

TERRA TECHNOLOGIES

Final
Mitigation Banking Instrument

For the
Clear Fork
Wetland & Stream Mitigation Bank



July 2013

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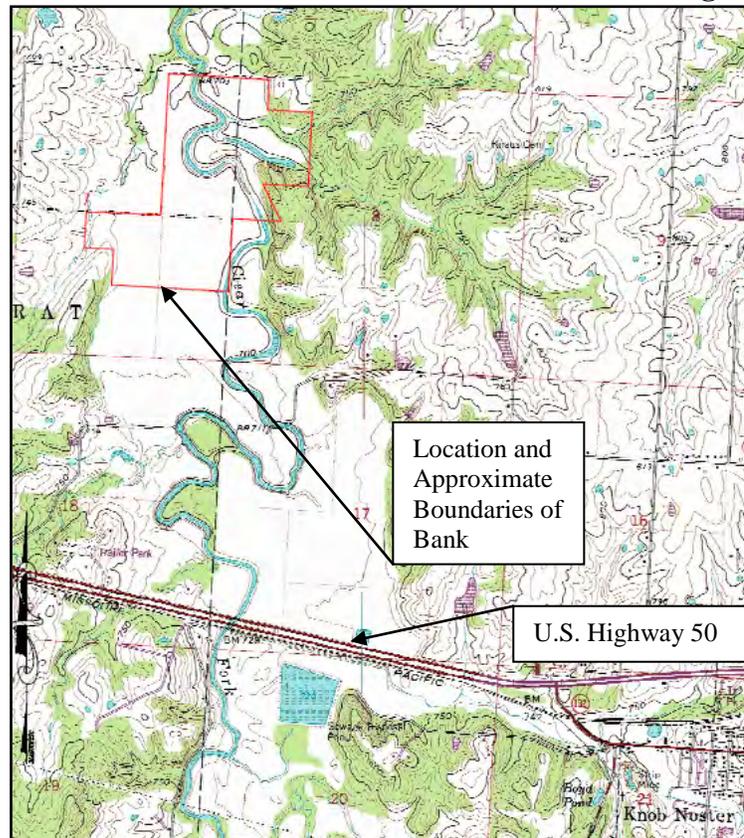
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I. INTRODUCTION OF THE MITIGATION BANK SITE

A. Location of Mitigation Bank

The Sponsor of this wetland and stream mitigation bank, Swallow Tail, LLC, owns approximately 211.92 acres of land, including the water rights, in unincorporated Johnson County, Missouri for which the Sponsor has developed a mitigation plan to establish, enhance and maintain wetlands, riparian buffers and upland buffers on the property and then operate the site as the Clear Fork Wetland & Stream Mitigation Bank (the Bank). The approximate center of the proposed Bank site is located at latitude 38.793716° North longitude 93.594228° West. The proposed Bank site is situated approximately 2.0 miles north of the town of Montserrat and roughly 2.5 miles to the northwest of Knob Noster. It is north of Highway 50, east of Highway P and west of Highway MM. The parcel is within Sections 7 and 8, Township 46 north, Range 24 west. The Sponsor has provided the Kansas City District of the U.S. Army Corps of Engineers (Corps) with a shape file of the site boundaries. The property is surrounded by agricultural properties on all sides. The majority of the property was previously in agricultural production with tree and shrub cover focused along the Clear Fork of the Blackwater River and its tributaries.

Image 1. Location of Clear Fork Wetland & Stream Mitigation Bank



B. Establishment and Operation of Bank

This Mitigation Banking Instrument will serve as a binding agreement regarding the establishment, use, operation and maintenance of the Clear Fork Wetland & Stream Mitigation Bank and is made and entered into, by, and among Swallow Tail, LLC (Sponsor) and the members of the Interagency Review Team (IRT). The IRT will be chaired by the Corps and will also include as members the U.S. Environmental Protection Agency (EPA), the U.S. Fish and Wildlife Service (FWS), the Missouri Department of Conservation (MDC) and the Missouri Department of Natural Resources (MDNR).

This Mitigation Banking Instrument will become valid on the date of the last signatory's signature. This Mitigation Banking Instrument may be amended or modified with the written approval of all signatory parties as described in the Final Mitigation Rule at 33 CFR Part 332.8(d). Any of the IRT members may terminate their participation upon written notification to all signatory parties. Participation of the IRT members will terminate 30 days after written notification.

The Sponsor shall create the wetland and stream habitats shown in the Bank Development Plan in Appendix D or as shown in the subsequent As-Built Figure and shall operate the Bank in accordance with the provisions of this Mitigation Banking Instrument. The Sponsor shall receive wetland credits and stream credits upon satisfaction of the ecological performance standards contained in Section IV.H and according to the credit release schedule contained in Section V.B. After all ecological performance standards have been met and after all credits have been released to the Sponsor, the Bank will have received a total of 85.92 wetland credits and a total of 102,624.46 stream credits to use as compensatory mitigation for impacts to waters of the U.S., including wetlands, in accordance with all applicable requirements. Credits will be sold to third parties at an appropriate market rate to be determined by the Sponsor. Per the Final Mitigation Rule at 33 CFR 332.3(j)(1)(ii), proposed restoration activities may address requirements of multiple regulatory programs and authorities for the same activity.

To the extent that specific language in this document changes, modifies, or deletes terms and conditions contained in those documents that are incorporated into the Mitigation Banking Instrument by reference, and that are not legally binding, the specific language within the Mitigation Banking Instrument shall be controlling. If any provision or provisions of this Mitigation Banking Instrument shall be held to be invalid, illegal, unenforceable or in conflict with the law of any jurisdiction, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby unless the deletion of such provision or provisions would result in such a material change so as to cause completion of the responsibilities described in this document to be unreasonable.



C. Current and Long-Term Ownership Arrangements and Long-Term Management Strategy

The Sponsor owns the mitigation bank site, including the water rights, in unincorporated Johnson County, Missouri and has developed a mitigation plan to establish, enhance and maintain wetlands, riparian buffers and upland buffers. There are no short-term or long-term plans to transfer title of the mitigation bank site to another party. It is the intention of the Sponsor to maintain the mitigation bank site in perpetuity as highly functioning habitat in accordance with the terms of the Long-Term Management Plan included as Section IV.J and the site's conservation easement. The conservation easement shall restrict any development of the site in perpetuity and shall stay with the mitigation bank property in the unlikely instance that the title to the mitigation bank property is transferred to another party.

The goal of the long-term management strategy for the Bank is to provide limited maintenance and management of the Bank property as needed after all parties have determined that the Bank is successful and more intensive monitoring and management is no longer necessary. This strategy will include the implementation of the Long-Term Management Plan as described in Section IV.J beginning at the termination of the Operation and Maintenance phase of the Bank which will occur at a point fifteen (15) years after approval of the final banking instrument or until all credits have been sold (unless the remaining credits are indefinitely suspended or removed), whichever is later. At this point, the ecosystems within the Bank property will be self-sustaining and self-regulating. As described more fully in Section IV.J (Long-Term Management Plan), long-term management will include continued maintenance of the site for purposes of such activities as controlling invasive species, maintaining water control berms, prescribed burning, prevention of trespassing, and removal of litter, as necessary. Costs associated with these activities will be paid for by the long-term management financial assurances.

D. Sponsor Qualifications

The Sponsor designed, oversaw the construction, owns, manages and monitors three existing approved wetland and stream mitigation banks within the Kansas City District. Project descriptions of these mitigation banks are included in Appendix G. These approved wetland and stream mitigation banks together encompass roughly 175 acres and include about 65.5 acres of floodplain wetland establishment, restoration and enhancement, not including many acres of wetlands established within riparian buffers that function solely as stream mitigation. These approved mitigation banks have also protected more than two miles of perennial stream channel on one side and have expanded riparian buffers along that entire length with more than 47 acres of riparian buffer plantings along perennial streams with many more acres of plantings along intermittent and ephemeral streams. The Sponsor also has five proposed wetland and stream mitigation banks in the Kansas City District and two proposed wetland and stream mitigation banks in the Little Rock District under current review that are either entirely or partially constructed. The design, construction, management and monitoring of these



proposed mitigation banks further demonstrates the Sponsor's qualifications to restore wetland, riparian, stream and upland habitats.

Specific to the design and construction of stream channel restoration projects, the Sponsor's approved Stranger Creek Wetland & Stream Mitigation Bank included the restoration of more than a half mile of two highly degraded farm ditches to their natural condition as intermittent stream channels with appropriate channel morphology and riparian buffers. Also as part of that project, a longitudinal peak stone toe bank stabilization was engineered and constructed along about 300 feet of Stranger Creek to address an area experiencing extreme erosion. In addition, willow plantings along perennial stream banks have been utilized at two of the Sponsor's approved mitigation banks in order to stabilize eroding stream banks utilizing natural methods.

Services related to project planning and design as well as construction oversight and monitoring of the Bank will be contracted to the scientists and engineers at Terra Technologies, Inc. (Terra Technologies) under contract to the Sponsor. Terra Technologies is an environmental engineering company with offices in Leawood, Kansas and St. Louis, Missouri. The firm has significant experience with compensatory mitigation projects with approximately 600 successful mitigation sites in Kansas and Missouri since the company's founding in 1992. Additionally, Terra Technologies has extensive expertise in the planning, design and construction of large-scale wetland and stream mitigation projects as the firm has designed and overseen construction of all of the Sponsor's approved and proposed mitigation banks. Additional information regarding Terra Technologies' qualifications is included in Appendix G.

Terra Technologies is recognized as one of the area's leading engineering and natural resources consulting firms that focuses on stream systems. A partial list of clients in Missouri for which Terra Technologies has provided stream design or stream geomorphic analysis includes the following:

- U.S. Army Corps of Engineers Kansas City District
- City of Columbia
- City of St. Charles
- City of St. Peters
- City of O'Fallon
- City of Independence
- Metropolitan St. Louis Sewer District
- City of Liberty
- City of Raymore
- Platte County
- City of Crestwood
- Boone County Public Works Department
- City of Arnold
- City of Sunset Hills
- City of Trenton
- City of Wentzville



- City of Maryland Heights
- City of Wildwood
- City of Ellisville
- Millstone-Bangert Properties
- Civil Design, Inc.
- Camp, Dresser & McKee, Inc.
- Purler-Cannon-Schulte, Inc./ Renaissance Partnership
- JHB Properties, Inc.
- Ross Road Development, LLC

E. Legal Responsibility For Compensatory Mitigation

Once a Department of the Army permit applicant has purchased credits from the Sponsor and the Corps has recorded the purchase of those credits from the Bank as satisfying all or a portion of the mitigation responsibilities of the permit applicant, the legal responsibilities for providing compensatory mitigation for the project impacts to jurisdictional waters of the U.S. represented by the credit purchase is transferred from the permit applicant to the Sponsor.

II. WATERSHED APPROACH TO MITIGATION BANK

A. Watershed Boundary

The Sponsor has used a watershed selection process as part of the siting of this Bank in order to maintain and improve the quality and quantity of aquatic resources within the Bank's geographical service area. Through the establishment and use of this mitigation bank the Sponsor seeks to provide a wide variety of landscapes, resources and habitat types to establish, enhance, restore and protect aquatic resource functions to improve water quality and wildlife habitat within the Bank's watershed.

The watershed boundary considered by the Sponsor in the location and establishment of the Bank is the Central Plains/Blackwater/Lamine Ecological Drainage Unit (EDU) in Missouri. This watershed boundary is also the service area of the Bank. This EDU consists of the watersheds of the Blackwater and Lamine Rivers, as well as all smaller Missouri River tributaries between Kansas City and mid-Missouri like the Blue River, Little Blue River, Crooked River and Sni-A-Bar Creek.

Clear Fork is a part of the Blackwater watershed. It has a total stream length of approximately 33 miles before flowing into the Blackwater River approximately 4.3 miles northwest of the parcel. The total watershed area of Clear Fork is approximately 60,000 acres. The Blackwater River flows into the Lamine River approximately 10 river miles upstream of the Lamine River's confluence with the Missouri River.

The Blackwater sub-basin, Hydrologic Unit Code (HUC) 10300104, has a total area of approximately 1,540 square miles. Land use in this area is primarily cropland, pasture

land and deciduous forest. This sub-basin is spread across three physiographic regions. The eastern portion of the sub-basin consists of the westernmost extent of the Osage Plains which is characterized by its moderately sloping hills of loessel soils overlaying Pennsylvanian limestones and sandstones. The central and eastern portions of the sub-basin are on the southern edge of the Central Dissected Till Plains, consisting of glacial till over Pennsylvanian shales with a thick surface layer of loess soils. The downstream portion of the Blackwater River near its confluence with the Lamine River is an extension of the Ozark Highlands with local relief exceeding 150 feet. According to the Natural Resources Conservation Service (NRCS), land use within the watershed is 12% forest, 3% wetlands, 25% grasslands, 52% cropland, 5% urban land and impervious surface, 2% minor land cover, and 1% water (NRCS, n.d.).

Johnson County, Missouri has two threatened or endangered species listed, Mead's milkweed (*Asclepias meadii*) and the western prairie fringed orchid (*Platanthera praeclara*) (FWS, 2011).

B. Historic and Current Wetland and Wildlife Habitat Loss

Since European settlement, there has been significant and widespread alteration and destruction of wetland and stream habitats throughout Missouri. Approximately 87% of Missouri's original 4.8 million acres of wetlands have been lost over the past 200 years as a result of conversion to agriculture, levee construction, river management and navigation programs, urban development activities and other actions (Dahl, 1990). Historic channelization of the Blackwater River and its tributaries along with other waterways, along with the construction of levees that opened up large floodplain areas for agricultural development, resulted in massive losses of wetland and wildlife habitats within the watershed. Other causes of historic wetland and wildlife habitat loss within the Bank's watershed are attributed to commercial, residential and infrastructure development, conversion to agriculture, and sedimentation caused by detrimental land use practices.

Current land use trends include agriculture and moderate development. The Bank's watershed contains the majority of the Kansas City metropolitan area within Missouri. It is estimated that Johnson County grew in population by 9.1% (USCB, 2010) between 2000 and 2009 in comparison to the Missouri average of 7%. The development within the portion of the Kansas City metropolitan area within the Bank's service area, as well as at all other locations within the watershed has undoubtedly had an impact on the extent and quality of wetlands and wildlife habitat.

C. Water Quality Issues

The Blackwater River is listed on the 2010 Missouri Water Quality Report (305(b) report) in Table 16 as a Potentially Impaired Water. This list is for those waters for which there is some indication that an impairment to a designated use may exist, but the current data does not meet the data requirements in the Missouri 303(d) Listing Methodology. Further monitoring will be necessary to determine whether or not the impairment actually exists. The Blackwater River is listed in this table as potentially impaired for 76 miles by atrazine and sediment and Clear Fork is potentially impaired for seven miles for Habitat



Degradation and for 25.8 miles for Low Dissolved Oxygen (MDNR, 2010). Clear Fork is also listed on the 2010 303(d) List for Low Dissolved Oxygen that is attributed to the Knob Noster Wastewater Treatment Plant (MDNR, 2010a). The Bank is located along the stretch of Clear Fork that is impaired by Habitat Degradation.

