

- REQUIRED PAVEMENT
- (A) 4" CONCRETE SIDEWALK
 - (B) 2" GRAVEL CUSHION
 - (C) 6" ASPHALT PAVEMENT
 - (D) 12" COMPACTED BASE COURSE
 - (E) CONCRETE CURB & GUTTER, TYPE B66



REVISIONS			
DATE	BY	DESCRIPTION	DATE

Wolverton & Associates
 Consulting Engineers & Land Surveyors
 402 North Lincoln Street, Suite 100, Rapid City, South Dakota 57701
 Phone: (605) 342-2200

DESIGNED BY	NAME	DATE	CHECKED BY	NAME	DATE
	KB	12/09/10		CB	12/09/10

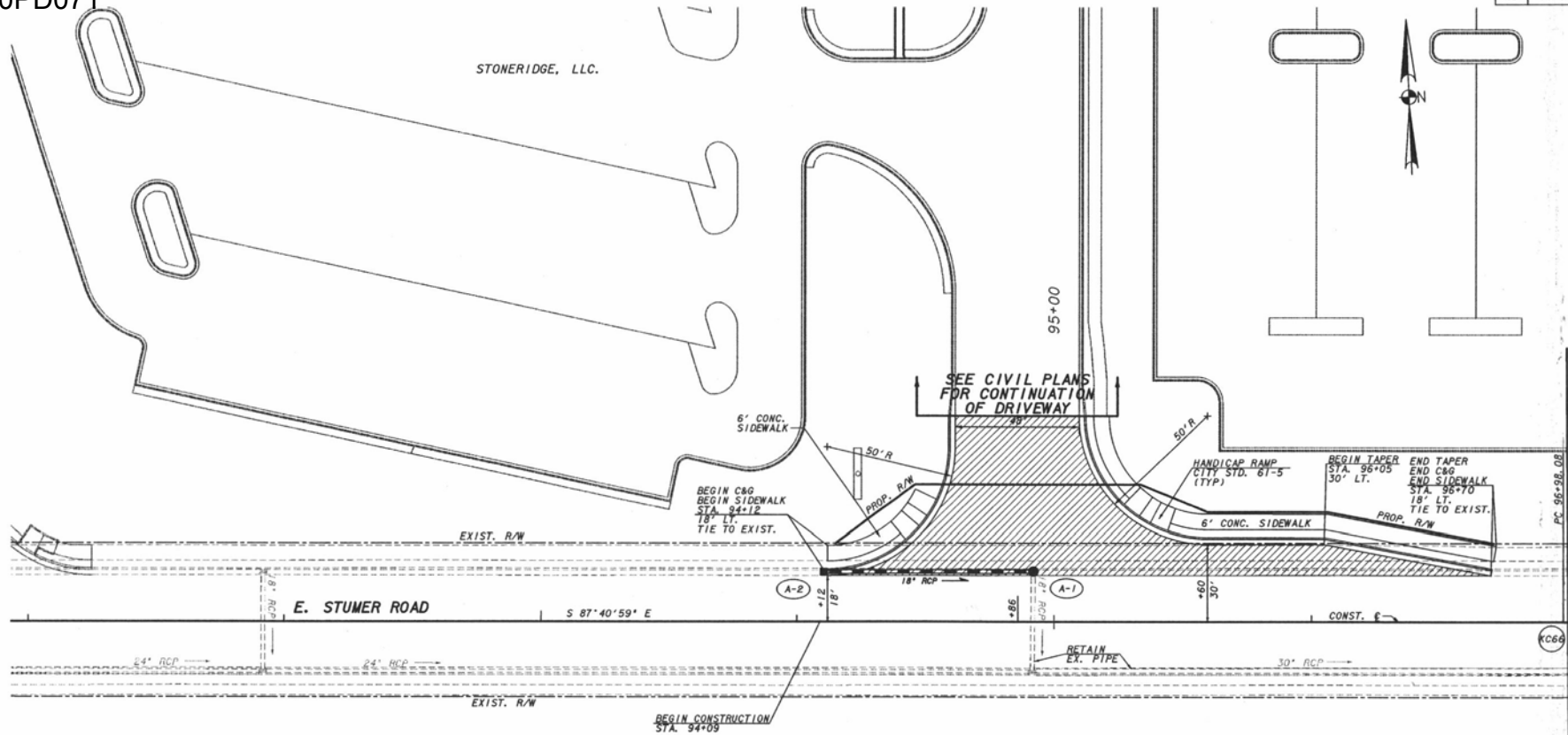
SUPERVISED BY KERRIE BOVETTE, P.E.

**PROPOSED BLACK HILLS CENTER
 RAPID CITY, S. D.
 TYPICAL SECTIONS**

DRAWING NUMBER
R-02

10PD071

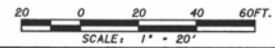
STATE	PROJECT NUMBER		
SD	10-909		



BIG D OIL CO.

Curve Data
 N - KC66
 Δ - 43°14'52" (LT)
 D - 14'19'26"
 T - 158.56
 L - 301.93
 R - 400.00
 PI STA - 98+56.65
 P1 X - 12.0975, 214
 P1 Y - 632343.414
 SE - MATCH EXIST.

PAVEMENT LEGEND	
	FULL-DEPTH ASPHALT PVMT.



REVISIONS			
DATE	BY	DESCRIPTION	

Wolverton & Associates
 Consulting Engineers & Architects
 1000 S. D. Ave., Suite 200
 Rapid City, SD 57701
 Phone: 605.343.2222

