

KEYSTONE XL PIPELINE PROJECT

0252-SD-P4-XXX.X-XXX.X-S

KEYSTONE XL PIPELINE PROJECT PIPELINE ROUTE VARIATION FORM	
1	VARIATION TYPE: Refinement: <input type="checkbox"/> Reroute: <input checked="" type="checkbox"/> Footprint: <input checked="" type="checkbox"/> Design: <input type="checkbox"/> Centerline: <input checked="" type="checkbox"/> Pump Station: <input type="checkbox"/> Valve Site: <input checked="" type="checkbox"/> CAR: <input checked="" type="checkbox"/>
2	LOCATION: Sketch: <input type="checkbox"/> Attached <input checked="" type="checkbox"/> Pictures: <input type="checkbox"/> N/A <input checked="" type="checkbox"/> State: <input type="checkbox"/> SD <input checked="" type="checkbox"/> County: <input type="checkbox"/> Meade, Haakon <input checked="" type="checkbox"/> Quad Map: <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Township: <input type="checkbox"/> Various <input checked="" type="checkbox"/> Range: <input type="checkbox"/> Various <input checked="" type="checkbox"/> Aerial Map: <input type="checkbox"/> See attached map sheets <input checked="" type="checkbox"/> Section: <input type="checkbox"/> Various <input checked="" type="checkbox"/> Centerline: <input type="checkbox"/> 7/13/2012 <input checked="" type="checkbox"/> MP: <input type="checkbox"/> XXX.X <input checked="" type="checkbox"/> to <input type="checkbox"/> XXX.X <input checked="" type="checkbox"/>
3	REASON FOR ROUTE VARIATION (Please include reason for route variation): <p>This report consists of 3 proposed route variations. These route variations are proposed to improve the crossings near the Cheyenne River HDD area as well as to avoid ridgelines, rough terrain, dropoffs, etc.</p> <p>The route variations have been proposed based on recommendations from the field as well as pictometry and other aeriels, flyover video of the Centerline, LIDAR data, among others.</p>
	DETAIL ROUTE VARIATION (Please describe route variation in detail): <p>Listed in "Supplemental Info" Tab.</p> <p>No new landowners have been affected by the proposed route variations. The tracts impacted are as follows:</p> <p>RV-0252-01 = 6 tracts impacted: ML-SD-ME-01160.000 (Wink Cattle Co.); ML-SD-ME-01175.000 (New Tract, Unknown), ML-SD-ME-01187.000 (New Tract, Exempt); ML-SD-ME-01190.000, ML-SD-ME-01210.000, ML-SD-ME-01220.000 (all Howes Grazing Association, Inc.).</p> <p>RV-0252-02 = 8 tracts impacted: ML-SD-ME-01210.000, ML-SD-ME-01215.000 [New Tract], ML-SD-ME-01220.000, ML-SD-ME-01235.000, ML-SD-ME-01240.000, ML-SD-ME-01250.000, ML-SD-ME-01245.000, AR-SD-ME-01250.000, (all Howes Grazing Association, Inc.).</p> <p>RV-0252-03 = 8 tracts impacted: ML-SD-HK-00020.000, ML-SD-HK-00060.000, ML-SD-HK-00080.000, ML-SD-HK-00110.000, ML-SD-HK-00120.000 (all Craig & Deborah Hanrahan); AR-SD-HK-15040.000, ML-SD-HK-00170.000 (both Kelly Blair); ML-SD-HK-00130.000 (J. Grant Olsen).</p>
	ADDITIONAL IMPACTS (Please include any additional impacts which may affect cost; crossings, induction bends, etc.): <p>Listed in "Cost Analysis" Tab.</p> <p>Restoration Estimate Savings: ~5.5 million (\$120per foot for breakers and erosion matting x ½ length of original route + \$60per foot for continued restoration x ½ length of original route)</p>
9	Originator: <input type="checkbox"/> Engineering <input checked="" type="checkbox"/> Date: <input type="checkbox"/> 8/14/2012 <input checked="" type="checkbox"/>
10	Received by: _____ Date: <input type="checkbox"/> 8/14/2012 <input checked="" type="checkbox"/> <i>Fax to: ?</i>
11	Assigned Tracking Number: <u>0252-SD-P4-XXX.X-XXX.X-S</u>
12	Filed by: _____ Date: _____ <i>Fax to: ?</i>

