

Appendix B: Natural Gas Pipeline Preliminary Engineering Design Drawings

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BILL OF MATERIALS		
QTY	SIZE	DESCRIPTION
2	10”	VALVE, BALL, 600, WE×WE
3	8”	VALVE, BALL, 600, RF
4	6”	VALVE, PLUG, 600, RF W/ OPERATOR
13	6”	VALVE, BALL, 600, RF W/ OPERATOR
1	6”	VALVE, BALL, 600, RF
6	6”	REGULATOR, 600 ANSI,
2	4”	VALVE, PLUG, 600, RF W/ OPERATOR
4	4”	VALVE, BALL, 600, RF W/ OPERATOR
2	2”	VALVE, BALL, 600, RF
2	2”	VALVE, RELIEF, 600, RF
1	1”	VALVE, BALL, THREADED END
11	3/4”	VALVE, BALL, THREADED END
33	1/2”	VALVE, BALL, THREADED END
2	6”	STRAINER, 600 ANSI
5	8”	FLANGE, WN, 600, STD, RF, FS, A–105
1	8”	FLANGE, BLIND, 600, STD, RF, FS, A–105
36	6”	FLANGE, WN, 600, STD, RF, FS, A–105
1	6”	FLANGE, BLIND, 600, STD, RF, FS, A–105
26	4”	FLANGE, WN, 600, STD, RF, FS, A–105
2	4”	FLANGE, BLIND, 600, STD, RF, FS, A–105
2	3”	FLANGE, WN, 600, STD, RF, FS, A–105
4	2”	FLANGE, WN, 600, STD, RF, FS, A–105
4	8”	GASKET, 600,
27	6”	GASKET, 600,
24	4”	GASKET, 600,
2	3”	GASKET, 600,
4	2”	GASKET, 600,
4	8”	GASKET, 600, INS, PIKOTEK PGE W/ G10 SLEEVE W/ HCS WASHERS
12	6”	GASKET, 600, INS, PIKOTEK PGE W/ G10 SLEEVE W/ HCS WASHERS
2	4”	GASKET, 600, INS, PIKOTEK PGE W/ G10 SLEEVE W/ HCS WASHERS
120	1.125”x8.5”	BOLTS, STUD, /B7, W/ 2–HVY HEX NUTS, /2H
600	1”x7 3/4”	BOLTS, STUD, /B7, W/ 2–HVY HEX NUTS, /2H
234	7/8”x6 3/4”	BOLTS, STUD, /B7, W/ 2–HVY HEX NUTS, /2H
32	5/8”x5 1/4”	BOLTS, STUD, /B7, W/ 2–HVY HEX NUTS, /2H
72	3/4” X 5”	BOLTS, STUD, /B7, W/ 2–HVY HEX NUTS, /2H
16’	12”	PIPE, API5L, PSL2, GR. B, .375” W.T. X52
45’	10”	PIPE, API5L, PSL2, GR. B, .365” W.T. X52
24’	8”	PIPE, API5L, PSL2, GR. B, .322” W.T. X52
202’	6”	PIPE, API5L, PSL2, GR. B, .280” W.T. X52

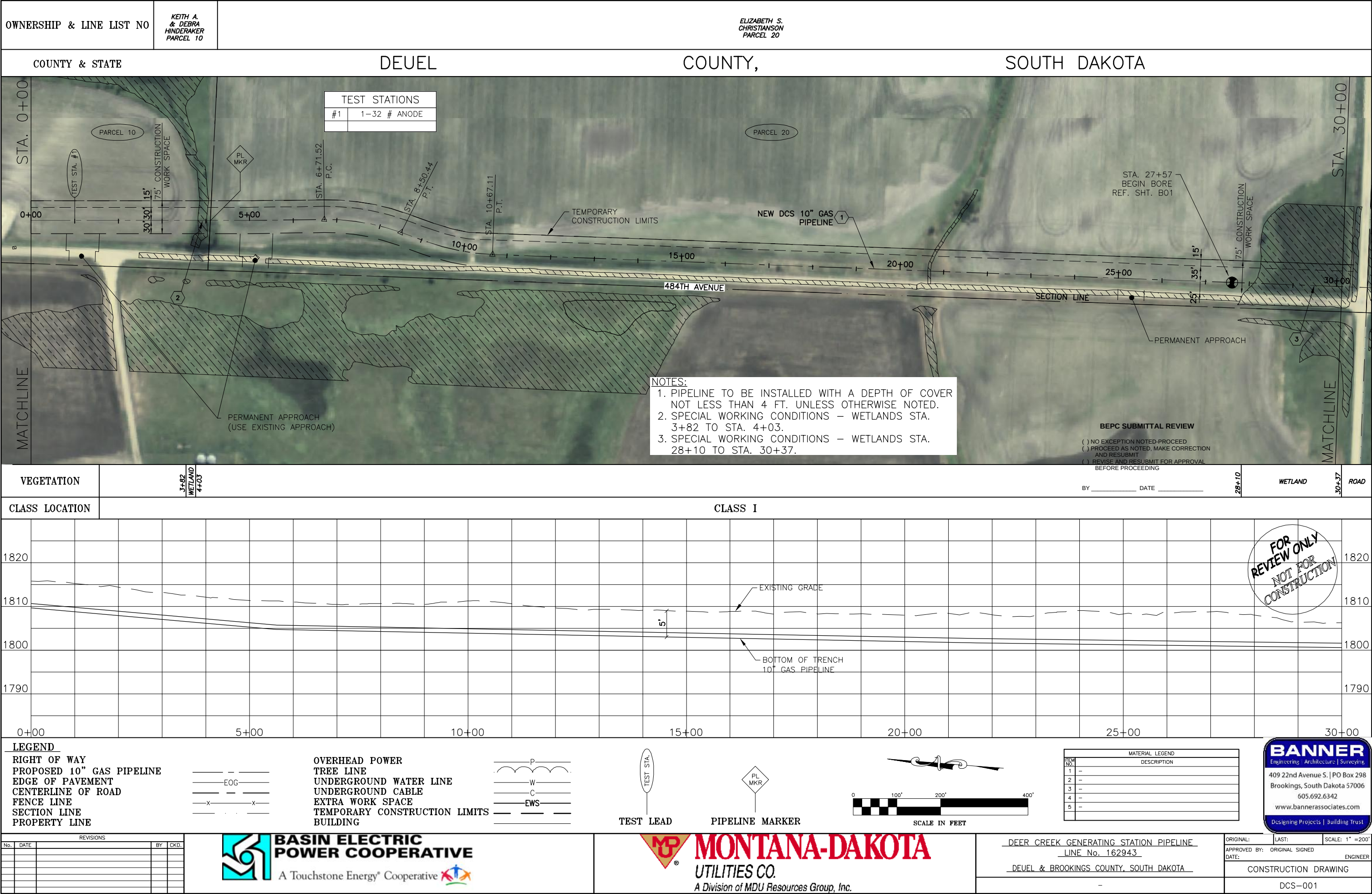
BILL OF MATERIALS		
QTY	SIZE	DESCRIPTION
64’	4”	PIPE, API5L, PSL2, GR. B, .237” W.T. X52
22’	2”	PIPE, API–5L, PSL2 GRADE B X52, .154” W.T.
25’	8”	PIPE, API–5L, PSL2 GR B ERW .280 WT, X52 EPOXY COATED
156’	6”	PIPE, API–5L, PSL2 GR B ERW .280 WT, X52 EPOXY COATED
16’	4”	PIPE, API–5L, PSL2 GR. ERW, .237WT, X52 EPOXY COATED
2	10”	45, STD, SWEEP, 8’ RADIUS
2	10”	90, STD, SWEEP, 8’ RADIUS
4	8”	ELBOW, 90, STD, CS/B, BW, A–234
24	6”	ELBOW, 90, STD, CS/B, BW, A–234
2	4”	ELBOW, 90, STD, CS/B, BW, A–234
4	12”x4”	TEE, STD, CS/B, BW, A–234
1	10”x8”	TEE, STD, CS/B, BW, A–234
1	10”x6”	TEE, STD, CS/B, BW, A–234
1	8”x4”	TEE, STD, CS/B, BW, A–234
1	6”x4”	TEE, STD, CS/B, BW, A–234
5	6”x2”	TEE, STD, CS/B, BW, A–234
10	6”	TEE, STD, CS/B, BW, A–234
1	8”	CROSS, STD, CS/B, BW, A–234
2	12”x10”	REDUCER, CONC, STD, CS/B, BW, A–234
2	8”x6”	REDUCER, CONC, STD, CS/B, BW, A–234
8	6”x4”	REDUCER, CONC, STD, CS/B, BW, A–234
1	6”X3”	REDUCER, CONC, STD, CS/B, BW, A–234
2	12”	CLOSURE, 600, HUBER–YALE, FIG. 500
4	2”	CAP, STD, CS/B, BW, A–234
1	2”	CAP, WEATHERING
2	2”	THREADOLET, 3000, FS, SCR’D, A–234
1	1”	THREADOLET, 3000
10	3/4”	THREADOLET, 3000
1	3/4”	THREADOLET, 3000, 45°
33	1/2”	THREADOLET, 3000
1	1–1/2”	WELDOLET, SCRUBBER, DRAIN DISCHARGE

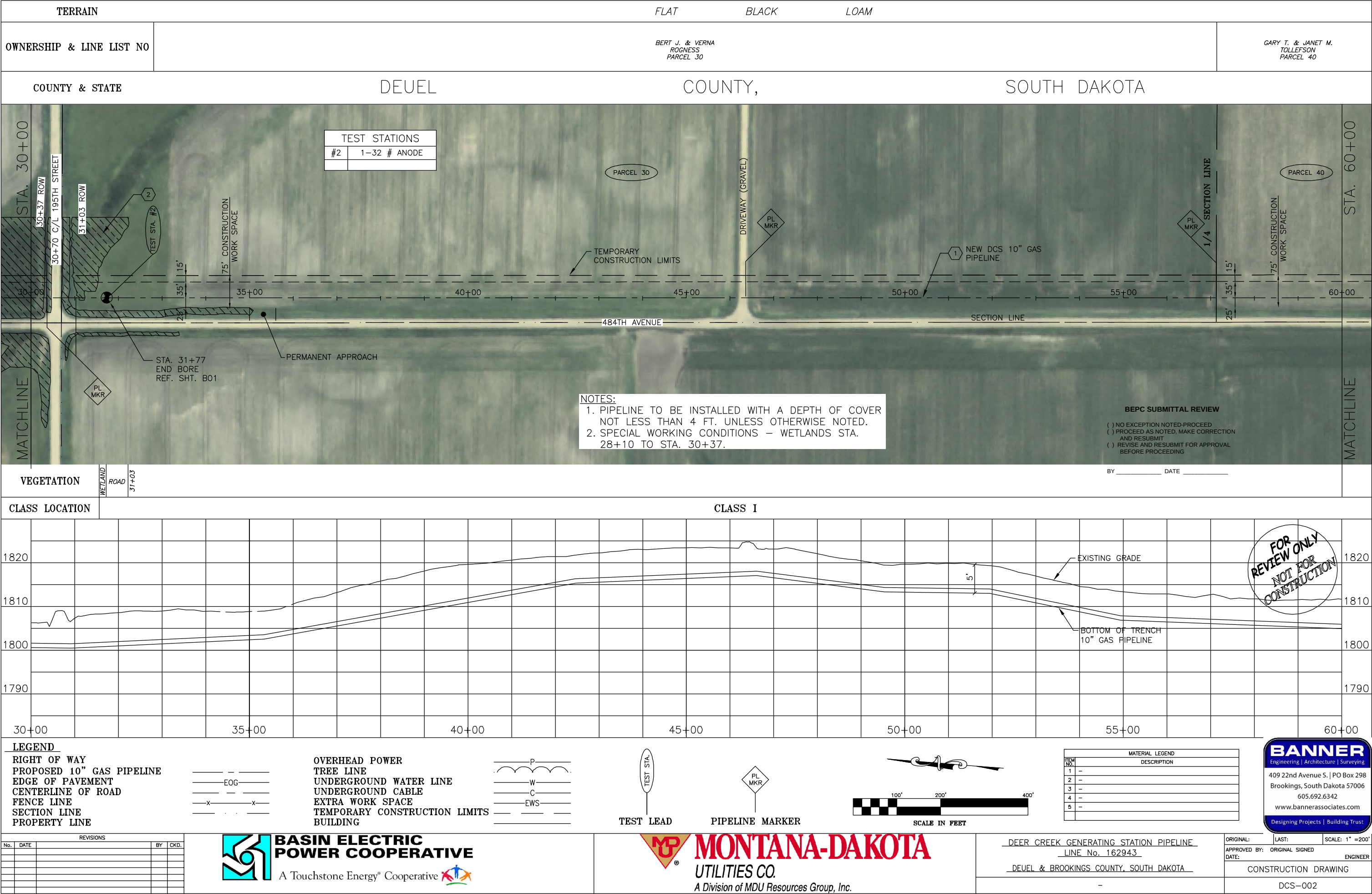
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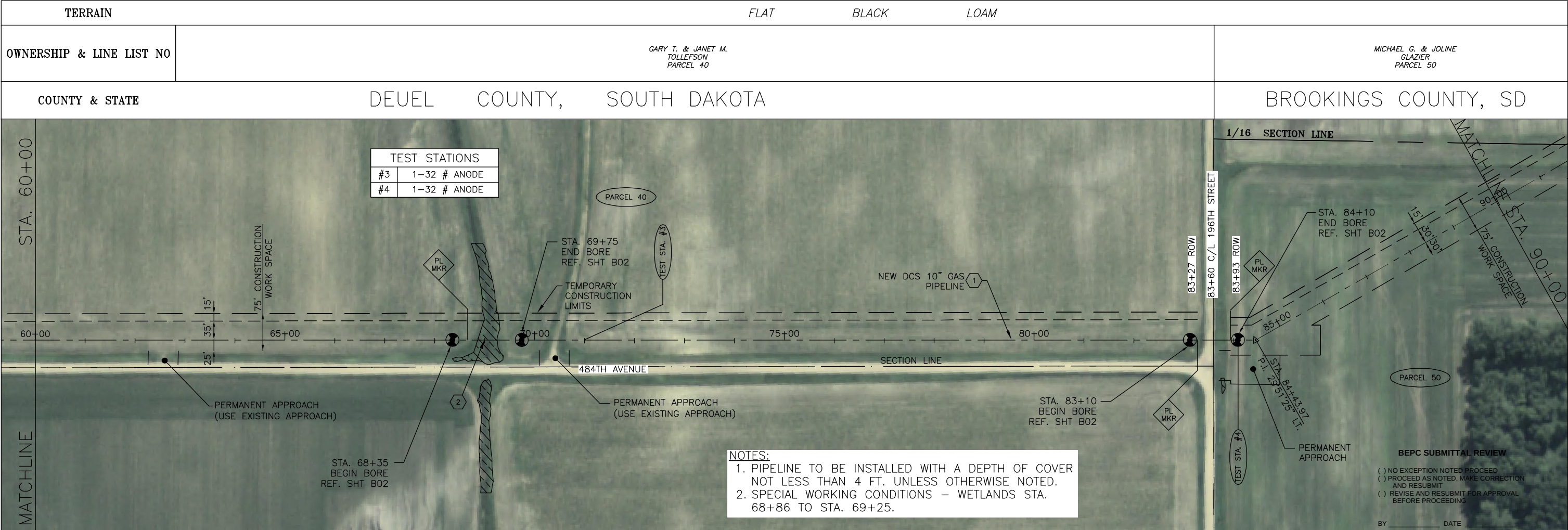
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- () PROCEED AS NOTED, MAKE CORRECTION AND RESUBMIT
- () REVISE AND RESUBMIT FOR APPROVAL BEFORE PROCEEDING

BY _____ DATE _____

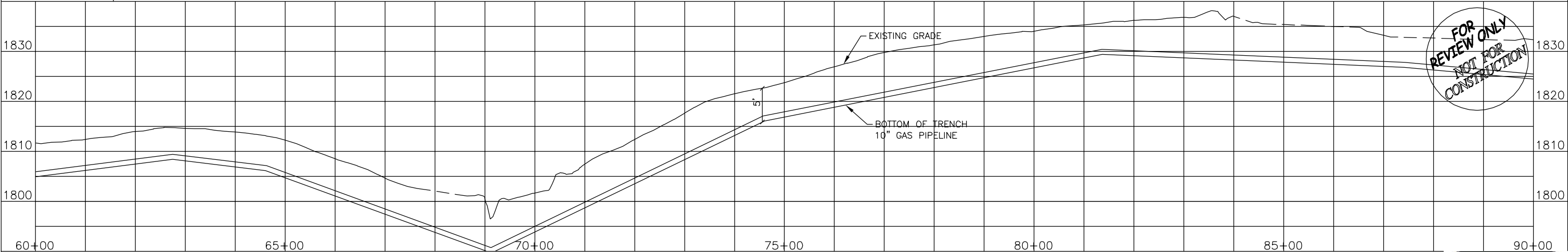
NO.	DATE	BY	REVISION
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 BASIN ELECTRIC POWER COOPERATIVE A Touchstone Energy® Cooperative   MONTANA-DAKOTA UTILITIES CO. A Division of MDU Resources Group, Inc.			
BILL OF MATERIALS RECAP DEER CREEK PROJECT			
SCALE	DATE	DRAWN BY	APPROVED BY
3/8"=1'	11/25/09	CASSIE PETER	DAVE YEXLEY
DRAWING: RELIEF TYPE REGULATOR STATION			







VEGETATION	68+86 WETLAND 69+25	83+27 ROAD 83+93
CLASS LOCATION	CLASS I	



LEGEND

RIGHT OF WAY

PROPOSED 10" GAS PIPELINE

EDGE OF PAVEMENT

CENTERLINE OF ROAD

FENCE LINE

SECTION LINE

PROPERTY LINE

OVERHEAD POWER

TREE LINE

UNDERGROUND WATER LINE

UNDERGROUND CABLE

EXTRA WORK SPACE

TEMPORARY CONSTRUCTION LIMITS

BUILDING

TEST STA.

PIPELINE MARKER

SCALE IN FEET

MATERIAL LEGEND

1 -

2 -

3 -

4 -

5 -

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No.

DATE

BY

CKD.

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MONTANA-DAKOTA UTILITIES CO.

A Division of MDU Resources Group, Inc.

DEER CREEK GENERATING STATION PIPELINE

LINE No. 162943

DEUEL & BROOKINGS COUNTY, SOUTH DAKOTA

ORIGINAL:

LAST:

SCALE: 1" = 200'

APPROVED BY: ORIGINAL SIGNED

DATE:

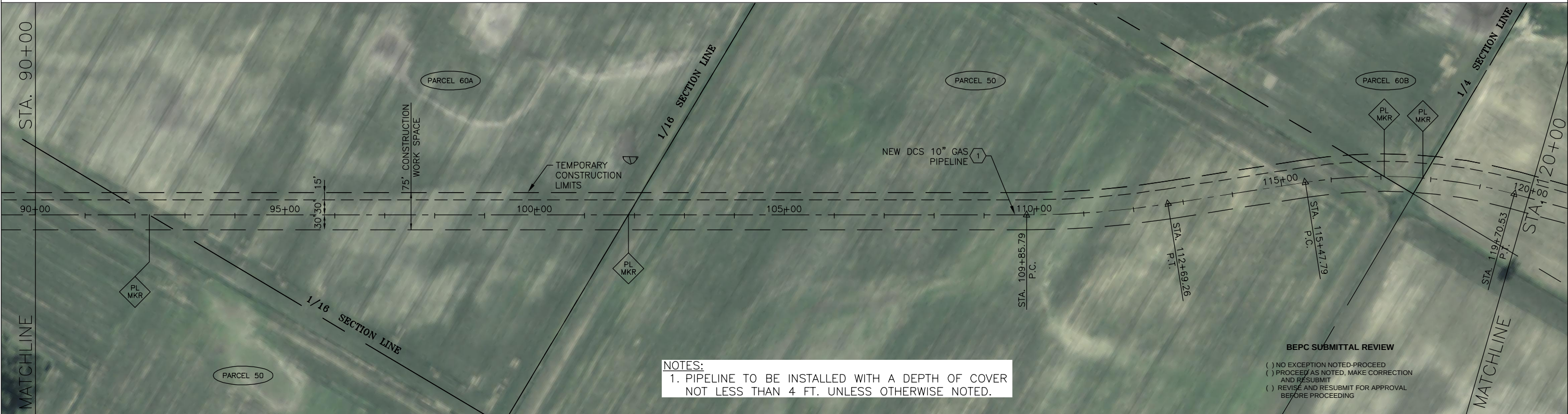
ENGINEER

CONSTRUCTION DRAWING

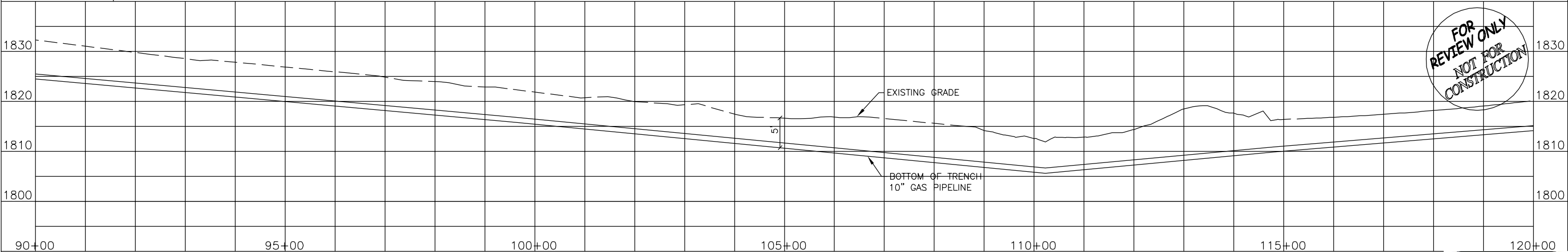
DCS-003

TERRAIN		FLAT	BLACK	LOAM
OWNERSHIP & LINE LIST NO	ROGNESS HERITAGE, LLP PARCEL 60A		MICHAEL G. & JOLINE GLAZIER PARCEL 50	ROGNESS HERITAGE, LLP PARCEL 60B

COUNTY & STATE	BROOKINGS	COUNTY,	SOUTH DAKOTA
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VEGETATION	
CLASS LOCATION	CLASS I



LEGEND

RIGHT OF WAY
PROPOSED 10" GAS PIPELINE
EDGE OF PAVEMENT
CENTERLINE OF ROAD
FENCE LINE
SECTION LINE
PROPERTY LINE

OVERHEAD POWER
TREE LINE
UNDERGROUND WATER LINE
UNDERGROUND CABLE
EXTRA WORK SPACE
TEMPORARY CONSTRUCTION LIMITS
BUILDING

TEST STA.
PIPELINE MARKER

SCALE IN FEET

100' 200' 400'

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No.	DATE	BY	CHKD.

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DEER CREEK GENERATING STATION PIPELINE
LINE No. 162943
DEUEL & BROOKINGS COUNTY, SOUTH DAKOTA

CONSTRUCTION DRAWING
DCS-004

TERRAIN

FLATBLACKLOAM

OWNERSHIP & LINE LIST NO

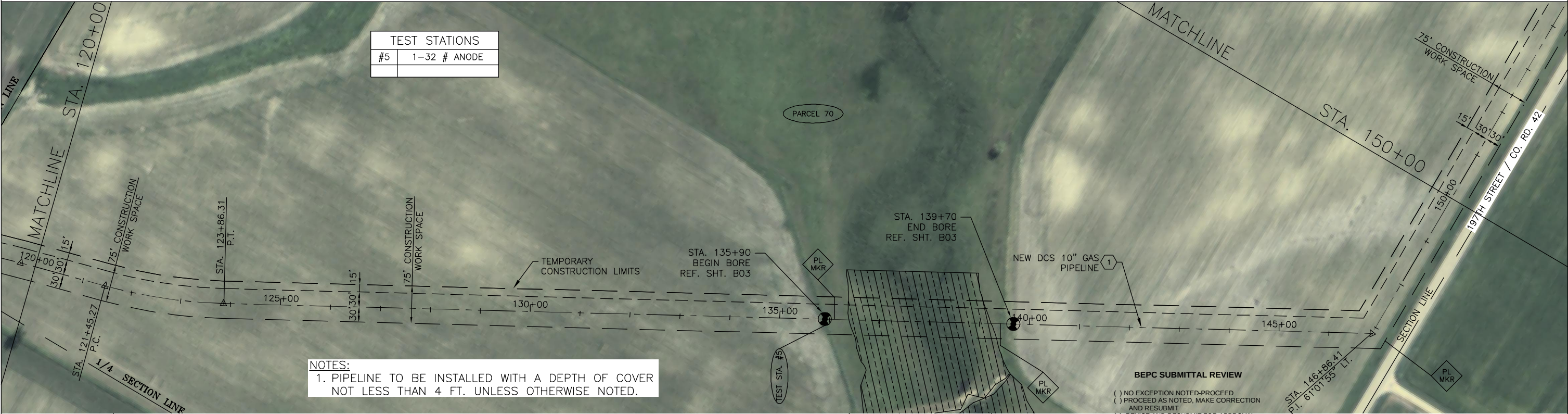
TRYGVE A. TROOJEN
PARCEL 70

COUNTY & STATE

BROOKINGS

COUNTY,

SOUTH DAKOTA



VEGETATION

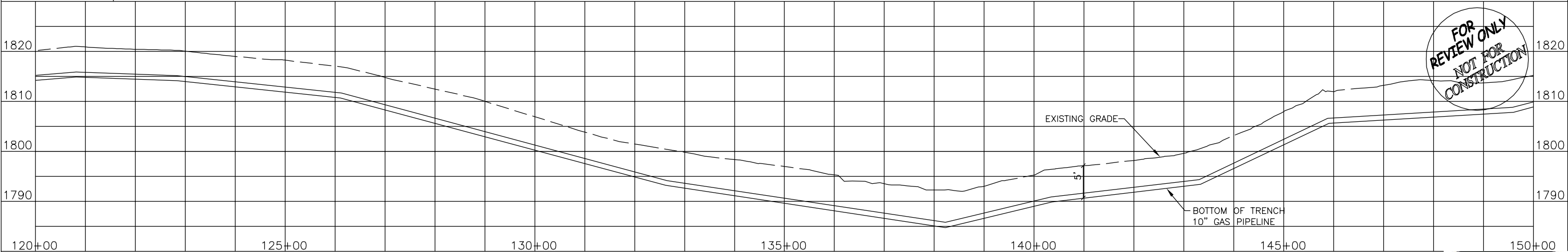
WETLAND

CLASS LOCATION

CLASS I

BY

DATE



LEGEND
RIGHT OF WAY
PROPOSED 10" GAS PIPELINE
EDGE OF PAVEMENT
CENTERLINE OF ROAD
FENCE LINE
SECTION LINE
PROPERTY LINE

— — — — —

—EOG—

—x—x—

— . . . —

OVERHEAD POWER

TREE LINE

UNDERGROUND WATER LINE

UNDERGROUND CABLE

EXTRA WORK SPACE

TEMPORARY CONSTRUCTION LIMITS

BUILDING

P

W

C

EWS

TEST STA.

PL MKR

TEST LEAD

PIPELINE MARKER

100'

200'

400'

SCALE IN FEET

REV. NO.	DESCRIPTION
1	-
2	-
3	-
4	-
5	-

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No.	DATE		

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DEER CREEK GENERATING STATION PIPELINE

LINE No. 162943

DEVEL & BROOKINGS COUNTY, SOUTH DAKOTA

-

ORIGINAL:

LAST:

SCALE: 1" = 200'

APPROVED BY:

ORIGINAL SIGNED

ENGINEER

CONSTRUCTION DRAWING

DCS-005

TERRAIN		FLAT		BLACK	LOAM
OWNERSHIP & LINE LIST NO	TRYGVE A. TROOEN PARCEL 70	TROOEN LAND CO. PARCEL 80		ENGEN FARMS, LLP PARCEL 90	

COUNTY & STATE

BROOKINGS

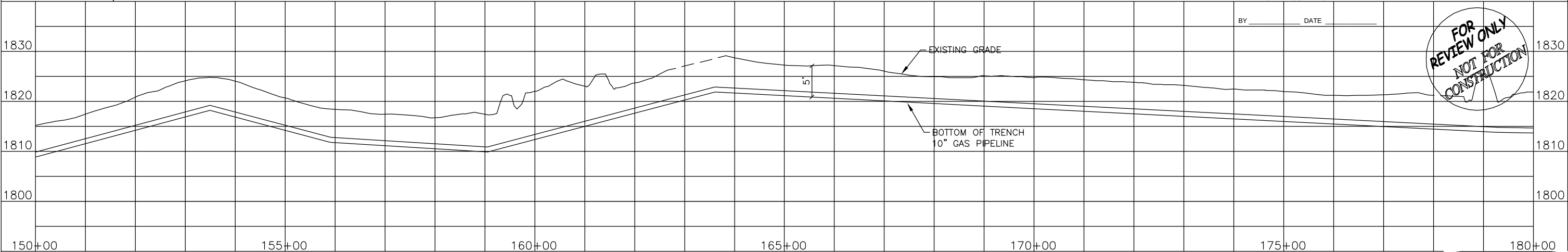
COUNTY,

SOUTH DAKOTA



VEGETATION	ROAD	ROAD	ROAD	WETLAND
	159+13	159+79	160+98	178+54
			161+64	179+20
				180+46

CLASS LOCATION	CLASS I	BEPC SUBMITTAL REVIEW
		() NO EXCEPTION NOTED-PROCEED () PROCEED AS NOTED, MAKE CORRECTION AND RESUBMIT () REVISE AND RESUBMIT FOR APPROVAL BEFORE PROCEEDING



LEGEND
RIGHT OF WAY
PROPOSED 10" GAS PIPELINE
EDGE OF PAVEMENT
CENTERLINE OF ROAD
FENCE LINE
SECTION LINE
PROPERTY LINE

OVERHEAD POWER

TREE LINE

UNDERGROUND WATER LINE

UNDERGROUND CABLE

EXTRA WORK SPACE

TEMPORARY CONSTRUCTION LIMITS

BUILDING

TEST STA.

PL MKR

TEST LEAD

PIPELINE MARKER

100'

200'

400'

SCALE IN FEET

REV. NO.	DESCRIPTION
1	-
2	-
3	-
4	-
5	-

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REVISIONS		BY	CHKD.
No.	DATE		

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DEER CREEK GENERATING STATION PIPELINE
LINE No. 162943

DEVEL & BROOKINGS COUNTY, SOUTH DAKOTA

-

ORIGINAL: LAST: SCALE: 1" = 200'

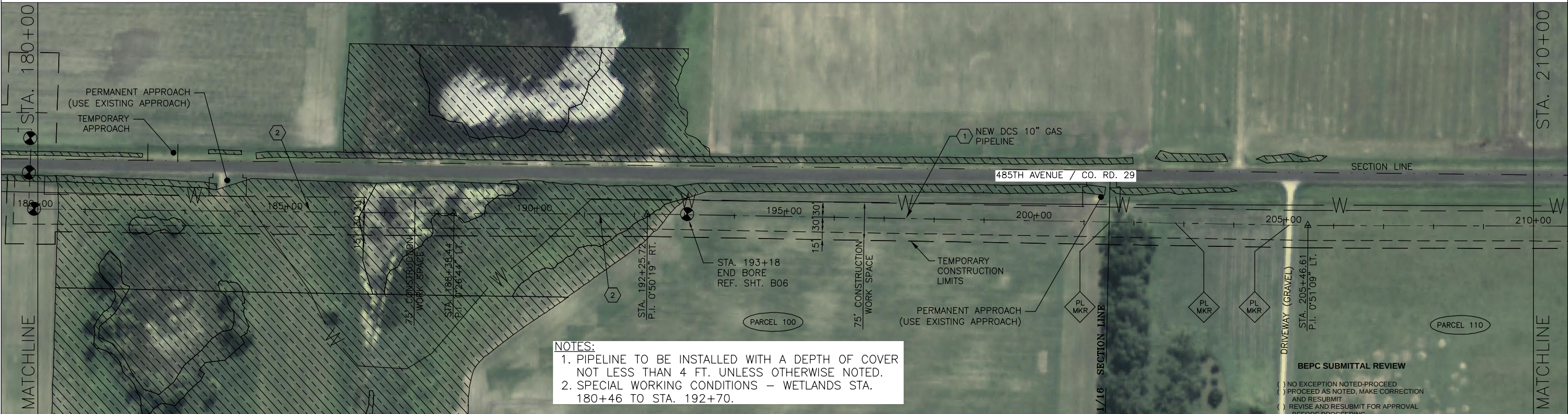
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DATE: CONSTRUCTION DRAWING

DCS-006

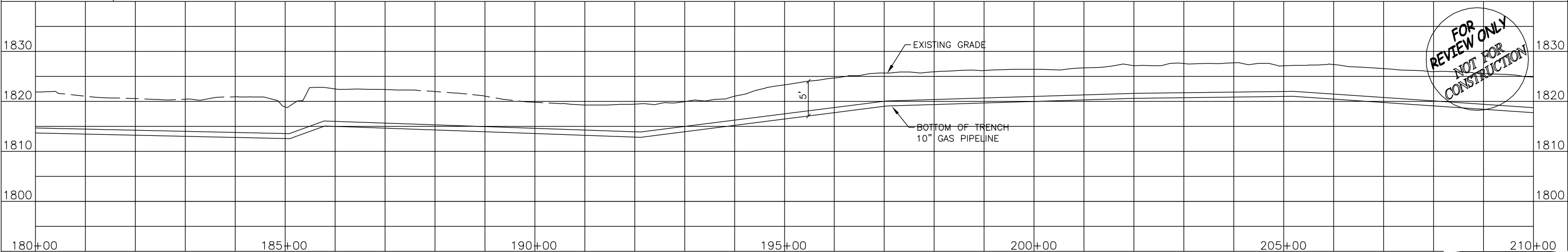
TERRAIN		FLAT	BLACK	LOAM
OWNERSHIP & LINE LIST NO	JANICE E. & ROBERT L. ROSENTHAL PARCEL 100			CHRIS & JOYCE CAUGHERTY PARCEL 110

COUNTY & STATE	BROOKINGS	COUNTY,	SOUTH DAKOTA
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VEGETATION	WETLAND	BY _____ DATE _____
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CLASS LOCATION	CLASS I
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LEGEND

RIGHT OF WAY
PROPOSED 10" GAS PIPELINE
EDGE OF PAVEMENT
CENTERLINE OF ROAD
FENCE LINE
SECTION LINE
PROPERTY LINE

OVERHEAD POWER
TREE LINE
UNDERGROUND WATER LINE
UNDERGROUND CABLE
EXTRA WORK SPACE
TEMPORARY CONSTRUCTION LIMITS
BUILDING

TEST STA.
PIPELINE MARKER

SCALE IN FEET

100' 200' 400'

REV. NO.	DESCRIPTION
1	-
2	-
3	-
4	-
5	-

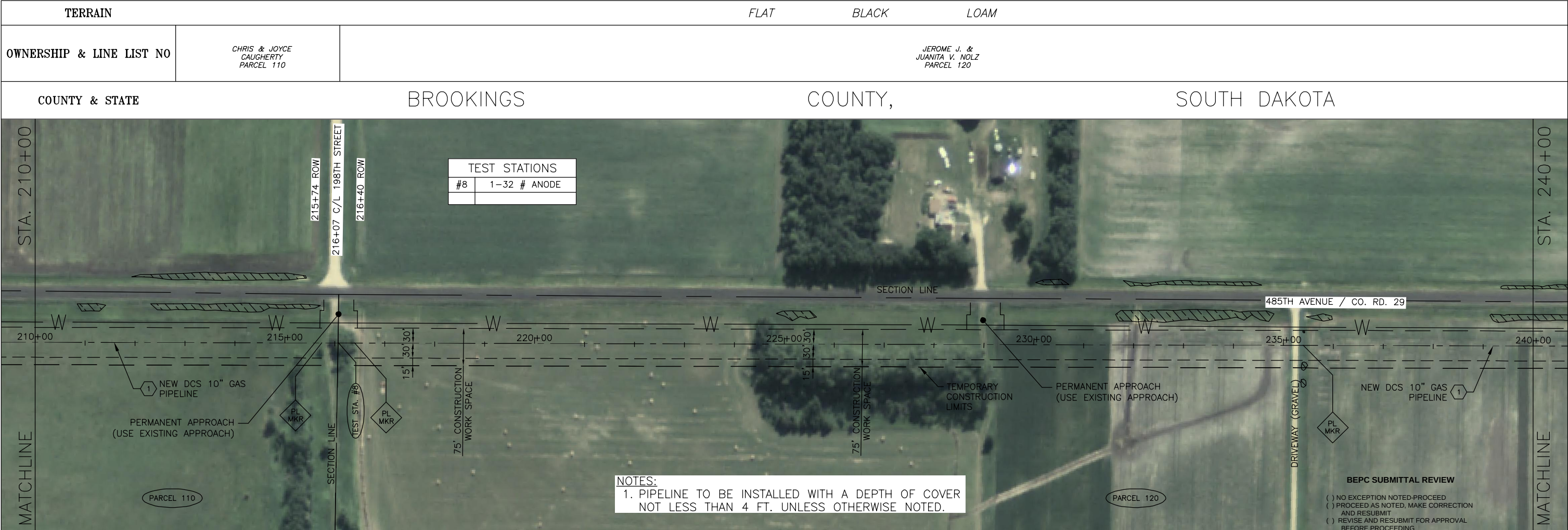
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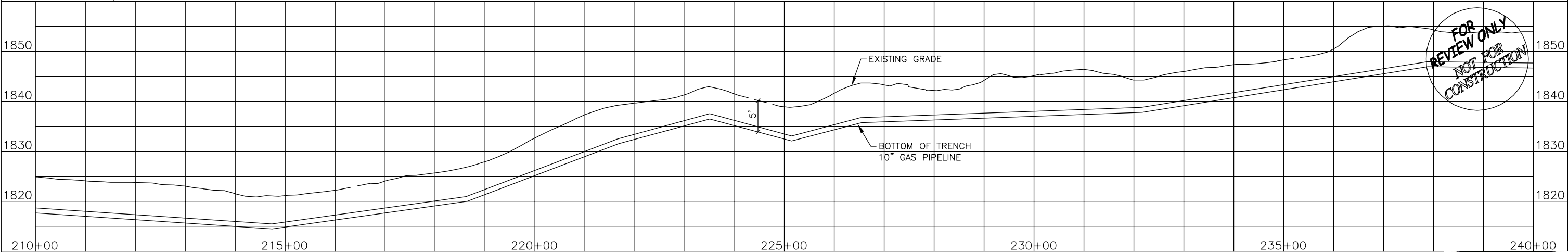
DEER CREEK GENERATING STATION PIPELINE
LINE No. 162943
DEUEL & BROOKINGS COUNTY, SOUTH DAKOTA

ORIGINAL: _____ LAST: _____ SCALE: 1" = 200'
APPROVED BY: ORIGINAL SIGNED _____ ENGINEER
DATE: _____
CONSTRUCTION DRAWING
DCS-007



VEGETATION	ROAD	BY _____ DATE _____
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CLASS LOCATION	CLASS I
----------------	---------



LEGEND

RIGHT OF WAY

PROPOSED 10" GAS PIPELINE

EDGE OF PAVEMENT

CENTERLINE OF ROAD

FENCE LINE

SECTION LINE

PROPERTY LINE

OVERHEAD POWER

TREE LINE

UNDERGROUND WATER LINE

UNDERGROUND CABLE

EXTRA WORK SPACE

TEMPORARY CONSTRUCTION LIMITS

BUILDING

TEST STA.

