BLUE SPRINGS LAKE WETLAND MITIGATION BANK

Bank Development Plan

June 11, 2008

Missouri Department of Transportation
Design Division, Environmental Unit
District 4

MODOT BLUE SPRINGS LAKE WETLAND MITIGATION BANK

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MODOT BLUE SPRINGS LAKE WETLAND MITIGATION BANK BANK DEVELOPMENT PLAN

This Bank Development Plan, regarding the establishment, use, operation, and maintenance of the Missouri Department of Transportation Blue Springs Lake Wetland Mitigation Bank, is made and entered into by and among the Missouri Highways and Transportation Commission, acting for its subordinate, the Missouri Department of Transportation, the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, the U.S. Fish and Wildlife Service, the Federal Highway Administration, the Missouri Department of Natural Resources, and the Missouri Department of Conservation, with reference to the following:

I. PREAMBLE

A. Purpose

The purpose of this Bank Development Plan (BDP) is to provide guidelines and assign responsibilities for the establishment, use, operation, and maintenance of the Missouri Department of Transportation (MoDOT) Blue Springs Lake Wetland Mitigation Bank (hereinafter, Bank) following guidelines issued in the MoDOT Statewide Umbrella Wetland and Stream Mitigation Banking Instrument (UI). The UI was signed by the U.S. Army Corps of Engineers (USACE), the U.S. Environmental Protection Agency (USEPA), the U.S. Fish and Wildlife Service (USFWS), the Federal Highway Administration (FHWA), the Natural Resources Conservation Service, the Missouri Department of Natural Resources (MDNR), and the Missouri Department of Conservation (MDC). The Bank will be used to provide compensatory mitigation for unavoidable impacts to wetlands determined to be waters of the United States. Such impacts are expected to result from MoDOT activities authorized under Section 404 of the Clean Water Act (CWA) and FHWA rulemaking on Mitigation of Impacts to Wetlands. Compensatory mitigation must meet all applicable requirements and be authorized by the appropriate authorities.

In addition to compliance with the regulatory authorities listed above, this Bank is intended to be the primary method by which MoDOT meets the net-gain goals expressed in the FHWA rulemaking on Mitigation of Impacts of Wetlands, the President's Wetland Plan of 1998, and Missouri Executive Order 96-03. MoDOT will comply with CWA Section 404(b)(1) Guidelines by applying the following mitigation sequence for MoDOT project impacts and in general Bank establishment:

1. Avoid wetland, stream and aquatic impacts through the use of practicable alternatives;

2. Minimize wetland, stream and aquatic impacts using all reasonable actions to reduce impacts; and

3. Compensate for unavoidable wetland, stream and aquatic impacts and loss of aquatic function.

Approval of this BDP does not guarantee that the USACE will accept the use of this Bank for a specific project. On-site mitigation opportunities must be evaluated on a project-by-project basis

prior to use of this Bank. However, as stated in the federal mitigation banking guidance, use of the Bank to compensate for small impacts associated with linear projects and authorized by nationwide permit is preferred to on-site mitigation.

B. Location and Ownership of Site

The Bank is located adjacent to East Fork of the Little Blue River, downstream (north) of the Blue Springs Lake dam. The Bank lies south of Route 40 and east of I-470 in the eastern extent of the Kansas City, Missouri metropolitan area within the City of Lee's Summit in Jackson County (Figure 1). The Bank is located in Fleming County Park on USACE project operations land (Figure 2). Land management of this property is conducted by the USACE, while recreational facilities are administered by Jackson County Parks and Recreation. The Bank is located in Section 33 of Township 49N, Range 31W (Figure 3), described as follows:

> A tract of land situated in and being a part of the Northeast Quarter of the Northwest Quarter, and the Southeast Quarter of the Northwest Quarter, and the Southwest Quarter of the Northeast Quarter, and the Southeast Quarter of the Northeast Quarter, and the Northeast Quarter of the Southeast Quarter of the Section 33, Township 49 North, Range 31 West.

A majority of the proposed 30-acre Bank site is owned by the USACE (Kansas City District), with approximately 0.67 acre of the northwestern corner owned by Jackson County Parks and Recreation. A utility easement issued to the Little Blue Valley Sewer District runs across the eastern portion of the site. The proposed Bank is listed on MoDOT's *2008–2012 Statewide Transportation Improvement Plan* (STIP) to be constructed during the summer/fall of 2008. MoDOT will enter into a short-term license agreement with the USACE for the Bank site until the Mitigation Banking Review Team (MBRT) issues its final approval and all credits of the Bank are debited, or up to 25 years, whichever comes first. MoDOT will enter into a long-term access agreement for the portion of the Bank site owned by Jackson County. MoDOT will also enter into a license agreement with the Little Blue Valley Sewer District regarding their utility easement. Drafts of the agreements are included in Appendix 1 and will be finalized prior to approval of this BDP.

MoDOT proposes to establish a total of approximately 24.25 acres of wetland at the Bank within four wetland cells. Three of the proposed wetland cells are located along the East Fork Little Blue River (Cells 1–3), and the fourth (Cell 4) is along an unnamed tributary of the East Fork Little Blue River (Figure 4). The site is located within the floodplain of the East Fork Little Blue River and is in the Missouri River Basin between Kansas City and Glasgow (HUC 10300101).

C. Project Description

MoDOT plans to establish four wetland cells with a combination of palustrine emergent (PEM), scrub/shrub (PSS), and forested (PFO) wetland components.

Site Selection: The proposed wetland project was initially a joint project between the USACE and the MDC that was not completed. MoDOT has proposed to construct the wetland as a

compensatory mitigation bank in cooperation with the USACE. The site is located within the floodplain of the East Fork Little Blue River, and the historical flooding component has been removed following construction of the Blue Springs Lake Dam upstream. The site is underlain by a predominance of hydric soils (Figure 5). The boundaries for the proposed Bank were chosen to avoid mature woods along the East Fork Little Blue River and its unnamed tributary, which will serve as buffer areas around the wetland cells. The Family Golf Park is located adjacent to the Bank site to the north. The remainder of the adjacent properties to the south, east, and west are undeveloped property owned by the USACE and Jackson County.

Mitigation Bank Goals and Objectives: A primary function of the proposed Bank will be to provide wildlife habitat, primarily for wetland-dependent species. The marsh and mudflat habitat of the proposed wetland cells will provide habitat for shorebirds, waterfowl, water birds, and wading birds. The remnant shrubs and woods will remain habitat for songbirds. The proposed Bank will also provide amphibian and reptile breeding habitat, with fish movement into Cells 1–3 being restricted. Eight salamander breeding pools will be created as part of the design within two of the wetland cells. A scientific study to assess the recruitment of amphibians to the pools will likely be conducted on the site the first several years following the Bank's construction. The protocol for the study has not been finalized at this time. Additionally, eggs from the eastern tiger salamander, a Missouri Species of Conservation Concern (SU, status undetermined), may be relocated to the six salamander pools in Cell 1 as part of the study. Should eastern tiger salamander eggs not be located prior to commencement of the study, the small-mouthed salamander will serve as the alternate species.

A second primary function of the proposed Bank will be to provide recreational and interpretive opportunities for the public. A small parking lot and viewing platform with a handicap accessible ramp will be constructed along the eastern end of the project area. The platform will enable recreational viewing of the birds and wildlife that will inhabit the wetlands. The berms will allow access around the outside of the three eastern wetland cells, which will provide additional opportunities for wildlife observation. Other interpretive components may include trails and signage along the berms to further enhance public use. The USACE (Kansas City District) will pursue additional opportunities for cooperative improvements to the recreational and interpretive facilities with local groups once the wetland cells have become established.

D. Baseline Conditions

Land Use: The eastern portion of the Bank site proposed for the development of wetland Cells 1–3 was row-cropped until approximately 15 years ago. North-south oriented v-ditches were constructed to allow tilling during wet years and are still identifiable on-site. This portion of the site is now predominantly scrubland (approximately 70 percent) interspersed with areas of upland forest and old-field habitat (Figure 7). This eastern portion of the site was left fallow and has been colonized by successional shrubs, primarily dogwoods and poison ivy, as well as bottomland saplings/small trees consisting of walnut, hackberry, eastern red cedar, boxelder, sycamore, and American elm. The upland forest areas are mature woods dominated by hackberry, walnut, and oaks. The herbaceous composition of the old-field areas is dominantly tall fescue. The western portion of the Bank site proposed for Cell 4 was likely previously used for pasture and has developed into floodplain forest (Figure 7). The floodplain forest in this

western portion of the site is comprised of young trees and shrubs within the center of the proposed cell and mature trees along the tree line west of Wetland W8 and adjacent to the unnamed tributary. These floodplain woods are predominantly hackberry, green ash, boxelder, and roughleaf dogwood.

During the May 23–24, 2006 field wetland delineation of the site (described below), MoDOT biologists also assessed the species composition of the vegetative communities comprising the Bank site. A list of the existing species identified at the Bank site during the May 2006 survey is included in Table 1. A figure in Appendix 2 shows the locations of the transects and sampling points examined throughout the site. Wetland delineation datasheets from upland datapoints on the site are included in Appendix 2. Typical photographs of the site's habitat types are also included in Appendix 2.

Existing Soils and Hydrology: The Bank site is underlain by four soil mapping units: McGirk silt loam in a small portion of Cell 1; Zook silty clay loam in Cells 1 and 2; Colo silty clay loam in Cells 1 and 3; and Kennebec silt loam in Cell 4 and along the southern boundary of Cells 1–3 (Figure 5). The McGirk silt loam, Zook silty clay loam, and Colo silty clay loam are all poorly drained, hydric soils. These hydric soils underlie a majority of the Bank site proposed for Cells 1–3 but not the Cell 4 area (Figure 5). Soil bore samples were taken within each of the proposed salamander pools in Cell 4 to a depth of 10 ft. Both of the soil bore samples were a brown moist clay throughout the length of the sample.

The site is located within the historic floodplain of the East Fork Little Blue River. The wetland hydrology component (overbank flooding) has been removed through the construction of the Blue Springs Lake Dam. The site's flat topography has not been altered greatly except for the north-south running v-ditches within the areas proposed for Cells 1–3. The ditches were used to drain the property into the East Fork Little Blue River and allow cultivation during wet years. There is a gentle overall slope within the eastern three cells to the northwest, as the northern portion of these cells is the wettest and contains the majority of the wetland areas. The area proposed for Cell 4 slopes to the west and drains into the unnamed tributary. The area that is now Wetland W8 is a depression that appears to have been a former stream channel. The unnamed tributary at Cell 4 drains an area of approximately 200 acres.

Wetland Delineation: The National Wetland Inventory (NWI) map indicates forested wetland along the East Fork Little River and along its unnamed tributary within the area proposed for Cell 4 (Figure 4). Two emergent wetlands are also indicated on the NWI map along the eastern and northern borders of the eastern cells. MoDOT biologists completed a routine wetland delineation of the footprint of the Bank site May 23–24, 2006 using the transect method (for areas >5 acres in size) per the USACE 1987 *Wetland Delineation Manual*. Boundaries of the delineated wetlands were mapped in the field using Global Positioning System (GPS) technology. Wetland delineation datasheets and photographs of the wetlands are included in Appendix 2.

Eight existing wetlands were delineated within the Bank site, with 0.48 acre of wetland inside the site's boundaries (Figure 7). Five of the wetlands identified (W2, W4–W7) are PEM wetlands located within the remnant v-ditches in the eastern portion of the site. Wetland W1 is a

combination palustrine open water (POW)/PEM wetland located adjacent to a manmade pond. Wetlands W3 and W8 are PFO depression wetlands, both of which were indicated on the NWI map (Figure 4).

E. Mitigation Bank Work Plan

Grading: A majority of the areas within the wetland cells will be cleared and grubbed, avoiding the existing wetlands. The two tree lines within Cells 1 and 4 that contain mature trees will not be cleared or grubbed, as shown on Plan Sheets 2 and 5. The remnant v-ditches in Cells 1–3 will be cleared but minimally grubbed. Eight 75-ft wide, 2.5-ft deep circular salamander pools will be graded, six pools within Cell 1 and two pools within Cell 4 (Plan Sheets 2 and 5). The pools will be graded at two different slopes (15:1 for "A" pools and 4:1 for "B" pools) for purposes of the amphibian/salamander study described in Section I.C. One shallow oxbow will also be graded within Cell 3 (Plan Sheet 4). After the site is graded, the soil will be amended with lime and fertilizer, if needed. Crimped mulch shall be applied and embedded in the soil to prevent erosion.

Hydrology: The Bank site is located within close proximity to an existing water line and control valve below the Blue Springs Lake dam that will serve as the primary source of hydrological input for Cells 1–3 (Plan Sheets 1–4). Hydrology within Cell 1 will be supplemented by sheet flow from the adjacent hillside east of the wetland cell (Plan Sheet 2). The primary source of hydrology for Cell 4 will be from stream flow directed into the cell from the unnamed tributary (Plan Sheets 1 and 5). Hydrology within each of the wetland cells will also be supplemented by direct precipitation, which will be held by the poorly drained hydric soils that underlie a majority of the Bank site (Figure 5).

The existing 8-inch water line below the Blue Springs Lake dam will run from the control valve into Cells 1–3 through inlet gate valves. Outlet stop log structures from Cells 1–3 will drain directly into the East Fork Little Blue River. Water management between and within Cells 1–3 will be managed solely through gravity flow with no reliance on pumps. However, water levels within the cells may be easily manipulated and independently controlled. Water levels within Cell 1 will be managed to accommodate the amphibian/salamander study, with increased inundation following completion of the study. A description of the first year's water management for Cells 1–3 is included in Section V.B. MoDOT will develop a long-term Water Management Plan for the Bank site, in coordination with the USACE, prior to completion of monitoring.

Stream flow will be directed into Cell 4 from the unnamed tributary via an inlet grade control structure and weir at the southern end of the cell, with an outlet weir to the unnamed tributary at the northern end of the cell (Plan Sheet 5). Hydrology within Cell 4 will be self-sustaining and will not require water management.

Vegetation: Following construction, all disturbed areas, including the berms, will be seeded with a warm season grass mix composed of the following: big bluestem, little bluestem, Indian grass, sideoats grama, switchgrass, and eastern gamagrass. The wetland cells will be seeded with a wetland seed mix. The floodplain seedbank will also provide a viable seed source for the site.

Additional plantings from the existing wetland areas west of the Bank site also may be installed, should they be necessary.

An approximate 0.23-acre buffer strip of trees and shrubs will be planted along the northern boundary of Cells 1 and 2 to shield the wetlands from disturbances and lighting generated by the adjacent operation of the golf park and Route 40 traffic use. The tree plantings proposed are a combination of the fast-growing tree species sycamore and two oaks, swamp white oak and bur oak. Rough-leaf dogwood and redbud are proposed as the shrubs. All of the tree and shrub plantings will be container-grown root production method (RPM™) saplings with a dense fibrous non-curling root system. A majority of the trees and all of the shrubs will be in 3-gallon containers, while a few of the trees will be in larger, 7-gallon containers. The trees and shrubs will have been treated with mycorrhizal inoculation and will be installed with appropriate competition control and soil amendments.

F. Establishment and Use of Credits

A total of 24.25 acres of wetland will be available to use as compensatory wetland mitigation in accordance with all applicable requirements (see Table 2). The anticipated number of credits will be based on the total area of wetland habitat created and restored to the standards of the success criteria defined in Section IV.E. The credits generated by this Bank shall be used as compensatory mitigation for unavoidable and adverse environmental impacts to wetlands as these impacts result from public transportation projects constructed by MoDOT.

The approximate 24.25 acres of wetland habitat will be distributed throughout the Bank site as follows: 10.15 acres of wetland in Cell 1; 6.41 acres in Cell 2; 6.13 acres in Cell 3; and 1.56 acres in Cell 4 (see Plan Sheet 1 in Appendix 3). Boundaries of the proposed Bank will encompass an additional 0.48 acre of existing wetland that will not be included as wetland mitigation. It is estimated that approximately 83 percent of the wetland acreage established at the Bank will be considered wetland restoration and the remainder 17 percent will be considered wetland creation, determined by the hydric/non-hydric soil composition of the site (Figure 5). Of the wetland acreage established, approximately 0.58 acre is targeted for PFO wetland development within the two remnant upland forest areas. It is projected that the remaining wetland areas will develop into approximately 60 percent PEM and 40 percent PSS wetland. It is proposed that the Bank be assessed annually to estimate the wetland types that develop on-site during the monitoring period, as described in Section V.C. A breakdown of the created and restored wetland acreage by Cowardin classification is listed in Table 2 and described below in further detail.

Palustrine Forested Wetland (PFO) (0.58 acre):

- **Creation (0.24 acre)**
  There is approximately 0.34 acre of mature trees along a tree line in Cell 4 that will not be cleared (shown in Plan Sheet 5). Of that area of mature trees, 0.24 acre will be inundated or saturated within 12 inches of the soil surface following construction of Cell 4 and will likely develop into PFO wetland.

Restoration (0.34 acre)
There is approximately 1.7 acres of mature trees along a remnant tree line in Cell 1 that will not be cleared (Plan Sheet 2). Of that area of mature trees, 0.34 acre will be inundated or saturated within 12 inches of the soil surface following construction of Cell 1 and will likely develop into PFO wetland.

Palustrine Scrub/Shrub Wetland (PSS) (9.46 acres):

Creation (1.62 acres)
Approximately 1.62 acres of PSS wetland will be created at the Bank, with 0.52 acre in wetland Cell 4 and 1.10 acres in Cells 1–3. The PSS wetland areas will likely develop along the eastern edge of Cell 4 adjacent to the remnant tree line (Plan Sheet 5). Within Cells 1–3, the PSS wetland areas will likely develop around the edges of the cells and on the tops of the ridges in between the remnant v-ditches (Plan Sheets 2–4).

Restoration (7.84 acres)
Approximately 7.84 acres of PSS wetland will be restored at the proposed Bank, entirely within wetland Cells 1–3. These PSS wetland areas in Cells 1–3 will likely develop around the edges of the cells and on the tops of the ridges in between the remnant v-ditches.

Palustrine Emergent Wetland (PEM) (14.21 acres):

Creation (2.46 acres)
Approximately 2.46 acres of PEM wetland will be created at the Bank, with 0.80 acre in Cell 4 and 1.66 acres in Cells 1–3. The PEM wetland areas will likely develop along the western portion of Cell 4. PEM wetland areas will develop within the oxbow in Cell 3, and within the eight salamander pools in Cells 1 and 4. Additionally, PEM wetland areas will likely develop within the remnant v-ditches in Cells 1–3.

Restoration (11.75 acres)
Approximately 11.75 acres of PEM wetland will be restored at the proposed Bank, entirely within Cells 1–3. These PEM wetland areas in Cells 1–3 will likely develop within the oxbow in Cell 3, within the six salamander pools in Cell 1, and within the remnant v-ditches throughout these wetland cells.

The number of credits required as compensatory mitigation for a specific project shall be determined by the USACE in accordance with existing federal guidance on mitigation when the USACE permit is issued. The current guidance, upon which the USACE compensatory mitigation requirement would be based, includes the Memorandum of Agreement between the USEPA and the USACE concerning the Determination of Mitigation Under the CWA, Section 404 (b)(1) Guidelines (February 6, 1990) and the Federal Guidance for the Establishment, Use, Operation of Mitigation Banks (60 F.R. 58605 *et seq.*).

G. MBRT Membership

The MBRT members will consist of representatives from the following federal and state agencies:

- USACE, Kansas City District (Chair)
- USEPA, Region VII, Kansas City
- USFWS, Midwest Region, Columbia Field Office
- FHWA, Missouri Division, Jefferson City Office
- MDC, Jefferson City
- MDNR, Jefferson City

H. Disclaimer

This BDP does not in any manner affect statutory authorities and responsibilities of the signatory parties.

II. AUTHORITIES

The establishment, use, operation, and maintenance/management of the Bank will be carried our in accordance with the following authorities:

A. Federal Authorities

- CWA (33 USC 1251 *et seq.*)
- Rivers and Harbors Act of 1899 Section 10 (33 USC 403 *et seq.*)
- Fish and Wildlife Coordination Act (16 USC 661 *et seq.*)
- Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)
- Transportation Equity Act for the 21st Century (TEA-21)
- Department of the Army, Section 404 Permit Regulations (33 CFR Parts 320-330) - Policies for Evaluating Permit Applications to Discharge Dredged or Fill Material
- USEPA, Section 404(b)(1) Guidelines (40 CFR Part 230) - Guidelines for Specification of Disposal Sites for Dredged or Fill Material
- Memorandum of Agreement between the USEPA and the Department of the Army Concerning the Determination of Mitigation Under the CWA, Section 404 (b)(1) Guidelines (February 6, 1990)
- Federal Guidance for the Establishment, Use and Operation of Mitigation Banks (FR, Vol. 60, No. 228, Pages 58605-58614, 1995) (60 FR 58605)
- National Historic Preservation Act, Section 106 (16 USC 470)
- National Environmental Policy Act (NEPA) (42 USC 4321 *et seq.*), including the Council on Environmental Quality's implementing regulations (40 CFR Parts 1500-1508)

- FHWA Guidance on Mitigation of Impacts to Wetlands (23 CFR Part 777) Revised March 30, 2001
- CWA, Section 404 (33 USC 1344)
- Federal Guidance on the Use of the TEA-21 Preference for Mitigation Banking to fulfill Mitigation Requirements under Section 404 of the CWA.
- USACE Regulatory Guidance Letter (RGL) 02-2, Guidance on Compensatory Mitigation Projects for Aquatic Resource Impacts Under the Corps Regulatory Program Pursuant to Section 404 of the CWA and Section 10 of the Rivers and Harbors Act of 1899
- Federal Agricultural Improvement and Reform Act of 1996, Public Law 104-494. 16 USC 3801 *et seq.*
- USFWS Mitigation Policy (46 FR pages 7644-7663, 1981)

B. State Authorities

- 10 CSR 20-6.060 Missouri State Water Quality Certification
- 10 CSR 20-7.031 Missouri State Water Quality Standards
- Chapter 644 Missouri Revised Statutes, Missouri Clean Water Law

III. ESTABLISHMENT OF THE BANK

A. Sponsor Agreements

The Bank sponsor (MoDOT) agrees to perform all necessary work to establish and maintain 24.25 acres of wetland habitat. MoDOT agrees to monitor the Bank for five years or until it is demonstrated to the satisfaction of the MBRT that the project complies with all conditions contained herein and issues its final approval. MoDOT agrees to perform management and maintenance operations at the Bank site for a minimum of five years and until its closure, or up to 25 years, whichever comes first. As agreed by the USACE and FHWA, the financial assurance for MoDOT Bank proposals shall be the assurance that FHWA "will take appropriate administrative action, within the legal authority of the agency, to ensure that wetland mitigation commitments established to compensate for wetland impacts due to Federal-aid highway projects are completed or achieved."

Following its closure, the Bank site will be owned and protected by the USACE and Jackson County. The USACE will conduct all long-term maintenance of the Bank site. A sign will be installed at the site's entrance. No conservation easement or deed restriction shall be placed on the Bank site property.

B. Environmental Documentation

MoDOT will obtain all appropriate environmental documentation, permits, or other authorizations needed to establish and maintain the Bank. Approval of this BDP does not fulfill or substitute for such authorization.

National Environmental Policy Act: The USACE (Kansas City District) and MDC completed an Environmental Assessment (EA) for the project in October 1998 (CWIS No. 096158), for which a Finding of No Significant Impact (FONSI) was received. FHWA evaluated the EA and issued a letter of concurrence supporting the environmental findings on July 27, 2006. The project is located within Fleming County Park, which qualifies as both a Section 4(f) and 6(f) property. However, no public land mitigation will be necessary because no fee simple purchase or easement will be acquired, thus no land use conversion will result.

Endangered Species Act: The project site is located within the range of the federally endangered Indiana bat, although there are no known occurrences of the species at the project site. MoDOT conducted a survey for potentially suitable roosting habitat for this species within the project's proposed construction limits and identified a few scattered trees throughout the project area. MoDOT cleared the accessible identified roost trees during December 2006 and does not anticipate any further actions will be needed to avoid impacts to the Indiana bat or any other federally listed endangered or threatened species (refer to email correspondence in Appendix 4).

National Historic Preservation Act (Section 106): An original consultant cultural resources investigation initiated by the USACE identified two archaeological properties in vicinity of the project. A Memorandum of Agreement executed in 2003 between the USACE, State Historic Preservation Office (SHPO), and Jackson County Parks and Recreation determined that the two archaeological sites are not historic properties. MoDOT reviewed the methods and findings of this original cultural resources investigation, and concurred with their findings. MoDOT received clearance from the SHPO for the project on October 20, 2003 (Appendix 4).

Clean Water Act (Section 404): A request for authorization under a CWA Section 404 Nationwide Permit 27 was submitted March 7, 2007, for wetland and stream impacts associated with construction of the project (Appendix 4). A total of approximately 0.11 acre of existing PEM wetland will be filled during berm construction around Cells 1 and 2, and approximately 0.05 acre of PEM wetland will be impacted during establishment of the tree buffer along the northern boundary. The proposed weirs on Cell 4 will result in approximately 22 linear feet of impacts to the intermittent unnamed tributary of East Fork Little Blue River.

C. Sponsor Performance and Modifications

Credits shall become available in accordance with the schedule specified in Section IV.G. Following approval of this BDP, should MoDOT determine changes must be made to ensure the successful establishment of wetland habitat within the Bank site, MoDOT shall submit a written request for approval of the BDP modification to the MBRT.

D. Real Estate Provisions

MoDOT will enter into a short-term license agreement with the USACE for the Bank site prior to finalization of this BDP. The license agreement will be in place for a minimum of five years until the MBRT issues its final approval, or up to 25 years, whichever comes first. MoDOT will acquire a long-term access agreement for the portion of the Bank site owned by Jackson County Parks and

Recreation. MoDOT will also enter into a license agreement with the Little Blue Valley Sewer District regarding their utility easement. Drafts of each of these agreements are included in Appendix 1. Following the Bank's closure, the USACE and Jackson County will own and protect the Bank site, and the USACE will conduct all maintenance. Neither a conservation easement nor deed restriction shall be placed on the property since governmental organizations own the Bank site.

E. As-Built Report

MoDOT agrees to submit an as-built report within 90 days following completion of construction or approved modification of the proposed Bank. The as-built report for the original construction will describe in detail any deviation from that which was described in the approved BDP and will include drawings showing finish grades and a completed planting and seeding scheme.

IV. OPERATION OF THE BANK

A. Service Area

The Bank is established to provide compensatory mitigation for impacts to wetlands within its primary MoDOT Service Area Ecological Drainage Unit (EDU) #4 (Figure 6), as defined by the Missouri Resource Assessment Partnership (MoRAP) and described within the UI. EDU #4 lies entirely within the regulatory jurisdiction of the Kansas City District of the USACE.

The Service Area for the Bank includes a majority of MoDOT District 4, as well as portions of MoDOT Districts 1, 2 and 5, within the following counties: Benton, Caldwell, Carroll, Cass, Chariton, Clay, Clinton, Cooper, Jackson, Johnson, Lafayette, Moniteau, Morgan, Pettis, Ray, and Saline (Figure 6). The Service Area lies within the Central Plains Aquatic Subregion. The drainages that encompass the Service Area include the Missouri River tributaries between the Blue and Lamine drainages, and a small area encompassing the Kansas River watershed in Missouri. The four eight-digit HUC watersheds encompassed within the Service Area are 10300101 (Missouri River from Kansas City to Glasgow), 10300103 (Lamine River), 10300104 (Blackwater River), and 10270104 (Kansas River).

B. Landowner Responsibilities

The USACE and Jackson County will allow, or otherwise provide for, access to the site by MBRT members for the purpose of inspection and compliance monitoring consistent with the terms and conditions of this BDP. Inspecting parties shall provide reasonable notice to MoDOT, the USACE, and Jackson County of not less than 24 hours prior to inspection of the Bank.

C. Project Eligibility

The Bank will provide compensatory mitigation for wetland impacts for MoDOT transportation projects within its Service Area. For projects with minor wetland impacts that are authorized by nationwide or regional general Section 404 permits, the Bank may be used to provide full or

partial compensatory mitigation. For projects requiring individual Section 404 permit authorization, the USACE (Kansas City District) will determine which projects will be eligible to use the Bank, considering MBRT member responses to the individual permit public notice. Credits may also be used to compensate for environmental impacts authorized under other environmental laws for federal, state, or local wetland, watershed, or endangered species programs.

Use of the Bank to compensate for impacts outside its Service Area may be authorized when such use of the Bank is determined to be environmentally desirable and practicable, as determined on a case-by-case basis by the USACE (Kansas City District) and MBRT. More mitigation credits may be required in such cases where the impacts are outside its Service Area.

D. Project Ineligibility

The permitting USACE District will make decisions about the appropriate compensatory mitigation for impacts of a specific project on a case-by-case basis during evaluation of any permit application. The USACE (Kansas City District) may determine during the public interest review or through coordination with the MBRT that compensatory mitigation through the use of credits from a Bank may be inappropriate for some projects. Likewise, signatories recognize that the USACE (Kansas City District) can review any proposed project and determine that another form of compensatory mitigation is ecologically preferable because of case-specific circumstances.

E. Success Criteria

Success for the proposed Bank will be achieved when the planned areas of wetland restoration/creation meet the hydrologic, vegetative, and hydric soil criteria for wetlands as outlined in the 1987 *Wetland Delineation Manual*. The following criteria will be used to assess project success:

1. **Financial Success Criteria:** Neither a conservation easement nor deed restriction shall be placed on the property since the USACE and Jackson County own the Bank site. MoDOT will enter into a short-term license agreement with the USACE for the Bank site prior to finalization of this BDP. The license agreement will be in place until the MBRT issues its final approval and all credits of the Bank are used, or up to 25 years, whichever comes first. MoDOT will acquire a long-term access agreement for the portion of the Bank site owned by Jackson County Parks and Recreation. MoDOT will also enter into a license agreement with the Little Blue Valley Sewer District regarding their utility easement. Following the Bank's closure, the USACE and Jackson County will own and protect the Bank site, and the USACE will conduct all maintenance activities. The Bank is listed on the 2008–2012 STIP to be constructed during the summer/fall of 2008.

2. **Hydrologic Success Criteria:** At least a portion of the Bank planned to be wetlands must meet the hydrologic criteria for wetlands as outlined in the 1987 *Wetland Delineation Manual*. A description of the first year's water management for Cells 1–3

is included in Section V.B, and a long-term Water Management Plan for the Bank will be completed prior to completion of the monitoring period.

3. **Vegetative Success Criteria:** Vegetative success within the planned areas of wetland restoration/creation will be met when the areas meet the vegetative criteria for wetlands as outlined in the 1987 *Wetland Delineation Manual* and at least 80 percent of the vegetative cover are desirable plants suitable for the Bank's water regime and site potential. Desirable species are those native to the ecoregion of the Bank, whereas undesirable species shall be defined as those plants on the noxious weeds list or other exotic species. A list of undesirable species, including noxious and invasive species, and allowable percentages of these species is found in Table 3. The vegetative success criteria for the buffer area planted in trees and shrubs is 80 percent survival after two years.

4. **Soil Success Criteria:** That portion of the site targeted for wetland creation and/or restoration must meet the hydric soil requirements according to the 1987 *Wetland Delineation Manual*. Documented conditions demonstrating inundation or saturation to within 12 inches of the surface will be used as an indicator that this criterion is being met. Other visual indicators of hydric soil development may also be reported.

F. Debit/Credit Assessment

Credits and debits will be assessed within the Bank based on acreage until a wetland functional assessment is approved for use within the State of Missouri. There has been movement toward the development of a wetland assessment method in Missouri, with the USACE (St. Louis District) being the lead district for the effort. If a wetland functional assessment method is approved prior to closure of the Bank, the number of available credits will be based on the approved methodology. The same method will be used to assess both credits and debits. The projected total wetland acreage and number of credits available for the Bank is 24.25 acres. When credits are debited, both the acreage impacted and mitigated for are calculated and recorded (see draft ledger in Table 4). When all 24.25 acres have been debited, no more credits may be used from the bank.

G. Schedule of Credit Availability

Upon submittal of all appropriate documentation by MoDOT and subsequent approval by the USACE (Kansas City District), in consultation with the other members of the MBRT, it is agreed that credits will become available for use by MoDOT in accordance with the following schedule:

1. Initially, 10 percent of total anticipated credits shall be available for debiting immediately after the MBRT's approval of this BDP and MoDOT has achieved financial success, as described in Section IV.E.

2. An additional 15 percent of total anticipated credits shall be available for debiting immediately after submittal and approval of the as-built report.

3. Up to an additional 25 percent of total anticipated credits shall be available for debiting following demonstration of meeting hydrological success, as described in Section IV.E. The number of credits released will be based on the proportion of proposed wetlands meeting the hydrology success criteria.

4. The remaining 50 percent of total anticipated credits shall be made available by the USACE (Kansas City District) for withdrawal when the vegetative and soils success criteria as described in Section IV.E are satisfied. If a portion of the Bank does not meet the hydrologic, vegetative, or soil success criteria, the equivalent credit for the area that does not meet the criteria will not be available for debiting until the criteria are achieved.

H. Credit Utilization

Credits will be utilized at the Bank in conformity with the following general criteria:

1. In no case may the same credits be used to compensate for more than one USACE authorized wetland impact. Once credits have been used to mitigate the impacts occurring on one property or project, those credits cannot be used again. However, credits from the Bank may also be used to compensate for environmental impacts authorized under other programs, such as state or local wetland programs.

2. The construction of the Bank, including final grading, planting, and creation/restoration of wetland hydrology, will be initiated and completed within one full growing season following the use of the first credit for that Bank, unless other plans are agreed upon by the USACE (Kansas City District) in consultation with the MBRT.

3. MoDOT will conduct annual monitoring of the proposed Bank for five years or until it is approved by the MBRT as being fully functional. After the MBRT reviews the monitoring reports and conducts a site visit if needed, credits will be released by the USACE (Kansa City District) if the Bank has met the success criteria, as defined in Section IV.E.

4. The USACE (Kansas City District) will determine the exchange ratio of credits for unavoidable wetland impacts authorized by nationwide or regional general Section 404 permit on a project-by-project basis. When an individual Section 404 permit is required, the USACE will determine the mitigation credit requirement in consultation with other members of the MBRT during the permit process evaluation.

I. Site Use Provisions

Hunting, fishing, and trapping may be compatible uses when conducted in accordance with state and federal regulations and approved by the USACE (Kansas City District) in consultation with the MBRT. This includes the leasing of such rights to others. However, compatibility of temporary blinds or stands for hunting purposes will be reviewed and may be approved by the USACE (Kansas City District) in consultation with MBRT. MoDOT, the USACE (Kansas City

District), and Jackson County will make all reasonable and practicable efforts to prevent unauthorized and incompatible uses of the Bank site.

Unless approved in writing by the USACE (Kansas City District), in consultation with the MBRT, MoDOT, the USACE (Kansas City District), and Jackson County shall not:

1. Grant additional easements, right-of-way, or any other property interest in or to the project areas for pipelines, utility lines, transportation projects, etc;

2. Construct trails or roads except for maintenance and educational purposes;

3. Use or allow the use of permanent hunting blinds, motorcycles, off-road vehicles, swamp buggies, motor boats, or other motorized vehicles unless for maintenance activities;

4. Cut, harvest, or otherwise alter the successional growth of timber except as a management tool;

5. Burn, hay, graze, cultivate, or plant crops unless except as a management tool; or

6. Use or authorize the use of areas within the Bank for any purpose that interferes with the Bank's goals and objectives. This includes modifying the hydrology or vegetation to create a different type of wetland.

J. Bank Closure

Closure of the Bank will occur when the terms and conditions of this BDP have been determined by the USACE (Kansas City District), in consultation with the MBRT, to be fully satisfied or until all credits have been debited, whichever is later. MoDOT may request early closure of the Bank and forfeiture of remaining anticipated credits if they determine that the success criteria are unattainable. At the termination of the operational phase of the Bank, a Bank closure report will be required that will include the following: aquatic resource delineation and Cowardin classification; pre-construction and current aerial or satellite photography; detailed diagrams/drawings of the site; expected land use and management of the site; finalized ledger; and finalized long-term management and ownership records. Subsequent to Bank closure, the Bank site will be owned and protected by the USACE and Jackson County. The USACE will conduct all long-term maintenance of the Bank site. Management decisions after Bank closure shall always be made with the primary goals of maintaining healthy wetland and/or aquatic habitat functions for which the site was originally designed.

V. MAINTENANCE AND MONITORING OF THE BANK

A. Accounting Procedures

MoDOT shall make a request in writing to the USACE (Kansas City District) that additional credits should be approved and released. The USACE (Kansas City District) will review the

request in consultation with the MBRT and approve or deny the release of additional credits in writing within 60 days of receiving the request. MoDOT will maintain a ledger for bank credits and debits for the Bank. The ledger will record the date and number of credits released when the credit availability criteria are met. For planning purposes, wetland and aquatic impacts mitigated in the Bank will be listed by Cowardin class. Projects with impacts to multiple wetland classes will list the acreage of each class and the total mitigation credits required for compensation. The debits and credits balance will be recorded and balanced for general wetland credits (see sample ledger as Table 4). MoDOT shall submit an annual ledger showing all transactions for each Bank to the USACE (Kansas City District) for distribution to the MBRT members.

B. Maintenance and Management Provisions

MoDOT will conduct maintenance at the Bank site for a minimum of five years until its closure, or up to 25 years, whichever comes first. MoDOT will conduct the following maintenance activities to maintain the integrity of the wetlands: annual mowing of berms; weed control in accordance with the percentages listed in Table 3; control of woody species within wetland cells; inspection and maintenance of the berms and structures; the coordination of efforts to control nuisance wildlife that may interfere with the function of the wetlands (i.e., muskrat); and the repair or replacement of the Bank entrance sign. The USACE will conduct maintenance of the associated gravel road, parking lot, and viewing platform.

Manipulation of the gate valves and stoplog structures will be conducted in coordination between the USACE and MoDOT to control water levels in Cells 1–3. Water management between and within Cells 1–3 will be managed solely through gravity flow, with no reliance on pumps. Terms of the water level manipulation will be addressed in the long-term Water Management Plan that MoDOT will develop in coordination with the USACE prior to completion of monitoring. Within the first year following construction, hydrology within Cells 1–3 will be managed as follows:

1. Hydrology within Cell 1 will be managed to provide amphibian breeding habitat and to maintain the existing mature woods. This wetland cell will be inundated in the late fall and into late winter. In late winter, water levels will be lowered to remove inundation within the woods while maintaining saturated/ inundated soil conditions throughout the rest of the cell until late summer. Water levels will be drawn down in late summer and into the late fall. Water levels within Cell 1 will be managed to accommodate the amphibian/salamander study described in Section I.C, with increased inundation levels following completion of the study.

2. Hydrology within Cell 2 will be managed to provide feeding and resting habitat for shorebirds during their spring and fall migrations. This wetland cell will be shallowly inundated from early fall through the winter. A gradual drawdown to expose mudflats will begin in mid-spring and continue through early summer.

3. Hydrology within Cell 3 will be managed to maintain a marsh/open water habitat. The center oxbow of this wetland cell will remain permanently inundated. The

remainder of the wetland cell will be inundated throughout most of the year with a gradual drawdown through the summer and re-inundation in the fall.

Hydrology within Cell 4 will be self-sustaining and will not require water management, although it may need periodic maintenance of its inlet and outlet weirs.

Deviation from the maintenance and management activities listed above will be subject to review and written approval by the USACE in consultation with the MBRT. Upon closure of the Bank, the USACE will implement long-term maintenance and management on the site in perpetuity in accordance with the requirements established in Section V.F.

C. Monitoring Provisions

MoDOT will perform monitoring of the Bank to demonstrate compliance with the success criteria listed in Section IV.E. Monitoring will be conducted for five years following initial establishment or until the MBRT issues its final approval. Monitoring will include:

1. Vegetative species monitoring will be scheduled annually from early to late growing season. Locations for this monitoring will be based on the methods in the 1987 *Wetland Delineation Manual* (or other methodology subsequently approved by the USACE). Woody stem density and herbaceous plant cover will be characterized by species.

2. An annual fish, shellfish, and wildlife species listing for the site will be compiled from casual observations.

3. Hydrologic monitoring will document water distribution throughout the year in accordance with the methods in the 1987 *Wetland Delineation Manual*. This will serve to document water retention capability and success of water manipulation in facilitating vegetation establishment. Water levels within Cells 1–3 will be carefully managed through manipulation of the stoplog structures, while hydrology within Cell 4 will not require water management. Water levels and distribution will be visually assessed during monthly visits to the site. To aid in hydrologic monitoring, gauges will be installed within Cells 1–3.

4. Soils will be sampled in accordance with the 1987 *Wetland Delineation Manual* to determine if the soils have indicators of hydric conditions. Soils will be sampled concurrently with the vegetation sampling annually for five years following initial establishment.

5. If any of the performance criteria have not been met after the five-year report is submitted, the USACE (Kansas City District), in consultation with the MBRT, may require direct project modification or further monitoring.

D. Reporting

MoDOT shall annually submit to the USACE (Kansas City District) a report describing the conditions of the Bank comparing those conditions to the success criteria until the terms and conditions of a BDP have been determined to be fully satisfied or until all credits have been debited, whichever is later. Reports will be submitted each calendar year by December 31 and will contain the following:

1. A U.S. Geological Survey map showing the location of the Bank. A digital point location will also be included;

2. A narrative summarizing the condition of the Bank and all regular maintenance activities;

3. Appropriate topographic maps (e.g., 1-2-foot contour intervals) showing locations of sampling plots, permanent photo points, and transects;

4. Results of vegetation survey, including:
   a. Visual estimates of percent cover by species for each vegetation layer; relative percent cover of nonnative invasive species in each vegetation layer; total percent cover of obligate, facultative wetland, facultative, and facultative upland plants in each vegetation layer; and a list of dominant species in plant communities within the Bank site;
   b. Description of species and cover estimates of natural woody species colonization; and
   c. Survival rate of planted trees and shrubs within the buffer strip planted along the northern boundary of Cells 1 and 2.

5. Results of qualitative fish, shellfish, and wildlife observations. Results from the amphibian/salamander study, when implemented, will also be summarized;

6. Hydrology management and monitoring results;

7. Soil sample descriptions with soil profile and hydric condition indicators;

8. Acreage and descriptions of aquatic habitats in the Bank described to Cowardin Class;

9. Ledger showing wetland and stream impacts debited in the Bank and the Bank's wetland credit balances;

10. List of deficiencies identified for the Bank; and

11. Recommendations for remedial vegetation plantings, hydrologic modifications, modification of vegetative sampling scheme, and modifications of hydrologic monitoring scheme.

E. Remedial Actions

Should it be determined that the Bank has failed to achieve the success criteria specified in Section IV.E, MoDOT shall develop and implement remedial actions in coordination with the USACE (Kansas City District) and the MBRT. In the event MoDOT fails to implement necessary remedial actions at the Bank site within 90 calendar days or another pre-determined time period, the USACE (Kansas City District) will notify MoDOT that debiting from the Bank is suspended.

Should it be determined the Bank is operating in a deficit, the USACE (Kansas City District) will notify MoDOT that debiting of credits from the Bank should immediately cease. The USACE (Kansas City District), in consultation with the MBRT and MoDOT, will determine what remedial actions are necessary to correct this situation.

F. Long-Term Management

The USACE (Kansas City District) will conduct long-term maintenance and management of the Bank in perpetuity upon its closure. Long-term maintenance and management activities will include those listed in Section V.B, with the exception that long-term weed control will only be required when a species listed on the Missouri noxious weeds list (Table 3) exceeds 20 percent aerial coverage at the site. Manipulation of the gate valves and stoplog structures will be conducted in accordance with the long-term Water Management Plan. Deviation from these maintenance activities will be subject to MBRT review and written approval.

VI. RESPONSIBILITIES OF THE MBRT

A. Agency Oversight

The agencies represented on the MBRT agree to provide appropriate oversight in implementing the provisions of this BDP. The MBRT will strive to obtain consensus on its actions. The USACE (Kansas City District) will have the responsibility for making final decisions where consensus cannot otherwise be reached.

B. Agency Review

The USACE (Kansas City District) agrees to distribute electronic copies of all Bank annual reports, credit release requests, remedial action plans, and Bank closure reports to the MBRT members within 15 days. The agencies represented on the MBRT agree to review and provide written comments on all Bank annual reports, credit release requests, remedial action plans, and Bank closure reports within 45 calendar days. If an MBRT agency chooses not to participate in a particular portion of the review process, they may notify the USACE (Kansas City District). If the USACE does not receive written comments within 45 calendar days, they shall assume report approval and proceed to the next stage of the review process. This does not guarantee that

mitigation proposals or permit applications will be approved within 45 days. Written comments may be submitted using e-mail correspondence.

C. Credit Approval

The USACE (Kansas City District) agrees to review, in consultation with the MBRT, reports evaluating the success of the Bank and release approved credits within 60 days.

D. Compliance Inspections

The agencies represented on the MBRT shall conduct compliance inspections, as determined necessary by the USACE (Kansas City District) in consultation with the MBRT, to verify whether all success criteria have been met and whether credits may be released in the Bank. The USACE (Kansas City District) shall report their findings to MoDOT in writing and recommend corrective measures, if any, until the terms and conditions of this BDP have been determined to be fully satisfied or until all credits have been debited, whichever is later.

VI. OTHER PROVISIONS

A. Force Majeure

MoDOT will not be responsible for Bank failure that is attributed to natural catastrophes such as flood, drought, disease, regional pest infestation, etc., that the USACE (Kansas City District), in consultation with the MBRT, determines is beyond the control of MoDOT to prevent or mitigate.

B. Dispute Resolution

Resolution of disputes about application of this BDP shall be in accordance with those stated in the Federal Guidance for the Establishment, Use and Operation of Mitigation Banks (60 F.R. 58605 *et seq.*, November 28, 1995). The USACE (Kansas City District) has the responsibility of making final decisions for this BDP and when consensus cannot be reached between the MBRT members and/or MoDOT.

C. Validity, Modification, and Termination of the Bank Development Plan

This BDP will become valid on the date of the last participant's signature. The approved BDP may be amended or modified with the written approval of all signatory parties. The USACE (Kansas City District) can reconvene the MBRT for amendments to the BDP. However, unless the Bank is in substantial noncompliance with the approved BDP, amendments cannot include changes that postpone the use of approved credits or render the Bank unavailable for mitigation.

Any of the MBRT members may terminate their participation in the BDP upon written notification of termination to all signatory parties. Participation of the MBRT members would terminate 90 calendar days after written notification. Either MoDOT or the USACE (Kansas

City District) may terminate the approved BDP by giving a 90-day written notice to the other party and the MBRT.

D. Controlling Language

To the extent that specific language in the UI changes, modifies, or deletes terms and conditions contained in those documents that are incorporated into this BDP by reference, and that are not legally binding, the specific language within the UI shall be controlling. The UI shall be controlling for all items it covers in detail. The approved BDP shall be controlling for those items within it that the UI states will be outlined in detail or may be modified in the BDP.

SIGNATURES

BANK DEVELOPMENT PLAN LEAD USACE DISTRICT

MBRT CHAIR

Roger A. Wilson, Jr.
Colonel, Corps of Engineers
District Commander

11 June 08
Date

MBRT CONCURRENCE

William A. Spratlin

4/17/08

William A. Spratlin
Director
Water, Wetlands, and Pesticides Division
US Environmental Protection Agency, Region VII

Date

MBRT CONCURRENCE

Charles M. Scott

Charles Scott
Field Supervisor, Ecological Services
US Fish & Wildlife Service, Midwest Region

4/1/08
Date

MBRT CONCURRENCE

4/8/08

Allen Masuda
Division Administrator, Missouri Division
Federal Highway Administration

Date

MBRT CONCURRENCE

Daniel Schuette

4/4/08

Daniel Schuette
Director, Division of Environmental Quality
Missouri Department of Natural Resources

Date

MBRT CONCURRENCE

3/25/08

Jane Epperson
Policy Supervisor, Policy Coordination Division
Missouri Department of Conservation

Date

FOR MISSOURI DEPARTMENT OF TRANSPORTATION

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

By _____ 4-9-08

Title Chief Engineer

ATTEST:

_____

Asst. Secretary to the Commission

Approved as to Form:

_____

Commission Counsel

TABLES

Table 1. Existing vegetation identified at the proposed Blue Springs Lake Wetland Mitigation Bank site during the May 23–24, 2006 field reconnaissance.

Common Name	Scientific Name	Wetland Indicator
boxelder	*Acer negundo*	FACW-
silver maple	*Acer saccharinum*	FACW
Ohio buckeye	*Aesculus glabra*	FAC+
white snakeroot	*Ageratina altissima*	N/I
American hogpeanut	*Amphicarpaea bracteata*	FAC
Missouri maidenbush	*Andrachne phyllanthoides*	N/I
Indianhemp	*Apocynum cannabinum*	FAC+
swamp milkweed	*Asclepias incarnata*	OBL
pawpaw	*Asimina triloba*	FAC
garden yellowrocket	*Barbarea vulgaris*	FAC
beggarticks	*Bidens* sp.	FACW-OBL
lurid sedge	*Carex lurida*	OBL
troublesome sedge	*Carex molesta*	FAC+
sedge	*Carex sp.*	FAC-OBL
hackberry	*Celtis occidentalis*	FAC-
buttonbush	*Cephalanthus occidentalis*	OBL
rough-leaf dogwood	*Cornus drumondii*	FAC
gray dogwood	*Cornus racemosa*	N/I
Canadian honewort	*Cryptotaenia canadensis*	FAC
spikerush	*Eleocharis* sp.	OBL
Virginia wild rye	*Elymus virginicus*	FACW-
sweetscented joepyeweed	*Eupatorium purpureum*	N/I
fescue	*Festuca* sp.	N/I
Virginia strawberry	*Fragaria virginiana*	FAC-
green ash	*Fraxinus pennsylvanica*	FACW
sticktight	*Galium aparine*	FACU
white avens	*Geum canadense*	FAC
black walnut	*Juglans nigra*	FACU
rush	*Juncus* sp.	N/I
eastern red cedar	*Juniperus virginiana*	FACU
rice cutgrass	*Leersia oryzoides*	OBL
black medick	*Medicago lupulina*	FAC-
monkeyflower	*Mimulus* sp.	OBL
red mulberry	*Morus rubra*	FAC-
Virginia creeper	*Parthenocissus quinquefolia*	FAC-
talus slope penstemon	*Penstemon digitalis*	FAC-
fogfruit	*Phyla lanceolata*	OBL
plantain	*Plantago major*	FAC+
sycamore	*Platanus occidentalis*	FACW
bluegrass	*Poa* sp.	N/I

Table 1 cont. Existing vegetation identified at the proposed Blue Springs Lake Wetland Mitigation Bank site during the May 23–24, 2006 field reconnaissance.

Common Name	Scientific Name	Wetland Indicator
swamp smartweed	*Polygonum hydropiperoides*	OBL
willow weed	*Polygonum lapathifolium*	FACW+
ladysthumb	*Polygonum persicaria*	FACW
tearthumb	*Polygonum sagittatum*	OBL
cottonwood	*Populus deltoides*	FAC+
swamp white oak	*Quercus bicolor*	FACW+
shingle oak	*Quercus imbricaria*	FAC-
bur oak	*Quercus macrocarpa*	FAC-
multiflora rose	*Rosa multiflora*	FACU
blackberry	*Rubus allegheniensis*	FACU+
cutleaf coneflower	*Rudbeckia laciniata*	FACW+
curly dock	*Rumex crispus*	FAC+
black willow	*Salix nigra*	OBL
woolgrass	*Scirpus cyperinus*	OBL
crownvetch	*Securigera varia*	N/I
goldenrods	*Solidago spp.*	N/I
coralberry	*Symphoricarpos orbiculatus*	FACU
poison ivy	*Toxicodendron radicans*	FAC+
American elm	*Ulmus americana*	FAC
slippery elm	*Ulmus rubra*	FAC
stinging nettle	*Urtica dioca*	FAC+
beaked cornsalad	*Valerianella radiata*	FAC+
wingstem	*Verbesina alternifolia*	FACW
grape vine	*Vitis* sp.	N/I
rough cocklebur	*Xanthium strumarium*	FAC

Table 2. Wetland acreage by Cowardin classification created and restored at the proposed Blue Springs Lake Wetland Mitigation Bank site, Jackson County, Missouri.

Cowardin Classification	Establishment Method	Area (acre)
Palustrine Forested:	Creation	0.24
	Restoration	0.34
Palustrine Scrub/Shrub:	Creation	1.62
	Restoration	7.84
Palustrine Emergent:	Creation	2.46
	Restoration	11.75
Total Palustrine Forested:		0.58
Total Palustrine Scrub/Shrub:		9.46
Total Palustrine Emergent:		14.21
Total Creation:		4.32
Total Restoration:		19.93
Total Wetland Acreage:		**24.25**

Table 3. State of Missouri noxious weed list and percentage allowable for the proposed Blue Springs Lake Wetland Mitigation Bank site, Jackson County, Missouri.

Common Name	Scientific Name	Allowable Percentage
marijuana	*Cannabis sativa*	0
musk thistle	*Carduus nutans*	2
Canada thistle	*Cirsium arvense*	2
field bindweed	*Convolvulus arvensis*	2
common teasel	*Dipsacus fullonum*	2
cut-leaved teasel	*Dipsacus laciniatus*	2
purple loosestrife	*Lythrum salicaria*	2
Scotch thistle	*Onopordum acanthium*	2
kudzu	*Pueraria montana* var. *lobata*	0
multiflora rose	*Rosa multiflora*	5
Johnsongrass	*Sorghum halepense*	2

Table 4. An example account ledger for the proposed Blue Springs Lake Wetland Mitigation Bank site.

MoDOT Mitigation Banking Ledger
Blue Springs Lake Wetland Mitigation Bank

Service Area: EDU #4 (HUC 10300101, 10300103, 10300104, and 10270104)
Chair USACE District: Kansas City
Anticipated Wetland Acreage: 24.25

Mitigated Impact Information							Wetland Mitigation		
Date	**USACE Permit No.**	**MoDOT Project No.**	**Route, County**	**Aquatic Resource Type**	**Impact Size (acre)**	**Mitigation Size (acre)**	**Credits Deposited**	**Credits Debited**	**Credits Remaining**
1-Jun-07							2.42		**2.42**
1-Aug-07	200400768	J4I1507	I-29/35, Clay and Jackson	PEM	0.29	0.29		0.29	**2.13**
1-Aug-07	200400768	J4I1507	I-29/35, Clay and Jackson	PFO	0.04	0.08		0.08	**2.05**

Example

FIGURES

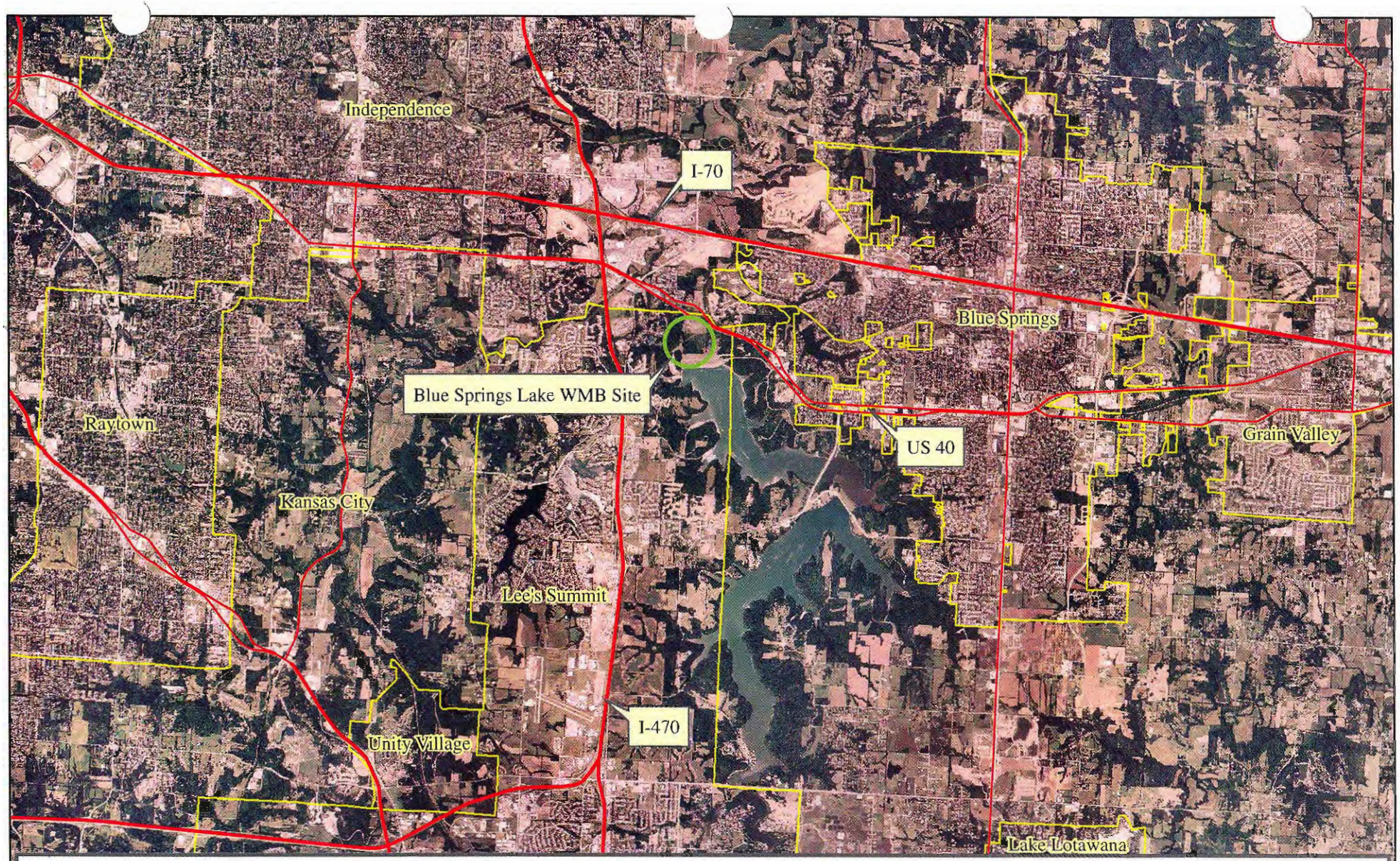

Figure 1. Location of the Blue Springs Lake Wetland Mitigation Bank site, Jackson County, Missouri.

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0 1 2 4 6 8 Miles

City boundary data from Center for Agricultural, Resource and Environmental Systems online mapping database (http://www.cares.missouri.edu/).