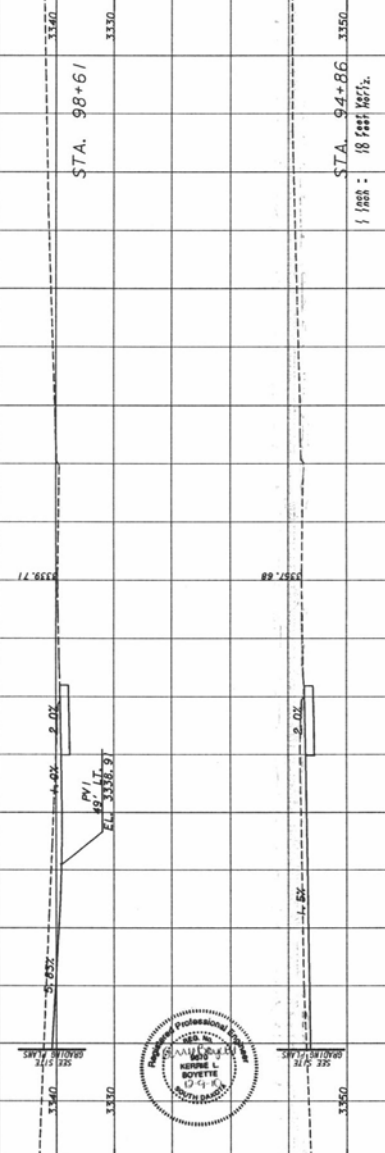
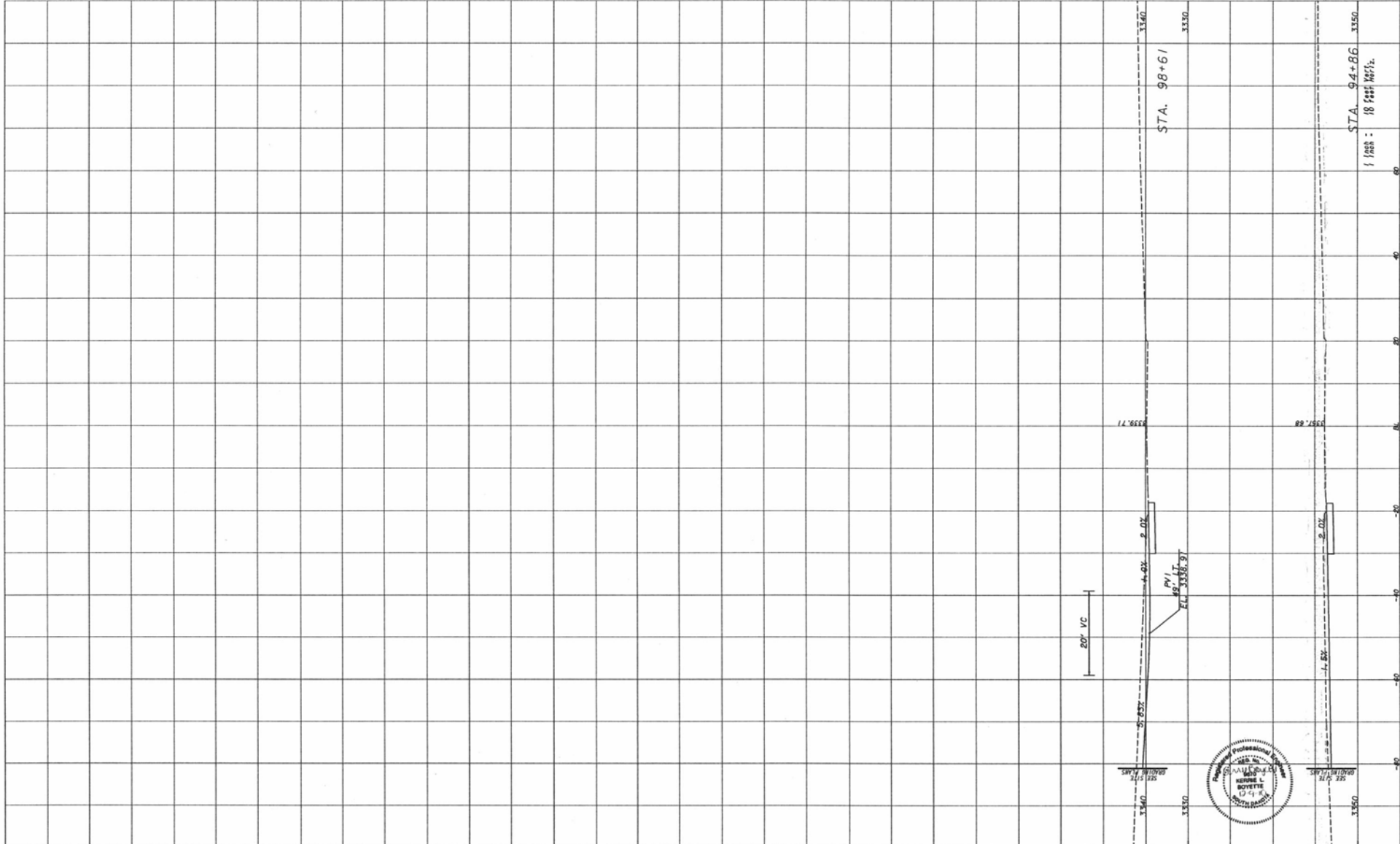
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DESIGNED	RB 12/09/10	DRAWN	EC 12/09/10
CHECKED	CH 12/09/10	CHECKED	RB 12/09/10

SUPERVISED BY KERRIE BOYETTE, P.E.

PROPOSED BLACK HILLS CENTER
 RAPID CITY, S.D.
 ROADWAY PLAN

DRAWING NUMBER
R-03

STATE	PROJECT NUMBER	
SD	10-909	



REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

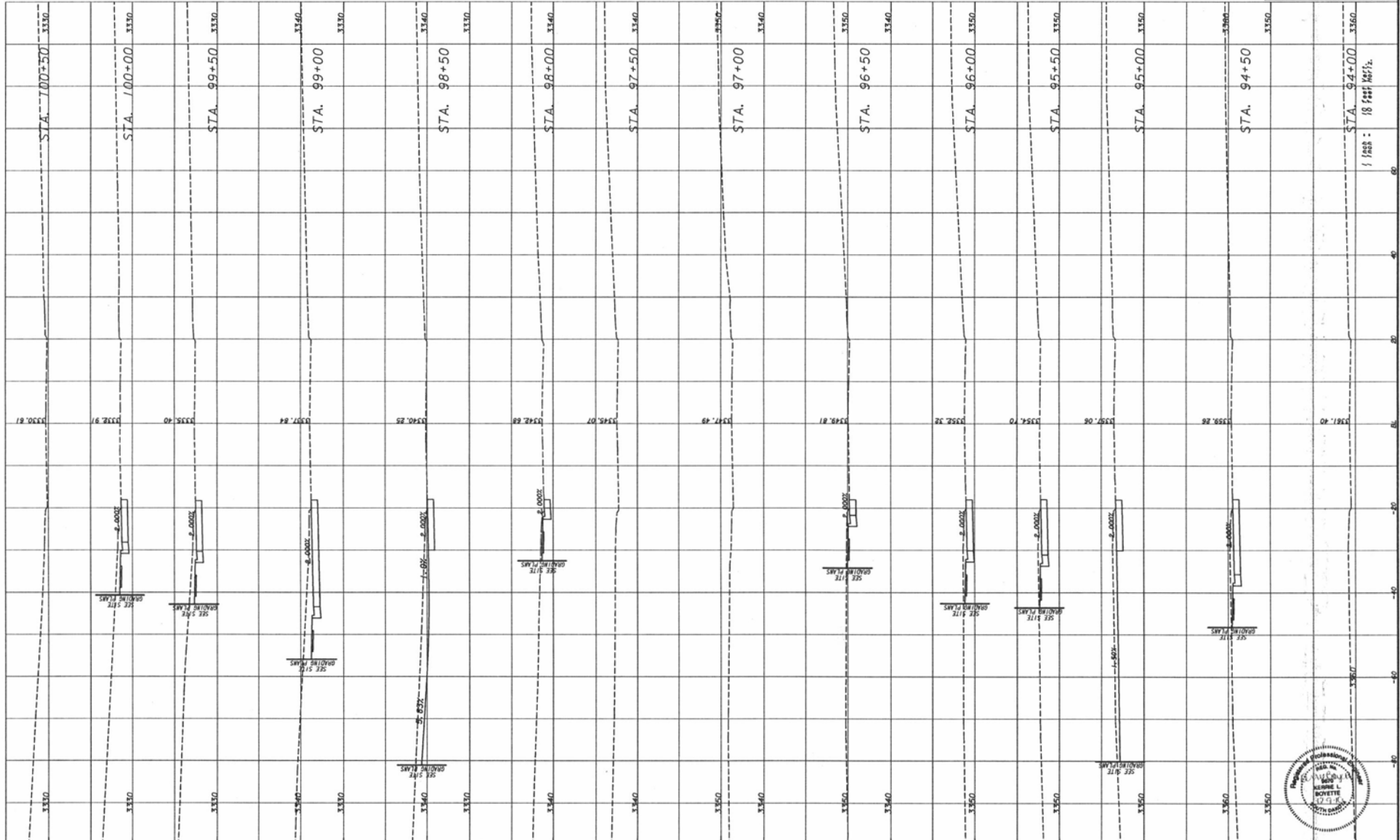


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	CM	12/09/10		KB	12/09/10

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PROPOSED BLACK HILLS CENTER
 RAPID CITY, S.D.
 DRIVEWAY PROFILES

STATE	PROJECT NUMBER
SD	10-909



REVISIONS			
DATE	BY	DESCRIPTION	

Wolverton & Associates
 Consulting Engineers & Land Surveyors
 404 North Broadway, Suite 200, Rapid City, SD 57701
 Phone: (605) 342-2222 Fax: (605) 342-2223

DESIGNED	NAME	DATE	DRAWN	NAME	DATE
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CHECKED	CH	12/09/10	CHECKED	RB	12/09/10