PIPELINE MARKER

SCALE IN FEET

100'

200'

400'

MATERIAL LEGEND

TEST NO.

1

2

3

4

5

DESCRIPTION

REVISIONS

No.

DATE

BY

CKD.

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DEER CREEK GENERATING STATION PIPELINE

LINE No. 162943

DEUEL & BROOKINGS COUNTY, SOUTH DAKOTA

ORIGINAL:

LAST:

SCALE: 1" = 200'

APPROVED BY: ORIGINAL SIGNED

DATE:

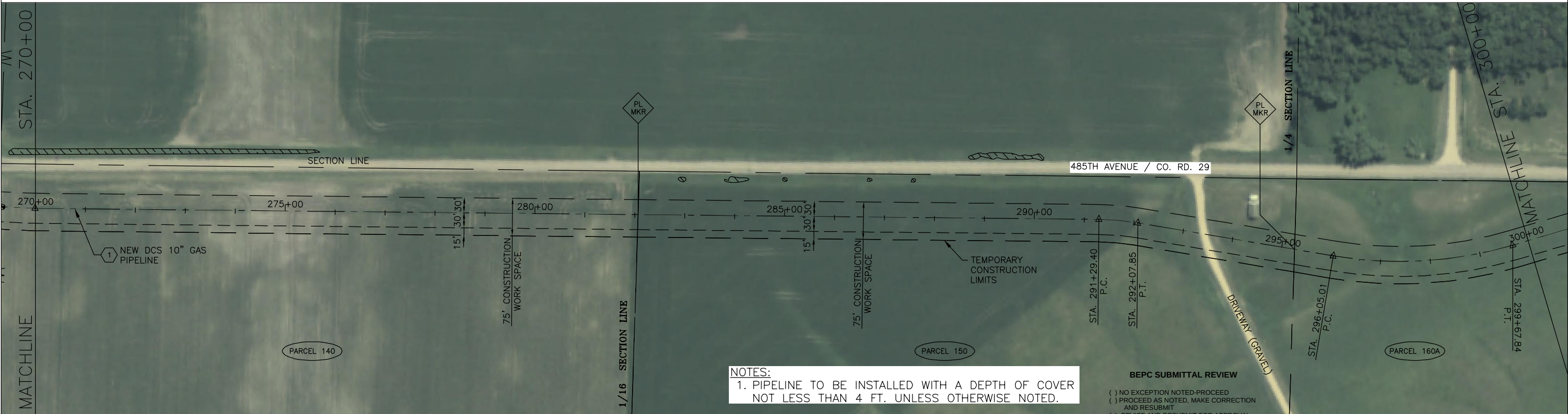
ENGINEER

CONSTRUCTION DRAWING

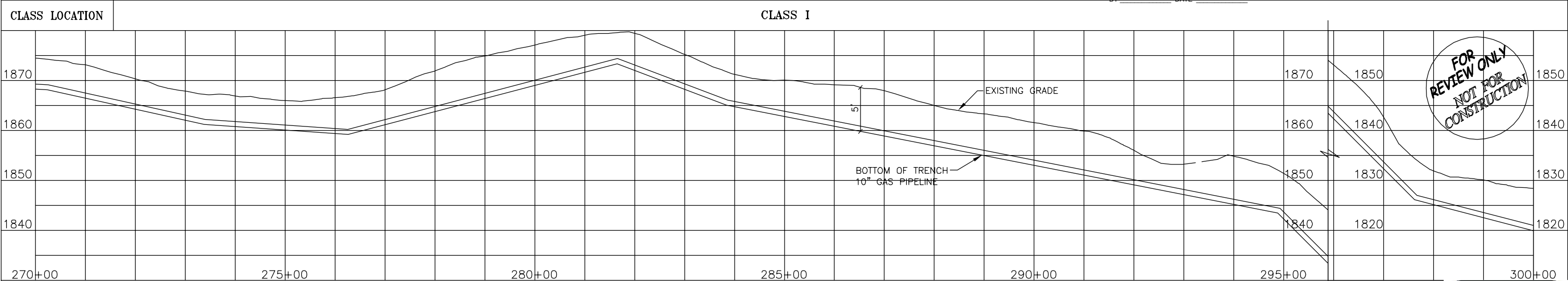
DCS-008

TERRAIN		FLAT	BLACK	LOAM
OWNERSHIP & LINE LIST NO	DEAN RAMLO PARCEL 140	HARVEY & FAYE M. WAHL PARCEL 150		RONALD D. & MARLENE KJELDEN PARCEL 160A

COUNTY & STATE
BROOKINGS COUNTY, SOUTH DAKOTA



VEGETATION	
CLASS LOCATION	CLASS I



LEGEND

RIGHT OF WAY
PROPOSED 10" GAS PIPELINE
EDGE OF PAVEMENT
CENTERLINE OF ROAD
FENCE LINE
SECTION LINE
PROPERTY LINE

OVERHEAD POWER
TREE LINE
UNDERGROUND WATER LINE
UNDERGROUND CABLE
EXTRA WORK SPACE
TEMPORARY CONSTRUCTION LIMITS
BUILDING

TEST STA.
PIPELINE MARKER

SCALE IN FEET

100' 200' 400'

REV. NO.	DESCRIPTION
1	-
2	-
3	-
4	-
5	-

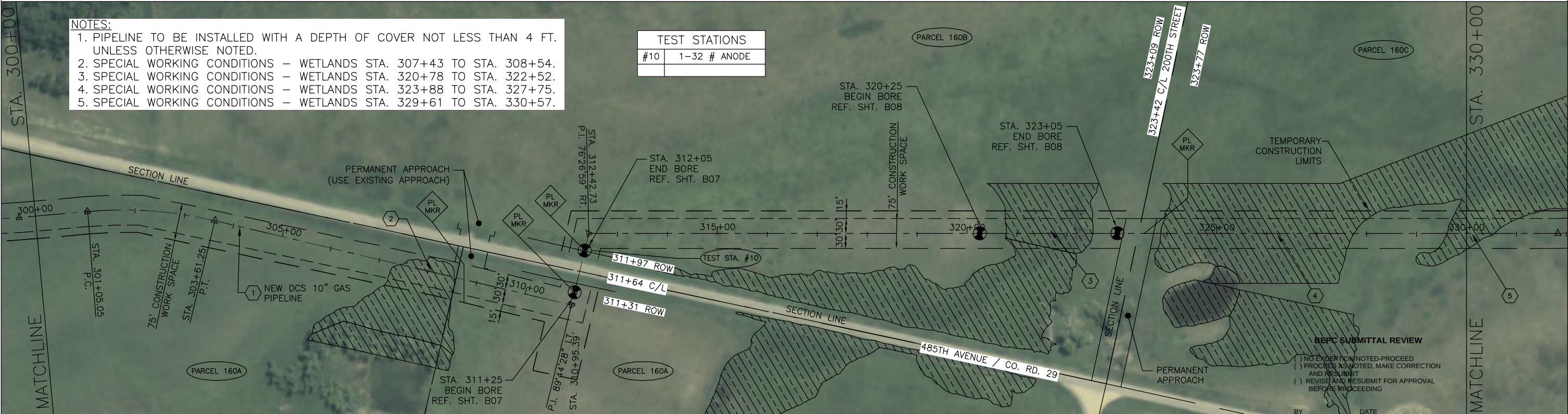
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DEER CREEK GENERATING STATION PIPELINE
LINE No. 162943
DEUEL & BROOKINGS COUNTY, SOUTH DAKOTA

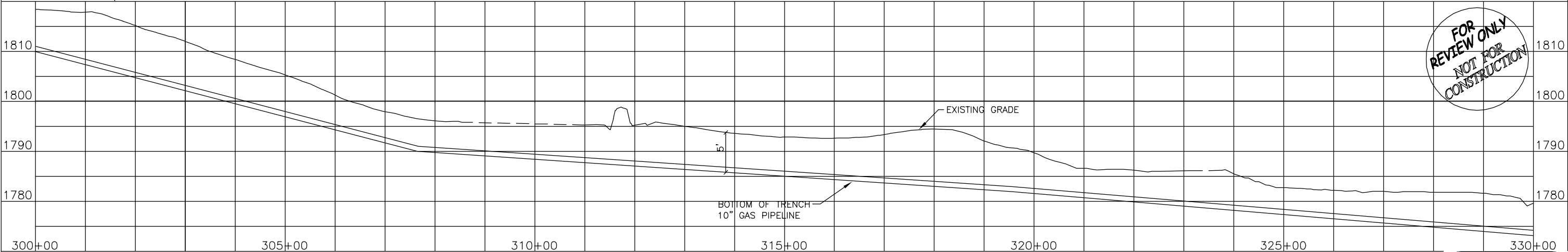
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APPROVED BY: ORIGINAL SIGNED _____ ENGINEER _____
DATE: _____
CONSTRUCTION DRAWING
DCS-010

TERRAIN		FLAT		BLACK	LOAM
OWNERSHIP & LINE LIST NO	RONALD D. & MARLENE KJELDEN PARCEL 160A		RONALD D. & MARLENE KJELDEN PARCEL 160B		RONALD D. & MARLENE KJELDEN PARCEL 160C
	COUNTY & STATE				
BROOKINGS		COUNTY,		SOUTH DAKOTA	



VEGETATION	307+43	WETLAND	308+54	311+31	ROAD	311+97	320+78	WETLAND	322+52	323+09	ROAD	323+77	323+88	WETLAND	327+75	329+61	WETLAND
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CLASS LOCATION	CLASS I																
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LEGEND

RIGHT OF WAY
PROPOSED 10" GAS PIPELINE
EDGE OF PAVEMENT
CENTERLINE OF ROAD
FENCE LINE
SECTION LINE
PROPERTY LINE

OVERHEAD POWER
TREE LINE
UNDERGROUND WATER LINE
UNDERGROUND CABLE
EXTRA WORK SPACE
TEMPORARY CONSTRUCTION LIMITS
BUILDING

TEST STA.
PIPELINE MARKER

SCALE IN FEET

100' 200' 400'

NO.	DATE	REVISIONS	BY	CHKD.

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MONTANA-DAKOTA UTILITIES CO.
A Division of MDU Resources Group, Inc.

DEER CREEK GENERATING STATION PIPELINE
LINE No. 162943
DEUEL & BROOKINGS COUNTY, SOUTH DAKOTA

ORIGINAL: _____ LAST: _____ SCALE: 1" = 200'
APPROVED BY: ORIGINAL SIGNED _____ ENGINEER _____
DATE: _____
CONSTRUCTION DRAWING
DCS-011

TERRAIN		FLAT BLACK LOAM		
OWNERSHIP & LINE LIST NO	RONALD D. & MARLENE KJELDEN PARCEL 160C	DAVID & MARY HEXEM PARCEL 170A		DAVID & MARY HEXEM PARCEL 170B

COUNTY & STATE

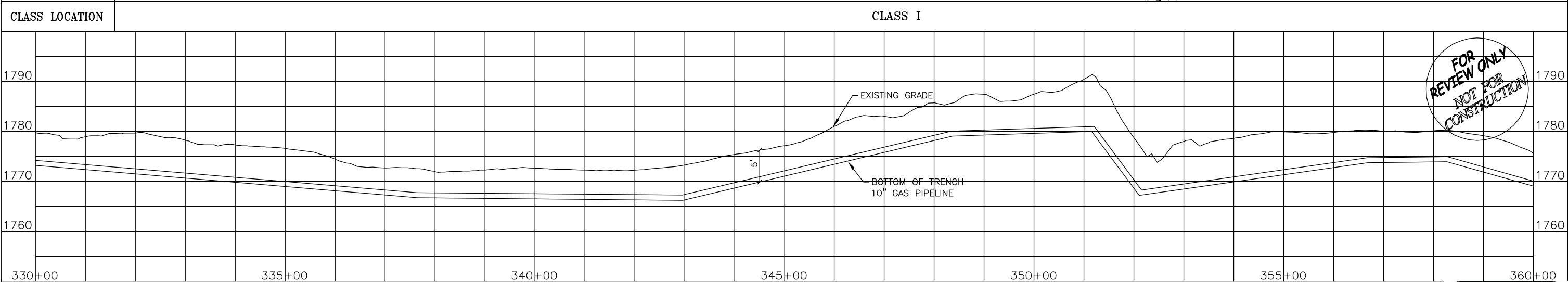
BROOKINGS

COUNTY,

SOUTH DAKOTA



VEGETATION	BY _____ DATE _____
CLASS LOCATION	CLASS I



LEGEND
RIGHT OF WAY
PROPOSED 10" GAS PIPELINE
EDGE OF PAVEMENT
CENTERLINE OF ROAD
FENCE LINE
SECTION LINE
PROPERTY LINE

OVERHEAD POWER

TREE LINE

UNDERGROUND WATER LINE

UNDERGROUND CABLE

EXTRA WORK SPACE

TEMPORARY CONSTRUCTION LIMITS

BUILDING

TEST STA.

PIPELINE MARKER

SCALE IN FEET

REV. NO.	DESCRIPTION
1	-
2	-
3	-
4	-
5	-

**BASIN ELECTRIC
POWER COOPERATIVE**
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DEER CREEK GENERATING STATION PIPELINE
LINE No. 162943

DEUEL & BROOKINGS COUNTY, SOUTH DAKOTA

-

ORIGINAL: _____ LAST: _____ SCALE: 1" = 200'

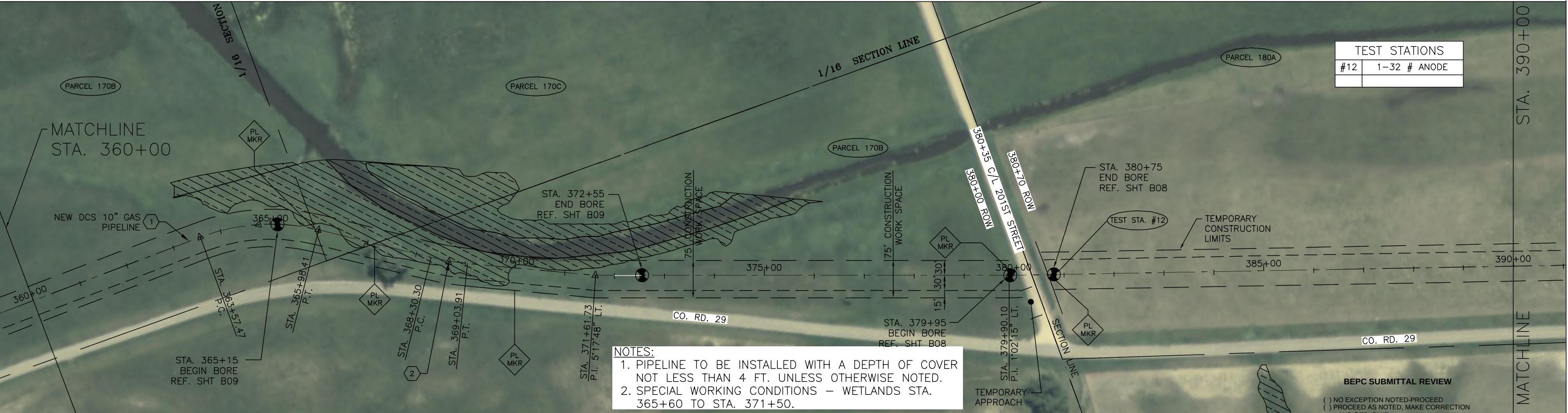
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DATE: _____

CONSTRUCTION DRAWING

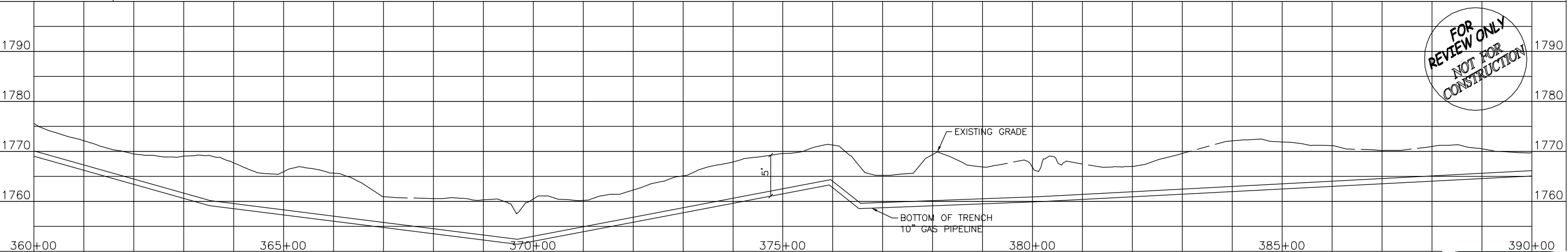
DCS-012

TERRAIN			FLAT	BLACK	LOAM
OWNERSHIP & LINE LIST NO	DAVID & MARY HEXEM PARCEL 170B	LEONA MOEN PARCEL 170C	DAVID & MARY HEXEM PARCEL 170B		WILLIAM MOE PARCEL 180A
COUNTY & STATE	BROOKINGS COUNTY, SOUTH DAKOTA				



VEGETATION	WETLAND	ROAD	BEPC SUBMITTAL REVIEW () NO EXCEPTION NOTED-PROCEED () PROCEED AS NOTED, MAKE CORRECTION AND RESUBMIT () REVISE AND RESUBMIT FOR APPROVAL BEFORE PROCEEDING
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CLASS LOCATION	CLASS I	BY _____ DATE _____
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LEGEND

RIGHT OF WAY
PROPOSED 10" GAS PIPELINE
EDGE OF PAVEMENT
CENTERLINE OF ROAD
FENCE LINE
SECTION LINE
PROPERTY LINE

OVERHEAD POWER
TREE LINE
UNDERGROUND WATER LINE
UNDERGROUND CABLE
EXTRA WORK SPACE
TEMPORARY CONSTRUCTION LIMITS
BUILDING

TEST STA.
PIPELINE MARKER

SCALE IN FEET

REV. NO.	DESCRIPTION
1	-
2	-
3	-
4	-
5	-

BASIN ELECTRIC POWER COOPERATIVE
A Touchstone Energy® Cooperative

MONTANA-DAKOTA UTILITIES CO.
A Division of MDU Resources Group, Inc.

DEER CREEK GENERATING STATION PIPELINE
LINE No. 162943
DEVEL & BROOKINGS COUNTY, SOUTH DAKOTA

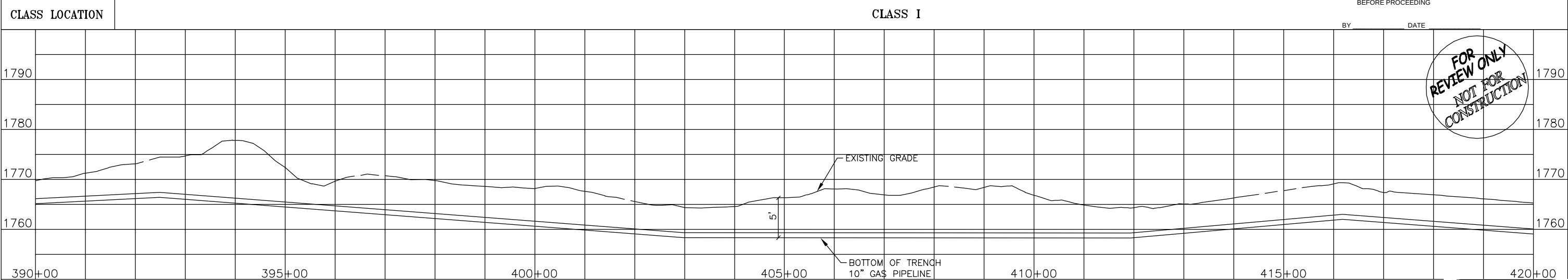
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APPROVED BY: ORIGINAL SIGNED _____ ENGINEER
DATE: _____
CONSTRUCTION DRAWING
DCS-013

TERRAIN		FLAT	BLACK	LOAM
OWNERSHIP & LINE LIST NO	WILLIAM MOE PARCEL 180A			WILLIAM MOE PARCEL 180B

COUNTY & STATE	BROOKINGS	COUNTY,	SOUTH DAKOTA
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VEGETATION	
CLASS LOCATION	CLASS I



LEGEND

RIGHT OF WAY
PROPOSED 10" GAS PIPELINE
EDGE OF PAVEMENT
CENTERLINE OF ROAD
FENCE LINE
SECTION LINE
PROPERTY LINE

OVERHEAD POWER
TREE LINE
UNDERGROUND WATER LINE
UNDERGROUND CABLE
EXTRA WORK SPACE
TEMPORARY CONSTRUCTION LIMITS
BUILDING

TEST STA.
TEST LEAD

PL MKR
PIPELINE MARKER

SCALE IN FEET

100' 200' 400'

MATERIAL LEGEND

NEW NO.	DESCRIPTION
1	-
2	-
3	-
4	-
5	-

BASIN ELECTRIC POWER COOPERATIVE

A Touchstone Energy® Cooperative

MONTANA-DAKOTA UTILITIES CO.

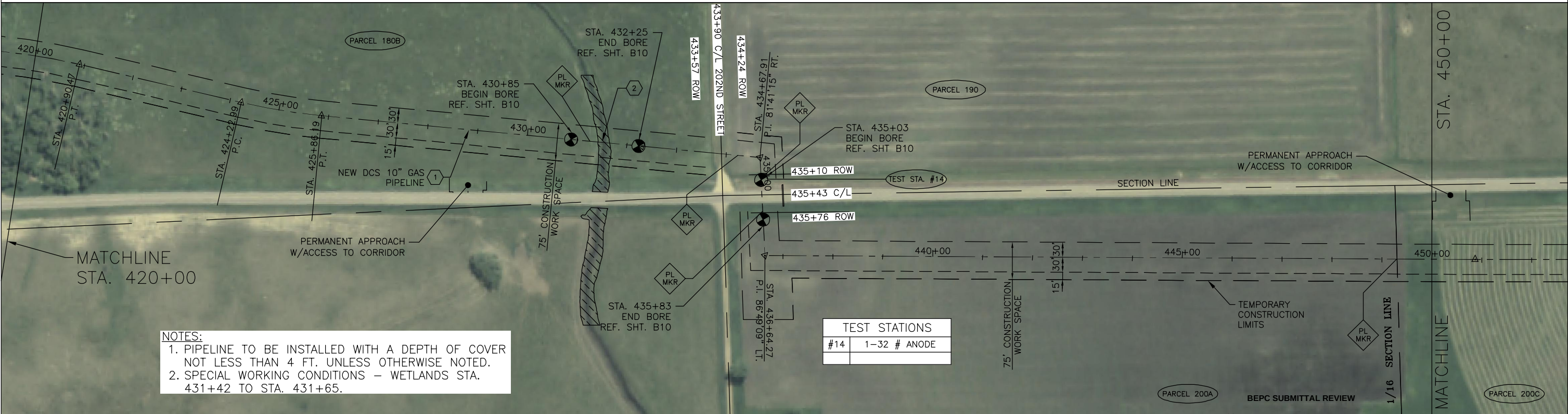
A Division of MDU Resources Group, Inc.

DEER CREEK GENERATING STATION PIPELINE
LINE No. 162943
DEVEL & BROOKINGS COUNTY, SOUTH DAKOTA

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APPROVED BY: ORIGINAL SIGNED ENGINEER
DATE: CONSTRUCTION DRAWING
DCS-014

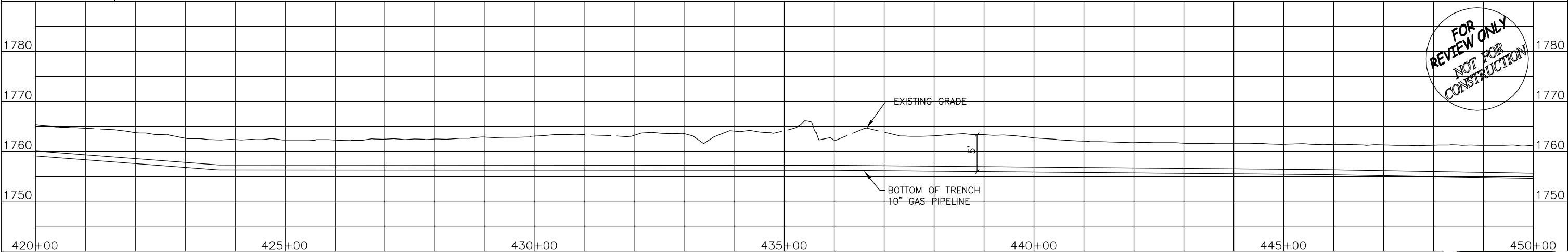
TERRAIN		FLAT		BLACK	LOAM
OWNERSHIP & LINE LIST NO	WILLIAM MOE PARCEL 180B		LEONA MOEN & IRENE LOVEJOY PARCEL 190		DANIEL J. & KRISTI G. LUTGEN PARCEL 200A
	DANIEL J. & KRISTI G. LUTGEN PARCEL 200C				

COUNTY & STATE	BROOKINGS	COUNTY,	SOUTH DAKOTA
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VEGETATION	431+42 WETLAND	431+65 WETLAND	433+57 ROAD	434+24 ROAD	435+10 ROAD	435+76 ROAD	BEPC SUBMITTAL REVIEW () NO EXCEPTION NOTED-PROCEED () PROCEED AS NOTED, MAKE CORRECTION AND RESUBMIT () REVISE AND RESUBMIT FOR APPROVAL BEFORE PROCEEDING									
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CLASS LOCATION	CLASS I																BY _____ DATE _____
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LEGEND

RIGHT OF WAY
PROPOSED 10" GAS PIPELINE
EDGE OF PAVEMENT
CENTERLINE OF ROAD
FENCE LINE
SECTION LINE
PROPERTY LINE

OVERHEAD POWER
TREE LINE
UNDERGROUND WATER LINE
UNDERGROUND CABLE
EXTRA WORK SPACE
TEMPORARY CONSTRUCTION LIMITS
BUILDING

TEST STA.
PIPELINE MARKER

SCALE IN FEET
100' 200' 400'

REV. NO.	DESCRIPTION
1	-
2	-
3	-
4	-
5	-

BASIN ELECTRIC POWER COOPERATIVE
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MONTANA-DAKOTA UTILITIES CO.
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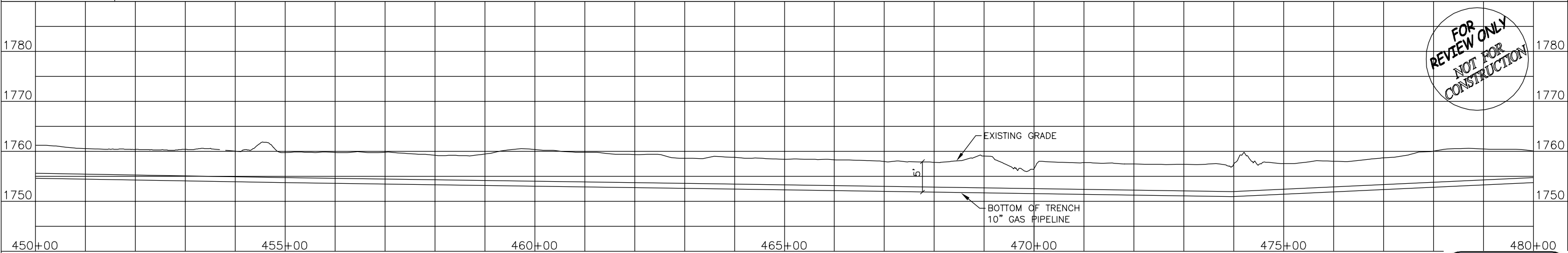
DEER CREEK GENERATING STATION PIPELINE
LINE No. 162943
DEVEL & BROOKINGS COUNTY, SOUTH DAKOTA

ORIGINAL: _____ LAST: _____ SCALE: 1" = 200'
APPROVED BY: ORIGINAL SIGNED _____ ENGINEER
DATE: _____
CONSTRUCTION DRAWING
DCS-015



VEGETATION	453+93 WETLAND 454+16	469+00 WETLAND 469+52	BY _____ DATE _____
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CLASS LOCATION	CLASS I
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LEGEND

RIGHT OF WAY
PROPOSED 10" GAS PIPELINE
EDGE OF PAVEMENT
CENTERLINE OF ROAD
FENCE LINE
SECTION LINE
PROPERTY LINE

OVERHEAD POWER
TREE LINE
UNDERGROUND WATER LINE
UNDERGROUND CABLE
EXTRA WORK SPACE
TEMPORARY CONSTRUCTION LIMITS
BUILDING

TEST STA.
PIPELINE MARKER

SCALE IN FEET
100' 200' 400'

REV. NO.	DESCRIPTION
1	-
2	-
3	-
4	-
5	-

BASIN ELECTRIC POWER COOPERATIVE
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DEER CREEK GENERATING STATION PIPELINE
LINE No. 162943
DEUEL & BROOKINGS COUNTY, SOUTH DAKOTA

ORIGINAL: _____ LAST: _____ SCALE: 1" = 200'
APPROVED BY: ORIGINAL SIGNED _____ ENGINEER
DATE: _____
CONSTRUCTION DRAWING
DCS-016

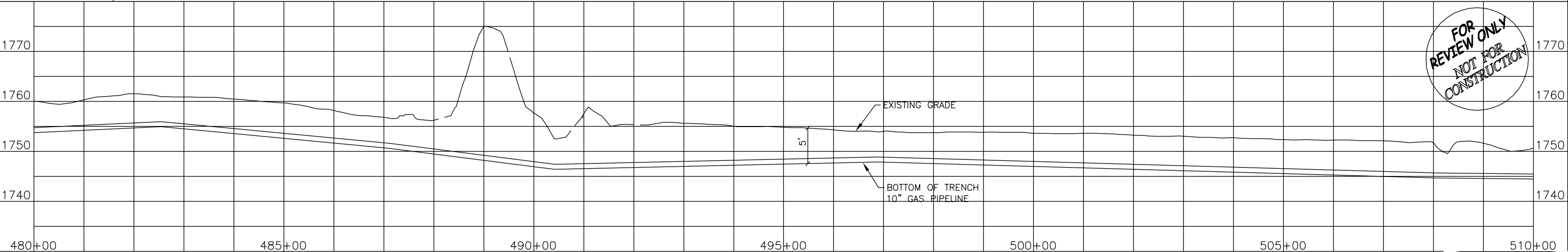
TERRAIN		FLAT	BLACK	LOAM
OWNERSHIP & LINE LIST NO	DANIEL J. & KRISTI G. LUTGEN PARCEL 200C	VERNELLE CLAYTON PARCEL 210		

COUNTY & STATE
BROOKINGS COUNTY, SOUTH DAKOTA



VEGETATION	ROAD	WETLAND	WETLAND
	488+70	489+36	490+32
			490+79
			508+08
			508+33

CLASS LOCATION	CLASS I
----------------	---------



LEGEND

RIGHT OF WAY
PROPOSED 10" GAS PIPELINE
EDGE OF PAVEMENT
CENTERLINE OF ROAD
FENCE LINE
SECTION LINE
PROPERTY LINE

OVERHEAD POWER
TREE LINE
UNDERGROUND WATER LINE
UNDERGROUND CABLE
EXTRA WORK SPACE
TEMPORARY CONSTRUCTION LIMITS
BUILDING

TEST STA.
PIPELINE MARKER

SCALE IN FEET

100' 200' 400'

