

**KEYSTONE XL PIPELINE PROJECT PHASE II
PIPELINE ROUTE VARIATION FORM**

0166-SD-P2-295.1-295.7-S

KEYSTONE XL PIPELINE PROJECT - STEELE CITY SEGMENT PIPELINE ROUTE VARIATION FORM			
1	VARIATION TYPE:		
	Refinement: <input type="text"/>	Reroute: <input checked="" type="checkbox"/>	
	Centerline: <input checked="" type="checkbox"/>	Valve Site: <input type="text"/>	Pump Station: <input type="text"/>
2	LOCATION:		
	Sketch: <input type="text"/> Attached	Pictures: <input type="text"/> See attached.	
	State: <input type="text"/> SD	County: <input type="text"/> Harding	Quad Map: <input type="text"/> N/A
	Township: <input type="text"/> 21N	Range: <input type="text"/> 2E	Aerial Map: <input type="text"/> See attached map sheet
	Section: <input type="text"/> 11, 12, 13	Centerline: <input type="text"/> 3/26/2010	MP: <input type="text"/> 295.13 to <input type="text"/> 295.74
3	REASON FOR ROUTE VARIATION (Please include reason for route variation):		
<p>This reroute is proposed to avoid a lengthy (320 ft long) bore crossing across County Road 988 (Ladner road) and Tributary to Kimble Creek near MP 295.31. Another reason for the proposed reroute is that the current location of the bore crossing (due to change in elevation) requires deep bore pits (>20 ft deep) on either side, which presents a safety, cost and integrity concern.</p> <p>Some of the reasons for the proposed route variation due to Safety and Engineering design concerns are listed below. The current bore crossing presents</p> <ul style="list-style-type: none"> - High safety risk for project bore pits depths (>20 ft deep). - High costs and integrity concerns associated with engineered bore pit (>20 ft deep). - Bore length greater than 300' reduces the accuracy and integrity of the bore by the contractor. - Shortening the length of the bore locates the bore pit within the Trib. Kimble Creek. 			
DETAIL ROUTE VARIATION (Please describe route variation in detail):			
<p>The proposed reroute starts at ~MP 295.1 and deviates (~15°) from the centerline towards the east. It continues in this direction for 1,750 ft, crossing the Tributary to Kimble creek along its path. From here it turns towards the south and continues for 360 ft, along its path it crosses County Road 988 approximately 880 ft east of its current crossing location. The current location of the road crossing location is approximately 120 ft away from the landowner's private drive to avoid any construction impacts to it. The proposed reroute then turns towards the east and continues for 1,320 ft to rejoin the current centerline at the PI near MP 295.7.</p>			
ADDITIONAL IMPACTS (Please include any additional impacts which may affect cost; crossings, induction bends, etc.):			
<p>The proposed reroute is approximately 53 feet longer than the current centerline. The road bore for the County Road - 988 is reduced from 320 ft to 80 ft. The proposed reroute avoids two engineered pits on either side of the bore crossing location (required for the current bore location). The cost savings due to the elimination of the engineered pits is roughly estimated to be \$580,000 based on a cost for shoring of the trench for the bore pit and well points to avoid flooding of the bore pit.</p>			
Is there an increase/decrease in the number of crossings? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
If yes, please list: <input type="text"/> Increase in one waterbody crossing (Open Cut <20 ft wide) which was earlier planned to be bored.			
COST ANALYSIS (costs incurred or saved from the route variation)			
Additional length of route realignment:	<input type="text"/> 53 ft.	\$ <input type="text"/> 31,544.01	\$ 360/ft
Additional length of side-hill construction:	<input type="text"/> ft.	\$ <input type="text"/> -	\$ 19/ft
Additional length of wetland construction:	<input type="text"/> ft.	\$ <input type="text"/> -	\$ 195/ft
Additional bore length (Road, RR):	<input type="text"/> -240 ft.	\$ <input type="text"/> (129,600.00)	\$ 540/ft
Additional foreign line/pipeline crossings:	<input type="text"/> EA	\$ <input type="text"/> -	\$ 30,000/EA
Additional water body crossing (streams, ponds, etc.):			
	35 - 65' + <input type="text"/> EA	\$ <input type="text"/> -	\$ 185,000/EA
	10' - 19' <input type="text"/> 1 EA	\$ <input type="text"/> 77,250.00	\$ 77,250/EA
	Less than 10' <input type="text"/> EA	\$ <input type="text"/> -	\$ 32,500/EA
Additional survey required:			
	Civil: <input type="text"/> 0.62 mile	\$ <input type="text"/> 3,100.00	\$ 5,000/mile
	Cultural: <input type="text"/> 0.62 mile	\$ <input type="text"/> 1,550.00	\$ 2,500/mile
	Biological: <input type="text"/> 0.62 mile	\$ <input type="text"/> 1,736.00	\$ 2,800/mile
Miscellaneous costs saved or added due to route variation from ADDITIONAL IMPACTS listed above:			\$ <input type="text"/> (580,000)
Overall estimated costs of the route variation:		\$ <input type="text"/> (594,420)	(See "Additional Impacts" above)

