

**Keystone Pipeline Project- Mainline and Cushing Extension
Survey Protocols for Kansas Special Status Species**

Species & Status	Survey Protocol
<p>Bald Eagle <i>Haliaeetus leucocephalus</i> FT; KS-T</p>	<p>Survey Frequency: Aerial bald eagle surveys will be conducted for nest sites and winter roost sites along the Mainline and Cushing Extension in 2007. Surveys may also be required prior to construction in 2008, if pipeline construction occurs during the breeding season (1-February through 15-August) or winter roosting season (1-November through 1-April).</p> <p>Procedures:</p> <ol style="list-style-type: none"> 1. The bald eagle surveys will be conducted along river corridors or historical bald eagle nest/winter roosting sites that occur within 1-mile from the project Right-of-Way (ROW). Stands of coniferous or deciduous trees will be surveyed for active nest sites during the breeding season 2. Stands of coniferous or deciduous trees will be surveyed for active winter roost sites from 1 hour before sunrise or sunset to 1 hour after sunrise or sunset. 3. A helicopter will be used for the surveys. Whenever possible, two observers will be used to conduct the surveys. 4. Observations of individual eagles, nests, or roosting eagles will be recorded using Global Positioning Systems (GPS). The date, location, nest condition, activity status, nest condition, and habitat will be recorded for each sighting. 5. Qualifications of the surveyor, method of survey, and results of the survey will be submitted to the KDWP and the appropriate U.S. Fish and Wildlife Service (USFWS) field office.
<p>Raptors</p>	<p>Survey Frequency: A raptor survey (aerial helicopter survey) was conducted within 0.25- to 0.50-mile from the edge of the construction ROW in March of 2006, to identify active and inactive nest sites along the project route. A raptor report was submitted to the USFWS in January 2007.</p> <p>A second raptor survey effort will be conducted along the Mainline and Cushing Extension prior to leaf-out in the spring of 2007. The focus of this survey is to identify nest sites that would be directly impacted from construction activities.</p> <p>Procedures:</p>

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Species & Status	Survey Protocol
<p>Arkansas Darter <i>Etheostoma cragini</i> FC; KS-T</p>	<ol style="list-style-type: none"> 1. Raptor surveys will be conducted along the entire proposed Project route, focusing on active and inactive nest sites that occur within the construction ROW. 2. A helicopter will be used for the raptor surveys. Whenever possible, two observers will be used to conduct the surveys. 3. Observations of raptors and nest sites will be recorded using GPS. The date, location, nest condition, activity status, raptor species, and habitat will be recorded for each sighting. 4. Qualifications of the surveyor, method of survey, and results of the survey will be submitted to the KDWP and the appropriate USFWS field office. <p>Survey Frequency: Surveys will be conducted in 2007 at specific stream crossings suggested by the KDWP along the Cushing Extension to document habitat suitability, stream characteristics (intermittent/perennial flow, water quality, substrate, etc.), and spawning habitat. If appropriate habitat conditions are present, occurrence surveys will be conducted to determine potential presence of this species at the project crossing.</p> <p>Procedures:</p> <ol style="list-style-type: none"> 1. Sampling surveys will be conducted only at locations identified as suitable habitat for this species during the habitat analysis. 2. Surveys will be conducted within a 200-m site that includes 100m both upstream and downstream of the pipeline crossing, depending on access. 3. Fish should be collected with the appropriately sized seine. 4. All fish collected should be identified to species to establish presence/absence of Arkansas darters. 5. Fish collected in the seine should be transferred immediately into a bucket of freshwater or live cage placed in a suitable part of the stream to minimize injuries and mortalities to fish during processing. 6. If this species is present, 1 to 3 voucher specimens should be retained by fixing in 10% formalin and preserving in 70% ethanol and identification verified by KDWP staff. 7. GPS coordinates, detailed locality information, date, collector, and habitat information will be collected for each voucher specimen. 8. If sampling permit is needed, other documentation and data management protocols will be followed in

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Species & Status	Survey Protocol
<p>Arkansas River Speckled Chub <i>Macrhybopsis tetranema</i> KS-E</p>	<p>accordance with collection permit requirements.</p> <p>9. Qualifications of the surveyor, method of survey, and results of the survey will be submitted to the KDWP and the appropriate Service field office.</p> <p>Survey Frequency: Surveys will be conducted in 2007 at specific stream crossings suggested by the KDWP along the Cushing Extension to document habitat suitability, stream characteristics (intermittent/perennial flow, water quality, substrate, etc.), and spawning habitat. If appropriate habitat conditions are present, occurrence surveys will be conducted to determine potential presence of this species at the project crossing.</p> <p>Procedures:</p> <ol style="list-style-type: none"> 1. Sampling surveys will be conducted only at locations identified as suitable habitat for this species during the habitat analysis. 2. Surveys will be conducted within a 200-m site that includes 100m both upstream and downstream of the pipeline crossing, depending on access. 3. Fish should be collected with the appropriately sized seine. 4. All fish collected should be identified to species to establish presence/absence of the Arkansas River speckled chub. 5. Fish collected in the seine should be transferred immediately into a bucket of freshwater or live cage placed in a suitable part of the stream to minimize injuries and mortalities to fish during processing. 6. If this species is present, 1 to 3 voucher specimens should be retained by fixing in 10% formalin and preserving in 70% ethanol and identification verified by KDWP staff. 7. GPS coordinates, detailed locality information, date, collector, and habitat information will be collected for each voucher specimen. 8. If sampling permit is needed, other documentation and data management protocols will be followed in accordance with collection permit requirements. 9. Qualifications of the surveyor, method of survey, and results of the survey will be submitted to the KDWP.

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Species & Status	Survey Protocol
<p>Silver Chub <i>Macrhybopsis storeriana</i> KS-E</p>	<p>Survey Frequency: Surveys will be conducted in 2007 at specific stream crossings suggested by the KDWP along the Cushing Extension to document habitat suitability, stream characteristics (intermittent/perennial flow, water quality, substrate, etc.), and spawning habitat. If appropriate habitat conditions are present, occurrence surveys will be conducted to determine potential presence of this species at the project crossing.</p> <p>Procedures:</p> <ol style="list-style-type: none"> 1. Sampling surveys will be conducted only at locations identified as suitable habitat for this species during the habitat analysis. 2. Surveys will be conducted within a 200-m site that includes 100m both upstream and downstream of the pipeline crossing, depending on access. 3. Fish should be collected with the appropriately sized seine. 4. All fish collected should be identified to species to establish presence/absence of the silver chub. 5. Fish collected in the seine should be transferred immediately into a bucket of freshwater or live cage placed in a suitable part of the stream to minimize injuries and mortalities to fish during processing. 6. If this species is present, 1 to 3 voucher specimens should be retained by fixing in 10% formalin and preserving in 70% ethanol and identification verified by KDWP staff. 7. GPS coordinates, detailed locality information, date, collector, and habitat information will be collected for each voucher specimen. 8. If sampling permit is needed, other documentation and data management protocols will be followed in accordance with collection permit requirements. 9. Qualifications of the surveyor, method of survey, and results of the survey will be submitted to the KDWP.
<p>Arkansas River Shiner <i>Notropis girardi</i> FT; KS-E</p>	<p>Survey Frequency: Surveys will be conducted in 2007 at specific stream crossings suggested by the KDWP along the Cushing Extension to document habitat suitability, stream characteristics (intermittent/perennial flow, water quality, substrate, etc.), and spawning habitat. If appropriate habitat conditions are present, occurrence surveys will be conducted to determine potential presence of this species at the project crossing.</p>

**Keystone Pipeline Project- Mainline and Cushing Extension
Survey Protocols for Kansas Special Status Species**

Species & Status	Survey Protocol
	<p>Procedures:</p> <ol style="list-style-type: none"> 1. Sampling surveys will be conducted only at locations identified as suitable habitat for this species during the habitat analysis. 2. Surveys will be conducted within a 200-m site that includes 100m both upstream and downstream of the pipeline crossing, depending on access. 3. Fish should be collected with the appropriately sized seine. 4. All fish collected should be identified to species to establish presence/absence of the Arkansas River shiner. 5. Fish collected in the seine should be transferred immediately into a bucket of freshwater or live cage placed in a suitable part of the stream to minimize injuries and mortalities to fish during processing. 6. If this species is present, 1 to 3 voucher specimens should be retained by fixing in 10% formalin and preserving in 70% ethanol and identification verified by KDWP staff. 7. GPS coordinates, detailed locality information, date, collector, and habitat information will be collected for each voucher specimen. 8. If sampling permit is needed, other documentation and data management protocols will be followed in accordance with collection permit requirements. 9. Qualifications of the surveyor, method of survey, and results of the survey will be submitted to the KDWP and the appropriate Service field office.
<p>Topeka Shiner <i>Notropis topeka</i> FE; KS-T/CH</p>	<p>Survey Frequency: Habitat and fish occurrence surveys were conducted along the Keystone Mainline in the fall of 2006 at specific Topeka shiner stream crossings to document habitat suitability, stream characteristics (intermittent/perennial flow, water quality), spawning habitat, and species occurrence. A Topeka shiner report was submitted to the KDWP and USFWS in December 2006. Based on the USFWS and KDWP review of the 2006 survey report, further surveys may be required along the Keystone Mainline.</p> <p>Surveys will be conducted in 2007 at specific stream crossings suggested by the KDWP along the Cushing Extension to document habitat suitability, stream characteristics (intermittent/perennial flow, water quality, substrate, etc.), and spawning habitat. If appropriate habitat conditions are present, occurrence surveys will be conducted to</p>

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Survey Protocols for Kansas Special Status Species**