REV. NO.	DESCRIPTION
1	-
2	-
3	-
4	-
5	-

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Brookings, South Dakota 57006
605.692.6342
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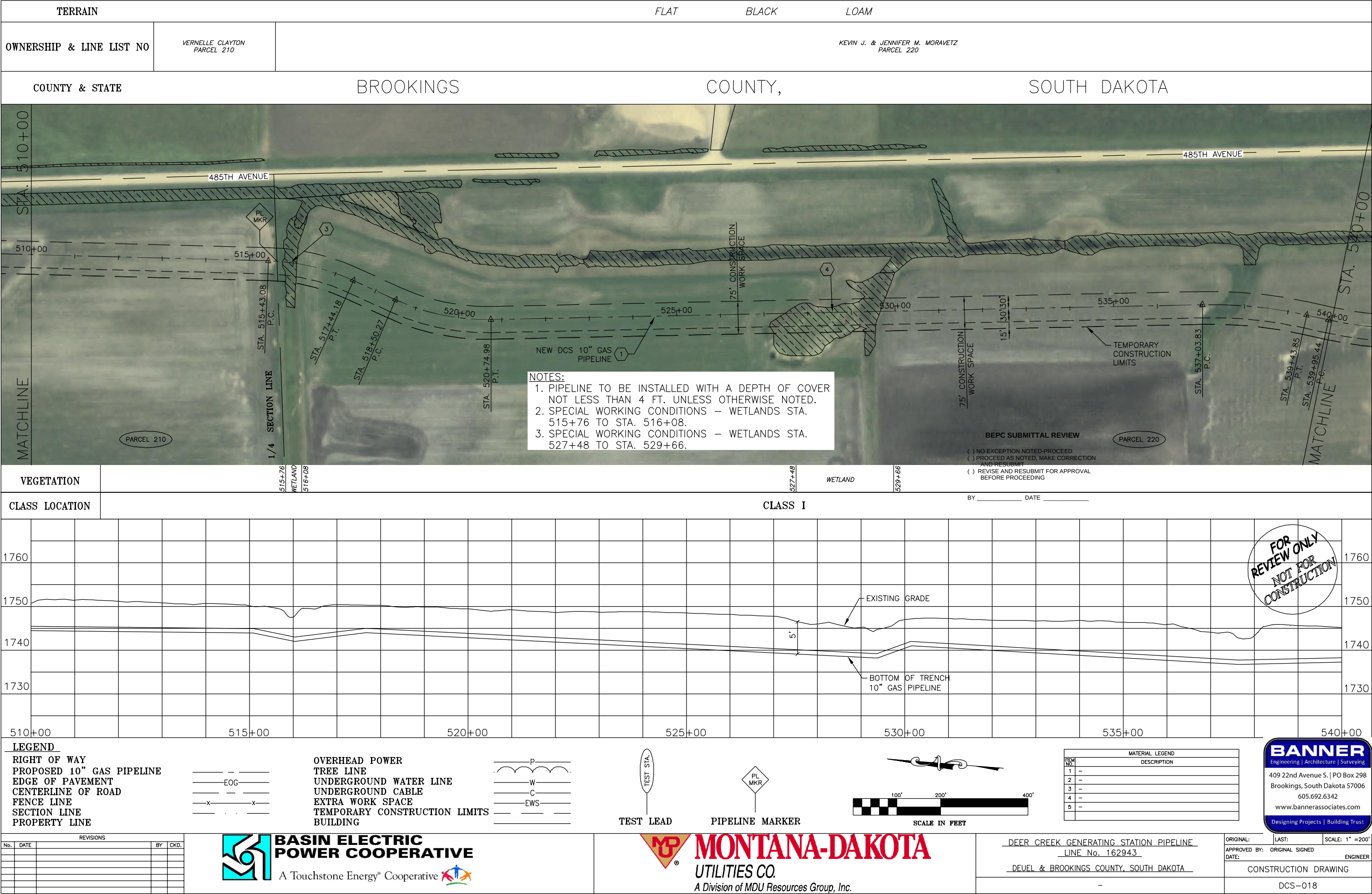
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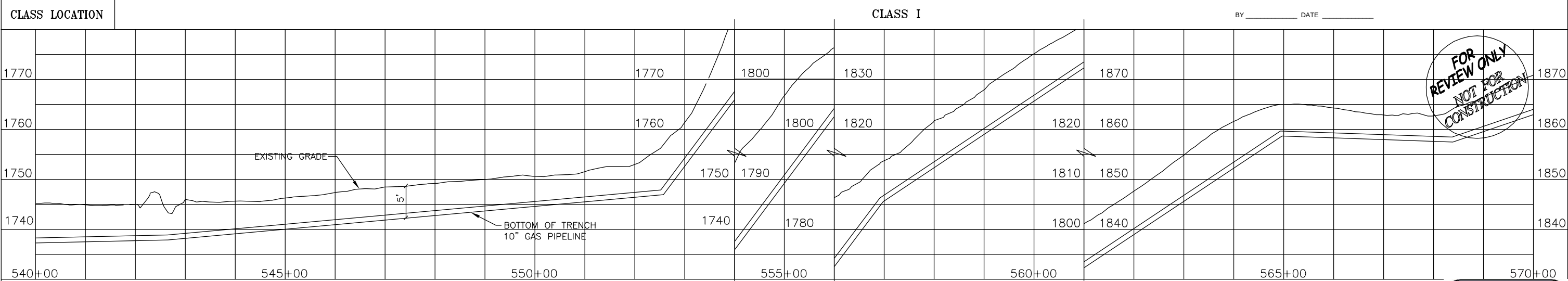
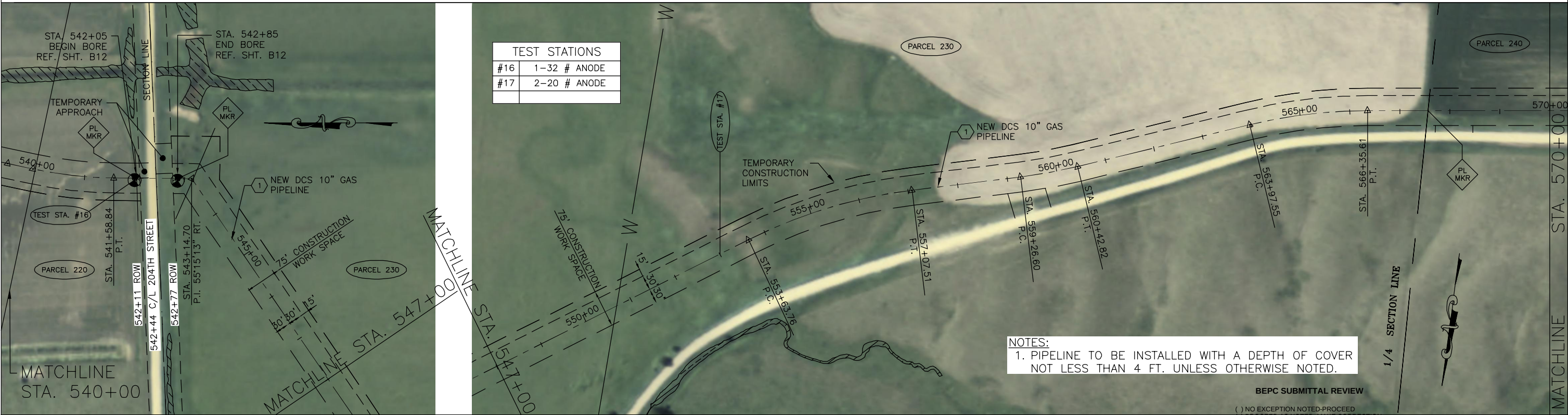
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DEER CREEK GENERATING STATION PIPELINE
LINE No. 162943
DEUEL & BROOKINGS COUNTY, SOUTH DAKOTA

ORIGINAL: _____ LAST: _____ SCALE: 1" = 200'
APPROVED BY: ORIGINAL SIGNED _____ ENGINEER
DATE: _____
CONSTRUCTION DRAWING
DCS-017





LEGEND

RIGHT OF WAY

PROPOSED 10" GAS PIPELINE

EDGE OF PAVEMENT

CENTERLINE OF ROAD

FENCE LINE

SECTION LINE

PROPERTY LINE

OVERHEAD POWER

TREE LINE

UNDERGROUND WATER LINE

UNDERGROUND CABLE

EXTRA WORK SPACE

TEMPORARY CONSTRUCTION LIMITS

BUILDING

TEST STA.

PIPELINE MARKER

SCALE IN FEET

0100'200'400'

MATERIAL LEGEND

NEW NO.

DESCRIPTION

1-

2-

3-

4-

5-

BANNER

Engineering | Architecture | Surveying

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Brookings, South Dakota 57006

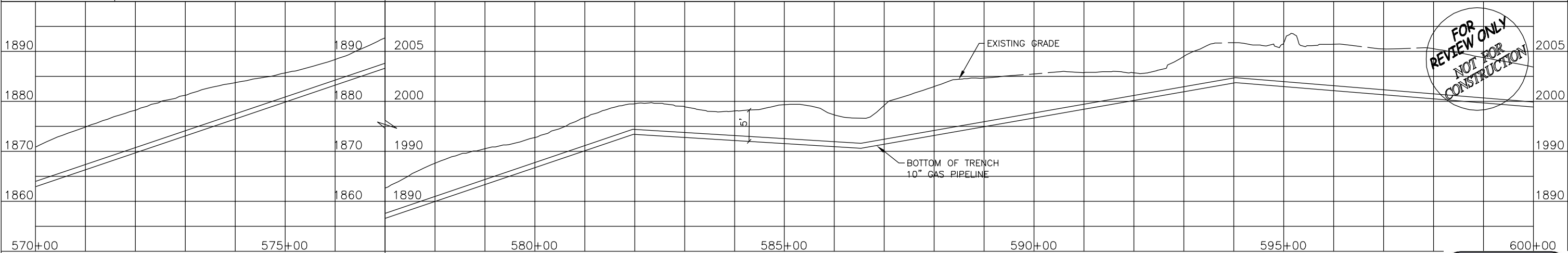
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VEGETATION	
CLASS LOCATION	CLASS I



LEGEND
RIGHT OF WAY
PROPOSED 10" GAS PIPELINE
EDGE OF PAVEMENT
CENTERLINE OF ROAD
FENCE LINE
SECTION LINE
PROPERTY LINE

OVERHEAD POWER

TREE LINE

UNDERGROUND WATER LINE

UNDERGROUND CABLE

EXTRA WORK SPACE

TEMPORARY CONSTRUCTION LIMITS

BUILDING

TEST STA.

PIPELINE MARKER

REV. NO.	DATE	REVISIONS	BY	CHKD.

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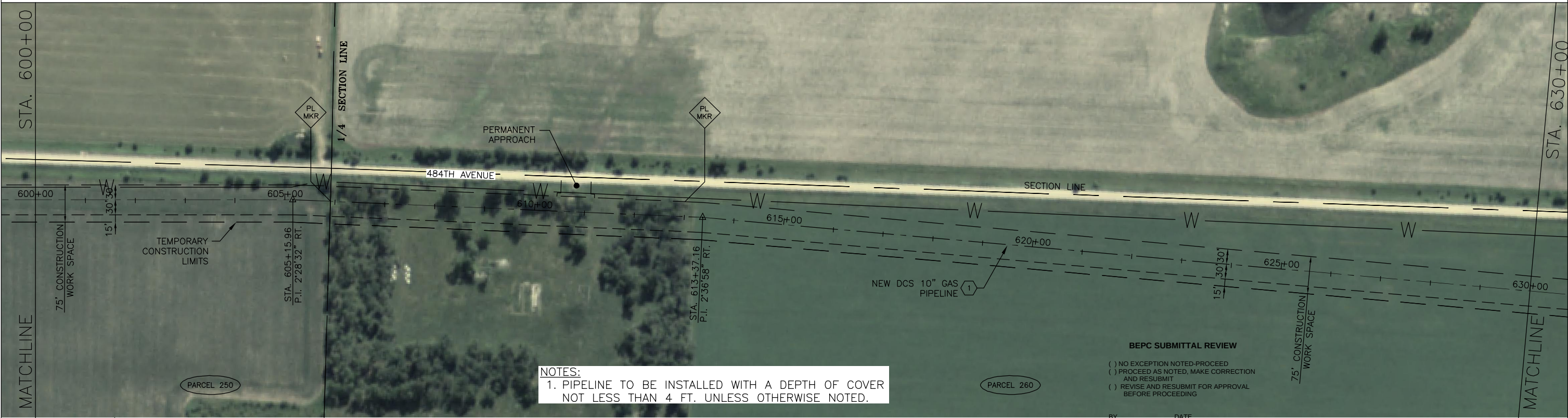
**MONTANA-DAKOTA
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A Division of MDU Resources Group, Inc.

DEER CREEK GENERATING STATION PIPELINE
LINE No. 162943
DEVEL & BROOKINGS COUNTY, SOUTH DAKOTA

ORIGINAL:	LAST:	SCALE: 1" = 200'
APPROVED BY: ORIGINAL SIGNED	ENGINEER	
CONSTRUCTION DRAWING		
DCS-020		

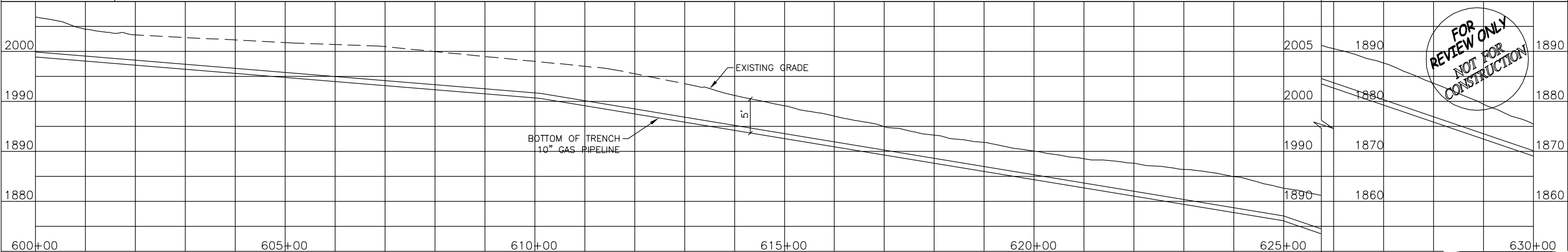
TERRAIN		FLAT	BLACK	LOAM
OWNERSHIP & LINE LIST NO	JOHN E. LEIFERMAN PARCEL 250	RICHARD O. & JOYCE E. LARSON PARCEL 260		

COUNTY & STATE	BROOKINGS	COUNTY,	SOUTH DAKOTA
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VEGETATION	
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CLASS LOCATION	CLASS I
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LEGEND

RIGHT OF WAY
PROPOSED 10" GAS PIPELINE
EDGE OF PAVEMENT
CENTERLINE OF ROAD
FENCE LINE
SECTION LINE
PROPERTY LINE

OVERHEAD POWER
TREE LINE
UNDERGROUND WATER LINE
UNDERGROUND CABLE
EXTRA WORK SPACE
TEMPORARY CONSTRUCTION LIMITS
BUILDING

TEST STA.
PIPELINE MARKER

SCALE IN FEET

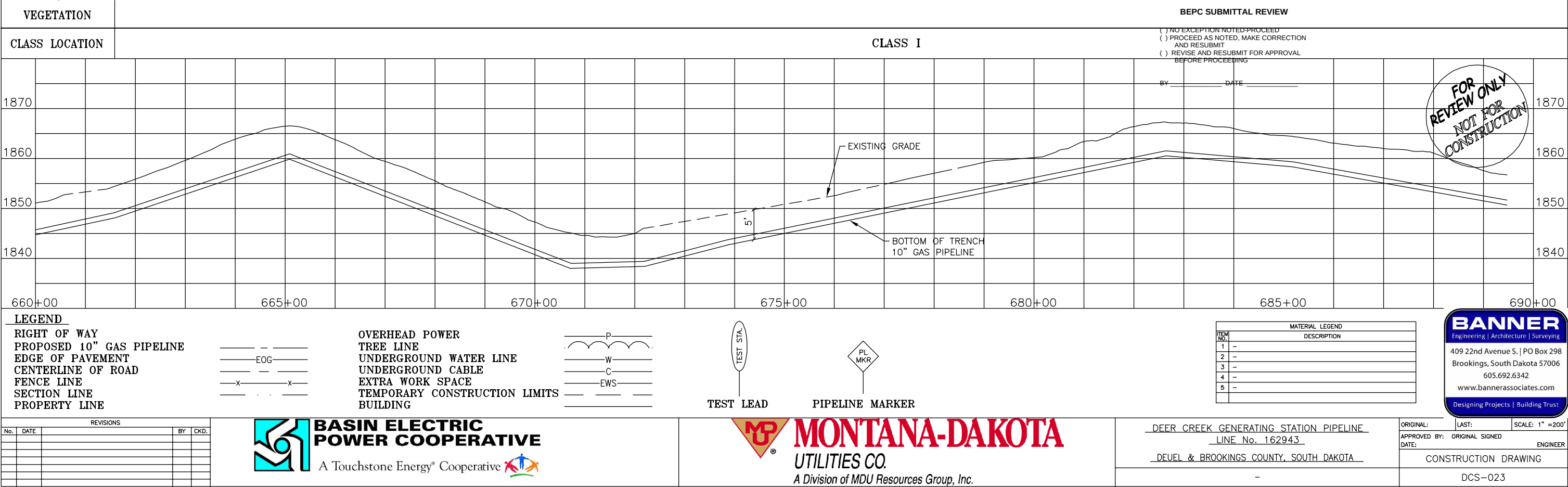
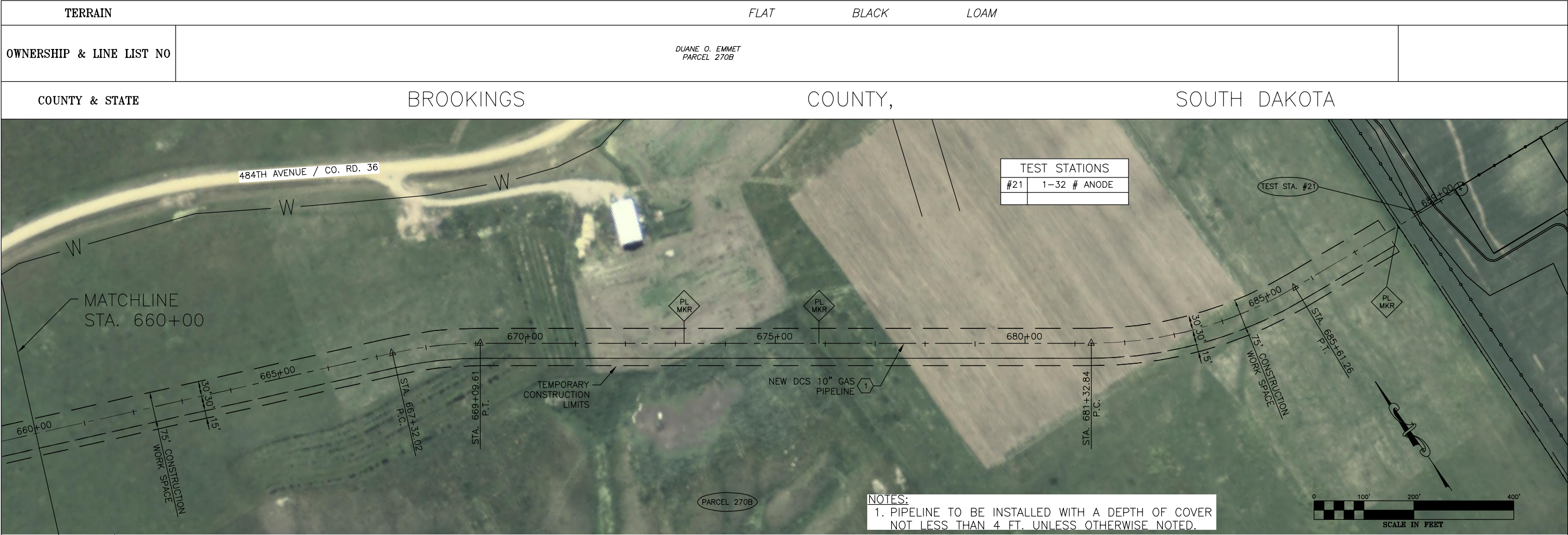
REV. NO.	DESCRIPTION
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3	-
4	-
5	-

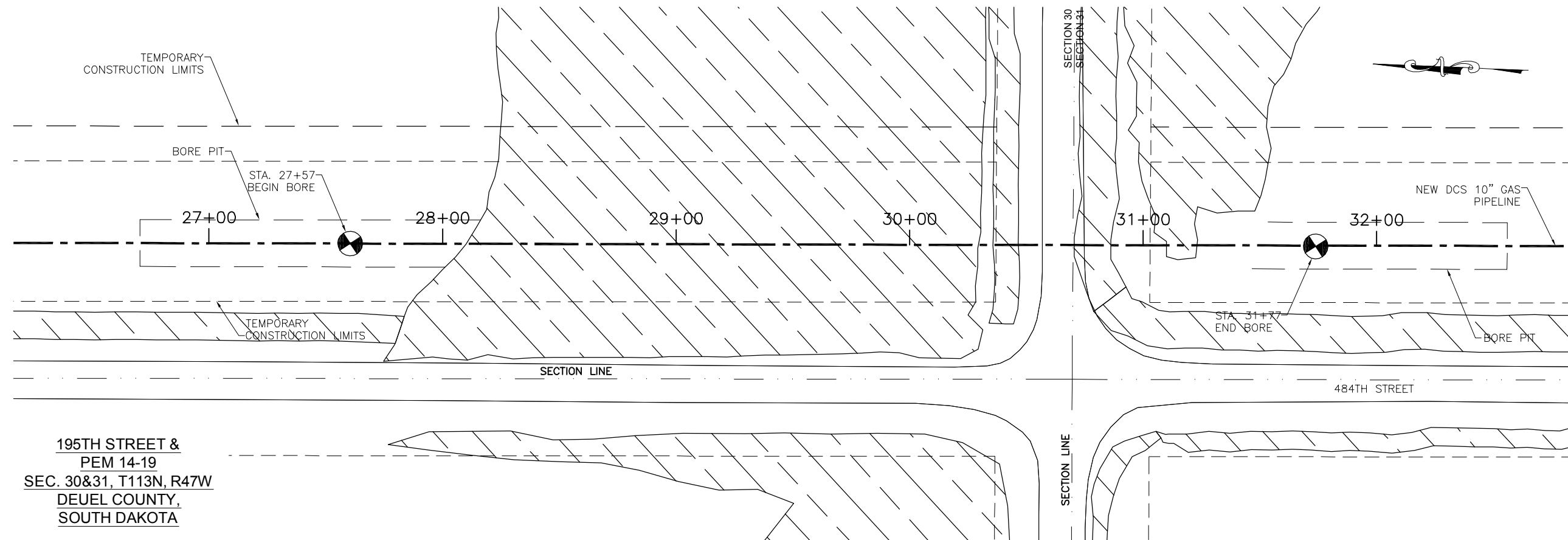
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DEER CREEK GENERATING STATION PIPELINE
LINE No. 162943
DEUEL & BROOKINGS COUNTY, SOUTH DAKOTA

ORIGINAL: _____ LAST: _____ SCALE: 1" = 200'
APPROVED BY: ORIGINAL SIGNED _____ ENGINEER
DATE: _____
CONSTRUCTION DRAWING
DCS-021





195TH STREET &
PEM 14-19
SEC. 30&31, T113N, R47W
DEUEL COUNTY,
SOUTH DAKOTA

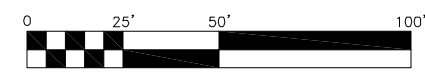
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CONSTRUCTION

BEPCL SUBMITTAL REVIEW
() NO EXCEPTION NOTED-PROCEED
() PROCEED AS NOTED, MAKE CORRECTION
AND RESUBMIT
() REVISE AND RESUBMIT FOR APPROVAL
BEFORE PROCEEDING
BY _____ DATE _____

NOTE:
BEARINGS AND DISTANCES ARE BASED
ON THE SOUTH DAKOTA STATE PLANE
COORDINATE SYSTEM, NORTH ZONE -
NAD83 (US SURVEY FEET)

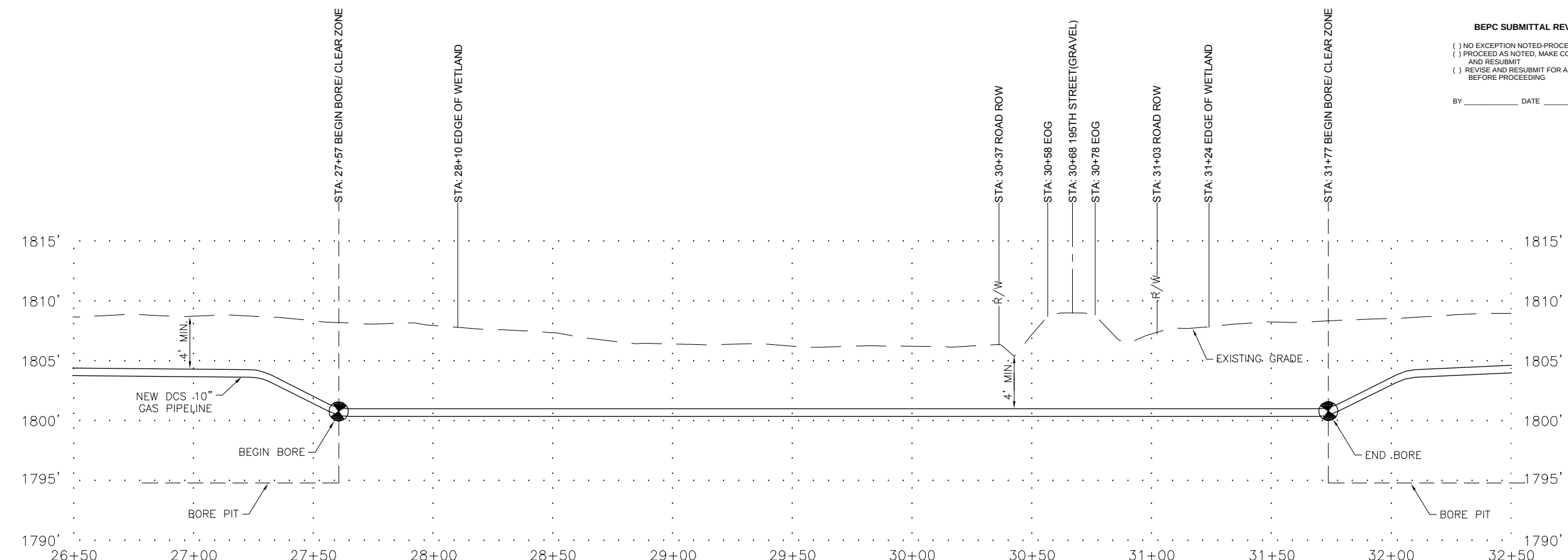
LAND DIMENSION INFORMATION FOR THIS
EXHIBIT WAS DERIVED FROM LAND
SURVEY DATA.

ALL UNDERGROUND UTILITIES ARE SHOWN
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FIELD VERIFY PRIOR TO CONSTRUCTION.



SCALE IN FEET

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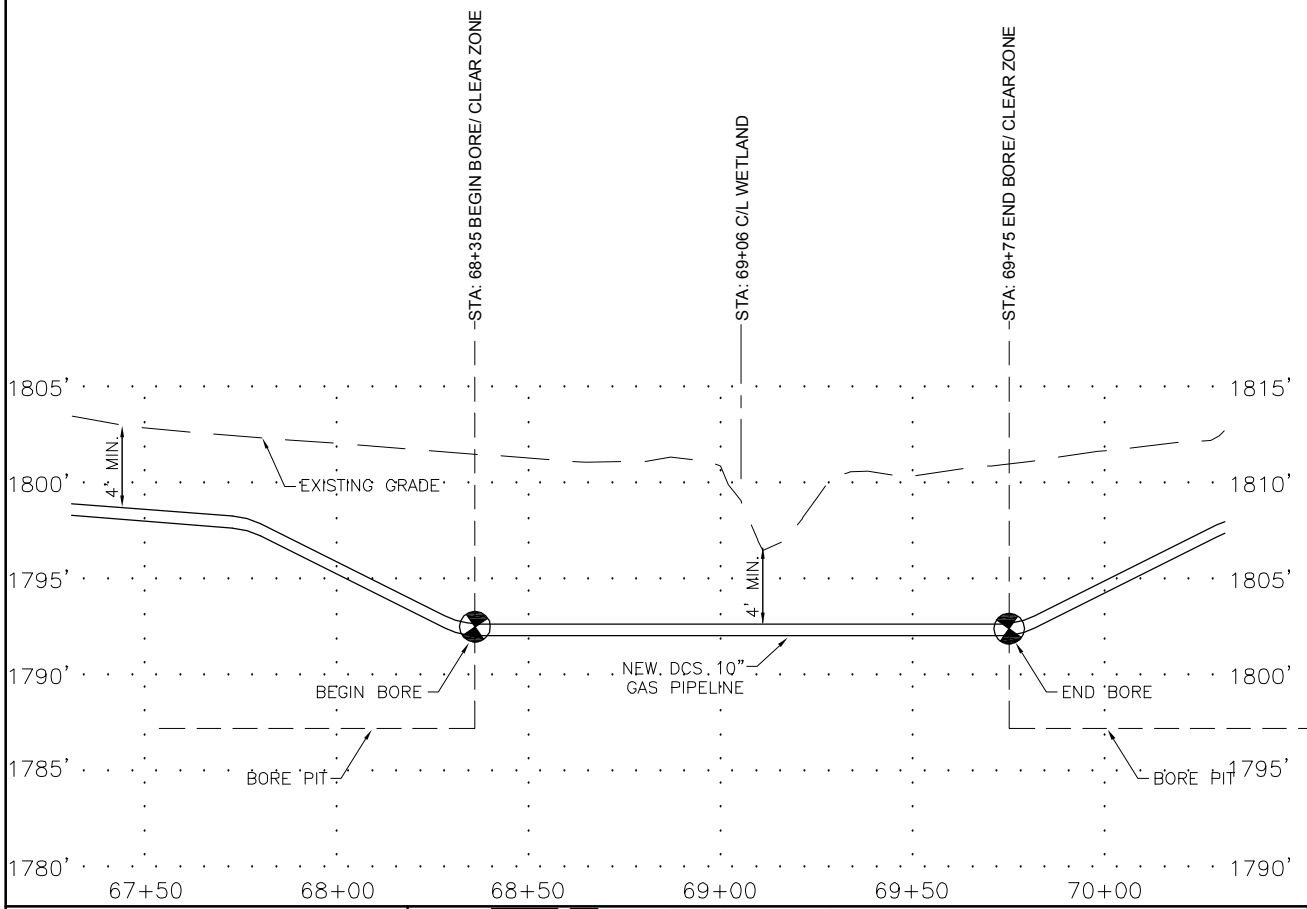
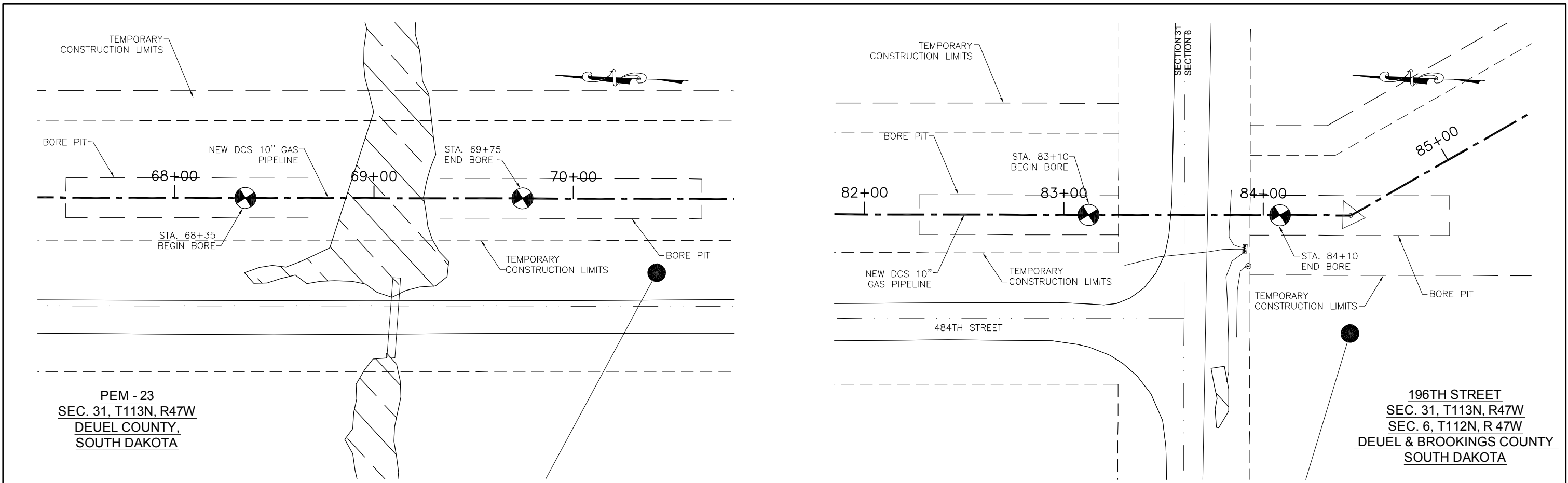
REVISIONS				
No.	DATE	BY	CHKD.	

