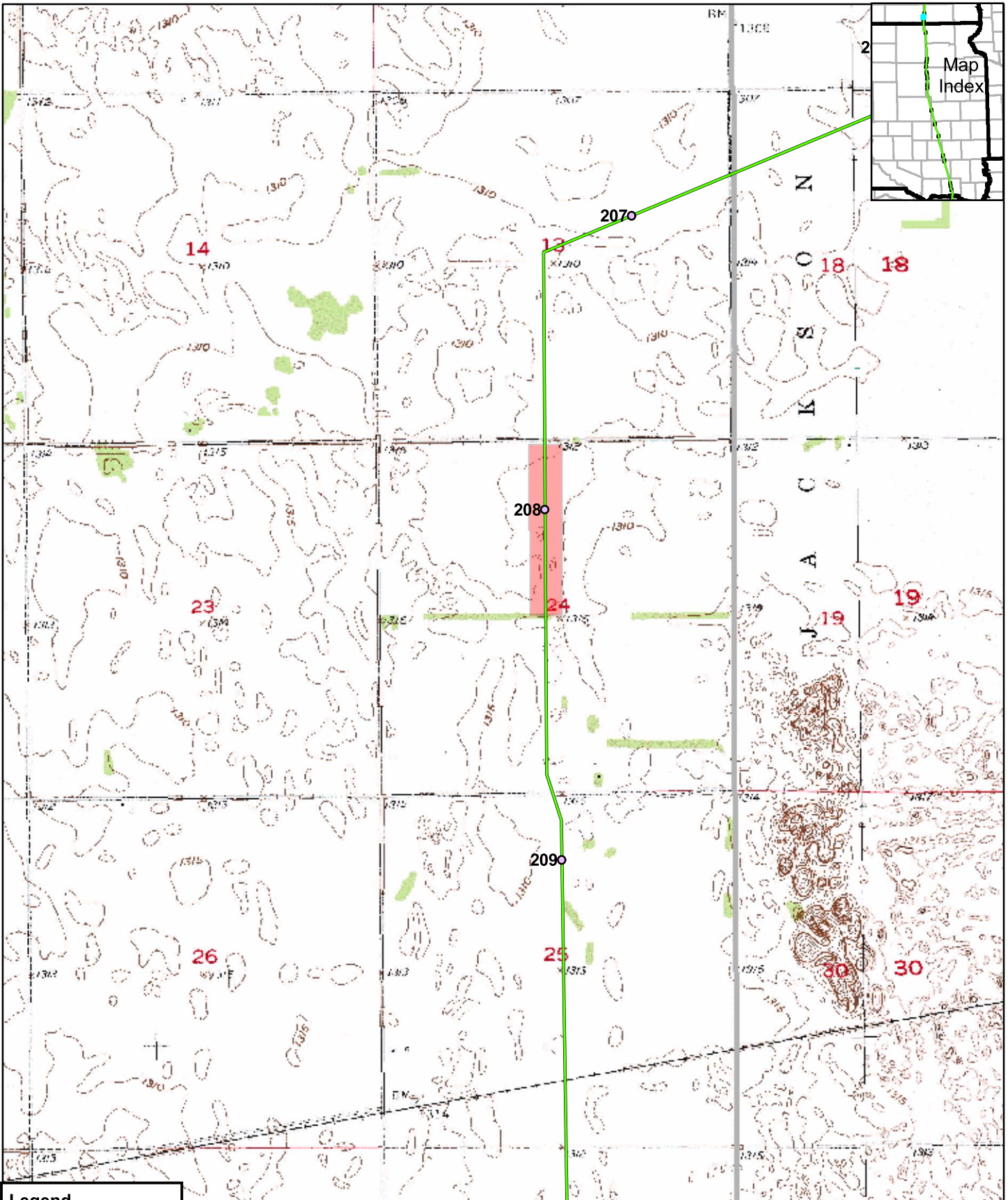


# CONFIDENTIAL



### Legend

- Mileposts
- Proposed Centerline
- Surveyed Grasslands
- ▭ State Boundary
- ▭ County Boundary

Keystone Pipeline Project



0 1,000 2,000 Feet

Map 2 of 21  
Surveyed  
Grasslands

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Feature ID	Survey Date	Start MP	End MP	County	State	Survey Type	Habitat Quality	Suitable T&E Habitat?
TDH1NDDI002	9/12/2006	210.8	211.9	Dickey	ND	Site Visit	High	Yes, prairie fringed orchid

**Site Summary:** This lowland meadow has a mosaic of wetlands (*Typha*, *Scholenopectus*, *Hordeum jubatum*, *Spartina pectinata*, etc.), with upland inclusions. Despite weeds and grazing this grassland is potential habitat for the prairie fringed orchid. The Great Plains lady's tresses orchid (*Spiranthes cf. magnicamphorum*) occurs at this location (see photo below).



Feature TDH1NDDI002: Overview of mosaic area with uplands and wetlands.