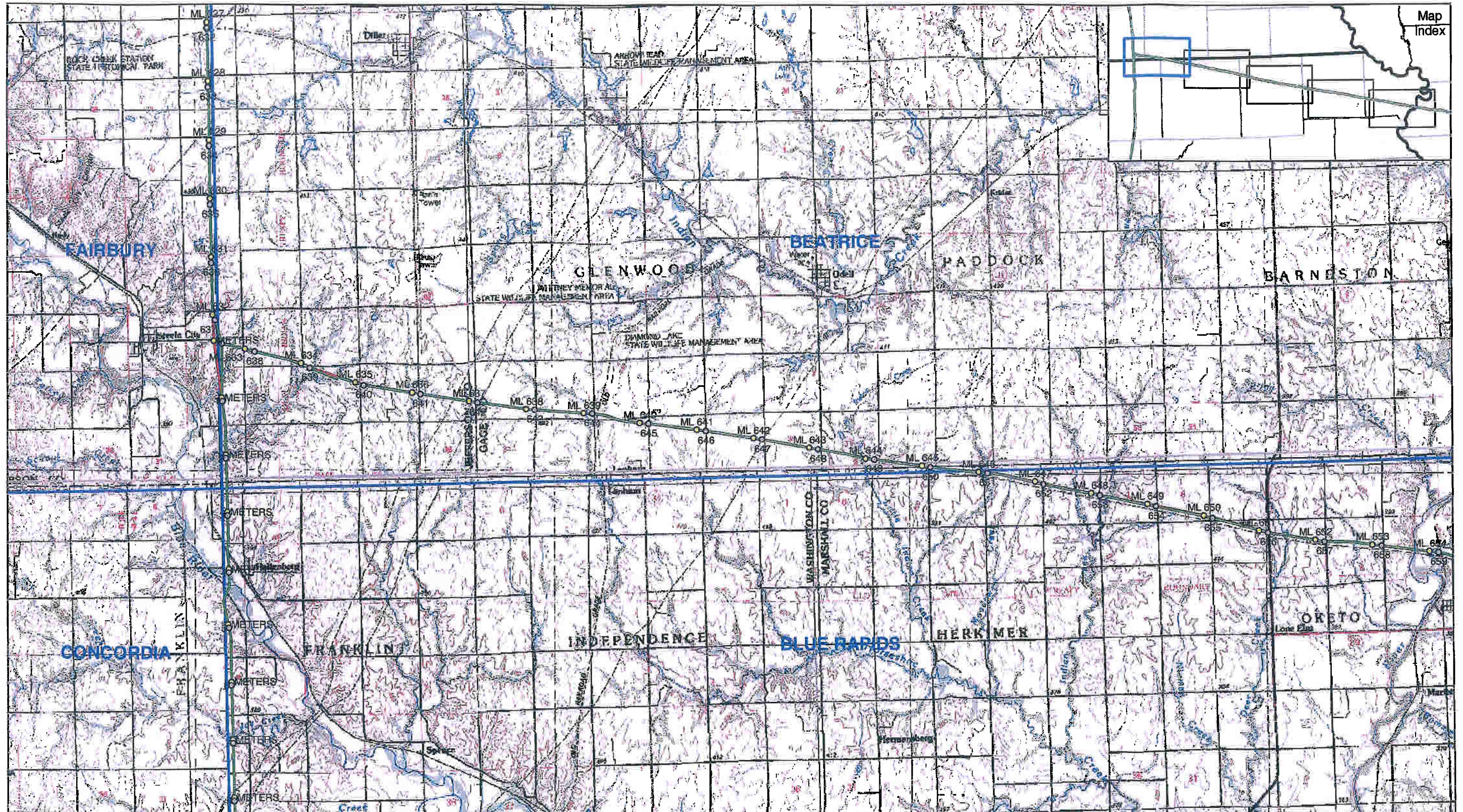
Species & Status	Survey Protocol
	<p>determine potential presence of this species at the project crossing.</p> <p>Procedures:</p> <ol style="list-style-type: none"> 1. Sampling surveys will be conducted only at locations identified as suitable habitat for Topeka shiners, in coordination with the USFWS. 2. Surveys will be conducted within a 200-m site that includes 100-m both upstream and downstream of the pipeline crossing, depending on private access. 3. Fish will be collected throughout the site using a 20x6-ft drag seine with ¼-inch mesh netting (a 6x6-ft drag seine may be used in confined habitats with widths less than 20 feet). 4. All fish collected will be identified to species to establish presence/absence of Topeka shiners. 5. Fish collected in the seine will be transferred immediately into a bucket of freshwater or live cage placed in a suitable part of the stream to minimize injuries and mortalities to fish during processing. 6. If Topeka shiners are present, 1 to 3 voucher specimens will be retained by fixing in 10% formalin and preserving in 70% ethanol and identification verified by USFWS or SDGFP staff. 7. GPS coordinates, detailed locality information, date, collector, and habitat information will be collected for each voucher specimen. 8. Other documentation and data management protocols will follow collection permit requirements. 9. Qualifications of the surveyor, method of survey, and results of the survey will be submitted to the SDGFP and the appropriate USFWS field office.
<p>Neosho Madtom <i>Notropis placidus</i> FT; KS-T</p>	<p>Survey Frequency: Surveys will be conducted in 2007 at specific stream crossings suggested by the KDWP along the Cushing Extension to document habitat suitability, stream characteristics (intermittent/perennial flow, water quality, substrate, etc.), and spawning habitat. If appropriate habitat conditions are present, occurrence surveys will be conducted to determine potential presence of this species at the project crossing.</p> <p>Procedures:</p> <ol style="list-style-type: none"> 1. Sampling surveys will be conducted only at locations identified as suitable habitat for this species during the habitat analysis.

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Species & Status	Survey Protocol
<p>Fawnsfoot Mussel <i>Truncilla donaciformes</i> KS-SINC</p> <p>Creeper Mussel <i>Strophitus undulatus</i> KS-SINC</p>	<p>2. Surveys will be conducted within a 200-m site that includes 100m both upstream and downstream of the pipeline crossing, depending on access.</p> <p>3. Fish should be collected with the appropriately sized seine.</p> <p>4. All fish collected should be identified to species to establish presence/absence of the Neosho madtom.</p> <p>5. Fish collected in the sine should be transferred immediately into a bucket of freshwater or live cage placed in a suitable part of the stream to minimize injuries and mortalities to fish during processing.</p> <p>6. If this species is present, 1 to 3 voucher specimens should be retained by fixing in 10% formalin and preserving in 70% ethanol and identification verified by KDWP staff.</p> <p>7. GPS coordinates, detailed locality information, date, collector, and habitat information will be collected for each voucher specimen.</p> <p>8. If sampling permit is needed, other documentation and data management protocols will be followed in accordance with collection permit requirements.</p> <p>9. Qualifications of the surveyor, method of survey, and results of the survey will be submitted to the KDWP and the appropriate Service field office.</p>
<p>Fawnsfoot Mussel <i>Truncilla donaciformes</i> KS-SINC</p> <p>Creeper Mussel <i>Strophitus undulatus</i> KS-SINC</p>	<p>Survey Frequency: Habitat and mussel surveys will be conducted in 2007 to determine potential presence at the Cottonwood River and Doyle Creek crossings.</p> <p>Procedures:</p> <ol style="list-style-type: none"> 1. Sampling surveys will be conducted only at locations identified as suitable habitat for these species during the habitat analysis. 2. If necessary, occurrence surveys will include a quantitative analysis if site contains high mussel density, by collecting all mussels within a timed search period, or within random 1/4 meter² quadrats. 3. Quantitative surveys will provide data on mussel density or abundance, species diversity, and size structure within a species (an indicator of reproductive success) for these sites 4. Qualifications of the surveyor, method of survey, and results of the survey will be submitted to the KDWP.
<p>Migratory Birds</p>	<p>TBD</p>

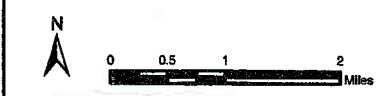
**Keystone Pipeline Project- Mainline and Cushing Extension
Survey Protocols for Kansas Special Status Species**

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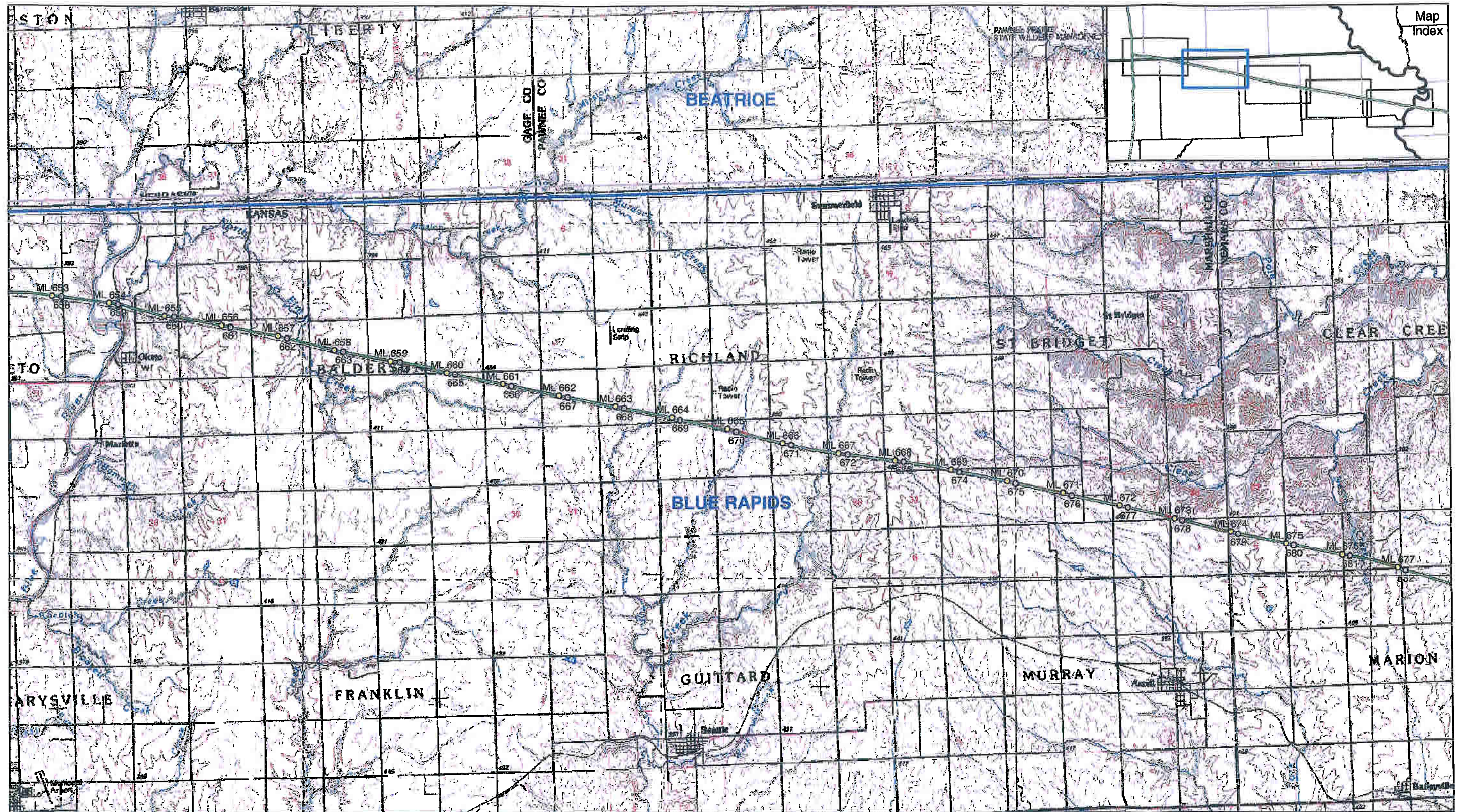
Map Index