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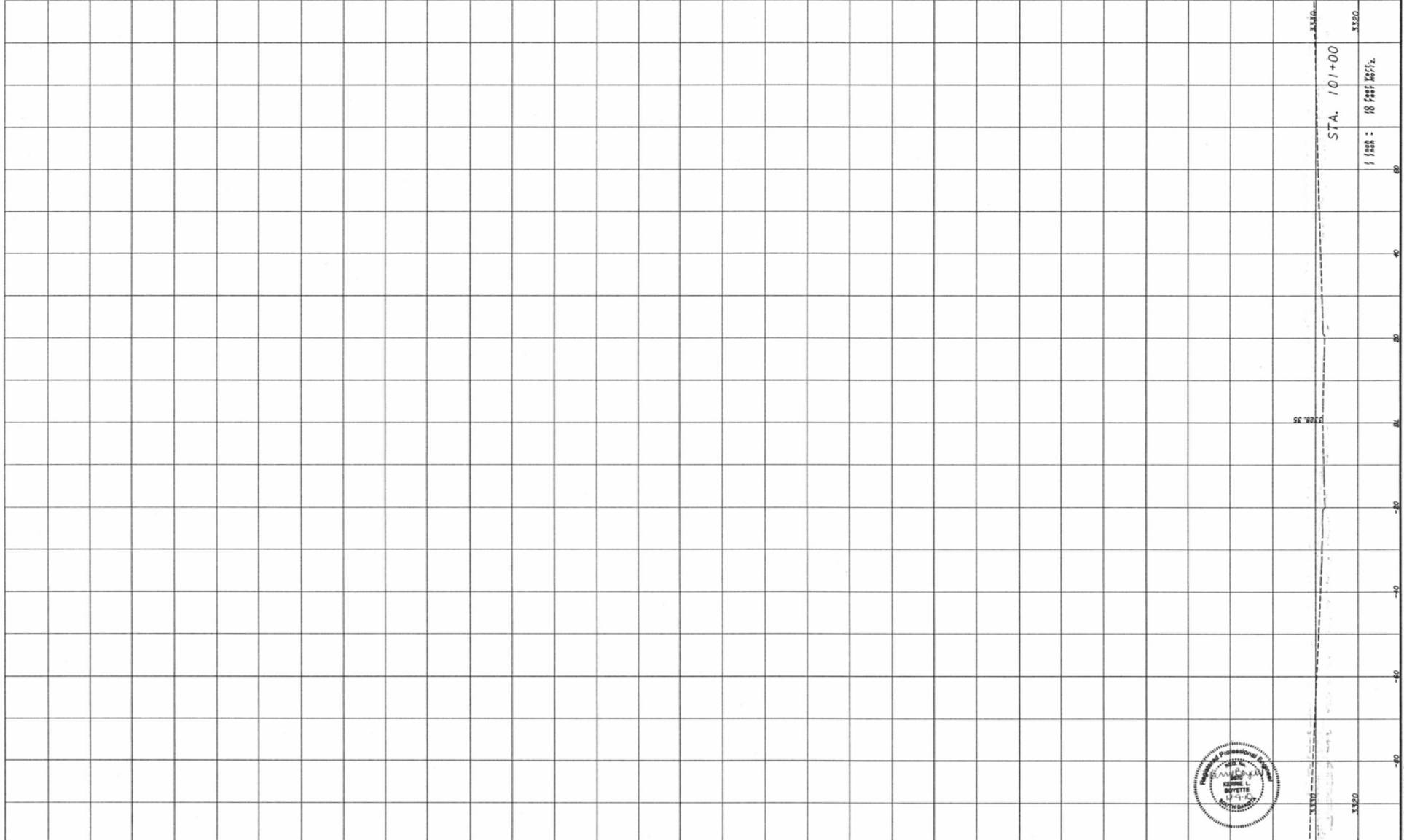
PROPOSED BLACK HILLS CENTER
RAPID CITY, S. D.
EARTHWORK CROSS SECTIONS

DRWING NUMBER
R-07



10PD071

STATE	PROJECT NUMBER
SD	10-909



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

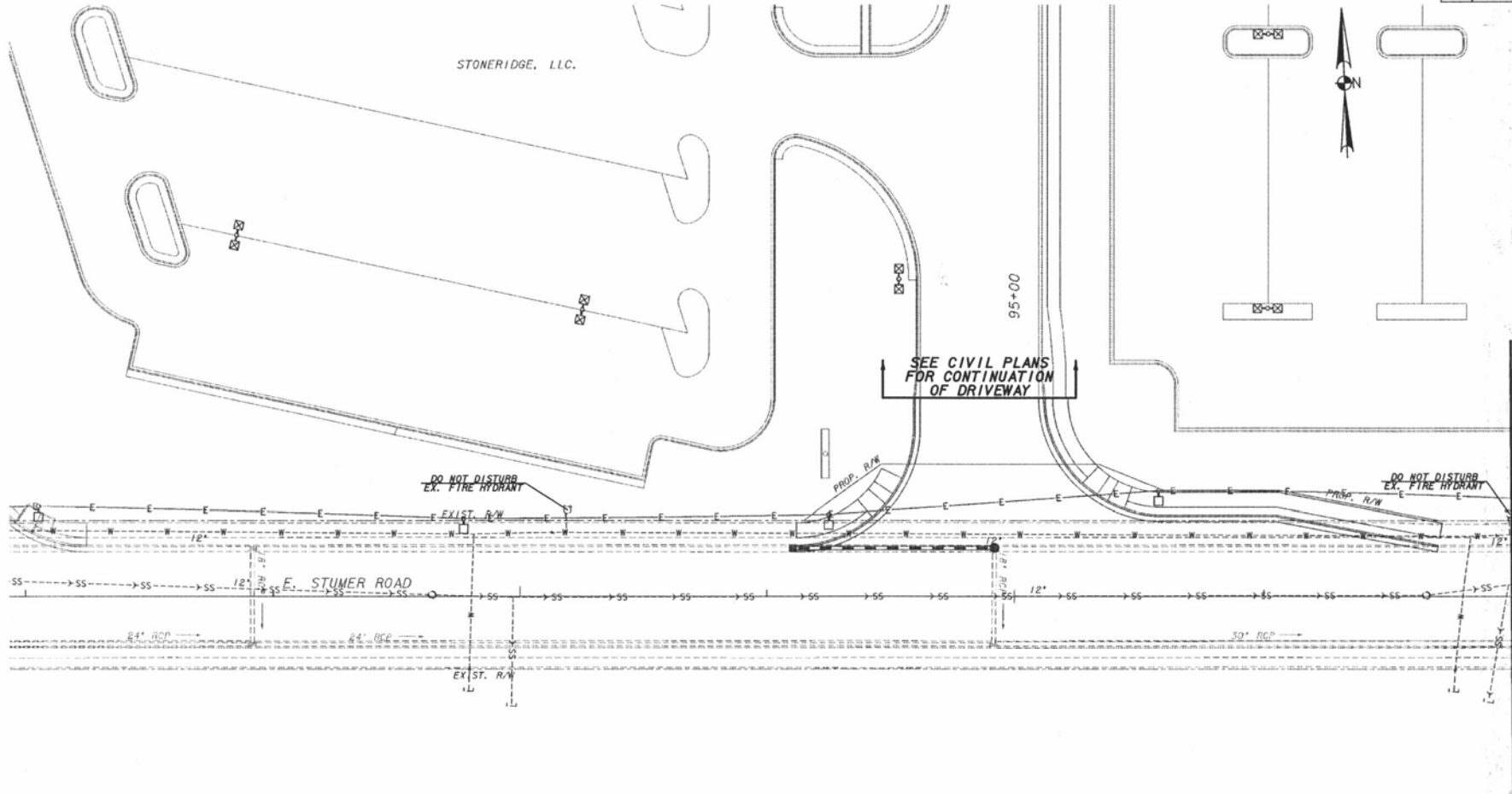
Wolverton & Associates
 Consulting Engineers - Land Surveys
 2014 North Street - Rapid City, South Dakota
 Phone: (605) 342-2222 Fax: (605) 342-2223

DESIGNED BY	NAME	DATE	DRAWN BY	NAME	DATE
	AB	12/09/10		EC	12/09/10
CHECKED BY	NAME	DATE	CHECKED BY	NAME	DATE
	CH	12/09/10		KB	12/09/10

SUPERVISED BY KENNETH BOYETTE, P.E.

