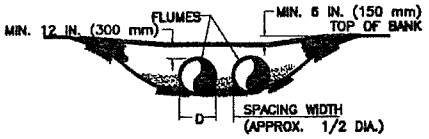


SECTION 'A–A'

CONSTRUCTION PROCEDURES:

THE FOLLOWING IS A SEQUENCE OF CONSTRUCTION AND MITIGATION MEASURES TO BE FOLLOWED AT ALL TEMPORARY FLUME VEHICLE CROSSINGS.

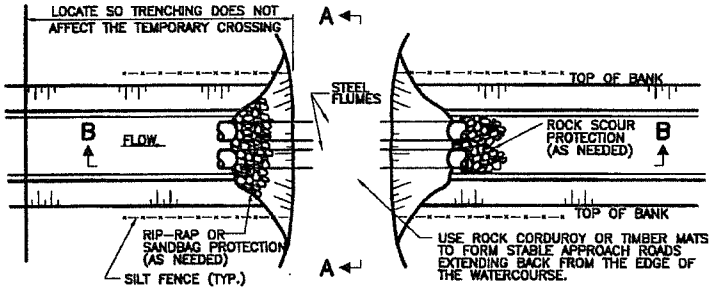
1. A PORTABLE FLEXI–FLOAT, OR TEMPORARY BRIDGE MAY BE SUBSTITUTED FOR THE TEMPORARY FLUME CROSSING.

2. THE LENGTH OF THE FLUME SHALL BE SUFFICIENT TO SPAN THE ENTIRE AREA REQUIRED FOR VEHICULAR ACCESS, EXTENDING 4 FT. BEYOND TOE OF FILL MATERIAL, SO TRENCHING WILL NOT AFFECT THE ROAD CROSSING. A LONGER PIPE IS TO BE USED, IF NEEDED, TO MAINTAIN STABLE SIDE SLOPES. FLUME CAPACITY TO BE BASED ON THE 2–YEAR DESIGN FLOW OR MAXIMUM FLOW ANTICIPATED TO OCCUR DURING INSTALLATION, AS SPECIFIED IN CONSTRUCTION DOCUMENTS.

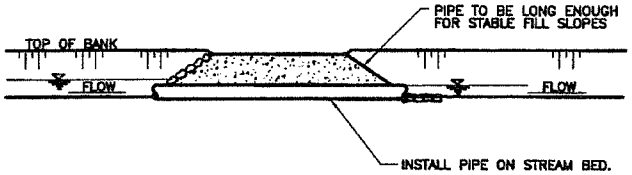
3. WHERE PRACTICAL, BACKFILL AROUND THE PIPES AT THE ROAD WITH CLEAN, COARSE ROCK FILL MATERIAL. IF SCOUR IS POSSIBLE, RIP–RAP IS TO BE PLACED ON THE STREAM BED DOWN–STREAM OF THE PIPE OUTLET EXTENDING A MINIMUM OF TWO PIPE DIAMETERS. ALTERNATIVELY, TIMBER EQUIPMENT MATS, SAND BAGS OR TIMBER CORDUROY MAY BE USED TO FORM THE TRAVEL SURFACE.

4. TO REDUCE MUD ENTERING THE WATER FROM EQUIPMENT TRACKS, THE APPROACH ROAD LEADING TO THE CULVERT CROSSING MUST BE RAISED AND STABLE SO EQUIPMENT LOADS ARE SUPPORTED A SUFFICIENT DISTANCE BACK FROM THE WATER. IF CUTS ARE NEEDED TO OBTAIN A SATISFACTORY GRADE, THEY ARE TO BE DUG WITH SIDE DITCHES AND STABLE SLOPES. EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE INSTALLED TO LIMIT THE POTENTIAL FOR SEDIMENT TO ENTER THE WATERBED (E.G., CHECK DAMS, SILT FENCE, RIP–RAP, SEED AND MULCH, SEDIMENT TRAPS, ETC.).

5. PERIODICALLY CHECK THE TEMPORARY CROSSING INSTALLATION AND REMOVE ANY BUILD–UP OF SEDIMENT OR DEBRIS ON THE BRIDGE. DISPOSE OF THIS MATERIAL AT LEAST 100 FT. FROM THE WATERCOURSE AND ABOVE THE HIGH WATER LEVEL.



PLAN VIEW



SECTION 'B–B'

PREPARED BY:
TROW ENGINEERING CONSULTANTS, INC.
1300 Metropolitan Boulevard, Suite 200
Tallahassee, Florida 32308
Phone: 1-850-385-6441
Fax: 1-850-385-5523
Trow

NO.	REVISION	DATE
9	ISSUED FOR DEPARTMENT OF STATE FILING	MAR.10.2006

DRAWING NUMBER	DRAWN BY	CHECKED BY
K-00-P-7000-300	ALS	JTG

TransCanada
KEYSTONE PIPELINE PROJECT

TYPICAL FLUME BRIDGE CROSSING

PROJECT: 50388E

APPROVED BY: RG

DETAIL 17

LAST PLOT DATE: Mon, 13 Mar 2006 – 4:38pm

CONSTRUCTION PROCEDURES:

IN GENERAL TERMS, THE FOLLOWING IS A SEQUENCE OF CONSTRUCTION PROCEDURES THAT ARE RECOMMENDED TO BE FOLLOWED FOR TEMPORARY BRIDGE CROSSINGS:

1. A PORTABLE BRIDGE, FLEXI-FLOAT, OR FLUMED VEHICLE CROSSING MAY BE SUBSTITUTED FOR THE TEMPORARY BRIDGE. IT IS IMPORTANT THAT THE SIZE OF THE TOTAL OPENING BE SELECTED SO THE STRUCTURE CAN SAFELY PASS FLOOD FLOWS THAT CAN REASONABLY BE EXPECTED TO OCCUR DURING THE LIFE OF THE CROSSING.

2. DETERMINE BRIDGE LENGTH REQUIRED AND FOLLOW EITHER METHOD A) OR B) FOR DETERMINING THE OPENING SIZE. IF A) IS FOLLOWED, A MINIMUM 6.5 ft. SETBACK FROM TOP OF BANK MUST BE PRESERVED AS A "NO DISTURBANCE AREA." IF ABUTMENTS OR PIERS IN THE STREAMBED ARE REQUIRED, METHOD METHOD B) IS TO BE FOLLOWED.

3. INSTALL THE BRIDGE IN A MANNER THAT WILL MINIMIZE SEDIMENT ENTERING THE WATER. STRINGERS MUST BE DESIGNED TO SUPPORT THE LOADS EXPECTED ON THE BRIDGE. CURBS AT LEAST 6 in. HIGH MUST BE INSTALLED ALONG THE EDGE OF THE DECK TO CONTAIN SEDIMENT AND DEBRIS ON THE BRIDGE. FASTENERS CONNECTING COMPONENTS MUST BE STRONG ENOUGH TO HOLD THEM IN POSITION DURING THE LIFE OF THE BRIDGE. CRIBS ARE TO BE FILLED WITH ROCK OR COBBLE. RIP-RAP EROSION PROTECTION IS TO BE PLACED AROUND THE CRIBS AND ON ANY FILL SLOPES PROJECTING INTO THE WATERBODY.

4. ROAD APPROACHES LEADING TO THE BRIDGE MUST BE RAISED AND STABLE SO EQUIPMENT LOADS ARE SUPPORTED A SUFFICIENT DISTANCE BACK FROM THE WATER TO REDUCE SEDIMENT AND DEBRIS ENTERING THE WATERBODY FROM EQUIPMENT TRACKS. THIS MAY REQUIRE USING MATERIALS SUCH AS GRAVEL, ROCK OR CORDUROY. DO NOT USE SOIL TO CONSTRUCT OR STABILIZE EQUIPMENT BRIDGES. IF CUTS ARE NEEDED TO OBTAIN A SATISFACTORY GRADE, THEY ARE TO BE DUG WITH SIDE DITCHES AND STABLE SLOPES. EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE INSTALLED TO KEEP SEDIMENT ON LAND (E.G., SILT FENCING, FILTER CLOTH, RIP-RAP, SEED AND MULCH, ETC.)

5. MAINTAIN A SILT FENCE ON EACH SIDE OF THE WATERBODY EXTENDING A MINIMUM OF 10 ft. BEYOND THE WIDTH OF DISTURBANCE UNTIL VEGETATION HAS BEEN ESTABLISHED IN UPSLOPE AREAS.

6. PERIODICALLY CHECK BRIDGE INSTALLATION AND REMOVE ANY BUILD-UP OF SEDIMENT OR DEBRIS ON THE BRIDGE. DISPOSE OF THIS MATERIAL IN A LOW LYING AREA AT LEAST 100 ft. FROM THE WATERBODY.

7. REMOVE TEMPORARY CROSSINGS AS SOON AS POSSIBLE AFTER FINAL CLEAN-UP. MATERIALS PLACED ALONG THE WATERBODY SHOULD BE COMPLETELY REMOVED DURING FINAL CLEAN-UP. REMOVAL SHOULD NOT NOT OCCUR OUTSIDE THE CONSTRUCTION WINDOWS.
SURPLUS GRAVEL IS TO BE SPREAD ON THE RIGHT-OF WAY AS GRAVEL SHEETING, IF GRADATION IS SUITABLE, OR MOVED AT LEAST 100 ft. FROM TOP OF BANK FOR DISPOSAL. BRIDGE MATERIALS ARE TO BE REMOVED FROM THE CROSSING AREA. THE WATERBODY BED AND BANKS ARE TO BE RESTORED TO A STABLE ANGLE AND PROTECTED WITH EROSION RESISTANT MATERIAL COMPATIBLE WITH THE EXPECTED FLOW CONDITIONS.

PREPARED BY:
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KEYSTONE PIPELINE PROJECT

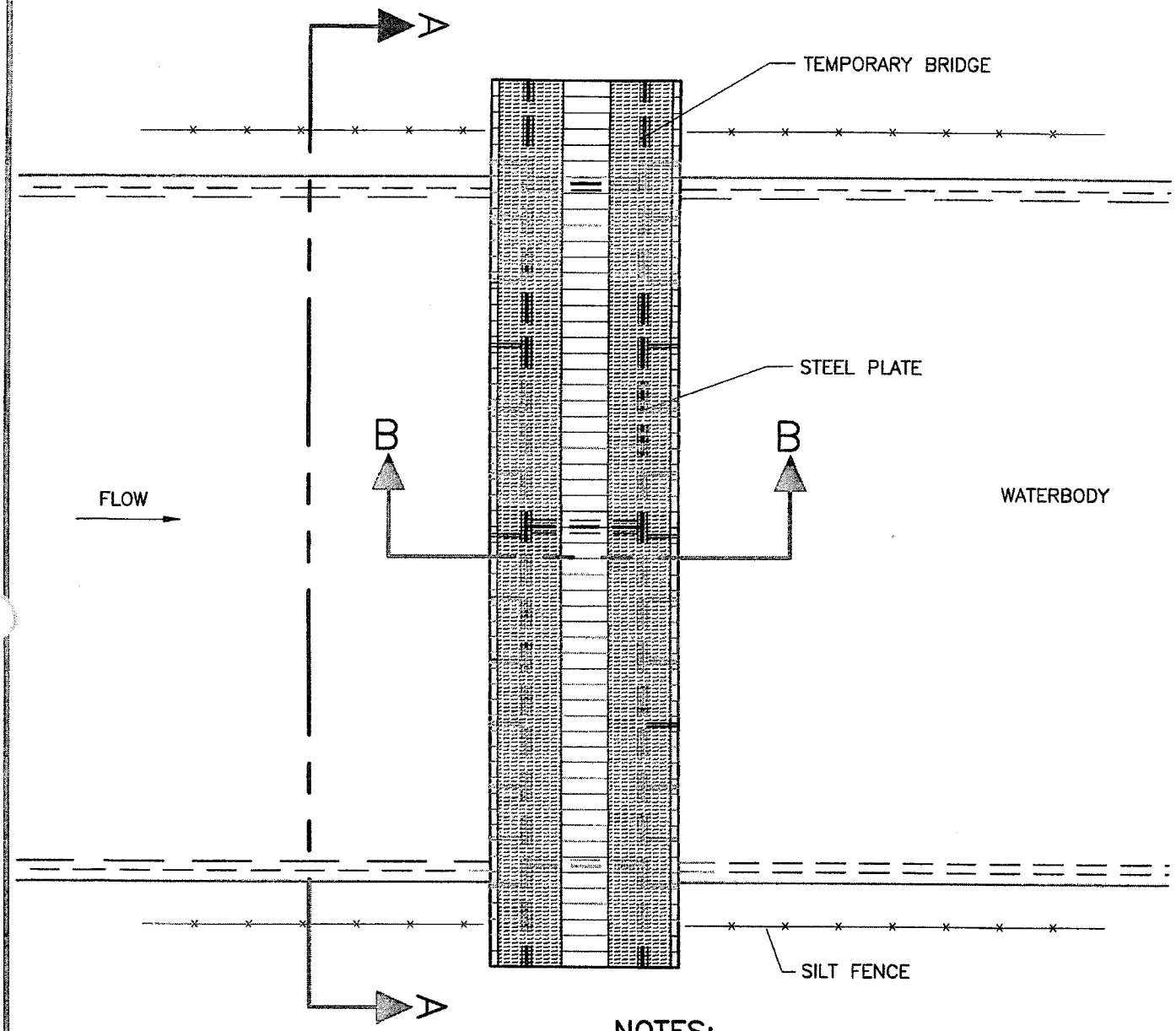
NO.	REVISION	DATE
0	ISSUED FOR DEPARTMENT OF STATE FILING	MAR.16.2006

TYPICAL TEMPORARY BRIDGE CROSSING

PROJECT: 50388E

DETAIL 16a

DRAWING NUMBER	DRAWN BY	CHECKED BY	APPROVED BY	LAST PLOT DATE
K-00-P-7000-300	ALS	JTG	RG	Mon, 13 Mar 2006 - 4:37pm



NOTES:
1. SEE DETAIL 18a FOR CONSTRUCTION PROCEDURES

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KEYSTONE PIPELINE PROJECT

TYPICAL RAILCAR BRIDGE CROSSING

NO.	REVISION	DATE
0	ISSUED FOR DEPARTMENT OF STATE FILING	MAR.10.2008

DRAWING NUMBER	DRAWN BY	CHECKED BY	APPROVED BY
K-00-P-7000-300	ALS	JTG	RG

PROJECT: 50386E

DETAIL 18

LAST PLOT DATE: Mon, 10 Mar 2008 - 4:07pm

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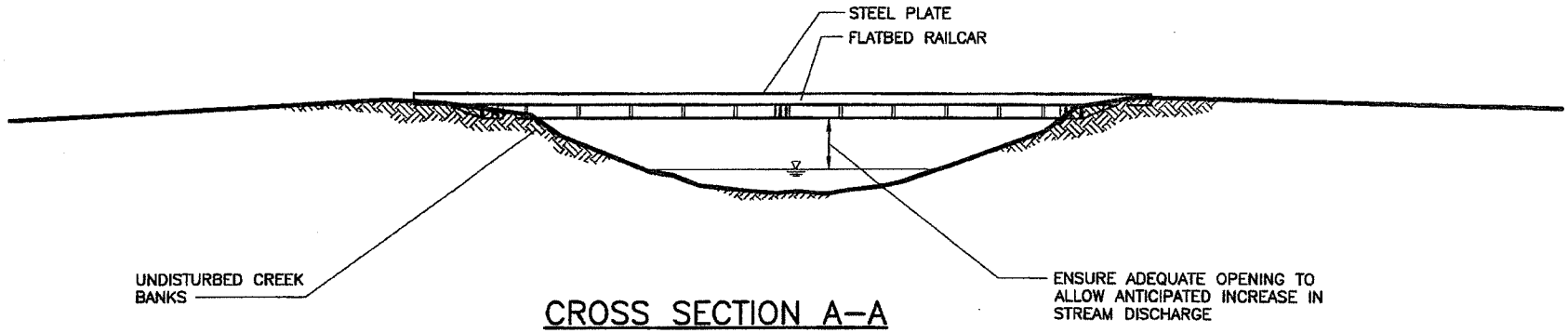
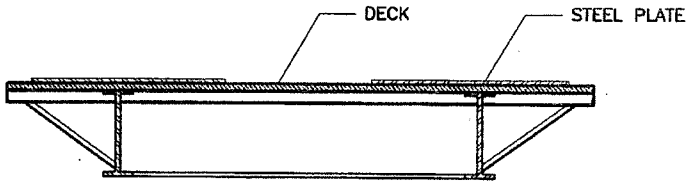


CROSS SECTION A–A

CONSTRUCTION PROCEDURES:

1. THIS TYPICAL DRAWING PROVIDES FOR A RAILCAR BRIDGE EQUIPMENT CROSSING.
2. BRIDGE SHOULD BE A MINIMUM OF 12 FEET WIDER THAN BANK TO BANK WIDTH.
3. BEST MANAGEMENT PRACTICES UTILIZING EROSION CONTROL DEVICES, SUCH AS HAY BALES AND SILT FENCE ARE REQUIRED TO PREVENT SEDIMENTATION OF THE STREAM. EROSION PROTECTION SHALL BE PLACED ON THE STREAM BANKS.
4. DURING FINAL CLEAN–UP, REMOVE TEMPORARY EQUIPMENT CROSSINGS AS SOON AS POSSIBLE. INSTALLED MATERIALS, SUCH AS HAY BALES AND SILT FENCE MUST BE REMOVED AND DISPOSED IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS AND REQUIREMENTS. THE STREAM BED, BANKS AND AREAS AFFECTED BY CONSTRUCTION OF THE TEMPORARY EQUIPMENT CROSSING SHOULD BE RESTORED TO A STABLE CONDITION. IF REQUIRED TO PREVENT TRANSPORT OF SEDIMENTATION TO THE STREAM, SILT FENCE SHOULD BE INSTALLED AT THE TOP OF THE BANKS.



CROSS SECTION B–B

PREPARED BY:
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1380 Metropolitan Boulevard, Suite 200
Tallahassee, Florida 32308
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KEYSTONE PIPELINE PROJECT

NO.	REVISION	DATE
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TYPICAL RAILCAR BRIDGE CROSSING

PROJECT: 50386E

DETAIL 18a

DRAWING NUMBER	DRAWN BY	CHECKED BY	APPROVED BY
K-00-P-7000-300	ALS	JTG	RG

LAST PLOT DATE: Mon, 13 Mar 2008 – 4:38pm

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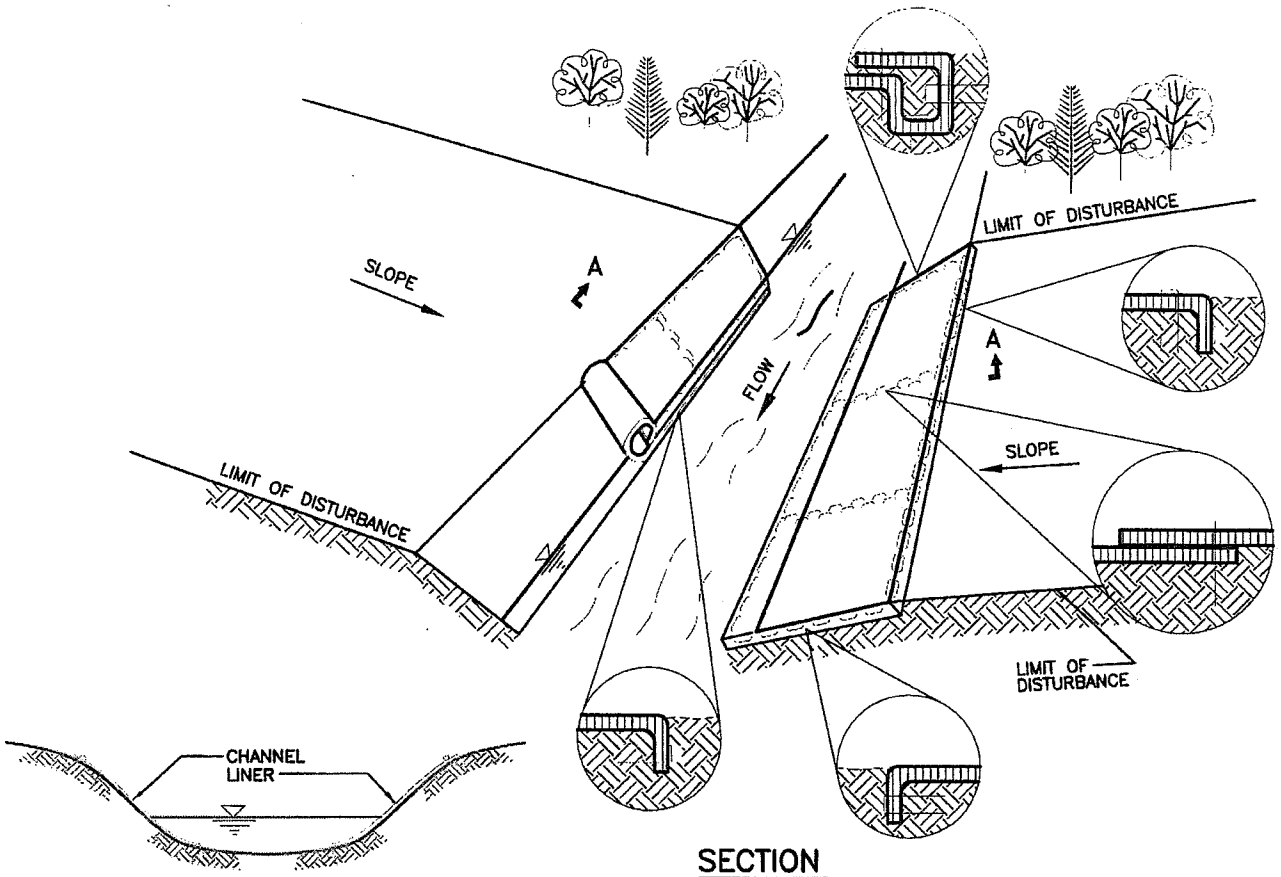

SECTION

SECTION A–A

NOTES:

1. INSTALL AND ANCHOR LINERS FOLLOWING MANUFACTURER'S INSTRUCTIONS.
2. PREPARE SOIL BEFORE INSTALLING CHANNEL LINER, INLCUDING THE APPLICATION OF FERTILIZER AND SEED. CHANNEL LINERS SHOULD EXTEND COMPLETELY ACROSS DISTURBED BANK AREAS TO PROTECT ERODIBLE SURFACES.
3. BEGIN AT THE END OF THE CHANNEL BY ANCHORING THE LINER IN A 6 in. x 6 in. (150 mm x 150 mm) TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
4. ROLL LINER IN DIRECTION OF WATER FLOW.
5. INSTALL LINERS END–OVER–END (SHINGLE STYLE) WITH A 6 in. (150 mm) OVERLAP USE A DOUBLE ROW OF STAGGERED STAPLES 4 in. (100 mm) APART TO SECURE LINER.
6. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 ft. (9 TO 12 m) INTERVALS. USE A ROW OF STAPLES 4 in. (100 mm) BELOW THE FIRST ROW IN A STAGGERED PATTERN.
7. INSTALL CHANNEL LINER TO THE TOP OF THE DEFINED CHANNEL SECTION. TWO OR MORE ROWS OF BLANKETS MAY BE NECESSARY, THESE LINERS MUST BE OVERLAPPED 4 in. (100 mm) AND STAPLED.
8. THE CHANNEL LINER SHOULD EXTEND TO THE BASE OF THE CHANNEL AND STAPLED. FOR CHANNELS WITH VERY LITTLE OR NO FLOW. EXTEND A MIN. OF 1 ft. (300 mm) BELOW THE LOW WATER LEVEL AND STAPLE IN PLACE.

