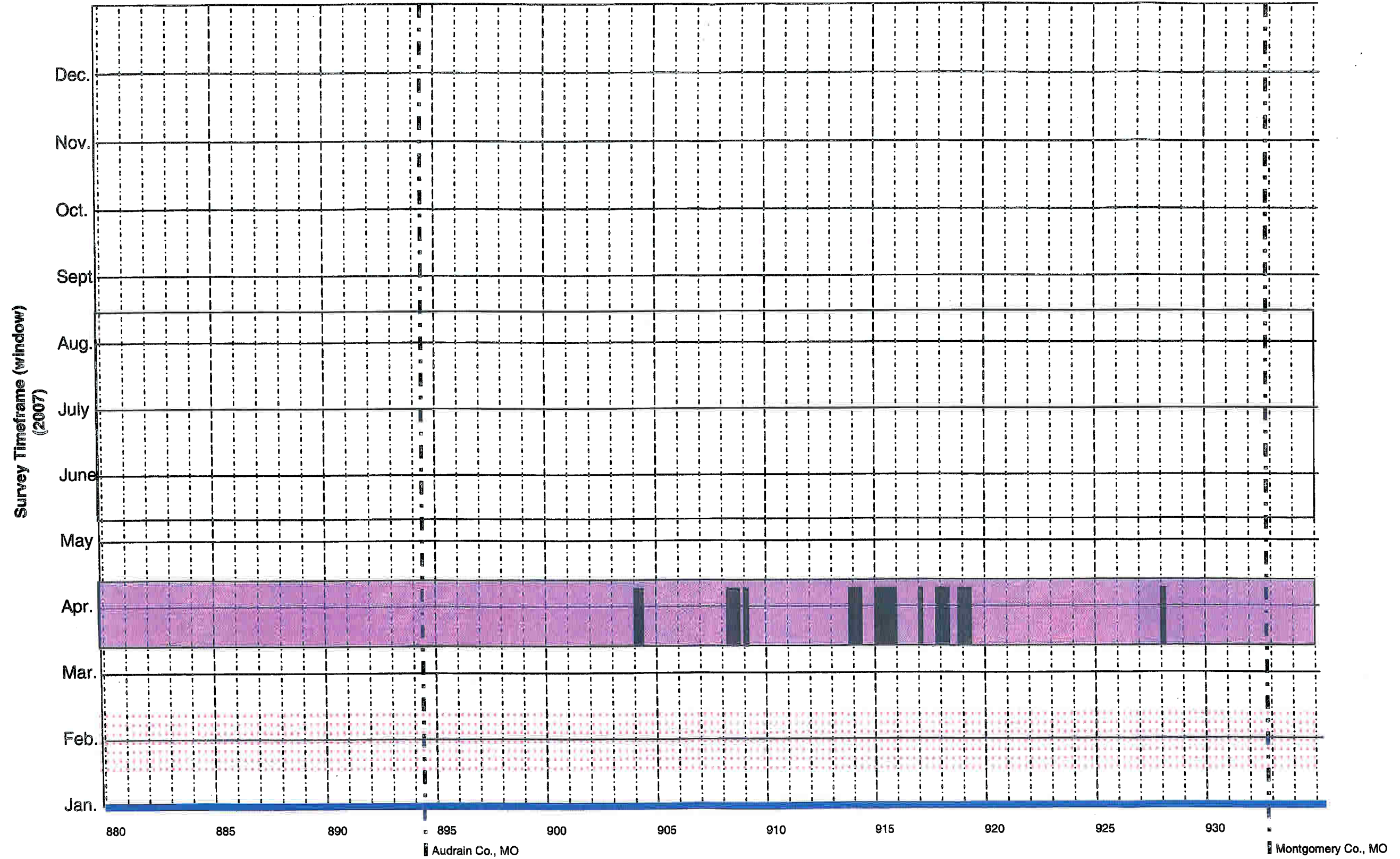


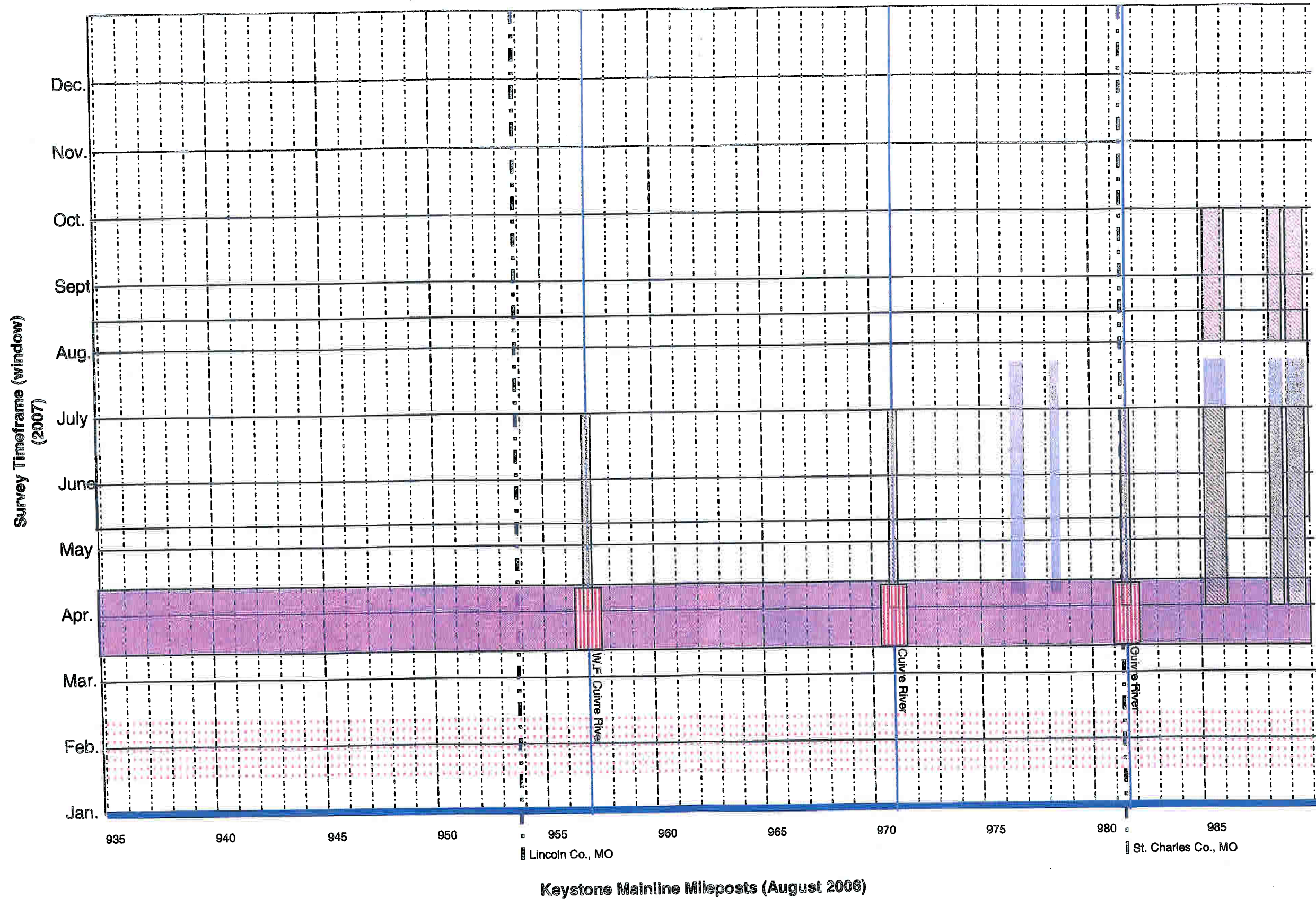
Keystone Pipeline Project
Biological Survey March-Chart 2007



Keystone Mainline Mileposts (August 2006)

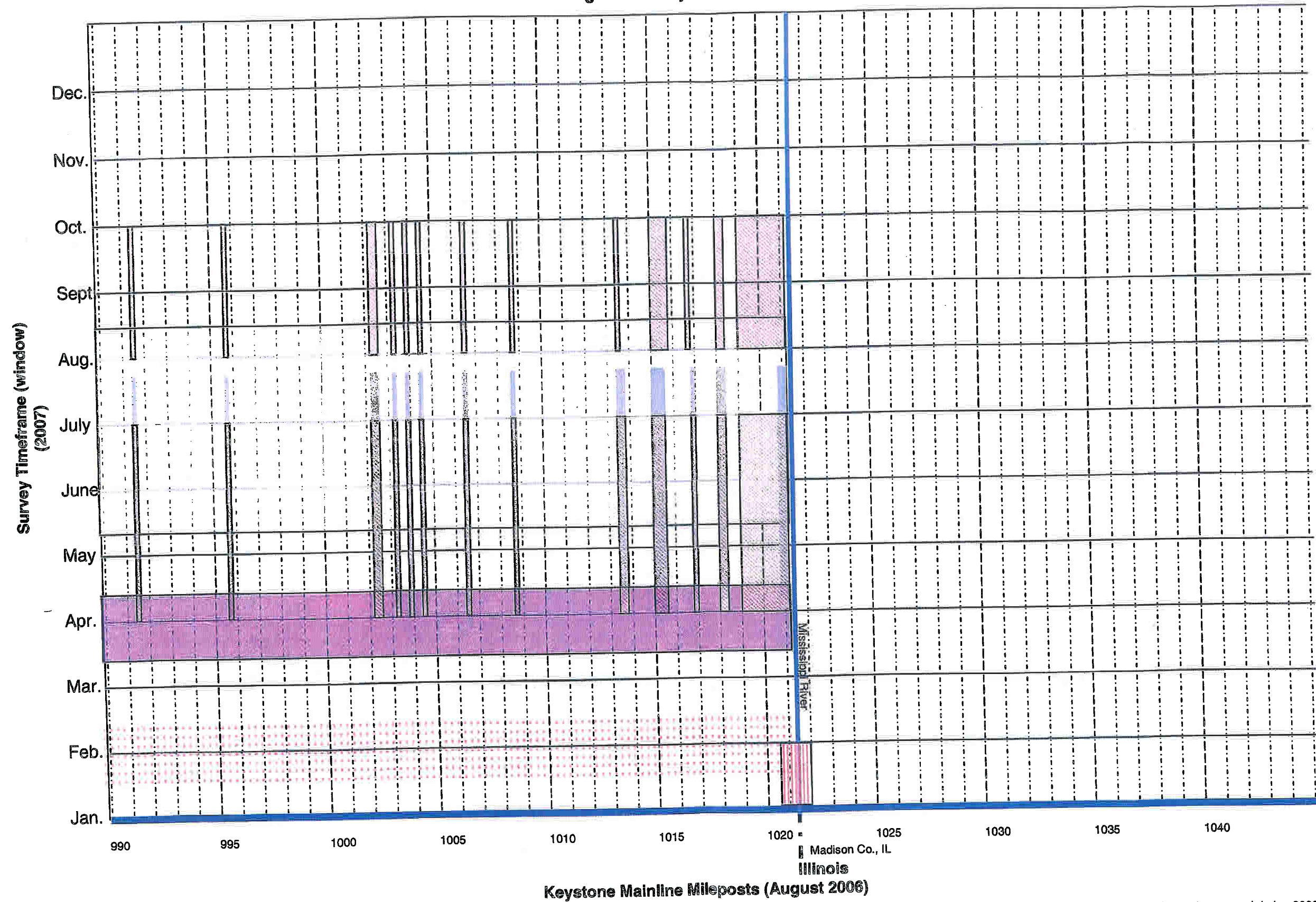
□ Indiana Bat Mist Net Surveys; to be conducted at specific woodlots determined from 2006 habitat analysis ■ Raptors ■ Greater Prairie Chicken; potential survey sites.
■ Indiana Bat Habitat Surveys; conducted at woodlots not surveyed during 2006 field work