- Mileposts (8/17/06)
- Mileposts (2/9/06)
- Pipeline (8/17/06)
- Pipeline (2/9/06)



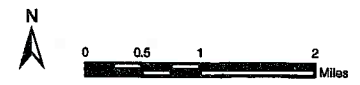
Keystone Pipeline Project
 **TransCanada**
In business to deliver

Map 1 of 5
General Project Location
(Kansas)



Map Index

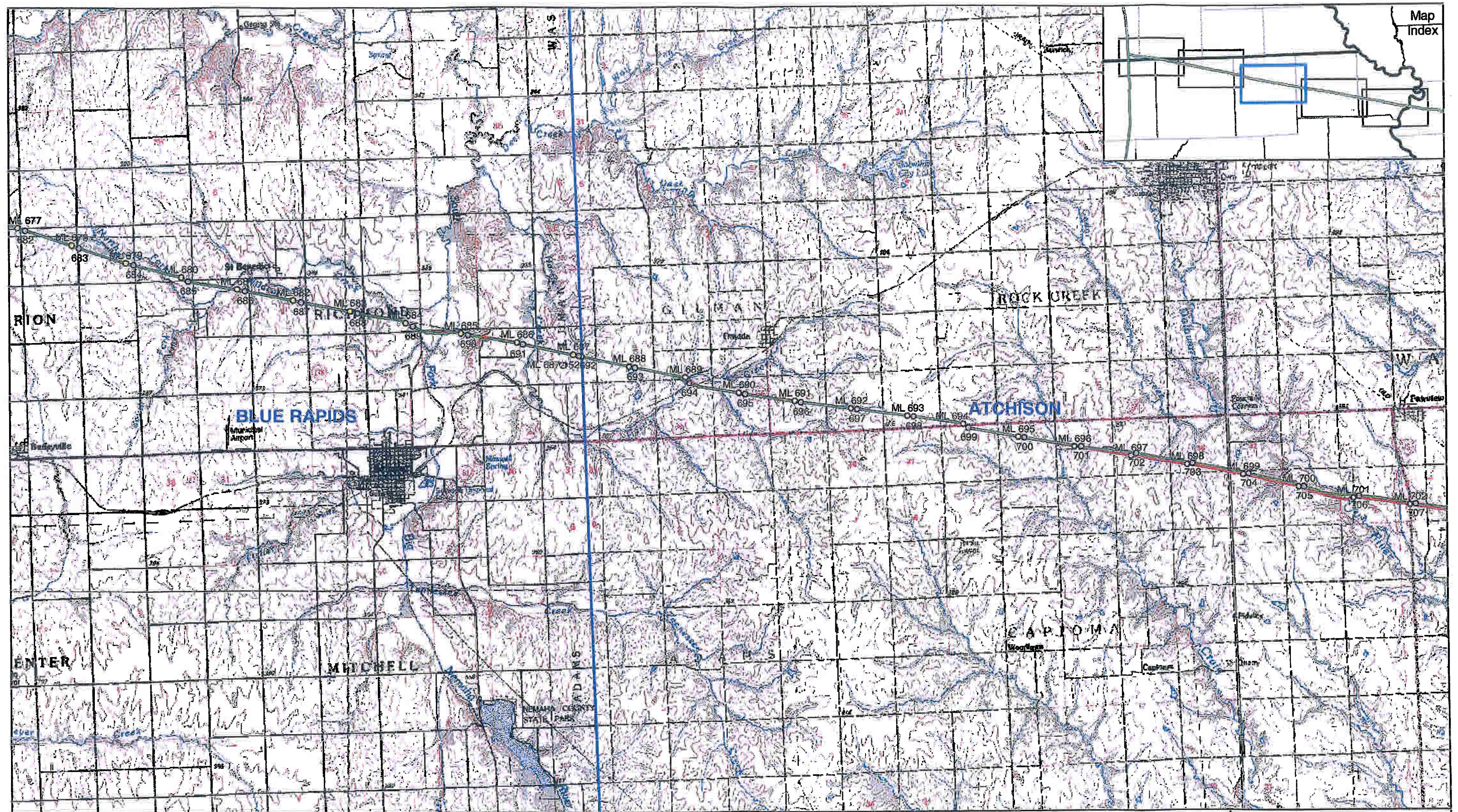
- ◊ Mileposts (8/17/06)
- ◊ Mileposts (2/9/06)
- Pipeline (8/17/06)
- Pipeline (2/9/06)



Keystone Pipeline Project

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Map 2 of 5
General Project Location
(Kansas)



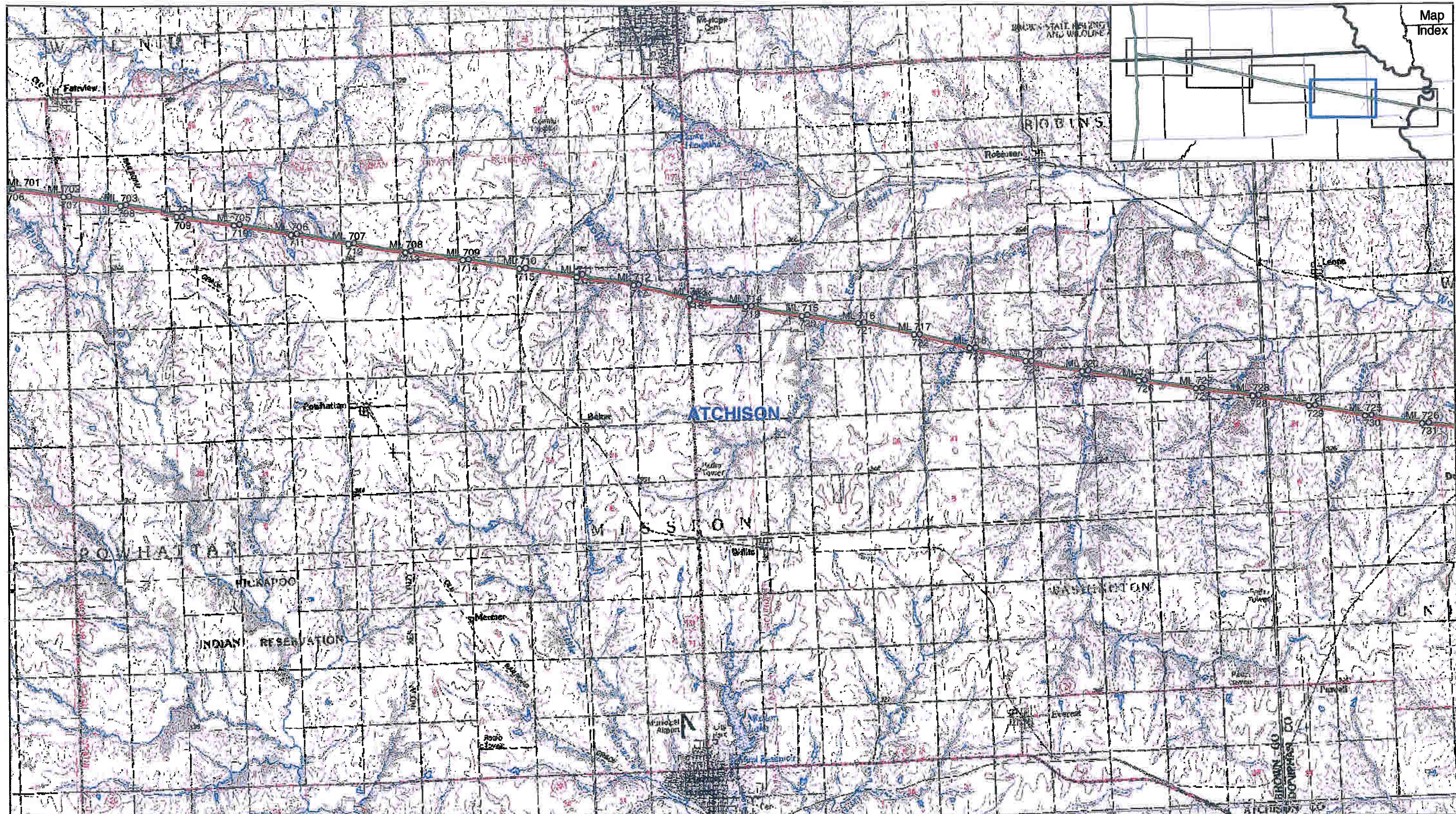
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○ Mileposts (2/9/06)
— Pipeline (8/17/06)
— Pipeline (2/9/06)

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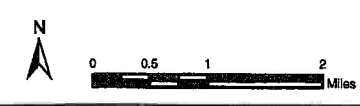
Keystone Pipeline Project

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Map 3 of 5
General Project Location
(Kansas)