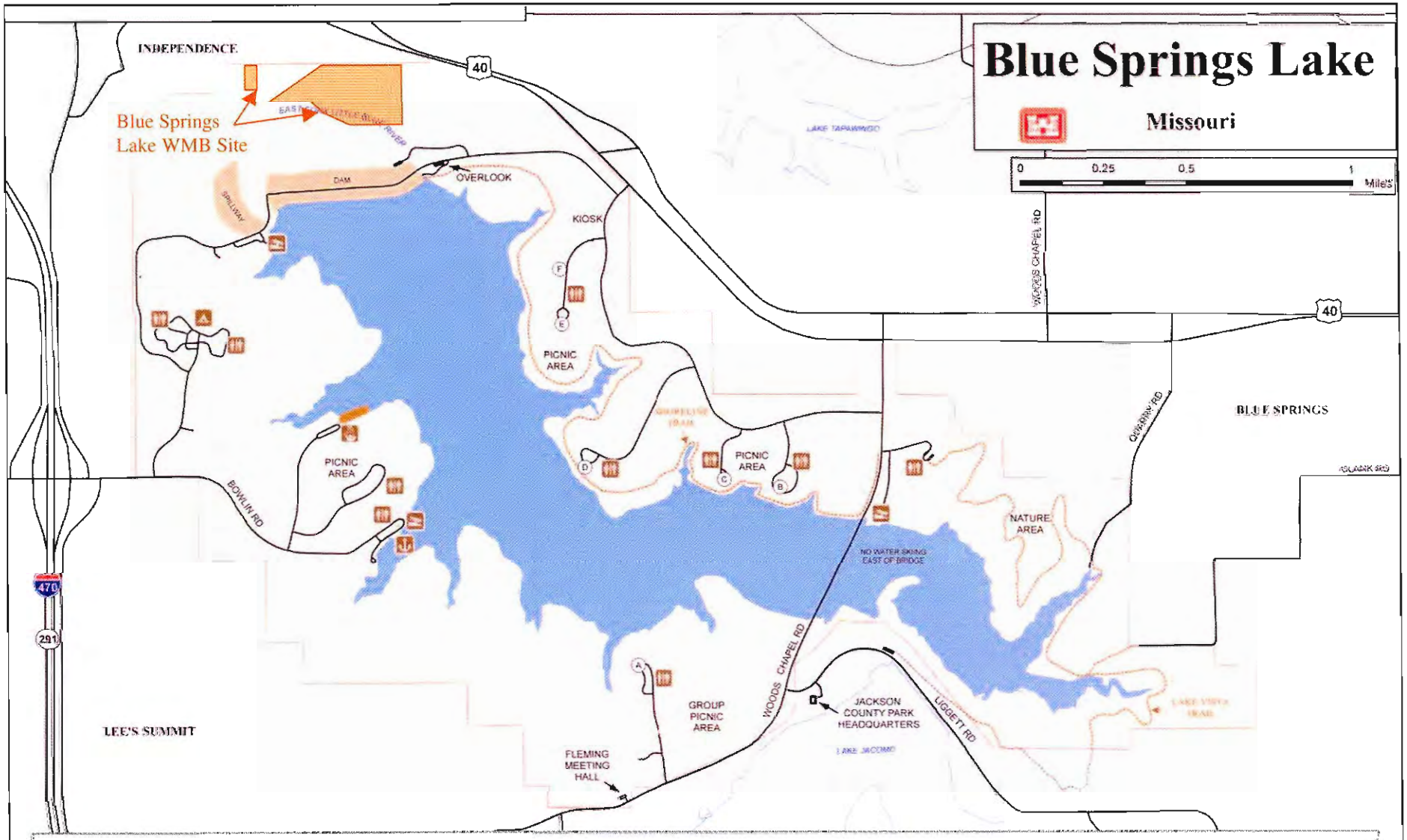

Figure 2. Location of the Blue Springs Lake Wetland Mitigation Bank site depicted on the USACE Longview and Blue Springs Lakes Brochure, Jackson County, Missouri

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Longview and Blue Springs Lakes brochure from the USACE, Kansas City District
(http://www.nwk.usace.army.mil/longview/brochure/longviewlakemap.pdf)

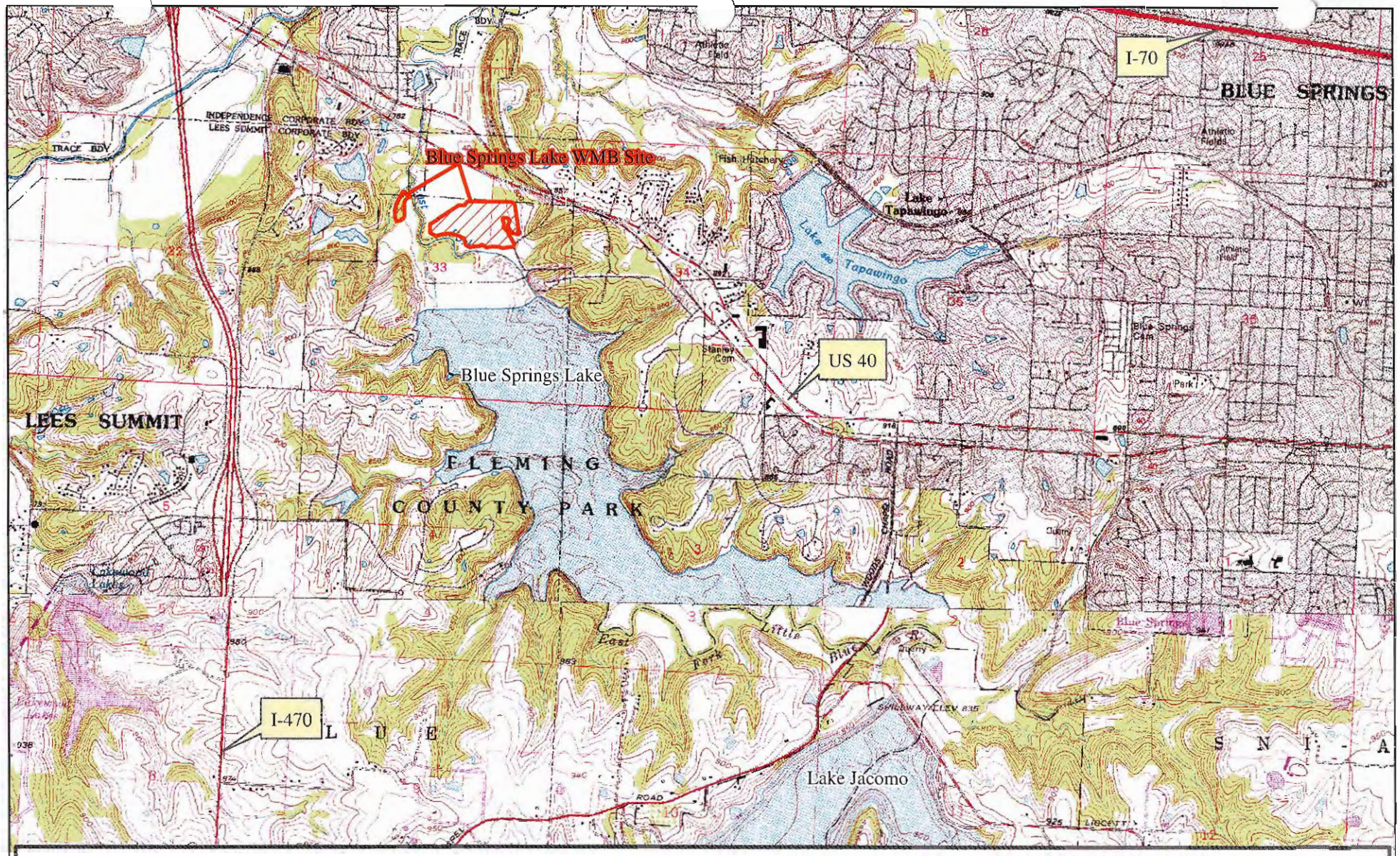


Figure 3. The Blue Springs Lake Wetland Mitigation Bank site depicted on a USGS topographic map, Jackson County, Missouri.

N
W E
S

0 0.15 0.3 0.6 0.9 1.2
Miles

USGS 7.5-minute - Lee's Summit - T49N, R31W, Sec 33

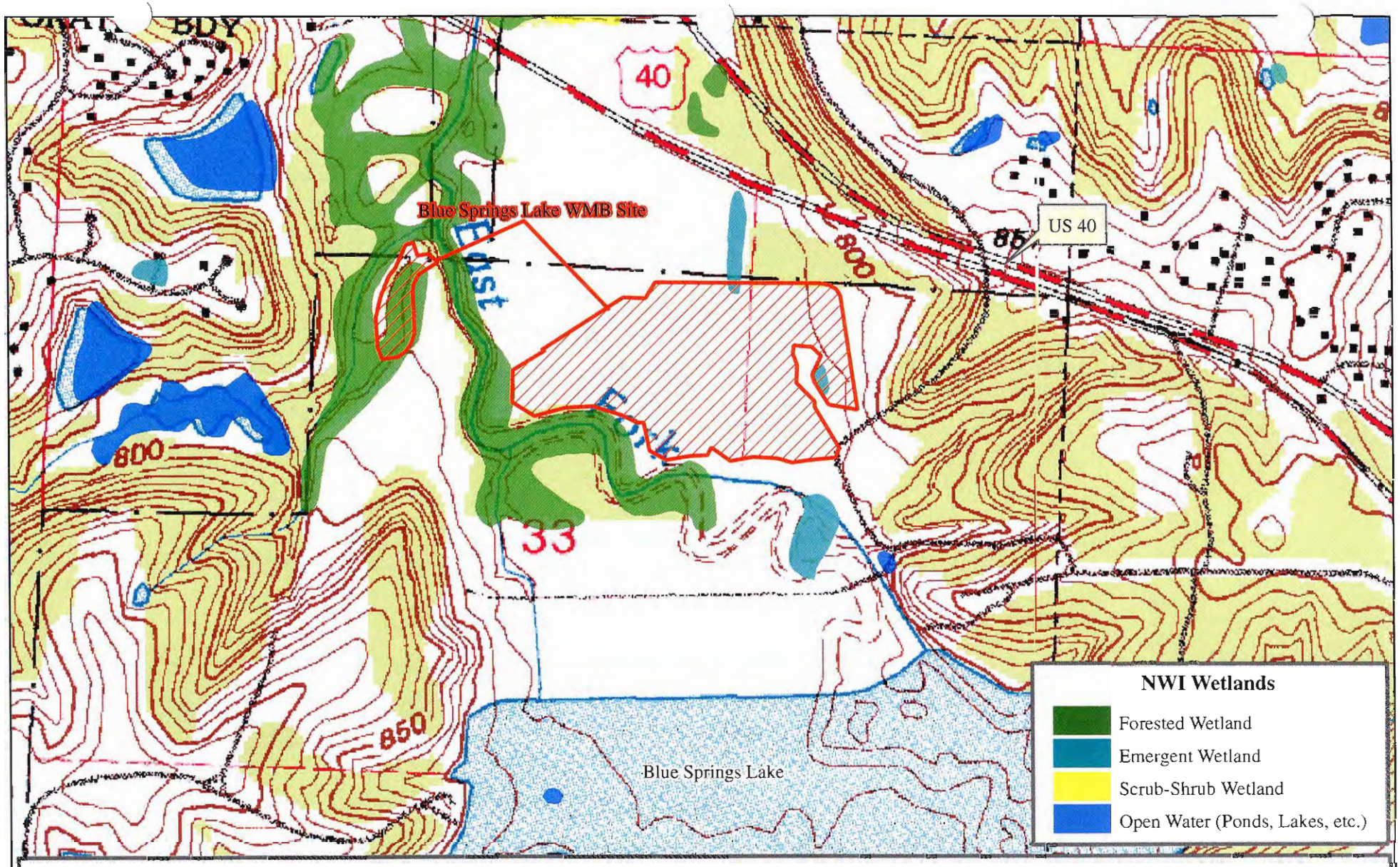
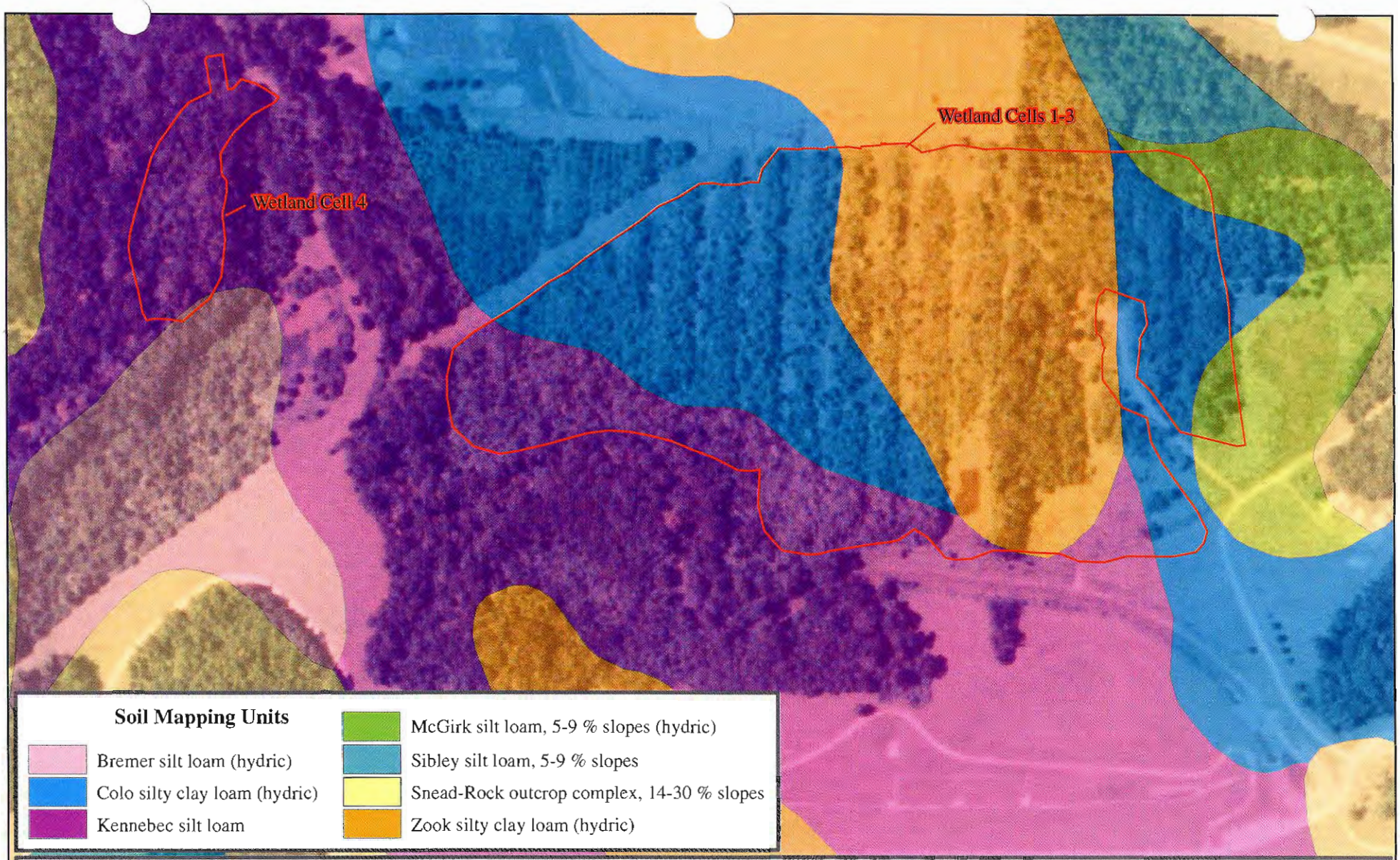


Figure 4. National Wetlands Inventory wetlands mapped within the vicinity of the Blue Springs Lake Wetland Mitigation Bank site, Jackson County, Missouri.

N
W E
S

0 400 800 1,600 2,400 3,200
Feet

USGS 7.5-minute - Lee's Summit - T49N, R31W, Sec 33



N
W E
S

Figure 5. Soil mapping units within the vicinity of the Blue Springs Lake Wetland Mitigation Bank site, Jackson County, Missouri.

0 150 300 600 900 1,200
Feet

Soils data from Center for Agricultural, Resource and Environmental Systems online mapping database (http://www.cares.missouri.edu/)

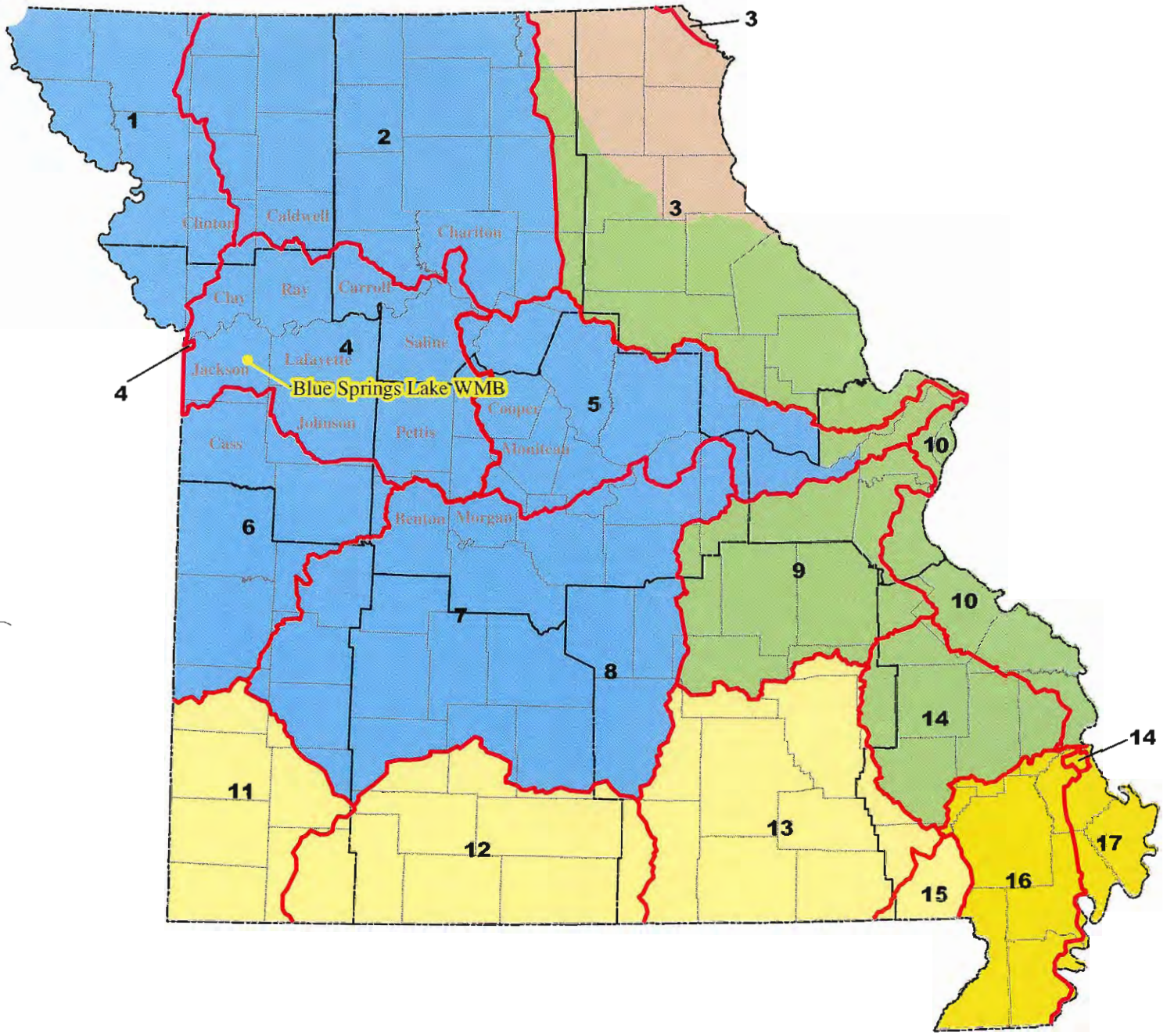


Figure 6. The MoDOT mitigation bank primary Service Areas.

N
W E
S

USACE Rock Island District
USACE Kansas City District
USACE Memphis District
USACE Little Rock District
USACE St. Louis District

County boundaries
Service Area Boundaries (#1-#17)
MoDOT Districts

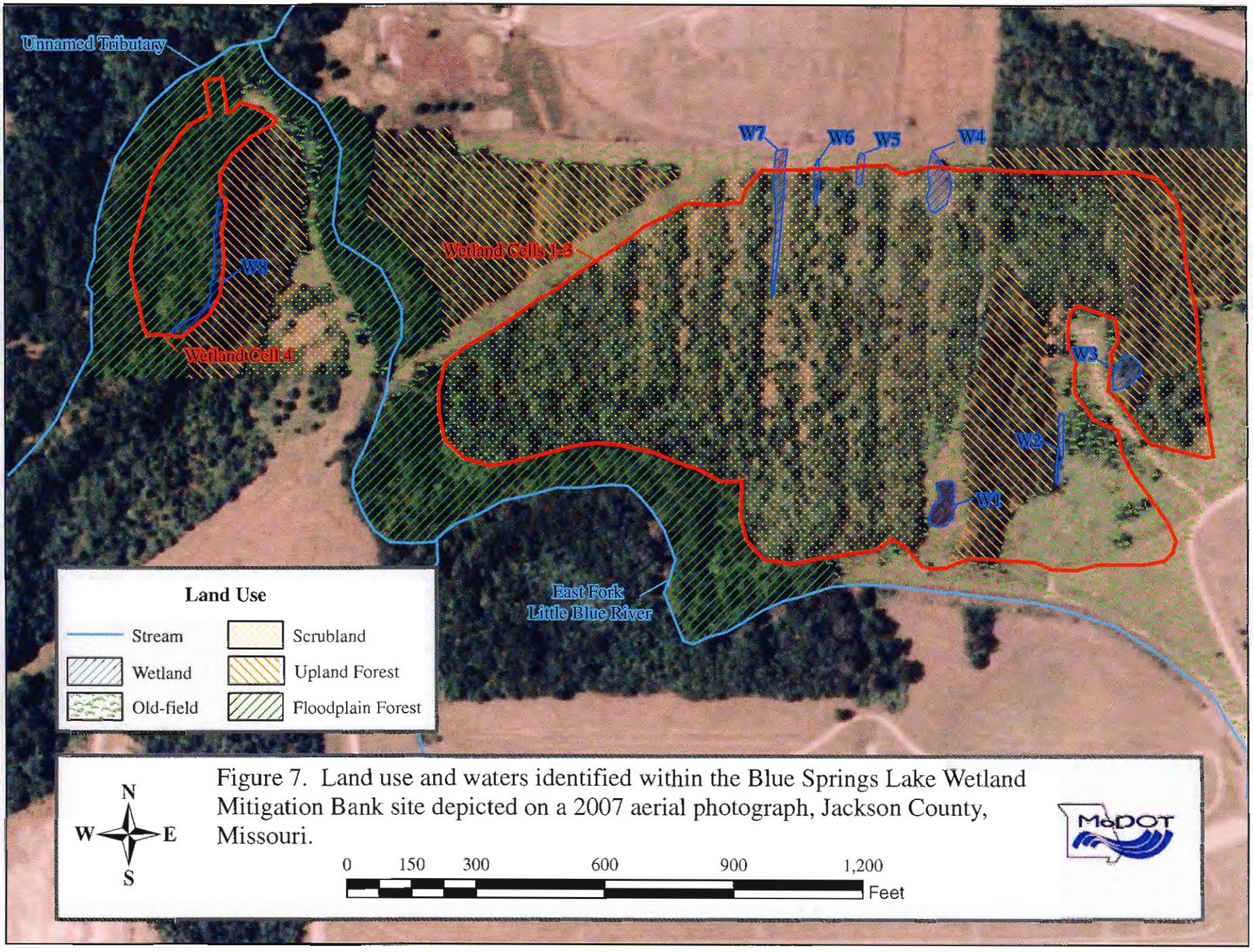


Figure 7. Land use and waters identified within the Blue Springs Lake Wetland Mitigation Bank site depicted on a 2007 aerial photograph, Jackson County, Missouri.

APPENDIX 1

MoDOT Legal Agreements

License No. DACW41-3-08-0073

DEPARTMENT OF THE ARMY LICENSE FOR FISH AND WILDLIFE ACTIVITIES ON BLUE SPRINGS LAKE JACKSON COUNTY, MISSOURI

THE SECRETARY OF THE ARMY, hereinafter referred to as the Secretary, under authority of Section 4, Act of Congress, 22 December 1944, as amended (16 U.S.C. Section 460d), hereby grants to **MISSOURI HIGHWAYS and TRANSPORTATION COMMISSION**, duly organized and existing under and by virtue of the laws of the **State of Missouri**, with its principal office at **105 West Capitol, P.O. Box 270, Jefferson City, Missouri, 65102**, hereinafter referred to as the licensee, a license for **Fish and Wildlife** activities over, across, in and upon lands of the United States, shown as ***EXHIBIT "A"***, attached, hereto and made a part hereof, hereinafter referred to as the premises.

THIS LICENSE is granted subject to the following conditions.

1. TERM

This license is granted for a term of at most **Twenty-five (25) years**, beginning **March 21, 2008** and ending **March 20, 2033,**

2. CONSIDERATION

The consideration for this license is the operation and maintenance of the premises by the licensee for the benefit of the United States and the general public in accordance with the terms and conditions hereinafter set forth.

3. NOTICES

All correspondence and notices to be given pursuant to this license shall be addressed, if to the licensee to **Missouri Department of Transportation, 600 NE Colbern Road, Lee's Summit, Missouri, 64086 and 105 West Capitol, P.O Box 270, Jefferson City, Missouri, 65102;** and if to the United States, to the District Engineer, Attention: Chief, Real Estate Division, Kansas City District, 601 East 12th Street, Kansas City, Missouri 64106-2896; or as may from time to time otherwise be directed by the parties. Notice shall be deemed to have been duly given if and when enclosed in a properly sealed envelope, or wrapper, addressed as aforesaid, and deposited, postage prepaid, in a post office regularly maintained by the United States Postal Service.

4. AUTHORIZED REPRESENTATIVES

Except as otherwise specifically provided, any reference herein to "Secretary", "District Engineer", or "said officer" shall include their duly authorized representatives. Any reference to "licensee" shall include any duly authorized representatives. Any reference to "Project Manager" shall be interpreted to be the Corps of Engineers Operations Manager, **Blue Springs Lake, Missouri,** and include his/her duly authorized representatives.

5. SUPERVISION BY THE DISTRICT ENGINEER

The use and occupancy of the premises shall be subject to the general supervision and approval of the District Engineer, Kansas City District, hereinafter referred to as said officer, and subject to such rules and regulations as may be prescribed from time to time by said officer.

6. STRUCTURES AND EQUIPMENT

The licensee shall have the right, during the term of the license, to erect such structures and to provide such equipment upon the premises to accomplish the purposes of the license and as provided for in the Blue Springs Lake Wetland Development Plan shown as ***EXHIBIT "B".*** Those structures and equipment shall be and remain the property of the licensee, except as otherwise provided in the conditions listed in **RESTORATION.**

7. ANNUAL MANAGEMENT PLANS

The grantee shall administer the premises in accordance with an Annual Management Plan which shows the management and development activities to be undertaken by the grantee. No later than ***January 15th*** of each year, the grantee will submit the Annual Management Plan to be mutually agreed upon between the grantee and the said officer. Such Annual Management Plan shall include, but is not limited to the following:

a. Plans for management, maintenance, and development activities to be undertaken by the grantee or jointly by the Corps of Engineers and the grantee which shall include additional plans or changes of any proposed structures and improvements.

b. The areas to be utilized for agricultural purposes if required.

c. The areas designated for propagation.

8. APPLICABLE LAWS AND REGULATIONS

The licensee shall comply with all applicable Federal, state, county and municipal laws, ordinances and regulations wherein the premises are located.

9. CONDITIONAL USE BY LICENSEE

The exercise of the privileges herein granted shall be:

a. without cost or expense to the United States;

b. subject to the right of the United States to improve, use or maintain the premises.

c. subject to other outgrants of the United States on the premises.

d. personal to the licensee, and this license, or any interest therin, may not be transferred or assigned.

10. CONDITION OF PREMISES

The licensee acknowledges that it has inspected the premises, knows its condition, and understands that the same is granted without any representations or warranties whatsoever and without any obligation on the part of the United States.

11. PROTECTION OF PROPERTY

The licensee shall keep the premises in good order and in a clean, safe condition by and at the expense of the licensee. The licensee shall be responsible for any damage that may be caused to the property of the United States by the activities of the licensee under this license, and shall exercise due diligence in the protection of all property located on the premises against fire or damage from any and all other causes. Any property of the United States damaged or destroyed by the licensee incident to the exercise of the privileges herein granted shall be promptly repaired or replaced by the licensee to a condition satisfactory to said officer, or at the election of said officer, reimbursement made therefore by the licensee in an amount necessary to restore or replace the property to a condition satisfactory to said officer.

12. RESTORATION

On or before the expiration of this license or its termination by the licensee, the licensee shall vacate the premises, remove the property of the licensee, and restore the premises to a condition satisfactory to said officer. If, however, this license is revoked, the licensee shall vacate the premises, remove said property and restore the premises to the aforesaid condition within such time as the said officer may designate. In either event, if the licensee shall fail or neglect to remove said property and restore the premises, then, at the option of said officer, the property shall either become the property of the United States without compensation therefore, or said officer may cause the property to be removed and no claim for damages against the United States or its officers or agents shall be created by or made on account of such removal and restoration work. The licensee shall also pay the United States on demand any sum which may be expended by the United States after the expiration, revocation, or termination of this license in restoring the premises.

13. NON-DISCRIMINATION

a. The licensee shall not discriminate against any person or exclude them from participation in the licensee's operations, programs or activities conducted on the licensed premises, because of race, color, religion, sex, age, handicap or national origin. The licensee will comply with the Americans with Disabilities Act and attendant Americans with Disabilities Act Accessibility Guidelines (ADAAG) published by the Architectural and Transportation Barriers Compliance Board.

b. The licensee, by acceptance of this license, is receiving a type of Federal assistance and, therefore, hereby gives assurance that it will comply with the provisions of Title VI of the Civil Rights Act of 1964 as amended (42 U.S.C. Section 2000d); the Age Discrimination Act of 1975 (42 U.S.C. Section 6102); the Rehabilitation Act of 1973, as amended (29 U.S.C. Section 794);

and all requirements imposed by or pursuant to the Directive of the Department of Defense 5500.11 issued May 27, 1971 (32 CFR Part 195) and 1020.1, and Army Regulation 600-7.

14. TERMINATION

The licensee may terminate this license at any time by giving the said officer at least thirty (30) days prior written notice to the United States in the manner prescribed in the condition **NOTICES.**

15. NATURAL RESOURCES

The licensee shall cut no timber, conduct no mining operations, remove no sand, gravel, or kindred substances from the ground, commit no waste of any kind, nor in any manner substantially change the contour or condition of the premises, except as may be authorized under and pursuant to the approved Blue Springs Lake Wetland Development Plan. The licensee may salvage fallen or dead timber; however, no commercial use shall be made of such timber. Except for timber salvaged by the licensee when in the way of construction of improvements or other facilities, all sales of forest products will be conducted by the United States and the proceeds there from shall not be available to the licensee under the provisions of this license.

16. ENVIRONMENTAL PROTECTION

a. Within the limits of their respective legal powers, the parties to this license shall protect the premises against pollution of its air, ground and water. The licensee shall comply with any laws, regulations, conditions or instructions affecting the activity hereby authorized if and when issued by the Environmental Protection Agency, or any Federal, state, interstate or local governmental agency having jurisdiction to abate or prevent pollution. The disposal of any toxic or hazardous materials within the premises is specifically prohibited. Such regulations, conditions, or instructions in effect or prescribed by said Environmental Protection Agency, or any Federal, state, interstate or local governmental agency are hereby made a condition of this license. The licensee shall not discharge waste or effluent from the premises in such a manner that the discharge will contaminate streams or other bodies of water or otherwise become a public nuisance.

b. The licensee shall use all reasonable means available to protect the environment and natural resources, and where damage nonetheless occurs from the licensee's activities, the licensee shall be liable to restore the damaged resources.

c. The licensee must obtain approval in writing from said officer before any pesticides or herbicides are applied to the premises.

17. HISTORIC PRESERVATION

The licensee shall not remove or disturb, or cause or permit to be removed or disturbed, any historical, archeological, architectural or other cultural artifacts, relics, remains or objects of antiquity. In the event such items are discovered on the premises, the licensee shall immediately

notify said officer and protect the site and the material from further disturbance until said officer gives clearance to proceed.

18. DISCLAIMER

This license is effective only insofar as the rights of the United States in the premises are concerned; and the licensee shall obtain any permit or license which may be required by Federal, state, or local statute in connection with the use of the premises. It is understood that the granting of this license does not preclude the necessity of obtaining a Department of the Army permit for activities which involve the discharge of dredge or fill material or the placement of fixed structures in the waters of the United States, pursuant to the provisions of Section 10 of the Rivers and Harbors Act of 3 March 1899 (33 USC Section 403), and Section 404 of the Clean Waters Act (33 USC Section 1344).

19. COMPLIANCE, CLOSURE, AND REVOCATION

The licensee is charged at all times with full knowledge of all the limitations and requirements of this license, and the necessity for correction of deficiencies, and with compliance with reasonable requests by the District Engineer. This license may be revoked in the event that the licensee violates any of its terms and conditions and continues and persists in such non-compliance. The licensee will be notified of any non-compliance, which notice shall be in writing or shall be confirmed in writing, giving a period of time in which to correct the non-compliance. Failure to satisfactorily correct any substantial or persistent non-compliance within the specified time is grounds for closure of all or part of the premises, temporary suspension of operation, or revocation of the license, after notice in writing of such intent. Future requests by the licensee to extend the license, expand the premises, or modify authorized activities shall take into consideration the licensee's past performance and compliance with the license terms

20. SPECIAL CONDITIONS

a. The licensee shall mow the wetland cells as needed on an annual basis, to control the establishment of woody species.

b. The licensee shall conduct the necessary weed control for both woody and invasive species (e.g., *Cannabis sativa*, Carduus *nutans*, *Cirsium arvense*, *Convolvulus arvensis*, *Dipsacus fullonum*, *Dipsacus laciniatus*, *Lythrum salicaria*, *Onopordum acanthium*, *Pueraria montana* var. *lobata*, *Rosa multiflora*, *Sorghum halepense*) within the Bank wetland cells. The licensee shall obtain approval in writing from the Blue Springs Lake Operations Manager before any herbicides are applied to the premises.

c. The licensee shall adhere to the terms and conditions of all utility easements located within or adjacent to the wetland cells.

d. The licensee shall inspect, and conduct routine maintenance of berms and associated water management structures.

e. The licensee shall coordinate any necessary efforts to control nuisance wildlife (i.e., muskrat) that may interfere with the function of the wetland cells.

f. The licensee shall repair or provide a replacement of the wetland site entrance sign when damaged.

g. The licensee, in coordination with the Blue Springs Operations Manager, shall manipulate the gate valves and stop log structures to control water levels within the bank wetland cells.

h. The licensee shall coordinate the maintenance of the adjacent gravel road, parking lot and viewing platform with the Blue Springs Operations Manager and or appropriate Kansas City District Operations staff member.

i. The licensee, in coordination with the Blue Springs Lake Operations Manager and the Kansas City District Engineer shall develop a long-term Water Management Plan following construction of the wetland cells.

j. Each party shall be responsible for payment of its respective activities performed in the cooperatively managed areas, including but not limited to its own labor, equipment, materials, supplies, and any associated other costs not identified above.

k. The licensee may cut or remove timber where the levee will be constructed and into the barrow areas identified in the plans and specifications."

l. The licensee shall obtain any and all applicable federal and state laws and permits including, but not limited to, authorization under Sections 401 and 404 of the Clean Water Act (33 U.S.C. Sections 1341 and 1344).

m. The licensee may only access the construction site by the gravel road off of Hwy Route 40 shown in blue on ***EXHIBIT "B" page 1.***

22. PRELIMINARY ASSESSMENT SCREENING

A Preliminary Assessment Screening (PAS) documenting the known history of the property with regard to the storage, release or disposal of hazardous substances thereon, is attached hereto and made a part hereof as ***EXHIBIT "C"***.

THIS LICENSE is not subject to Title 10, United States Code, Section 2662, as amended, **in WITNESS WHEREOF,** I have hereunto set my hand by authority of the Secretary of the Army, this 7th day of April, **2008.**

W. Karl Mueller

W. KARL MUELLER
Chief, Civil Branch
Real Estate Division

THIS LICENSE is also executed by the licensee this 1 day of April, **2008.**

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

By Kevin Keith

Title Chief Engineer

ATTEST:

Pamela J Harlan

Secretary to the Commission

APPROVED AS TO FORM:

Micah Ray Alexander

Commission Counsel

License No. DACW41-3-08-0073

CERTIFICATE OF AUTHORITY

I Kevin Keith certify that I am the Chief Engineer (title) of **Missouri Highways and Transportation Commission, Missouri Department of Transportation that** Kevin Keith (signator of outgrant) who signed the foregoing instrument on behalf of the licensee was then Chief Engineer (title of signator of outgrant) of **Missouri Highways and Transportation Commission, Missouri Dept. of Transportation**. I further certify that the said officer was acting within the scope of powers delegated to this governing body of the licensee in executing said instrument.

MISSOURI HIGHWAYS & TRANSPORTATION COMMISSION

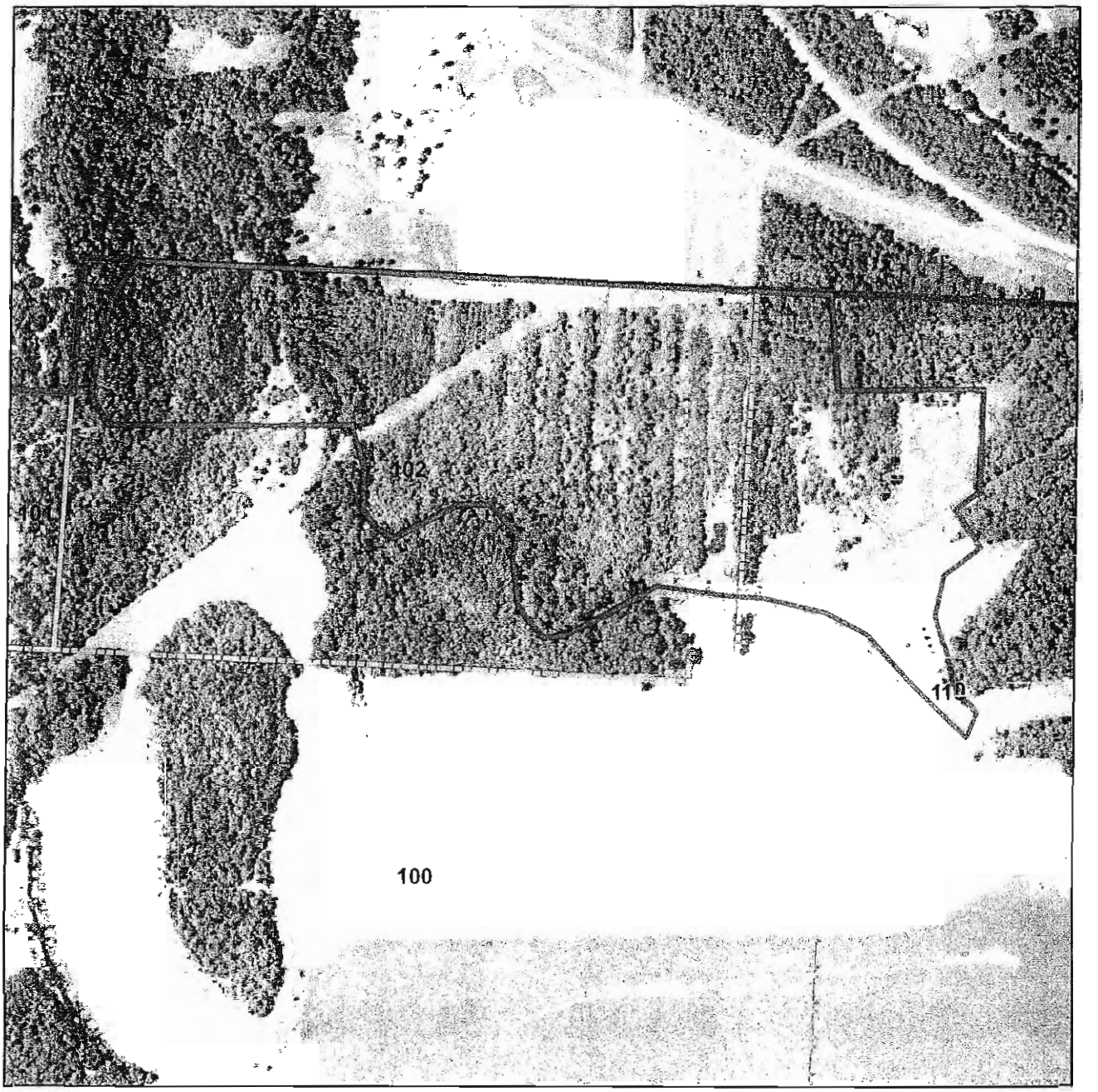
Date: April 1, 2008

Kevin Keith

Clerk or Appropriate Official

(AFFIX SEAL)

BLUE SPRINGS LAKE



0 187.5 375 750 1,125 1,500 Feet

Legend

License

Corp Boundaries

RealEstate Tracts

N
W E
S

BLUE SPRINGS LAKE, MISSOURI
LICENSE NO. DACW41-3-08-0073
MISSOURI HIGHWAYS &
TRANSPORTATION COMMISSION
MISSOURI DEPARTMENT OF
TRANSPORTATION
Fish & Wildlife Activities -
Wetland Mitigation Bank Site
TRACT NOs. 102 & 110
S-33, T-49N, R-31W;
Jackson County, Missouri

DESIGN DESIGNATION

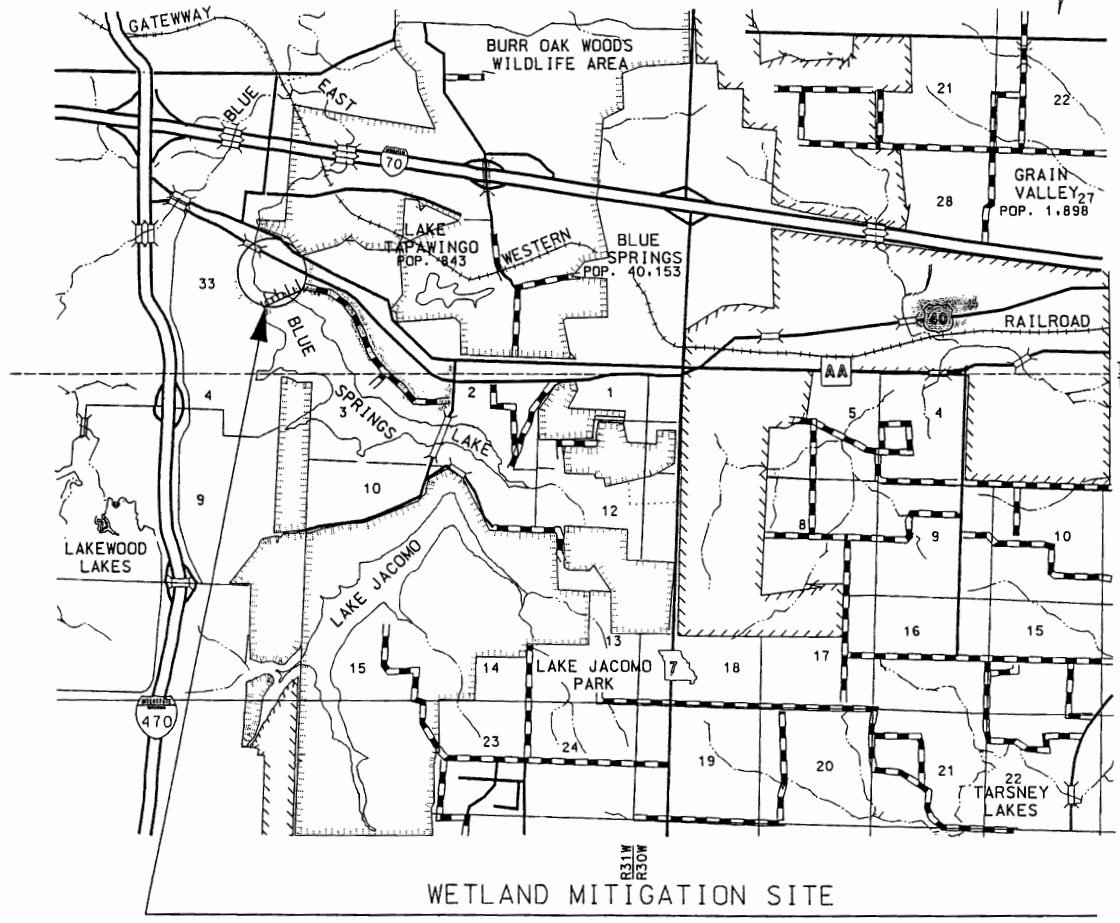
A.D.T. - 20XX = XXXX
A.D.T. - 20XX = XXXX
D.H.V. = XX%
T = XX%
V = XX M.P.H.
DDT = XX%

FUNCTIONAL CLASSIFICATION-

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
PLANS FOR PROPOSED
STATE HIGHWAY
JACKSON COUNTY

ROUTE	STATE	DISTRICT	SHEET NO.
40	MO	4	1

JOB NO. J4P1653
CONTRACT ID.
PROJECT NO.
COUNTY JACKSON
DATE



INDEX OF SHEETS

DESCRIPTION	SHEET NUMBER
TITLE SHEET	1
TYPICAL SECTIONS (TS) (2 SHEETS)	2
QUANTITIES (QU) (4 SHEETS)	3
PLAN-PROFILE (PP)	4
RIGHT OF WAY (RW)	XX-XX
REFERENCE POINTS (RP)	XX-XX
COORDINATE POINTS (CP)	5-6
SPECIAL SHEETS (SS)	7-25
TRAFFIC CONTROL SHEETS (TC)	26
EROSION CONTROL SHEETS (EC)	27-31
LIGHTING (LT)	XX-XX
SIGNALS (SG)	XX-XX
SIGNING (SN)	32
PAVEMENT MARKING (PM)	XX-XX
CULVERT SECTIONS (CS)	33-40
BRIDGE DRAWINGS (B)	
A####	XX-XX
A####	XX-XX
A####	XX-XX
A####	XX-XX
CROSS SECTIONS (XS)	1-81

CONVENTIONAL SYMBOLS
(USED IN PLANS)

	EXISTING	NEW
BUILDINGS AND STRUCTURES		
GUARD RAIL		
CONCRETE RIGHT-OF-WAY MARKER		
STEEL RIGHT-OF-WAY MARKER		
LOCATION SURVEY MARKER		
UTILITIES		
FIBER OPTICS	—FO—	—FO—
OVERHEAD TELEPHONE	—O—	—●—
UNDERGROUND TELEPHONE	—T—	—T—
OVERHEAD POWER	—O—	—●—
UNDERGROUND POWER	—P—	—P—
GAS	—G—	—G—
WATER	—W—	—W—
SEWER	—S—	—S—
MANHOLE	SAN	
FIRE HYDRANT	FH	
WATER VALVE	WV	
WATER METER	W	
DROP INLET		
DITCH BLOCK		
GROUND MOUNTED SIGN	SIGN	
LIGHT POLE		
H-FRAME POWER POLE		
TELEPHONE PEDESTAL	PED	
FENCE		
CHAIN LINK	—V—	
WOVEN WIRE	—X—	
GATE POST		
BENCHMARK	BM	

NOTE: DASHED OR OPEN SYMBOLS INDICATE EXISTING FEATURES

LENGTH OF PROJECT

BEGINNING OF PROJECT STA. XXX + XX.XX
END OF PROJECT STA. XXX + XX.XX

APPARENT LENGTH XXXXX.XX FEET

EQUATIONS AND EXCEPTIONS:

RECEIVED
APR 20 2007
ENVIRONMENTAL SECTION

Blue Springs Lake, Missouri
License No. DACW41-3-08-0073
Missouri Highways & Transportation Commission
Fish & Wildlife Activities
Wetland Mitigation Bank Site
Jackson County, Missouri

EXHIBIT "B"

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ROUTE	STATE	DISTRICT	SHEET NO.
40	MO	4	2

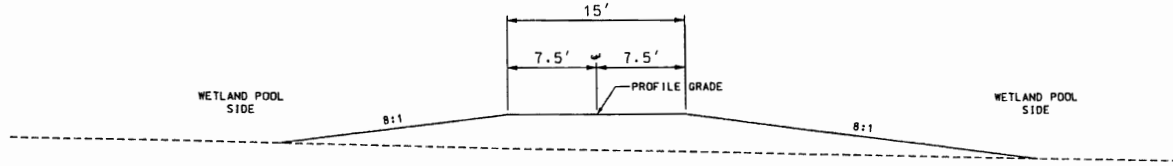
JOB NO. J4P1653

CONTRACT ID.

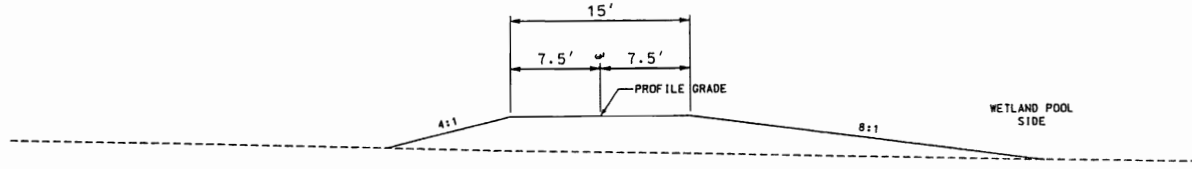
PROJECT NO.

COUNTY JACKSON

DATE



TYPICAL SECTION
BETWEEN CELLS



TYPICAL SECTION
AROUND OUTSIDE PERIMETER

EXHIBIT "B"

Page 2 of 44

TYPICAL SECTION SHEET
WETLAND BERMS
SHEET 1 OF 2

REV.

T:\de-proj\Jackson\j4p1653\plan_sheets\1_5\002_TS_01_J4P1653_15.dgn 01:44:56 PM 04/18/2007

ROUTE	STATE	DISTRICT	SHEET NO.
40	MO	4	2

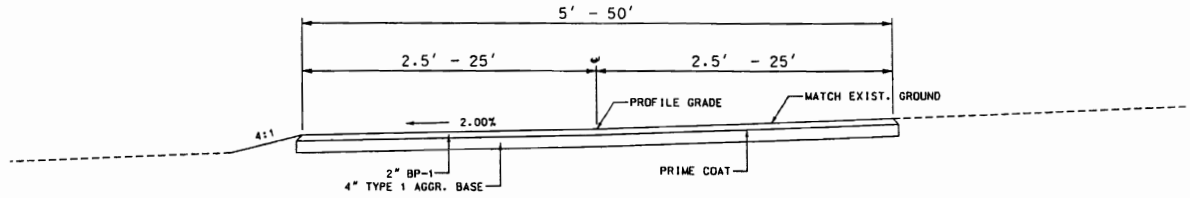
JOB NO. J4P1653

CONTRACT ID.

PROJECT NO.

COUNTY JACKSON

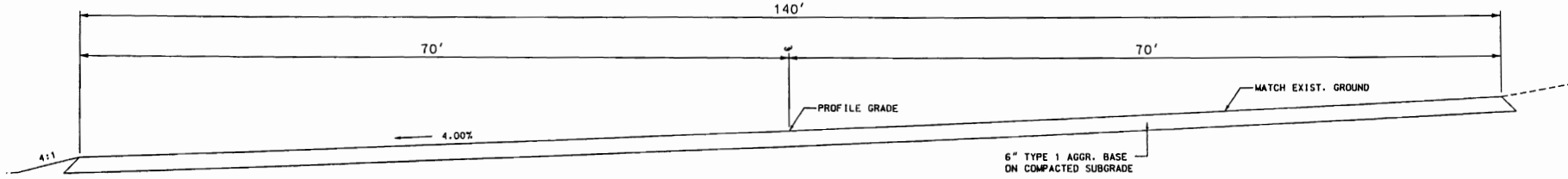
DATE



TYPICAL SECTION
VIEWING AREA

ESTIMATED APPLICATION RATES

ASPHALTIC CONCRETE (BP-1) = 1.966 TONS/CUBIC YARD
PRIME LIQUID ASPHALT = 0.350 GAL./SQUARE YARD



TYPICAL SECTION
PARKING LOT

EXHIBIT "B"

Page 3 of 44

TYPICAL SECTION SHEET
VIEWING AREA AND PARKING LOT
SHEET 2 OF 2

REV.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

SUMMARY OF QU. ITIES

REV. SEPT. 8. 97

ROUTE	STATE	DISTRICT	SHEET NO.
40	MO	4	3

JOB NO. J4P16

CONTRACT ID.

PROJECT NO.

COUNTY JACKSON

DATE

EARTHWORK

PLAN SHEET NO.	STATION	STATION	LOC.	CLASS A EXC. CU.YD.	FILL CU.YD.	EXCESS EXC. CU.YD.	REMARKS
8	0+00.00	12+60.62	CELL 1 NORTH	11958	351		USE 9728 CU.YD. IN BALANCE STA. 0+00 TO STA. 22+60.59 (CELL 2) USE 1809 CU.YD. IN BALANCE STA. 7+22.57 TO STA. 16+60.60 (CELL 3)
8	0+07.24	4+86.35	CELL 1 SOUTH	823	688		
8	4+86.35	11+50.00	CELL 1 SOUTH	2637	362		USE 2203 CU.YD. IN BALANCE STA. 7+22.57 TO STA. 16+60.60 (CELL 3)
10	0+00.00	22+60.59	CELL 2	0	8109		OBTAIN 9728 CU.YD. FROM STA. 0+00 TO STA. 12+60.62 (CELL 1 NORTH)
12	0+05.67	7+22.57	CELL 3	2427	2021		
12	7+22.57	16+60.60	CELL 3	206	4643		OBTAIN 1809 CU.YD. FROM STA. 0+00 TO STA. 12+60.62 (CELL 1 NORTH) OBTAIN 2203 CU.YD. FROM STA. 4+86.35 TO STA. 11+50 (CELL 1 SOUTH) OBTAIN 1352 CU.YD. FROM STA. 1+62.91 TO STA. 8+96.69 (CELL 4)
14	1+62.91	8+96.69	CELL 4	2271	660		USE 43 CU.YD. IN BALANCE STA. 3+40.66 TO STA. 4+96.25 (CUTOFF BERM) USE 84 CU.YD. IN BALANCE STA. 5+07.50 TO STA. 5+87.52 (OUTLET WEIR) USE 1352 CU.YD. IN BALANCE STA. 7+22.57 TO STA. 16+60.60 (CELL 3)
14	3+40.66	4+96.25	CUTOFF BERM	37	67		OBTAIN 43 CU.YD.FROM STA. 1+62.91 TO STA. 8+96.69 (CELL 4)
14	5+07.50	5+87.52	OUTLET WEIR	1	70		OBTAIN 84 CU.YD. FROM STA. 1+62.91 TO STA. 8+96.69 (CELL 4)
22	1+00.00	1+98.93	PARKING LOT	169	13	97	USE 56 CU.YD. IN BALANCE STA. 2+13.28 TO STA. 3+10.19 (VIEWING AREA)
22	2+13.28	3+10.19	VIEWING AREA	57	94		OBTAIN 56 CU.YD. FROM STA. 1+00 TO STA. 1+98.93 (PARKING LOT)
			TOTALS	20586	17078	97	
			ROUNDING	709			
			PAY TOTAL	21295			

CLEARING AND GRUBBING

LOCATION	CLEARING AND GRUBBING ACRE	REMARKS
CELL 1	9.3	INCLUDES QUANTITES FOR WATER SUPPLY LINE
CELL 2	7.6	INCLUDES QUANTITES FOR WATER SUPPLY LINE
CELL 3	7.1	
CELL 4	1.8	
TOTAL	25.8	
PAY TOTAL	26	

MOBILIZATION
LUMP SUM 1

PAVEMENT QUANTITIES

PLAN SHEET NO.	STATION	STATION	LOC.	WIDTH FT.	TYPE 1 AGGREGATE FOR BASE 4 IN. THICK SQ.YD.	TYPE 1 AGGREGATE FOR BASE 6 IN. THICK SQ.YD.	PRIME LIQUID ASPHALT RC-70 OR MC-30 GAL.	BITUMINOUS PVM'T PG 64-22 BP-1 MIX 2 IN. THICK TONS	BITUMINOUS PVM'T PG 64-22 BP-1 MIX 4 IN. THICK TONS	REMARKS
22	1+00.00	1+98.93	PARKING LOT	140		1535.0				
22	2+13.28	2+18.99	VIEWING AREA	50	30.6		10.7	3.34		
22	2+18.99	2+50.00	VIEWING AREA	5	18.4		6.4	1.95		
22	2+50.00	3+00.00	VIEWING AREA	50	279.6		97.9	30.50		
18	0+00.00	0+50.42	MAIN SUPPLY LINE	20	177.9				38.21	MATERIAL TO REPLACE PVM'T DUE TO WATER LINE CONST.
15	1+55.76	3+53.44	MAIN SUPPLY LINE RT.	14		302.7				MATERIAL TO REPLACE GRAVEL DUE TO WATER LINE CONST.
				TOTALS	506.5	1837.7	115.0	35.79	38.21	
				PAY TOTALS	507	1838	120	35.8	38.2	

GUARDRAIL

PLAN SHEET NO.	STATION	STATION	LOC.	GUARDRAIL REMOVAL AND REINSTALLATION L.F.	REMARKS
18	0+00.00	0+68.10	MAIN SUPPLY LINE	87.5	REMOVAL AND REINSTALLATION DUE TO WATER LINE CONST.
			TOTAL	87.5	
			PAY TOTAL	88	

LINEAR GRADING QUANTITIES

PLAN SHEET NO.	STATION	LOC.	LINEAR GRADING CLASS 2 STA.	EARTHWORK FILL CU.YD.	REMARKS
7	3+33.63	CELL 1 NORTH LT.	0.30	12.2	8' WIDE BERM OVER EXIST. SEWER LINE
		TOTAL	0.30	12.2	
		PAY TOTAL	0.3		

EXHIBIT "B"

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SUMMARY SHEET
SHEET 1 OF 4

REV.

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MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

SUMMARY OF QUANTITIES

ROUTE	STATE	DISTRICT	SHEET NO.
40	MO		3

JOB NO. J4P165

CONTRACT ID.

PROJECT NO.

COUNTY JACKSON

DATE

SUPPLY LINE QUANTITIES

PLAN SHEET NO.	STATION	STATION	LOC.	6"* VALVE BOX EA	8" GATE VALVE EA	LEAK* TEST STATION EA	TYPE 3 MANHOLE FRAME AND COVER EA	3 FT. X 2 FT.-6 IN. MODIFIED TYPE T DROP INLET FT.	8" CARRIER 12" CONTAINMENT PIPE LF	8" C900 PVC LF	CLASS 3 EXC. CU.YD.	ROCK LINING CU.YD.	REMARKS
35	0+05.94		MAIN SUPPLY LINE				1	12.5			42.0		LOCKABLE FRAME AND COVER
35	0+05.94	2+00.00	MAIN SUPPLY LINE						194.1		1279.0		
35	2+00.00		MAIN SUPPLY LINE			1					26.0		
35	2+00.00	2+70.00	MAIN SUPPLY LINE						70.0		517.0		
35	2+70.00	4+60.00	MAIN SUPPLY LINE						190.0		1136.0		
35	4+60.00	5+40.00	MAIN SUPPLY LINE							80.0	452.0		
36	5+40.00	8+10.00	MAIN SUPPLY LINE							270.0	1467.0		
36	8+10.00	10+80.00	MAIN SUPPLY LINE							270.0	1197.0		
37	10+80.00	13+50.00	MAIN SUPPLY LINE							270.0	762.0		
37	13+50.00	16+10.00	MAIN SUPPLY LINE							260.1	758.0		
38	16+10.00	16+22.00	DRAIN PIPE							12.0	11.0		
38	16+22.00		DRAIN PIPE	1	1						6.0		
38	16+22.00	16+89.60	DRAIN PIPE							67.6	71.0	10.5	
38	2+61.58	2+95.00	CONTAINMENT DRAIN PIPE							33.4	83.0	11.7	
38	2+95.00		CONTAINMENT DRAIN PIPE	1	1						28.0		
38	2+95.00	3+00.00	CONTAINMENT DRAIN PIPE							5.0	3.0		
39	12+00.00	12+32.00	CELL 1 PIPE							32.2	50.0		
39	12+32.00		CELL 1 PIPE	1	1						6.0		
39	12+32.00	12+61.33	CELL 1 PIPE							29.7	29.0	42.2	
39	12+37.00	12+59.00	CELL 2 PIPE							22.1	30.0		
39	12+59.00		CELL 2 PIPE	1	1						6.0		
39	12+59.00	13+07.44	CELL 2 PIPE							49.1	70.0	52.5	
40	16+10.00	17+74.00	CELL 3 PIPE							164.2	287.0		
40	17+74.00		CELL 3 PIPE	1	1						6.0		
40	17+74.00	18+14.89	CELL 3 PIPE							41.5	47.0	52.7	
TOTALS				5	5	1	1	12.5	454.1	1606.9	8369	169.6	*INCLUDES 5" DIA. BOLSTERS
PAY TOTALS				5	5	1	1	13	454	1607	8369	170	

STOPLOG STRUCTURE QUANTITIES

PLAN SHEET NO.	STATION	LOC.	SKEW	STOPLOG STRUCTURE DEPTH	STOPLOG* STRUCTURE EA	12"** PVC LF	CLASS 3 EXC. CU.YD.	ROCK LINING CU.YD.	REMARKS
33	3+95.00	CELL 1 SOUTH	NO SKEW	6'	1	67	1.3	89.3	
33	11+98.00	CELL 2	8° L.A.	5'	1	52	0.0	61.1	
34	9+03.00	CELL 3	37° R.A.	8'	1	106	8.5	270.0	
TOTALS					3	225	9.8	420.4	*INCLUDES 5" DIA. BOLSTERS
PAY TOTALS					3	225	10	420	**INCLUDES HICKENBOTTOM INTAKE & RAT GUARD

GRADE CONTROL STRUCTURE QUANTITY

STATION	LOC.	ROCK LINING CU.YD.	REMARKS
8+03.00	CELL 4 RT.	88.3	
TOTAL		88.3	
PAY TOTAL		88	

GROUP C PIPE QUANTITIES

PLAN SHEET NO.	STATION	LOC.	SKEW	12" GROUP C PIPE LF	CLASS 3 EXC. CU.YD.	REMARKS
7	3+33.63	CELL 1 NORTH LT.		24		NEW BERM OVER EXIST. SEWER L INE
22	2+30.00	VIEWING AREA	NO SKEW	22	3.3	
TOTALS				46	3.3	
PAY TOTALS				46	3	

WEIR QUANTITIES

STATION	STATION	LOC.	ROCK LINING CU.YD.	REMARKS
8+02.00	8+18.00	CELL 4	75.3	INLET WEIR
4+80.63	5+90.67	OUTLET WEIR	105.5	
TOTAL			180.8	
PAY TOTAL			181	

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SUMMARY SHEET
SHEET 2 OF 4

REV.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

SUMMARY OF QUANTITIES

ROUTE	STATE	DISTRICT	SHEET NO.
40	MO	4	3

JOB NO. J4P1

CONTRACT ID.