Keystone Pipeline Project Biological Survey March-Chart 2007



Indiana Bat Mist Net Surveys; to be conducted at specific woodlots determined from 2006 habitat analysis
 Bald Eagle (Nest Sites)
 Raptors
 King Rail; survey areas to be refined
 Running Buffalo Clover
 Decurrent False Aster
 Indiana Bat Habitat Surveys; conducted at woodlots not surveyed during 2006 field work

Keystone Pipeline Project Biological Survey March-Chart 2007



[] Indiana Bat Mist Net Surveys; to be conducted at specific woodlots determined from 2006 habitat analysis
 [] Running Buffalo Clover
 [] Decurrent False Aster
 [] Raptors
 [] King Rail; survey areas to be refined
 [] Bald Eagle (Winter Roost and Nest Sites)
 [] Indiana Bat Habitat Surveys; conducted at woodlots not surveyed during 2006 field work

**Keystone Pipeline Project
Survey Protocols for Missouri Special Status Species**

Species & Status	Survey Protocol
Indiana Bat <i>Myotis sodalists</i> FE; MO-E	Survey Frequency: Habitat surveys were initiated in 2006 to characterize habitat quality for potential roosting habitat. Habitat evaluations are scheduled to be completed in spring 2007. Occurrence surveys (i.e., mist netting) would be conducted in 2007, in coordination with the USFWS, if needed. Procedures: See attached Indiana Bat Study Plan and USFWS Mist Netting Guidelines. Qualifications of the surveyor, method of survey, and results of the survey will be submitted to the MDC and the appropriate Service field office.
Bald Eagle <i>Haliaeetus leucocephalus</i> FT; SD-T	Survey Frequency: Aerial bald eagle surveys will be conducted for nest sites and winter roost sites 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). Procedures: 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.

Keystone Pipeline Project
Survey Protocols for Missouri Special Status Species

Species & Status	Survey Protocol
Raptors	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 December 2006. A second raptor survey effort will be conducted 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. Procedures: 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 MDC and the appropriate USFWS field office.
Barn Owl <i>Tyto alba</i> MO-E	Survey Frequency: Surveys will be conducted prior to construction in 2008 if pipeline construction occurs during the nesting season (March - June), if needed. Procedures: 1. Surveys will be conducted at any old buildings, barns, or structures within the construction ROW between March and June, if construction was to occur during the nesting season for this species. 2. Surveys will be conducted during the day within abandoned structures to identify birds, and signs of birds (pellets, rodent bones, etc.). 3. Surveys will also be conducted at dusk to identify owls calling and exiting structures. 4. Qualifications of the surveyor, method of survey, and results of the survey will be submitted to the MDC.

Keystone Pipeline Project
Survey Protocols for Missouri Special Status Species

Species & Status	Survey Protocol
Greater Prairie Chicken <i>Tympanuchus cupido</i> MO-E	Survey Frequency: Phone surveys with landowners that have potential habitat for the prairie chicken in Audrain County, MO will be completed in the spring of 2007 to determine if prairie chickens have been observed along the project route. If prairie chickens have been sighted, booming ground surveys will be conducted during the mating season in 2007. Procedures: TBD
King Rail <i>Rallus elegans</i> MO-E	Survey Frequency: Desktop habitat analysis for this species will be conducted in winter 2007, in coordination with the MDC. Habitat surveys will be conducted in suitable wetland/bottomland habitat in the spring of 2007. If suitable habitat is identified, follow-up species occurrence surveys may be conducted between April to July, 2007. Procedures: TBD
Northern Harrier <i>Circus cyaneus</i> MO-E	Survey Frequency: Surveys will be conducted prior to construction in 2008 if pipeline construction occurs during the breeding season (May - July). Procedures: 1. Surveys will be conducted in tracts of grasslands, marshes, or other open, grassy habitats for the presence of adult birds, young, or nests between May and July, preferably June to early July. 2. Surveys will be conducted in the early morning to observe foraging birds; however, surveys may be conducted at any time during the day. 3. If birds or evidence of birds are observed, construction should be restricted in the abovementioned nesting period. 4. Qualifications of the surveyor, method of survey, and results of the survey will be submitted to the MDC.

Keystone Pipeline Project
Survey Protocols for Missouri Special Status Species

Species & Status	Survey Protocol
Topeka Shiner <i>Notropis topeka</i> FE; MO-E	Survey Frequency: Habitat and fish occurrence surveys were conducted in the fall of 2006 at specific Topeka shiner stream crossings to document habitat suitability, stream characteristics (intermittent/perennial flow, water quality), and spawning habitat. A Topeka shiner report was submitted to the MDC and USFWS in December 2006. Based on the USFWS and MDC review of the 2006 survey report, further surveys may be required. Procedures: 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 MDC and the appropriate USFWS field office.

Keystone Pipeline Project

Survey Protocols for Missouri Special Status Species

Species & Status	Survey Protocol
Massasauga <i>Sistrurus catenatus</i> FC; MO-E	Survey Frequency: Habitat surveys will be conducted in the spring of 2007 to determine if any suitable habitat exists within the construction ROW. After completion of the habitat surveys, ENSR will coordinate with MDC to determine further survey requirements. Procedures: See attached Snake Study Plan. Qualifications of the surveyor, method of survey, and results of the survey will be submitted to the MDC and the appropriate Service field office.
Western Fox Snake <i>Elaphe vulpina</i> vulpine MO-E	
Decurrent false aster <i>Boltonia decurrens</i> FT; MO-E	Survey Frequency: One survey will be conducted in 2007 during the flowering period to determine presence within the construction ROW. 2008 pre-construction surveys would only be conducted in areas where this species was observed in 2007. Procedures: 1. Occurrence surveys will occur in areas of "good" habitat within the construction ROW. 2. Habitats to be visited include: a. Areas subject to periodic flooding such as: agricultural fields; ruderal sites; roadside ditches; base of levees near standing water; sloughs; pond margins; wet prairies; edges of, or openings within, floodplain forests. 3. Surveys will be conducted during the flowering period (usually late Aug. through Sept.) by a qualified botanist familiar with the species and trained to conduct rare plant surveys. 4. Date, time, land use and/or habitat type, and number of asters observed will be recorded for each sighting. 5. Qualifications of the surveyor, method of survey, and results of the survey will be submitted to the MDC and appropriate Service field office.

Keystone Pipeline Project
Survey Protocols for Missouri Special Status Species

Species & Status	Survey Protocol
Running buffalo clover <i>Trifolium stoloniferum</i> FE; MO-E	Survey Frequency: One survey will be conducted in 2007 at the major river crossings during the flowering period to determine presence within the construction ROW. 2008 pre-construction surveys would only be conducted in areas where this species was observed in 2007. Procedures: 1. Occurrence surveys will occur in areas of "good" habitat within the construction ROW. 2. Presence/absence surveys for the species will occur within suitable identified at the Missouri, Grand, Chariton, Middle Fork Little Chariton, East Fork Little Chariton, West Fork Cuivre, Cuivre, and Mississippi river crossings. 3. Habitats to be visited at the river crossings include: a. Rich soils between open forest and prairie; moist, partially shaded woodlands; stream or river terraces. 4. Surveys will be conducted during the flowering period (April - June) by a qualified botanist familiar with the species and trained to conduct rare plant surveys. Surveyors will develop a search image for running buffalo clover based on field observation at a known site. 5. Date, time, land use and/or habitat type, and number observed will be recorded for each sighting. 6. Qualifications of the surveyor, method of survey, and results of the survey will be submitted to the MDC and Missouri Service field office
Migratory Birds	TBD



October 16, 2006

Missouri Department of Conservation
P.O. Box 180
Jefferson City, Missouri 65102-0180

RE: Study Plan: Protected Snake Habitat Assessment on the Keystone Pipeline Project

To Whom It May Concern:

BHE Environmental, Inc. (BHE) has been contracted to conduct a habitat assessment for protected snake species that may occur along the proposed Keystone Pipeline Project in Missouri. The State of Missouri classifies the eastern massasauga (*Sistrurus catenatus*) and the western fox snake (*Elaphe vulpina*) as state endangered. Neither of these species is currently federally listed, but the massasauga is a Federal Candidate species.

