

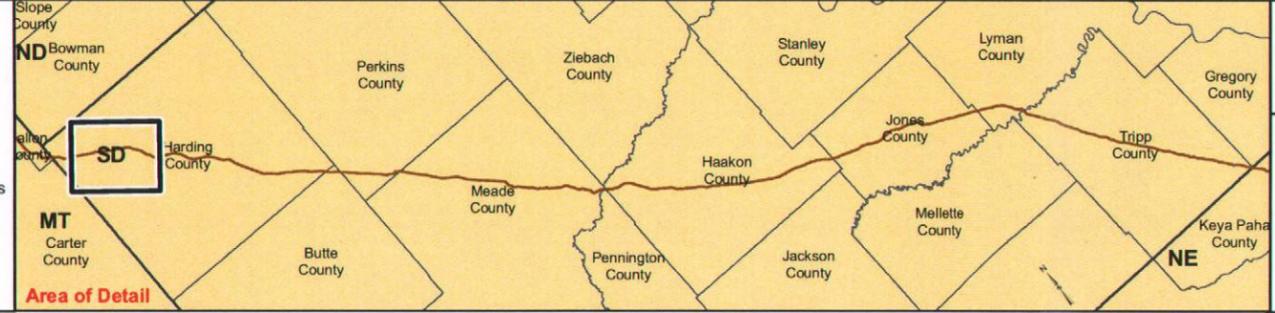
Legend

- Valve
- Pump Station
- Steele City Segment
- Pipe Yard

Major Roads

Road Classification

- Limited Access
- Highways
- Secondary Roads
- Other
- Highway Ramp



TransCanada
In business to deliver

ConocoPhillips

Scale 1:100,000

0 0.5 1 2 3 4 Miles

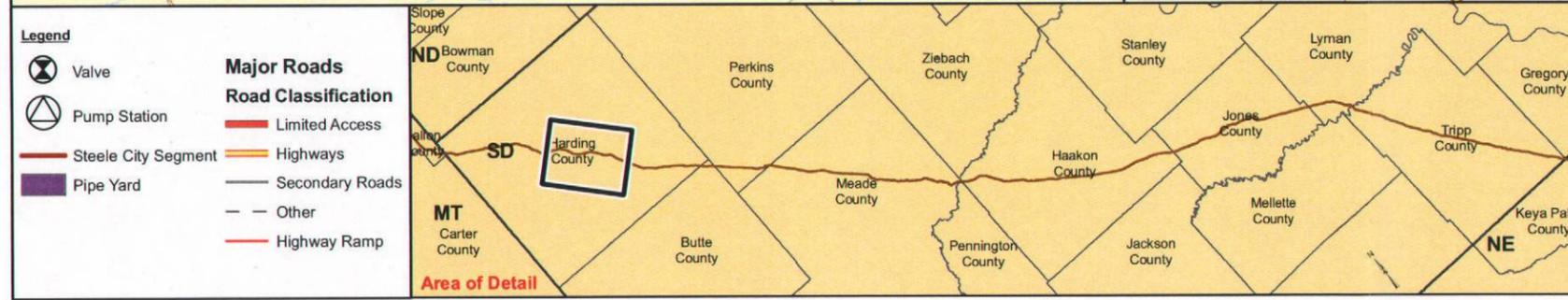
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**SOUTH DAKOTA STUDY AREA
KEYSTONE XL PROJECT**

**MAPBOOK 3
EXTRA WORKSPACES**

MAP 01 OF 14

REVISION: REV 1
DATE: 20090730



Legend	
	Valve
	Pump Station
	Steele City Segment
	Pipe Yard
Major Roads	
Road Classification	
	Limited Access
	Highways
	Secondary Roads
	Other
	Highway Ramp






Miles



Kilometers

Scale 1:100,000

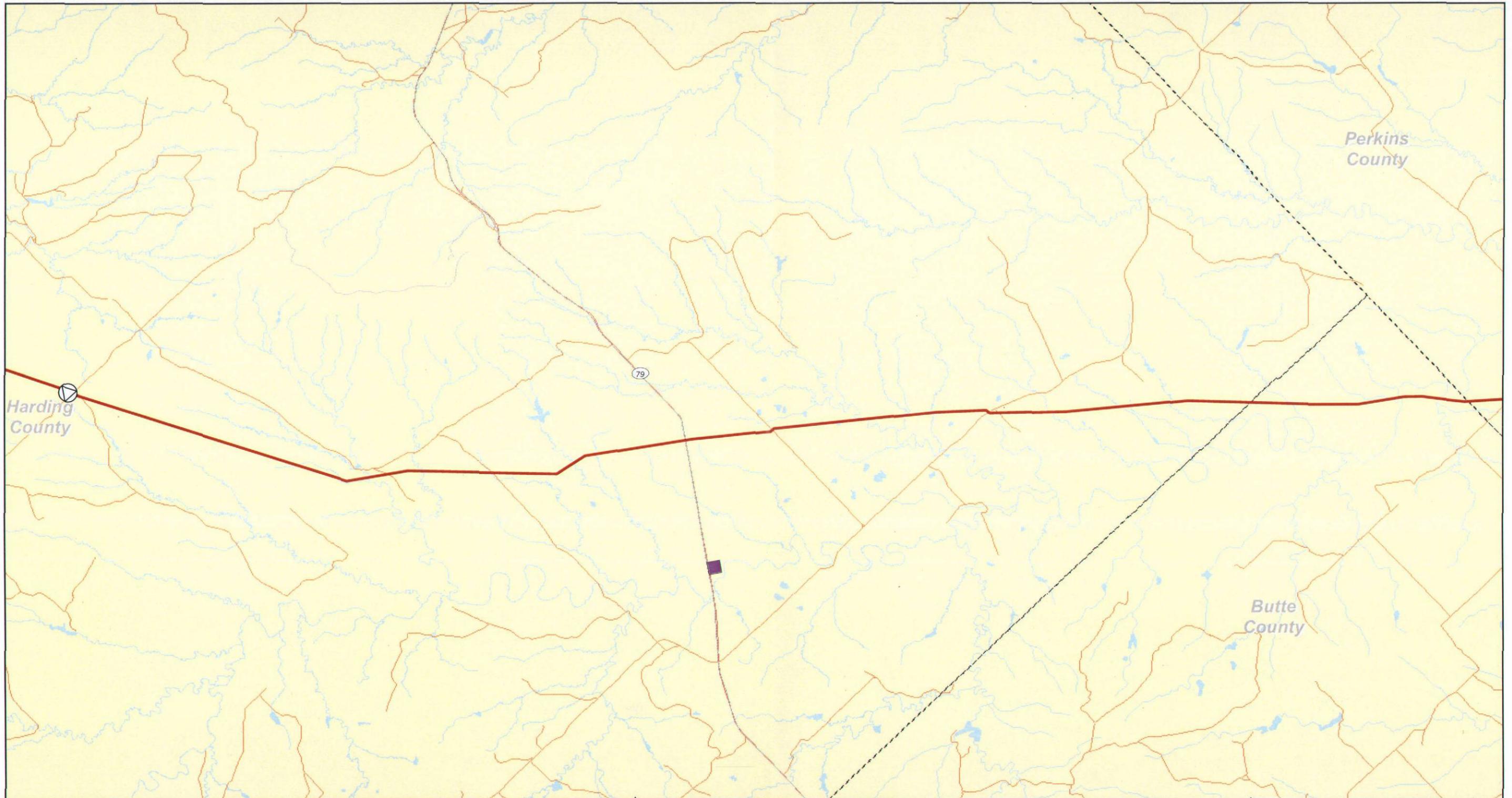


**SOUTH DAKOTA STUDY AREA
KEYSTONE XL PROJECT**

**MAPBOOK 3
EXTRA WORKSPACES**

MAP 02 OF 14

REVISION: REV 1
DATE: 20090730



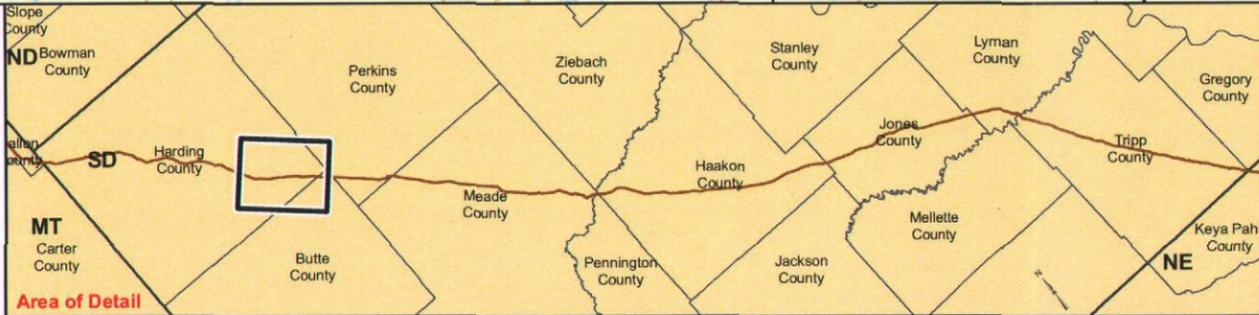
Legend

- Valve
- Pump Station
- Steele City Segment
- Pipe Yard

Major Roads

Road Classification

- Limited Access
- Highways
- Secondary Roads
- Other
- Highway Ramp



TransCanada
In business to deliver

ConocoPhillips

Scale 1:100,000

0 0.5 1 2 3 4 Miles

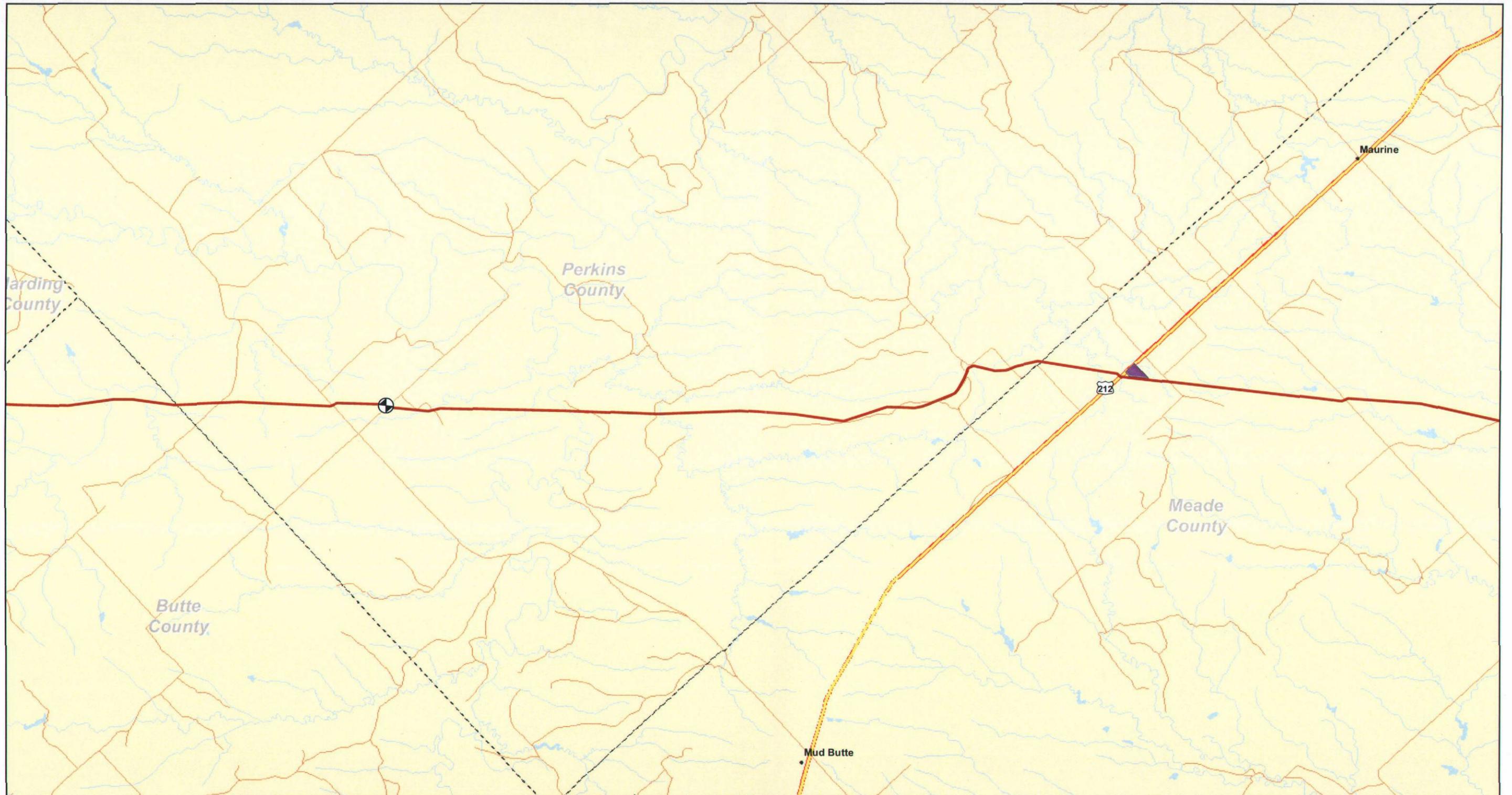
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**SOUTH DAKOTA STUDY AREA
KEYSTONE XL PROJECT**

**MAPBOOK 3
EXTRA WORKSPACES**

MAP 03 OF 14

REVISION: REV 1
DATE: 20090730



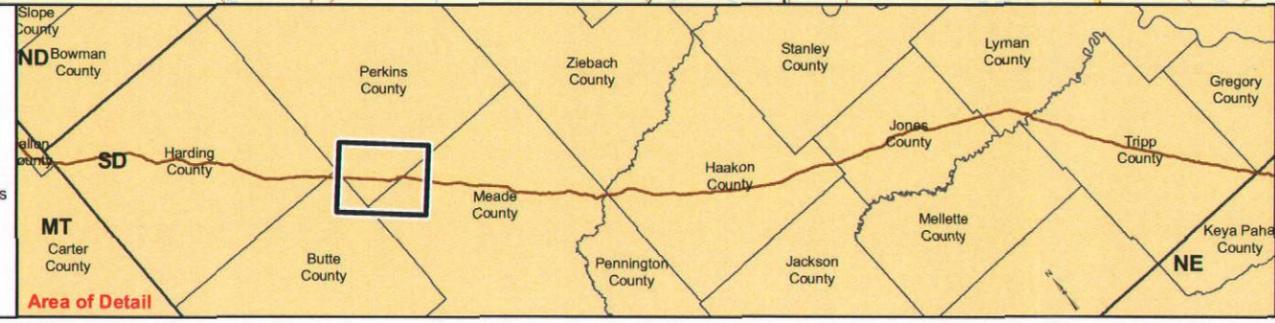
Legend

- Valve
- Pump Station
- Steele City Segment
- Pipe Yard

Major Roads

Road Classification

- Limited Access
- Highways
- Secondary Roads
- Other
- Highway Ramp



Scale 1:100,000

0 0.5 1 2 3 4 Miles

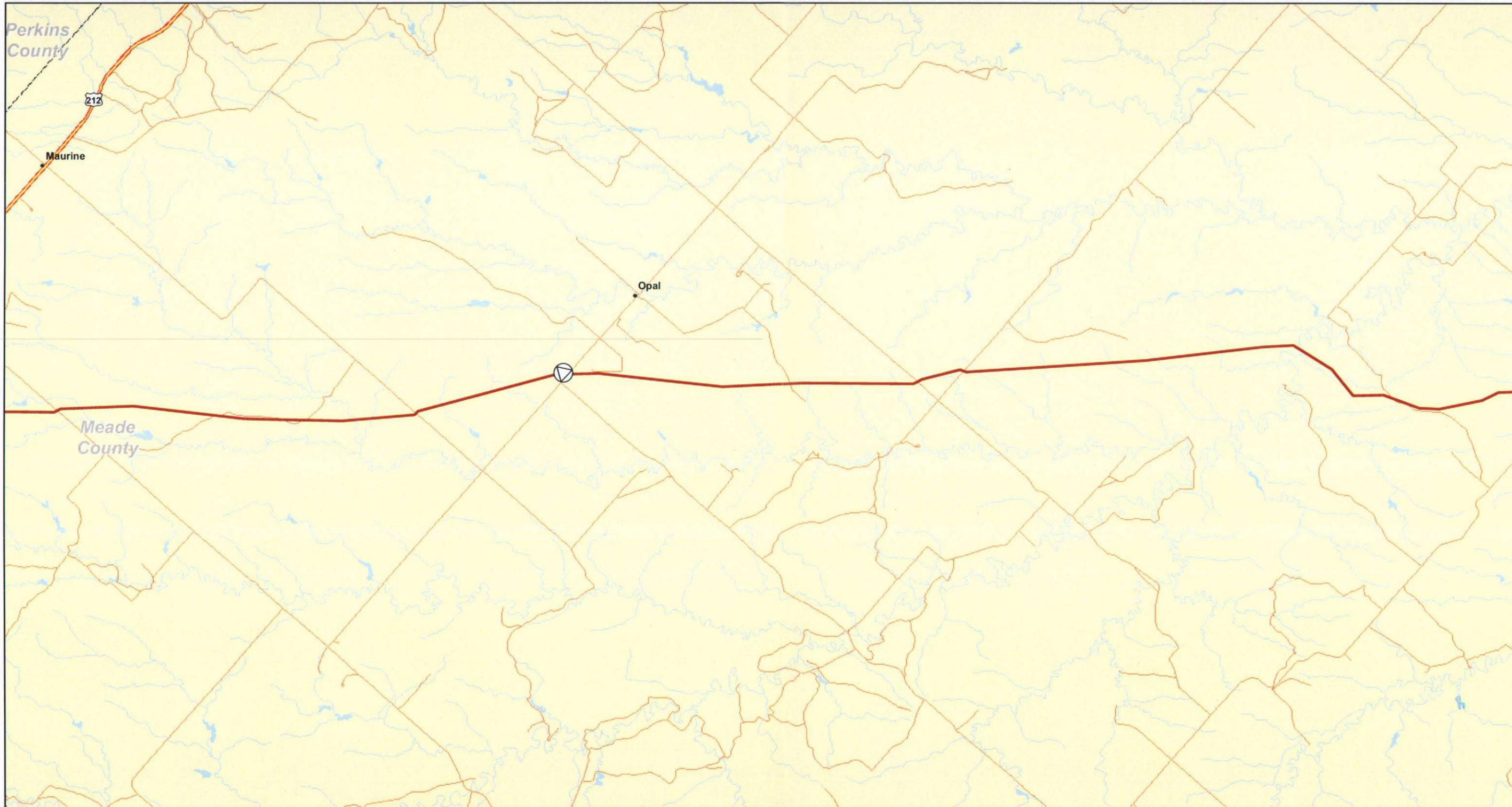
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**SOUTH DAKOTA STUDY AREA
KEYSTONE XL PROJECT**