PROJECT NO.

COUNTY JACKSON

DATE

SILT FENCE

PLAN SHEET NO.	STATION	STATION	LOC.	SILT FENCE FT.	SEDIMENT REMOVAL CU.YD.
27	7+50.00	12+47.77	CELL 1 NORTH RT.	505.7	5.1
27	0+26.71	0+63.94	CELL 1 SOUTH RT.	39.7	0.4
27	3+50.00	7+00.00	CELL 1 SOUTH RT.	396.4	4.0
28	0+00.00	1+92.49	CELL 2 RT.	228.2	2.3
28	8+47.82	9+86.03	CELL 2 RT.	157.3	1.6
28	11+86.24	12+96.61	CELL 2 RT.	128.1	1.3
28	21+17.30	22+60.60	CELL 2 RT.	163.8	1.6
29	0+19.91	16+48.02	CELL 3 RT.	1778.3	17.8
30	8+47.37	8+96.69	CELL 4 LT.	50.3	0.5
30	1+62.73	2+00.49	CELL 4 RT.	40.8	0.4
30	2+57.17	7+95.36	CELL 4 RT.	571.0	5.7
30	8+34.88	8+96.69	CELL 4 RT.	63.1	0.6
30	3+40.66	4+90.18	CUTOFF BERM LT.	150.4	1.5
30	5+19.22	5+77.00	OUTLET WEIR LT.	57.9	0.6
30	5+20.53	5+86.00	OUTLET WEIR RT.	65.6	0.7
31	0+00.00	8+01.00	MAIN SUPPLY LINE LT.	751.1	7.5
31	8+51.00	13+00.00	MAIN SUPPLY LINE LT.	459.2	4.6
31	13+30.00	16+10.00	MAIN SUPPLY LINE LT.	284.6	2.8
31	16+10.00	16+86.00	DRAIN PIPE LT.	76.0	0.8
31	16+20.00	16+88.00	DRAIN PIPE RT.	68.0	0.7
31	16+20.00	17+73.83	CELL 3 PIPE LT.	153.8	1.5
27	1+00.00	1+93.00	PARKING LOT LT.	96.1	1.0
27	2+40.00	3+20.19	VIEWING AREA LT.	121.9	1.2
27	3+00.00	3+20.19	VIEWING AREA RT.	53.5	0.5
			TOTALS	6460.8	64.7
			PAY TOTALS	6461	65

SEEDING

LOCATION	SEEDING WARM SEASON MIXTURES ACRE	REMARKS
CELL 1	11.20	
CELL 2	7.21	
CELL 3	7.28	
CELL 4	1.78	
MAIN SUPPLY LINE	0.62	
DRAIN PIPE	0.03	
CONTAINMENT DRAIN PIPE	0.01	
CELL 1 PIPE	0.03	
CELL 2 PIPE	0.02	
CELL 3 PIPE	0.20	
PARKING LOT & VIEWING AREA	0.03	
TOTAL	28.41	
PAY TOTAL	28.4	
TEMPORARY SEEDING AND MULCHING	5.7 ACRE	

SIGN POST

PLAN SHEET NO.	STATION	LOC.	SKEW	U-CHANNEL POST 3 LB LF	REMARKS
32	1+13.00	MAIN SUPPLY LINE RT.	16° R.A.	31.6	
			TOTAL	31.6	
			PAY TOTAL	32	

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SUMMARY SHEET
SHEET 3 OF 4

REV.

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SUMMARY OF (NTITIES

EFFECTIVE: 04-01-2006
D-2BS

ROUTE	STATE	DISTRICT	SHEET NO.
40	MO	7	3

JOB NO. J4P1653
CONTRACT ID.
PROJECT NO.
COUNTY JACKSON
DATE

SIGN	SIZE (IN.)	AREA (SQ. FT.)	QTY	TOTAL AREA	QTY RELOC	TOTAL RELOC AREA	DESCRIPTION
WARNING SIGNS							
W01-1L	48X48	16.00					TURN (SYMBOL LEFT ARROW)
W01-1R	48X48	16.00					TURN (SYMBOL RIGHT ARROW)
W01-2L	48X48	16.00					CURVE (SYMBOL LEFT ARROW)
W01-2R	48X48	16.00					CURVE (SYMBOL RIGHT ARROW)
W01-3L	48X48	16.00					REVERSE TURN (SYMBOL LEFT ARROW)
W01-3R	48X48	16.00					REVERSE TURN (SYMBOL RIGHT ARROW)
W01-4L	48X48	16.00					REVERSE CURVE (SYMBOL LEFT ARROW)
W01-4R	48X48	16.00					REVERSE CURVE (SYMBOL RIGHT ARROW)
W01-4bL	48X48	16.00					DOUBLE ARROW REVERSE CURVE (SYMBOL LEFT ARROWS)
W01-4bR	48X48	16.00					DOUBLE ARROW REVERSE CURVE (SYMBOL RIGHT ARROWS)
W01-4cL	48X48	16.00					TRIPLE ARROW REVERSE CURVE (SYMBOL LEFT ARROWS)
W01-4cR	48X48	16.00					TRIPLE ARROW REVERSE CURVE (SYMBOL RIGHT ARROWS)
W01-6	48X24	8.00					HORIZONTAL ARROW (SYMBOL)
W01-6a	72X36	18.00					HORIZONTAL ARROW (SYMBOL ON BARRICADE)
W01-7	48X24	8.00					DOUBLE HEAD HORIZONTAL ARROW (SYMBOL)
W01-7a	72X36	18.00					DOUBLE HEAD HORIZONTAL ARROW (SYMBOL ON BARRICADE)
W01-8	18X24	3.00					CHEVRON (SYMBOL)
W01-8a	36X48	12.00					CHEVRON (SYMBOL FOR DIVIDED HIGHWAYS)
W03-1a	48X48	16.00					STOP AHEAD (SYMBOL)
W03-2a	48X48	16.00					YIELD AHEAD (SYMBOL)
W03-3	48X48	16.00					SIGNAL AHEAD (SYMBOL)
W03-4	48X48	16.00					BE PREPARED TO STOP
W04-1L	48X48	16.00					MERGE (SYMBOL FROM LEFT)
W04-1R	48X48	16.00					MERGE (SYMBOL FROM RIGHT)
W05-1	48X48	16.00					ROAD/BRIDGE/RAMP NARROWS
W05-3	48X48	16.00					ONE LANE BRIDGE
W05-5	48X48	16.00					NARROW LANES
W06-1	48X48	16.00					DIVIDED HIGHWAY (SYMBOL)
W06-2	48X48	16.00					DIVIDED HIGHWAY END (SYMBOL)
W06-3	48X48	16.00					TWO WAY TRAFFIC (SYMBOL)
W07-3a	24X18	3.00					NEXT XX MILES (PLAQUE)
W08-1	48X48	16.00					BUMP
W08-2	48X48	16.00					DIP
W08-3	48X48	16.00					PAVEMENT ENDS
W08-4	48X48	16.00					SOFT SHOULDER
W08-5	48X48	16.00					SLIPPERY WHEN WET (SYMBOL)
W08-6	48X48	16.00					TRUCK CROSSING
W08-6c	48X48	16.00	4	64			TRUCK ENTRANCE (9)
W08-7	36X36	9.00					LOOSE GRAVEL
W08-9	48X48	16.00					LOW SHOULDER
W08-9a	48X48	16.00					SHOULDER DROP-OFF
W08-11	48X48	16.00					UNEVEN LANES
W08-12	36X36	9.00					NO CENTER STRIPE
W10-1	42 RND.	9.62					RAILROAD CROSSING
W012-1	24X24	4.00					DOUBLE DOWN ARROW (SYMBOL)
W012-2	48X48	16.00					LOW CLEARANCE (SYMBOL)
W012-2x	24X18	3.00					LOW CLEARANCE (PLAQUE)
W012-3a,b	144X24	24.00					OVERHEAD LOW CLEARANCE (FEET AND INCHES)
SPECIAL	120X60	50.00					LOW CLEARANCE XX FT XX IN XX MILES AHEAD
SPECIAL	120X60	50.00					WIDTH RESTRICTION XX FT XX IN XX MILES AHEAD
W013-1	24X24	4.00					ADVISORY SPEED (PLAQUE)
W016-2a	24X18	3.00					500 FEET/1000 FEET (PLAQUE)
W020-1	48X48	16.00					ROAD/BRIDGE/RAMP WORK AHEAD
W020-2	48X48	16.00					DETOUR AHEAD
W020-3	48X48	16.00					ROAD CLOSED AHEAD
W020-4	48X48	16.00					ONE LANE ROAD AHEAD
W020-5	48X48	16.00					RIGHT/CENTER/LEFT LANE CLOSED AHEAD
W020-5a	48X48	16.00					RIGHT/CENTER/LEFT TWO LANES CLOSED AHEAD
W020-6a	48X48	16.00					RIGHT/CENTER/LEFT LANE CLOSED
W020-7a	48X48	16.00					FLAGGER (SYMBOL)
W021-2	48X48	16.00					FRESH OIL
W021-5b	48X48	16.00					SHOULDER WORK AHEAD
W022-1	48X48	16.00					BLASTING ZONE AHEAD
W022-2	42X36	10.50					TURN OFF 2-WAY RADIO AND PHONE
W022-3	42X36	10.50					END BLASTING ZONE
W022-6e	21X15	2.19					WET PAINT (ARROW PIVOTS)

SIGN	SIZE (IN.)	AREA (SQ. FT.)	QTY	TOTAL AREA	QTY RELOC	TOTAL RELOC AREA	DESCRIPTION
GUIDE SIGNS							
E05-1	60X48	20.00					GORE EXIT
G020-1	60X24	10.00					ROAD WORK NEXT XX MILES
G020-2	48X24	8.00					END ROAD WORK
G020-4	36X18	4.50					PILOT CAR FOLLOW ME
G023-1	36X12	3.00					WORK ZONE (PLAQUE)
M04-1	24X12	2.00					ALTERNATE (PLAQUE)
M04-8	24X12	2.00					DETOUR (PLAQUE)
M04-8a	24X18	3.00					END DETOUR
M04-9L	48X36	12.00					DETOUR (LEFT ARROW)
M04-9R	48X36	12.00					DETOUR (RIGHT ARROW)
M04-10L	48X18	6.00					DETOUR (ARROW LEFT)
M04-10R	48X18	6.00					DETOUR (ARROW RIGHT)
M5-1L	21X15	2.19					ADVANCE LEFT TURN ARROW
M5-1R	21X15	2.19					ADVANCE RIGHT TURN ARROW
M6-1	21X15	2.19					TURN ARROW
M6-3	21X15	2.19					STRAIGHT ARROW
REGULATORY SIGNS							
R1-1	48X48	13.25					STOP
R1-2	48 TRI.	6.93					YIELD
R1-2a	36X36	9.00					TO ONCOMING TRAFFIC (PLAQUE)
R1-3	20X9	1.25					4/3-WAY (PLAQUE)
R2-1	36X48	12.00					SPEED LIMIT XX
R2-5a	36X48	12.00					REDUCED SPEED AHEAD
R3-1	48X48	16.00					NO RIGHT TURN (SYMBOL)
R3-2	48X48	16.00					NO LEFT TURN (SYMBOL)
R3-3	36X36	9.00					NO TURNS
R3-4	48X48	16.00					NO U-TURN (SYMBOL)
R3-7L	30X30	6.25					LEFT LANE MUST TURN LEFT
R3-7R	30X30	6.25					RIGHT LANE MUST TURN RIGHT
R4-1	36X48	12.00					DO NOT PASS
R4-2	36X48	12.00					PASS WITH CARE
R4-7aL	36X48	12.00					KEEP LEFT (HORIZONTAL ARROW)
R4-7a	36X48	12.00					KEEP RIGHT (HORIZONTAL ARROW)
R5-1	30X30	6.25					DO NOT ENTER
R5-1a	36X24	6.00					WRONG WAY
R6-1L	48X18	6.00					ONE WAY ARROW (LEFT)
R6-1R	48X18	6.00					ONE WAY ARROW (RIGHT)
R6-2L	24X30	5.00					ONE WAY (LEFT)
R6-2R	24X30	5.00					ONE WAY (RIGHT)
R10-6	24X36	6.00					STOP HERE ON RED (45° ARROW)
R11-2	48X30	10.00					ROAD CLOSED
R11-3a	60X30	12.50					ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY
R11-4	60X30	12.50					ROAD CLOSED TO THRU TRAFFIC
S4-4	36X15	3.75					WHEN FLASHING
CONST-3A	60X48	20.00					FINE SIGN
CONST-3X	57X9	---					SPEEDING/PASSING (PLATE)
MISCELLANEOUS SIGNS							
616-10.05 CONSTRUCTION SIGNS TOTAL				64			
616-10.10 RELOCATED SIGNS TOTAL							

ITEM NUMBER	TOTAL QTY	DESCRIPTION
612-20.08		IMPACT ATTENUATOR (8 SAND BARRELS)
612-20.09		IMPACT ATTENUATOR (9 SAND BARRELS)
612-20.10		IMPACT ATTENUATOR (10 SAND BARRELS)
612-20.12		IMPACT ATTENUATOR (12 SAND BARRELS)
612-20.14		IMPACT ATTENUATOR (14 SAND BARRELS)
612-20.17		IMPACT ATTENUATOR (17 SAND BARRELS)
612-20.19		IMPACT ATTENUATOR (19 SAND BARRELS)
612-20.20		REPLACEMENT SAND BARREL
612-20.30		IMPACT ATTENUATOR ARRAY (RELOCATION)
612-30.00		TRUCK MOUNTED ATTENUATOR (TMA)
616-10.20		CHANNELIZER (DRUM-LIKE)
616-10.25		CHANNELIZER (TRIM-LINE)
616-10.30		TYPE III MOVEABLE BARRICADE
616-10.33		DIRECTION INDICATOR BARRICADE
616-10.34		DIRECTION INDICATOR BARRICADE, WITH LIGHT
616-10.40		FLASHING ARROW PANEL
616-10.47		TYPE III OBJECT MARKER
616-10.51		WARNING LIGHT, TYPE A
616-10.52		WARNING LIGHT, TYPE B
616-10.53		WARNING LIGHT, TYPE C
616-10.54		STROBE LIGHT
616-10.70		TUBULAR MARKER
616-10.95		RADAR SPEED ADVISORY SYSTEM
616-10.96		CHANGEABLE MESSAGE SIGN, COMMISSION FURNISHED/RETAINED
616-10.98		CHANGEABLE MESSAGE SIGN, CONTRACTOR FURNISHED/RETAINED
616-11.00		CHANGEABLE MESSAGE SIGN, CONTRACTOR FURNISHED/COMMISSION RETAINED
616-11.20		INSTALLING "DRIVE SMART", 48 IN. X 48 IN. SIGN
616-11.33		INSTALLING "POINT OF PRESENCE" SIGN
616-12.00		LAW ENFORCEMENT SERVICES
617-36.00C		CONTRACTOR FURNISHED/RETAINED TEMPORARY CONCRETE TRAFFIC BARRIER, TYPE F
617-36.02A		CONTRACTOR FURNISHED/COMMISSION RETAINED TEMPORARY CONCRETE TRAFFIC BARRIER, TYPE F
617-40.00		TEMPORARY CONCRETE BARRIER HEIGHT TRANSITION
617-50.10		RELOCATING TEMPORARY CONCRETE TRAFFIC BARRIER
617-60.00		COMMISSION FURNISHED/RETAINED TEMPORARY CONCRETE TRAFFIC BARRIER, TYPE F
617-70.00		COMMISSION FURNISHED/RETAINED PRECAST BARRIER HEIGHT TRANSITION
620-80.65		TEMPORARY RAISED PAVEMENT MARKER
901-94.00		TEMPORARY LIGHTING
902-94.00		TEMPORARY TRAFFIC SIGNALS
902-94.01		TEMPORARY TRAFFIC SIGNALS AND LIGHTING
902-94.12		SOLAR POWERED PORTABLE TRAFFIC SIGNAL SYSTEM (COMMISSION RETAINED)
902-94.15		RELOCATION OF PORTABLE TRAFFIC SIGNAL SYSTEM

EXHIBIT "B"
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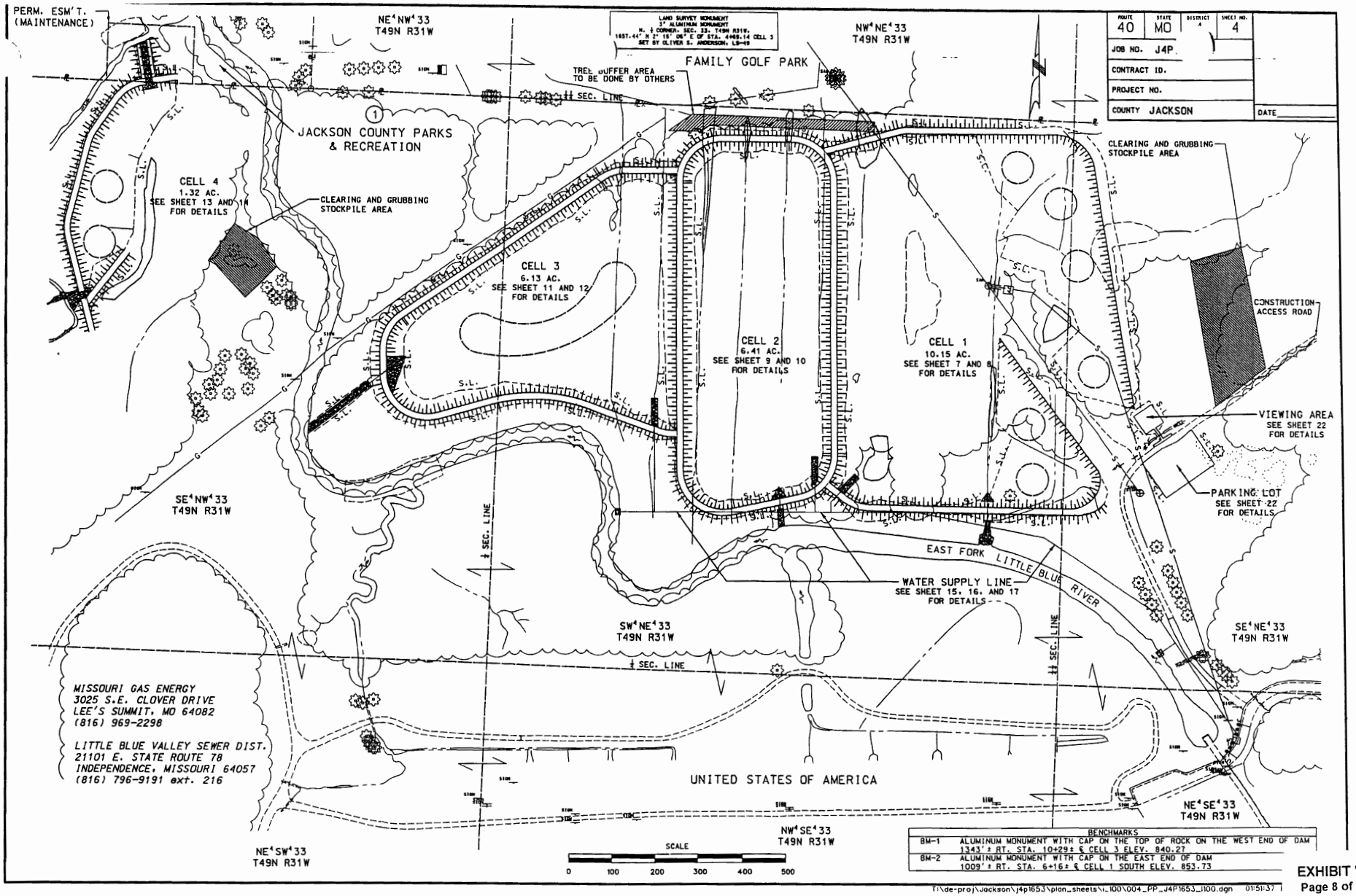
SHEET 4 OF 4


PERM. ESM'T. (MAINTENANCE)
NE¼NW¼33 T49N R31W
LAND SURVEY MONUMENT
3" ALUMINUM MONUMENT
N. ¼ CORNER, SEC. 33, T49N R31W.
1657.44' X 2' 18' 06" E OF STA. 4+69.14 CELL 3
SET BY OLIVER S. ANDERSON, LS-49
NW¼NE¼33 T49N R31W
FAMILY GOLF PARK
TREE BUFFER AREA TO BE DONE BY OTHERS
SEC. LINE
JACKSON COUNTY PARKS & RECREATION
CLEARING AND GRUBBING STOCKPILE AREA
CELL 4
1.32 AC.
SEE SHEET 13 AND 14 FOR DETAILS
CELL 3
6.13 AC.
SEE SHEET 11 AND 12 FOR DETAILS
CELL 2
6.41 AC.
SEE SHEET 9 AND 10 FOR DETAILS
CELL 1
10.15 AC.
SEE SHEET 7 AND 8 FOR DETAILS
CLEARING AND GRUBBING STOCKPILE AREA
CONSTRUCTION ACCESS ROAD
VIEWING AREA
SEE SHEET 22 FOR DETAILS
PARKING LOT
SEE SHEET 22 FOR DETAILS
SE¼NW¼33 T49N R31W
EAST FORK LITTLE BLUE RIVER
WATER SUPPLY LINE
SEE SHEET 15, 16, AND 17 FOR DETAILS
SW¼NE¼33 T49N R31W
SE¼NE¼33 T49N R31W
MISSOURI GAS ENERGY
3025 S.E. CLOVER DRIVE
LEE'S SUMMIT, MO 64082
(816) 969-2298
LITTLE BLUE VALLEY SEWER DIST.
21101 E. STATE ROUTE 78
INDEPENDENCE, MISSOURI 64057
(816) 796-9191 ext. 216
UNITED STATES OF AMERICA
NE¼SE¼33 T49N R31W
NW¼SE¼33 T49N R31W
NE¼SW¼33 T49N R31W
SCALE
0 100 200 300 400 500
ROUTE 40
STATE MO
DISTRICT 4
SHEET NO. 4
JOB NO. J4P
CONTRACT ID.
PROJECT NO.
COUNTY JACKSON
DATE
BENCHMARKS
BM-1 ALUMINUM MONUMENT WITH CAP ON THE TOP OF ROCK ON THE WEST END OF DAM 1343' ± RT. STA. 10+29± ℄ CELL 3 ELEV. 840.27
BM-2 ALUMINUM MONUMENT WITH CAP ON THE EAST END OF DAM 1009' ± RT. STA. 6+16± ℄ CELL 1 SOUTH ELEV. 853.73
f:\de-proj\jackson\j4p1653\plan_sheets\1_100\004_PP_J4P1653_1100.dgn 01:51:37

ROUTE	STATE	DISTRICT	SHEET NO.
40	MO	4	5

JOB NO. J4P1653

CONTRACT ID.

PROJECT NO.

COUNTY JACKSON

DATE

Coordinate Point Listing
Missouri Coordinate System of 1983

RECIPROCAL AVERAGE GRID FACTOR = 1.000091816

SHEET NO.	STATION[1]	LOCATION	OFFSET[1] (FEET)	NORTHING (FEET)	EASTING (FEET)	DESCRIPTION	DESIGN POINT ID
				1,039,053.151	2,829,922.729	CONTROL POINT 801	CP801
				1,038,662.060	2,829,698.184	CONTROL POINT 802	CP802
				1,037,380.459	2,829,532.973	CONTROL POINT 804	CP804
				1,038,156.557	2,833,097.853	CONTROL POINT 805	CP805
				1,037,756.988	2,833,049.069	CONTROL POINT 806	CP806
				1,037,505.904	2,833,047.330	CONTROL POINT 807	CP807
				1,038,139.926	2,835,087.171	CONTROL POINT 808	CP808
				1,039,302.258	2,835,642.262	CONTROL POINT 809	CP809
				1,038,508.838	2,838,039.023	CONTROL POINT 810	CP810
				1,037,467.371	2,838,606.337	CONTROL POINT 811	CP811
				1,040,381.269	2,830,087.177	CONTROL POINT 813	CP813
				1,039,850.492	1,830,801.599	CONTROL POINT 814	CP814
				1,039,787.470	2,835,611.759	CONTROL POINT 815	CP815
				1,040,125.455	2,838,100.995	CONTROL POINT 816	CP816
				1,040,005.127	2,838,720.318	CONTROL POINT 817	CP817
				1,039,447.855	2,838,819.257	CONTROL POINT 818	CP818
				1,039,107.852	2,839,195.215	CONTROL POINT 819	CP819
				1,038,931.634	2,831,290.238	CONTROL POINT 901	CP901
				1,037,092.498	2,832,877.158	CONTROL POINT 902	CP902
				1,038,935.983	2,835,152.497	CONTROL POINT 903	CP903
				1,037,298.971	2,837,307.716	CONTROL POINT 904	CP904
				1,040,843.048	2,832,606.682	CONTROL POINT 906	CP906
				1,040,793.326	2,836,617.811	CONTROL POINT 908	CP908
7	0+00.000	CELL 1 NORTH ℄	0.000	1,039,010.625	2,835,051.801	BEGIN CELL 1 NORTH	10
7	6+41.552	CELL 1 NORTH RT.	31.086	1,039,657.695	2,834,944.292	P.I. CURVE CELL1 1	
7	10+68.169	CELL 1 NORTH RT.	0.898	1,039,657.695	2,834,503.186	P.I. CURVE CELL1 2	
7	12+64.922	CELL 1 NORTH ℄	0.000	1,039,605.761	2,834,313.348	END CELL 1 NORTH	13
7	0+00.000	CELL 1 SOUTH ℄	0.000	1,038,833.652	2,834,319.147	BEGIN CELL 1 SOUTH	14
7	0+89.696	CELL 1 SOUTH RT.	5.862	1,038,775.880	2,834,389.446	P.I. CURVE CELL1 3	
7	6+92.941	CELL 1 SOUTH RT.	101.030	1,038,762.867	2,835,067.157	P.I. CURVE CELL1 4	
7	11+50.000	CELL 1 SOUTH ℄	0.000	1,039,189.488	2,834,752.076	END CELL 1 SOUTH	
9	0+00.000	CELL 2 ℄	0.000	1,039,635.802	2,834,162.904	BEGIN CELL 2	20
9	1+57.965	CELL 2 RT.	41.421	1,039,635.802	2,833,983.496	P.I. CURVE CELL2 1	
9	9+98.737	CELL 2 RT.	59.274	1,038,738.884	2,833,983.496	P.I. CURVE CELL2 2	
9	13+17.912	CELL 2 RT.	28.479	1,038,816.481	2,834,341.888	P.I. CURVE CELL2 3	
9	21+03.062	CELL 2 RT.	41.421	1,039,635.802	2,834,341.888	P.I. CURVE CELL2 4	
9	22+60.601	CELL 2 ℄	0.000	1,039,635.802	2,834,162.904	END CELL 2	25
11	0+00.000	CELL 3 ℄	0.000	1,039,560.314	2,833,986.545	BEGIN CELL 3	30
11	1+58.351	CELL 3 RT.	4.858	1,039,560.314	2,833,827.220	P.I. CURVE CELL3 1	
11	8+01.916	CELL 3 RT.	12.730	1,039,188.166	2,833,296.067	P.I. CURVE CELL3 2	
11	9+96.568	CELL 3 RT.	66.164	1,038,949.278	2,833,296.067	P.I. CURVE CELL3 3	
11	13+28.392	CELL 3 LT.	20.585	1,039,052.998	2,833,657.786	P.I. CURVE CELL3 4	
11	16+32.775	CELL 3 RT.	1.543	1,038,947.370	2,833,947.998	P.I. CURVE CELL3 5	
11	16+68.096	CELL 3 ℄	0.000	1,038,947.370	2,833,983.496	END CELL 3	36

1 Ground Distance

NOTE : The reciprocal of the average grid factor is used as a multiplier from state plane distance to ground distance.

Coordinate Point Sheet
Sheet 1 of 2

T:\de-proj\Jackson\j4p1653\plan_sheets\L_1\005_CP_01_J4P1653_11.dgn 02:17:51 PM 04/18/2007

ROUTE	STATE	DISTRICT	SHEET NO.
40	MO		6

JOB NO. J4P1
CONTRACT ID.
PROJECT NO.
COUNTY JACKSON
DATE

Coordinate Point Listing
Missouri Coordinate System of 1983

RECIPROCAL AVERAGE GRID FACTOR = 1.000091816

SHEET NO.	STATION[1]	LOCATION	OFFSET[1] (FEET)	NORTHING (FEET)	EASTING (FEET)	DESCRIPTION	DESIGN POINT ID
13	0+00.000	CELL 4 ℄	0.000	1,039,689.310	2,832,954.880	BEGIN CELL 4	40
13	1+38.732	CELL 4 RT.	8.542	1,039,773.468	2,832,841.767	P.I. CURVE CELL4 1	
13	2+82.174	CELL 4 RT.	8.596	1,039,750.020	2,832,695.650	P.I. CURVE CELL4 2	
13	4+27.718	CELL 4 RT.	1.471	1,039,628.772	2,832,610.804	P.I. CURVE CELL4 3	
13	6+46.899	CELL 4 RT.	3.666	1,039,416.742	2,832,552.201	P.I. CURVE CELL4 4	
13	9+50.000	CELL 4 ℄	0.000	1,039,123.528	2,832,631.409	END CELL 4	45
13	3+00.000	CUTOFF BERM ℄	0.000	1,039,394.028	2,832,724.058	BEGIN CUTOFF BERM	400
13	5+00.000	CUTOFF BERM ℄	0.000	1,039,236.469	2,832,600.900	END CUTOFF BERM	401
13	3+00.000	OUTLET WEIR ℄	0.000	1,039,561.206	2,832,781.181	BEGIN OUTLET WEIR ℄	
13	7+00.000	OUTLET WEIR ℄	0.000	1,039,956.116	2,832,717.809	END OUTLET WEIR ℄	
15	0+05.940	WATER SUPPLY LINE ℄	0.000	1,038,228.305	2,835,268.302	BEGIN WATER SUPPLY LINE	
15	0+20.000	WATER SUPPLY LINE ℄	0.000	1,038,225.563	2,835,282.086	P.I.	71
15	0+33.000	WATER SUPPLY LINE ℄	0.000	1,038,238.312	2,835,284.622	P.I.	72
15	3+88.000	WATER SUPPLY LINE ℄	0.000	1,038,533.457	2,835,087.413	P.I.	73
15	6+99.000	WATER SUPPLY LINE ℄	0.000	1,038,706.223	2,834,828.849	P.I.	74
15	9+97.000	WATER SUPPLY LINE ℄	0.000	1,038,764.355	2,834,536.602	P.I.	75
15	16+10.000	WATER SUPPLY LINE ℄	0.000	1,038,764.355	2,833,923.658	END WATER SUPPLY LINE	
15	16+10.000	DRAIN PIPE ℄	0.000	1,038,764.355	2,833,923.658	BEGIN DRAIN PIPE	
15	16+89.600	DRAIN PIPE ℄	0.000	1,038,764.355	2,833,844.066	END PIPE	
15	2+61.580	CONTAINMENT DRAIN PIPE	0.000	1,038,438.952	2,835,104.356	END CONTAINMENT DRAIN PIPE	
15	3+00.000	CONTAINMENT DRAIN PIPE	0.000	1,038,460.295	2,835,136.298	BEGIN CONTAINMENT DRAIN PIPE	
15	12+00.000	CELL 1 PIPE ℄	0.000	1,038,764.355	2,834,333.621	BEGIN CELL 1 PIPE	77
15	12+25.000	CELL 1 PIPE ℄	0.000	1,038,789.353	2,834,333.621	P.I.	78
15	12+61.330	CELL 1 PIPE ℄	0.000	1,038,815.039	2,834,359.307	END CELL 1 PIPE	
15	12+37.000	CELL 2 PIPE ℄	0.000	1,038,764.355	2,834,296.624	BEGIN CELL 2 PIPE	81
15	13+07.440	CELL 2 PIPE ℄	0.000	1,038,834.788	2,834,296.624	END CELL 2 PIPE	
15	16+10.000	CELL 3 PIPE ℄	0.000	1,038,764.355	2,833,923.658	BEGIN CELL 3 PIPE	83
15	18+14.890	CELL 3 PIPE ℄	0.000	1,038,969.226	2,833,923.658	END CELL 3 PIPE	
22	0+00.000	PARKING AND VIEWING AREA ℄	0.000	1,038,756.691	2,835,230.573	BEGIN PARKING AND VIEWING AREA ℄	60
22	4+00.000	PARKING AND VIEWING AREA ℄	0.000	1,039,088.470	2,835,007.206	END PARKING AND VIEWING AREA ℄	62

1 Ground Distance

NOTE : The reciprocal of the average grid factor is used as a multiplier from state plane distance to ground distance.

Coordinate Point Sheet
Sheet 2 of 2

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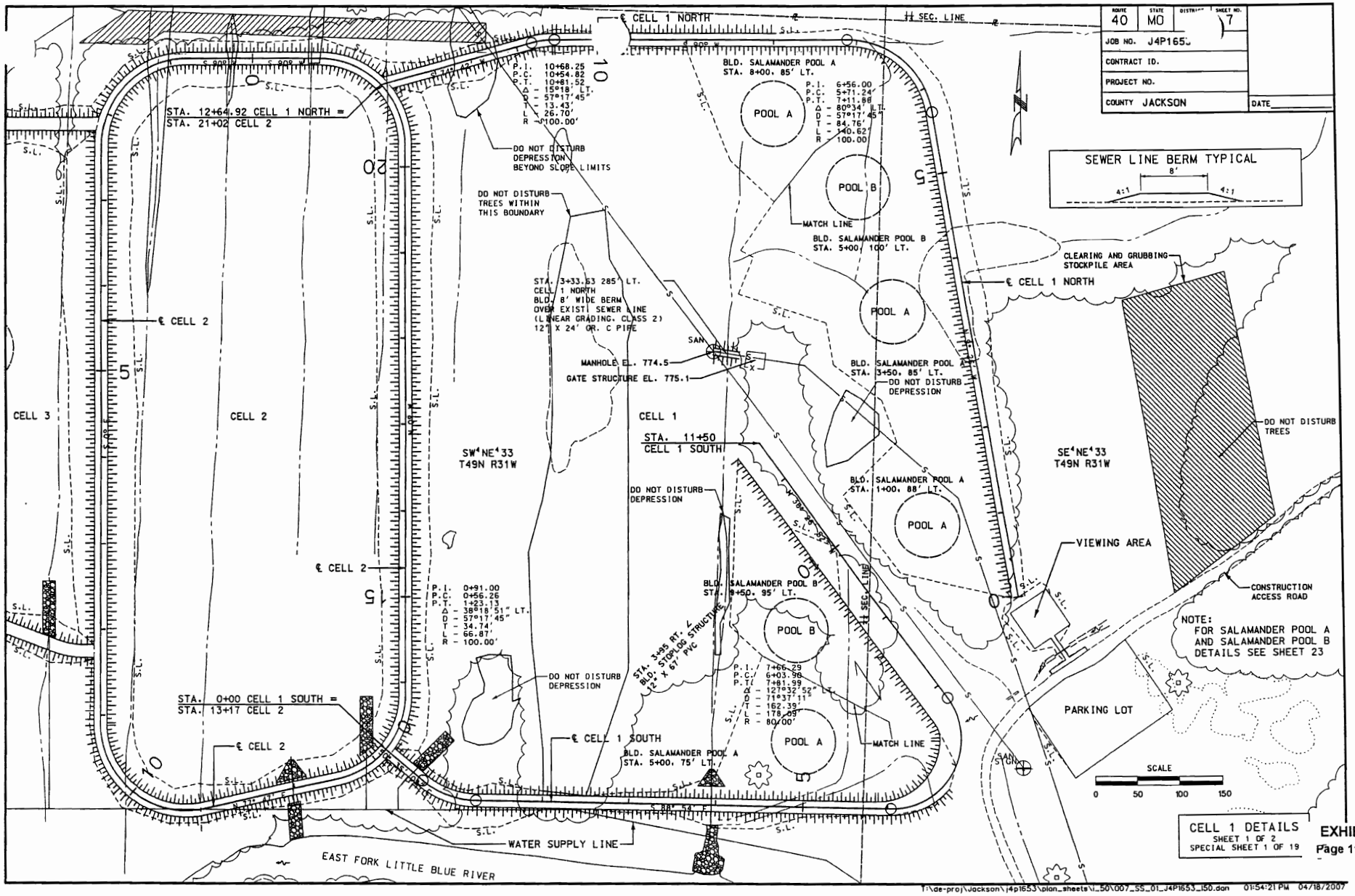

EXHIBIT
Page 11 of

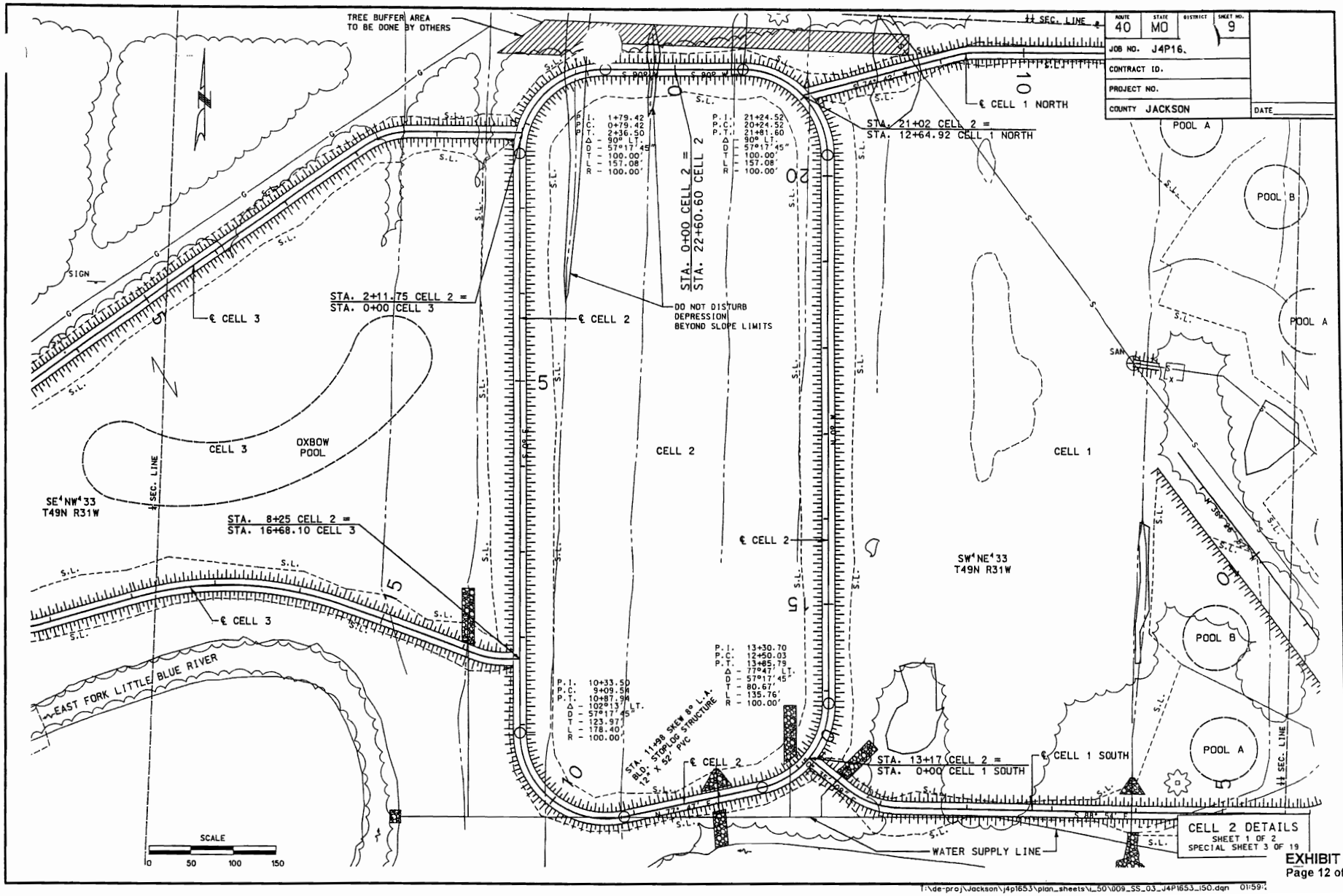

EXHIBIT "B"
Page 12 of 44

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ROUTE	STATE	DIST	SHEET NO.
40	MO		10

JOB NO. J4P1653

CONTRACT ID.

PROJECT NO.

COUNTY JACKSON

DATE

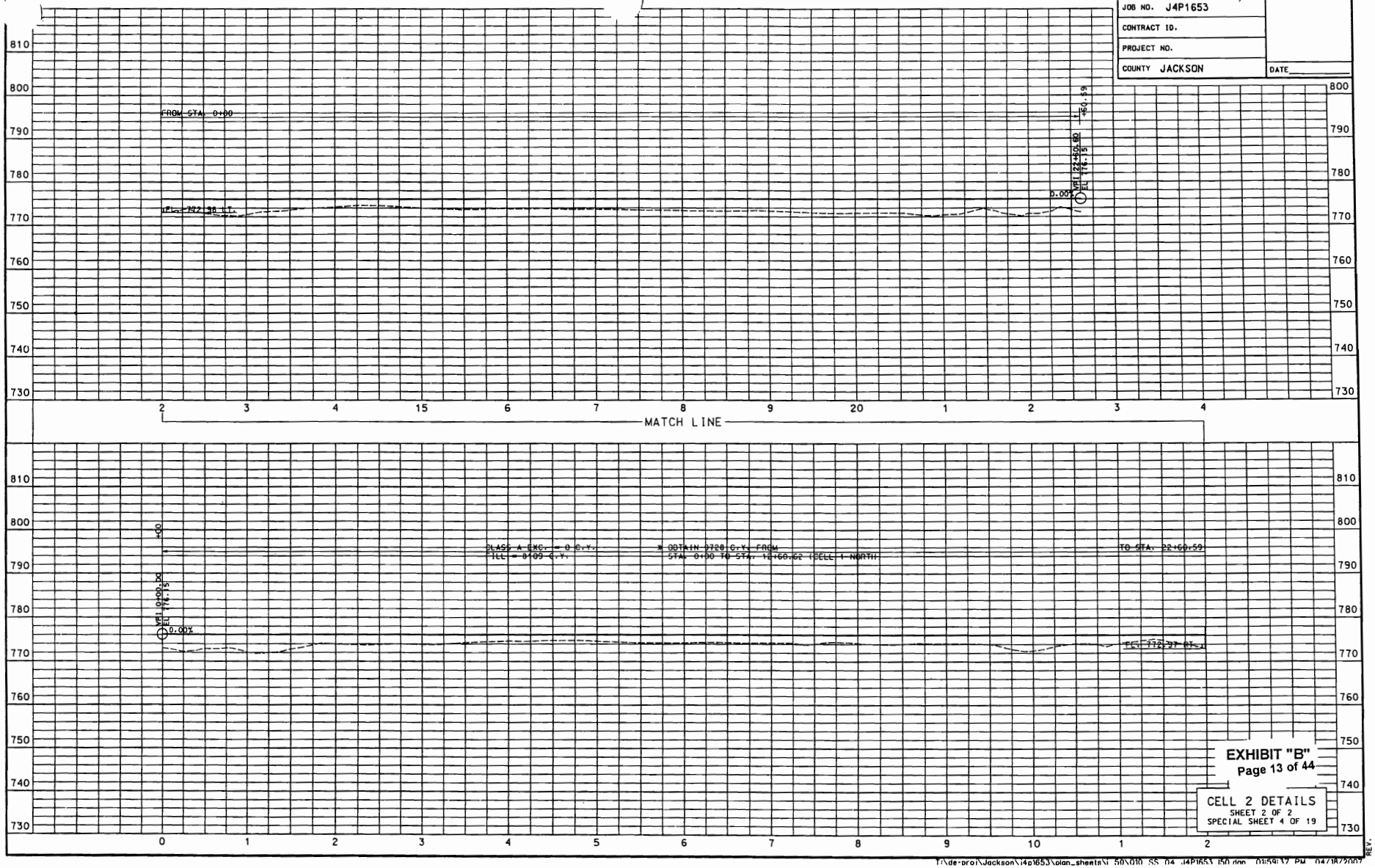

EXHIBIT "B"
Page 13 of 44

CELL 2 DETAILS
SHEET 2 OF 2
SPECIAL SHEET 4 OF 19

REV.

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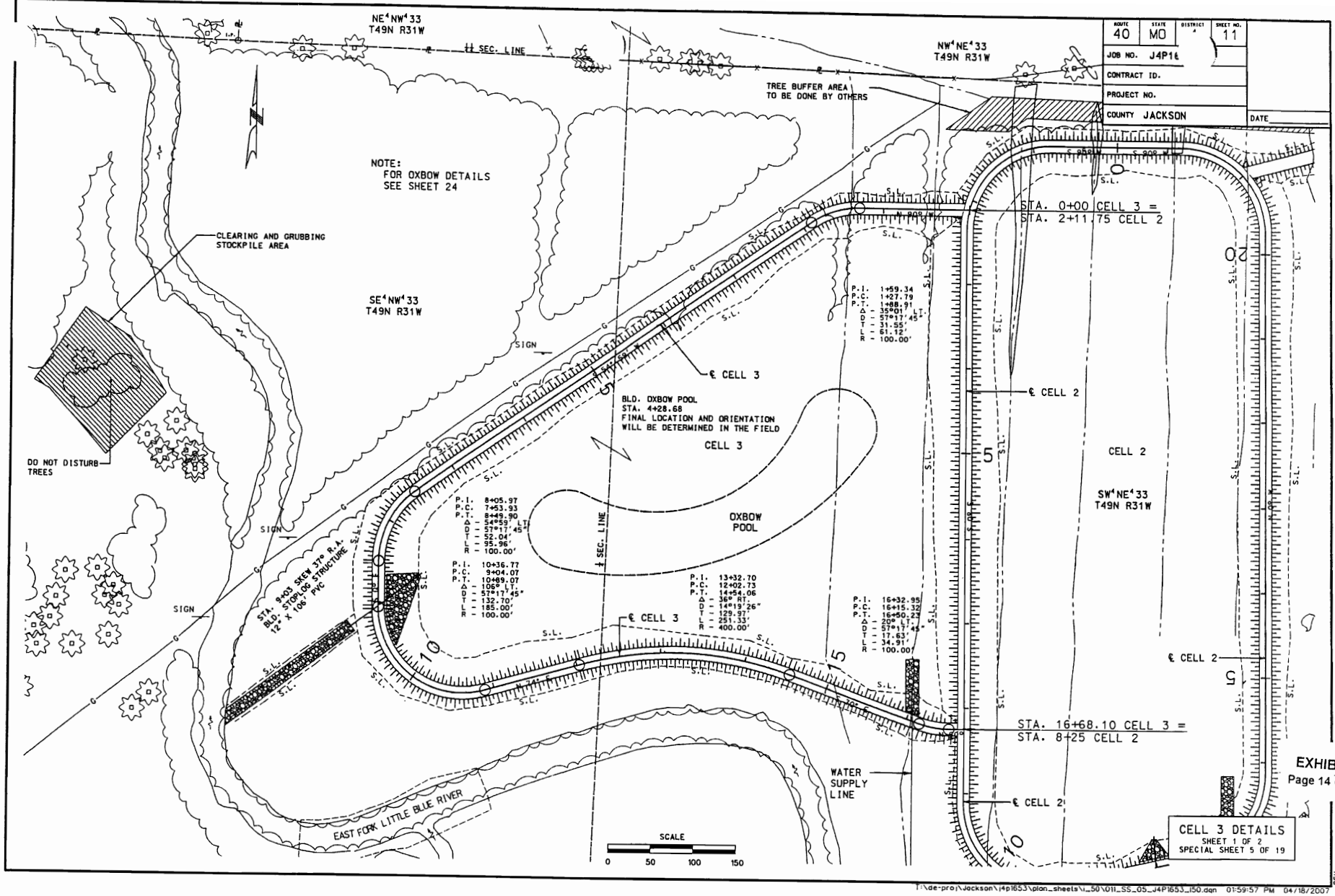

EXHIBIT
Page 14 of 4

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ROUTE	STATE	DISTRICT	SHEET NO.
40	MO		12

JOB NO. J4P165

CONTRACT ID.

PROJECT NO.

COUNTY JACKSON

DATE

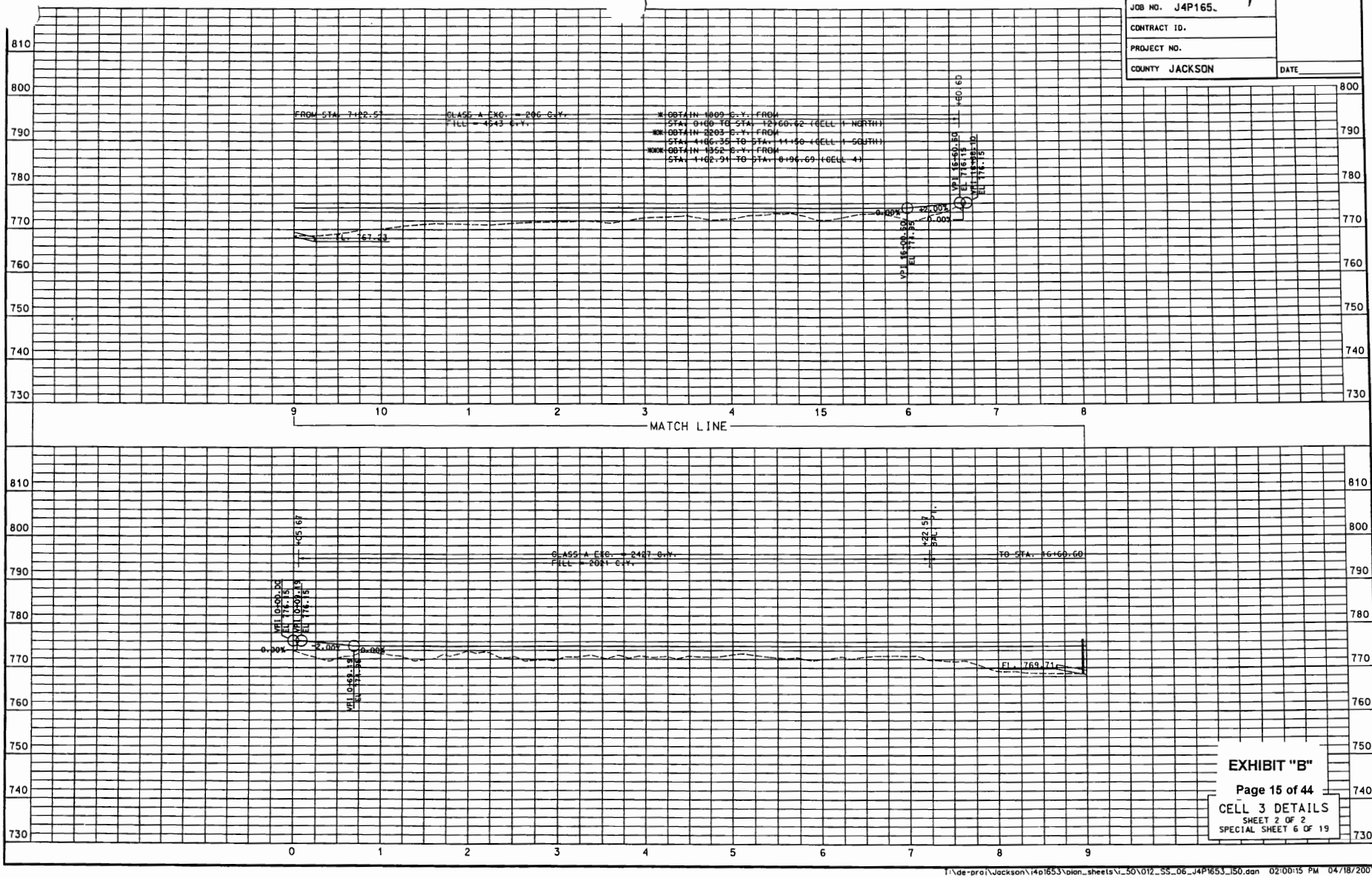

EXHIBIT "B"

Page 15 of 44

CELL 3 DETAILS
SHEET 2 OF 2
SPECIAL SHEET 6 OF 19

REV.

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ROUTE	STATE	DISTRICT	SHEET NO.
40	MO		13

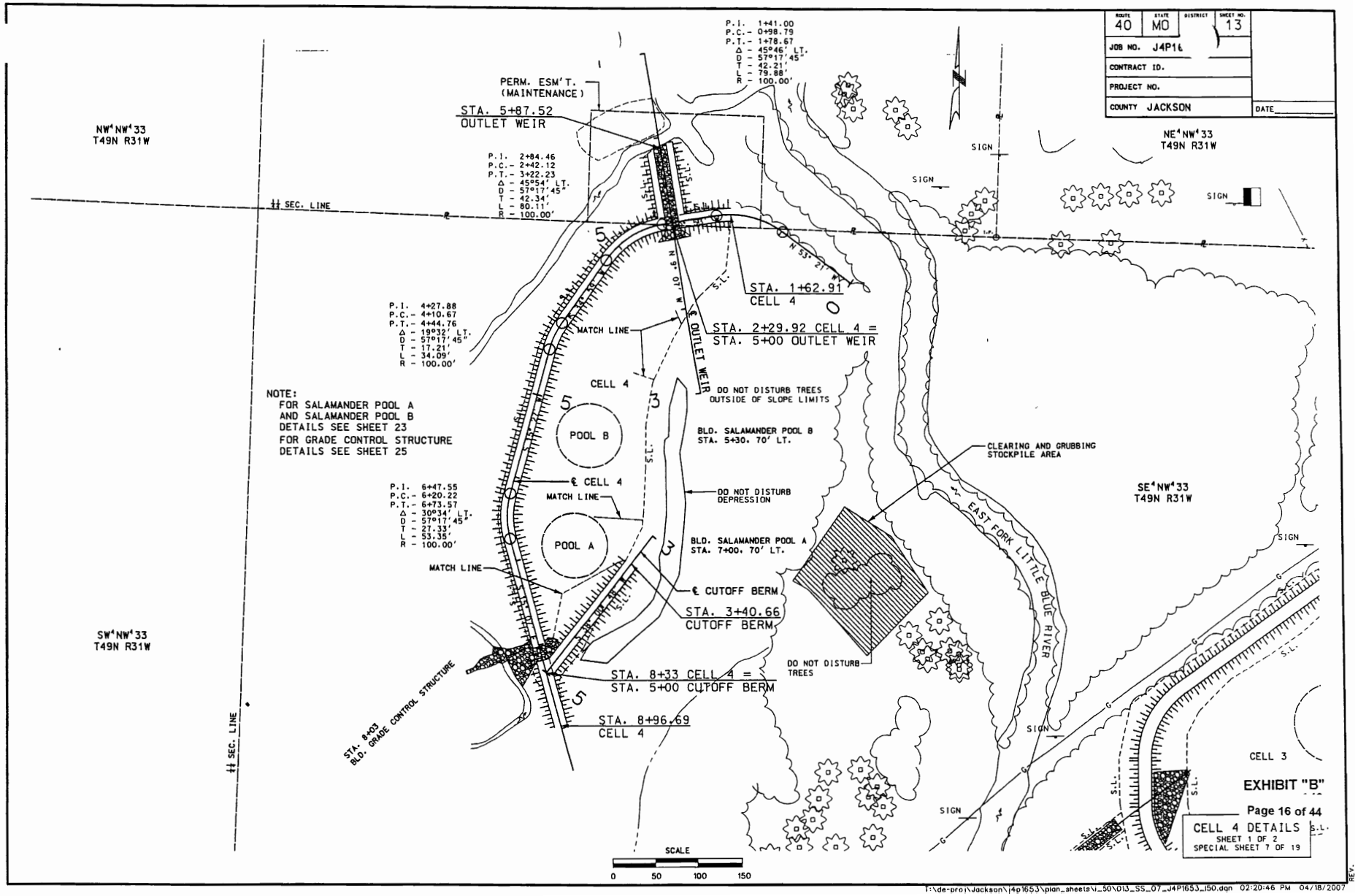
JOB NO. J4P16

CONTRACT ID.

PROJECT NO.

COUNTY JACKSON

DATE



NOTE:
FOR SALAMANDER POOL A
AND SALAMANDER POOL B
DETAILS SEE SHEET 23
FOR GRADE CONTROL STRUCTURE
DETAILS SEE SHEET 25

EXHIBIT "B"

Page 16 of 44

CELL 4 DETAILS
SHEET 1 OF 2
SPECIAL SHEET 7 OF 19

REV.

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ROUTE	STATE	DISTRICT	SHEET NO.
40	MO		14

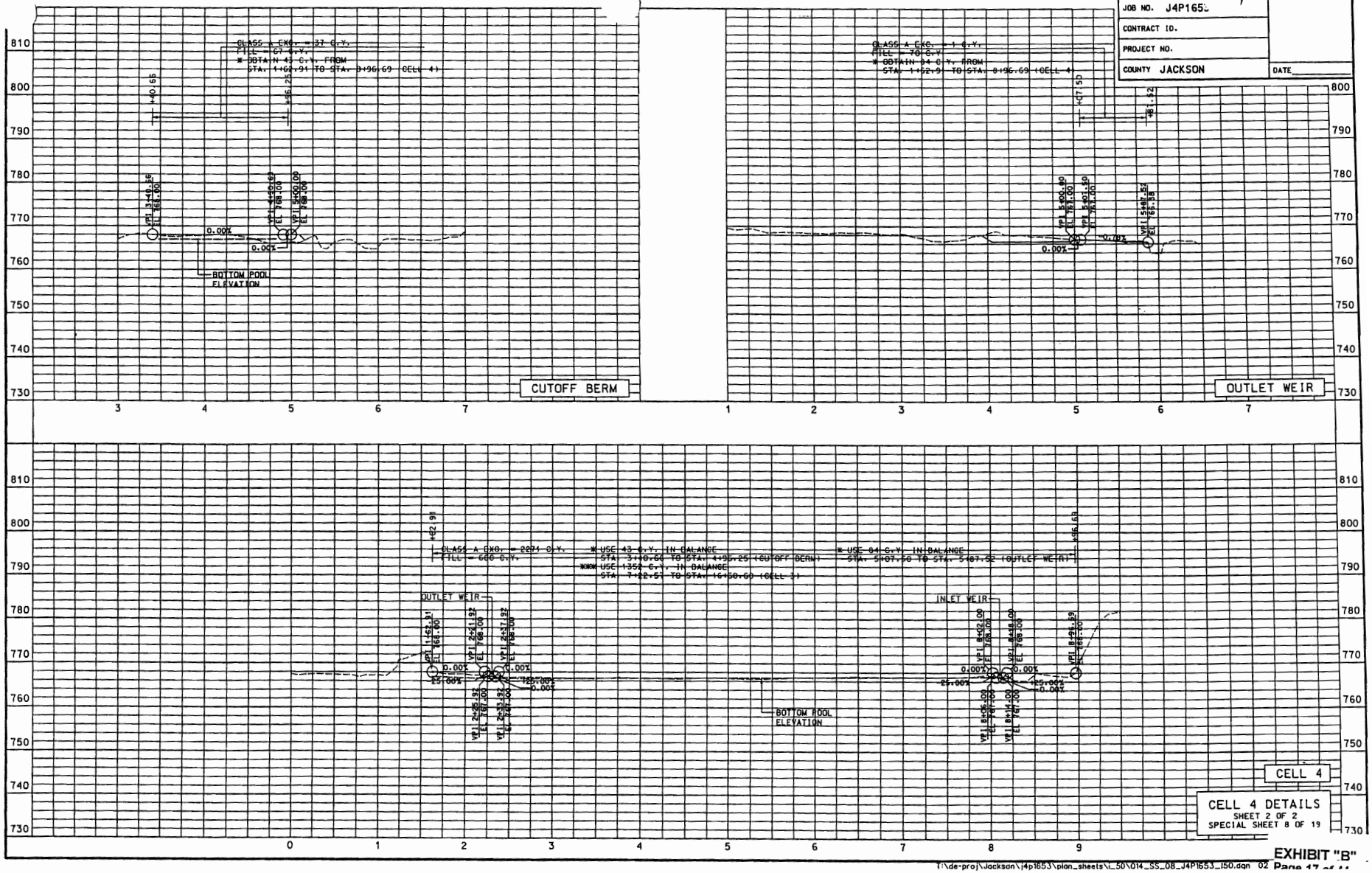
JOB NO. J4P1653

CONTRACT ID.

PROJECT NO.