PROPOSED BLACK HILLS CENTER
RAPID CITY, S. D.
EARTHWORK CROSS SECTIONS

DRAWING NUMBER
R-08



SEE CIVIL SITE PLANS FOR
ADDITIONAL UTILITY INFORMATION



REVISIONS			
DATE	BY	DESCRIPTION	

W
Wolverton & Associates
Civil Engineering • Land Services
Professional Engineer - Ken L. Bovette
1001 West 10th Street, Suite 200
Rapid City, SD 57701-2000
Phone: 605.342.2222

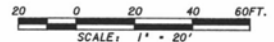
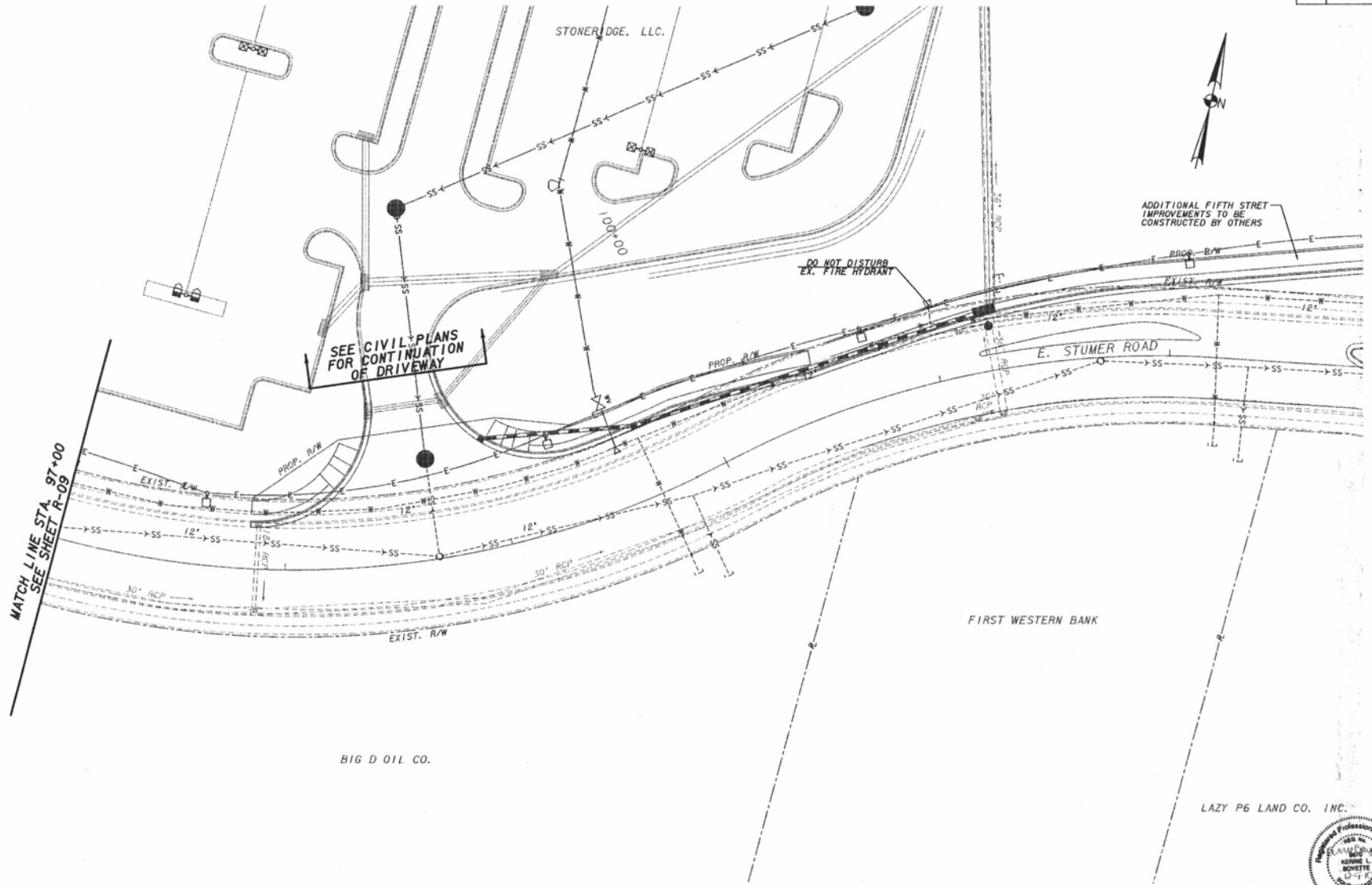
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CHECKED BY			CHECKED BY		

SUPERVISED BY KENNIE BOVETTE, P.E.

**PROPOSED BLACK HILLS CENTER
RAPID CITY, S. D.
UTILITY PLAN**

DATE: 12/09/10 10:00 AM
DRAWING NUMBER
R-09

STATE	PROJECT NUMBER	
SD	10-909	



SEE CIVIL SITE PLANS FOR ADDITIONAL UTILITY INFORMATION

REVISIONS			
DATE	BY	DESCRIPTION	

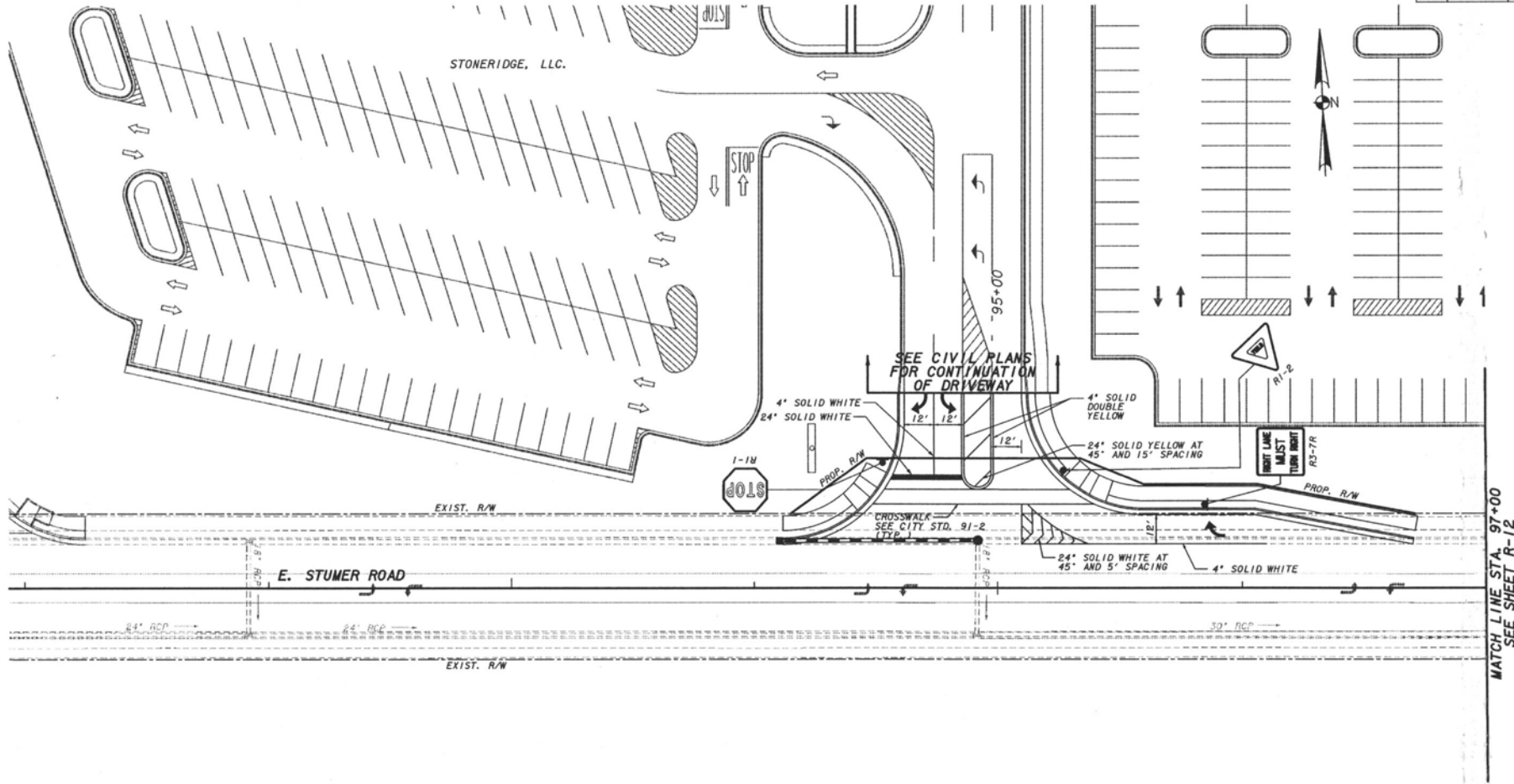
Wolverton & Associates
 Consulting Engineers - Land Surveyors
 404 North Broadway - Rapid City, South Dakota 57701
 Phone (605) 342-2222 Fax (605) 342-2223

DESIGNED	NAME	DATE	DRAWN	NAME	DATE
	KB	12/09/10	EC	12/09/10	
CHECKED	NAME	DATE	CHECKED	NAME	DATE
	CH	12/09/10	KB	12/09/10	

SUPERVISED BY KENNIC BOYETTE, P.E.