**MAPBOOK 3
EXTRA WORKSPACES**

MAP 04 OF 14

REVISION: REV 1
DATE: 20090730



Legend

- Valve
- Pump Station
- Steele City Segment
- Pipe Yard

Major Roads

Road Classification

- Limited Access
- Highways
- Secondary Roads
- Other
- Highway Ramp



Scale 1:100,000

0 0.5 1 2 3 4 Miles

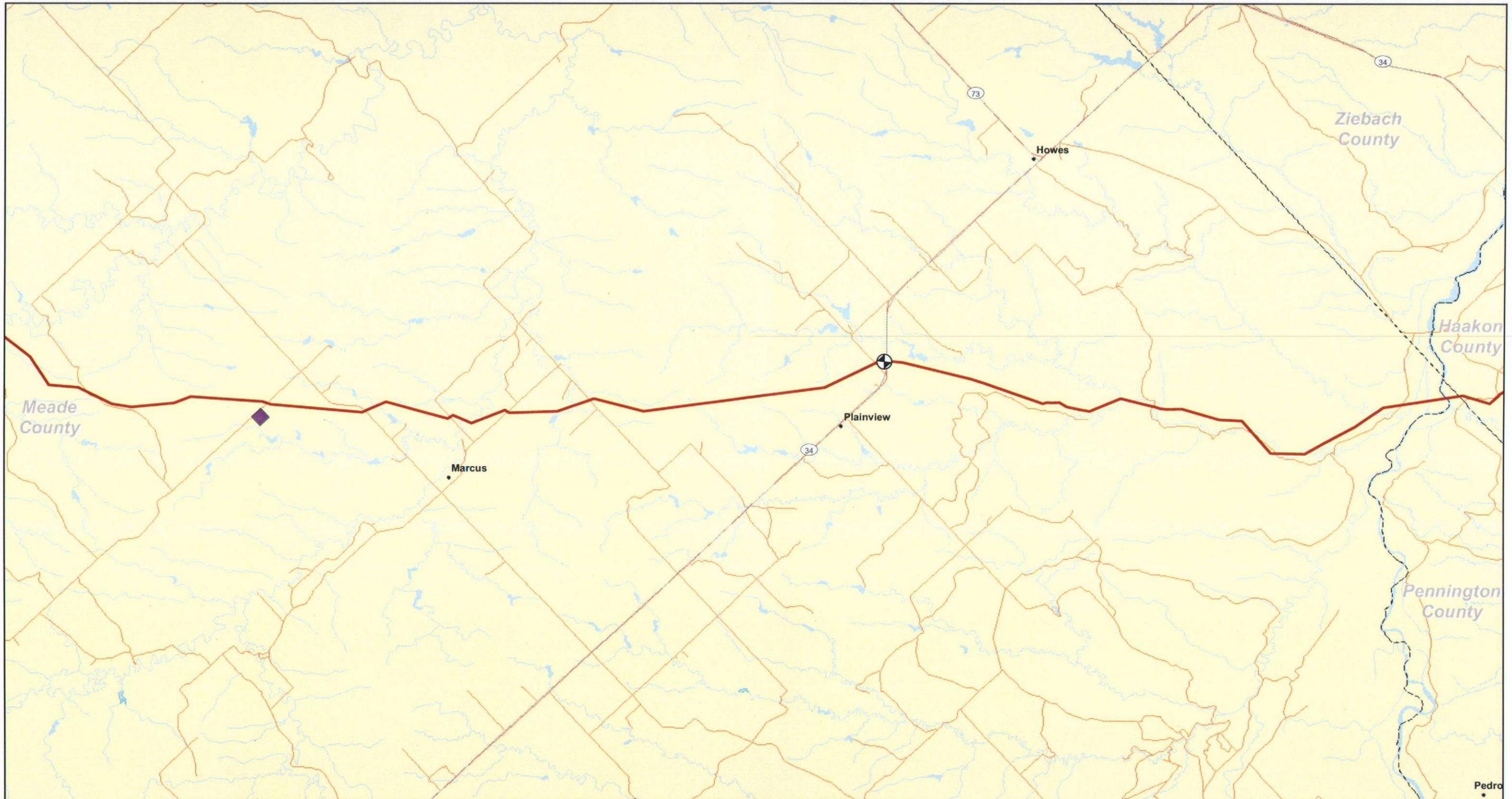
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**SOUTH DAKOTA STUDY AREA
KEYSTONE XL PROJECT**

**MAPBOOK 3
EXTRA WORKSPACES**

MAP 05 OF 14

REVISION: REV 1
DATE: 20090730



Legend

- Valve
- Pump Station
- Steele City Segment
- Pipe Yard

Major Roads

Road Classification

- Limited Access
- Highways
- Secondary Roads
- Other
- Highway Ramp



TransCanada
In business to deliver

ConocoPhillips

Scale 1:100,000

0 0.5 1 2 3 4 Miles

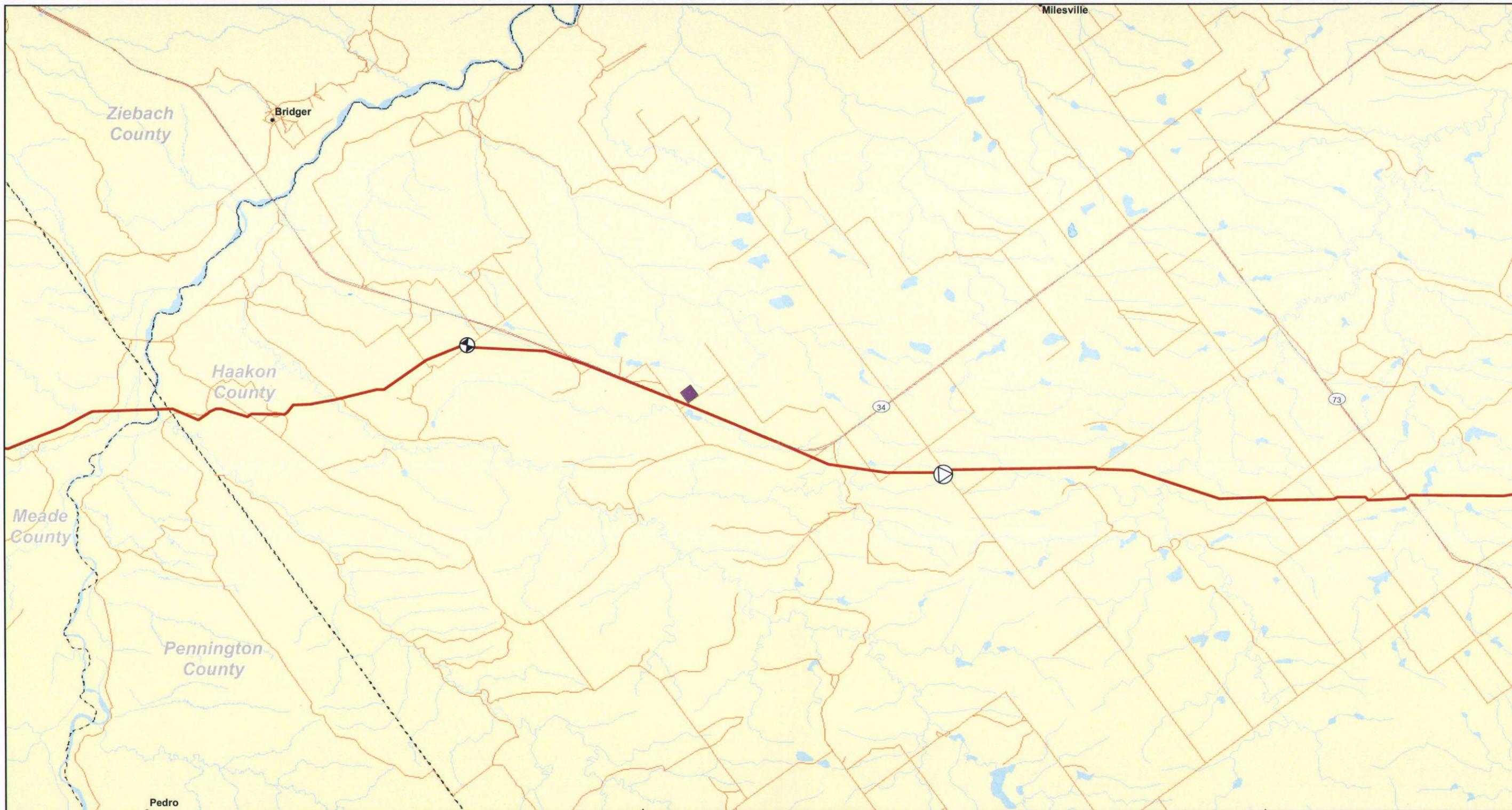
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**SOUTH DAKOTA STUDY AREA
KEYSTONE XL PROJECT**

**MAPBOOK 3
EXTRA WORKSPACES**

MAP 06 OF 14

REVISION: REV 1
DATE: 20090730

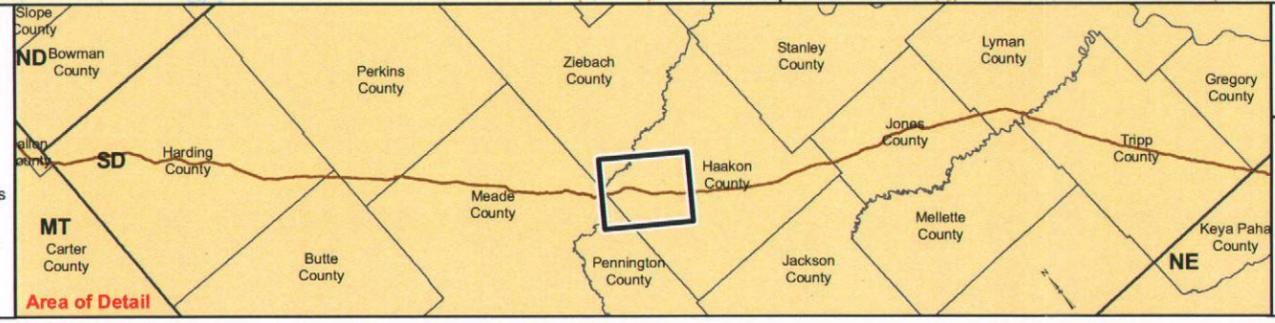


Legend

- Valve
- Pump Station
- Steele City Segment
- Pipe Yard

Major Roads Road Classification

- Limited Access
- Highways
- Secondary Roads
- Other
- Highway Ramp



Scale 1:100,000

Miles: 0 0.5 1 2 3 4

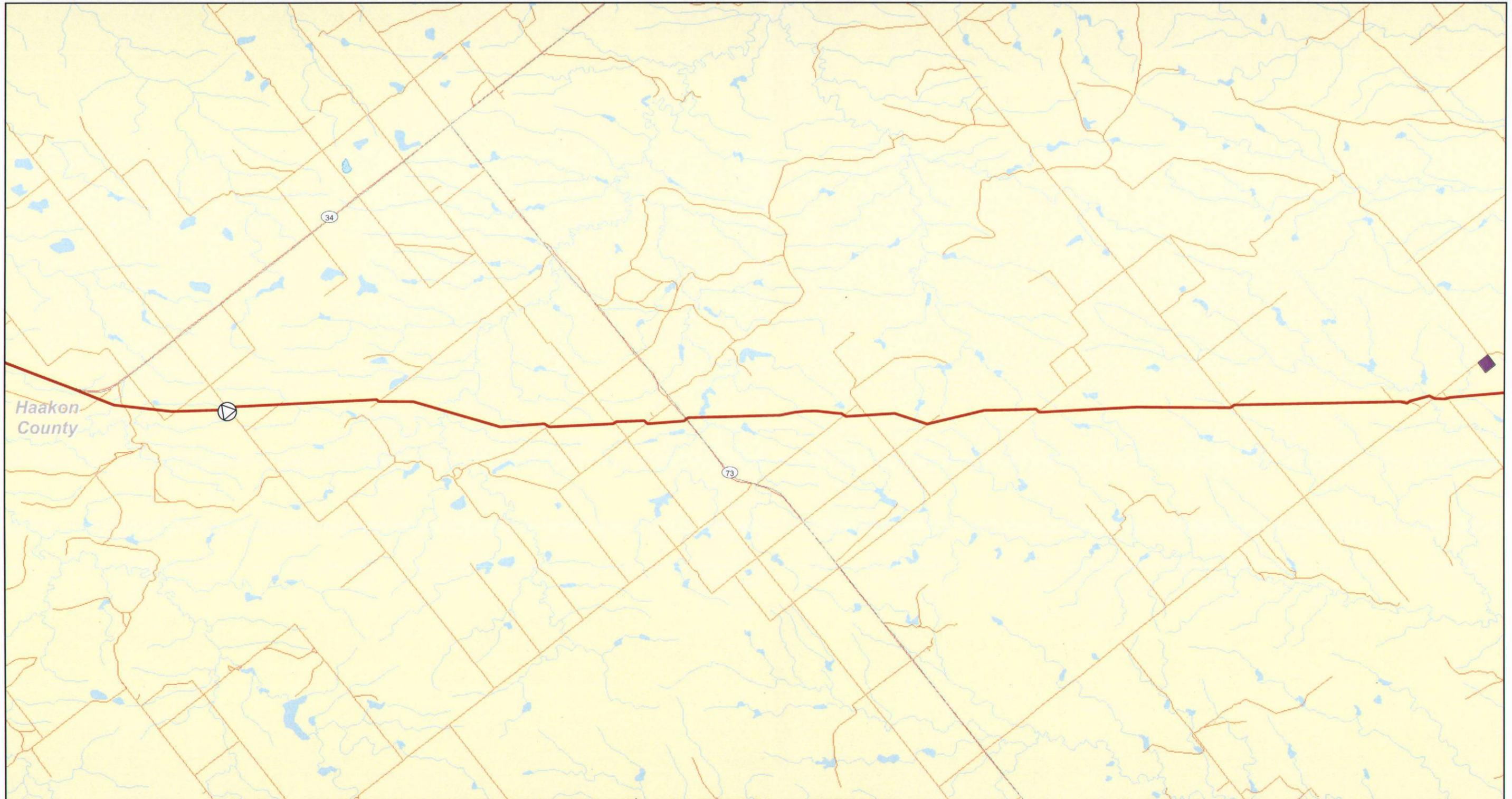
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**SOUTH DAKOTA STUDY AREA
KEYSTONE XL PROJECT**

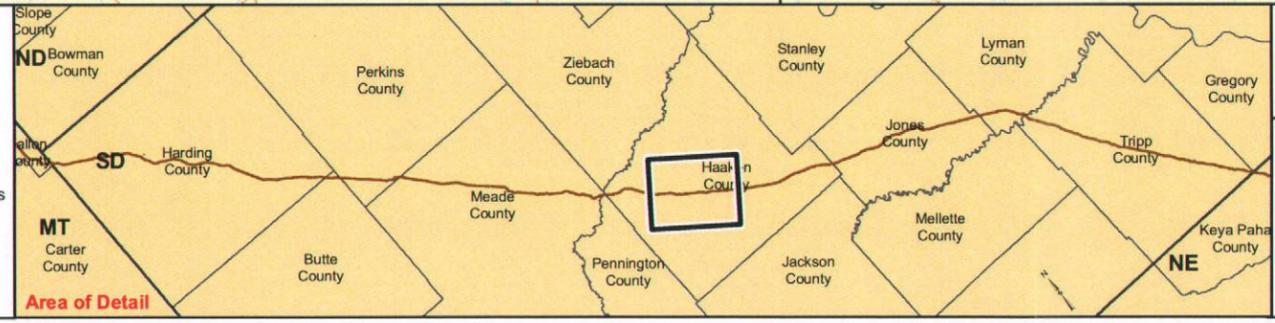
**MAPBOOK 3
EXTRA WORKSPACES**

MAP 07 OF 14

REVISION: REV 1
DATE: 20090730



- Legend**
- Valve
 - Pump Station
 - Steele City Segment
 - Pipe Yard
- Major Roads**
- Road Classification**
- Limited Access
 - Highways
 - Secondary Roads
 - Other
 - Highway Ramp



