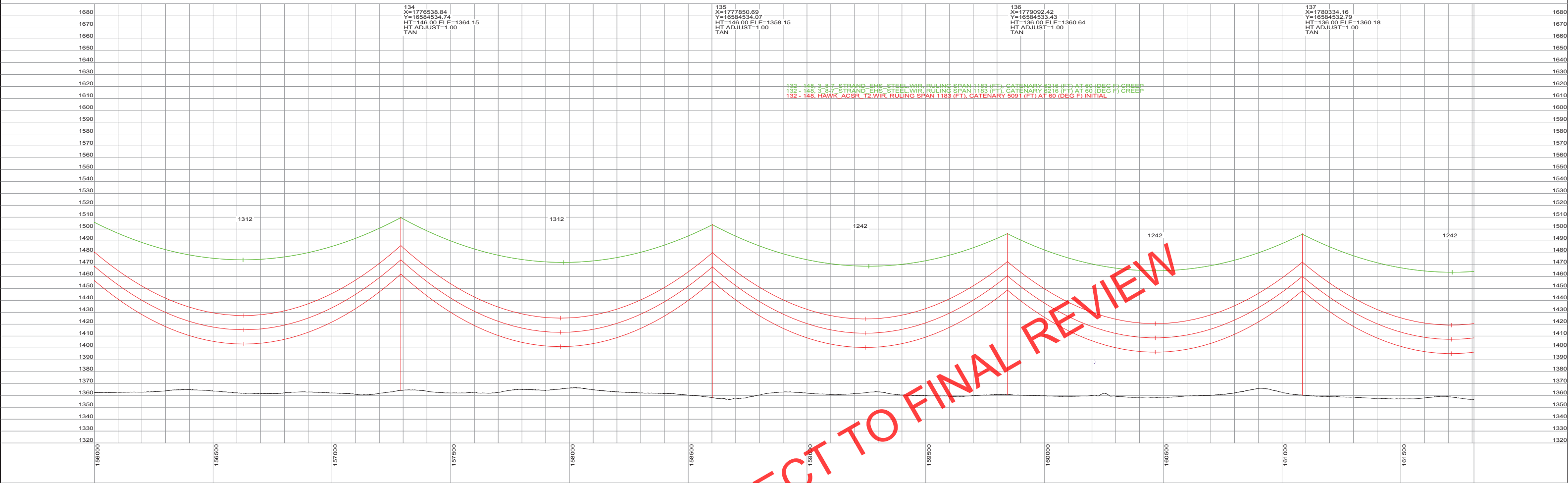
DWG. NO.
P1-29
REVISION: F

127156

Montana-Dakota and Otter Tail Power

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REVISIONS					
F	FOR REVIEW, STR 1-7 REVISED	JRC	JRC	SMH	10/04/13
E	FOR SD REVIEW / NO ND REVISIONS	JRC	JRC	SMH	09/24/13
D	REISSUED FOR ND REVIEW	JRC	JRC	SMH	09/04/13
C	REISSUED FOR ND REVIEW	JRC	JRC	SMH	08/22/13
B	ISSUED FOR ND REVIEW	JRC	JRC	SMH	06/28/13
REV	DESCRIPTION	DWN	DGN	CHK	DATE

APPROVALS

DRAWN BY: JRC

DESIGN BY: JRC

CHECKED BY: SMH

APPROVED BY:

DATE

10/04/13

10/04/13

10/04/13

DESIGN DATA

CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR
DESIGN TENSION: 18% @ 0 F, FINAL
SHIELD WIRE: 2-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
MIN. GROUND CLEARANCE: 30 FT
CONDUCTOR SHOWN: 212 F, MAX SAG
COORDINATE SYSTEM: UTM ZONE 14N, US FT



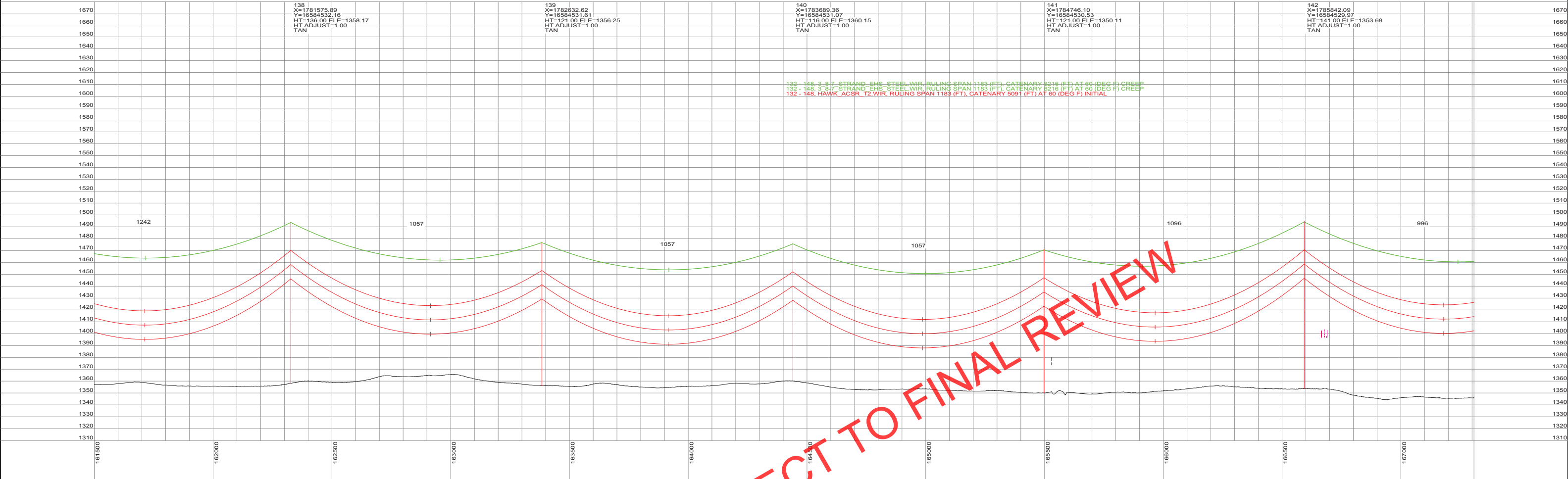
BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT. HORIZ. SCALE

40.0 FT. VERT. SCALE



DWG. NO.
P1-30
REVISION: F
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REVISIONS				
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E	FOR SD REVIEW / NO ND REVISIONS	JRC	JRC	SMH 09/24/13
D	REISSUED FOR ND REVIEW	JRC	JRC	SMH 09/04/13
C	REISSUED FOR ND REVIEW	JRC	JRC	SMH 08/22/13
B	ISSUED FOR ND REVIEW	JRC	JRC	SMH 06/28/13
REV	DESCRIPTION	DWN	DGN	CHK DATE

APPROVALS		DATE	DESIGN DATA
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DESIGN BY: JRC		10/04/13	
CHECKED BY: SMH		10/04/13	
APPROVED BY:			

BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT.