Within the watershed, likely sources of nonpoint source pollution include runoff from row crop agriculture, livestock grazing and dairy operations, sedimentation from erosion in disturbed watersheds, sludge application from waste water treatment facilities, seepage from septic tanks, and urban runoff.

Beneficial uses assigned to the Clear Fork in the vicinity of the Bank are livestock and wildlife watering, protection of warm water aquatic life and human health protection-fish consumption, whole body contact category B and secondary contact recreation. Beneficial uses listed for the Blackwater River are irrigation, livestock and wildlife watering, protection of warm water aquatic life and human health protection-fish consumption, secondary contact recreation, drinking water supply and whole body contact category A (MDNR, 2012).

D. *Immediate and Long-Term Wildlife Habitat and Water Quality Needs of the Watershed*

The immediate needs of the watershed are reducing soil erosion and sedimentation on agricultural lands, reducing urban runoff in the developed parts of the watershed, restoration of impaired wetlands and riparian buffers and decreasing the amount of point source discharges from municipal waste water treatment plants. Over the long term, improving water quality will be achieved by achieving the above goals and by reducing the amount of nonpoint source nutrient and sediment inputs within the watershed.

The long-term needs of the watershed are similar to the immediate needs of the watershed. The NRCS identifies soil erosion, sedimentation, water quality impairments, as some of the primary resource concerns for the Blackwater Watershed. All of these factors can be at least partially attributed to another primary resource concern, impaired and unprotected riparian buffers. Approximately 44% of the riparian buffers within the watershed are unprotected, which allows excess nutrients, pollutants, sediments and other contaminants to enter into the stream system (NRCS, n.d.).

The establishment of the Bank would address these resource concerns by creating and enhancing riparian buffers adjacent to Clear Fork and its on-site tributaries and by creating, enhancing and rehabilitating a large amount of wetlands within the 100-year floodplain. These activities will dramatically increase the quantity and quality of aquatic and terrestrial wildlife habitat within the property and will improve water quality by reducing sediment and agricultural chemicals from entering the stream. Additionally, the conversion of the Bank site from an active row crop agricultural site with denuded riparian buffers to a protected restoration site will reduce the amount of agricultural runoff entering Clear Fork. Because the restored habitats have been functioning well since their construction in 2010, including the maintenance of wetland hydrology in the vast majority



of wetland areas during the historic drought year of 2012, the site has proven itself to be a suitable site for wetland and riparian restoration.

E. Historic and Current State of the Bank Site and Adjacent Lands

Before restoration activities commenced, the majority of the Bank site consisted of bottomland row crop agricultural areas between multiple forested areas, streams, and wetlands. A portion of Clear Fork is significantly eroded along the left descending bank of the meander bend within the central portion of the parcel. The stream is widening while washing sediment created from the erosion downstream. The bank erosion is primarily attributed to an impaired riparian buffer in that location and other locations within the parcel, which severely limits the water quality benefit that the native buffer provides. According to the Jurisdictional Assessment report of the wetlands and streams on the property that contains the Bank, 14.99 acres of wetlands, 5,956 lineal feet of perennial stream, 7,426 lineal of intermittent stream and 187 lineal feet of ephemeral stream channel exist within the larger property that contains the Bank. Because the Bank area does not include this entire assessed property, not all of the previously described wetlands and stream lengths exist within the Bank. According to Nelson (2005), the parcel's location and landscape is typical of wet-mesic bottomland prairie, wet-mesic bottomland forest and mesic to wet-mesic bottomland woodlands natural communities. These communities are typically found along perennial streams and floodplains and were historically common to the Osage Plains and Central Dissected Till Plains Ecological Sections of Missouri. Thus, before agricultural conversion the Bank site was likely a mixture of deciduous forest, wetlands and prairie.

The Bank site is ecologically suitable for wetland and riparian buffer restoration. It contains long stretches of perennial, intermittent and ephemeral streams that have impaired riparian buffers. As a result, the parcel has great potential for increasing riparian buffer width along these streams systems. Additionally, the large acreage of wetlands already existing on the parcel before mitigation bank construction and the success of the construction of wetlands since Bank construction indicate that the Bank lands are capable of supporting wetlands. Sufficient hydrology flows across the site for wetland conditions to develop. The size of the proposed wetland areas is in proper relation to the size of the watershed that drains to the Bank and to the size of drainage area immediately across the Bank from the upland hillsides. Restoring wetland areas will increase habitat opportunities for species that require or frequent shallow ephemeral wetlands including several species of frogs, toads and salamanders as well as many reptiles, wading birds and waterfowl. The onsite wetlands will decrease the amount of nutrients travelling to downstream waters and the expanded riparian buffers will reduce the amount of sediment eroding from the stream banks into Clear Fork.

F. Short-Term and Long-Term Off-Site Threats

There are no foreseen short-term or long-term threats to the site and the Sponsor owns the water rights to the property. The site's remote location removes surrounding urbanization as a potential threat. Additionally, the surrounding properties are rural and agricultural in

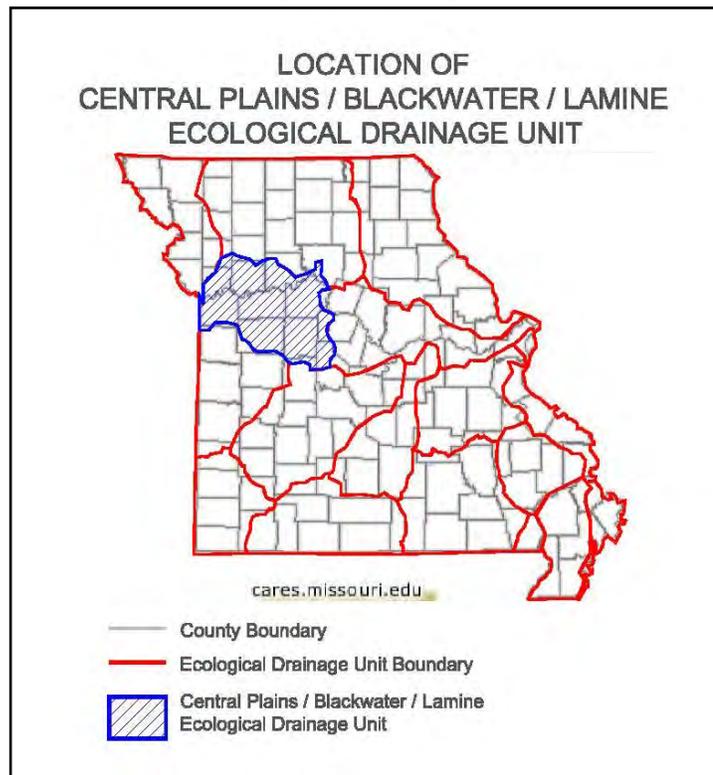


nature so there are no foreseeable hazards to the site caused by incompatible surrounding land uses.

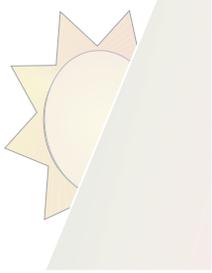
III. SERVICE AREA

The service area of the Bank is the Central Plains / Blackwater / Lamine Ecological Drainage Unit (EDU) in Missouri. The location and boundaries of this EDU are shown in Image 2. On a case-by-case basis the Corps, in consultation with the IRT, may approve mitigation credits at the Bank to be sold to offset impacts from Department of the Army permit impacts that occur outside this Bank's service area. If determined appropriate, the Corps will determine the number of credits needed to be purchased at the Bank in order to adequately replace the aquatic resources lost at the Department of the Army permit site. The Sponsor has provided the Corps with a shapefile of this service area boundary.

Image 2. Location of Central Plains / Blackwater / Lamine Ecological Drainage Unit



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IV. MITIGATION PLAN

A. Objectives

Under this Mitigation Banking Instrument, the Sponsor will create the Clear Fork Wetland & Stream Mitigation Bank which will be approximately 211.92 acres in area. To achieve this goal, the Sponsor proposes to:

- Restore 97.41 acres of Riparian Buffer
- Enhance 19.40 acres of Riparian Buffer
- Establish 55.16 acres of Herbaceous Wetlands
- Rehabilitate 5.35 acres of Herbaceous Wetlands
- Establish 18.13 acres of Forested Wetlands
- Enhance 0.11 acre of Forested Wetlands
- Establish 5.43 acres of Scrub Shrub Wetlands
- Rehabilitate 0.15 acre of Scrub Shrub Wetlands
- Establish 4.13 acres of Upland Buffer
- Enhance 0.60 acre of Upland Buffer
- Preserve 5.77 acres of Upland Buffer

The remaining acreage within the Bank beyond the totals described above corresponds to the area of the onsite stream channels. The Sponsor shall then preserve the Bank as natural habitat in perpetuity although natural ecological successional processes will be allowed to occur. The aquatic resources provided by the restored and enhanced riparian buffers and established, rehabilitated, enhanced and preserved wetlands and upland buffers established on the property will address the loss of such habitats within the service area of the Bank. In addition, all these mitigation activities will address the needs of the watershed as they are proven to prevent erosion, capture sediment from other sources, absorb nutrients from stream flows and nonpoint source agricultural runoff, and otherwise improve water quality and wildlife habitat. The habitat improvements on the Bank will improve water quality by filtering surface and subsurface water that drains across the property and will treat water that floods portions of the site from diverted flows from Intermittent #1 and when Clear Fork overflows its banks and floods portions of the property.

The restoration and enhancement activities described above are technically feasible. The Bank site has already been constructed and shows visual signs of wetland hydrology and hydrophytic vegetation.

B. Site Selection

The Bank property was selected by the Sponsor because of its potential for beneficial water quality and wildlife habitat improvements to the watershed. Some of the attractive qualities of the Bank site as a mitigation parcel include: the long length of perennial stream channel that has a relatively thin riparian buffer, the existence of wetlands on the parcel and favorable topography and soils for new wetland development.



The Bank has a landscape position within the watershed that will allow it to provide significant water quality and wildlife habitat benefits. The property's location along Clear Fork will create important benefits for the watershed as agricultural runoff will be filtered as it flows across the Bank property, particularly the approximately 570 acres of agricultural land that drains through Intermittent #1 and whose storm water is then diverted into more than 60 acres of wetlands in the southern portion of the Bank for water quality improvement. Additionally, occasional flooding from Clear Fork would be filtered in the proposed wetlands which would also store flood waters and provide substantial wildlife benefits.

In addition, the Bank will provide a valuable function as a wildlife stopover point between two important existing natural areas. The Bank is directly downstream of Knob Noster State Park. This park is only roughly 2.25 miles south of the Bank and is within MDC's Clear Fork Aquatic Conservation Opportunity Area. In addition, the Ralph and Martha Perry Memorial Conservation Area, which includes more than 4,100 acres of protected land surrounding the Blackwater River, is less than seven miles to the northeast. Other major state-owned conservation and natural resource areas within the watershed include Blind Pony Lake Conservation Area, Blue Lick Conservation Area, Baltimore Bend Conservation Area, Maple Leaf Lake Conservation Area, Hazel Hill Lake and Marshall Junction Conservation Area.

The bank site is ecologically suitable for wetland and riparian restoration. It is capable of supporting wetlands because there is sufficient hydrology that flows across the site, because of the dominance of hydric soils on the property, and because well over 50 acres of wetlands have been sustained on the site since construction in 2010 even during the historic drought year of 2012. The size of the proposed wetland areas is in proper relation to the size of the watershed that drains to the Bank and the Sponsor owns the water rights to the property.

Additionally, the fact that the Bank will protect more than a mile of both sides of Clear Fork and more than a mile and a third of its tributaries is one factor that makes it a good site for stream mitigation. Moreover, with its relatively narrow riparian buffers the site is an appropriate candidate for riparian buffer restoration which will benefit the stream by providing shade to the stream, contribute organic matter to support downstream food webs, stabilize the eroding stream bank and improve landscape connectivity for wildlife, especially along the meander bend of Clear Fork greater than 1,000 feet in length in the northern portion of the Bank that is completely denuded of trees and shrubs along the left descending bank. Moreover, restoring the large wetland area in the southern portion of the Bank will increase habitat connectivity for migratory waterfowl between existing wetlands and open water habitats.

In addition to the diverse blends of native seed mixes and containerized plants, there are many wooded areas in the immediate vicinity of the Bank that would be a seed source for natural recruitment for upland riparian buffers. The ecological benefits that the Bank provides are consistent with the resource needs identified in the NRCS Blackwater Sub-basin Watershed document (n.d.).



Johnson County, Missouri has two listed threatened or endangered species, Mead's milkweed (*Asclepias meadii*) and the western prairie fringed orchid (*Platanthera praeclara*) (FWS, 2011). The western prairie fringed orchid is listed in a few counties in western Missouri, including Johnson County. This orchid is found in calcareous prairies and sedge meadows, preferring to grow along swales and in marshy areas (Sieg and King, 1995 & FWS, 1996). Sieg and King also indicate that the western prairie fringed orchid requires periodic burning for success, which will be employed at the Bank to control weeds and brush. The planned habitat appears to satisfy the requirements for this endangered plant and it is possible, but unlikely, that it may eventually become established at the Bank. The United States Fish and Wildlife Service's Recovery Plan for the western prairie fringed orchid is to protect it in the place it grows. Mead's milkweed is predominantly found on dry to moist tallgrass prairies that are hayed each year. Upland buffer locations on the bank that are free of woody vegetation could support a Mead's milkweed population, though it is unlikely that they will spontaneously establish without introduction of seedlings from an existing population. Similar to the western prairie fringed orchid, fire is essential to control encroaching woody vegetation in Mead's milkweed management (Betz, 1989). Any western prairie fringed orchids or Mead's milkweed found growing onsite will have appropriate protective measures undertaken.

The Bank site will be completely compatible with the rural land use on adjacent properties. Residential and commercial expansion in upstream areas is unlikely in the foreseeable future because of the relatively remote rural location of the Bank although development will reach this area in the decades to come. Once the bank is fully functional it is reasonable to believe that a slight increase of harmful chemicals entering the Bank from future commercial and residential expansion would not affect the aquatic functions provided by a mitigation site of this size.

The site has been surveyed for cultural resources and correspondence from the Missouri State Historic Preservation Office (SHPO) is included in Appendix H. SHPO has stated that they agree that the project will not affect any historic properties.

There are no publicized in-lieu fee project sites and only one approved mitigation bank available to the public in the Bank's watershed. The Sni-A-Bar Creek Wetland and Stream Mitigation Bank, which is owned by the Sponsor, is located approximately 35 miles northwest of the Bank site and resides within the same EDU but not the same 8-digit HUC sub-basin.