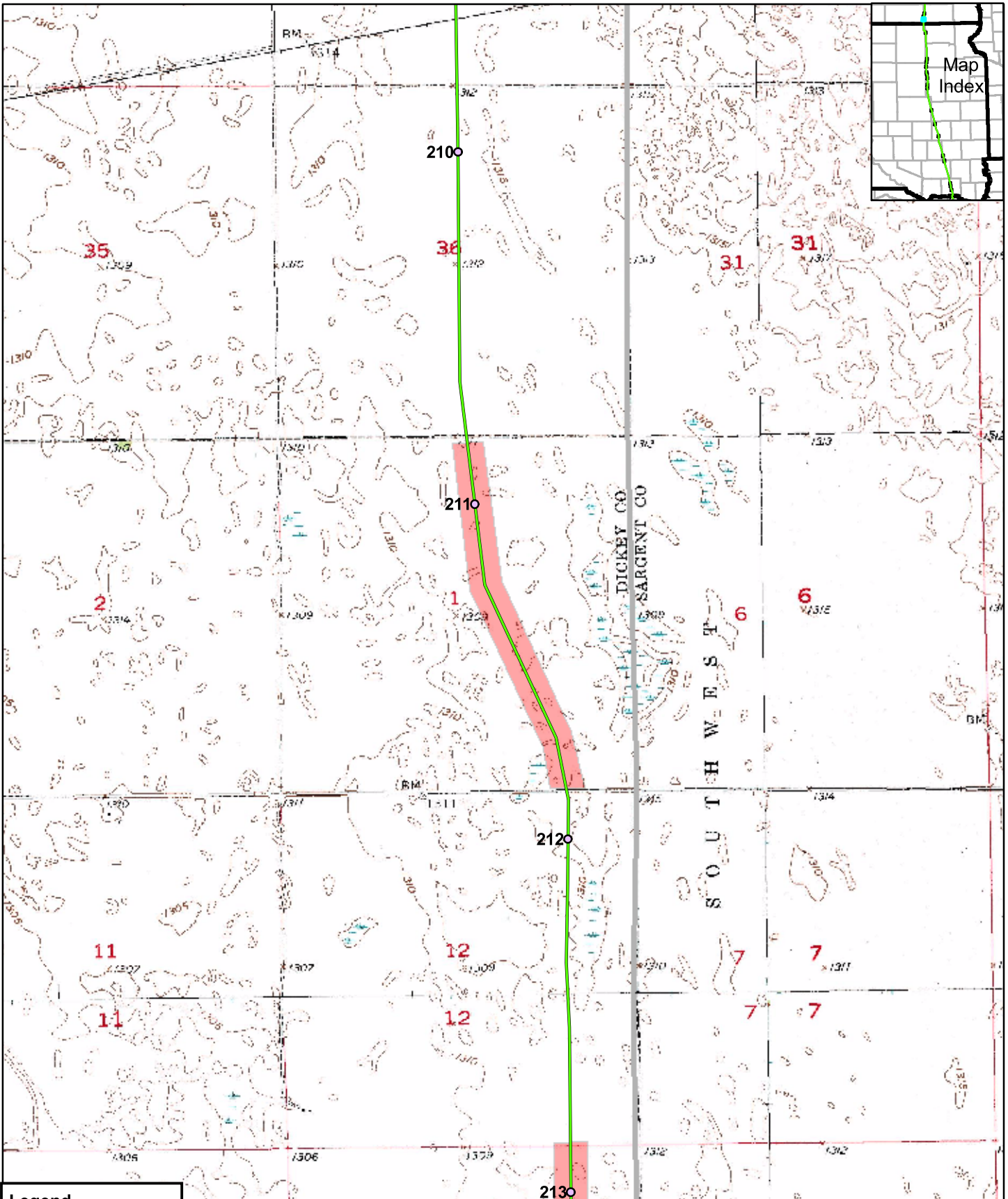


Feature TDH1NDDI002: Great Plains Lady's tresses orchid (*Spiranthes cf. magnicamphorum*)



Feature TDH1NDDI002: Overview of the *Spiranthes* habitat. Note the distance between the white orchid (to the right) and the wetland (to the left).

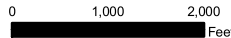
# CONFIDENTIAL



### Legend

- Mileposts
- Proposed Centerline
- Surveyed Grasslands
- State Boundary
- County Boundary

Keystone Pipeline Project



Map 3 of 21  
Surveyed  
Grasslands

# CONFIDENTIAL

Feature ID	Survey Date	Start MP	End MP	County	State	Survey Type	Habitat Quality	Suitable T&E Habitat?
TDH1NDDI001	9/12/2006	212.9	214.0	Dickey	ND	Drive By	None	Yes, prairie fringed orchid