Scale 1:100,000

0 0.5 1 2 3 4 Miles

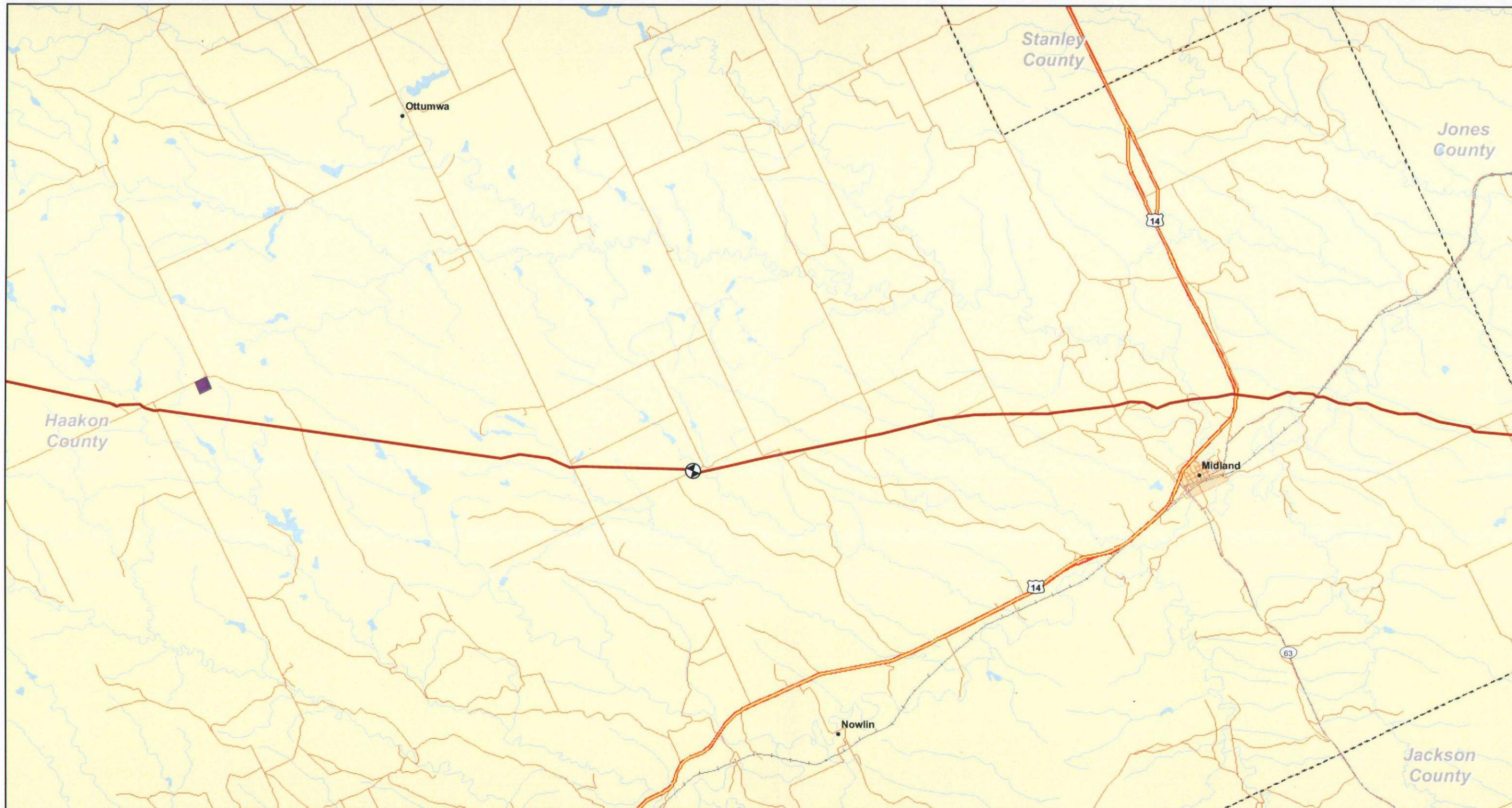
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**SOUTH DAKOTA STUDY AREA
KEYSTONE XL PROJECT**

**MAPBOOK 3
EXTRA WORKSPACES**

MAP 08 OF 14

REVISION: REV 1
DATE: 20090730



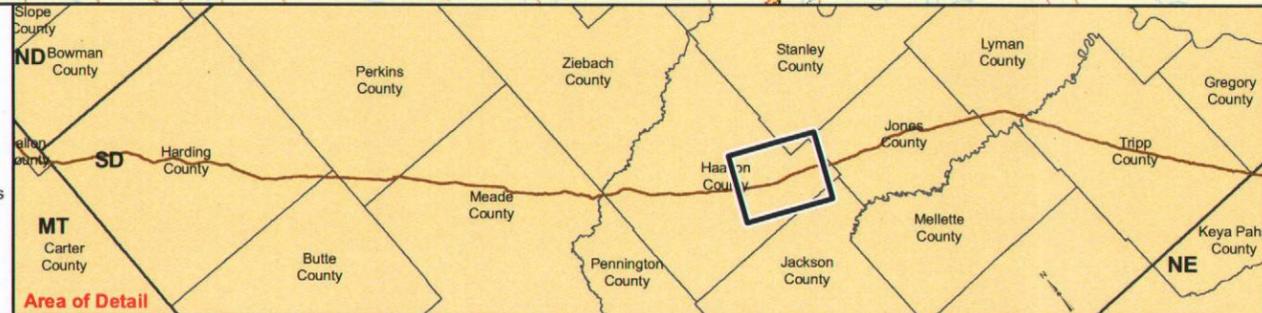
Legend

- Valve
- Pump Station
- Steele City Segment
- Pipe Yard

Major Roads

Road Classification

- Limited Access
- Highways
- Secondary Roads
- Other
- Highway Ramp



TransCanada
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ConocoPhillips

0 0.5 1 2 3 4
Miles

Scale 1:100,000

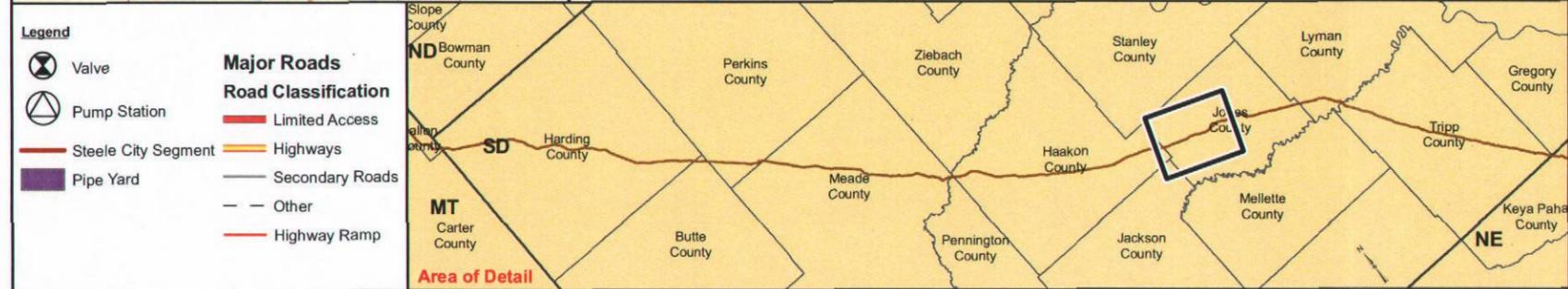
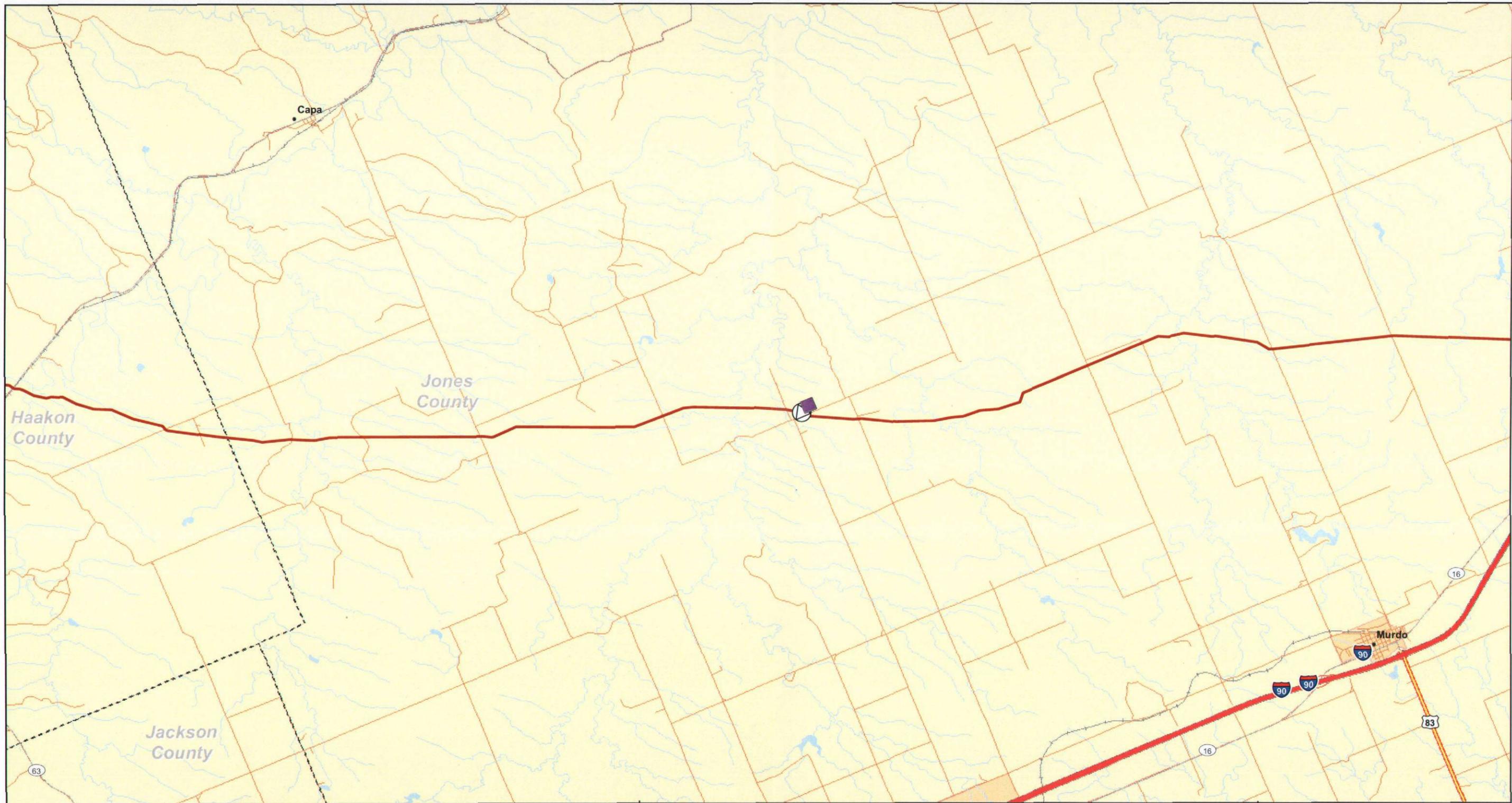
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Kilometers

**SOUTH DAKOTA STUDY AREA
KEYSTONE XL PROJECT**

**MAPBOOK 3
EXTRA WORKSPACES**

MAP 09 OF 14

REVISION: REV 1
DATE: 20090730



- Legend**
- Valve
 - Pump Station
 - Steele City Segment
 - Pipe Yard
- Major Roads**
- Road Classification**
- Limited Access
 - Highways
 - Secondary Roads
 - Other
 - Highway Ramp

TransCanada
In business to deliver

ConocoPhillips

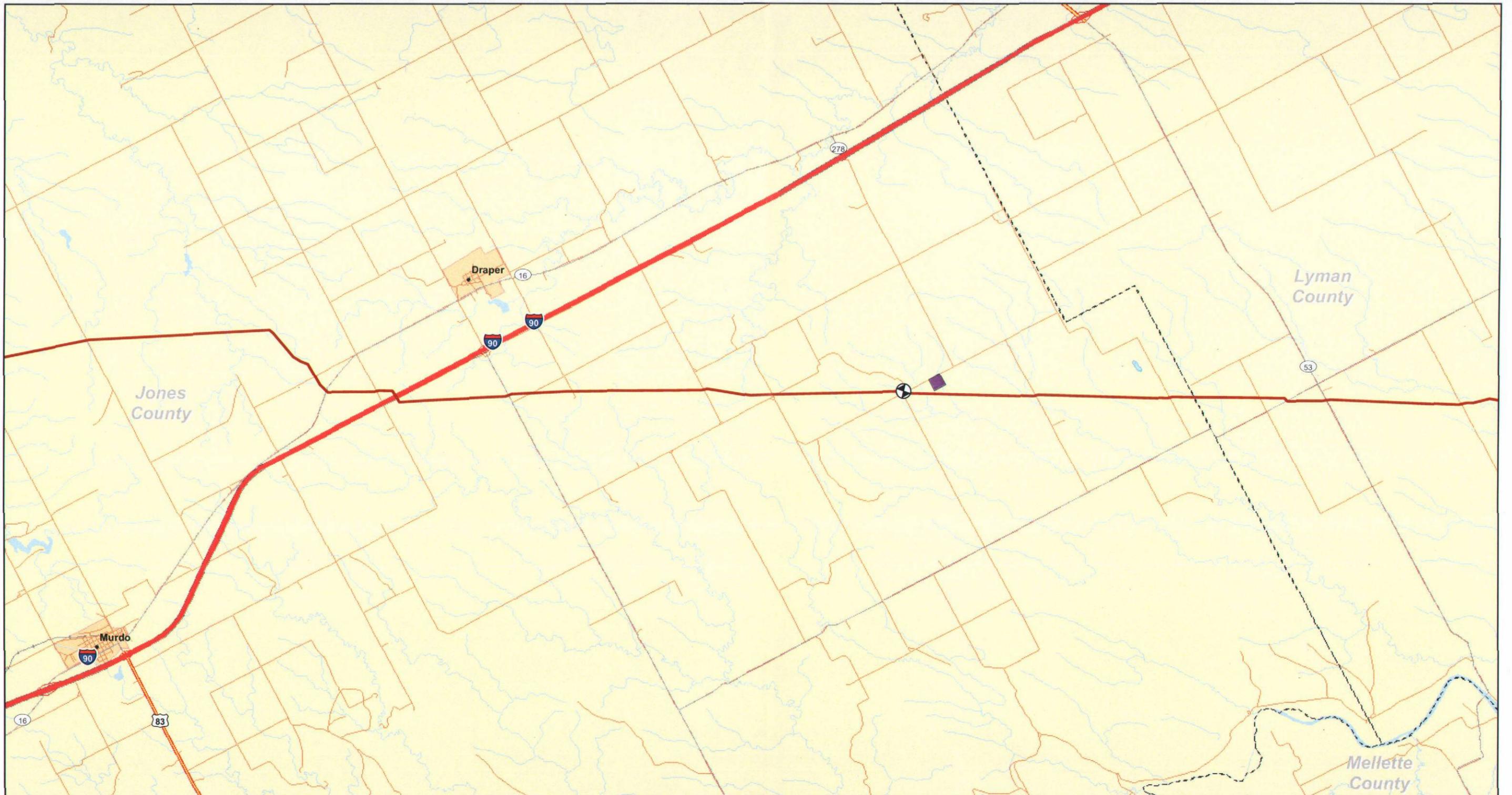
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**SOUTH DAKOTA STUDY AREA
KEYSTONE XL PROJECT**