COUNTY JACKSON

DATE



CELL 4 DETAILS
SHEET 2 OF 2
SPECIAL SHEET 8 OF 19

EXHIBIT "B"
Page 17 of 44

I:\de-proj\Jackson\j4p1653\plan_sheets\l_50\014_SS_08_J4P1653_l50.dgn 02

ROUTE	STATE	DISTRICT	SHEET NO.
40	MO		15

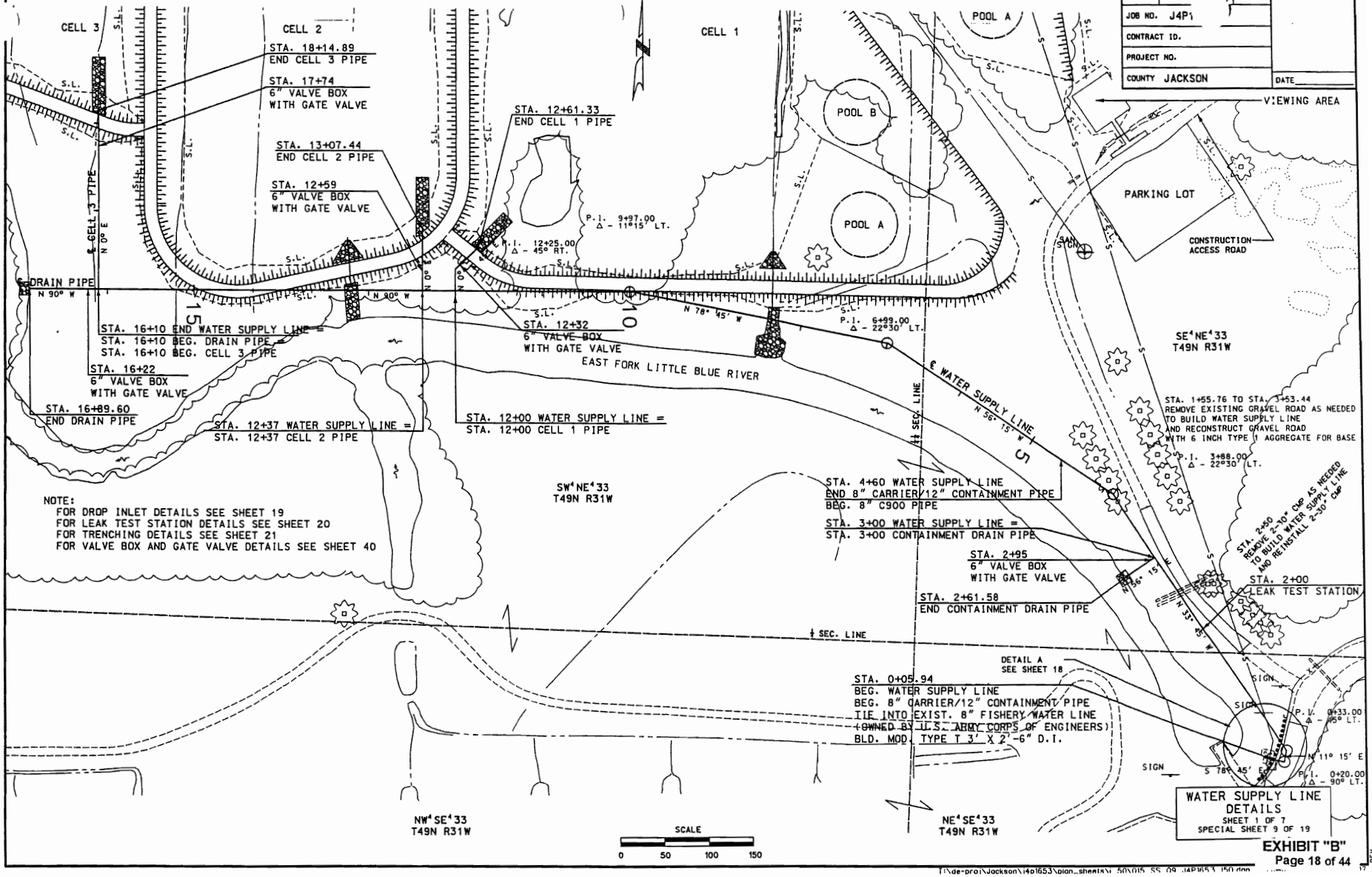
JOB NO. J4P1

CONTRACT ID.

PROJECT NO.

COUNTY JACKSON

DATE



NOTE:
FOR DROP INLET DETAILS SEE SHEET 19
FOR LEAK TEST STATION DETAILS SEE SHEET 20
FOR TRENCHING DETAILS SEE SHEET 21
FOR VALVE BOX AND GATE VALVE DETAILS SEE SHEET 40

WATER SUPPLY LINE DETAILS
SHEET 1 OF 7
SPECIAL SHEET 9 OF 19

EXHIBIT "B"

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REV.

ROUTE	STATE	DISTRICT	SHEET NO.
40	MO		16

JOB NO. J4P165.

CONTRACT ID.

PROJECT NO.

COUNTY JACKSON

DATE

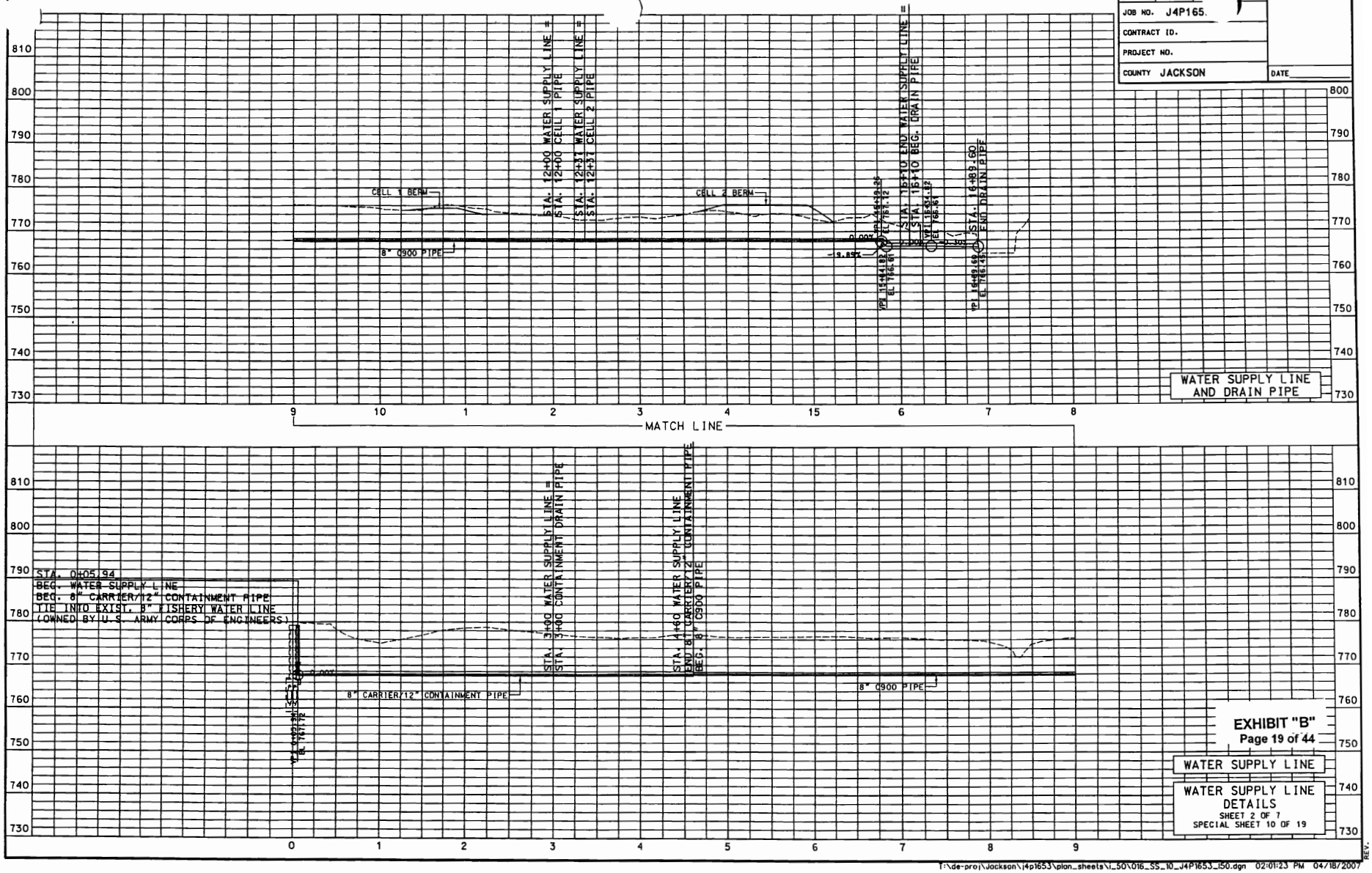

EXHIBIT "B"
Page 19 of 44

WATER SUPPLY LINE

WATER SUPPLY LINE DETAILS
SHEET 2 OF 7
SPECIAL SHEET 10 OF 19

REV.

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ROUTE	STATE	DISTRICT	SHEET NO.
40	MO		17

JOB NO. J4P1

CONTRACT ID.

PROJECT NO.

COUNTY JACKSON

DATE

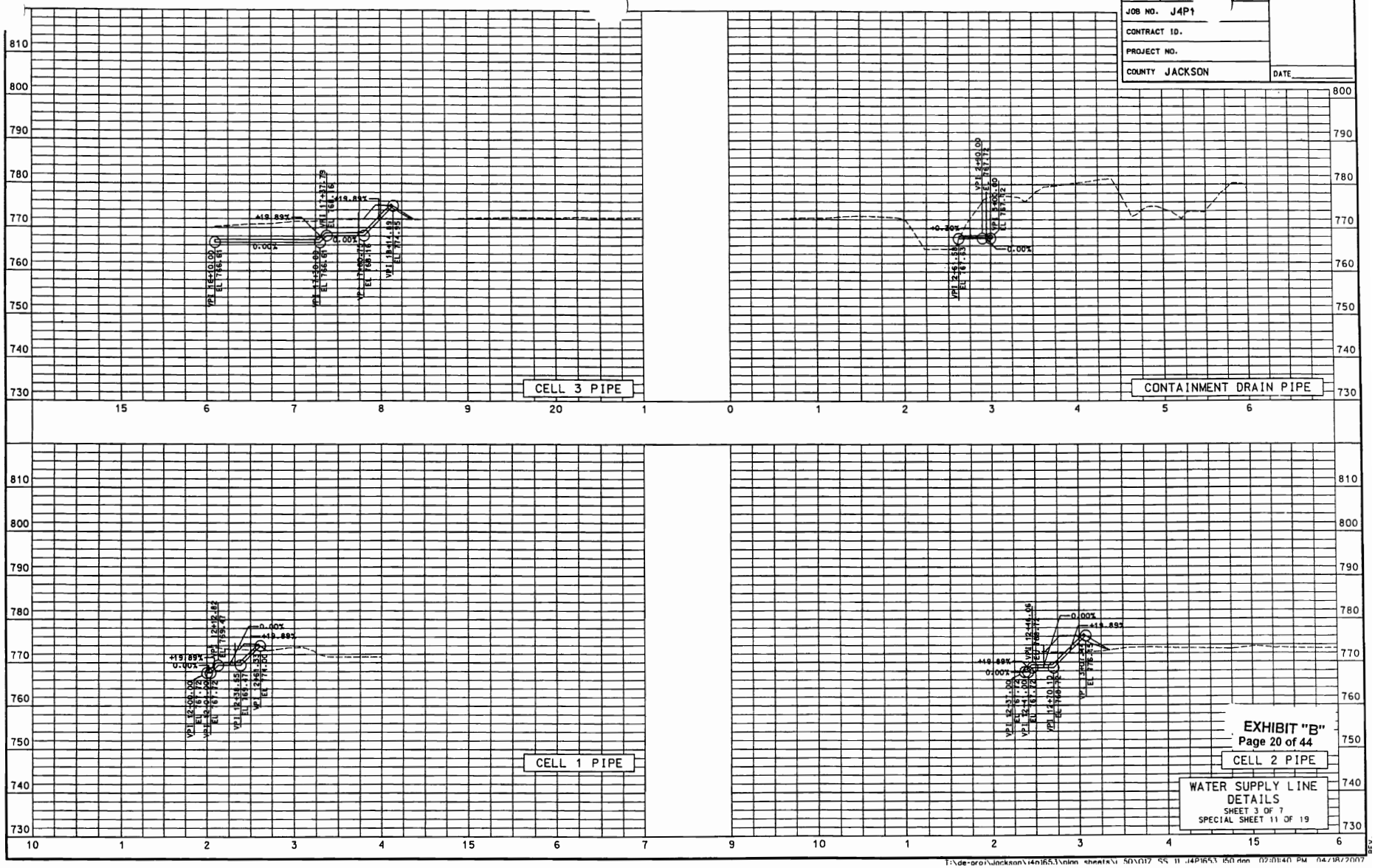

EXHIBIT "B"
Page 20 of 44

WATER SUPPLY LINE DETAILS
SHEET 3 OF 7
SPECIAL SHEET 11 OF 19

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ROUTE	STATE	DISTRICT	SHEET NO.
40	MO		18

JOB NO. J4P1653

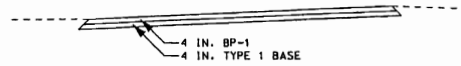
CONTRACT ID.

PROJECT NO.

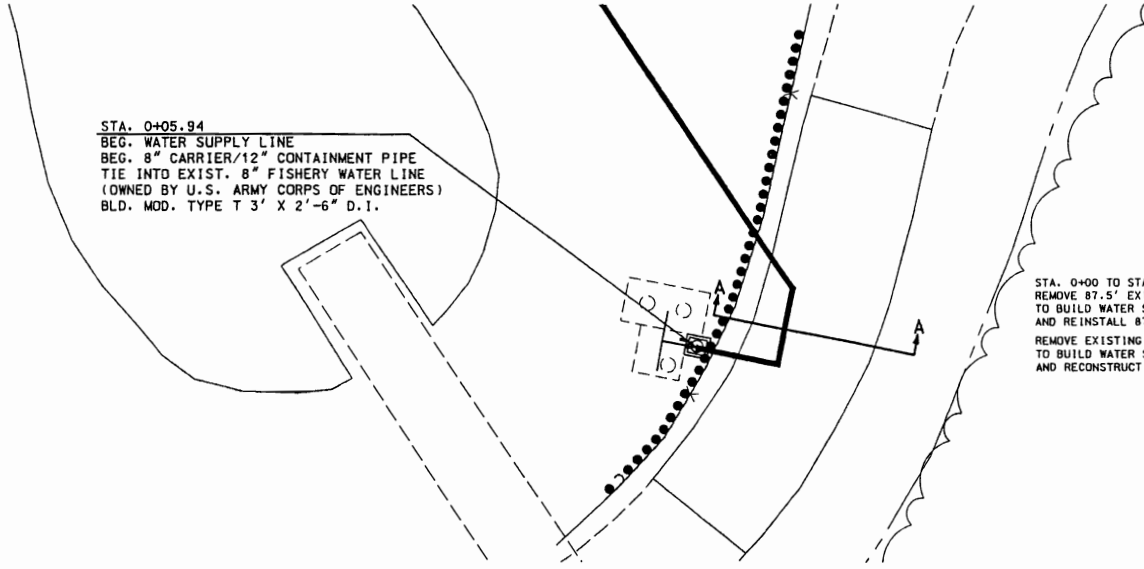
COUNTY JACKSON

DATE

SECTION A-A



DETAIL A



STA. 0+00 TO STA. 0+68.10
REMOVE 87.5' EXIST. GUARDRAIL
TO BUILD WATER SUPPLY LINE
AND REINSTALL 87.5' GUARDRAIL

REMOVE EXISTING PAVEMENT AS NEEDED
TO BUILD WATER SUPPLY LINE
AND RECONSTRUCT PAVEMENT AS SHOWN IN SECTION A-A

NOT TO SCALE

EXHIBIT "B"
Page 21 of 44

PAVEMENT
AND GUARDRAIL

WATER SUPPLY LINE
DETAILS
SHEET 4 OF 7
SPECIAL SHEET 12 OF 19

REV.

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ROUTE	STATE	DISTRICT	SHEET NO.
40	MO		19

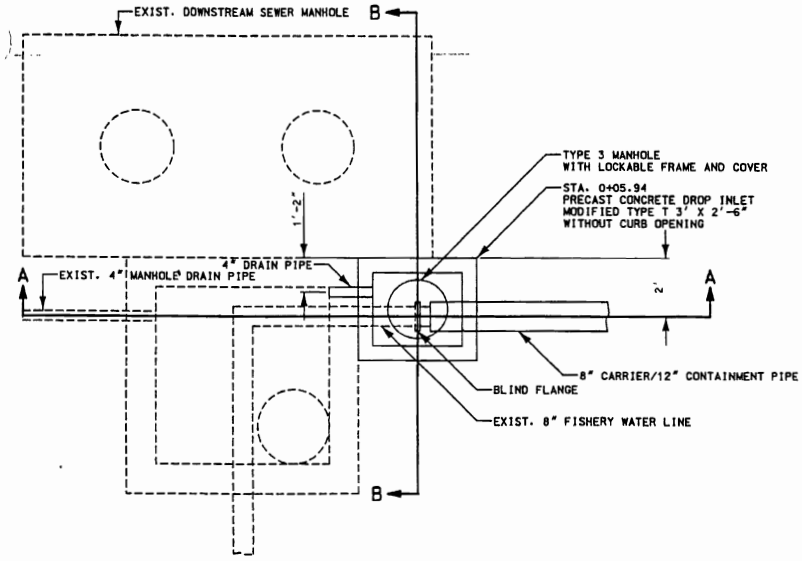
JOB NO. J4P16

CONTRACT ID.

PROJECT NO.

COUNTY JACKSON

DATE



NOTE:

ALL DIMENSIONS ARE APPROXIMATE.
ALL DIMENSIONS SHALL BE VERIFIED IN THE FIELD.

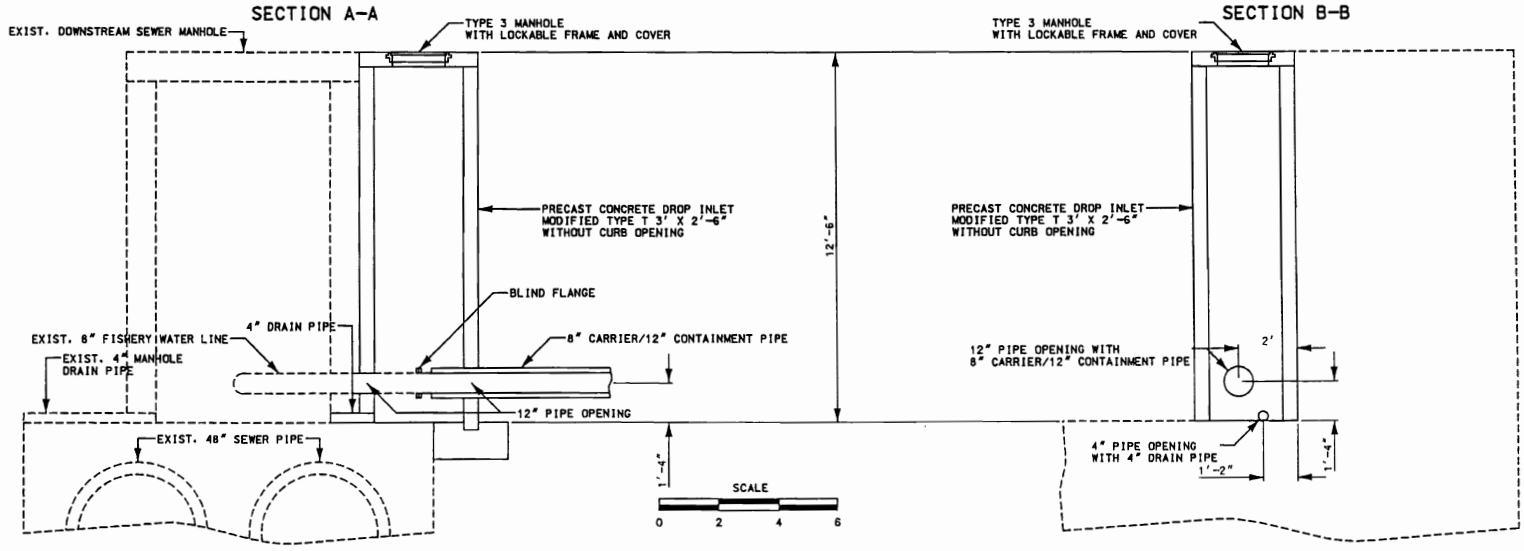


EXHIBIT "B"

Page 22 of 44

DROP INLET
AT
EXISTING MANHOLE

WATER SUPPLY LINE
DETAILS
SHEET 5 OF 7
SPECIAL SHEET 13 OF 19

REV.

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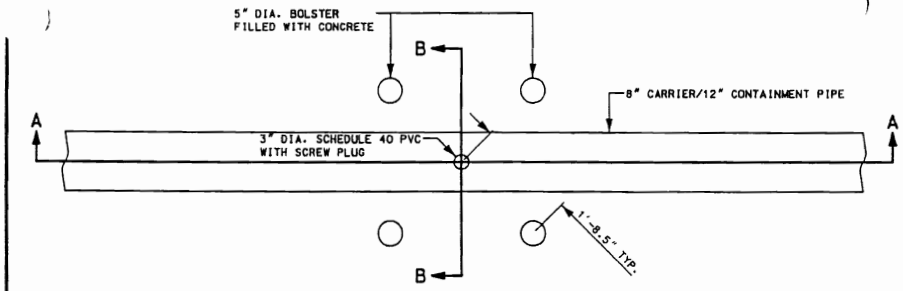
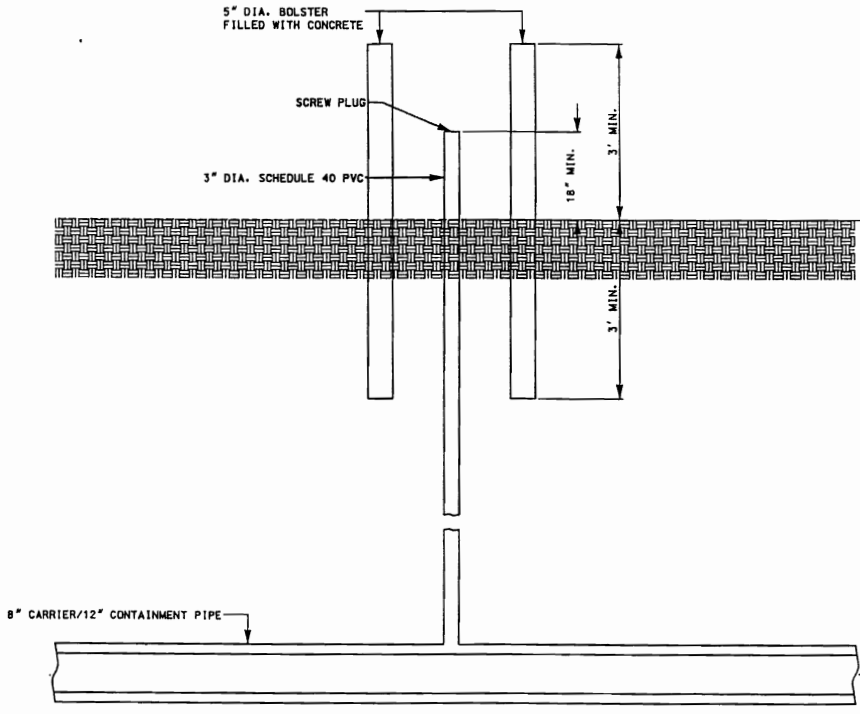
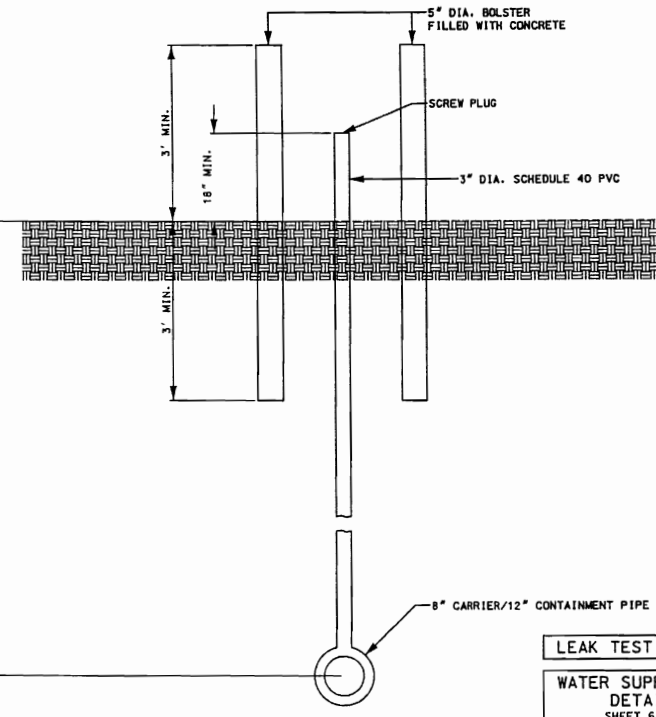
ROUTE	STATE	DISTRICT	SHEET NO.
40	MO		20
JOB NO. J4P1653			
CONTRACT ID.			
PROJECT NO.			
COUNTY JACKSON			DATE



SECTION A-A



SECTION B-B



SCALE

0 1 2 3

EXHIBIT "B"

Page 23 of 44

LEAK TEST STATION

WATER SUPPLY LINE DETAILS
SHEET 6 OF 7
SPECIAL SHEET 14 OF 19

REV.

I:\de-proj\jackson\j4p1653\plan sheets\ 1\020 SS 14 J4P1653 11.dgn 02:22:34 PM 04/18/2007

ROUTE	STATE	DISTRICT	SHEET NO.
40	MO		21

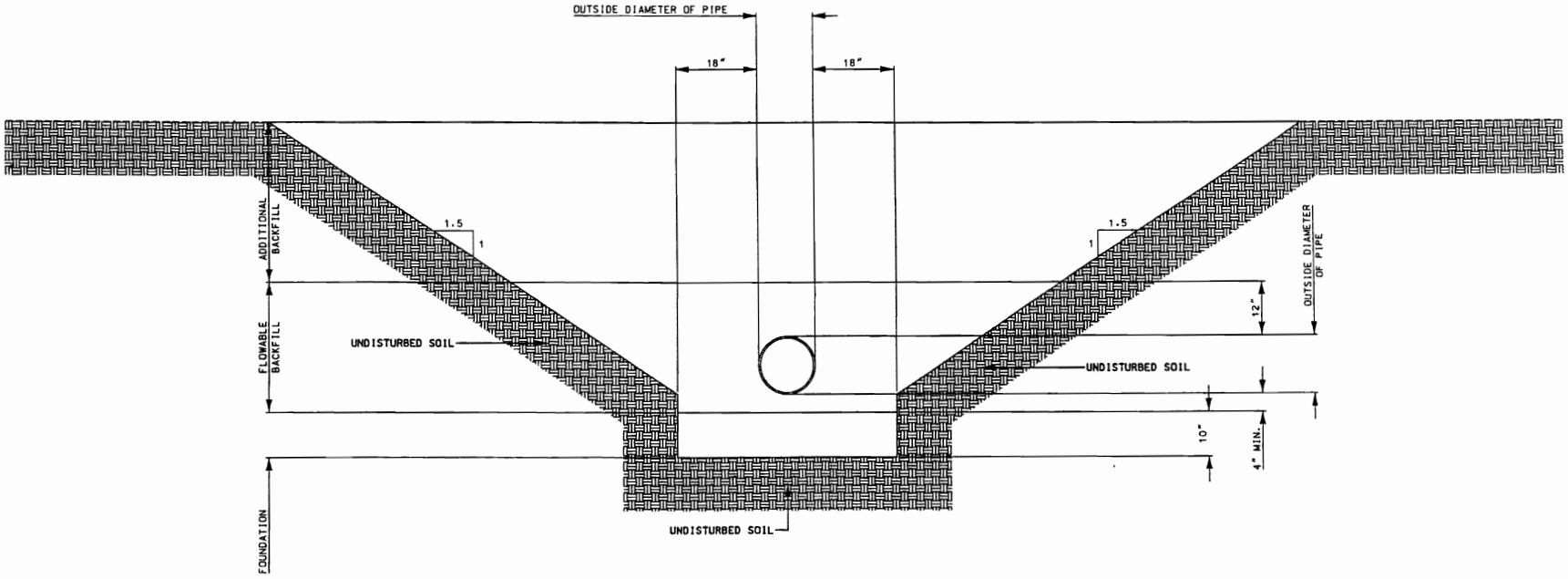
JOB NO. J4P1

CONTRACT ID.

PROJECT NO.

COUNTY JACKSON

DATE



NOT TO SCALE

EXHIBIT "B"
Page 24 of 44

TRENCHING

WATER SUPPLY LINE DETAILS
SHEET 7 OF 7
SPECIAL SHEET 15 OF 19

REV.

T:\de-proj\Jackson\j4p1653\plan_sheets_1\021_SS_15_J4P1653_11.dgn 02:23:00 PM 04/18/2007

ROUTE	STATE	DISTRICT	SHEET NO.
40	MO		22

JOB NO. J4P1653

CONTRACT ID.

PROJECT NO.

COUNTY JACKSON

DATE

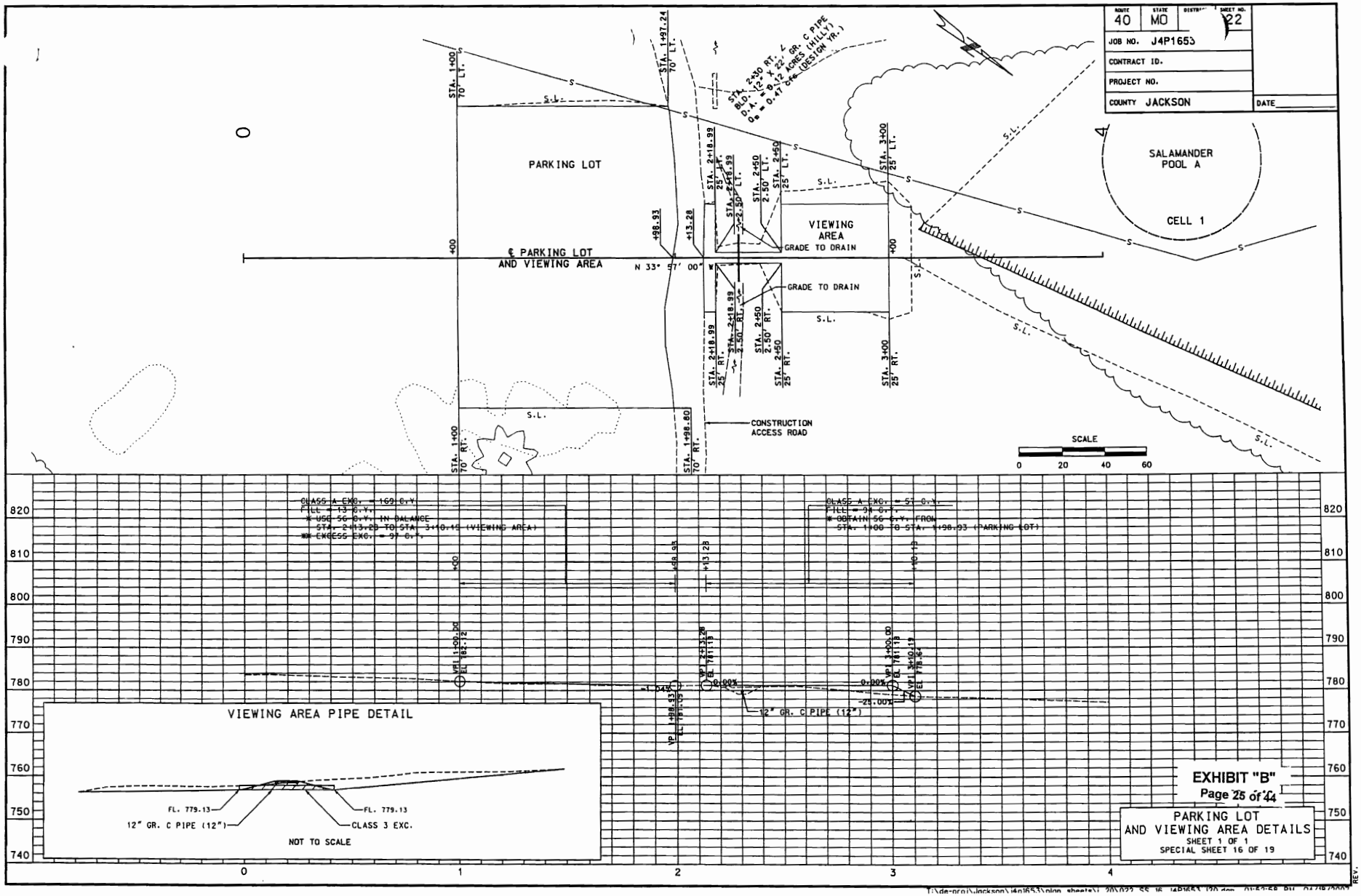


EXHIBIT "B"
Page 25 of 44

PARKING LOT
AND VIEWING AREA DETAILS
SHEET 1 OF 1
SPECIAL SHEET 16 OF 19

REV.

T:\de-proj\Jackson\j4p1653\plan sheets\ 20\022 SS 16 J4P1653 120.dgn 01:52:58 PM 04/18/2007

ROUTE	STATE	DISTRICT	SHEET NO.
40	MO		23

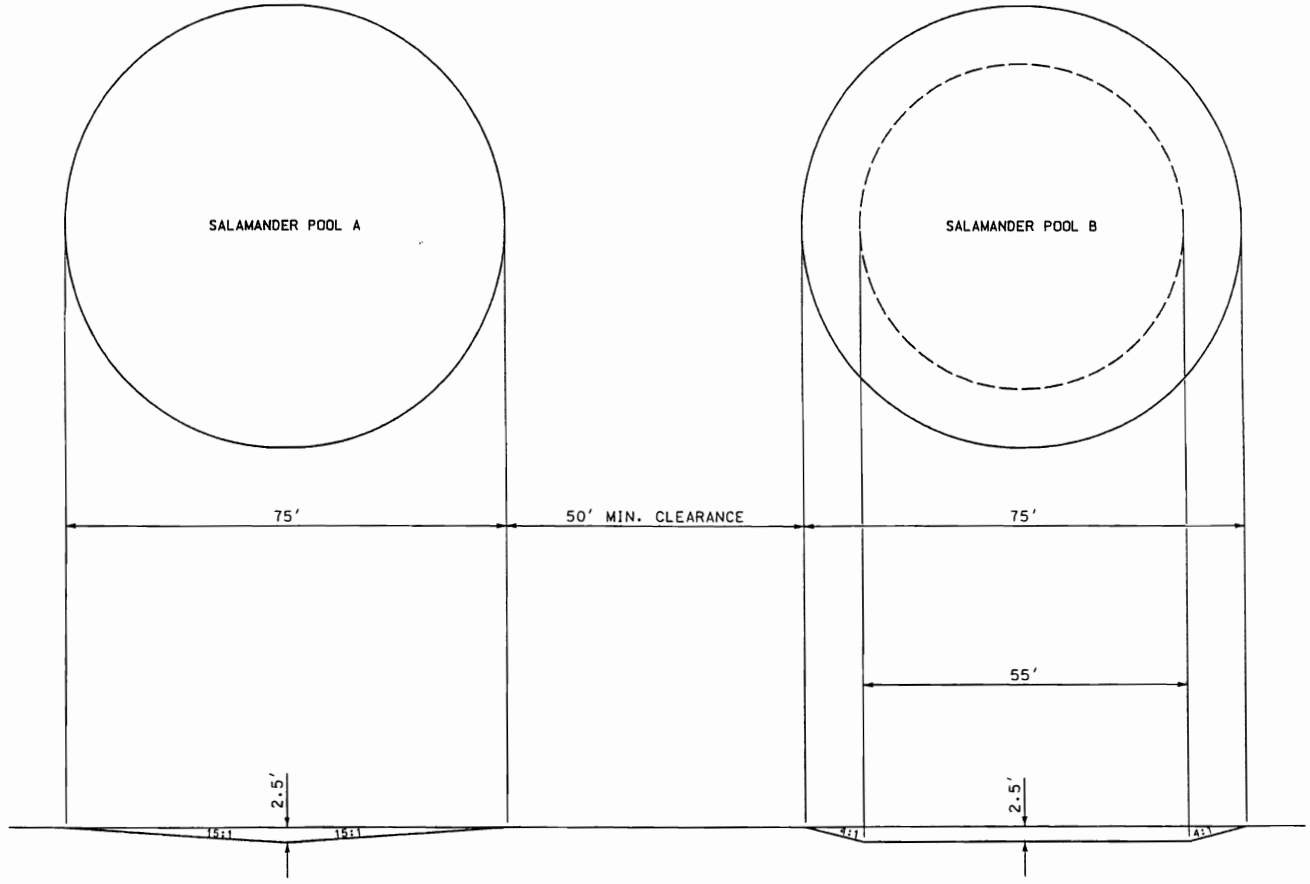
JOB NO. J4P1

CONTRACT ID.

PROJECT NO.

COUNTY JACKSON

DATE



SCALE

0 10 20 30

EXHIBIT "B"

Page 26 of 44

SALAMANDER POOL DETAILS

SHEET 1 OF 1

SPECIAL SHEET 17 OF 19

REV.

T:\de-proj\Jackson\j4p1653\plan_sheets\1_10\023_SS_17_J4P1653_110.dgn 01:46:32 PM 04/18/2007

ROUTE	STATE	DISTRICT	SHEET NO.
40	MO		4

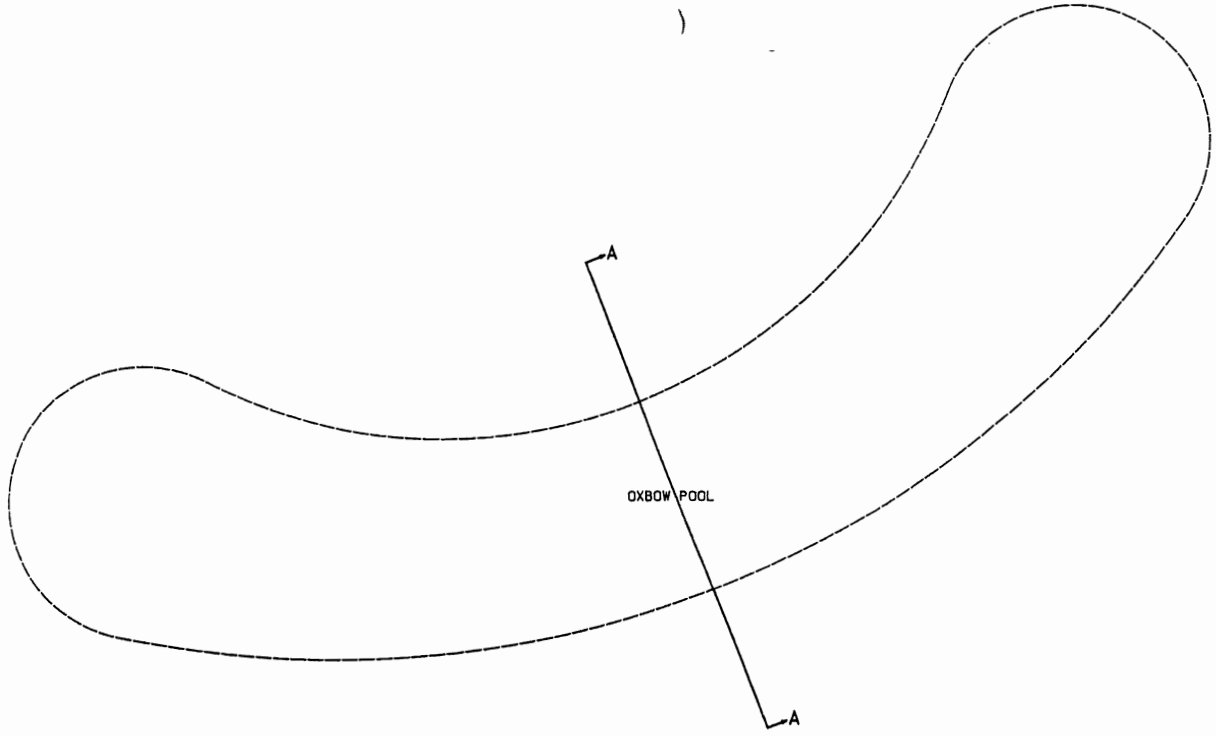
JOB NO. J4P1653

CONTRACT ID.

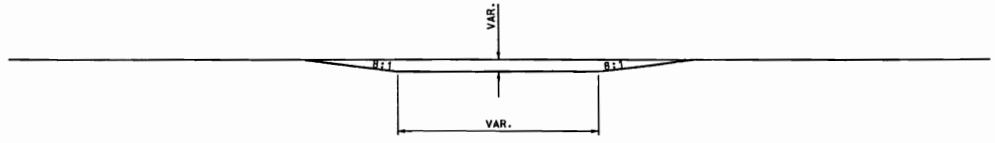
PROJECT NO.

COUNTY JACKSON

DATE



SECTION A-A



NOT TO SCALE

EXHIBIT "B"
Page 27 of 44

OXBOW POOL DETAILS
SHEET 1 OF 1
SPECIAL SHEET 18 OF 19

REV.

T:\de-proj\jackson\j4p1653\plan sheets\i 20\024 SS 18 J4P1653_I20.dgn 01:53:16 PM 04/18/2007

ROUTE	STATE	DISTRICT	SHEET NO.
40	MO		25

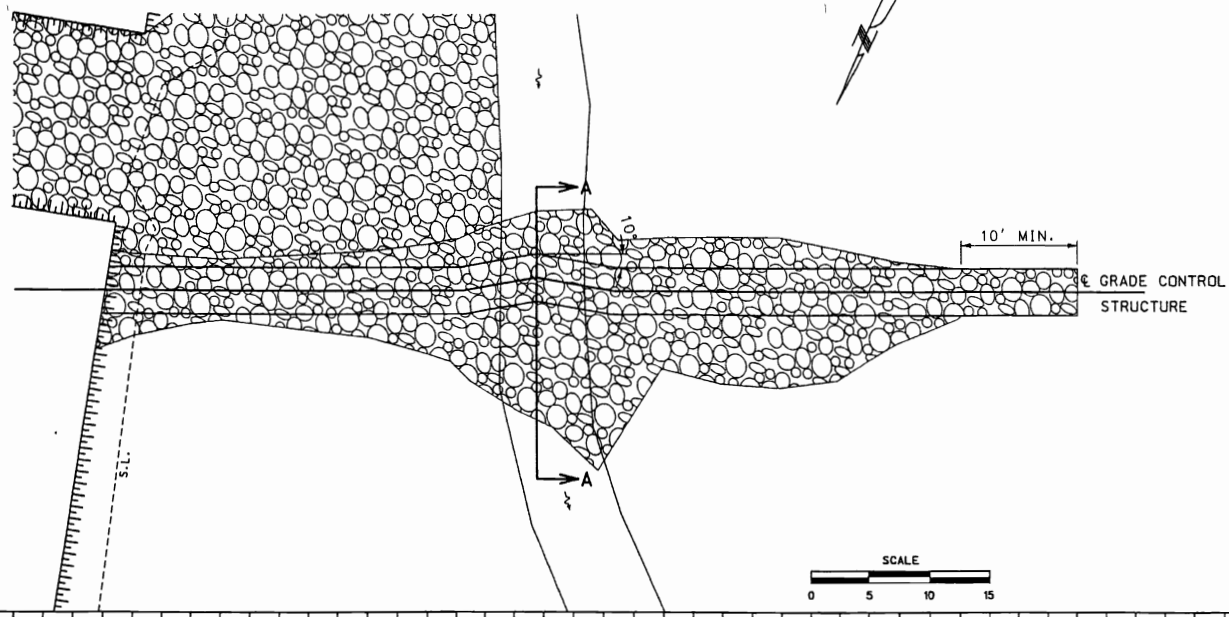
JOB NO. J4P16.

CONTRACT ID.

PROJECT NO.

COUNTY JACKSON

DATE



SCALE

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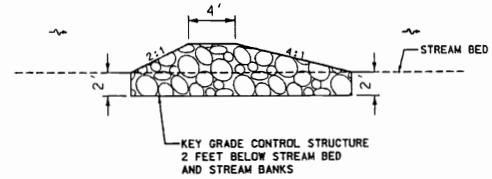
SECTION A-A



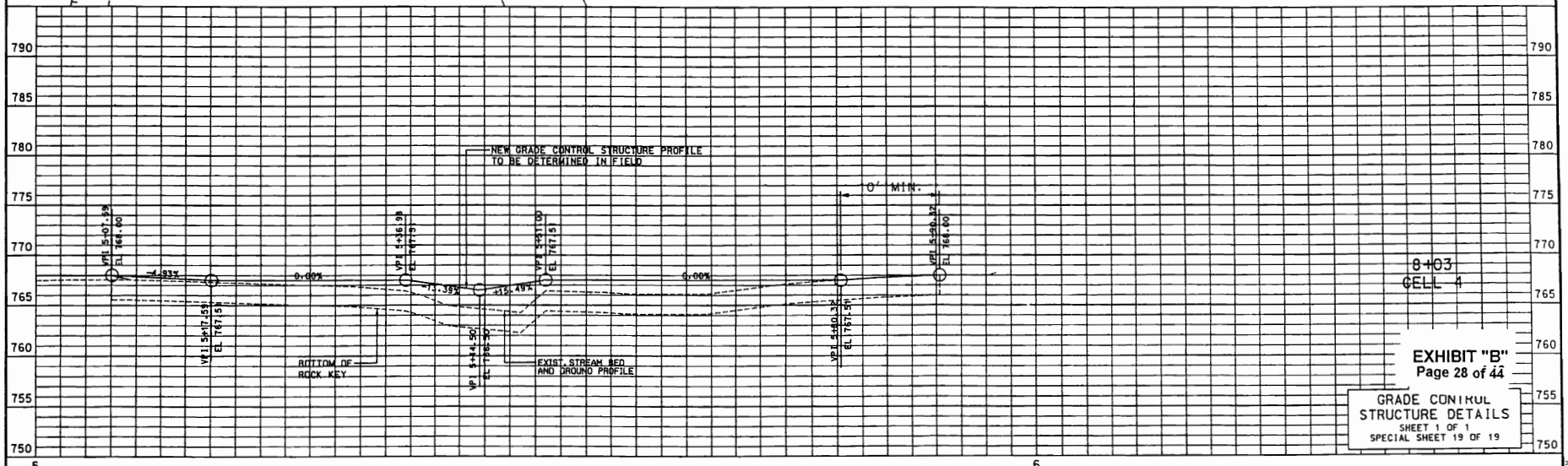


EXHIBIT "B"
Page 28 of 44

GRADE CONTROL
STRUCTURE DETAILS
SHEET 1 OF 1
SPECIAL SHEET 19 OF 19

REV.

I:\de-proj\Jackson\j4p165\\plan sheets\1 5\025 SS 19 J4P165\ j5.dgn 02:23:56 PM 04/18/2007

ROUTE	STATE	DISTRICT	SHEET NO.
40	MO	4	26

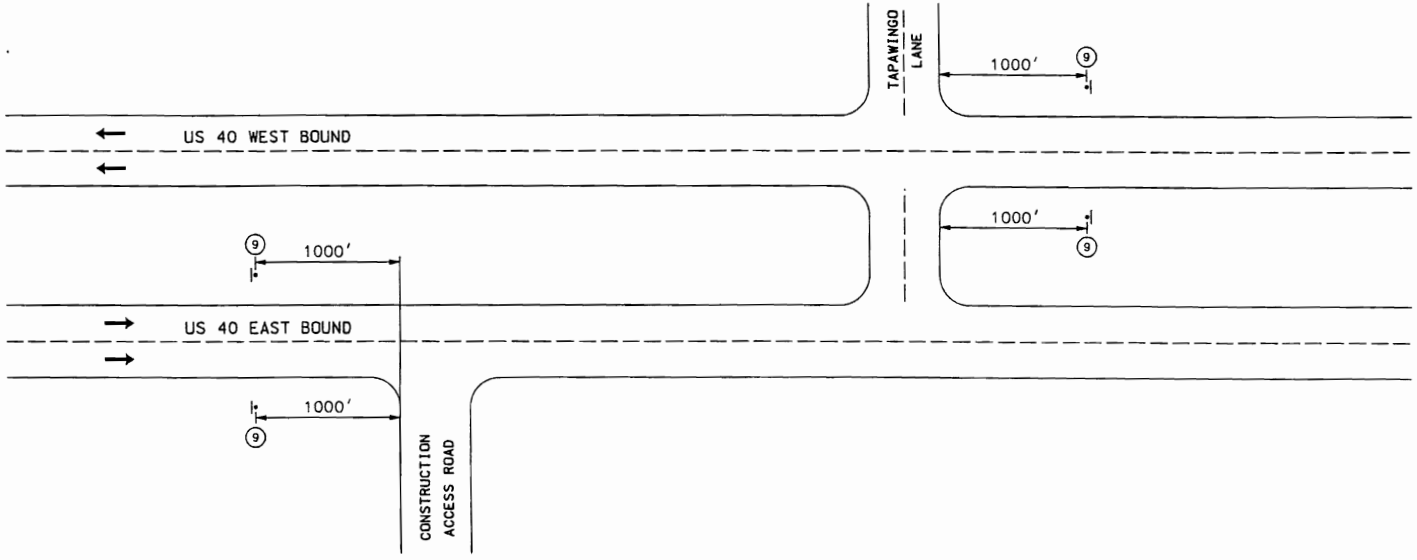
JOB NO. J4P1653

CONTRACT ID.

PROJECT NO.

COUNTY JACKSON

DATE



NOT TO SCALE

EXHIBIT "B"
Page 29 of 44

TRAFFIC CONTROL PLAN
SHEET 1 OF 1

REV.

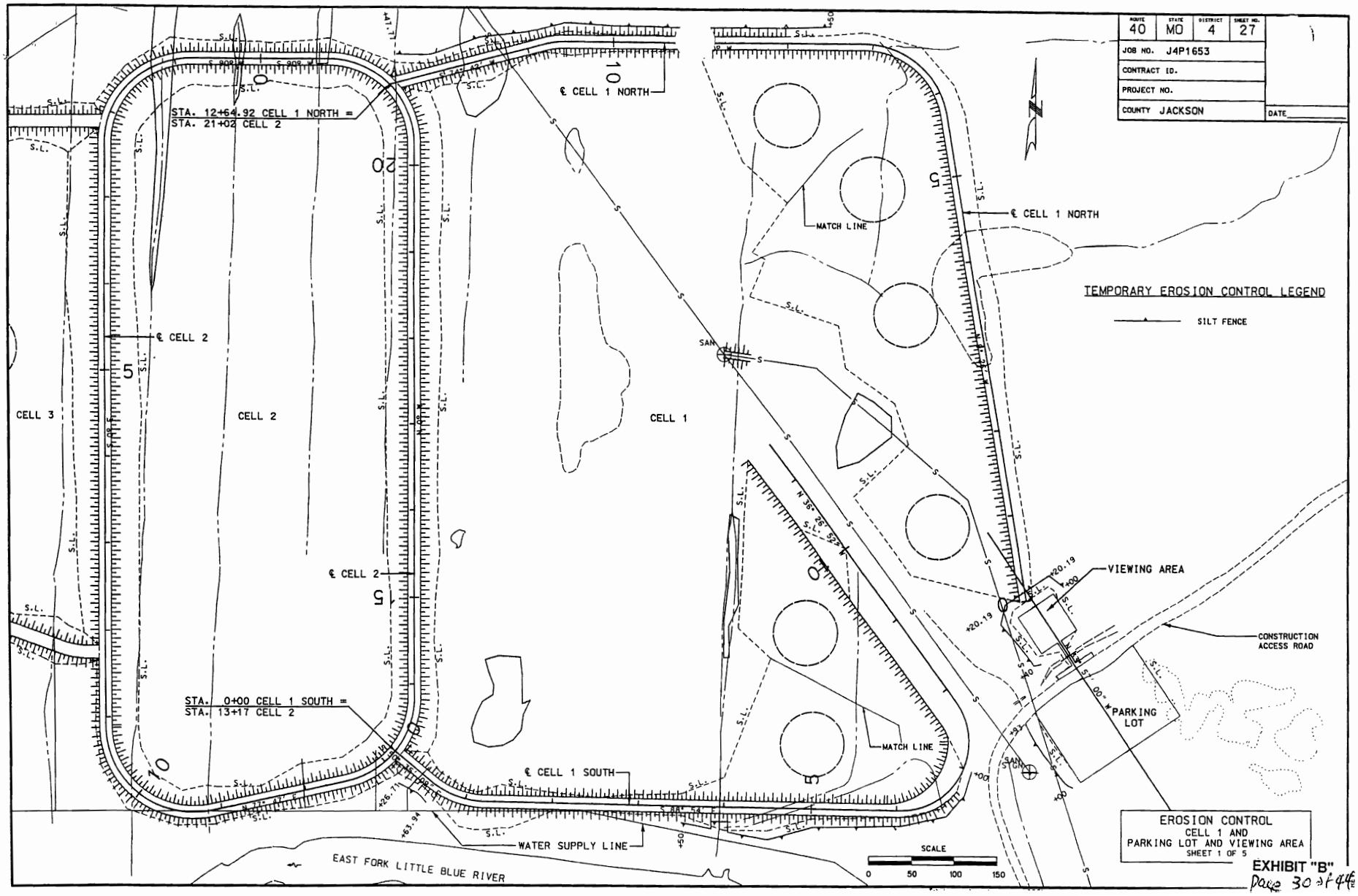


EXHIBIT "B"
Page 30 of 44

ROUTE	STATE	DISTRICT	SHEET NO.
40	MO	4	28

JOB NO. J4P1653

CONTRACT ID.

PROJECT NO.

COUNTY JACKSON

DATE

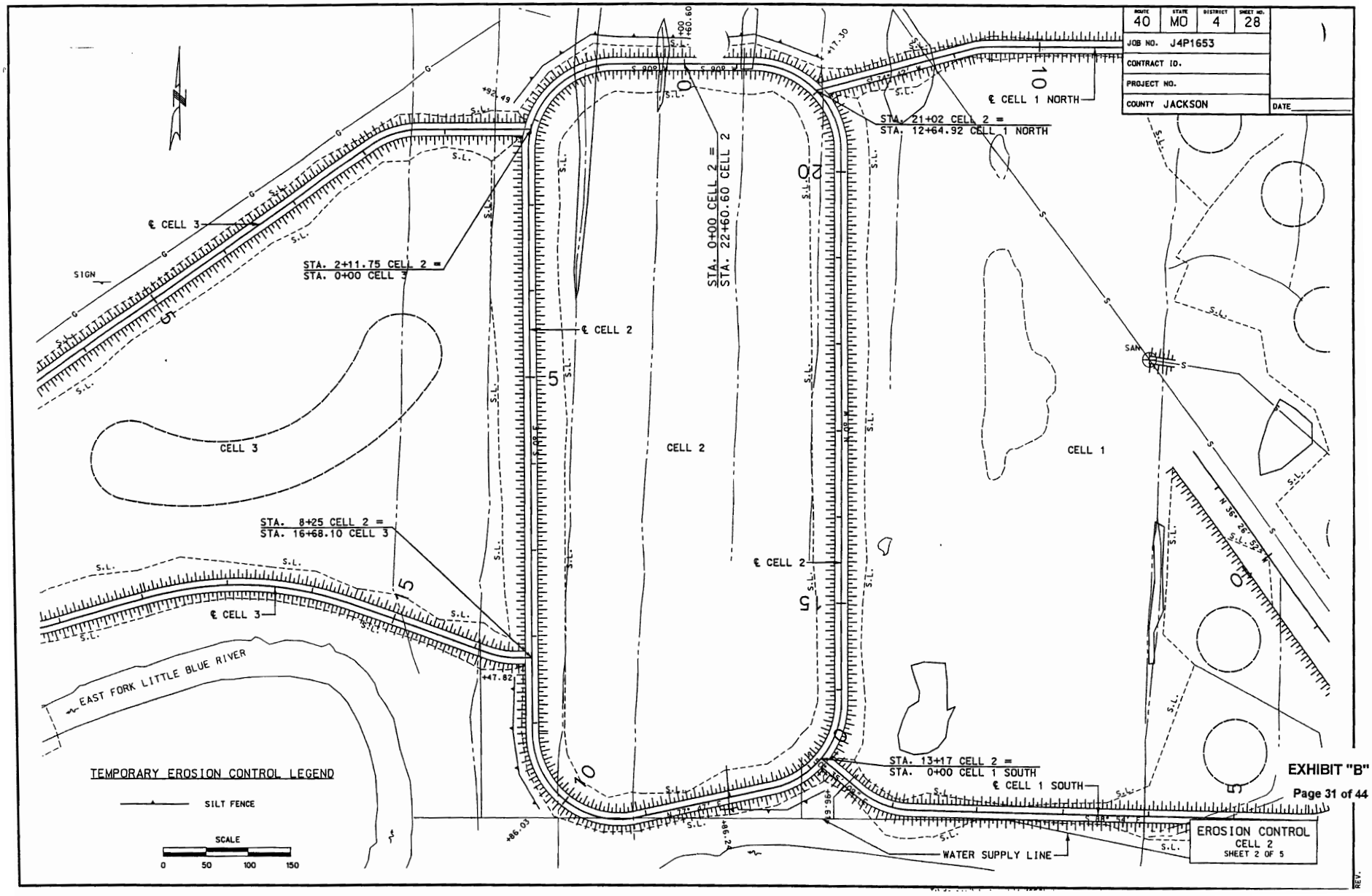


EXHIBIT "B"

ROUTE	STATE	DISTRICT	SHEET NO.
40	MO	4	29

JOB NO. J4P1653

CONTRACT ID.

PROJECT NO.

COUNTY JACKSON

DATE

TEMPORARY EROSION CONTROL LEGEND

SILT FENCE

SIGN

SIGN

SIGN

℄ CELL 3

CELL 3

℄ CELL 3

℄ CELL 2

CELL 2

℄ CELL 2

STA. 0+00 CELL 3 =
STA. 2+11.75 CELL 2

STA. 16+68.10 CELL 3 =
STA. 8+25 CELL 2

WATER SUPPLY LINE

EAST FORK LITTLE BLUE RIVER

SCALE

0 50 100 150

EXHIBIT "B"

Page 32 of 44

EROSION CONTROL
CELL 3
SHEET 3 OF 5

REV.

ROUTE	STATE	DISTRICT	SHEET NO.
40	MO	4	30

JOB NO. J4P1653

CONTRACT ID.

PROJECT NO.

COUNTY JACKSON

DATE

TEMPORARY EROSION CONTROL LEGEND

SILT FENCE

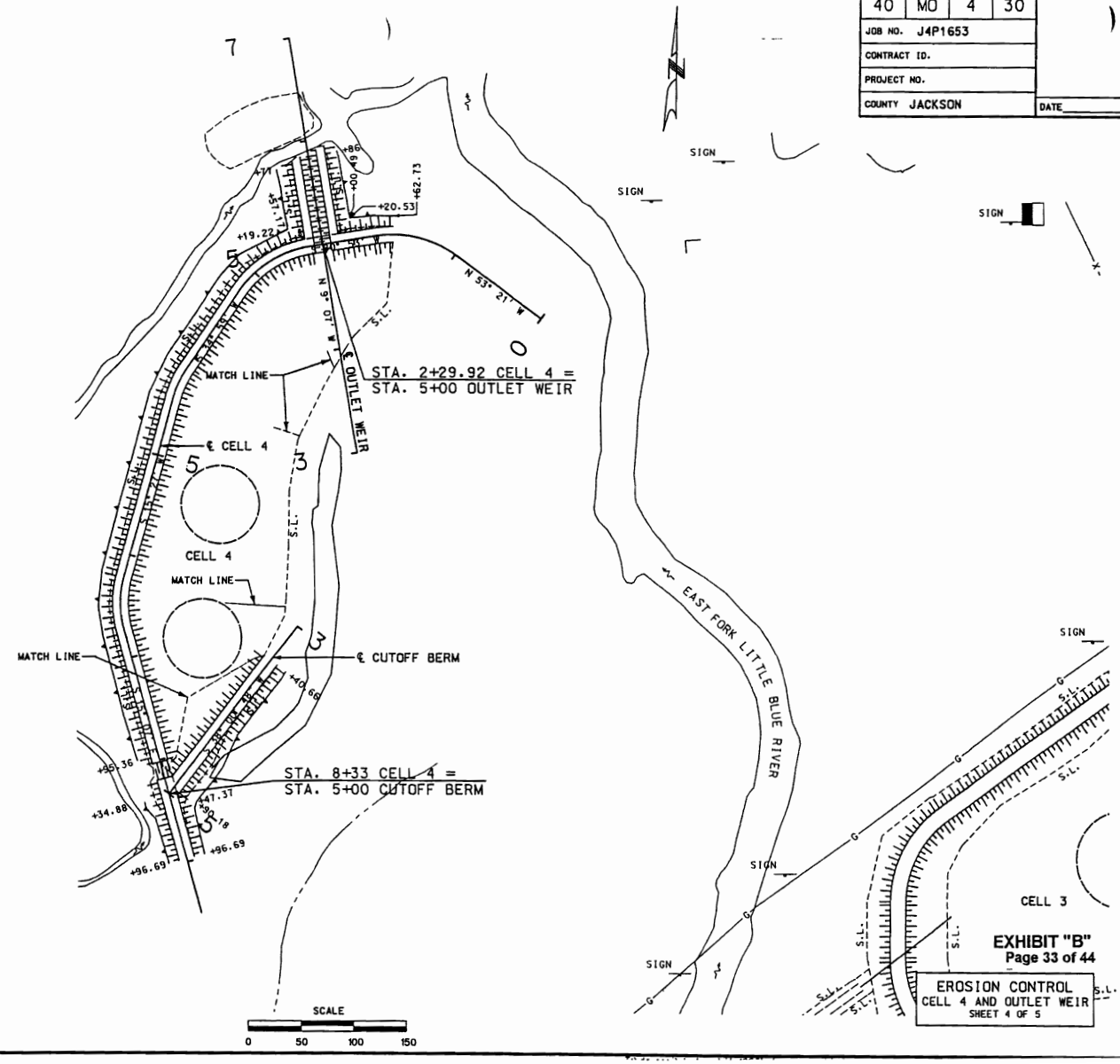


EXHIBIT "B"
Page 33 of 44

EROSION CONTROL
CELL 4 AND OUTLET WEIR
SHEET 4 OF 5

REV.