**BASIN ELECTRIC
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DEER CREEK GENERATING STATION PIPELINE
LINE No. 162943
DEUEL & BROOKINGS COUNTY, SOUTH DAKOTA

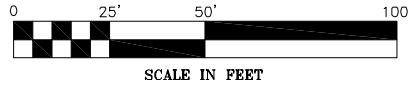
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DATE:		
CONSTRUCTION DRAWING		
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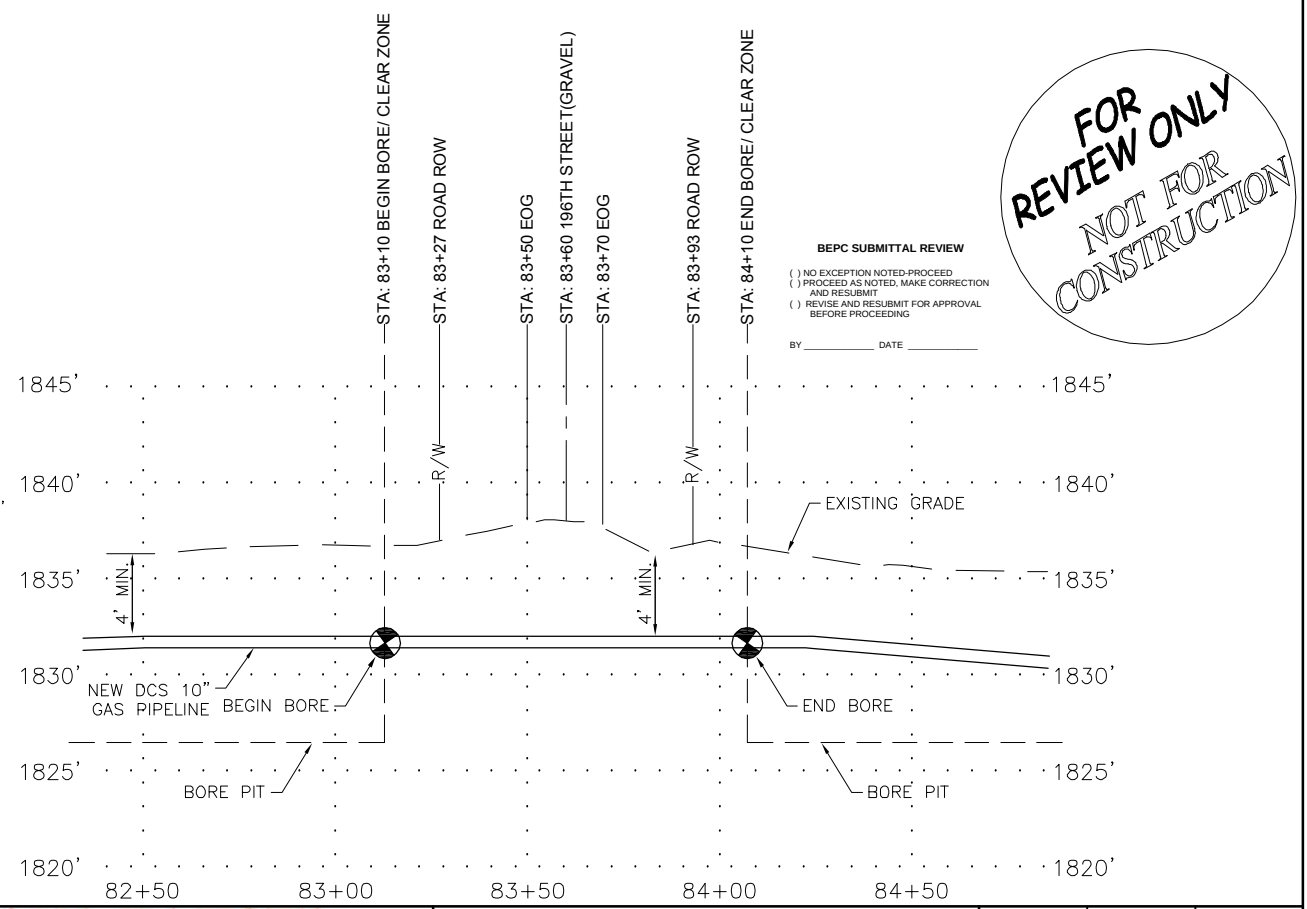
NOTE:
BEARINGS AND DISTANCES ARE BASED
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COORDINATE SYSTEM, NORTH ZONE -
NAD83 (US SURVEY FEET)

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AND RESUBMIT
() REVISE AND RESUBMIT FOR APPROVAL
BEFORE PROCEEDING
BY _____ DATE _____

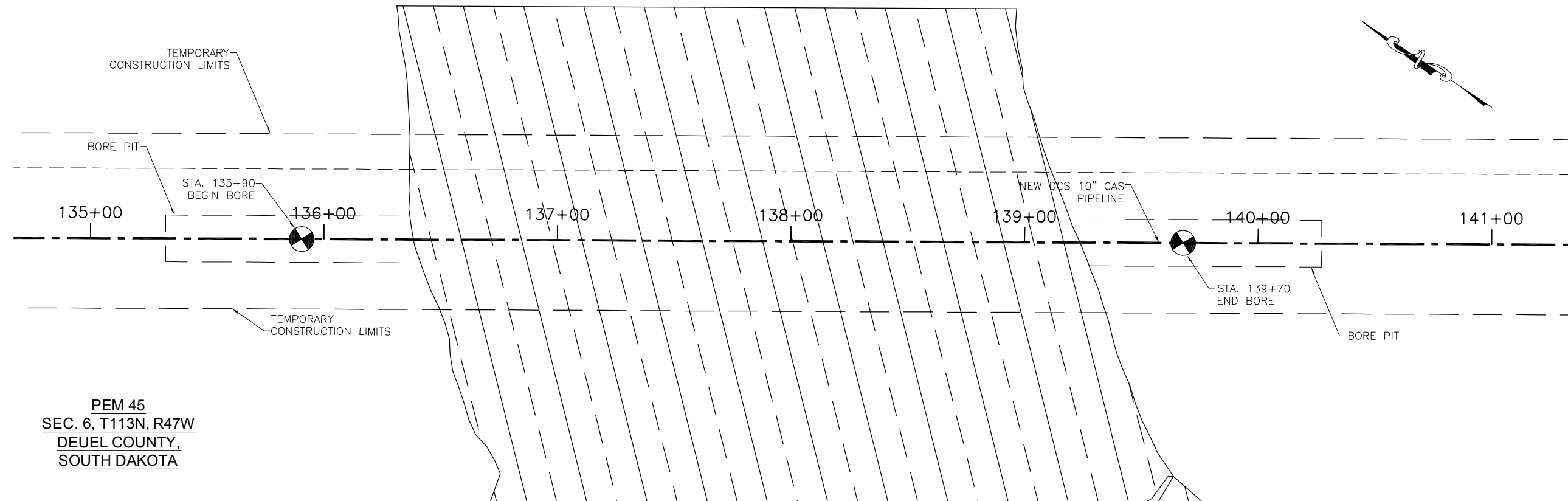
REVISIONS				
NO.	DATE	REVISIONS	BY	CHKD.

**BASIN ELECTRIC
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**MONTANA-DAKOTA
UTILITIES CO.**
A Division of MDU Resources Group, Inc.

DEER CREEK GENERATING STATION PIPELINE
LINE No. 162943
DEUEL & BROOKINGS COUNTY, SOUTH DAKOTA

ORIGINAL:	LAST:	SCALE: 1" = 50'
APPROVED BY: ORIGINAL SIGNED	ENGINEER	
DATE:		
CONSTRUCTION DRAWING		
DCS-B02		



PEM 45
SEC. 6, T113N, R47W
DEUEL COUNTY,
SOUTH DAKOTA

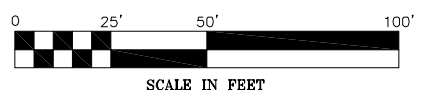
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REVIEW ONLY
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CONSTRUCTION

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() NO EXCEPTION NOTED-PROCEED
() PROCEED AS NOTED, MAKE CORRECTION
AND RESUBMIT
() REVISE AND RESUBMIT FOR APPROVAL
BEFORE PROCEEDING
BY _____ DATE _____

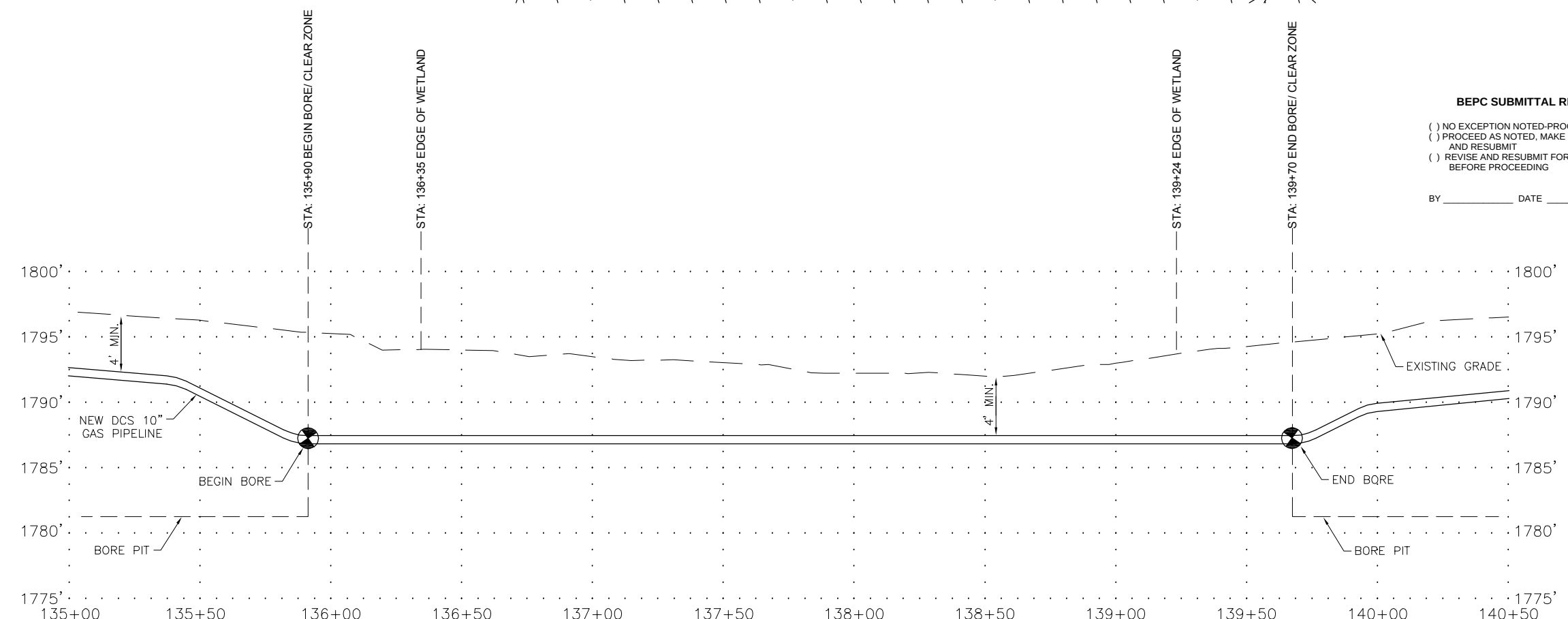
NOTE:
BEARINGS AND DISTANCES ARE BASED
ON THE SOUTH DAKOTA STATE PLANE
COORDINATE SYSTEM, NORTH ZONE -
NAD83 (US SURVEY FEET)

LAND DIMENSION INFORMATION FOR THIS
EXHIBIT WAS DERIVED FROM LAND
SURVEY DATA.

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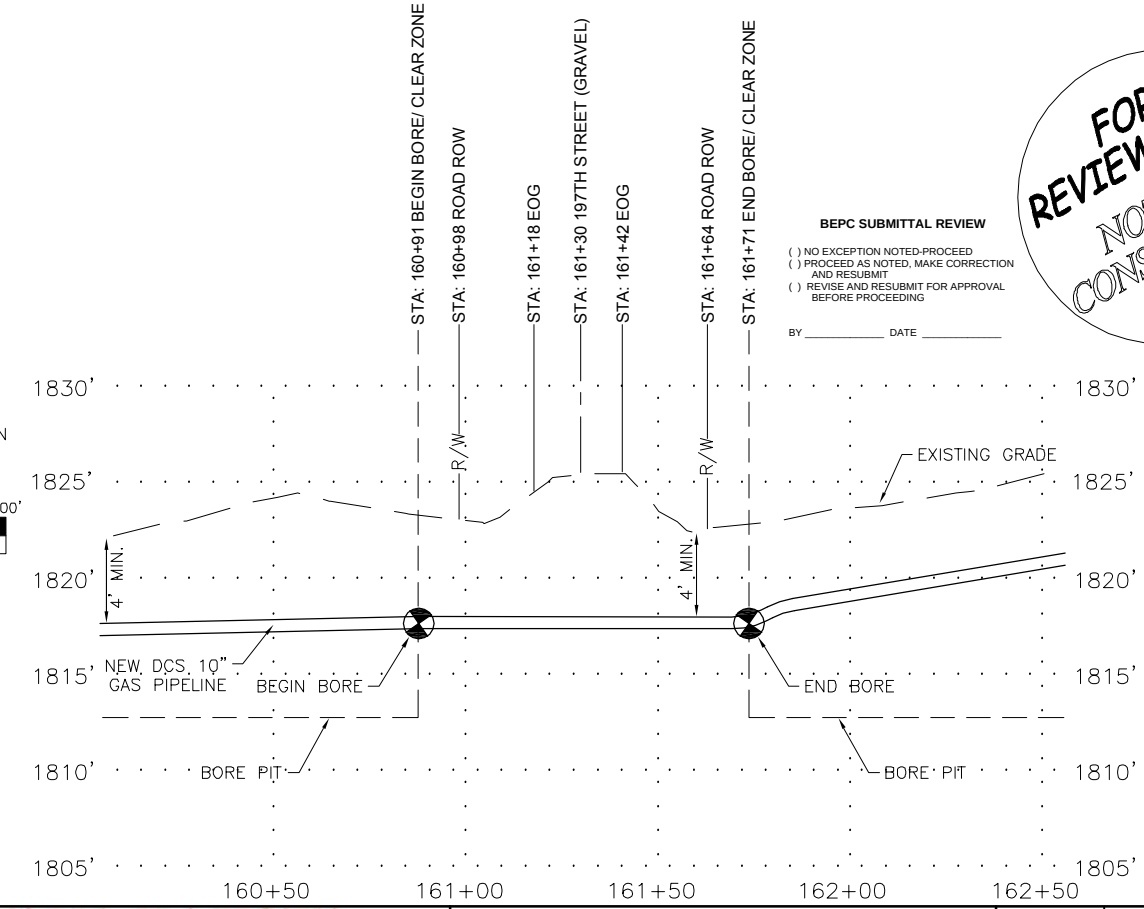
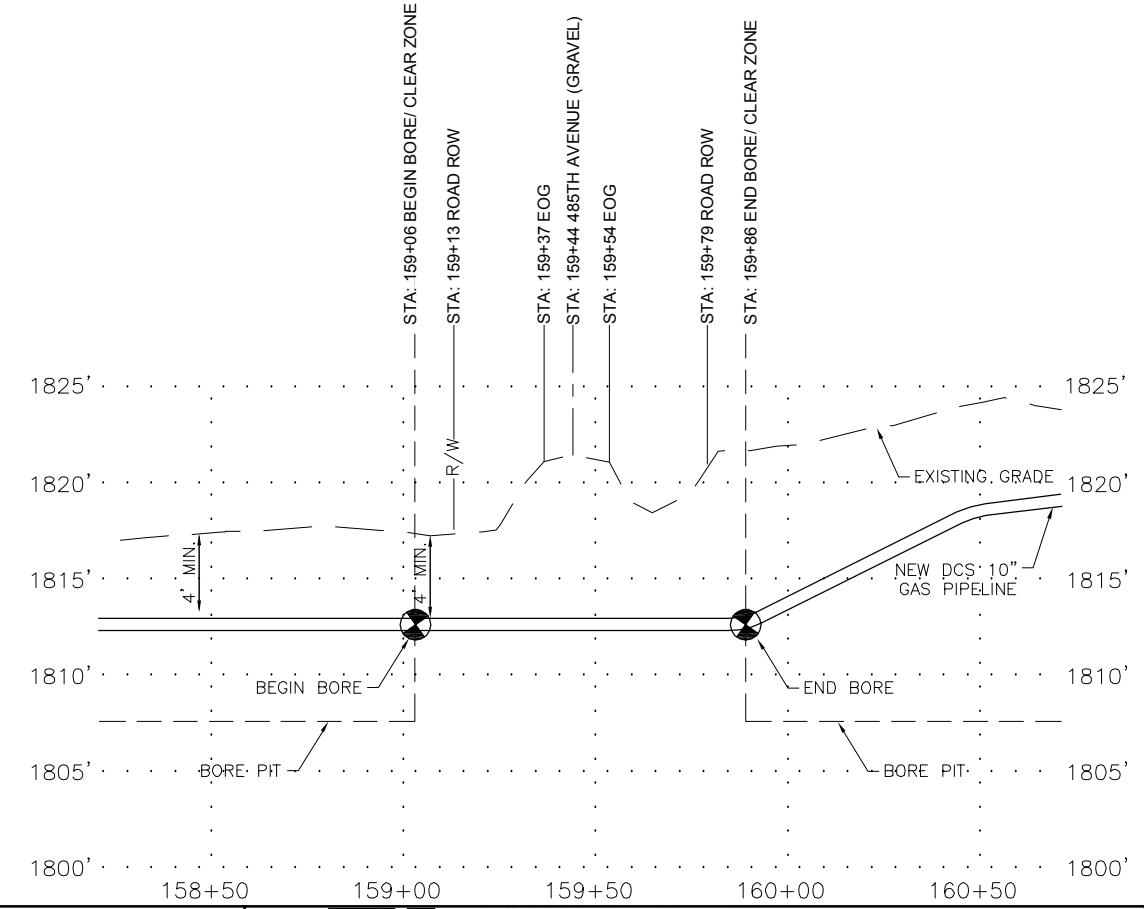
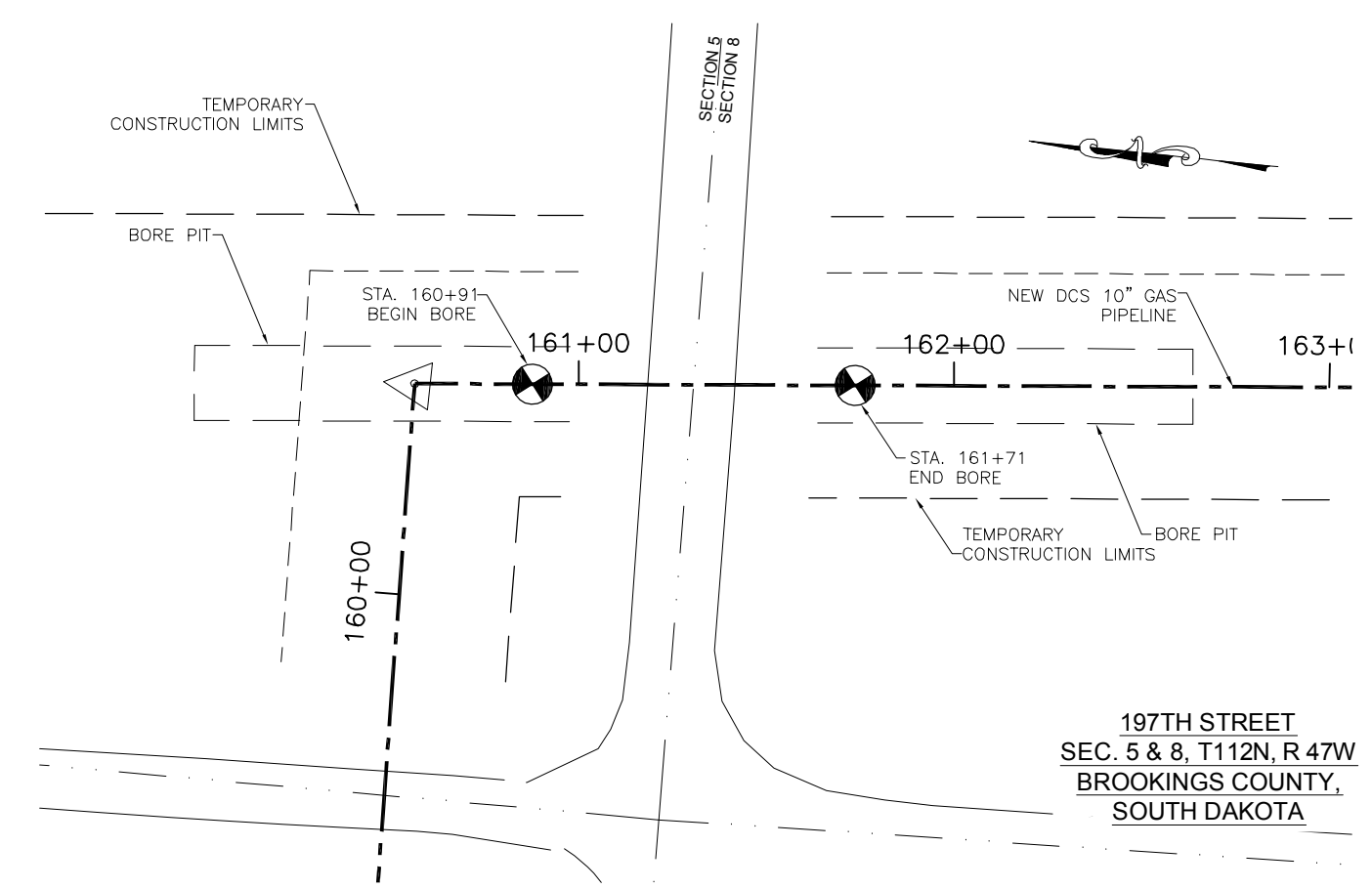
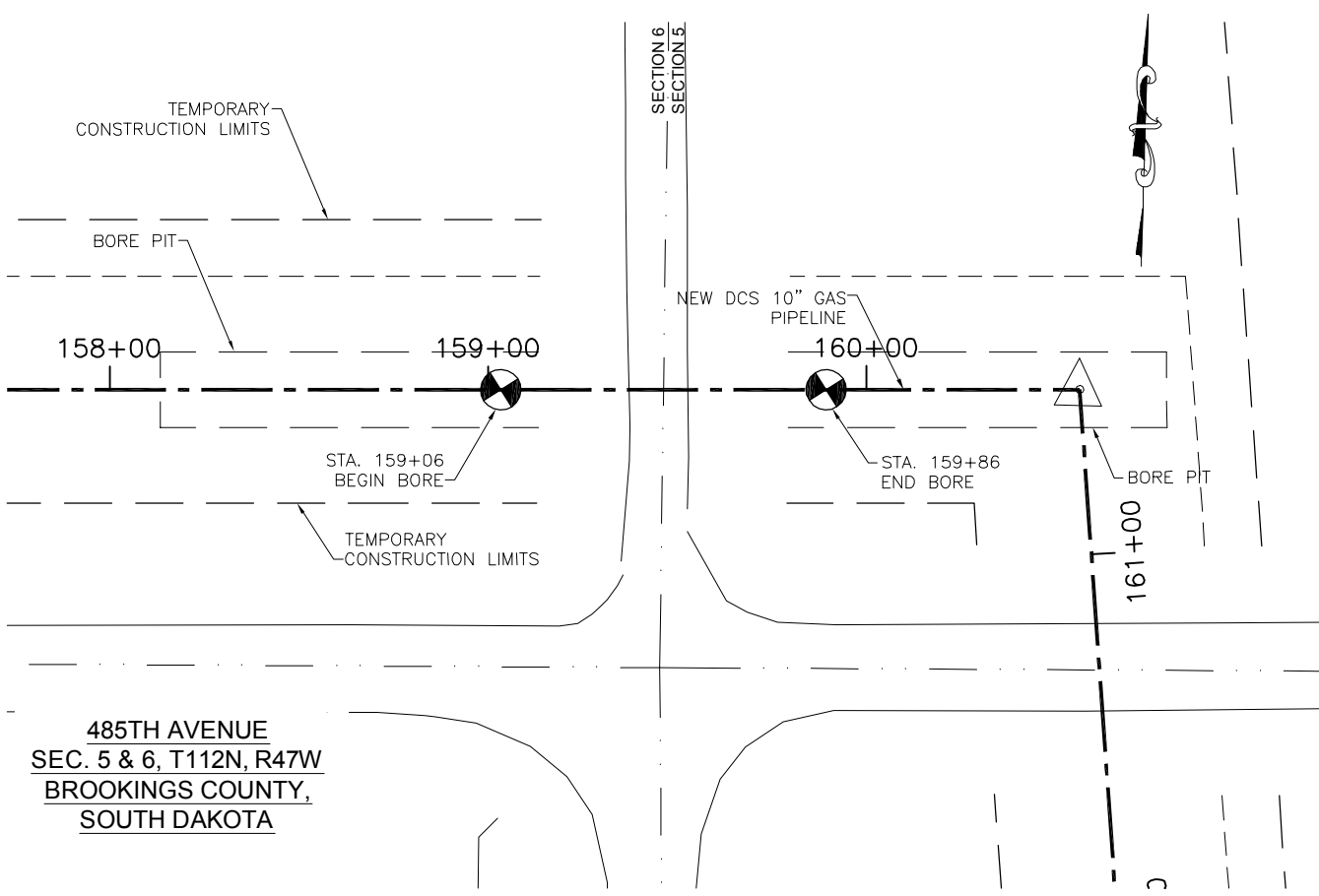
REVISIONS				
NO.	DATE	REVISIONS	BY	CHKD.

 **BASIN ELECTRIC
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A Touchstone Energy® Cooperative

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UTILITIES CO.**
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DEER CREEK GENERATING STATION PIPELINE
LINE No. 162943
DEUEL & BROOKINGS COUNTY, SOUTH DAKOTA

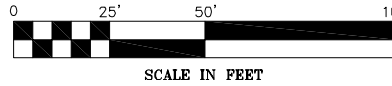
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APPROVED BY: ORIGINAL SIGNED	ENGINEER	
DATE:		
CONSTRUCTION DRAWING		
DCS-B03		



NOTE:
BEARINGS AND DISTANCES ARE BASED ON THE SOUTH DAKOTA STATE PLANE COORDINATE SYSTEM, NORTH ZONE - NAD83 (US SURVEY FEET)

LAND DIMENSION INFORMATION FOR THIS EXHIBIT WAS DERIVED FROM LAND SURVEY DATA.

ALL UNDERGROUND UTILITIES ARE SHOWN IN GENERAL LOCATION. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.



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() NO EXCEPTION NOTED-PROCEED
() PROCEED AS NOTED, MAKE CORRECTION AND RESUBMIT
() REVISE AND RESUBMIT FOR APPROVAL BEFORE PROCEEDING

BY _____ DATE _____

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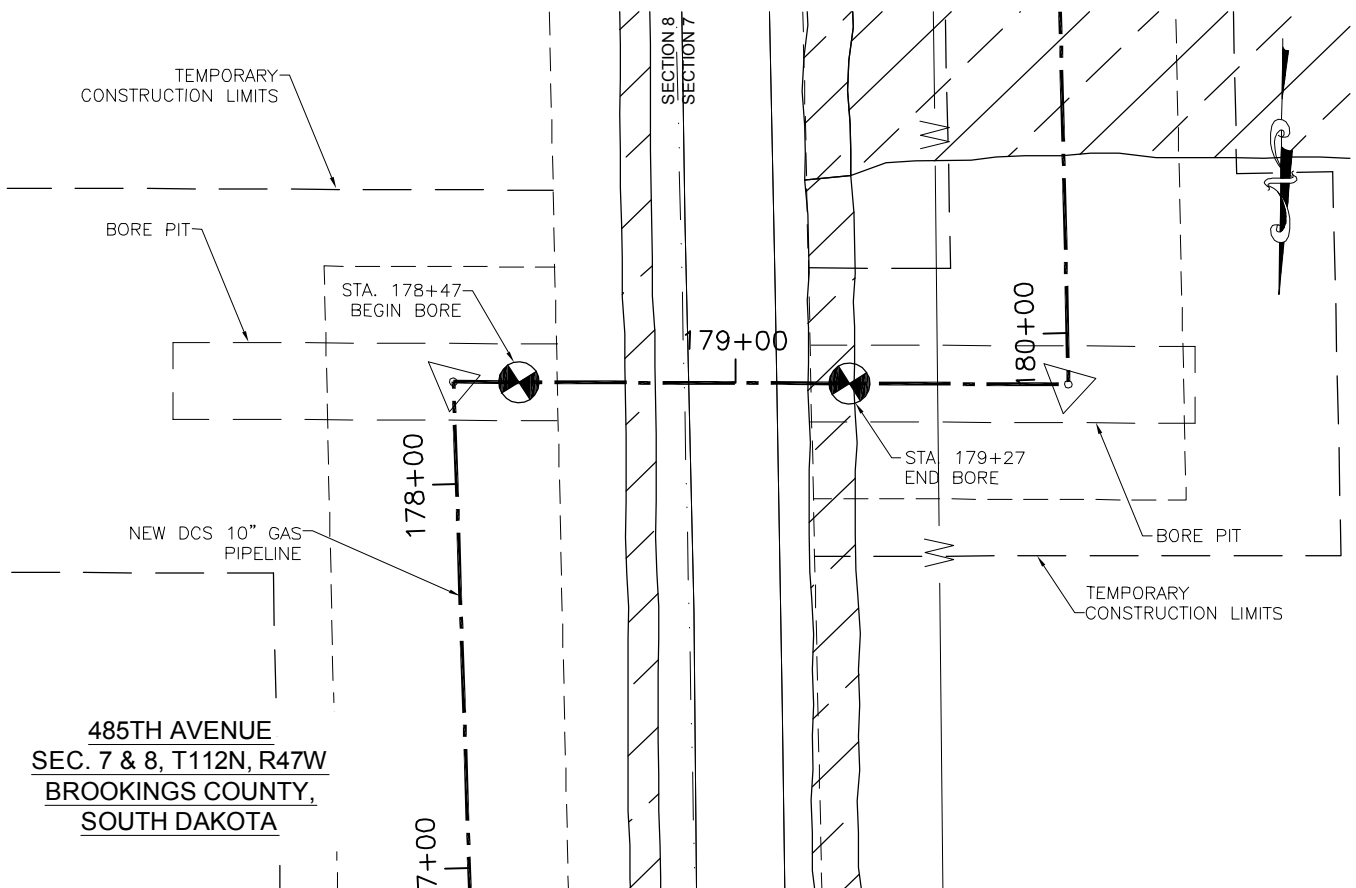
REVISIONS				
NO.	DATE	REVISIONS	BY	CHKD.

BASIN ELECTRIC POWER COOPERATIVE
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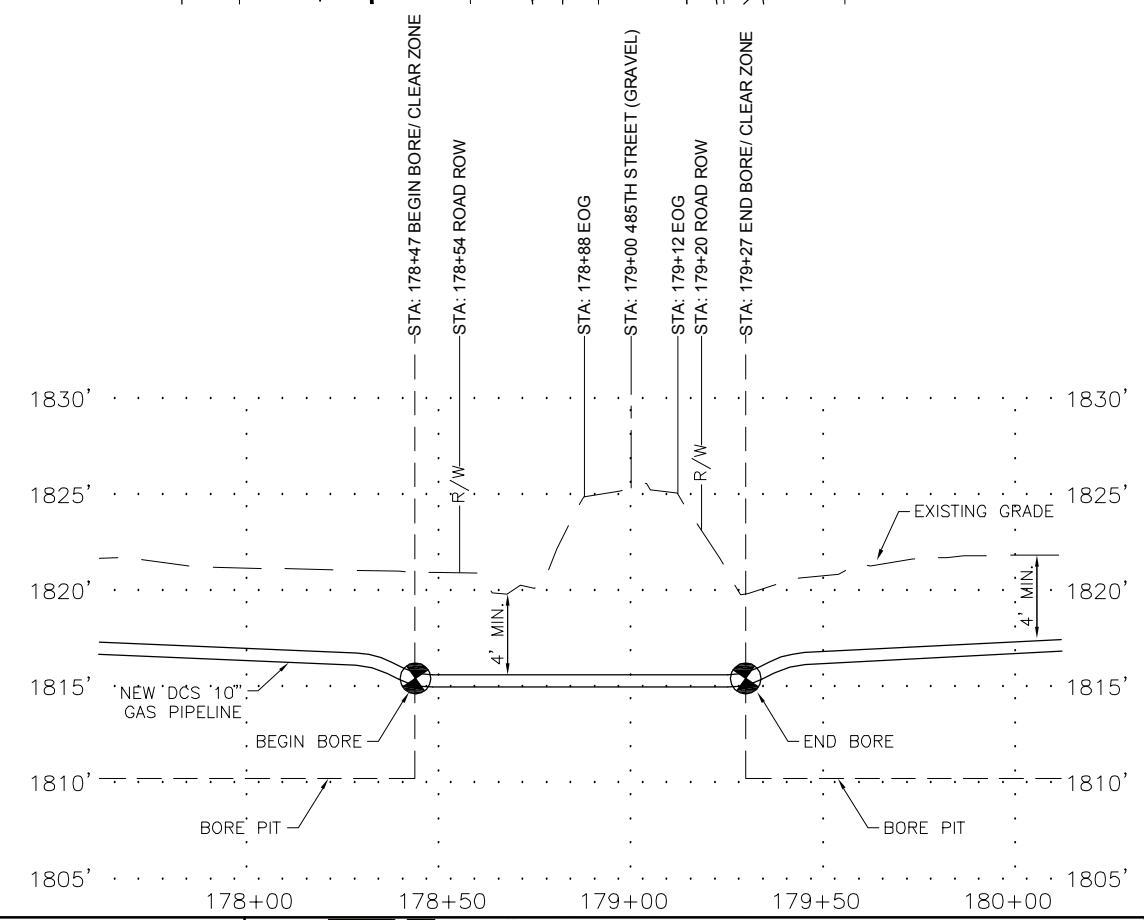
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DEER CREEK GENERATING STATION PIPELINE
LINE No. 162943
DEUEL & BROOKINGS COUNTY, SOUTH DAKOTA

ORIGINAL:	LAST:	SCALE: 1" = 50'
APPROVED BY:	ORIGINAL SIGNED	ENGINEER
DATE:		
CONSTRUCTION DRAWING		
DCS-B04		



485TH AVENUE
SEC. 7 & 8, T112N, R47W
BROOKINGS COUNTY,
SOUTH DAKOTA



NOTE:
BEARINGS AND DISTANCES ARE BASED
ON THE SOUTH DAKOTA STATE PLANE
COORDINATE SYSTEM, NORTH ZONE -
NAD83 (US SURVEY FEET)

LAND DIMENSION INFORMATION FOR THIS
EXHIBIT WAS DERIVED FROM LAND
SURVEY DATA.

ALL UNDERGROUND UTILITIES ARE SHOWN
IN GENERAL LOCATION. CONTRACTOR TO
FIELD VERIFY PRIOR TO CONSTRUCTION.

0 25' 50' 100'
SCALE IN FEET

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NOT FOR
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BEPC SUBMITTAL REVIEW

- () NO EXCEPTION NOTED-PROCEED
- () PROCEED AS NOTED, MAKE CORRECTION AND RESUBMIT
- () REVISE AND RESUBMIT FOR APPROVAL BEFORE PROCEEDING

BY _____ DATE _____

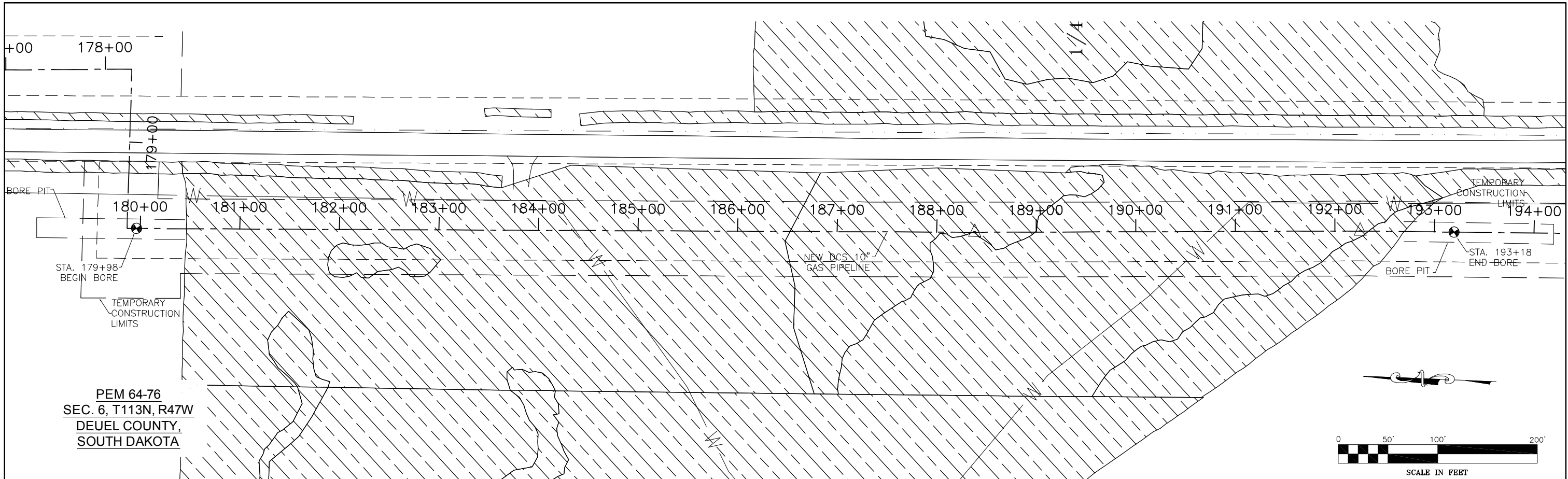
REVISIONS				
No.	DATE		BY	CHKD.