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4
LAND / UNIVERSAL FIELD *Doug Reichley*

a) Is a new landowner affected by the proposed variation? Yes No

b) Is proposed realignment outside the easement/workspace? Yes No

c) Is realignment proposed to satisfy landowner request? Yes No

-If yes, name of landowner(s)/track number(s): _____

d) Has all the evaluation criteria been examined/provided for this specific discipline? Yes No

If no, please explain why: _____

5
ENGINEERING/CONSTRUCTION / STATE PM *David Guien*

a) Maximum deviation perpendicular to proposed alignment: ft.

b) Has the centerline been staked for construction? Yes No

c) Does route variation affect HDD crossing alignment? Yes No

d) Is realignment proposed for engineering/construction reasons? Yes No

e) Will the route variation require the relocation of a pump station? Yes No

f) Has all the evaluation criteria been examined/provided for this specific discipline? Yes No

If no, please explain why: _____

6
ENVIRONMENTAL / TROW *Jonathan Minton*

a) Has the corridor been environmentally surveyed? Yes No

b) Has the proposed variation been environmentally surveyed? Yes No

c) Was variation proposed to satisfy environmental issues? Yes No

d) Was realignment proposed to satisfy agency request? Yes No

-If yes, name of agency(s): _____

e) Environmental features:

Added (+): Subtracted (-):

Wetland ID # for newly impacted wetlands: _____

f) Has all the evaluation criteria been examined/provided for this specific discipline? Yes No

If no, please explain why: _____

7
ENGINEERING / FACILITIES AND HYDRAULICS *Neil Lewis*

a) Will the route variation require the relocation of a pump station? Yes No

b) Will route variation impact hydraulics? Yes No

c) Are additional valves required at HCA's or water crossing? Yes No

d) Has all the evaluation criteria been examined/provided for this specific discipline? Yes No

If no, please explain why: _____

8
STAKEHOLDER RELATIONS / TCPL *Bud Andersen*

a) Does the variation result in any new stakeholders? Yes No

b) Does the variation require follow-up with specific stakeholder groups? Yes No

c) Was the variation proposed to satisfy stakeholder request? Yes No

-If yes, please specify issue type (as it aligns to stakeholder database): _____

d) Has all the evaluation criteria been examined/provided for this specific discipline? Yes No

If no, please explain why: _____

9 Originator:

 Date:

10 Received by: _____

 Date:

 Fax to: ?