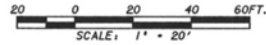
PROPOSED BLACK HILLS CENTER
RAPID CITY, S.D.
UTILITY PLAN

DRAWING NUMBER
R-10



BIG D OIL CO.

MATCH LINE STA. 97+00
SEE SHEET R-12



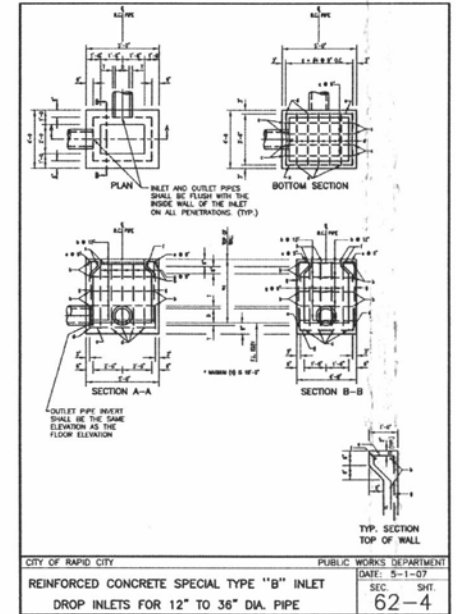
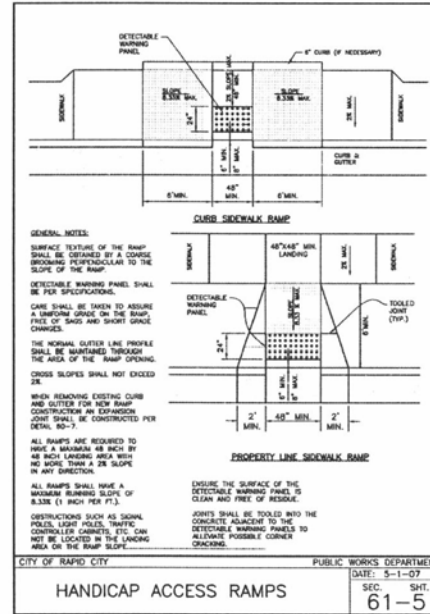
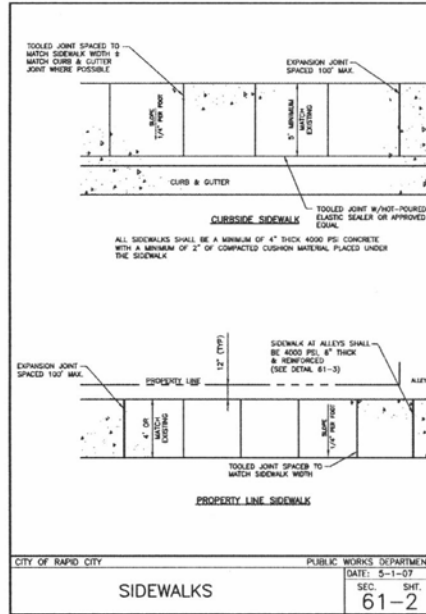
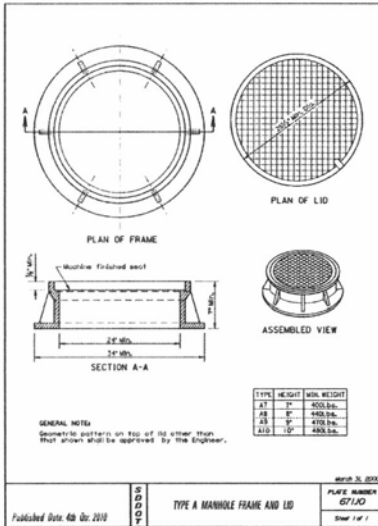
REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION



NAME	DATE	NAME	DATE
DESIGNED BY: RB	12/08/10	DRAWN BY: EC	12/08/10
CHECKED BY: CH	12/08/10	CHECKED BY: RB	12/08/10
SUPERVISED BY: KENNIE BOYETTE, P.E.			

PROPOSED BLACK HILLS CENTER
RAPID CITY, S.D.
SIGNING AND MARKING PLAN

DRAWING NUMBER: **R-11**



REVISIONS			
DATE	BY	DESCRIPTION	



DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
DESIGNED	EB	12/09/10	DRAWN	EC	12/09/10
CHECKED	CH	12/09/10	CHECKED	KB	12/09/10
BY			BY		

SUPERVISED BY KENNIE BOFFETTE, P. E.

GENERAL NOTES:

* REDUCE TOTAL QUANTITIES OF CONCRETE BY THE AMOUNT OF CONCRETE DISPLACED BY THE PIPE. TOTAL QUANTITY OF CONCRETE TO BE COMPUTED TO NEAREST HUNDRETH OF A CU. YD. TOTAL QUANTITY OF REINFORCING STEEL TO BE COMPUTED TO THE NEAREST POUND.

DROP INLETS SHOWN MAY BE MODIFIED BY THE ADDITION OR OMISSION OF CONNECTING PIPES AS SHOWN IN LAYOUT.

EPOXY COATED REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 80 LAP & T BARS 12 INCHES, CUT AND BEND REINFORCING STEEL AS REQUIRED TO PLACE PIPES THRU DROP INLET WALL. ALL REINFORCING STEEL SHALL BE TIED & CHAINED. ALL REBAR SHALL BE COLD BENT AT CORNERS.

PRE CASTING OF REINFORCED DROP INLETS MAY BE PERMISSIBLE. PRIOR TO PRE CASTING, THE CONTRACTOR SHALL SUBMIT DETAILS TO THE ENGINEER FOR APPROVAL.

ALL STRUCTURAL JOINTS SHALL BE KEYED AND WATER TIGHT.

MAXIMUM PIPE DIAMETER SHOULD NOT EXCEED 30 INCHES ON THE 4 FOOT SIDE SIDE OF THE DROP INLET.

IN SITUATIONS WHERE MULTIPLE INLETS ARE TO BE CONSTRUCTED ADJACENT TO ONE ANOTHER, THE COMMON INLET WALL SHALL BE CONSTRUCTED 12" THICK WITH THE EQUIVALENT AMOUNT OF REBAR AS REQUIRED FOR EACH INLET INDIVIDUALLY. THE CONVEYANCE OF STORM WATER THRU THE COMMON WALL SHALL BE BY INSTALLING THE APPROPRIATELY SIZED REINFORCED CONCRETE PIPE.

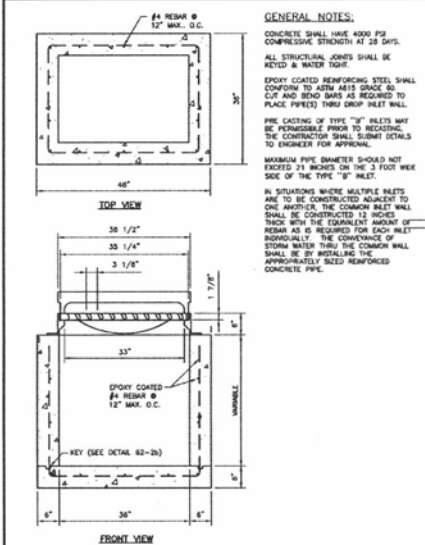
PIPE DISPLACEMENT REDUCTION

ITEM	UNIT	QUANTITY	UNIT PRICE	TOTAL
CONCRETE	CU. YD.	1.00	120.00	120.00
REINFORCING STEEL	LB.	100.00	1.00	100.00
FORMWORK	SQ. YD.	10.00	10.00	100.00

REINFORCING SCHEDULE

NO.	BAR	SIZE	LENGTH	QUANTITY	REMARKS
1	4#	#4	12'	1	TOP
2	4#	#4	12'	1	BOTTOM
3	4#	#4	12'	1	LEFT SIDE
4	4#	#4	12'	1	RIGHT SIDE

CITY OF RAPID CITY PUBLIC WORKS DEPARTMENT
 DATE: 5-1-07
REINFORCED CONCRETE SPECIAL TYPE "B" INLET
 DROP INLETS FOR 12" TO 36" DIA. PIPE
 SEC. SHT. 62-4c



GENERAL NOTES:

CONCRETE SHALL HAVE 4000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.