The Missouri Department of Conservation (MDC) has indicated that Buchanan, Carroll, Chariton, and St. Charles counties may contain habitat for massasaugas and western fox snakes. BHE was contracted by ENSR Corporation (ENSR) to conduct a habitat assessment for these protected snake species within these counties along the Keystone Pipeline Project area. A detailed study plan is provided below.

Study Plan

Remote Habitat Assessment

The massasauga and western fox snake are associated with wetlands, and habitat requirements for the two species are very similar. Both are typically found in wet prairies, wet meadows, and open areas at the margins of wetlands. Presence and density of crayfish burrows, which are used as hibernacula, are also important indicators of habitat suitability. Recent research indicates that eastern massasaugas and western fox snakes range widely through the landscape during the warm season but tend to hibernate in relatively small, specific areas. This suggests that suitable hibernacula for these snakes are limited; both species have been found to hibernate in areas with a high water table, but tend to avoid wetlands where surface soil is saturated. Closed forests and dense vegetation are also typically avoided, as are expanses of open water.

In fall 2006, USGS topographic maps, aerial photography, National Wetlands Inventory (NWI) maps, and wetland delineation information were used to identify regions of the Keystone Pipeline Project area where suitable habitat for the eastern massasauga and western fox snake may occur.

For purposes of the remote habitat assessment, potential habitat is defined as any part of the construction corridor in which a wetland is known to occur in association with an open area,

e.g., a field next to a wetland. Wetlands that are completely forested were eliminated as potential habitat, as were areas of prolonged inundation or year-round open water.

On-Site Habitat Assessment

Potential snake habitat identified during the remote habitat assessment will be field verified. During field verification, potential snake habitat will be categorized as either likely to support protected snake species (i.e., meets habitat requirements), or not likely to support protected snake species (does not meet habitat requirements).

Habitat categorization will be based upon these requirements:

- Presence of seasonally or temporarily saturated ground, or proximity to a body of water such as a lake or pond.
- Presence of adjacent open areas such as fields or meadows.
- Presence and density of potential hibernacula such as crayfish burrows.

As presence of suitable hibernacula appear to be the limiting factor to these snakes' occurrence, categorization of "likely to support" will be highly dependent upon presence of potential hibernacula such as crayfish or small mammal burrows, submerged root masses, or other means by which snakes can access subsurface saturated ground. If potential hibernacula are sparse (fewer than 1 per 10 meter²), or if surface soil is saturated, the area will be categorized as "not likely to support" protected snake species.

Areas identified during the remote assessment that were not accurately represented in aerial photos or NWI maps (i.e., have since been altered) and are no longer suitable for these species will be eliminated from further study.

All areas categorized as "likely to support" protected snakes identified during the on-site survey will be described on a Site Description Data Sheet (attached) and the location recorded with GPS equipment. Photographs will be taken of all sites visited during the on-site habitat assessment and field verification.

Following the on-site habitat assessment, ENSR and BHE will reconvene with MDC to review results, and discuss potential future monitoring efforts. If further survey or monitoring of snake habitat on the construction corridor is necessary, it will be coordinated through MDC, with agency input.

If this habitat assessment plan is acceptable, please reply by e-mail, or sign this letter in the space provided below and return it by fax to me at 513.326.1178.

CONFIDENTIAL

MDC/Keystone
October 16, 2006
Page 3

Should you have any questions or comments about the proposed plan, please feel free to contact me by phone at 513.326.1175 or by e-mail at vhand@bheenvironmental.com.

Sincerely,



Vincent C. Hand, Ph.D.
Director, Natural Resources Management

Attachments

_____ I concur with the methods presented in this study plan

_____ I do not concur with the methods presented in this study plan
please provide additional guidance or explanation

_____ Signature

_____ Date

CONFIDENTIAL

Table showing location of wetland features by county and pipeline milepost numbers.

County	West Milepost	East Milepost
Buchanan	743.9	744.0
Buchanan	744.7	744.9
Buchanan	746.8	
Buchanan	747.3	747.4
Buchanan	747.4	747.5
Buchanan	747.6	747.8
Buchanan	750.7	750.8
Buchanan	752.5	752.6
Buchanan	752.7	752.8
Buchanan	754.3	754.4
Buchanan	755.2	755.3
Buchanan	756.6	756.8
Buchanan	756.8	756.9
Buchanan	757.3	
Buchanan	757.8	757.9
Buchanan	758.0	
Buchanan	758.9	759.0
Buchanan	760.2	760.3
Buchanan	760.5	
Buchanan	761.1	761.2
Buchanan	761.4	761.5
Buchanan	763.0	763.1
Carroll	810.5	810.6
Carroll	814.2	
Carroll	814.8	
Carroll	817.5	
Carroll	819.4	819.5
Carroll	823.2	823.3
Carroll	823.8	823.9
Carroll	824.5	824.6
Carroll	824.7	

CONFIDENTIAL

Carroll	825.0	825.1
Carroll	825.9	826.0
Carroll	827.3	827.4
Carroll	827.7	827.8
Carroll	828.8	828.9
Carroll	834.1	834.3
Carroll	835.0	
Carroll	835.5	
Chariton	836.4	836.5
Chariton	836.9	837.0
Chariton	841.8	841.9
Chariton	842.2	842.3
Chariton	843.2	
Chariton	843.3	843.4
Chariton	844.2	844.3
Chariton	845.2	845.3
Chariton	845.4	845.5
Chariton	845.8	845.9
Chariton	845.8	845.9
Chariton	846.7	
Chariton	847.7	847.9
Chariton	848.5	848.6
Chariton	848.9	
Chariton	849.1	
Chariton	852.1	852.2
Chariton	852.4	852.5
Chariton	852.7	852.8
Chariton	853.3	
Chariton	853.5	853.6
Chariton	854.8	
Chariton	856.2	856.3
Chariton	856.6	856.8
Chariton	856.9	857.0

CONFIDENTIAL

Chariton	857.3	857.4
Chariton	857.8	857.9
Chariton	861.4	861.5
Chariton	862.0	
Chariton	866.5	866.8
St. Charles	984.7	
St. Charles	977.6	977.7
St. Charles	978.1	
St. Charles	980.8	981.5
St. Charles	982.3	982.8
St. Charles	983.4	984.2
St. Charles	984.4	984.9
St. Charles	986.9	987.2
St. Charles	988.7	
St. Charles	991.2	
St. Charles	997.7	998.0
St. Charles	998.7	998.8
St. Charles	999.4	
St. Charles	1001.9	1002
St. Charles	1005.2	
St. Charles	1008.9	1009.2
St. Charles	1011.6	
St. Charles	1012.0	1012.1
St. Charles	1013.8	1013.9

Entries where only one milepost is provided indicate a wetland feature where the length along the pipeline right of way is less than ~ 300 ft.

Site Description Data Sheet

Surveyor(s): _____ Date of Survey: _____

Location of Survey (Lat/Lon or UTM): _____

State: Missouri or Illinois County: _____

REX-West or Keystone Name of Feature/Wetland (assign): _____

General description of site: _____ Photo Number(s): _____

Is standing water present? Y / N

Ground appears to be saturated: frequently temporarily/seasonally rarely

Was a test pit dug? Y / N If yes, depth to saturated soil (cm): _____

Estimated distance to nearest permanent body of water (m): _____

Type of water body: lake/pond stream river

Are crayfish burrows present? Y / N If yes, estimated density ($\#/m^2$): _____

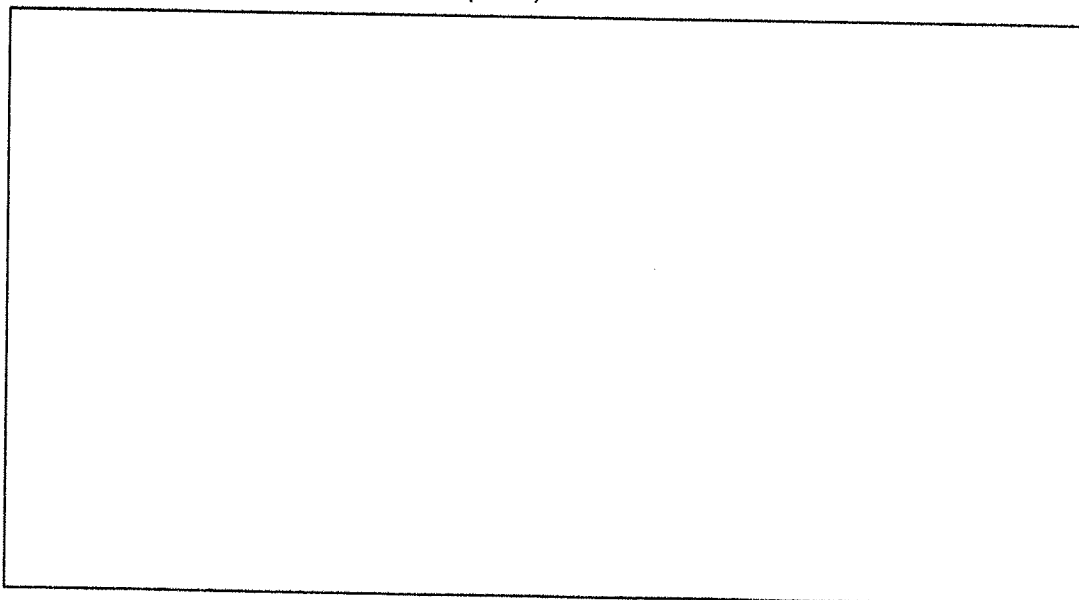
Describe other potential hibernacula present: _____