HORIZ. SCALE

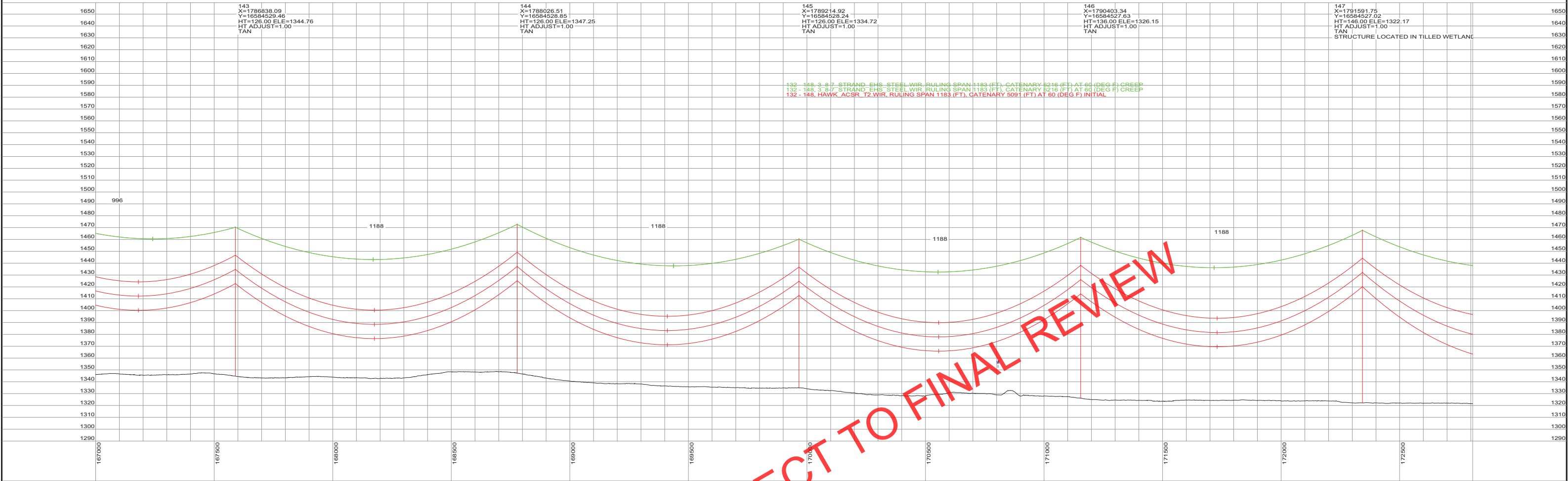
40.0 FT.

VERT. SCALE

↑
NORTH

DWG. NO.
P1-31
REVISION: F

127156



**PRELIMINARY
SUBJECT TO
FINAL REVIEW
10/04/2013**

REVISIONS				
F	FOR REVIEW, STR 1-7 REVISED	JRC	JRC	SMH 10/04/13
E	FOR SD REVIEW / NO ND REVISIONS	JRC	JRC	SMH 09/24/13
D	REISSUED FOR ND REVIEW	JRC	JRC	SMH 09/04/13
C	REISSUED FOR ND REVIEW	JRC	JRC	SMH 08/22/13
B	ISSUED FOR ND REVIEW	JRC	JRC	SMH 06/28/13
REV	DESCRIPTION	DWN	DGN	CHK DATE

APPROVALS		DATE	DESIGN DATA
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DESIGN BY: JRC		10/04/13	
CHECKED BY: SMH		10/04/13	
APPROVED BY:			

**BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE**

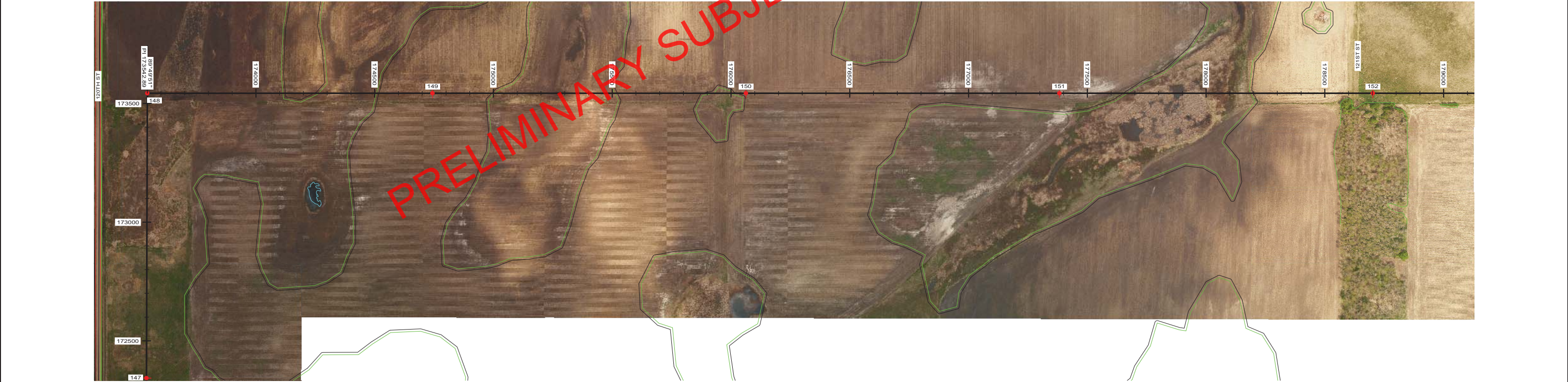
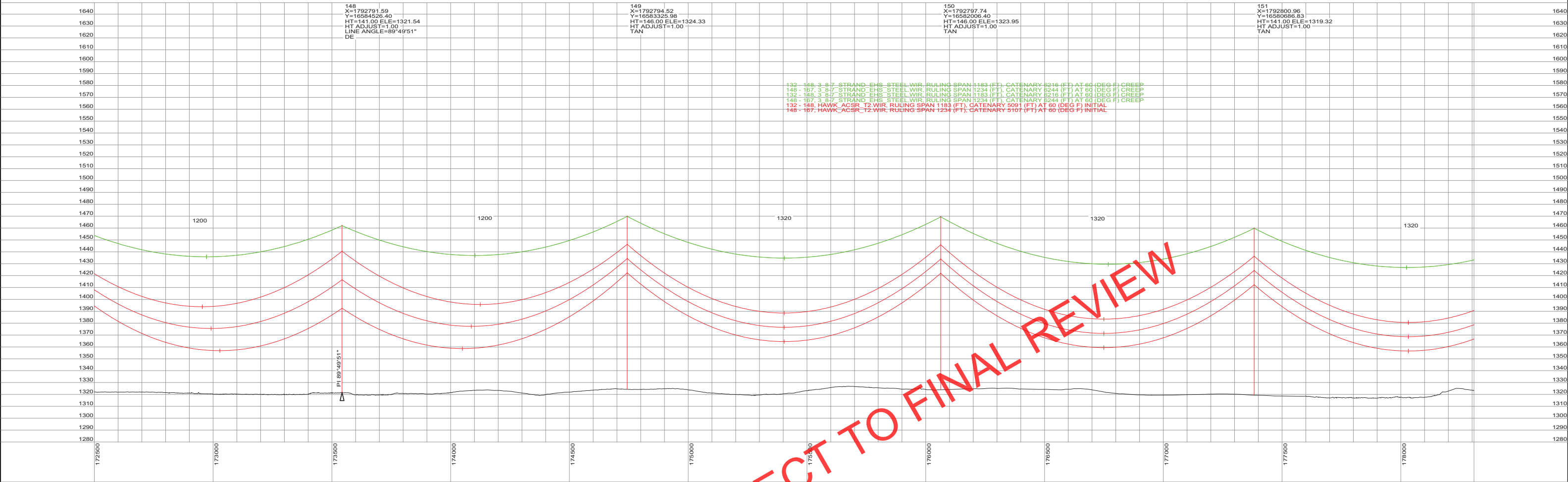
200.0 FT. HORIZ. SCALE