Keystone XL Pipeline - Supplemental Information for Route Variation Report 0252

Prepared: 2012-08-14

RV ID	MP Start	MP End	State	County	Section	Township	Range	Original Length (ft)	Reroute Length (ft)	Change in Length (ft)	Max. Perp. Deviation (ft)	Reason for Variation	Brief Variation Description	Additional Impacts/Comments	Originator
0252-01	423.98	426.41	SD	Meade	20, 21, 28, 33	07N	17E	12,867	13,184	317	2,225	Shift CL/workspaces to avoid ridgelines, rough terrain and dropoffs.	The route variation starts near MP 423.9 and deviates ~11° southeast from CL. It continues in this direction for ~ 631 ft., then it turns south and extends for ~ 221 ft. prior to turning slightly southeast. It continues for ~649 ft. The reroute then turns southwest, crossing the current CL and paralleling the Narcelle Creek. It extends in this direction for ~1,907 ft. The route variation continues by turning southwest to extend for ~1640 ft.. Then it continues the zig-zag pattern thus paralleling the creek for about ~5,871 ft. prior to turning southeast towards the current CL. It extends in this direction for ~ 1,689. Finally, the reroute turns southeast one last time for ~577 ft. to rejoin the current CL near MP 426.4.	-Reroute impacts the location of MLV-18 (See RV-0315-01 for new location) and CAR-093. -Eliminates the need for 1 HDD in this area.	Engineering
0252-02	426.72	429.21	SD	Meade	33, 34 03, 02, 01	07N 06N	17E	13,125	14,092	967	1,387	Shift CL/workspaces to avoid ridgelines, rough terrain and dropoffs.	The route variation starts near MP 426.7 and deviates ~50° southwest from CL. It continues in this direction for ~ 724 ft., then it turns southeast to parallel the Narcelle Creek meander and extends for ~ 1957 ft. prior to turning south. It continues in this direction for ~2,446 ft. The reroute then turns east and extends in this direction for ~2,453 ft. It makes a slight turn south and extends for ~6,511 ft. towards the current CL to rejoin it near MP 429.2.	-Eliminates the need for 2 HDDs in this area.	Engineering
0252-03	429.21	435.70	SD	Haakon	01, 12, 07, 08, 17, 16, 15, 14	06N	18E	34,279	34,921	642	1,802	Shift CL/workspaces to avoid ridgelines, rough terrain and dropoffs and to improve HDD crossing location of Cheyenne River. Also the reroute straightens the route to allow the use of HDD crossing methods south of the Cheyenne River area.	The route variation starts near MP 429.2 and deviates ~40° south from CL. It continues in this direction for ~ 6,303 ft., then it turns east and extends for ~ 4,771 ft. prior to turning south. It continues in the southerly direction for ~6,041 ft. The reroute then turns east and extends for ~9,427 ft. It makes a last turn southeast and extends for ~8,378 ft. towards the current CL to rejoin it near MP 435.7.	-Reroute impacts length of CAR-165 and CAR-079A (both to be extended). - Reroute adds 2 HDDs in this area (~1.2 million per HDD)	Engineering

RV ID	Civil Survey Complete?	Civil Survey Needed (ft)	Moves Pump Station?	Moves Valve Site?	In Co-located Area?	Does route variation impact ABB areas?	Biological Survey Complete for Existing Corridor?	Cultural Survey Complete for Existing Corridor?	Biological Survey Complete for Proposed Corridor?	Cultural Survey Complete for Proposed Corridor?	Estimated Length Requiring new Environmental Surveys (ft)	Number of New Landowners impacted by reroute	Number of Landowners on current route impacted by reroute	Is the affected landowner a possible condemnation?	Number of tracts purchased on original route.	Does proposed route variation impact Tribal Lands?	Does proposed route variation impact any Federal/State Lands?
0252-01	YES	0	NO	YES	NO	NO	Yes	Yes	NO	NO	11,500	0	2		0	NO	NO
0252-02	NO	0	NO	NO	NO	NO	Yes	Yes	NO	NO	13,106	0	1		0	NO	NO
0252-03	NO	0	NO	NO	NO	NO	Yes	Yes	NO	NO	27,475	0	3		5	NO	NO