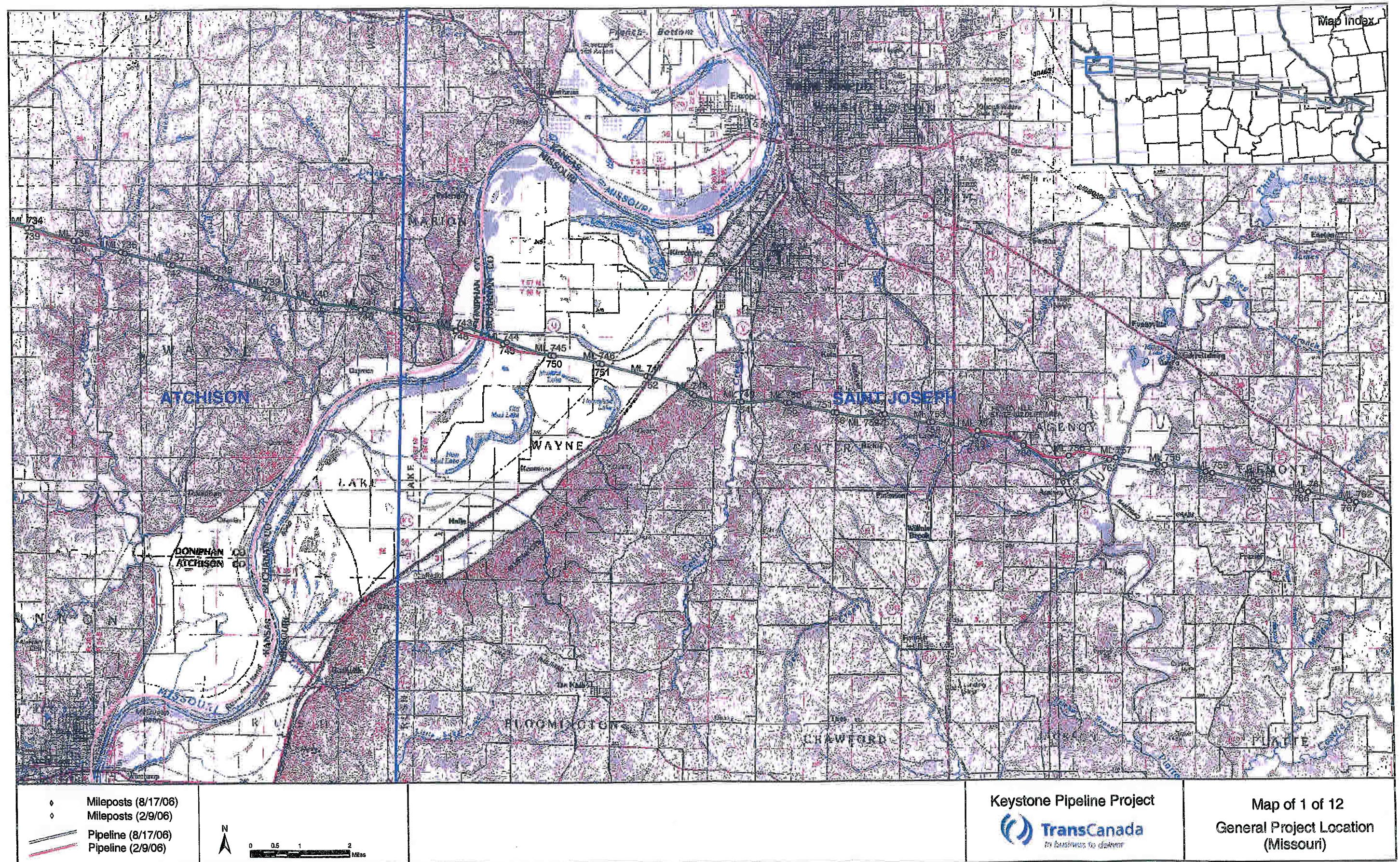
Are there trees in the area? Y / N If yes, estimated percent canopy closure: _____%

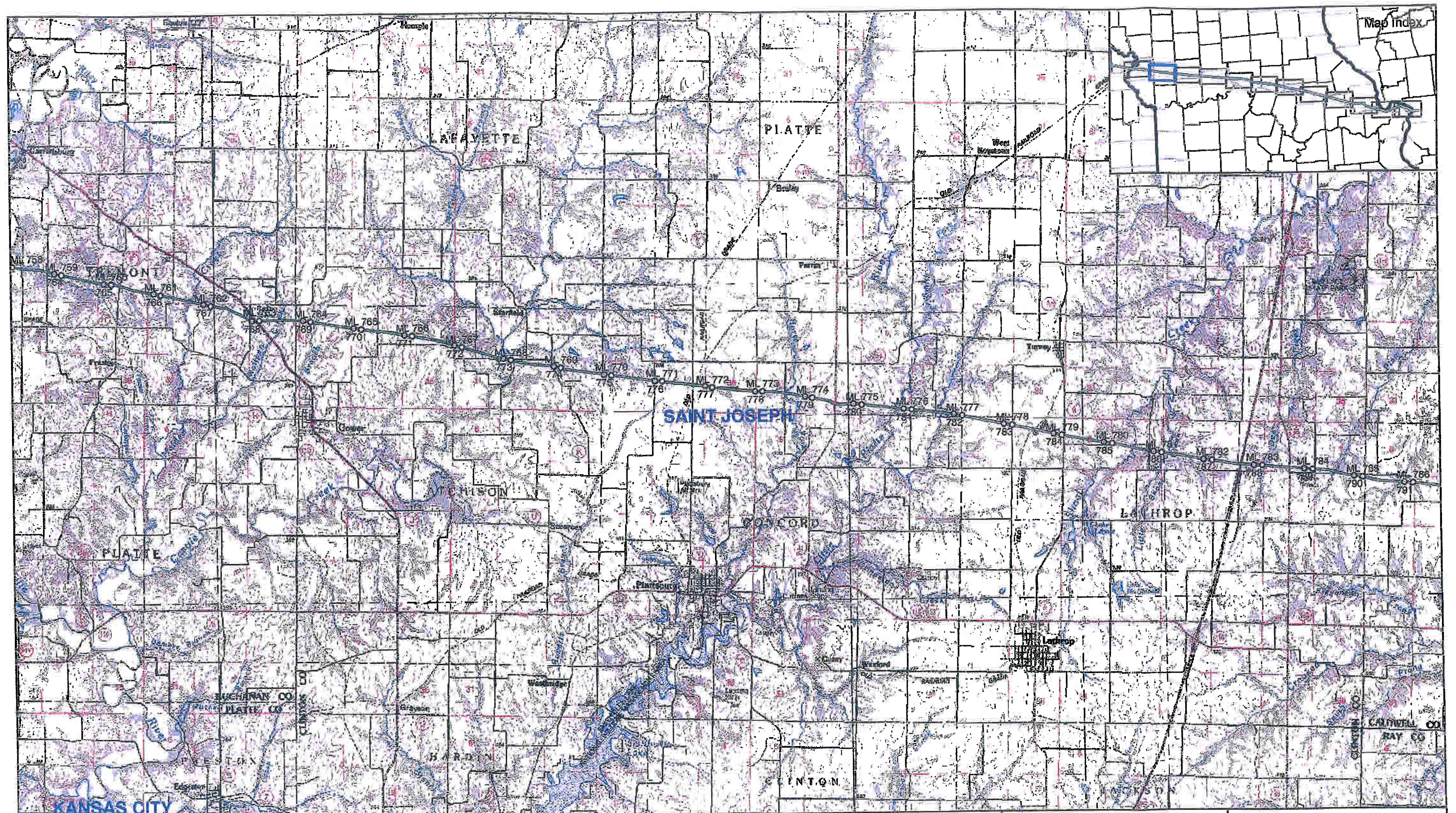
Dominant species (3): _____

Notes:

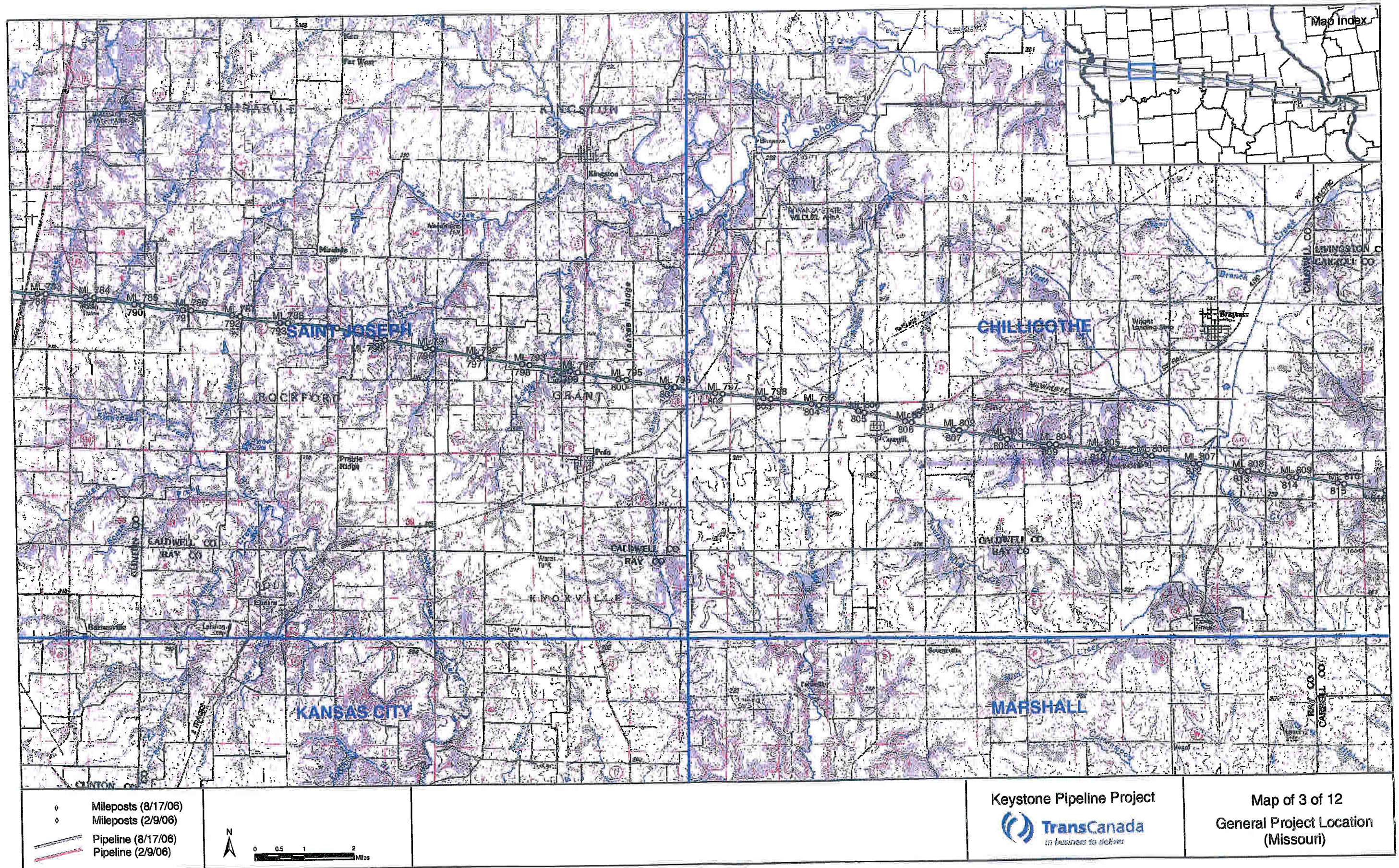
Sketch of Survey Area (indicate mileposts):