40.0 FT. VERT. SCALE

NORTH

DWG. NO.
P1-32
REVISION: F

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REVISIONS				
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E	FOR SD REVIEW / NO ND REVISIONS	JRC	JRC	SMH 09/24/13
D	REISSUED FOR ND REVIEW	JRC	JRC	SMH 09/04/13
C	REISSUED FOR ND REVIEW	JRC	JRC	SMH 08/22/13
B	ISSUED FOR ND REVIEW	JRC	JRC	SMH 06/28/13
REV	DESCRIPTION	DWN	DGN	CHK DATE

APPROVALS		DATE	DESIGN DATA
DRAWN BY: JRC		10/04/13	CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR DESIGN TENSION: 18% @ 0 F, FINAL SHIELD WIRE: 2-3/8" 7 STRAND EHS STEEL DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP MIN. GROUND CLEARANCE: 30 FT CONDUCTOR SHOWN: 212 F, MAX SAG COORDINATE SYSTEM: UTM ZONE 14N, US FT
DESIGN BY: JRC		10/04/13	
CHECKED BY: SMH		10/04/13	
APPROVED BY:			

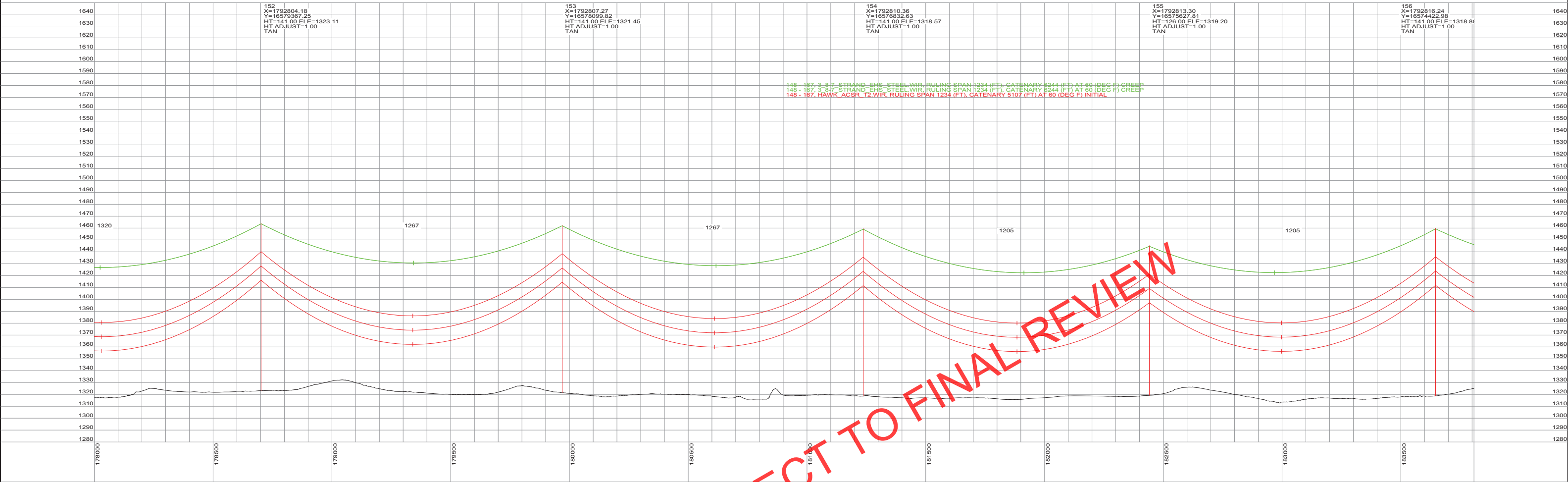
Big Stone South to Ellendale

BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT.
HORIZ. SCALE

40.0 FT.
VERT. SCALE

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REVISIONS				
F	FOR REVIEW, STR 1-7 REVISED	JRC	JRC	SMH 10/04/13
E	FOR SD REVIEW / NO ND REVISIONS	JRC	JRC	SMH 09/24/13
D	REISSUED FOR ND REVIEW	JRC	JRC	SMH 09/04/13
C	REISSUED FOR ND REVIEW	JRC	JRC	SMH 08/22/13
B	ISSUED FOR ND REVIEW	JRC	JRC	SMH 06/28/13
REV	DESCRIPTION	DWN	DGN	CHK DATE