C. Site Protection Instrument

The Sponsor owns the land that contains the Bank. To ensure that the Site remains as natural habitat in perpetuity, the entire area will be protected by means of conservation easement which will preserve the Bank lands as undeveloped wildlife habitat. A draft conservation easement is included in Appendix F. The terms of the easement will be enforceable by the Corps and the Midwest Mitigation Oversight Association, a non-profit group that will monitor the Sponsor's compliance with the conservation easement. After



the Bank is approved, copies of the finalized and recorded conservation easement shall be provided to the Corps.

The Midwest Mitigation Oversight Association is a conservation-based non-profit corporation established in 2007 with the sole purpose of holding and monitoring natural resource mitigation conservation easements. The Midwest Mitigation Oversight Association has been approved by the Kansas City, St. Louis & Little Rock Districts of the Corps as a legally-binding recipient of conservation easements for mitigation sites and currently holds easements on thousands of acres of federal mitigation parcels in Missouri and Kansas. The board of directors consists of professionals whom all meet stringent requirements in order to be on the board, including the possession of a broad scientific background related to natural resources, conservation science or applied ecology. These board members have experience as natural resource professionals and one is a former regulatory official. The board members have more than fifty combined years of experience in wetland and stream regulations, maintenance and construction.

There are no short-term or long-term plans to transfer title of the property to another party. It is the intention of the Sponsor to preserve the property in perpetuity as highly functioning habitat in accordance with the terms of the long-term management plan and conservation easement. However, in the instance that the title to the property is transferred to another party the conservation easement shall stay with the property.

D. Baseline Information

The approximate center of the Bank is located at latitude 38.793716° North longitude 93.594228° West. A map showing the boundaries of the Bank is included in Section I.A of this document and the Sponsor has provided the Corps with a shapefile of the property boundaries. Figure 1 in Appendix A shows the Bank's location along with area topography as shown on the U.S. Geological Survey (USGS) topographic map. Photographic documentation of the Bank is provided in Appendix C.

The Bank property is located above the Cabaniss Subgroup of Pennsylvanian bedrock which is characterized by alternating layers of sedimentary rock. These are primarily shales with secondary influences of sandstones with some siltstones, clays, limestones and coal (Figure 2). This bedrock geology and the deposition of glacial till material followed by the accumulation of wind-blown loess that occurred throughout the Central Dissected Till Plains have been the primary shaping forces that have created the soils located on the Bank along with more recent alluvial deposition associated with flooding from Clear Fork.

The NRCS mapped the soils on the site as Nodaway silt loam, 0 to 2 percent slopes, occasionally flooded (13563); Gorin silt loam, 5 to 9 percent slopes eroded (30068); Wabash silty clay loam, 0 to 2 percent slopes, frequently flooded (36045); Zook silty clay loam, 0 to 2 percent slopes, frequently flooded (36049); Deepwater silt loam, 5 to 9 percent slopes, eroded (40056); Deepwater silt loam, 2 to 5 percent slopes (40053); Norris channery silt loam, 14 to 35 percent slopes (40080); Weller silt loam, 2 to 5 percent slopes, eroded (60234), Freeburg silt loam, 0 to 3 percent slopes, rarely flooded (64001),



Bolivar fine sandy loam, 5 to 9 percent slopes, eroded (70100), and Bolivar fine sandy loam, 9 to 14 percent slopes, eroded (70101) (see Figure 3 [Soil Survey Staff, 2011]). The Nodaway silt loam, Wabash silty clay loam, Zook silty clay loam and Freeburg silt loam are listed as hydric for Johnson County Missouri.

The majority of the Bank property exists as bottom ground lying adjacent to more than a mile of Clear Fork. Virtually all of the property is within the 100-year floodplain which has had a profound effect on the landforms, soils and biology of the site (Figure 4). The topographical map of the Bank vicinity published by the USGS indicates the presence of Clear Fork as a blue-line tributary and shows four of the main tributaries as dashed blue-line streams (Figure 5). The property is surrounded by agricultural properties on all sides and the great majority of the Bank was previously in agricultural production with tree and shrub cover focused along the streams. The Bank resides in the Wooded Osage Plains Level IV Ecoregion which features a lower and more rolling topography than the adjacent ecoregions in the Ozarks. The historic natural vegetation of this ecoregion consisted mostly of oak-hickory woodlands and bluestem-dominated prairie and this area has a greater proportion of southwestern biota than northern biota and a more diverse amount of woody species than more northern ecoregions (Chapman *et al.*, 2001).

Historical aerial photographs of the Bank and its immediate vicinity from 1950 to 2012 are provided in Appendix B. These photographs show that before restoration activities commenced the majority of the Bank site consisted of row crop agricultural areas with wooded areas surrounding the northeastern and southeastern portions of the property and along Clear Fork and its tributaries. These photographs also illustrate several important trends, primarily the erosional migration of the denuded left descending bank of the outer bend of Clear Fork in the northern part of the Bank and the increase in tree cover in the area. Other observations include the fact that the land had been converted to agriculture well before 1950, including the channelization of Intermittent #2 located at the Bank's southern boundary; that the cutoff channel dug to bypass the large eroding bend in Clear Fork was accomplished between 1980 and 1996; and that the channelization of Intermittent #3 in the northeastern portion of the Bank occurred between 1972 and 1980.

In June and July 2008 scientists from Terra Technologies made site visits to determine the location and extent of waters of the U.S., including wetlands, on the proposed Bank. The site is mapped by the FWS' National Wetlands Inventory (NWI) and multiple forested and herbaceous wetlands as well as one freshwater pond are indicated within the limits of the property (Figure 6). Figure 7 shows the results of the Jurisdictional Assessment of the Site and baseline descriptions of the onsite streams and wetlands are included below.

It is the opinion of Terra Technologies that 29 existing wetlands totaling 14.99 acres, 5,956 lineal feet of perennial stream, 7,426 lineal of intermittent stream and 187 lineal feet of ephemeral stream channel exist within or just outside the Bank Site. The Corps has issued a Preliminary Jurisdictional Determination for the Site (Note: portions of Wetlands #1, #6, #8, #9 & #20, Clear Fork, Intermittent #1 and Intermittent #2 included within the Preliminary Jurisdictional Determination lie outside of the property boundary and are therefore not included within the bank development plan totals). The pre-restoration tributaries all flowed into Clear Fork either directly or through another



tributary. Only Intermittent #1 does not directly connect to Clear Fork within the Bank, but it does have a confluence with Clear Fork northwest of the property boundary. Pre-restoration wetlands #1, #3, #4, #8, #20, #22, #23, #24, #25, #26, #27, #28, and #29 all had a likely surface water connection to a tributary to Clear Fork, another wetland existed within the basin of a former pond and the remaining wetlands consisted of low points and swales within the agriculture fields. All of the pre-restoration wetlands resided within the 100-year floodplain.

During the 2008 site visits, it was noted that Clear Fork has an average width at its ordinary high water mark of 30 feet. At the point it leaves the parcel Clear Fork has a drainage area of approximately 84 square miles. The slope of the stream is relatively flat and it had permanent flowing water when observed. The substrate primarily consists of gravel, cobble and bedrock and the stream maintains constant pooling. The riparian buffer is forested and averages approximately 100 feet in width per side with the notable exception of the denuded left descending bank in the northern portion of the site. The dominant vegetation within the Clear Fork riparian buffer included mixture of upland and hydrophytic species, including: *Quercus muehlenbergii* (chinkapin oak), *Quercus shumardii* (Shumard oak), *Ulmus americana* (American elm), *Elymus virginicus* (Virginia wild rye), *Ambrosia trifida* (giant ragweed), *Populus deltoides* (cottonwood), *Acer saccharinum* (silver maple), *Juglans nigra* (black walnut), *Laportea canadensis* (wood nettle), *Platanus occidentalis* (sycamore), *Symphoricarpos orbiculatis* (coralberry), *Sanicula canadensis* (black snakeroot), *Carya ovata* (bitternut hickory), *Quercus imbricaria* (shingle oak), *Toxicodendron radicans* (poison ivy) and *Salix nigra* (black willow).

Intermittent #1 is identified as a blue-line stream on the USGS topographical map of the property included as Figure 5. It originates off the parcel and runs parallel to the westernmost boundary, conveying off-site drainage, while collecting local drainage from adjacent agricultural fields. It has a drainage area of approximately 650 acres and maintains baseflow through groundwater influence from the surrounding uplands. It has definitive bed and bank within the parcel with an average width at top of bank of approximately 16 feet and a bank height of approximately five feet. The substrate consists primarily of sediment and gravel and the average width at ordinary high water mark is approximately nine feet. Dominant vegetation surrounding this stream consists of *Celtis occidentalis* (hackberry), *Ampelopsis cordata* (raccoon grape), *Festuca arundinacea* (tall fescue), *Rudbeckia hirta* (black-eyed Susan), *Elymus virginicus* (Virginia wild rye), *Symphoricarpos orbiculatis* (coralberry), *Solidago graminifolia* (grass-leaved goldenrod), *Phalaris arundinacea* (reed canarygrass), *Rumex crispus* (curly dock), *Salix nigra* (black willow) and *Ambrosia trifida* (giant ragweed). The riparian buffer averages approximately 75 feet per side although the most downstream 100-feet or so of this stream on the property is denuded of trees and shrubs.

Intermittent #2 originates off of the parcel. It flows onto the property in its far southwest corner and runs along the southern property boundary, conveying off-site hydrology while collecting local drainage from adjacent agricultural fields. It maintains baseflow through groundwater influence from the surrounding uplands and has a drainage area of approximately 160 acres. It has definitive bed and bank with an average width at top of



bank of approximately 20 feet and a bank height of approximately 10 feet. The average width at ordinary high water mark is approximately four feet. The dominant vegetation surrounding this stream consists of a mix of riparian and wetland vegetation including *Quercus muehlenbergii* (chinkapin oak), *Ulmus rubra* (slippery elm), *Symphoricarpos orbiculatis* (coralberry), *Sagittaria latifolia* (broadleaf arrowhead), *Spartina pectinata* (prairie cordgrass), *Quercus palustris* (pin oak), *Salix nigra* (black willow), *Elymus virginicus* (Virginia wild rye), *Ambrosia trifida* (giant ragweed) and *Scirpus atrovirens* (green bulrush). The riparian buffer averages approximately 50 feet per side.

Intermittent #3 is a USGS-identified stream. It originates off of the parcel and emerges onto the property at the far eastern boundary, conveying off-site hydrology while collecting local drainage from adjacent agricultural fields and local sub-basin drainage from Intermittent #4. Historically, this stream had a more meandering flow path and very likely received direct flow from Ephemeral #1 but this stream was channelized between 1972 and 1980 as shown on the historical aerial photographs of the site as contained in Appendix B. This stream's drainage area is approximately 790 acres and it maintains baseflow through groundwater influence from the surrounding uplands. It maintains an evident bed and bank throughout its reach with an average bank height of 15 feet and a width at top of bank of roughly 20 feet. The average width at ordinary high water mark averages approximately five feet and it has a predominantly sediment and gravel substrate. The dominant surrounding vegetation includes *Elymus virginicus* (Virginia wild rye), *Ulmus rubra* (slippery elm), *Celtis occidentalis* (hackberry), *Juglans nigra* (black walnut) and *Laportea canadensis* (wood nettle). The riparian buffer averages approximately 50 feet wide per side.

Intermittent #4 originates offsite. It flows onto the property at its eastern boundary, conveying off-site hydrology while collecting local drainage from adjacent agricultural fields and riparian buffer. The drainage area is approximately 180 acres and it maintains baseflow through groundwater influence from the surrounding uplands. It maintains evident bed and bank throughout its reach onsite with an average bank height of three feet and an average width at top of bank of eight feet. The width of the stream's ordinary high water mark averages approximately three feet and it has a predominantly sediment and gravel substrate. The vegetation surrounding this stream is similar to that along Intermittent #3.

Intermittent #5 originates onsite on a hillside of the south-central portion of the Bank, south of forested Wetland #25 and then flows to the west into Clear Fork once it enters the floodplain. This stream displays a definitive ordinary high water mark that averages two feet in width within the Bank. The primary vegetation surrounding this stream is similar to that along Intermittent #3 with the exception of the portion of this stream that is surrounded by Wetland #25 which is dominated by such species as *Eleocharis obtusa* (blunt spikerush), *Elymus virginicus* (Virginia wild rye), *Rudbeckia laciniata* (cut-leaf coneflower), *Toxicodendron radicans* (poison ivy), *Ulmus americana* (American elm), *Fraxinus pennsylvanica* (green ash), *Acer saccharinum* (silver maple) and *Platanus occidentalis* (sycamore). The riparian buffer averages 100 feet per side in the stream's hillside setting and 75 feet per side adjacent to the agricultural fields.



Ephemeral #1 originates onsite in the far northwest corner of the property from drainage from the adjacent hillside forest. It has a drainage area of approximately 10 acres and extends at stream centerline a total of 187 lineal feet before losing bed and bank at Wetland #23. Based on historical aerial imagery, it is likely that Ephemeral #1 flowed into Intermittent #3 at or near the current location of Wetland #23 before Intermittent #3 was channelized in the 1970's. The dominant vegetation along this stream is similar to that along Intermittent #3. The average width at the ordinary high water mark is approximately two feet.

Wetland #1 exists as an herbaceous fringe wetland along Intermittent #1 along the Bank's western border. The dominant vegetation in this wetland at the time of assessment included *Phalaris arundinacea* (reed canarygrass), *Ampelopsis cordata* (raccoon grape), *Rumex crispus* (curly dock), *Ambrosia trifida* (giant ragweed) and *Festuca arundinacea* (tall fescue).

Wetlands #2, #3, #4, #5, #6, and #7 existed as a total of 4.69 acres of farmed wetlands in small local depressions within agricultural fields in the southern portion of the Bank. The plant communities in these locations was repeatedly impacted by row crop production but consisted primarily of common weedy wetland species along with a few more beneficial species. These species included *Juncus tenuis* (path rush), *Eleocharis obtusa* (blunt spikerush), *Carex frankii* (Frank's sedge), *Spartina pectinata* (prairie cordgrass), *Rumex crispus* (curly dock), *Cyperus echinatus* (globe flatsedge), *Ambrosia trifida* (giant ragweed) and *Echinochloa crus-galli* (barnyard grass). Wetland #8 was included in the Jurisdictional Assessment report but is located south of the Bank property line so is not included in this discussion.

Wetland #9 exists as a 0.47-acre inland scrub-shrub wetland located partly within the riparian buffer of Clear Fork and partly within the cleared utility corridor. It is located in a low topographical area just west of Clear Fork. The dominant vegetation included *Elymus virginicus* (Virginia wild rye), *Carex frankii* (Frank's sedge), *Spartina pectinata* (prairie cordgrass) and *Acer saccharinum* (silver maple).