- Mileposts (8/17/06)
- Mileposts (2/9/06)
- Pipeline (8/17/06)
- Pipeline (2/9/06)

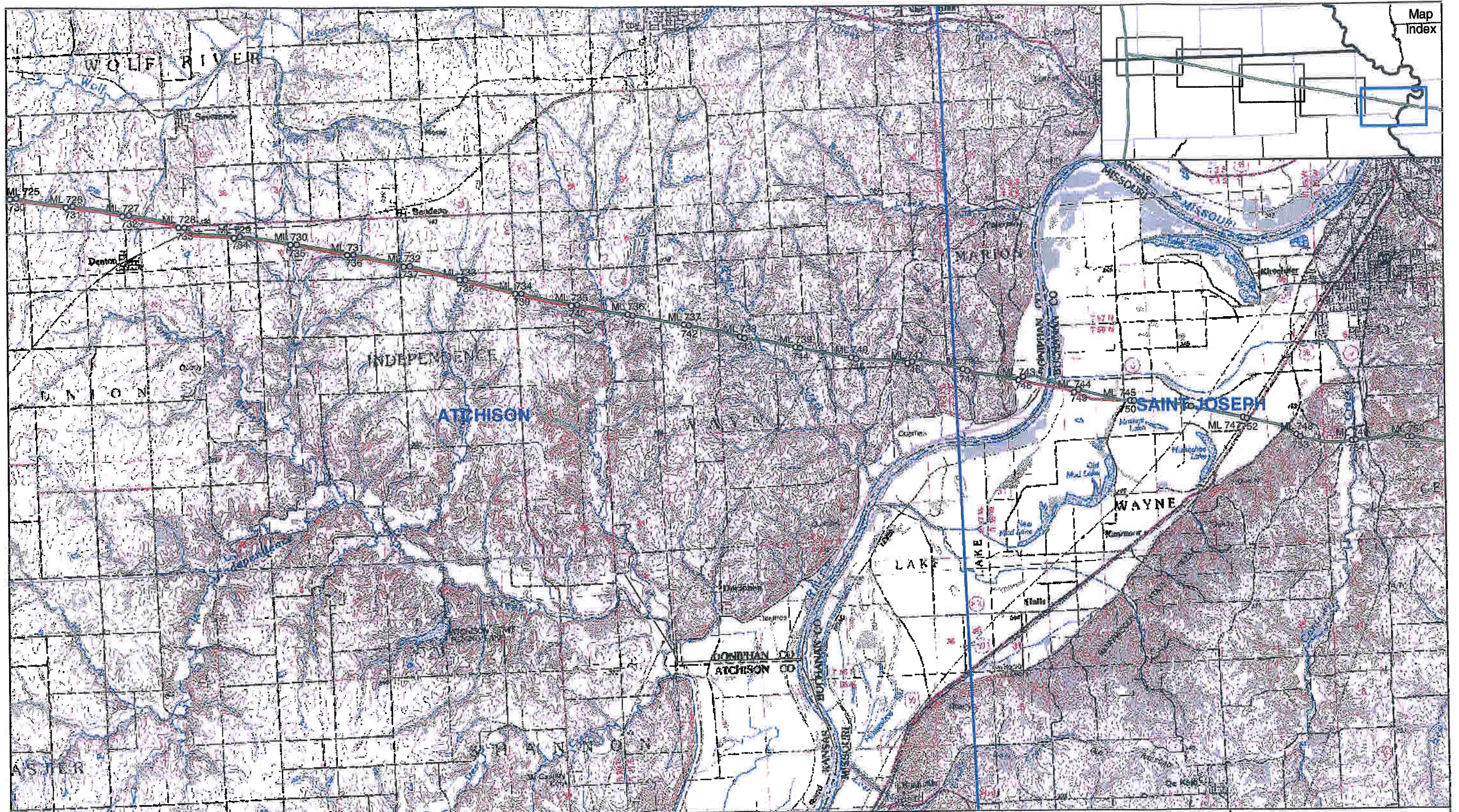


Keystone Pipeline Project



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Map 4 of 5
General Project Location
(Kansas)



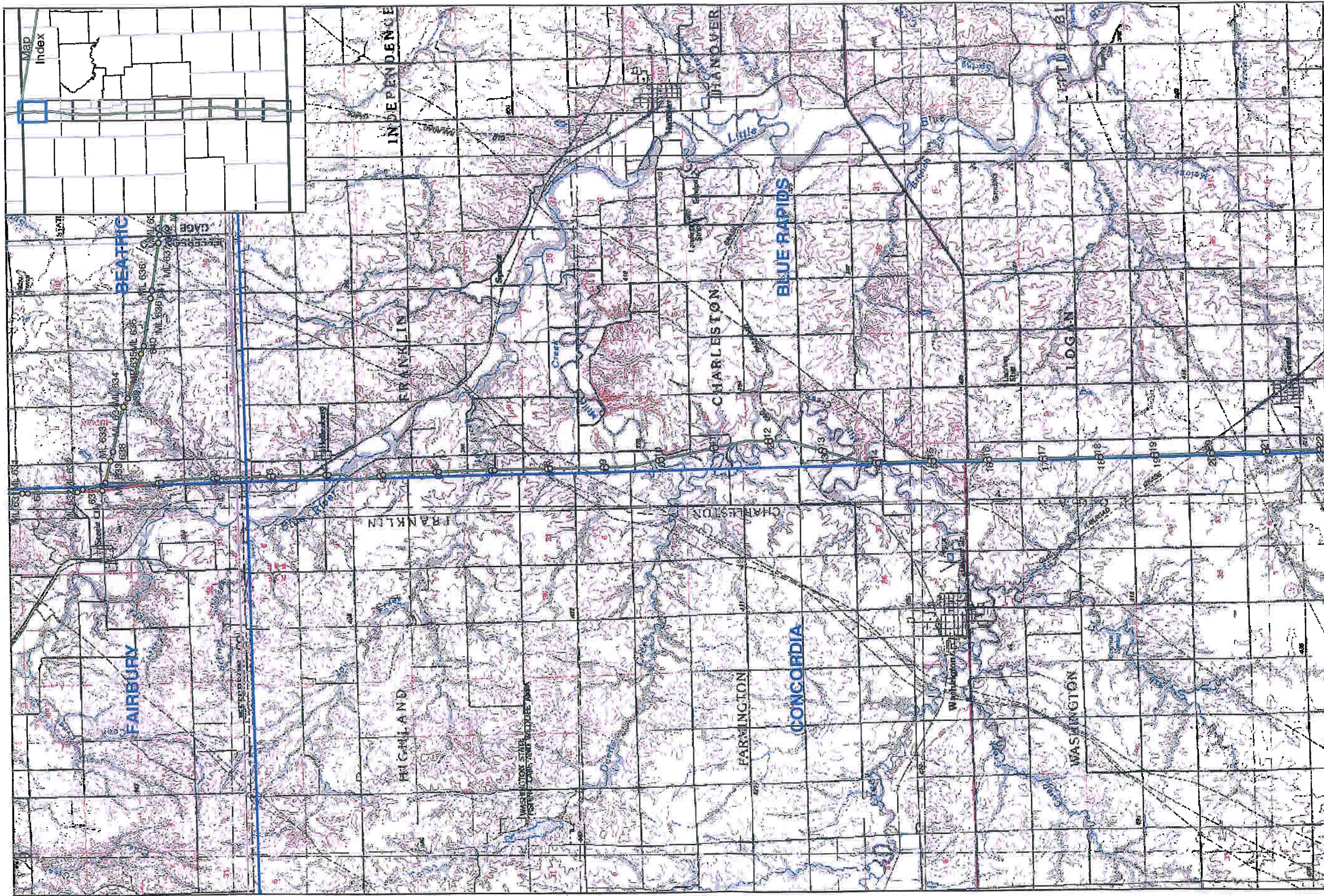
○ Mileposts (8/17/06)
○ Mileposts (2/9/06)
— Pipeline (8/17/06)
— Pipeline (2/9/06)

N
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Keystone Pipeline Project

its business to verify

Map 5 of 5
General Project Location
(Kansas)



- ◊ Mileposts (8/17/06)
- ◊ Mileposts (2/9/06)
- Pipeline (8/17/06)
- Pipeline (2/9/06)