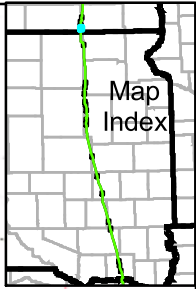
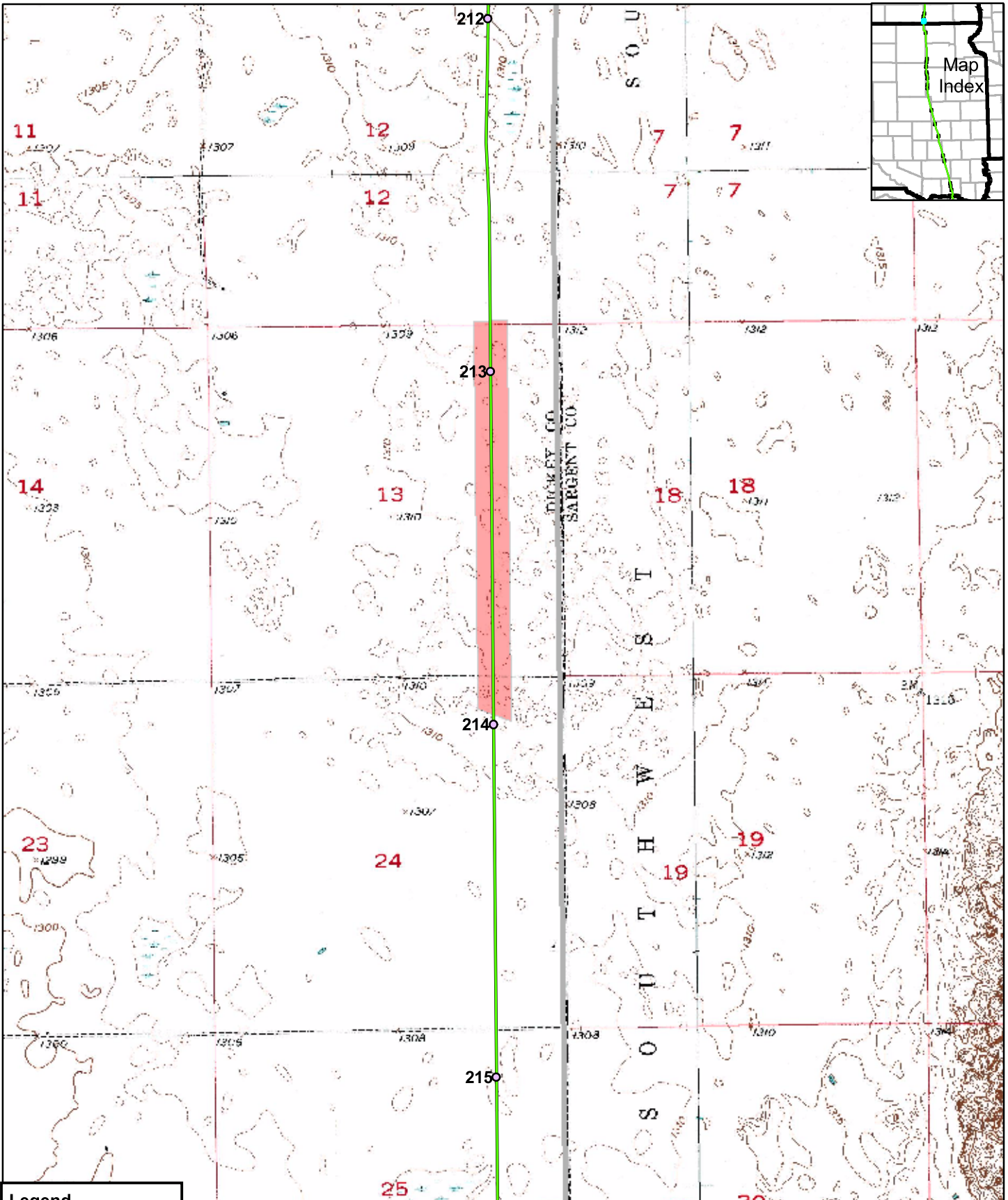
**Site Summary:** This is a large wetland with willow (*Salix spp.*) and cottonwood (*Populus deltoides*) trees scattered among *Typha* (cattails) and prairie cordgrass (*Spartina pectinata*). Some areas are dense with willows while others are 100% cattails. This large wetland meadow also has wooden water-fowl hunting blinds as towers (ca. 15 feet tall) that occur at or near center line (in the distance of the second photograph). This is a high quality wetland with perhaps a few upland, grassy areas where the prairie fringed orchid could occur.



Feature TDH1NDDI001: Large wetland with willows (*Salix sp*), cattails (*Typha sp*) and a few cottonwood trees (*Populus deltoides*).



Feature TDH1NDDI001: Large wetland with several wooden hunting towers (blinds) near the center.



**Legend**

- Mileposts
- Proposed Centerline
- Surveyed Grasslands
- State Boundary
- County Boundary

Keystone Pipeline Project

**TransCanada**  
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0 1,000 2,000 Feet

Map 4 of 21  
Surveyed  
Grasslands

# CONFIDENTIAL

Feature ID	Survey Date	Start MP	End MP	County	State	Survey Type	Habitat Quality	Suitable T&E Habitat?
TDH1SDMA001	9/13/2006	228.5	228.9	Marshall	SD	Site Visit	None	No

**Site Summary:** This area appeared as grassland on the aerial photographs. However, it is dominated by reed canary grass (*Phalaris arundinacea*) and a strip of common reed grass (*Phragmites australis*) along the ditch to the north. This is a game production area (note the sign in the third photograph) with patches of smooth brome (*Bromus inermis*). This is a high quality wetland site with minimal grazing, but no grassland inclusions were seen.



Feature TDH1SDMA001: Southern exposure along center line of this large wetland, dominated by reed canary grass (*Phalaris arundinacea*) and common reed grass (*Phragmites australis*).