**BASIN ELECTRIC
POWER COOPERATIVE**
A Touchstone Energy® Cooperative

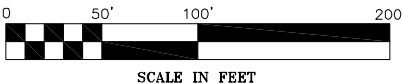
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DEER CREEK GENERATING STATION PIPELINE
LINE No. 162943
DEUEL & BROOKINGS COUNTY, SOUTH DAKOTA

ORIGINAL:	LAST:	SCALE: 1" = 50'
APPROVED BY:	ORIGINAL SIGNED	ENGINEER
DATE:		
CONSTRUCTION DRAWING		
DCS-B05		



PEM 64-76
SEC. 6, T113N, R47W
DEUEL COUNTY,
SOUTH DAKOTA



NOTE:
BEARINGS AND DISTANCES ARE BASED
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COORDINATE SYSTEM, NORTH ZONE -
NAD83 (US SURVEY FEET)

LAND DIMENSION INFORMATION FOR THIS
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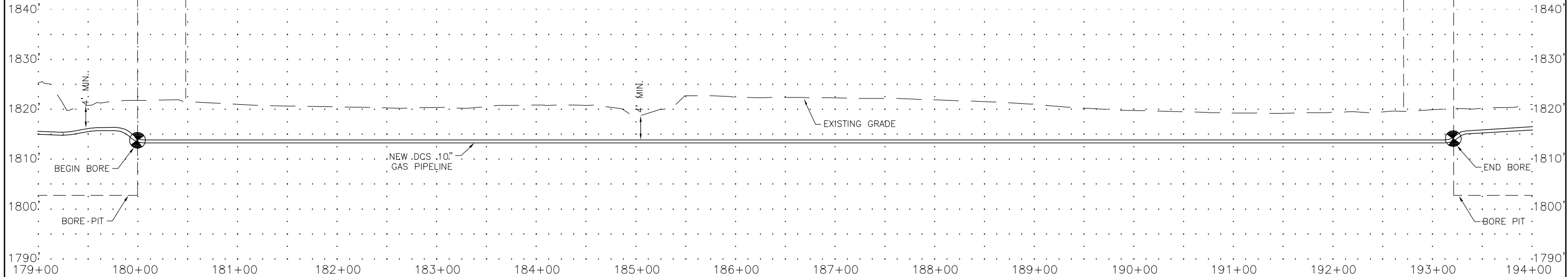
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REVIEW ONLY
NOT FOR
CONSTRUCTION

BEPC SUBMITTAL REVIEW

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- () PROCEED AS NOTED, MAKE CORRECTION AND RESUBMIT
- () REVISE AND RESUBMIT FOR APPROVAL BEFORE PROCEEDING

BY _____ DATE _____

STA: 192+70 EDGE OF WETLAND
STA: 193+18 END BORE/CLEAR ZONE



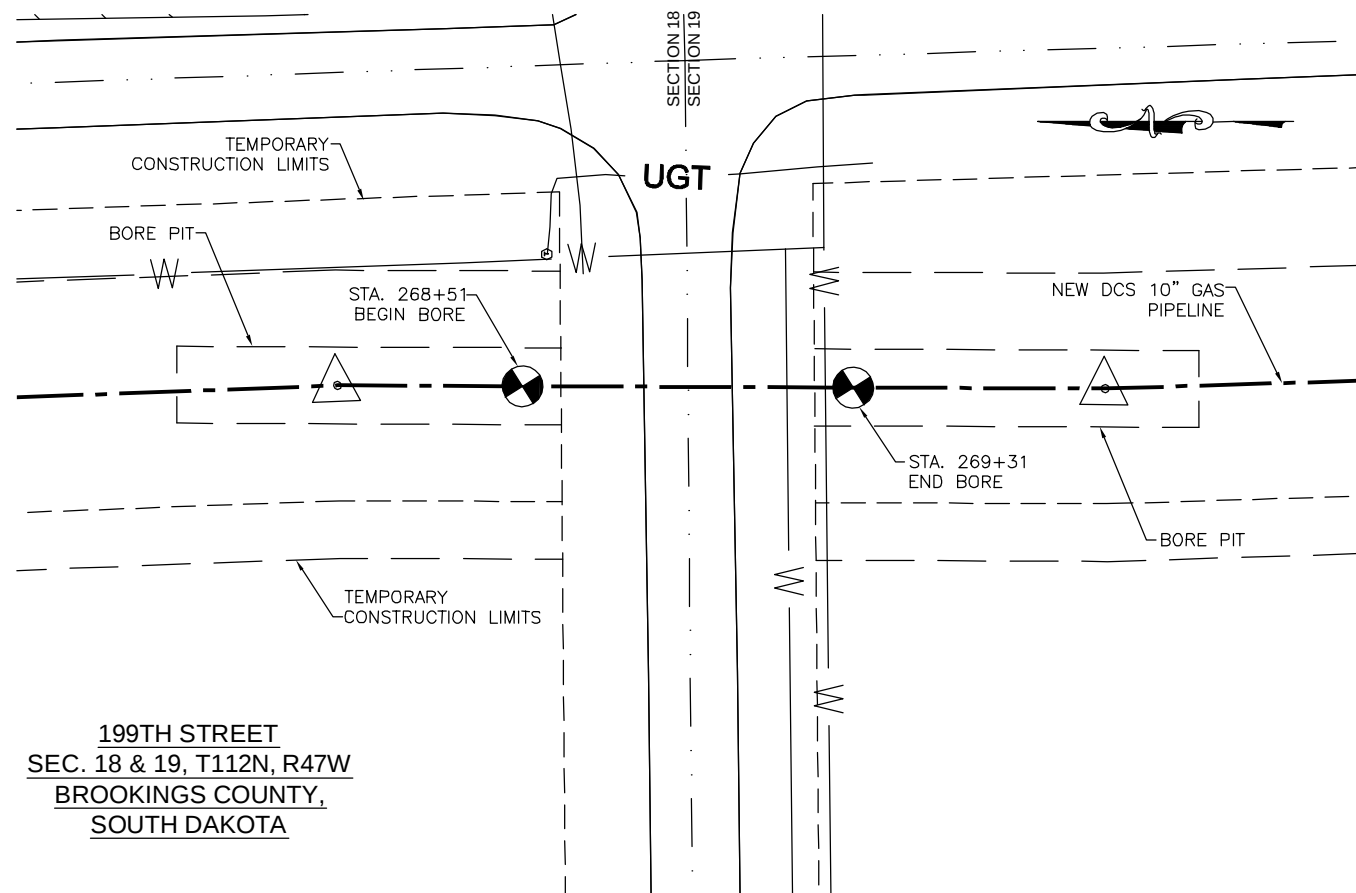
REVISIONS			
NO.	DATE	BY	CHKD.

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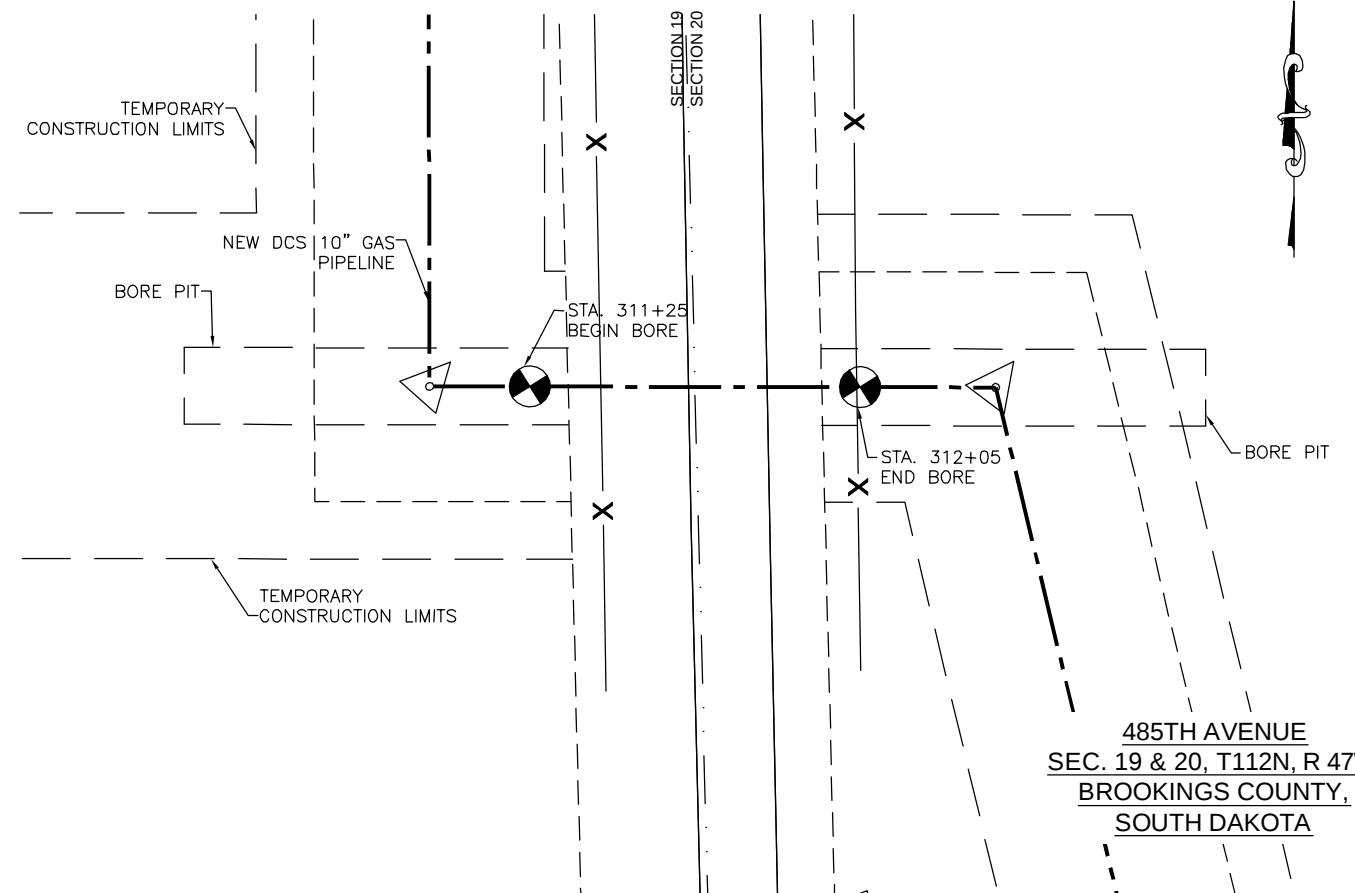
**MONTANA-DAKOTA
UTILITIES CO.**
A Division of MDU Resources Group, Inc.

DEER CREEK GENERATING STATION PIPELINE
LINE No. 162943
DEUEL & BROOKINGS COUNTY, SOUTH DAKOTA

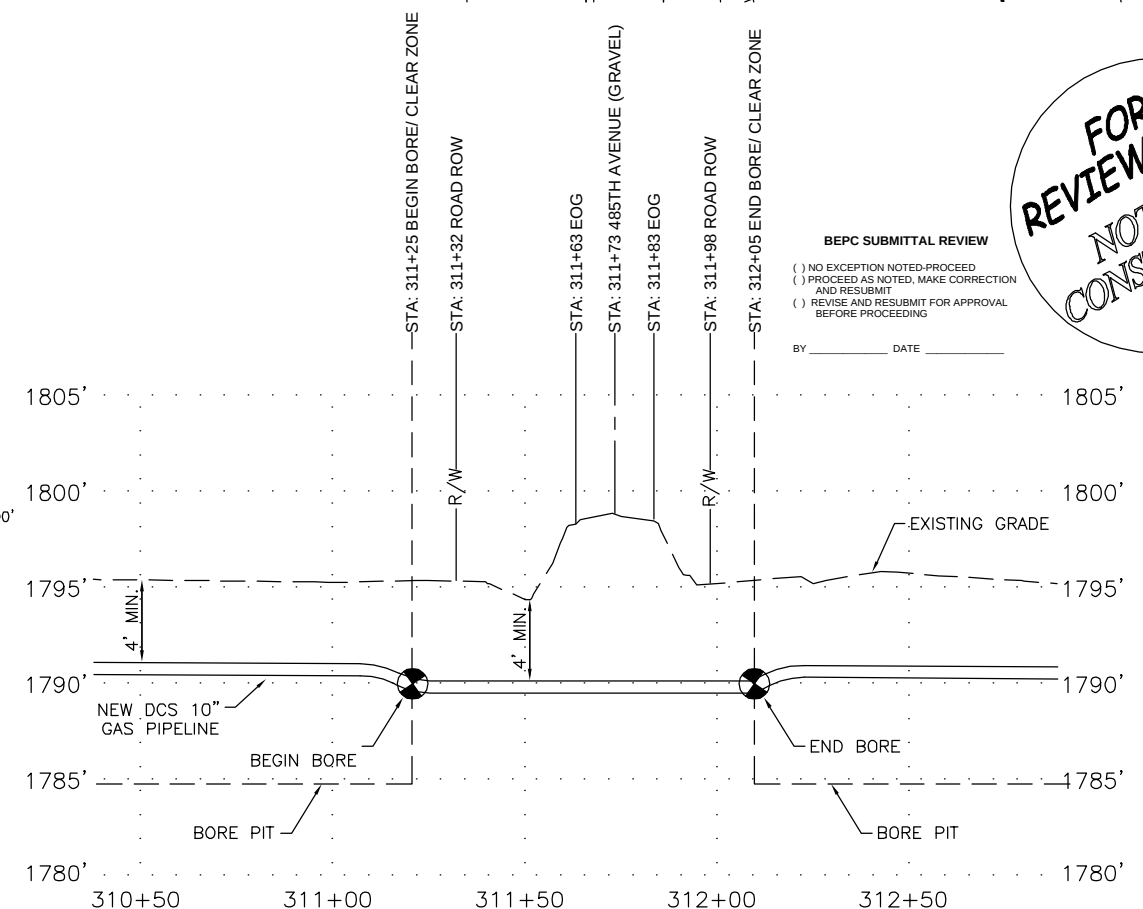
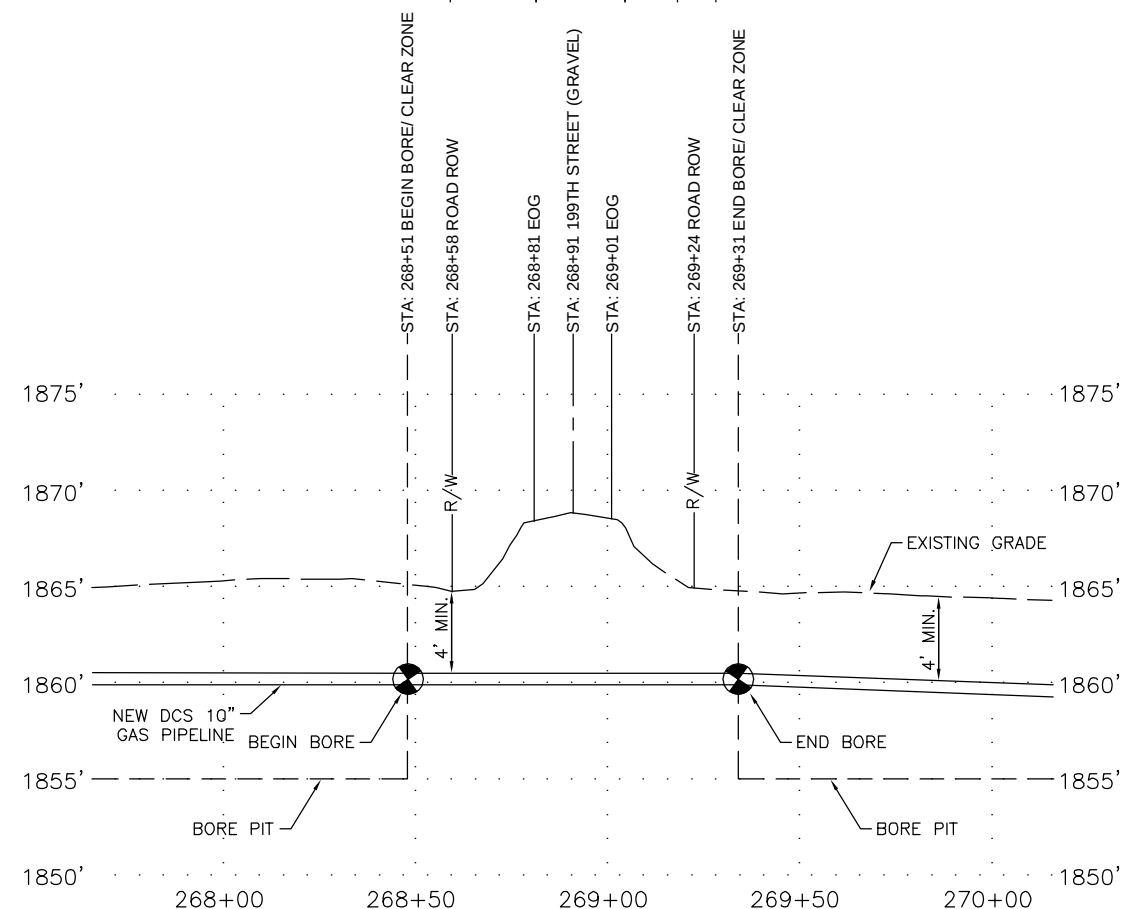
ORIGINAL: _____ LAST: _____ SCALE: 1" = 50'
APPROVED BY: ORIGINAL SIGNED _____
DATE: _____ ENGINEER
CONSTRUCTION DRAWING
DCS-B06



199TH STREET
SEC. 18 & 19, T112N, R47W
BROOKINGS COUNTY,
SOUTH DAKOTA



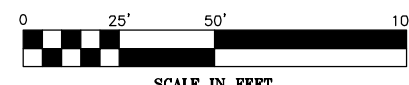
485TH AVENUE
SEC. 19 & 20, T112N, R 47W
BROOKINGS COUNTY,
SOUTH DAKOTA



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BY _____ DATE _____

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REVISIONS				
No.	DATE	BY	CHKD.	

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 POWER COOPERATIVE**

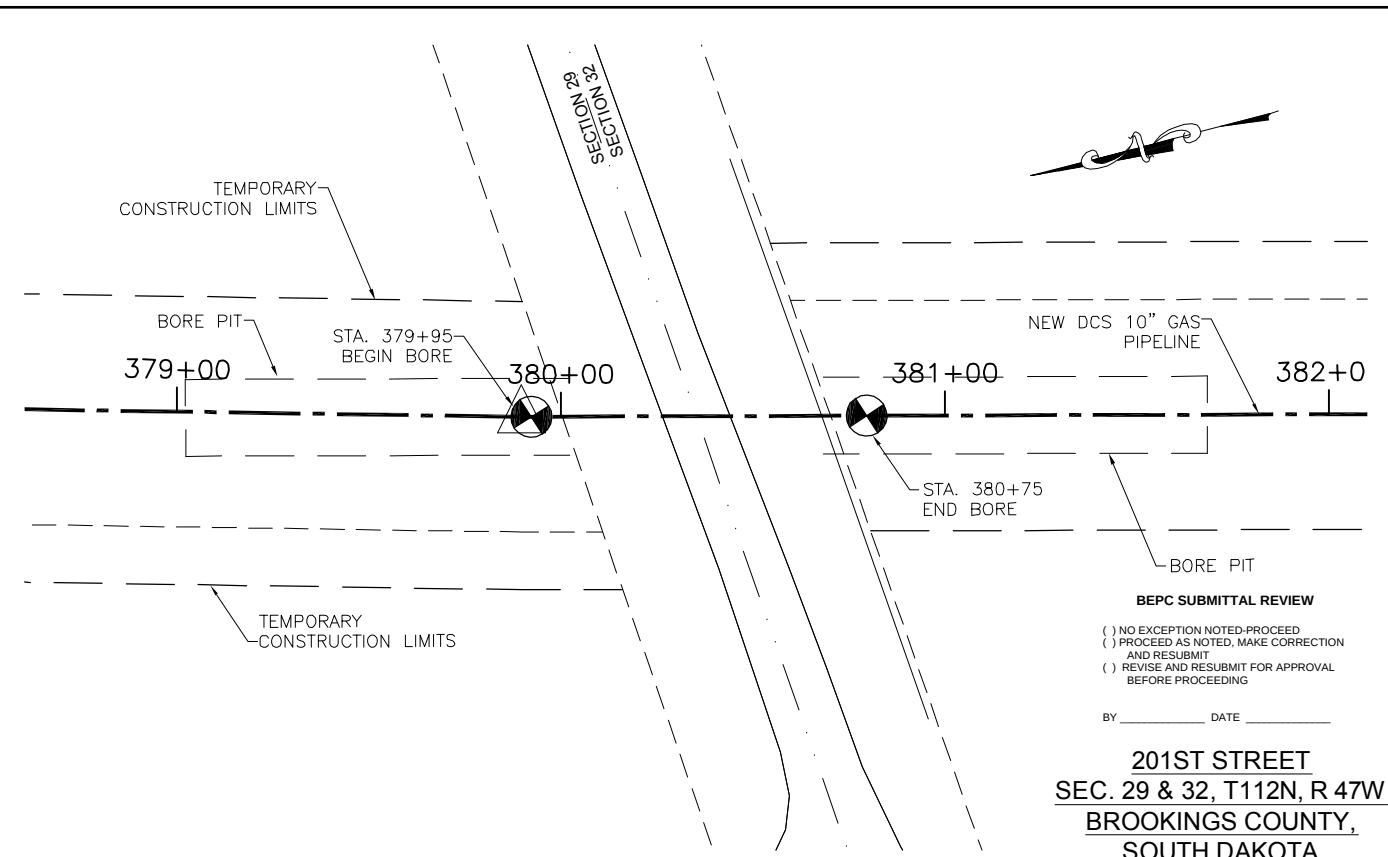
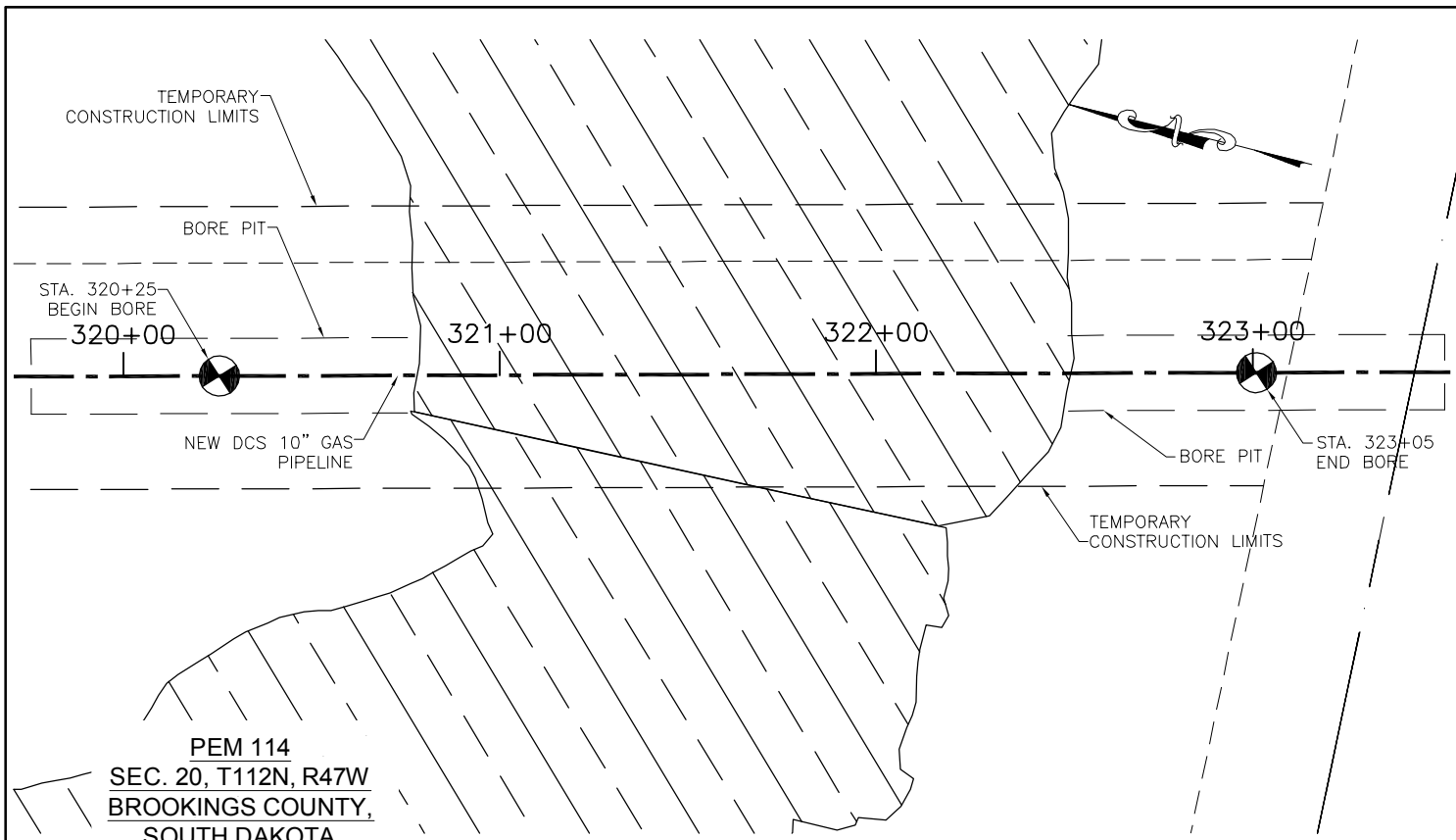
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DEER CREEK GENERATING STATION PIPELINE
 LINE No. 162943
 DEUEL & BROOKINGS COUNTY, SOUTH DAKOTA

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CONSTRUCTION DRAWING		
DCS-B07		



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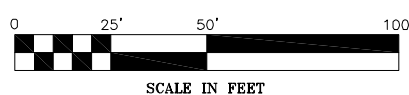
201ST STREET
SEC. 29 & 32, T112N, R 47W
BROOKINGS COUNTY,
SOUTH DAKOTA

PEM 114
SEC. 20, T112N, R47W
BROOKINGS COUNTY,
SOUTH DAKOTA

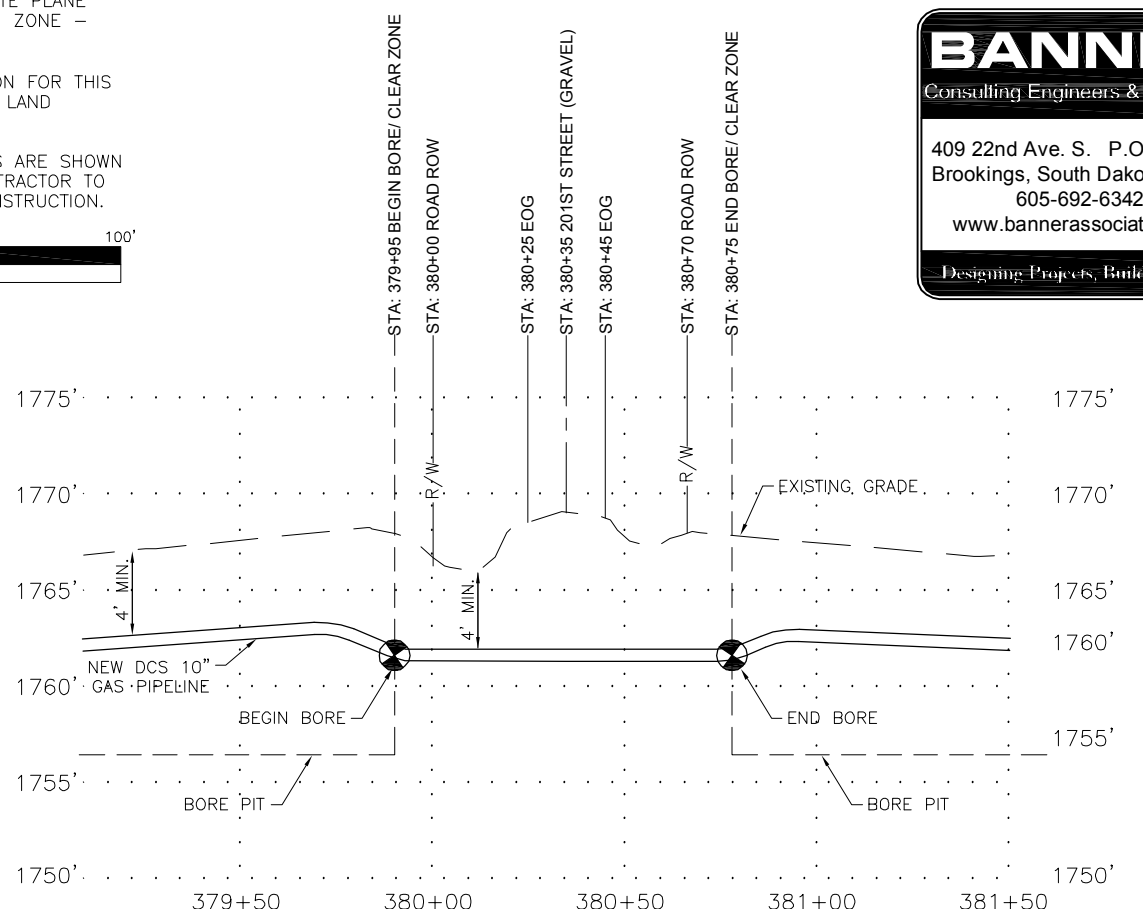
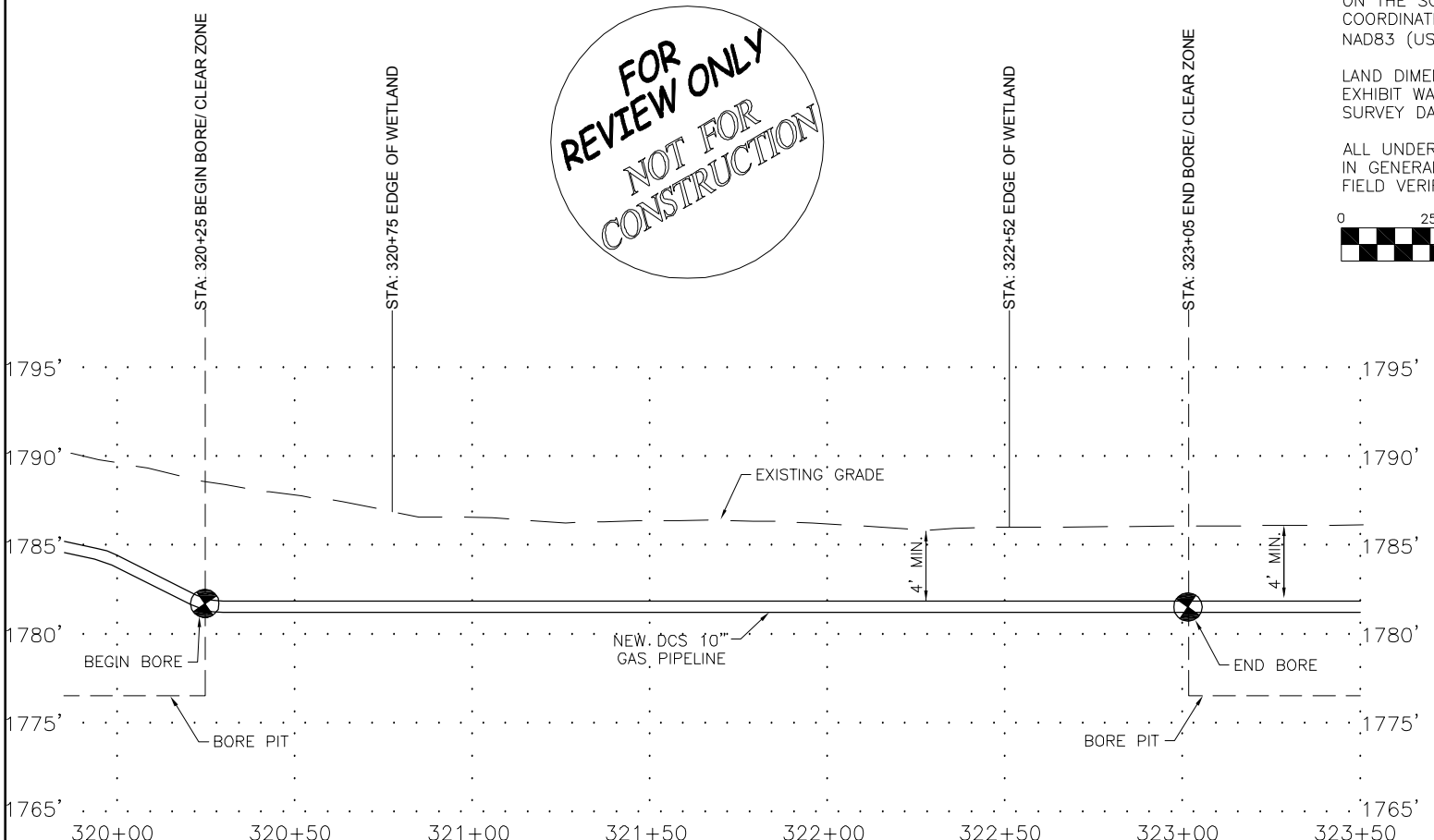
NOTE:
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LAND DIMENSION INFORMATION FOR THIS EXHIBIT WAS DERIVED FROM LAND SURVEY DATA.

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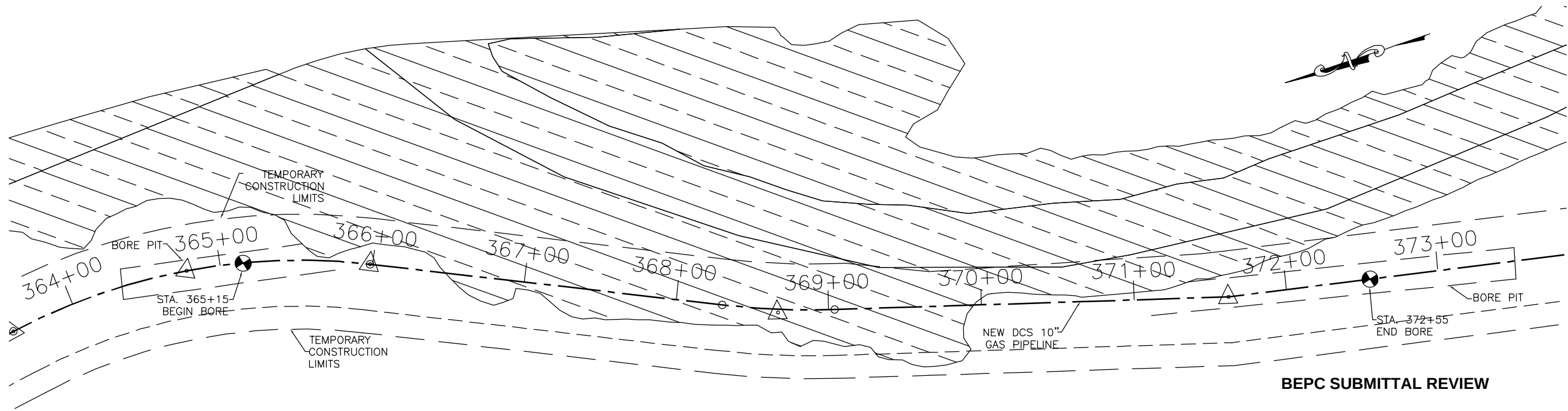
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NO.	DATE	BY	CHKD.