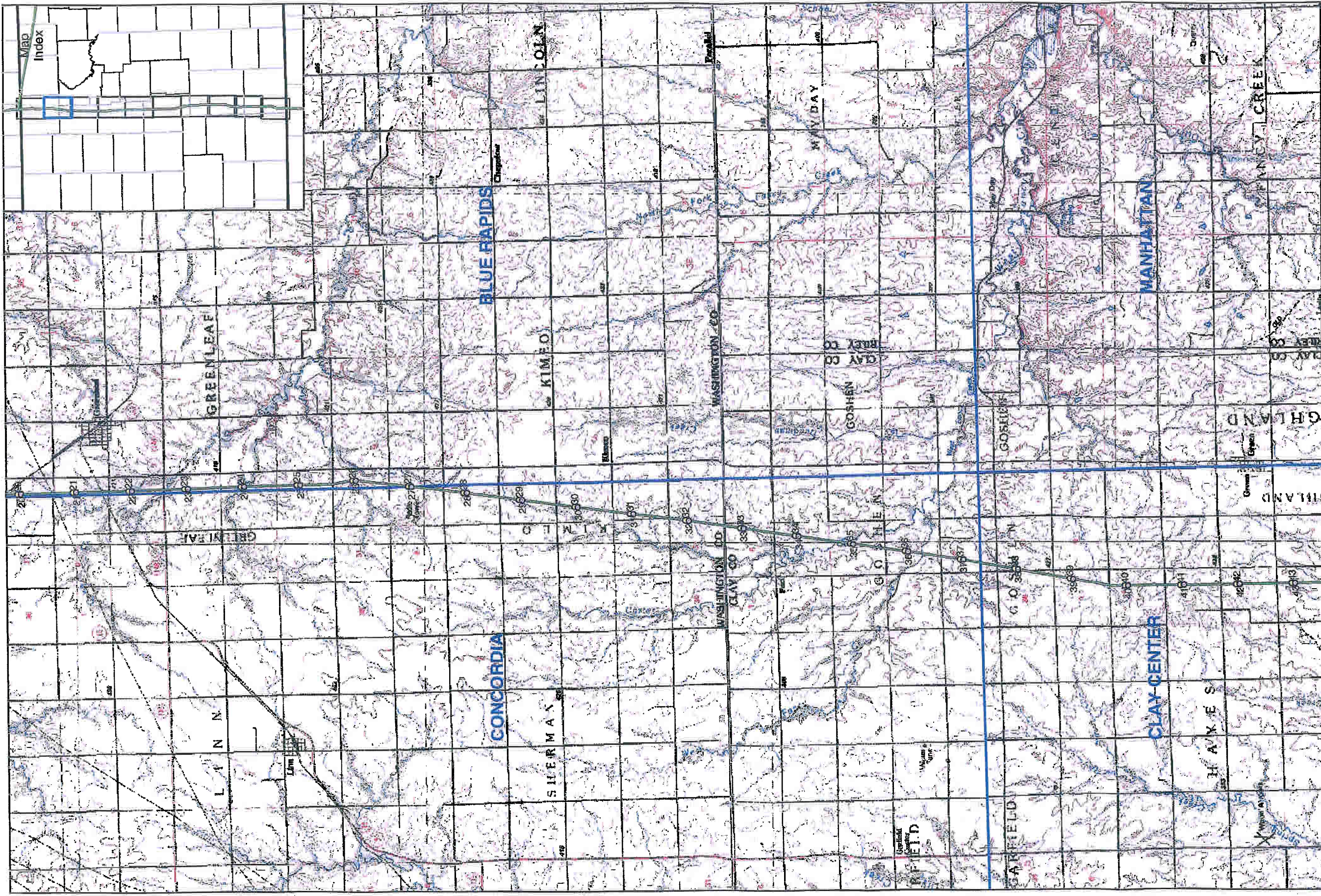


Keystone Pipeline Project

TransCanada
An Enbridge company

Map 1 of 10
General Project Location
(Kansas-Cushing)

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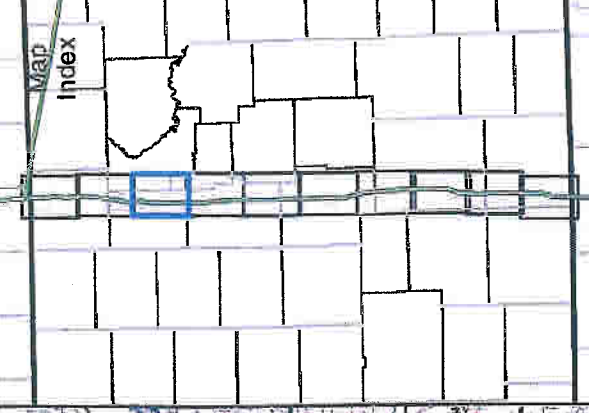
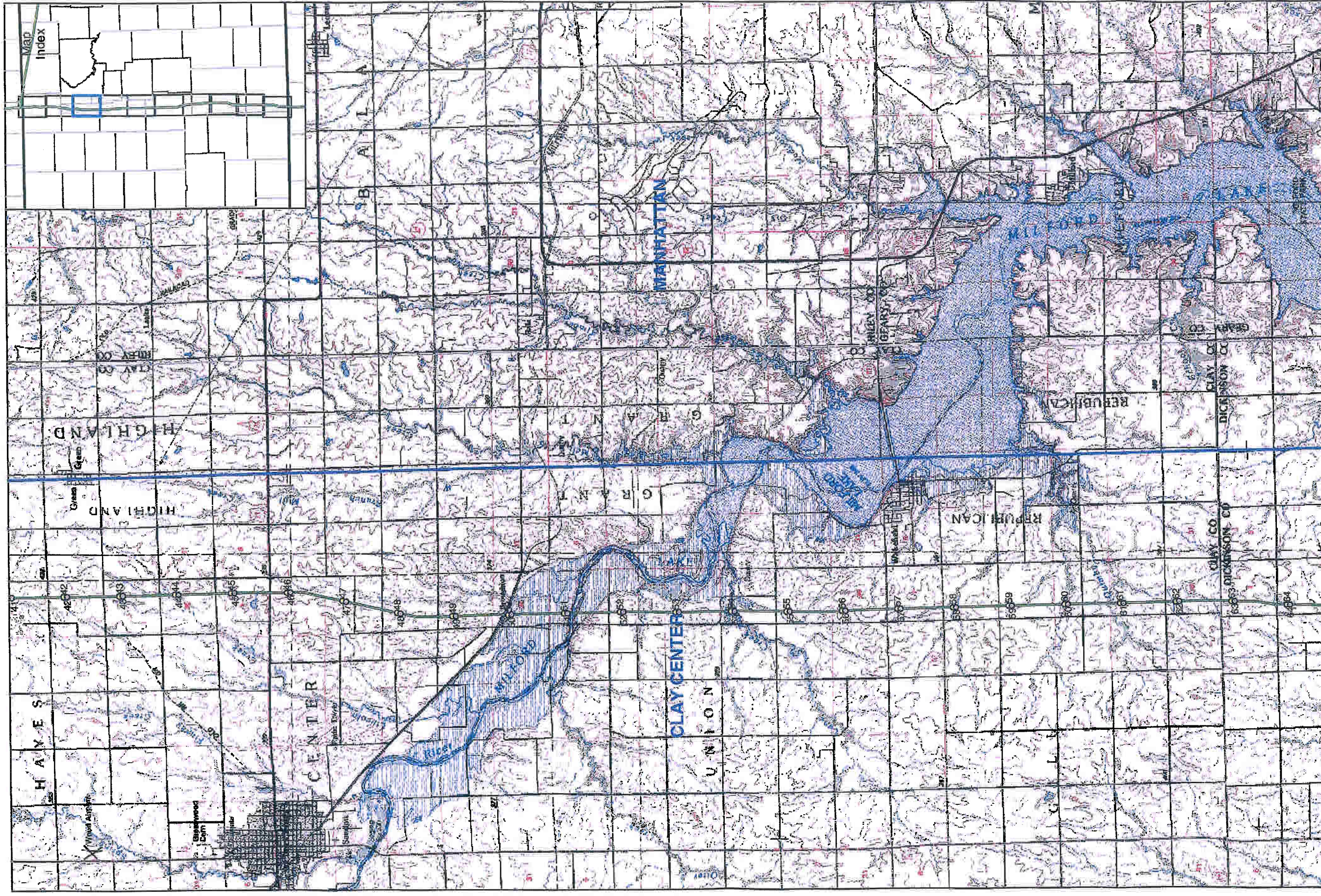
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 Pipeline (9/17/06)
 Pipelines (2/9/06)

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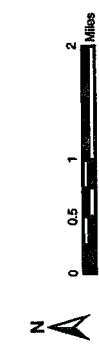
Keystone Pipeline Project

Map 2 of 10
 General Project Location
 (Kansas-Cushing)

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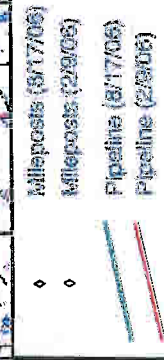
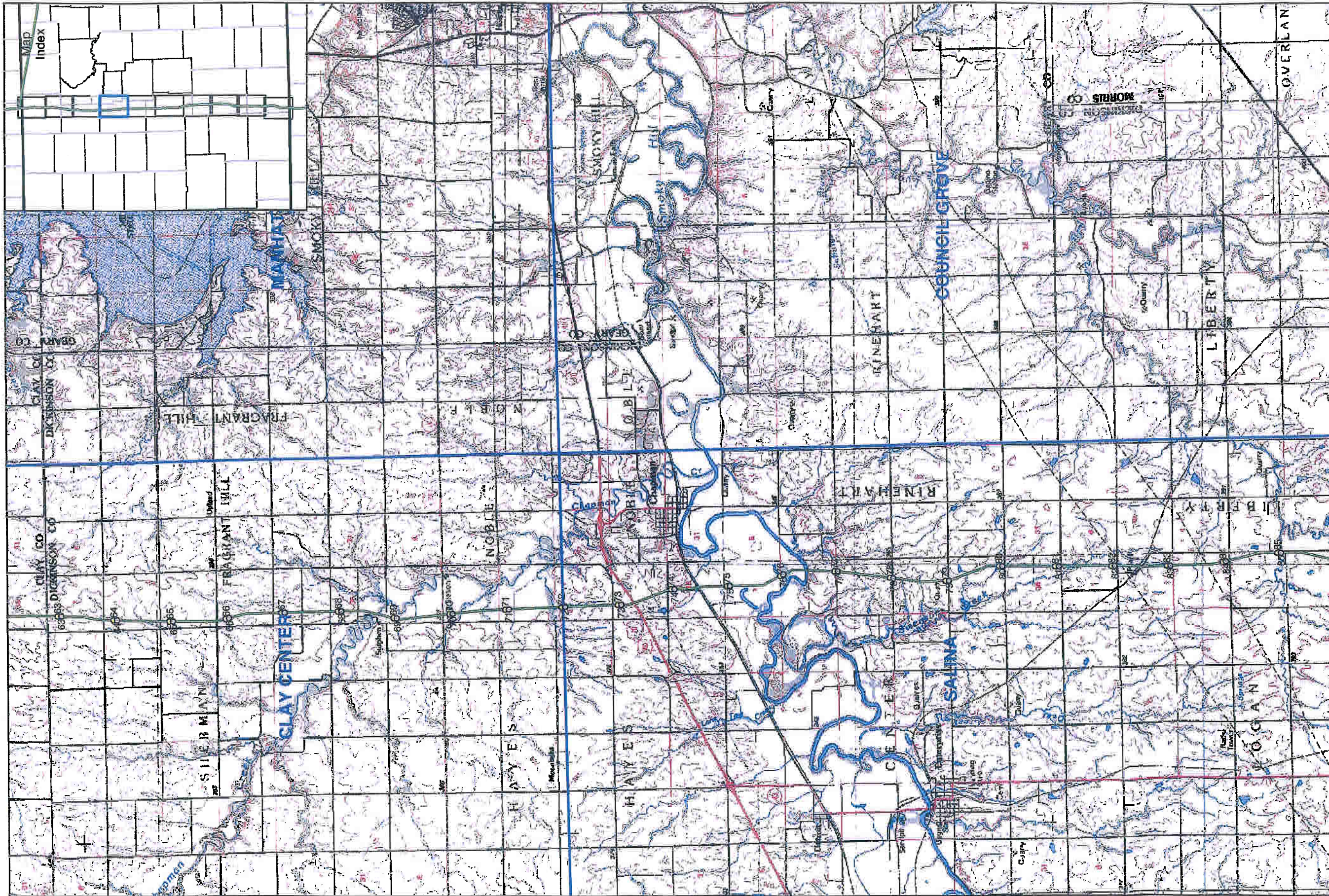
- Mileposts (8/17/06)
- Mileposts (2/9/06)
- Pipeline (8/17/06)
- Pipeline (2/9/06)