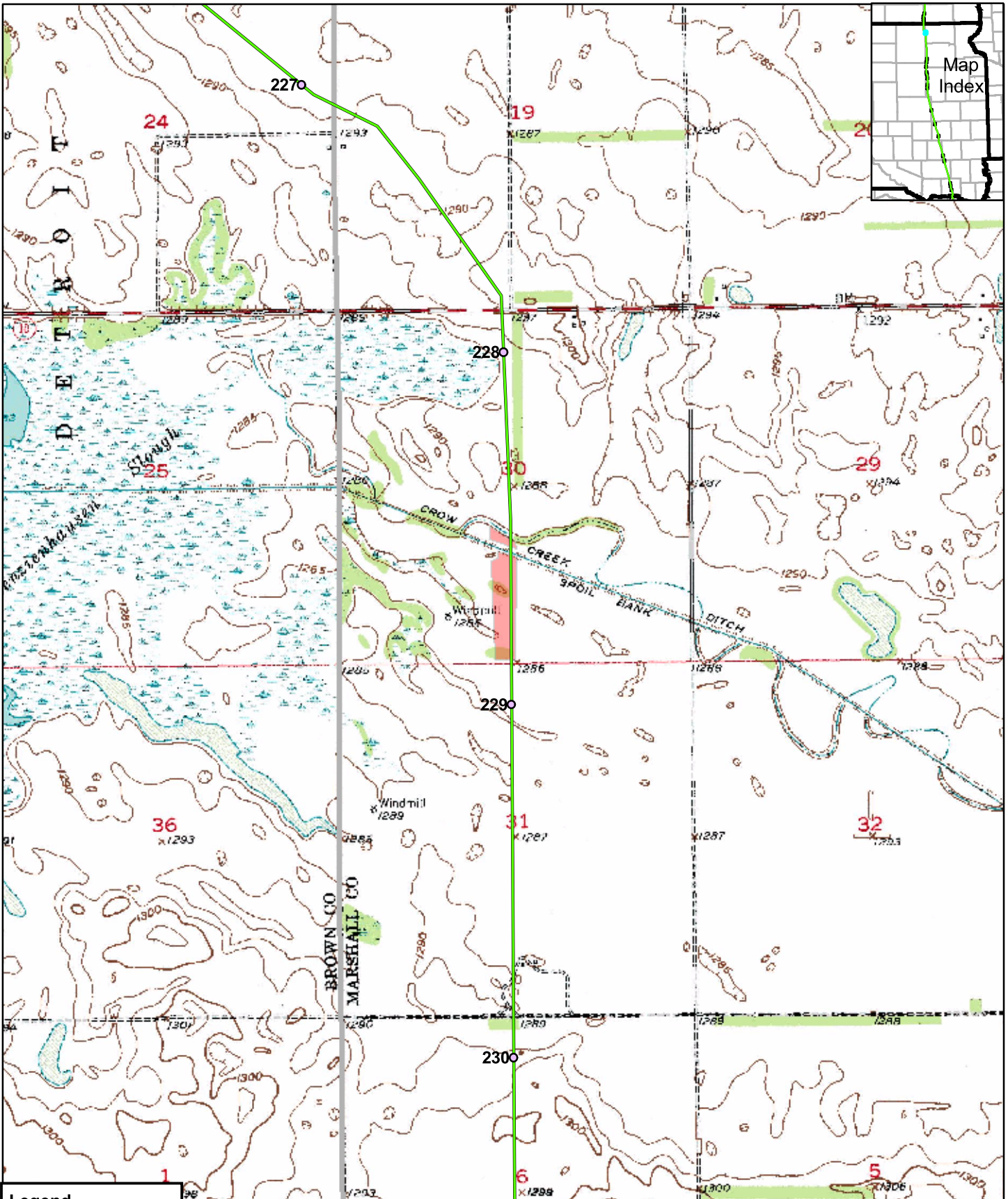




Feature TDH1SDMA001: View along center line that crosses this canal.



Feature TDH1SDMA001: Sign at the border of this large wetland that is on state land.



### Legend

- Mileposts
- Proposed Centerline
- Surveyed Grasslands
- ▭ State Boundary
- ▭ County Boundary

Keystone Pipeline Project



0 1,000 2,000 Feet

Map 5 of 21  
Surveyed  
Grasslands

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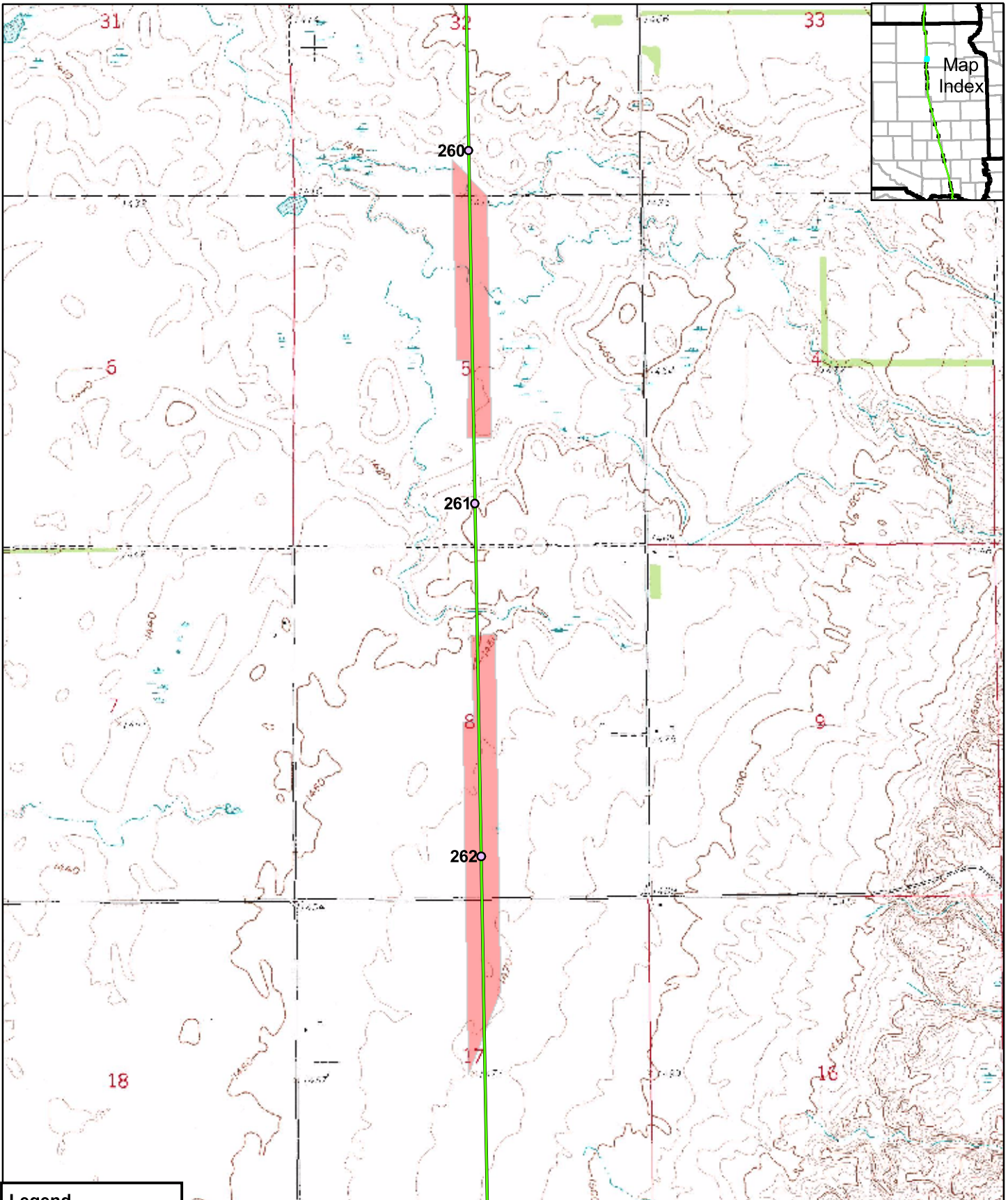
Feature ID	Survey Date	Start MP	End MP	County	State	Survey Type	Habitat Quality	Suitable T&E Habitat?
TDHISDDA005	9/11/2006	260.0	260.8	Day	SD	Drive By	Low	No