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Phone: 1-850-385-5441
Fax: 1-850-385-5823
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KEYSTONE PIPELINE PROJECT

FLEXIBLE CHANNEL LINER INSTALLATION

NO.	REVISION	DATE
0	ISSUED FOR DEPARTMENT OF STATE FILING	MAR.10.2008

PROJECT: 50388E

DETAIL 19

DRAWING NUMBER	DRAWN BY	CHECKED BY	APPROVED BY
K-00-P-7000-300	ALS	JTG	RG

LAST PLOT DATE: Mon, 10 Mar 2008 – 4:37pm

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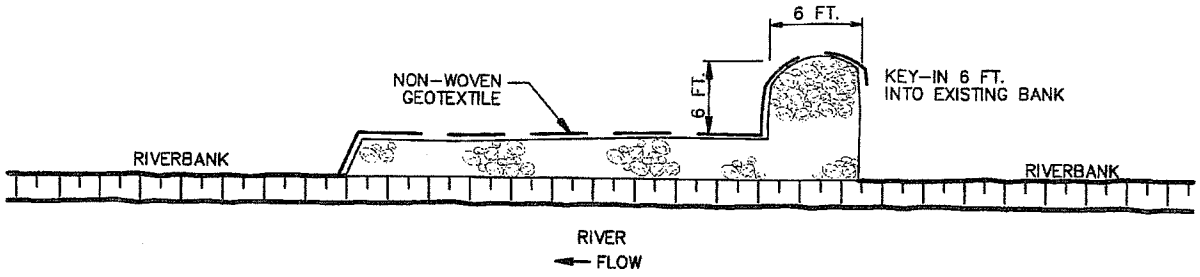
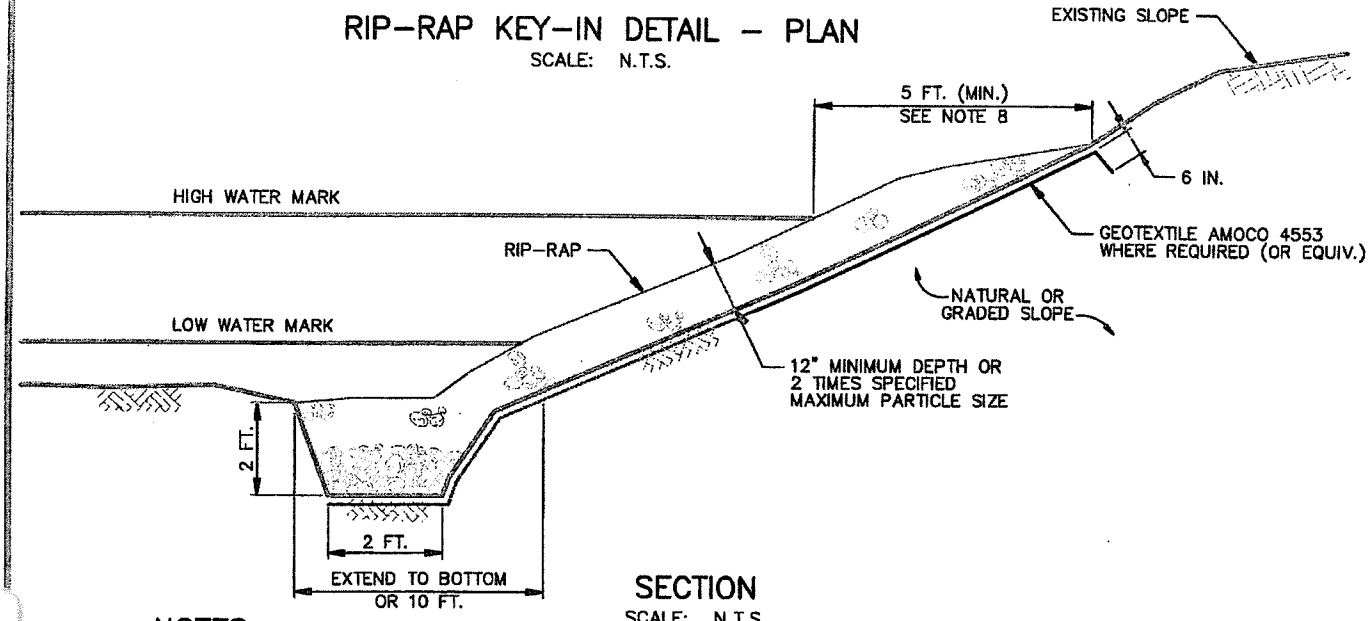


RIP-RAP KEY-IN DETAIL - PLAN

SCALE: N.T.S.



SECTION

SCALE: N.T.S.

NOTES:

1. REMOVE ALL STUMPS, ORGANIC MATERIAL, AND PREPARE BANKS TO A STABLE CONFIGURATION TO A MAXIMUM SLOPE OF 2 HORIZONTAL TO 1 VERTICAL.
2. CONSTRUCT TOE TRENCH TO KEY IN BOTTOM OF RIP-RAP PROTECTION.
3. INSTALL FILTER CLOTH (GEOTEXTILE), SUCH AS AMOCO 4553 OR EQUIVALENT, UNDER ROCK WHERE SPECIFIED OR AS DIRECTED BY THE COMPANY. ADJOINING EDGES OF CLOTH SHALL OVERLAP A MINIMUM OF 12"
4. ROCK UTILIZED FOR RIP-RAP SHALL CONSIST OF SOUND, DURABLE ROCK, AND RESISTANT TO WEATHERING. INDIVIDUAL PIECES SHOULD BE ANGULAR, BLOCK SHAPED, AND HAVE A MINIMUM SPECIFIC GRAVITY OF 2.2.
5. INSTALL RIP-RAP TO A THICKNESS OF APPROXIMATELY 2 TIMES THE MAXIMUM EQUIVALENT DIAMETER OF THE RIP-RAP. EACH LOAD SHOULD BE WELL GRADED. A WELL GRADED MIXTURE IS COMPOSED 60% (MINIMUM) OF LARGER SIZES WITH 40% OF SMALLER SIZES TO FILL THE VOIDS.
6. SIZE OF RIP-RAP IS DEPENDENT UPON THE PREDICTED FLOW CONDITIONS.
7. KEY IN THE EDGES OF THE RIP-RAP AND FILTER CLOTH TO NATURAL GROUND CONTOURS SO THAT UNDERMINING DOES NOT OCCUR.
8. RIP-RAP IS TO BE INSTALLED TO 2 FT. ABOVE THE NORMAL HIGH WATER MARK OR 5 FT. ALONG THE SLOPE, WHICHEVER IS LESS.

PREPARED BY:
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KEYSTONE PIPELINE PROJECT

TYPICAL ROCK RIP-RAP

DRAWING NUMBER	DRAWN BY	CHECKED BY	APPROVED BY
K-00-P-7000-300	ALS	JTG	RG

PROJECT: 50388E

DETAIL 20

LAST PLOT DATE: Mon, 13 Mar 2006 - 4:27pm

Caddis, Karen

From: Caddis, Karen
Sent: Saturday, April 08, 2006 12:45 PM
To: 'Charles.F.Frerker@mvs02.usace.army.mil'
Subject: Keystone Pipeline Project and FOIA request
Attachments: StLouis FOIA final4-8-06kc.pdf

Charles,

ENSR sent your office a map and table package identifying the location of the proposed Keystone Pipeline Project ROW and our proposed survey protocol. I wanted to confirm that you had received that package and check if you had any questions regarding the information. Please let us know if you would like to schedule a meeting, either in person or via the phone, to discuss the project. ENSR is planning to commence surveys along the ROW by early to mid-May , 2006.

In addition, I have attached a copy for your records of a FOIA request that ENSR has sent to Ms. Bertoglio regarding the Two Rivers Pipeline. Rob Gramke called last week and I also mentioned to him that we were making this request.

If you have any suggestions, questions or comments, or if you did not receive our informational package, please contact me at 970-493-8878, ext. 170 or e-mail me at kcaddis@ensr.aecom.com.

Thanks for your assistance on this project!

Karen Caddis
Wetlands Program Coordinator

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ENSR | AECOM

ENSR
1601 Prospect Parkway Fort Collins, Colorado 80525-9759
T 970.493.8878 F 970.493.0213 www.ensraecom.com

April 8, 2006

Ms. Elizabeth K. Bertoglio
Freedom of Information Act Officer
US Army Corps of Engineers, St. Louis District
1222 Spruce Street
ATTN: CEMVS-OC
St. Louis, Missouri 63103-2833

Dear Ms. Bertoglio:

TransCanada Keystone Pipeline, LLC. (Keystone) is planning to construct and operate a 1,830-mile-long interstate crude oil transmission system (the Keystone Pipeline Project) from an oil supply hub near Hardisty, Alberta, Canada to destinations in the Midwestern United States (U.S.). ENSR Corporation (ENSR) has been retained by Keystone to assist with environmental regulatory compliance and permitting of the pipeline within the United States.

In Illinois, the Keystone Pipeline Project route will follow portions of the Two Rivers Pipeline right-of-way (ROW), including sections through the Carlyle Lake area, located in the U.S. Army Corps of Engineers' (USACE) St. Louis District. Under provisions of 5 USC 552, the Freedom of Information Act (FOIA) (32 CFR 518), and on behalf of Keystone, ENSR requests copies of relevant documents associated with the Two Rivers Pipeline (aka Buckeye Pipeline) as discussed below to help us identify impacts and mitigation requirements that may be similar between the two projects.

It is our understanding that the Two Rivers Pipeline, which is now owned by Wood River Pipe Lines, LLC (a subsidiary of Buckeye Partners, L.P.), was originally built by Shell Oil Company with an in-service date of January 2003. We understand that Equilon Pipeline Company, LLC (a subsidiary of Shell) filed a Section 404 application with the St. Louis District in approximately Year 2000, for the pipeline that runs through Illinois from Wood River to Potoka. This application was processed by the USACE under their application number 200105180. The USACE permit number for the project is P-2303. We understand that the EPA received the application from the USACE on July 26, 2001 and issued the 401 certification on February 8, 2002. Based on this information, we assume any NEPA document publication date for the Two Rivers Pipeline was likely completed in 2002.

Under FOIA, ENSR is requesting that copies of the following Two Rivers Pipeline information/documents be provided to Mr. Scott Ellis in ENSR's Fort Collins, Colorado office:

- A complete copy of the Environmental Assessment (EA) or Environmental Impact Statement (EIS) associated with the Two Rivers Pipeline Project.
    - Based on an in-service date of January 2003, it is assumed this document would have a 2002 date.
- Complete copies of any supporting documentation to the above EA/EIS, including:
    - Cultural Resource Surveys
    - Wetland Delineation Surveys
    - Wildlife and Plant Surveys
    - Sensitive Species Surveys
- A complete copy of the Section 404 Application (Application number 200105180).
- A complete copy of the Section 404 Permit (Permit Number P-2303)

- Any mitigation documents associated with the Two Rivers Pipeline Project that are separate from the documentation previously mentioned.

ENSR understands that fees may be charged for search, review, and/or duplication of the records requested above. We agree to pay up to $500 (fill in dollar amount) for these records. Please notify us if costs will exceed this amount.

Please mail the requested material and any fee assessment requests to:

Scott Ellis
ENSR
1601 Prospect Parkway
Fort Collins, Colorado 80525

If you have any questions regarding this request, please call me at (970) 493-8878 or e-mail me at sellis@ensr.aecom.com. You also may direct project-related questions to the ENSR assistant project manager, Heidi Tillquist, at the same number. Thank you in advance for your prompt response to this request.

Sincerely,

Scott Ellis
Senior Program Manager

Cc: Charles Frerker – USACE St. Louis District

SE/kc

Ref: 10623-004-1500

Caddis, Karen

From: Caddis, Karen
Sent: Monday, April 24, 2006 1:00 PM
To: Gramke, Robert MVS; Frerker, Charles F MVS
Cc: Ellis, Scott
Subject: RE: Keystone Pipeline Project wetland contractors

Rob,

Yes, we made a FOIA request to the St. Louis District for Two River Project information on April 8, 2006. Thank you for your input.

Karen

From: Gramke, Robert MVS [mailto:Robert.Gramke@mvs02.usace.army.mil]
Sent: Monday, April 24, 2006 12:52 PM
To: Caddis, Karen; Frerker, Charles F MVS
Cc: Ellis, Scott
Subject: RE: Keystone Pipeline Project wetland contractors

Karen,

Chuck is out today. I will try to meet up with him tomorrow morning and get back to you as soon as possible. Chuck may have a name for the Two Rivers Pipeline Project. In regards to selecting a consultant, we cannot make a recommendation, and can only point you to the yellow pages. However, we have and continue to work with SCI Engineering, as well as several other consulting firms in the area. Have you requested the information on the Two Rivers Project under the Freedom of Information Act (FOIA)?

Rob Gramke
U.S. Army Corps of Engineers
St. Louis District Regulatory Branch
1222 Spruce Street
St. Louis, Missouri 63103
Phone 314-331-8187
Fax 314-331-8741
email robert.gramke@mvs02.usace.army.mil

From: Caddis, Karen [mailto:kcaddis@ensr.aecom.com]
Sent: Monday, April 24, 2006 12:41 PM
To: Gramke, Robert MVS; Frerker, Charles F MVS
Cc: Ellis, Scott
Subject: Keystone Pipeline Project wetland contractors

Roger and Charles,

I had left voice mail messages with you both last week regarding the Keystone Pipeline Project. We are finalizing our selection for wetland delineators for the St. Louis District's portion of the ROW and wanted to get your input, if possible, on the contractor we plan to select. If you can, we wondered if you could indicate what company had conducted the wetland delineations for the Two Rivers Pipeline Project and had worked on preparing the NEPA

document. In addition, we are considering using SCI Engineering out of St. Louis for our wetland contractor for the Illinois and eastern Missouri portions of the ROW. We understand that they have worked with you in the past and we wanted to confirm that the work they had completed in your District had been satisfactory. Any input you can give us on these two questions would be greatly appreciated. Thank you for your time.

Karen Caddis

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DEPARTMENT OF THE ARMY
ST. LOUIS DISTRICT, CORPS OF ENGINEERS
1222 SPRUCE STREET
ST. LOUIS, MISSOURI 63103-2833

REPLY TO
ATTENTION OF:

May 10, 2006

Office of Counsel

SUBJECT: Freedom of Information Act Response

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

Mr. Scott Ellis
ENSR
1601 Prospect Parkway
Fort Collins, Colorado 80525

Dear Mr. Ellis:

This correspondence comes to you in response to your Freedom of Information Act (FOIA) request seeking copies of information/documents relating to Two Rivers Pipeline.

Your request is not releasable in its entirety. Enclosed you will find the only releasable information/documents. The document being withheld is the Cultural Resource Survey, pursuant to Exemption 3 of the FOIA, 5 USC §552(b)(4), as it contains information that falls within the jurisdiction of the National Historic Preservation Act, 16 USC § 470w-3, Access to information. Also, you requested a copy of the Section 404 Application (Application number 200105180). We do not have a record of this document in our files, and do not believe that it exists.

The cost of processing this request is $72.60. Please make your payment to "FAO St. Louis" and forward to:

US Army Corps of Engineers, St. Louis District
1222 Spruce Street
St. Louis, Missouri 63103-2833

This is a partial denial. If you are dissatisfied with my action on this request, you have a right to appeal. Should you decide to appeal this determination, this office must receive an appeal within sixty (60) days from the date of this letter. The envelope containing the appeal should be marked with the notation, "Freedom of Information Act Appeal" and should be sent to the above address to the attention of: Office of Counsel - Room 4.101. Upon receipt, this office will forward any appeal to the Office of the Chief of Engineers in Washington, D.C., for independent review.

Inasmuch as I believe this responds to your request, your file in this office is being closed. If you have any questions, please feel free to contact Ms. Anne Woodrome of my Paralegal staff at (314) 331-8198.

Sincerely,

William R. Levins
District Counsel

Enclosure

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FRERKER/8583/CO-F

22 FEB 2002

FRERKER
CEMVS-CO-F

MCCLENDON
CEMVS-CO-F

Regulatory Branch

Mr. Cliff A. Pulpan
Equilon Pipeline Company LLC
Post Office Box 2648
Houston, Texas 77252-2648

Dear Mr. Pulpan:

Transmitted herewith is Department of the Army Permit No. P-2303, authorizing the installation of a 12-inch diameter, 58-mile long pipeline. The pipeline will impact approximately 24 acres as it crosses jurisdictional waterways and wetlands in Madison, Bond, Fayette and Marion Counties, Illinois.

It is to be understood that this instrument does not give any property rights either in real estate or material, or any exclusive privileges; and that it does not authorize any injury to private property or invasion of private rights, or any infringement of Federal, state or local laws or regulations; nor does it obviate the necessity of obtaining state assent to the work authorized.

General Conditions 1 through 6 and parts 2 through 6 under "Further Information" are standard conditions for all permits. Special Conditions 1 through 15 specify measures to protect water quality at the worksite and to insure permit compliance.

If any material changes in the scope, location and plans of the work are found necessary, due to unforeseen conditions or otherwise, revised plans detailing proposed modifications in the work must be submitted to the District Engineer for review and approval. Proposed modifications may not be placed under construction until Department of the Army "Approval of Revised Plans" has been granted.

BY THE AUTHORITY OF THE SECRETARY OF THE ARMY:

Danny D. McClendon
Chief, Regulatory Branch

DEPARTMENT OF THE ARMY PERMIT

Permittee Equilon Pipeline Company LLC

Permit No. P-2303

Issuing Office U.S. Army Engineer District, St. Louis

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description: Approximately 24 acres of waters of the United States will be impacted during the installation of a 12-inch diameter pipeline that will transport unleaded gasoline and diesel fuel products. Approximately half of the impacts (12 acres) are temporary and will occur in emergent wetlands that will be allowed to naturally revegetate. Pipeline installation activities will require tree clearing for a permanent right-of-way and a temporary workspace. The average pipeline trench is approximately 3-feet-wide and will be excavated to a minimum depth of 3-feet. The pipeline trench will be excavated using the double ditching method with 12-inches of topsoil being removed and then removing the subsoil to depth. The topsoil and subsoil will be segregated and stockpiled adjacent to the trench. Soils will then be returned to the trench as backfill in the reverse order from which they were removed. Filter strips and cleared wooded areas will be seeded with grasses and legumes to reduce potential soil erosion when construction is complete. The crossing of the Kaskaskia River, Silver Creek upstream of Highland Lake, Cahokia Creek and Shoal Creek will be directionally bored instead of the above-described trenching method.