APPROVALS		DATE	DESIGN DATA
DRAWN BY: JRC		10/04/13	CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR DESIGN TENSION: 18% @ 0 F, FINAL SHIELD WIRE: 2-3/8" 7 STRAND EHS STEEL DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP MIN. GROUND CLEARANCE: 30 FT CONDUCTOR SHOWN: 212 F, MAX SAG COORDINATE SYSTEM: UTM ZONE 14N, US FT
DESIGN BY: JRC		10/04/13	
CHECKED BY: SMH		10/04/13	
APPROVED BY:			

Big Stone South to Ellendale

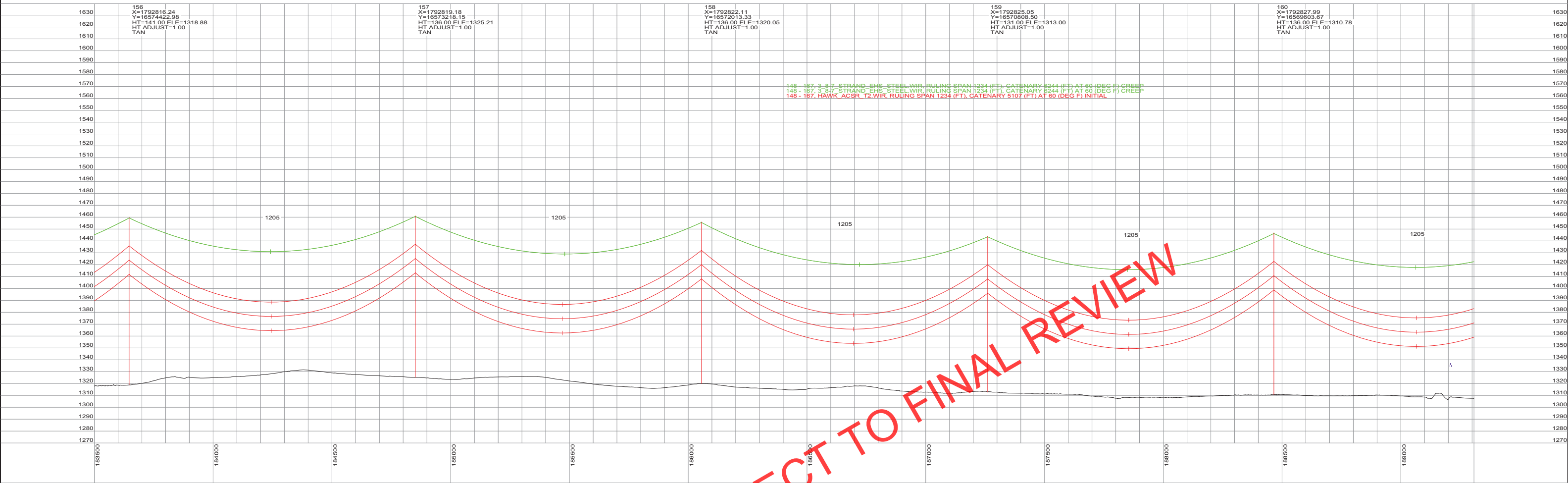
BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT.
HORIZ. SCALE

40.0 FT.
VERT. SCALE

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P1-34
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10/04/2013



REVISIONS					APPROVALS		DATE	DESIGN DATA
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E	FOR SD REVIEW / NO ND REVISIONS	JRC	JRC	SMH	09/24/13			
D	REISSUED FOR ND REVIEW	JRC	JRC	SMH	09/04/13			
C	REISSUED FOR ND REVIEW	JRC	JRC	SMH	08/22/13			
B	ISSUED FOR ND REVIEW	JRC	JRC	SMH	06/28/13			
REV	DESCRIPTION	DWN	DGN	CHK	DATE	APPROVED BY:		



BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT.
HORIZ. SCALE

40.0 FT.
VERT. SCALE



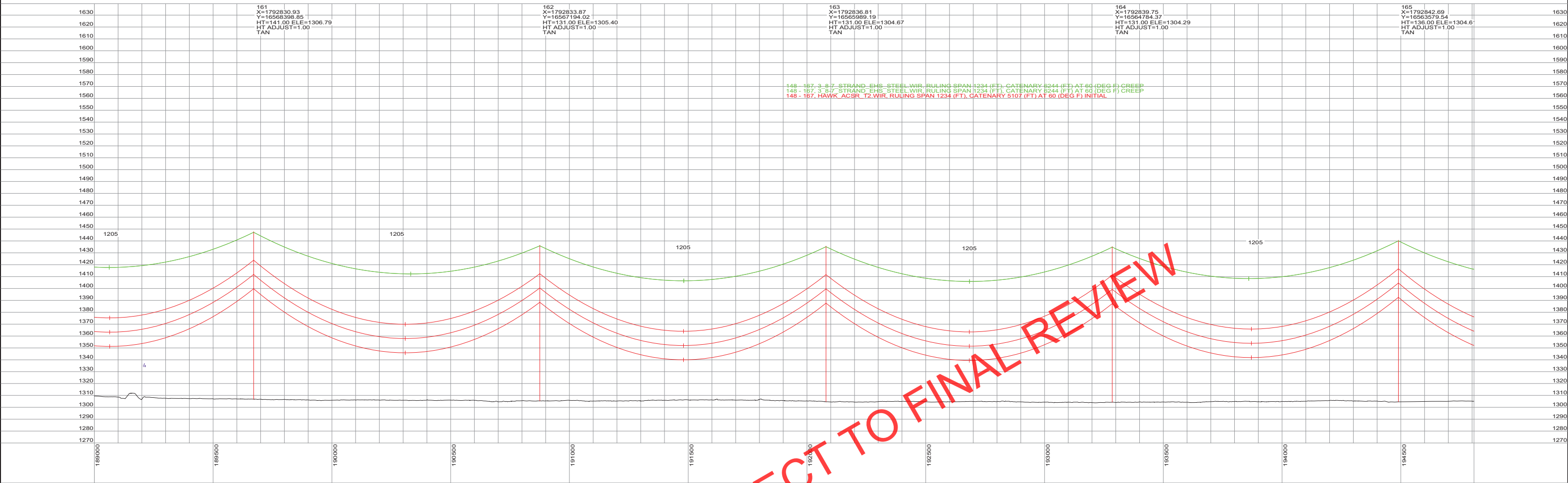
DWG. NO.
P1-35
REVISION: F

127156

Montana-Dakota and Otter Tail Power

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10/04/2013

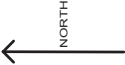


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C	REISSUED FOR ND REVIEW	JRC	JRC	SMH	08/22/13	APPROVED BY:		
B	ISSUED FOR ND REVIEW	JRC	JRC	SMH	06/28/13			
REV	DESCRIPTION	DWN	DGN	CHK	DATE			