**MAPBOOK 3
EXTRA WORKSPACES**

MAP 10 OF 14

REVISION: REV 1
DATE: 20090730



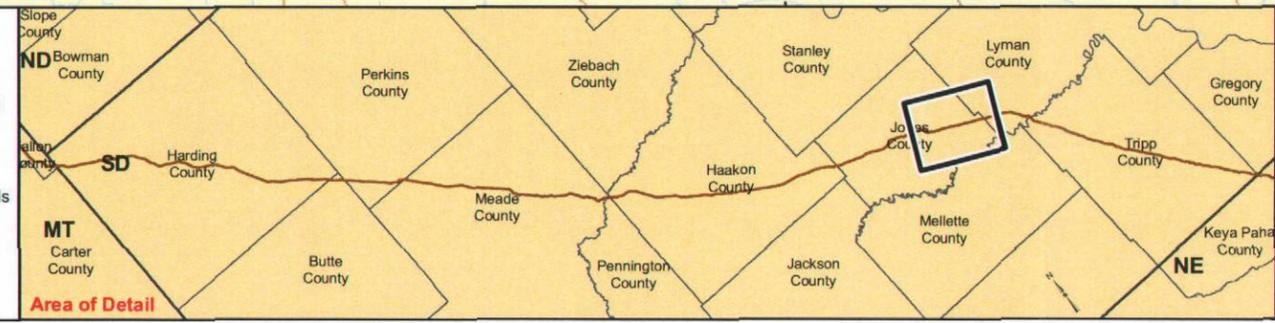
Legend

- Valve
- Pump Station
- Steele City Segment
- Pipe Yard

Major Roads

Road Classification

- Limited Access
- Highways
- Secondary Roads
- Other
- Highway Ramp



TransCanada
In business to deliver

ConocoPhillips

0 0.5 1 2 3 4 Miles

Scale 1:100,000

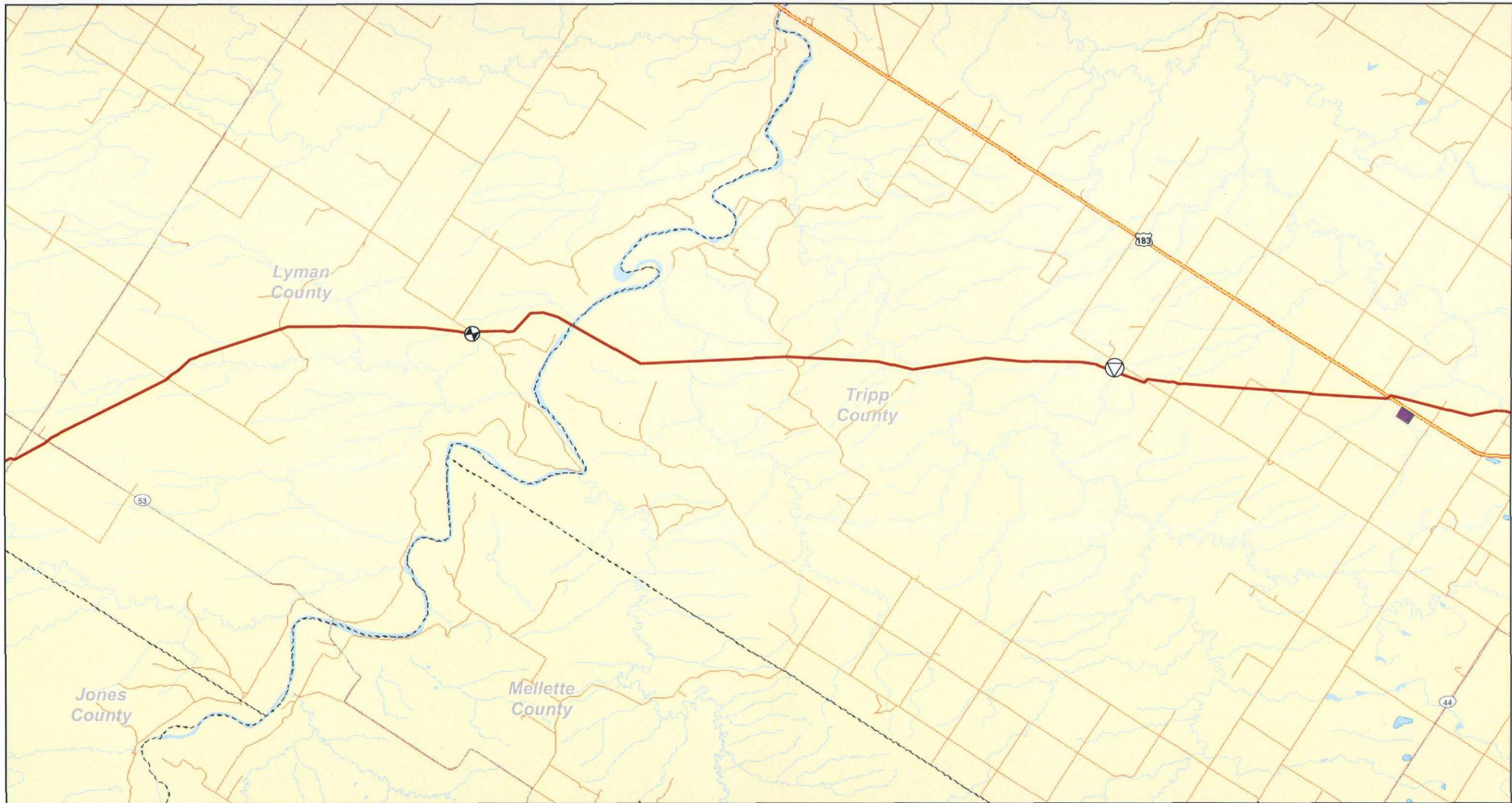
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**SOUTH DAKOTA STUDY AREA
KEYSTONE XL PROJECT**

**MAPBOOK 3
EXTRA WORKSPACES**

MAP 11 OF 14

REVISION: REV 1
DATE: 20090730



Legend

- Valve
- Pump Station
- Steele City Segment
- Pipe Yard

Major Roads

Road Classification

- Limited Access
- Highways
- Secondary Roads
- Other
- Highway Ramp



TransCanada
In business to deliver

ConocoPhillips

0 0.5 1 2 3 4 Miles

Scale 1:100,000

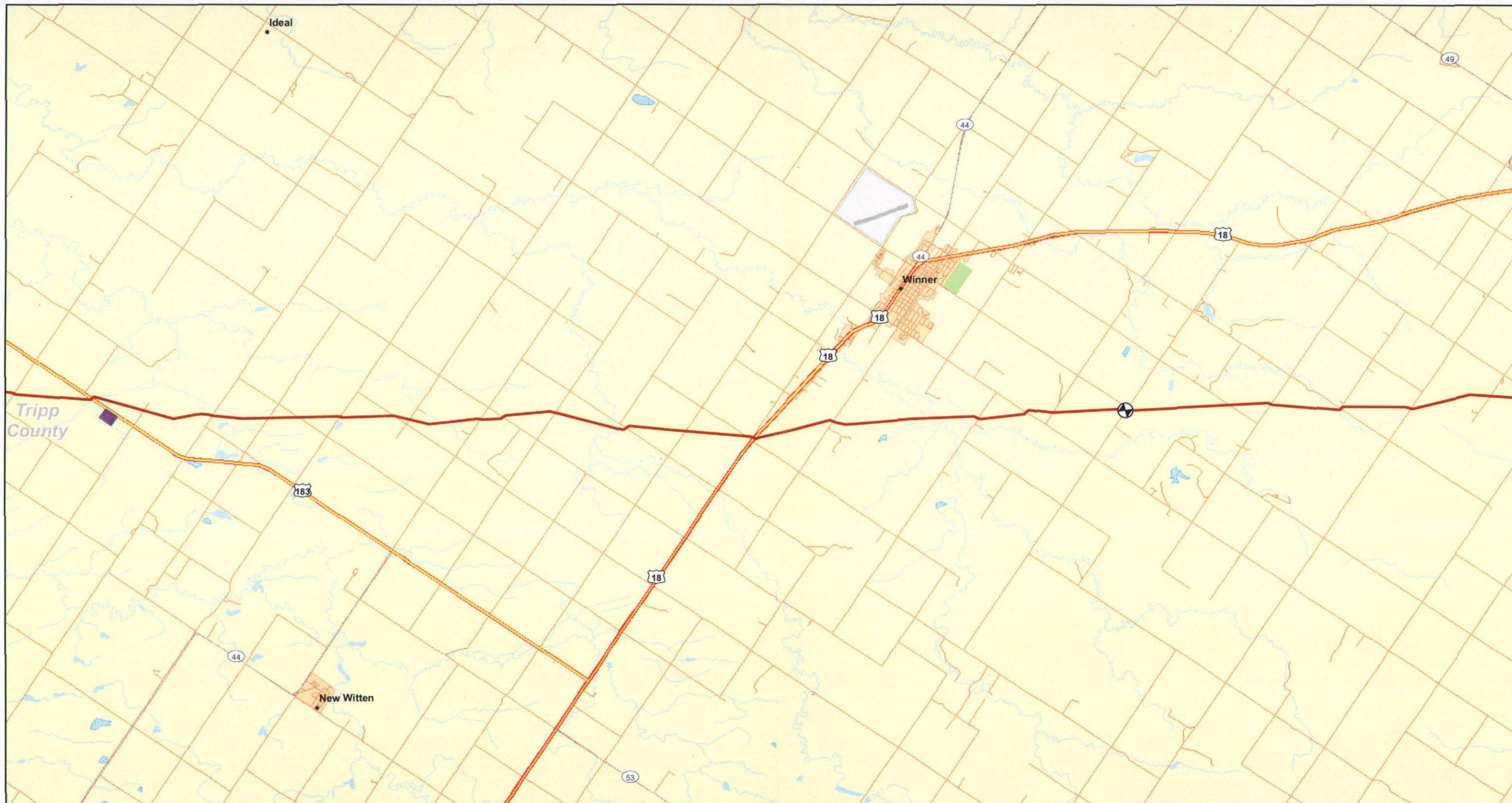
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**SOUTH DAKOTA STUDY AREA
KEYSTONE XL PROJECT**

**MAPBOOK 3
EXTRA WORKSPACES**

MAP 12 OF 14

REVISION: REV 1
DATE: 20090730



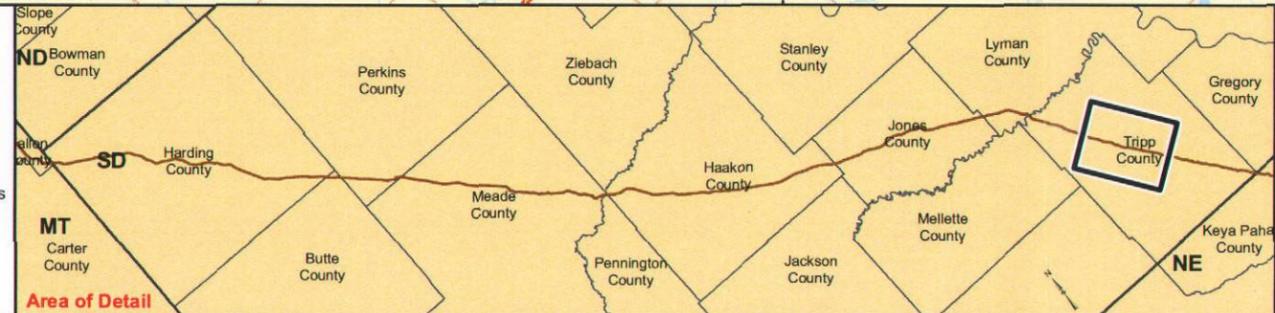
Legend

- Valve
- Pump Station
- Steele City Segment
- Pipe Yard

Major Roads

Road Classification

- Limited Access
- Highways
- Secondary Roads
- Other
- Highway Ramp



TransCanada
In business to deliver

ConocoPhillips

0 0.5 1 2 3 4
Miles

Scale 1:100,000

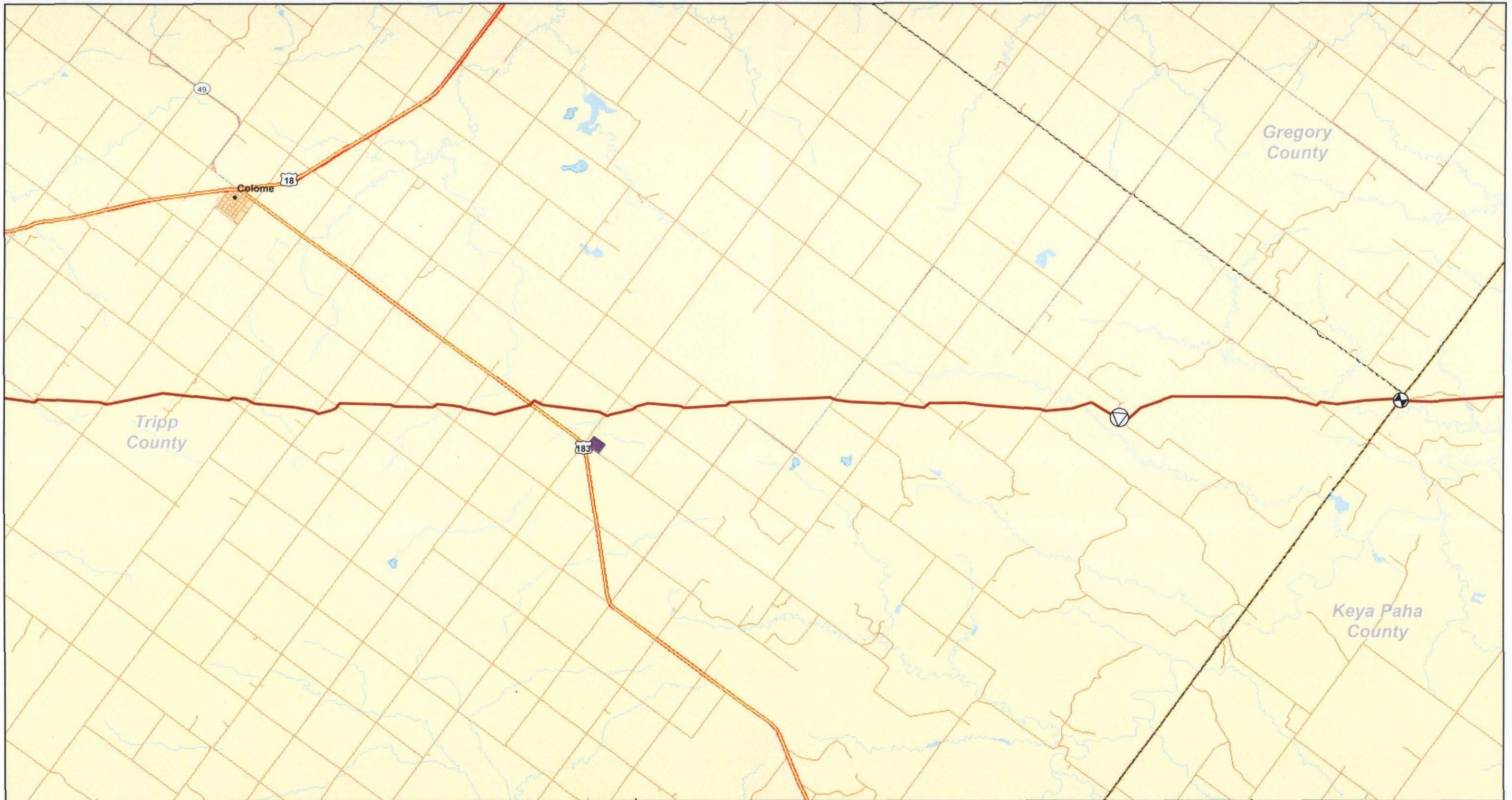
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Kilometers

**SOUTH DAKOTA STUDY AREA
KEYSTONE XL PROJECT**

**MAPBOOK 3
EXTRA WORKSPACES**

MAP 13 OF 14

REVISION: REV 1
DATE: 20090730



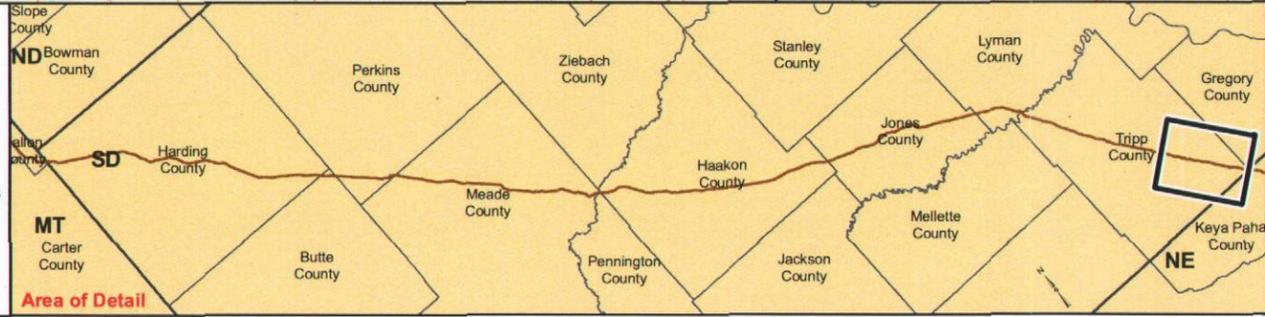
Legend

- Valve
- Pump Station
- Steele City Segment
- Pipe Yard

Major Roads

Road Classification

- Limited Access
- Highways
- Secondary Roads
- Other
- Highway Ramp



TransCanada
In business to deliver

ConocoPhillips

0 0.5 1 2 3 4 Miles

Scale 1:100,000

0 1 2 4 6 8 Kilometers

**SOUTH DAKOTA STUDY AREA
KEYSTONE XL PROJECT**

**MAPBOOK 3
EXTRA WORKSPACES**

MAP 14 OF 14

REVISION: REV 1
DATE: 20090730

Exhibit C:

Table 1 Waterbodies Crossed by the Project in South Dakota²

County	Approximate Milepost	Waterbody Name	Waterbody Type ¹	State Water Quality Classification	Supports Use Designation
Harding	283.6	Trib. Boxelder Creek	Ephemeral	--	--
Harding	285.1	Unknown	Reservoir	--	--
Harding	285.2	Unknown	Reservoir	--	--
Harding	287.7	Unnamed	Ephemeral	--	--
Harding	288.3	Trib. Dipping Vat Creek	Ephemeral	--	--
Harding	289.3	Unnamed	Ephemeral	--	--
Harding	289.6	Shaw Creek	Intermittent	--	--
Harding	289.8	Trib. Shaw Creek	Ephemeral	--	--
Harding	290.6	Trib. Little Missouri River	Ephemeral	--	--
Harding	291.2	Unnamed	Ephemeral	--	--
Harding	292.1	Little Missouri River	Perennial	Warmwater semipermanent fish life propagation waters; Limited-contact recreation waters; Fish/Wildlife Prop, Rec, Stock; Irrigation Waters	--
Harding	292.4	Trib. Little Missouri River	Intermittent	--	--
Harding	294.0	Trib. Kimble Creek	Ephemeral	--	--
Harding	294.3	Unnamed	Ephemeral	--	--
Harding	294.6	Unnamed	Intermittent	--	--
Harding	294.8	Trib. Kimble Creek	Ephemeral	--	--
Harding	294.9	Trib. Kimble Creek	Ephemeral	--	--
Harding	295.0	Unnamed	Ephemeral	--	--

Exhibit C:

Table 1 Waterbodies Crossed by the Project in South Dakota²

County	Approximate Milepost	Waterbody Name	Waterbody Type ¹	State Water Quality Classification	Supports Use Designation
Harding	295.1	Unnamed	Ephemeral	--	--
Harding	295.2	Trib. Kimble Creek	Intermittent	--	--
Harding	295.4	Trib. Kimble Creek	Intermittent	--	--
Harding	295.8	Trib. Kimble Creek	Intermittent	--	--
Harding	296.1	Trib. Kimble Creek	Ephemeral	--	--
Harding	296.4	Trib. Kimble Creek	Ephemeral	--	--
Harding	296.5	Trib. Kimble Creek	Ephemeral	--	--
Harding	296.5	Trib. Kimble Creek	Ephemeral	--	--
Harding	297.0	Trib. Kimble Creek	Intermittent	--	--
Harding	297.3	Trib. Kimble Creek	Intermittent	--	--
Harding	297.3	Kimble Creek	Intermittent	--	--
Harding	297.7	Unnamed	Intermittent	--	--
Harding	300.1	Unnamed	Ephemeral	--	--
Harding	300.4	Dry House Creek	Intermittent	--	--
Harding	301.7	Unnamed	Ephemeral	--	--
Harding	302.5	Trib. Jones Creek	Ephemeral	--	--
Harding	302.6	Trib. Jones Creek	Ephemeral	--	--
Harding	302.6	Trib. Jones Creek	Ephemeral	--	--
Harding	303.3	Trib. Jones Creek	Intermittent	--	--
Harding	303.3	Trib. Jones Creek	Intermittent	--	--

Exhibit C:

Table 1 Waterbodies Crossed by the Project in South Dakota²

County	Approximate Milepost	Waterbody Name	Waterbody Type ¹	State Water Quality Classification	Supports Use Designation
Harding	304.0	Trib. Jones Creek	Intermittent	--	--
Harding	304.2	Trib. Jones Creek	Ephemeral	--	--
Harding	304.8	Trib. Jones Creek	Intermittent	--	--
Harding	306.1	Unnamed	Ephemeral	--	--
Harding	306.6	Trib. Jones Creek	Ephemeral	--	--
Harding	307.1	Unnamed	Ephemeral	--	--
Harding	307.4	Unnamed	Ephemeral	--	--
Harding	308.2	Trib. Rush Creek	Ephemeral	--	--
Harding	308.3	Trib. Rush Creek	Ephemeral	--	--
Harding	308.6	Trib. Rush Creek	Ephemeral	--	--
Harding	308.8	Trib. Rush Creek	Ephemeral	--	--
Harding	308.8	Unnamed	Ephemeral	--	--
Harding	309.1	Unnamed	Ephemeral	--	--
Harding	309.5	Trib. Rush Creek	Ephemeral	--	--
Harding	311.1	Unnamed	Ephemeral	--	--
Harding	311.2	Unnamed	Natural pond	--	--
Harding	311.4	Unnamed	Ephemeral	--	--
Harding	312.2	Trib. Sheep Creek	Ephemeral	--	--
Harding	312.2	Trib. Sheep Creek	Ephemeral	--	--
Harding	312.5	Trib. Sheep Creek	Ephemeral	--	--

Exhibit C:

Table 1 Waterbodies Crossed by the Project in South Dakota²

County	Approximate Milepost	Waterbody Name	Waterbody Type ¹	State Water Quality Classification	Supports Use Designation
Harding	312.9	Trib. Sheep Creek	Ephemeral	--	--
Harding	313.4	Unnamed	Ephemeral	--	--
Harding	313.7	Unnamed	Ephemeral	--	--
Harding	315.3	Unnamed	Ephemeral	--	--
Harding	315.3	Unnamed	Ephemeral	--	--
Harding	315.9	Trib. South Fork Grand River	Ephemeral	--	--
Harding	316.7	Trib. South Fork Grand River	Ephemeral	--	--
Harding	317.3	Unnamed	Ephemeral	--	--
Harding	318.1	South Fork Grand River	Perennial	Warmwater semipermanent fish life propagation waters; Limited-contact recreation waters; Fish/Wildlife Prop, Rec, Stock; Irrigation Waters	Nonsupport; Full Support; Full Support; Insufficient Sampling Information-Threatened
Harding	323.4	Clarks Fork Creek	Perennial	Warmwater marginal fish life propagation waters; Limited-contact recreation waters; Fish/Wildlife Prop, Rec, Stock; Irrigation Waters	--
Harding	327.5	Unnamed	Ephemeral	--	--
Harding	328.3	West Squaw Creek	Intermittent	--	--
Harding	328.4	West Squaw Creek	Intermittent	--	--
Harding	328.5	West Squaw Creek	Intermittent	--	--
Harding	328.5	West Squaw Creek	Intermittent	--	--
Harding	328.5	West Squaw Creek	Perennial	--	--

Exhibit C:

Table 1 Waterbodies Crossed by the Project in South Dakota²

County	Approximate Milepost	Waterbody Name	Waterbody Type ¹	State Water Quality Classification	Supports Use Designation
Harding	328.7	Trib. West Squaw Creek	Ephemeral	--	--
Harding	328.7	Trib. West Squaw Creek	Ephemeral	--	--
Harding	329.0	Trib. West Squaw Creek	Ephemeral	--	--
Harding	329.5	Unnamed	Ephemeral	--	--
Harding	329.7	Unnamed	Ephemeral	--	--
Harding	329.8	Unnamed	Ephemeral	--	--
Harding	330.0	Unnamed	Ephemeral	--	--
Harding	330.0	Unnamed	Ephemeral	--	--
Harding	330.2	Trib. West Squaw Creek	Intermittent	--	--
Harding	330.3	Trib. West Squaw Creek	Intermittent	--	--
Harding	330.5	Unnamed	Ephemeral	--	--
Harding	330.6	Unnamed	Ephemeral	--	--
Harding	330.7	Trib. West Squaw Creek	Intermittent	--	--
Harding	330.8	Unnamed	Intermittent	--	--
Harding	331.0	Unnamed	Ephemeral	--	--
Harding	331.4	Unnamed	Intermittent	--	--
Harding	331.6	Trib. West Squaw Creek	Intermittent	--	--
Harding	331.6	Trib. West Squaw Creek	Intermittent	--	--
Harding	331.8	Unnamed	Ephemeral	--	--
Harding	333.9	Wolf Creek	Ephemeral	--	--

Exhibit C:

Table 1 Waterbodies Crossed by the Project in South Dakota²

County	Approximate Milepost	Waterbody Name	Waterbody Type ¹	State Water Quality Classification	Supports Use Designation
Harding	334.4	Unnamed	Ephemeral	--	--
Harding	334.5	Unnamed	Ephemeral	--	--
Harding	335.4	Unnamed	Ephemeral	--	--
Harding	337.3	Unnamed	Ephemeral	--	--
Harding	337.6	Unnamed	Ephemeral	--	--
Harding	338.1	Red Butte Creek	Intermittent	--	--
Harding	338.4	Red Butte Creek	Intermittent	--	--
Harding	338.4	Red Butte Creek	Intermittent	--	--
Harding	338.4	Red Butte Creek	Intermittent	--	--
Harding	338.5	Red Butte Creek	Intermittent	--	--
Harding	338.6	Red Butte Creek	Intermittent	--	--
Harding	338.6	Red Butte Creek	Intermittent	--	--
Harding	338.7	Red Butte Creek	Intermittent	--	--
Harding	339.6	Giannonatti Creek	Intermittent	--	--
Harding	339.6	Giannonatti Creek	Intermittent	--	--
Harding	340.7	Unnamed	Ephemeral	--	--
Harding	342.2	Little Cowboy Creek	Intermittent	--	--
Harding	342.6	Trib. North Fork Moreau River	Ephemeral	--	--
Harding	342.6	Trib. North Fork Moreau River	Intermittent	--	--
Harding	346.6	Unnamed	Ephemeral	--	--

Exhibit C:

Table 1 Waterbodies Crossed by the Project in South Dakota²

County	Approximate Milepost	Waterbody Name	Waterbody Type ¹	State Water Quality Classification	Supports Use Designation
Harding	347.3	Spring Creek	Intermittent	--	--
Harding	347.7	Unnamed	Ephemeral	--	--
Harding	348.0	Trib. Spring Creek	Intermittent	--	--
Harding	348.4	Trib. Spring Creek	Ephemeral	--	--
Harding	348.9	Trib. Spring Creek	Ephemeral	--	--
Harding	349.2	Unnamed	Intermittent	--	--
Harding	350.5	Dry Creek	Intermittent	--	--
Harding	351.0	Trib. Dry Creek	Ephemeral	--	--
Harding	351.7	Trib. North Fork Moreau River	Ephemeral	--	--
Harding	351.8	Trib. North Fork Moreau River	Ephemeral	--	--
Harding	352.6	Trib. North Fork Moreau River	Intermittent	--	--
Harding	353.5	Unnamed	Ephemeral	--	--
Harding	353.6	Unnamed	Ephemeral	--	--
Butte	356.3	Unnamed	Intermittent	--	--
Butte	356.3	Unnamed	Intermittent	--	--
Butte	356.3	Unnamed	Intermittent	--	--
Butte	356.4	Unnamed	Intermittent	--	--
Butte	356.5	North Fork Moreau River	Perennial	Warmwater marginal fish life propagation waters; Limited-contact recreation waters; Fish/Wildlife Prop, Rec, Stock; Irrigation Waters	--

Exhibit C:

Table 1 Waterbodies Crossed by the Project in South Dakota²

County	Approximate Milepost	Waterbody Name	Waterbody Type ¹	State Water Quality Classification	Supports Use Designation
Butte	357.1	Trib. North Fork Moreau River	Intermittent	--	--
Butte	357.5	Unnamed	Ephemeral	--	--
Perkins	358.9	Trib. North Fork Moreau River	Ephemeral	--	--
Perkins	359.1	Unknown	Reservoir	--	--
Perkins	361.9	Trib. South Fork Moreau River	Ephemeral	--	--
Perkins	361.9	Trib. South Fork Moreau River	Ephemeral	--	--
Perkins	361.9	Trib. South Fork Moreau River	Ephemeral	--	--
Perkins	361.9	Trib. South Fork Moreau River	Ephemeral	--	--
Perkins	362.7	Unnamed	Ephemeral	--	--
Perkins	363.7	Trib. South Fork Moreau River	Ephemeral	--	--
Perkins	364.1	Trib. South Fork Moreau River	Ephemeral	--	--
Perkins	364.4	South Fork Moreau River	Perennial	Warmwater marginal fish life propagation waters; Limited-contact recreation waters; Fish/Wildlife Prop, Rec, Stock; Irrigation Waters	Full Support; Full Support; Full Support; Nonsupport
Perkins	364.9	Unnamed	Ephemeral	--	--
Perkins	366.0	Beverly Creek	Intermittent	--	--
Perkins	367.9	Trib. Beverly Creek	Ephemeral	--	--
Perkins	368.0	Trib. Beverly Creek	Ephemeral	--	--
Perkins	368.5	Unnamed	Ephemeral	--	--
Perkins	368.8	Unnamed	Ephemeral	--	--

Exhibit C:

Table 1 Waterbodies Crossed by the Project in South Dakota²

County	Approximate Milepost	Waterbody Name	Waterbody Type ¹	State Water Quality Classification	Supports Use Designation
Perkins	370.4	Unnamed	Ephemeral	--	--
Perkins	371.6	Trib. Beverly Creek	Ephemeral	--	--
Perkins	372.5	Unnamed	Ephemeral	--	--
Perkins	372.8	Unnamed	Ephemeral	--	--
Meade	373.1	Trib. Cedar Creek	Ephemeral	--	--
Meade	373.2	Unnamed	Ephemeral	--	--
Meade	373.6	Trib. Cedar Creek	Intermittent	--	--
Meade	373.8	Trib. Cedar Creek	Ephemeral	--	--
Meade	373.9	Trib. Cedar Creek	Intermittent	--	--
Meade	375.0	Trib. Cedar Creek	Ephemeral	--	--
Meade	375.0	Trib. Cedar Creek	Ephemeral	--	--
Meade	376.2	Trib. West Branch Pine Creek	Ephemeral	--	--
Meade	376.3	Trib. West Branch Pine Creek	Ephemeral	--	--
Meade	376.4	Trib. West Branch Pine Creek	Ephemeral	--	--
Meade	376.6	Unnamed	Ephemeral	--	--
Meade	377.0	Trib. West Branch Pine Creek	Ephemeral	--	--
Meade	377.1	Trib. West Branch Pine Creek	Ephemeral	--	--
Meade	377.2	Trib. West Branch Pine Creek	Ephemeral	--	--
Meade	378.6	West Branch Pine Creek	Intermittent	--	--
Meade	383.2	Pine Creek	Perennial	--	--

Exhibit C:

Table 1 Waterbodies Crossed by the Project in South Dakota²

County	Approximate Milepost	Waterbody Name	Waterbody Type ¹	State Water Quality Classification	Supports Use Designation
Meade	383.5	Unnamed	Intermittent	--	--
Meade	384.5	Trib. Pine Creek	Intermittent	--	--
Meade	384.8	Trib. Pine Creek	Intermittent	--	--
Meade	385.9	Trib. Pine Creek	Intermittent	--	--
Meade	385.9	Trib. Pine Creek	Intermittent	--	--
Meade	385.9	Trib. Pine Creek	Intermittent	--	--
Meade	389.8	Trib. West Branch Pine Creek	Ephemeral	--	--
Meade	389.8	Trib. West Branch Pine Creek	Ephemeral	--	--
Meade	391.7	Trib. West Branch Pine Creek	Ephemeral	--	--
Meade	394.2	Trib. West Branch Pine Creek	Ephemeral	--	--
Meade	394.4	Trib. West Branch Pine Creek	Ephemeral	--	--
Meade	394.6	Unnamed	Intermittent	--	--
Meade	394.9	Trib. West Branch Pine Creek	Intermittent	--	--
Meade	395.1	Trib. West Branch Pine Creek	Intermittent	--	--
Meade	395.3	Trib. West Branch Pine Creek	Ephemeral	--	--
Meade	395.4	Trib. West Branch Pine Creek	Intermittent	--	--
Meade	395.4	Trib. West Branch Pine Creek	Intermittent	--	--
Meade	395.5	Trib. West Branch Pine Creek	Intermittent	--	--
Meade	396.3	Trib. West Branch Pine Creek	Ephemeral	--	--
Meade	396.4	Trib. West Branch Pine Creek	Ephemeral	--	--

Exhibit C:

Table 1 Waterbodies Crossed by the Project in South Dakota²

County	Approximate Milepost	Waterbody Name	Waterbody Type ¹	State Water Quality Classification	Supports Use Designation
Meade	396.6	Trib. West Branch Pine Creek	Ephemeral	--	--
Meade	396.8	Unnamed	Ephemeral	--	--
Meade	397.0	Trib. Sulphur Creek	Ephemeral	--	--
Meade	397.2	Unnamed	Ephemeral	--	--
Meade	397.3	Trib. Sulphur Creek	Ephemeral	--	--
Meade	397.6	Trib. Sulphur Creek	Ephemeral	--	--
Meade	397.6	Trib. Sulphur Creek	Ephemeral	--	--
Meade	398.1	Trib. Sulphur Creek	Ephemeral	--	--
Meade	399.6	Sulphur Creek	Perennial	Warmwater marginal fish life propagation waters; Limited-contact recreation waters; Fish/Wildlife Prop, Rec, Stock; Irrigation Waters	--
Meade	400.2	Trib. Sulphur Creek	Ephemeral	--	--
Meade	405.6	Unnamed	Ephemeral	--	--
Meade	405.8	Unnamed	Ephemeral	--	--
Meade	406.5	Unnamed	Intermittent	--	--
Meade	408.0	Red Owl Creek	Intermittent	Warmwater marginal fish life propagation waters; Limited-contact recreation waters; Fish/Wildlife Prop, Rec, Stock; Irrigation Waters	--
Meade	409.9	Unnamed	Ephemeral	--	--
Meade	417.1	Trib. Narcelle Creek	Intermittent	--	--