**Site Summary:** This site was seen only from a distance (drive-by), but appeared heavily grazed. It is a low quality grassland area.



Feature TDH1SDDA005: Overview of this heavily grazed pasture.

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### Legend

- Mileposts
- Proposed Centerline
- Surveyed Grasslands
- State Boundary
- County Boundary

Keystone Pipeline Project



0 1,000 2,000 Feet

Map 6 of 21  
Surveyed  
Grasslands

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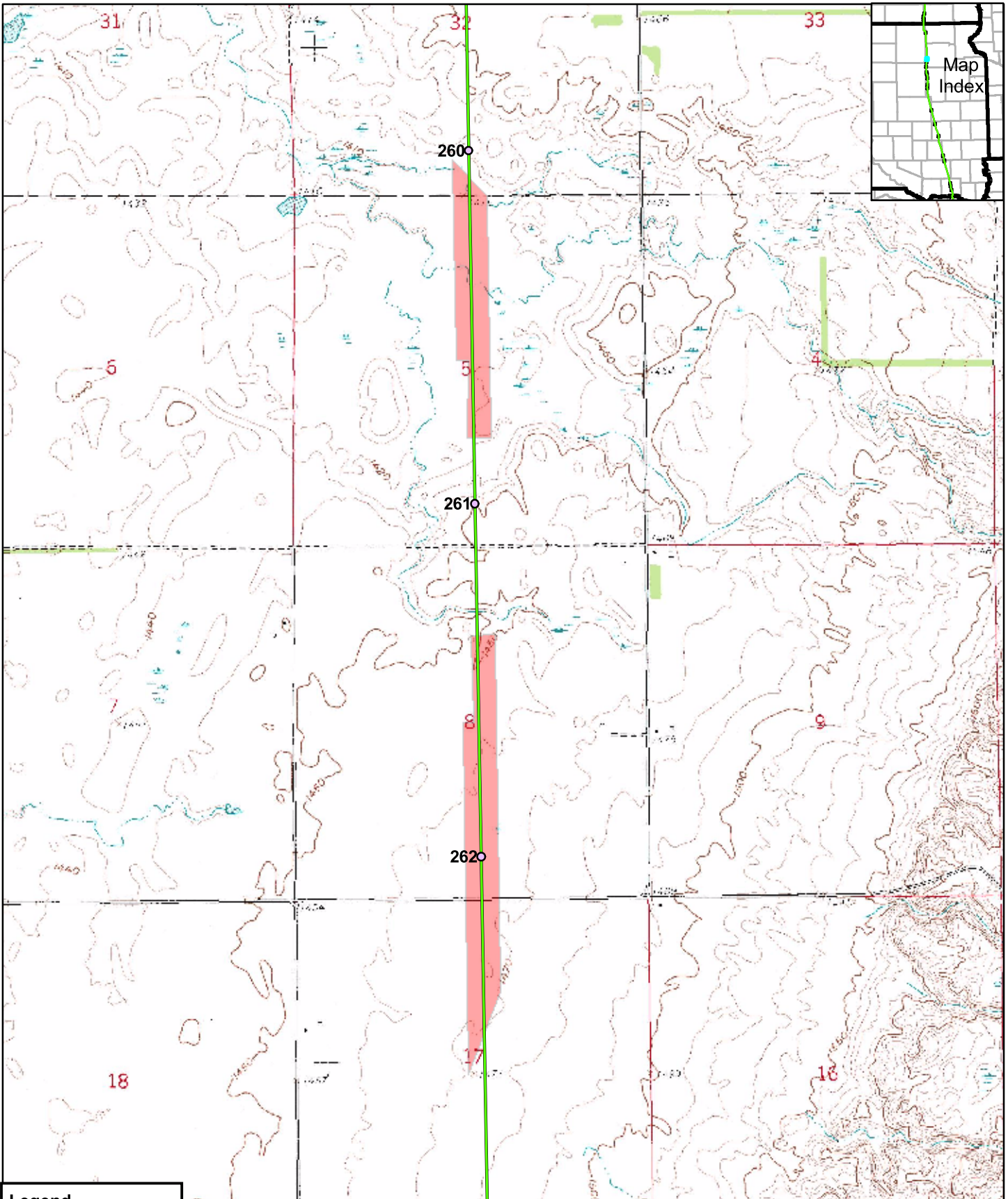
Feature ID	Survey Date	Start MP	End MP	County	State	Survey Type	Habitat Quality	Suitable T&E Habitat?
TDH1SDDA004	9/11/2006	261.4	262.6	Day	SD	Drive By	Low	No

**Site Summary:** A pasture dominated by introduced wheat grasses such as tall and intermediate wheat grass (*Agropyron spp.*) and perhaps other *Agropyron* species. There may be a few native grasses and forbs in spots, but the overall grassland quality is low.