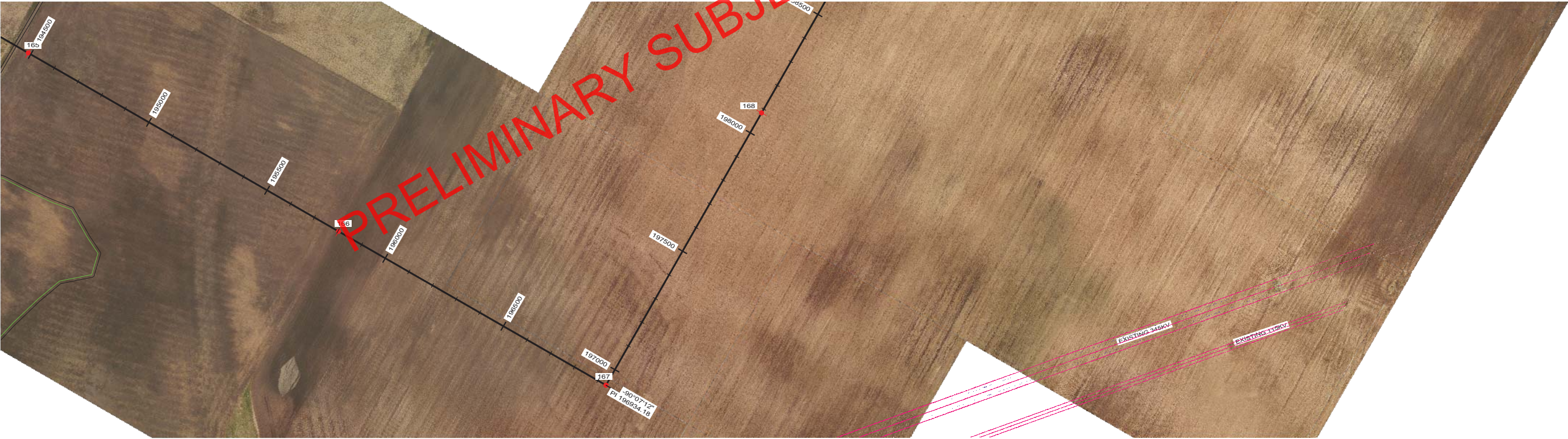
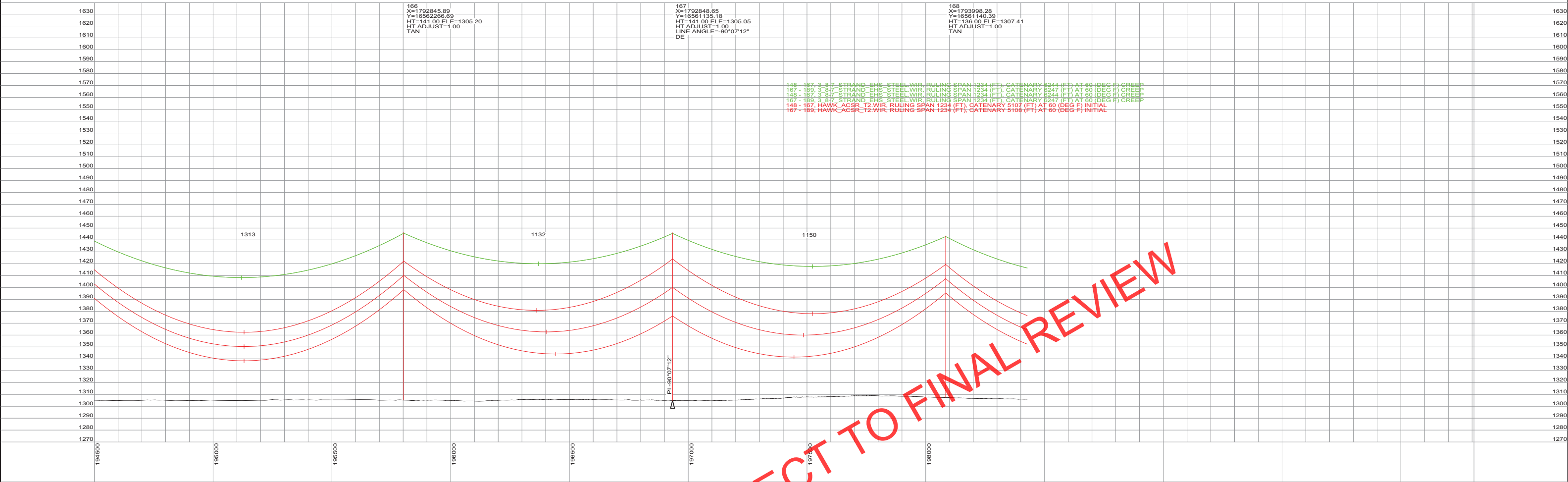
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DESIGN TENSION: 18% @ 0 F, FINAL
SHIELD WIRE: 2-3/8" 7 STRAND EHS STEEL
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP
MIN. GROUND CLEARANCE: 30 FT
CONDUCTOR SHOWN: 212 F, MAX SAG
COORDINATE SYSTEM: UTM ZONE 14N, US FT



BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE



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P1-36
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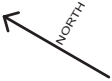
PRELIMINARY
SUBJECT TO
FINAL REVIEW
10/04/2013