Project Location: The 58-mile pipeline route will begin at Wood River, Illinois, and terminate at the existing Patoka, Illinois Station, crossing numerous jurisdictional waterways and wetlands in Madison, Bond, Fayette and Marion Counties, Illinois.

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on December 31, 2007. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions:

See continuation sheets, pages 4 and 5, of this document.

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

( ) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

(X) Section 404 of the Clean Water Act (33 U.S.C. 1344).

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, or local authorization required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a revaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).
c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

C. A. Pulpan

(PERMITTEE) Equilon Pipeline Company LLC
c/o: C. A. Pulpan

02/26/2002
(DATE)

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

Charles Fuller

(DISTRICT ENGINEER) Danny D. McClendon
for for Chief, Regulatory Branch

02/26/2002
(DATE)

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

(TRANSFEREE)

(DATE)

SPECIAL CONDITIONS FOR **P-2303**

1. If any part of the authorized work is performed by a contractor and/or subcontractors, before starting work you shall provide and discuss the terms and conditions of this permit with them.

2. That the permit may be revoked or a stop work order issued if the Illinois Environmental Protection Agency notifies us, that the permitted activities are not being performed in conformance with the twelve conditions of their February 8, 2002, Section 401 Water Quality Certification issued for this permit.

3. You shall store all construction materials, equipment, and/or petroleum products, when not in use, above anticipated high water levels. You shall employ measures to prevent or control spilled fuels, lubricants and drilling mud from entering the waters of the United States.

4. The Corps of Engineers shall remain as the immediate point of contact. The Corps of Engineers shall be allowed to inspect this project at irregular intervals to assure that conditions of this permit are in compliance. The failure to comply with permit conditions will result in enforcement actions by the Corps of Engineers.

5. In the event any item(s) are encountered that could be historically significant, the permittee shall halt all operation occurring at that specific location and contact the Illinois State Historic Preservation Office.

6. The permittee will avoid archaeological site 11FY 20 (aka 11FY196) and a 30 foot buffer surrounding site 11FY20 in all of its activities. The permittee and/or his subcontractors will not conduct any ground disturbing activities at site 11FY20 with buffer including, but not limited to: no removal of vegetation, no equipment will be run over the site and no trenching. Equilon will provide GPS coordinates on the site boundary, the southeastern buffer boundary and the minimum construction boundary 200 feet southeast of the site buffer (230 feet from the site) and provide a site map of these area to substitute the need for fencing off the restricted area's of site 11FY20. The permittee will directional drill the pipeline a minimum of 10 to 15 feet below site 11FY20 as part of the overall directional drilling of the Kaskaskia River. The northwest side of the directional drill site will be established a minimum of 230 feet southeast of the easternmost cultural site boundary. The drill site shall be established over the proposed right-of-way which has been surveyed to locate archaeological sites.

7. The permittee shall compensate for the project's induced loss of 12.35 acres of jurisdictional wooded wetlands by conducting tree planting activities within an approximate 30 acre parcel. In doing so, the permittee will plant a minimum of five tree species, with no single species comprising more than 20% of the total number planted. The selective tree species will be on average one-inch caliper, five to eight-feet-tall, containerized trees that will be planted on 20-foot centers throughout the mitigation planting area; with the first rows of trees planted on the outermost perimeter of the mitigation planting area. Based upon availability, a mixture of any of the following tree species may be planted: Pecan (*Carya illinoensis*), Pin Oak (*Quercus palustris*), Swamp White Oak (*Quercus bicolor*), Overcup Oak (*Quercus lyrata*), Sassafras (*Sassafras albidium*), Persimmon (*Diospyros virginiana*), Hackberry (*Celtis occidentalis*), White Ash (*Fraxinus Americana*), Green Ash (*Fraxinus pennsylvanica*). Other species may be used if pre-approved by the U.S. Army Corps of Engineers. The permittee is advised to conduct bi-yearly mowing around the planted trees to increase survivability rates and decrease overpopulation of invader species.

8. The permittee will provide recognition of the planted trees and species identification by marking each tree with high visibility flagging tape. Tree planting shall be completed on or before **November 30, 2003**.

9. Tree plantings shall be maintained so that an **75**% survival rate is achieved throughout the mitigation planting area. The permittee shall be responsible to ensure that **75%** of all planted vegetation survives within the first five consecutive years. All dying vegetation shall be removed and replanted immediately after its death with the same species at an equal or greater size. In the event that a particular size or species of tree(s) does not maintain a healthy disposition after the first two (2) consecutive years, then additional physical plantings will be required. A larger or different species may be substituted after approval by the U.S. Army Corps of Engineers Regulatory Branch is obtained. Survivability monitoring in the mitigation planting area is the responsibility of the permittee and will occur for a minimum of five (5) years. Additional monitoring and/or replanting may be required if the survivability of the planted species is not established after the first five (5) consecutive years.

10. If the hydrology of the site is not adequate, (ponding, inundation, or saturation) corrective measures must be designed and implemented to restore the required wetland hydrology. The areas natural high water table and periodic over bank flooding events should provide adequate hydrology to induce natural wetland functions. Hydrological monitoring in the on-site mitigation area will occur for a minimum of five (5) years.

11. The permittee shall conduct project monitoring, maintenance, and management of the wetland mitigation areas for five (5) consecutive years. Monitoring is to include yearly site visits with members of the St. Louis District Regulatory Staff. The monitoring, at the discretion of the U.S. Army Corps of Engineers, shall include an on-site review prior to construction, during construction, and long-term monitoring not to exceed five (5) years. If at the end of the monitoring period, the mitigation site is providing adequate functions and values, then no additional monitoring will be required. If the mitigation site is not functioning after the monitoring period as reasonably anticipated, then corrective measures shall be implemented.

12. The mitigation parcel will be equally divided and ownership will be assigned from the applicant to the U.S. Army Corps of Engineers and the Illinois Department of Natural Resources. The conveyance of property will be initiated upon permit approval by working with members of the St. Louis District Real Estate Branch.

13. Any mitigation establishment activities that alter surrounding waters of the United States, including wetlands, must be corrected to return surrounding waters of the United States to their pre-project conditions. Stand management and maintenance of the mitigation site during the five year monitoring period shall be the responsibility of the permittee.

14. That the permittee shall complete the pipeline installation activities in conformance with the submitted double ditching method and return the project area to original contours to allow natural re-establishment of emergent wetlands. Mitigation of emergent wetlands will not be required if the disturbed emergent wetland areas are allowed to naturally revegetate.

15. That the permittee contact the St. Louis District Regulatory Branch at the beginning of construction and at the end of all construction.

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ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276

RENEE CIPRIANO, DIRECTOR

217/782-3362

February 8, 2002

St. Louis District
Corps of Engineers
1222 Spruce Street
St. Louis, IL 63103

Re: Equilon Pipeline Company LLC (Madison, Bond, Fayette and Marion Counties)
Petroleum pipeline - Kaskaskia River, various streams and wetlands
Log # C-0923-01 [CoE appl. # 200105180]

Gentlemen:

This Agency received a request on July 26, 2001 from Equilon Pipeline Company LLC requesting necessary comments concerning the installation of a petroleum pipeline from Wood River to Patoka Station in the counties of Madison, Bond, Fayette and Marion. We offer the following comments.

Based on the information included in this submittal, it is our engineering judgment that the proposed project may be completed without causing water pollution as defined in the Illinois Environmental Protection Act, provided the project is carefully planned and supervised.

These comments are directed at the effect on water quality of the construction procedures involved in the above described project and are not an approval of any discharge resulting from the completed facility, nor an approval of the design of the facility. These comments do not supplant any permit responsibilities of the applicant toward the Agency.

This Agency hereby issues certification under Section 401 of the Clean Water Act (PL 95-217), subject to the applicant's compliance with the following conditions:

1. The applicant shall not cause:

   a. violation of applicable water quality standards of the Illinois Pollution Control Board, Title 35, Subtitle C: Water Pollution Rules and Regulations;

   b. water pollution defined and prohibited by the Illinois Environmental Protection Act; or

   c. interference with water use practices near public recreation areas or water supply intakes.

2. The applicant shall provide adequate planning and supervision during the project construction period for implementing construction methods, processes and cleanup procedures necessary to prevent water pollution and control erosion.

3. Any backfilling must be done with clean material and placed in a manner to prevent violation of applicable water quality standards. Temporary runarounds shall be constructed of clean course aggregate.

4. All areas affected by construction shall be mulched and seeded as soon after construction as possible. The applicant shall undertake necessary measures and procedures to reduce erosion during construction. Interim measures to prevent erosion during construction shall be taken and may include the installation of staked straw bales, sedimentation basins and temporary mulching. All construction within the waterway shall be constructed during zero or low flow conditions. The applicant shall be responsible for obtaining an NPDES Storm Water Permit prior to initiating construction if the construction activity associated with the project will result in the disturbance of 5 (five) or more acres, total land area. An NPDES Storm Water Permit may be obtained by submitting a properly completed Notice of Intent (NOI) form certified mail to the Agency's Division of Water Pollution Control, Permit Section.

5. The applicant shall implement erosion control measures consistent with the "Illinois Urban Manual" (IEPA/USDA, NRCS; 1995).

6. The petroleum pipeline will be installed across the Kaskaskia River, Silver Creek upstream of Highland Creek, Cahokia Creek and Shoal Creek by horizontal direction drilling (HDD) method. If the horizontal directional drilling technique fails during construction in any of these four waterways, the Equilon Pipeline Company must notify the Watershed Management Section of the Illinois EPA and obtain approval prior to the initiation of open trench crossing operations or other alternate methods.

7. The use of directional drilling to install the petroleum pipeline below the waters of the State is hereby certified provided that:

   a. All pits and other construction necessary for the directional drilling process are located outside of waters of the State;

   b. All drilling fluids shall be adequately contained such that they cannot make their way to waters of the State. Such fluids shall be treated as stipulated in Condition 11; and

   c. Erosion and sediment control is provided in accordance with Conditions 2, 4 and 5.

8. Material resulting from trench excavation within waters of the State may be temporarily side cast adjacent to the trench excavation provided that:

   a. Side cast material is not placed within a creek, stream, river of other flowing water body such that material dispersion could occur;

   b. Side cast material is not placed within ponds or other water bodies other than wetlands;

   and

   c. Side cast material is not placed within a wetland for a period longer than twenty (20) calendar days. Such side cast material shall either be removed from the site (refer to Condition 11), or used as backfill (refer to Conditions 9 and 10).

9. Backfill used within trenches passing through waters of the State, except wetland areas, shall be clean course aggregate, gravel or other material which will not cause siltation, pipe damage during placement, or chemical corrosion in place. Excavated material may be used only if:

   a. Particle size analysis is conducted and demonstrates the material to be at least 80% sand or larger size material, using a #230 sieve; or

   b. Excavation and backfilling are done under dry conditions.

10. Backfill used within trenches passing through wetland areas shall consist of clean material which will not cause siltation, pipe damage during placement, or chemical corrosion in place. Excavated material shall be used to the extent practicable, with the upper six (6) to twelve (12) inches backfilled with the topsoil obtained during trench excavation.

11. All material excavated which is not being used as backfill as stipulated in Conditions 9 and 10 shall be stored or disposed in self-contained areas with no discharge to waters of the State. Material shall be disposed of appropriately under the regulations at 35 Il. Adm. Code Subtitle G.

12. Earthen banks of the waterways affected by installation of the petroleum pipeline and where no riprap materials are installed, will be reconstructed to have side slopes with a minimum 3 : 1 horizontal to vertical ratio or will be reconstructed to their less steep original contours. The banks of the channel affected by construction shall be seeded and mulched.

This certification becomes effective when the Department of the Army, Corps of Engineers, includes the above condition # 1 through # 12 as conditions of the requested permit issued pursuant to Section 404 of PL 95-217.

This certification does not grant immunity from any enforcement action found necessary by this Agency to meet its responsibilities in prevention, abatement, and control of water pollution.

Sincerely,

Bruce J. Yurdin, Manager
Watershed Management Section
Bureau of Water

BY:DPG:0923-01.doc

cc: IEPA, Records Unit
IEPA, DWPC, FOS, Collinsville
IDNR, OWR, Springfield
USEPA, Region 5
Equilon Pipeline Company LLC

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2 RIVERS PIPELINE MITIGATION

2005 ANNUAL REPORT

Prepared for:

Equilon Pipeline Company and Buckeye Pipeline Company

Presented to:

US Army Corps of Engineers, St. Louis District

Prepared by:

JD Summers - Envirotech

2 RIVERS PIPELINE MITIGATION – ANNUAL REPORT

YEAR 1

Background and History:

In order to offset negative impacts to wetlands from the construction of the 2 Rivers Pipeline project, Equilon Pipeline Company LLC (Equilon) entered into an agreement of compensatory mitigation at a 2:1 ratio as a condition of the issued Section 404 Permit no. P-2303 with the US Army Corps of Engineers (COE). The agreement was for Equilon to acquire an abandoned farm field(s), remove the undesirable vegetation (soft mast producing trees and brush) and to replant the area to hard mast producing trees. Equilon hired JD Summers – Envirotech (JDSE) to remove the vegetation, plant the trees, and be responsible for the maintenance and monitoring of the project for a minimum of five years. Clearing began in 2003, and due to flooding and wet conditions took nearly a year to complete. The spring of 2004, conditions were not favorable for establishment of the planting, therefore it was decided that a fall planting may be the better option and was also recommended by the supplier. The COE approved mixture of trees was planted in the fall of 2004. Immediately after planting, the site was again inundated with flood waters. The site was essentially covered with water and/or ice from the fall of 2004 to early spring 2005. At some point during 2004, the pipeline was sold to Buckeye Pipeline Company (Buckeye). Buckeye then re-negotiated contract for maintenance and monitoring with JDSE. The first monitoring of the site occurred late spring of 2005. It was noted that nearly all of the trees had been sheared off at 8 – 24 inches above the ground by the ice during the winter, but were showing strong indications of survival. The site was then strip mowed, 1 late spring/early summer, and 1 late summer. Some trees were accidentally hit during the spring mowing operations, as the trees were hidden by the 4 – 5 foot tall weed growth. Strip mowing was selected as it appeared that we were now facing an abnormally dry year, and this could help conserve moisture and reduce browse pressure. After the second strip mowing, the trees were marked with flagging to aid with future monitoring and maintenance events. The fall monitoring was completed late October 2005.

Scope:

The scope of this report covers the monitoring of the two fields planted by JDSE to meet the requirements as set forth by prior agreement (Section 404 Permit no. P-2303) between COE, Equilon, and Buckeye. The fields are located in Sec. 2, T4N. R1W in Fayette County, IL.

Methodology:

The spring field survival count JDSE utilized a "point arc" method for estimation of survival rates. This method samples a known acreage percent quantity to relate to overall rate (trees per acre) survival. The fall survival count JDSE utilized the "direct row count" method. This method gives a more accurate representation of true survival rates.

Results:

Spring 2005

South Field	+ 95%	(>25% sample size, >+/- 7.5% expected error)
North Field	+ 95%	(25% sample size, +/- 7.5% expected error)

Fall 2005

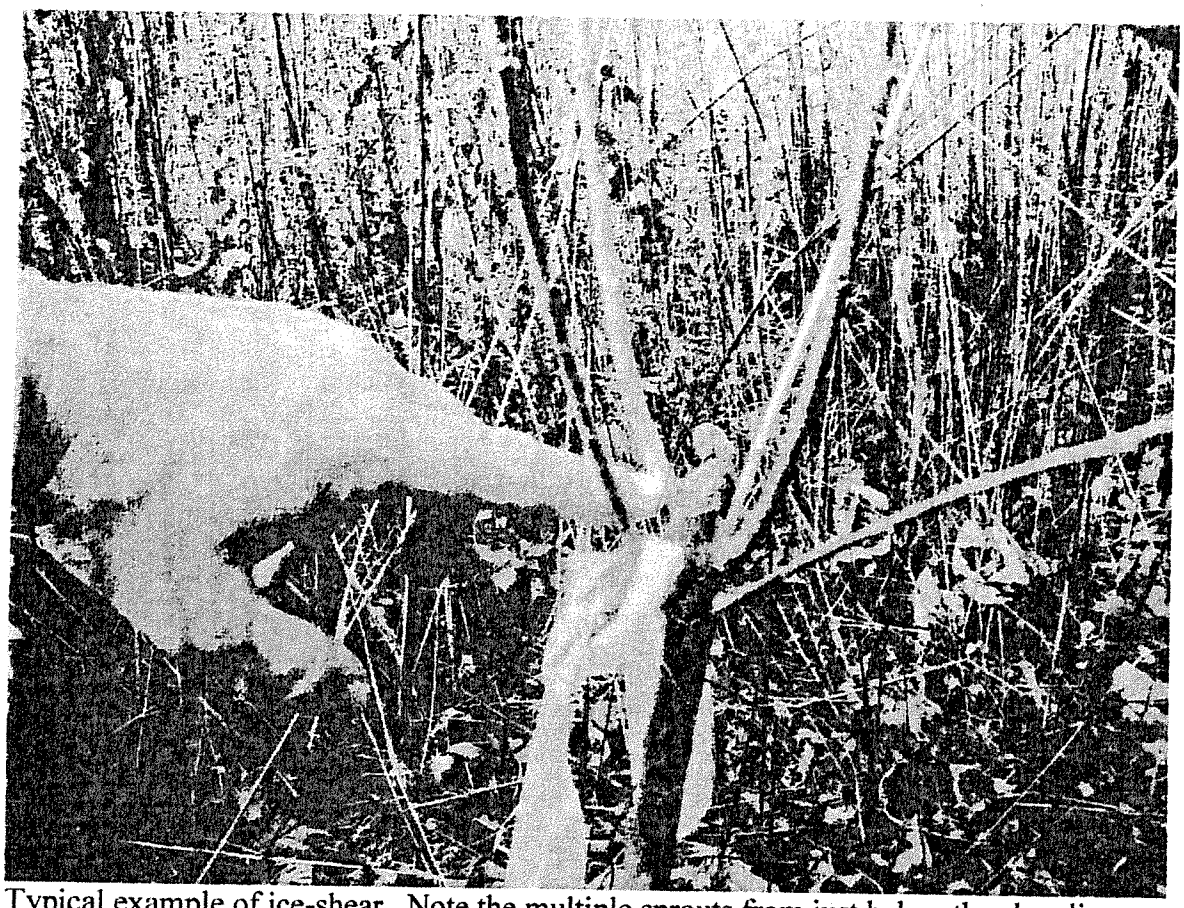
South Field	91.966%	(>25% sample size, +/- 2.5% expected error)
North Field	94.875%	(25% sample size, <+/- 2.5% expected error)

Summary/Conclusions:

Both fields are exceeding the minimum required survival rates at this time. The south field appears to have a lower survival rate, but likely has a very similar rate as the north field. The smaller size of the south field leads to less accurate, overall data representation. This likely skews the results somewhat. It is also apparent that the direct row count method provides a much more accurate representation of true survival rates. Therefore all remaining monitoring will utilize this method. No particular species of tree was noted as having any appreciable differing rates of survival. Of the approximately 5% mortality rate, it is estimated that half were accidentally mowed during the spring 2005. The remaining may have succumbed to ice damage, browse pressure; other causes *or* some may actually be present and surviving but are hidden by the surrounding weed growth.

Recommendations:

It is recommended that the site be mowed an additional time before the spring of 2006, as weed pressure from warm fall re-growth is threatening to hide the established rows. If the rows become un-recognizable again, more trees are likely to be accidentally mowed during the spring mowing event. Mowing this fall/winter could make a critical difference if flooding or wet conditions prevent access the field until late spring again.