Keystone Pipeline Project
TransCanada
26 Business to Deliver

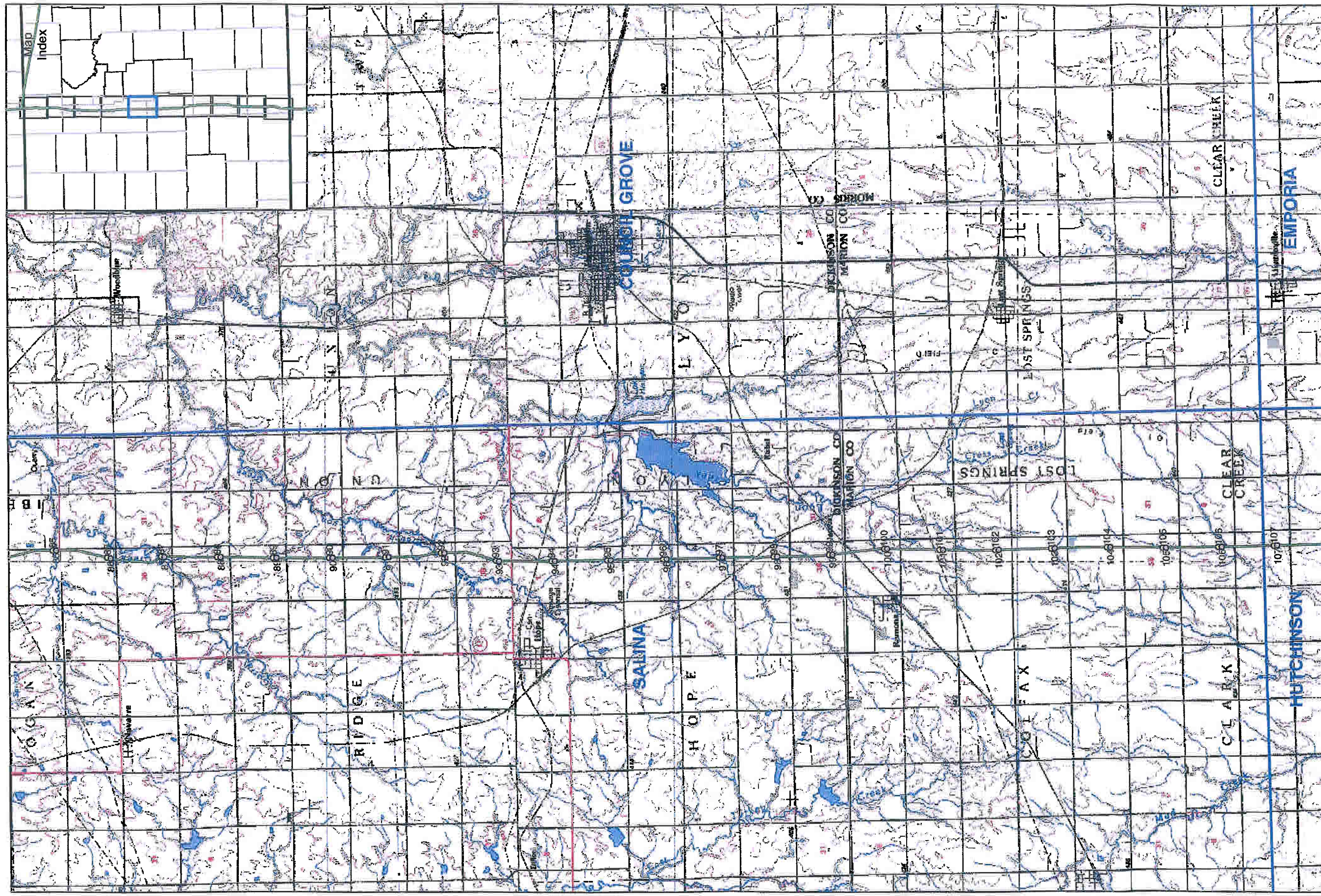
Map 3 of 10
General Project Location
(Kansas-Cushing)

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Keystone Pipeline Project
 TransCanada
an energy services company

Map 4 of 10
General Project Location
(Kansas-Cushing)



◊ Mileposts (8/17/06)
 ◊ Mileposts (2/2/06)
 Pipeline (8/17/06)
 Pipeline (2/2/06)

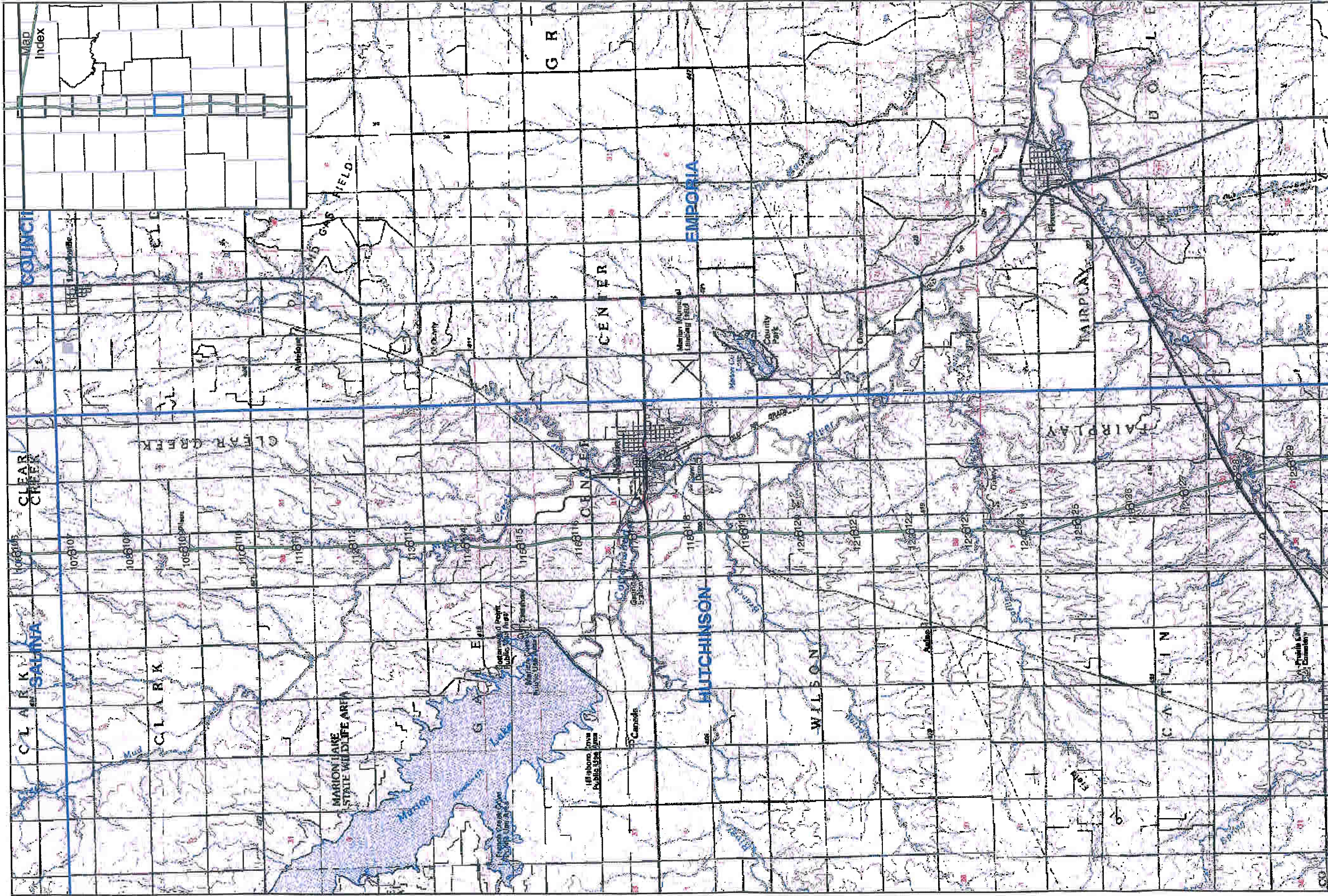
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Keystone Pipeline Project

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Map 5 of 10
 General Project Location
 (Kansas-Cushing)