Keystone XL Pipeline - Cost Analysis for Route Variation Report 0252

Prepared: 2012-08-14

RV ID	Additional length (ft)	Cost \$360/ft	Additional length of wetland construction (ft)	Cost \$195/ft	Additional length of side hill construction (ft)	Cost \$19/ft	Additional bore length (ft)	Cost \$540/ft	Additional Waterbody crossings	Cost (\$77,250/EA btw 10' - 19') (\$32,500/EA < 10')	Cost of Environmental survey (\$5,300/mile)	Cost of Civil survey (\$5,000/mile)	Approximate cost for land purchased on current centerline	Miscellaneous cost for additional impacts	Total Cost
0252-01	317.2	\$ 114,185.40	0	\$ -		\$ -		\$ -	0	\$ -	\$ 11,543.56		\$ -	\$ (2,358,008.14)	\$ (2,232,279.19)
0252-02	967.2	\$ 348,197.06	0	\$ -		\$ -		\$ -	0	\$ -	\$ 13,155.60		\$ -	\$ (3,581,219.36)	\$ (3,219,866.69)
0252-03	642	\$ 231,149.22	0	\$ -		\$ -		\$ -	0	\$ -	\$ 27,579.07		\$ -	\$ (685,065.08)	\$ (426,336.79)

Overall Estimated Costs of Routes Variations= \$ (5,878,482.66)

Keystone XL Pipeline - Approval form for Route Variation Report 0252

Prepared: 2012-08-14

RV ID		0252-01	0252-02	0252-03
LAND (TransCanada) Tina Hall	Approval (Y/N)			Y
	Comments	The map still needs to be corrected to show BLN tract boundary		
	Signature	Tina Hall 8/21/12	Tina Hall 8/21/12	Tina Hall 8/21/12
ENGINEERING (TransCanada) Meera Kothari	Approval (Y/N)			
	Comments			
	Signature	[Signature] 8/21/12	[Signature] 8/21/12	[Signature] 8/21/12
ENGINEERING (exp) Butch Wallace	Approval (Y/N)			
	Comments			
	Signature			
ENVIRONMENTAL (TransCanada) Sandra Barnett	Approval (Y/N)	Y	Y	Y
	Comments			
	Signature	Sandra Barnett	Sandra Barnett	Sandra Barnett
FACILITIES (TransCanada) Sandra Gigovic	Approval (Y/N)			
	Comments			
	Signature			
PROJECT MANAGEMENT - MONTANA (TransCanada) Alan Lietz	Approval (Y/N)			
	Comments			
	Signature			
PROJECT MANAGEMENT - SOUTH DAKOTA (TransCanada) James Odum	Approval (Y/N)	Y	Y	Y
	Comments			
	Signature	Jan H. Odum	Jan H. Odum	Jan H. Odum
PROJECT MANAGEMENT - NEBRASKA (TransCanada) Robert Bradley	Approval (Y/N)			
	Comments			
	Signature			
KEYSTONE XL MANAGER (TransCanada) Steve Marr	Approval (Y/N)			
	Comments			
	Signature			