Wetland #10 is a 0.40-acre forested wetland located just west of Clear Fork in a portion of that stream's riparian buffer. It is indicated on the NWI map as an inland herbaceous wetland, but the vegetative community is distinctly forested and included such species as *Salix nigra* (black willow), *Acer saccharinum* (silver maple), *Populus deltoides* (cottonwood), *Elymus virginicus* (Virginia wild rye) and *Ambrosia trifida* (giant ragweed).

Wetland #11 exists as a 0.10-acre farmed fringe wetland around Pond #1 and its associated drainage ditch and is located immediately south of Clear Fork in the upstream portion of the denuded left descending bank along a large meander bend. The vegetation at the time of assessment was highly impacted by the surrounding agricultural activities and consisted primarily of *Echinochloa crus-galli* (barnyard grass), *Ambrosia trifida* (giant ragweed) and *Rumex crispus* (curly dock).



Wetlands #12, #13, #14, #15, #16 and #17 existed as a total of 1.01 acres of depressional farmed wetlands in agricultural fields within the northwestern portion of the Bank to the west of Clear Fork. These plant communities were dramatically and repeatedly altered by farming practices and were dominated by such species as *Echinochloa crus-galli* (barnyard grass), *Polygonum cespitosum* (long-bristled smartweed), *Phalaris arundinacea* (reed canarygrass), *Ammannia coccinea* (valley redstem), *Sorghum halepense* (johnsongrass), *Ambrosia trifida* (giant ragweed) and *Eleocharis obtusa* (blunt spikerush).

Wetland #18 was described as a 0.10-acre forested wetland in a low topographical area on the west side of Clear Fork near the northern border of the Bank. The dominant vegetation was listed as *Elymus virginicus* (Virginia Wild Rye), *Laportea canadensis* (wood nettle), *Ulmus rubra* (slippery elm), *Acer negundo* (box elder) and *Acer saccharinum* (silver maple).

Wetlands #19, #20, #21 and #22 were depressional farmed wetlands located within the northernmost agricultural field within the Bank east of Clear Fork. The total area of these wetlands was 1.82 acres. The natural plant communities in these wetlands was greatly disturbed by agriculture and consisted of wetland species commonly found in highly altered or early successional sites. Wetland #19 was dominated by *Xanthium strumarium* (cocklebur), *Persicaria hydropiperoides* (swamp smartweed) and *Bidens frondosa* (devil's beggar-ticks) while Wetlands #20, #21 and #22 had a higher quality plant community dominated by *Eleocharis obtusa* (blunt spikerush).

Wetland #23 exists as a forested wetland in a low topographical area at the point that Ephemeral #1 loses bed and bank at the probable former location of the confluence of Ephemeral #1 and Intermittent #3 before the channelization of Intermittent #3 moved that stream channel to the south. The hydrology for this wetland is provided by the flows down Ephemeral #1 and potentially some groundwater input at this low point at the base of a significant hill. Dominant vegetation in this wetland included *Carex vulpinoidea* (fox sedge), *Ambrosia trifida* (giant ragweed), *Bidens frondosa* (devil's beggar-ticks) and *Salix nigra* (black willow).

Wetlands #24, #26 and #29 existed as depressional farmed wetlands within the floodplain of Clear Fork near Intermittents #3 and Intermittent #5. The total area of these wetlands was 2.75 acres. The dominant vegetation in Wetlands #24 and #26 was *Eleocharis obtusa* (blunt spikerush) and *Stellaria media* (common chickweed). In contrast, the dominant vegetation in Wetland #29 demonstrated a somewhat greater botanical value and diversity because of the more pronounced wetland hydrology. The plants that dominated this wetland included *Eleocharis obtusa* (blunt spikerush), *Sagittaria latifolia* (broad-leaf arrowhead), *Leersia oryzoides* (rice cutgrass) and *Echinochloa crus-galli* (barnyard grass).

Wetlands #25, #27 and #28 were described as 2.76 acres of forested wetlands along the Intermittent #3 and Intermittent #5 channels. These wetlands receive sufficient hydrology to support hydrophytic plant communities. The dominant plant species in Wetland #25 were *Eleocharis obtusa* (blunt spikerush), *Elymus virginicus* (Virginia wild rye), *Rudbeckia laciniata* (cut-leaf coneflower), *Toxicodendron radicans* (poison ivy), *Ulmus americana* (American elm), *Fraxinus pennsylvanica* (green ash), *Acer saccharinum*

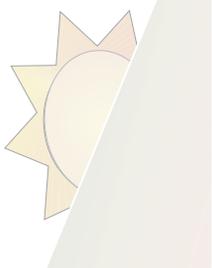


(silver maple) and *Platanus occidentalis* (sycamore). The dominant plant species in Wetland #27 were *Sagittaria latifolia* (broad-leaf arrowhead), *Salix nigra* (black willow), *Impatiens campensis* (jewelweed), *Cephalanthus occidentalis* (buttonbush) and *Acer saccharinum* (silver maple) and the dominant plant species in Wetland #28 included *Persicaria pensylvanica* (Pennsylvania smartweed), *Salix nigra* (black willow), *Elymus virginicus* (Virginia wild rye), *Cephalanthus occidentalis* (buttonbush) and *Acer saccharinum* (silver maple).

There are several areas of the Bank proposed for enhancement. Their baseline (pre-mitigation) conditions are summarized below in Table 1.

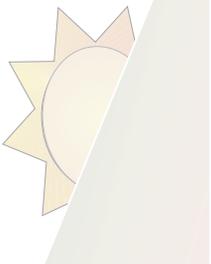
Table 1. Baseline Conditions of Enhancement Areas

Enhancement Area	Dominant Species Composition	Age Structure	Early Successional Species Composition	Invasive or Exotic Species	Enhancement Needs
Upstream Clear Fork Riparian Buffer Enhancement Area	Silver maple, Virginia wild rye, coralberry, wood nettle	There is an appropriate mixture of mature and juvenile individuals.	Silver maple	Not prevalent	Thin silver maples (leave downed trees on the ground as well as some standing snags), plant mast-producing and fruit-producing species and additional shrub species
Downstream Clear Fork Riparian Buffer Enhancement Area	[Bottomland portion of area: Sycamore, slippery elm, black walnut, green ash saplings, Virginia wild rye, wood nettle] [Hillside portion of area: White oak, <i>Parthenocissus quinquefolia</i> (Virginia-creeper), coralberry]	Bottomland canopy dominated by middle aged trees with some mature and young trees present. Hillside canopy dominated by mature trees (>18 inches in diameter at breast height).	Not prevalent	Not prevalent	Plant trees and shrubs in open area in northern portion of buffer area, thin slippery elm and sycamore (leave downed trees on the ground as well as some standing snags) and plant mast-producing and fruit-producing trees and more shrub species in existing riparian buffer

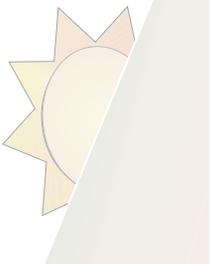


TERRA TECHNOLOGIES

Enhancement Area	Dominant Species Composition	Age Structure	Early Successional Species Composition	Invasive or Exotic Species	Enhancement Needs
Intermittent #1 Riparian Buffer Enhancement Area	Hackberry, coralberry, Virginia wild rye. A few shingle oaks and slippery elms present	Few mature trees. Most trees are middle aged.	Hackberry	<i>Rosa multiflora</i> (multiflora rose) (1% cover)	Plant open area in northern part of riparian buffer, thin hackberries (leave downed trees on the ground as well as some standing snags), plant mast-producing and fruit-producing species and additional shrub species in existing riparian buffer, kill existing multiflora rose



TERRA TECHNOLOGIES



Enhancement Area	Dominant Species Composition	Age Structure	Early Successional Species Composition	Invasive or Exotic Species	Enhancement Needs
Intermittents #3 & #4 Riparian Buffer Enhancement Area	[Bottomland portion of area: Slippery elm, silver maple, black willow, coralberry, <i>Solidago altissima</i> (tall goldenrod), <i>Elymus canadensis</i> (Canada wild rye), <i>Rudbeckia laciniata</i> (green-head coneflower)] [Hillside portion of area: <i>Quercus alba</i> (white oak), <i>Quercus rubra</i> (northern red oak), slippery elm, coralberry, Virginia wild rye]	There is an appropriate mixture of mature and juvenile individuals surrounding Intermittent #4. The Intermittent #3 riparian buffer is dominated by mature trees (>18 inches in diameter at breast height).	<i>Morus alba</i> (white mulberry) (10% in bottomland portion of area), silver maple, black willow	White mulberry (10% cover in bottomland portion of area) Multiflora rose (2% cover on hillsides)	[Bottomland portion of area: Thin willows (leave downed trees on the ground as well as some standing snags), plant additional mast-producing and fruit-producing species in the numerous open areas as well as additional shrub species to improve species diversity, kill existing white mulberry] [Hillside portion of area: Fell some mature trees to create canopy openings (leave downed trees on the ground) and enhance habitat diversity, plant additional shrub species, kill existing multiflora rose]
Intermittent #5 Riparian Buffer Enhancement Area	White oak, Virginia-creeper, coralberry	Dominated by mature trees (>18 inches in diameter at breast height)	Not prevalent	Not prevalent	Fell some mature trees to create canopy openings and enhance habitat diversity (leave downed trees on the ground), plant additional tree and shrub species to enhance species diversity

TERRA TECHNOLOGIES

Enhancement Area	Dominant Species Composition	Age Structure	Early Successional Species Composition	Invasive or Exotic Species	Enhancement Needs
Ephemeral #1 Riparian Buffer Enhancement Area	White oak, northern red oak, slippery elm, coralberry, Virginia wild rye	There is an appropriate mixture of mature and juvenile individuals.	There is minimal cover of early successional species in this area.	Multiflora rose (2% cover)	Fell some mature trees to create canopy openings and enhance habitat diversity (leave downed trees on the ground), plant additional shrub species to enhance species diversity, kill existing multiflora rose
Forested Wetland Enhancement Area	Black willow, silver maple, box elder, cottonwood, Virginia wild rye and great ragweed	Black willow trees are mature. Box elders are young.	Black willow, silver maple, box elder, cottonwood and great ragweed	Multiflora rose (5% cover)	Thin black willow and box elder (leave downed trees on the ground as well as some standing snags); plant mast-producing and fruit-producing species, additional shrub species and herbaceous species in unvegetated areas; kill existing multiflora rose
Upland Buffer Enhancement Area	Black walnut, Virginia wild rye, wood nettle	Canopy dominated by middle aged trees with some mature and young trees present.	Not prevalent	Not prevalent	Plant additional mast-producing and fruit-producing species and additional shrub species to increase species diversity

The site has been surveyed for cultural resources and correspondence from SHPO is included in Appendix H. SHPO has stated that they agree that the project will have no adverse effect on historic properties. Archaeological sites eligible for listing on the National Register of Historic Places will avoided and preserved as requested by SHPO.



E. Determination of Credits

1. Wetland Credits

Wetland credits are generated by the establishment, enhancement, rehabilitation or preservation of wetland areas or of upland buffer areas that protect and/or enhance neighboring wetland functions from disturbances associated with adjacent land uses. Upon approval of this document, the Corps, in consultation with the IRT, grants the Bank the proposed quantity of wetland credits shown in Table 2. The release of these credits shall follow the schedule described in Section V.B. Areas proposed to receive wetland credits for establishment (at a one credit to one acre ratio) have been observed to not contain all three criteria necessary for wetland determination (wetland hydrology, hydrophytic plant community and hydric soils) before restoration activities were initiated. The rehabilitation of existing wetlands that possess all three wetland criteria but that provide limited ecological function as a result of degradation from agricultural impacts will receive credits at a one credit to one acre ratio. Wetland establishment, enhancement, rehabilitation or preservation within areas of stream mitigation credit generation such as Riparian Buffer Restoration or Riparian Buffer Enhancement areas cannot generate wetland credits although such wetland restoration activities can be used to generate stream credits if allowed in the State of Missouri Stream Mitigation Method.

According to the assessment of baseline conditions and enhancement needs described in Table 1, the 0.60-acre Upland Buffer Enhancement area which lacks species diversity in the tree and shrub strata will be ecologically improved by planting mast-producing late successional species as well as underrepresented woody species. These species will improve wildlife habitat through the improvement of food sources and cover. This area will buffer the neighboring wetlands and riparian areas from any undesirable vegetation or other impacts associated with the adjacent electrical utility corridor. Similarly, the 0.11-acre Forested Wetland Enhancement area will be improved by thinning some of the common early successional black willow and box elder present (leaving downed trees on the ground as well as some standing snags), planting mast-producing and fruit-producing species as well as additional shrub species and herbaceous species in unvegetated areas and by eliminating invasive multiflora rose individuals.



Table 2. Wetland Credit Amounts

Mitigation Activity	Area (Acres)	Credit Ratio (Credits:Acres)	Resulting Credits
Forested Wetland Establishment	18.13	1:1	18.13
Forested Wetland Enhancement	0.11	1:2	0.06
Herbaceous Wetland Establishment	55.16	1:1	55.16
Herbaceous Wetland Rehabilitation	5.35	1:1	5.35
Scrub Shrub Wetland Establishment	5.43	1:1	5.43
Scrub Shrub Wetland Rehabilitation	0.15	1:2	0.08
Upland Buffer Establishment	4.13	1:4	1.03
Upland Buffer Enhancement	0.60	1:6	0.10
Upland Buffer Preservation	5.77	1:10	0.58

TOTAL WETLAND CREDITS: 85.92

The calculation of the amount of total potential wetland credits approved at the Bank will be based on the credit assessment methods approved and in use by the Corps at the time the Bank is approved. If, after the Bank is approved, the wetland credit assessment methods change then the amount of wetland credits granted to the Sponsor will not be altered except as described in this paragraph even if the total amount of proposed wetland credits have not been released to the Sponsor. If any change in credit assessment methods would reduce the calculated potential credit total at this Bank, the approved potential credits at the Bank will be grandfathered and will not be altered. If the change in assessment methods causes the potential for additional credits beyond those that are approved at this Bank, the Corps, in consultation with the IRT, can approve additional potential credits that can later be released if the ecological performance standards are achieved.

2. Stream Credits

Stream credits are generated through activities that create, restore, enhance or preserve in-stream or riparian ecosystem functions. Wetland establishment, enhancement, rehabilitation or preservation within areas of stream mitigation credit generation such as Riparian Buffer Restoration or Riparian Buffer Enhancement areas can be used to generate stream credits (but not wetland credits) if allowed in the State of Missouri Stream Mitigation Method. Upon signature of this document, the Corps, in consultation with the IRT, grants the Bank the quantity of stream credits shown in Table 5. The release of these credits shall follow the schedule described in Section V.B.