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MONTANA-DAKOTA UTILITIES CO.
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DEER CREEK GENERATING STATION PIPELINE
LINE No. 162943
DEUEL & BROOKINGS COUNTY, SOUTH DAKOTA

ORIGINAL:	LAST:	SCALE: 1" = 50'
APPROVED BY: ORIGINAL SIGNED	ENGINEER	
DATE:		
CONSTRUCTION DRAWING		
DCS-B08		



PEM 133-135
SEC. 6, T113N, R47W
DEUEL COUNTY,
SOUTH DAKOTA

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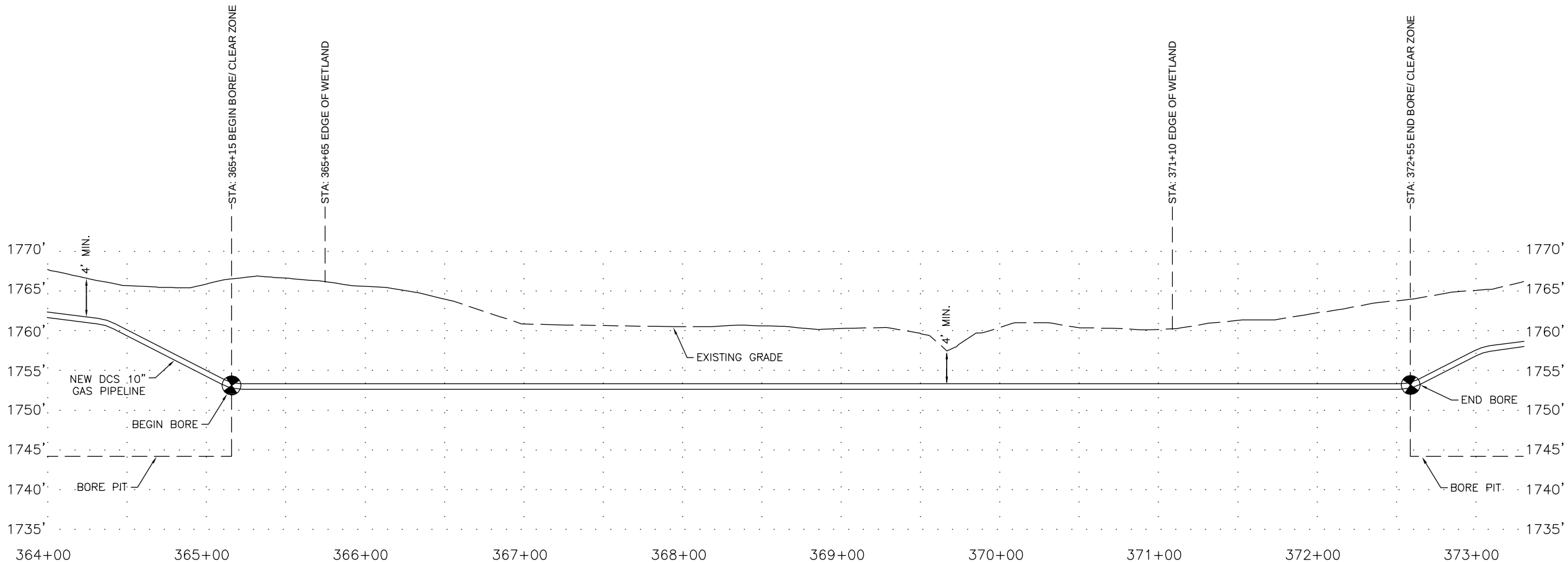
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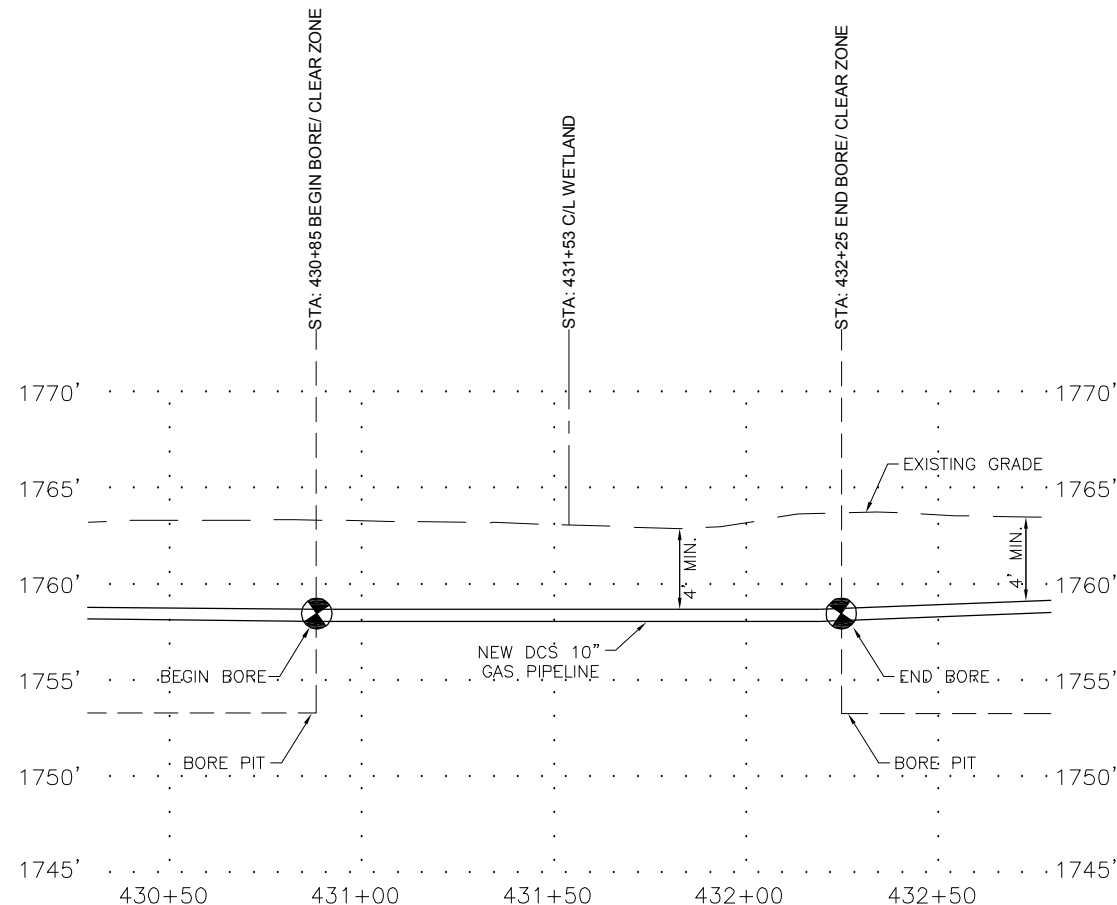
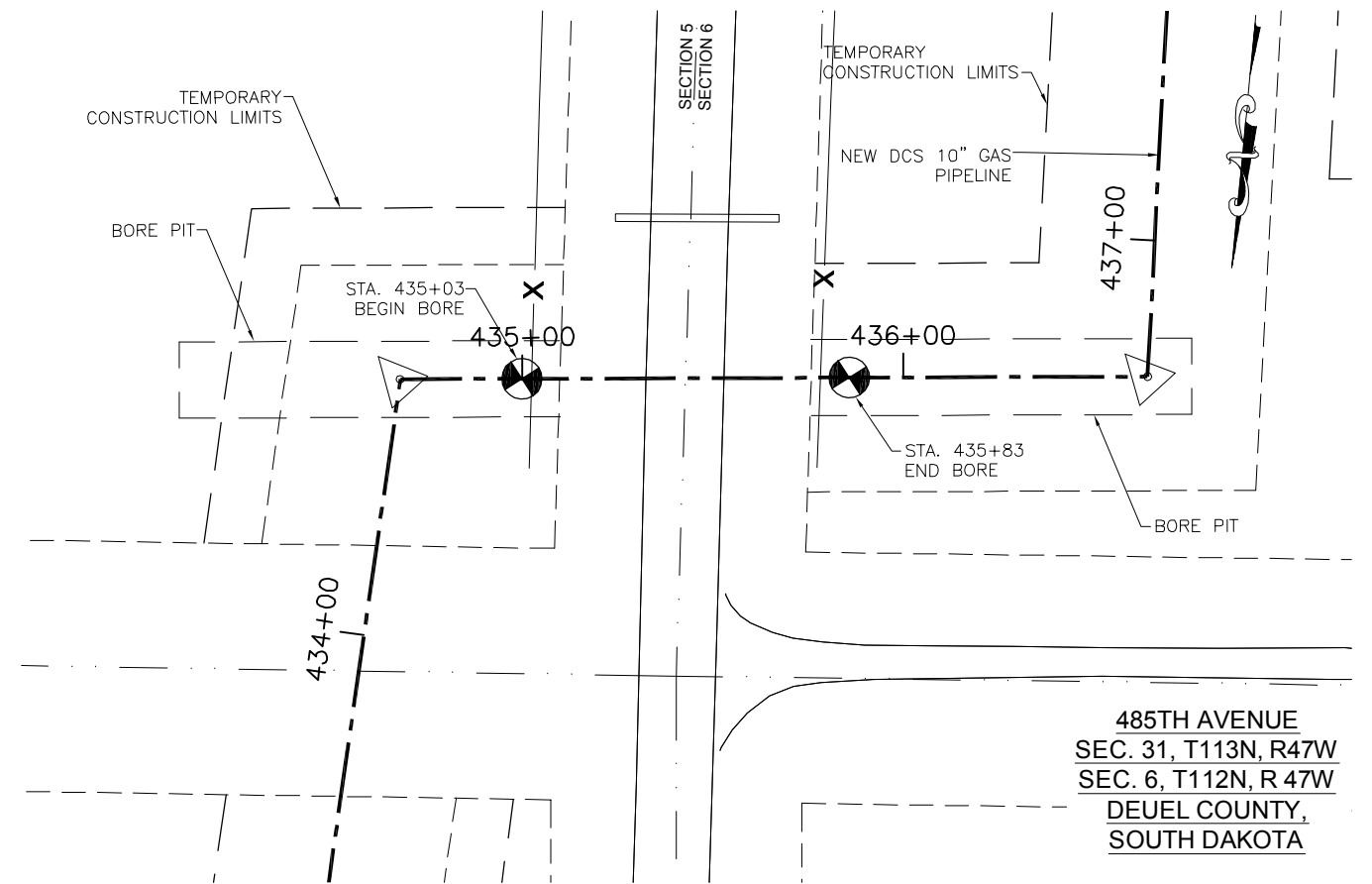
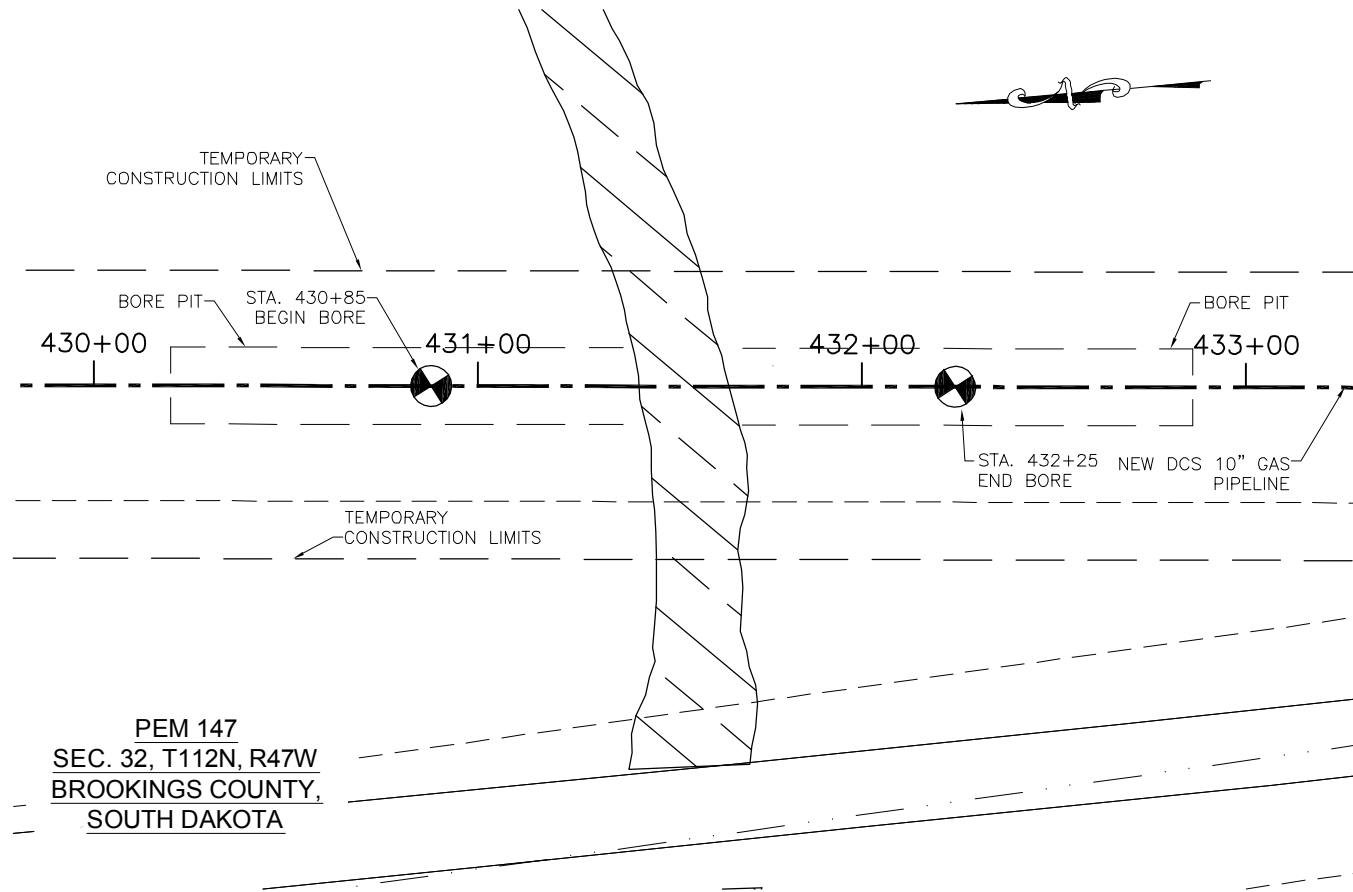
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DEER CREEK GENERATING STATION PIPELINE
LINE No. 162943
DEUEL & BROOKINGS COUNTY, SOUTH DAKOTA

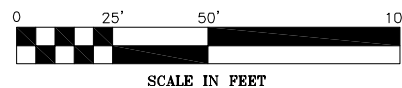
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CONSTRUCTION DRAWING		
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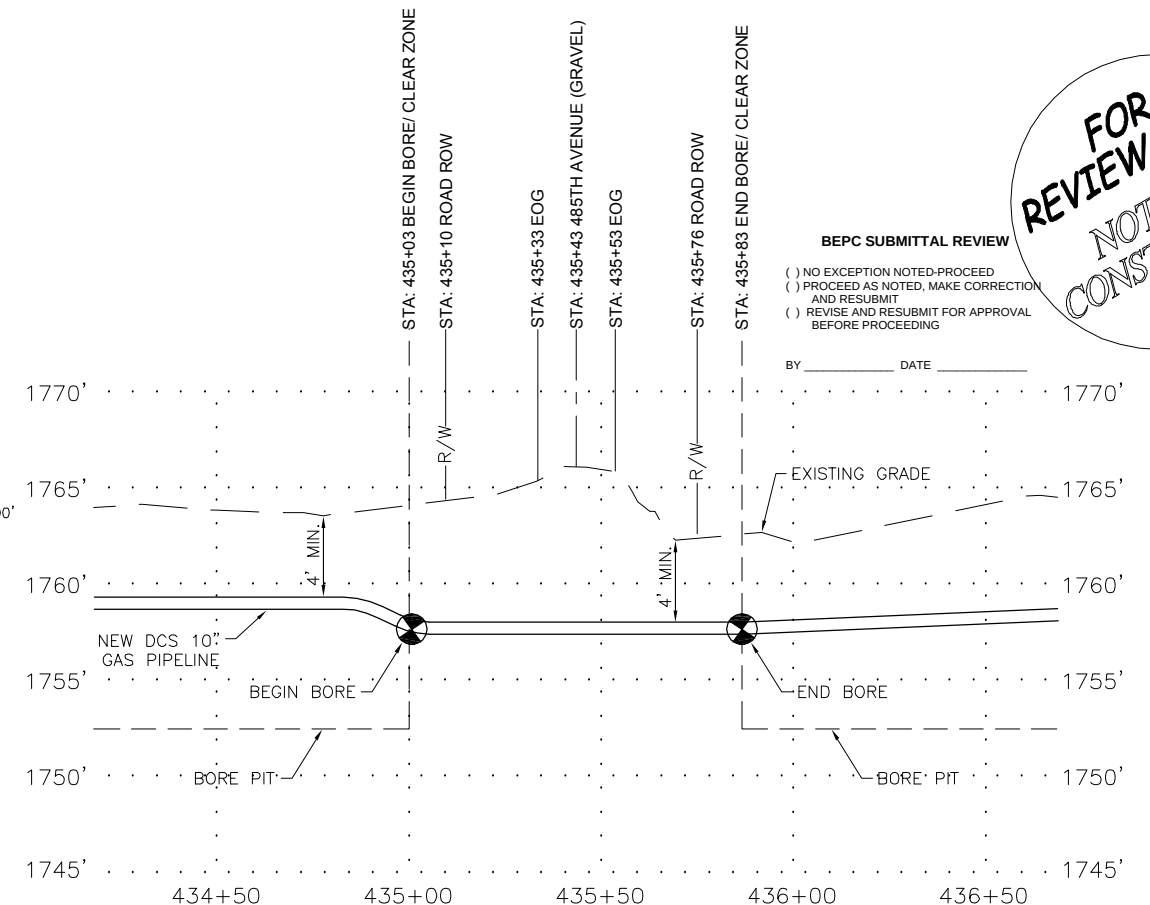
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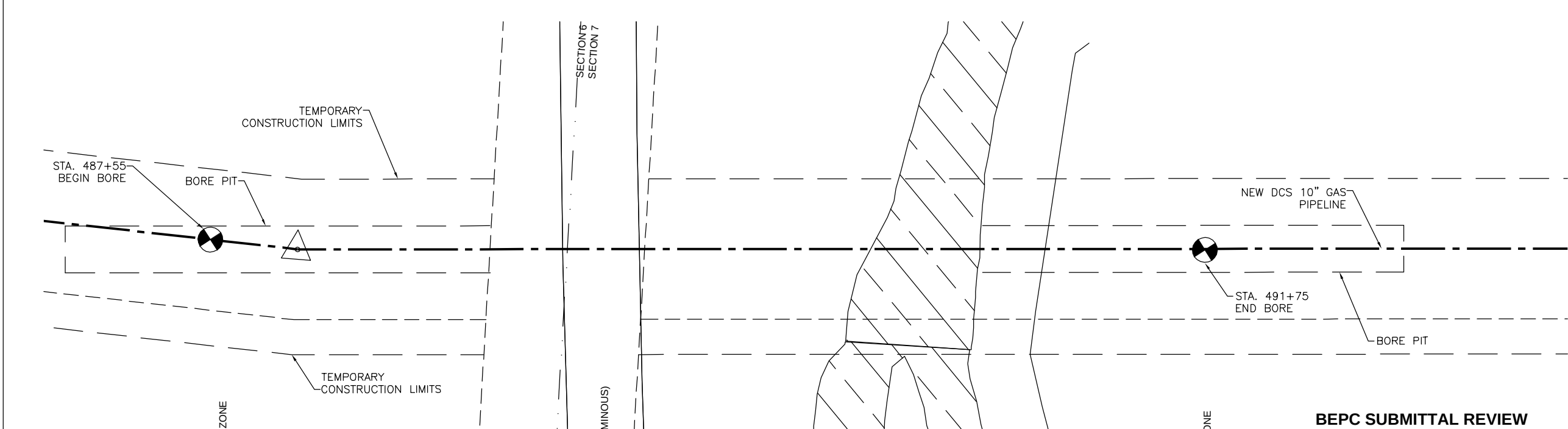
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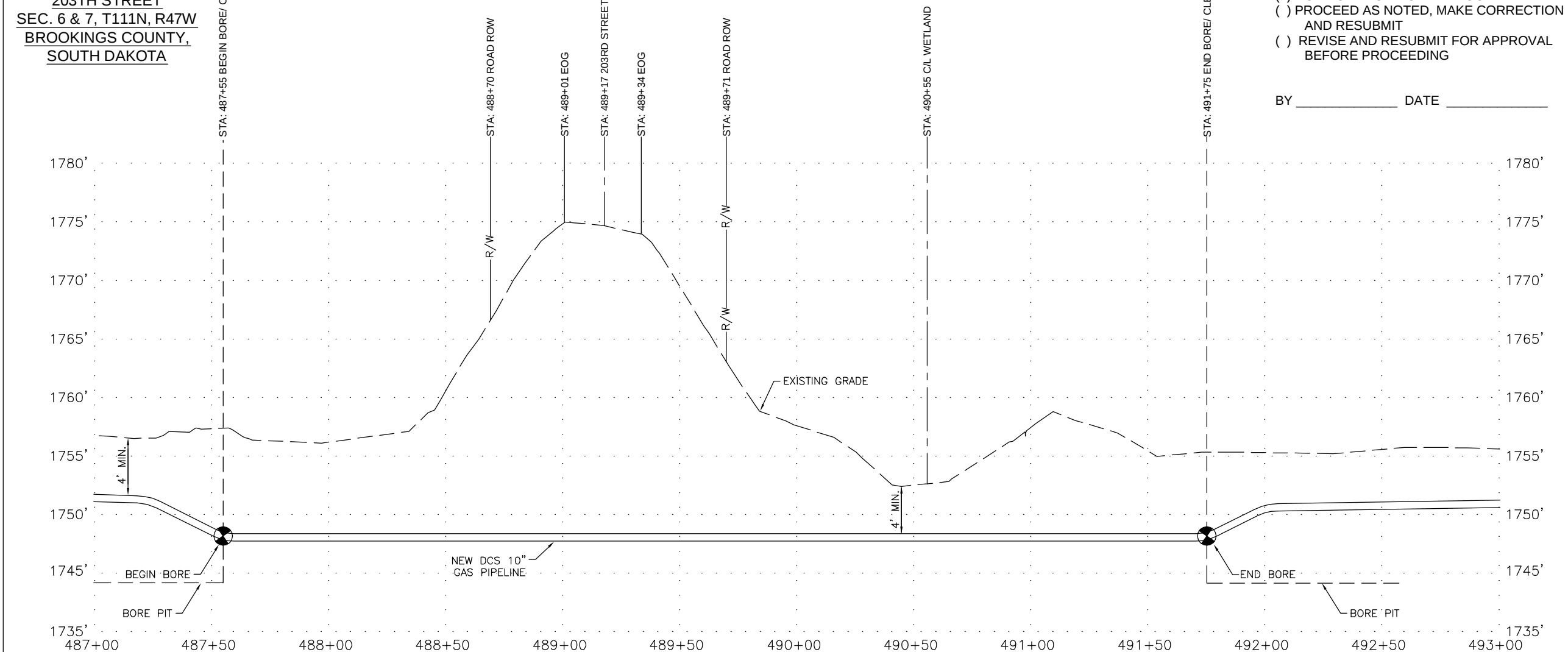
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LINE No. 162943
DEUEL & BROOKINGS COUNTY, SOUTH DAKOTA

ORIGINAL:	LAST:	SCALE: 1" = 50'
APPROVED BY:	ORIGINAL SIGNED	ENGINEER
DATE:		
CONSTRUCTION DRAWING		
DCS-B10		



203TH STREET
SEC. 6 & 7, T111N, R47W
BROOKINGS COUNTY,
SOUTH DAKOTA



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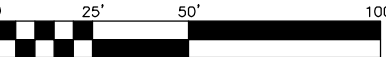
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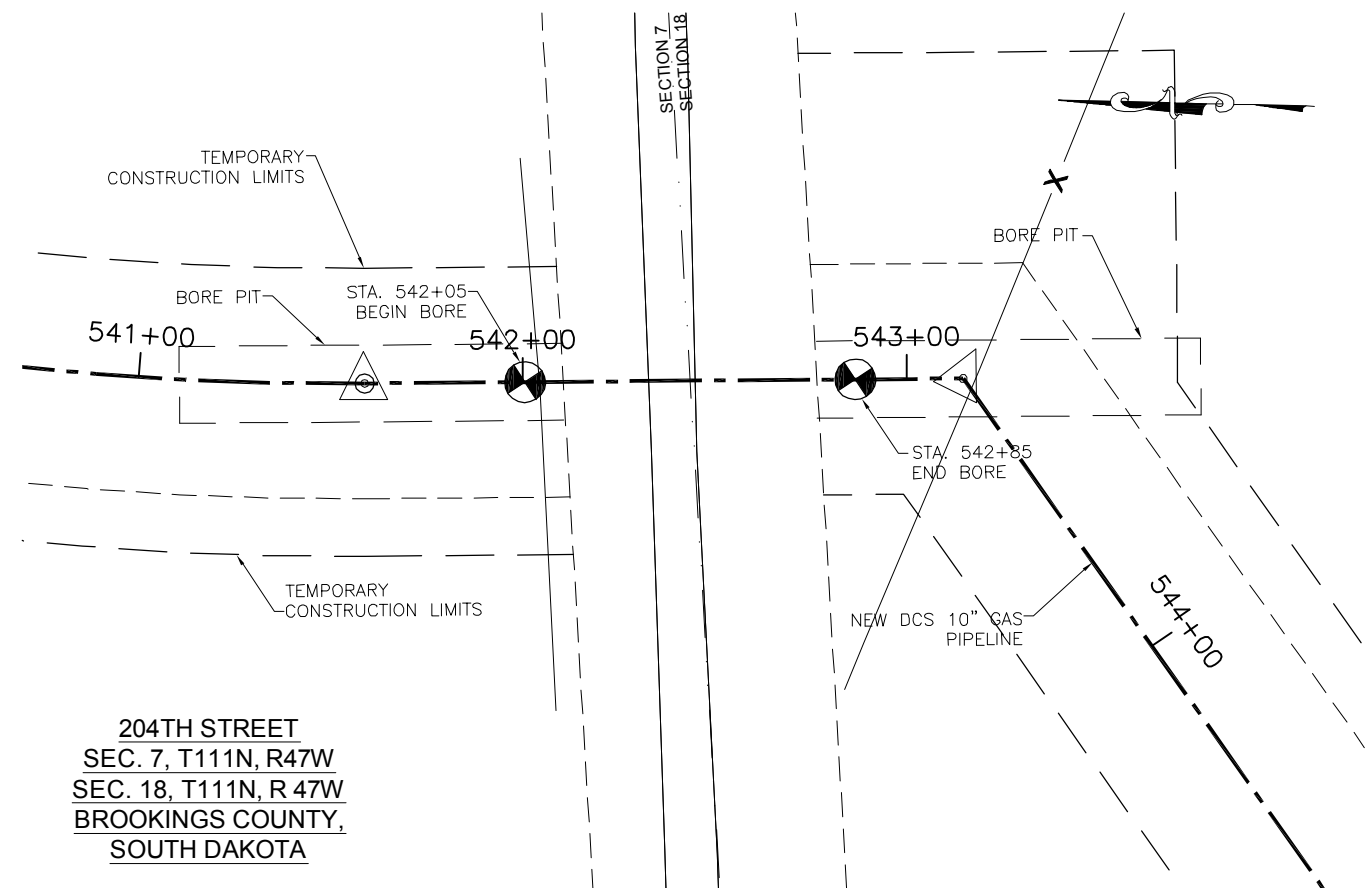
REVISIONS				BY	CHKD.
No.	DATE				

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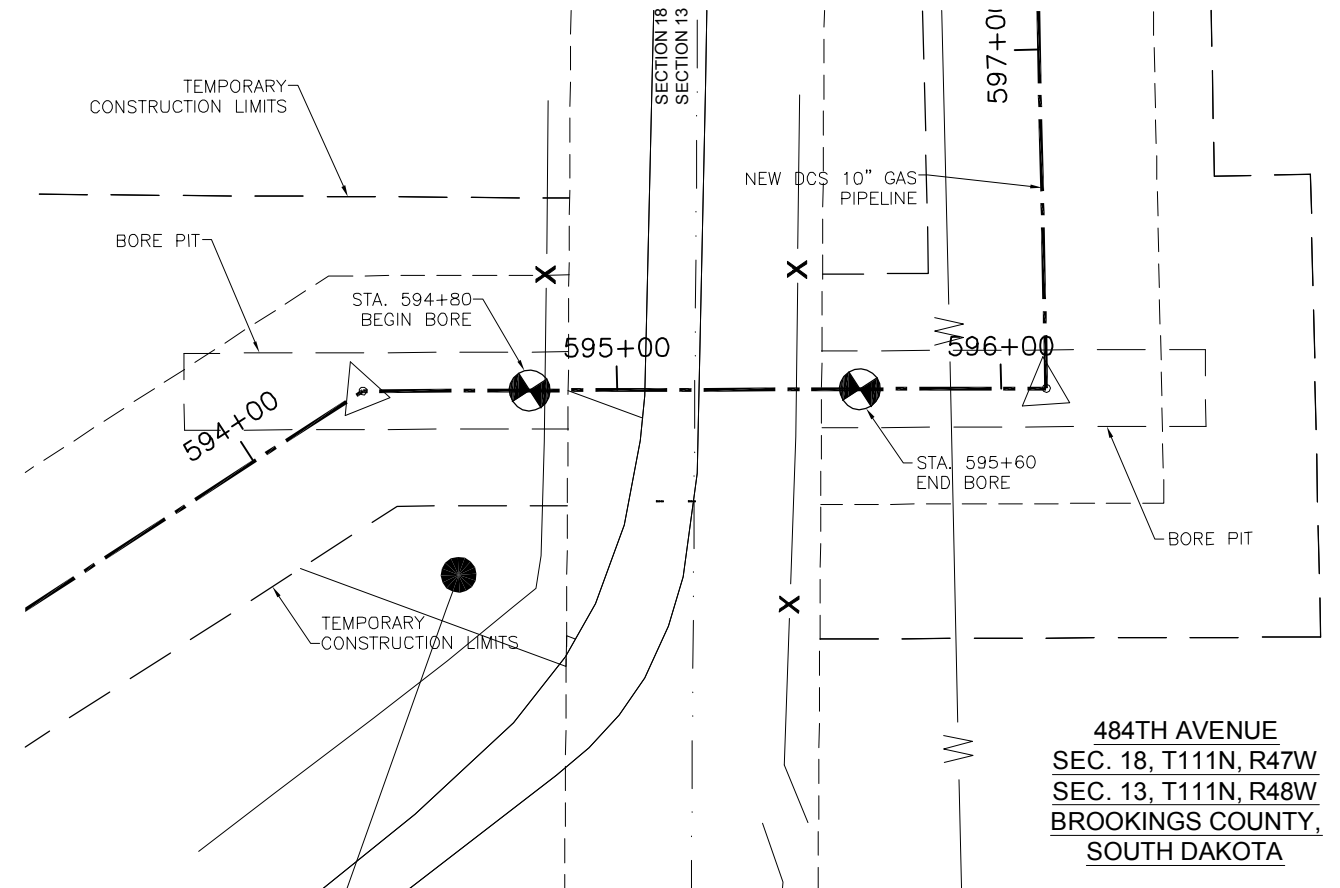
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DEER CREEK GENERATING STATION PIPELINE LINE No. 162943
DEUEL & BROOKINGS COUNTY, SOUTH DAKOTA

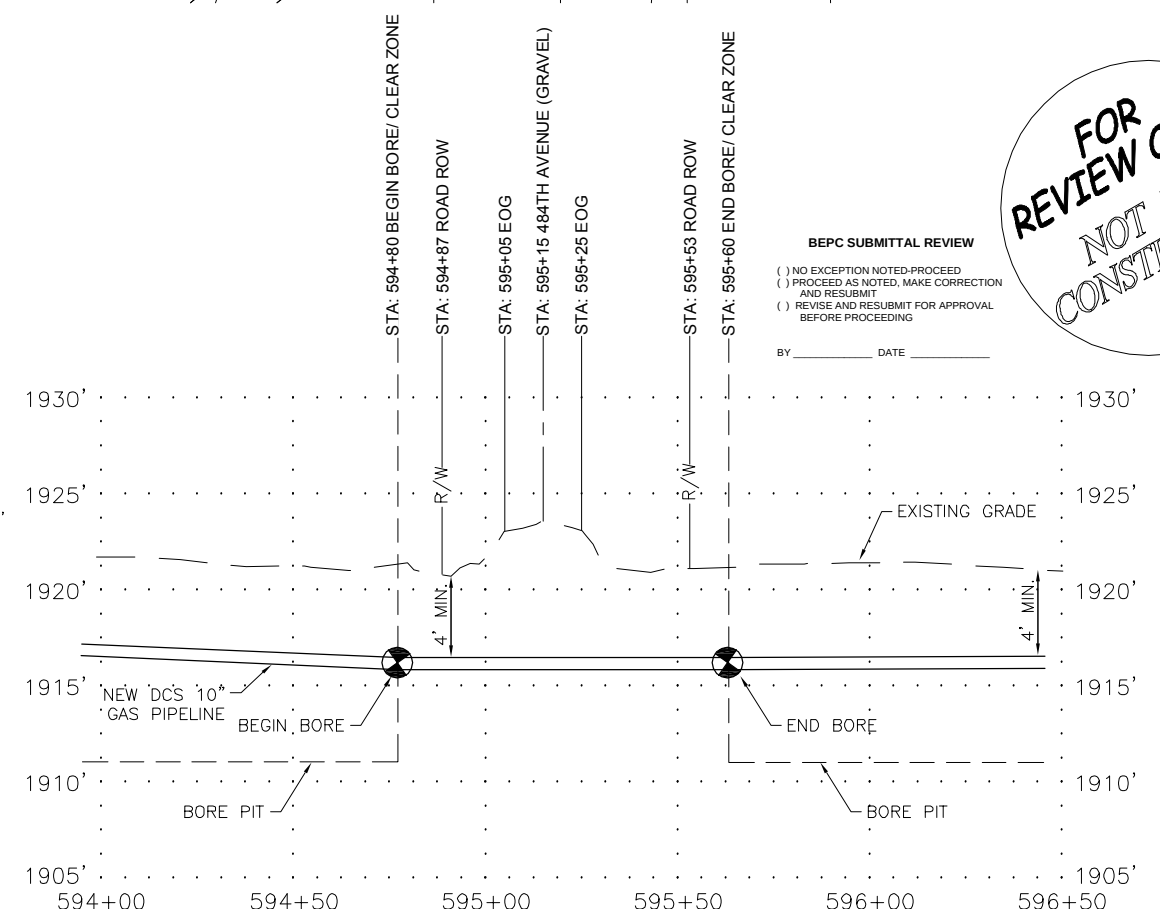
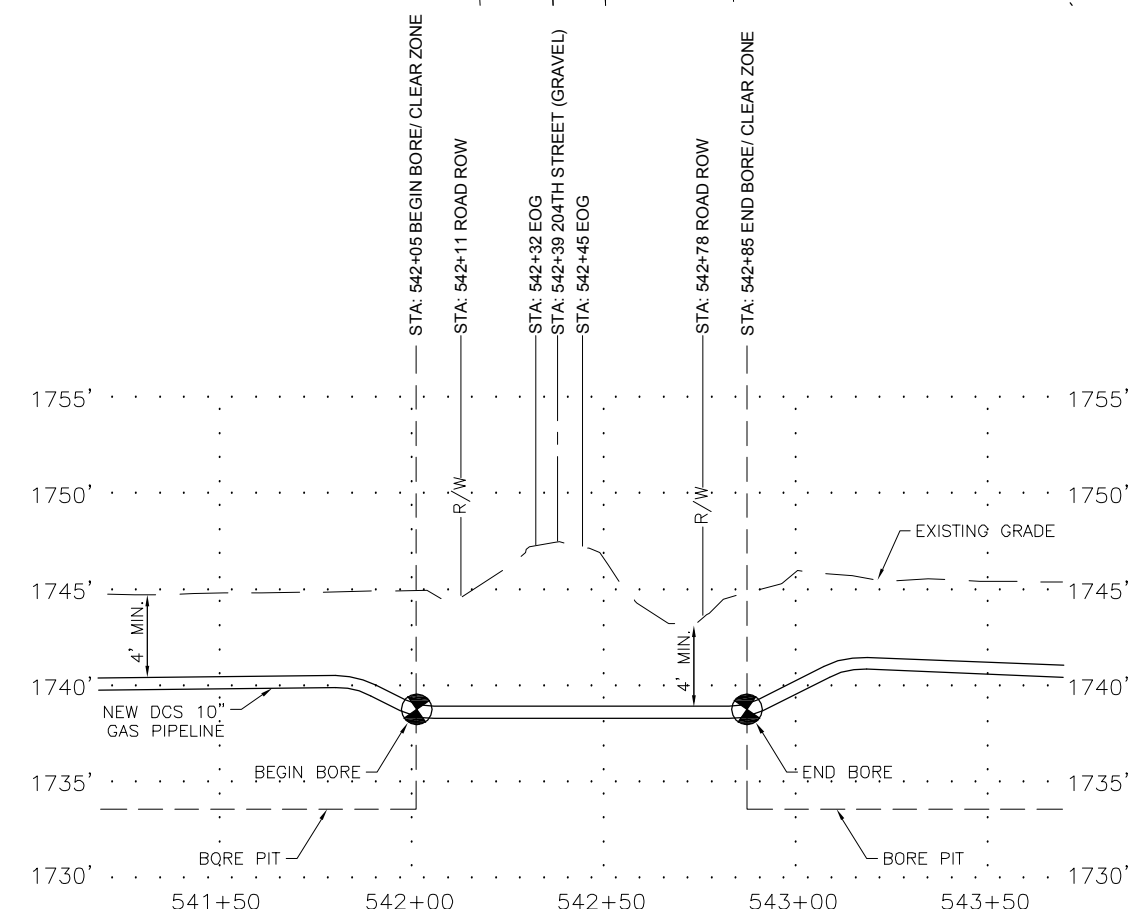
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APPROVED BY: ORIGINAL SIGNED	ENGINEER	
DATE: _____		
CONSTRUCTION DRAWING		
DCS-B11		