Keystone XL Pipeline - Approval form for Route Variation Report 0252

Prepared: 2012-08-14

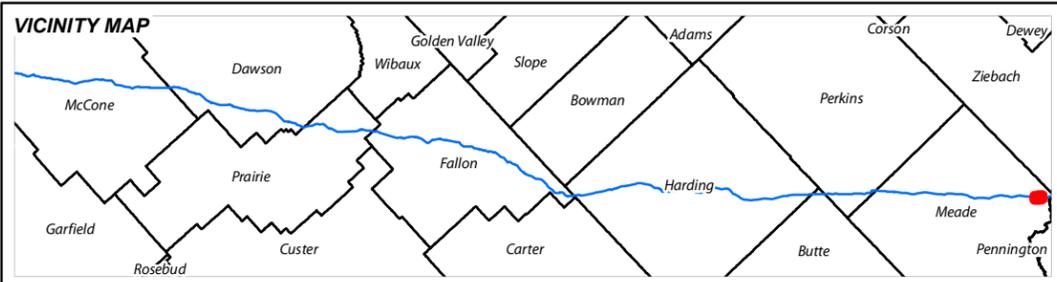
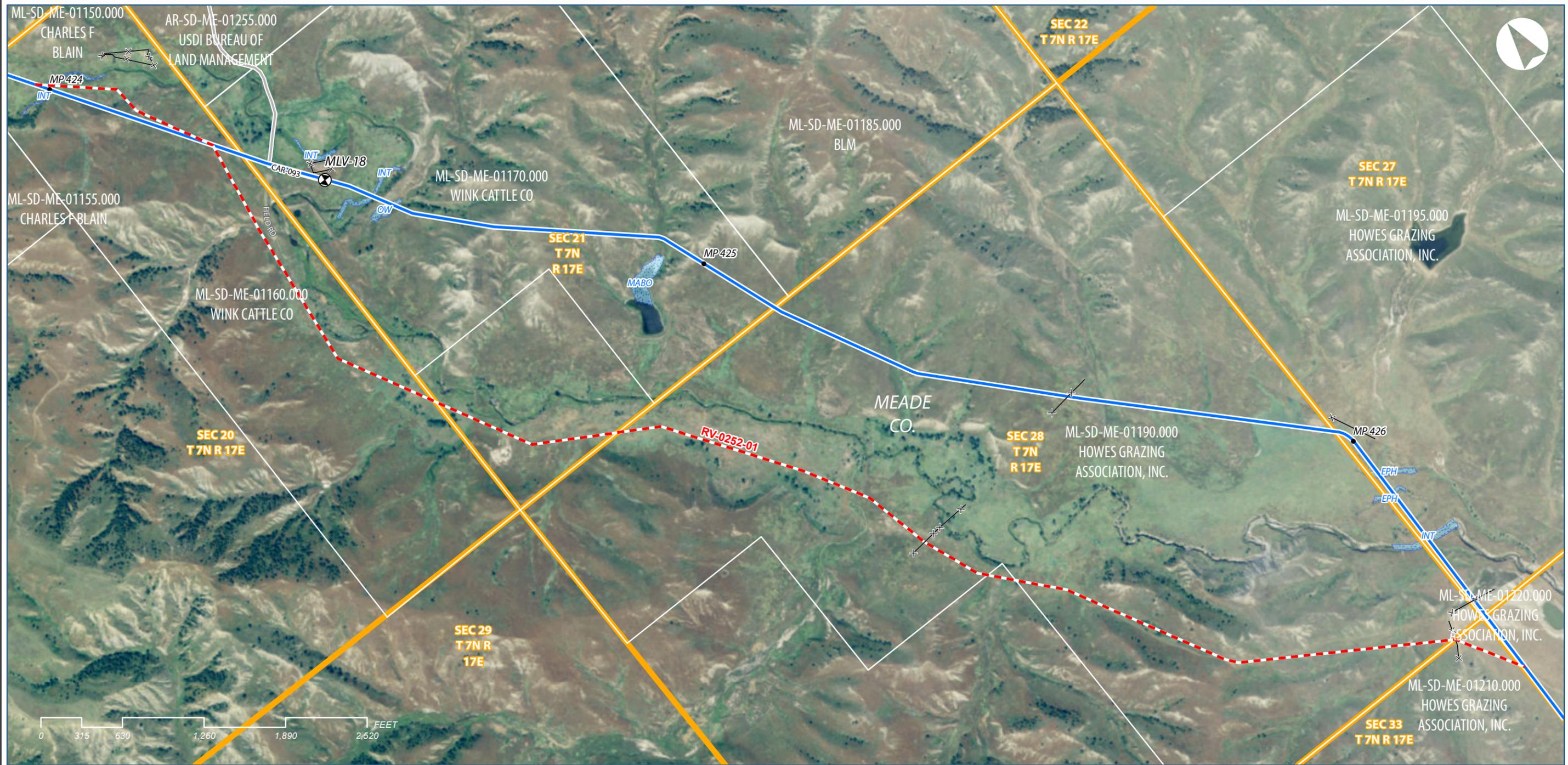
RV ID		0252-01	0252-02	0252-03
LAND (TransCanada) Tina Hall	Approval (Y/N)			
	Comments			
	Signature			
ENGINEERING (TransCanada) Meera Kothari	Approval (Y/N)			
	Comments			
	Signature			
ENGINEERING (exp) Butch Wallace	Approval (Y/N)	Y	Y	Y
	Comments			
	Signature	<i>R.E. Wallace</i>	<i>R.E. Wallace</i>	<i>R.E. Wallace</i>
ENVIRONMENTAL (TransCanada) Sandra Barnett	Approval (Y/N)			
	Comments			
	Signature			
FACILITIES (TransCanada) Sandra Gigovic	Approval (Y/N)			
	Comments			
	Signature			
PROJECT MANAGEMENT - MONTANA (TransCanada) Alan Lietz	Approval (Y/N)			
	Comments			
	Signature			
PROJECT MANAGEMENT - SOUTH DAKOTA (TransCanada) James Odom	Approval (Y/N)			
	Comments			
	Signature			
PROJECT MANAGEMENT - NEBRASKA (TransCanada) Robert Bradley	Approval (Y/N)			
	Comments			
	Signature			
KEYSTONE XL MANAGER (TransCanada) Steve Marr	Approval (Y/N)			
	Comments			
	Signature			