The number of stream credits was determined by using the Stream Mitigation Bank Credit Assessment Worksheet contained within the State of Missouri Stream Mitigation Method manual dated February 2007. According to the provisions in the Corps' Special Public Notice dated May 29, 2013, since the Sponsor had submitted a Final Mitigation Banking Instrument before that date, the calculation of the amount of total potential stream credits approved at the Bank will be based on the 2007 State of Missouri Stream Mitigation Method and not the 2013 State of Missouri Stream Mitigation Method. If, after the Bank is approved, the stream credit assessment methods change, then the amount of stream



credits granted to the Sponsor will not be altered except as described in this paragraph even if the total amount of proposed stream credits have not been released to the Sponsor. If any change in credit assessment methods would reduce the calculated potential credit total at this Bank, the approved potential credits at the Bank will be grandfathered and will not be altered. If the change in assessment methods causes the potential for additional credits beyond those that are approved at this Bank, the Corps, in consultation with the IRT, can approve additional potential credits that can later be released if the ecological performance standards are achieved.

The Sponsor is proposing to restore 97.41 acres of riparian buffer surrounding the onsite streams and enhance 19.40 acres of existing buffer. Riparian buffer restoration will be achieved by planting trees and shrubs and by seeding appropriate herbaceous species in order to expand the existing buffers of perennial streams to 300 feet per side, intermittent streams to 200 feet per side, and ephemeral streams to 100 feet per side, as shown in the Bank Development Plan in Appendix D and as described in Tables 4 & 5.

The enhancement of existing riparian buffers will involve a variety of management techniques individually suited to the ecological needs of each riparian buffer enhancement area. Table 3 summarizes and expands upon the information from Table 1 regarding the enhancement activities in each riparian buffer enhancement area. These enhancement activities include plantings in open areas to increase the size of some riparian buffers, removing invasive and exotic species, thinning early successional species and planting mast-producing and fruit-producing tree and shrub species in order to improve wildlife habitat and age class diversity, increasing habitat diversity by creating canopy openings in fully forested areas and by leaving dead wood and standing snags, and planting additional underrepresented trees and shrubs in order to increase species diversity. In areas where canopy openings will be created, the goal is to achieve roughly 5% openness in the tree canopy layer. Some enhancement areas already have some existing openness in their canopy, so the combined size of planned canopy openings in an enhancement area does not always equal 5% of the size of the enhancement area. The thinning of at least 5% of overrepresented early successional species is not related to the goal of 5% open canopy cover.

Table 3. Enhancement Activities In Riparian Buffer Enhancement Areas

Enhancement Area	Enhancement Activity to Address Ecological Need
Upstream Clear Fork Riparian Buffer Enhancement Area	Thin at least 5% of the existing silver maples (leave downed trees on the ground as well as some standing snags), plant mast-producing and fruit-producing species and additional shrub species
Downstream Clear Fork Riparian Buffer Enhancement Area	Plant trees and shrubs in open area in northern portion of buffer area, thin at least 5% of the existing slippery elms and sycamores (leave downed trees on the ground as well as some standing snags) and plant mast-producing and fruit-producing trees and more shrub species in existing riparian buffer



Enhancement Area	Enhancement Activity to Address Ecological Need
Intermittent #1 Riparian Buffer Enhancement Area	Plant open area in northern part of riparian buffer, thin at least 5% of the existing hackberries (leave downed trees on the ground as well as some standing snags), plant mast-producing and fruit-producing species and additional shrub species in existing riparian buffer, kill existing multiflora rose
Intermittents #3 & #4 Riparian Buffer Enhancement Area	[Bottomland portion of area: Thin at least 5% of the existing willows (leave downed trees on the ground as well as some standing snags), plant additional mast-producing and fruit-producing species in the numerous open areas as well as additional shrub species to improve species diversity, kill existing white mulberry] [Hillside portion of area: Fell some mature trees to create three canopy openings, each roughly 50 feet in diameter (leave downed trees on the ground) in order to enhance habitat diversity; plant additional shrub species; kill existing multiflora rose]
Intermittent #5 Riparian Buffer Enhancement Area	Fell some mature trees to create five canopy openings, each roughly 50 feet in diameter (leave downed trees on the ground) in order to enhance habitat diversity; plant additional tree and shrub species to enhance species diversity
Ephemeral #1 Riparian Buffer Enhancement Area	Fell some mature trees to create one canopy opening roughly 50 feet in diameter (leave downed trees on the ground) in order to enhance habitat diversity; plant additional shrub species to enhance species diversity; kill existing multiflora rose

The Bank Development Plan shows some areas of wetland establishment and enhancement within riparian buffer boundaries. These wetland areas within the riparian buffer are proposed for stream credits only and their acreage totals are included within the riparian buffer totals and not within any wetland acreage total.

The Monitoring/Contingency Plan will be Level II because the Sponsor will provide photographic documentation and plant survival percentages as part of the monitoring of the Bank. Finally, all Riparian Buffer Restoration Net Benefit values except for Net Benefit 9 are multiplied by a factor of 1.2 as all restored riparian buffers will contain established or restored wetlands. This multiplier was also applied to Riparian Buffer Enhancement areas in Net Benefits 2 and 5 for the same reasoning. The Net Benefit Areas are described below in Table 4 and in Image 3.

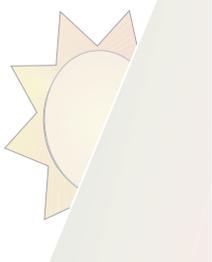
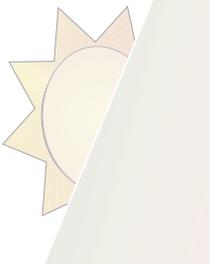


Table 4. Net Benefit Area Descriptions

Net Benefit Area	Location / Description	Average Width (Feet)
1	Riparian Buffer Restoration on both sides of Perennial #1 (Clear Fork) from its most downstream point to the boundary with Net Benefit Area 2.	300
2	Riparian Buffer Restoration along the left descending bank and Riparian Buffer Enhancement along the right descending bank of Perennial #1 (Clear Fork) between Net Benefit Areas 1 and 3.	300
3	Riparian Buffer Enhancement on both sides of Perennial #1 (Clear Fork) between Net Benefit Area 2 and the parcel boundary.	300
4	Riparian Buffer Restoration along the left descending bank and Riparian Buffer Enhancement of Perennial #1 (Clear Fork) from its most upstream point within the Bank to an eastern boundary of the Bank.	300 (left descending bank), 50 (right descending bank)
5	Riparian Buffer Enhancement along the left descending bank and Riparian Buffer Restoration along the right descending bank of Intermittent #1.	65 (left descending bank), 200 (right descending bank)
6	Riparian Buffer Restoration along the left descending bank of Intermittent #2 between Net Benefit Area 4 and the upstream point of Intermittent #2 within the Bank for a distance of 1,738 lineal feet. (Note that the most downstream portion of the Riparian Buffer Restoration along Intermittent #2 was accounted for as Net Benefit 4 along Perennial #1 (Clear Fork)).	200
7	Riparian Buffer Enhancement along the left descending bank and Riparian Buffer Restoration along the right descending bank of Intermittent #5 for a distance of 712 lineal feet between Net Benefit Areas 8 and 9.	200





Net Benefit Area	Location / Description	Average Width (Feet)
8	Riparian Buffer Enhancement along both sides of Intermittent #5 from its most upstream point to the boundary with Net Benefit Area 7.	200
9	Riparian Buffer Restoration along both sides of Intermittent #5 for a distance of 632 lineal feet between Net Benefit Areas 1 and 7. (Note that the most downstream portion of the riparian buffer along Intermittent #5 was accounted for as Riparian Buffer Restoration along Perennial #1).	55 (left descending bank), 200 (right descending bank)
10	Riparian Buffer Restoration along both sides of Intermittent #3 for a distance of 1,070 lineal feet between Net Benefit Areas 1 and 11. (Note that the most downstream portion of the riparian buffer along Intermittent #3 was accounted for as Riparian Buffer Restoration along Perennial #1.)	200
11	Riparian Buffer Restoration along the left descending bank and Riparian Buffer Enhancement along the right descending bank of Intermittent #3 from its most upstream point within the parcel to the boundary with Net Benefit Area 10.	155 (left descending bank), 150 (right descending bank)
12	Riparian Buffer Enhancement along both sides of Intermittent #4 from its most upstream point to the boundary with Net Benefit Areas 10 and 11. (Note that the most downstream portion of the riparian buffer along Intermittent #4 was accounted for as Riparian Buffer Restoration along Intermittent #3.)	130 (left descending bank), 200 (right descending bank)
13	Riparian Buffer Enhancement along both sides of Ephemeral #1 from its most upstream point to the boundary with Net Benefit Area 10. (Note that the most downstream portion of the riparian buffer along Ephemeral #1 was accounted for as Riparian Buffer Restoration along Intermittent #4.	100

Image 3. Net Benefit Areas

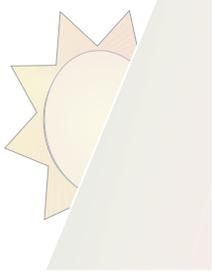
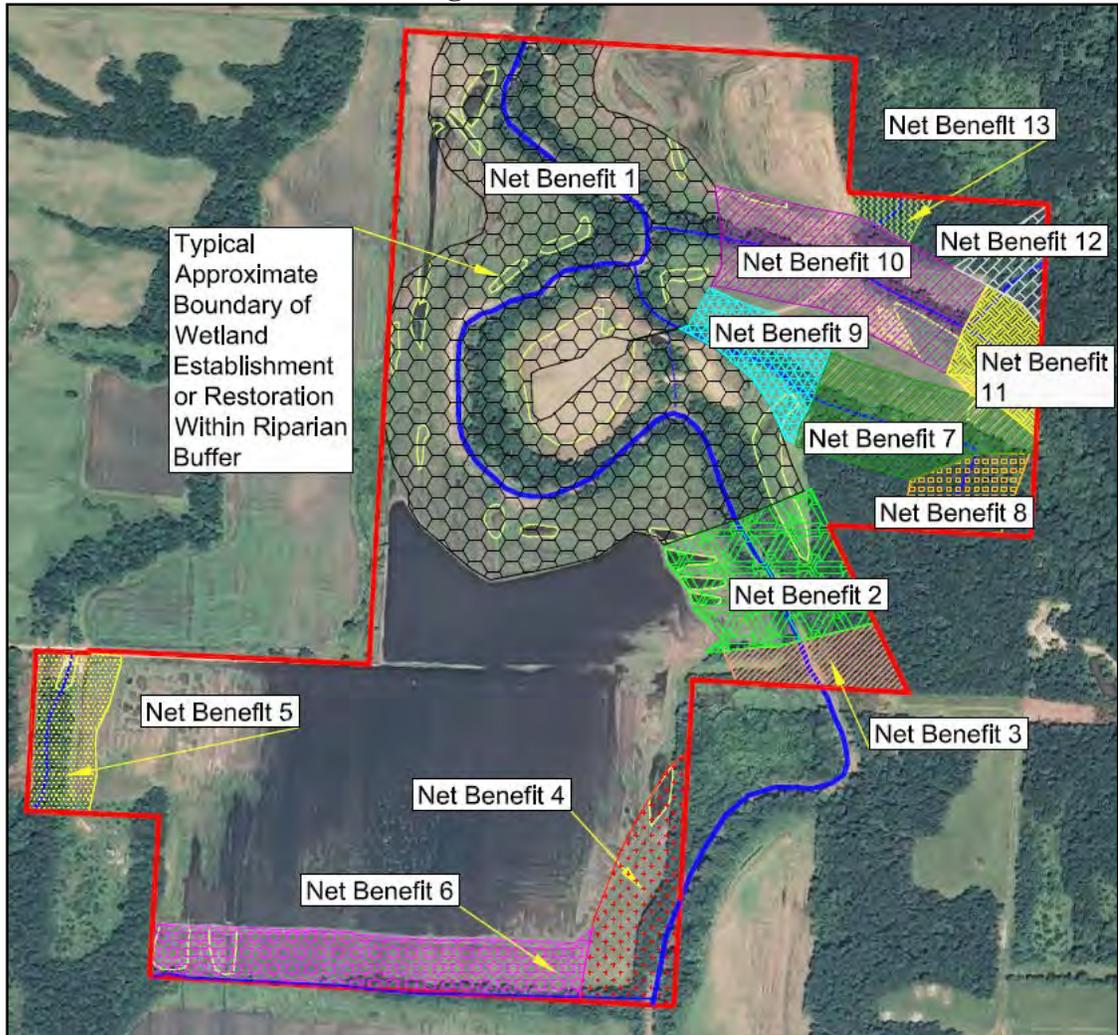


Table 5. Stream Mitigation Bank Credit Assessment Worksheets

Stream Type	Ephemeral 0.1	Intermittent 0.6	Perennial			
			<15' 0.8	15'-30' 1.0	30'-50' 1.2	>50' 1.4
Priority Area	Tertiary 0.1	Secondary 0.4	Primary 0.8			
Net Benefit [Riparian (for each side of stream)]	Additional Improvements (select values from Table 1 times 1.2 multiplier)	Riparian Creation, Enhancement, Restoration, and Preservation Factors (select values from Table 1) (MBW = Minimum Buffer Width = 25' + 2' / 1% slope)				
System Protection Credit	Condition : MBW restored or protected on both streambanks To calculate:(Net Benefit Stream Side A + Net Benefit Stream Side B) / 2					
Net Benefit (Stream)	Moderate 1.0	Good 2.0			Excellent 3.5	
Monitoring/Contingency (for each side of stream)	Level I 0.075	Level II 0.3			Level III 0.5	
Control /Site Protection	Corps approved site protection without third party grantee 0.075		Corps approved site protection recorded with third party grantee, or transfer of title to a conservancy 0.3			

Factors		Net Benefit 1	Net Benefit 2	Net Benefit 3	Net Benefit 4	Net Benefit 5	Net Benefit 6
Stream Type		1.2	1.2	1.2	1.2	0.6	0.6
Priority Area		0.1	0.1	0.1	0.1	0.1	0.1
Net Benefit (Riparian)	Stream Side A (Left Descending)	3.36	3.36	1.4	3.36	0.48	2.88
	Stream Side B (Right Descending)	3.36	1.68	1.4	0.4	2.88	-
System Protection Credit Condition Met (Buffer on both sides)		3.36	2.52	1.4	1.88	1.68	-
Net Benefit (Stream)		-	-	-	-	-	-
Monitoring/Contingency	Stream Side A	0.3	0.3	0.3	0.3	0.3	0.3
	Stream Side B	0.3	0.3	0.3	0.3	0.3	
Control /Site Protection	Stream Side A	0.3	0.3	0.3	0.3	0.3	0.3
	Stream Side B	0.3	0.3	0.3	0.3	0.3	
Sum Factors (M)=		12.58	10.06	6.70	8.14	6.94	4.18
Linear Feet of Stream Buffer (LF)= (don't count each bank separately)		4,124	564	212	442	679	1,738
Total Credits (C) =M X LF		51,879.92	5,673.84	1,420.40	3,597.88	4,712.26	7,264.84