Exhibit C:

Table 1 Waterbodies Crossed by the Project in South Dakota²

County	Approximate Milepost	Waterbody Name	Waterbody Type ¹	State Water Quality Classification	Supports Use Designation
Meade	417.2	Trib. Narcelle Creek	Intermittent	--	--
Meade	417.2	Trib. Narcelle Creek	Intermittent	--	--
Meade	419.6	Unnamed	Intermittent	--	--
Meade	419.8	West Branch Narcelle Creek	Intermittent	--	--
Meade	420.3	West Branch Narcelle Creek	Intermittent	--	--
Meade	420.4	Unnamed	Natural pond	--	--
Meade	421.8	Unnamed	Ephemeral	--	--
Meade	422.0	Narcelle Creek	Intermittent	--	--
Meade	422.1	Trib. Narcelle Creek	Intermittent	--	--
Meade	422.7	Narcelle Creek	Intermittent	--	--
Meade	422.9	Narcelle Creek	Intermittent	--	--
Meade	423.2	Narcelle Creek	Intermittent	--	--
Meade	424.5	Negro Creek	Intermittent	--	--
Meade	424.6	Negro Creek	Intermittent	--	--
Meade	424.6	Negro Creek	Intermittent	--	--
Meade	425.1	Narcelle Creek	Perennial	--	--
Pennington	425.9	Cheyenne River	Perennial	Warmwater permanent fish life propagation waters; Immersion recreation waters; Limited-contact recreation waters; Fish/Wildlife Prop, Rec, Stock; Irrigation Waters	Nonsupport; Nonsupport; Nonsupport; Full Support; Full Support
Haakon	428.9	Bridger Creek	Perennial	--	--

Exhibit C:

Table 1 Waterbodies Crossed by the Project in South Dakota²

County	Approximate Milepost	Waterbody Name	Waterbody Type ¹	State Water Quality Classification	Supports Use Designation
Haakon	429.2	Trib. Bridger Creek	Ephemeral	--	--
Haakon	429.5	Unnamed	Ephemeral	--	--
Haakon	429.6	Unnamed	Ephemeral	--	--
Haakon	435.8	Unnamed	Ephemeral	--	--
Haakon	438.0	Trib. Haxby Draw	Ephemeral	--	--
Haakon	438.5	Trib. Haxby Draw	Ephemeral	--	--
Haakon	441.1	Trib. West Plum Creek	Intermittent	--	--
Haakon	443.6	West Plum Creek	Perennial	--	--
Haakon	449.8	Unnamed	Ephemeral	--	--
Haakon	455.0	Trib. Buzzard Creek	Ephemeral	--	--
Haakon	455.2	Trib. Buzzard Creek	Ephemeral	--	--
Haakon	455.9	Trib. Buzzard Creek	Ephemeral	--	--
Haakon	457.3	Unnamed	Natural pond	--	--
Haakon	460.7	Witcher Holes	Intermittent	--	--
Haakon	460.8	Witcher Holes	Intermittent	--	--
Haakon	461.4	Unnamed	Ephemeral	--	--
Haakon	464.8	Unnamed	Natural pond	--	--
Haakon	468.2	Trib. Nowlin Creek	Intermittent	--	--
Haakon	470.6	Mud Creek	Ephemeral	--	--
Haakon	470.8	Trib. Mud Creek	Ephemeral	--	--

Exhibit C:

Table 1 Waterbodies Crossed by the Project in South Dakota²

County	Approximate Milepost	Waterbody Name	Waterbody Type ¹	State Water Quality Classification	Supports Use Designation
Haakon	472.5	Jack Dailey Creek	Ephemeral	--	--
Haakon	473.6	Unnamed	Intermittent	--	--
Haakon	474.0	Unnamed	Intermittent	--	--
Haakon	474.6	Unnamed	Ephemeral	--	--
Haakon	479.1	Mitchell Creek	Perennial	--	--
Haakon	481.3	Bad River	Perennial	Warmwater marginal fish life propagation waters; Limited-contact recreation waters; Fish/Wildlife Prop, Rec, Stock; Irrigation Waters	--
Haakon	481.8	Unnamed	Ephemeral	--	--
Haakon	482.8	Unnamed	Ephemeral	--	--
Jones	485.5	Unnamed	Intermittent	--	--
Jones	485.9	Unnamed	Ephemeral	--	--
Jones	486.5	South Creek	Ephemeral	--	--
Jones	486.6	Unnamed	Ephemeral	--	--
Jones	488.1	Unnamed	Intermittent	--	--
Jones	488.2	Unnamed	Intermittent	--	--
Jones	489.1	Unnamed	Ephemeral	--	--
Jones	490.1	Unnamed	Ephemeral	--	--
Jones	492.0	Unnamed	Intermittent	--	--
Jones	492.3	Unnamed	Intermittent	--	--

Exhibit C:

Table 1 Waterbodies Crossed by the Project in South Dakota²

County	Approximate Milepost	Waterbody Name	Waterbody Type ¹	State Water Quality Classification	Supports Use Designation
Jones	492.6	Unnamed	Intermittent	--	--
Jones	493.7	Dry Creek	Intermittent	--	--
Jones	494.5	Unnamed	Intermittent	--	--
Jones	496.6	Unnamed	Intermittent	--	--
Jones	497.2	Unnamed	Intermittent	--	--
Jones	500.5	Unnamed	Ephemeral	--	--
Jones	500.8	Unnamed	Ephemeral	--	--
Jones	501.6	White Clay Creek	Intermittent	--	--
Jones	502.2	Unknown	Reservoir	--	--
Jones	502.8	Unnamed	Ephemeral	--	--
Jones	503.5	Unnamed	Ephemeral	--	--
Jones	504.4	Unnamed	Ephemeral	--	--
Jones	505.2	Unnamed	Ephemeral	--	--
Jones	505.4	Unnamed	Ephemeral	--	--
Jones	505.9	Unnamed	Ephemeral	--	--
Jones	506.6	Unnamed	Ephemeral	--	--
Jones	506.7	Unnamed	Ephemeral	--	--
Jones	506.75	Unnamed	Ephemeral	--	--
Jones	507.7	Unnamed	Ephemeral	--	--
Jones	510.2	Unnamed	Ephemeral	--	--

Exhibit C:

Table 1 Waterbodies Crossed by the Project in South Dakota²

County	Approximate Milepost	Waterbody Name	Waterbody Type ¹	State Water Quality Classification	Supports Use Designation
Jones	510.6	Unnamed	Ephemeral	--	--
Jones	510.7	Unnamed	Ephemeral	--	--
Jones	511.6	Unnamed	Intermittent	--	--
Jones	513.0	Unnamed	Ephemeral	--	--
Jones	513.6	Unnamed	Ephemeral	--	--
Jones	514.1	Unnamed	Ephemeral	--	--
Jones	514.2	Unnamed	Ephemeral	--	--
Jones	514.4	Unnamed	Ephemeral	--	--
Jones	514.5	Unnamed	Ephemeral	--	--
Jones	514.7	Unnamed	Ephemeral	--	--
Jones	515.1	Unnamed	Intermittent	--	--
Jones	517.3	Unnamed	Intermittent	--	--
Jones	519.2	Unnamed	Intermittent	--	--
Jones	520.4	Williams Creek	Ephemeral	Fish/Wildlife Prop, Rec, Stock; Irrigation Waters	Full Support; Full Support
Jones	522.1	Unnamed	Intermittent	--	--
Jones	523.5	Unnamed	Intermittent	--	--
Jones	523.5	Unnamed	Intermittent	--	--
Jones	523.6	Unnamed	Intermittent	--	--
Jones	525.0	Unnamed	Ephemeral	--	--
Lyman	525.0	Unnamed	Ephemeral	--	--

Exhibit C:

Table 1 Waterbodies Crossed by the Project in South Dakota²

County	Approximate Milepost	Waterbody Name	Waterbody Type ¹	State Water Quality Classification	Supports Use Designation
Lyman	525.4	Unnamed	Ephemeral	--	--
Lyman	529.9	Sedlano Creek	Intermittent	--	--
Lyman	530.7	Unnamed	Intermittent	--	--
Lyman	532.9	Unnamed	Intermittent	--	--
Lyman	535.8	Unnamed	Ephemeral	--	--
Lyman	536.9	White River	Perennial	Warmwater semipermanent fish life propagation waters; Limited-contact recreation waters; Fish/Wildlife Prop, Rec, Stock; Irrigation Waters	Nonsupport; Nonsupport; Full Support; Full Support
Tripp	538.8	Unnamed	Ephemeral	--	--
Tripp	539.1	Little Dog Creek	Intermittent	--	--
Tripp	539.1	Unnamed	Ephemeral	--	--
Tripp	539.8	Unnamed	Ephemeral	--	--
Tripp	540.5	Unnamed	Ephemeral	--	--
Tripp	541.3	Unnamed	Ephemeral	--	--
Tripp	542.1	Unnamed	Ephemeral	--	--
Tripp	542.3	Unnamed	Intermittent	--	--
Tripp	542.7	Unnamed	Ephemeral	--	--
Tripp	542.8	Unnamed	Ephemeral	--	--
Tripp	542.9	Cottonwood Creek	Intermittent	--	--
Tripp	545.8	Unnamed	Ephemeral	--	--

Exhibit C:

Table 1 Waterbodies Crossed by the Project in South Dakota²

County	Approximate Milepost	Waterbody Name	Waterbody Type ¹	State Water Quality Classification	Supports Use Designation
Tripp	547.9	Unnamed	Ephemeral	--	--
Tripp	548.1	Unnamed	Ephemeral	--	--
Tripp	549.4	Unnamed	Intermittent	--	--
Tripp	551.2	Unnamed	Intermittent	--	--
Tripp	551.4	Unnamed	Ephemeral	--	--
Tripp	553.1	Owl Creek	Intermittent	--	--
Tripp	557.3	Unnamed	Ephemeral	--	--
Tripp	560.2	Unnamed	Intermittent	--	--
Tripp	560.2	Unnamed	Intermittent	--	--
Tripp	560.2	Unnamed	Intermittent	--	--
Tripp	560.6	Unnamed	Ephemeral	--	--
Tripp	563.5	Unknown	Reservoir	--	--
Tripp	565.7	Dog Ear Creek	Intermittent	--	--
Tripp	566.2	Muddy Creek	Intermittent	--	--
Tripp	572.5	Sand Creek	Intermittent	--	--
Tripp	576.0	Unnamed	Ephemeral	--	--
Tripp	576.6	Ponca Creek	Intermittent	--	--
Tripp	580.0	Unnamed	Ephemeral	--	--
Tripp	580.9	Unnamed	Ephemeral	--	--
Tripp	588.3	Unnamed	Ephemeral	--	--

Exhibit C:

Table 1 Waterbodies Crossed by the Project in South Dakota²

County	Approximate Milepost	Waterbody Name	Waterbody Type ¹	State Water Quality Classification	Supports Use Designation
Tripp	589.0	Unnamed	Ephemeral	--	--
Tripp	590.9	Lute Creek	Intermittent	--	--
Tripp	591.1	Unnamed	Ephemeral	--	--
Tripp	591.2	Unnamed	Ephemeral	--	--
Tripp	591.8	Unnamed	Intermittent	--	--
Tripp	592.1	Unnamed	Intermittent	--	--
Tripp	592.7	Unnamed	Ephemeral	--	--
Tripp	592.9	Unnamed	Ephemeral	--	--
Tripp	593.2	Unnamed	Ephemeral	--	--
Tripp	593.4	Unnamed	Ephemeral	--	--
Tripp	593.5	Unnamed	Ephemeral	--	--
Tripp	593.9	Unnamed	Ephemeral	--	--
Tripp	594.3	Unnamed	Ephemeral	--	--
Tripp	595.7	Buffalo Creek	Intermittent	--	--
Tripp	596.6	Unnamed	Ephemeral	--	--

¹ Perennial: Stream channels that flow year round;

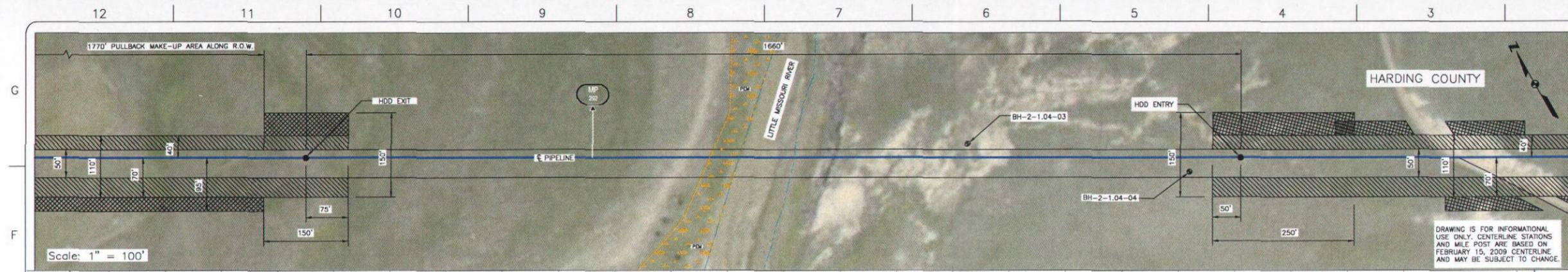
Intermittent: Stream channels that flow more than 3 months per year;

Ephemeral: Stream channels that flow only in response to rainfall or snowmelt; Canals: Manmade ditches for irrigation or drainage;

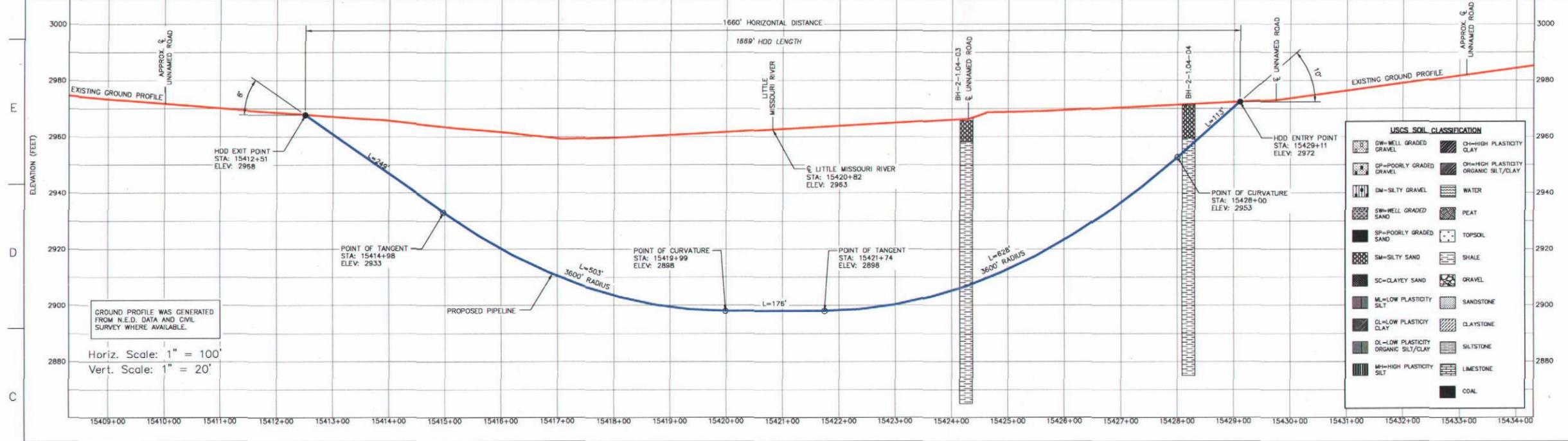
Reservoirs: Manmade bodies of water, or retention ponds;

Natural Ponds: Naturally occurring open water.

² All streams in South Dakota are assigned the beneficial uses of irrigation and fish and wildlife propagation, recreation, and stock watering. Sources: SDDENR 2008a,b.