ROUTE	STATE	DISTRICT	SHEET NO.
40	MO	4	31

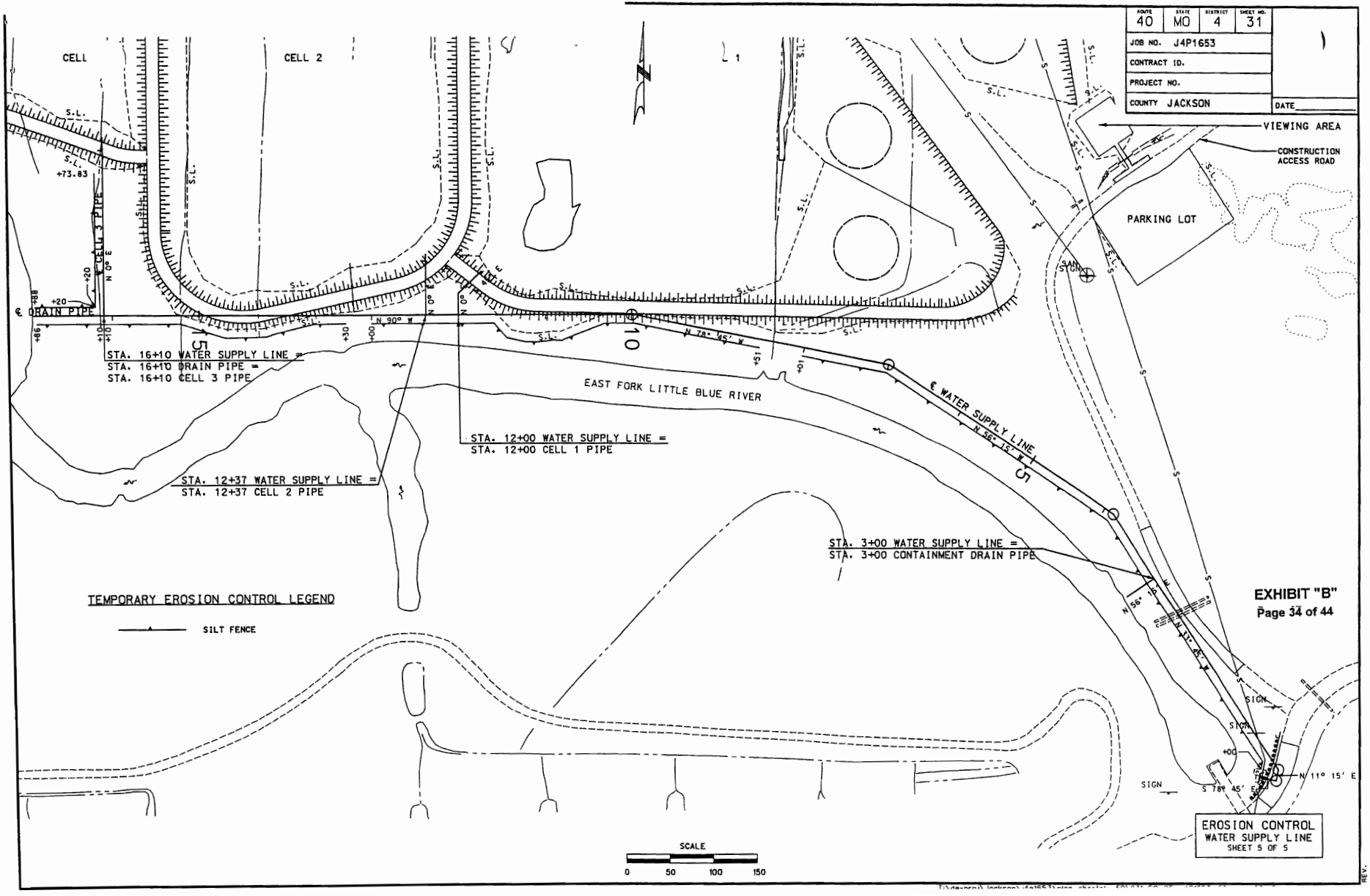
JOB NO. J4P1653

CONTRACT ID.

PROJECT NO.

COUNTY JACKSON

DATE



EROSION CONTROL
WATER SUPPLY LINE
SHEET 5 OF 5

EXHIBIT "B"
Page 34 of 44

REV.

ROUTE	STATE	DISTRICT	SHEET NO.
40	MO	4	32

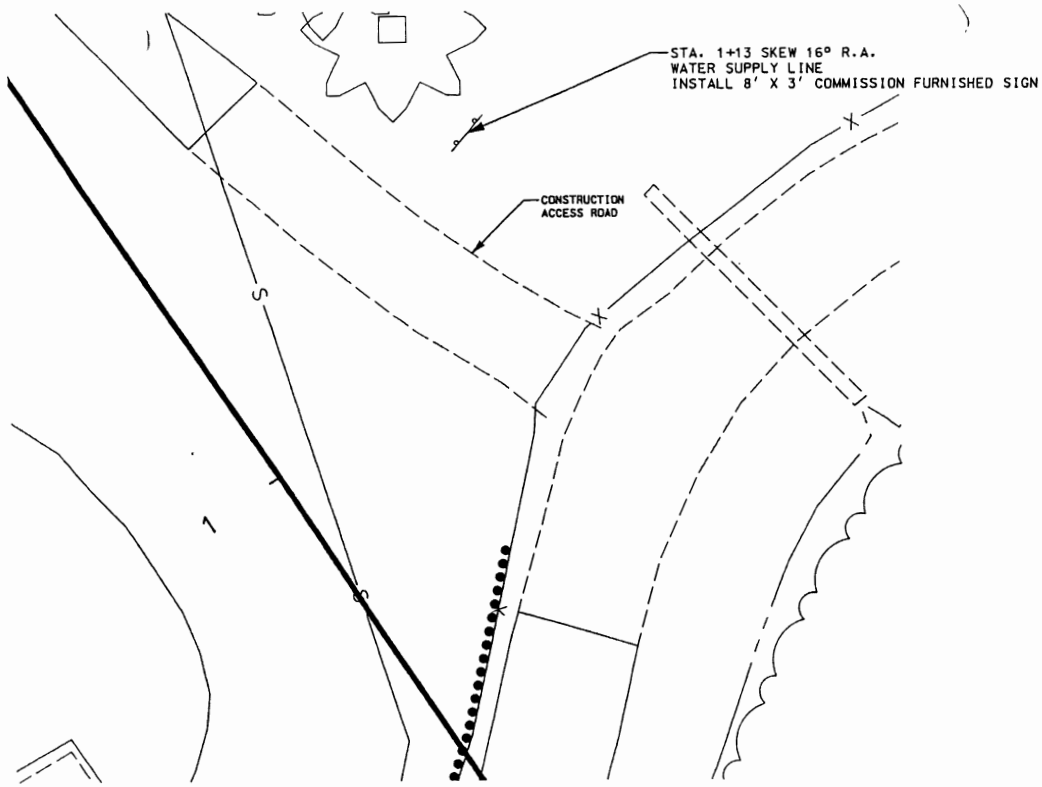
JOB NO. J4P1653

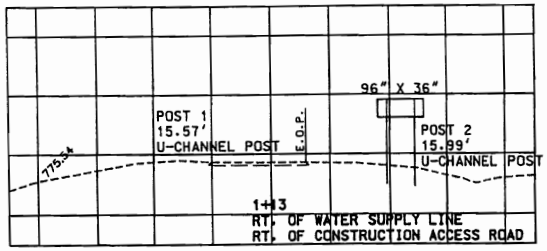
CONTRACT ID.

PROJECT NO.

COUNTY JACKSON

DATE



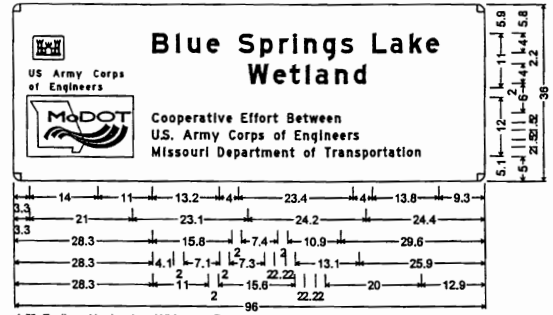


US Army Corps of Engineers

MoDOT

Blue Springs Lake Wetland

Cooperative Effort Between
U.S. Army Corps of Engineers
Missouri Department of Transportation



1.5" Radius, No border, White on Brown;
Corps;
[Blue Springs Lake] E Mod; [Wetland] E Mod;
[Cooperative Effort Between] D; [U.S. Army Corps of Engineers] D;
[Missouri Department of Transportation] D;
Table of letter and object lefts.

3.3	B 28.3	l 32.9	u 35.2	e 39.0	S 45.5	p 50.0	r 53.8	l 56.6	n 58.9	g 62.7	s 66.4	
	L 72.9	a 76.7	k 80.8	e 84.2								
3.3	W 47.4	e 52.6	t 56.0	l 59.2	a 61.2	n 65.3	d 69.0					
C 28.3	o 30.1	o 31.6	p 33.3	e 34.8	r 36.4	a 37.5	t 39.1	i 40.5	v 41.3	e 43.0		
	E 46.1	f 47.7	f 48.8	o 49.9	r 51.6	t 52.6	B 55.5	e 57.3	t 58.8	w 60.0	e 62.1	e 63.6	n 65.3
U 28.3	. 30.0	S 30.3	. 32.0	A 34.4	r 36.5	m 37.7	y 40.1	C 43.5	o 45.3	r 47.0	p 48.2	s 49.7	
	o 52.8	f 54.3	E 57.0	n 58.8	g 60.4	i 62.2	n 63.2	e 64.8	e 66.3	r 68.0	s 69.0	
M 28.3	i 30.5	s 31.3	s 32.8	o 34.3	u 35.9	r 37.7	i 38.9					
	D 41.3	e 43.0	p 44.7	a 46.2	r 47.9	t 49.0	m 50.4	e 52.8	n 54.4	t 56.0	o 58.9	f 60.4	
	T 63.1	r 64.9	a 66.0	n 67.7	s 69.3	p 71.0	o 72.4	r 74.1	t 75.2	a 76.4	t 78.0	i 79.4	o 80.3	n 81.9

SCALE
0 10 20 30

EXHIBIT "B"
Page 35 of 44

SIGNING PLAN
SHEET 1 OF 1

REV.

I:\de-proj\Jackson\j4p1653\plan_sheets\J_10\032_SN_01_J4P1653_10.dgn 01:48:51 PM 03/18/2004

ROUTE	STATE	DISTRICT	SHEET NO.
40	MO	4	33

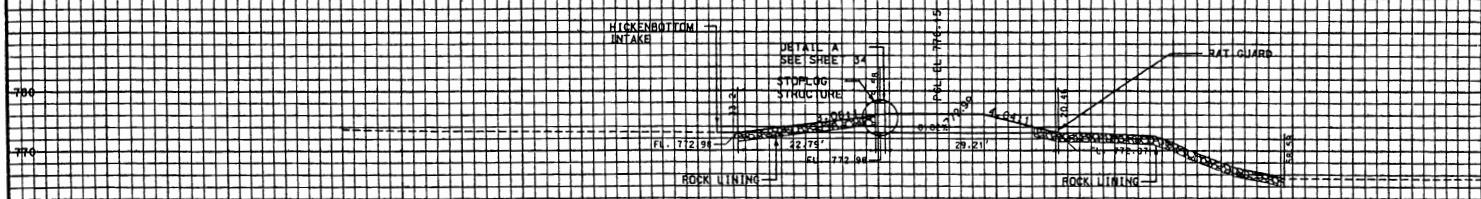
JOB NO. J4P1653

CONTRACT ID.

PROJECT NO.

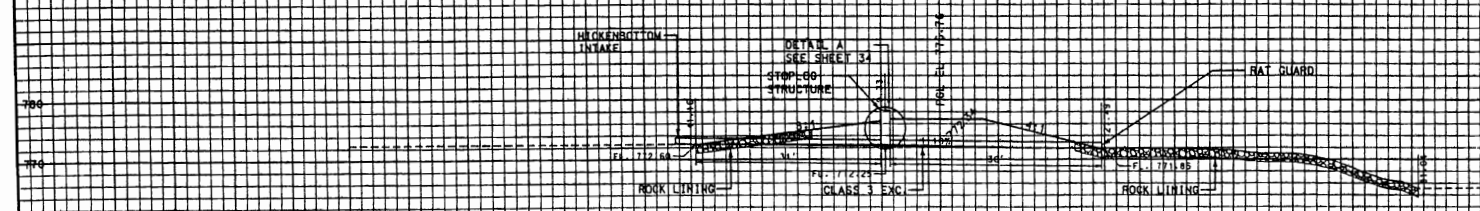
COUNTY JACKSON

DATE



11+98.00
CELL 2

STA. 11+98 SKEW 8° L.A.
BLD. INLINE WATER CONTROL STRUCTURE
(STOPLOG) D = 5'
BLD. 12" X 52' PVC W/ 12"X 42" HICKENBOTTOM INTAKE
AND 12" RAT GUARD
NOTE: ALL THE ABOVE QNTY. ARE INCLUDED
IN THE PRICE OF THE PVC
ROCK LINING = 61.1 CU.YD.



3+95.00
CELL 1 SOUTH

STA. 3+95 RT. ∠
BLD. INLINE WATER CONTROL STRUCTURE
(STOPLOG) D = 6'
BLD. 12" X 67' PVC W/ 12"X 42" HICKENBOTTOM INTAKE
AND 12" RAT GUARD
NOTE: ALL THE ABOVE QNTY. ARE INCLUDED
IN THE PRICE OF THE PVC
CLASS 3 EXC. = 1.3 CU.YD.
ROCK LINING = 89.3 CU.YD.

EXHIBIT "B"
Page 36 of 44

CULVERT SECTION
SHEET 1 OF 8

REV.

ROUTE	STATE	DISTRICT	SHEET NO.
40	MO	4	34

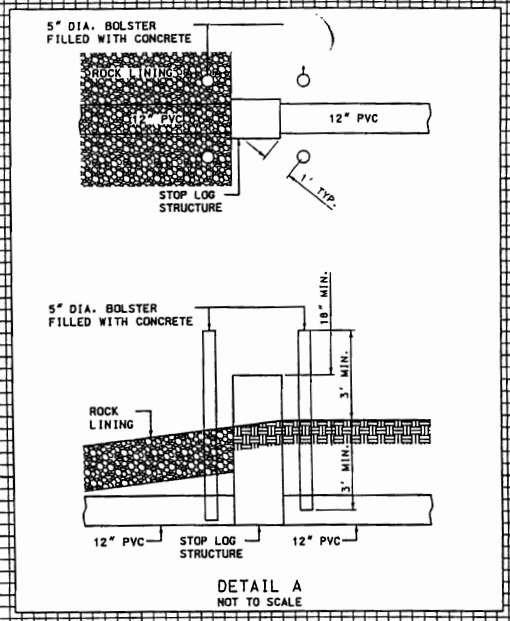
JOB NO. J4P1653

CONTRACT ID.

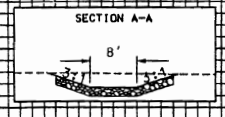
PROJECT NO.

COUNTY JACKSON

DATE



DETAIL A
NOT TO SCALE



9+03.00
CELL 3

STA. 9+03 SKEW 37° R.A.
BLD. INLINE WATER CONTROL STRUCTURE
(STOPLOG) D = 8'
BLD. 12" X 106' PVC W/ 12" X 42" HICKENBOTTOM INTAKE
AND 12" RAT GUARD
NOTE: ALL THE ABOVE QNTY. ARE INCLUDED
IN THE PRICE OF THE PVC
CLASS 3 EXC. = 8.5 CU.YD.
CLASS A EXC. = 206.0 CU.YD. (DITCH)
ROCK LINING = 270.0 CU.YD.

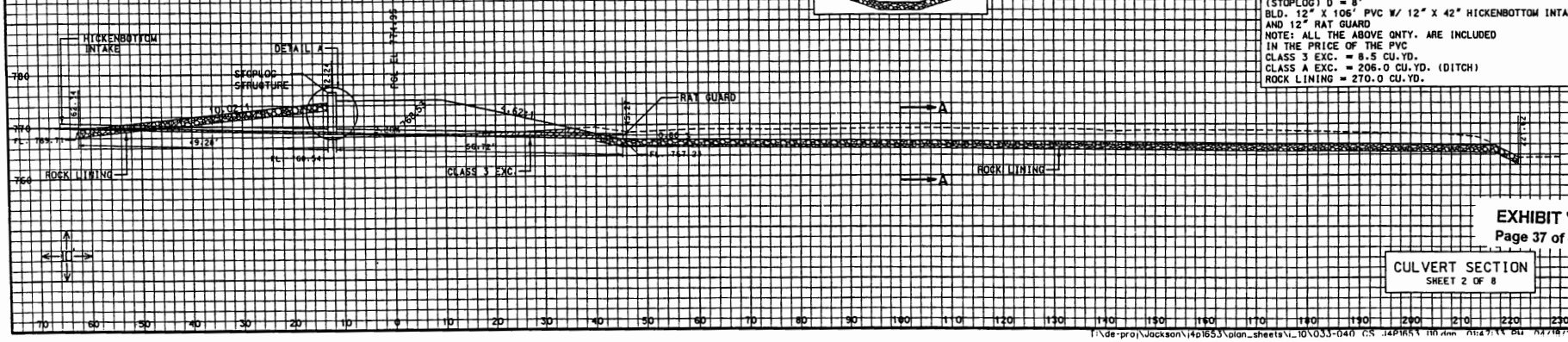


EXHIBIT "B"
Page 37 of 44

CULVERT SECTION
SHEET 2 OF 8

REV.

T:\de-proj\Jackson\j4p1653\plan_sheets\i_10\033-040 CS J4P1653 10.dgn 01:47:33 PM 04/18/2007

ROUTE	STATE	DISTRICT	SHEET NO.
40	MO	4	35

JOB NO. J4P1653

CONTRACT ID.

PROJECT NO.

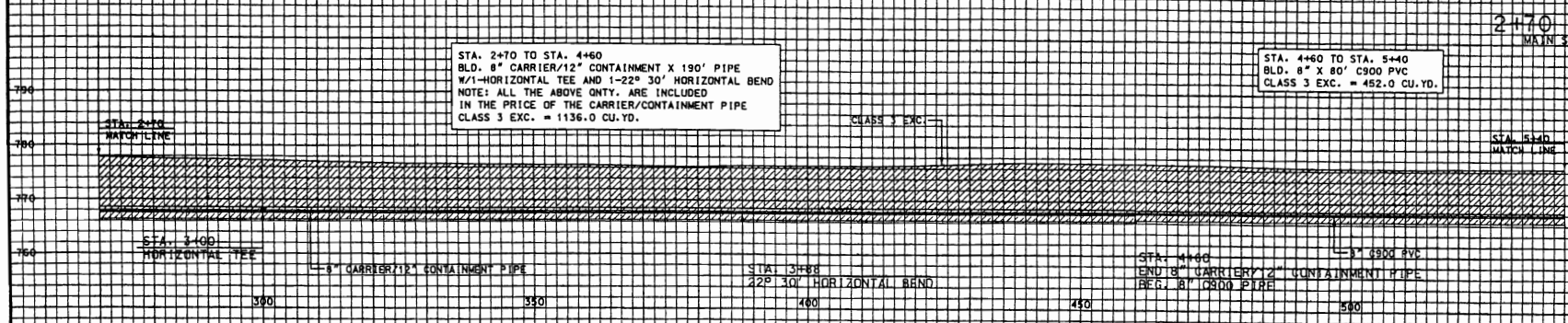
COUNTY JACKSON

DATE

2+70 TO 5+40
MAIN SUPPLY LINE

STA. 2+70 TO STA. 4+60
BLD. 8" CARRIER/12" CONTAINMENT X 190' PIPE
W/1-HORIZONTAL TEE AND 1-22° 30' HORIZONTAL BEND
NOTE: ALL THE ABOVE QNTY. ARE INCLUDED
IN THE PRICE OF THE CARRIER/CONTAINMENT PIPE
CLASS 3 EXC. = 1136.0 CU.YD.

STA. 4+60 TO STA. 5+40
BLD. 8" X 80' C900 PVC
CLASS 3 EXC. = 452.0 CU.YD.



0+05.94 TO 2+70
MAIN SUPPLY LINE

STA. 0+05.94
BLD. MODIFIED PRECAST TYPE T 3' X 2'-6" D.I.
W/2-12" P.O. AND 1-4" P.O. D =12.5'.
1 TYPE 3 MANHOLE FRAME AND COVER (LOCKABLE)
CLASS 3 EXC. = 42.0 CU.YD.

STA. 0+05.94 TO STA. 2+00
BLD. 8" CARRIER/12" CONTAINMENT X 194.1' PIPE
W/1-90° HORIZONTAL BEND AND 1-45° HORIZONTAL BEND
NOTE: ALL THE ABOVE QNTY. ARE INCLUDED
IN THE PRICE OF THE CARRIER/CONTAINMENT PIPE
CLASS 3 EXC. = 1279.0 CU.YD.

STA. 2+00
BLD. LEAK TEST STATION
CLASS 3 EXC. = 26.0 CU.YD.

STA. 2+00 TO STA. 2+70
BLD. 8" CARRIER/12" CONTAINMENT X 70' PIPE
CLASS 3 EXC. = 517.0 CU.YD.

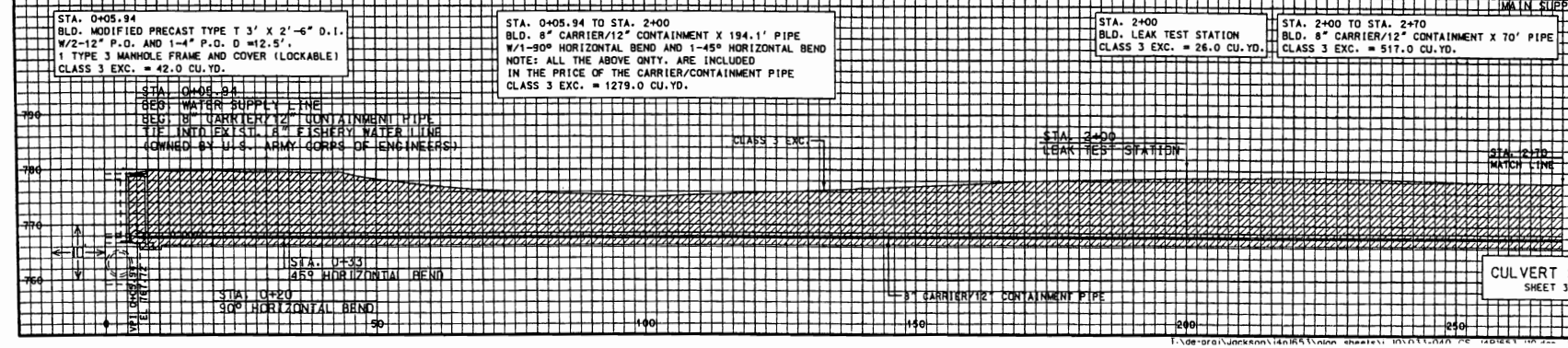


EXHIBIT "B"
Page 38 of 44

CULVERT SECTION
SHEET 3 OF 8

REV.

ROUTE	STATE	DISTRICT	SHEET NO.
40	MO	4	36

JOB NO. J4P1653

CONTRACT ID.

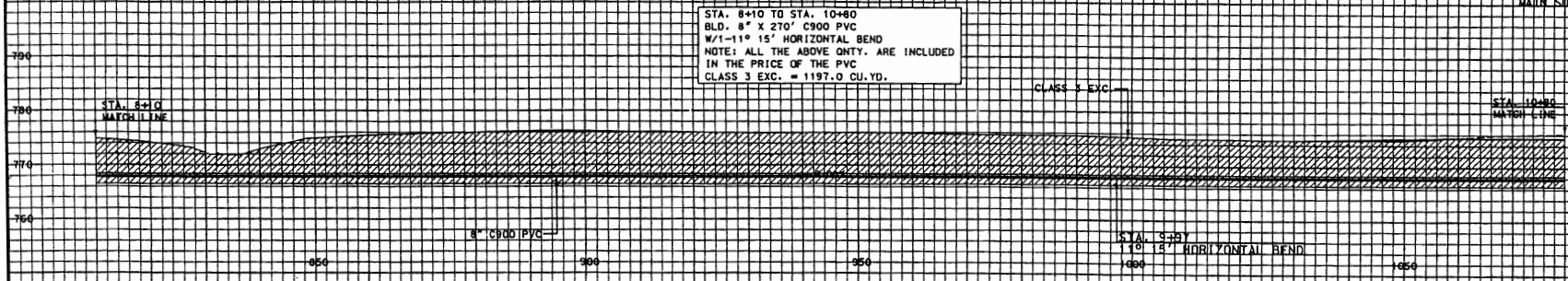
PROJECT NO.

COUNTY JACKSON

DATE

8+10 TO 10+80
MAIN SUPPLY LINE

STA. 8+10 TO STA. 10+80
BLD. 8" X 270' C900 PVC
W/1-11° 15' HORIZONTAL BEND
NOTE: ALL THE ABOVE QNTY. ARE INCLUDED
IN THE PRICE OF THE PVC
CLASS 3 EXC. = 1197.0 CU.YD.



5+40 TO 8+10
MAIN SUPPLY LINE

STA. 5+40 TO STA. 8+10
BLD. 8" X 270' C900 PVC
W/1-22° 30' HORIZONTAL BEND
NOTE: ALL THE ABOVE QNTY. ARE INCLUDED
IN THE PRICE OF THE PVC
CLASS 3 EXC. = 1467.0 CU.YD.

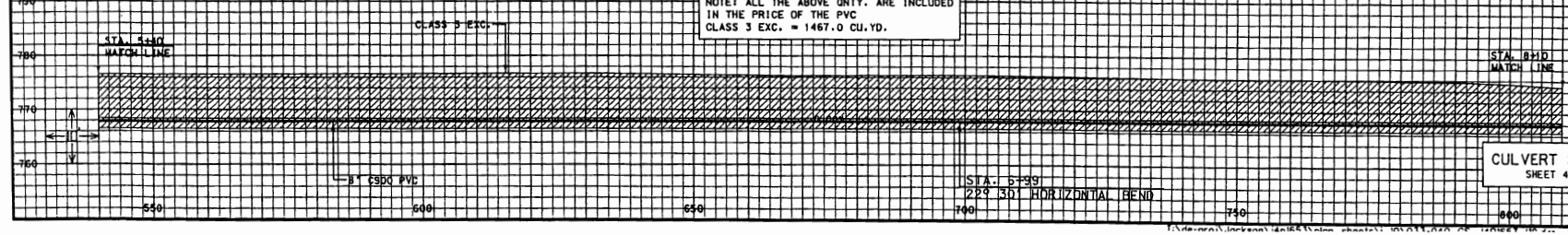


EXHIBIT "B"
Page 39 of 44

CULVERT SECTION
SHEET 4 OF 8

REV.

ROUTE	STATE	DISTRICT	SHEET NO.
40	MO	4	37

JOB NO. J4P1653

CONTRACT ID.

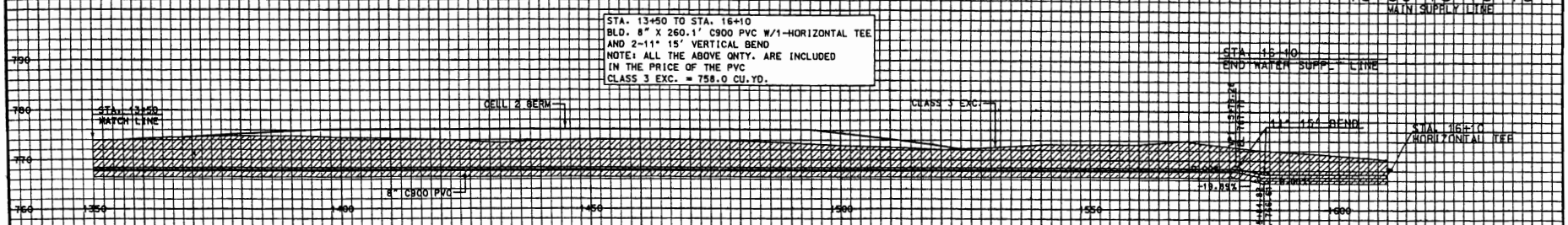
PROJECT NO.

COUNTY JACKSON

DATE

13+50 TO 16+10
MAIN SUPPLY LINE

STA. 13+50 TO STA. 16+10
BLD. 8" X 260.1' C900 PVC W/1-HORIZONTAL TEE
AND 2-11° 15' VERTICAL BEND
NOTE: ALL THE ABOVE QNTY. ARE INCLUDED
IN THE PRICE OF THE PVC
CLASS 3 EXC. = 758.0 CU.YD.



10+80 TO 13+50
MAIN SUPPLY LINE

STA. 10+80 TO STA. 13+50
BLD. 8" X 270' C900 PVC
W/2-HORIZONTAL TEE
NOTE: ALL THE ABOVE QNTY. ARE INCLUDED
IN THE PRICE OF THE PVC
CLASS 3 EXC. = 762.0 CU.YD.

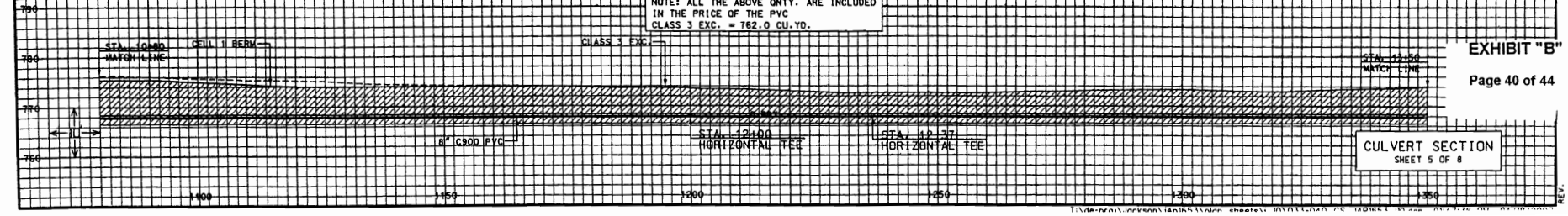


EXHIBIT "B"

Page 40 of 44

CULVERT SECTION
SHEET 5 OF 8

REV.

ROUTE	STATE	DISTRICT	SHEET NO.
40	MO	4	38

JOB NO. J4P1653

CONTRACT ID.

PROJECT NO.

COUNTY JACKSON

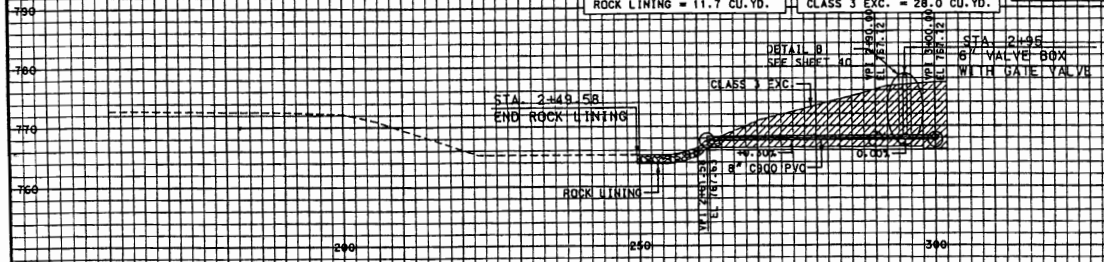
DATE

STA. 2+61.58 TO STA. 2+95
BLD. 8" X 33.4' C900 PVC
CLASS 3 EXC. = 83.0 CU.YD.
ROCK LINING = 11.7 CU.YD.

STA. 2+95
BLD. 6" VALVE BOX
BLD. 8" GATE VALVE
CLASS 3 EXC. = 28.0 CU.YD.

STA. 2+95 TO STA. 3+00
BLD. 8" X 5' C900 PVC
CLASS 3 EXC. = 3.0 CU.YD.

2+61.58 TO 3+00
CONTAINMENT DRAIN PIPE



STA. 16+10 TO STA. 16+22
BLD. 8" X 12' C900 PVC
CLASS 3 EXC. = 11.0 CU.YD.

STA. 16+22
BLD. 6" VALVE BOX
BLD. 8" GATE VALVE
CLASS 3 EXC. = 6.0 CU.YD.

STA. 16+22 TO STA. 16+89.60
BLD. 8" X 67.6' C900 PVC
CLASS 3 EXC. = 71.0 CU.YD.
ROCK LINING = 10.5 CU.YD.

16+10 TO 16+89.60
DRAIN PIPE

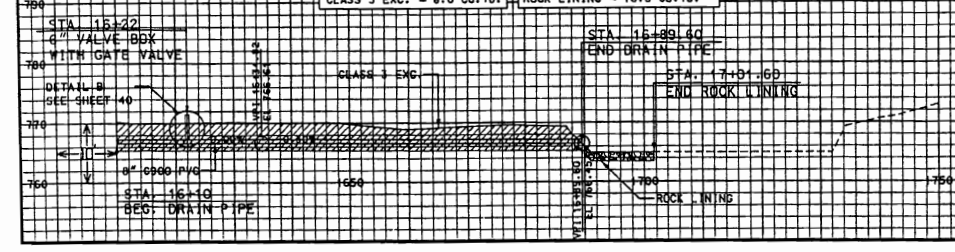


EXHIBIT "B"

Page 41 of 44

CULVERT SECTION
SHEET 6 OF 8

REV.

ROUTE	STATE	DISTRICT	SHEET NO.
40	MO	4	39

JOB NO. J4P1653

CONTRACT ID.

PROJECT NO.

COUNTY JACKSON

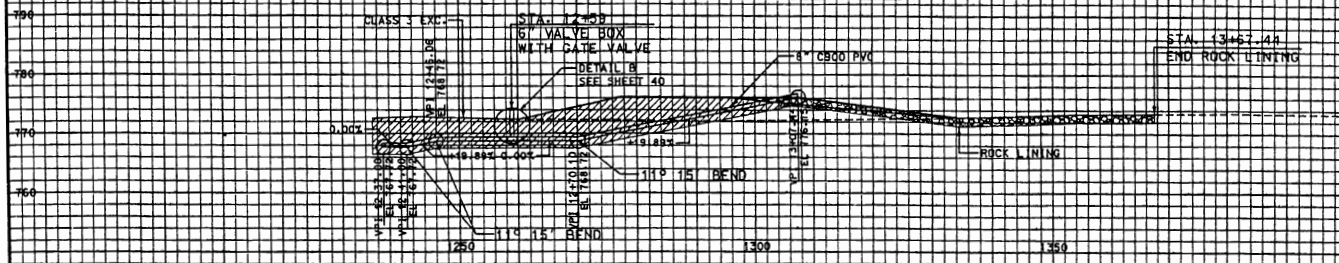
DATE

STA. 12+37 TO STA. 12+59
BLD. 8" X 22.1' C900 PVC
W/2-11° 15' VERTICAL BEND
NOTE: ALL THE ABOVE QNTY. ARE INCLUDED IN THE PRICE OF THE PVC
CLASS 3 EXC. = 30.0 CU.YD.

STA. 12+59
BLD. 6" VALVE BOX
BLD. 8" GATE VALVE
CLASS 3 EXC. = 6.0 CU.YD.

STA. 12+59 TO STA. 13+07.44
BLD. 8" X 49.1' C900 PVC
W/1-11° 15' VERTICAL BEND
NOTE: ALL THE ABOVE QNTY. ARE INCLUDED IN THE PRICE OF THE PVC
CLASS 3 EXC. = 70.0 CU.YD.
ROCK LINING = 52.5 CU.YD.

12+37 TO 13+07.44
CELL 2 PIPE



STA. 12+00 TO STA. 12+32
BLD. 8" X 32.2' C900 PVC W/1-45° HORIZONTAL BEND AND 2-11° 15' VERTICAL BEND
NOTE: ALL THE ABOVE QNTY. ARE INCLUDED IN THE PRICE OF THE PVC
CLASS 3 EXC. = 50.0 CU.YD.

STA. 12+32
BLD. 6" VALVE BOX
BLD. 8" GATE VALVE
CLASS 3 EXC. = 6.0 CU.YD.

STA. 12+32 TO STA. 12+61.33
BLD. 8" X 29.7' C900 PVC
W/1-11° 15' VERTICAL BEND
NOTE: ALL THE ABOVE QNTY. ARE INCLUDED IN THE PRICE OF THE PVC
CLASS 3 EXC. = 29.0 CU.YD.
ROCK LINING = 42.2 CU.YD.

12+00 TO 12+61.33
CELL 1 PIPE

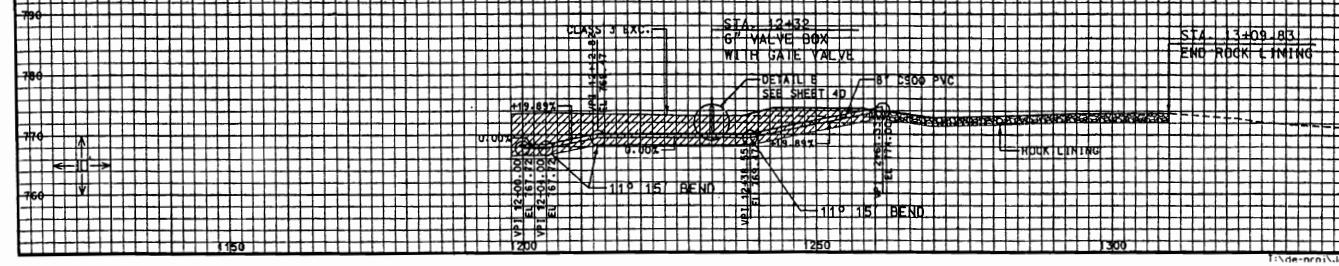


EXHIBIT "B"
Page 42 of 44

CULVERT SECTION
SHEET 7 OF 8

REV.

ROUTE	STATE	DISTRICT	SHEET NO.
40	MO	4	40

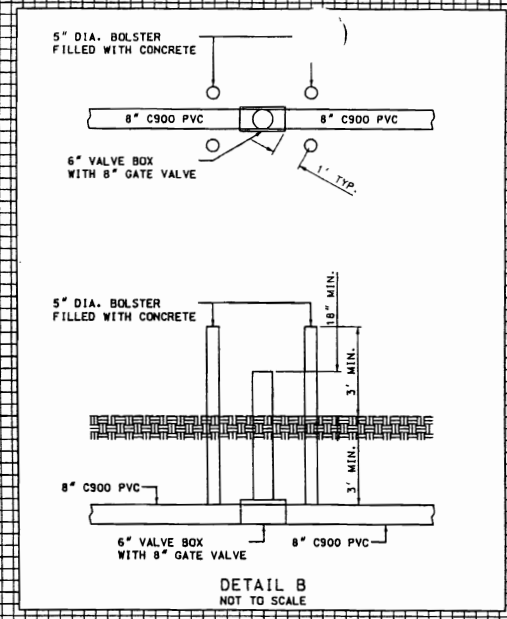
JOB NO. J4P1653

CONTRACT ID.

PROJECT NO.

COUNTY JACKSON

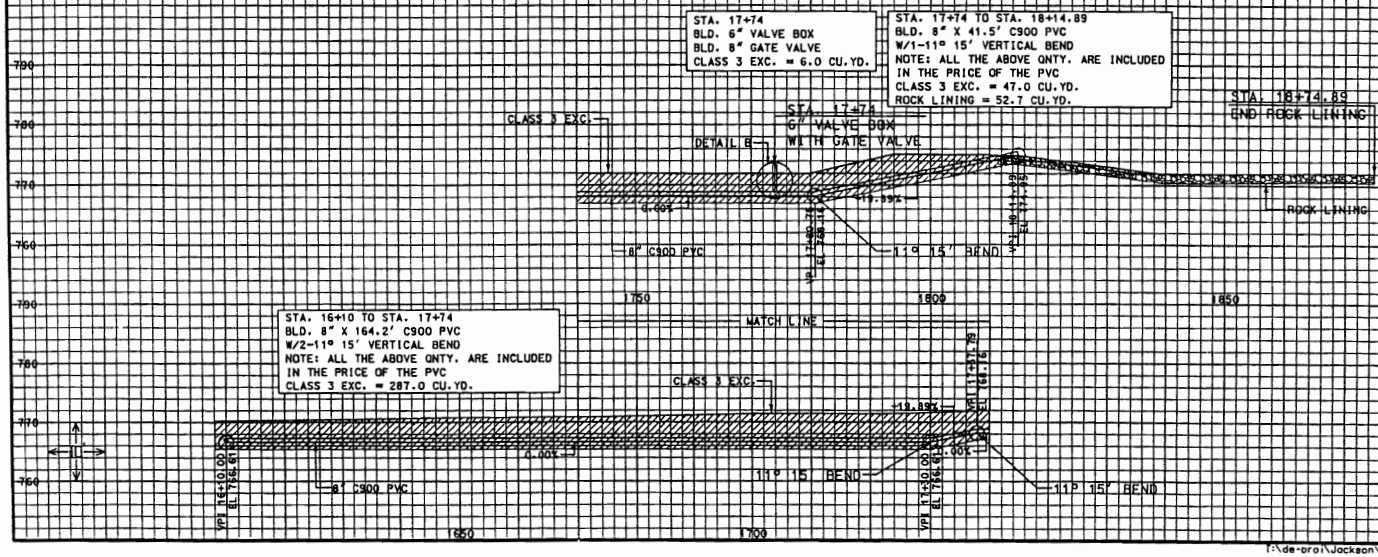
DATE



DETAIL B
NOT TO SCALE

STA. 17+74
BLD. 6" VALVE BOX
BLD. 8" GATE VALVE
CLASS 3 EXC. = 6.0 CU.YD.

STA. 17+74 TO STA. 18+14.89
BLD. 8" X 41.5' C900 PVC
W/1-11° 15' VERTICAL BEND
NOTE: ALL THE ABOVE QNTY. ARE INCLUDED
IN THE PRICE OF THE PVC
CLASS 3 EXC. = 47.0 CU.YD.
ROCK LINING = 52.7 CU.YD.



STA. 16+10 TO STA. 17+74
BLD. 8" X 164.2' C900 PVC
W/2-11° 15' VERTICAL BEND
NOTE: ALL THE ABOVE QNTY. ARE INCLUDED
IN THE PRICE OF THE PVC
CLASS 3 EXC. = 287.0 CU.YD.

16+10 TO 18+14.89
CELL 3 PTRE

EXHIBIT "B"
Page 43 of 44

CULVERT SECTION
SHEET 8 OF 8

REV.

f:\de-proj\Jackson\j4p1653\plan sheets\j_p\031-040 CS J4P1653 10.dgn 01:47:18 PM 04/18/2007

ROUTE	STATE	DISTRICT	SHEET NO.
40	MO	4	8

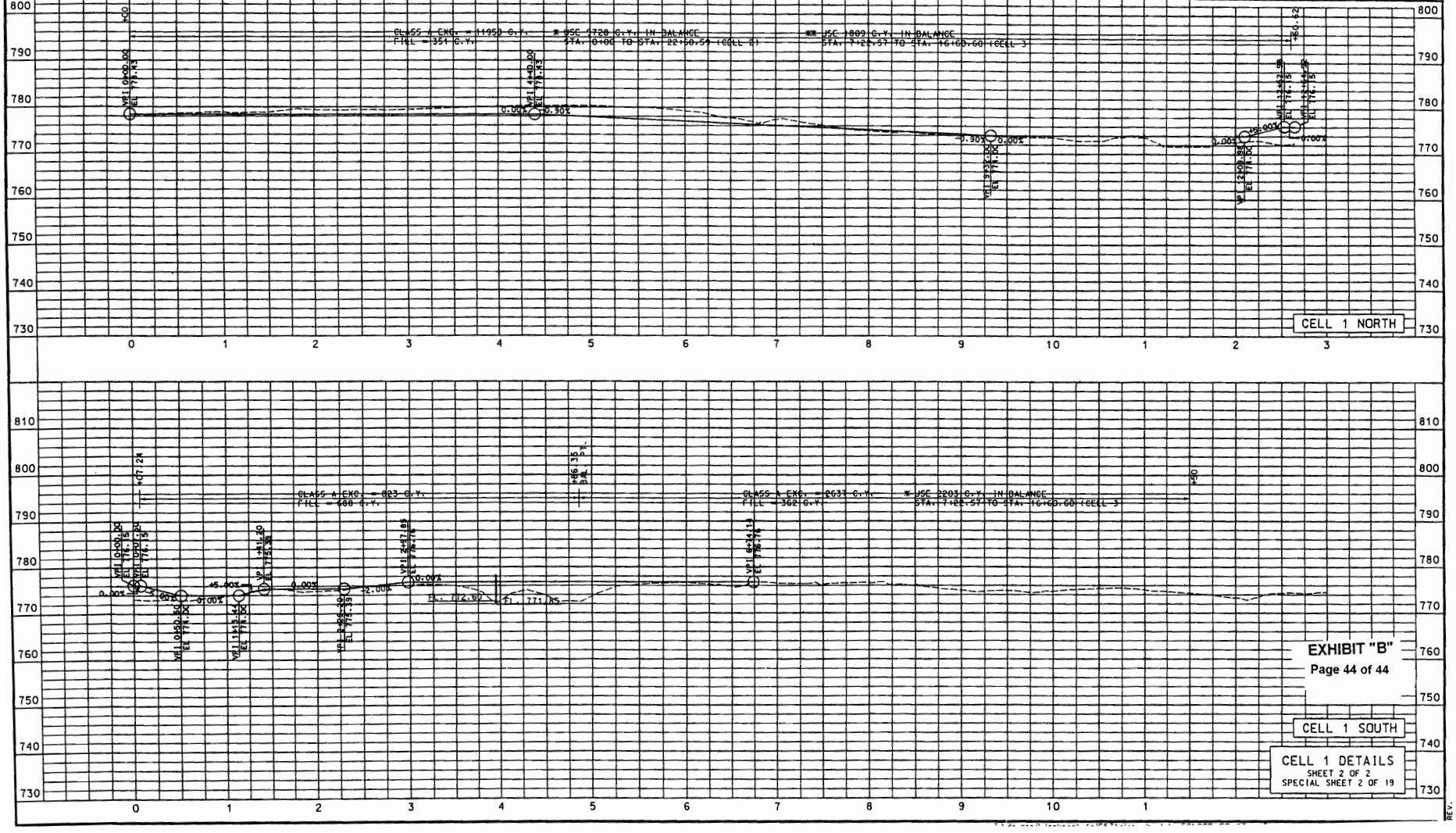
JOB NO. J4P1653

CONTRACT ID.

PROJECT NO.

COUNTY JACKSON

DATE



Checklist P - Preliminary Assessment Screening (PAS) Determinations

INSTRUCTIONS:

1. Both new grants and renewals may require a PAS. A renewal is defined as making the same area available again for the same purpose, whether or not to the same grantee.

2. The PAS determines if a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) notice is required with a transfer of Government real property.
   a. A license is not a transfer of real property and requires no PAS.
   b. A PAS may be prepared however, for any outgrant, if desired.
   c. A PAS may be desirable for licenses with contamination potential.
   d. A PAS will be prepared for a license authorizing construction in advance of granting an easement or deed.
   e. An "exit" PAS will be prepared with the termination of any outgrant that had a beginning PAS.
   f. A PAS is not required for Consents to Easement.
   g. A PAS is required for all leases, including agricultural leases, and easements.
   h. A PAS is required for all disposals of land and buildings.
   i. A PAS is not required for hay sales.
   j. A PAS is required for sales of standing timber, embedded sand and gravel.

3. Each reviewing element of the District having records indicating that the CERCLA "threshold" quantity of hazardous substances has been exceeded on the property being transferred should search its files and the PAS should state the results of the searches.

PRELIMINARY ASSESSMENT SCREENING

Applicant: Missouri Highways and Transportation
105 West Capitol
P.O. Box 270
Jefferson City, MO 65102

Lake and Tract(s)#: Blue Springs Lake, Tracts 102 & 110

Proposed Real Property Transaction: License # DACW41-3-08-0073
[X] lease
[ ] easement
[ ] permit
[ ] deed
[ ] other
[ ] sale of building to [name]:

Nature of the Action:

Term: 25 years

Property Description: Blue Springs Lake Wetland Mitigation Bank, Cells 1,2,3,and 4.

PAS RECORDS SEARCH:
Records searches were performed in Project, District Office Operations Division, and District Office Real Estate files for any records of historical hazardous substance(s) activity on the site.

Project Files

Date Searched: Jan 02, 2008

Searched by (print name): Don Clever

[X] The search did not reveal any evidence of hazardous substance release, storage, or disposal exceeding CERCLA* thresholds.
[ ] The search or other reason prompted an on-site survey, attached.

Signed By: Don Clever

Title: Nat. Res. Mgmt. Spec.

Date: Jan 02, 2008

Operations Division Files

Date Searched: 1/14/08

Searched by (print name): Michael Watkins

[✓] The search did not reveal any evidence of hazardous substance release, storage, or disposal exceeding CERCLA* thresholds.
[ ] The search or other reason prompted an on-site survey, attached.

Signed By: Michael A Watkins

Title: Wildlife Biologist

Date: 1/14/08

Real Estate Division Files

Date Searched: 1/14/08

Searched by (print name): Frank A. Pierce

[X] The search did not reveal any evidence of hazardous substance release, storage, or disposal exceeding CERCLA* thresholds.
[ ] The search or other reason prompted an on-site survey, attached.

Signed By: Frank A. Pierce

Title: Realty Specialist, Team Ldr, REC

Date: 1-14-08

Records Search Conclusion:

BLUE SPRINGS LAKE, MISSOURI
License No. DACW41-3-08-0073
Fish & Wildlife Activities
Missouri Highways & Transportation Commission
Tract Nos. 102 & 110
S-33, T-49-N, R-31
Jackson County, Missouri

EXHIBIT "C"
Page 2 of 4

[✓] PAS indicates neither necessity to provide notice under CERCLA nor any environmental conditions to affect the proposed real property transaction.
[ ] PAS indicates a positive finding that requires further investigation and reporting.

PAS ON-SITE INSPECTION

A site inspection is only required if the records search indicates further need for investigation. Site inspections should also be done for PAS whenever there is knowledge or strong suspicion of CERCLA threshold violations.

1. Location and nature of proposed real property transaction:

2. Describe what prompted on-site inspection. [e.g. record search, corporate knowledge, verbal reports, grantee's use potential for contamination, general advisability.

On-site screening instructions
Check for each category. Explain briefly in "Narrative" section below when something other than "None" is checked. State the distance if "Nearby" is checked and describe whether there is a known or potential pathway for onsite contamination. Attach a tract map and/or definitive drawing of the real estate property covered by this survey.

Categories:
Dumps, especially with drums, containers (Read labels if possible; do not open or handle! If no labels, note identifying characteristics.
[ ] Onsite
[ ] Nearby
[X] None

Other debris: household, farm, industrial waste.
[ ] Onsite
[ ] Nearby
[X] None

Fills: possible cover for dumps.
[ ] Onsite
[ ] Nearby
[X] None

Unusual chemical odors.
[ ] Onsite
[ ] Nearby
[X] None

Storage tanks: petroleum products, pesticides, etc.
[ ] Onsite
[ ] Nearby
[X] None

Buildings: chemical storage, equipment repair, solvents.
[ ] Onsite
[ ] Nearby
[X] None

Vegetation different from surrounding for no apparent reason e.g. bare ground.

[ ] Onsite
[ ] Nearby
[x] None

"Sterile" or modified water bodies.

[ ] Onsite
[ ] Nearby
[x] None

Oil seeps, stained ground, discolored stream banks.

[ ] Onsite
[ ] Nearby
[x] None

Oil slicks on water, unusual colors in water.

[ ] Onsite
[ ] Nearby
[x] None

Spray operation base: airstrip, equipment, parking area.

[ ] Onsite
[ ] Nearby
[x] None

Machinery repair areas, note type of repair performed.

[ ] Onsite
[ ] Nearby
[x] None

Pipelines: major electrical equipment.

[ ] Onsite
[ ] Nearby
[x] None

Oiled or formerly oiled roads.

[ ] Onsite
[ ] Nearby
[x] None

Electric transmission lines: pole mounted transformers, pad mounted transformers, evidence of leakage.

[ ] Onsite
[ ] Nearby
[x] None

Narrative Comments:

Prepared By: Frank A. Prieve

Title: Realty Specialist, Team Leader

Date: 1-14-08

BLUE SPRINGS LAKE, MISSOURI
License No. DACW41-3-08-0073
Fish & Wildlife Activities
Missouri Highways & Transportation Commission
Tract Nos. 102 & 110
S-33, T-49-N, R-31
Jackson County, Missouri

EXHIBIT "C"
Page 4 of 4

CCO Form:	DE7	Route: 40
Approved:	07/97 (DPP)	County: Jackson
Revised:	02/07 (MRA)	City: Lee's Summit
Modified:	04/08 (MRA)	Job No.: J4P1653

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
WETLAND AND SEWER LINE AGREEMENT

THIS AGREEMENT is entered into by the Missouri Highways and Transportation Commission (hereinafter, "Commission") and Little Blue Valley Sewer District, a Missouri political subdivision (hereinafter, "Sewer District").

WITNESSETH:

WHEREAS, the Commission owns and maintains Route 40 in Jackson County as part of the State Highway System;

WHEREAS, the Sewer District owns and maintains a single sewer line, manhole, and gate structure on an easement recorded as Document No. DACW 41-2-87-79 (the "Easement") which is located within the limits of a planned Blue Springs Lake Wetland Mitigation Banking Project, designated as Job No. J4P1653, generally located between the northern edge of Blue Springs Lake and Route 40; and

WHEREAS, this Commission project will eventually inundate approximately four hundred feet (400') of the Sewer District's sewer line beneath wetland waters, and the parties desire to provide for the terms and conditions of wetland and sewer line responsibilities;

NOW, THEREFORE, in consideration of the mutual covenants, promises and representations in this Agreement, the parties agree as follows:

(1) PURPOSE: The purpose of this agreement is to provide for maintenance responsibilities of the Sewer District's sewer line, manhole, and gate structure across the limits of a planned Commission project, the Blue Springs Lake Wetland Mitigation Banking Project, designated as Job No. J4P1653, near Route 40 in the County of Jackson. This project will eventually involve inundating approximately four hundred feet (400') of the Sewer District's sewer line beneath wetland waters, and there is a potential for water infiltration into this sewer line, manhole, and gate structure without protective action.

(2) LOCATION: The general location of the Commission project to develop a wetland mitigation bank is shown in "Exhibit A." The detailed location of these wetlands will be shown on the plans prepared by the Commission for the above-designated project.

(3) CONVEYANCE: In consideration of one dollar ($1), receipt of which is acknowledged, and other good and valuable consideration, the Sewer District grants and conveys to the Commission, its subordinate Missouri Department of Transportation (MoDOT), plus their officers, employees, contractors, subcontractors, agents, assigns and successors, plus the authorized representatives of the Corps, a non-exclusive, irrevocable license for the purposes of constructing, reconstructing, managing and maintaining a wetland area over and across that portion of the Easement owned and held by the Sewer District as identified in "Exhibit B." The Commission will obtain any necessary approvals from the United States Army Corps of Engineers prior to performing any such wetland work. The Commission shall undertake the wetland work covered by this Agreement in a method consistent with recognized construction methods and techniques.

(4) COMMISSION REPRESENTATIVE: The Commission's District Engineer for District 4 is designated as the Commission's representative for the purpose of administering the provisions of this Agreement. The Commission's representative may designate by written notice other persons having the authority to act on behalf of the Commission in furtherance of the performance of this Agreement.

(5) SUBCONTRACT: The Sewer District is not adequately staffed or equipped to perform all the work and intends to contract portions. The Sewer District will comply with FAPG 23 CFR 645A relating to performing part or all of the work by awarding a contract to the lowest qualified bidder based on appropriate solicitation. Furthermore, the Sewer District will solicit bids for the work, and if less than three (3) valid bids are received, the Sewer District shall resolicit bids for the work until at least (3) valid bids are received for a solicitation. If three (3) or more valid bids are received for a solicitation, the Sewer District is to furnish to the Commission a tabulation of bids received, a copy of the proposal used in securing the bids, and any other information to support the Sewer District's recommendation for award to the lowest qualified bidder prior to any contract work being performed.

(6) CONTRACTING TERMINATION OPTION: After receipt of the bids by the Sewer District and review of the bids by the Commission, either or both parties may terminate this Agreement if the bid amounts exceed the estimated cost of one hundred fifty-nine thousand seven hundred two dollars and ten cents ($159,702.10) less the sum of two thousand five hundred dollars and no/cents ($2500). In lieu of termination, the parties may agree in writing by amendment to this Agreement to accept the amount of the lowest and best bid plus a ten percent (10%) contingency. If this Agreement is terminated, neither party shall have any further rights or obligations under this Agreement except for the payment of the two thousand five hundred dollars and no/cents ($2500) for the costs of design and construction engineering work.

(7) WETLAND, SEWER LINE, MANHOLE, AND GATE STRUCTURE RESPONSIBILITIES: With regard to wetland, sewer line, manhole, and gate structure responsibilities under this Agreement, the parties agree to contribute as follows:

(A) The Sewer District shall provide the lining specifications and current as-built denoting the lining after the lining has been installed and shall either perform or contract and administer the work necessary to complete this lining work in accordance with applicable Commission requirements. The Sewer District shall complete said lining work by September 30, 2008, and no later.

(B) The estimated total cost of the lining, including design and construction engineering, is estimated to be one hundred fifty-nine thousand seven hundred two and 10/100 dollars ($159,702.10). "Exhibit C", attached hereto and incorporated herein, reflects the payment breakdown.

(1) Upon Commission receipt of and concurrence in the final invoice submitted by the Sewer District for the design and construction engineering work, the Commission will promptly pay one hundred percent (100%) of the actual costs for said work, up to a maximum contribution of two thousand five hundred dollars ($2,500.00). The Sewer District will be responsible for any design and construction engineering costs that exceed this maximum contribution by the Commission.

(2) Upon Commission receipt of and concurrence in the final invoice submitted by the Sewer District for the above-mentioned lining work, the Commission will promptly pay one hundred percent (100%) of the actual costs for said work, up to a maximum contribution of the bid value submitted by the awarded lining work contractor plus an additional ten percent (10%) contingency. The Sewer District will be responsible for any lining work costs that exceed this maximum contribution by the Commission.

(C) The Commission's obligation shall extend only to those costs incurred under the provisions of FAPG 23 CFR 645A. The Commission will afterwards conduct an audit of the Sewer District 's statement and supporting records. If the audit reveals that the Sewer District has been overpaid, the Sewer District will immediately refund to the Commission such overpayment.

(D) The Sewer District shall develop the adjustment cost of the work by using the actual and related indirect cost accumulated in accordance with an established accounting procedure used by the Sewer District in its regular operations and shall keep a detailed and accurate account of all labor, materials, supplies, incidentals, and other necessary costs involved in making such changes. The Commission's resident engineer in charge of said project, or any authorized agent of the Commission or the Federal Highway Administration, shall have access during normal business hours to such Sewer District records. These records must be available during the contract period and any extension, and for three (3) years from the date of final payment at no charge.

(E) The Sewer District shall have the right of ingress and egress to and from the Easement, and manhole and maintenance road access above inundation elevation during normal maintenance and emergencies work so long as the Sewer District does not unreasonably interfere with the Commission's wetland mitigation bank operations.