ALL STRUCTURAL JOINTS SHALL BE KEYED & WATER TIGHT.

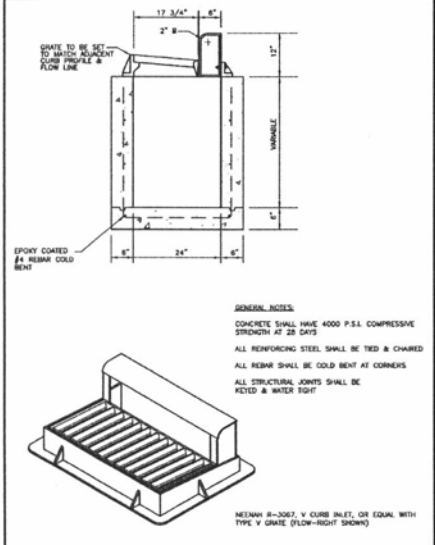
EPOXY COATED REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 80 LAP & T BARS 12 INCHES, CUT AND BEND REINFORCING STEEL AS REQUIRED TO PLACE PIPES THRU DROP INLET WALL.

PRE CASTING OF TYPE "B" INLETS MAY BE PERMISSIBLE. PRIOR TO PRECASTING, THE CONTRACTOR SHALL SUBMIT DETAILS TO THE ENGINEER FOR APPROVAL.

MAXIMUM PIPE DIAMETER SHOULD NOT EXCEED 30 INCHES ON THE 3 FOOT WIDE SIDE OF THE TYPE "B" INLET.

IN SITUATIONS WHERE MULTIPLE INLETS ARE TO BE CONSTRUCTED ADJACENT TO ONE ANOTHER, THE COMMON INLET WALL SHALL BE CONSTRUCTED 12 INCHES THICK WITH THE EQUIVALENT AMOUNT OF REBAR AS REQUIRED FOR EACH INLET INDIVIDUALLY. THE CONVEYANCE OF STORM WATER THRU THE COMMON WALL SHALL BE BY INSTALLING THE APPROPRIATELY SIZED REINFORCED CONCRETE PIPE.

CITY OF RAPID CITY PUBLIC WORKS DEPARTMENT
 DATE: 5-1-07
TYPE "B" INLET
 FOR 12" TO 30" DIA. PIPE
 SEC. SHT. 62-5



GENERAL NOTES:

CONCRETE SHALL HAVE 4000 P.S.I. COMPRESSIVE STRENGTH AT 28 DAYS.

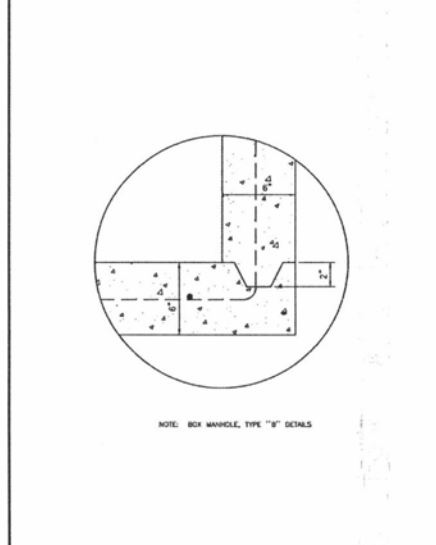
ALL REINFORCING STEEL SHALL BE TIED & CHAINED.

ALL REBAR SHALL BE COLD BENT AT CORNERS.

ALL STRUCTURAL JOINTS SHALL BE KEYED & WATER TIGHT.

MEANW H-3067, V CURB INLET, OR EQUAL WITH TYPE V GRATE (FLOW-RIGHT SHOWN)

CITY OF RAPID CITY PUBLIC WORKS DEPARTMENT
 DATE: 5-1-07
TYPE "B" INLET
 SEC. SHT. 62-5a



NOTE: BOX MANHOLE, TYPE "B" DETAILS

CITY OF RAPID CITY PUBLIC WORKS DEPARTMENT
 DATE: 5-1-07
TYPICAL KEY JOINT
 SEC. SHT. 62-5b

REVISIONS			
DATE	BY	DESCRIPTION	DATE



DESIGNED BY	DATE	DRAWN BY	DATE
KB	12/09/10	EC	12/09/10
CHKD BY	12/09/10	CHKD BY	12/09/10

SUPERVISED BY: KENNIE BOVETTE, P.E.

STANDARD CROSSWALK (W/RAMPS)

STANDARD CROSSWALK (W/O RAMPS)

HIGH VISIBILITY CROSSWALK

INSTALL STRIPES TO MATCH ADJACENT SIDEWALK OR PATH WIDTH BUT NOT LESS THAN 6" MEASURED BETWEEN LINES

USE: SCHOOL, PATHWAY AND OTHER CROSSING LOCATIONS WITH HIGH PEDESTRIAN VOLUMES

CITY OF RAPID CITY	PUBLIC WORKS DEPARTMENT
DATE: 5-1-07	DATE: 5-1-07
TRAFFIC DESIGN STANDARDS	TRAFFIC DESIGN STANDARDS
PATHWAY STREET CROSSING - PM1	SEC. SHT. 91-2

TURN LANE - LANE USED SOLELY FOR TURNING VEHICLES

DROP LANE - THRU LANE THAT DIRECTLY BECOMES AN EXCLUSIVE TURN LANE

NOTES:

- ALL SIGNS AND PAVEMENT MARKINGS ARE TO BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE MUTCD.
- ARROW SPACING (S) MEASURED FROM BASE TO BASE: 32' & 5 & 4/8"
- FOR TURN LANE LENGTH L < 80', USE THREE ARROW SYMBOLS.
- RIGHT TURN LANES SHOWN. LEFT TURN LANES SHALL BE REVERSED.
- TURN LANE LENGTH (L) IS TO BE DESIGNED BASED ON ESTIMATED QUEUE LENGTHS IN TURN LANE AND IN THE ADJACENT THRU LANE.
- FOR L > 180', THE 25' DIMENSION MAY BE INCREASED. *
- ADVANCED INTERSECTION LANE CONTROL SIGNS (R3-B SERIES) MAY BE REQUIRED.

CITY OF RAPID CITY	PUBLIC WORKS DEPARTMENT
DATE: 5-1-07	DATE: 5-1-07
TRAFFIC DESIGN STANDARDS	TRAFFIC DESIGN STANDARDS
TURN LANE SIGNING & MARKINGS - PM3	SEC. SHT. 91-2b

R1-1/R1-2 SIGN (STOP/YIELD)

R2-1 SIGN (SPEED LIMIT)

LATERAL PLACEMENT

WITH CURB

WITHOUT CURB

MINIMUM 2' + 1/2 SIGN WIDTH

CITY OF RAPID CITY	PUBLIC WORKS DEPARTMENT
DATE: 5-1-07	DATE: 5-1-07
TRAFFIC DESIGN STANDARDS	TRAFFIC DESIGN STANDARDS
SIGN LOCATIONS - SJ3	SEC. SHT. 91-3b

TRAFFIC SIGN SPECIFICATIONS:

THE FOLLOWING SPECIFICATIONS APPLY TO ALL TRAFFIC CONTROL SIGNS INSTALLED WITHIN THE CITY. ALL SIGNS SHALL BE MANUFACTURED AND INSTALLED PER CITY SPECIFICATIONS/STANDARDS. ITEMS NOT SPECIFICALLY DEFINED BY THE CITY SHALL FOLLOW SDOT SPECIFICATIONS AND THOSE IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND TRAFFIC CONTROL DEVICES HANDBOOK.