TERRA TECHNOLOGIES



TERRA TECHNOLOGIES



Factors		Net Benefit 7	Net Benefit 8	Net Benefit 9	Net Benefit 10	Net Benefit 11	Net Benefit 12
Stream Type		0.6	0.6	0.6	0.6	0.6	0.6
Priority Area		0.1	0.1	0.1	0.1	0.1	0.1
Net Benefit (Riparian)	Stream Side A (Left Descending)	1.2	1.2	0.96	2.88	2.40	0.9
	Stream Side B (Right Descending)	2.88	1.2	2.4	2.88	1.0	1.2
System Protection Credit Condition Met (Buffer on both sides)		2.04	1.2	1.68	2.88	1.7	1.05
Net Benefit (Stream)		-	-	-	-	-	-
Monitoring/Contingency	Stream Side A	0.3	0.3	0.3	0.3	0.3	0.3
	Stream Side B	0.3	0.3	0.3	0.3	0.3	0.3
Control /Site Protection	Stream Side A	0.3	0.3	0.3	0.3	0.3	0.3
	Stream Side B	0.3	0.3	0.3	0.3	0.3	0.3
Sum Factors (M)=		8.02	5.50	6.94	10.54	7.00	5.05
Linear Feet of Stream Buffer (LF)= (don't count each bank separately)		712	340	632	1,070	437	220
Total Credits (C)=M X LF		5,710.24	1,870.00	4,386.08	11,277.8	3,059	1,111

Factors		Net Benefit 13	Net Benefit 14	Net Benefit 15	Net Benefit 16	Net Benefit 17	Net Benefit 18
Stream Type		0.1					
Priority Area		0.1					
Net Benefit (Riparian)	Stream Side A (Left Descending)	0.8					
	Stream Side B (Right Descending)	0.8					
System Protection Credit Condition Met (Buffer on both sides)		0.8					
Net Benefit (Stream)		-					
Monitoring/Contingency	Stream Side A	0.3					
	Stream Side B	0.3					
Control /Site Protection	Stream Side A	0.3					
	Stream Side B	0.3					
Sum Factors (M)=		3.8					
Linear Feet of Stream Buffer (LF)= (don't count each bank separately)		174					
Total Credits (C)=M X LF		661.2					

Total Credits Generated = 102,624.46

F. Mitigation Work Plan

Site construction commenced in the summer of 2009 and has been substantially completed according to the Bank Development Plan in Appendix D. An as-built figure showing berm locations and elevations along with approximate water depths and other pertinent information is included as part of the Bank Development Plan. Deviation from the approved Bank Development Plan is subject to review and written approval by the Corps, in consultation with the IRT.

Excavation was the first stage of the project and wetland establishment areas were lowered by 0.5 to 2.0 feet depending on the location. Spoil material was placed to create berms and at low points along the edge of the riparian buffer to increase the elevation that the onsite water would have to reach in order to drain into Clear Fork, thus increasing the amount of water that can be contained onsite. Erosion control measures were undertaken to prevent sediment from entering Clear Fork or any of its tributaries. Although Clear Fork may occasionally flood the site, onsite streams and runoff will be the primary source of any wetland hydrology. A single Newbury Weir with a 24-inch corrugated plastic low-flow pipe was placed in Intermittent #1 to create a structure that will allow low flows to continue in the channel relatively unobstructed but to divert some storm flows to the adjacent large wetland area. The low-flow pipe was sized to pass normal flows and maintain a biological connection with the downstream channel. Rock material consisted of native stone free of concrete rubble and other foreign debris and had a diameter of 12-24 inches so that the weir will experience low-flow seepage through the rock structure and the pipe so that the weir allows low flows to continue downstream but diverts storm flows into the adjacent wetland areas. The established wetlands in the southern portion of the site have deeper inundation than the farmed wetlands in that area that existed before the commencement of restoration activities so that these areas will function as a shallow marsh rather than as saturated small depressions which have much less ecological value.

The large Herbaceous Wetland Establishment area in the southern portion of the site is designed to be a shallow marsh area with inundation less than 12 inches in depth in most locations although a few places may experience up to 18 inches in depth. While water levels will fluctuate throughout the year in this marsh area, it is not expected that it will ever completely dry out during the course of a year of normal precipitation. Other locations, particularly in the south-central and northwestern portions of this Herbaceous Wetland Establishment area are intended to be dominated by saturation rather than inundation because of their slightly higher landscape position. To the northwest of the large the Herbaceous Wetland Establishment area is a Scrub Shrub Wetland Establishment area in the west-central part of the site which has been constructed and then planted as a buttonbush (*Cephalanthus occidentalis*) shrub swamp with water depths of roughly 18 to 24 inches. The other wetland areas throughout the Bank will have less pronounced signatures of wetland hydrology that will vary from surface saturation to areas of water depth up to twelve inches within the areas of microtopography or shallow excavation. The water sources of these wetland areas will be primarily surface and subsurface runoff from adjacent areas as well as precipitation. It is expected that many of these areas will completely dry out during the course of a year of normal precipitation



which will help to keep common predators of amphibian larvae such as mosquitofish (*Gambusia affinis*) and bullfrogs (*Rana catesbeiana*) out of these pools and allow these wetland areas to serve as optimal amphibian breeding areas. In this manner, the Sponsor has created a variety of wetland habitats on the Bank in different landscape positions which will provide benefits to a diversity of wildlife.

After excavation was completed, the site was planted with a diverse mixture of native wetland, forest and prairie plants. The entire site was seeded with native seed blends appropriate for either upland or wetland habitats. Tree and shrub plantings consisting of supercell plugs and 3-gallon individuals grown using the air prune method of production were used within the riparian buffer restoration and enhancement areas. Previously unforested Riparian Buffer Restoration areas were planted at a density of 109 trees per acre (20-foot spacing between each tree or shrub to coincide with a 100% replanting of those areas). Riparian Buffer Enhancement areas were planted at a density of 17 trees per acre (50-foot spacing between each tree or shrub to coincide with a 16% replanting of those areas). Riparian Buffer Restoration and Enhancement areas will be maintained by utilizing such management techniques as selective thinning and prescribed burning. Weed mats and flagging were placed for each individual. Seed mixes and tree planting lists are included in the Bank Development Plan in Appendix D. Herbaceous species were acquired in either deep cell plugs or 1- or 2-quart containers. All plant stock was acquired from a nursery specializing in native plants and was installed by a qualified restoration contractor. Site construction was substantially completed in the fall of 2010.

Plant species were selected to meet the Bank objectives of establishing the intended riparian and wetland habitats. To accomplish this, the species selected are appropriate for the habitat type (e.g. riparian buffer or herbaceous wetland) where they were installed. In addition, the planting lists include species that are common in early to mid-successional environments such as silver maples (*Acer saccharinum*), persimmons (*Diospyros virginiana*), green ash (*Fraxinus pennsylvanica*), beggar's ticks (*Bidens* spp.) and chufa flatsedge (*Cyperus esculentus*) so that the Bank would be well vegetated with plants that will prosper and spread in the initial stages of the restoration process. In addition, many late successional species such as oaks (*Quercus* spp.), hickories (*Carya* spp.), sedges (*Carex* spp.), big bluestem (*Andropogon gerardii*) and indiagrass (*Sorghastrum nutans*) have been installed across the Bank to establish the species that will dominate the site in its more mature ecological state. Some species, such as nannyberry (*Viburnum lentago*) and southern arrowwood (*Viburnum dentatum*), which are susceptible to anthropogenic disturbance and therefore uncommon locally but present in nearby counties, have been planted on the Bank in order to help restore their previous range. All plant species established on the Bank provide food and/or shelter to wildlife and many hydrophytic species assist in the nitrogen transformation processes that occur in wetland soils and also absorb phosphorus, both of which remove some of the nutrients from agricultural runoff and improve water quality.

Riparian Buffer Restoration was completed through the planting of trees and shrubs on 20-foot spacing (109 trees per acre) and the seeding of the herbaceous layer of appropriate native species. The enhancement of the existing riparian areas within the Riparian Buffer Enhancement areas as shown in the Bank Development Plan in Appendix D were



ecologically improved by planting more than 10% of the area to improve wildlife habitat as allowed in the State of Missouri Stream Mitigation Method. Ten percent of a full planting defined as trees and shrubs planted on 20-foot spacing is equal to 11 trees per acre. These areas will then be legally preserved in perpetuity along with the rest of the Bank, which allows the Sponsor to improve and then protect both sides of portions of every stream on the property.

While plantings have been completed in all of the Riparian Buffer Enhancement Areas, the Forested Wetland Enhancement Area and the Upland Buffer Enhancement Area, the other enhancement activities listed in Table 3 will need to be completed. These include the killing of existing invasive and exotic species and forestry activities to thin undesirable early successional species and create canopy openings in order to improve the ecological health of these areas.

Survival data will be taken to ensure that planted trees and shrubs will be replaced if too many are lost to wildlife damage and other sources of mortality. Undesirable plant species will be managed as described in the Operation and Maintenance Plan for the site as described in Section IV.G.

G. Operation and Maintenance Plan

Active maintenance of the Bank property will be governed by the Operation and Maintenance Plan and will be carried out by the Sponsor for fifteen (15) years after approval of the final banking instrument or until all credits have been sold (unless the remaining credits are indefinitely suspended or removed), whichever is later. After this described time period, the Bank maintenance and management will be governed by the stipulations of the Long-Term Management Plan. As part of the Operation and Maintenance Plan, the Sponsor agrees to assess the maintenance needs of the Bank during a minimum of three visits per year during the Operation and Maintenance phase of the Bank's operation. The Sponsor also agrees to perform all necessary maintenance work to ensure that the Bank achieves the ecological performance standards described in Section IV.H, including, but not limited to, such routine tasks as the replanting of vegetation, the removal of invasive species, mowing of areas as appropriate, replacement or repair of stream restoration improvements, minor adjustments to outlet elevations from wetland pools, accumulating and clumping woody debris to create small mammal habitat and the potential use of prescribed burning. Additional warranted maintenance may include the pickup and piling of wind-fall limb debris and the cutting and removal of fallen trees. Deviation from the approved Bank Development Plan caused by activities associated with Operations and Maintenance is subject to review and written approval by the Corps, in consultation with the IRT. This does not include minor field changes in planned excavation limits or substitutions of plant species with substantially similar species in the same genus.

The management of invasive species will be undertaken to maintain biodiversity and wetland function. Highly Aggressive Invasive Species as shown in Table 6 will be removed immediately after observation.



Table 6. Highly Aggressive Invasive Species

Scientific Name	Common Name
<i>Alliaria petiolata</i>	Garlic Mustard
<i>Carduus nutans</i>	Musk Thistle
<i>Cirsium arvense</i>	Canada Thistle
<i>Convolvulus arvensis</i>	Field Bindweed
<i>Dipsacus fullonum</i>	Common Teasel
<i>Dipsacus lanciniatus</i>	Cut-leaf Teasel
<i>Elaeagnus umbellata</i>	Autumn Olive
<i>Euonymus fortunei</i>	Wintercreeper
<i>Euphorbia esula</i>	Leafy Spurge
<i>Lespedeza cuneata</i>	Sericea lespedeza
<i>Lonicera japonica</i>	Japanese Honeysuckle
<i>Lonicera morrowii</i> & <i>Lonicera maackii</i>	Bush Honeysuckles
<i>Lythrum salicaria</i>	Purple Loosestrife
<i>Onopordum acanthium</i>	Scotch Thistle
<i>Phalaris arundinacea</i>	Reed Canarygrass
<i>Pueraria lobata</i>	Kudzu
<i>Rhamnus cathartica</i>	Common Buckthorn
<i>Rosa multiflora</i>	Multiflora Rose
<i>Securigera varia</i>	Crown Vetch
<i>Sesbania exaltata</i>	Sesbania
<i>Sorghum halepense</i>	Johnson Grass
<i>Typha</i> spp.	Cattails

Methods of removal such as extirpation, hand cutting, chemical spraying and seedhead separation will be used to control undesirable vegetation on the Bank. Extirpation refers to the removal of the plant and roots from the ground. After pulling, the plant can be left on the ground. For other species, hand cutting or power trimming to a height of twelve inches will suffice to prevent the plant material from making a seed head. Chemical spraying should be completed with a product containing glyphosate, including one approved for use in or near aquatic environments if applicable (Rodeo or equivalent). Control of tree saplings should utilize Tordon RTU or equivalent. All label directions and safety precautions will be followed while using approved herbicides. Herbicides will be applied with a back-pack or bottle sprayer for best results and to minimize overspray onto desirable native plant materials.

The Bank has been designed to ensure natural hydrology and landscape features will ensure long-term sustainability. Any long-term management such as prescribed burns or invasive species control will be conducted as needed. The water rights are owned by the Sponsor.

All funding necessary to achieve the goals of the Operation and Maintenance Plan will come from the sale of credits. Site maintenance activities after the cessation of active management of the Bank under the Operation and Maintenance Plan will then be undertaken as part of the Long-Term Management Plan and be paid for from the long-term management financial assurances.



H. Ecological Performance Standards

The following criteria will be used to assess project success.