(F) The Sewer District shall obtain a no cost permit from the Commission's District Engineer for District 4 prior to a scheduled adjustment or relocation of its sewer line from or within the limits of this Commission project. The Commission's District Engineer will not unreasonably withhold the granting of such a permit. An authorized Sewer District representative shall sign each permit.

(G) If the Sewer District's utility lines or facilities are damaged to the point that they constitute an emergency situation directly endangering public health or safety in the sole opinion of the Sewer District, then an emergency permit will be granted provided immediate notice is given to the United States Army Corps of Engineers and the Commission's District Engineer.

(H) The Sewer District covenants and agrees to promptly backfill any trench made by it within the limits of this Commission project after each entry made by the Sewer District or its subcontractors. The Sewer District shall return the wetland property surface to its previous condition after each entry, subject to Commission concurrence. The Commission will inspect the wetland property after each Sewer District excavation to make sure that it has been restored to its previous condition, and if the Commission reasonably determines that said property has not been restored, the Sewer District shall correct such deficiencies within thirty (30) days, or else the Commission shall restore said property at the sole cost of the Sewer District, and the Sewer District agrees to promptly reimburse the Commission the amount of such cost.

(I) The Commission and its assigns assume no liability for injury to or death of persons or loss of or damage to property arising or growing out of or which may be due, in any manner, to or in connection with the Sewer District's sewer line work or other Sewer District uses of its easement property.

(8) VEGETATION REMOVAL: Subject to the approval of the Sewer District, the Commission may perform site maintenance within the Easement, including but not limited to mowing, and may trim, remove, spray with herbicide or cut any tree or vegetation growing within the Easement that poses a threat, hindrance, danger, obstruction or code violation or that in any way impedes or endangers the constructed wetland, the sewer line, or any person on site.

(9) RELEASE: The Sewer District agrees to waive its right to claims for damages or equity against the Commission and its assigns for future wetland water infiltration into the Sewer District's sewer facilities and this waiver shall survive

termination and/or assignment of this Agreement, but only to the extent that the claims are directly related to Job No. J4P1653. Any future work within the Easement shall be approved by the Sewer District prior to initiation of the work. Further, any willful or negligent act by the Commission shall not result in a waiver of such claims.

(10) AMENDMENTS: Any change in this Agreement, whether by modification or supplementation, must be accomplished by a formal contract amendment signed and approved by the duly authorized representatives of the Sewer District and the Commission.

(11) ASSIGNMENT: The Sewer District shall not assign, transfer or delegate any interest in this Agreement without the prior written consent of the Commission.

(12) LAW OF MISSOURI TO GOVERN: This Agreement shall be construed according to the laws of the State of Missouri. The Commission and Sewer District will comply with all local, state and federal laws and regulations applicable to them in relation to their performance of this Agreement.

(13) CANCELLATION: The Commission may cancel this Agreement at any time for a material breach of contractual obligations by providing the Sewer District with written notice of cancellation. Should the Commission exercise its right to cancel this Agreement for such reasons, cancellation will become effective upon the date specified in the notice of cancellation sent to the Sewer District. If the Commission cancels this Agreement, it shall promptly restore the easement and sewer line to its condition prior to this Agreement or take such other action which is acceptable to the Sewer District.

(14) SOLE BENEFICIARY: This Agreement is made for the sole benefit of the parties hereto and nothing in this Agreement shall be construed to give any rights or benefits to anyone other than the Commission and the Sewer District.

(15) AUTHORITY TO EXECUTE: The signers of this Agreement warrant that they are acting officially and properly on behalf of their respective institutions and have been duly authorized, directed and empowered to execute this Agreement.

(16) SECTION HEADINGS: All section headings contained in this Agreement are for the convenience of reference only and are not intended to define or limit the scope of any provision of this Agreement.

(17) ENTIRE AGREEMENT: This Agreement represents the entire understanding between the parties regarding this subject and supersedes all prior written or oral communications between the parties regarding this subject.

(18) NO ADVERSE INFERENCE: This Agreement shall not be construed more strongly against one party or the other. The parties to this Agreement had equal access to, input with respect to, and influence over the provisions of this Agreement. Accordingly, no rule of construction which requires that any allegedly ambiguous

provision be interpreted more strongly against one party than the other shall be used in interpreting this Agreement.

(19) VOLUNTARY NATURE OF AGREEMENT: Each party to this Agreement warrants and certifies that it enters into this transaction and executes this Agreement freely and voluntarily and without being in a state of duress or under threats or coercion.

(20) COVENANT RUNNING WITH THE LAND: This Agreement shall be recorded and shall be deemed a covenant running with the land to the benefit of the Commission and the Sewer District and be binding on their transferees and successors and shall terminate only if and when the Wetland Project is abandoned or the sewer line removed.

(21) NOTICE TO THE SEWER DISTRICT: Whenever the Commission undertakes work within, over, under, or across the Sewer District's easement, Commission shall send notice to the Sewer District to provide the Sewer District an opportunity to take appropriate actions to ensure that the sewer line was adequately protected. Notice to the Sewer District shall be sent to:

Executive Director
Little Blue Valley Sewer District
Harvey Jones Administration Building
21101 East 78 Highway
Independence, MO 64057

or such other address as the Sewer District so designates.

[remainder of page intentionally left blank]

IN WITNESS WHEREOF, the parties have entered into this Agreement on the date last written below.

Executed by the Sewer District this 7th day of May, 2008.

Executed by the Commission this 21 day of May, 2008.

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

By _____

Title Chief Engineer

ATTEST: (Commission seal)

Asst. Secretary to the Commission

APPROVED AS TO FORM:

Micah Ray Alexander

Commission Counsel

LITTLE BLUE VALLEY SEWER DISTRICT

By _____

Title Assistant Director

ATTEST: (District seal, if existing)

By Karen E. Wardle

Title Notary

APPROVED AS TO FORM:

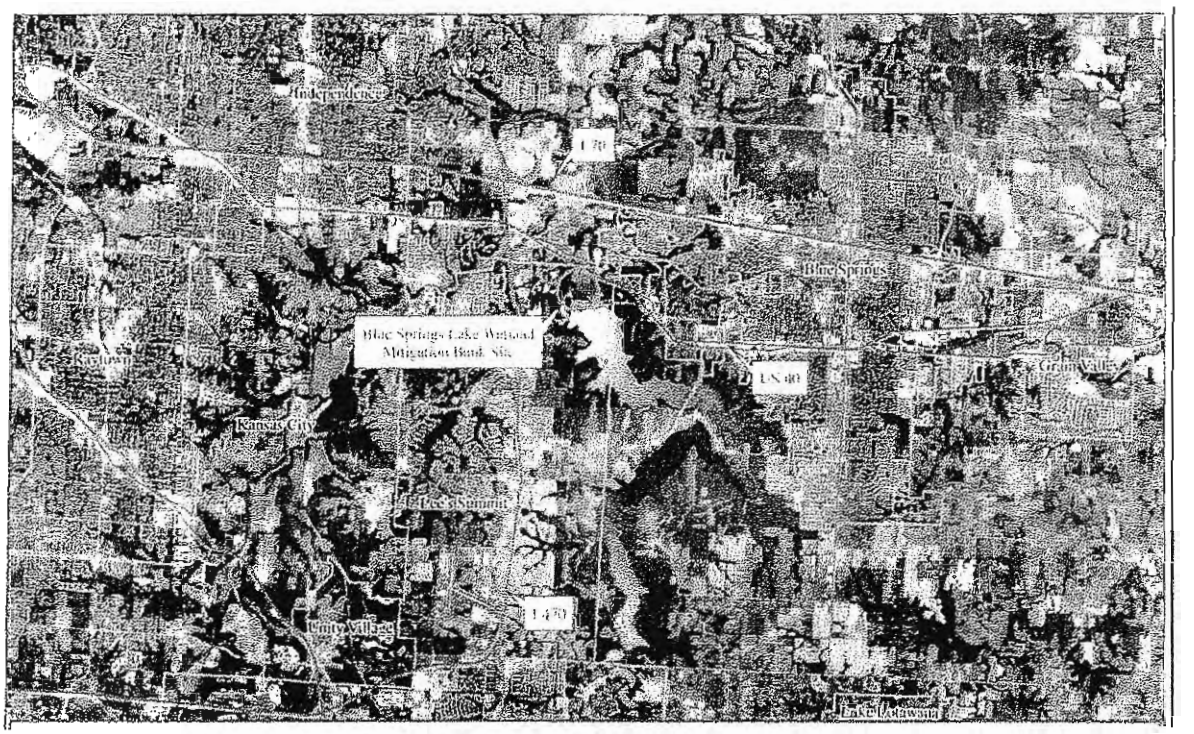
By _____

Title _____

KAREN E. WARDLE
Notary Public-Notary Seal
State of Missouri
Jackson County
My Commission Expires May 9, 2008

EXHIBIT A

GENERAL LOCATION



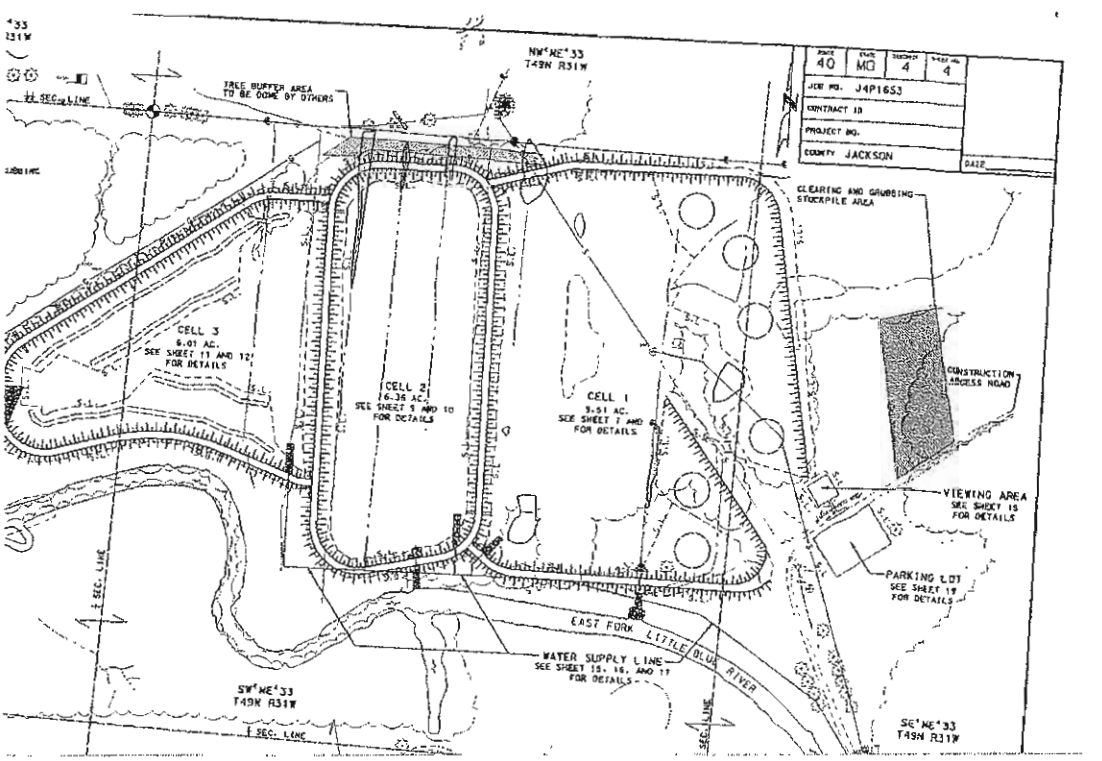


EXHIBIT B

LEGAL DESCRIPTION OF DISTRICT EASEMENT

The easement begins at a point on the north line of said south half northeast quarter of Section 33, Township 49 North, Range 31 West, said point being 788.26 feet, S 88° 01' 31" E of the northwest corner of said south half northeast quarter; thence N 36° 22' W, 83.84 feet; thence N 53° 38' E, 60 feet; thence S 36° 22' E, 620.14 feet; thence S 81° 22' E, 17.57 feet; thence S 8° 38' W, 60 feet; thence N 81° 22' W, 42.43 feet; thence N 36° 22' W, 561.15 feet to the point of beginning.

EXHIBIT C

ESTIMATE OF COSTS

UTILITY AGREEMENT
SEWER LINING
LITTLE BLUE VALLEY SEWER DISTRICT
JOB NO. J4P1653

COST BREAKDOWN

	District	Commission
Sewer Lining Costs		$157,202.10
Subtotal	$ -	$157,202.10

City Responsibility	0%
Commission Responsibility	100.00%

Total	District	Commission
Design & Construction Engineering	$ -	$ 2,500.00
Commission Prepayment Obligation		$159,702.10

CCO FORM: RW21
Approved: 2/92 (TWJ)
Revised: 1/00 (RMH)
Modified:

I hereby certify that the above and foregoing is a true and complete copy of the original instrument as it appears on file in my office

ROUTE: 40
COUNTY: Jackson
PROJECT: J4P1653
PARCEL: N/A (Wetland)

RIGHT OF ENTRY

THIS AGREEMENT is entered into by the Missouri Highways and Transportation Commission ("Commission") and **Jackson County Parks & Recreation** ("Owner") for the exclusive right to enter upon and use the following described property for **construction of a drainage wier** on the above-noted project. The wier will provide drainage for "Cell 4" of the wetland constructed with this project. Said wier construction shall be completed by the MHTC and/or its contractor.

WHEREAS, the Owner grants an exclusive right of entry upon the following described parcel of land in Jackson County, State of Missouri, to wit:

A 0.94 Acre tract of land in the NE ¼ of the NW ¼ of Section 33, Township 49N, Range 31W, as referenced on Sheet 3 of the engineering plans for MHTC Project Number J4P1653 along Route 40 in Jackson County, Missouri.

NOW, THEREFORE, in consideration of the promises, covenants and representations in this Agreement, the parties agree as follows:

(1) CONSIDERATION: The purchase price for the right of entry is **One Dollar and Other Valuable Consideration ($1.00 & O.V.C.)**, paid by the Commission to the Owner, the receipt of which is acknowledged.

(2) NO KNOWLEDGE OF HAZARDOUS OR TOXIC SUBSTANCES ON PROPERTY: In order to minimize health risks to persons entering the property, the Owners represent that **to the best of their knowledge and belief**, there is no generation, transportation, storage, treatment, disposal, release, leakage, spillage or emission of any hazardous or toxic substance or material or any aboveground or underground petroleum product contamination on the subject property during the Owner's ownership or during previous ownerships **at least insofar as the Owners have observed or have been informed**. In the alternative, if the Owners have knowledge of any of such events occurring on the subject property, that information shall be written below:

(3) DURATION OF OCCUPANCY: The Commission agrees that upon completion of the previously described work on the above-noted route and project, all rights of entry granted to the Commission shall cease and be no longer in effect.

COPY

IN WITNESS WHEREOF, the parties have entered into this Agreement on the date last written below.

Executed by the Owners this 3rd day of January, 2007.

Executed by the Commission this 13th day of October, 2006.

OWNER:
JACKSON COUNTY PARKS & RECREATION

BY: Ron Fulkerson
Ron Fulkerson

TITLE: Deputy Director of Operations

ADDRESS: 22807 Woods Chapel Rd.
Blue Springs, MO 64015

PHONE: (816) 503-4803

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

BY: Eric G. Thompson
Eric G. Thompson

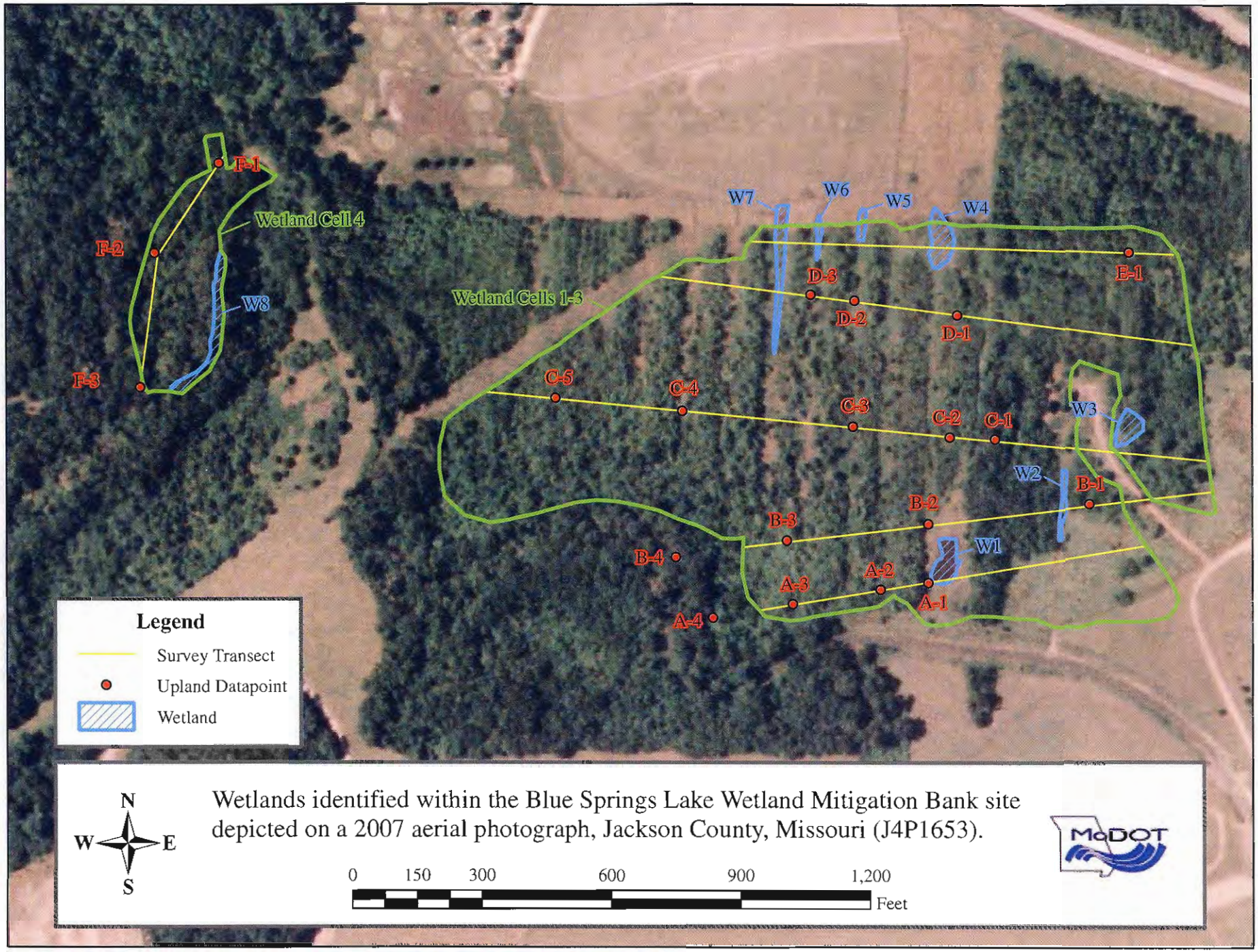
TITLE: Senior Right of Way Specialist

ADDRESS: 600 NE Colbern Rd.
Lee's Summit, MO 64086

PHONE: (816) 622-6359

APPENDIX 2

Wetland Delineation and Field Assessment Datasheets and Site Photographs



Wetlands identified within the Blue Springs Lake Wetland Mitigation Bank site depicted on a 2007 aerial photograph, Jackson County, Missouri (J4P1653).

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Blue Springs Wetland Mitigation Bank	Date:	5/23/06
Applicant/Owner:	MoDOT	County:	Jackson
Investigator:	G. Unruh, L. Ruman, N. Muenks	State:	MO
Do Normal Circumstances exist on the site?	☒Yes ☐No	Community ID:	PEM/POW
Is the site significantly disturbed (Atypical Situation)?	☐Yes ☒No	Transect ID:	A
Is the area a potential Problem Area? (If needed, explain on reverse.)	☐Yes ☒No	Plot ID:	W1

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Rumex crispus	Herb	FAC+	9.		
2. Polygonum persicaria	Herb	FACW	10.		
3. Festuca sp.	Herb	N/I	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: PEM/POW. Area is mowed irregulary.

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:

Depth of Surface Water: 0-7 (in.)

Depth to Free Water in Pit: surface-3 (in.)

Depth to Saturated Soil: surface (in.)

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: Pond fringe is occasionally flooded. Wetland has no surface water outlet but is within the 100-year floodplain for East Fork Little Blue River.

SOILS

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

Drainage Class: poorly drained

Field Observations Confirm Mapped Type? ☐ Yes ☒ No

Taxonomy (Subgroup):

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc,
0-4	A	10YR 4/1			loam
4-12+	B	10YR 4/2	7.5YR 2.5/1	large, rare, dist.	moist loam

Hydric Soil Indicators:

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

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? ☒ Yes ☐ No (Check)

Wetland Hydrology Present? ☒ Yes ☐ No

Hydric Soils Present? ☒ Yes ☐ No

(Check)

Is this Sampling Point Within a Wetland? ☒ Yes ☐ No

Remarks Area an old manmade pond with vegetated fringe.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Blue Springs Wetland Mitigation Bank	Date:	5/24/06
Applicant/Owner:	MoDOT	County:	Jackson
Investigator:	L. Ruman, N. Muenks	State:	MO
Do Normal Circumstances exist on the site?	☒Yes ☐No	Community ID:	PEM
Is the site significantly disturbed (Atypical Situation)?	☐Yes ☒No	Transect ID:	B
Is the area a potential Problem Area? (If needed, explain on reverse.)	☐Yes ☒No	Plot ID:	W2

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Acer negundo	Shrub	FACW-	9.		
2. Toxicodendron radicans	Shrub	FAC+	10.		
3. Polygonum hydropiperoides	Herb	OBL	11.		
4. Carex lupulina	Herb	OBL	12.		
5. Rumex crispus	Herb	FAC+	13.		
6.			14.		
7.			15.		
8.			16.		

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

Remarks: PEM

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 (in.)

Depth to Free Water in Pit: >12 (in.)

Depth to Saturated Soil: >12 (in.)

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required):
- ☒ Oxidized Root Channels in Upper 12 Inches
- ☒ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: Within a remnant v-ditch that drains to East Fork Little Blue River.

SOILS

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

Drainage Class: poorly drained

Field Observations Confirm Mapped Type? ☐ Yes ☒ No

Taxonomy (Subgroup):

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc,
0-12	A	10YR 2/1			loam

Hydric Soil Indicators:

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

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☒ Yes ☐ No	(Check)
Wetland Hydrology Present?	☒ Yes ☐ No	
Hydric Soils Present?	☒ Yes ☐ No	

(Check)

Is this Sampling Point Within a Wetland? ☒ Yes ☐ No

Remarks

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DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Blue Springs Wetland Mitigation Bank	Date:	5/24/06
Applicant/Owner:	MoDOT	County:	Jackson
Investigator:	J. Mehuys, L. Ruman, N. Muenks	State:	MO
Do Normal Circumstances exist on the site?	☒Yes ☐No	Community ID:	PFO/PEM
Is the site significantly disturbed (Atypical Situation)?	☐Yes ☒No	Transect ID:	C
Is the area a potential Problem Area? (If needed, explain on reverse.)	☐Yes ☒No	Plot ID:	W3

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Salix nigra	Tree	OBL	9.		
2. Populus deltoides	Tree	FAC+	10.		
3. Cornus drummondii	Shrub	FAC	11.		
4. Toxicodendron radicans	Shrub	FAC+	12.		
5. Toxicodendron radicans	Herb	FAC+	13.		
6. Carex sp.	Herb	FAC-OBL	14.		
7.			15.		
8.			16.		

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

Remarks: PFO/PEM

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 (in.)

Depth to Free Water in Pit: >12 (in.)

Depth to Saturated Soil: >12 (in.)

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required):
- ☒ Oxidized Root Channels in Upper 12 Inches
- ☒ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: Depression. Wetland has no surface water outlet but is within the 100-year floodplain for East Fork Little Blue River.

SOILS

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

Drainage Class: poorly drained

Field Observations Confirm Mapped Type? ☐ Yes ☒ No

Taxonomy (Subgroup):

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc,
0-4	A	10YR 3/1			loamy clay
4-12	B	10YR 2/1			clay

Hydric Soil Indicators:

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

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? ☒ Yes ☐ No (Check)

Wetland Hydrology Present? ☒ Yes ☐ No

Hydric Soils Present? ☒ Yes ☐ No

(Check)

Is this Sampling Point Within a Wetland? ☒ Yes ☐ No

Remarks

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DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Blue Springs Wetland Mitigation Bank	Date:	5/24/06
Applicant/Owner:	MoDOT	County:	Jackson
Investigator:	J. Mehuys, L. Ruman, N. Muenks	State:	MO
Do Normal Circumstances exist on the site?	☒Yes ☐No	Community ID:	PEM
Is the site significantly disturbed (Atypical Situation)?	☐Yes ☒No	Transect ID:	E
Is the area a potential Problem Area? (If needed, explain on reverse.)	☐Yes ☒No	Plot ID:	W4

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Salix nigra	Tree	OBL	9.		
2. Apocynum cannarinum	Herb	FAC	10.		
3. Scirpus cyperinus	Herb	OBL	11.		
4. Xanthium strumarium	Herb	FAC	12.		
5. Rumex crispus	Herb	FAC+	13.		
6. Eupatorium purpureum	Herb	N/I	14.		
7.			15.		
8.			16.		

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

Remarks: PEM. Northern portion is mowed regularly.

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 (in.)

Depth to Free Water in Pit: >24 (in.)

Depth to Saturated Soil: >24 (in.)

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☒ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: Within a remnant agricultural v-ditch. Wetland has no surface water outlet but is within the 100-year floodplain for the East Fork Little Blue River.

SOILS

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

Drainage Class: poorly drained

Field Observations Confirm Mapped Type? ☐ Yes ☒ No

Taxonomy (Subgroup):

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc,
0-12	A	10YR 2/1			loam

Hydric Soil Indicators:

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

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☒ Yes ☐ No	(Check)
Wetland Hydrology Present?	☒ Yes ☐ No	
Hydric Soils Present?	☒ Yes ☐ No	

(Check)

Is this Sampling Point Within a Wetland? ☒ Yes ☐ No

Remarks

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DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Blue Springs Wetland Mitigation Bank	Date:	5/24/06
Applicant/Owner:	MoDOT	County:	Jackson
Investigator:	J. Mehuys, L. Ruman, N. Muenks	State:	MO
Do Normal Circumstances exist on the site?	☒Yes ☐No	Community ID:	PEM
Is the site significantly disturbed (Atypical Situation)?	☐Yes ☒No	Transect ID:	E
Is the area a potential Problem Area? (If needed, explain on reverse.)	☐Yes ☒No	Plot ID:	W5

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Carex molesta	Herb	FAC+	9.		
2. Phyla lanceolata	Herb	OBL	10.		
3. Scirpus cyperinus	Herb	OBL	11.		
4. Carex sp.	Herb	FAC-OBL	12.		
5. Rumex crispus	Herb	FAC+	13.		
6.			14.		
7.			15.		
8.			16.		

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

Remarks: PEM. Northern half is mowed regularly.

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 (in.)

Depth to Free Water in Pit: >12 (in.)

Depth to Saturated Soil: >12 (in.)

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required):
- ☒ Oxidized Root Channels in Upper 12 Inches
- ☒ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: Within a remnant agricultural v-ditch. Wetland has no surface water outlet but is within the 100-year floodplain for the East Fork Little Blue River.

SOILS

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

Drainage Class: poorly drained

Field Observations Confirm Mapped Type? ☐ Yes ☒ No

Taxonomy (Subgroup):

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc,
0-12	A	10YR 3/1			silt loam

Hydric Soil Indicators:

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

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? ☒ Yes ☐ No (Check)

Wetland Hydrology Present? ☒ Yes ☐ No

Hydric Soils Present? ☒ Yes ☐ No

(Check)

Is this Sampling Point Within a Wetland? ☒ Yes ☐ No

Remarks

Approved by HQUSACE 3/92

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DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Blue Springs Wetland Mitigation Bank	Date:	5/24/06
Applicant/Owner:	MoDOT	County:	Jackson
Investigator:	J. Mehuys, L. Ruman, N. Muenks	State:	MO
Do Normal Circumstances exist on the site?	☒Yes ☐No	Community ID:	PEM
Is the site significantly disturbed (Atypical Situation)?	☐Yes ☒No	Transect ID:	E
Is the area a potential Problem Area? (If needed, explain on reverse.)	☐Yes ☒No	Plot ID:	W6

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Platanus occidentalis	Tree	FACW	9.		
2. Cephalanthus occidentalis	Shrub	OBL	10.		
3. Acer negundo	Shrub	FACW-	11.		
4. Carex sp.	Herb	FAC-OBL	12.		
5. Eleocharis sp.	Herb	OBL	13.		
6. Polygonum lapathifolium	Herb	FACW+	14.		
7.			15.		
8.			16.		

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

Remarks: PEM. Northern portion is mowed regularly.

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 (in.)

Depth to Free Water in Pit: >12 (in.)

Depth to Saturated Soil: >12 (in.)

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☒ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: Within a remnant agricultural v-ditch. Wetland has no surface water outlet but is within the 100-year floodplain for the East Fork Little Blue River.

SOILS

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

Drainage Class: poorly drained

Field Observations Confirm Mapped Type? ☐ Yes ☒ No

Taxonomy (Subgroup):

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc,
0-12	A	10YR 3/1	7.5YR 5/8	fine, rare, dist.	silty loam

Hydric Soil Indicators:

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

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☒ Yes ☐ No (Check)	
Wetland Hydrology Present?	☒ Yes ☐ No	
Hydric Soils Present?	☒ Yes ☐ No	
Is this Sampling Point Within a Wetland?	☒ Yes ☐ No	(Check)

Remarks

Approved by HQUSACE 3/92

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DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Blue Springs Wetland Mitigation Bank	Date:	5/23/06
Applicant/Owner:	MoDOT	County:	Jackson
Investigator:	B. Brooks, R. Meade	State:	MO
Do Normal Circumstances exist on the site?	☒Yes ☐No	Community ID:	PEM
Is the site significantly disturbed (Atypical Situation)?	☐Yes ☒No	Transect ID:	D/E
Is the area a potential Problem Area? (If needed, explain on reverse.)	☐Yes ☒No	Plot ID:	W7

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Asclepias iincarnata	Herb	OBL	9.		
2. Mimulus sp.	Herb	OBL	10.		
3. Bidens sp.	Herb	FACW-OBL	11.		
4. Carex sp.	Herb	FAC-OBL	12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

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

Remarks: PEM. Very northern end is mowed regularly.

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 (in.)

Depth to Free Water in Pit: >12 (in.)

Depth to Saturated Soil: 12 (in.)

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: Within a remnant agricultural v-ditch. Wetland has no surface water outlet but is within the 100-year floodplain for the East Fork Little Blue River.

SOILS

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

Drainage Class: poorly drained

Field Observations Confirm Mapped Type? ☐ Yes ☒ No

Taxonomy (Subgroup):

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc,
0-6	A	10YR 4/1	10YR 5/6	fine, dist.	silty loam
6-7	B1	Gley 2.5YR 5/1			
7-20	B2	10YR 5/1	10YR 5/6	common, dist.	clay loam

Hydric Soil Indicators:

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

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? ☒ Yes ☐ No (Check)

Wetland Hydrology Present? ☒ Yes ☐ No

Hydric Soils Present? ☒ Yes ☐ No

(Check)

Is this Sampling Point Within a Wetland? ☒ Yes ☐ No

Remarks

Approved by HQUSACE 3/92

Forms version 1/02

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Blue Springs Wetland Mitigation Bank	Date:	5/24/06
Applicant/Owner:	MoDOT	County:	Jackson
Investigator:	L. Ruman, N. Muenks	State:	MO
Do Normal Circumstances exist on the site?	☒Yes ☐No	Community ID:	PFO
Is the site significantly disturbed (Atypical Situation)?	☐Yes ☒No	Transect ID:	F
Is the area a potential Problem Area? (If needed, explain on reverse.)	☐Yes ☒No	Plot ID:	W8

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Celtis occidentalis	Tree	FAC-	9. Parthenocissus quinquefolia	Vine	FAC-
2. Acer saccharinum	Tree	FACW	10.		
3. Populus deltoides	Tree	FAC+	11.		
4. Ulmus americana	Tree	FACW-	12.		
5. Andrachne phyllanthoides	Shrub	N/I	13.		
6. Toxicodendron radicans	Herb	FAC+	14.		
7. Leersia oryzoides	Herb	OBL	15.		
8. Polygonum hydropiperoides	Herb	OBL	16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 78%

Remarks: PFO

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 (in.)

Depth to Free Water in Pit: >12 (in.)

Depth to Saturated Soil: >12 (in.)

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☒ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: Within a remnant oxbow wit connection to an unnamed tributary of the East Fork Little Blue River.

SOILS

Map Unit Name (Series and Phase): Bremer and Kennebec silt loam

Drainage Class: poorly drained to moderately well drained

Field Observations Confirm Mapped Type? ☐ Yes ☒ No

Taxonomy (Subgroup):

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc,
0-12	A	10YR 3/1	10YR 5/6	comm, med., dist.	silty clay

Hydric Soil Indicators:

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

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? ☒ Yes ☐ No (Check)

Wetland Hydrology Present? ☒ Yes ☐ No

Hydric Soils Present? ☒ Yes ☐ No

(Check)

Is this Sampling Point Within a Wetland? ☒ Yes ☐ No

Remarks

Approved by HQUSACE 3/92

Forms version 1/02

Blue Springs Lake Wetland Mitigation Bank Site
Wetland Photographs

Palustrine emergent/open water wetland W1.

Palustrine emergent wetland W2.

Blue Springs Lake Wetland Mitigation Bank Site
Wetland Photographs

Palustrine forested portion of wetland W3.

Palustrine emergent portion of wetland W3.

Blue Springs Lake Wetland Mitigation Bank Site
Wetland Photographs

Palustrine emergent wetland W4.

Palustrine emergent wetland W5.

Blue Springs Lake Wetland Mitigation Bank Site
Wetland Photographs

Palustrine emergent wetland W6.

Palustrine emergent wetland W7.

Blue Springs Lake Wetland Mitigation Bank Site
Wetland Photographs

Palustrine forested wetland W8.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Blue Springs Wetland Mitigation Bank	Date:	5/23/06
Applicant/Owner:	MoDOT	County:	Jackson
Investigator:	G. Unruh, L. Ruman, N. Muenks	State:	MO
Do Normal Circumstances exist on the site?	☒Yes ☐No	Community ID:	Old-field
Is the site significantly disturbed (Atypical Situation)?	☐Yes ☒No	Transect ID:	A
Is the area a potential Problem Area? (If needed, explain on reverse.)	☐Yes ☒No	Plot ID:	A-1

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Medicago lupulina	Herb	FAC-	9.		
2. Plantago major	Herb	FAC+	10.		
3. Solidago sp.	Herb	N/I	11.		
4. Barbarea vulgaris	Herb	FAC	12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

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

Remarks: Area has been intermittently mowed.

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 (in.)

Depth to Free Water in Pit: >12 (in.)

Depth to Saturated Soil: >12 (in.)

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: No hydrology indicators present.

SOILS

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

Drainage Class: moderately well drained

Field Observations Confirm Mapped Type? ☐ Yes ☒ No

Taxonomy (Subgroup):

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc,
0-12	A	10YR 3/1			silt loam

Hydric Soil Indicators:

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

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? ☐ Yes ☒ No (Check)

Wetland Hydrology Present? ☐ Yes ☒ No

Hydric Soils Present? ☒ Yes ☐ No

(Check)

Is this Sampling Point Within a Wetland? ☐ Yes ☒ No

Remarks Old-field area is underlain by hydric soil but is not dominated by hydrophytic vegetation or contain wetland hydrology indicators.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Blue Springs Wetland Mitigation Bank	Date:	5/23/06
Applicant/Owner:	MoDOT	County:	Jackson
Investigator:	G. Unruh, L. Ruman, N. Muenks	State:	MO
Do Normal Circumstances exist on the site?	☒Yes ☐No	Community ID:	Scrub/shrub
Is the site significantly disturbed (Atypical Situation)?	☐Yes ☒No	Transect ID:	A
Is the area a potential Problem Area? (If needed, explain on reverse.)	☐Yes ☒No	Plot ID:	A-2

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Acer negundo	Tree	FACW-	9.		
2. Ulmus rubra	Tree	FAC	10.		
3. Rudbeckia laciniata	Herb	FACW+	11.		
4. Urtica dioica	Herb	FAC+	12.		
5. Apo ynum cannabinum	Herb	FAC+	13.		
6. Toxicodendron radicans	Herb	FAC+	14.		
7. Toxicodendron radicans	Vine	FAC+	15.		
8.			16.		

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

Remarks:

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 (in.)

Depth to Free Water in Pit: >12 (in.)

Depth to Saturated Soil: >12 (in.)

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: No hydrology indicators.

SOILS

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

Drainage Class: moderately well drained

Field Observations Confirm Mapped Type? ☐ Yes ☒ No

Taxonomy (Subgroup):

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc,
0-12	A	10YR 4/1			silt loam

Hydric Soil Indicators:

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

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☒ Yes ☐ No	(Check)
Wetland Hydrology Present?	☐ Yes ☒ No	
Hydric Soils Present?	☒ Yes ☐ No	

(Check)

Is this Sampling Point Within a Wetland? ☐ Yes ☒ No

Remarks Area does not have primary or seconday hydrology indicators.

Approved by HQUSACE 3/92

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DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Blue Springs Wetland Mitigation Bank	Date:	5/23/06
Applicant/Owner:	MoDOT	County:	Jackson
Investigator:	G. Unruh, L. Ruman, N. Muenks	State:	MO
Do Normal Circumstances exist on the site?	☒Yes ☐No	Community ID:	Upland forest
Is the site significantly disturbed (Atypical Situation)?	☐Yes ☒No	Transect ID:	A
Is the area a potential Problem Area? (If needed, explain on reverse.)	☐Yes ☒No	Plot ID:	A-3

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1.	Acer negundo	Tree	FACW-	9.	Cryptotaenia canadensis	Herb	FAC
2.	Juglans nigra	Tree	FACU	10.	Rudbeckia laciniata	Herb	FACW+
3.	Juniperus virginiana	Tree	FACU	11.	Amphicarpaea bracteata	Herb	FAC
4.	Ulmus americana	Tree	FACW-	12.	Galium aperine	Herb	FACU
5.	Ulmus rubra	Shrub	FAC	13.	Parthenocissus quinquefolia	Vine	FAC-
6.	Elymus virginicus	Herb	FACW-	14.	Vitis sp.	Vine	N/I
7.	Fragaria virginiana	Herb	FAC-	15.			
8.	Urtica dioca	Herb	FAC+	16.			

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 57%

Remarks:

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 (in.)

Depth to Free Water in Pit: >12 (in.)

Depth to Saturated Soil: >12 (in.)

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: No hydrology indicators present.

SOILS

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

Drainage Class: moderately well drained

Field Observations Confirm Mapped Type? ☐ Yes ☒ No

Taxonomy (Subgroup):

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc,
0-12	A	10YR 3/1			clay loam

Hydric Soil Indicators:

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

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? ☒ Yes ☐ No (Check)

Wetland Hydrology Present? ☐ Yes ☒ No

Hydric Soils Present? ☒ Yes ☐ No

(Check)

Is this Sampling Point Within a Wetland? ☐ Yes ☒ No

Remarks Forested area is dominated by hydrophytic vegetation and is underlain by hydric soil but does not contain wetland hydrology indicators.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Blue Springs Wetland Mitigation Bank	Date:	5/23/06
Applicant/Owner:	MoDOT	County:	Jackson
Investigator:	G. Unruh, L. Ruman, N. Muenks	State:	MO
Do Normal Circumstances exist on the site?	☒Yes ☐No	Community ID:	Floodplain forest
Is the site significantly disturbed (Atypical Situation)?	☐Yes ☒No	Transect ID:	A
Is the area a potential Problem Area? (If needed, explain on reverse.)	☐Yes ☒No	Plot ID:	A-4

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Aesculus glabra	Tree	FAC+	9. Urtica dioica	Herb	FAC+
2. Juglans nigra	Tree	FACU	10.		
3. Acer negundo	Tree	FACW	11.		
4. Platanus occidentalis	Tree	FACW	12.		
5. Morus rubra	Tree	FAC-	13.		
6. Acer negundo	Shrub	FACW	14.		
7. Verbesina alternifolia	Herb	FACW	15.		
8. Elymus virginicus	Herb	FACW-	16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 78%

Remarks:

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 (in.)

Depth to Free Water in Pit: >12 (in.)

Depth to Saturated Soil: >12 (in.)

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: Located on an elevated stream terrace. No hydrology indicators present.

SOILS

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

Drainage Class: moderately well drained

Field Observations Confirm Mapped Type? ☐ Yes ☒ No

Taxonomy (Subgroup):

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc,
0-12	A	10YR 3/2			silt

Hydric Soil Indicators:

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

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☒ Yes ☐ No	(Check)
Wetland Hydrology Present?	☐ Yes ☒ No	
Hydric Soils Present?	☐ Yes ☒ No	

(Check)

Is this Sampling Point Within a Wetland? ☐ Yes ☒ No

Remarks Floodplain woods are dominated by hydrophytic vegetation but is not underlain by hydric soils and does not contain wetland hydrology indicators.

Approved by HQUSACE 3/92

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DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Blue Springs Wetland Mitigation Bank	Date:	5/24/06
Applicant/Owner:	MoDOT	County:	Jackson
Investigator:	L. Ruman, N. Muenks	State:	MO
Do Normal Circumstances exist on the site?	☒Yes ☐No	Community ID:	Old-field
Is the site significantly disturbed (Atypical Situation)?	☐Yes ☒No	Transect ID:	B
Is the area a potential Problem Area? (If needed, explain on reverse.)	☐Yes ☒No	Plot ID:	B-1

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Securigera varia	Herb	N/I	9.		
2. Festuca sp.	Herb	N/I	10.		
3. Galium aperine	Herb	FACU	11.		
4. Toxicodendron radicans	Vine	FAC+	12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 25%

Remarks: Area has been intermittently mowed.

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 (in.)

Depth to Free Water in Pit: >12 (in.)

Depth to Saturated Soil: >12 (in.)

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: No hydrology indicators present.

SOILS

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

Drainage Class: poorly drained

Field Observations Confirm Mapped Type? ☐ Yes ☒ No

Taxonomy (Subgroup):

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc,
0-12	A	10YR 3/1			silt loam

Hydric Soil Indicators:

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

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? ☐ Yes ☒ No (Check)

Wetland Hydrology Present? ☐ Yes ☒ No

Hydric Soils Present? ☒ Yes ☐ No

(Check)

Is this Sampling Point Within a Wetland? ☐ Yes ☒ No

Remarks Old-field area is underlain by hydric soil but is not dominated by hydrophytic vegetation or contain wetland hydrology indicators.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Blue Springs Wetland Mitigation Bank	Date:	5/23/06
Applicant/Owner:	MoDOT	County:	Jackson
Investigator:	B. Brooks, R. Meade	State:	MO
Do Normal Circumstances exist on the site?	☒Yes ☐No	Community ID:	Old-field
Is the site significantly disturbed (Atypical Situation)?	☐Yes ☒No	Transect ID:	B
Is the area a potential Problem Area? (If needed, explain on reverse.)	☐Yes ☒No	Plot ID:	B-2

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Festuca sp.	Herb	N/I	9.		
2. Solidago sp.	Herb	N/I	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-). 0%

Remarks: Area has been intermittently mowed.

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 (in.)

Depth to Free Water in Pit: >20 (in.)

Depth to Saturated Soil: >20 (in.)

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: No hydrology indicators present.

SOILS

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

Drainage Class: poorly drained

Field Observations Confirm Mapped Type? ☐ Yes ☒ No

Taxonomy (Subgroup):

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc,
0-15	A	7.5YR 3/1			silty clay

Hydric Soil Indicators:

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

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☐ Yes ☒ No (Check)	(Check)
Wetland Hydrology Present?	☐ Yes ☒ No	
Hydric Soils Present?	☒ Yes ☐ No	Is this Sampling Point Within a Wetland? ☐ Yes ☒ No

Remarks Old-field area is underlain by hydric soil but is not dominated by hydrophytic vegetation or contain wetland hydrology indicators.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Blue Springs Wetland Mitigation Bank	Date:	5/23/06
Applicant/Owner:	MoDOT	County:	Jackson
Investigator:	B. Brooks, R. Meade	State:	MO
Do Normal Circumstances exist on the site?	☒Yes ☐No	Community ID:	Upland forest
Is the site significantly disturbed (Atypical Situation)?	☐Yes ☒No	Transect ID:	B
Is the area a potential Problem Area? (If needed, explain on reverse.)	☐Yes ☒No	Plot ID:	B-3

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Acer negundo	Tree	FACW-	9.		
2. Acer saccharinum	Tree	FACW	10.		
3. Cornus racemosa	Shrub	N/I	11.		
4. Poa sp.	Herb	N/I	12.		
5. Elymus virginicus	Herb	FACW-	13.		
6. Parthenocissus quinquefolia	Vine	FAC-	14.		
7.			15.		
8.			16.		

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

Remarks:

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 (in.)

Depth to Free Water in Pit: >12 (in.)

Depth to Saturated Soil: >12 (in.)

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: No hydrology indicators present.

SOILS

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

Drainage Class: moderately well drained

Field Observations Confirm Mapped Type? ☐ Yes ☒ No

Taxonomy (Subgroup):

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc,
0-12	A	7.5YR 3/1			clay loam

Hydric Soil Indicators:

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

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? ☐ Yes ☒ No (Check)

Wetland Hydrology Present? ☐ Yes ☒ No

Hydric Soils Present? ☒ Yes ☐ No

(Check)

Is this Sampling Point Within a Wetland? ☐ Yes ☒ No

Remarks Forested area is dominated is underlain by hydric soil but is not dominated by hydrophytic vegetation and does not contain wetland hydrology indicators.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Blue Springs Wetland Mitigation Bank	Date:	5/23/06
Applicant/Owner:	MoDOT	County:	Jackson
Investigator:	B. Brooks, R. Meade	State:	MO
Do Normal Circumstances exist on the site?	☒Yes ☐No	Community ID:	Floodplain forest
Is the site significantly disturbed (Atypical Situation)?	☐Yes ☒No	Transect ID:	B
Is the area a potential Problem Area? (If needed, explain on reverse.)	☐Yes ☒No	Plot ID:	B-4

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Aesculus glabra	Tree	FAC+	9.		
2. Celtis occidentalis	Tree	FAC-	10.		
3. Symphoricarpos orbiculatus	Shrub	FACU	11.		
4. Aesculus glabra	Shrub	FAC+	12.		
5. Elymus virginicus	Herb	FACW-	13.		
6.			14.		
7.			15.		
8.			16.		

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

Remarks:

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 (in.)

Depth to Free Water in Pit: >20 (in.)

Depth to Saturated Soil: >20 (in.)

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: Located on an elevated stream terrace. No hydrology indicators present.

SOILS

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

Drainage Class: moderately well drained

Field Observations Confirm Mapped Type? ☐ Yes ☒ No

Taxonomy (Subgroup):

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc,
0-20	A	7.5YR 3/1			silty clay

Hydric Soil Indicators:

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

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☒ Yes ☐ No	(Check)
Wetland Hydrology Present?	☐ Yes ☒ No	
Hydric Soils Present?	☒ Yes ☐ No	

(Check)

Is this Sampling Point Within a Wetland? ☐ Yes ☒ No

Remarks Floodplain woods are dominated by hydrophytic vegetation and underlain by hydric soil but are located on a stream terrace and does not contain wetland hydrology indicators.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Blue Springs Wetland Mitigation Bank	Date:	5/24/06
Applicant/Owner:	MoDOT	County:	Jackson
Investigator:	J. Mehuys	State:	MO
Do Normal Circumstances exist on the site?	☒Yes ☐No	Community ID:	Upland forest
Is the site significantly disturbed (Atypical Situation)?	☐Yes ☒No	Transect ID:	C
Is the area a potential Problem Area? (If needed, explain on reverse.)	☐Yes ☒No	Plot ID:	C-1

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Celtis occidentalis	Tree	FAC-	9. Cryptotaenia canadensis	Herb	FAC
2. Juglans nigra	Tree	FACU	10. Toxicodendron radicans	Vine	FAC+
3. Quercus macrocarpa	Tree	FAC-	11.		
4. Quercus imbricaria	Tree	FAC-	12.		
5. Acer saccharinum	Tree	FACW	13.		
6. Symphoricarpos orbiculatus	Shrub	FACU	14.		
7. Cornus drummondii	Shrub	FAC	15.		
8. Verbesina alternifolia	Herb	FACW	16.		

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

Remarks:

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 (in.)

Depth to Free Water in Pit: >12 (in.)

Depth to Saturated Soil: >12 (in.)

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: No hydrology indicators present.

SOILS

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

Drainage Class: poorly drained

Field Observations Confirm Mapped Type? ☐ Yes ☒ No

Taxonomy (Subgroup):

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc,
0-12	A	7.5YR 3/1			silty clay

Hydric Soil Indicators:

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

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☐ Yes ☒ No	(Check)
Wetland Hydrology Present?	☐ Yes ☒ No	
Hydric Soils Present?	☒ Yes ☐ No	

(Check)

Is this Sampling Point Within a Wetland? ☐ Yes ☒ No

Remarks Forested area is not dominated by hydrophytic vegetation and does not contain wetland hydrology indicators.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Blue Springs Wetland Mitigation Bank	Date:	5/23/06
Applicant/Owner:	MoDOT	County:	Jackson
Investigator:	G. Unruh, L. Ruman, N. Muenks	State:	MO
Do Normal Circumstances exist on the site?	☒Yes ☐No	Community ID:	Scrub/shrub
Is the site significantly disturbed (Atypical Situation)?	☐Yes ☒No	Transect ID:	C
Is the area a potential Problem Area? (If needed, explain on reverse.)	☐Yes ☒No	Plot ID:	C-2

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Juniperus virginiana	Tree	FACU	9.		
2. Symphoricarpos orbiculatus	Shrub	FACU	10.		
3. Cornus racemosa	Shrub	N/I	11.		
4. Toxicodendron radicans	Shrub	FAC+	12.		
5. Coronilla varia	Herb	N/I	13.		
6. Juncus sp.	Herb	FAC-OBL	14.		
7. Penstemon digitalis	Herb	FAC-	15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 29%

Remarks:

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 (in.)

Depth to Free Water in Pit: >12 (in.)

Depth to Saturated Soil: >12 (in.)

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: No hydrology indicators present.

SOILS

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

Drainage Class: poorly drained

Field Observations Confirm Mapped Type? ☐ Yes ☒ No

Taxonomy (Subgroup):

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc,
0-12	A	7.5YR 3/2			silty clay

Hydric Soil Indicators:

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

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☐ Yes ☒ No (Check)		(Check)
Wetland Hydrology Present?	☐ Yes ☒ No		
Hydric Soils Present?	☒ Yes ☐ No	Is this Sampling Point Within a Wetland?	☐ Yes ☒ No

Remarks Area is not dominated by hydrophytic vegetation and does not contain wetland hydrology indicators.

Approved by HQUSACE 3/92

Forms version 1/02

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Blue Springs Wetland Mitigation Bank	Date:	5/23/06
Applicant/Owner:	MoDOT	County:	Jackson
Investigator:	G. Unruh, L. Ruman, N. Muenks	State:	MO
Do Normal Circumstances exist on the site?	☒Yes ☐No	Community ID:	Scrub/shrub
Is the site significantly disturbed (Atypical Situation)?	☐Yes ☒No	Transect ID:	C
Is the area a potential Problem Area? (If needed, explain on reverse.)	☐Yes ☒No	Plot ID:	C-3

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Toxicodendron radicans	Shrub	FAC+	9.		
2. Scirpus cyperinus	Herb	OBL	10.		
3. Pycnanthemum tenuifolium	Herb	FAC	11.		
4. Carex lurida	Herb	OBL	12.		
5. Solidago sp.	Herb	N/I	13.		
6.			14.		
7.			15.		
8.			16.		

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

Remarks: Within remnant agricultural v-ditch.

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 (in.)

Depth to Free Water in Pit: >12 (in.)

Depth to Saturated Soil: >12 (in.)

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☒ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: Only one secondary hydrology indicator present.

SOILS

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

Drainage Class: poorly drained

Field Observations Confirm Mapped Type? ☐ Yes ☒ No

Taxonomy (Subgroup):

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc,
0-12	A	7.5YR 3/1	10YR 4/6	rare, small, dist.	loamy silt

Hydric Soil Indicators:

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

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☒ Yes ☐ No (Check)	(Check)
Wetland Hydrology Present?	☐ Yes ☒ No	
Hydric Soils Present?	☒ Yes ☐ No	Is this Sampling Point Within a Wetland? ☐ Yes ☒ No

RemarksRemnant agricultural v-ditch is dominated by hydrophytic vegetation and is underlain by hydric soils, but does not contain wetland hydrology.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Blue Springs Wetland Mitigation Bank	Date:	5/23/06
Applicant/Owner:	MoDOT	County:	Jackson
Investigator:	G. Unruh, L. Ruman, N. Muenks	State:	MO
Do Normal Circumstances exist on the site?	☒Yes ☐No	Community ID:	Scrub/shrub
Is the site significantly disturbed (Atypical Situation)?	☐Yes ☒No	Transect ID:	C
Is the area a potential Problem Area? (If needed, explain on reverse.)	☐Yes ☒No	Plot ID:	C-4

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Salix nigra	Tree	OBL	9.		
2. Toxicodendron radicans	Shrub	FAC+	10.		
3. Rubus allegheniensis	Shrub	FACU+	11.		
4. Festuca sp.	Herb	N/I	12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

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

Remarks: Within remnant agricultural v-ditch.

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 (in.)

Depth to Free Water in Pit: >12 (in.)

Depth to Saturated Soil: >12 (in.)

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☒ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: Only one secondary hydrology indicator present.

SOILS

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

Drainage Class: poorly drained

Field Observations Confirm Mapped Type? ☐ Yes ☒ No

Taxonomy (Subgroup):

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc,
0-9	A	10YR 3/1			silt loam
9-12+	B	10YR 4/1			loam

Hydric Soil Indicators:

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

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? ☐ Yes ☒ No (Check)

Wetland Hydrology Present? ☐ Yes ☒ No

Hydric Soils Present? ☒ Yes ☐ No

(Check)

Is this Sampling Point Within a Wetland? ☐ Yes ☒ No

Remarks Remnant agricultural v-ditch is underlain by hydric soils, but is not dominated by hydrophytic vegetation and does not contain wetland hydrology.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Blue Springs Wetland Mitigation Bank	Date:	5/23/06
Applicant/Owner:	MoDOT	County:	Jackson
Investigator:	G. Unruh, L. Ruman, N. Muenks	State:	MO
Do Normal Circumstances exist on the site?	☒Yes ☐No	Community ID:	Scrub/shrub
Is the site significantly disturbed (Atypical Situation)?	☐Yes ☒No	Transect ID:	C
Is the area a potential Problem Area? (If needed, explain on reverse.)	☐Yes ☒No	Plot ID:	C-5

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Acer saccharinum	Tree	FACW	9.		
2. Acer negundo	Tree	FACW-	10.		
3. Symphoricarpos orbiculatus	Shrub	FACU	11.		
4. Rosa multiflora	Shrub	FACU	12.		
5. Cornus drummondii	Shrub	FAC	13.		
6. Parthenocissus quinquefolia	Herb	FAC-	14.		
7. Urtica dioca	Herb	FAC+	15.		
8. Vitis sp.	Vine	N/I	16.		

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

Remarks:

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 (in.)

Depth to Free Water in Pit: >12 (in.)

Depth to Saturated Soil: >12 (in.)

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: No wetland hydrology indicators present.

SOILS

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

Drainage Class: poorly drained

Field Observations Confirm Mapped Type? ☐ Yes ☒ No

Taxonomy (Subgroup):

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc,
0-12	A	10YR 3/1			silt

Hydric Soil Indicators:

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

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? ☐ Yes ☒ No (Check)

Wetland Hydrology Present? ☐ Yes ☒ No

Hydric Soils Present? ☒ Yes ☐ No

(Check)

Is this Sampling Point Within a Wetland? ☐ Yes ☒ No

Remarks Scrub/shrub area is underlain by hydric soils, but is not dominated by hydrophytic vegetation and does not contain wetland hydrology.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Blue Springs Wetland Mitigation Bank	Date:	5/23/06
Applicant/Owner:	MoDOT	County:	Jackson
Investigator:	B. Brooks, R. Meade	State:	MO
Do Normal Circumstances exist on the site?	☒Yes ☐No	Community ID:	Scrub/shrub
Is the site significantly disturbed (Atypical Situation)?	☐Yes ☒No	Transect ID:	D
Is the area a potential Problem Area? (If needed, explain on reverse.)	☐Yes ☒No	Plot ID:	D-1

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Cornus racemosa	Shrub	N/I	9.		
2. Symphoricarpos orbiculatus	Shrub	FACU	10.		
3. Eupatorium rugosum	Herb	N/I	11.		
4. Cryptotaenia canadensis	Herb	FAC	12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 25%

Remarks:

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 (in.)

Depth to Free Water in Pit: >12 (in.)

Depth to Saturated Soil: >12 (in.)

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: Within a remnant agricultural v-ditch. No hydrology indicators present.

SOILS

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

Drainage Class: poorly drained

Field Observations Confirm Mapped Type? ☐ Yes ☒ No

Taxonomy (Subgroup):

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc,
0-12	A	7.5YR 3/1			silty clay

Hydric Soil Indicators:

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

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? ☐ Yes ☒ No (Check)

Wetland Hydrology Present? ☐ Yes ☒ No

Hydric Soils Present? ☒ Yes ☐ No

(Check)

Is this Sampling Point Within a Wetland? ☐ Yes ☒ No

Remarks Area is not dominated by hydrophytic vegetation and does not contain wetland hydrology indicators.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Blue Springs Wetland Mitigation Bank	Date:	5/23/06
Applicant/Owner:	MoDOT	County:	Jackson
Investigator:	B. Brooks, R. Meade	State:	MO
Do Normal Circumstances exist on the site?	☒Yes ☐No	Community ID:	Scrub/shrub
Is the site significantly disturbed (Atypical Situation)?	☐Yes ☒No	Transect ID:	D
Is the area a potential Problem Area? (If needed, explain on reverse.)	☐Yes ☒No	Plot ID:	D-2

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Toxicodendron radicans	Shrub	FAC+	9.		
2. Valerianella radiata	Herb	FAC+	10.		
3. Scirpus cyperinus	Herb	OBL	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

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 (in.)

Depth to Free Water in Pit: >12 (in.)

Depth to Saturated Soil: >12 (in.)

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: Within a remnant agricultural v-ditch. No hydrology indicators present.

SOILS

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

Drainage Class: poorly drained

Field Observations Confirm Mapped Type? ☐ Yes ☒ No

Taxonomy (Subgroup):

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc,
0-10	A	7.5YR 3/1			silty clay
10-12	B	10YR 4/1	10YR 5/6	fine, common	silty clay

Hydric Soil Indicators:

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

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☒ Yes ☐ No (Check)	(Check)
Wetland Hydrology Present?	☐ Yes ☒ No	
Hydric Soils Present?	☒ Yes ☐ No	Is this Sampling Point Within a Wetland? ☐ Yes ☒ No

Remarks Remnant agricultural v-ditch does not have primary or secondary hydology indicators.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Blue Springs Wetland Mitigation Bank	Date:	5/23/06
Applicant/Owner:	MoDOT	County:	Jackson
Investigator:	B. Brooks, R. Meade	State:	MO
Do Normal Circumstances exist on the site?	☒Yes ☐No	Community ID:	Scrub/shrub
Is the site significantly disturbed (Atypical Situation)?	☐Yes ☒No	Transect ID:	D
Is the area a potential Problem Area? (If needed, explain on reverse.)	☐Yes ☒No	Plot ID:	D-3

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Toxicodendron radicans	Shrub	FAC+	9.		
2. Valerianella radiata	Herb	FAC+	10.		
3. Scirpus cyperinus	Herb	OBL	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

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 (in.)

Depth to Free Water in Pit: >12 (in.)

Depth to Saturated Soil: >12 (in.)

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: Within a remnant agricultural v-ditch. No hydrology indicators present.