11 Assigned Tracking Number:

12 Filed by: _____

 Date: _____

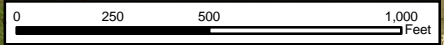
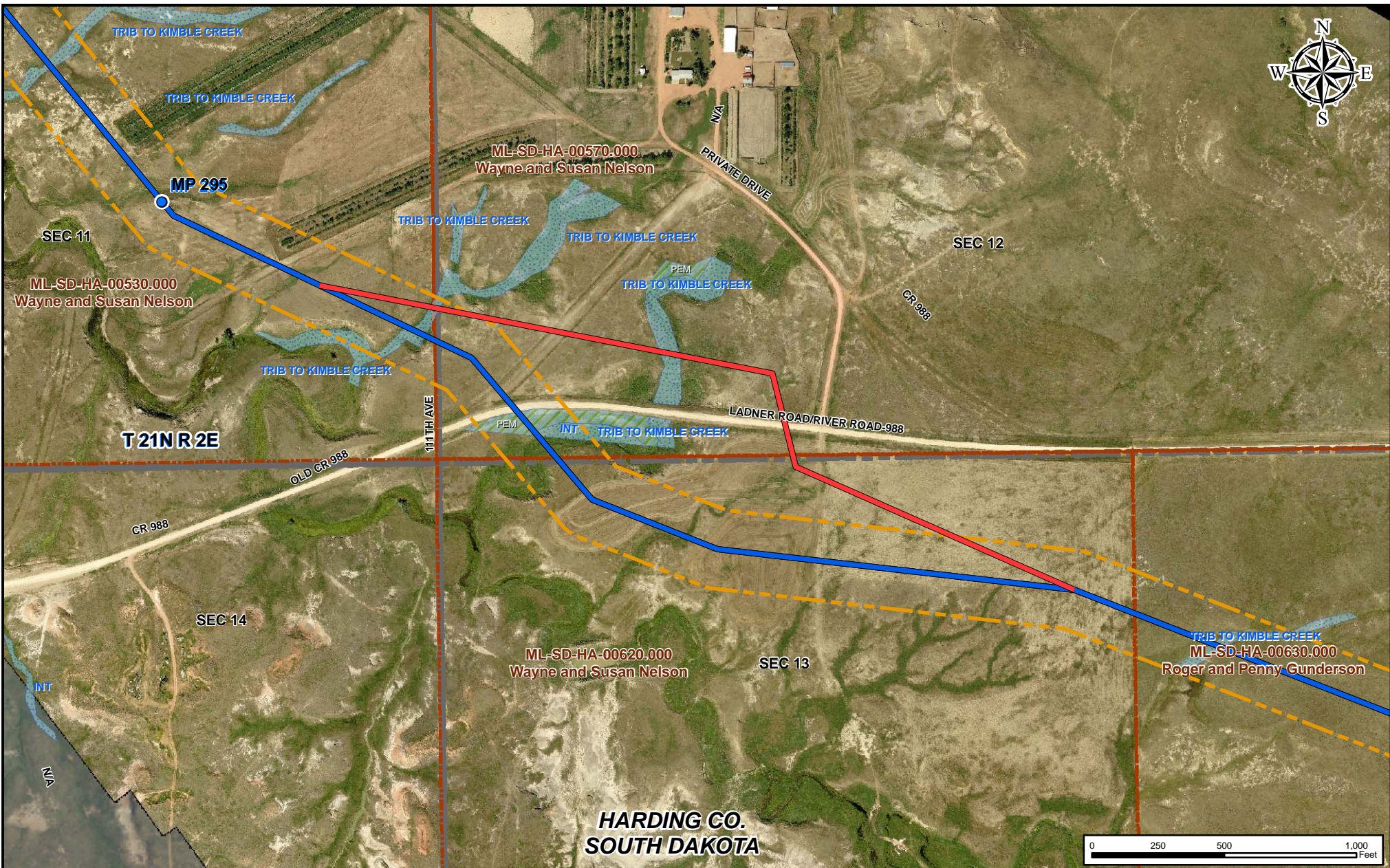
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**KEYSTONE XL PIPELINE PROJECT PHASE II
PIPELINE ROUTE VARIATION AUTHORIZATION FORM**