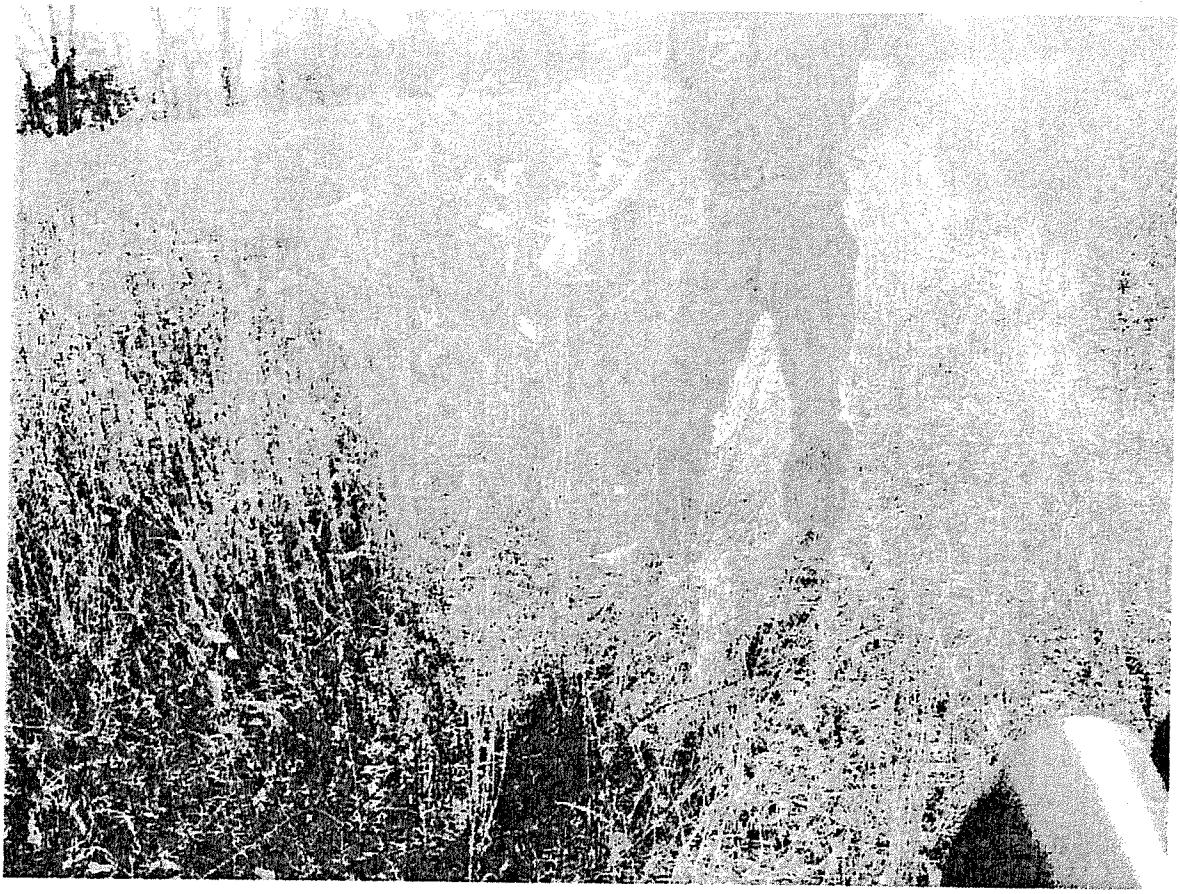


Typical example of ice-shear. Note the multiple sprouts from just below the shearline.

Typical ice-shear. Note the clean, razor-like cut.

Typical mower damaged tree. Note the splinted look, and the re-sprouting

Typical ice-sheared tree. Note: Right index finger at shearline, left index finger near top of re-growth.



Tree showing re-growth after ice damage, exhibiting multiple stems.

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Equilon 2Rivers Pipeline Project
Wetland Delineation Report

Bob Davidson performed delineation
(251) 391-5757

Prepared For
Equilon Pipeline Company LLC

Prepared By
Benchmark Ecological Services, Inc.

July 17, 2001

2Rivers Wetland Delineation Report

1.0 Introduction

Global Environments, Inc. (Global) contracted, on behalf Equilon Pipeline Company LLC (Equilon), with Benchmark Ecological Services, Inc. (Benchmark) to conduct Wetland Delineation on approximately 58 miles of proposed pipeline corridor located in Madison County, Bond County, Fayette County, and Marion County, Illinois (Figure 1). The project, called the 2Rivers Pipeline, will consist of constructing a 12-inch diameter pipeline to transport products (unleaded gasoline and diesel fuel) between the Wood Creek refineries in Madison County, Illinois and the existing Patoka Station in Marion County, Illinois.

The project area consists of a proposed 50-foot permanent easement plus an adjacent 25-foot temporary workspace easement along the course of the proposed corridor (corridor). The corridor traverses a variety of habitat, dominated by agricultural (primarily farming) lands, with occasional stream crossings that were often associated with bottomland forest and emergent wetlands.

The primary objectives of the study were to:

- Document the presence of wetlands based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology,
- Delineate identified wetlands, and
- Evaluate each wetland for U.S. Army Corps of Engineers (USACE) jurisdictional status.

Benchmark initiated a background investigation for the site in May 2001, and conducted the field investigation on 19-29 June 2001, following guidelines prescribed in the 1987 *U.S. Army Corps of Engineers Wetlands Delineation Manual* (The Manual). Following is a summary report describing the methods and findings of the study.

2.0 Methods

Methods employed by Benchmark in the conduct of the Wetland Delineation included review of existing background information, field site characterization, and wetland delineation.

2.1 Background Information

Background information for the site was obtained from the following sources:

- County Soil Surveys,
- National and State Hydric Soils Lists,
- Aerial Photographs,
- National Wetlands Inventory (NWI) map(s), and
- USGS Topographic Maps.

2.1.1 Soil Survey Review – County Soil Survey evaluations were conducted to identify soil mapping units along the corridor and hydric soil characteristics and drainage classifications listed for the project area. Useful information that soil surveys can provide includes soil permeability, which affects water percolation rates. Low percolation rates can result in surface soil saturation or standing water following rain events. Topographic information and drainage classifications that are also available in County Soil Surveys are useful in determining the likelihood of slow runoff rates and pooling due to the lack of substantial elevation differences across a site.

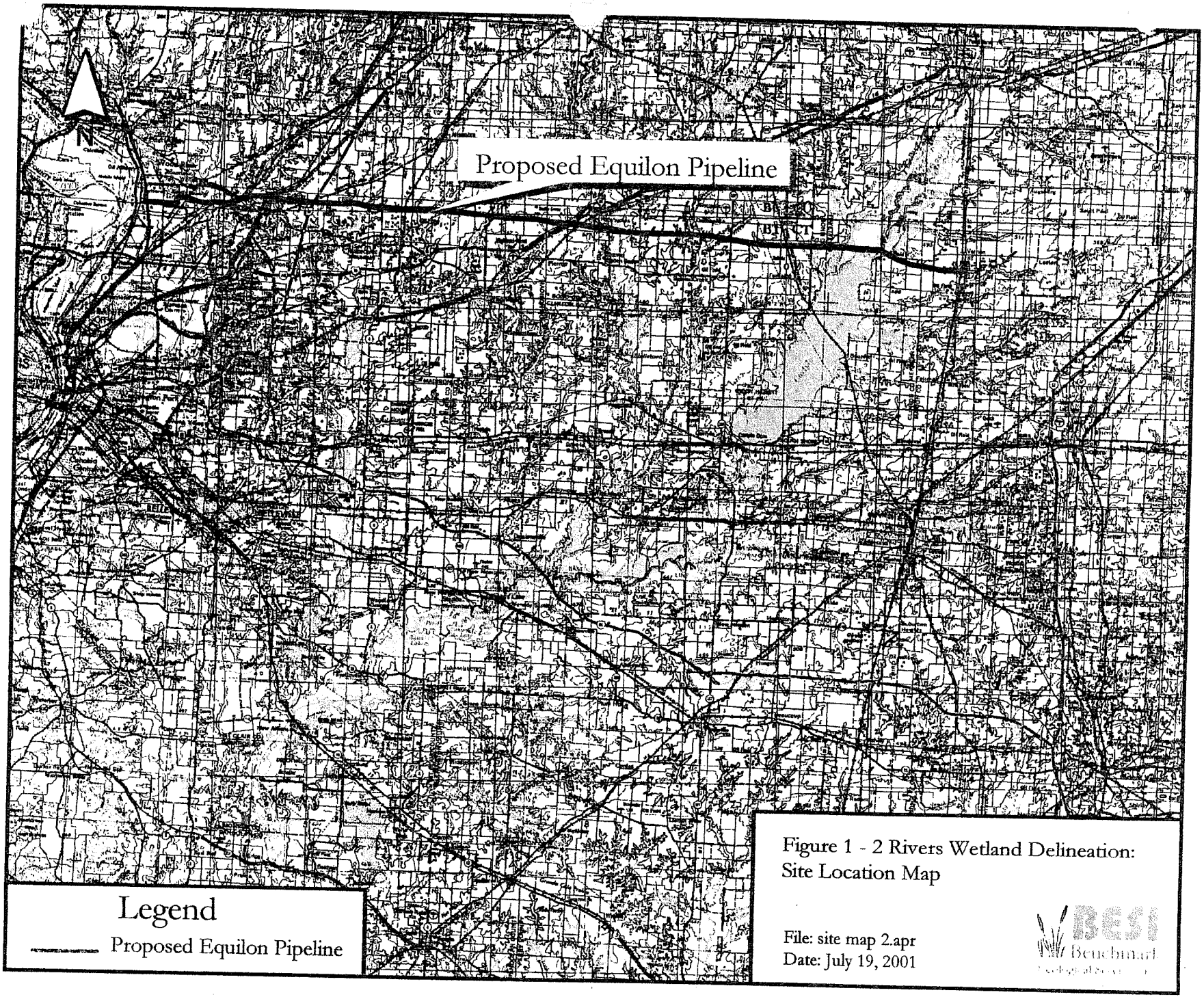

Figure 1 - 2 Rivers Wetland Delineation:
Site Location Map

File: site map 2.apr
Date: July 19, 2001

BEST Benchmark

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2.1.2 State and National Hydric Soils List – Soils exhibiting characteristics of hydric soils are listed in the National and Illinois Hydric Soils Lists. Listed soils are commonly associated with wetlands when suitable hydrologic features also exist at a site. The soil series listed for the site were checked for listing on the National and Illinois Hydric Soils Lists.

2.1.3 Aerial Photographs – Aerial photographs were used in the identification of wetlands and ground features that may contribute to the formation of wetlands or that may reflect the presence of wetlands. Identification of such characteristics during the background investigation can aid field investigators in the location of potential wetland areas and help in the determination of whether or not wetlands are isolated (from a USACE Jurisdictional standpoint).

2.1.4 National Wetlands Inventory Review - NWI maps covering the site were evaluated for wetlands previously identified by the US Fish and Wildlife Service. Digital NWI maps were superimposed on digitized USGS topographic and aerial photographic images. The images were printed and used for site reference maps during field site characterization and delineation.

2.1.5 USGS Topographic Maps - USGS topographic maps were evaluated to further identify hydrologic characteristics that might contribute to poor drainage, or retention/concentration of water at the site. USGS maps also indicate large wetland areas, forested areas, ponds, lakes and streams.

2.2 Site Characterization

Due to the linear nature of the project area (pipeline corridor), field personnel traveled the entire length of the corridor focusing on potential wetland areas identified during the background investigation, and noting vegetation and hydrologic characteristics that might indicate potential wetlands. Where wetlands were confirmed, the vegetative communities associated with the wetland, and when necessary, the surrounding upland communities were evaluated in order to identify the dominant plant species and hydrologic features that characterize each site to delineate the wetland boundary. All potential wetland areas identified were subjected to a detailed evaluation of vegetation, hydrology, and soils.

2.2.1 Vegetation Community Mapping - Using site maps and information generated from the Background Information, major vegetation communities were identified during the field investigation. Wetland boundaries were marked with yellow wooden stakes and/or survey ribbon. Wetland boundary coordinates were recorded using a Differential Global Positioning System (GPS). Where boundary coordinates were not obtainable due to inadequate GPS satellite coverage, bearings and distances from other GPS waypoints were recorded to enable the plotting of wetland boundaries. Wetland boundaries were determined where wetlands intersected the project area (within the corridor).

2.2.2 Hydrologic Indicators - Hydrologic features that were identified during the background information review and those identified during the field survey that may contribute to the formation and maintenance of wetlands were also noted and, where appropriate, mapped using a GPS (if not already on current maps). Such features include levees, ditches, other drainages, road and railroad beds, and low areas (especially if saturated to the surface).

2.3 Wetland Delineation

Areas identified during the background information survey and site characterization as potential wetlands were evaluated to confirm whether they satisfy the wetland criteria of hydrophytic vegetation, wetland hydrology, and hydric soils established by The Manual. Representative plots were sampled within the potential wetland area and surrounding vegetation communities. Soils and vegetation analysis were conducted at each plot. Data were recorded on Routine Wetland Determination Forms (Appendix A). Once vegetation communities had been identified within specific hydrologic circumstances, similar areas could be delineated without sample plots. Plots were also sometimes unnecessary where obvious hydrologic and/or vegetation community lines existed that clearly defined wetland boundaries.

2.4 Documentation

Detailed field notes recorded during the field investigation include, at a minimum, the following information:

- Project Name, Date, and Personnel
- Notes on plant communities
- Notes on hydrologic features (i.e., ditches, depressions, standing water, and surface soil conditions)
- Notes on soils
- Photographs documenting field conditions

3.0 Results

Following are the results of the Background Information Review, Site Characterization, and Wetland Delineation.

3.1 Background Information

3.1.1 **Soil Survey Review and State and National Hydric Soils Lists** - Review of the County Soil Surveys for Madison, Bond, Fayette, and Marion Counties showed that the project area traversed 110 soils map units. The most frequently encountered soils within wetland areas were in the Wakeland series. These are fluvial soils, nearly level, with slow surface runoff and internal drainage. They are typically found associated with floodplains of area streams and small drainageways. Twenty-five soils traversed by the corridor are listed on the National and Illinois Hydric Soils Lists (Table 1). Soils were typically silty loam in texture except on the western end of the corridor where silty clay soils were prevalent.

Table 1 – 2Rivers Corridor – Hydric Soils

Map Symbol	Soil Series	Subgroup	Drainage Class	Hydric Criteria
302	Ambraw loam	Fluvaquentic Endoaquolls	P	2B3,4
70	Beaucoup silty clay loam	Fluvaquentic Endoaquolls	P, VP	2B3, 3, 4
3070	Beaucoup silty clay loam, frequently flooded	Fluvaquentic Endoaquolls	P, VP	2B3, 3, 4
334	Birds silt loam	Typic Fluvaquents	P	2B3, 3, 4
287 A	Chauncey silt loam, 0-3% slopes	Typic Argialbolls	P	2B3
2	Cisne silt loam	Vertic Albaqualfs	P	2B3
991	Cisne-Huey silt loams	Vertic Albaqualfs	P	2B3
993	Cowden-Piasa silt loams	Vertic Albaqualfs	P	2B3
1071	Darwin silty clay loam, wet	Vertic Haplaquolls	P	2B3, 3
48	Ebbert silt loam	Argiaquic Argialbolls	VP	2B3, 3
120	Huey silt loam	Typic Natraqualfs	P	2B3, 3
451	Lawson silt loam	Cumulic Hapludolls	SP	4
218	Newberry silt loam	Mollic Endoaqualfs	P	2B3
3288	Petrolia silt loam, frequently flooded	Typic Fluvaquents	P, VP	2B3, 3, 4
474	Piasa silt loam	Vertic Natraqualfs	P	2B3, 3
16	Rushville silt loam	Vertic Albaqualfs	P, VP	2B3, 3
68	Sable silty clay loam	Typic Endoaquolls	P	2B3, 3
3284	Tice silt loam, frequently flooded	Fluvaquentic Hapludolls	SP	4
3404	Titus silty clay loam, frequently flooded	Vertic Endoaquolls	P	2B3, 3
50	Virden silty clay loam	Vertic Argiaquolls	P	2B3, 3
941	Virden-Piasa silt loams	Vertic Argiaquolls	P	2B3, 3
333	Wakeland silt loam	Aeric Fluvaquents	SP	4
3333	Wakeland silt loam, frequently flooded	Aeric Fluvaquents	SP	4
165	Weir silt loam	Vertic Epiaqualfs	P	2B3, 3
12	Wynoose silt loam	Vertic Albaqualfs	P	2B3

3.1.2 National Wetlands Inventory Review - Review of the National Wetlands Inventory maps showed numerous wetlands occurring on and/or near the corridor. Maps showing each NWI wetland were used during the field investigation to aid in wetland location and classification.

3.1.3 Aerial Photographs – Aerial photographs indicated a number of drainage systems that crossed the corridor, including perennial and intermittent streams (Section 3.1.4), and several impoundments. Typically, forested areas that varied in width, depending on floodplain width and agricultural encroachment, bordered perennial streams. Intermittent streams were bordered by narrow strips of forest or by croplands, usually depending on the relative position on the watershed. In Fayette County, the corridor traverses the Carlyle Lake State Wildlife Management Area (Carlyle WMA) in the Kaskaskia River drainage.

3.1.4 USGS Topographic Maps – The USGS topographic maps covering the area were evaluated to help identify existing wetlands and/or physical features that might impact site hydrology. The relief depicted on the maps indicated, for the majority of the corridor, a gently rolling topography with relatively flat uplands grading to steeper slopes that transitioned into the stream floodplain areas. Terrain was generally flat in the western end of the corridor (Wood River area).

Twenty-two perennial stream crossings (streams and their tributaries) were identified along the corridor. With the aid of the aerial photographs, thirty-six additional intermittent stream and swale crossings were identified. Most of the major streams identified were shown to have some associated forested area. The largest expanse of potential wetland area indicated on the topographic maps was within the Carlyle WMA, on the Kaskaskia River floodplain and primarily within the WMA waterfowl management cells.

3.2 Site Characterization

Site characterization was completed concurrently with the delineation of wetlands. Dominant vegetation, hydrologic features, and soils information were used to identify and map wetland boundaries along the corridor. Wetlands were identified and classified based on dominant vegetation and ecological association (e.g., palustrine emergent, riparian forest, etc.).

3.2.1 Vegetation Community Mapping –Transects were established across the length of the corridor for evaluation of vegetative communities, hydrology, and soils. Transects were typically based on the date surveyed and physical features (e.g., levees, roads, etc.), rather than specific distances. Field investigators traversed each transect on foot or by vehicle (all terrain vehicle or pick-up truck). Suspected wetlands identified during the background investigation, along with any other areas found to exhibit wetland characteristics were carefully evaluated. Since the exact route for the extreme western end of the corridor had not been finalized at the time of the survey, a wider area that would include several route options was evaluated.

Five major vegetative communities were identified during the survey: Palustrine Emergent Wetland (PE), Palustrine Forested Wetland (PF), Riverine Forested Wetland (RF), Upland Forest (UF), and Agricultural Lands. Dominant plant species typical of each Community are presented in Table 2. Two minor vegetation communities were also identified: Upland Prairie and Riverine Emergent Wetland (RE). Species composition and dominance varied between wetlands within the same community classification due to

local and regional environmental conditions. Table 2 indicates the most frequently encountered species as well as plants that were identified less frequently, but were important components of at least one wetland community identified.

Table 2 – Representative Plant Species by Community

VEGETATION COMMUNITY	REPRESENTATIVE PLANT SPECIES*
Palustrine Emergent Wetland (PE)	***Eleocharis spp., Polygonum spp., Rumex crispis, Salix nigra***, *Bidens aristosa, Cephalanthus occidentalis, Cyperus psudovegetus, Leersia oryzoides, Phragmites australis, T. angustifolia* (west), *Typha latifolia* (east)
Palustrine Forested Wetland (PF)	***Acer saccharinum, Bidens aristosa, Fraxinus pennsylvanica, Rumex crispis, Salix nigra***, *Carex spp., Polygonum sp.*
Riverine Forested Wetland (RF)	***A. negundo, A. saccharinum, Elymus riparius, F. pennsylvanica, Laportea canadensis***, *Celtis occidentalis, Cornus drummondii, Juglans nigra, Populus deltoids, Toxicodendron radicans, Ulmus americanus,*
Upland Forest (UF)	***A. saccharinum, C. occidentalis, Frixinus pennsylvanica, U. americana, U. rubra, Parthenocissus quinquifolia***, *J. nigra, L. canadensis, Quercus sp. T. radicans, E. riparius,*
Agricultural Lands	**Cultivated corn, soybean, and wheat**

* **Bold** type indicates frequently encountered dominant species; Non-bold type indicates less frequently encountered dominant species.

Palustrine Emergent Wetlands – PE Wetlands located within the WMA exhibited a high degree of variability, depending primarily on elevation and presumably anthropogenic water level manipulation. A notable habitat variable between individual PE wetlands was the occurrence and density of emergent shrub species such as button-bush (*Cephalanthus occidentalis*) and black willow (*Salix nigra*) saplings. Twelve PE Wetlands identified within the WMA are within leveed cells used for waterfowl management. Low areas that remain wet longer into the growing season and likely flood more frequently support typical PE plant communities for that area (Appendix B, B-01). Water levels are manipulated during the growing season in cells and portions of cells at slightly higher elevations to allow corn, other cultivated crops, and native wetland plants to be grown as forage for migratory waterfowl (Appendix B, B-05). Additional manipulations take place following the growing season to attract and hold waterfowl during hunting season.

A number of PE wetlands were identified within Agricultural Lands as narrow strips in drainageways (Appendix B, B-02). These wetlands were typically dominated by herbaceous wetland species (presumably maintained by periodic mowing), sometimes interspersed with shrubby species.

Forested Wetlands – PE and PF Wetland Community species dominance showed some variation, depending on the site. Many of the PE Wetlands located on the WMA were dominated by black willow (*S. nigra*) and a variety of understory species including (*Ambrosia trifida, Bidens aristosa,* and *Rumex crispis*) (Appendix B, B-06).