Feature TDH1SDDA004: Pasture planted with wheatgrass (*Agropyron spp.*).

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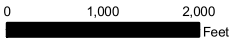

**Legend**

- Mileposts
- Proposed Centerline
- Surveyed Grasslands
- State Boundary
- County Boundary

Keystone Pipeline Project



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Map 6 of 21  
Surveyed  
Grasslands

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Feature ID	Survey Date	Start MP	End MP	County	State	Survey Type	Habitat Quality	Suitable T&E Habitat?
TDH1SDDA003	9/11/2006	264.5	264.8	Day	SD	Site Visit	Low	No

**Site Summary:** This is a heavily grazed hillside with an ox-bow by a stream. It is mostly all smooth brome (*Bromus inermis*), but it also has dense spots of Canadian thistle (*Cirsium arvense*) near the stream, patches of wormwood (*Artemisia absinthium*) on the hillsides, and wet spots with prairie cordgrass (*Spartina pectinata*). A few native forbs such as silver scurf pea (*Pediomelum argophyllum*) also occur, but the grassland quality is low.

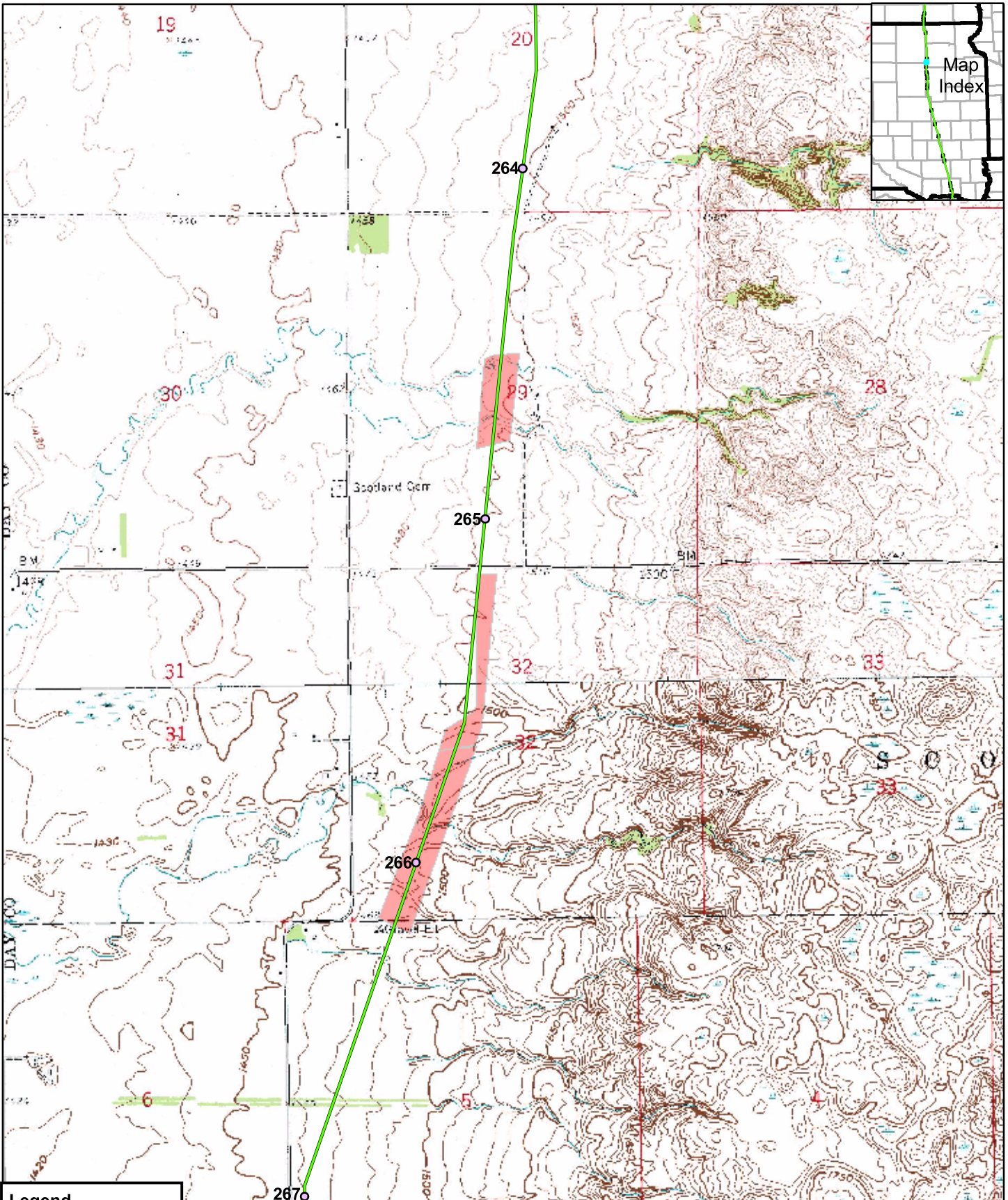


Feature TDH1SDDA003: Overview of large wetland located at site.