MANUFACTURE:

THE FOLLOWING PERTAINS TO ALL TRAFFIC CONTROL SIGNS SIGN FACES:

- SIGN FACES SHALL BE STANDARD SIZE.
- SIGN FACES SHALL BE MANUFACTURED USING HIGH INTENSITY OR DIAMOND GRADE SHEETING MATERIAL.
- ALL SCORED FACES SHALL BE FREE OF DRIPS, SMears, THIN SPOTS OR OTHER DEFECTS THAT WILL AFFECT THEIR DURABILITY OR LONGEVITY.
- COLOR SHALL BE UNIFORM AND MATCH FEDERAL COLOR STANDARDS.
- FACES SHALL BE FULLY ADHERED TO THE BACKING MATERIAL.

BACKING MATERIAL:

- ALUMINUM SHALL BE ANODIZED AND 0.080 MINIMUM GAUGE THICKNESS.
- ALUMINUM SHALL BE MINIMUM GRADE TYPE 3000.
- RECYCLED PLASTIC SIGN BLANKS ARE ALLOWED. USE OF PLASTIC BLANKS MUST BE APPROVED BY THE CITY TRAFFIC ENGINEER PRIOR TO USE.
- WOOD, PAPER, OR OTHER MATERIALS ARE NOT ALLOWED.
- BACK OF SIGN BLANK SHALL BE FREE OF ALL OBJECTS EXCEPT DATE STICKER.

INSTALLATION:

GENERALLY, TRAFFIC CONTROL SIGNS SHALL BE INSTALLED IN ACCORDANCE WITH THE PROJECT PLANS, THESE SPECIFICATIONS AND THE FOLLOWING NOTES AND DETAIL:

- ALL TRAFFIC CONTROL SIGNS SHALL BE INSTALLED 7 FEET ABOVE THE ROADWAY ELEVATION (THE POSTS) SHALL EXTEND TO THE TOP OF THE SIGN.
- SQUARE TUBE TYPE SIGN POSTS SHALL BE USED. THESE POSTS SHALL MEET ALL APPLICABLE FEDERAL BREAK-AWAY STANDARDS OR BE OF THE SAME MANUFACTURE/TYPE AS USED BY THE CITY.
- ALL POSTS SHALL BE FULLY GALVANIZED.

SPECIFIC INTERPRETATIONS OF THESE SPECIFICATIONS SHALL BE MADE BY THE CITY TRAFFIC ENGINEER.

CITY OF RAPID CITY	PUBLIC WORKS DEPARTMENT
DATE: 5-1-07	DATE: 5-1-07
TRAFFIC DESIGN STANDARDS	TRAFFIC DESIGN STANDARDS
SIGN SPECIFICATIONS - SJ4	SEC. SHT. 91-3c

REVISIONS

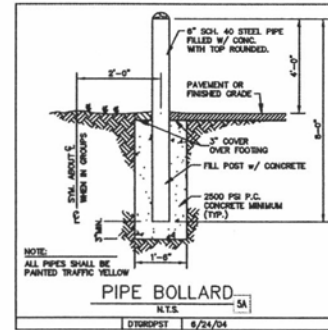
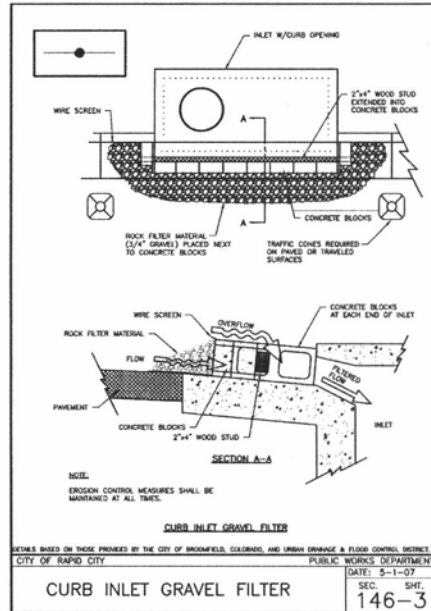
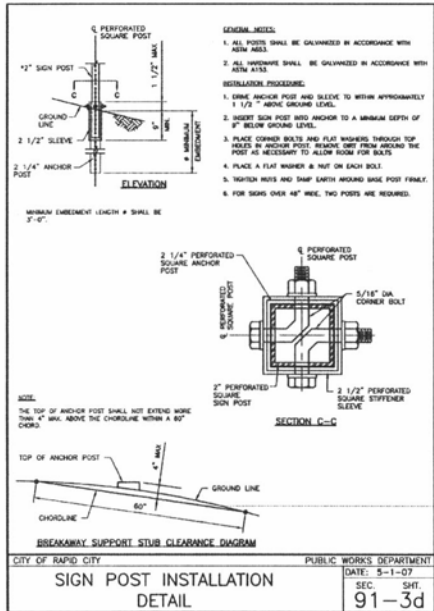
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DESIGNED BY	DATE	DRAWN BY	DATE
KB	12/09/10	EC	12/09/10
CHECKED BY	DATE	ENGINER BY	DATE
CH	12/09/10	KB	12/09/10

SUPERVISED BY KENNIE BOYETTE, P.E.