Box-elder (*Acer negundo*) was a common dominant overstory species in many of the Forested Wetland Communities (PF and RF) along the corridor. Wetland specific dominance varied from one community to the next. Three of the RF Communities included box-elder and, to a lesser degree, black walnut (*Juglans nigra*) as the co-dominant tree species. Wild-rye (*Elymus canadensis*) and wood nettle (*Laportea canadensis*) were frequent understory representatives (Appendix B, B-07). A number of wetlands included box-elder and silver maple (*A. saccharinum*) as co-dominant overstory species, with green ash (*Fraxinus pennsylvanica*) and American elm (*Ulmus americana*) as frequently occurring tree species (Appendix B, B-08). Understory species composition typically resembled that of the other PE and PF Communities.

Seven PF and RF Communities were identified that included silver maple, either in pure stands, or co-dominant with green ash (e.g., Plot ID Wpt 124 and Wpt 143) (Appendix B, B-09)).

Although cottonwood (*Populus deltoides*) was noted infrequently as a subdominant tree species in the PF and RF Communities, one RF wetland overstory was dominated almost exclusively by cottonwood (Map ID 42) (Appendix B, B-10). One PF Wetland in Madison County (Map ID 1) has black willow and cottonwood dominated overstory, with narrow-leaved cattail (*Typha angustifolia*) dominating the understory (Appendix B, B-11).

Forested Uplands – Many of the RF wetlands identified transitioned to Forested Upland Communities UF with increasing elevation. These communities were often dominated by many of the same overstory plant species located in adjacent Wetland Communities, but typically included additional species including elms (*Ulmus spp.*) black walnut, hickories (*Carya spp.*), and oaks (*Quercus spp.*), with the latter species increasing in dominance with elevation and distance from the wetland borders (Appendix B, B-12). Understory components of the UF Communities often included poison ivy (*Toxicodentron radicans*) and Virginia creeper (*Parthenocissus quinquefolia*).

Agricultural Lands – Much of the upland area along the corridor is in intensive agriculture where row crops of corn, soybean, and wheat are common. Limited livestock production (cattle and swine) also was noted.

3.2.2 Hydrologic Indicators

Drainage Patterns – Natural and manipulated drainage patterns noted on the USGS topographic maps and aerial photographs were the most common and significant hydrologic features influencing wetland formation across the site. Nearly level, slowly permeable hydric soils were located on most floodplain areas. Standing water or more subtle indicators (e.g., localized drainage patterns, saturated soils, water lines on trees, etc.) were often observed in such areas, indicating wetland hydrology. Levees located in the Carlyle WMA were also noted as significant hydrology altering features. The WMA has pumping capabilities that allow flooding and draining of the cells to manage for the production of waterfowl forage and loafing/roosting sites.

Reservoir water level manipulation (seasonal or planned) in Lake Carlyle and Highland Silver Lake also are potential influences on their upstream hydrology.

Two wetland areas supported by perched, outcropping, water tables were identified within the corridor (Map Ids 102, 73).

3.3 Wetland Delineation

The wetland delineation was conducted on 19 - 29 June 2001. Sufficient numbers of soil pits and vegetation plots were evaluated to verify wetland community structure and identify physical and/or biological indicators that represented the boundaries for each wetland area. Data forms are included in Appendix A. Field personnel marked (wooden stakes and/or yellow flagging) and recorded (using GPS) the boundaries for each wetland. Wetland boundary location coordinates were plotted, using ArcView® GIS.

Sixty-three wetland areas were delineated and mapped during the survey. Table 3 lists the wetland areas and the following associated data:

- Map ID
- Plot ID
- Community ID
- Approximate acreage (within the corridor boundary)
- NWI classification (where applicable)
- Estimated jurisdictional status

Also shown is a listing of perennial stream, tributary and intermittent stream crossings (USACE Other Waters) identified on the corridor during the survey. Community Plot IDs correlate to the field data sheets (Appendix A). Representative photographs for each major community are presented in Appendix B. Appendix C presents aerial photographs showing locations of each of the major Wetland Communities.

Table 3 - Wetland Survey Data

Map ID[1]	Plot ID	Acreage	Community ID[2]	NWI Classification	Comments[3]	
1	374		PF	PEMFx	NIA	Agricultural Impoundment
2	313		PE	PEMC/PEMF	IA	Isolated agricultural field
3	358		PE	PEMC	NIL	Associated with an active land fill
4	367		PE	L1UBHh	NIL	Associated with an active land fill
5	357		PE	PEMC	NIL	Associated with an active land fill
6	360		PE	PEMFx	NI	Isolated roadside ditch
7	359		PE	PUBGx	NIL	Pond Associated with an active land fill
8			OW		P	Indian Creek
9			OW		P	Cahokia Creek
10	356	0.15	PF		J	Box-elder/Maple Wetland
11			OW		P	Cahokia Creek Tributary
12	354	0.00	OW		P	Cahokia Creek Tributary
13	353	0.04	OW		I	Cahokia Creek Tributary
14	348	0.44	RF		J	Box-elder/Maple Wetland
15	338	0.85	RF		J	Box-elder/Maple Wetland
16			OW		P	Cahokia Creek Tributary
17			OW		P	Cahokia Creek Tributary
18			OW		P	Cahokia Creek Tributary
19			OW		P	Cahokia Creek Tributary
20	311	0.32	RF		J	Box-elder Wetland
21			OW		P	Sugar Creek
22			OW		P	Sugar Creek
23			OW		P	Silver Creek
24			OW		P	Silver Creek Tributary
25	329	2.16	RF	PFO1A	J	Box-elder Wetland
26			OW		P	Silver Creek
27			OW		P	Silver Creek Tributary
28	326	0.06	PE		JT	Drainage way in agricultural field
29	323	0.05	PE	PUBGH	NA	Agricultural Impoundment
30	321 A	0.00	OW	PFO1A	P	OW (Sugar Fork Tributary)
31	317	1.05	RF	PFO1A	J	Elm/Dogwood Wetland
32			OW		P	Highland Silver Lake Tributary
33			OW		P	Highland Silver Lake
34	315	0.22	PE	PEMAH	P	Highland Silver Lake (shorelines, etc.)
35			OW		T	Sugar Creek Tributary
36			OW		T	Sugar Creek Tributary
37			OW		T	Sugar Creek Tributary
38			OW		T	Sugar Creek Tributary
39	296	0.22	PE		JT	Drainage way in agricultural field
40	300	1.13	RF	PFO1A	J	Box-elder Wetland
41			OW		T	Shoal Creek Tributary

Continued Next Page

Table 3 - Wetland Survey Data (Continued)

Map ID[1]	Plot ID	Acreage	Community ID[2]	NWI Classification	Comments[3]	
42	286	0.42	RF	PFO1A	J	Cottonwood Wetland
43			OW		P	Shoal Creek
44	282	0.12	RF	PFO1A	J	Box-elder/Maple Wetland
45	284	0.11	PE	PUBGX	N	Agricultural Impoundment
46			OW		T	Shoal Creek Tributary
47	278	0.03	PE	PUBGH	N	Agricultural Impoundment
48			OW		T	Shoal Creek Tributary
49			OW		T	Shoal Creek Tributary
50			OW		T	Shoal Creek Tributary
51	264	0.06	PE	PFO1A	JT	Drainage way in agricultural field
52			OW		T	Beaver Creek Tributary
53			OW		T	Beaver Creek Tributary
54			OW		T	Beaver Creek Tributary
55	251	0.48	RF		J	Box-elder Wetland
56			OW		P	Beaver Creek
57		0.14	PE	PABGH	N	Agricultural Impoundment
58	246	0.03	PE		JT	Drainage way in agricultural field
59	245	0.03	PE		JT	Drainage way in agricultural field
60	244	0.07	PE		JT	Drainage way in agricultural field
61	243	0.03	PE		JT	Drainage way in agricultural field
62	239	0.05	RF		J	Oak/Elm/Hackberry Wetland
63			OW		P	Little Beaver Creek
64			OW		T	Little Beaver Creek
65	A-4	0.03	PE		JT	Drainage way in agricultural field
66	A-3	0.02	PE		JT	Drainage way in agricultural field
67	A-2	0.01	PE		JT	Drainage way in agricultural field
68	A-1		OW		T	Drainage way in agricultural field
69			OW		T	Carlyle Lake Tributary
70			OW		T	Carlyle Lake Tributary
71			OW		T	Carlyle Lake Tributary
72	230	0.13	PE		JT	Drainage way in agricultural field
73	227	0.12	PF		J	Silver Maple Wetland (perched)
74	7	0.05	PF		J	Ash/Hackberry Wetland
75	18	2.58	PE	PUBKH, PEMKH, L2UBGHX, PSS1A	JC	Seasonal emergent wetland
76	51	2.37	PF	PSS1/EMCH	JC	Black Willow Wetland
77			OW		P	Hurricane Creek
78	61	0.03	PE		JC	Seasonal emergent wetland
79	63	0.37	PF	PUBFX	JC	Black Willow Wetland
80	74	0.30	PE	PUBFX	JC	Emergent Shrub Wetland
81	73	0.16	PE	PUBFX	JC	Black Willow Wetland
82	79	0.18	PE	PUBKH	JC	Black Willow Wetland

Continued Next Page

Table 3 - Wetland Survey Data (Continued)

Map ID[1]	Plot ID	Acreage	Community ID[2]	NWI Classification	Comments[3]	
83	83	0.09	PF	PUBKH	JC	Silver Maple Wetland
84	86	0.02	PE	PUBKH	JC	Emergent Shrub Wetland
85	90	0.18	PE	PUBKH	JC	Emergent Shrub Wetland
86	94	1.27	PE	PUBKH	JC	Emergent Shrub Wetland
87	103	0.58	PE	PUBKH	JC	Emergent Shrub Wetland
88	108	4.52	PE	PFO1KH	JC	Emergent Shrub Wetland
89	112	0.55	PE	PUBGHX	N	WMA Agricultural
90	116	1.56	PE	PUBGHX	N	WMA Agricultural
91	124	0.18	PF	PUBGHX	JC	Silver Maple Wetland
92	133	0.24	PF	PUBGHX	JC	Black Willow Wetland
93	137	0.33	PF	PUBGHX	JC	Box-elder Wetland
94	143	0.15	PF	PUBGHX	JC	Silver Maple Wetland
95	175	0.48	PE	U		WMA Agricultural
96	174	0.13	PE	U	JC	Black Willow Wetland
97	173	0.98	RF	PFO1C	JC	Silver Maple Wetland
98			OW		P	Kaskaskia River
99	185	0.06	RE	PFO1C	JC	Shoreline Emergent Wetland
100	192	1.03	PE	PEMF/PEMA	JC	Seasonal emergent wetland (Oxbow)
101	206	0.28	RF		JC	Silver Maple Wetland
102	213	0.02	RF		J	Ash Wetland (perched)
103			OW		T	Carlyle Lake Tributary
104			OW		T	Maggot Creek Tributary
105	216	0.90	PE	PEMADF	NIA	Wet area in agricultural field
106			OW		T	Maggot Creek Tributary
107			OW		T	Carlyle Lake Tributary
108			OW		T	Carlyle Lake Tributary
109			OW		T	Carlyle Lake Tributary
110			OW		T	Carlyle Lake Tributary
111			OW		T	Carlyle Lake Tributary

[1] **Map ID:**
Refers to Wetland/OW identification number in Appendix C

[2] **Community ID:**
OW – Other Waters (stream)
PE – Palustrine Emergent Wetland
PF – Palustrine Forest Wetland
RE – Riverine Emergent Wetland
RF – Riverine Forest Wetland

[3] **Comment Codes:**
A - Agricultural
C – Carlyle WMA
I - Isolated
J – USACE Jurisdictional
L – Industrial
N – USACE Non-Jurisdictional
P – Perennial Stream
T – Intermittent Stream
U – Upland

3.3.1 **Jurisdictional Wetlands** - Of the 63 wetlands identified and delineated (28.12 acres), 47 wetlands (totaling 24.06 acres) were considered to be Jurisdictional Wetlands (Table 3). The primary characteristics that resulted in their classification as Jurisdictional was position in, or apparent connection to a drainage that ultimately reports to a jurisdictional water body. Note that the acreage does not include sites in the Wood River area due to the unconfirmed corridor route in that area at the time of the survey. Table 4 shows the total wetland acreage within the corridor (excluding Wood River area) by Community ID.

Table 4 – Wetland Acreage By Community ID

VEGETATION COMMUNITY	ACREAGE*
Palustrine Emergent Wetland (PE)	15.71
Palustrine Forested Wetland (PF)	4.05
Riverine Forested Wetland (RF)	8.30
Riparian Emergent Wetland (RE)	.06
Total	28.12

* Acreage does not include Wood River Area

3.3.2 **Non-Jurisdictional Wetlands** – The remaining 16 wetlands identified were considered to be Non-Jurisdictional (Table 3). The primary criteria for determining a Non-Jurisdictional status were:

- Lack of connection to a Jurisdictional water body (Isolated Wetlands)
- Anthropogenic influences (i.e., Agriculture, Industrial Activity)

Appendix A

2Rivers Pipeline
Wetland Delineation Data Forms

CONFIDENTIAL

DATA FORM
Routine Wetland Delineation
(1987 COE Manual)

QC ID: 32-1

Project Site: 2Rivers Pipeline Project	Date: 6/23/2001
Applicant/Owner: Equilon	County: Fayette
Investigator(s): Benchmark Ecological Services, Inc. BD, NH	State: Illinois

Do Normal Circumstances Exist on the site?	Yes	x	No	
Is the site significantly disturbed (atypical situation)?	Yes		No	x
Is the area a potential problem area?	Yes		No	x
(If needed, explain in Remarks spaces)				

Community ID: RF
Transect ID: 62301
Plot ID: WPT 206

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Acer saccharinum*	T	FACW	9.		
2. *Acer saccharinum*	S	FACW	10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW, OR FAC (excluding FAC-): 100%

Remarks: Nearly pure maple stand with no understory (shading)

HYDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other
- ___ No Recorded Data Available

Field Observations:

Depth of Surface Water: _____ (in.)

Depth to Free Water in Pit: _____ (in.)

Depth to Saturated Soil: _____ (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- X Water Marks
- X Drift Lines
- ___ Sediment Deposits
- X Drainage Patterns in Wetlands

Secondary Indicators:
- X Oxidized Root Channels (upper12")
- X Water Stained Leaves
- X Local Soil Survey Data
- ___ Other (Explain in Remarks)

Remarks: Other Recorded Data: USGS Quadrangle, NWI Data, Soil Survey. Very flat relative to topography to West. Appears to flood regularly.

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Benchmark Ecology Services Inc.

QC ID: 32-2

SOILS

Map Unit Name
(Series and Phase): Titus silty clay loam frequently flooded
Taxonomy (subgroup): Vertic Endaquolls

Drainage Class: P
Field Observations
Confirmed Map Type? Yes [x] No [ ]

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, ect.
0-1	O				loam
1-13	A	10 YR 5/1	7.5 YR 4/6	Few/distinct	clay loam
13-20	B	10 YR 5/3	7.5 YR 5/8	many/sharp	silty clay

Hydric Soil Indicators

	Histisol		Concretions
	Histic Epipedon	x	High Organic Content in Surface Layer Sandy Soils
	Sulfidic Odor		Organic Streaking in Sandy Soils
x	Aquic Moisture Regime	x	Listed on Hydric Soils List
	Reducing Conditions	x	Listed on National Hydric Soils List
x	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks: Negative to alfa alfa dipyridil

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	x	No		Is Sample Point Within a Wetland? Yes x No
Wetland Hydrology Present?	Yes	x	No		
Hydric Soil Present?	Yes	x	No		

Remarks: Flat extension from and slightly above PE (WPT 190). Refer to in notes. Northern boundry is Polygonum WPT 190. West boundry is WPT 205. Refer to map in notes

Photos:

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DATA FORM
Routine Wetland Delineation
(1987 COE Manual)

QC ID: 29-1

Project Site: 2Rivers Pipeline Project	Date: 6/23/2001
Applicant/Owner: Equilon	County: Fayette
Investigator(s): Benchmark Ecological Services, Inc. BD, NH	State: Illinois

Do Normal Circumstances Exist on the site?	Yes	x	No	
Is the site significantly disturbed (atypical situation)?	Yes		No	x
Is the area a potential problem area?	Yes		No	x
(If needed, explain in Remarks spaces)				

Community ID: PE
Transect ID: 62301
Plot ID: WPT 192

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Polygonum lapathifolium*	H	FACW+	9.		
2. *Polygonum pensylvanicum*	H	OBL	10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW, OR FAC (excluding FAC-): 100%

Remarks: Includes *Cephalanthus occidentalis* and *Salix nigra* to varying degrees around and extending from parameter.

HYDROLOGY

x Recorded Data (Describe in Remarks):	Wetland Hydrology Indicators:
___ Stream, Lake, or Tide Gauge	Primary Indicators:
x Aerial Photographs	x Inundated
x Other	x Saturated in Upper 12 Inches
___ No Recorded Data Available	x Water Marks
	___ Drift Lines
Field Observations:	___ Sediment Deposits
Depth of Surface Water: 0-6 (in.)	x Drainage Patterns in Wetlands
Depth to Free Water in Pit: NA (in.)	Secondary Indicators:
Depth to Saturated Soil: 0 (in.)	___ Oxidized Root Channels (upper12")
	___ Water Stained Leaves
	x Local Soil Survey Data
	___ Other (Explain in Remarks)

Remarks: Other Recorded Data: USGS Quadrangle, NWI Data, Soil Survey. Shallow oxbow.

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Benchmark Ecology Services Inc.

SOILS

QC ID: 29-2

Map Unit Name
(Series and Phase): Titus silty clay loam frequently flooded
Taxonomy (subgroup): Vertic Endoquolls

Drainage Class: P
Field Observations
Confirmed Map Type? Yes [ ] No [ ]

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, ect.

Hydric Soil Indicators

	Histisol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer Sandy Soils
	Sulfidic Odor		Organic Streaking in Sandy Soils
	Aquic Moisture Regime	X	Listed on Hydric Soils List
	Reducing Conditions	X	Listed on National Hydric Soils List
	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks: No pit. Saturated to surface/Inundated.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes [x]	No [ ]
Wetland Hydrology Present?	Yes [x]	No [ ]
Hydric Soil Present?	Yes [x]	No [ ]

Is Sample Point Within a Wetland? Yes [x] No [ ]

Remarks: Shallow oxbow. Marathon 187. West boundry 188-191.

Photos: 1704, 1706

CONFIDENTIAL

DATA FORM
Routine Wetland Delineation
(1987 COE Manual)

QC ID: 30-1

Project Site: 2Rivers Pipeline Project	Date: 6/23/2001
Applicant/Owner: Equilon	County: Fayette
Investigator(s): Benchmark Ecological Services, Inc. BD, NH	State: Illinois

Do Normal Circumstances Exist on the site?	**Yes**	x	**No**	
Is the site significantly disturbed (atypical situation)?	**Yes**		**No**	x
Is the area a potential problem area?	**Yes**		**No**	x
(If needed, explain in Remarks spaces)				

Community ID: UF
Transect ID: 62301
Plot ID: WPT 208

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Fraxinus pennsylvanica*	T	FACW	9.		
2. *Fraxinus pennsylvanica*	S	FACW	10.		
3. *Ulmus americana*	S	FACW-	11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW, OR FAC (excluding FAC-): 100%

Remarks:

HYDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other
- ___ No Recorded Data Available

Field Observations:

Depth of Surface Water: - (in.)

Depth to Free Water in Pit: - (in.)

Depth to Saturated Soil: - (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators:
- ___ Oxidized Root Channels (upper12")
- ___ Water Stained Leaves
- X Local Soil Survey Data
- ___ Other (Explain in Remarks)

Remarks: Other Recorded Data: USGS Quadrangle, NWI Data, Soil Survey. Elevated and sloping to PE (WPT 190)

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Benchmark Ecology Services Inc.

QC ID: 30-2

SOILS

Map Unit Name
(Series and Phase): Titus silty clay loam frequently flooded
Taxonomy (subgroup): Vertic Endoquolls

Drainage Class: P
Field Observations
Confirmed Map Type? Yes [ ] No [ ]

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, ect.

Hydric Soil Indicators

	Histisol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer Sandy Soils
	Sulfidic Odor		Organic Streaking in Sandy Soils
x	Aquic Moisture Regime	x	Listed on Hydric Soils List
	Reducing Conditions	x	Listed on National Hydric Soils List
	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks: No pit. Failed hydrology

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	x	No		Is Sample Point Within a Wetland? Yes [ ] No [x]
Wetland Hydrology Present?	Yes		No	x	
Hydric Soil Present?	Yes	x	No		

Remarks: elevated and sloping.

Photos:

CONFIDENTIAL

DATA FORM
Routine Wetland Delineation
(1987 COE Manual)

QC ID: 28-1

Project Site:	2Rivers Pipeline Project	Date	6/23/2001
Applicant/Owner:	Equilon	County:	Fayette
Investigator(s):	Benchmark Ecological Services, Inc. BD, NH	State:	Illinois

Do Normal Circumstances Exist on the site?	Yes	x	No		Community ID: RF
Is the site significantly disturbed (atypical situation)?	Yes		No	x	Transect ID: 62301
Is the area a potential problem area?	Yes		No	x	Plot ID: WPT 213
(If needed, explain in Remarks spaces)					

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Panicum sp.*	H		9.		
2. *Fraxinus pennsylvanica*	T	FACW	10.		
3. *Polygonum amphibium*	H	OBL	11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW, OR FAC (excluding FAC-): > 67%

Remarks: wet stream bank (small 1-1.5 m stream) transitions rapidly to upland due to steep slope in West.

HYDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other
- ___ No Recorded Data Available

Field Observations:

Depth of Surface Water: 0-2 (in.)

Depth to Free Water in Pit: - (in.)

Depth to Saturated Soil: 0 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- x Saturated in Upper 12 Inches
- x Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- x Drainage Patterns in Wetlands

Secondary Indicators:
- ___ Oxidized Root Channels (upper12")
- ___ Water Stained Leaves
- ___ Local Soil Survey Data
- ___ Other (Explain in Remarks)

Remarks: Other Recorded Data: USGS Quadrangle, NWI Data, Soil Survey. Perched wetland. Small stream ~ 20m to East (other water) abrupt bank.

CONFIDENTIAL

Benchmark Ecology Services Inc.

QC ID: 28-2

SOILS

Map Unit Name
(Series and Phase): Hickory silt loam 10-15% slopes eroded
Taxonomy (subgroup): Typic Hapludalfs

Drainage Class: _____
Field Observations
Confirmed Map Type? Yes [ ] No [ ]

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, ect.

Hydric Soil Indicators

	Histisol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer Sandy Soils
	Sulfidic Odor		Organic Streaking in Sandy Soils
	Aquic Moisture Regime		Listed on Hydric Soils List
	Reducing Conditions		Listed on National Hydric Soils List
	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks: soil & hydrology of surrounding area confirms soil type. Wetland is in small drainage.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes [x]	No [ ]
Wetland Hydrology Present?	Yes [x]	No [ ]
Hydric Soil Present?	Yes [x]	No [ ]

Is Sample Point Within a Wetland? Yes [x] No [ ]

Remarks: small stream bed with soils saturated to surface.

Photos:

CONFIDENTIAL

DATA FORM
Routine Wetland Delineation
(1987 COE Manual)

QC ID: 31-1

Project Site: 2Rivers Pipeline Project	Date 6/23/2001
Applicant/Owner: Equilon	County: Fayette
Investigator(s): Benchmark Ecological Services, Inc. BD, NH	State: Illinois
Do Normal Circumstances Exist on the site? Yes [x] No [ ]	Community ID: PE
Is the site significantly disturbed (atypical situation)? Yes [x] No [ ]	Transect ID: 62302
Is the area a potential problem area? Yes [ ] No [x]	Plot ID: WPT 216
(If needed, explain in Remarks spaces)	

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Cyperus sp.*	H		9.		
2. *Rumex crispus*	H	FAC+	10.		
3. *Polygonum pensylvanicum*	H	FACW	11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW, OR FAC (excluding FAC-): > 67%

Remarks: Vegataion appears to be normal veg for wet fallow conditions following tillage, except along drainage ditches.

HYDROLOGY

[x] Recorded Data (Describe in Remarks):
- [ ] Stream, Lake, or Tide Gauge
- [x] Aerial Photographs
- [x] Other
- [ ] No Recorded Data Available

Field Observations:

Depth of Surface Water: - (in.)

Depth to Free Water in Pit: - (in.)

Depth to Saturated Soil: - (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- [ ] Inundated
- [ ] Saturated in Upper 12 Inches
- [ ] Water Marks
- [ ] Drift Lines
- [ ] Sediment Deposits
- [ ] Drainage Patterns in Wetlands

Secondary Indicators:
- [ ] Oxidized Root Channels (upper12")
- [ ] Water Stained Leaves
- [ ] Local Soil Survey Data
- [ ] Other (Explain in Remarks)

Remarks: Other Recorded Data: USGS Quadrangle, NWI Data, Soil Survey. Ag field slopes towards corner; Probably stays wetter than most of field during wet sesions/years, but no obvious depression or drainage. Drainage ditch (N to S) drains area wet boundries not clear.

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Benchmark Ecology Services Inc.

QC ID: 31-2

SOILS

Map Unit Name
(Series and Phase): Bluford silt loam 0-2%
Taxonomy (subgroup): Aeric Ochraqualfs

Drainage Class: _____
Field Observations
Confirmed Map Type? Yes [ ] No [ ]

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, ect.

Hydric Soil Indicators

	Histisol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer Sandy Soils
	Sulfidic Odor		Organic Streaking in Sandy Soils
x	Aquic Moisture Regime	NO	Listed on Hydric Soils List
	Reducing Conditions	NO	Listed on National Hydric Soils List
	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks: No pit due to recent tillage.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	x	No		Is Sample Point
Wetland Hydrology Present?	Yes		No	x	Within a Wetland? Yes [ ] No [x]
Hydric Soil Present?	Yes		No	x	

Remarks: Small isolated wet area indicated on soil survey and MWI map. Area has been drained for Agricultural purposes. Recently cultivated (corn stubble on ground from last years crop. Filled earlier that year.)

Photos:

CONFIDENTIAL

DATA FORM
Routine Wetland Delineation
(1987 COE Manual)

QC ID: 71-1

Project Site:	2Rivers Pipeline Project	Date	6/29/2001
Applicant/Owner:	Equilon	County:	Madison
Investigator(s):	Benchmark Ecological Services, Inc. BD, NH	State:	Illinois

Do Normal Circumstances Exist on the site?	Yes	x	No		Community ID: PF
Is the site significantly disturbed (atypical situation)?	Yes		No	x	Transect ID: 62902
Is the area a potential problem area?	Yes		No	x	Plot ID: WPT 374
(If needed, explain in Remarks spaces)					

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Salix nigra*	T	OBL	9.		
2. *Typha angustifolia*	S	OBL	10.		
3. *Populus deltoides*	T	FAC+	11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW, OR FAC (excluding FAC-): 100%

Remarks:

HYDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other
- ___ No Recorded Data Available

Field Observations:

Depth of Surface Water: - (in.)

Depth to Free Water in Pit: - (in.)

Depth to Saturated Soil: - (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- X Water Marks
- X Drift Lines
- ___ Sediment Deposits
- X Drainage Patterns in Wetlands

Secondary Indicators:
- X Oxidized Root Channels (upper12")
- X Water Stained Leaves
- X Local Soil Survey Data
- X Other (Explain in Remarks)

Remarks: Other Recorded Data: USGS Quadrangle, NWI Data, Soil Survey. NWI wetland. Old excavated, rectangular, depression.

CONFIDENTIAL

Benchmark Ecology Services Inc.

QC ID: 71-2

SOILS

Map Unit Name
(Series and Phase): Darwin silty clay
Taxonomy (subgroup): Vertic Haplaquolls

Drainage Class: _____
Field Observations
Confirmed Map Type? Yes ☐ No ☐

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, ect.
0-5	A	7.5 YR 2.5/1			Clay
5-18	B	10 YR 4/1			Clay

Hydric Soil Indicators

	Histisol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer Sandy Soils
	Sulfidic Odor		Organic Streaking in Sandy Soils
x	Aquic Moisture Regime	No	Listed on Hydric Soils List
	Reducing Conditions		Listed on National Hydric Soils List
x	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	x	No		Is Sample Point Within a Wetland? Yes x No ☐
Wetland Hydrology Present?	Yes	x	No		
Hydric Soil Present?	Yes	x	No		

Remarks: Rectangular depression (excavated, isolated) surrounded by wheat field.

Photos: 1801,1802

CONFIDENTIAL

DATA FORM
Routine Wetland Delineation
(1987 COE Manual)

QC ID: 68-1

Project Site:	2Rivers Pipeline Project	Date	6/29/2001
Applicant/Owner:	Equilon	County:	Madison
Investigator(s):	Benchmark Ecological Services, Inc. BD, NH	State:	Illinois

Do Normal Circumstances Exist on the site?	Yes	x	No		Community ID: PE
Is the site significantly disturbed (atypical situation)?	Yes		No	x	Transect ID: 62902
Is the area a potential problem area?	Yes		No	x	Plot ID: WPT 358
(If needed, explain in Remarks spaces)					

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Typha angustifolia*	S	OBL	9.		
2.			10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW, OR FAC (excluding FAC-): 100%

Remarks: Transition to Phragmytes ausiralis to North. Slightly higher elevation Cyperus pseudovegetus (FACW)

HYDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other
- ___ No Recorded Data Available

Field Observations:

Depth of Surface Water: - (in.)

Depth to Free Water in Pit: - (in.)

Depth to Saturated Soil: 0 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- *X Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- X Drainage Patterns in Wetlands

Secondary Indicators:
- X Oxidized Root Channels (upper12")
- ___ Water Stained Leaves
- X Local Soil Survey Data
- X Other (Explain in Remarks)

Remarks: Other Recorded Data: USGS Quadrangle, NWI Data, Soil Survey. NWI wetland. Low area along the East side of IL HWY 111, extendeing East. *Elsewhere in the wetland.

CONFIDENTIAL

Benchmark Ecology Services Inc.

QC ID: 68-2

SOILS

Map Unit Name (Series and Phase): Darwin silty clay wet: La Hoag loam, 0-3% slope

Taxonomy (subgroup): Vertic Haplaquolls/Aquic Argiudolls

Drainage Class: P

Field Observations

Confirmed Map Type? Yes [x] No [ ]

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, ect.
0-18		7.5 YR 2.5/1			Clay

Hydric Soil Indicators

	Histisol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer Sandy Soils
	Sulfidic Odor		Organic Streaking in Sandy Soils
x	Aquic Moisture Regime	x	Listed on Hydric Soils List
x	Reducing Conditions	x	Listed on National Hydric Soils List
x	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks: Negative alfa alfa dipyridil.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes [x]	No [ ]
Wetland Hydrology Present?	Yes [x]	No [ ]
Hydric Soil Present?	Yes [x]	No [ ]

Is Sample Point Within a Wetland? Yes [x] No [ ]

Remarks: Roadside ditch (wider than typical) extending away from road around north side of pond.

Photos: 1799

CONFIDENTIAL

DATA FORM
Routine Wetland Delineation
(1987 COE Manual)

QC ID: 70-1

Project Site: 2Rivers Pipeline Project	Date: 6/29/2001
Applicant/Owner: Equilon	County: Madison
Investigator(s): Benchmark Ecological Services, Inc. BD, NH	State: Illinois

Do Normal Circumstances Exist on the site?	Yes	x	No	
Is the site significantly disturbed (atypical situation)?	Yes		No	x
Is the area a potential problem area?	Yes		No	x
(If needed, explain in Remarks spaces)				

Community ID: PE
Transect ID: 62902
Plot ID: WPT 367

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Polygonum pensylvanicum*	H	FACW+	9.		
2. *Phragmites australis*	S	FACW+	10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW, OR FAC (excluding FAC-): 100%

Remarks:

HYDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other
- ___ No Recorded Data Available

Field Observations:

Depth of Surface Water: - (in.)

Depth to Free Water in Pit: - (in.)

Depth to Saturated Soil: - (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- X Drainage Patterns in Wetlands

Secondary Indicators:
- X Oxidized Root Channels (upper12")
- ___ Water Stained Leaves
- X Local Soil Survey Data
- ___ Other (Explain in Remarks)

Remarks: Other Recorded Data: USGS Quadrangle, NWI Data, Soil Survey. Area impounded by berm on West & South by fill material on North.

CONFIDENTIAL

Benchmark Ecology Services Inc.

QC ID: 70-2

SOILS

Map Unit Name
(Series and Phase): La Hoag loam

Taxonomy (subgroup): Aquic Argiudalfs 0-3%

Drainage Class: _____

Field Observations

Confirmed Map Type? Yes [x] No [ ]

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, ect.
1-6	A	7.5 YR 2.5/1			Loam
6-18	B	10 YR 3/1			Loam

Hydric Soil Indicators

	Histisol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer Sandy Soils
	Sulfidic Odor		Organic Streaking in Sandy Soils
x	Aquic Moisture Regime		Listed on Hydric Soils List
x	Reducing Conditions		Listed on National Hydric Soils List
x	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes [x]	No [ ]
Wetland Hydrology Present?	Yes [x]	No [ ]
Hydric Soil Present?	Yes [x]	No [ ]

Is Sample Point Within a Wetland? Yes [x] No [ ]

Remarks: Impounded area, active landfill area, construction rubble.

Photos: 1800

CONFIDENTIAL

DATA FORM
Routine Wetland Delineation
(1987 COE Manual)

QC ID: 67-1

Project Site:	2Rivers Pipeline Project	Date	6/29/2001
Applicant/Owner:	Equilon	County:	Madison
Investigator(s):	Benchmark Ecological Services, Inc. BD, NH	State:	Illinois

Do Normal Circumstances Exist on the site?	Yes	x	No		Community ID: PE
Is the site significantly disturbed (atypical situation)?	Yes		No	x	Transect ID: 62902
Is the area a potential problem area?	Yes		No	x	Plot ID: WPT 357
(If needed, explain in Remarks spaces)					

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Eleocharis melanocarpa*	H	FACW+	9.		
2. *Phragmites australis*	S	FACW+	10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW, OR FAC (excluding FAC-): 100%

Remarks:

HYDROLOGY

X Recorded Data (Describe in Remarks):	Wetland Hydrology Indicators:
___ Stream, Lake, or Tide Gauge	Primary Indicators:
X Aerial Photographs	___ Inundated
X Other	x Saturated in Upper 12 Inches
___ No Recorded Data Available	___ Water Marks
	___ Drift Lines
Field Observations:	___ Sediment Deposits
Depth of Surface Water: - (in.)	x Drainage Patterns in Wetlands
Depth to Free Water in Pit: - (in.)	Secondary Indicators:
Depth to Saturated Soil: 0 (in.)	x Oxidized Root Channels (upper12")
	___ Water Stained Leaves
	x Local Soil Survey Data
	x Other (Explain in Remarks)

Remarks: Other Recorded Data: USGS Quadrangle, NWI Data, Soil Survey. Road side ditch w/ water connection w/ pond to East. NWI wetlands.

CONFIDENTIAL

Benchmark Ecology Services Inc.

QC ID: 67-2

SOILS

Map Unit Name
(Series and Phase): Darwin silty clay wet

Taxonomy (subgroup): Vertic Haplaquolls

Drainage Class: P, VP

Field Observations
Confirmed Map Type? Yes [x] No [ ]

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, ect.
0-18		2.5 Y 4/1			Clay

Hydric Soil Indicators

	Histisol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer Sandy Soils
	Sulfidic Odor		Organic Streaking in Sandy Soils
x	Aquic Moisture Regime	x	Listed on Hydric Soils List
x	Reducing Conditions	x	Listed on National Hydric Soils List
x	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks: Negative alfa alfa dipyridil, wet associations of this soil are listed

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes [x]	No [ ]
Wetland Hydrology Present?	Yes [x]	No [ ]
Hydric Soil Present?	Yes [x]	No [ ]

Is Sample Point Within a Wetland? Yes [x] No [ ]

Remarks: Roadside ditch w/ connection to pond to East.

Photos: 1798 foreground

CONFIDENTIAL

DATA FORM
Routine Wetland Delineation
(1987 COE Manual)

QC ID: 69-1

Project Site: 2Rivers Pipeline Project	Date: 6/29/2001
Applicant/Owner: Equilon	County: Madison
Investigator(s): Benchmark Ecological Services, Inc. BD, NH	State: Illinois

Do Normal Circumstances Exist on the site?	Yes: x	No:
Is the site significantly disturbed (atypical situation)?	Yes:	No: x
Is the area a potential problem area?	Yes:	No: x
(If needed, explain in Remarks spaces)		

Community ID: PE
Transect ID: 62902
Plot ID: Wpt 360

VEGETATION

Dominant Plant Species	Stratum	Indicator	Sub-Dominant Plant Species	Stratum	Indicator
1. *Polygonum pensylvanicum*	H	FACW+	9.		
2.			10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW, OR FAC (excluding FAC-): 100%

Remarks:

HYDROLOGY

X Recorded Data (Describe in Remarks):	Wetland Hydrology Indicators:
___ Stream, Lake, or Tide Gauge	Primary Indicators:
X Aerial Photographs	___ Inundated
X Other	x Saturated in Upper 12 Inches
___ No Recorded Data Available	___ Water Marks
	___ Drift Lines
Field Observations:	___ Sediment Deposits
Depth of Surface Water: 0-2 (in.)	x Drainage Patterns in Wetlands
Depth to Free Water in Pit: - (in.)	Secondary Indicators:
Depth to Saturated Soil: - (in.)	___ Oxidized Root Channels (upper12")
	___ Water Stained Leaves
	x Local Soil Survey Data
	x Other (Explain in Remarks)

Remarks: Other Recorded Data: USGS Quadrangle, NWI Data, Soil Survey. NWI wetland.

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Benchmark Ecology Services Inc.

QC ID: 69-2

SOILS

Map Unit Name
(Series and Phase): 1071 Darwin silty clay wet

Taxonomy (subgroup): Vertic Haplaquolls

Drainage Class: _____

Field Observations
Confirmed Map Type? Yes [x] No [ ]

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, ect.
0-18		7.5 YR 2.5/1			Clay

Hydric Soil Indicators

	Histisol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer Sandy Soils
	Sulfidic Odor		Organic Streaking in Sandy Soils
x	Aquic Moisture Regime	x	Listed on Hydric Soils List
x	Reducing Conditions	x	Listed on National Hydric Soils List
x	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks: Negative alfa alfa dipyridil

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes [x]	No [ ]
Wetland Hydrology Present?	Yes [x]	No [ ]
Hydric Soil Present?	Yes [x]	No [ ]

Is Sample Point Within a Wetland? Yes [x] No [ ]

Remarks: Wide ditch paralleling IL HWY 111, on East side.

Photos: 1798,background.

CONFIDENTIAL

DATA FORM
Routine Wetland Delineation
(1987 COE Manual)

QC ID: 66-1

Project Site:	2Rivers Pipeline Project	Date	6/29/2001
Applicant/Owner:	Equilon	County:	Madison
Investigator(s):	Benchmark Ecological Services, Inc. BD, NH	State:	Illinois

Do Normal Circumstances Exist on the site?	Yes	x	No		Community ID: PF
Is the site significantly disturbed (atypical situation)?	Yes		No	x	Transect ID: 62901
Is the area a potential problem area?	Yes		No	x	Plot ID: WPT 356
(If needed, explain in Remarks spaces)					~ 15m South of waypoint

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Acer negundo*	T	FACW	9.		
2. *Acer saccharinum*	T	FACW-	10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW, OR FAC (excluding FAC-): 100%

Remarks: Sparge maple and lotelden.

HYDROLOGY

X Recorded Data (Describe in Remarks):	Wetland Hydrology Indicators:
___ Stream, Lake, or Tide Gauge	Primary Indicators:
X Aerial Photographs	___ Inundated
X Other	___ Saturated in Upper 12 Inches
___ No Recorded Data Available	X Water Marks
	X Drift Lines
Field Observations:	___ Sediment Deposits
	X Drainage Patterns in Wetlands
Depth of Surface Water: - (in.)	
	Secondary Indicators:
Depth to Free Water in Pit: - (in.)	___ Oxidized Root Channels (upper12")
	X Water Stained Leaves
Depth to Saturated Soil: - (in.)	X Local Soil Survey Data
	X Other (Explain in Remarks)

Remarks: Other Recorded Data: USGS Quadrangle, NWI Data, Soil Survey. Buttressed trees, depression at base of ridge.

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Benchmark Ecology Services Inc.

QC ID: 66-2

SOILS

Map Unit Name
(Series and Phase): Wakland silt loam
Taxonomy (subgroup): Aeric Fluvaquents

Drainage Class: SP
Field Observations
Confirmed Map Type? Yes [ ] No [ ]

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, ect.

Hydric Soil Indicators

	Histisol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer Sandy Soils
	Sulfidic Odor		Organic Streaking in Sandy Soils
X	Aquic Moisture Regime	X	Listed on Hydric Soils List
	Reducing Conditions	X	Listed on National Hydric Soils List
	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks: No pit, hydrology very wet, soil listed on hydric list.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes [x]	No [ ]
Wetland Hydrology Present?	Yes [x]	No [ ]
Hydric Soil Present?	Yes [x]	No [ ]

Is Sample Point Within a Wetland? Yes [x] No [ ]

Remarks: Narrow (~10m across) forested wetland at base of low ridge. Slight depression (linear) holds water during weather.