Feature TDH1SDDA003: Close-up of prairie cordgrass (*Spartina pectinata*)





### Legend

- Mileposts
- Proposed Centerline
- Surveyed Grasslands
- State Boundary
- County Boundary

Keystone Pipeline Project



0 1,000 2,000 Feet

Map 7 of 21  
Surveyed  
Grasslands

# CONFIDENTIAL

Feature ID	Survey Date	Start MP	End MP	County	State	Survey Type	Habitat Quality	Suitable T&E Habitat?
TDH1SDDA002	9/11/2006	265.2	266.2	Day	SD	Site Visit	High	Yes, Dakota skipper

**Site Summary :** This is high quality prairie area. The northern section is adjacent (toward the east) to a high quality, rolling hill prairie. To the west is a plowed field (photograph 1). In the middle section of this tract the corridor crosses a disturbed area of a farm. However, in the southern portion the center line actually crosses quality rolling hills with high quality prairie. The southern section of the site contained Dakota skipper pollen plants such as black Sampson (*Echinacea*) and leadplant (*Amopha*). On the rocky slopes were side-oats grama (*Bouteloua curtipendula*), little blue stem (*Schicachyrium scoparium*), and big blue stem (*Andropogon gerardii*). This was the only site where the clonal variety of pincushion cactus (*Coryphantha vivipara*) was seen. Rerouting the pipeline a bit to the west to avoid this high quality prairie should be considered.



Feature TDH1SDDA002: Agricultural field in background.



Feature TDH1SDDA002: Hills with red-brown little blue stem (*Schizachyrium scoparium*)



Feature TDH1SDDA002: A close-up of leadplant (*Amorpha canescens*)



Feature TDH1SDDA002: Close-up of Big Blue Stem (*Andropogon gerardii*)



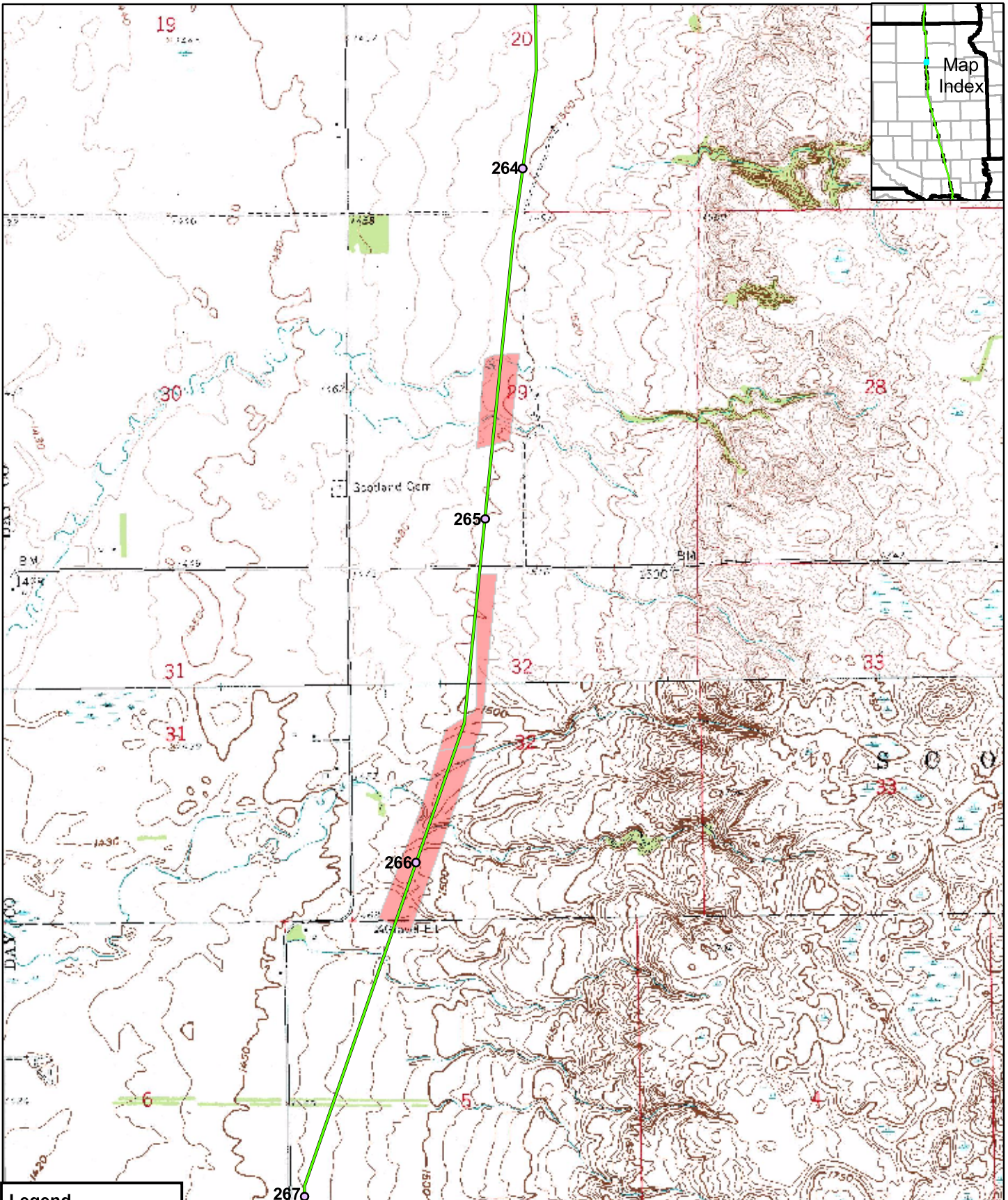
Feature TDH1SDDA002: Fruiting heads of black Sampson (*Echinacea angustifolia*)



Feature TDH1SDDA002: Close-up of silky aster (*Aster sericeus*)



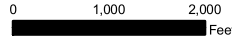
Feature TDH1SDDA002: Close-up of the clonal variety of pincushion cactus (*Coryphantha vivipara*).