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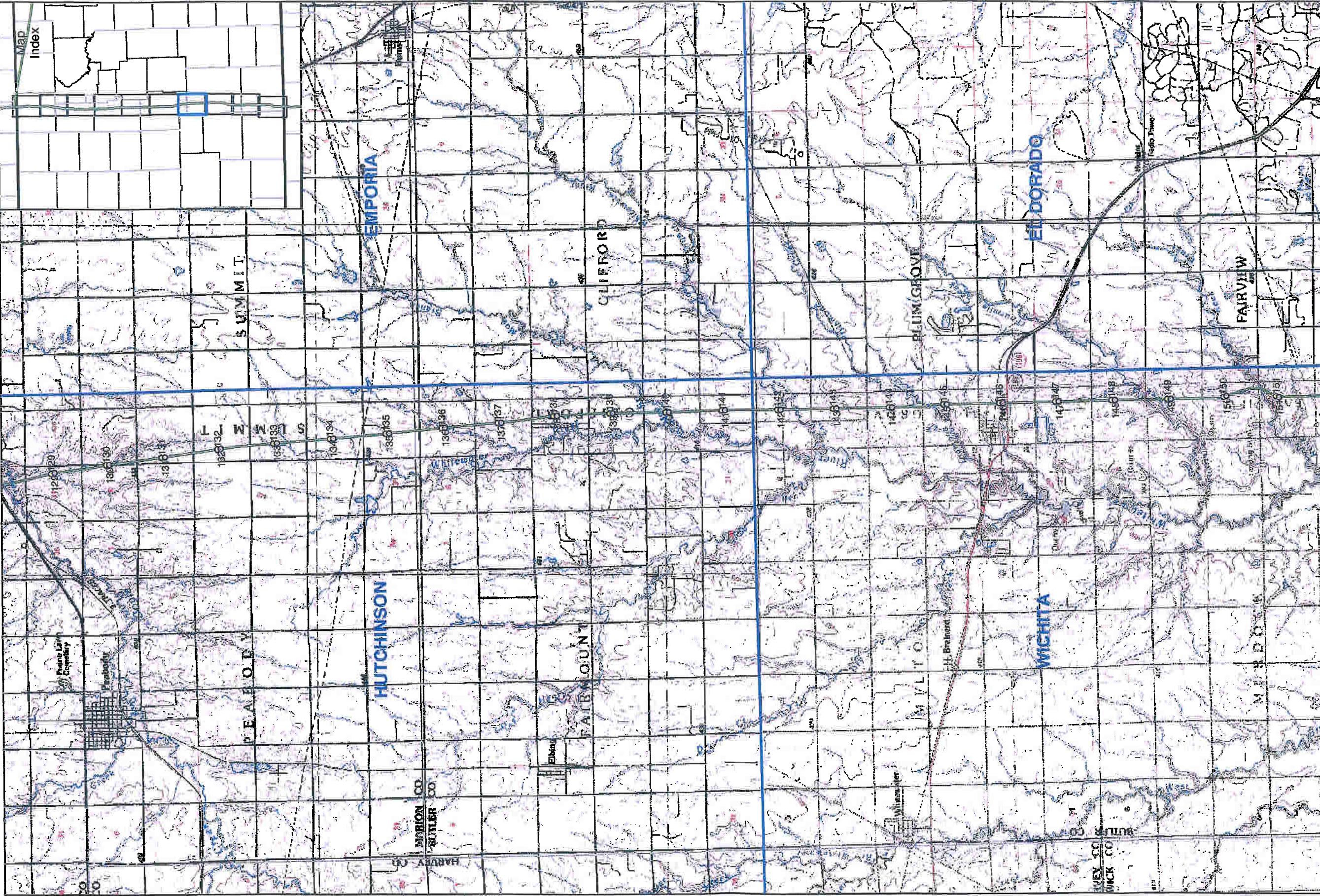


◆ Mileposts (8/17/05)
◆ Airports (2/9/06)
— Pipeline (8/17/05)
— Pipeline (2/9/05)

North Arrow
Scale: 0 0.5 1 2 Miles

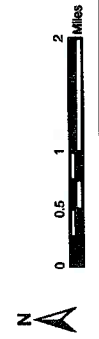
Keystone Pipeline Project
TransCanada
In partnership with others

Map 6 of 10
General Project Location
(Kansas-Cushing)



Map Index

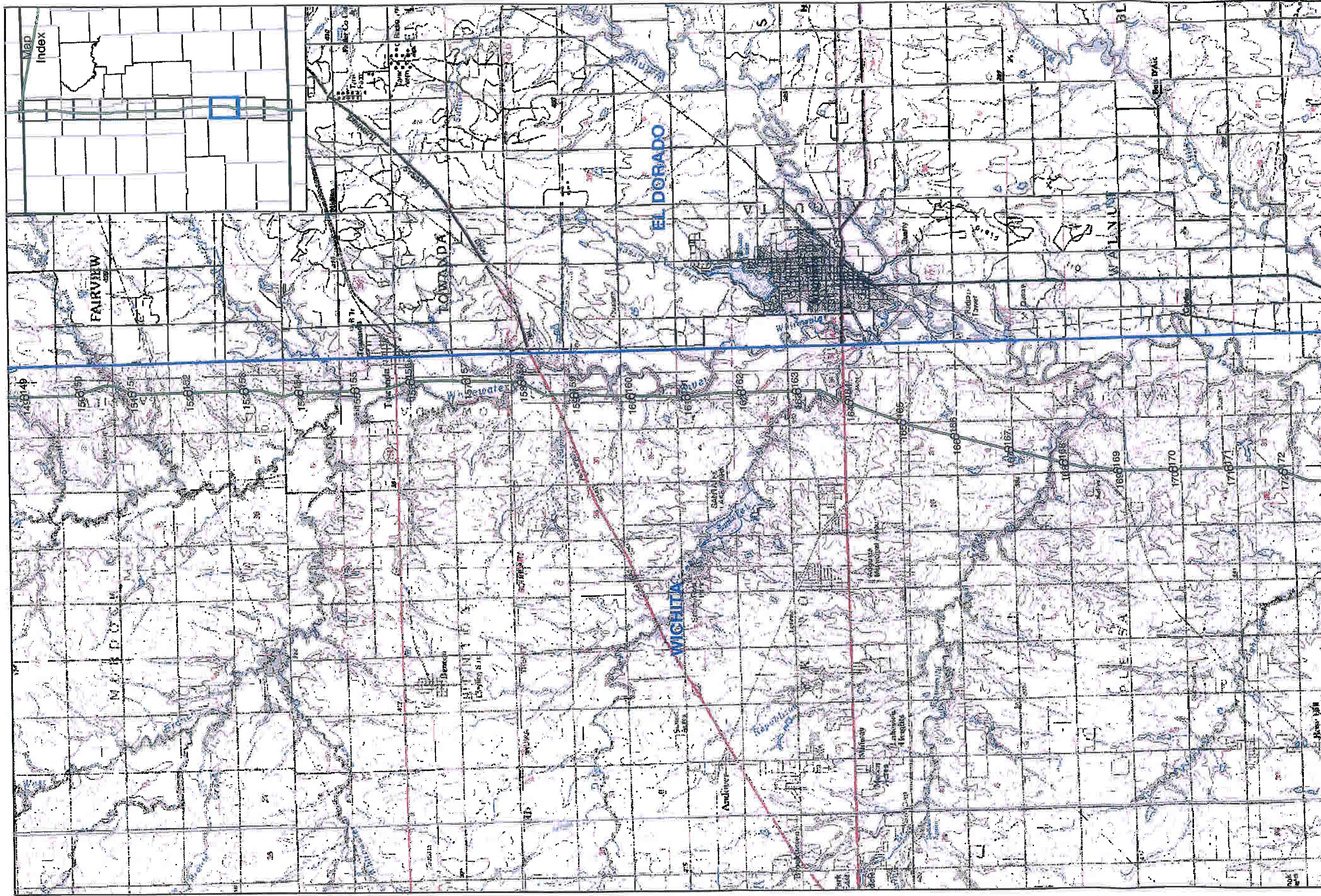
- ◆ Mileposts (8/17/06)
- ◆ Mileposts (2/28/06)
- Pipeline (8/17/06)
- Pipeline (2/28/06)



Keystone Pipeline Project

TransCanada
An Enbridge Company

Map 7 of 10
General Project Location
(Kansas-Cushing)



- ◊ Mileposts (8/17/06)
- ◊ Mileposts (2/9/06)
- Pipeline (8/17/06)
- Pipeline (2/9/06)

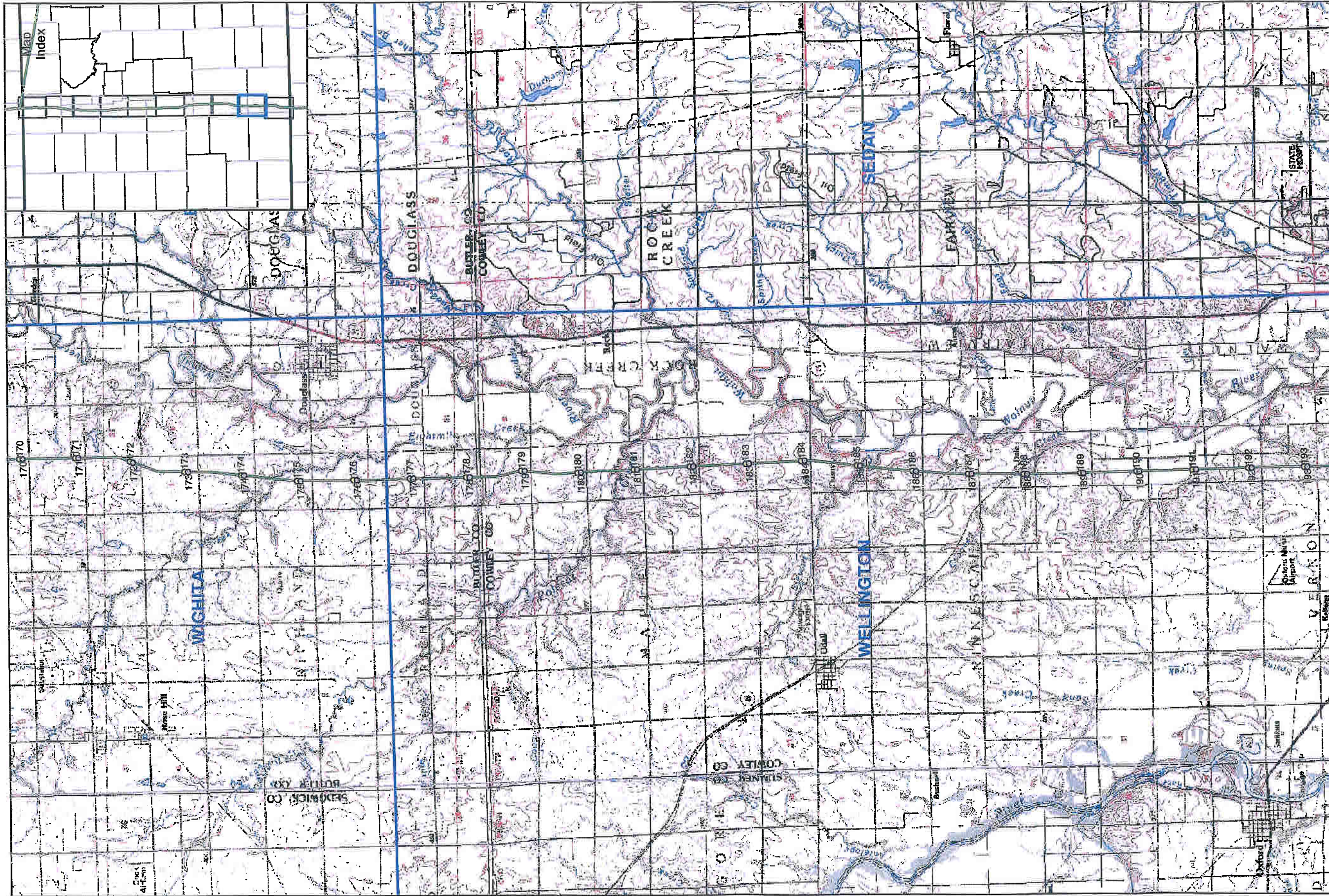


Keystone Pipeline Project

 TransCanada
an. Business. An. oilfield.