Keystone XL Pipeline - Approval form for Route Variation Report 0252

Prepared: 2012-08-14

RV ID		0252-01	0252-02	0252-03
LAND (TransCanada) Tina Hall	Approval (Y/N)			
	Comments			
	Signature			
ENGINEERING (TransCanada) Meera Kothari	Approval (Y/N)			
	Comments			
	Signature			
ENGINEERING (exp) Butch Wallace	Approval (Y/N)			
	Comments			
	Signature			
ENVIRONMENTAL (TransCanada) Sandra Barnett	Approval (Y/N)			
	Comments			
	Signature			
FACILITIES (TransCanada) Sandra Gigovic	Approval (Y/N)	Y	Y	Y
	Comments	Sept 7, 2012	Sept 7, 2012	Sept 7, 2012
	Signature	Gigovic A.	Gigovic A.	Gigovic A.
PROJECT MANAGEMENT - MONTANA (TransCanada) Alan Lietz	Approval (Y/N)			
	Comments			
	Signature			
PROJECT MANAGEMENT - SOUTH DAKOTA (TransCanada) James Odom	Approval (Y/N)			
	Comments			
	Signature			
PROJECT MANAGEMENT - NEBRASKA (TransCanada) Robert Bradley	Approval (Y/N)			
	Comments			
	Signature			
KEYSTONE XL MANAGER (TransCanada) Steve Marr	Approval (Y/N)			
	Comments			
	Signature			

PROPOSED ROUTE VARIATION 0252-01



LEGEND

- MILEPOST
- KEYSTONE XL CL (2012-07-13)
- - - PROPOSED ROUTE VARIATION
- ▭ SECTION LINE
- ACCESS ROAD
- PUMP STATION
- ⊗ VALVE
- WATERLINE
- ▭ PROPERTY PARCEL
- ▭ CULTURAL SITE
- ▨ WETLAND
- WATERBODY
- ▭ 500FT MDEQ CORRIDOR
- HDD ENTRY / EXIT