- INSTALLATION NOTES**
- 1) ACCESS: ALL EQUIPMENT MUST ACCESS THE SITE ALONG THE CONSTRUCTION RIGHT-OF-WAY FROM PUBLIC OR APPROVED PRIVATE ROADS.
 - 2) VEHICLE AND EQUIPMENT ACCESS CROSSING MAY BE INSTALLED IF APPROVED BY THE ENVIRONMENTAL INSPECTOR.
 - 3) WORK SPACE: WORK SPACE LIMITS ARE DEPICTED. CLEARING WILL BE RESTRICTED TO THE WORK SPACES INDICATED AT THE ENTRY AND EXIT POINTS AND PULLBACK MAKE-UP AREA ALONG THE RIGHT-OF-WAY. CLEARING BETWEEN THE ENTRY AND EXIT POINTS IS LIMITED TO THE MINIMUM AMOUNT NECESSARY TO STRING LOCATION WIRES AND INSTALL PUMPS AND TYPING TO OBTAIN WATER (WHERE APPROVED).
 - 4) WATER SOURCE: DRILL WATER AND PRE-INSTALLATION HYDROSTATIC TEST WATER SHALL BE OBTAINED FROM AN APPROVED SOURCE. THE CONTRACTOR SHALL SCREEN THE INCOMING WATER TO PREVENT THE ENTRAPMENT OF FISH OR DEBRIS AND IN ACCORDANCE WITH THE CONSTRUCTION MITIGATION AND RECLAMATION PLAN (CMR), AND PROJECT REQUIREMENTS, THE HOSE SHALL BE KEPT OFF THE BOTTOM OF THE WATER BODY.
 - 5) HYDROSTATIC TEST: PRE-INSTALLATION HYDROSTATIC TEST SHALL BE CONDUCTED IN ACCORDANCE WITH PERMIT REQUIREMENTS. THE CONTRACTOR SHALL DISCHARGE HYDROSTATIC TEST WATER IN ACCORDANCE WITH PROJECT PERMITS. DISCHARGES WILL BE BACK TO THE WATER SOURCE UNLESS OTHERWISE DIRECTED BY THE ENVIRONMENTAL INSPECTOR. DISCHARGES SHALL NOT CAUSE EROSION OR SEDIMENTATION TO REDUCE THE VELOCITY OF THE DISCHARGE. THE CONTRACTOR SHALL UTILIZE AN ENTRY-DISSIPATING DEVICE AS DESCRIBED IN THE CMR.
 - 6) SPILL-PREVENTION: ALL PUMPS SHALL BE SET IN SECONDARY CONTAINMENT AND IN ACCORDANCE WITH THE SPILL PREVENTION CONTROL AND CONTINGENCY PLAN (SPEC). EQUIPMENT AND PUMPS OPERATING WITHIN 100 FEET OF ANY WATER BODY OR WETLAND SHALL BE OPENED AND REFUELED IN ACCORDANCE WITH THE SPEC PLAN. EQUIPMENT REFUELING AND STORAGE OF HAZARDOUS MATERIALS, FUELS, ETC. SHALL BE CONDUCTED AT LEAST 100 FEET FROM WATER BODIES AND WETLANDS. EACH CONSTRUCTION CREW SHALL HAVE ON HAND SUFFICIENT TOOLS AND MATERIALS TO STOP LEAKS AND SUPPLIES OF ADSORBENT AND BARRIER MATERIALS TO ALLOW RAPID CONTAINMENT AND RECOVERY OF SPILLED MATERIALS.
 - 7) EROSION AND SEDIMENT CONTROL: CONTRACTOR SHALL SUPPLY, INSTALL AND MAINTAIN SEDIMENT CONTROL STRUCTURES IN ACCORDANCE WITH CONTRACT DOCUMENTS. CONTRACTOR SHALL INSTALL ADDITIONAL EROSION CONTROL STRUCTURES AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.
 - 8) TOPSOIL SHALL BE STRIPPED AS REQUIRED BY PROJECT SPECIFICATIONS.
 - 9) PRIOR TO PIPE PULLBACK, CONTRACTOR'S ACTUAL DRILL PROFILE SHALL BE SUBMITTED TO KEYSTONE FOR APPROVAL.
 - 10) INSTALLATION: THE PIPE SECTION FOR THE DRILLED CROSSING SHALL BE MADE UP WITHIN THE RIGHT-OF-WAY AT THE DRILL EXIT POINT AS SHOWN. CONTRACTOR SHALL ASSESS THE NEED FOR AND SUPPLY APPROPRIATE BALLAST DURING PULLBACK.
 - 11) MUD DISPOSAL: CONTRACTOR SHALL DISPOSE OF EXCESS DRILLING MUD AS DIRECTED BY THE COMPANY REPRESENTATIVE IN ACCORDANCE WITH PERMIT CONDITIONS. UNDER NO CIRCUMSTANCES SHALL DRILLING FLUID BE DISPOSED OF IN WATER BODIES OR WETLANDS. ANY DRILLING MUD WHICH INADVERTENTLY EXITS AT POINTS OTHER THAN THE ENTRY AND EXIT POINTS SHALL BE CONTAINED AND COLLECTED TO THE EXTENT PRACTICAL AND DISPOSED OF AS DIRECTED BY THE COMPANY REPRESENTATIVE IN ACCORDANCE WITH PERMIT CONDITIONS.
 - 12) CLEANUP/STABILIZATION/RESTORATION: ALL DISTURBED AREAS SHALL BE RETURNED TO THE ORIGINAL CONTOURS. DISTURBED AREAS SHALL BE REVEGETATED AS SPECIFIED IN PROJECT DOCUMENTS.
 - 13) NORMAL WORKING SPACE DIMENSIONS ARE SHOWN. LARGER AREAS MAY BE REQUIRED IN IRREGULAR TERRAIN. UPDATED DIMENSIONS MAY BE PROVIDED AFTER LOCAL TOPOGRAPHICAL SURVEYS ARE PERFORMED.



USCS SOIL CLASSIFICATION

GW=WELL GRADED GRAVEL	OH=HIGH PLASTICITY ORGANIC SILT/CLAY
GP=POORLY GRADED GRAVEL	OH=HIGH PLASTICITY ORGANIC SILT/CLAY
GM=SILTY GRAVEL	WATER
SW=WELL GRADED SAND	PEAT
SP=POORLY GRADED SAND	TOPSOIL
SM=SILTY SAND	SHALE
SC=CLAYEY SAND	GRAVEL
ML=LOW PLASTICITY SILT	SANDSTONE
CL=LOW PLASTICITY CLAY	CLAYSTONE
OL=LOW PLASTICITY ORGANIC SILT/CLAY	SILTSTONE
MH=HIGH PLASTICITY SILT	LIMESTONE
	COAL

CROSSING INFORMATION (SHOWING)	15410+02 APPROX. & UNNAMED ROAD	15415+81 HDD EXIT POINT	15414+98 PT OF TANGENT	15416+09 PT OF CURVATURE	15420+82 LITTLE MISSOURI RIVER	15421+74 PT OF TANGENT	15424+28 BH-2-1.04-03 & UNNAMED ROAD	15424+29 BH-2-1.04-04 & UNNAMED ROAD	15428+00 PT OF CURVATURE	15428+20 BH-2-1.04-04	15429+11 HDD ENTRY POINT	15429+75 & UNNAMED ROAD	15433+13 & UNNAMED ROAD
PIPELINE DATA	MP												
CONSTRUCTION WORKSPACE	LIMIT OF PERMANENT EASEMENT												

ENVIRONMENTAL MITIGATION/RECLAMATION	TOPSOIL SALVAGE METHOD	STREAMS	WETLANDS	TIMING CONSTRAINTS	MILEPOST	MONITORING	RECLAMATION	SPECIAL CONSIDERATIONS
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TO BE DETERMINED

LEGEND

- POINT OF INTERSECTION (P.I.)
- ENTRY OR EXIT POINT
- ⊙ GEOTECHNICAL BOREHOLE
- ⊙ POWERPOLE
- MLP MAINLINE PIPE
- PIPELINE
- FOREIGN PIPELINE
- EDGE OF WATER
- PRIVATE ACCESS SHOULDER FLY ROAD
- COUNTY BOUNDARY
- ▽ WATER LEVEL
- USACE CONSTRUCTION REFERENCE POINT
- WETLANDS
- PERMANENT EASEMENT
- TEMPORARY EASEMENT
- EXTRA WORKSPACE

REFERENCE DRAWINGS

DRAWING No	TITLE

REVISION

REV No	DATE	DESCRIPTION	PROJECT CODE	DRAFTER	DRAFTING CHECKER	DESIGNER	DESIGN CHECKER	PROJECT MANAGER	COMPANY
2	07.06.09	ISSUED FOR SUPPLEMENTAL U.S. DEPT. OF STATE FILING (02.15.09 CL)	THES0050388X	JB	AH	HF	RB	RG	TROW
1	12.08.08	ISSUED FOR REVIEW (12.1.08 CL)	THES0050388X	JB	AH	HF	RB	RG	TROW
0	07.07.08	PRELIMINARY DESIGN	THES0050388X	BM	JP	HF	RB	RG	TROW

APPROVAL

PROFESSIONAL ENGINEER/RPT	PERMIT/ ENG. APPROVAL

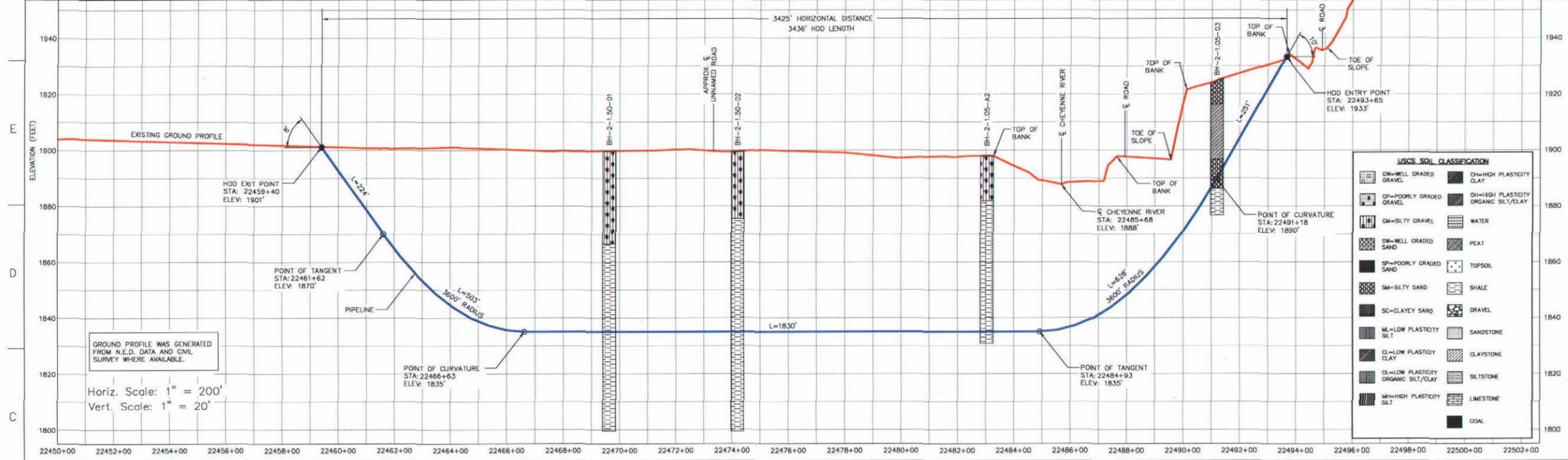
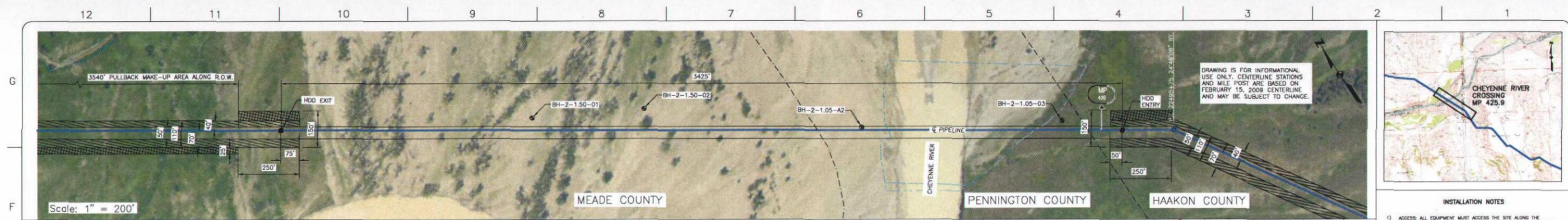
PRELIMINARY

HARDING SECTION

FIA # 4365 CHAINAGE: MP 292.1 DISCIPLINE # 03

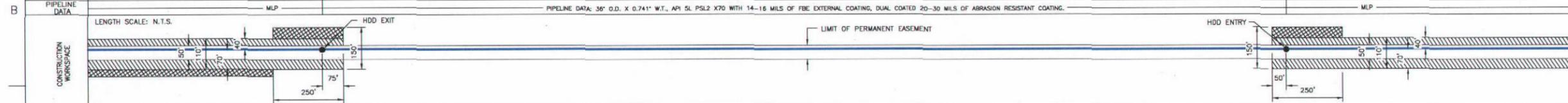
LITTLE MISSOURI RIVER HDD INSTALLATION
PROPOSED KEYSTONE XL PROJECT
HARDING COUNTY, SOUTH DAKOTA

SCALE AS SHOWN DRAWING No 4365-03-ML-03-001 REV 2



- INSTALLATION NOTES**
- ACCESS ALL EQUIPMENT MUST ACCESS THE SITE ALONG THE CONSTRUCTION ROAD OR FROM ROAD OR APPROVED PRIVATE ROADS.
 - VEHICLE AND EQUIPMENT ACCESS CROSSING MAY BE INSTALLED IF APPROVED BY THE ENVIRONMENTAL INSPECTOR.
 - WORK SPACE WORK SPACE LIMITS ARE DESIGNATED. CLEARING WILL BE RESTRICTED TO THE WORK SPACES INDICATED AT THE ENTRY AND EXIT POINTS AND PULLBACK MAKE-UP AREA ALONG THE RIGHT-OF-WAY. CLEARING BETWEEN THE ENTRY AND EXIT POINTS IS LIMITED TO THE MINIMUM AMOUNT NECESSARY TO STRING LOCATION WIRES AND INSTALL PUMPS AND PIPING TO DRAW WATER (WHERE APPROVED).
 - WATER SOURCE: DRILL WATER AND PRE-INSTALLATION HYDROSTATIC TEST WATER SHALL BE OBTAINED FROM AN APPROVED SOURCE. THE CONTRACTOR SHALL SCREEN THE INTAKE HOSE TO PREVENT THE ENTRAPMENT OF FISH OR DEBRIS AND IN ACCORDANCE WITH THE CONSTRUCTION MITIGATION AND RECLAMATION PLAN (CMRP) AND PROJECT REQUIREMENTS. THE HOSE SHALL BE KEPT OFF THE BOTTOM OF THE WATER BODY.
 - HYDROSTATIC TEST: PRE-INSTALLATION HYDROSTATIC TEST SHALL BE CONDUCTED IN ACCORDANCE WITH PERMIT REQUIREMENTS. THE CONTRACTOR SHALL DISCHARGE HYDROSTATIC TEST WATER IN ACCORDANCE WITH PROJECT PERMITS. DISCHARGES WILL BE BACK TO THE WATER SOURCE UNLESS OTHERWISE DIRECTED BY THE ENVIRONMENTAL INSPECTOR. DISCHARGES SHALL NOT CAUSE EROSION OR SEDIMENTATION. TO REDUCE THE VELOCITY OF THE DISCHARGE, THE CONTRACTOR SHALL UTILIZE AN ENERGY-DISSIPATING DEVICE AS DESCRIBED IN THE CMRP.
 - SPILL PREVENTION: ALL PUMPS SHALL BE SET IN SECONDARY CONTAINMENT AND IN ACCORDANCE WITH THE SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN (SPCC). EQUIPMENT AND PUMPS OPERATING WITHIN 100 FEET OF ANY WATER BODY OR WETLAND SHALL BE OPERATED AND REFUELED IN ACCORDANCE WITH THE SPILL PREVENTION CONTROL PLAN. EQUIPMENT OPERATING IN WETLANDS SHALL HAVE ON HAND SUFFICIENT TOOLS AND MATERIALS TO STOP LEAKS AND SUPPLIES OF ABSORBENT AND BARRIER MATERIALS TO ALLOW RAPID CONTAINMENT AND RECOVERY OF SPILLED MATERIALS.
 - EROSION AND SEDIMENT CONTROL: CONTRACTOR SHALL SUPPLY, INSTALL AND MAINTAIN SEDIMENT CONTROL STRUCTURES IN ACCORDANCE WITH CONTRACT DOCUMENTS. CONTRACTOR SHALL INSTALL ADDITIONAL EROSION CONTROL STRUCTURES AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.
 - TOPSOIL SHALL BE STRIPPED AS REQUIRED BY PROJECT SPECIFICATIONS.
 - PRIOR TO PIPE PULLBACK, CONTRACTOR'S ACTUAL DRILL PROFILE SHALL BE SUBMITTED TO KEYSTONE FOR APPROVAL.
 - INSTALLATION: THE PIPE SECTION FOR THE DRILLED CROSSING SHALL BE MADE UP WITHIN THE RIGHT-OF-WAY AT THE DRILL EXIT POINT AS SHOWN. CONTRACTOR SHALL ASSESS THE NEED FOR AND SUPPLY APPROPRIATE BALLAST DURING PULLBACK.
 - WELL DISPOSAL: CONTRACTOR SHALL DISPOSE OF EXCESS DRILLING MUD AS DIRECTED BY THE COMPANY REPRESENTATIVE IN ACCORDANCE WITH PERMIT CONDITIONS. UNDER NO CIRCUMSTANCES SHALL DRILLING FLUID BE DISPOSED OF IN WATER BODIES OR WETLANDS. ANY DRILLING MUD WHICH INADVERTENTLY EXITS AT POINTS OTHER THAN THE ENTRY AND EXIT POINTS SHALL BE CONTAINED AND COLLECTED TO THE EXTENT PRACTICAL AND DISPOSED OF AS DIRECTED BY THE COMPANY REPRESENTATIVE IN ACCORDANCE WITH PERMIT CONDITIONS.
 - CLEANUP/STABILIZATION/RESTORATION: ALL DISTURBED AREAS SHALL BE RETURNED TO THE ORIGINAL CONTOUR. DISTURBED AREAS SHALL BE RESEED AS SPECIFIED IN PROJECT DOCUMENTS.
 - NOMINAL WORKING SPACE DIMENSIONS ARE SHOWN. LARGER AREAS MAY BE REQUIRED IN IRREGULAR TERRAIN. UPDATED DIMENSIONS MAY BE PROVIDED AFTER LOCAL TOPOGRAPHICAL SURVEYS ARE PERFORMED.