**Legend**

- Mileposts
- Proposed Centerline
- Surveyed Grasslands
- State Boundary
- County Boundary

Keystone Pipeline Project



Map 7 of 21  
Surveyed  
Grasslands

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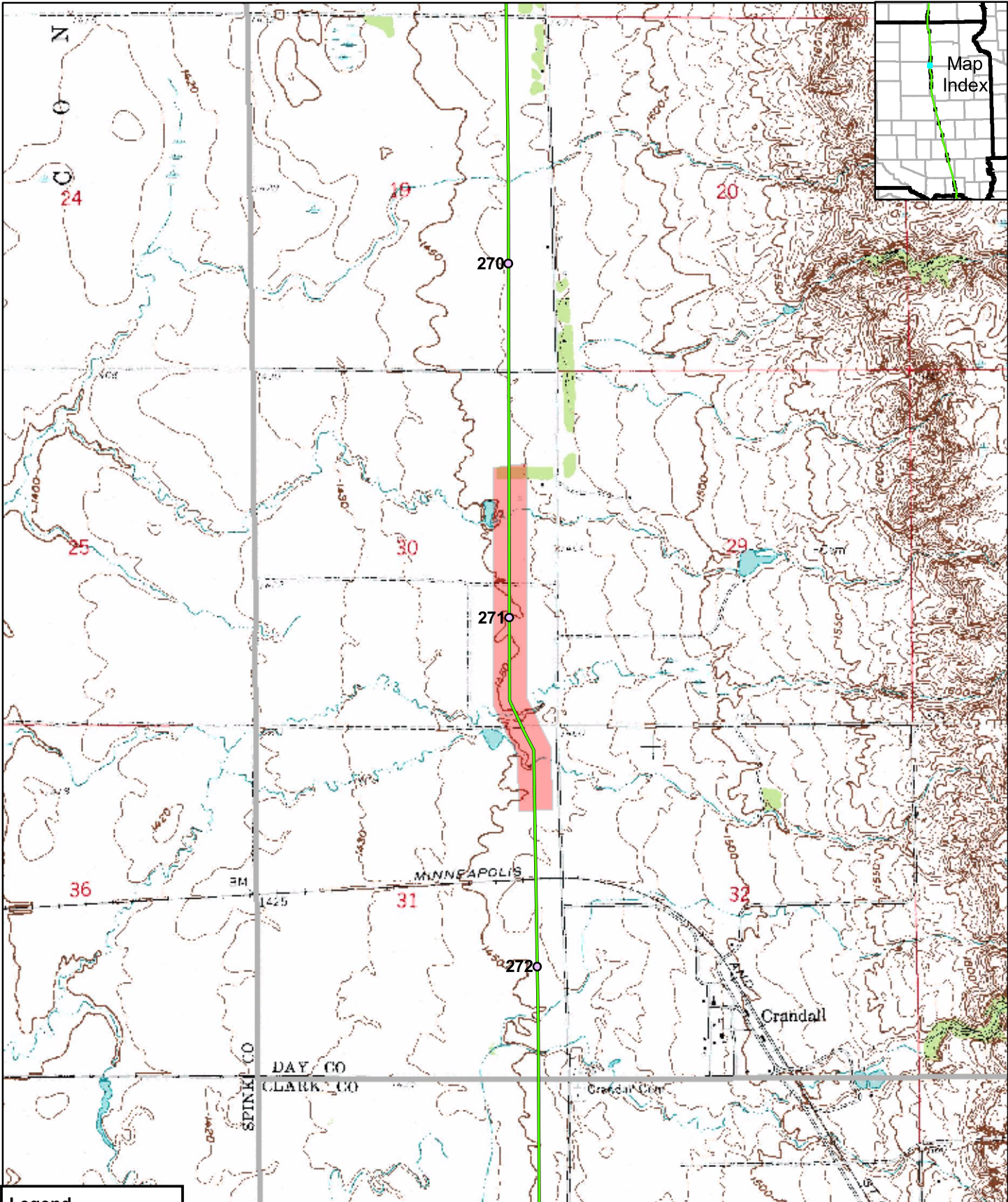
Feature ID	Survey Date	Start MP	End MP	County	State	Survey Type	Habitat Quality	Suitable T&E Habitat?
TDH1SDDA001	9/11/2006	270.6	271.6	Day	SD	Drive By	Low	No

**Site Summary:** This is an alkaline pasture / wetland with prairie cordgrass (*Spartina pectinata*) and saltgrass (*Distichlis spicata*). There are a few native forbs here such as blazing star (*Liatis ligulistylis*), but exotic plants such as Russian olive (*Elaeagnus angustifolia*), Canadian thistle (*Cirsium arvense*), and wormwood (*Artemisia absinthium*) are also present at this low quality grassland site.



Feature TDH1SDDA001: A Russian olive tree (*Elaeagnus angustifolia*) by an alkaline, heavily grazed pasture.





**Legend**

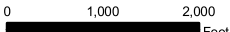
- Mileposts
- Proposed Centerline
- Surveyed Grasslands
- State Boundary
- County Boundary

Keystone Pipeline Project



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North Arrow



0 1,000 2,000 Feet

Map 8 of 21  
Surveyed  
Grasslands