1. Wetland Credits

All areas proposed for wetland establishment or rehabilitation must meet all of the following wetland performance standards with the exception of wetland performance standard *vii* (Completion of Enhancement Activities). Areas proposed for wetland enhancement are subject to all wetland performance standards. Upland buffer establishment or preservation areas need only meet wetland performance standards *iii* (Vegetative Cover) and *vi* (Invasive Species). Areas proposed for upland buffer enhancement need only meet wetland performance standards *iii* (Vegetative Cover), *vi* (Invasive Species) and *vii* (Completion of Enhancement Activities).

i. Wetland Hydrology

All areas proposed for wetland establishment, rehabilitation, enhancement or preservation must show evidence of wetland hydrology. The attainment of wetland hydrology will be determined by the presence of sufficient indicators to satisfy the wetland hydrology criteria included in the 1987 *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987) and its appropriate regional supplement across the vast majority of the planned wetland areas for a continuous period of not less than 5% of the growing season (assumed to be 11 days). For the first three of the six credit releases which correspond to 60% of the total wetland credits, the vast majority of the planned wetland areas is defined as all but two or fewer of the permanent wetland sample points, which corresponds to roughly 90% of all current wetland sample point locations on the Bank. For the fourth and fifth of the six credit releases, which total 20% of the total wetland credits, the vast majority of the planned wetland areas is defined as all but one or fewer of the permanent wetland sample points, which corresponds to roughly 95% of all current wetland sample point locations on the Bank. However, the failure of any permanent wetland sampling point to demonstrate wetland hydrology must be taken into consideration in the final wetland credit release. Should one or more permanent wetland sampling point not meet this performance standard by the end of the monitoring period, and the Corps decides that default proceedings are not warranted, the Sponsor must either initiate adaptive management to remedy the deficiency or provide the Corps a revised as-built figure showing the Bank's final wetland boundaries as part of the accounting associated with the final credit release which could result in a decrease in the amount of wetland credits granted in the final wetland credit release. Hydrologic monitoring will continue for a number of years to be determined appropriate by the Corps, in consultation with the IRT. This period of time will be a minimum of five years.

ii. Hydrophytic Vegetation

All areas proposed for wetland establishment, rehabilitation, enhancement or preservation must meet the required hydrophytic vegetation criteria in the 1987 *Corps of Engineers*



Wetlands Delineation Manual and its appropriate regional supplement. In order to assure that the Bank will contain high quality plant communities, vegetation not included on the wetland planting or seeding lists in the Bank Development Plan will not be considered in the evaluation of this performance standard in wetland establishment, restoration or rehabilitation areas. In wetland enhancement or preservation areas this restriction will not apply because of the predominance of existing vegetation.

iii. *Vegetative Cover*

All areas that will generate wetland credits, including wetlands and upland buffers, will reach a minimum 80% absolute vegetative cover, except in areas of near constant or semi-permanent inundation because of the resulting disturbance to plant growth and establishment. In order to assure that the Bank will contain high quality plant communities, vegetation not included on the planting or seeding lists in the Bank Development Plan will not be considered in the evaluation of this performance standard.

iv. *Tree and Shrub Survival Rate*

Trees and shrubs planted on the Bank as part of the restoration shall have an overall minimum 75% survival rate and a species survival rate of at least 75%. Natural recruitment of species on the Bank planting list will count towards meeting the 75% survival rate as long as the recruit trees and shrubs are greater than one meter tall in order to meet the definition of sapling or shrub in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* (Corps, 2010). If areas do not meet any requirements related to overall survival rate or species survival rate, appropriate planting activities will be initiated.

iv. *Hydric Soils*

All areas proposed for wetland establishment, rehabilitation, enhancement or preservation must show evidence of hydric soils by meeting the criteria described in the 1987 *Corps of Engineers Wetlands Delineation Manual* and its appropriate regional supplement. Evidence of wetland hydrology will be sufficient to show that the hydric soils criterion is being met as it may take many years before certain indicators of hydric soils develop.

v. *Establishment of Wetland Conditions*

Before the final credits can be released, as detailed in Section V, the presence of hydric soils, wetland hydrology, and hydrophytic plants will be demonstrable for all areas that will generate wetland credits through wetland establishment, rehabilitation, enhancement or preservation following the methods described in the 1987 *Corps of Engineers Wetlands Delineation Manual* and its appropriate regional supplement. It will be the decision of the Corps, in consultation with the IRT, to determine that areas proposed for wetland establishment shall have met all three criteria described in the 1987 *Corps of Engineers Wetlands Delineation Manual* and its appropriate regional supplement with sufficient regularity to prove the establishment of wetland conditions across all areas intended for wetland development. Should any permanent wetland sample point location not show



sufficient evidence of wetland conditions by the end of the monitoring period, and the Corps decides that default proceedings are not warranted, the Sponsor must either initiate adaptive management to remedy the deficiency or provide the Corps a revised as-built figure showing the Bank's final wetland boundaries as part of the accounting associated with the final credit release which could result in a decrease in the amount of wetland credits granted in the final wetland credit release.

vi. *Invasive Species*

Management of invasive species will be undertaken as is suitable to maintain biodiversity and ecological function. Until fifteen (15) years after approval of the final banking instrument or until all credits have been sold (unless the remaining credits are indefinitely suspended or removed), whichever is later, invasive species shall be controlled as follows. Species on the list of Highly Aggressive Invasive Species (Table 6) will be eradicated upon observation and shall not, in the aggregate, cover more than 5% of the absolute cover of the Bank.

vii. *Completion of Enhancement Activities*

The Sponsor shall be required to provide proof of the completion of the enhancement activities described in Table 3 for all areas proposed for wetland or upland buffer enhancement. An invoice from the contractor or contractors responsible for accomplishing the enhancement activities stating that those activities have been completed shall be sufficient evidence of the successful achievement of this ecological performance standard although the Corps may request a site visit with a minimum of 24 hours' notice in order to observe the completed enhancement activities at their discretion.

2. *Stream Credits*

All areas proposed for Riparian Buffer Restoration must meet all of the following criteria with the exception of stream performance standard *iv* (Completion of Enhancement Activities). All areas proposed for Riparian Buffer Enhancement must meet all of the following criteria.

i. *Vegetative Cover*

All riparian buffer areas on the Bank will have at least an 80% absolute vegetative cover, except in areas of near constant or semi-permanent inundation because of the resulting disturbance to plant growth and establishment.

ii. *Tree and Shrub Survival Rate*

Trees and shrubs planted on the Bank as part of the riparian restoration shall have an overall 75% survival rate and a species survival rate of at least 75%. Natural recruitment of species on the Bank planting list will count towards meeting the 75% survival rate as long as the recruit trees and shrubs are greater than one meter tall in order to meet the definition of sapling or shrub in the *Regional Supplement to the Corps of Engineers*



Wetland Delineation Manual: Midwest Region (Corps, 2010). If areas do not meet any requirements related to overall survival rate or species survival rate, appropriate planting activities will be initiated.

iii. *Invasive Species*

Management of invasive species will be undertaken as is suitable to maintain biodiversity and ecological function. Until fifteen (15) years after approval of the final banking instrument or until all credits have been sold (unless the remaining credits are indefinitely suspended or removed), whichever is later, invasive species shall be controlled as follows. Species on the list of Highly Aggressive Invasive Species (Table 6) will be eradicated upon observation and shall not, in the aggregate, cover more than 5% of the absolute cover of the Bank.

iv. *Completion of Enhancement Activities*

The Sponsor shall be required to provide proof of the completion of the enhancement activities described in Table 3 for all areas proposed for riparian buffer enhancement. An invoice from the contractor or contractors responsible for accomplishing the enhancement activities stating that those activities have been completed shall be sufficient evidence of the successful achievement of this ecological performance standard although the Corps may request a site visit with a minimum of 24 hours' notice in order to observe the completed enhancement activities at their discretion.

I. *Monitoring Requirements*

The Sponsor agrees to perform all necessary work to monitor the Bank to demonstrate compliance with the performance standards established in this Mitigation Banking Instrument. Permanent sampling plots have been placed along transects that run west to east perpendicular to Clear Fork and monitoring will be conducted per Section E of the 1987 *Corps of Engineers Wetlands Delineation Manual* regarding Comprehensive Determinations. Permanent photo points have also been established across the site.

Two of the three wetland parameters (hydrology and vegetation) will be monitored at the Bank for a period of at least five years. Hydrologic monitoring will show the presence of wetland hydrology for at least 11 consecutive days at the vast majority of sampling plots. This sampling will occur for at least the first five years after approval of the final mitigation banking instrument. Hydric soils will be monitored yearly according to the 1987 *Corps of Engineers Wetlands Delineation Manual* and its appropriate regional supplement. Evidence of wetland hydrology will be sufficient to show that the hydric soils criterion is being met as it may take many years before certain indicators of hydric soils develop. The site will be monitored for invasive species and animal damage during these visits. Since the methods used to determine the presence or absence of wetland hydrology in the 1987 *Corps of Engineers Wetlands Delineation Manual* and its regional supplements are the definitive standard, they will be used to monitor the Bank's hydrology to determine if wetland hydrology has been established as a result of restoration activities. The methods described in the 1987 *Corps of Engineers Wetlands*



Delineation Manual and its regional supplements provide a snapshot view of wetland conditions at one moment in time, but by assessing data taken repeatedly this monitoring method will provide information on wetland conditions along a timeline, specifically the frequency and duration of wetland hydrology.

Vegetation will be monitored yearly, or more often at the discretion of the Sponsor, in order to determine if vegetative performance standards are being met. The methods used shall match those described in Section E of the 1987 *Corps of Engineers Wetlands Delineation Manual* regarding Comprehensive Determinations as well as those of the appropriate regional delineation supplement. Tree and shrub survival shall be sampled within a 26.3-foot radius circle from the center of the sampling plot, resulting in a 0.05 acre sample plot for ease of survival rate calculations. However, the Sponsor may choose to assess woody vegetation survival within an 11.8-foot radius circle from the center of the sampling plot, resulting in a 0.01 acre sample plot, in areas of dense vegetative growth that would make use of the 26.3-foot radius circle very difficult and potentially inaccurate. Additionally, in habitat types planted at low densities, such as Riparian Buffer Enhancement, will have woody vegetation assessed within a 50-foot radius circle from the center of the sampling plot with no possibility of decreasing the sample radius. Vegetation will be identified and wetland indicator status will be determined in planned wetland areas.

J. Long-Term Management Plan

Active maintenance of the Bank property under the Operation and Maintenance Plan will be carried out by the Sponsor for a minimum of fifteen (15) years after approval of the final banking instrument or until all credits have been sold (unless the remaining credits are indefinitely suspended or removed), whichever is later. After this described time period, the Bank maintenance and management will be governed by the stipulations of the Long-Term Management Plan as described in this subsection. Adherence to the Long-Term Management Plan is required in perpetuity and funding of the plan must comply with Section 332.7(d) of the 2008 Final Mitigation Rule.

Long-term maintenance needs will focus on vegetation management and the removal of trash. The removal of invasive species will be one of the most important long-term management tasks in all plant communities. Invasive species will be removed upon discovery during two maintenance visits each year using methods of removal such as cutting, burning and chemical spraying. Reseeding of bare spots will be the primary native vegetation maintenance task to be assessed on a yearly basis and implemented if necessary within herbaceous wetland and upland buffer communities. It is estimated that no greater than 5% of the grass buffers will require supplemental seeding in a one year period. Prescribed burnings, supplemental tree and shrub plantings, supplemental wetland (herbaceous) plantings and mowing will be the primary long-term management tasks which are anticipated to be implemented on an every other year rotation. The actual frequency of the implementation of these management activities will be determined by the Sponsor depending on site conditions. Timber stand improvement will be one of the most important long-term management methods that the Sponsor will undertake to improve the ecological nature of the riparian buffer, Upland Buffer Enhancement and forested wetland



areas. Examples of anticipated timber stand improvement activities include the culling of a portion of the softwood species to speed up the transition from an early successional forested community to a later successional state characterized by the dominance of hardwood species, addressing the overdominance of one or more species in an area by killing or removing some of those individuals to allow for a more evenly distributed tree and/or shrub community, and the conversion of an even-aged stand to one of mixed ages. Timber stand improvements will be conducted within the riparian buffers ten years and twenty years after the completion of the initial plantings and then on a frequency to be determined by the Sponsor depending on site conditions. Additional maintenance tasks like trash removal and vandalism repairs within all habitat types will be conducted as identified at bi-yearly maintenance visits. A full schedule of maintenance tasks and cost estimates based upon 2012 prices is shown below in Table 7.

Table 7. Long-Term Management Schedule And Costs

Maintenance Item	Requirement	Acres	% of Area	\$ Cost/Unit	Schedule	Yearly Cost
Prescribed Burning	1 Visit	187	50%	\$10/Acre	Every 2 Years	\$468
Tree & Shrub Supplemental Plantings	109 per Acre	125	1.5%	\$25/Plant	Every 2 Years	\$2,555
Herbaceous Supplemental Plantings	1,742 per Acre	187	1%	\$3/Plant	Every 2 Years	\$4,887
Buffer Reseeding	20 # PLS / Acre	5	5%	\$50/Acre	Yearly	\$13
Water Control Berm Maintenance	1 Visit	N/A	N/A	\$500/Visit	Yearly	\$500
Timber Stand Improvement	1 Visit	136	100%	\$100/Acre	Every 10 Years	\$1,360
Buffer Mowing	1 Visit	5	100%	\$50/Acre	Every 2 Years	\$125
Invasive Species Removal	2 Visits	212	1%	\$150	Twice Per Year	\$636
Trash Removal	1 Visit	N/A	N/A	\$300	Every 2 Years	\$150
Miscellaneous	1 Visit	N/A	N/A	\$250	Yearly	\$250
					Yearly Total	\$10,944

Long-term management will be paid from funds accumulated from credit sales. Long-term management financial assurances will be established to guarantee that the necessary management activities occur should the Sponsor be unable to accomplish those tasks. These long-term management financial assurances are described in Section IV.L.2.

There are no long-term plans to transfer title of the property to another party. However, if the Sponsor encounters a future inability to maintain the long-term management of the Bank (e.g., due to a planned transfer of the necessary interest in the land or intent to transfer the long-term management of the Bank) to a currently unknown entity, the



Sponsor will notify the Corps prior to the transfer of the long-term management responsibilities. In addition, the appropriate long-term management funding mechanism will be determined at that time which will comply with the requirements outlined in the Final Mitigation Rule at 33 CFR 332.7(d). It is the intention of the Sponsor to maintain the property in perpetuity as highly functioning habitat in accordance with the terms of the long-term management plan and conservation easement which will be held by the Midwest Mitigation Oversight Association. The site's conservation easement shall stay with the property in the instance that the title to the property is transferred to another party and any new property owner would be bound by all requirements of this document.

K. Adaptive Management Plan

If the site cannot be constructed in accordance with the Bank Development Plan included in Appendix D, the Sponsor will notify the Corps. Any significant modifications in the Bank Development Plan must be approved by the Corps.

After initial site construction, the Sponsor shall maintain the property using an adaptive management approach that will provide flexibility when dealing with unforeseen issues. The Sponsor shall implement all facets of site maintenance in perpetuity. The Sponsor and Terra Technologies have extensive experience with successional plant assemblages and the Bank site will be planted with an initial planting assemblage that contains species that are adapted to early successional conditions as well as plentiful sunlight in addition to young mast hardwood plantings that will eventually be the dominant tree species. As the site matures and as shaded conditions proliferate, the Sponsor shall continue to plant herbaceous and woody species at the site that are appropriate to each successional stage in order to accentuate the species assemblages as deemed appropriate given the site conditions at the time of assessment. The Sponsor is prepared to remove softwood species if necessary if they become overly prevalent as appropriate for the long-term management of the site.

Additionally, if the site is not able to be constructed or maintained to match the Bank Development Plan or if site monitoring and maintenance activities determine that the project as planned is unable to meet the ecological performance standards contained in Section IV.H, then the Sponsor will approach the Corps with suggestions of design changes, site modifications or revisions to monitoring or maintenance requirements in order to ensure that the Bank provides aquatic resource benefits similar to the objectives described in Section IV.A. If necessary, the ecological performance standards contained in Section IV.H may have to be revised to address deficiencies in the compensatory mitigation project or in management strategies or objectives if the new standards provide for ecological benefits that are comparable or superior to the approved compensatory mitigation project. No other revisions to performance standards will be allowed except in the case of natural disasters as described in Section VIII.A.