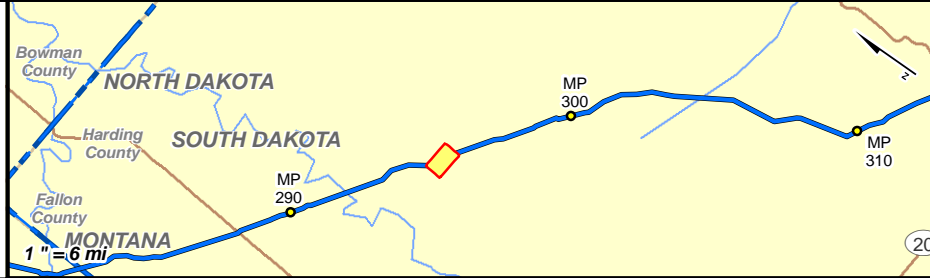
0166-SD-P2-295.1-295.7-S

KEYSTONE XL PIPELINE PROJECT PHASE - STEELE CITY SEGMENT ROUTE VARIATION AUTHORIZATION FORM	
Date: <u>4/23/2010</u> Description: <u>Reroute at Kimble Creek to avoid a long bore and significantly deep (> 20 ft) bore pits.</u>	Tracking Number: <u>0166-SD-P2-295.1-295.7-S</u> MP: <u>295.1</u> to <u>295.7</u> Originated By: <u>Engineering</u> Variation Form Attached: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Universal Field - Land Doug Reichley Comments: <div style="border: 1px solid black; height: 40px; width: 100%;"></div>	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/> <u>Doug Reichley</u> Date: <u>4/28/2010</u> If Rejected Why? <div style="border: 1px solid black; height: 40px; width: 100%;"></div>
State PM - Construction / Eng. David Guien Comments: <div style="border: 1px solid black; height: 40px; width: 100%;"></div>	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/> <u>David Guien</u> Date: <u>4/26/2010</u> If Rejected Why? <div style="border: 1px solid black; height: 40px; width: 100%;"></div>
Trow - Environmental Jonathan Minton Comments: <u>Bio and Cultural surveys are not complete</u> <div style="border: 1px solid black; height: 40px; width: 100%;"></div>	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/> <u>Jonathan Minton</u> Date: <u>4/28/2009</u> If Rejected Why? <div style="border: 1px solid black; height: 40px; width: 100%;"></div>
Project Management Butch Wallace Comments: <div style="border: 1px solid black; height: 40px; width: 100%;"></div>	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/> <u>R.E. Wallace</u> Date: <u>5/4/2010</u> If Rejected Why? <div style="border: 1px solid black; height: 40px; width: 100%;"></div>
Stakeholder Relations Bud Andersen Comments: <div style="border: 1px solid black; height: 40px; width: 100%;"></div>	Variation: Approved <input type="checkbox"/> Rejected <input type="checkbox"/> _____ Date: _____ If Rejected Why? <div style="border: 1px solid black; height: 40px; width: 100%;"></div>
Facilities: Neil Lewis Comments: <div style="border: 1px solid black; height: 40px; width: 100%;"></div>	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/> <u>Neil Lewis</u> Date: <u>4/26/2010</u> If Rejected Why? <div style="border: 1px solid black; height: 40px; width: 100%;"></div>
TransCanada: Alan Lietz Comments: <div style="border: 1px solid black; height: 40px; width: 100%;"></div>	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/> <u>Alan Lietz</u> Date: <u>5/6/2010</u> If Rejected Why? <div style="border: 1px solid black; height: 40px; width: 100%;"></div>
TransCanada: Steve Hicks Comments: <div style="border: 1px solid black; height: 40px; width: 100%;"></div>	Variation: Approved <input checked="" type="checkbox"/> Rejected <input type="checkbox"/> <u>Steve Hicks</u> Date: <u>5/9/2010</u> If Rejected Why? <div style="border: 1px solid black; height: 40px; width: 100%;"></div>
Forward to: Butch Wallace <input checked="" type="checkbox"/> Jonathan Minton <input checked="" type="checkbox"/> Alan Lietz <input checked="" type="checkbox"/> David Guien <input checked="" type="checkbox"/> Bud Andersen <input checked="" type="checkbox"/> Steve Hicks <input checked="" type="checkbox"/> Doug Reichley <input checked="" type="checkbox"/> Neil Lewis <input checked="" type="checkbox"/>	
Dispute Resolution, if Required: Yes <input type="checkbox"/> No <input type="checkbox"/> Comments: <div style="border: 1px solid black; height: 40px; width: 100%;"></div>	Teleconference Required: Yes <input type="checkbox"/> No <input type="checkbox"/> Decision: <div style="border: 1px solid black; height: 40px; width: 100%;"></div>
Database - _____ Filed By: _____ Date: _____ Fax to: ?	Database - _____ Filed By: _____ Date: _____ Fax to: ?