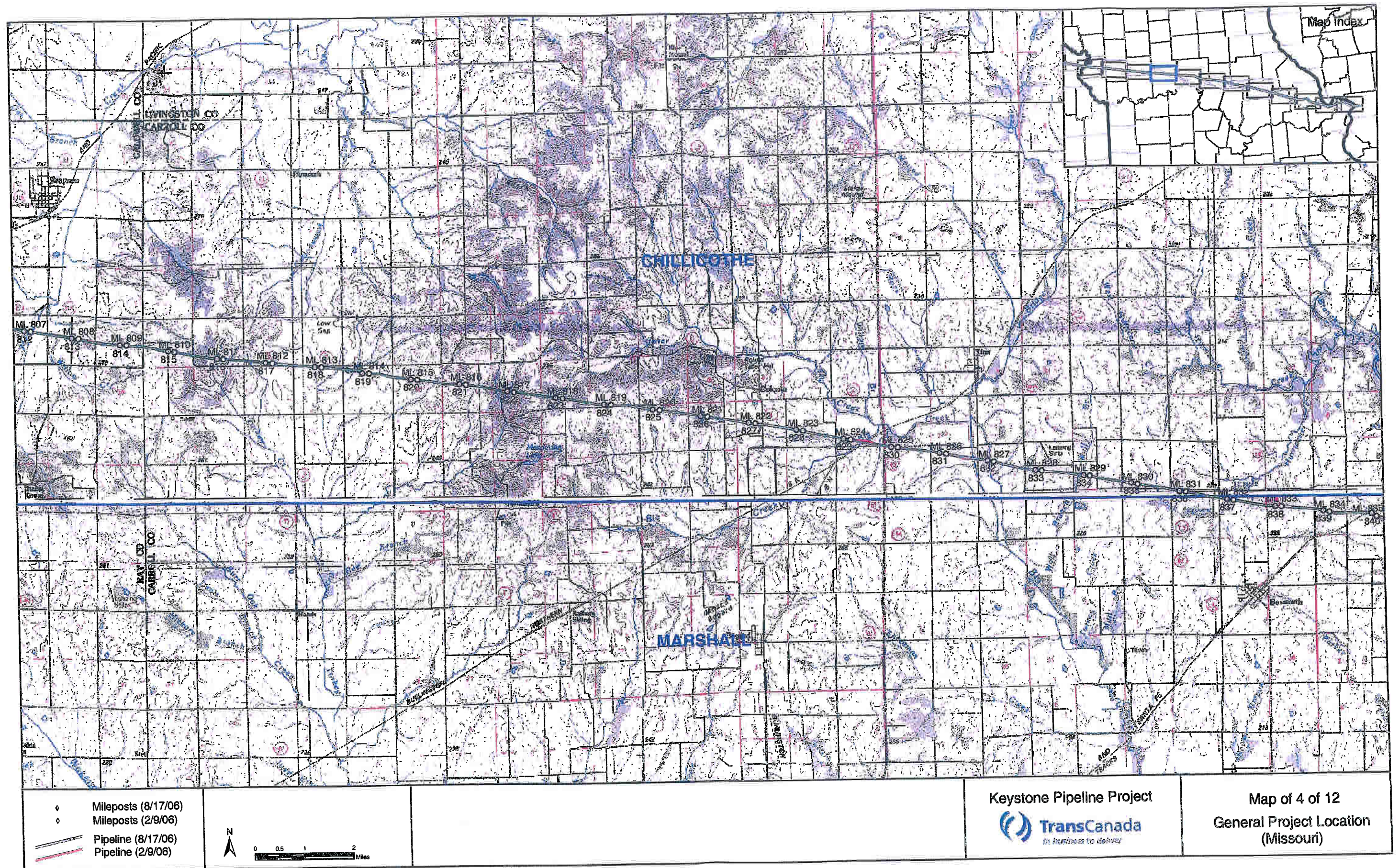


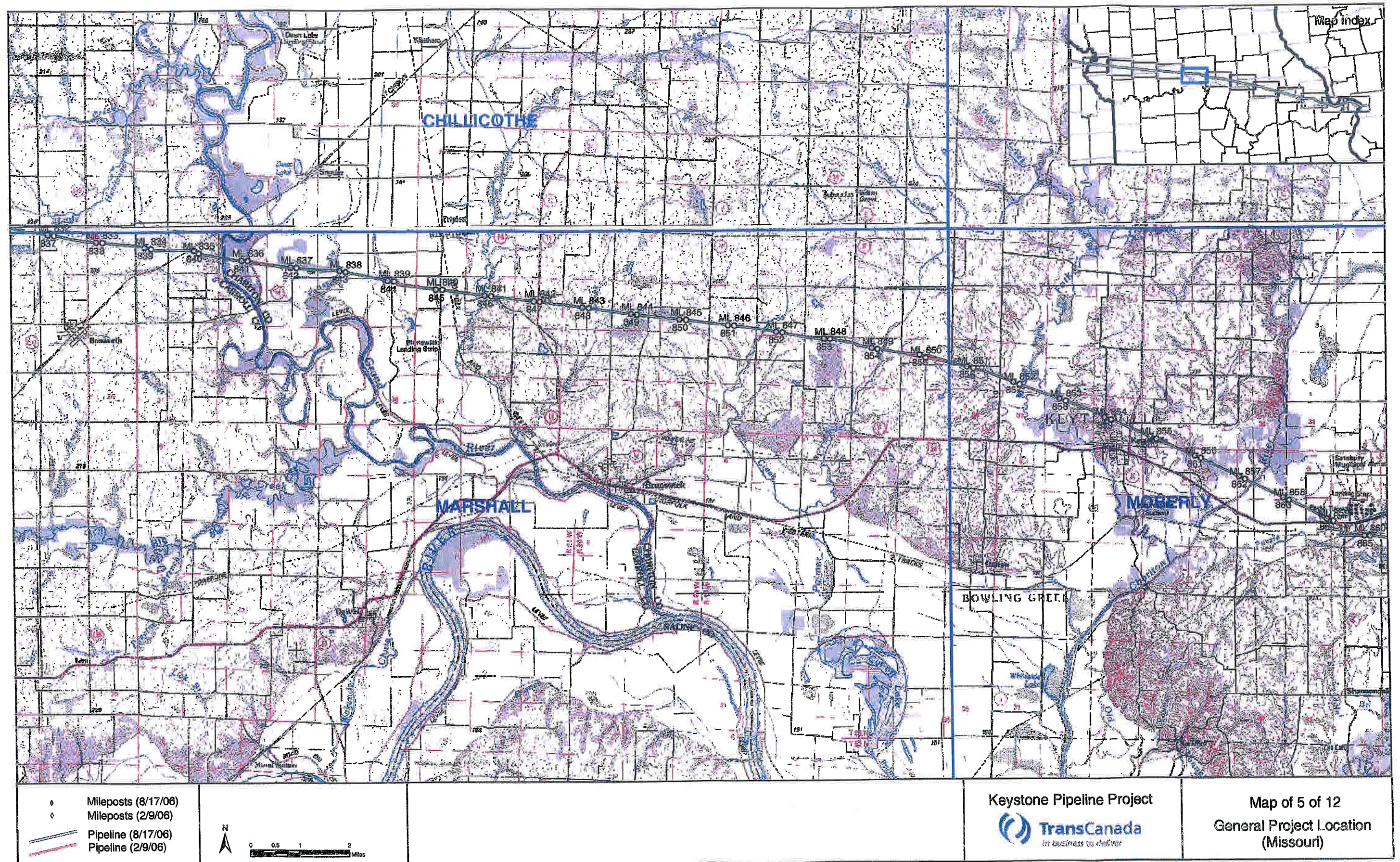


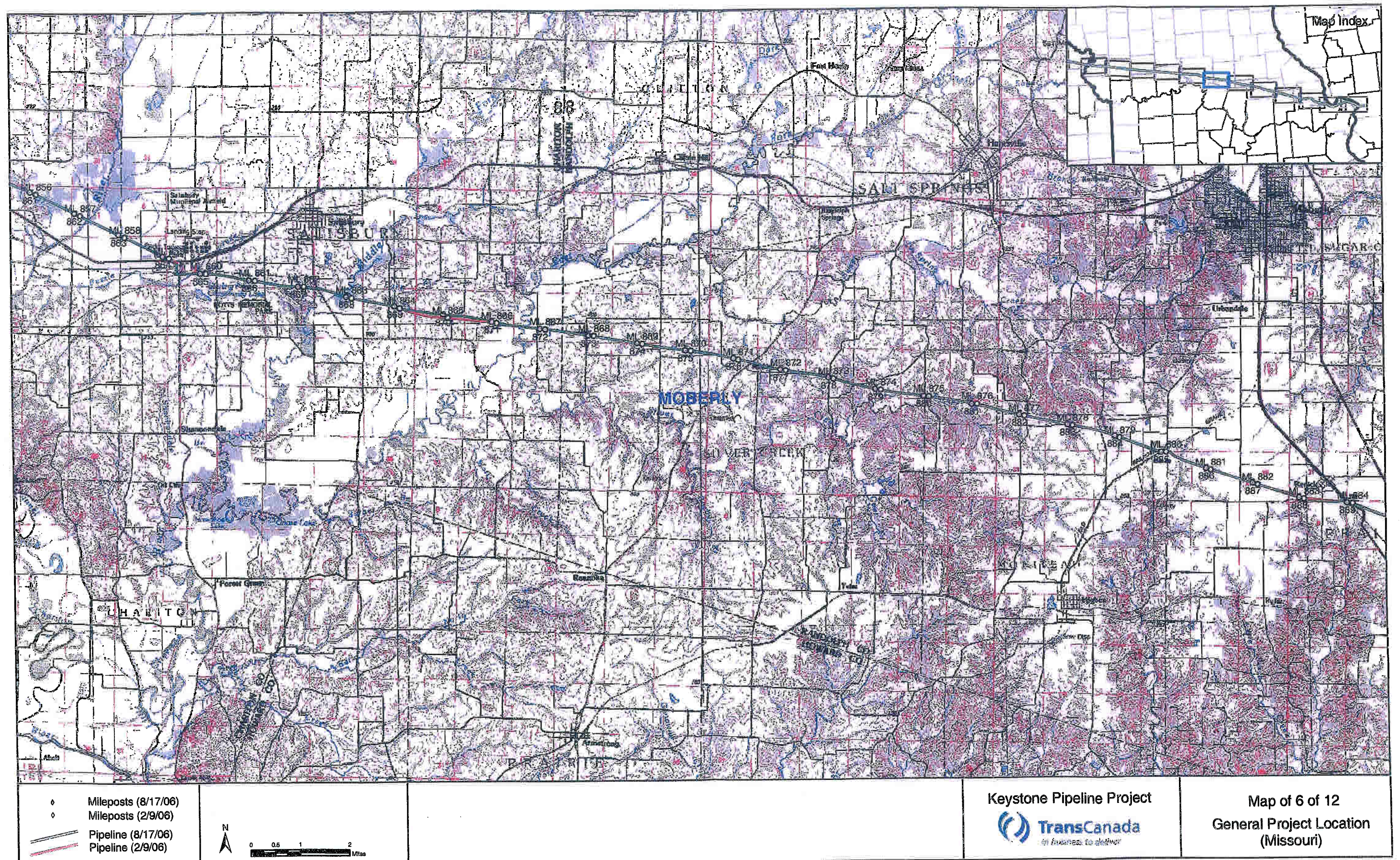


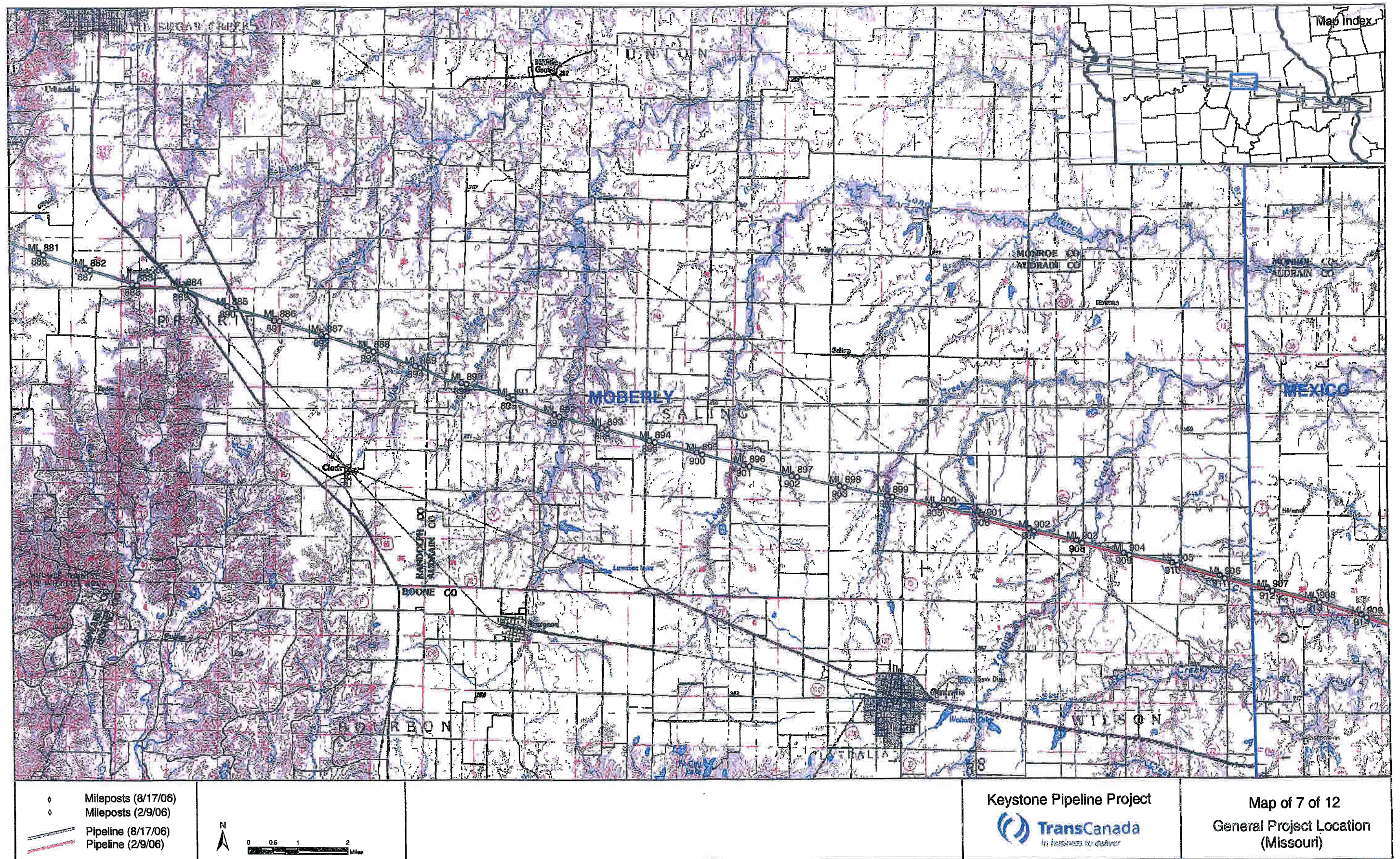
○ Mileposts (8/17/06) ○ Mileposts (2/9/06) — Pipeline (8/17/06) — Pipeline (2/9/06)	N 0 0.5 1 2 Miles		Keystone Pipeline Project TransCanada In business to deliver	Map of 2 of 12 General Project Location (Missouri)
--	---------------------------------	--	---	--