PROPOSED BLACK HILLS CENTER
RAPID CITY, S.D.
CONSTRUCTION DETAILS



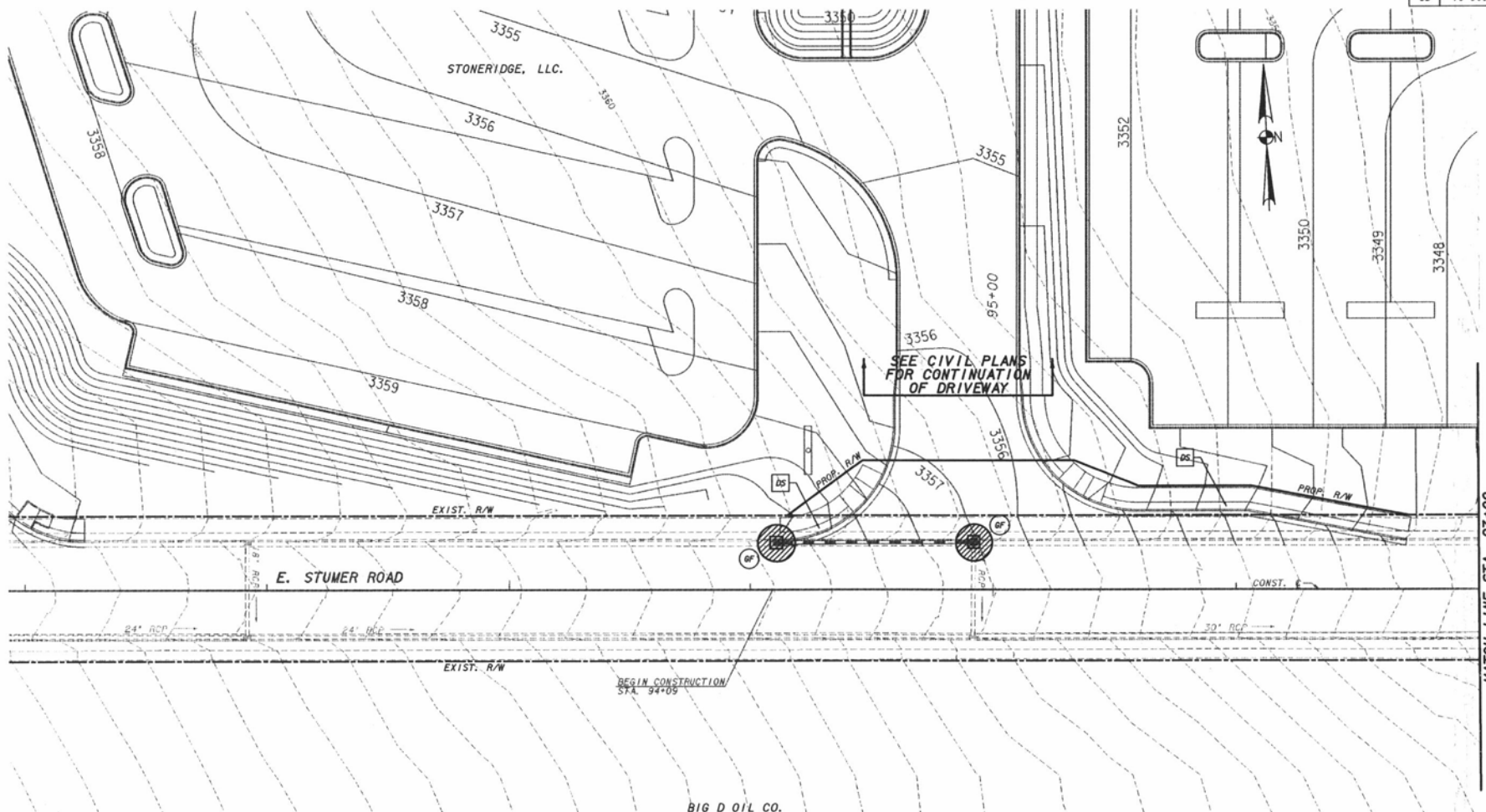
REVISIONS			
DATE	BY	DESCRIPTION	



DESIGNED	NAME	DATE	DRAWN	NAME	DATE
KB	KB	12/09/10	EC	EC	12/09/10
CHECKED	NAME	DATE	CHECKED	NAME	DATE
CH	CH	12/09/10	KB	KB	12/09/10

SUPERVISED BY KENNIE BOYETTE, P.E.

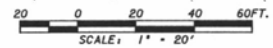
PROPOSED BLACK HILLS CENTER
 RAPID CITY, S. D.
 CONSTRUCTION DETAILS



MATCH LINE STA. 97+00
SEE SHEET R-20

CODE	PRACTICE	MAP SYMBOL	DESCRIPTION
WF	CURB INLET GRAVEL FILTER		TEMPORARY CURB INLET GRAVEL FILTER INSTALLED PER RAPID CITY DETAIL 146-3 AND SECTION 146 OF THE RAPID CITY SPECIFICATIONS.
DS	DISTURBED AREA STABILIZATION		DISTURBED AREA TO BE PERMANENTLY STABILIZED USING SEEDING, FERTILIZING AND MULCH PER SECTIONS 70, 71 & 72 OF THE RAPID CITY SPECIFICATIONS.

SEE CIVIL SITE PLANS FOR ADDITIONAL DETAILS FOR EROSION CONTROL



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION



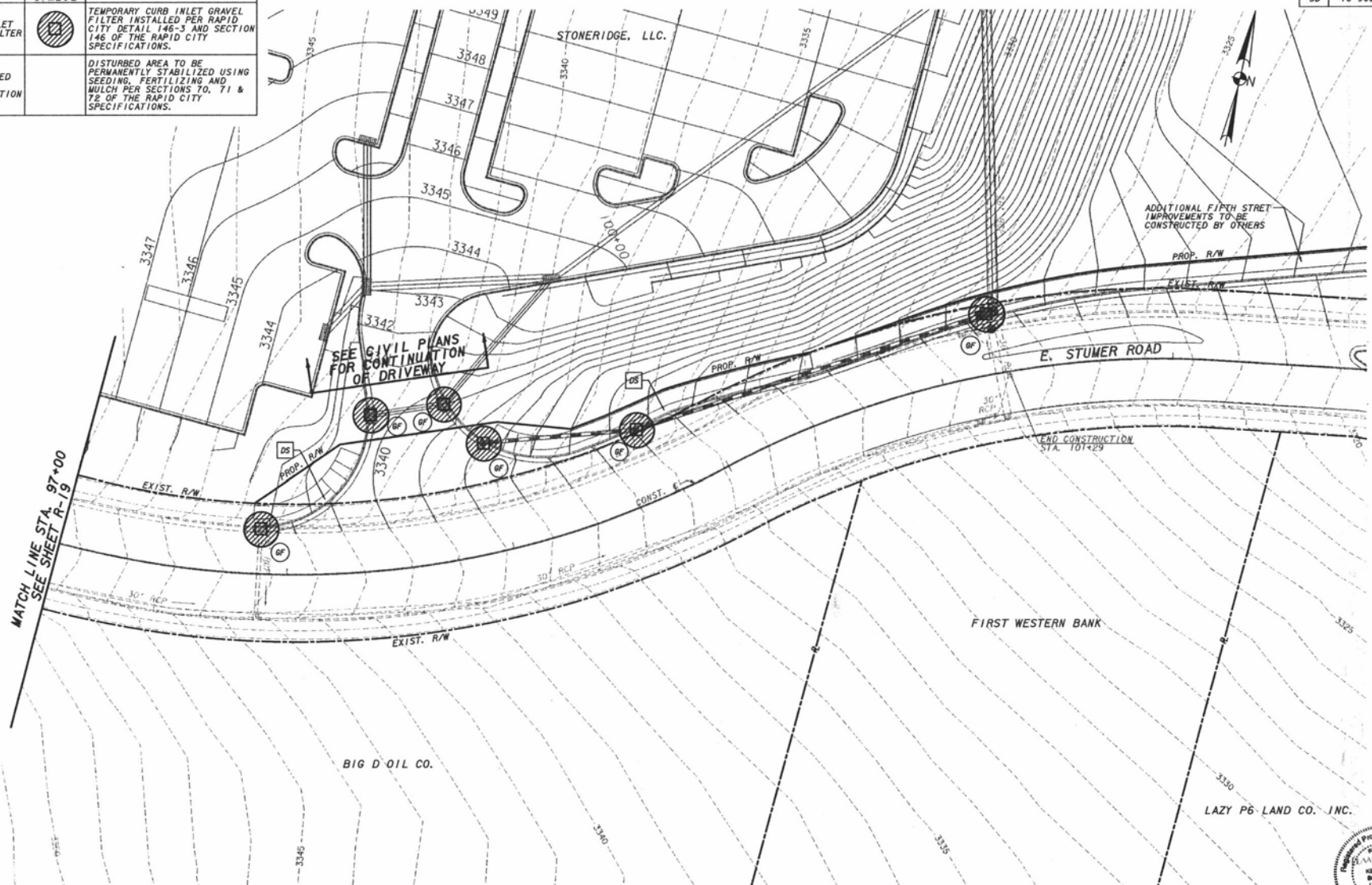
NAME	DATE	NAME	DATE
DESIGNED: KB	12/09/10	DRAWN: EC	12/09/10
CHECKED: CH	12/09/10	CHECKED: KB	12/09/10
SUPERVISED BY: KENRIE BOYETTE, P.E.			

**PROPOSED BLACK HILLS CENTER
RAPID CITY, S.D.
EROSION CONTROL PLANS**

10PD071

STATE	PROJECT NUMBER		
SD	10-909		

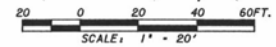
CODE	PRACTICE	MAP SYMBOL	DESCRIPTION
GF	CURB INLET GRAVEL FILTER		TEMPORARY CURB INLET GRAVEL FILTER INSTALLED PER RAPID CITY DETAIL 146-3 AND SECTION 146 OF THE RAPID CITY SPECIFICATIONS.
DS	DISTURBED AREA STABILIZATION		DISTURBED AREA TO BE PERMANENTLY STABILIZED USING SEEDING, FERTILIZING AND MULCH PER SECTIONS 70, 71 & 72 OF THE RAPID CITY SPECIFICATIONS.



MATCH LINE STA. 97+00
SEE SHEET R-19

SEE CIVIL PLANS
FOR CONTINUATION
OF DRIVEWAY

SEE CIVIL SITE PLANS FOR ADDITIONAL
DETAILS FOR EROSION CONTROL



REVISIONS			
DATE	BY	DESCRIPTION	



NAME	DATE	NAME	DATE
DESIGNED BY: KB	12/09/10	DRAWN BY: EC	12/09/10
CHECKED BY: CH	12/09/10	CHECKED BY: KB	12/09/10

SUPERVISED BY KERRIE BOYETTE, P.E.

PROPOSED BLACK HILLS CENTER
RAPID CITY, S.D.
EROSION CONTROL PLANS

DATE/NO NUMBER
R-20