CROSSING INFORMATION DRAWING	PIPELINE DATA
22459+40 HDD EXIT POINT	MP
22461+62 PT OF TANGENT	
22466+63 PT OF CURVATURE	
22469+62 BH-2-1.05-01	PIPELINE DATA: 36" O.D. X 0.741" W.T., API 5L PSL2 X70 WITH 14-18 MILS OF FBE EXTERNAL COATING, DUAL COATED 20-30 MILS OF ABRASION RESISTANT COATING.
22473+33 APPROX. & UNNAMED ROAD	
22474+18 BH-2-1.05-02	
22483+27 TOP OF BANK	
22484+93 PT OF TANGENT	
22485+68 & CHEYENNE RIVER	
22487+64 TOP OF BANK	
22487+80 BH-2-1.05-04	
22487+93 & UNNAMED ROAD	
22489+68 TOP OF SLOPE	
22490+13 TOP OF BANK	
22491+18 PT OF CURVATURE	
22491+19 BH-2-1.05-05	
22492+51 BH-2-1.05-06	
22493+65 HDD ENTRY POINT	MP
22493+73 & UNNAMED ROAD	
22494+91 & UNNAMED ROAD	
22495+09 TOP OF SLOPE	
22495+25 P.I. 24'48"08" RT.	



ENVIRONMENTAL MITIGATION/RECLAMATION
TOPSOIL SALVAGE METHOD
STREAMS
WETLANDS
TIMING CONSTRAINTS
MILEPOST
MONITORING
RECLAMATION
SPECIAL CONSIDERATIONS

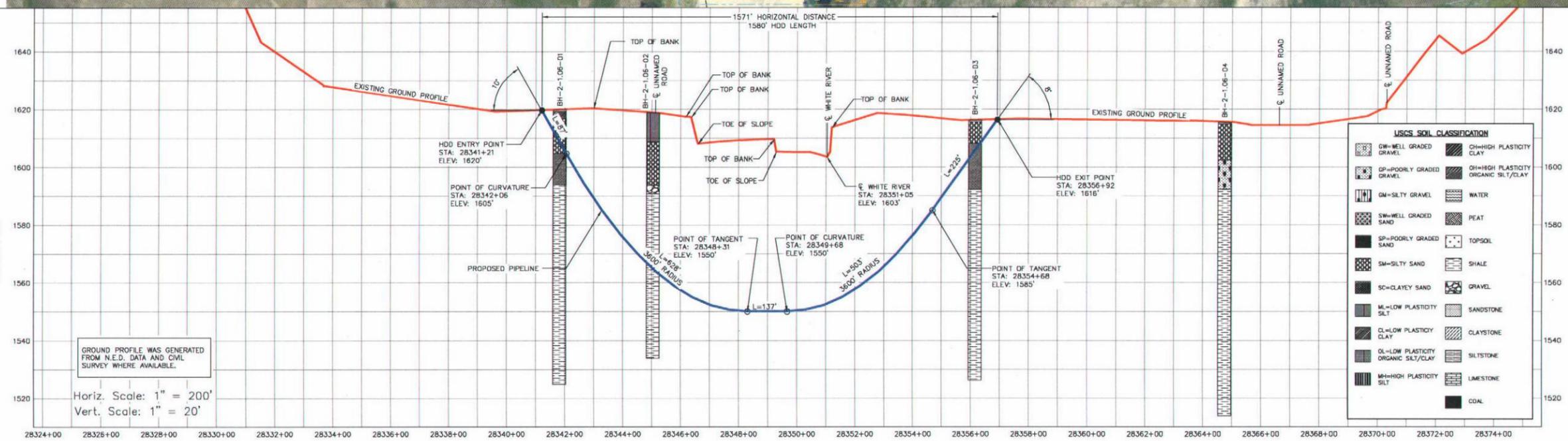
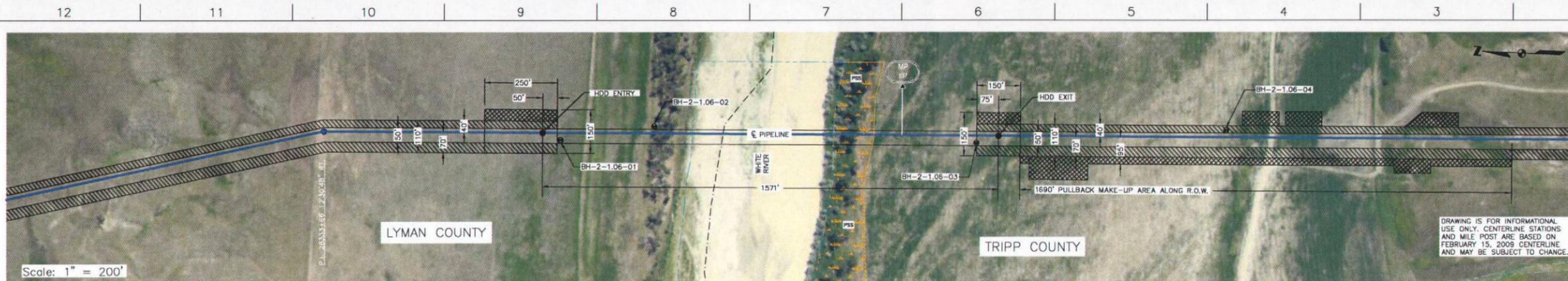
REFERENCE DRAWINGS	
DRAWING No	TITLE

REVISION		APPROVAL							
REV No	DATE	DESCRIPTION	PROJECT CODE	DRAFTER	DRAFTING CHECKER	DESIGNER	DESIGN CHECKER	PROJECT MANAGER	COMPANY
2	07.06.09	ISSUED FOR SUPPLEMENTAL U.S. DEPT. OF STATE FILING (02.15.09 CL)	HES0050388X	JB	AH	HF	RB	RG	TROW
1	12.08.08	ISSUED FOR REVIEW (12.1.08 CL)	HES0050388X	BM	AH	HF	RB	RG	TROW
0	11.19.08	ISSUED FOR UNITED STATES DEPARTMENT OF STATE (7.31.08 CL)	HES0050388X	BM	JP	HF	RB	RG	TROW

PROFESSIONAL ENGINEER/RPT	PERMIT/ ENG. APPROVAL

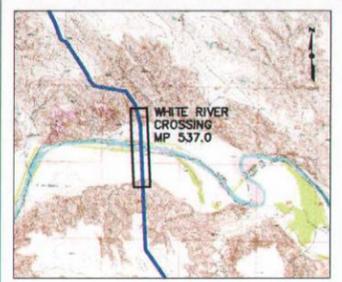
PRELIMINARY

FAITH SECTION
 FIA # 4367 CHAINAGE: MP 425.9 DISCIPLINE # 03
CHEYENNE RIVER HDD INSTALLATION
 KEYSTONE XL PROJECT
 MEADE & HAakon COUNTY, SOUTH DAKOTA
 SCALE AS SHOWN DRAWING No 4367-03-ML-03-001 REV 2

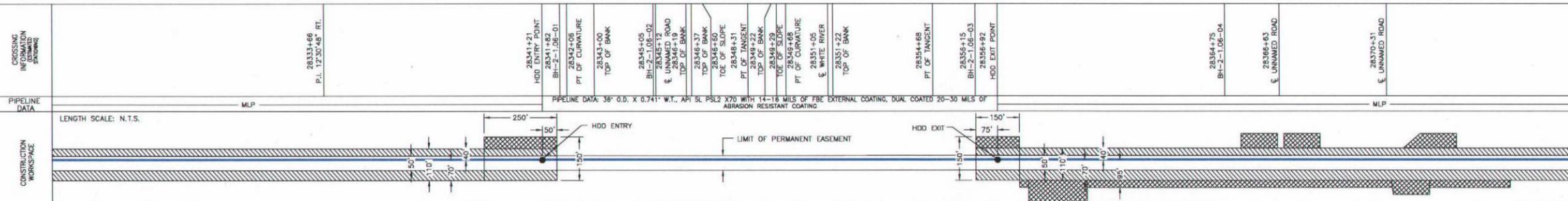


USCS SOIL CLASSIFICATION

GW=WELL GRADED GRAVEL	OH=HIGH PLASTICITY CLAY
GP=POORLY GRADED GRAVEL	OI=HIGH PLASTICITY ORGANIC SILT/CLAY
GM=SILTY GRAVEL	WATER
SW=WELL GRADED SAND	PEAT
SP=POORLY GRADED SAND	TOPSOIL
SM=SILTY SAND	SHALE
SC=CLAYEY SAND	GRAVEL
ML=LOW PLASTICITY SILT	SANDSTONE
CL=LOW PLASTICITY CLAY	CLAYSTONE
OL=LOW PLASTICITY ORGANIC SILT/CLAY	SILTSTONE
MH=HIGH PLASTICITY SILT	LIMESTONE
	COAL



- INSTALLATION NOTES**
- ACCESS: ALL EQUIPMENT MUST ACCESS THE SITE ALONG THE CONSTRUCTION RIGHT-OF-WAY FROM PUBLIC OR APPROVED PRIVATE ROADS.
 - VEHICLE AND EQUIPMENT ACCESS CROSSING MAY BE INSTALLED IF APPROVED BY THE ENVIRONMENTAL INSPECTOR.
 - WORK SPACE: WORK SPACE LIMITS ARE DERIVED. CLEARING WILL BE RESTRICTED TO THE WORK SPACES INDICATED AT THE ENTRY AND EXIT POINTS AND PULLBACK MAKE-UP AREA ALONG THE RIGHT-OF-WAY. CLEARING BETWEEN THE ENTRY AND EXIT POINTS IS LIMITED TO THE MINIMUM AMOUNT NECESSARY TO STAKE LOCATION MARKS AND INSTALL PUMPS AND PIPING TO OBTAIN WATER (WHERE APPROVED).
 - WATER SOURCE: DRILL WATER AND PRE-INSTALLATION HYDROSTATIC TEST WATER SHALL BE OBTAINED FROM AN APPROVED SOURCE. THE CONTRACTOR SHALL SCREEN THE INTAKE HOSE TO PREVENT THE ENTRAPMENT OF FISH OR DEBRIS AND IN ACCORDANCE WITH THE CONSTRUCTION MITIGATION AND RECLAMATION PLAN (CMRP) AND PROJECT REQUIREMENTS, THE HOSE SHALL BE KEPT OFF THE BOTTOM OF THE WATER BODY.
 - HYDROSTATIC TEST: PRE-INSTALLATION HYDROSTATIC TEST SHALL BE CONDUCTED IN ACCORDANCE WITH PERMIT REQUIREMENTS. THE CONTRACTOR SHALL DISCHARGE HYDROSTATIC TEST WATER IN ACCORDANCE WITH PROJECT PERMITS. DISCHARGES WILL BE BACK TO THE WATER SOURCE UNLESS OTHERWISE DIRECTED BY THE ENVIRONMENTAL INSPECTOR. DISCHARGES SHALL NOT CAUSE EROSION OR SEDIMENTATION TO REDUCE THE VELOCITY OF THE DISCHARGE. THE CONTRACTOR SHALL UTILIZE AN ENERGY-DISSIPATING DEVICE AS DESCRIBED IN THE CMP.
 - SPILL-PREVENTION: ALL PUMPS SHALL BE SET IN SECONDARY CONTAINMENT AND IN ACCORDANCE WITH THE SPILL PREVENTION CONTROL AND CONTINGENCY PLAN (SPCC), EQUIPMENT AND PUMPS OPERATING WITHIN 100 FEET OF ANY WATER BODY OR WETLANDS SHALL BE OPERATED AND REFUELED IN ACCORDANCE WITH THE SPCC PLAN. EQUIPMENT REFUELING AND STORAGE OF HAZARDOUS MATERIALS, FUELS, ETC. SHALL BE CONDUCTED AT LEAST 100 FEET FROM WATER BODIES AND WETLANDS. EACH CONSTRUCTION CREW SHALL HAVE ON HAND SUFFICIENT TOOLS AND MATERIALS TO STOP LEAKS AND SUPPLIES OF ABSORBENT AND BARRIER MATERIALS TO ALLOW RAPID CONTAINMENT AND RECOVERY OF SPILLED MATERIALS.
 - EROSION AND SEDIMENT CONTROL: CONTRACTOR SHALL SUPPLY, INSTALL AND MAINTAIN SEDIMENT CONTROL STRUCTURES IN ACCORDANCE WITH CONTRACT DOCUMENTS. CONTRACTOR SHALL INSTALL ADDITIONAL EROSION CONTROL STRUCTURES AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.
 - TOPSOIL SHALL BE STRIPPED AS REQUIRED BY PROJECT SPECIFICATIONS.
 - PRIOR TO PIPE PULLBACK, CONTRACTOR'S ACTUAL DRILL PROFILE SHALL BE SUBMITTED TO HISTORIC FOR APPROVAL.
 - INSTALLATION: THE PIPE SECTION FOR THE DRILLED CROSSING SHALL BE MADE UP WITHIN THE RIGHT-OF-WAY AT THE DRILL EXIT POINT AS SHOWN. CONTRACTOR SHALL ASSESS THE NEED FOR AND SUPPLY APPROPRIATE BALLAST DURING PULLBACK.
 - MUD DISPOSAL: CONTRACTOR SHALL DISPOSE OF EXCESS DRILLING MUD AS DIRECTED BY THE COMPANY REPRESENTATIVE IN ACCORDANCE WITH PERMIT CONDITIONS. UNDER NO CIRCUMSTANCES SHALL DRILLING FLUID BE DISPOSED OF IN WATER BODIES OR WETLANDS. ANY DRILLING MUD WHICH INADEQUATELY EXITS AT POINTS OTHER THAN THE ENTRY AND EXIT POINTS SHALL BE CONTAINED AND COLLECTED TO THE EXTENT PRACTICAL AND DISPOSED OF AS DIRECTED BY THE COMPANY REPRESENTATIVE IN ACCORDANCE WITH PERMIT CONDITIONS.
 - CLEANUP/STABILIZATION/RESTORATION: ALL DISTURBED AREAS SHALL BE RETURNED TO THE ORIGINAL CONTOUR. DISTURBED AREAS SHALL BE SEEDED AS SPECIFIED IN PROJECT DOCUMENTS.
 - NOMINAL WORKING SPACE DIMENSIONS ARE SHOWN. LARGER AREAS MAY BE REQUIRED IN IRREGULAR TERRAIN. UPDATED DIMENSIONS MAY BE PROVIDED AFTER LOCAL TOPOGRAPHICAL SURVEYS ARE PERFORMED.



ENVIRONMENTAL MITIGATION/RECLAMATION

TOPSOIL SALVAGE METHOD	
STREAMS	
WETLANDS	
TIMING CONSTRAINTS	
MILEPOST	
MONITORING	
RECLAMATION	
SPECIAL CONSIDERATIONS	

LEGEND

- POINT OF INTERSECTION (P.I.)
- ENTRY OR EXIT POINT
- ⊕ GEOTECHNICAL BORCHOLE
- ⊖ POWERPOLE
- MLP
- MAINLINE PIPE
- PIPELINE
- FOREIGN PIPELINE
- EDGE OF WATER
- PRIVATE ACCESS SHOULDER ROAD
- COUNTY BOUNDARY
- ▽ WATER LEVEL
- USACE CONSTRUCTION REFERENCE POINT
- WETLANDS
- PERMANENT EASEMENT
- TEMPORARY EASEMENT
- EXTRA WORKSPACE

REFERENCE DRAWINGS

DRAWING No	TITLE

REVISION

REV No	DATE	DESCRIPTION	PROJECT CODE	DRAFTER	DRAFTING CHECKER	DESIGNER	DESIGN CHECKER	PROJECT MANAGER	COMPANY
2	07.06.09	ISSUED FOR SUPPLEMENTAL U.S. DEPT. OF STATE FILING (02.15.09)	THES0050388X	JB	AH	HF	RB	RG	TROW
1	12.08.08	ISSUED FOR REVIEW (12.1.08 CL)	THES0050388X	BM	AH	HF	RB	RG	TROW
0	11.19.08	ISSUED FOR UNITED STATES DEPARTMENT OF STATE (7.31.08 CL)	THES0050388X	JB	JP	HF	RB	RG	TROW

APPROVAL

PROFESSIONAL ENGINEER/RPT	PERMIT/ ENG. APPROVAL

PRELIMINARY

REV. NO. DATE PERMIT NUMBER:

CONOCOPhillips **TransCanada**

TROW ENGINEERING CONSULTANTS, INC.

MURDO SECTION

FIA # 4369 CHAINAGE: MP 537.0 DISCIPLINE # 03

WHITE RIVER HDD INSTALLATION
KEYSTONE XL PROJECT
LYMAN COUNTY, SOUTH DAKOTA

SCALE AS SHOWN DRAWING No 4369-03-ML-03-001 REV 2