SOILS

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

Drainage Class: poorly drained

Field Observations Confirm Mapped Type? ☐ Yes ☒ No

Taxonomy (Subgroup):

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc,
0-12	A	10YR 3/1			silty clay

Hydric Soil Indicators:

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

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☒ Yes ☐ No (Check)	
Wetland Hydrology Present?	☐ Yes ☒ No	
Hydric Soils Present?	☒ Yes ☐ No	
		(Check)
Is this Sampling Point Within a Wetland?		☐ Yes ☒ No

Remarks Remnant agricultural v-ditch does not have primary or secondary hydology indicators.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Blue Springs Wetland Mitigation Bank	Date:	5/24/06
Applicant/Owner:	MoDOT	County:	Jackson
Investigator:	J. Mehuys, L. Ruman, N. Muenks	State:	MO
Do Normal Circumstances exist on the site?	☒Yes ☐No	Community ID:	Upland forest
Is the site significantly disturbed (Atypical Situation)?	☐Yes ☒No	Transect ID:	E
Is the area a potential Problem Area? (If needed, explain on reverse.)	☐Yes ☒No	Plot ID:	E-1

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Celtis occidentalis	Tree	FAC-	9. Cryptotaenia canadensis	Herb	FAC
2. Juglans nigra	Tree	FACU	10.		
3. Quercus macrocarpa	Tree	FAC-	11.		
4. Acer negundo	Shrub	FACW-	12.		
5. Toxicodendron radicans	Vine	FAC+	13.		
6. Symphoricarpos orbiculatus	Shrub	FACU	14.		
7. Cornus racemosa	Shrub	N/I	15.		
8. Urtica dioca	Herb	FAC+	16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 44%

Remarks:

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 (in.)

Depth to Free Water in Pit: >12 (in.)

Depth to Saturated Soil: >12 (in.)

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: No hydrology indicators present.

SOILS

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

Drainage Class: poorly drained

Field Observations Confirm Mapped Type? ☐ Yes ☒ No

Taxonomy (Subgroup):

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc,
0-12	A	7.5YR 3/1			silty clay

Hydric Soil Indicators:

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

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☐ Yes ☒ No	(Check)
Wetland Hydrology Present?	☐ Yes ☒ No	
Hydric Soils Present?	☒ Yes ☐ No	

(Check)

Is this Sampling Point Within a Wetland? ☐ Yes ☒ No

Remarks Forested area is not dominated by hydrophytic vegetation and does not contain wetland hydrology indicators.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Blue Springs Wetland Mitigation Bank	Date:	5/24/06
Applicant/Owner:	MoDOT	County:	Jackson
Investigator:	L. Ruman, N. Muenks	State:	MO
Do Normal Circumstances exist on the site?	☒Yes ☐No	Community ID:	Floodplain forest
Is the site significantly disturbed (Atypical Situation)?	☐Yes ☒No	Transect ID:	F
Is the area a potential Problem Area? (If needed, explain on reverse.)	☐Yes ☒No	Plot ID:	F-1

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Celtis occidentalis	Tree	FAC-	9. Parthenocissus quinquefolia	Vine	FAC-
2. Fraxinus pennsylvanica	Tree	FACW	10.		
3. Acer negundo	Tree	FACW-	11.		
4. Fraxinus pennsylvanica	Shrub	FACW	12.		
5. Cornus drummondii	Shrub	FAC	13.		
6. Toxicodendron radicans	Herb	FAC+	14.		
7. Verbesina alternifolia	Herb	FACW	15.		
8. Urtica dioica	Herb	FAC+	16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 78%

Remarks: Young floodplain forest

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 (in.)

Depth to Free Water in Pit: >12 (in.)

Depth to Saturated Soil: >12 (in.)

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: No hydrology indicators.

SOILS

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

Drainage Class: moderately well drained

Field Observations Confirm Mapped Type? ☐ Yes ☒ No

Taxonomy (Subgroup):

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc,
0-12	A	10YR 3/1			silt loam

Hydric Soil Indicators:

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

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☒ Yes ☐ No (Check)	(Check)
Wetland Hydrology Present?	☐ Yes ☒ No	
Hydric Soils Present?	☒ Yes ☐ No	Is this Sampling Point Within a Wetland? ☐ Yes ☒ No

Remarks Floodplain forest does not have primary or seconday hydrology indicators.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Blue Springs Wetland Mitigation Bank	Date:	5/24/06
Applicant/Owner:	MoDOT	County:	Jackson
Investigator:	L. Ruman, N. Muenks	State:	MO
Do Normal Circumstances exist on the site?	☒Yes ☐No	Community ID:	Floodplain forest
Is the site significantly disturbed (Atypical Situation)?	☐Yes ☒No	Transect ID:	F
Is the area a potential Problem Area? (If needed, explain on reverse.)	☐Yes ☒No	Plot ID:	F-2

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Acer negundo	Tree	FACW-	9. Rudbeckia laciniata	Herb	FACW+
2. Fraxinus pennsylvanica	Tree	FACW	10. Parthenocissus quinquefolia	Vine	FAC-
3. Cornus drummondii	Shrub	FAC	11. Vitis sp.	Vine	N/I
4. Fraxinus pennsylvanica	Shrub	FACW	12.		
5. Geum canadense	Herb	FAC	13.		
6. Toxicodendron radicans	Herb	FAC+	14.		
7. Verbesina alternifolia	Herb	FACW	15.		
8. Urtica dioica	Herb	FAC+	16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 82%

Remarks: Young floodplain forest

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 (in.)

Depth to Free Water in Pit: >12 (in.)

Depth to Saturated Soil: >12 (in.)

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: No hydrology indicators.

SOILS

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

Drainage Class: moderately well drained

Field Observations Confirm Mapped Type? ☐ Yes ☒ No

Taxonomy (Subgroup):

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc,
0-12	A	10YR 3/1			silt loam

Hydric Soil Indicators:

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

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☒ Yes ☐ No	(Check)
Wetland Hydrology Present?	☐ Yes ☒ No	
Hydric Soils Present?	☒ Yes ☐ No	

(Check)

Is this Sampling Point Within a Wetland? ☐ Yes ☒ No

Remarks Floodplain forest does not have primary or seconday hydrology indicators.

Approved by HQUSACE 3/92

Forms version 1/02

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Blue Springs Wetland Mitigation Bank	Date:	5/24/06
Applicant/Owner:	MoDOT	County:	Jackson
Investigator:	L. Ruman, N. Muenks	State:	MO
Do Normal Circumstances exist on the site?	☒Yes ☐No	Community ID:	Floodplain forest
Is the site significantly disturbed (Atypical Situation)?	☐Yes ☒No	Transect ID:	F
Is the area a potential Problem Area? (If needed, explain on reverse.)	☐Yes ☒No	Plot ID:	F-3

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Celtis occidentalis	Tree	FAC-	9. Leersia oryzoides	Herb	OBL
2. Ulmus americana	Tree	FACW-	10. Verbesina alternifolia	Herb	FACW
3. Quercus bicolor	Tree	FACW+	11. Geum canadense	Herb	FAC
4. Juglans nigra	Tree	FACU	12. Parthenocissus quinquefolia	Vine	FAC-
5. Populus deltoides	Tree	FAC+	13.		
6. Ulmus americana	Shrub	FACW-	14.		
7. Asimina triloba	Shrub	FAC	15.		
8. Urtica dioica	Herb	FAC+	16.		

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

Remarks: Riparian floodplain forest

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations:

Depth of Surface Water: 0 (in.)

Depth to Free Water in Pit: >12 (in.)

Depth to Saturated Soil: >12 (in.)

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: No hydrology indicators.

SOILS

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

Drainage Class: poorly drained

Field Observations Confirm Mapped Type? ☐ Yes ☒ No

Taxonomy (Subgroup):

Profile Descriptions:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc,
0-12	A	10YR 3/1			silt loam

Hydric Soil Indicators:

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

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☒ Yes ☐ No (Check)		(Check)
Wetland Hydrology Present?	☐ Yes ☒ No		
Hydric Soils Present?	☒ Yes ☐ No	Is this Sampling Point Within a Wetland?	☐ Yes ☒ No

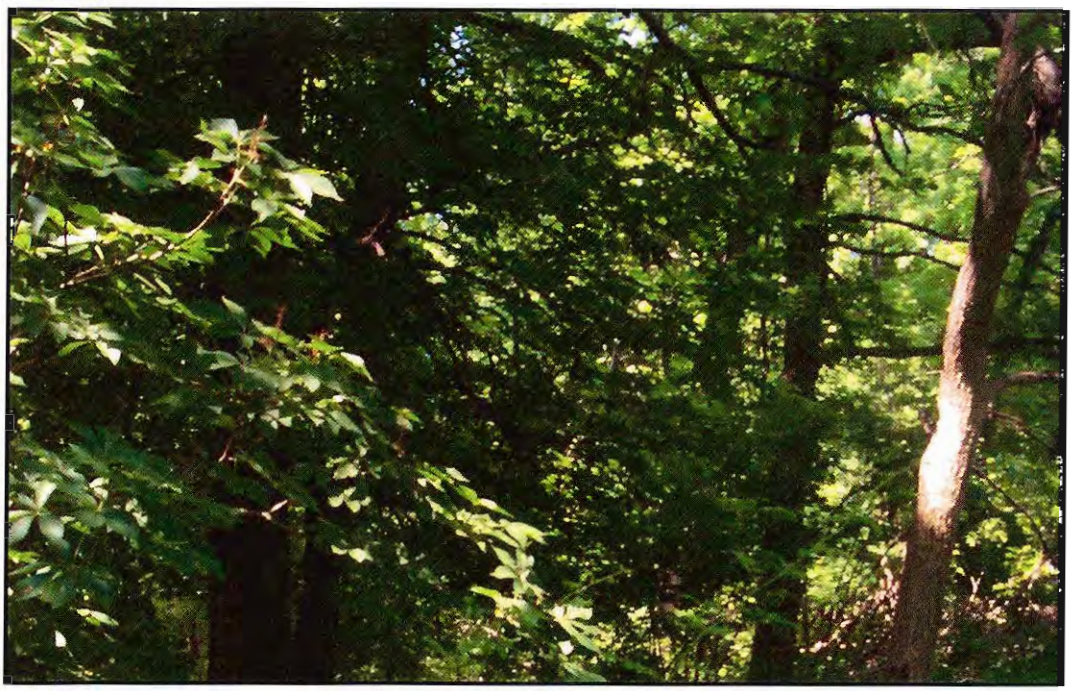
Remarks Floodplain forest does not have primary or seconday hydrology indicators.

Blue Springs Lake Wetland Mitigation Bank Site
Land Use Photographs

Scrubland in western portion of site.

Scrubland remnant v-ditch in northern portion of site.

Blue Springs Lake Wetland Mitigation Bank Site
Land Use Photographs



Upland forest in eastern portion of site.

Floodplain forest in far western portion of site.

Blue Springs Lake Wetland Mitigation Bank Site
Land Use Photographs

Old-field area in southeastern portion of site.

APPENDIX 3

Plan Sheets

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
PLANS FOR PROPOSED
STATE HIGHWAY
JACKSON COUNTY

ROUTE	STATE	DISTRICT
40	MO	4

JOB NO J4P1653

CONTRACT ID

PROJECT NO

COUNTY JACKSON

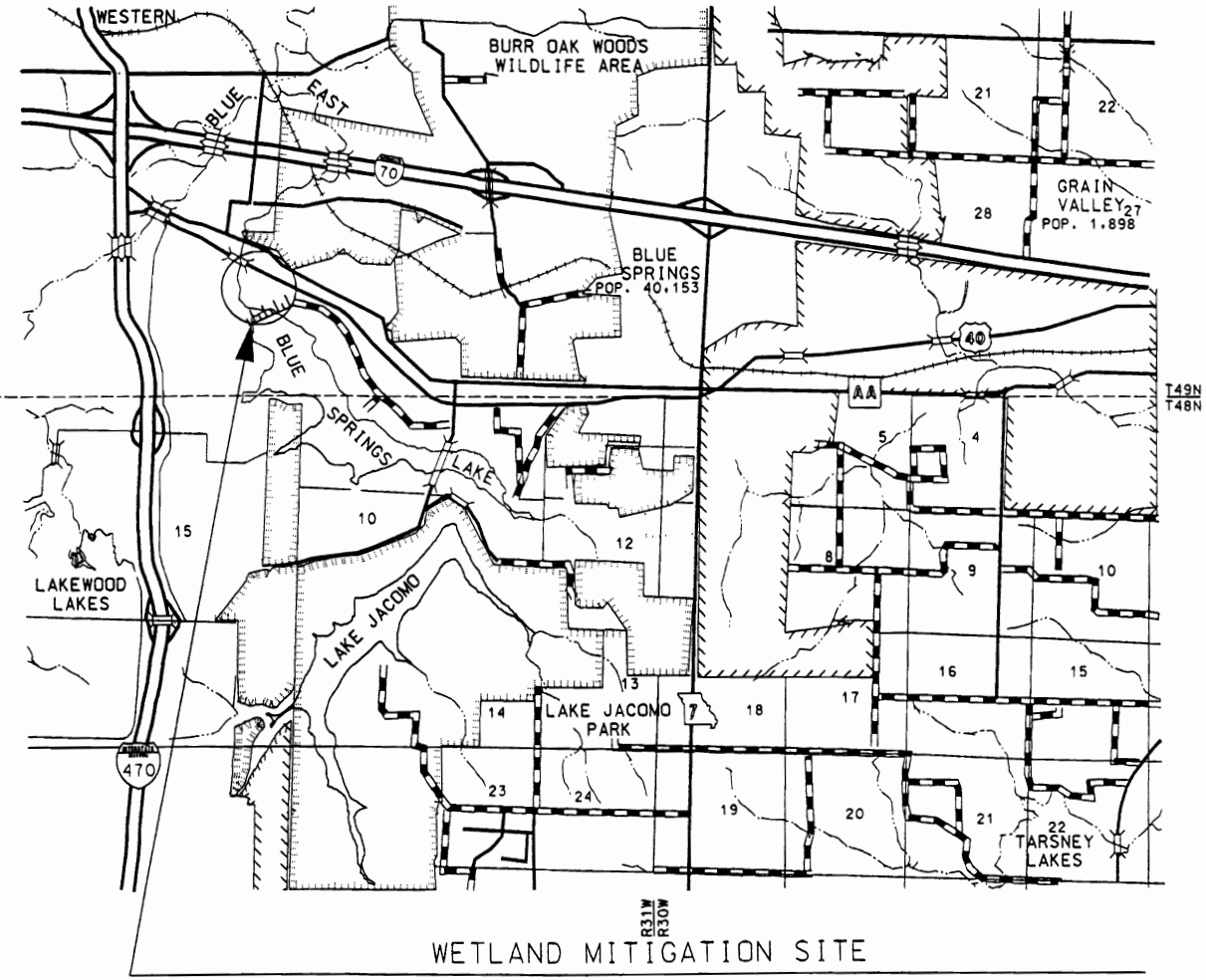
DESIGN DESIGNATION

A.D.T. - 20XX = XXXX
A.D.T. - 20XX = XXXX
D.H.V. = XX%
T = XX%
V = XX M.P.H.

CONVENTIONAL SYMBOLS
(USED IN PLANS)

	EXISTING	NEW
BUILDINGS AND STRUCTURES		
GUARD RAIL		
CONCRETE RIGHT-OF-WAY MARKER		
STEEL RIGHT-OF-WAY MARKER		
LOCATION SURVEY MARKER		
UTILITIES		
FIBER OPTICS	-FO-	-FO-
OVERHEAD TELEPHONE	-O-	-O-
UNDERGROUND TELEPHONE	-T-	-T-
OVERHEAD POWER	-O-	-O-
UNDERGROUND POWER	-P-	-P-
GAS	-G-	-G-
WATER	-W-	-W-
MANHOLE	SM	
FIRE HYDRANT	FD	
WATER VALVE	WV	
WATER METER	WM	
DROP INLET		
DITCH BLOCK		
GROUND MOUNTED SIGN	SIGN	
LIGHT POLE		
H-FRAME POWER POLE		
TELEPHONE PEDESTAL	PED	
FENCE		
CHAIN LINK	-V-	
WOVEN WIRE	-X-	
GATE POST		
BENCHMARK	BM	

NOTE: DASHED OR OPEN SYMBOLS INDICATE EXISTING FEATURES



INDEX OF SHEETS

DESCRIPTION	SHEET NUMBER
TITLE SHEET	1
TYPICAL SECTIONS (2 SHEETS)	2
SUMMARY (1 SHEET)	2-A
SUMMARY (3 SHEETS)	3
PLAN-PROFILE	4
REFERENCE POINTS	-
COORDINATE POINTS	5-6
SPECIAL SHEETS	7-21
TRAFFIC CONTROL SHEETS	22
EROSION CONTROL	23-27
LIGHTING	-
SIGNALS	-
SIGNING	-
PAVEMENT MARKING	-
CULVERT SECTIONS	28-33
BRIDGE DRAWINGS	-
CROSS SECTIONS	1-81
COMPUTER DATA	-

LENGTH OF PROJECT

BEGINNING OF PROJECT STA. XXX + XX.XX
END OF PROJECT STA. XXX + XX.XX

APPARENT LENGTH XXXXX.XX FEET

EQUATIONS AND EXCEPTIONS

TOTAL CORRECTIONS XXXXX.XX FEET
NET LENGTH OF PROJECT XXXXX.XX FEET

STATE LENGTH XX.XXX MILES

DATE _____

REV.

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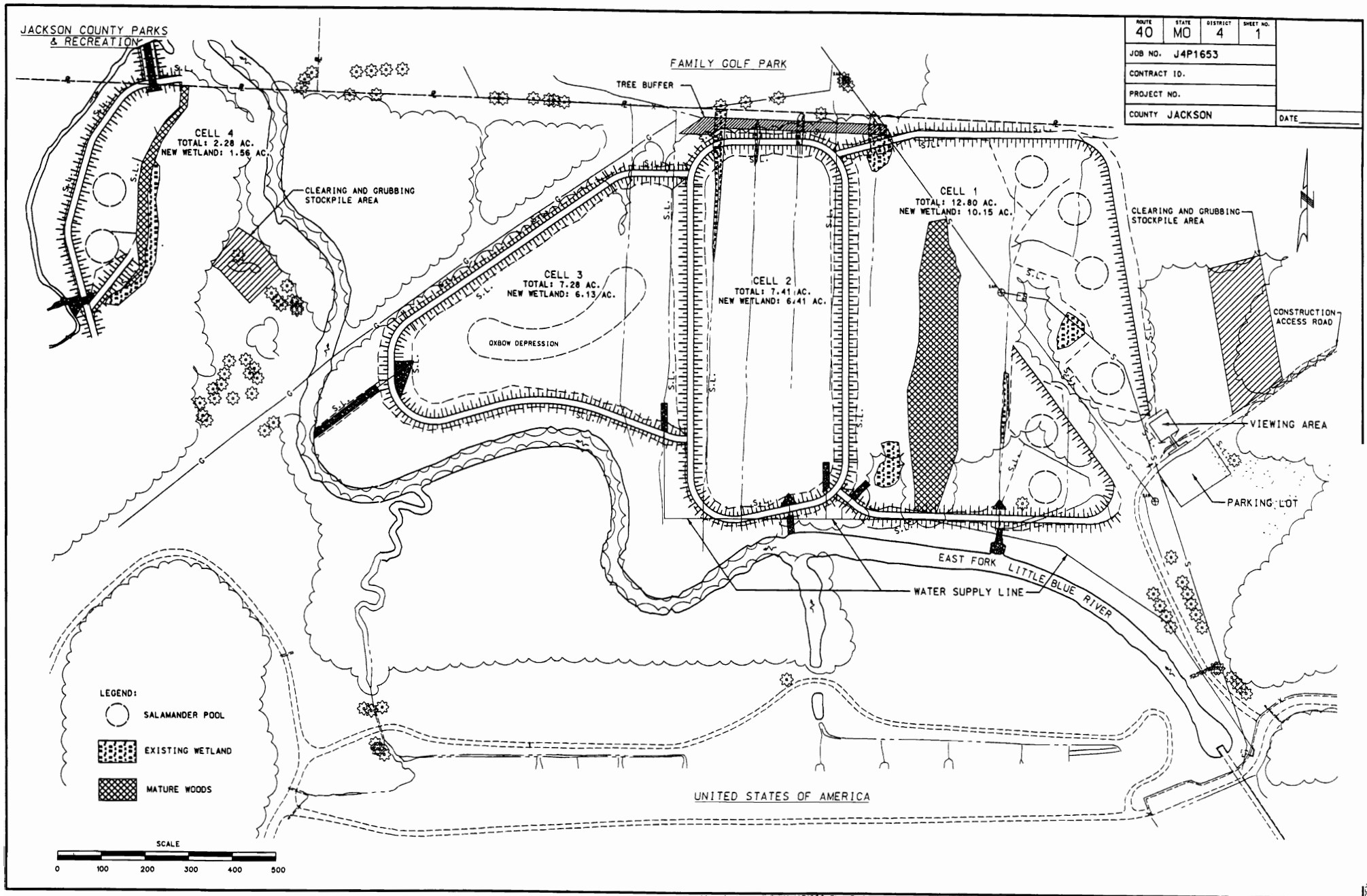

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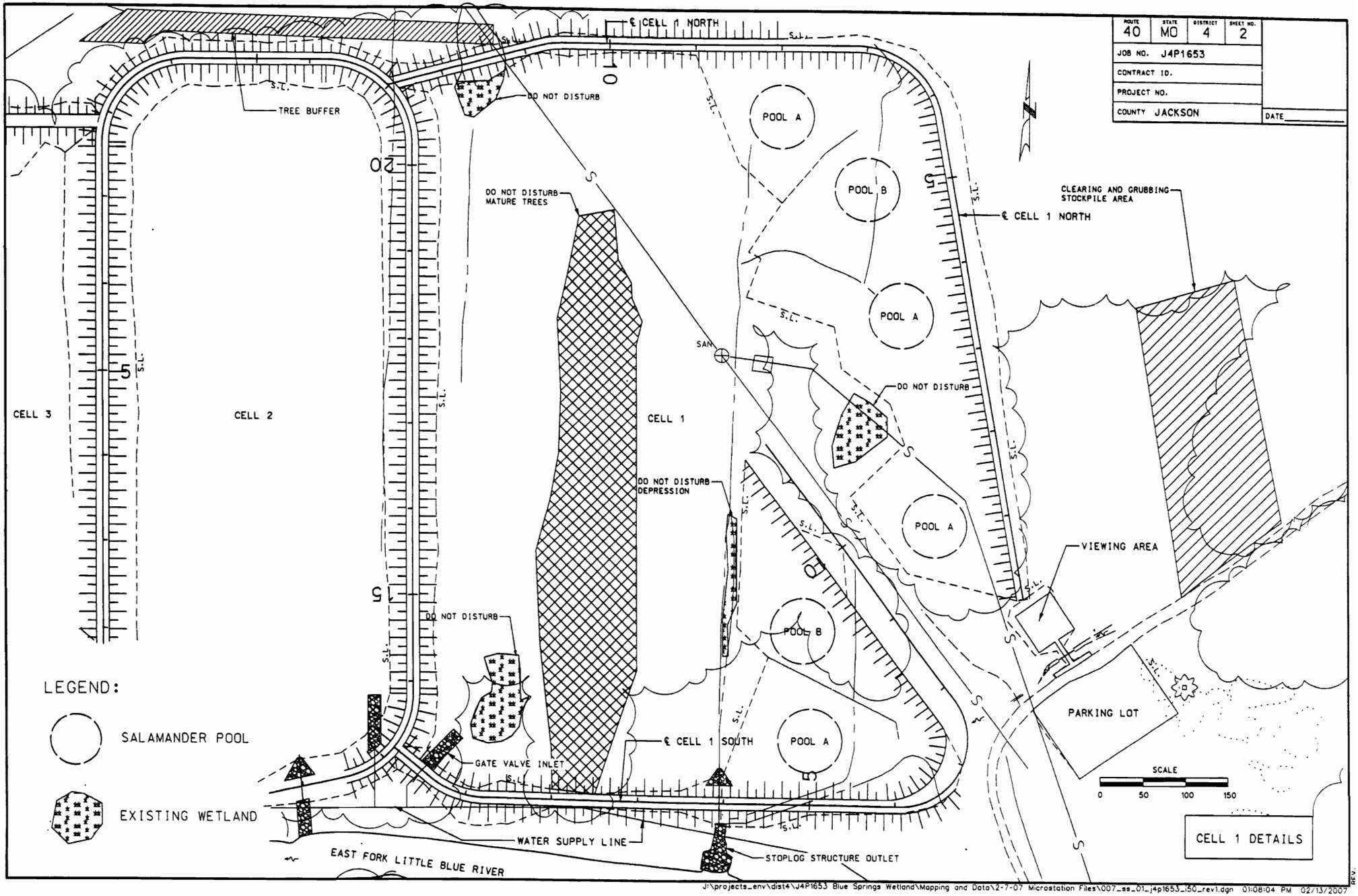
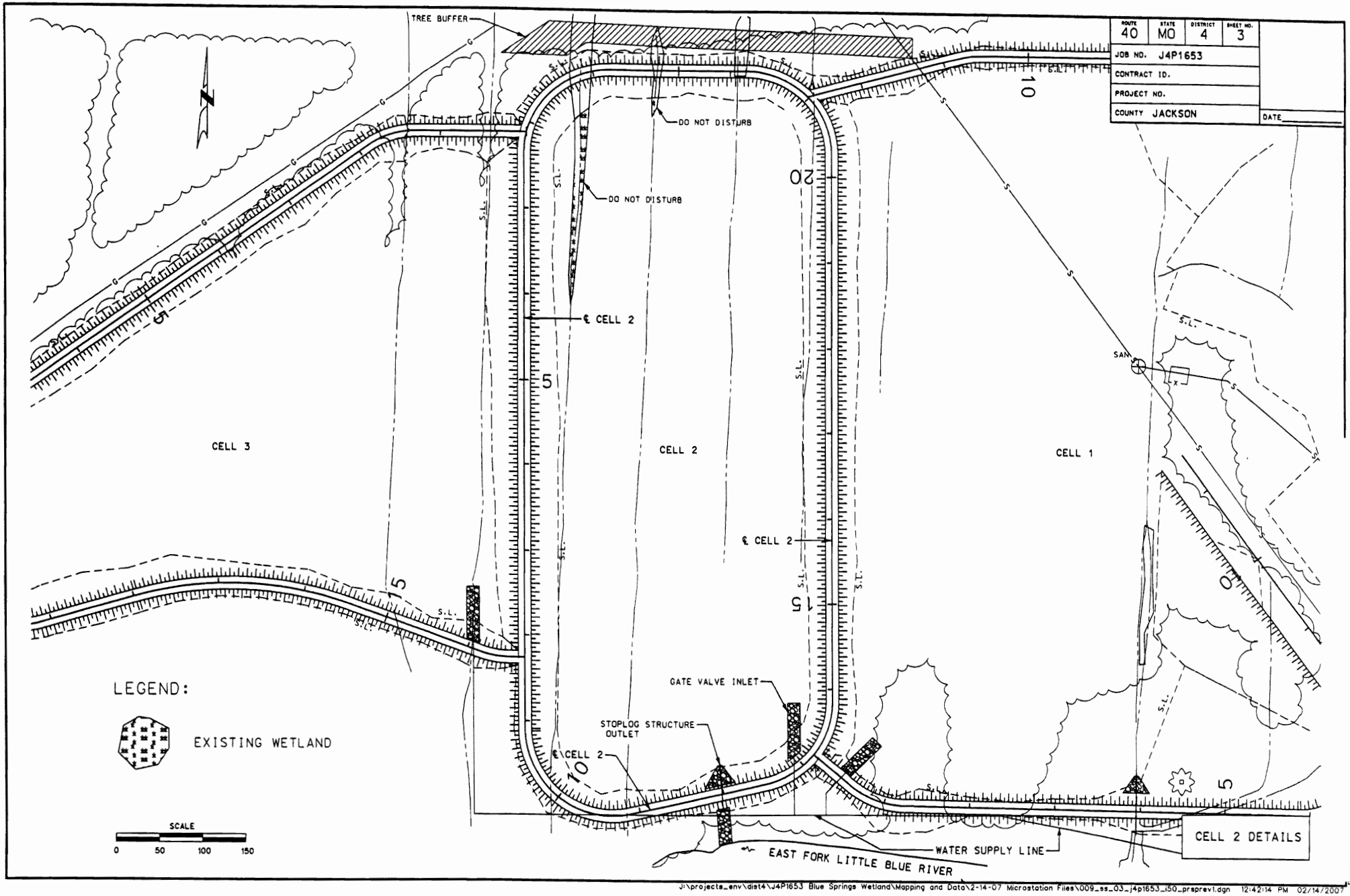

ROUTE 40
STATE MO
DISTRICT 4
SHEET NO. 2
JOB NO. J4P1653
CONTRACT ID.
PROJECT NO.
COUNTY JACKSON
DATE
℄ CELL 1 NORTH
TREE BUFFER
DO NOT DISTURB
DO NOT DISTURB MATURE TREES
POOL A
POOL B
CLEARING AND GRUBBING STOCKPILE AREA
SAN
DO NOT DISTURB DEPRESSION
CELL 3
CELL 2
CELL 1
VIEWING AREA
PARKING LOT
℄ CELL 1 SOUTH
GATE VALVE INLET
WATER SUPPLY LINE
STOPLOG STRUCTURE OUTLET
EAST FORK LITTLE BLUE RIVER
LEGEND:
SALAMANDER POOL
EXISTING WETLAND
SCALE
0 50 100 150
CELL 1 DETAILS
J:\projects_env\dist4\J4P1653 Blue Springs Wetland\Mapping and Data\2-7-07 Microstation Files\007_ss_01_j4p1653_150_rev1.dgn 01:08:04 PM 02/13/2007



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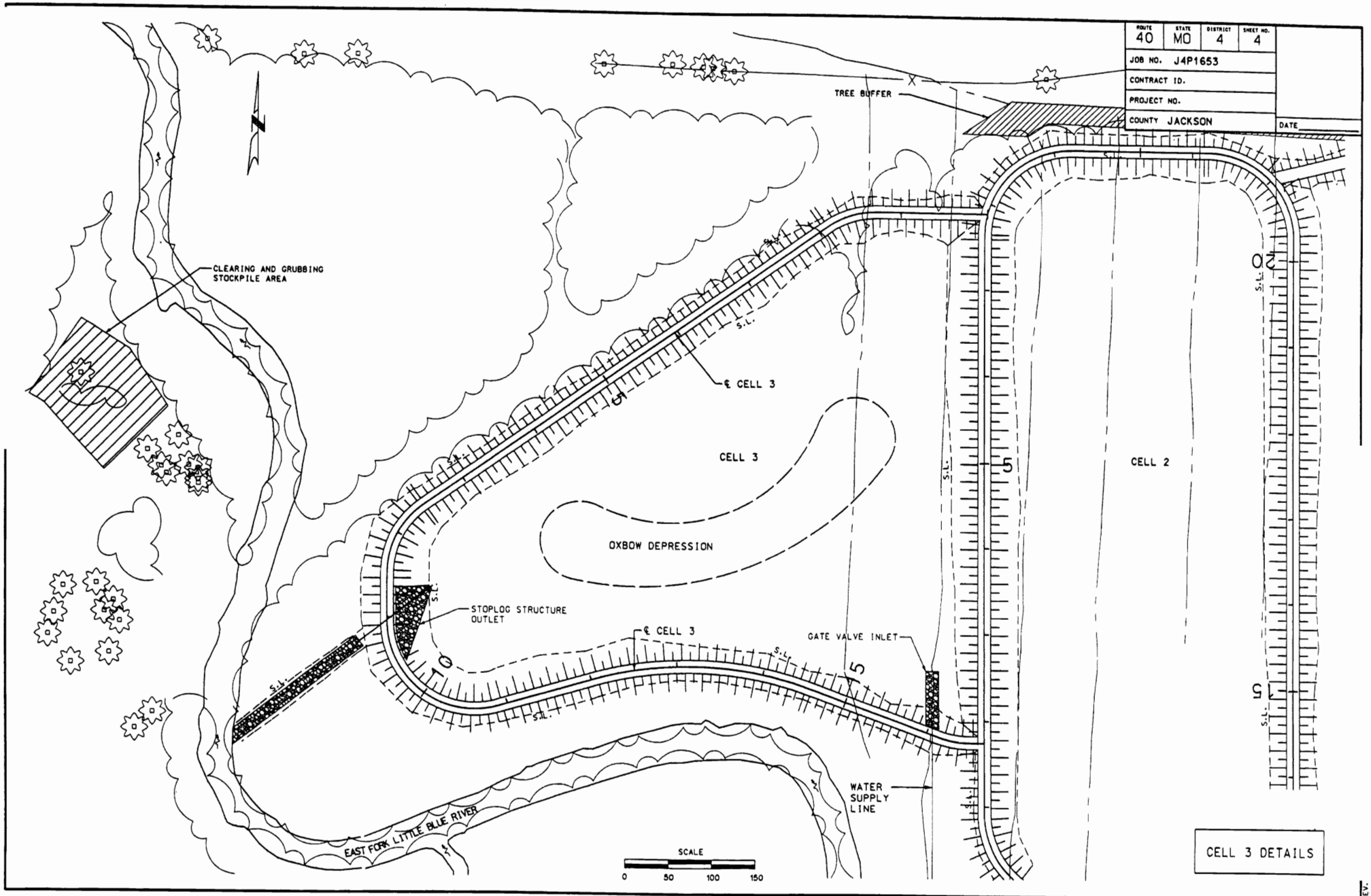

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REV.

ROUTE	STATE	DISTRICT	SHEET NO.
40	MO	4	5

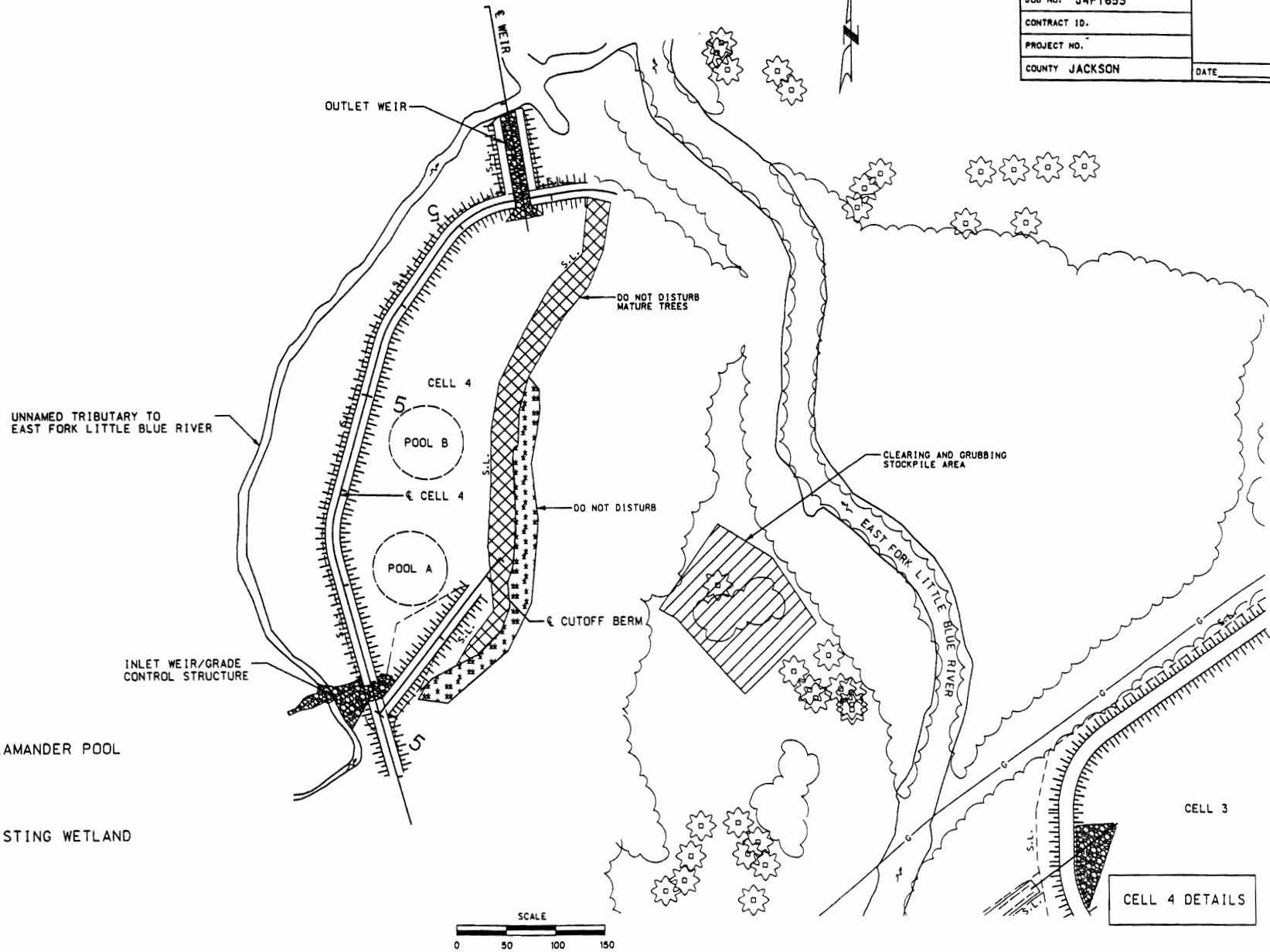
JOB NO. J4P1653

CONTRACT ID.

PROJECT NO.

COUNTY JACKSON

DATE



LEGEND:

SALAMANDER POOL

EXISTING WETLAND

CELL 4 DETAILS

REV.

J:\projects_env\dist4\J4P1653 Blue Springs Wetland\Mapping and Data\2-7-07 Microstation Files\013_ss_07_j4p1653_150_prsprev1.dgn 01:36:06 PM 02/14/2007

APPENDIX 4

Agency and Public Notice Correspondence

DEPARTMENT OF THE ARMY
KANSAS CITY DISTRICT, CORPS OF ENGINEERS
700 FEDERAL BUILDING
KANSAS CITY, MISSOURI 64106-2896

June 11, 2008

REPLY TO
ATTENTION OF:

Regulatory Branch
(20070982)

Mr. Buck Brooks, Wetland Coordinator
Environmental & Historic Preservation Section
Missouri Department of Transportation
105 W. Capitol Ave.
P.O. Box 270
Jefferson City, Missouri 65102

Dear Mr. Brooks:

This letter pertains to your request for authorization to construct a compensatory wetland mitigation bank on property owned by the U.S. Army Corps of Engineers and on property owned by the Jackson County Parks and Recreation Department located downstream of the dam at Blue Springs Lake. The project is located in Section 33, Township 49 North, Range 31 West, Jackson County, Missouri.

The Corps of Engineers has jurisdiction over all waters of the United States. Discharges of dredged or fill material in waters of the United States, including wetlands, require prior authorization from the Corps under Section 404 of the Clean Water Act (33 U.S.C. 1344). The implementing regulation for this Act is found at 33 C.F.R. 320-332.

We have completed our technical review of the proposed project and we have determined that the wetland mitigation bank instrument is in accordance with the Missouri Department of Transportation's umbrella agreement for the establishment of wetland and stream mitigation banks. As a result, we approve the construction of the wetland bank as described in the enclosed signed copy of the banking instrument. A copy of the approved banking instrument will be provided to the members of the Interagency Review Team.

We have verified that the construction of the mitigation bank is authorized by nationwide permit **(NWP 27)**, provided you ensure that the conditions listed in the enclosed copy of excerpts from the March 12, 2007 Federal Register, Issuance of Nationwide Permits, as corrected, are met. You must also comply with the Kansas City District Regional NWP Conditions posted at: http://www.nwk.usace.army.mil/regulatory/regulatory.htm. In addition to the regional NWP conditions and the general conditions, the following site specific special conditions apply to your project:

a. If any part of the authorized work is performed by a contractor, before starting work you must discuss the terms and conditions of this permit with the contractor; and, you must give a copy of this entire permit to the contractor.

b. You must use clean, uncontaminated materials for fill in order to minimize excessive turbidity by leaching of fines, as well as to preclude the entrance of deleterious and/or toxic materials into the waters of the United States by natural runoff or by leaching.

c. You must excavate, dredge and/or fill in the watercourse in a manner that will minimize increases in suspended solids and turbidity which may degrade water quality and damage aquatic life outside the immediate area of operation.

d. You must immediately remove and properly dispose of all debris during every phase of the project in order to prevent the accumulation of unsightly, deleterious and/or toxic materials in or near the water body.

e. You must not dispose of any construction debris or waste materials below the ordinary high water mark of any water body, in a wetland area, or at any location where the materials could be introduced into the water body or an adjacent wetland as a result of runoff, flooding, wind, or other natural forces.

f. You must store all construction materials, equipment, and/or petroleum products, when not in use, above anticipated high water levels.

g. You must use only graded rock, quarry-run rock and/or clean concrete rubble for riprap. The material must be reasonably well graded, consisting of pieces varying in size from 20 pounds up to and including at least 150 pound pieces. Generally, the maximum weight of any piece should not be more than 500 pounds. Gravel and dirt should not exceed 15% of the total fill volume. If you use concrete rubble, you must break all large slabs to conform to the well graded requirement, and remove all exposed reinforcement rods, trash, asphalt, and other extraneous materials before you place the rubble in the water of the United States.

h. You must not exercise the reversion stipulation contained within the NWP 27 authorization.

i. You must stop work immediately, provide a reasonable level of protection of the site, and contact the Kansas City District, Regulatory Branch, if burial sites are encountered.

The Missouri Department of Natural Resources (MDNR) has certified that this NWP will not violate existing state water quality standards provided you comply with the conditions included in their attached certification document. All conditions included in the water quality certification become conditions of the NWP authorization. Please review all conditions associated with this

NWP. If you have any questions concerning state water quality standards or compliance issues with the associated certification conditions, please contact the Chief of the Planning Section, Water Pollution Control Program, MDNR, P.O. Box 176, Jefferson City, Missouri 65102-0176. You may call 573-751-1404 for information.

General condition 26 requires you to sign and submit the enclosed "Compliance Certification" upon completion of the authorized work and any required mitigation.

This NWP verification is valid for two years from the date of this letter. Should your project plans change or if your activity is not complete within the specified verification term, you must contact this office for another permit determination.

Although an individual DA permit is not required, other federal, state and/or local permits may be required. You should verify this yourself.

This letter contains an approved jurisdictional determination for your project site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 C.F.R. Part 331. Enclosed you will find a Notification of Administrative Appeal Options and Process (NAP) and Request for Appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the Northwestern Division Office at the following address:

Division Engineer
ATTN: David W. Gesl
Administrative Appeals Review Officer
U.S. Army Corps of Engineers
P.O. Box 2870
Portland, OR 97208-2870
Telephone: 503-808-3825

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 C.F.R. Part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address within 60 day of the date of this letter.

It is not necessary to submit an RFA form to the Division Office if you do not object to this determination of jurisdiction.

In the event that you disagree with an approved jurisdictional determination, and you have new information not considered in the original determination, you may request reconsideration of that determination by the Corps District prior to initiating an appeal. To request this reconsideration based upon new information, you must submit the completed RFA form and the new information to

the District Office so that it is received within 60 days of the date of the NAP. Send approved jurisdictional determination reconsideration requests to:

District Commander
ATTN: Mark D. Frazier
Chief, Regulatory Branch
U.S. Army Engineer District, Kansas City
601 East 12th Street, Room 706
Kansas City, MO 64106-2896
Voice: 816-389-3990 – FAX: 816-389-2032

We are interested in your thoughts and opinions concerning your experience with the Kansas City District, Corps of Engineers Regulatory Program. We have placed an automated version of our Customer Service Survey form on our website at: http://per2.nwp.usace.army.mil/survey.html. At your request, we will mail you a paper copy that you may complete and return to us by mail or fax.

A copy of this letter, with enclosures, is being furnished to each of the following agencies:

U.S. Environmental Protection Agency, Region 7, Water, Wetlands, and Pesticide Division;
U.S. Fish and Wildlife Service, Ecological Services Field Office;
Missouri Department of Natural Resources, Division of Environmental Quality; and
Missouri Department of Conservation w/enclosures, Policy Coordination Division

If you have questions concerning this authorization to construct the compensatory wetland mitigation bank at Blue Springs Lake please contact Mr. Douglas Berka, Regulatory Project Manager, at (816) 389-3657 (FAX (816) 389-2032). Please reference Permit No. 2007-982 in all comments and/or inquiries relating to this project.

Sincerely,

Roger A. Wilson, Jr.
Colonel, Corps of Engineers
District Commander

Enclosures

CENWK-EC-GD (1110-2-1150a1) 27 August 2007

MEMORANDUM FOR RECORD

SUBJECT: Blue Springs Lake, MoDOT Wetland Mitigation Bank Project, Approval of Plans and Specifications

1. This memorandum documents engineering review for wetland cells to be constructed at Blue Springs Lake, Missouri. The project purposes include flood control, recreation, and fish & wildlife. The Master Plan (Design Memorandum 7) considered fish rearing ponds downstream of the dam, and Design Memorandum 11 (Outlet Works and Spillway) includes a separate water supply line for the fisheries. The concept of changing fish rearing ponds to wetland cells was developed under the Section 1135 program, but was not completed due to lost sponsorship by the Missouri Department of Natural Resources. The Missouri Department of Transportation plans to complete the project for the purpose of wetland mitigation for transportation projects.

2. The engineering review was in accordance with Northwestern Division policy stipulated in NWDR 1110-1-3, "Modification at Existing Corps-Owned Civil Works Projects." Mr. Tom Wright (EC-DS), Mr. Randy Kuzniakowski (EC-GD), and Mr. Michael Scott (OD-TM) submitted written comments on the draft plans and specifications that included written responses from MoDOT, and were back-checked by the reviewers. Additionally, a meeting was at the District office on 9 March 2007 to discuss the Corps review comments. The following people attended the review meeting:

Tom Wright, EC-DS	Randy Kuzniakowski, EC-GD
Doug Crum, EC-GD	Bruce Clark, OF-SM
Don Clever, OF-SM-LO	Mike Watkins, OD-TR
Steve Frank, MoDOT	Jim Muehlbach, MoDOT
Greg Anderson, MoDOT	Laura Ruman, MoDOT

3. The MoDOT plans and specifications require some further coordination with the Corps of Engineers concerning the excavation near the dam embankment. This should be coordinated with the Geotechnical Design Section.

4. The Dam Safety Committee concurs that the project has had an adequate review process and that all comments have been satisfactorily addressed. There are no objections to granting construction access for this project. Contact Douglas Crum at 816-389-3604 with any questions.

REXFORD G. GOODNIGHT, P.E.
Chief, Engineering and
Construction Division

Encl. ITR Certification

CENWK-EC-GD
SUBJECT: Blue Springs Lake, MoDOT Wetland Mitigation Bank Project, Approval of Plans and Specifications

CF:
OD (Goyal)
OD-TR (Watkins)
OF-SM (Clark)

CRUM
EC-GD 8/27/07

FLAMM
OD-E 8/22/07

JUETT
OD-T 8-22-07

TOOL
EC-H Routing Slip 8/23/07

TURNER
EC-D 8/24/07

MATHEWS
EC-G

GOODNIGHT
EC

GOYAL
OD DG

INDEPENDENT TECHNICAL REVIEW TEAM CERTIFICATION

PROJECT: Blue Springs Lake, MoDOT Wetland Mitigation Bank Project

PRODUCT: Plans and Specifications

The undersigned certify: This product is in general compliance with established policy, criteria and engineering practice, utilizes justifiable and valid assumptions and provides a reasonable product meeting customer requirements consistent with law and existing Corps policy. The appropriate level of coordination has taken place and all significant conflicts and comments have been resolved in accordance with ER 415-1-11. All appropriate constructability and operability and comments have been incorporated.

DISCIPLINE	IRT MEMBER	SIGNATURE	DATE
Geotechnical	Randy Kuzniakowski	Randall Kuzniakowski	8/13/07
Structural	Thomas Wright	T. A. Wright	8/10/07
Mechanical	Michael Scott	Michael D. Scott	8/22/07

Missouri
Department
of Transportation

MoDOT

Pete K. Rahn, Director

105 West Capitol Avenue
P.O. Box 270
Jefferson City, MO 65102
(573) 751-2551
Fax (573) 751-6555
www.modot.org

July 23, 2007

Mr. Douglas Berka
Regulatory Branch, CO-R
U.S. Army Corps of Engineers
Kansas City District
700 Federal Office Building
601 East 12th Street
Kansas City, Missouri 64106

Dear Mr. Berka:

Subject: Design – Environmental Section
Blue Springs Lake Wetland Mitigation Bank Prospectus
Response to Public Notice Comments
MoDOT Job No. J4P1653
USACE 2007-0982

This letter is in response to comments received for the public notice issued for the Blue Springs Lake Wetland Mitigation Bank (Bank) Prospectus. The comments were enclosed in correspondence from your office dated July 9, 2007. There were no concerns expressed by the U.S. Environmental Protection Agency (USEPA), Missouri Department of Natural Resources (MDNR) Water Protection Program and State Historic Preservation Office, or Missouri Department of Conservation (MDC). MoDOT is agreeable to the request made by the Miami Tribe of Oklahoma. We will notify the Tribe should any burial sites and/or cultural items be uncovered during construction of the project.

Mr. Slaven of the Family Golf Park (Golf Park) requested a public hearing in his response to the public notice. Representatives from MoDOT and the U.S. Army Corps of Engineers (USACE) Blue Springs Lake met with Mr. Slaven and other interested parties of the Golf Park on January 31, 2007 to discuss their concerns with the project. We believe several issues were resolved at this meeting, and Mr. Slaven sent a letter on February 15, 2007(enclosed) summarizing his remaining concerns. In your determination of the need for a public hearing, please consider our following responses to Mr. Slaven's concerns stated in his February 15, 2007 letter.

MoDOT does not believe construction of the proposed Bank will have a negative effect on use of the Golf Park property located adjacent to, and north of, the Bank site. The Bank will be comprised of four wetland cells, two of which border the Golf Park property for 500 ft. An

approximate 0.23-acre buffer strip of trees and shrubs will be planted along the northern boundary of Cells 1 and 2 that will act as a buffer for both the wetlands and Golf Park. Additionally, the extension of Cell 3 west of the gas line easement shown on the original USACE plans for the site was not proposed in the existing design, in part, to reduce the length of the wetland adjacent to the Golf Park property. MoDOT sent a request to the other state transportation agencies and members of the Transportation Research Board (TRB), for which we received responses from 23 transportation agencies and six TRB members. We reference those responses to address concerns expressed by Mr. Slaven, which are summarized below:

1) *"...what effect a Wetlands will have upon Family Golf Park or any future development of our land."* We do not believe the construction of wetlands on property adjacent to the Golf Park property restricts their use in any way. The wetland will be constructed on the county park within an area that is currently a mixture of natural habitats, but primarily scrubland. It is MoDOT's goal to create a wetland that mimics a natural wetland system, and therefore the same land usage will remain. Furthermore, the wetlands will be located 90 ft – 115 ft from the Golf Park property boundary and will not be visible due to the grassed berms and tree and shrub buffer strip along the northern edge of the wetlands.

2) *"...what birds, wildlife or insects will be attracted and may spill over onto our property."* MoDOT has designed the wetlands to contain emergent, scrub/shrub, and forested wetland components with only small pockets of open water habitat. Although it is likely that the volume of birds within the wetlands will be higher than current levels, the lack of open water in the existing design should decrease the amount of "nuisance" species of birds, primarily geese. Geese should not be attracted to the wetlands due to their design (little open water and border of warm-season grasses) and their close proximity to Blue Springs Lake. Although different species of wildlife are attracted to a wetland environment, as compared to the existing scrubland habitat, we do not anticipate a significant increase in the volume of wildlife at the site. None of the state transportation and TRB members that responded cited issues with wildlife on their projects, except for one member that cited a bird issue which involved geese.

   The primary "nuisance" insects of concern would likely be mosquitoes. Studies have shown that created wetlands can decrease the mosquito population because a healthy wetland provides habitat for natural enemies of mosquitoes (e.g., amphibians, fish, bats). MoDOT will be creating a natural type of wetland habitat and may be transplanting salamanders that feed on mosquitoes to the wetland. The state transportation agencies and TRB members that cited perceived or known complaints regarding mosquitoes were apprehensive of the threat of West Nile Virus that has arisen over the past couple of years. However, the species of mosquito that is the principal transmitter of West Nile Virus is rarely found in healthy, natural wetlands.

3) *"Since we are downwind will there be any odors..."* There will be no odors created by the wetland that would be noticeable on the adjacent Golf Park property. A literature search did not find a single example of odor problems associated with wetlands. The survey of the state transportation agencies and TRB members cited only one example, a 60-year old wetland created in Pennsylvania. However, this wetland likely receives organic pollution that creates the odor problem. The proposed Bank wetland will receive waters primarily from Blue Springs Lake and will not receive organically polluted water.

In addition to the comments enclosed with your July 9, 2007 correspondence, you expressed concerns regarding the drafting of a long-term sewer line maintenance agreement and its review by the USACE and the Kansas City District Dam Safety Team. Because MoDOT is considering a redesign of the portion of the site overlying the sewer line at this time, a sewer line maintenance agreement may not be required. However, if MoDOT determines that its plans require such an agreement, then MoDOT will forward the agreement to your office for review prior to execution. Please note that MoDOT is currently awaiting signatures for final review by the USACE Dam Safety Team, but should a portion of the site be redesigned, additional review by the Dam Safety Team may be required.

Thank you for the opportunity to respond to the comments results from the Bank Prospectus' public notice. Should you have any questions, please contact me at 573-526-5647 or via email at Laura.Ruman@modot.mo.gov.

Sincerely,

Laura Ruman

Laura Ruman
Wetland Specialist

Enclosures

cc: Mr. Michael Watkins – USACE
Mr. Bruce Clark – USACE
Mr. Gregory Anderson – 1
Mr. Michael Stelzleni – de
Mr. Ray Alexander – cc

Family Golf Park
1501 N.E. 40 Highway
Blue Springs, MO 64015
(816) 228-1550

February 15, 2007

RECEIVED
FEB 20 2007
ENVIRONMENTAL SECTION
MO DEPARTMENT OF TRANSPORTATION

Ms. Laura Ruman
Senior Environmental Specialist
Missouri Department of Transportation
105 W. Capitol
P. O. Box 270
Jefferson City, Missouri 65102

Dear Ms. Ruman:

We appreciate you meeting with us on January 31, 2007 and explaining your proposed plan to construct a Wetlands immediately south of our property.

We purchased our property in December of 1989 and then constructed Family Golf Park which opened in August 1990. At the time of purchase, it was our plan to operate a good quality facility on the property, and when the time was appropriate to either sell or develop the property for higher uses. Your proposed use makes us question whether or not we would have purchased this site if we had prior knowledge of this Wetlands. We don't know what effect a Wetlands will have upon Family Golf Park or any future development of our land.

You have stated that you don't believe that we will experience any problems resulting from the proposed wetlands. According to the plans and our discussions, you have in fact provided a physical and tree buffer separation between our properties. This separation should prove to be a visual barrier between the properties. These features are good, however our other concerns are what birds, wildlife or insects will be attracted and may spill over onto our property. Since we are downwind, will there be any odors, will there be any flying insects that will be attracted by our lighting?

Have there been any reports or studies specific to our situation addressing our concerns? We have never experienced anything like this before, and we just do not know.

It is our understanding that there will be a future information meeting to further discuss the plans. Please advise us as to the date of this meeting.

Sincerely,
Golf Park Inc.

James D. Slaven

James D. Slaven, President

c.c. Wm. L. Galbreath
John E. Gyllenborg
Michael D. Slaven

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

DEPARTMENT OF THE ARMY
KANSAS CITY DISTRICT, CORPS OF ENGINEERS
700 FEDERAL BUILDING
KANSAS CITY, MISSOURI 64106-2896

July 9, 2007

REPLY TO
ATTENTION OF:
Regulatory Branch
(2007-0982)

RECEIVED
JUL 11 2007
ENV/HP SECTION
MO DEPARTMENT OF TRANSPORTATION

Ms. Laura Ruman, Wetland Specialist
Missouri Department of Transportation
P.O. Box 270
Jefferson City, Missouri 65102

Dear Ms. Ruman:

This letter pertains to the application for a Department of the Army permit to construct the proposed Blue Springs Lake Wetland Mitigation Bank in Jackson County. We circulated a public notice describing your activity and received the attached comments. The comments are enclosed for your information.

In addition to the enclosed comments, we are concerned about the following aspects of the proposed project: We have identified issues with the existing Little Blue Valley Sewer District concerning their sewer line located in the project area. Any agreement involving your agency and the sewer district concerning the long-term maintenance of the sewer line must be approved by the Kansas City District, Corps of Engineers, prior to approval of the project. In addition, all aspects identified by the Corps of Engineers concerning dam safety at Blue Springs Lake must be addressed.

The Corps of Engineers will make the final decision on your application, and we will not issue a permit if issuance would be contrary to the public interest or contrary to the long-term interests of the Corps of Engineers. We will consider the enclosed comments and your response, if any, along with other relevant factors in our determination of the public interest. Finally, you may choose to take no action on the enclosed comments. In that case, we will decide whether to issue the requested permit based on the information in your application, on the public notice comments, and on any other information we have developed about your activity from our own evaluation.

In summary, we are forwarding the enclosed comments for your information and you do not have to respond. If you wish to respond in any way for consideration in our final decision, we encourage you to do so. However, we intend to finish processing your application as soon as possible. If you do not reply within 15 days, we will assume you are declining this opportunity to respond. If you have any questions concerning this matter, please feel free to write or call me at 816-389-3657 (816-389-2032 FAX).

We are interested in your thoughts and opinions concerning your experience with the Kansas City District, Corps of Engineers Regulatory Program. We have placed an automated version of our Customer Service Survey form at: **http://per2.nwp.usace.army.mil/survey.html**. At your request, we will mail you a paper copy that you may complete and return to us by mail or fax.

Sincerely,

Douglas R. Berka
Regulatory Project Manager

Enclosures

Copies Furnished:

Environmental Protection Agency,
Water Resources Protection Branch w/enclosures

U.S. Fish and Wildlife Service,
Columbia, Missouri w/enclosures
Missouri Department of Natural
Resources w/enclosures
Missouri Department of Conservation
w/enclosures

Berka, Douglas R NWK

From: Daniels.Jason@epamail.epa.gov
Sent: Friday, June 08, 2007 1:05 PM
To: Laura.Ruman@modot.mo.gov; Buck.Brooks@modot.mo.gov; Berka, Douglas R NWK
Subject: Blue Springs Lake Mitigation Bank

Laura,

I reviewed the prospectus for Vicky Johnson, and don't have any comments. I commend the Corps/MoDOT partnership on this bank, and especially the focus on amphibian habitat incorporating work being done for a EPA Wetlands Program Development grant. I have been on the lookout for potential tiger salamander egg sites. If you know when they will be constructed I would enjoy visiting the site when the salamander ponds plan to be built, and definitely want to visit the site as it develops.

Thanks,
Jason M. Daniels
U.S. Environmental Protection Agency, Region 7 Watershed Planning and Implementation Branch
901 N. 5th
Kansas City, KS 66101
913-551-7443
daniels.jason@epa.gov

http://www.epa.gov/owow/wetlands/

Berka, Douglas R NWK

From: Shannon Slater [shannon.slater@dnr.mo.gov]
Sent: Tuesday, June 05, 2007 10:39 AM
To: Laura.Ruman@modot.mo.gov
Cc: Clark, Bruce K NWK; Buck.Brooks@modot.mo.gov; Clever, Donald R NWK; Berka, Douglas R NWK; Brown, Doyle MVS External Stakeholder; johnson.vicky@epa.gov; Watkins, Michael A NWK; Hansen, Rick MVS External Stakeholder
Subject: Re: Blue Springs Prospectus Posting

MDNR does not have any comments or concerns on the prospectus or project at this time.

Thank you,
Shannon Slater
Environmental Specialist II
Missouri Department of Natural Resources Water Protection Program
573-526-1535

Laura.Ruman@modot.mo.gov

05/29/2007 02:11 PM To
Rick_Hansen@fws.gov, Doyle.Brown@mdc.mo.gov, shannon.slater@dnr.mo.gov,
Michael.A.Watkins@nwk02.usace.army.mil, johnson.vicky@epa.gov,
Bruce.K.Clark@nwk02.usace.army.mil, Donald.R.Clever@nwk02.usace.army.mil
cc
Douglas.R.Berka@nwk02.usace.army.mil, Buck.Brooks@modot.mo.gov
Subject
Blue Springs Prospectus Posting

Hi, All,

The Blue Springs Lake WMB Prospectus has been posted on Public Notice (below). If you could please copy me on any comments you have during your review, I would appreciate it. This would allow me to complete any edits along the way and should expedite the finalization of the Bank Development Plan. MoDOT has some legal agreements to work through, but we are still planning to construct the Bank this fall. If you have any questions, do not hesitate to contact me.

Public Notice No. 2007-982:
Applicant - Missouri Department of Transportation
Activity - Construction of Compensatory Wetland Mitigation Bank
Waterway - Adjacent to East Fork Little Blue River
County, State - Jackson County, Missouri
Public Notice Comment Period Expires on June 8, 2007

The above notice has been posted at:
http://www.nwk.usace.army.mil/regulatory/public_notices.htm
<http://www.nwk.usace.army.mil/regulatory/public_notices.htm>

Thanks,

ura Ruman
etland Specialist

MoDOT
Design-Environmental Unit
105 W. Capitol Ave.