204TH STREET
SEC. 7, T111N, R47W
SEC. 18, T111N, R47W
BROOKINGS COUNTY,
SOUTH DAKOTA



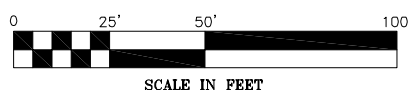
484TH AVENUE
SEC. 18, T111N, R47W
SEC. 13, T111N, R48W
BROOKINGS COUNTY,
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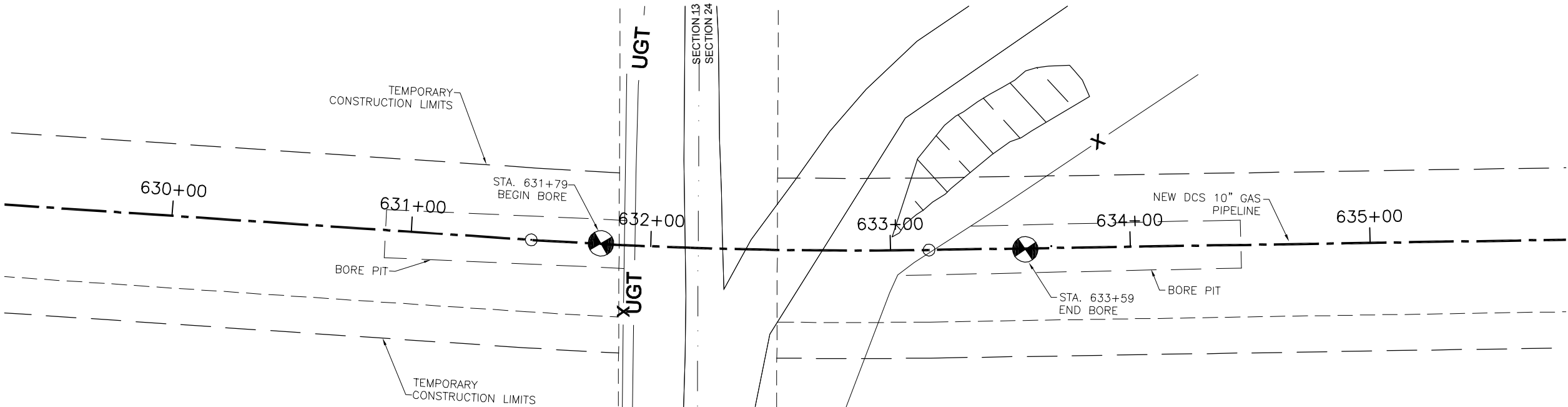
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LINE No. 162943
DEUEL & BROOKINGS COUNTY, SOUTH DAKOTA

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205TH STREET &
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SEC. 13 & 24, T111N, R48W
BROOKINGS COUNTY,
SOUTH DAKOTA

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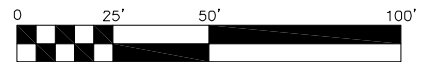
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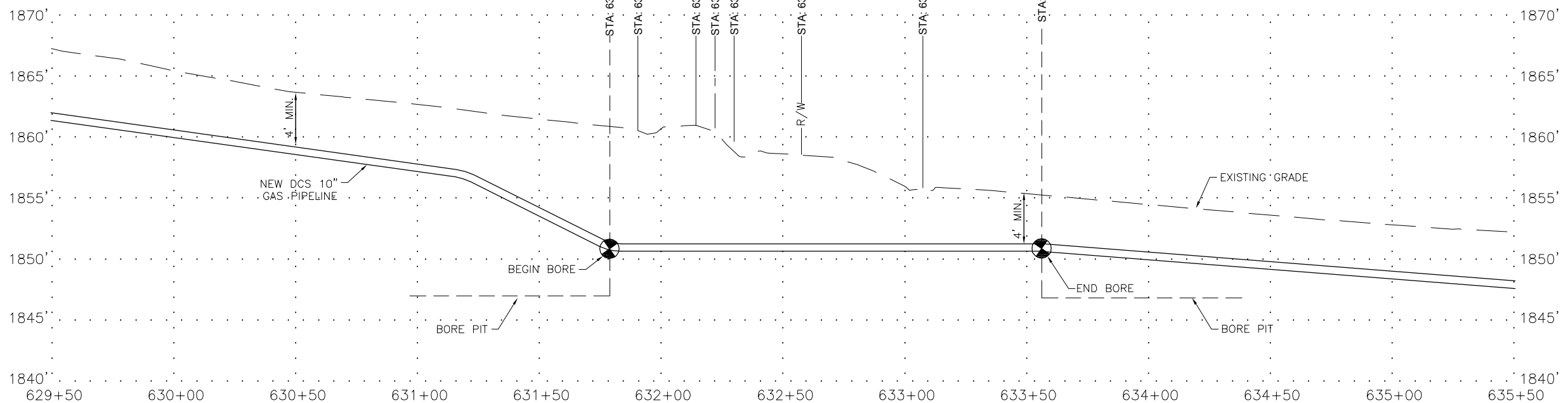
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REVISIONS				
NO.	DATE	REVISIONS	BY	CHKD.



DEER CREEK GENERATING STATION PIPELINE
LINE No. 162943
DEUEL & BROOKINGS COUNTY, SOUTH DAKOTA

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NITROGEN TEST LIMITS

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BY _____ DATE _____

NO.	DATE	BY	REVISION
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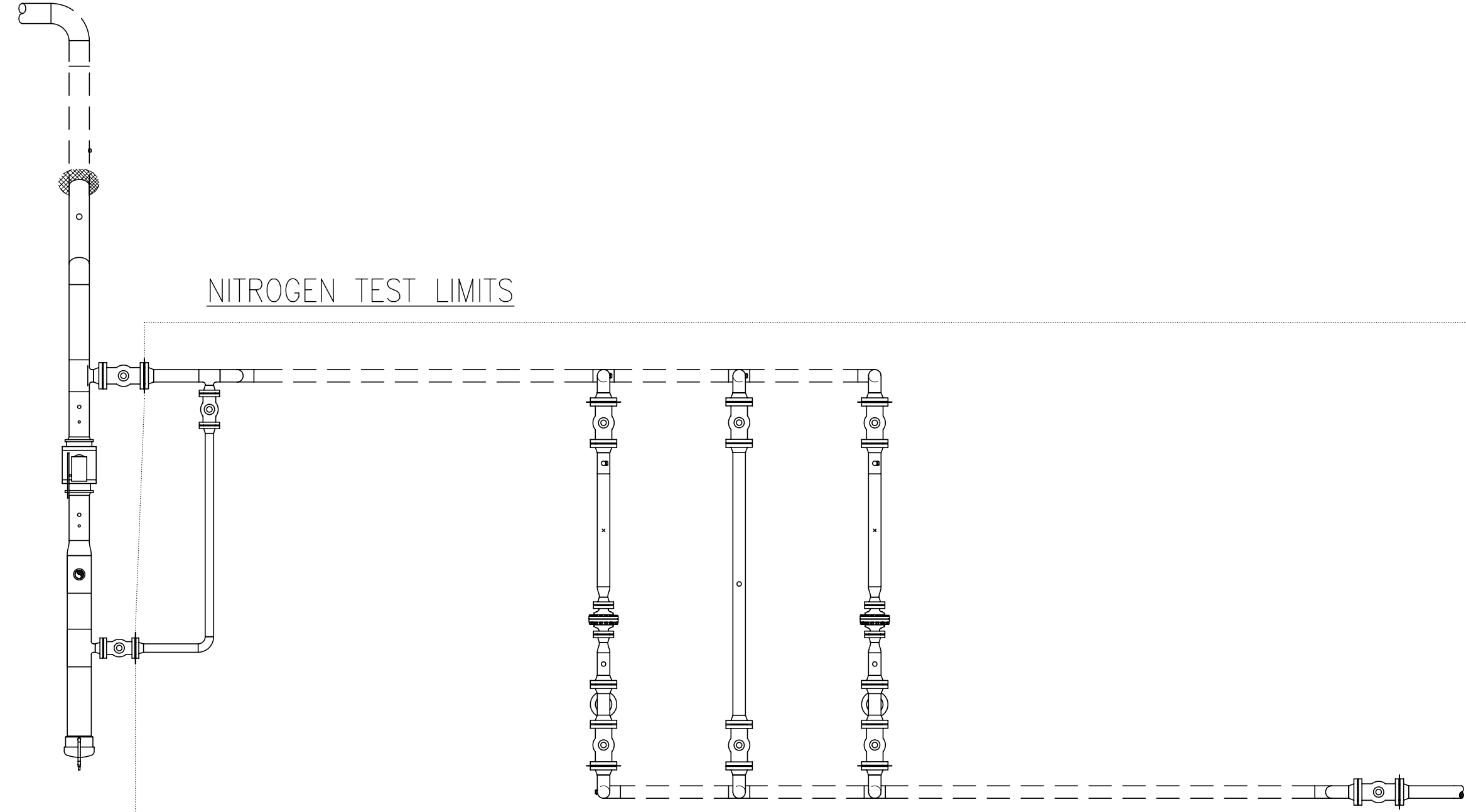


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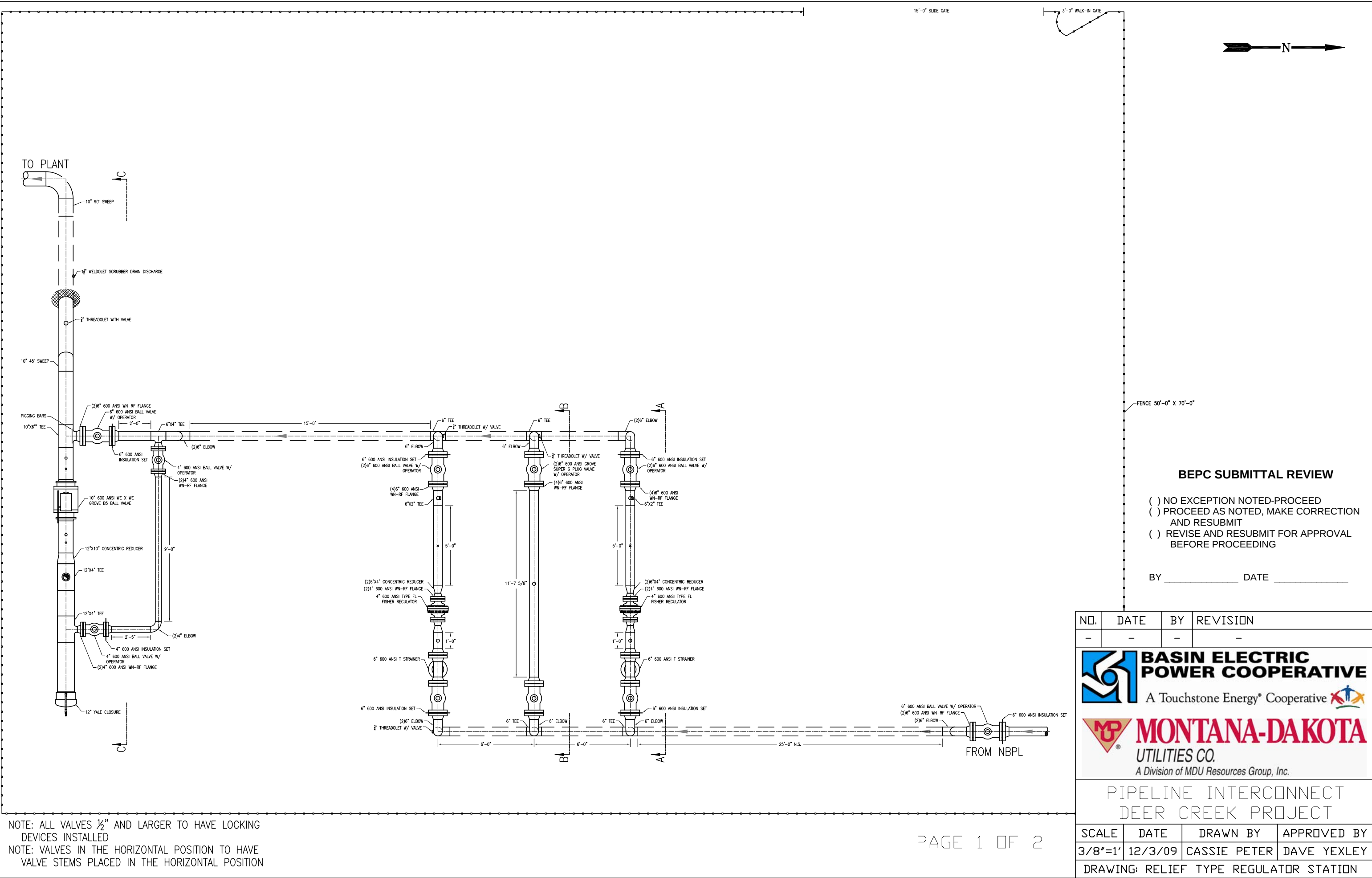
PIPELINE INTERCONNECT
DEER CREEK PROJECT

SCALE	DATE	DRAWN BY	APPROVED BY
3/8"=1'	12/3/09	CASSIE PETER	DAVE YEXLEY

DRAWING: RELIEF TYPE REGULATOR STATION



PRESSURE TESTING SPECIFICATIONS/ PRESSURES							
TEST SECTION	TEST MEDIUM	HOLD PERIOD	MIN. PRESSURE	DESIGN PRESSURE	MATERIAL TEST LIMITS	PRESSURE LIMITING COMPONENT	CLASS LOCATION
NITROGEN	4 HRS	2160 psig	2260 psig	1440 psig	2220 psig	FITTINGS (12", .375" W.T., GR B)	3



NOTE: ALL VALVES 1/2" AND LARGER TO HAVE LOCKING DEVICES INSTALLED
NOTE: VALVES IN THE HORIZONTAL POSITION TO HAVE VALVE STEMS PLACED IN THE HORIZONTAL POSITION

NO.

DATE

BY

REVISION

-

-

-

-



**BASIN ELECTRIC
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UTILITIES CO.**

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PIPELINE INTERCONNECT
DEER CREEK PROJECT

SCALE

DATE

DRAWN BY

APPROVED BY

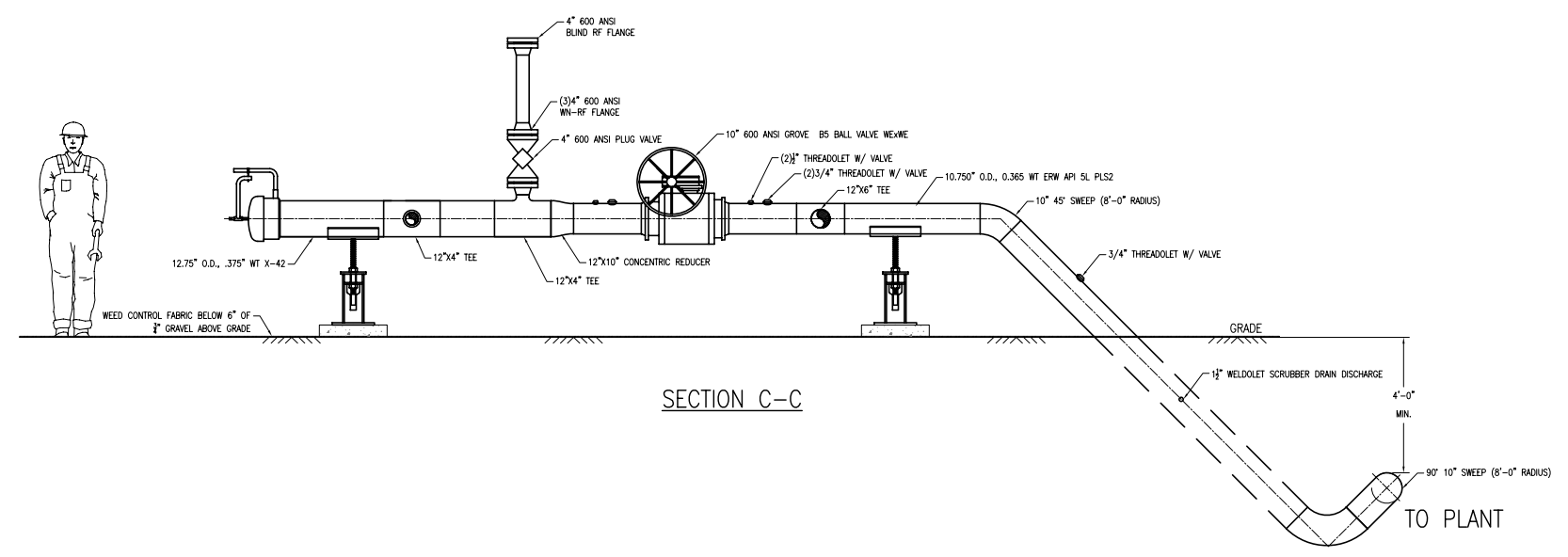
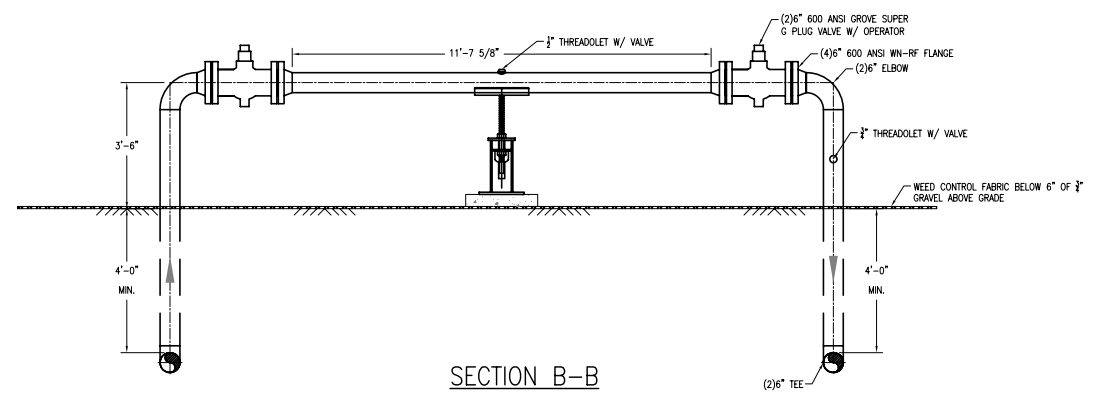
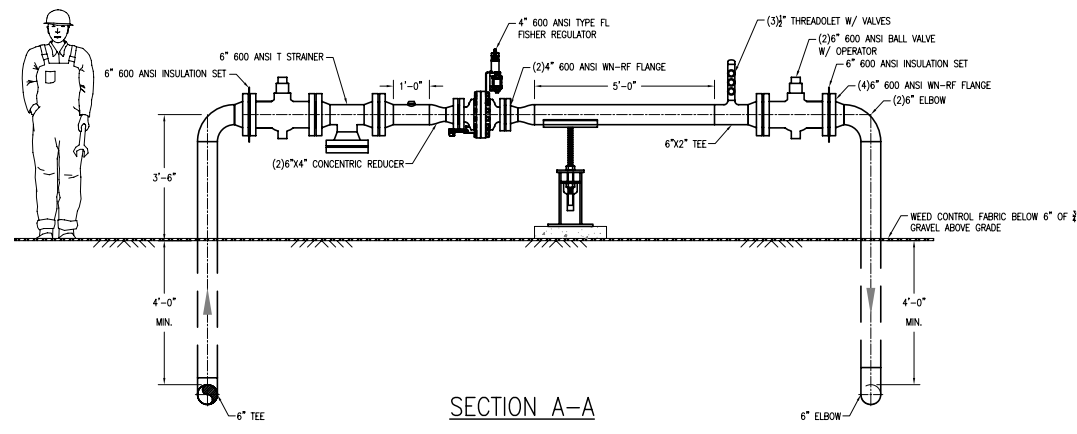
3/8"=1'

12/3/09

CASSIE PETER

DAVE YEXLEY

DRAWING: RELIEF TYPE REGULATOR STATION



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 NOTE: VALVES IN THE HORIZONTAL POSITION TO HAVE VALVE STEMS PLACED IN THE HORIZONTAL POSITION
 NOTE: ADD WEED CONTROL FABRIC BELOW GRAVEL ON ALL LOCATIONS

BEPC SUBMITTAL REVIEW

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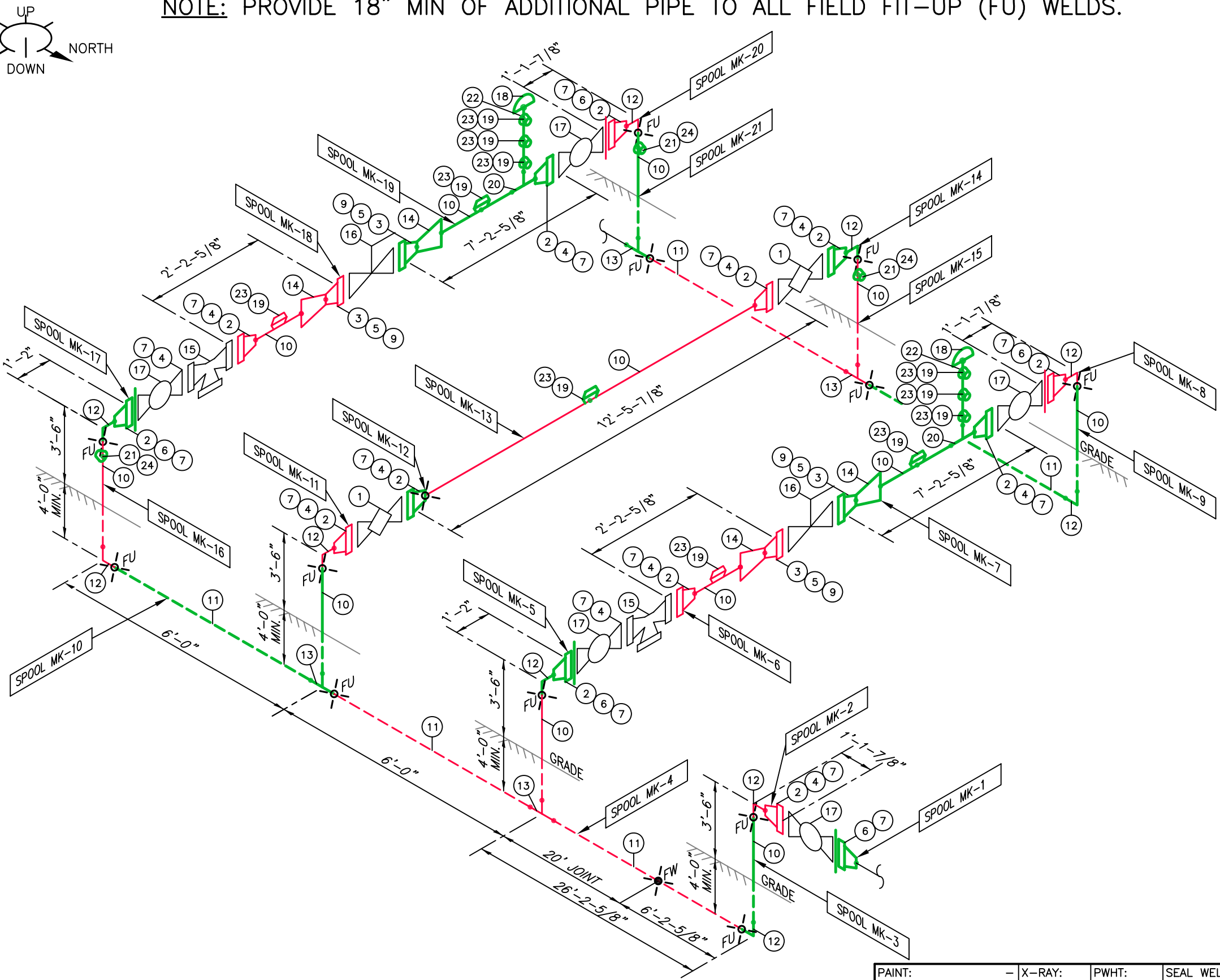
BY _____ DATE _____

NO.	DATE	BY	REVISION
-	-	-	-
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 MONTANA-DAKOTA UTILITIES CO. A Division of MDU Resources Group, Inc.			
INTERCONNECT SECTIONS DEER CREEK PROJECT			
SCALE	DATE	DRAWN BY	APPROVED BY
3/8"=1'	12/3/09	CASSIE PETER	DAVE YEXLEY
DRAWING: RELIEF TYPE REGULATOR STATION			

BILL OF MATERIALS

ITEM	QTY	SIZE	DESCRIPTION
1	2	6"	VALVE, PLUG, 600, RF W/ OPERATOR
2	13	6"	FLANGE, WN, 600, STD, RF, FS, A-105
3	4	4"	FLANGE, WN, 600, STD, RF, FS, A-105
4	11	6"	GASKET, 600,
5	4	4"	GASKET, 600,
6	5	6"	GASKET, 600, INS, PIKOTEK PGE W/ G10 SLEEVE W/ HCS WASHERS
7	192	1"x7 3/4"	BOLTS, STUD, /B7, W/ 2-HVY HEX NUTS, /2H
9	32	7/8"x6 3/4"	BOLTS, STUD, /B7, W/ 2-HVY HEX NUTS, /2H
10	80'	6"	PIPE, API5L, PSL2 GRADE B X52, .280" W.T.
11	60'	6"	PIPE, API-5L, PSL2 GR. B ERW, .280 WT, X52 EPOXY COATED
12	10	6"	ELBOW, 90, STD, CS/B, BW, A-234
13	4	6"	TEE, STD, CS/B, BW, A-234
14	4	6"x4"	REDUCER, CONC, STD, CS/B, BW, A-234
15	2	6"	STRAINER, 600 ANSI
16	2	6"	REGULATOR, 600 ANSI,
17	5	6"	VALVE, BALL, 600, RF W/ OPERATOR
18	2	2"	CAP, STD, CS/B, BW, A-234
19	11	1/2"	THREADOLET, 3000
20	2	6"x2"	TEE, REDUCER, STD, CS/B, BW, A-234
21	3	3/4"	THREADOLET, 3000
22	3'	2"	PIPE, API5L, PSL2, GR. B, .154" W.T. X52
23	11	1/2"	BALL VALVE, THREADED END
24	3	3/4"	BALL VALVE, THREADED END

NOTE: PROVIDE 18" MIN OF ADDITIONAL PIPE TO ALL FIELD FIT-UP (FU) WELDS.



BILL OF MATERIALS

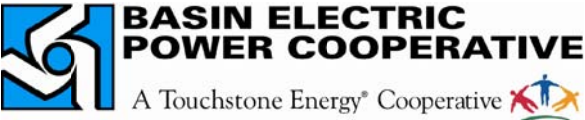
ITEM	QTY	SIZE	DESCRIPTION
1	1	10"	VALVE, BALL, 600, WE&WE
2	1	4"	VALVE, PLUG, 600, RF W. OPERATOR
3	1	6"	VALVE, BALL, 600, RF
4	2	4"	VALVE, BALL, 600, RF W/ OPERATOR
5	2	6"	FLANGE, WN, 600, STD, RF, FS, A-105
6	7	4"	FLANGE, WN, 600, STD, RF, FS, A-105
7	1	6"	GASKET, 600,
8	6	4"	GASKET, 600,
9	1	6"	GASKET, 600, INS, PIKOTEK PGE W/ G10 SLEEVE W/ HCS WASHERS
10	1	4"	GASKET, 600, INS, PIKOTEK PGE W/ G10 SLEEVE W/ HCS WASHERS
11	24	1"x7 3/4"	BOLTS, STUD, /B7, W/ 2-HVY HEX NUTS, /2H
12	56	7/8"x6 3/4"	BOLTS, STUD, /B7, W/ 2-HVY HEX NUTS, /2H
14	15'	4"	PIPE, API5L, PSL2, GR. B, .237" W.T. X52
15	12'	6"	PIPE, API5L, PSL2, GR. B, .280" W.T. X52
16	20'	10"	PIPE, API5L, PSL2, GR. B, .365" W.T. X52
17	8'	12"	PIPE, API5L, PSL2, GR. B, .375" W.T. X52
18	1	12"	CLOSURE, 600, HUBER-YALE, FIG. 500
20	20'	6"	PIPE, API-5L, PSL2 GR. ERW, .280WT, X52 EPOXY COATED
21	1	10"	45, STD, SWEEP, 8' RADIUS
22	1	4"	ELBOW, 90, STD, CS/B, BW, A-234
23	2	6"	ELBOW, 90, STD, CS/B, BW, A-234
24	1	10"	90, STD, SWEEP, 8' RADIUS
25	1	6"x4"	TEE, STD, CS/B, BW, A-234
26	1	10"x6"	TEE, STD, CS/B, BW, A-234
27	2	12"x4"	TEE, STD, CS/B, BW, A-234
28	1	12"x10"	REDUCER, CONC, STD, CS/B, BW, A-234
29	2	1/2"	THREADOLET, 3000
30	2	3/4"	THREADOLET, 3000
31	1	3/4"	THREADOLET, 3000, 45'
32	2	1/2"	BALL VALVE, THREADED END
33	3	3/4"	BALL VALVE, THREADED END
34	1	4"	FLANGE, BLIND, 600, STD, RF, FS, A-105
35	1	1-1/2"	WELDOLET, SCRUBBER, DRAIN DISCHARGE

BEPC SUBMITTAL REVIEW

- () NO EXCEPTION NOTED-PROCEED
- () PROCEED AS NOTED, MAKE CORRECTION AND RESUBMIT
- () REVISE AND RESUBMIT FOR APPROVAL BEFORE PROCEEDING

BY _____ DATE _____

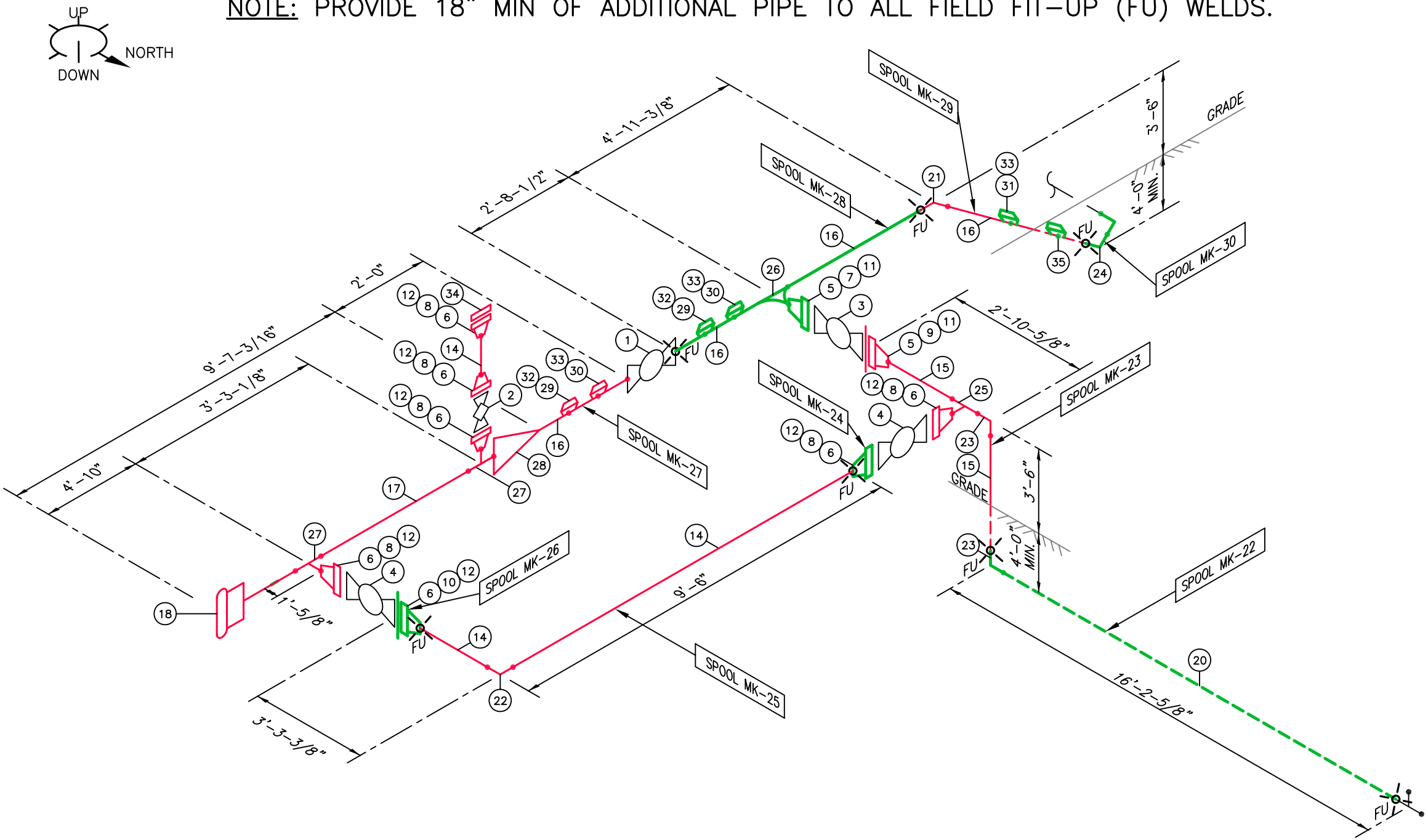
NO.	DATE	BY	REVISION
-	-	-	-



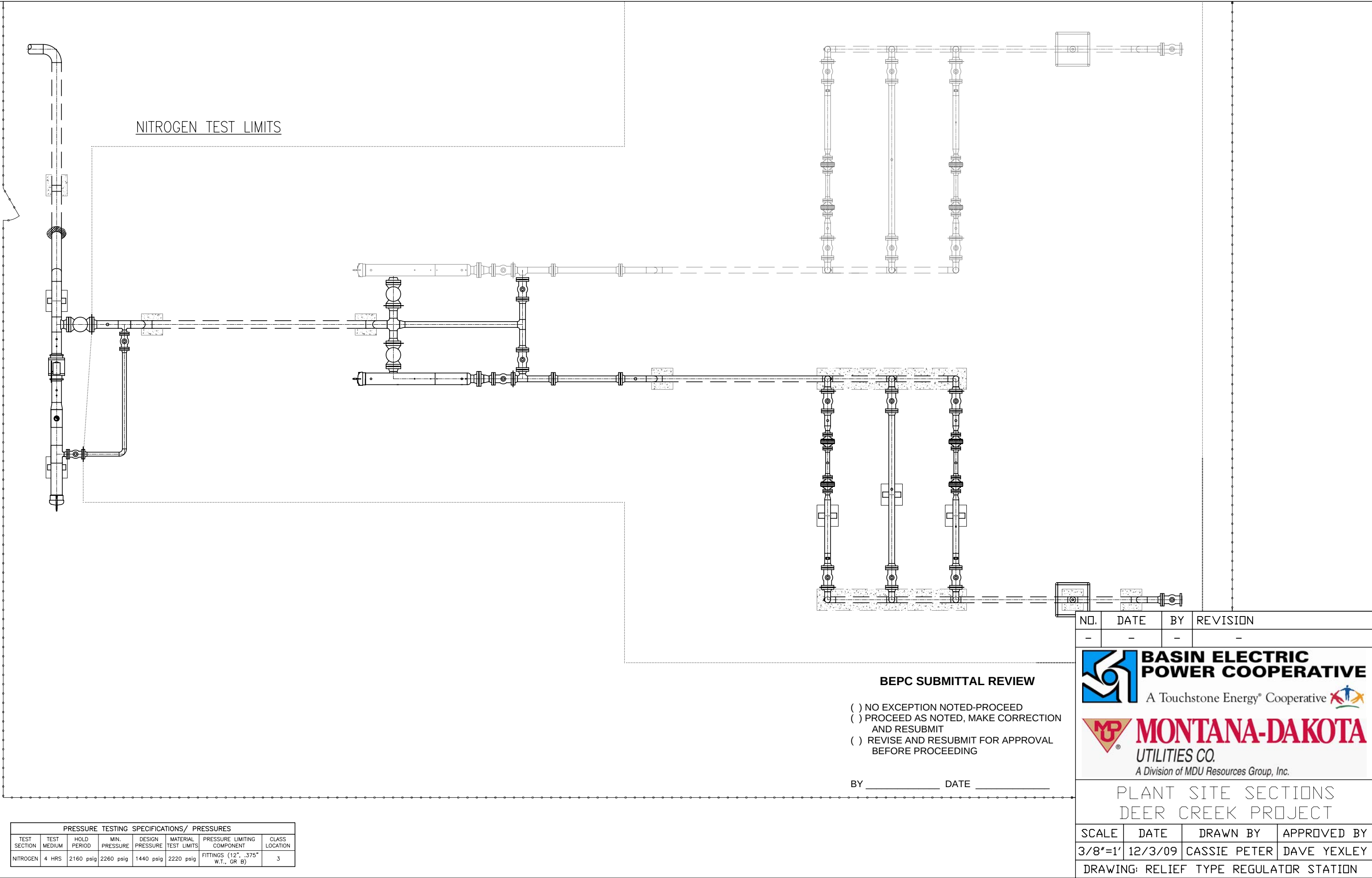
PIPELINE INTERCONNECT
DEER CREEK PROJECT

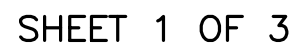
SCALE	DATE	DRAWN BY	APPROVED BY
NONE	12/3/09	CASSIE PETER	DAVE YEXLEY
DRAWING: SCHEMATIC			

NOTE: PROVIDE 18" MIN OF ADDITIONAL PIPE TO ALL FIELD FIT-UP (FU) WELDS.