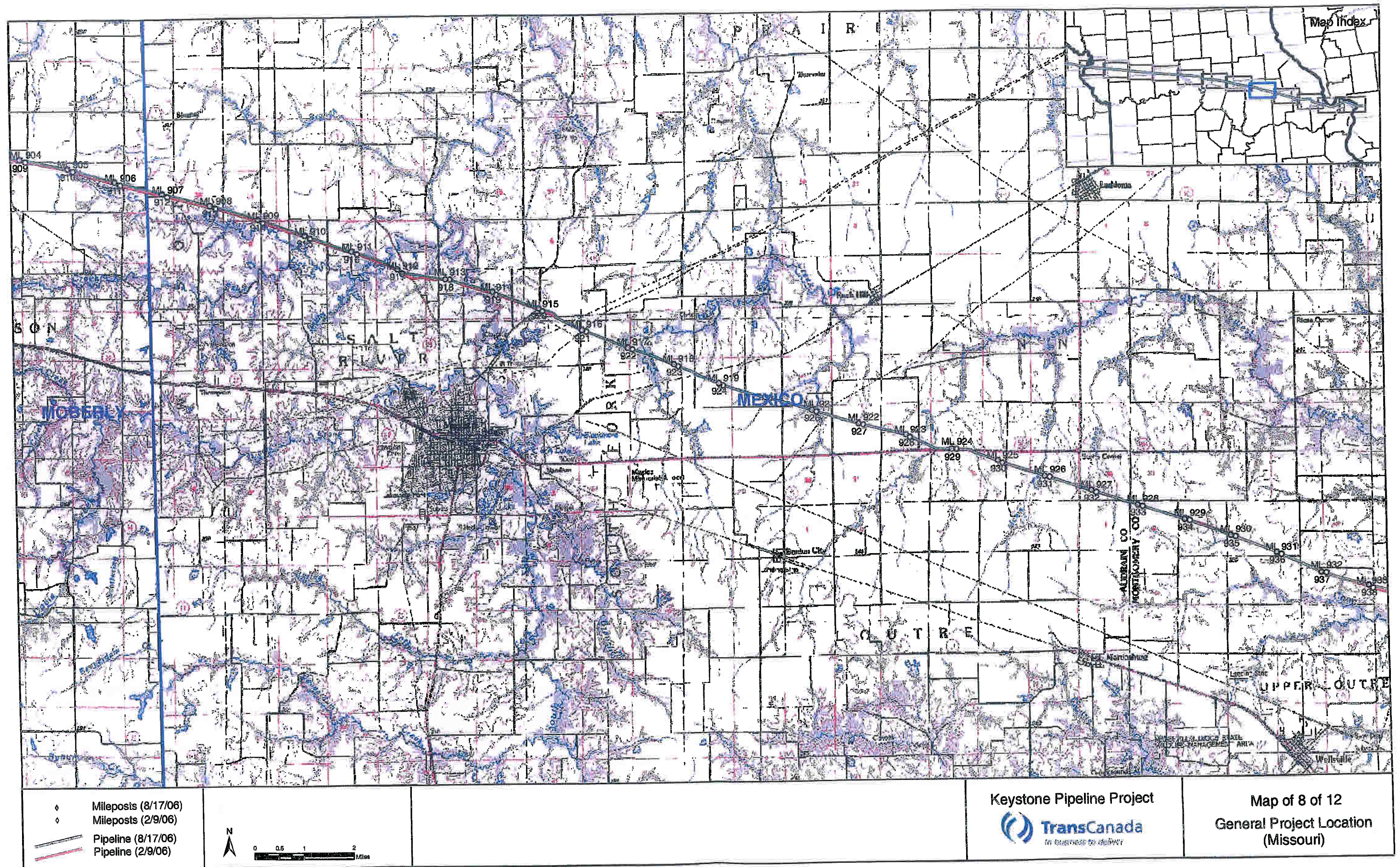


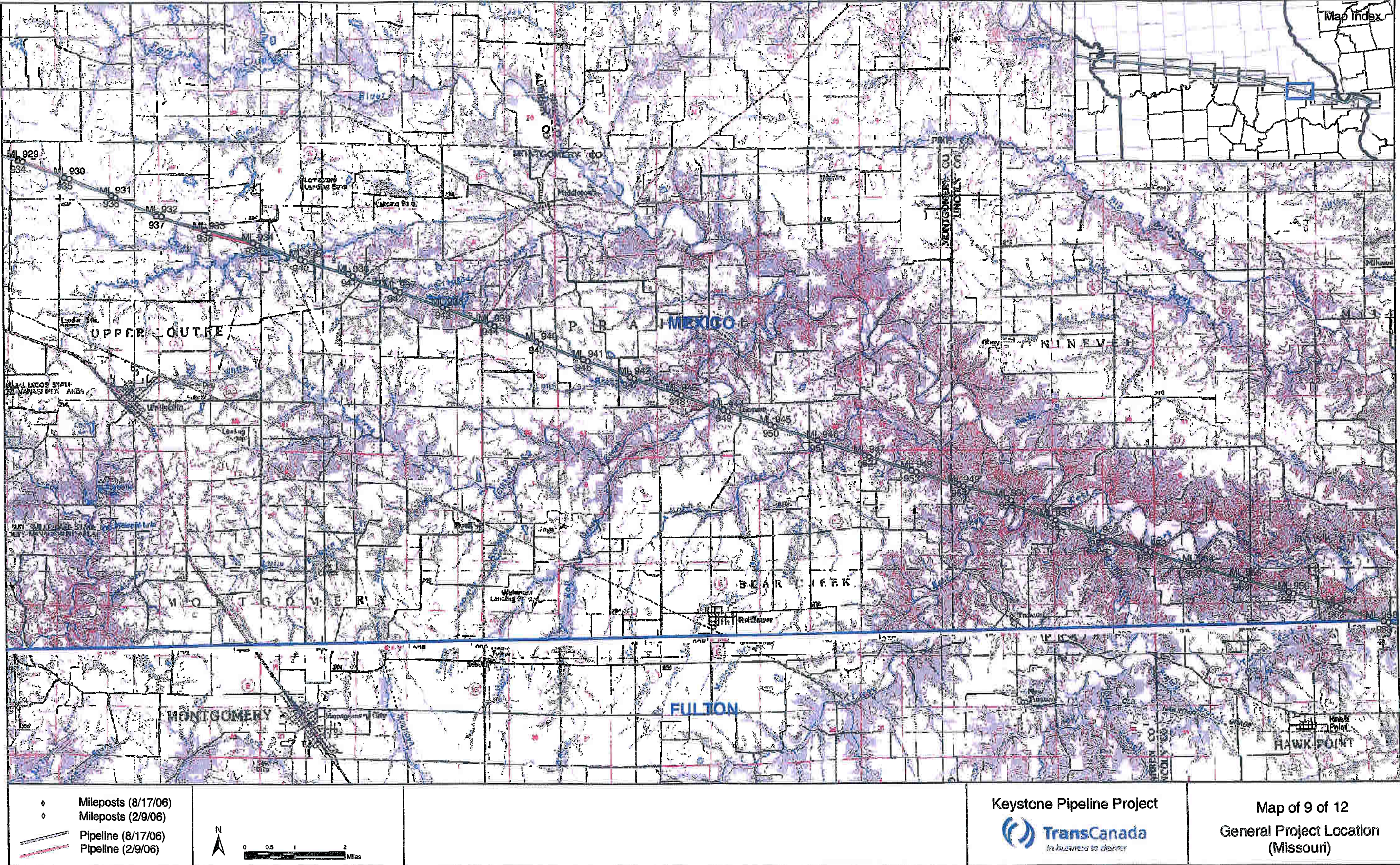


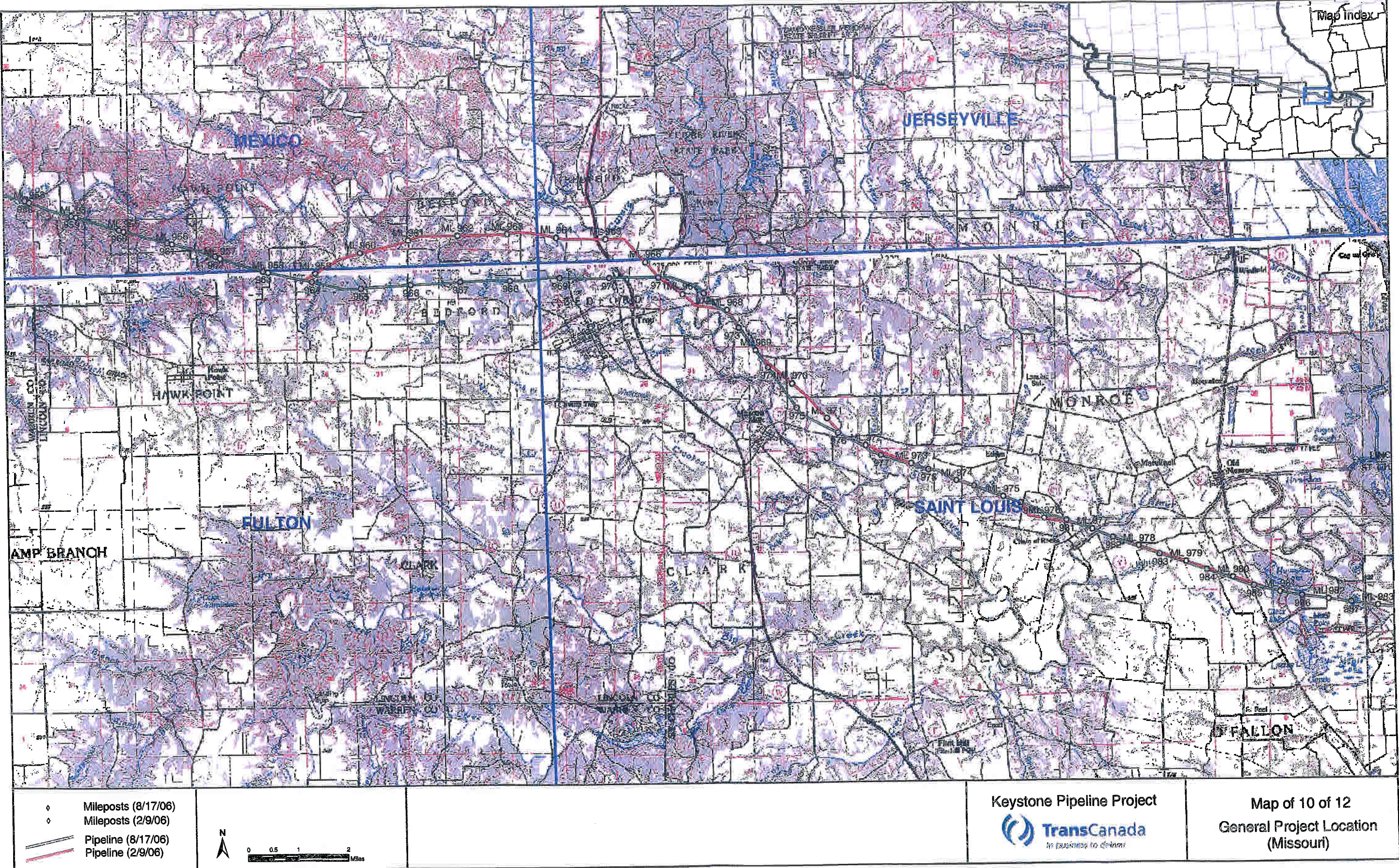


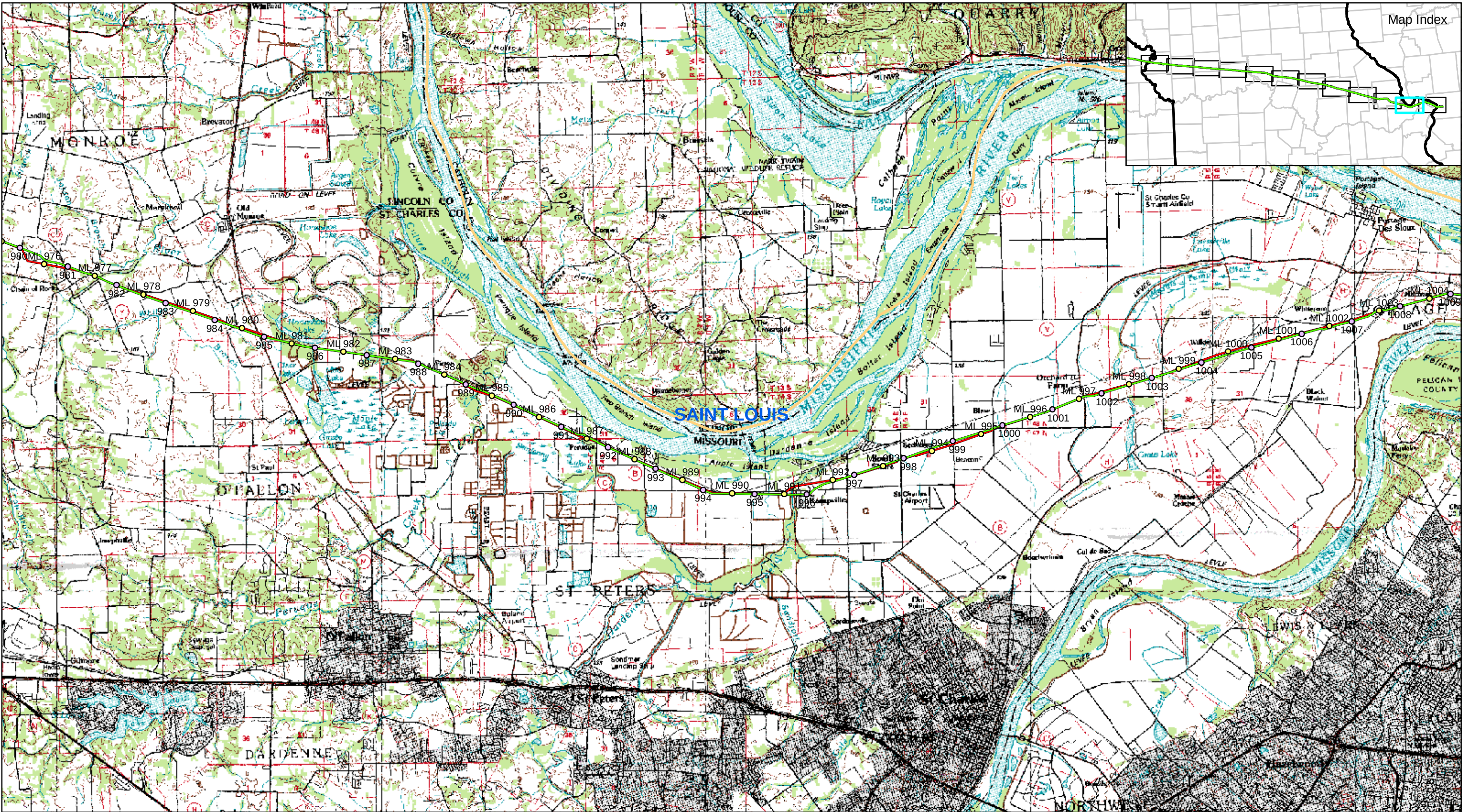






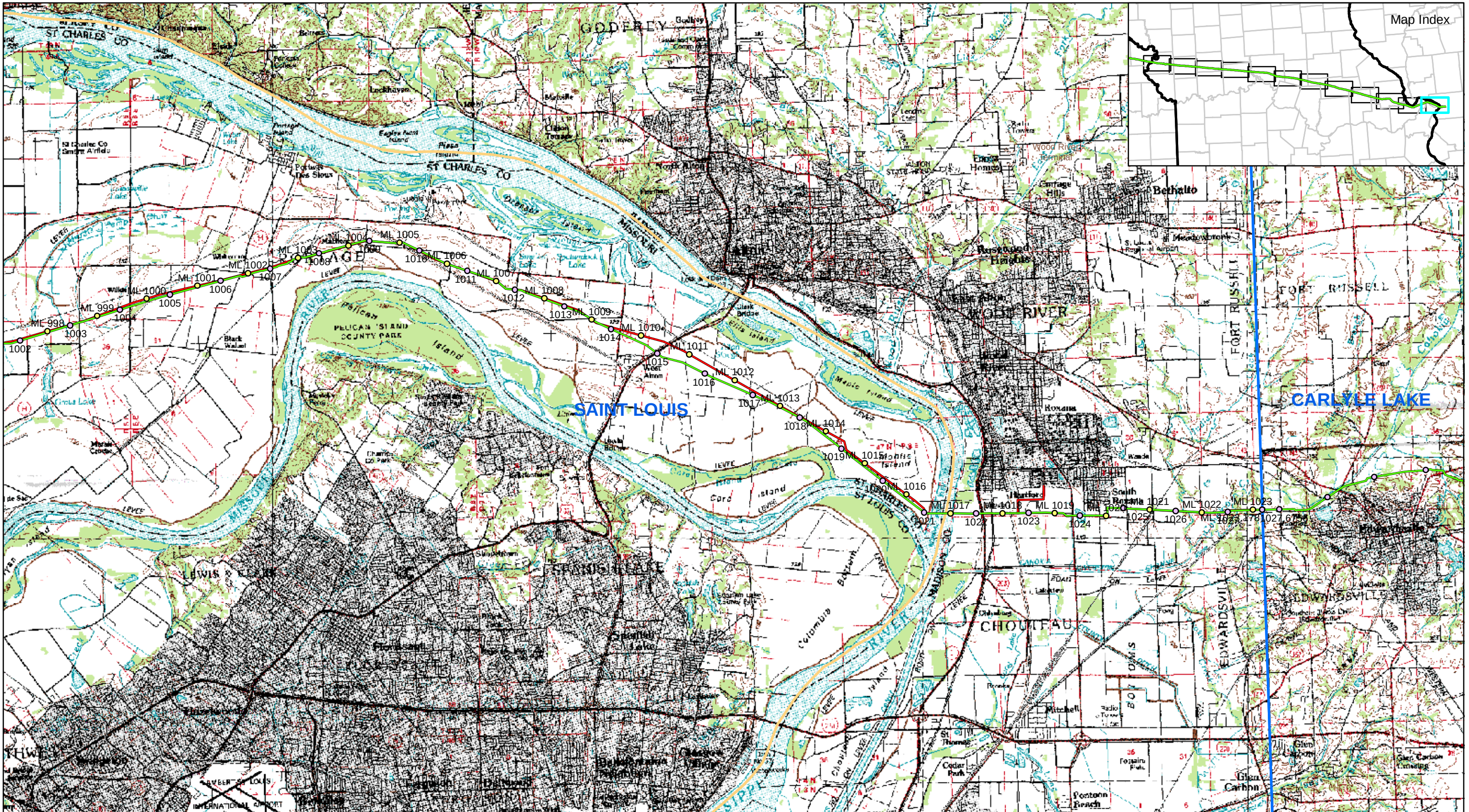






Map Index

◆ Mileposts (8/17/06) ◆ Mileposts (2/9/06) — Pipeline (8/17/06) — Pipeline (2/9/06)	N 0 0.5 1 2 Miles		Keystone Pipeline Project  TransCanada <i>In business to deliver</i>	Map of 11 of 12 General Project Location (Missouri)
---	---------------------------------	--	--	---



◆ Mileposts (8/17/06) ◆ Mileposts (2/9/06) — Pipeline (8/17/06) — Pipeline (2/9/06)	N 0 0.5 1 2 Miles	Keystone Pipeline Project  TransCanada In business to deliver	Map of 12 of 12 General Project Location (Missouri)
---	---------------------------------	---	---

Correspondence Summary Sheet

By: William J Stark

Date: 01/16/2007

Talked With: Doug Novinger

Project Number: 10623-004

Title: Biologist, Columbia, MO

Project Name: Keystone

Of: Missouri Department of Conservation

Subject: Report Review

Telephone Number: 573 882 9909 Ext. 3318

Facsimile Number:

Email or Internet Address (if applicable):

Supplemental Information Attached?

YES

NO X

Indicate Documentation Type: Telephone

X

Facsimile

Internet

Email

I telephoned Doug Novinger, Missouri Department of Conservation, discussed the Topeka Shiner Survey report. Doug indicated that his comments were few and minor on the document. He indicated that he was satisfied with the methods and protocols. He was not surprised by the outcome nor did he disagree with conclusions. When asked directly regarding any potential mitigation on stream crossings as a result of the survey, he referred me to Doyle Brown as the spokesperson and policy coordinator for the MDC on this issue.

William J. Stark

Signature

Distribution:

(1) File

(2) Self

(3) Report

Correspondence Summary Sheet

By: William J Stark

Date: 01/16/2007

Talked With: Doyle Brown

Project Number: 10623-004

Title: Policy Coordinator, Columbia, MO

Project Name: Keystone

Of: Missouri Department of Conservation

Subject: Report Review

Telephone Number: 573 751 4115

Facsimile Number:

Email or Internet Address (if applicable):

Supplemental Information Attached?

YES

NO X

Indicate Documentation Type: Telephone

X

Facsimile

Internet

Email

I telephoned Doyle Brown, Missouri Department of Conservation, and discussed the Topeka Shiner Survey report. Doyle indicated that the report was of high quality and sufficient for their purposes to review. He had seen reviews from Harold Kerns and Doug Novinger (both MDC) that indicated no additional mitigation at stream crossings with regard to Topeka shiners. They did make some general recommendations for the use of concrete blankets that would allow the movement of organisms even at low flows. The general view being to expedite the trenching and spend more time on quality closures to avoid exposed pipeline later (report photos documented existing pipeline exposed in a number of locations).

William J. Stark

Signature

Distribution:

(1) File

(2) Self

(3) Report