Photos: 1789,90

CONFIDENTIAL

DATA FORM
Routine Wetland Delineation
(1987 COE Manual)

QC ID: 65-1

Project Site: 2Rivers Pipeline Project	Date: 6/29/2001
Applicant/Owner: Equilon	County: Madison
Investigator(s): Benchmark Ecological Services, Inc. BD, NH	State: Illinois
Do Normal Circumstances Exist on the site? Yes [x] No [ ]	Community ID: RF
Is the site significantly disturbed (atypical situation)? Yes [ ] No [x]	Transect ID: 62901
Is the area a potential problem area? Yes [ ] No [x]	Plot ID: WPT 348
(If needed, explain in Remarks spaces)	~ 22yds to WPT 338

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Acer saccharinum*	T	FACW	9.		
2. *Acer negundo*	T	FACW	10.		
3. *Mimulus alatus*	H	OBL	11.		
4. *Toxicodendron radicans*	H	FAC+	12.		
5. *Elymus riparius*	H	FACW	13.		
6. *Ulmus americana*	S	FACW-	14.		
7. *Toxicodendron radicans*	V	FAC+	15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW, OR FAC (excluding FAC-): 100%

Remarks: See WPT 338. See vegatation community.

HYDROLOGY

[x] Recorded Data (Describe in Remarks):
- [ ] Stream, Lake, or Tide Gauge
- [x] Aerial Photographs
- [x] Other
- [ ] No Recorded Data Available

Field Observations:

Depth of Surface Water: - (in.)

Depth to Free Water in Pit: - (in.)

Depth to Saturated Soil: - (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- [ ] Inundated
- [ ] Saturated in Upper 12 Inches
- [x] Water Marks
- [x] Drift Lines
- [ ] Sediment Deposits
- [x] Drainage Patterns in Wetlands

Secondary Indicators:
- [ ] Oxidized Root Channels (upper12")
- [ ] Water Stained Leaves
- [x] Local Soil Survey Data
- [ ] Other (Explain in Remarks)

Remarks: Other Recorded Data: USGS Quadrangle, NWI Data, Soil Survey. See WPT 338. Similar hydrolic, except area with non-wet hydrology (UF).

CONFIDENTIAL

Benchmark Ecology Services Inc.

QC ID: 65-2

SOILS

Map Unit Name
(Series and Phase): Wakland silt loam

Taxonomy (subgroup): Aeric Fluvaquents

Drainage Class: SP

Field Observations
Confirmed Map Type? Yes [ ] No [ ]

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, ect.

Hydric Soil Indicators

	Histisol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer Sandy Soils
	Sulfidic Odor		Organic Streaking in Sandy Soils
X	Aquic Moisture Regime	X	Listed on Hydric Soils List
	Reducing Conditions	X	Listed on National Hydric Soils List
	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	X	No		Is Sample Point Within a Wetland? Yes X No
Wetland Hydrology Present?	Yes	X	No		
Hydric Soil Present?	Yes	X	No		

Remarks: Similar vegatation and hydrology to WPT 338. Riparian forest located between HWY 159 to old Edwardsville Rd.

Photos: 1786-88

CONFIDENTIAL

DATA FORM
Routine Wetland Delineation
(1987 COE Manual)

QC ID: 64-1

Project Site:	2Rivers Pipeline Project	Date	6/29/2001
Applicant/Owner:	Equilon	County:	Madison
Investigator(s):	Benchmark Ecological Services, Inc. BD, NH	State:	Illinois

Do Normal Circumstances Exist on the site?	Yes	x	No		Community ID: RF
Is the site significantly disturbed (atypical situation)?	Yes		No	x	Transect ID: 62901
Is the area a potential problem area?	Yes		No	x	Plot ID: WPT 338
(If needed, explain in Remarks spaces)					~ 25m South of WPT to pit

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Acer saccharinum*	T	FACW	9.		
2. *Acer negundo*	T	FACW	10.		
3. *Mimulus alatus*	H	OBL	11.		
4. *Toxicodendron radicans*	H	FAC+	12.		
5. *Elymus riparius*	H	FACW	13.		
6. *Ulmus americana*	S	FACW-	14.		
7. *Toxicodendron radicans*	V	FAC+	15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW, OR FAC (excluding FAC-): 100%

Remarks:

HYDROLOGY

x Recorded Data (Describe in Remarks):	Wetland Hydrology Indicators:
___ Stream, Lake, or Tide Gauge	Primary Indicators:
x Aerial Photographs	___ Inundated
x Other	___ Saturated in Upper 12 Inches
___ No Recorded Data Available	x Water Marks
	x Drift Lines
Field Observations:	___ Sediment Deposits
	x Drainage Patterns in Wetlands
Depth of Surface Water: - (in.)	
	Secondary Indicators:
Depth to Free Water in Pit: - (in.)	___ Oxidized Root Channels (upper12")
	x Water Stained Leaves
Depth to Saturated Soil: - (in.)	x Local Soil Survey Data
	___ Other (Explain in Remarks)

Remarks: Other Recorded Data: USGS Quadrangle, NWI Data, Soil Survey. Low creek bottom w/ small depression/Channel.

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Benchmark Ecology Services Inc.

QC ID: 64-2

SOILS

Map Unit Name
(Series and Phase): Birds silt loam

Taxonomy (subgroup): Typic Fluvaquents

Drainage Class: P

Field Observations
Confirmed Map Type? Yes [X] No [ ]

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, ect.
0-3	A1	7.5 YR 3/1			
3-18		10 YR 3/2			

Hydric Soil Indicators

	Histisol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer Sandy Soils
	Sulfidic Odor		Organic Streaking in Sandy Soils
X	Aquic Moisture Regime	X	Listed on Hydric Soils List
	Reducing Conditions	X	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	X	No		Is Sample Point
Wetland Hydrology Present?	Yes	X	No		Within a Wetland? Yes X No
Hydric Soil Present?	Yes	X	No		

Remarks: Low creek bottom w/ small depression/Channel.

Photos: 1783,84,85

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DATA FORM
Routine Wetland Delineation
(1987 COE Manual)

QC ID: 54-1

Project Site: 2Rivers Pipeline Project	Date 6/27/2001
Applicant/Owner: Equilon	County: Madison
Investigator(s): Benchmark Ecological Services, Inc. BD, NH	State: Illinois
Do Normal Circumstances Exist on the site? Yes [x] No [ ]	Community ID: RF
Is the site significantly disturbed (atypical situation)? Yes [ ] No [x]	Transect ID: 62701
Is the area a potential problem area? Yes [ ] No [x]	Plot ID: WPT 311
(If needed, explain in Remarks spaces)	~ 20m south of WPT

VEGETATION

Dominant Plant Species	Stratum	Indicator	Other Plant Species	Stratum	Indicator
1. *Acer negundo*	T	FACW-	9. Black Walnut		
2. *Acer negundo*	S	FACW-	10. sugar maple		
3. *Laportea canadensis*	H	FACW	11. cottonwood (fringe)		
4. *Elymus riparius*	H	FACW	12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW, OR FAC (excluding FAC-): 100%

Remarks:

HYDROLOGY

[x] Recorded Data (Describe in Remarks):
- [ ] Stream, Lake, or Tide Gauge
- [x] Aerial Photographs
- [x] Other
- [ ] No Recorded Data Available

Field Observations:

Depth of Surface Water: - (in.)

Depth to Free Water in Pit: - (in.)

Depth to Saturated Soil: - (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- [ ] Inundated
- [ ] Saturated in Upper 12 Inches
- [ ] Water Marks
- [ ] Drift Lines
- [ ] Sediment Deposits
- [x] Drainage Patterns in Wetlands

Secondary Indicators:
- [ ] Oxidized Root Channels (upper12")
- [ ] Water Stained Leaves
- [x] Local Soil Survey Data
- [ ] Other (Explain in Remarks)

Remarks: Other Recorded Data: USGS Quadrangle, NWI Data, Soil Survey. Flood plain area.

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Benchmark Ecology Services Inc.

SOILS QC ID: 54-2

Map Unit Name
(Series and Phase): Wakeland silt loam
Taxonomy (subgroup): Aeric Fluvaquents

Drainage Class: SP
Field Observations
Confirmed Map Type? Yes [x] No [ ]

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, ect.
0-3.5	A1	10 YR 3/2			Loam
3.5-18	A1 B	10 YR 4/3			Loam

Hydric Soil Indicators

	Histisol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer Sandy Soils
	Sulfidic Odor		Organic Streaking in Sandy Soils
x	Aquic Moisture Regime	x	Listed on Hydric Soils List
	Reducing Conditions	x	Listed on National Hydric Soils List
x	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes [x]	No [ ]	Is Sample Point Within a Wetland?	Yes [x] No [ ]
Wetland Hydrology Present?	Yes [x]	No [ ]		
Hydric Soil Present?	Yes [x]	No [ ]		

Remarks: Small floodplain zone on west side of creek.

Photos:

CONFIDENTIAL

DATA FORM
Routine Wetland Delineation
(1987 COE Manual)

QC ID: 60-1

Project Site: 2Rivers Pipeline Project	Date: 6/28/2001
Applicant/Owner: Equilon	County: Madison
Investigator(s): Benchmark Ecological Services, Inc. BD, NH	State: Illinois

Do Normal Circumstances Exist on the site?	Yes	X	No	
Is the site significantly disturbed (atypical situation)?	Yes		No	X
Is the area a potential problem area?	Yes		No	X
(If needed, explain in Remarks spaces)				

Community ID: RF
Transect ID: 62801
Plot ID: WPT 321
~ 85 ft South of WPT

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Cornus drummondii*	S	FAC	9.		
2. *Maclura pomifera*	T	FACU	10.		
3. *Ulmus rubra*	S	FAC	11.		
4. *Ribes cynosbati*	S	NI	12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW, OR FAC (excluding FAC-): 50%

Remarks:

HYDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other
- ___ No Recorded Data Available

Field Observations:

Depth of Surface Water: - (in.)

Depth to Free Water in Pit: - (in.)

Depth to Saturated Soil: - (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- X Drift Lines
- ___ Sediment Deposits
- X Drainage Patterns in Wetlands

Secondary Indicators:
- ___ Oxidized Root Channels (upper12")
- ___ Water Stained Leaves
- ___ Local Soil Survey Data
- X* Other (Explain in Remarks)

Remarks: Other Recorded Data: USGS Quadrangle, NWI Data, Soil Survey. *NWI

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Benchmark Ecology Services Inc.

QC ID: 60-2

SOILS

Map Unit Name
(Series and Phase): Orion silt loam

Taxonomy (subgroup): Aeric Udifluvents

Drainage Class: _____

Field Observations

Confirmed Map Type? Yes [ ] No [ ]

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, ect.
0-3	A1	10 YR 3/2			Loam
3-18		10 YR 4/3			

Hydric Soil Indicators

	Histisol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer Sandy Soils
	Sulfidic Odor		Organic Streaking in Sandy Soils
	Aquic Moisture Regime		Listed on Hydric Soils List
	Reducing Conditions		Listed on National Hydric Soils List
x	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks: low chroma in upper 3" only.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes [ ]	No [x]	Is Sample Point Within a Wetland?	Yes [ ] No [x]
Wetland Hydrology Present?	Yes [x]	No [ ]		
Hydric Soil Present?	Yes [x]	No [ ]		

Remarks:

Photos: 1776

CONFIDENTIAL

DATA FORM
Routine Wetland Delineation
(1987 COE Manual)

QC ID: 59-1

Project Site:	2Rivers Pipeline Project	Date	6/28/2001
Applicant/Owner:	Equilon	County:	Madison
Investigator(s):	Benchmark Ecological Services, Inc. BD, NH	State:	Illinois

Do Normal Circumstances Exist on the site?	Yes	x	No		Community ID: UF
Is the site significantly disturbed (atypical situation)?	Yes		No	x	Transect ID: 62801
Is the area a potential problem area?	Yes		No	x	Plot ID: ~ 45m south of WPT 317
(If needed, explain in Remarks spaces)					

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Cornus drummondii*	S	FAC	9.		
2. *Ulmus americana*	T	FACW-	10.		
3. *Ulmus americana*	S	FACW-	11.		
4. *Parthenocissus quinquefolia*	H	FAC-	12.		
5. *Gleditsia triacanthos*	T	FAC	13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW, OR FAC (excluding FAC-): 80%

Remarks:

HYDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other
- ___ No Recorded Data Available

Field Observations:

Depth of Surface Water: - (in.)

Depth to Free Water in Pit: - (in.)

Depth to Saturated Soil: - (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators:
- ___ Oxidized Root Channels (upper12")
- ___ Water Stained Leaves
- ___ Local Soil Survey Data
- ___ Other (Explain in Remarks)

Remarks: Other Recorded Data: USGS Quadrangle, NWI Data, Soil Survey. Steep slope (20%)

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Benchmark Ecology Services Inc.

QC ID: 59-2

SOILS

Map Unit Name
(Series and Phase): Elco silty clay loam 10-15% eroded

Taxonomy (subgroup): Typic Hapludalfs

Drainage Class:

Field Observations

Confirmed Map Type? Yes [ ] No [ ]

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, ect.

Hydric Soil Indicators

	Histisol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer Sandy Soils
	Sulfidic Odor		Organic Streaking in Sandy Soils
	Aquic Moisture Regime		Listed on Hydric Soils List
	Reducing Conditions		Listed on National Hydric Soils List
	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks: No pit.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes [ ]	No [x]
Wetland Hydrology Present?	Yes [ ]	No [x]
Hydric Soil Present?	Yes [ ]	No [x]

Is Sample Point Within a Wetland? Yes [ ] No [x]

Remarks: Steep hillside.

Photos:

CONFIDENTIAL

DATA FORM
Routine Wetland Delineation
(1987 COE Manual)

QC ID: 58-1

Project Site:	2Rivers Pipeline Project	Date	6/28/2001
Applicant/Owner:	Equilon	County:	Madison
Investigator(s):	Benchmark Ecological Services, Inc. BD, NH	State:	Illinois

Do Normal Circumstances Exist on the site?	Yes	x	No		Community ID: RF
Is the site significantly disturbed (atypical situation)?	Yes		No	x	Transect ID: 62801
Is the area a potential problem area?	Yes		No	x	Plot ID: WPT 317
(If needed, explain in Remarks spaces)					~ 35m SW of WPT 317

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Cornus drummondii*	S	FAC	9.		
2. *Ulmus americana*	T	FACW-	10.		
3. *Ulmus americana*	S	FACW-	11.		
4. *Elymus riparius*	H	FACW	12.		
5. *Parthenocissus quinquefolia*	H	FAC-	13.		
6. *Gleditsia triacanthos*	T	FAC	14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW, OR FAC (excluding FAC-): 83%

Remarks:

HYDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other
- ___ No Recorded Data Available

Field Observations:

Depth of Surface Water: - (in.)

Depth to Free Water in Pit: - (in.)

Depth to Saturated Soil: - (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- X Drift Lines
- X Sediment Deposits
- X Drainage Patterns in Wetlands

Secondary Indicators:
- ___ Oxidized Root Channels (upper12")
- X Water Stained Leaves
- X Local Soil Survey Data
- ___ Other (Explain in Remarks)

Remarks: Other Recorded Data: USGS Quadrangle, NWI Data, Soil Survey. Creek bottom floodplain.

CONFIDENTIAL

Benchmark Ecology Services Inc.

QC ID: 58-2

SOILS

Map Unit Name
(Series and Phase): Wakeland silt loam
Taxonomy (subgroup): Aeric Fluvaquents

Drainage Class: SP
Field Observations
Confirmed Map Type? Yes [X] No [ ]

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, ect.
0-3		4.5 YR 3/1			loam
3-20		7.5 YR 2.5/1			loam

Hydric Soil Indicators

	Histisol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer Sandy Soils
	Sulfidic Odor		Organic Streaking in Sandy Soils
X	Aquic Moisture Regime	X	Listed on Hydric Soils List
	Reducing Conditions	X	Listed on National Hydric Soils List
X	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks: Negative alfa alfa dipyridil.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	x	No		Is Sample Point
Wetland Hydrology Present?	Yes	x	No		Within a Wetland? Yes x No
Hydric Soil Present?	Yes	x	No		

Remarks: Creek bottom flood plain. NWI Wetland.

Photos: 1775

CONFIDENTIAL

DATA FORM
Routine Wetland Delineation
(1987 COE Manual)

QC ID: 57-1

Project Site: 2Rivers Pipeline Project	Date: 6/28/2001
Applicant/Owner: Equilon	County: Madison
Investigator(s): Benchmark Ecological Services, Inc. BD, NH	State: Illinois

Do Normal Circumstances Exist on the site?	Yes	x	No	
Is the site significantly disturbed (atypical situation)?	Yes		No	x
Is the area a potential problem area?	Yes		No	x
(If needed, explain in Remarks spaces)				

Community ID: UF
Transect ID: 62801
Plot ID: 15m west of WPT 315

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Cercis canadensis*	T	FACU	9.		
2. *Carya ovata*	T	FACU	10.		
3. *Toxicodendron radicans*	H	FAC+	11.		
4. *Toxicodendron radicans*	V	FAC+	12.		
5. *Ulmus americana*	S	FACW-	13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW, OR FAC (excluding FAC-): 60%

Remarks:

HYDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other
- ___ No Recorded Data Available

Field Observations:

Depth of Surface Water: - (in.)

Depth to Free Water in Pit: - (in.)

Depth to Saturated Soil: - (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators:
- ___ Oxidized Root Channels (upper12")
- ___ Water Stained Leaves
- ___ Local Soil Survey Data
- ___ Other (Explain in Remarks)

Remarks: Other Recorded Data: USGS Quadrangle, NWI Data, Soil Survey. Steep slope, shallow soil (exposed shale in washed areas)

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QC ID: 57-2

SOILS

Map Unit Name
(Series and Phase): Negely loam 15-20% slope

Taxonomy (subgroup): Typic Paleudalfs

Drainage Class: _____

Field Observations
Confirmed Map Type? Yes [x] No [ ]

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, ect.

Hydric Soil Indicators

	Histisol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer Sandy Soils
	Sulfidic Odor		Organic Streaking in Sandy Soils
	Aquic Moisture Regime		Listed on Hydric Soils List
	Reducing Conditions		Listed on National Hydric Soils List
	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks: No pit, failed hydrology, non-lested soil

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes [x]	No [ ]
Wetland Hydrology Present?	Yes [ ]	No [x]
Hydric Soil Present?	Yes [ ]	No [x]

Is Sample Point Within a Wetland? Yes [ ] No [x]

Remarks: steep forested upland

Photos:

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DATA FORM
Routine Wetland Delineation
(1987 COE Manual)

QC ID: 56-1

Project Site: 2Rivers Pipeline Project	Date: 6/27/2001
Applicant/Owner: Equilon	County: Madison
Investigator(s): Benchmark Ecological Services, Inc. BD, NH	State: Illinois

Do Normal Circumstances Exist on the site?	Yes	x	No	
Is the site significantly disturbed (atypical situation)?	Yes		No	x
Is the area a potential problem area?	Yes		No	x
(If needed, explain in Remarks spaces)				

Community ID: PE
Transect ID: 62801
Plot ID: WPT 315

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Phalaris arundinacea*	H	FACW+	9.		
2. *Acer negundo*	S	FACW-	10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW, OR FAC (excluding FAC-): 100%

Remarks:

HYDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other
- ___ No Recorded Data Available

Field Observations:

Depth of Surface Water: - (in.)

Depth to Free Water in Pit: - (in.)

Depth to Saturated Soil: - (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- x Sediment Deposits
- X Drainage Patterns in Wetlands

Secondary Indicators:
- ___ Oxidized Root Channels (upper12")
- x Water Stained Leaves
- x Local Soil Survey Data
- ___ Other (Explain in Remarks)

Remarks: Other Recorded Data: USGS Quadrangle, NWI Data, Soil Survey. Lake shoreline.

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Benchmark Ecology Services Inc.

SOILS QC ID: 56-2

Map Unit Name
(Series and Phase): Not listed highland silver lake shoreline.
Taxonomy (subgroup): _____

Drainage Class: _____
Field Observations
Confirmed Map Type? Yes [ ] No [ ]

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, ect.
0-6	A	10 YR 4/2			Loam
6-18	B	10 YR 4/2			Loam

Hydric Soil Indicators

	Histisol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer Sandy Soils
	Sulfidic Odor		Organic Streaking in Sandy Soils
	Aquic Moisture Regime		Listed on Hydric Soils List
	Reducing Conditions		Listed on National Hydric Soils List
x	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks: soils modified due to periodic inundaton by Highland Silver Lake (upper end)

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	x	No		Is Sample Point
Wetland Hydrology Present?	Yes	x	No		Within a Wetland? Yes x No
Hydric Soil Present?	Yes	x	No		

Remarks: upper end of Highland Silver Lake.

Photos:

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DATA FORM
Routine Wetland Delineation
(1987 COE Manual)

QC ID: 53-1

Project Site: 2Rivers Pipeline Project	Date: 6/27/2001
Applicant/Owner: Equilon	County: Madison
Investigator(s): Benchmark Ecological Services, Inc. BD, NH	State: Illinois

Do Normal Circumstances Exist on the site?	Yes x	No	Community ID:	UF
Is the site significantly disturbed (atypical situation)?	Yes	No x	Transect ID:	62701
Is the area a potential problem area?	Yes	No x	Plot ID:	WPT 310
(If needed, explain in Remarks spaces)				~ 25m south of WPT

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Ulmus americana*	S	FACW-	9.		
2. *Acer negundo*	S	FACW-	10.		
3. *Fraxinus pennsylvanica*	T	FACW	11.		
4. *Acer negundo*	T	FACW-	12.		
5. *Laportea canadensis*	H	FACW	13.		
6. *Laportea canadensis*	S	FACW	14.		
7. *Elymus riparius*	H	FACW	15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW, OR FAC (excluding FAC-): 100%

Remarks: Unidentified vine (looks like jute) is a substantial componet of the S & V cover.

HYDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other
- ___ No Recorded Data Available

Field Observations:

Depth of Surface Water: - (in.)

Depth to Free Water in Pit: - (in.)

Depth to Saturated Soil: - (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- X Drainage Patterns in Wetlands

Secondary Indicators:
- ___ Oxidized Root Channels (upper12")
- ___ Water Stained Leaves
- ___ Local Soil Survey Data
- ___ Other (Explain in Remarks)

Remarks: Other Recorded Data: USGS Quadrangle, NWI Data, Soil Survey. Flood plain.

Benchmark Ecology Services Inc.

SOILS QC ID: 53-2

Map Unit Name
(Series and Phase): Arenzville silt loam
Taxonomy (subgroup): Typic Udifluvents

Drainage Class:
Field Observations
Confirmed Map Type? Yes [x] No [ ]

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, ect.
0-1	A_1				
1-18	A_2 B	10 YR 4/3			Silty loam

Hydric Soil Indicators

	Histisol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer Sandy Soils
	Sulfidic Odor		Organic Streaking in Sandy Soils
	Aquic Moisture Regime		Listed on Hydric Soils List
	Reducing Conditions		Listed on National Hydric Soils List
	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks: Negative alfa alfa dipyridil.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes [x]	No [ ]
Wetland Hydrology Present?	Yes [x]	No [ ]
Hydric Soil Present?	Yes [ ]	No [x]

Is Sample Point Within a Wetland? Yes [ ] No [x]

Remarks: Non wet according to the NWI and soils.

Photos:

CONFIDENTIAL

DATA FORM
Routine Wetland Delineation
(1987 COE Manual)

QC ID: 50-1

Project Site: 2Rivers Pipeline Project	Date: 6/26/2001
Applicant/Owner: Equilon	County: Bond
Investigator(s): Benchmark Ecological Services, Inc. BD, NH	State: Illinois

Do Normal Circumstances Exist on the site?	Yes x	No	Community ID:	PE
Is the site significantly disturbed (atypical situation)?	Yes	No x	Transect ID:	62601
Is the area a potential problem area?	Yes	No x	Plot ID:	WPT 296
(If needed, explain in Remarks spaces)				

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Salix nigra*	S	OBL	9.		
2.			10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW, OR FAC (excluding FAC-): 100%

Remarks:

HYDROLOGY

X Recorded Data (Describe in Remarks):	Wetland Hydrology Indicators:
___ Stream, Lake, or Tide Gauge	Primary Indicators:
X Aerial Photographs	*x Inundated
X Other	x Saturated in Upper 12 Inches
___ No Recorded Data Available	___ Water Marks
	___ Drift Lines
	___ Sediment Deposits
	X Drainage Patterns in Wetlands
Field Observations:	Secondary Indicators:
Depth of Surface Water: 0-0.5 (in.)	x Oxidized Root Channels (upper12")
Depth to Free Water in Pit: 17.5 (in.)	___ Water Stained Leaves
Depth to Saturated Soil: 11.5 (in.)	___ Local Soil Survey Data
	___ Other (Explain in Remarks)

Remarks: Other Recorded Data: USGS Quadrangle, NWI Data, Soil Survey. *Small pools in channel area.

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Benchmark Ecology Services Inc.

QC ID: 50-2

SOILS

Map Unit Name
(Series and Phase): Hickory Loam 15-30% slope

Taxonomy (subgroup): Typic Hapludalfs

Drainage Class: _____

Field Observations
Confirmed Map Type? Yes [ ] No [x]

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, ect.
0-1	A1				
1-6	A	10 YR 5/4			Clay
6-18	B	10 YR 4/3	7.5 YR 4/6	10% distinct	clay
6-18	B	5 YR 2.5/1	B lack	streaking	

Hydric Soil Indicators

	Histisol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer Sandy Soils
	Sulfidic Odor		Organic Streaking in Sandy Soils
	Aquic Moisture Regime		Listed on Hydric Soils List
	Reducing Conditions		Listed on National Hydric Soils List
x	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes [x]	No [ ]
Wetland Hydrology Present?	Yes [x]	No [ ]
Hydric Soil Present?	Yes [x]	No [ ]

Is Sample Point Within a Wetland? Yes [x] No [ ]

Remarks: Small Drainage.

Photos:

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DATA FORM
Routine Wetland Delineation
(1987 COE Manual)

QC ID: 51-1

Project Site:	2Rivers Pipeline Project	Date	6/26/2001
Applicant/Owner:	Equilon	County:	Bond
Investigator(s):	Benchmark Ecological Services, Inc. BD, NH	State:	Illinois

Do Normal Circumstances Exist on the site?	Yes	x	No		Community ID: RF
Is the site significantly disturbed (atypical situation)?	Yes		No	x	Transect ID: 62601
Is the area a potential problem area?	Yes		No	x	Plot ID: WPT 300
(If needed, explain in Remarks spaces)					

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Acer negundo*	T	FACW-	9.		
2. *Ulmus americana*	S	FACW-	10.		
3. *Laportea canadensis*	H	FACW	11.		
4. *Elymus riparius*	H	FACW	12.		
5. *Toxicodendron radicans*	V	FAC+	13.		
6. *Cornus drummondii*	S	FAC	14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW, OR FAC (excluding FAC-): 100%

Remarks:

HYDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other
- ___ No Recorded Data Available

Field Observations:

Depth of Surface Water: - (in.)

Depth to Free Water in Pit: - (in.)

Depth to Saturated Soil: - (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- X Drainage Patterns in Wetlands

Secondary Indicators:
- ___ Oxidized Root Channels (upper12")
- X Water Stained Leaves
- X Local Soil Survey Data
- ___ Other (Explain in Remarks)

Remarks: Other Recorded Data: USGS Quadrangle, NWI Data, Soil Survey. Small drainage channels running West to East. Last years leaves matted and stained especially in, and adjacent to, channel.

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Benchmark Ecology Services Inc.

QC ID: 51-2

SOILS

Map Unit Name
(Series and Phase): Lawson silt loam

Taxonomy (subgroup): Cumulic Hapludolls

Drainage Class: SP

Field Observations
Confirmed Map Type? Yes [x] No [ ]

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, ect.
0-4	A	10 YR 3/2			loam
4-18	B	10 YR 4/3			loam

Hydric Soil Indicators

	Histisol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer Sandy Soils
	Sulfidic Odor		Organic Streaking in Sandy Soils
	Aquic Moisture Regime	x	Listed on Hydric Soils List
	Reducing Conditions	x	Listed on National Hydric Soils List
x	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks: Negative alfa alfa dipyridil.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes [x]	No [ ]
Wetland Hydrology Present?	Yes [x]	No [ ]
Hydric Soil Present?	Yes [x]	No [ ]

Is Sample Point Within a Wetland? Yes [x] No [ ]

Remarks: small drainage

Photos: 1744,1745

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DATA FORM
Routine Wetland Delineation
(1987 COE Manual)

QC ID: 52-1

Project Site:	2Rivers Pipeline Project	Date	6/26/2001
Applicant/Owner:	Equilon	County:	Bond
Investigator(s):	Benchmark Ecological Services, Inc. BD, NH	State:	Illinois

Do Normal Circumstances Exist on the site?	Yes	x	No		Community ID: UF
Is the site significantly disturbed (atypical situation)?	Yes		No	x	Transect ID: 62601
Is the area a potential problem area?	Yes		No	x	Plot ID: WPT 300S*
(If needed, explain in Remarks spaces)					

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Juglans nigra* (black walnut)	T	FACU	9.		
2. *Quercus sp.*	T		10.		
3. *Acer saccharum*	T	FACU	11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW, OR FAC (excluding FAC-): < 33%

Remarks: Upland forest transitions rapidly from flood plain of creek due to steep grade.

HYDROLOGY

x Recorded Data (Describe in Remarks):	Wetland Hydrology Indicators:
___ Stream, Lake, or Tide Gauge	Primary Indicators:
x Aerial Photographs	___ Inundated
x Other	___ Saturated in Upper 12 Inches
___ No Recorded Data Available	___ Water Marks
	___ Drift Lines
	___ Sediment Deposits
	___ Drainage Patterns in Wetlands
Field Observations:	Secondary Indicators:
Depth of Surface Water: - (in.)	___ Oxidized Root Channels (upper12")
Depth to Free Water in Pit: - (in.)	___ Water Stained Leaves
Depth to Saturated Soil: - (in.)	___ Local Soil Survey Data
	___ Other (Explain in Remarks)

Remarks: Other Recorded Data: USGS Quadrangle, NWI Data, Soil Survey. Steep slope.

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6

QC ID: 52-2

Map Unit Name
(Series and Phase): Hickory loam 15-30%
Taxonomy (subgroup): Typic Hapludalfs

Drainage Class: _____
Field Observations
Confirmed Map Type? Yes [ ] No [ ]

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, ect.

Hydric Soil Indicators

	Histisol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer Sandy Soils
	Sulfidic Odor		Organic Streaking in Sandy Soils
	Aquic Moisture Regime		Listed on Hydric Soils List
	Reducing Conditions		Listed on National Hydric Soils List
	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks: No pit steep grade. Reference wpt is in RF wetland. Veg plot on steep slope adjacent to wet area.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes [ ]	No [x]
Wetland Hydrology Present?	Yes [ ]	No [x]
Hydric Soil Present?	Yes [ ]	No [x]

Is Sample Point Within a Wetland? Yes [ ] No [x]

Remarks: Upland forest adjacent to (south) PF WPT 300.

Photos:

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DATA FORM
Routine Wetland Delineation
(1987 COE Manual)

QC ID: 49-1

Project Site:	2Rivers Pipeline Project	Date	6/25/2001
Applicant/Owner:	Equilon	County:	Bond
Investigator(s):	Benchmark Ecological Services, Inc. BD, NH	State:	Illinois

Do Normal Circumstances Exist on the site?	Yes	x	No		Community ID: RF
Is the site significantly disturbed (atypical situation)?	Yes		No	x	Transect ID: 62502
Is the area a potential problem area?	Yes		No	x	Plot ID: WPT 286
(If needed, explain in Remarks spaces)					

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Populus deltoides*	T	FAC+	9.		
2. *Platanus occidentalis*	T	FACW	10.		
3. *Laportea canadensis*	S	FACW	11.		
4. *Elymus riparius*	H	FACW	12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW, OR FAC (excluding FAC-): 100%

Remarks: Open mature cottonwood forest.

HYDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other
- ___ No Recorded Data Available

Field Observations:

Depth of Surface Water: - (in.)

Depth to Free Water in Pit: - (in.)

Depth to Saturated Soil: - (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- X Drainage Patterns in Wetlands

Secondary Indicators:
- ___ Oxidized Root Channels (upper12")
- X Water Stained Leaves
- X Local Soil Survey Data
- ___ Other (Explain in Remarks)

Remarks: Other Recorded Data: USGS Quadrangle, NWI Data, Soil Survey. Flood plain.

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Benchmark Ecology Services Inc.

QC ID: 49-2

SOILS

Map Unit Name
(Series and Phase): Beaucop silty clay loam

Taxonomy (subgroup): Fluvaquentic Endoaquolls

Drainage Class: P,VP

Field Observations
Confirmed Map Type? Yes [x] No [ ]

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, ect.
0-18		10 YR 3/2			clay loam

Hydric Soil Indicators

	Histisol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer Sandy Soils
	Sulfidic Odor		Organic Streaking in Sandy Soils
x	Aquic Moisture Regime	x	Listed on Hydric Soils List
	Reducing Conditions	x	Listed on National Hydric Soils List
x	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks: Negative alfa alfa dipyridil.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	x	No		Is Sample Point Within a Wetland? Yes x No
Wetland Hydrology Present?	Yes	x	No		
Hydric Soil Present?	Yes	x	No		

Remarks: Cottonwood forest, stream flood plain.

Photos: 1741,1742

CONFIDENTIAL

DATA FORM
Routine Wetland Delineation
(1987 COE Manual)

QC ID: 47-1

Project Site: 2Rivers Pipeline Project	Date 6/25/2001
Applicant/Owner: Equilon	County: Bond
Investigator(s): Benchmark Ecological Services, Inc. BD, NH	State: Illinois

Do Normal Circumstances Exist on the site?	Yes	x	No	
Is the site significantly disturbed (atypical situation)?	Yes		No	x
Is the area a potential problem area?	Yes		No	x
(If needed, explain in Remarks spaces)				

Community ID: RF
Transect ID: 62501
Plot ID: WPT 282

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Fraxinus pennsylvanica*	T	FACW	9.		
2. *Acer saccharinum*	T	FACW	10.		
3. *Acer negundo*	S	FACW-	11.		
4. *Laportea canadensis*	H	FACW	12.		
5. *Laportea canadensis*	S	FACW	13.		
6. *Elymus riparius*	H	FACW	14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW, OR FAC (excluding FAC-): 100%

Remarks:

HYDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other
- ___ No Recorded Data Available

Field Observations:

Depth of Surface Water: - (in.)

Depth to Free Water in Pit: - (in.)

Depth to Saturated Soil: - (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- X Drainage Patterns in Wetlands

Secondary Indicators:
- ___ Oxidized Root Channels (upper12")
- X Water Stained Leaves
- ___ Local Soil Survey Data
- ___ Other (Explain in Remarks)

Remarks: Other Recorded Data: USGS Quadrangle, NWI Data, Soil Survey. Smal stream floodplain

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SOILS QC ID: 47-2

Map Unit Name
(Series and Phase): Beaucop silt clay loam
Taxonomy (subgroup): Fluvaquentic Endoaquolls

Drainage Class: P, VP
Field Observations
Confirmed Map Type? Yes [x] No [ ]

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, ect.
0-18		10 YR 4/2			Clay loam

Hydric Soil Indicators

	Histisol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer Sandy Soils
	Sulfidic Odor		Organic Streaking in Sandy Soils
x	Aquic Moisture Regime	x	Listed on Hydric Soils List
	Reducing Conditions	x	Listed on National Hydric Soils List
x	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks: Negative alfa alfa dipyridil.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes [x]	No [ ]
Wetland Hydrology Present?	Yes [x]	No [ ]
Hydric Soil Present?	Yes [x]	No [ ]

Is Sample Point Within a Wetland? Yes [x] No [ ]

Remarks: forested floodplain

Photos: 1735,1736

CONFIDENTIAL

DATA FORM
Routine Wetland Delineation
(1987 COE Manual)

QC ID: 48-1

Project Site: 2Rivers Pipeline Project	Date: 6/25/2001
Applicant/Owner: Equilon	County: Bond
Investigator(s): Benchmark Ecological Services, Inc. BD, NH	State: Illinois

Do Normal Circumstances Exist on the site?	Yes	x	No	
Is the site significantly disturbed (atypical situation)?	Yes		No	x
Is the area a potential problem area?	Yes		No	x
(If needed, explain in Remarks spaces)				

Community ID: PE
Transect ID: 62501
Plot ID: WPT 284

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Elymus riparius*	H	FACW	9.		
2. *Salix nigra*	S	OBL	10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW, OR FAC (excluding FAC-): 100%

Remarks:

HYDROLOGY

x Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- x Aerial Photographs
- x Other
- ___ No Recorded Data Available

Field Observations:

Depth of Surface Water: 0-12 (in.)

Depth to Free Water in Pit: - (in.)

Depth to Saturated Soil: 0 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- x Inundated
- x Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- x Drainage Patterns in Wetlands

Secondary Indicators:
- ___ Oxidized Root Channels (upper12")
- ___ Water Stained Leaves
- ___ Local Soil Survey Data
- ___ Other (Explain in Remarks)

Remarks: Other Recorded Data: USGS Quadrangle, NWI Data, Soil Survey. Small agricultural pond created in upper reaches of gravel pit.

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Benchmark Ecology Services Inc.

SOILS QC ID: 48-2

Map Unit Name (Series and Phase): Gravel Pit	Drainage Class:
Taxonomy (subgroup):	Field Observations
	Confirmed Map Type? Yes ☐ No ☐

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, ect.

Hydric Soil Indicators

	Histisol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer Sandy Soils
	Sulfidic Odor		Organic Streaking in Sandy Soils
	Aquic Moisture Regime		Listed on Hydric Soils List
	Reducing Conditions		Listed on National Hydric Soils List
	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks: Upper reaches of large excavated area that has been dammed off to create a small agricultural pond Soil is hydric by default (saturated to surface, partially inundated.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes x	No ☐	Is Sample Point	
Wetland Hydrology Present?	Yes x	No ☐	Within a Wetland?	Yes x No ☐
Hydric Soil Present?	Yes x	No ☐		

Remarks: Small Agricultral pond.

Photos: 1740

CONFIDENTIAL

DATA FORM
Routine Wetland Delineation
(1987 COE Manual)

QC ID: 46-1

Project Site: 2Rivers Pipeline Project	Date: 6/25/2001
Applicant/Owner: Equilon	County: Bond
Investigator(s): Benchmark Ecological Services, Inc. BD, NH	State: Illinois

Do Normal Circumstances Exist on the site?	Yes	x	No		Community ID: PE
Is the site significantly disturbed (atypical situation)?	Yes		No	x	Transect ID: 62501
Is the area a potential problem area?	Yes		No	x	Plot ID: WPT 278
(If needed, explain in Remarks spaces)					

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Polygonum pensylvanicum*	H	FACW+	9.		
2. *Salix nigra*	S	OBL	10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW, OR FAC (excluding FAC-): 100%

Remarks: Intermittant pond border.

HYDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other
- ___ No Recorded Data Available

Field Observations:

Depth of Surface Water: - (in.)

Depth to Free Water in Pit: - (in.)

Depth to Saturated Soil: 5 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- x Saturated in Upper 12 Inches
- ___ Water Marks
- x Drift Lines
- ___ Sediment Deposits
- X Drainage Patterns in Wetlands

Secondary Indicators:
- x Oxidized Root Channels (upper12")
- ___ Water Stained Leaves
- ___ Local Soil Survey Data
- ___ Other (Explain in Remarks)

Remarks: Other Recorded Data: USGS Quadrangle, NWI Data, Soil Survey. Intermittant pond border.

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SOILS QC ID: 46-2

Map Unit Name (Series and Phase): Atlas silty clay loam 5-10% serverly eroded	Drainage Class:
Taxonomy (subgroup): Aeric ochraqualfs	Field Observations Confirmed Map Type? Yes [x] No [ ]

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, ect.
0-1	A1				
1-18		10 YR 6/1	7.5 YR 5/8	abundant sharp	clay loam

Hydric Soil Indicators

	Histisol		Concretions
	Histic Epipedon		High Organic Content in Surface Layer Sandy Soils
	Sulfidic Odor		Organic Streaking in Sandy Soils
x	Aquic Moisture Regime		Listed on Hydric Soils List
	Reducing Conditions		Listed on National Hydric Soils List
	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	x	No		Is Sample Point Within a Wetland? Yes x No
Wetland Hydrology Present?	Yes	x	No		
Hydric Soil Present?	Yes	x	No		

Remarks: Samll shallow impoundant with seasonal flooding, currently no standing water, lemna or mud surface indicaites recent inundation.

Photos: 1733,1734

CONFIDENTIAL

DATA FORM
Routine Wetland Delineation
(1987 COE Manual)

QC ID: 45-1

Project Site: 2Rivers Pipeline Project	Date: 6/25/2001
Applicant/Owner: Equilon	County: Bond
Investigator(s): Benchmark Ecological Services, Inc. BD, NH	State: Illinois

Do Normal Circumstances Exist on the site?	Yes	x	No	
Is the site significantly disturbed (atypical situation)?	Yes		No	x
Is the area a potential problem area?	Yes		No	x
(If needed, explain in Remarks spaces)				

Community ID: PE
Transect ID: 62501
Plot ID: WPT 264

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. *Typha latifolia*	S	OBL	9.		
2. *Polygonum amphibium*	H	OBL	10.		
3. *Phragmites australis*	S	FACW+	11.		
4. *Polygonum pensylvanicum*	H	FACW+	12.		
5. *Salix nigra*	S	OBL	13.		
6. *Apocynum cannabinum*	S	FAC	14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW, OR FAC (excluding FAC-): 100%

Remarks:

HYDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- X Other
- ___ No Recorded Data Available

Field Observations:

Depth of Surface Water: 0-2 (in.)

Depth to Free Water in Pit: - (in.)

Depth to Saturated Soil: 0 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- *x Inundated
- x Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- X Drainage Patterns in Wetlands

Secondary Indicators:
- ___ Oxidized Root Channels (upper12")
- ___ Water Stained Leaves
- ___ Local Soil Survey Data
- ___ Other (Explain in Remarks)

Remarks: Other Recorded Data: USGS Quadrangle, NWI Data, Soil Survey. *Partially inundated (flowing). Small intermittant stream.