KEYSTONE XL PROJECT

Proposed Route Variation 0252-01

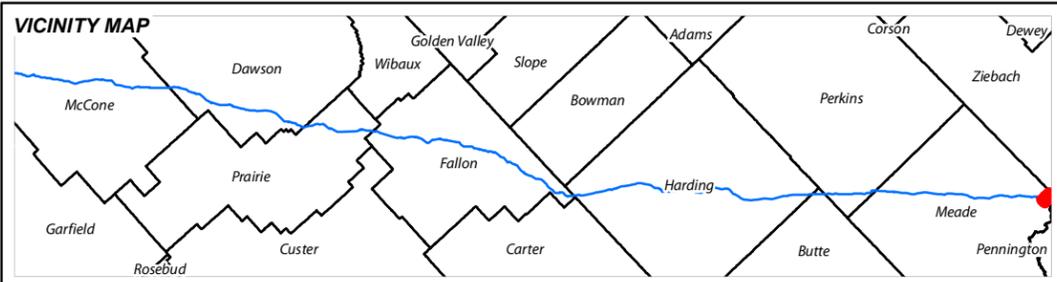
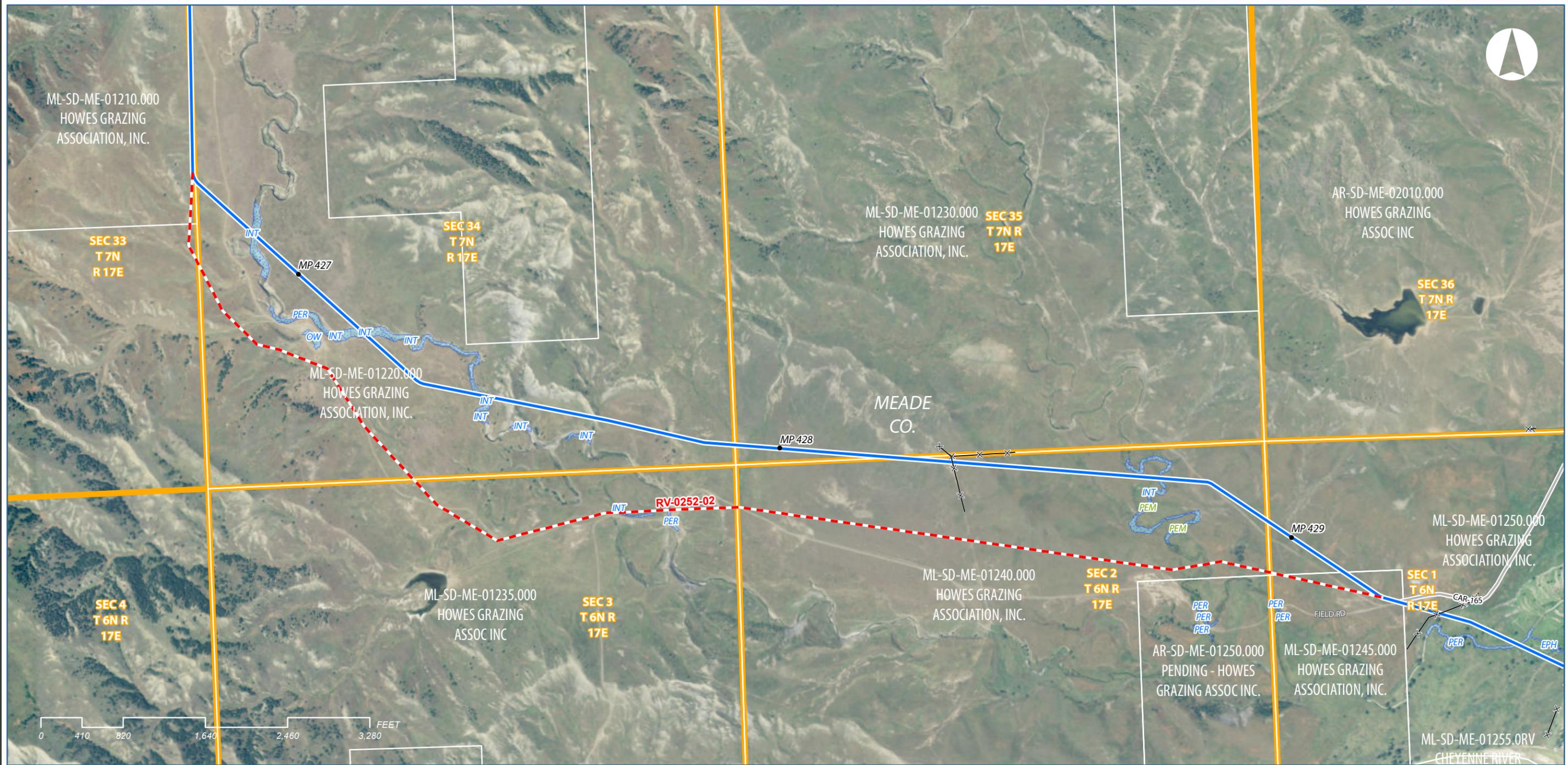
COUNTY:	MEADE	DRAWN BY:	PD
STATE:	SOUTH DAKOTA	CHECKED BY:	JP
REV. NO.:	REVISION	DATE	
0	ISSUED FOR REVIEW.	2012-08-13	
PRELIMINARY			
DATE:	2012-08-13	PROJECTION:	NAD83 UTM13 N