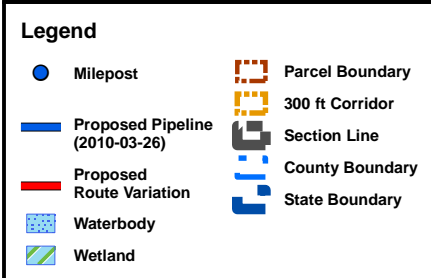
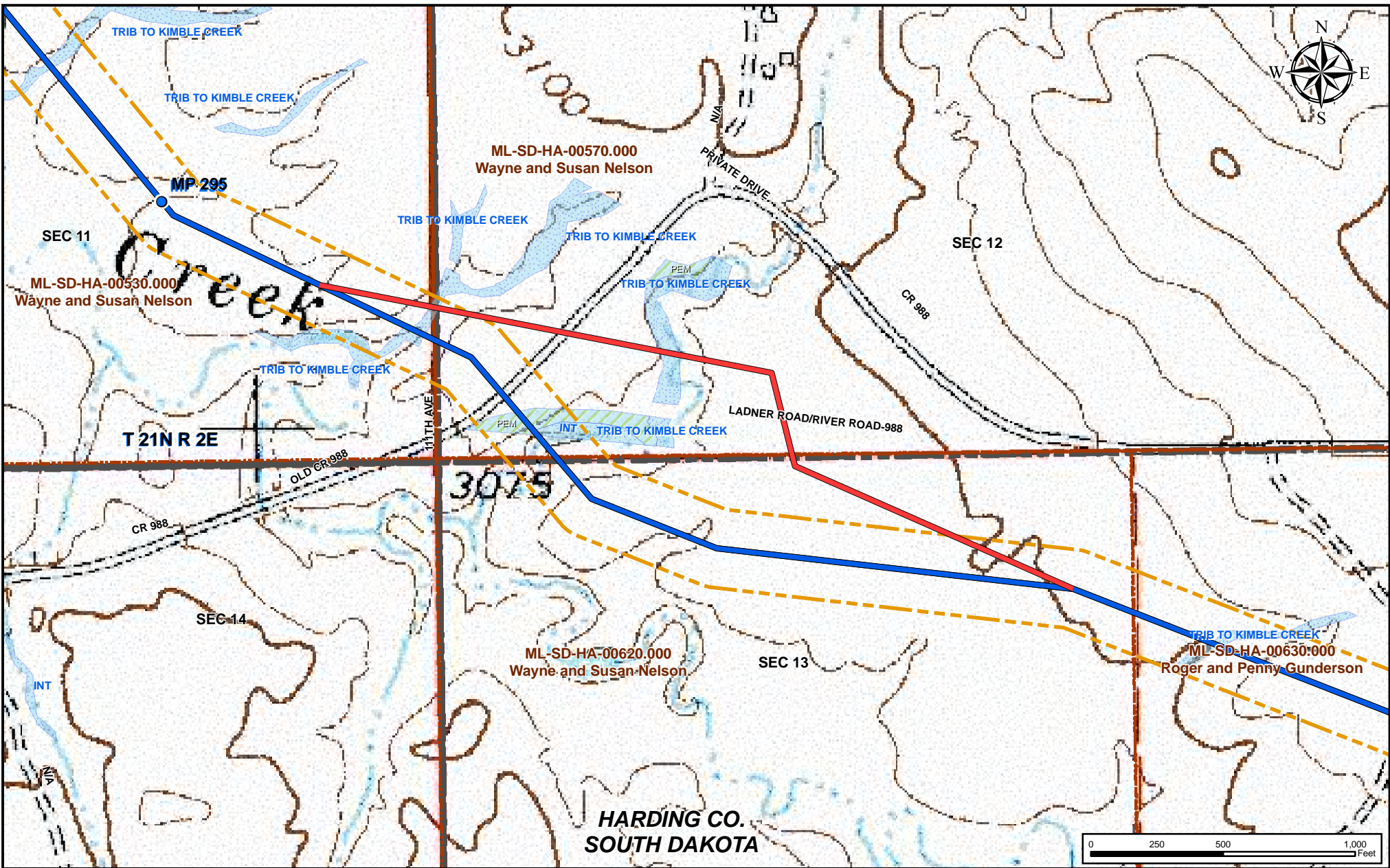
Legend

Milepost	Parcel Boundary
Proposed Pipeline (2010-03-26)	300 ft Corridor
Proposed Route Variation	Section Line
Waterbody	County Boundary
Wetland	State Boundary



**KEYSTONE XL PROJECT - STEELE CITY SEGMENT
PROPOSED ROUTE VARIATION 0166
HARDING COUNTY, SOUTH DAKOTA**

	DATE	PROJECT	MAP PARAMETERS		
	April 16, 2010	50388X	PROJECTION: UTM 13, NAD83, US FT SCALE: 1" = 500'		
DRAWN BY	CHECKED BY	APPROVED BY	ROUTE VARIATION NUMBER	SHEET	REV.
CPA	NJA	ALS	0166-SD-P2-295.1-295.7-S	0166-01	0



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HARDING COUNTY, SOUTH DAKOTA**

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	April 16, 2010	50388X			
DRAWN BY	CHECKED BY	APPROVED BY	ROUTE VARIATION NUMBER	SHEET	REV.
CPA	NJA	ALS	0166-SD-P2-295.1-295.7-S	0166-01	0