PAINT: SPEC:	-	X-RAY: 100%	PWHT: NO	SEAL WELD: NO	PIPE STRESS ANALYZED: NO
INSULATION:	-	TEST: NITROGEN PSIG 2160	PIPING SPEC -		
CASE: THK: TYPE: TRACER:	-	OPERATING PSIG: 1440	@ 100	*F	
	-	DESIGN PSIG: 1440	@ 100	*F	





NO.	DATE	BY	REVISION
-	-	-	-



BASIN ELECTRIC POWER COOPERATIVE

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MONTANA-DAKOTA

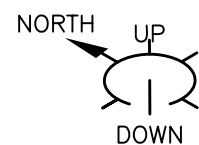
UTILITIES CO.
A Division of MDU Resources Group, Inc.

PLANT SITE SCHEMATIC

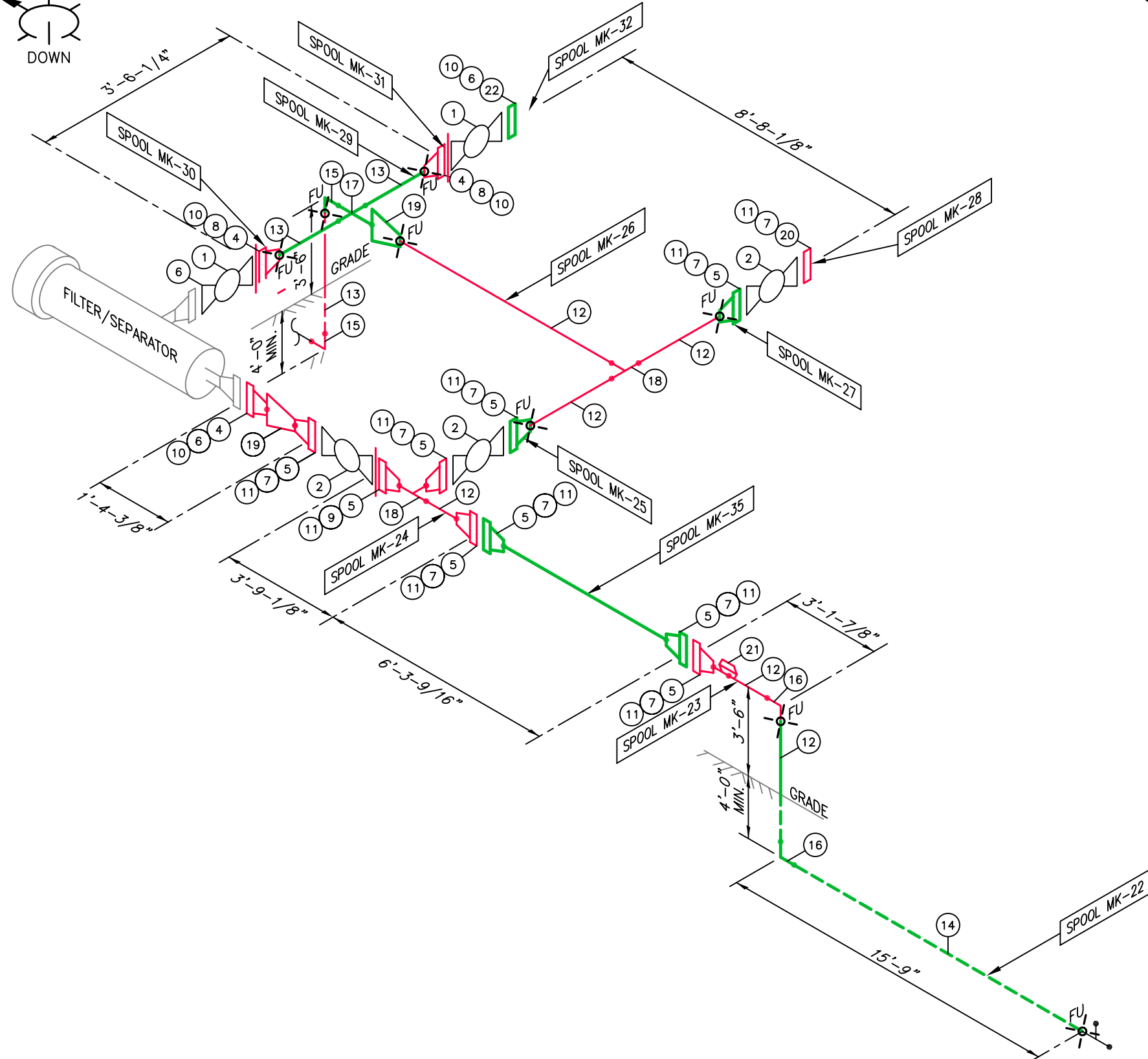
DEER CREEK PROJECT

SCALE	DATE	DRAWN BY	APPROVED BY
NONE	12/3/09	CASSIE PETER	DAVE YEXLEY

DRAWING: SCHEMATIC



NOTE: PROVIDE 18" MIN OF ADDITIONAL PIPE TO ALL FIELD FIT-UP (FU) WELDS.



BILL OF MATERIALS

ITEM	QTY	SIZE	DESCRIPTION
1	2	8"	VALVE, BALL, 600, RF
2	3	6"	VALVE, BALL, 600, RF W/ OPERATOR
4	3	8"	FLANGE, WN, 600, STD, RF, FS, A-105
5	9	6"	FLANGE, WN, 600, STD, RF, FS, A-105
6	3	8"	GASKET, 600,
7	7	6"	GASKET, 600,
8	2	8"	GASKET, 600, INS, PIKOTEK PGE W/ G10 SLEEVE W/ HCS WASHERS
9	1	6"	GASKET, 600, INS, PIKOTEK PGE W/ G10 SLEEVE W/ HCS WASHERS
10	60	1.125"x8.5"	BOLTS, STUD, /B7, W/ 2-HVY HEX NUTS, /2H
11	72	1"x7 3/4"	BOLTS, STUD, /B7, W/ 2-HVY HEX NUTS, /2H
12	30'	6"	PIPE, API5L, PSL2, GR. B, .237" W.T. X52
13	12'	8"	PIPE, API-5L, PSL2, GR. B, .322" W.T. X52
14	16'	6"	PIPE, API-5L, PSL2 GR B ERW .280 WT, X52 EPOXY COATED
15	2	8"	ELBOW, 90, STD, CS/B, BW, A-234
16	2	6"	ELBOW, 90, STD, CS/B, BW, A-234
17	1	8"	CROSS, STD, CS/B, BW, A-234
18	2	6"	TEE, STD, CS/B, BW, A-234
19	2	8"x6"	REDUCER, CONC, STD, CS/B, BW, A-234
20	1	6"	FLANGE, BLIND, 600, STD, RF, FS, A-105
21	1	2"	THREDOLET, 3000, FS, SCR'D, A-234
22	1	8"	FLANGE, BLIND, 600, STD, RF, FS, A-105
23	2	3"	FLANGE, WN, 600, STD, RF, FS, A-105
24	2	3"	GASKET, 600,
25	72	3/4" X 5"	BOLTS, STUD, /B7, W/ 2-HVY HEX NUTS, /2H
26	1	6"x3"	REDUCER, CONC, STD, CS/B, BW, A-234

BEPC SUBMITTAL REVIEW

- () NO EXCEPTION NOTED-PROCEED
- () PROCEED AS NOTED, MAKE CORRECTION AND RESUBMIT
- () REVISE AND RESUBMIT FOR APPROVAL BEFORE PROCEEDING

BY _____ DATE _____

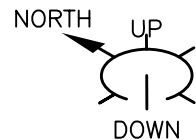
NO.	DATE	BY	REVISION
-	-	-	-



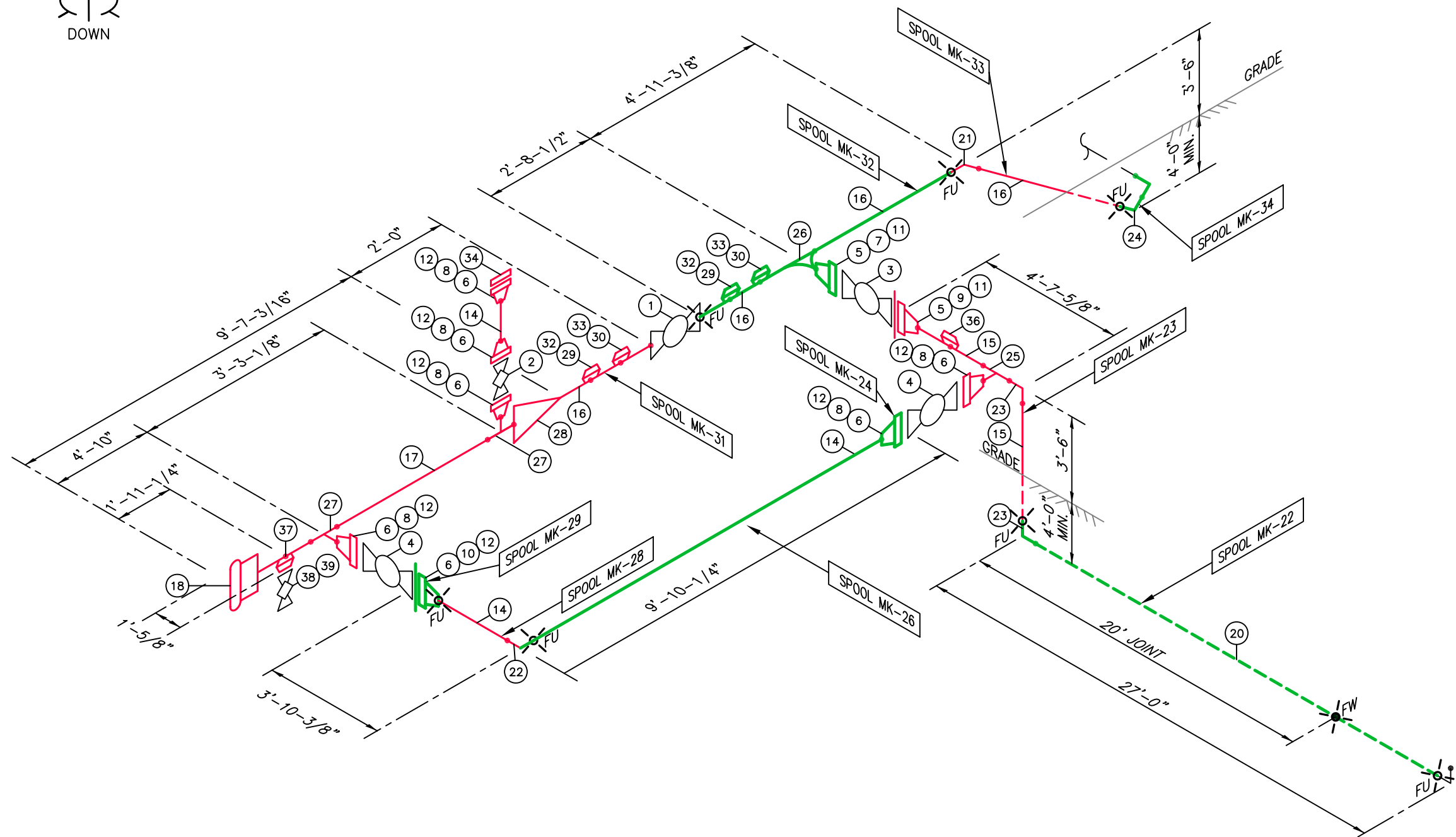
PLANT SITE SCHEMATIC
DEER CREEK PROJECT

SCALE	DATE	DRAWN BY	APPROVED BY
NONE	12/3/09	CASSIE PETER	DAVE YEXLEY
DRAWING: SCHEMATIC			

PAINT: SPEC:	-	X-RAY: 100%	PWHT: NO	SEAL WELD: NO	PIPE STRESS ANALYZED: NO
INSULATION:	-	TEST: NITROGEN PSIG 2160	PIPING SPEC -		
CASE: THK: TYPE: TRACER:	-	OPERATING PSIG: 1440	@ 100	*F	
	-	DESIGN PSIG: 1440	@ 100	*F	



NOTE: PROVIDE 18" MIN OF ADDITIONAL PIPE TO ALL FIELD FIT-UP (FU) WELDS.



BILL OF MATERIALS

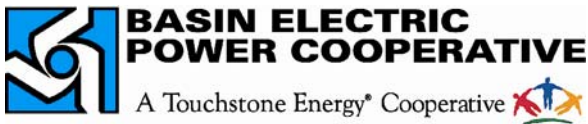
ITEM	QTY	SIZE	DESCRIPTION
1	1	10"	VALVE, BALL, 600, WE&WE
2	1	4"	VALVE, PLUG, 600, RF W. OPERATOR
3	1	8"	VALVE, BALL, 600, RF
4	2	4"	VALVE, BALL, 600, RF W/ OPERATOR
5	2	8"	FLANGE, WN, 600, STD, RF, FS, A-105
6	7	4"	FLANGE, WN, 600, STD, RF, FS, A-105
7	1	8"	GASKET, 600,
8	6	4"	GASKET, 600,
9	1	8"	GASKET, 600, INS, PIKOTEK PGE W/ G10 SLEEVE W/ HCS WASHERS
10	1	4"	GASKET, 600, INS, PIKOTEK PGE W/ G10 SLEEVE W/ HCS WASHERS
11	24	1 1/8"x8.5"	BOLTS, STUD, /B7, W/ 2-HVY HEX NUTS, /2H
12	56	7/8"x6 3/4"	BOLTS, STUD, /B7, W/ 2-HVY HEX NUTS, /2H
14	30'	4"	PIPE, API5L, PSL2, GR. B, .237" W.T. X52
15	12'	8"	PIPE, API5L, PSL2, GR. B, .280" W.T. X52
16	25'	10"	PIPE, API5L, PSL2, GR. B, .365" W.T. X52
17	8'	12"	PIPE, API5L, PSL2, GR. B, .375" W.T. X52
18	1	12"	CLOSURE, 600, HUBER-YALE, FIG. 500
20	27'	8"	PIPE, API-5L, PSL2 GR B ERW .280 WT, X52 EPOXY COATED
21	1	10"	45, STD, SWEEP, 8' RADIUS
22	1	4"	ELBOW, 90, STD, CS/B, BW, A-234
23	2	8"	ELBOW, 90, STD, CS/B, BW, A-234
24	1	10"	90, STD, SWEEP, 8' RADIUS
25	1	8"x4"	TEE, STD, CS/B, BW, A-234
26	1	10"x8"	TEE, STD, CS/B, BW, A-234
27	2	12"x4"	TEE, STD, CS/B, BW, A-234
28	1	12"x10"	REDUCER, CONC, STD, CS/B, BW, A-234
29	2	1/2"	THREADOLET, 3000
30	2	3/4"	THREADOLET, 3000
32	2	1/2"	BALL VALVE, THREADED END
33	2	3/4"	BALL VALVE, THREADED END
34	1	4"	FLANGE, BLIND, 600, STD, RF, FS, A-105
36	1	2"	THREADOLET, 3000, FS, SCR'D, A-234
37	1	1"	THREADOLET, 3000
38	1	1"	BALL VALVE, THREADED END
39	1	1"	PLUG, SQUARE HEAD

BEPC SUBMITTAL REVIEW

- () NO EXCEPTION NOTED-PROCEED
() PROCEED AS NOTED, MAKE CORRECTION AND RESUBMIT
() REVISE AND RESUBMIT FOR APPROVAL BEFORE PROCEEDING

BY _____ DATE _____

NO.	DATE	BY	REVISION
-	-	-	-



PLANT SITE SCHEMATIC
DEER CREEK PROJECT

SCALE	DATE	DRAWN BY	APPROVED BY
NONE	12/3/09	CASSIE PETER	DAVE YEXLEY
DRAWING: SCHEMATIC			

PAINT: SPEC:	-	X-RAY: 100%	PWHT: NO	SEAL WELD: NO	PIPE STRESS ANALYZED: NO
INSULATION:	-	TEST: NITROGEN PSIG 2160	PIPING SPEC -		
CASE: THK: TYPE: TRACER:	-	OPERATING PSIG: 1440	@ 100	*F	
	-	DESIGN PSIG: 1440	@ 100	*F	



() NO EXCEPTION NOTED-PROCEED
() PROCEED AS NOTED, MAKE CORRECTION
AND RESUBMIT
() REVISE AND RESUBMIT FOR APPROVAL
BEFORE PROCEEDING

BY _____ DATE _____

NO.	DATE	BY	REVISION
-	-	-	-



**BASIN ELECTRIC
POWER COOPERATIVE**

A Touchstone Energy® Cooperative 



MONTANA-DAKOTA
UTILITIES CO.

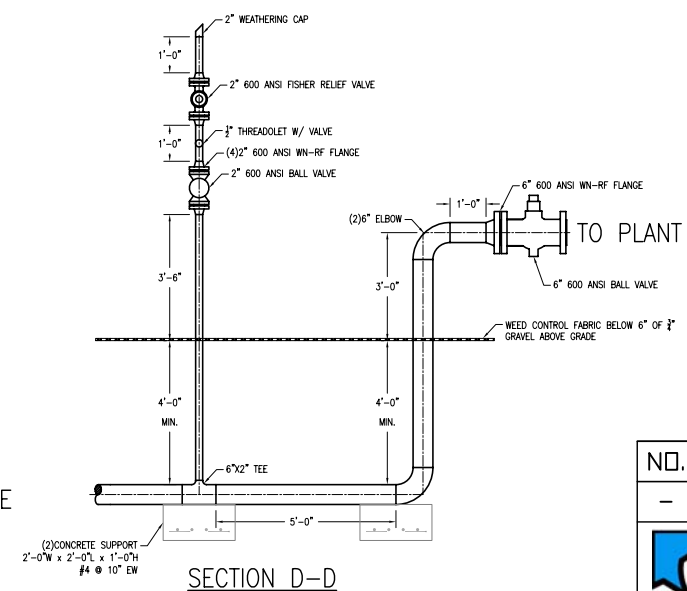
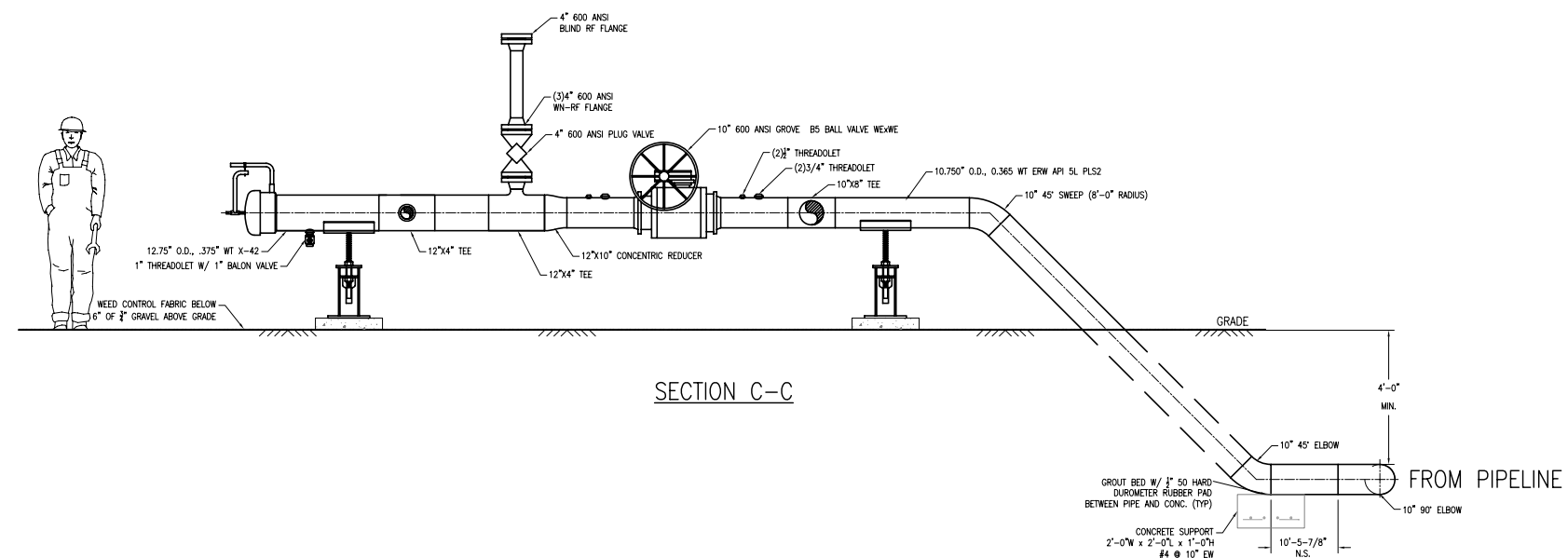
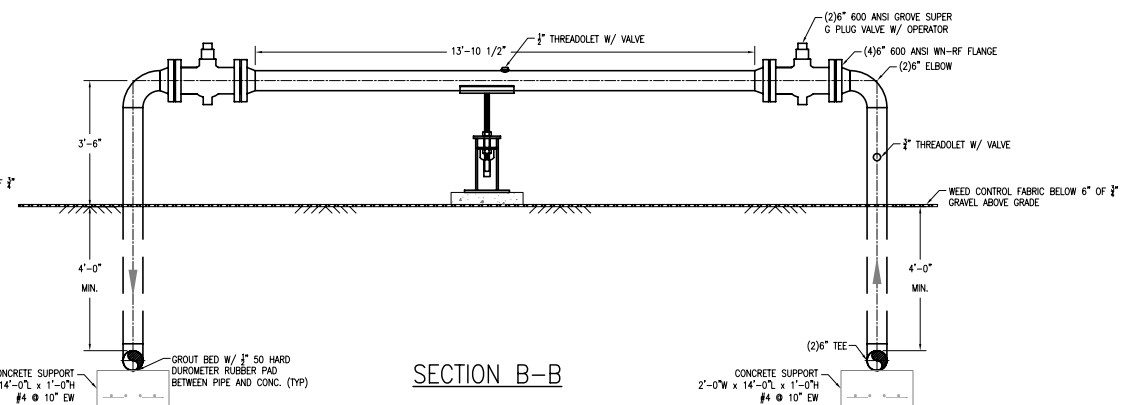
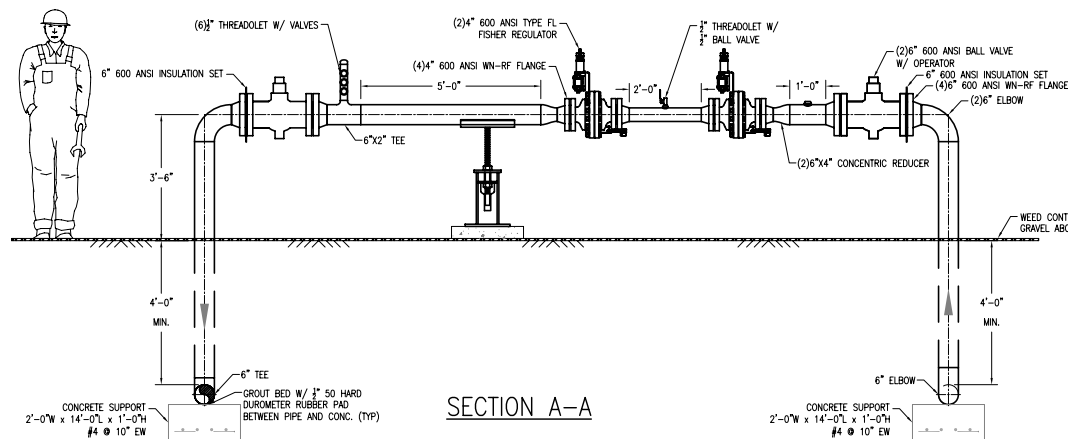
A Division of MDU Resources Group, Inc.

PLANT SITE

DEER CREEK PROJECT

SCALE	DATE	DRAWN BY	APPROVED BY
1/4"=1'	12/3/09	CASSIE PETER	DAVE YEXLEY

DRAWING: RELIEF TYPE REGULATOR STATION



BEPC SUBMITTAL REVIEW

- () NO EXCEPTION NOTED-PROCEED
() PROCEED AS NOTED, MAKE CORRECTION
AND RESUBMIT
() REVISE AND RESUBMIT FOR APPROVAL
BEFORE PROCEEDING

BY _____ DATE _____

NO.	DATE	BY	REVISION
-	-	-	-



PLANT SITE SECTIONS
DEER CREEK PROJECT

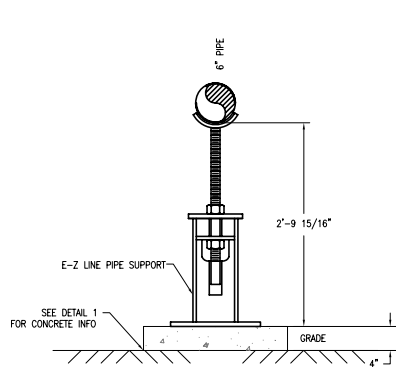
DEER CREEK PROJECT

SCALE	DATE	DRAWN BY	APPROVED BY
3/8"=1'	12/3/09	CASSIE PETER	DAVE YEXLEY
DRAWING: RELIEF TYPE REGULATOR STATION			

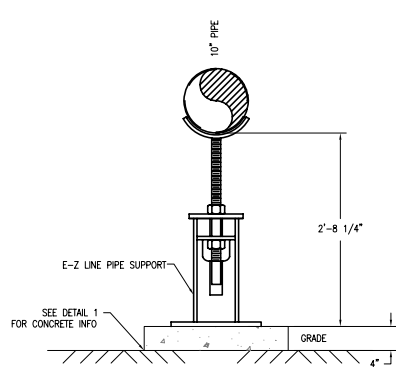
NOTE: ALL VALVES 1/2" AND LARGER TO HAVE LOCKING DEVICES INSTALLED

NOTE: VALVES IN THE HORIZONTAL POSITION TO HAVE VALVE STEMS PLACED IN THE HORIZONTAL POSITION

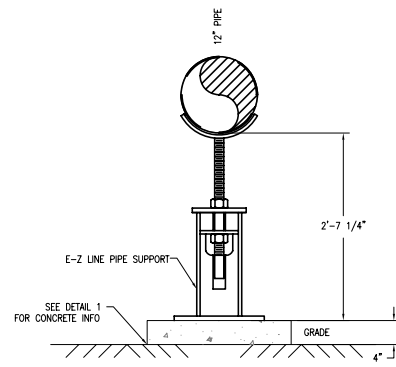
NOTE: ADD WEED CONTROL FABRIC BELOW GRAVEL
ON ALL LOCATIONS



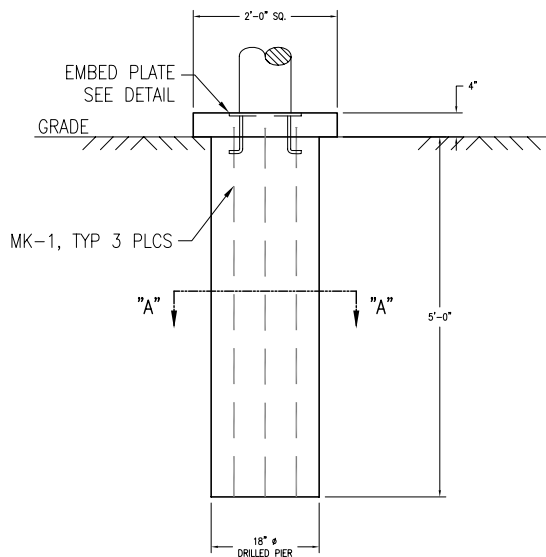
6" PIPE SUPPORT
SCALE: 3/4"=1'-0"
(3) REQUIRED



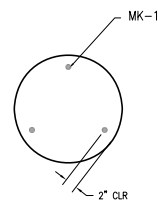
10" PIPE SUPPORT
SCALE: 3/4"=1'-0"
(1) REQUIRED



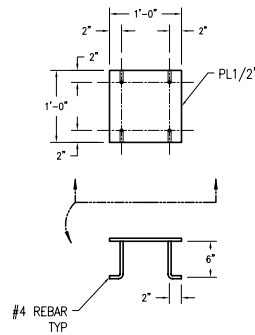
12" PIPE SUPPORT
SCALE: 3/4"=1'-0"
(1) REQUIRED



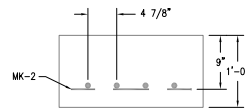
CONCRETE DETAIL 1
SCALE: 3/4"=1'-0"
(5) REQUIRED



SECTION A-A
SCALE: 3/4"=1'-0"



EMBED PLATE DETAIL
SCALE: 3/4"=1'-0"
(5) REQUIRED



CONCRETE SUPPORT
2'-0"W x 2'-0"L x 1'-0"H
(6) REQUIRED



CONCRETE SUPPORT
2'-0"W x 14'-0"L x 1'-0"H
(2) REQUIRED

REINFORCING BAR SCHEDULE				
MARK	QUANTITY	SIZE	LENGTH	BENDING
MK-1	15	#6	5'-0"	STRAIGHT
MK-2	82	#6	2'-0"	STRAIGHT
MK-3	8	#6	14'-0"	STRAIGHT

351' TOTAL REBAR

4.87 CU YDS TOTAL CONCRETE

- CONCRETE NOTES:**
1. SOIL BEARING VALUE TO BE 2000 PSF.
 2. CONCRETE TESTING 3750 POUND PER SQUARE INCH AFTER 28 DAYS. MAXIMUM AGGREGATE.
 3. WOOD FLOAT FINISH, LEAVING NO DEPRESSIONS.
 4. ALL EXPOSED CONCRETE SHALL BE RUBBED WITH A NEAT SAND MIXTURE.
 5. ALL CONCRETE SHALL HAVE A CURING AGENT APPLIED IMMEDIATELY AFTER FINISHING TO ENHANCE CURING.
 6. ALL CONCRETE UNLESS SPECIFIED OTHERWISE IS A 5 1/2 BAG PORTLAND MIX WITH A 3500 PSI MINIMUM 28 DAY COMPRESSIVE STRENGTH (ASTM C39) SUPER PLASTISIZORS ALLOWED WITH ENGINEERING APPROVAL.
 7. NO CONCRETE TO BE POURED WITH A SLUMP GREATER THAN 3" BEFORE PLASTISIZING WITHOUT ENGINEERING APPROVAL.
 8. ALL CONCRETE TO BE AIR EXTRACTED 5% TO 6% (BY VOLUME).
 9. ALL REBAR TO BE ASTM A615 GRADE 60.

NO.	DATE	BY	REVISION
-	-	-	-
 BASIN ELECTRIC POWER COOPERATIVE A Touchstone Energy® Cooperative 			
 MONTANA-DAKOTA UTILITIES CO. A Division of MDU Resources Group, Inc.			
PLANT SITE CONCRETE DEER CREEK PROJECT			
SCALE	DATE	DRAWN BY	APPROVED BY
3/8"=1'	12/3/09	CASSIE PETER	DAVE YEXLEY
DRAWING: RELIEF TYPE REGULATOR STATION			

BEPC SUBMITTAL REVIEW

- () NO EXCEPTION NOTED-PROCEED
() PROCEED AS NOTED, MAKE CORRECTION AND RESUBMIT
() REVISE AND RESUBMIT FOR APPROVAL BEFORE PROCEEDING

BY _____ DATE _____