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DWG: XL-30-P-9200 SHEET: 1



LEGEND

- MILEPOST
- KEYSTONE XL CL (2012-07-13)
- - - PROPOSED ROUTE VARIATION
- ▭ SECTION LINE
- ACCESS ROAD
- ▭ PUMP STATION
- ⊗ VALVE
- WATERLINE
- ▭ PROPERTY PARCEL
- ▭ CULTURAL SITE
- ▨ WETLAND
- ▨ WATERBODY
- ▭ 500FT MDEQ CORRIDOR
- HDD ENTRY / EXIT

KEYSTONE XL PROJECT

Proposed Route Variation 0252-02

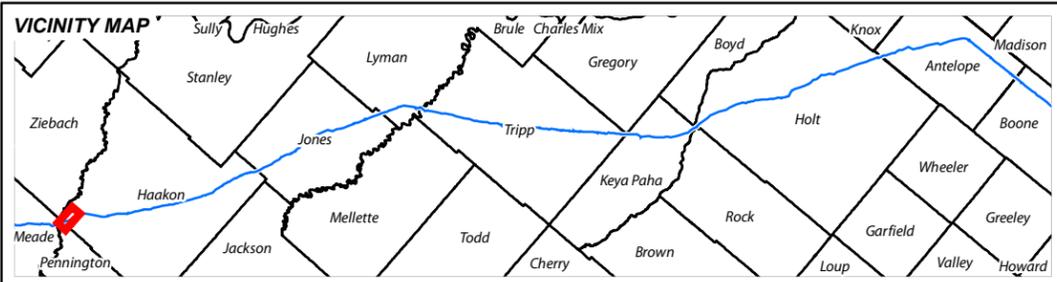
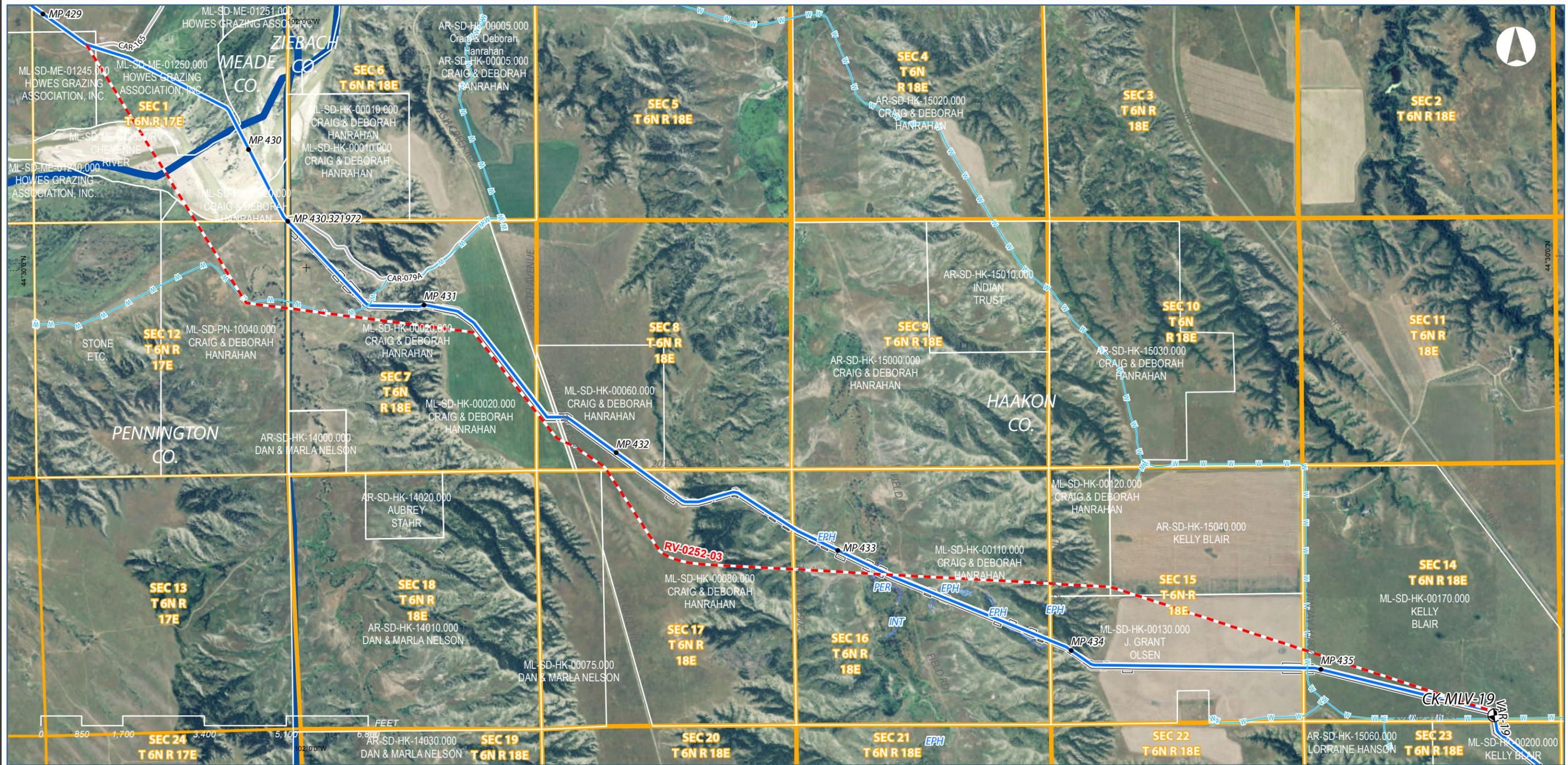
COUNTY:	MEADE	DRAWN BY:	PD
STATE:	SOUTH DAKOTA	CHECKED BY:	JP
REV. NO.:	REVISION	DATE	
0	ISSUED FOR REVIEW.	2012-08-13	
PRELIMINARY			
DATE:	2012-08-13	PROJECTION:	NAD83 UTM13 N

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PROPOSED ROUTE VARIATION 0252-03



LEGEND

- MILEPOST
- KEYSTONE XL CL (2012-07-13)
- - - PROPOSED ROUTE VARIATION
- ▭ SECTION LINE
- ACCESS ROAD
- ⊞ PUMP STATION
- ⊙ POWER POLE
- OVERHEAD POWER LINE
- ▭ PROPERTY PARCEL
- ▭ CULTURAL SITE
- ▨ WETLAND
- ▨ WATERBODY

KEYSTONE XL PROJECT

Proposed Route Variation 0252-03

COUNTY:	HAAKON	DRAWN BY:	PD
STATE:	SOUTH DAKOTA	CHECKED BY:	JP
REV. NO.:	0	REVISION	ISSUED FOR REVIEW.
		DATE	2012-08-13
PRELIMINARY			
DATE:	2012-08-13	PROJECTION:	NAD83 UTM14 N

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