Map 8 of 10
 General Project Location
 (Kansas-Cushing)

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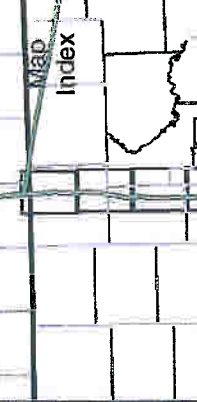
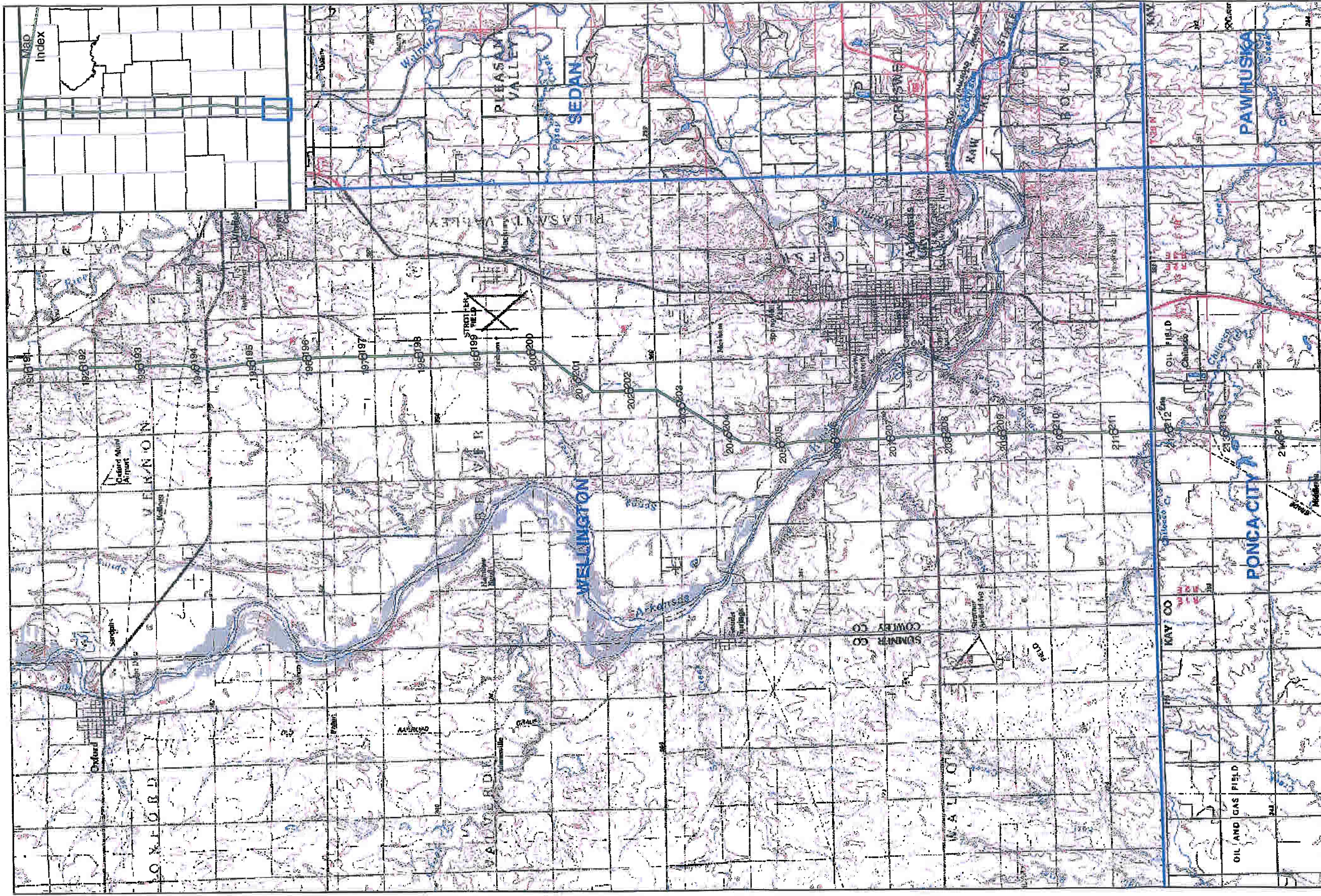


◊ Mileposts (8/17/06)
 ◊ Mileposts (2/28/06)
 Pipeline (8/17/06)
 Pipeline (2/28/06)

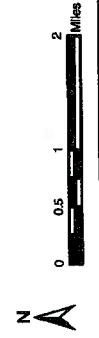
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Keystone Pipeline Project

Map 9 of 10
 General Project Location
 (Kansas-Cushing)



- ◊ Mileposts (8/17/06)
- ◊ Mileposts (2/6/06)
- Pipeline (8/17/06)
- Pipeline (2/6/06)



Keystone Pipeline Project

 by *TransCanada* an Enbridge company

Map 10 of 10
 General Project Location
 (Kansas-Cushing)

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Stribley, Sara

From: Stribley, Sara
Sent: Monday, January 15, 2007 2:26 PM
To: 'nated@wp.state.ks.us'
Subject: Keystone ENSR - Fish Survey Protocols

Hi Nate,

A few questions for you? Do you have any survey recommendations or protocols for the following species:

Arkansas darter
Arkansas river speckled chub
Silver chub
Arkansas river shiner
Neosho madtom

I am mainly looking for guidance on seining techniques, seine net size, survey width, survey period, etc.

Also, would you be available for a conference call the week of January 29th or February 12th instead of meeting in person? You mentioned in your last email that you would be out of town the week of February 5th, so I'm wondering if either of these other weeks would work for you?

Thanks Nate!

Sara

Sara Stribley

Environmental Coordinator

ENSR | AECOM

1601 Prospect Pkwy

Ft. Collins, Colorado 80525

P: 970.493.8878

F: 970.4930213

sstribley@ensr.aecom.com

www.ensr.aecom.com



Correspondence Summary Sheet

By: William J Stark Date: 01/12/2007

Talked With: Nate Davis Project Number: 10623-004

Title: Biologist, Pratt KS Project Name: Keystone

Of: Kansas Department of Wildlife and Parks Subject: Report Review

Telephone Number: 620 672 0795 Facsimile Number:

Email or Internet Address (if applicable):

Supplemental Information Attached? YES NO X

Indicate Documentation Type: Telephone Facsimile Internet Email

I telephoned Nate Davis, KDWP, and discussed the Topeka Shiner Survey report. Nate had received the report and would be reviewing it over the course of the next 30 days. Initially he did not see difficulties with the survey protocols etc. He indicated that he would respond officially detailing the mitigation steps for crossings within the designated critical habitat as outlined in previous correspondence with ENSR.

He indicated that he would be requesting sampling protocols for additional species included in the Cushing Extension.

_____ William J. Stark _____
Signature

Distribution: (1) File (2) Self (3) Report

Stribley, Sara

From: Davis, Nate [nated@wp.state.ks.us]
Sent: Monday, January 08, 2007 1:32 PM
To: Stribley, Sara
Subject: RE: Keystone ENSR - Meeting with KDWP

Hi Sara,
I will be out of town that entire week. If you would like to reschedule, or coordinate otherwise let me know. I don't expect any significant impacts to the stream system if the permit conditions we have spoke of in the past are implemented (i.e. spawning date restrictions, restoring the bed & banks of the stream, salvage & relocation, etc). I'll review the document and provide comments within 30 days. We have received it late last week.

thanks
Nate Davis
Ecologist;KDWP,Environmental Services Section;512 SE 25th Ave,Pratt,KS 67124
620.672.0795 (O)620.450.8311 (C),nated@wp.state.ks.us
http://www.kdwp.state.ks.us/news/other_services/threatened_and_endangered_species

----- Original Message -----
From: "Stribley, Sara"
Sent: Thu, 1/4/2007 10:03am
To: "Davis, Nate"
Subject: Keystone ENSR - Meeting with KDWP

When: Thursday, February 08, 2007 8:00 AM-10:00 AM (GMT-07:00) Mountain Time (US & Canada).
Where: Pratt, KS

~~*~*~*~*~*~*~*~*

Hi Nate,
ENSR would like to meet with you in early February to review the biological surveys that are planned for the Keystone Pipeline Project in 2007 and 2008 in Kansas. Would the following meeting date and time work for you?

Date: Thursday, February 8, 2007
Time: 8:00 - 10:00 am
Location: Pratt, KS - KDWP Office

ENSR is planning on sending you a package by next week containing all of the information regarding the upcoming biological surveys for the Project in Kansas. We are hoping to use the information contained in this package as the template for discussions at the February meeting. Please feel free to invite other KDWP representatives if needed. Please let me know at your earliest convenience if you would or would not be able to attend this meeting.

Thanks and Happy New Year,
Sara

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