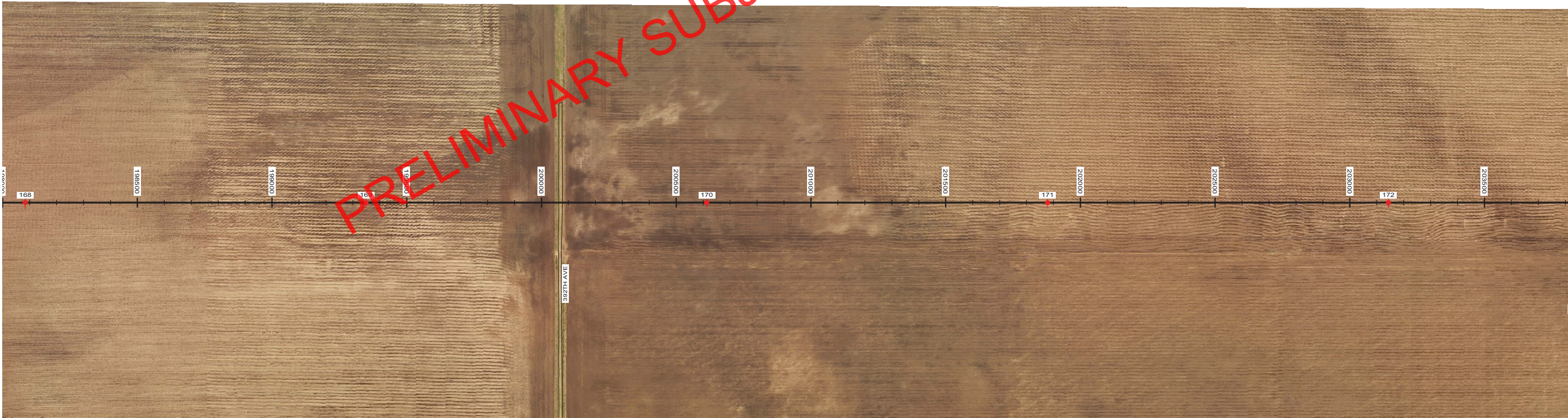
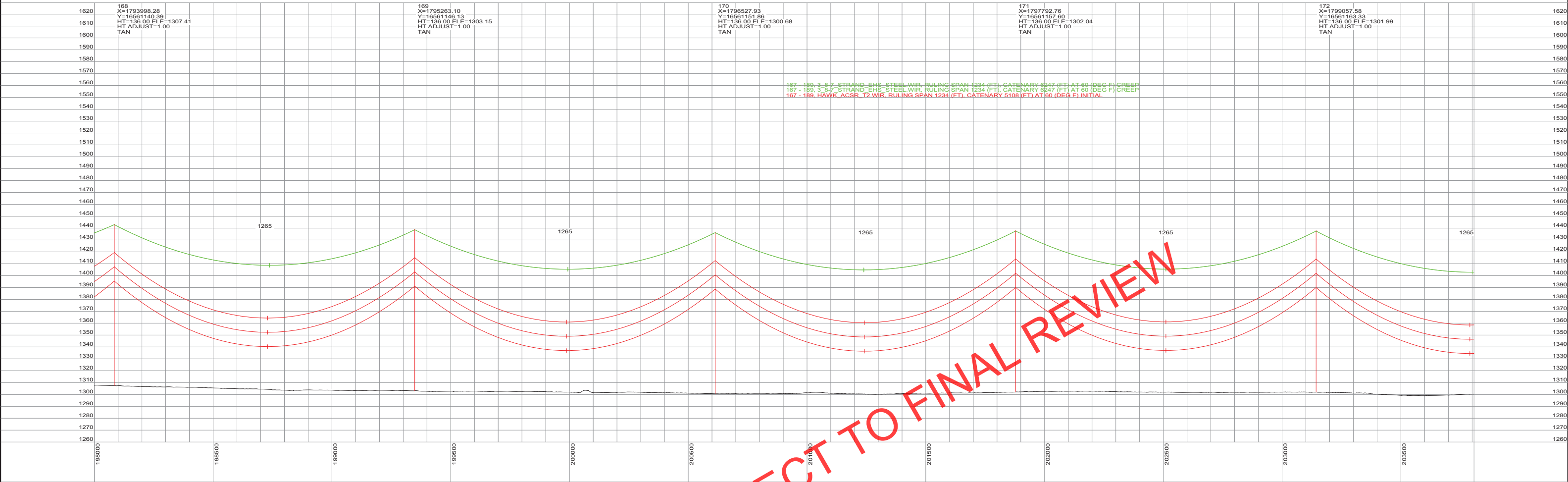
REVISIONS					APPROVALS		DATE	DESIGN DATA
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E	FOR SD REVIEW / NO ND REVISIONS	JRC	JRC	SMH	09/24/13		10/04/13	
D	REISSUED FOR ND REVIEW	JRC	JRC	SMH	09/04/13		10/04/13	
C	REISSUED FOR ND REVIEW	JRC	JRC	SMH	08/22/13		10/04/13	
B	ISSUED FOR ND REVIEW	JRC	JRC	SMH	06/28/13		10/04/13	
REV	DESCRIPTION	DWN	DGN	CHK	DATE	APPROVED BY:		



BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE



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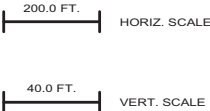
REVISIONS					
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E	FOR SD REVIEW / NO ND REVISIONS	JRC	JRC	SMH	09/24/13
D	REISSUED FOR ND REVIEW	JRC	JRC	SMH	09/04/13
C	REISSUED FOR ND REVIEW	JRC	JRC	SMH	08/22/13
B	ISSUED FOR ND REVIEW	JRC	JRC	SMH	06/28/13
REV	DESCRIPTION	DWN	DGN	CHK	DATE

APPROVALS		DATE
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DESIGN BY: JRC		10/04/13
CHECKED BY: SMH		10/04/13
APPROVED BY:		

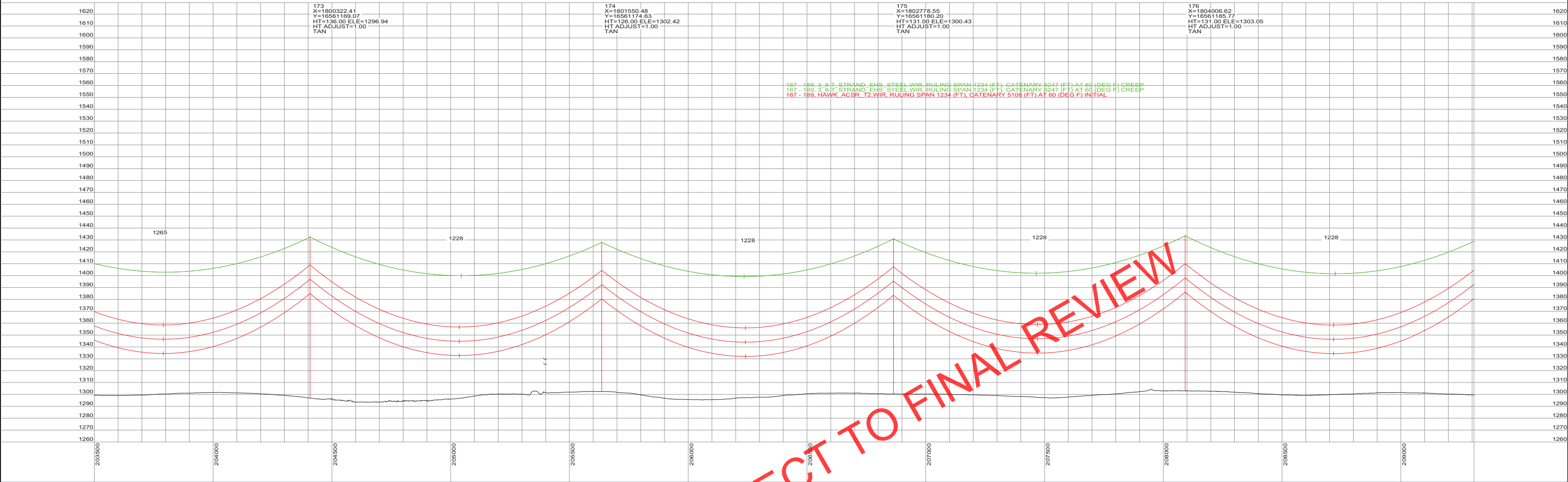
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DESIGN TENSION: 18% @ 0 F, FINAL	
SHIELD WIRE: 2-3/8" 7 STRAND EHS STEEL	
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP	
MIN. GROUND CLEARANCE: 30 FT	
CONDUCTOR SHOWN: 212 F, MAX SAG	
COORDINATE SYSTEM: UTM ZONE 14N, US FT	



BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE



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P1-38
REVISION: F
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10/04/2013



REVISIONS				
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E	FOR SD REVIEW / NO ND REVISIONS	JRC	JRC	SMH 09/24/13
D	REISSUED FOR ND REVIEW	JRC	JRC	SMH 09/04/13
C	REISSUED FOR ND REVIEW	JRC	JRC	SMH 08/22/13
B	ISSUED FOR ND REVIEW	JRC	JRC	SMH 06/28/13
REV	DESCRIPTION	DWN	DGN	CHK DATE

APPROVALS		DATE	DESIGN DATA
DRAWN BY: JRC		10/04/13	CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR DESIGN TENSION: 18% @ 0 F, FINAL SHIELD WIRE: 2-3/8" 7 STRAND EHS STEEL DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP MIN. GROUND CLEARANCE: 30 FT CONDUCTOR SHOWN: 212 F, MAX SAG COORDINATE SYSTEM: UTM ZONE 14N, US FT
DESIGN BY: JRC		10/04/13	
CHECKED BY: SMH		10/04/13	
APPROVED BY:			



BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT.

HORIZ. SCALE

40.0 FT.

VERT. SCALE

NORTH

↑

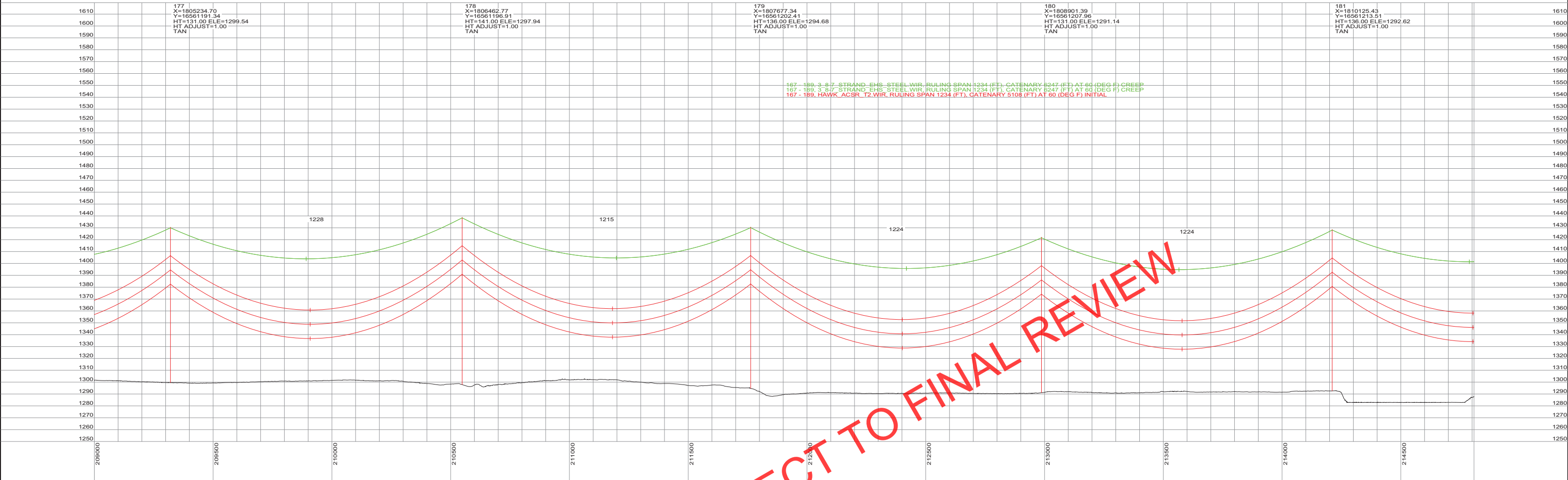
DWG. NO.
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FINAL REVIEW
10/04/2013



REVISIONS					
F	FOR REVIEW, STR 1-7 REVISED	JRC	JRC	SMH	10/04/13
E	FOR SD REVIEW / NO ND REVISIONS	JRC	JRC	SMH	09/24/13
D	REISSUED FOR ND REVIEW	JRC	JRC	SMH	09/04/13
C	REISSUED FOR ND REVIEW	JRC	JRC	SMH	08/22/13
B	ISSUED FOR ND REVIEW	JRC	JRC	SMH	06/28/13
REV	DESCRIPTION	DWN	DGN	CHK	DATE