Berka, Douglas R NWK

From: Doyle Brown [Doyle.Brown@mdc.mo.gov]
Sent: Friday, June 01, 2007 3:49 PM
To: Laura.Ruman@modot.mo.gov
Cc: shannon.slater@dnr.mo.gov; Hansen, Rick MVS External Stakeholder; Buck.Brooks@modot.mo.gov; Berka, Douglas R NWK
Subject: Re: Blue Springs Prospectus Posting

Laura,

MDC does not have any comments regarding the prospectus or the project.

Thank you, Doyle

>>> <Laura.Ruman@modot.mo.gov> 05/29/07 2:11 PM >>>

Hi, All,

The Blue Springs Lake WMB Prospectus has been posted on Public Notice (below). If you could please copy me on any comments you have during your review, I would appreciate it. This would allow me to complete any edits along the way and should expedite the finalization of the Bank Development Plan. MoDOT has some legal agreements to work through, but we are still planning to construct the Bank this fall. If you have any questions, do not hesitate to contact me.

Public Notice No. 2007-982:
Applicant - Missouri Department of Transportation Activity - Construction of Compensatory Wetland Mitigation Bank Waterway - Adjacent to East Fork Little Blue River County, State - ackson County, Missouri Public Notice Comment Period Expires on June 8, 2007

The above notice has been posted at:
http://www.nwk.usace.army.mil/regulatory/public_notices.htm
<http://console.mxlogic.com/redir/?
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QSW6y0blFek29KvxYYmfSk3q9J4SCYyCeov76Z_WXu_w9>

Thanks,

Laura Ruman
Wetland Specialist

MoDOT
Design-Environmental Unit
105 W. Capitol Ave.
Jefferson City, MO 65102
Ph - 573-526-5647
Fx - 573-522-1973
Laura.Ruman@modot.mo.gov

CULTURAL RESOURCE ASSESSMENT
Section 106 Review

ONTACT PERSON/ADDRESS

Douglas R. Berka, Regulatory Branch
700 Federal Building
601 East 12th Street
Kansas City, Missouri 64106-2896

C:

Joe Cothern, EPA

PROJECT:

Missouri Department of Transportation Application No. 2007-982

FEDERAL AGENCY

COE

COUNTY:

JACKSON

The State Historic Preservation Office has reviewed the information submitted on the above referenced project. Based on this review, we have made the following determination:

[ ] After review of initial submission, the project area has a low potential for the occurrence of cultural resources. A cultural resource survey, therefore, is not warranted.

[X] Adequate documentation has been provided (36 CFR Section 800.11). There will be "no historic properties affected" by the current project.

[ ] An adequate cultural resource survey of the project area has been previously conducted. It has been determined that for the proposed undertaking there will be "no historic properties affected".

For the above checked reason, the State Historic Preservation Office has no objection to the initiation of project activities. PLEASE BE ADVISED THAT, IF THE CURRENT PROJECT AREA OR SCOPE OF WORK ARE CHANGED, A BORROW AREA IS INCLUDED IN THE PROJECT, OR CULTURAL MATERIALS ARE ENCOUNTERED DURING CONSTRUCTION, APPROPRIATE INFORMATION MUST BE PROVIDED TO THIS OFFICE FOR FURTHER REVIEW AND COMMENT. Please retain this documentation as evidence of compliance with Section 106 of the National Historic Preservation Act, as amended.

By: Mark A. Miles — **May 31, 2007**

Mark A. Miles, Deputy State Historic Preservation Officer — **Date**

MISSOURI DEPARTMENT OF NATURAL RESOURCES
STATE HISTORIC PRESERVATION OFFICE
P.O. Box 176, Jefferson City, Missouri 65102
For additional information, please contact Judith Deel, (573) 751-7862. Please be sure to refer to the project number: 122-JA-07

Miami Tribe of Oklahoma
P.O. Box 1326 Miami, Oklahoma 74355
Ph: (918) 542-1445 Fax (918) 542-7260

May 22, 2007

US Army Corps of Engineers
Kansas City District
ATTN: OD-R
700 Federal Building
601 East 12th Street
Kansas City, Missouri 64106-2896

RE: Permit No.: 2007-982 - Issue Date: May 18, 2007
Applicant: Missouri Department of Transportation
Location: Fleming County Park, Jackson County, Missouri

Dear Sirs,

Aya, kikwesitoole. My name is Julie Olds and I am the Cultural Preservation Officer for the Federally Recognized Miami Tribe of Oklahoma. In this capacity I am the Miami Nation's point of contact for all NAGPRA and Section 106 issues.

The above mentioned project is located along the route of the Miami Nations removal from our aboriginal homelands, during this journey Miami people died and were buried at unknown locations along the route. Therefore, it is possible that Miami burials and/or cultural items falling under the Native American Graves Protection and Repatriation Act (NAGPRA) could be discovered during this project. Should such items be discovered the Miami Nation requests immediate notification and consultation with the appropriate State Historic Preservation Office or related entity.

The Miami Nation offers no objection to the proposed project at this time. Again, should human remains and/or objects be uncovered please contact me at 918-542-1445, or by mail at: P.O. Box 1326, Miami, Oklahoma 74355, to initiate consultation.

Sincerely,

Julie L. Olds
Cultural Preservation Officer
Miami Nation

Family Golf Park
1501 N.E. 40 Highway
Blue Springs, MO 64015
(816) 228-1550

May 31, 2007

U.S. Army Corps of Engineers
Kansas City District
700 Federal Building
601 East 12th Street,
Kansas City, MO 64106-2896
ATTN: OD-R

RE: Permit No. 2007-982

Gentlemen:

We hereby request that a Public Hearing be held for Permit No. 2007-982. We are the owners of the adjoining property to the North and we believe the public needs to be informed of your plans, and allowed to comment.

Sincerely
Golf Park Inc
dba Family Golf Park

James D. Slaven

James D. Slaven President

c.c. Missouri Department of
Natural Resources
P.O. Box 176
Jefferson City, MO 65102

Missouri
Department
of Transportation

Pete K. Rahn, Director

105 West Capitol Avenue
P.O. Box 270
Jefferson City, MO 65102
(573) 751-2551
Fax (573) 751-6555
www.modot.org

March 7, 2007

Mr. Cody Wheeler, Project Manager
Regulatory Branch, CO-R
U.S. Army Corps of Engineers
Kansas City District
700 Federal Office Building
601 East 12th Street
Kansas City, Missouri 64106

Attn: Mr. Douglas Berka

Dear Mr. Wheeler:

Subject: Design – Environmental Section
Blue Springs Lake Wetland Mitigation Bank
Route 40, Jackson County
Job No. J4P1653
CWA Section 404 Nationwide Permit Application

The Missouri Department of Transportation (MoDOT) plans to construct the Blue Springs Lake Wetland Mitigation Bank (Bank) located adjacent to East Fork of the Little Blue River, downstream (north) of the Blue Springs Lake dam. The Bank lies south of Route 40 and east of I-470 within the City of Lee's Summit in Jackson County. The Bank is located in Fleming County Park on USACE project operations land. The proposed Bank site is located in Section 33 of Township 49N, Range 31W. We believe this project fits the conditions of, and are requesting that the Bank construction be authorized by, a CWA Section 404 Nationwide Permit (NWP) 27 (*Stream and Wetland Restoration Projects*).

The Bank will be used to provide compensatory mitigation for unavoidable impacts to wetlands determined to be waters of the United States resulting from MoDOT activities authorized under Section 404 of the CWA. MoDOT proposes to establish a total of approximately 24.25 acres of wetland at the Bank within four wetland cells. Construction of the Bank will involve minor impacts to four existing emergent wetlands and an intermittent unnamed tributary of the East Fork Little Blue River. Impacts to waters will involve those associated with construction of berms for creation of the wetland cells, planting of a tree and shrub buffer, and construction of a grade control structure. Construction on the project is proposed for the late summer/early fall of 2007.

This CWA Section 404 permit application is being submitted concurrently with the draft Prospectus for the Bank site (dated March 7, 2007). This application, therefore, provides a summary of impacts to waters of the United States and any additional information to that provided within the Prospectus. As part of this application, plan sheets are included in Attachment A and photographs of the impacted stream are in Attachment B.

Site Description: The site is located within the historic floodplain of the East Fork Little Blue River. The wetland hydrology component (overbank flooding) has been removed through the construction of the Blue Springs Lake Dam. The eastern portion of the Bank site was row-cropped until approximately 14 years ago. North-south oriented v-ditches were constructed to allow tilling during wet years and are still identifiable on-site. This portion of the site is now predominantly scrubland interspersed with areas of upland forest and old-field habitat. The western portion of the Bank site was likely previously used for pasture and has developed into floodplain forest. The Bank site is underlain by four soil mapping units (McGirk silt loam, Zook silty clay loam, Colo silty clay loam, and Kennebec silt loam), all of which but Kennebec silt loam are listed as hydric soils.

Wetland Delineation: The USGS topographic map indicates the presence of two blue-line streams within the project site, the East Fork Little Blue River and an unnamed tributary of the East Fork Little Blue River. The National Wetland Inventory (NWI) map indicates forested (PFO) wetland along both of these streams and two emergent (PEM) wetlands along the eastern and northern borders of the site. MoDOT biologists completed a routine wetland delineation of the footprint of the Bank site May 23–24, 2006 using the transect method (for areas >5 acres in size) per the USACE 1987 *Wetland Delineation Manual*. Eight existing wetlands were delineated within the Bank site (Plan Sheet 1, Attachment A), and four of the wetlands will be impacted by the Bank's construction.

Wetlands W4–W7: The four impacted wetlands identified (W4–W7) are all wetlands located within the remnant v-ditches in the eastern portion of the site along the northern edge of proposed wetland Cells 1 and 2 (Plan Sheets 2 and 3). The impacted wetlands are PEM wetlands dominated by a variety of species, including wool grass (*Scirpus cyperinus*), curly dock (*Rumex crispus*), and several sedges (*Carex* spp.). Wetland hydrology indicated observed within each of the wetlands were drainage patterns and water-stained leaves. Each of the wetlands is underlain by hydric soils (Zook and Colo silty clay loams). Soil samples within Wetland W4 were a black (10YR 2/1) loam from 0 to 12 inches. Soil samples within Wetlands W5 and W6 were a very dark gray (10YR 3/1) silt loam from 0 to 12 inches. Soil samples within Wetland W7 in the B2 layer (7–20 inches) were a gray (10YR 5/1) clay loam with strong brown (10YR 5/6) common, medium, distinct mottles. Wetland delineation datasheets and photographs of the wetlands are included in Appendix B of the Prospectus.

Stream S1: Stream S1 flows northeasterly along the western side of proposed wetland Cell 4, flowing into East Fork Little Blue River just north of the cell. The stream flows through a

forested area within the project site. Although the stream channel has not been manipulated, it shows signs of downcutting and has moderately eroded banks. Stream S1 is underlain by cobble and silt, and is intermittent in flow. Photographs of Stream S1 are included as Attachment B of this application.

Wetland and Stream Impacts: A total of 0.16 acre of emergent wetland and 22 linear feet of intermittent stream will be impacted by the project, as described below and summarized in Table 1.

Wetlands W4–W7 – Earthen fill and tree buffer plantings: Construction of the earthen berms at Cells 1 and 2, and installation of the tree buffer will result in permanent impacts to the following emergent wetlands: 0.07 acre of the approximate 0.12-acre Wetland W4 (Plan Sheet 2); 0.02 acre of Wetland W5 (Plan Sheet 3); 0.01 acre of Wetland W6 (Plan Sheet 3); and 0.06 acre of the approximate 0.12-acre Wetland W7 (Plan Sheet 3). The remnant wetland areas north and south of the project site at Wetlands W4 and W7 will be fenced off and not impacted by the construction.

Table 1. Summary of wetland and stream impacts for the proposed Blue Springs Lake Wetland Mitigation Bank site, Jackson County.

Impact	Length (ft)	Area (ac)	Volume (yd^3)	Fill Type
Wetland W4 (Emergent wetland)				
Berm fills	N/A	0.05	74	Earthen fill
Tree buffer	N/A	0.02	36	Trees & shrub plantings
Wetland W5 (Emergent wetland)				
Berm fills	N/A	0.01	15	Earthen fill
Tree buffer	N/A	0.01	16	Trees & shrub plantings
Wetland W6 (Emergent wetland)				
Berm fills	N/A	0.01	19	Earthen fill
Tree buffer	N/A	<0.01	6	Trees & shrub plantings
Wetland W7 (Emergent wetland)				
Berm fills	N/A	0.04	60	Earthen fill
Tree buffer	N/A	0.02	28	Trees & shrub plantings
Stream S1 (Unnamed tributary of East Fork Little Blue River)				
Grade control structure	22	<0.01	2	Clean rock
Total Wetland Impact	**N/A**	**0.16**	**254**	
Total Stream Impact	**22**	**<0.01**	**2**	

Stream S1 – Grade control structure: Construction of the grade control structure for the inlet into wetland Cell 4 will result in a total permanent stream impact of approximately 22 ft of Stream S1 (Plan Sheets 4 and 5). The total area of impact by the new grade control structure is less than 0.01 acre, with a total of 2 yd^3 of clean rock fill.

Environmental Documentation: The USACE (Kansas City District) and Missouri Department of Conservation completed an Environmental Assessment (EA) for the project in October 1998 (CWIS No. 096158), for which a Finding of No Significant Impact was received. The Federal Highways Administration evaluated the EA and issued a letter of concurrence supporting the environmental findings on July 27, 2006.

The project site is located within the range of the federally endangered Indiana bat, and MoDOT conducted a survey for potentially suitable roosting habitat for this species within the project's proposed construction limits. MoDOT cleared the accessible identified roost trees during December 2006 and does not anticipate any further actions will be needed to avoid impacts to the Indiana bat or any other federally listed endangered or threatened species. A Memorandum of Agreement was executed in 2003 between the USACE, State Historic Preservation Office (SHPO), and the Jackson County Department of Parks and Recreation that determined that two archaeological sites near the site are not historic properties. MoDOT received clearance from the SHPO for the Bank site on October 20, 2003.

As passed by the Missouri General Assembly and effective August 28, 2001, MoDOT highway and bridge projects determined to be authorized by NWP are certified by the Missouri Department of Natural Resources (MDNR) without CWA Section 401 conditions. MoDOT and MDNR have adopted a set of water quality conditions through a Memorandum of Understanding to guide construction contractors in the protection of waters of the State.

We would appreciate a confirmation that this project is authorized by NWP based on the project location and proposed impacts. If you have any technical questions about engineering, please contact Mr. Gregory Anderson, Project Manager, at (816) 387-2416. Any questions pertaining to wetlands or 404 issues may be directed to Ms. Laura Ruman, Wetland Specialist, at (573) 526-5647. Please address the permit to me.

Sincerely,

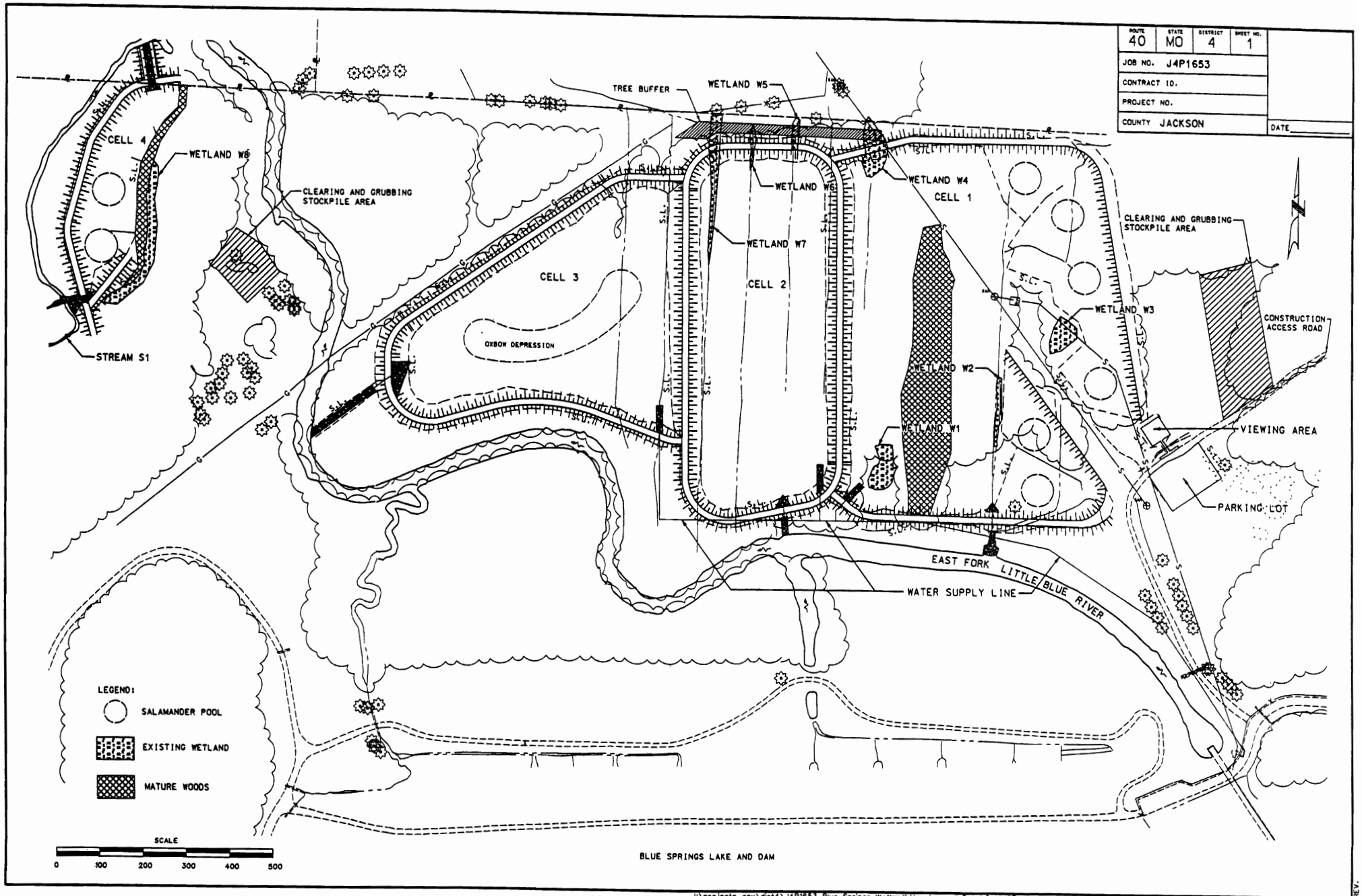
Buck Brooks

Buck Brooks
Wetland Coordinator

Enclosures

cc: Mr. Gregory Anderson – 1
Mr. Mike Stelzleni – 4

ATTACHMENT A
Plan Sheets



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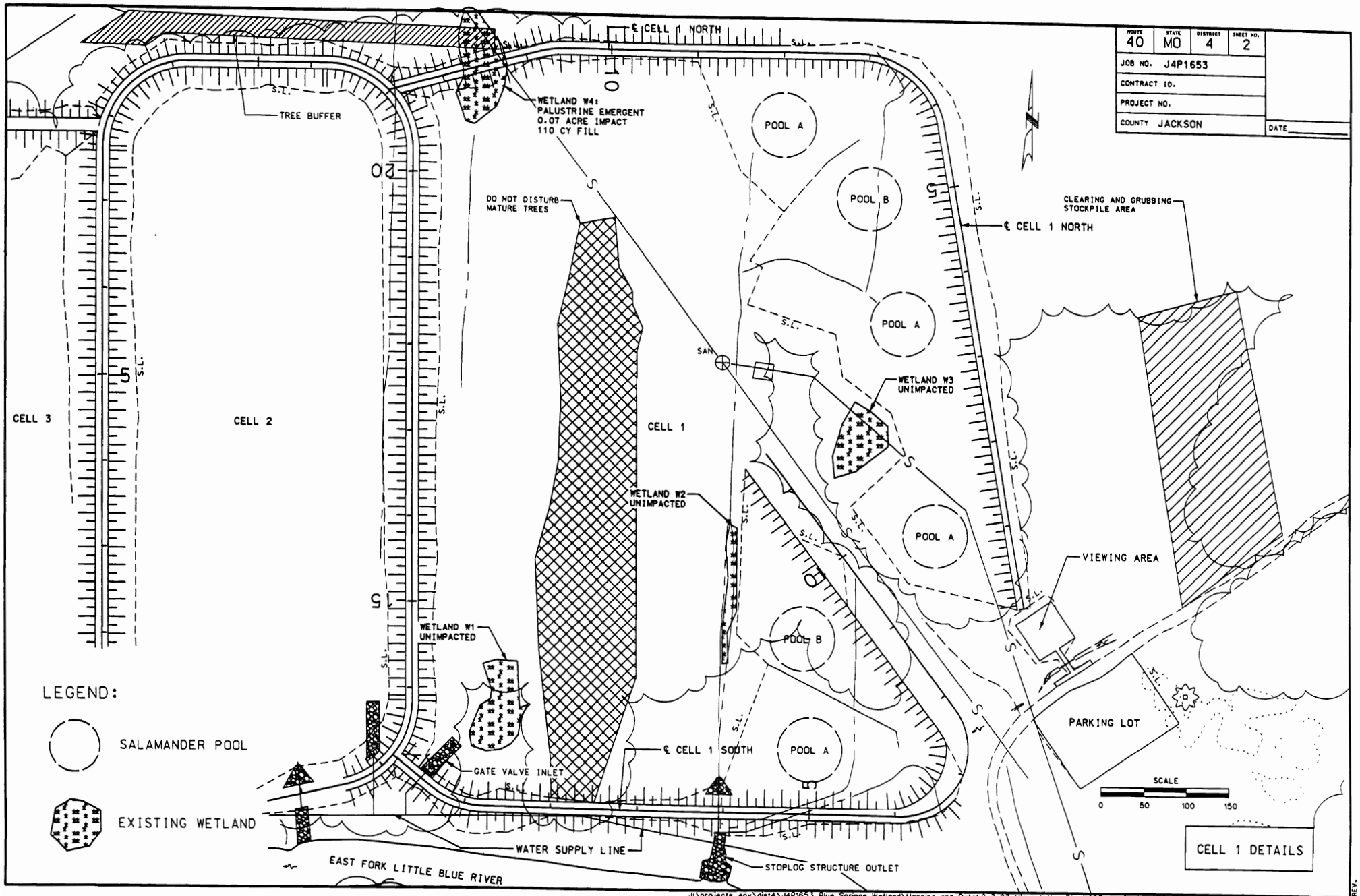
ROUTE 40
STATE MO
DISTRICT 4
SHEET NO. 2
JOB NO. J4P1653
CONTRACT ID.
PROJECT NO.
COUNTY JACKSON
DATE
℄ CELL 1 NORTH
TREE BUFFER
WETLAND W4:
PALUSTRINE EMERGENT
0.07 ACRE IMPACT
110 CY FILL
DO NOT DISTURB
MATURE TREES
POOL A
POOL B
POOL A
POOL A
POOL B
POOL A
CLEARING AND GRUBBING
STOCKPILE AREA
℄ CELL 1 NORTH
SAN
WETLAND W3
UNIMPACTED
CELL 3
CELL 2
CELL 1
WETLAND W2
UNIMPACTED
VIEWING AREA
WETLAND W1
UNIMPACTED
PARKING LOT
LEGEND:
SALAMANDER POOL
EXISTING WETLAND
℄ CELL 1 SOUTH
GATE VALVE INLET
WATER SUPPLY LINE
EAST FORK LITTLE BLUE RIVER
STOPLOG STRUCTURE OUTLET
SCALE
0 50 100 150
CELL 1 DETAILS
REV.
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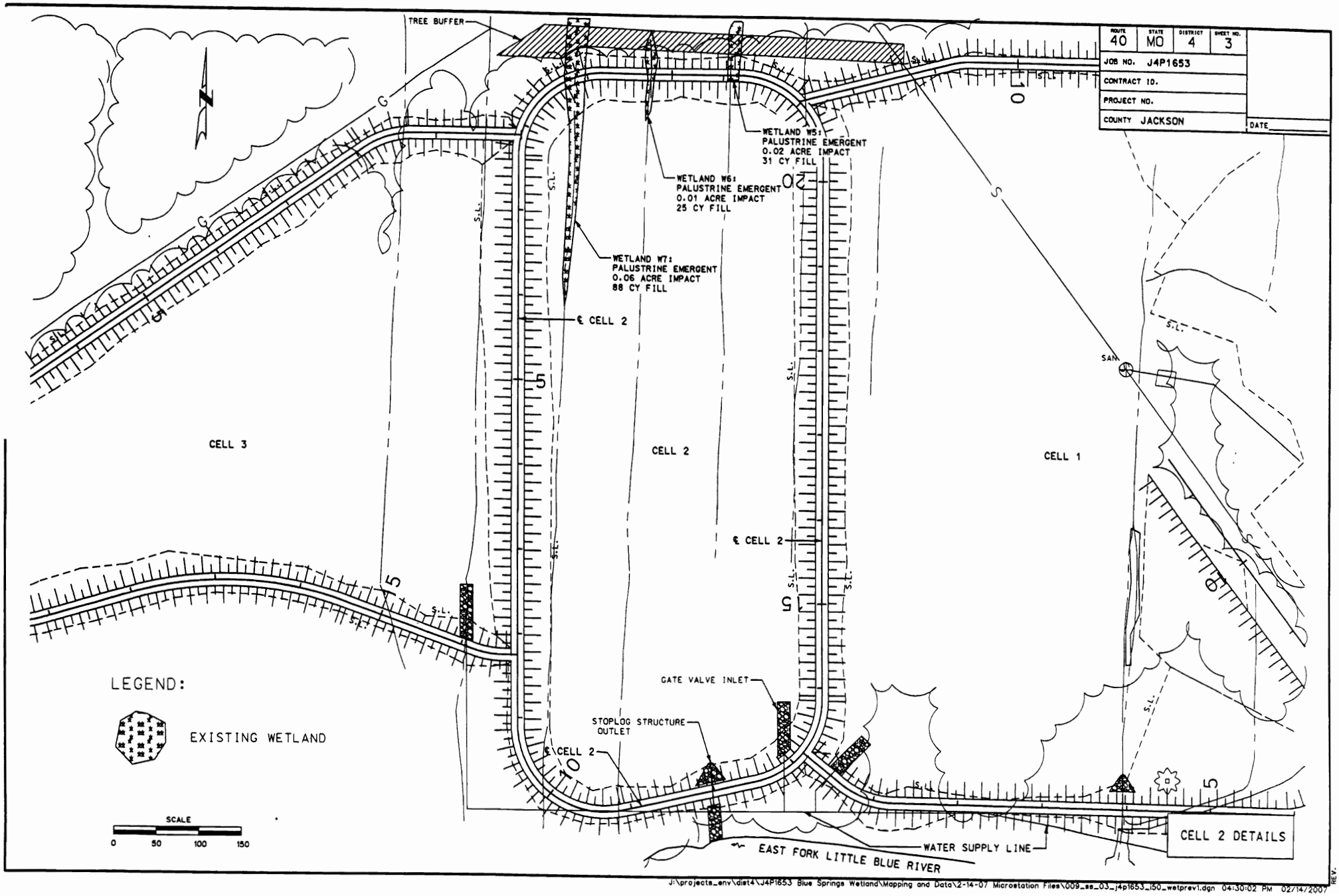

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REV.

ROUTE	STATE	DISTRICT	SHEET NO.
40	MO	4	4

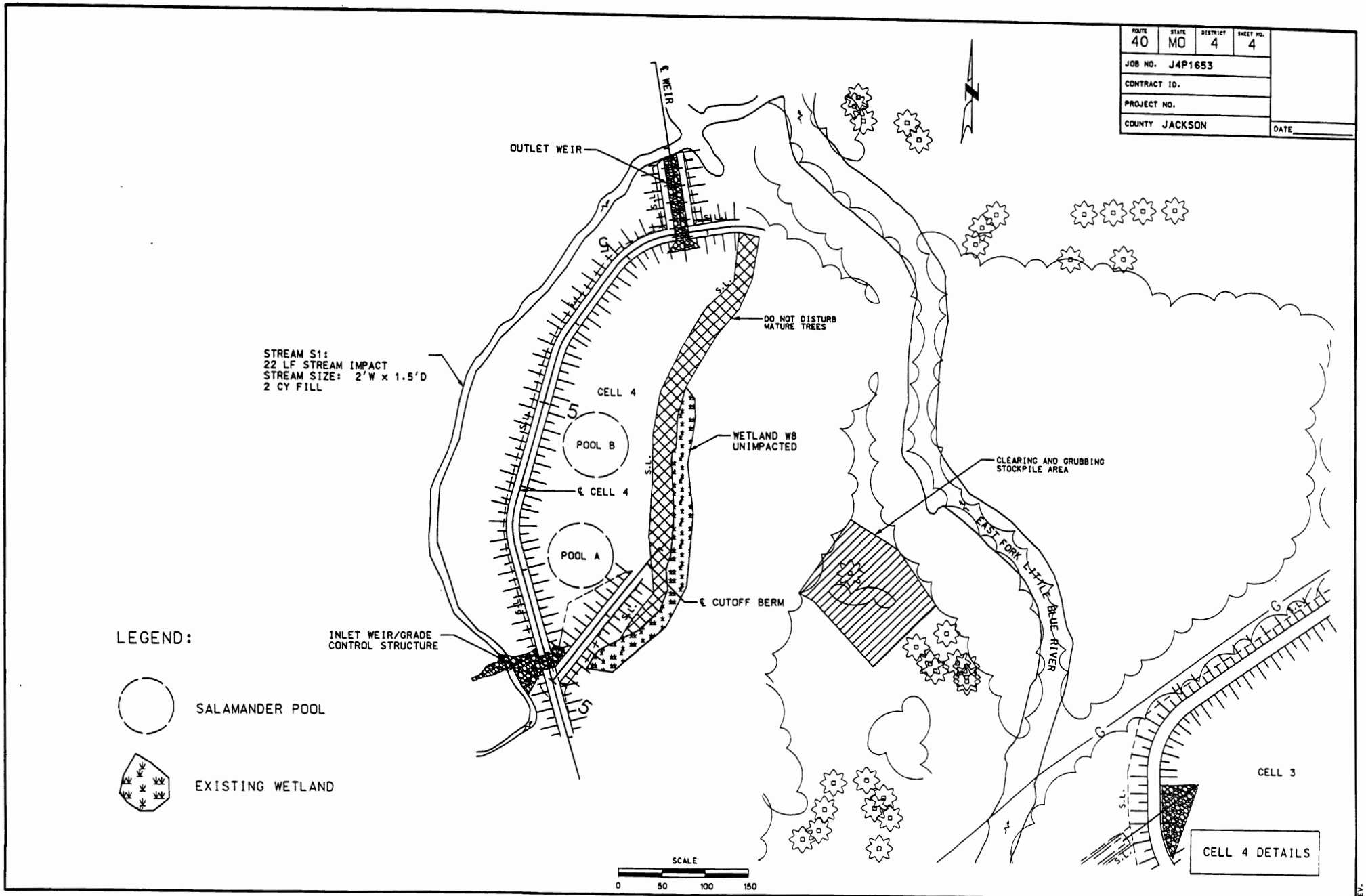
JOB NO. J4P1653

CONTRACT ID.

PROJECT NO.

COUNTY JACKSON

DATE



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REV.

ROUTE	STATE	DISTRICT	SHEET NO.
40	MO	4	5

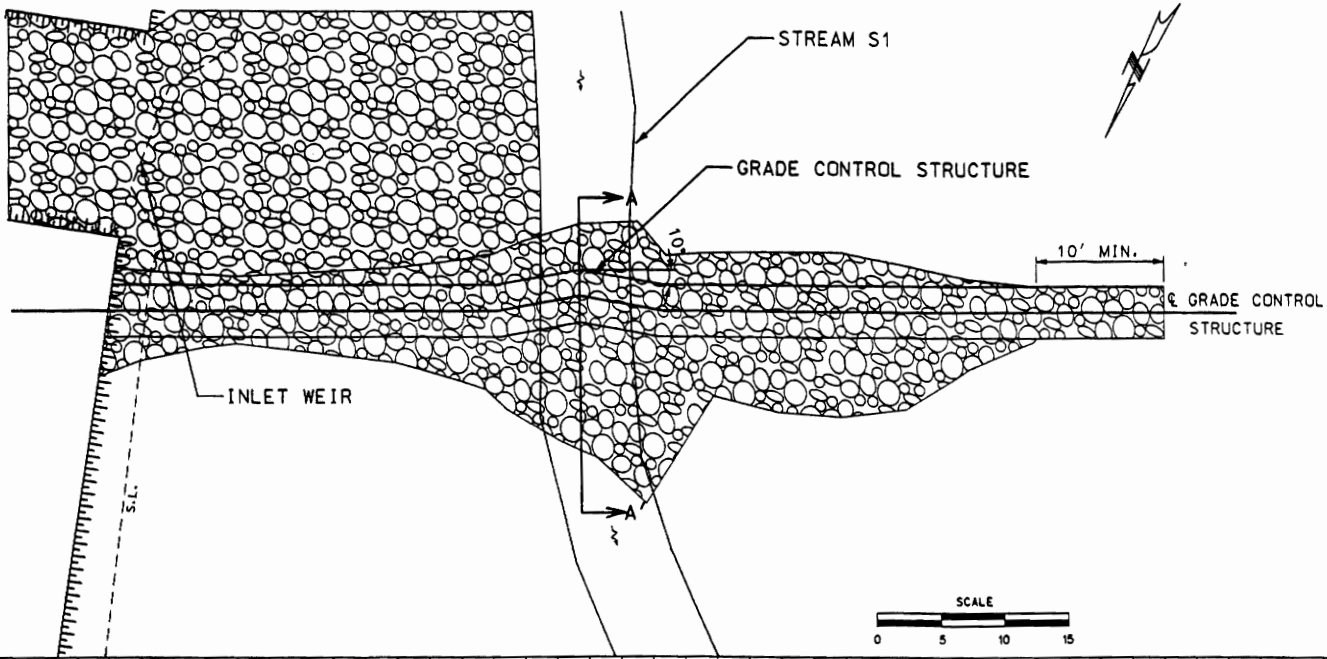
JOB NO. J4P1653

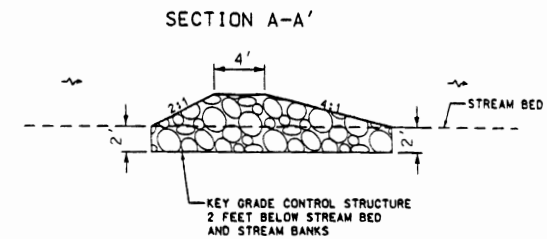
CONTRACT ID.

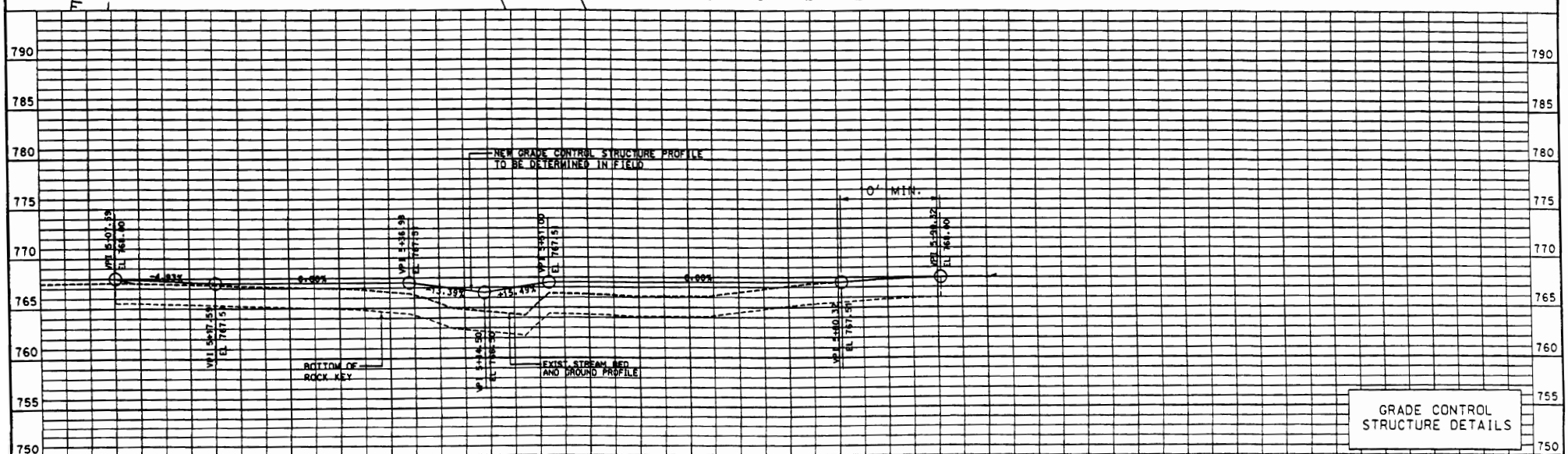
PROJECT NO.

COUNTY JACKSON

DATE







GRADE CONTROL STRUCTURE DETAILS

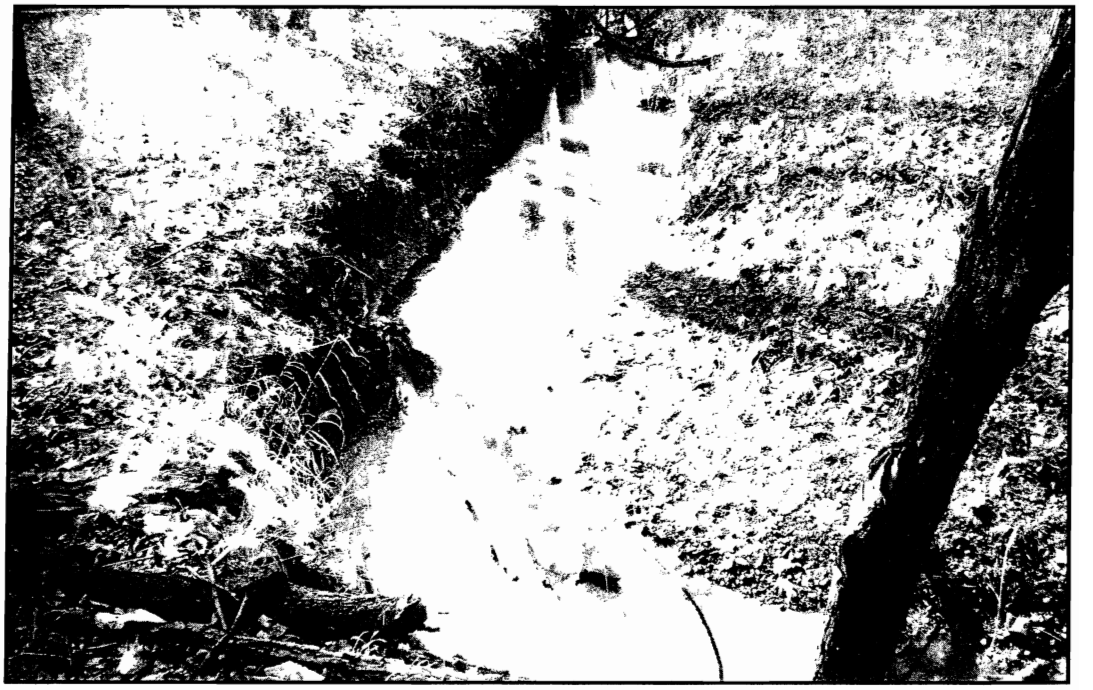
5 6

REV.

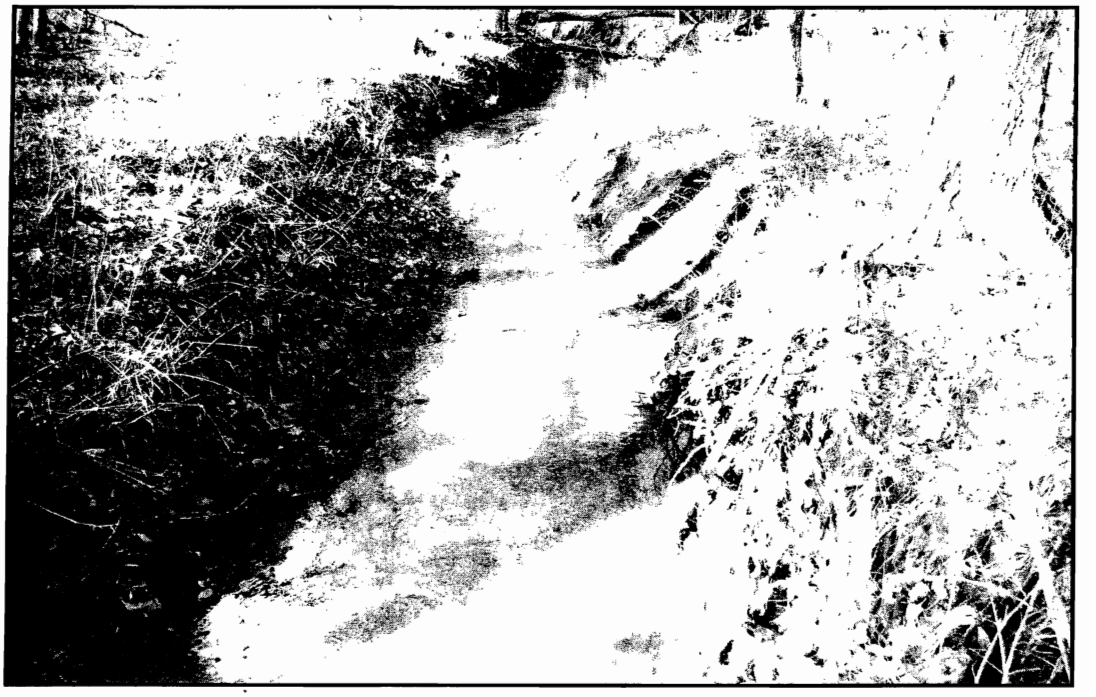
J:\projects_env\dist4\J4P1653 Blue Springs Wetland\Mapping and Data\2-7-07 Microstation Files\021_ss_15_j4p1653_15_wetrev1.dgn 02:30:18 PM 02/27/2007

ATTACHMENT B
Stream Photographs

Blue Springs Lake Wetland Mitigation Bank Site
Stream Photographs



Stream S1 at the proposed grade control structure crossing,
facing downstream to northwest.



Stream S1 at the area upstream from the proposed grade control structure,
facing upstream to the southwest.

Rick_Hansen@fws.gov
02/15/2007 02:58 PM

To Alan.Leary@modot.mo.gov
cc Laura.Ruman@modot.mo.gov, Charlie_Scott@fws.gov
bcc
Subject Re: Fw: Blue Springs Wetland Bank T&E

History: This message has been forwarded.

Alan:

I have visited the site and agree that Indiana bat habitat is limited to just a few trees scattered throughout the project area. I also agree that a single walnut tree could be considered discountable as far as potential habitat for the Indiana bat and agree that the tree could be removed any time of the year. If you have further questions contact me at the address below.

Rick L. Hansen
U.S. Fish and Wildlife Service
Ecological Services
101 Park DeVille Drive, Suite A
Columbia, Missouri 65203
573-234-2132, ext. 106
fax 573-234-2181
rick_hansen@fws.gov

Alan.Leary@modot.mo.gov
02/07/2007 02:30 PM

To Rick_Hansen@fws.gov
cc Laura.Ruman@modot.mo.gov
Subject Fw: Blue Springs Wetland Bank T&E

Rick,

As Laura mentions below, there is one potentially suitable Indiana bat roost tree on this site that MoDOT's maintenance forces have not been able to cut. This tree is a large walnut tree that the maintenance guys feel is not safe for them to cut. After determining that this tree was not safe for them to cut, they contacted some tree trimming companies to see what it would cost to have it removed by professional tree cutters. The estimates they received were around $2,000.00 That is a lot of money for one tree so I did some further analysis of the potential impacts of removing that tree

when the contractor does the clearing and grubbing of the rest of the site (probably during the bats summer breeding season). First, I would not consider the site to be highly suitable Indiana bat habitat. It is mainly small, shrubby trees. As mentioned below, there were only 6 potentially suitable Indiana bat roost trees on the entire 29 acres and 5 of them have already been removed. Also, there are no records of Indiana bats within many miles of this site. Therefore, MoDOT would like to remove the restriction that this tree needs to be taken down between October 1 and March 31. MoDOT has determined that the potential for there to be a negative impact to the Indiana bat from removing this one tree during the summer breeding season is so minute that it would be discountable. MoDOT requests your concurrence that the removal of this one tree during any time of the year is not likely to adversely affect the Indiana bat or its critical habitat.

Thanks for your assistance with this matter. Please contact me if you have any questions,

Al

Alan Leary
Senior Biological Specialist
Missouri Department of Transportation
573-526-6678

----- Forwarded by Alan Leary/SC/MODOT on 02/07/2007 01:59 PM -----

Laura C
Ruman/SC/MODOT

01/22/2007 04:20 PM

To
Rick_Hansen@fws.gov

cc
Alan Leary/SC/MODOT@MODOT, John F Mehuys/SC/MODOT@MODOT

Subject
Blue Springs Wetland Bank T&E

Hi, Rick,

We're still working on the Prospectus for the Bank, should be completed in a couple of weeks...In the mean time, Al Leary and I went to the site in December to look for potential Indiana bat roost trees. As you know, most of the site that will be cleared and grubbed is scrub/shrub and young trees. However, Al did identify six potential roost trees. We have since had five of the six trees removed - one is a large walnut we have not been able to access to date. Upon the removal of the sixth tree, are there any other federally listed T&E issues the project should address? Would you prefer Al prepare a letter describing our results of the habitat survey?

Thank you for your time,

Laura Ruman
Wetland Specialist

MoDOT
Design-Environmental Unit
105 W. Capitol Ave.
Jefferson City, MO 65102
Ph - 573-526-5647
Fx - 573-522-1973
Laura.Ruman@modot.mo.gov

CR file

Missouri
Department
of Transportation

MoDOT

Henry Hungerbeeler, Director

601 West Main Street
P.O. Box 270
Jefferson City, MO 65102
(573) 751-3597
Fax (573) 526-1300
www.modot.state.mo.us

October 1, 2003

Mr. Mark Miles, Director SHPO
MDNR/Outreach Assistance
P.O. Box 176
Jefferson City, MO 65102

Dear Mr. Miles:

Subject: Design
Blue Springs Lake, Jackson County
Job No. N/A
Blue Springs Lake Wetland Mitigation Project

The Missouri Department of Transportation (MoDOT) is anticipating construction of a wetland mitigation site at Blue Springs Lake, Jackson County. The project location is wholly contained within both United States Corps of Engineers (USACE) property and the Blue Springs Lake Archaeological District. MoDOT has reviewed the methods and findings of the previous cultural resources investigation for this location that was initiated by the USACE and concurs with the methods used by the consultant and the recommendations and conclusions tendered in the report. Ms. Mary Lucido of the USACE Kansas City District also concurs that the original consultant study is adequate for the purposes of this undertaking. In March of 1993, a Memorandum of Agreement (MOA) was executed between the USACE, the Missouri State Historic Preservation Office (SHPO), and the Jackson County Parks and Recreation Department. The two sites (23JA160 and 23JA162) in proximity to the wetland mitigation location have been determined by the MOA to be non-contributing properties of the Blue Springs Lake Archaeological District. Site 23JA162 has been subsequently removed from the landscape by a facility upgrade. Since the area of MoDOT's wetland mitigation project has been previously investigated for cultural resources and a formal determination is on file that the remaining site (23JA160) in the project area is not a historic property, we recommend that the wetland project continue as planned. We request the concurrence of the SHPO in this matter.

Should you or any of your staff have any questions, please contact James P. Harcourt, MoDOT archaeologist, at (573) 526-3562 or harcoj@mail.modot.state.mo.us.

Sincerely,

Robert L. Reeder

Robert L. Reeder
Cultural Resource Coordinator

jph

Attachments

Copies: Mr. Steve Mahfood-MDNR
Mr. Sabin Yanez-4ao
Mr. Mike Stelzleni-de
Ms. Mary Lucido-USACE

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
Bob Holden, Governor • Stephen M. Mahfood, Director
www.dnr.state.mo.us

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MO. HIGHWAY & TRANSPORTATION DEPT.

October 14, 2003

Robert L. Reeder
Cultural Resource Coordinator
Missouri Department of Transportation
P.O. Box 270
Jefferson City, Missouri 65102

Re: Wetland Mitigation Site, Blue Springs Lake (FHWA & USCOE) Jackson County, Missouri

Dear Dr. Reeder:

Thank you for submitting information on the above referenced project for our review pursuant to Section 106 of the National Historic Preservation Act (P.L. 89-665, as amended) and the Advisory Council on Historic Preservation's regulation 36 CFR Part 800, which requires identification and evaluation of cultural resources.

We have reviewed the information submitted concerning the above referenced project. We concur that archaeological sites 23JA160 and 23JA162 are not contributing properties to the Blue Springs Lake Archaeological District and that there will be **no historic properties affected** by the construction of the proposed wetland mitigation site. We have no objection to the initiation of project activities.

Please be advised that, should project plans change, information documenting the revisions should be submitted to this office for further review. In the event that cultural materials are encountered during project activities, all construction should be halted, and this office notified as soon as possible in order to determine the appropriate course of action.

If you have any questions, please write Judith Deel at State Historic Preservation Office, P.O. Box 176, Jefferson City, Missouri 65102 or call 573/751-7862. Please be sure to include the **SHPO Log Number (004-JA-04)** on all future correspondence or inquiries relating to this project.

Sincerely,

STATE HISTORIC PRESERVATION OFFICE

Cathy Sala for

Mark A. Miles
Director and Deputy State
Historic Preservation Officer

MAM:jd

c Peggy Casey, FHWA
Kathy Harvey, MoDOT
Mary Lucido, COE/KC

FYI
Keep or toss
Jane

Memorandum of Agreement

This agreement is entered into among the United States Army Corps of Engineers, Kansas City District (hereafter Corps), the Missouri State Historic Preservation Officer (hereafter SHPO), and Jackson County, Missouri Parks and Recreation (hereafter JCP&R) as the consulting parties to establish procedures for dealing with the effects which project operations and lease activities at Blue Springs Lake in Jackson County, Missouri may have on the Blue Springs Lake Archeological District, a National Register of Historic Places eligible property.

WITNESSTH:

WHEREAS, the Corps has determined that the Blue Springs Lake operations and JCP&R lease activities may have an adverse effect on historic properties within the lake boundaries; and has consulted with the SHPO and the JCP&R pursuant to 36 CFR Part 800, regulations implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470f); and,

WHEREAS, all archeological sites within the Blue Springs Lake project boundaries comprise the Blue Springs Lake Archeological District, a property determined eligible for the National Register of Historic Places (NRHP) in 1979 but the Corps and the SHPO agree that six prehistoric sites (23JA9, 23JA37, 23JA155, 23JA161, 23JA182, and 23JA394) are contributing and one historic site (a pit feature) may be a contributing historic property; and,

WHEREAS, the Corps and the SHPO have determined that 22 archeological sites (23JA10, 23JA35, 23JA38, 23JA49, 23JA143, 23JA154, 23JA156, 23JA157, 23JA158, 23JA159, 23JA160, 23JA162, 23JA163, 23JA164, 23JA165, 23JA166, 23JA183, 23JA184, 23JA238, 23JA276, 23JA277 and a historic road or borrow feature) are noncontributing properties within the Blue Springs Lake Archeological District and that the lake's architectural structures referenced on pages 50-51 of the *Blue Springs Lake Historic Properties Management Plan* (HPMP) are not eligible for the NRHP; and,

WHEREAS, survey forms and reports on contributing and noncontributing historic properties is available with the Corps' Kansas City District Office and the SHPO's office in Jefferson City, Missouri and will be made available to the JCP&R as needed; and,

WHEREAS, site maps will be made available and kept on file by the Superintendent of Planning and Development of JCP&R for use by appropriate personnel only for planning purposes; and,

WHEREAS, the Corps and the SHPO agree that no further Section 106 consultation or preservation will be necessary for noncontributing archeological sites and architectural structures, and that any Corps undertaking, or JCP&R lease undertaking approved by the Corps, may proceed on the locations of these properties; and,

WHEREAS, this Memorandum of Agreement (MOA) replaces the MOA previously signed and dated May 24, 1982; and

NOW, THEREFORE, the Corps, the SHPO, and the JCP&R agree that the following stipulations will be implemented in order to take into account the effects of the Project and lease activities on contributing historic properties.

1. The Corps will maintain and protect the Blue Springs Lake Archeological District contributing historic properties in accordance with the preservation plan entitled the *Blue Springs Lake Historic Properties Management Plan* (HPMP) dated 2000, attached as Appendix 1. A copy of the HPMP will be provided to the SHPO and the JCP&R. Any updates to the HPMP will be submitted to the SHPO for review.

2. The Corps will coordinate with the JCP&R on site maintenance, protection and any noted vandalism at contributing historic properties. The JCP&R will follow Park Regulations 5021 and 5036 relevant to archeology, authorized or unauthorized, as appropriate and notify Corps personnel of any activity. See Appendix 2 of this agreement.

3. The SHPO will coordinate with the Corps and the JCP&R to provide cultural resources training as requested.

4. Prior to perfonning any construction, the JCP&R will provide the Corps with plans that will involve land altering activities. The Corps will decide if the planned activity could have a direct or indirect affect on historic properties. If the Corps determines that an effect is possible, the JCP&R will be responsible for consulting with the SHPO and implementing any procedures deemed necessary to obtain historic properties clearance. Prior to performing any construction, the JCP&R will provide a copy of the SHPO's historic properties clearance to the Corps.

5. The Corps and the JCP&R will ensure that particular care is taken during any land altering activities to avoid affecting contributing historic properties that are part of the Blue Springs Lake Archeological District. Restrictions on construction work and areas will be accomplished by erection of a temporary fence/flagging or other measures. Suitable arrangements for archeological monitoring will be made in consultation with the SHPO prior to construction in the affected area.

a. At a minimum, such monitoring will include recording and reporting of major features or artifact concentrations.

b. If an inadvertent discovery is found during an undertaking, the construction activity must cease and the Corps and the SHPO must be notified. The Corps and the SHPO will have an opportunity to comment on the effects of the undertaking on these properties within 30 days of discovery, in accordance with 36 C.F.R. § 800.6(c)(6) and 36 C.F.R. § 800.13(b).

c. Any inadvertently discovered site or Native American burial site will be considered a contributing historic property. The Corps, subject to the availability of funds, will be responsible for maintaining and preserving inadvertently discovered sites. The project lands receives intense public visitation and, therefore, testing to determine a newly discovered archeological site's contributing or noncontributing status will only occur if the testing activities would not call undue attention that could result in looting or vandalism. Any inadvertently discovered Native American burial will not be tested and will be treated pursuant to the provisions of the Native American Grave and Repatriation Act (NAGPRA).

d. Documentation by a party to the Agreement on a newly discovered site will be provided to all other parties.

e. When a site is tested, the findings will be submitted to the SHPO for review. If both the Corps and the SHPO agree that a site is noncontributing, no further maintenance or preservation will be required for this property.

6. The MOA will be reviewed upon request by any of the consulting parties.

7. If any party to this Agreement determines that the terms of this Agreement cannot be carried out, they may seek an amendment. 36 CFR 800.6(c)(1) shall govern the execution of any such agreement.

8. Any party may terminate this MOA. The party proposing to terminate this agreement shall so notify all parties to this agreement explaining the reasons for termination and affording them at least 60 days to consult and seek alternative to termination. The parties shall then consult. The parties may negotiate a new MOA, or may request comments from the Advisory Council on Historic Preservation pursuant to 36 C.F.R. § 800.7(a). If the parties cannot reach agreement on a new MOA, this Agreement is terminated.

9. Execution of this Memorandum of Agreement by the Corps, the SHPO, and the JCP&R, and its subsequent acceptance by the Advisory Council, and implementation of its terms, evidence that the Corps has afforded the Advisory Council the opportunity to comment on the Blue Springs Lake operations and JCP&R lease activities and their effects on historic properties, and that the Corps has taken into account the effects of the undertaking on historic properties.

U.S. Army Corps of Engineers, Kansas City District

By: M G Trial Date: 3/28/03
Michael G. Trial
Deputy for Project Management

Missouri State Historic Preservation Officer

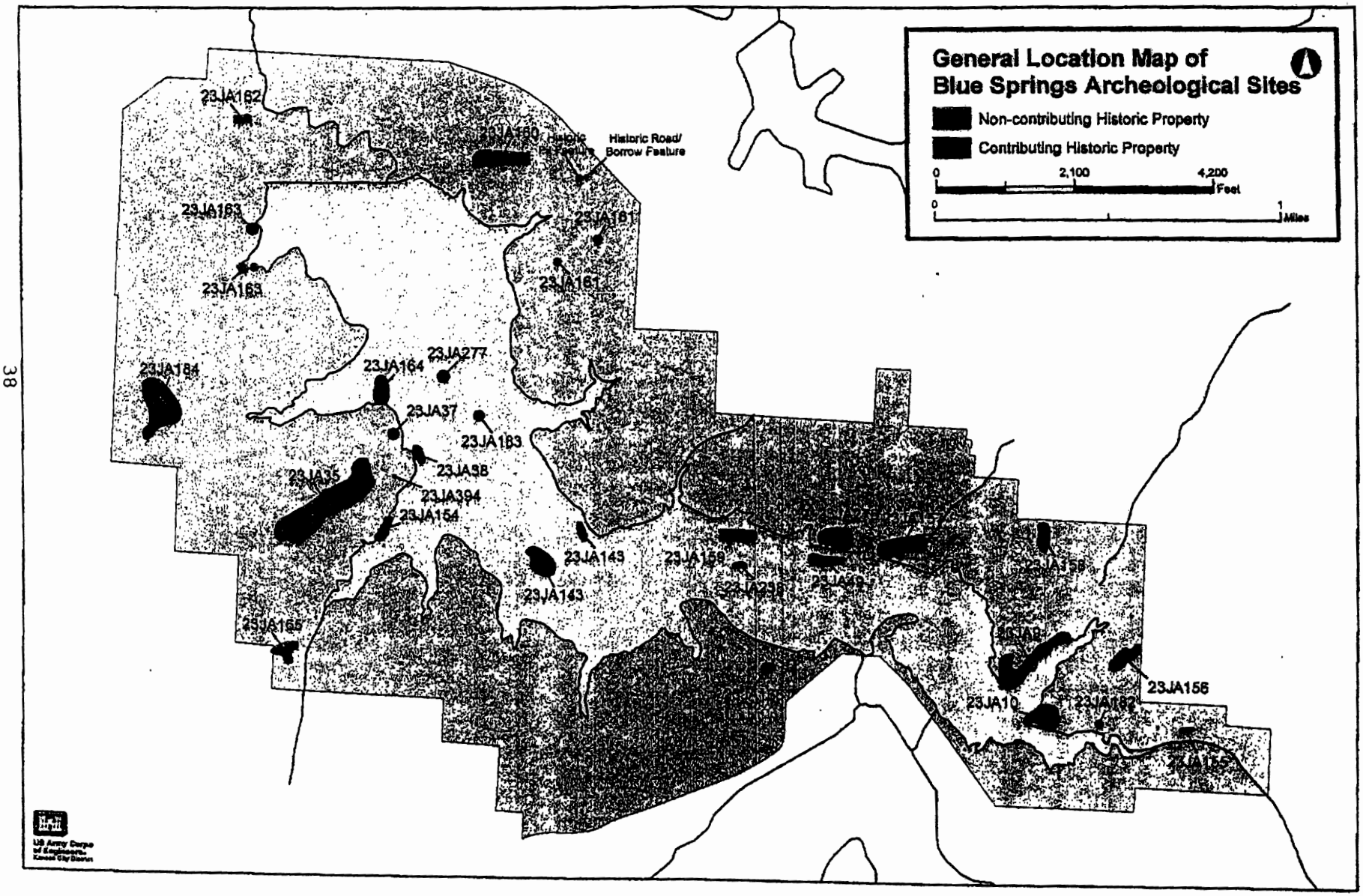
By: Sara Park Date: 3/3/03
Sara Parker
Deputy State Historic Preservation Officer

Jackson County Parks and Recreation

By: Katheryn J Shields Date: 3/3/03
Katheryn Shields
Jackson County Executive

APPROVED AS TO FORM:
COUNTY COUNSELOR

ATTEST:
CLERK OF COUNTY LEGISLATURE


General Location Map of
Blue Springs Archeological Sites
Non-contributing Historic Property
Contributing Historic Property
0
2,100
4,200
Feet
0
1
Miles
23JA162
23JA160
Historic Road/
Borrow Feature
23JA163
23JA161
23JA163
23JA161
23JA184
23JA164
23JA277
23JA37
23JA183
23JA35
23JA38
23JA394
23JA164
23JA143
23JA143
23JA159
23JA165
23JA159
23JA10
23JA156
23JA155
US Army Corps
of Engineers
Kansas City District