APPROVALS		DATE
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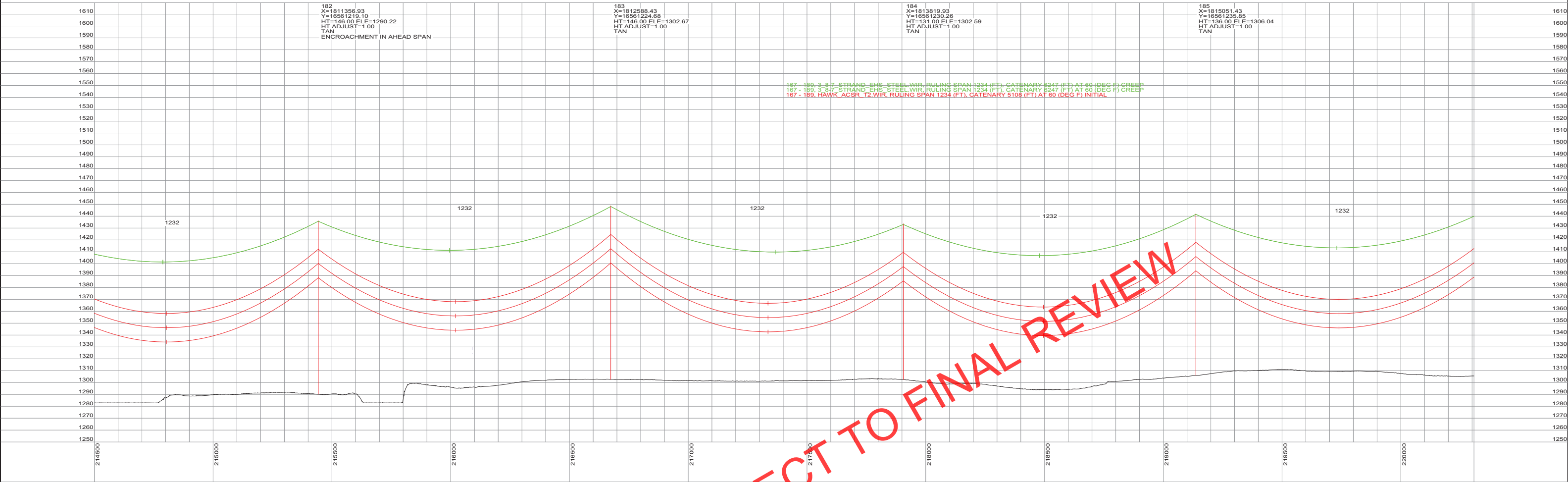
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CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR	
DESIGN TENSION: 18% @ 0 F, FINAL	
SHIELD WIRE: 2-3/8" 7 STRAND EHS STEEL	
DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP	
MIN. GROUND CLEARANCE: 30 FT	
CONDUCTOR SHOWN: 212 F, MAX SAG	
COORDINATE SYSTEM: UTM ZONE 14N, US FT	



BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE



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FINAL REVIEW
10/04/2013



REVISIONS					APPROVALS	DATE	DESIGN DATA
F	FOR REVIEW, STR 1-7 REVISED	JRC	JRC	SMH	10/04/13	CONDUCTOR: (2X) 477 KCMIL 26/7 TP HAWK ACSR DESIGN TENSION: 18% @ 0 F, FINAL SHIELD WIRE: 2-3/8" 7 STRAND EHS STEEL DESIGN TENSION: 75% SAG MATCH @ 60 F CREEP MIN. GROUND CLEARANCE: 30 FT CONDUCTOR SHOWN: 212 F, MAX SAG COORDINATE SYSTEM: UTM ZONE 14N, US FT	
E	FOR SD REVIEW / NO ND REVISIONS	JRC	JRC	SMH	09/24/13		
D	REISSUED FOR ND REVIEW	JRC	JRC	SMH	09/04/13		
C	REISSUED FOR ND REVIEW	JRC	JRC	SMH	08/22/13		
B	ISSUED FOR ND REVIEW	JRC	JRC	SMH	06/28/13		
REV	DESCRIPTION	DWN	DGN	CHK	DATE	APPROVED BY:	



BIG STONE SOUTH - ELLENDALE
345 KV TRANSMISSION LINE

200.0 FT.
HORIZ. SCALE

40.0 FT.
VERT. SCALE

↑
NORTH

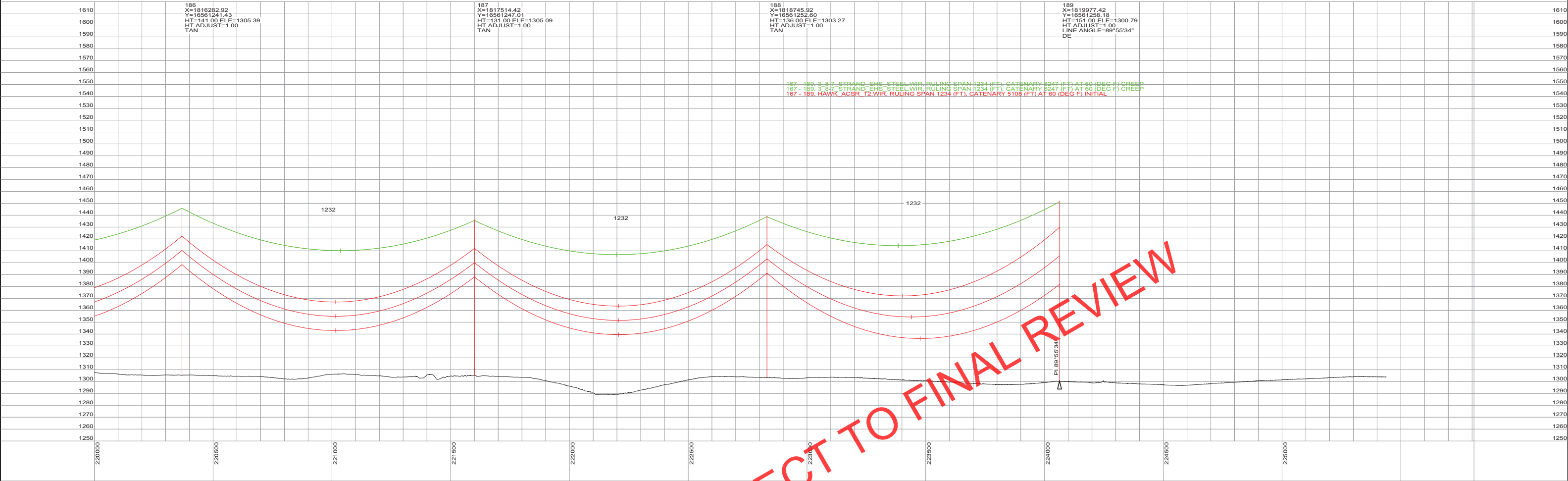
DWG. NO.
P1-41
REVISION: F

127156

Montana-Dakota and Otter Tail Power

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PRELIMINARY SUBJECT TO FINAL REVIEW 10/04/2013		REVISIONS					APPROVALS	DATE	DESIGN DATA	 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. P1-42 REVISION: F 127156	
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		E	FOR SD REVIEW / NO ND REVISIONS	JRC	JRC	SMH	09/24/13	DESIGN BY: JRC	10/04/13				
		D	REISSUED FOR ND REVIEW	JRC	JRC	SMH	09/04/13						
		C	REISSUED FOR ND REVIEW	JRC	JRC	SMH	08/22/13	CHECKED BY: SMH	10/04/13				
		B	ISSUED FOR ND REVIEW	JRC	JRC	SMH	06/28/13						
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