L. Financial Assurances

1. Short-Term Financial Assurances

The Sponsor agrees to provide the following short-term financial assurances for the work described in this Mitigation Banking Instrument. The Sponsor shall provide the sum of US\$83,850 as an irrevocable letter of credit from a financial institution that is a member of the Federal Deposit Insurance Corporation to the Midwest Mitigation Oversight Association, a non-profit group that will monitor compliance with the conservation easement. The irrevocable letter of credit be automatically renewed on an annual basis and will state that the Corps will receive notification of at least 120 calendar days in advance of any termination or revocation of said letter.

These short-term financial assurance funds shall be termed contingency funds and shall be used by a third party to be designated by the Midwest Mitigation Oversight Association in the event that the Sponsor fails to comply with the terms of this Banking Instrument or to rectify any unforeseen events as determined by the Corps, in consultation with the IRT. The Sponsor will submit an annual statement regarding the state of the short-term financial assurance funding to the Corps along with the annual credit ledger report as described in Section VII.C. A standby trust account will be established to hold the funds paid by the short-term financial assurance provider to be used by the Midwest Mitigation Oversight Association in accordance with the Corps' instructions of how to rectify any site deficiency should the Sponsor not be able to perform those duties.

The said sum shall be reduced to \$20,975 (25% of the initial short-term financial assurances) after the Corps, in consultation with the IRT, has agreed that the Bank has completed all initial construction and planting activities and has had several years of successful monitoring results. This shall occur at the time of Credit Release #5. The remaining contingency funds shall remain until the Sponsor receives a letter from the Corps, in consultation with the IRT, stating that they are satisfied that the Bank is sustainable and has met all of its performance standards. This shall occur at the termination of the Operation and Maintenance phase of the Bank and the initiation of the Long-Term Management phase of the Bank which will occur at a point fifteen (15) years after approval of the final banking instrument or until all credits have been sold (unless the remaining credits are indefinitely suspended or removed), whichever is later. The terms of the irrevocable letters of credit for the short-term and long-term financial assurances are not tied to a defined period of time. Instead, the irrevocable letters of credit are only changed as a result of a specified event, which in the case of the Bank is the receipt of correspondence from the Corps stating that the amount of the irrevocable letter of credit can be reduced or eliminated according to the terms stated in this document. A draft copy of a letter of credit is included in Appendix E.

The amount of short-term financial assurances was derived by calculating the costs necessary to perform significant remedial activities across half of the Bank and to monitor the site for five years as described below. Based on the credit release schedule identified in Section V.B, fifty percent (50%) of the anticipated credits are available for release to the Sponsor upon approval of the final banking instrument, implementation of short-term



financial assurances, recordation of the conservation easement, completion of construction and planting, approval of an as-built figure and Corps acknowledgment that the site has successfully established wetland hydrology in the desired areas as demonstrated by the Sponsor in the first monitoring report. Because the Sponsor has completed site construction several years ago, no short-term financial assurances are implemented for site construction. The Sponsor holds an unencumbered fee simple title to the bank site; therefore, no short-term financial assurances are required for land acquisition. All other credit releases are based upon monitoring reports that assess the fulfillment of performance standards and Bank success. Therefore, short-term financial assurances are provided for performing significant remedial activities across half of the Bank, those credits available for sale prior to the performance of monitoring.

Post-construction maintenance tasks at a mitigation bank include replanting of trees and shrubs, selective spraying of invasive species, site mowing, reseeding and monitoring. On several other mitigation banks owned by the Sponsor, historical averages for maintenance are as follows;

Tree/Shrub Replacement:	20% of original planting
Spraying of Invasive Species:	2% of total acreage
Mowing of Site:	Reseeded areas only
Reseeding of Site:	10% of original planting
Monitoring of Site:	\$1,750 per year

These historical averages provide guidance for future budgeted maintenance activities. For the purpose of short-term financial assurance determination, these averages are multiplied by a factor of 1.25 in order to provide additional funds for unplanned expenses including inflation.

The Bank encompasses 211.92 acres. Providing planned maintenance of fifty percent (50%) of all establishment and enhancement areas yields 105.96 acres of size. Assuming the restoration standard of 109 trees and shrubs per acre (one per 20 lineal feet) for riparian buffer restoration and forested wetland establishment and native seeding at 20 pounds pure live seed (# PLS) per acre, and utilizing standard “for-hire” installation costs, the calculated required short-term financial assurances are as follows:

Table 8. Short-Term Financial Assurances Calculation

Item	Requirement	Acres	% Failure	\$ Cost/Unit	Total Cost
Trees & Shrubs	109/Acre	105.96	20% x 1.25	\$25/Plant	\$72,185
Reseeding	20 # PLS/Acre	105.96	10% x 1.25	\$50/Acre	\$663
Mowing	1 Visit	105.96	10% x 1.25	\$50/Acre	\$662
Spraying	3 Visits	105.96	2% x 1.25	\$200/Acre	\$1,589
Monitoring	5 Years	---	---	\$1,750/Year	\$8,750
				TOTAL:	\$83,849



2. Long-Term Management Financial Assurances

The financial assurances that will be used for long-term management of the Bank after it becomes self-sustaining should the Sponsor be unable to perform those duties will be in the form of an irrevocable letter of credit that will be automatically renewed on an annual basis and adjusted yearly for inflationary costs per the Consumer Price Index. The irrevocable letter of credit will be from a financial institution that is a member of the Federal Deposit Insurance Corporation to the Midwest Mitigation Oversight Association and will contain a requirement for advance notice to the Corps prior to any cancellation by the lending authority. The starting value of these long-term management financial assurances will be US\$10,950 which is based on the values included in Table 7. These long-term management financial assurances will remain in effect until the Corps approves a statement from the Sponsor that the Bank is self-sustaining and does not need additional maintenance. An annual report of the long-term management funding will be included along with the annual ledger report submitted to the Corps summarizing all of the Bank transactions of the previous year as described in Section VI.

V. CREDIT RELEASE SCHEDULE

A. Credit Release Provisions

Credits shall be released to the Sponsor by the Corps, in consultation with the IRT, following the credit release schedule described below. As the Sponsor reaches the stated performance milestones, documentation shall be submitted to the Corps demonstrating that the appropriate milestones for credit release have been achieved along with a request for the release of credits.

The Corps, in consultation with the IRT, may modify the credit release schedule, reduce the number of available credits or suspend credit sales or transfers altogether if the Sponsor is not achieving expected performance standards or if specific requirements of the instrument have not been met.

B. Credit Release Schedule

Upon submittal of all appropriate documentation by the Sponsor and subsequent written approval by the Corps, in consultation with the other members of the IRT, it is agreed that credits will become available for use by the Sponsor or for transfer to a third party in accordance with the following schedule which is summarized in Table 9. Because the areas within the Bank that are designated for wetland credit creation or stream credit creation may achieve performance milestones at different times, the Sponsor may request the release of wetland credits and stream credits either together or separately.



Table 9. Credit Release Schedule Summary

Credit Release	Necessary Event(s)	Percentage of Credits Released
Credit Release #1	<ul style="list-style-type: none"> • Mitigation Banking Instrument approval, • Implementation of short-term financial assurances, and • Recording of conservation easement 	20%
Credit Release #2	<ul style="list-style-type: none"> • Completion of initial construction and planting, • Approval of as-built figure, and • Corps approves the first monitoring report of data collected after site construction that shows achievement of wetland hydrology performance standards at all or virtually all wetland sample locations (requirement applicable to wetland credits only) 	30%
Credit Release #3	<ul style="list-style-type: none"> • Corps approves the second monitoring report as showing achievement of wetland and/or stream performance standards. This monitoring report shall be based on data collected after approval of the final mitigation banking instrument. 	10%
Credit Release #4	<ul style="list-style-type: none"> • Corps approves the third monitoring report as showing achievement of wetland and/or stream performance standards. This monitoring report shall be based on data collected after approval of the final mitigation banking instrument. 	10%
Credit Release #5	<ul style="list-style-type: none"> • Corps approves the fourth monitoring report as showing achievement of wetland and/or stream performance standards. This monitoring report shall be based on data collected after approval of the final mitigation banking instrument. 	10%
Credit Release #6	<ul style="list-style-type: none"> • Approval of Long-Term Management Plan • Corps approves the fifth monitoring report as showing achievement of all wetland and/or stream performance standards. This monitoring report shall be based on data collected after approval of the final mitigation banking instrument. 	20%

Credit Release #1: 20% of the total number of projected wetland and stream credits shall be available for debiting immediately after all of the following are completed: (1) the final



signature is recorded on this Mitigation Banking Instrument; (2) the Corps accepts the Sponsor's demonstration of the establishment and funding of the Bank's short-term financial assurances; and (3) the Corps acknowledges receipt of the Sponsor's demonstration of the recording of a conservation easement for the Bank site.

Credit Release #2: An additional 30% of the total number of anticipated wetland and/or stream credits shall be available for debiting immediately after all of the following are completed: (1) construction and planting have been completed; (2) the Corps approves the as-built figure submitted by the Sponsor to the IRT through the Corps; and (3) the Corps approves the first monitoring report of data collected after site construction that shows achievement of wetland hydrology performance standards at all or virtually all wetland sample locations. The third requirement is applicable to wetland credits only.

Credit Releases #3, #4 & #5: An additional 30% of the total number of anticipated wetland and stream credits shall be released as the Ecological Performance Standards are met during the five-year monitoring period. This shall occur in three equal increments of 10% of the total number of anticipated wetland and/or stream credits each. In order for the Sponsor to receive each release of 10% of the total number of anticipated wetland credits, the monitoring results from one growing season, as approved by the Corps, shall show that the Bank met the Wetland Hydrology, Hydrophytic Vegetation, Vegetative Cover and Invasive Species performance standards for that year in an annual monitoring report approved by the Corps. In order for the Sponsor to receive each release of 10% of the total number of anticipated stream credits, the monitoring results from one growing season, as approved by the Corps, shall show that the Bank met all stream credit performance standards. The monitoring results necessary to trigger these three credit releases must be based on monitoring data collected after approval of the final banking instrument.

Credit Release #6: The remaining credits will be released after the Corps approves the Long-Term Management Plan (including the funding mechanism) for the Bank and also approves the results of the monitoring report based on data collected in the fifth year after approval of the mitigation banking instrument as showing that the Bank has met all Ecological Performance Standards at all monitoring points. If not all performance standards are met at a very small number of monitoring points, and the Corps decides that default proceedings are not warranted, then the Sponsor must either initiate adaptive management to remedy any deficiencies or provide the Corps a revised as-built figure as part of the accounting associated with the final credit release which could result in adjustments in the amount of credits granted in this final credit release. If the Sponsor initiates adaptive management to address deficiencies at a few select locations, the Corps, in consultation with the IRT, will have the sole discretion to release credits to the Sponsor from areas that have met all of their performance standards should that be deemed appropriate. For all stream credits to be released, any in-stream structures (should the Corps and IRT approve any that may be proposed by the Sponsor in the future) must remain intact following at least one documented bank-full flow event. The Corps may extend the monitoring period and delay the release of the final credits, or a portion thereof, should the Bank not have sufficiently met all of its Ecological Performance Standards. As described in Section VIII.A, the final amount of credits released may be



determined by the degree to which the Ecological Performance Standards are met as described should the Sponsor not be able to fully meet all performance standards after following any default proceedings.

C. Credit Release Review Schedule

The credit release approval process shall follow the schedule described in the Final Mitigation Rule (33 CFR 332.8(o)(9)). Specifically, after the Sponsor submits documentation to the Corps demonstrating that the appropriate milestones for credit release have been achieved and requests the release of credits, the Corps will provide copies of this documentation to the IRT members for review. The IRT members must provide any comments to the Corps within 15 days of receiving this documentation. However, if the Corps determines that a site visit is necessary, the IRT members must provide any comments to the Corps within 15 days of the site visit. The Corps must schedule the site visit so that it occurs as soon as it is practicable, but the site visit may be delayed by seasonal considerations that affect the ability of the Corps and the IRT to assess whether the applicable credit release milestones have been achieved. After full consideration of any comments received, the Corps will determine whether the milestones have been achieved and the credits can be released. The Corps shall make a decision within 30 days of the end of that comment period and shall notify the Sponsor and the IRT. The Corps or any IRT member will provide the Sponsor a minimum of 24 hours' notice before any compliance inspection or other visit to the Bank site.

V. CREDIT ACCOUNTING PROCEDURES

A. Use of Credits

The Corps, in consultation with the IRT as necessary, will determine the eligibility of projects to use the Bank for compensatory mitigation on a case-by-case basis. Projects that can be considered will be determined by the Corps and will include those requiring authorization under Section 404 and/or Section 401 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act, as well as mitigation projects, Supplemental Environmental Projects, unauthorized activities, non-compliance actions, and after-the-fact permits. The Corps will determine the number and type(s) of credits required to compensate for the authorized impacts of each Department of the Army permit. MDNR will determine the number and type(s) of credits required to compensate for any impacts that are solely authorized under Section 401 of the Clean Water Act.

B. Credit Ledger

The Sponsor will establish and maintain a credit ledger for the Bank in order to account for all credit transactions. This credit ledger will show all credit transactions for the Bank and will include the beginning and current balance of available credits for each credit type (wetland and stream), all additions and subtractions of credits, and any other changes in credit availability, such as additional credits released or suspended credit sales. The



Sponsor will notify the Corps in writing each time a credit transaction occurs and will supply the Corps with an updated ledger after each transaction.

VI. REPORTING

A. Monitoring Reports

The Sponsor shall submit to the Corps, for distribution to the other members of the IRT, an annual monitoring report in accordance with Regulatory Guidance Letter 08-03, and/or any future relevant guidance, for a period not less than five years after approval of the final mitigation instrument. The monitoring report will be of sufficient content to accurately describe the progress, or lack thereof, of the Bank in meeting the performance standards. Monitoring reports will include as-built drawings, maps and ground photography illustrating the site conditions and interpretation of the current site conditions. If available, approved wetland and/or stream assessment methods that provide qualitative measures of the functions of the resource will be submitted.

B. Credit Ledger Accounting Reports

A credit ledger report will be submitted to the Corps on an annual basis after the first of each calendar year and will be part of the administrative record for the Bank. The credit ledger report will show the beginning and ending balance of available credits and permitted impacts for each resource type, including types of credits debited, all additions and subtractions of credits, and any other changes in credit availability (e.g., additional credits released, credit sales suspended). The Corps will distribute copies of this ledger to the other IRT members.

C. Financial Assurances Reports

The Sponsor will also provide the Corps a report of the financial assurance funding along with the submittal of the credit ledger report. This financial assurance report will show the beginning and ending balances, including deposits into and any withdrawals from the accounts providing funds for financial assurances. The status of those assurances will also be stated as well as their potential expiration.

VII. DEFAULT AND CLOSURE PROVISIONS

A. Default Provisions

If the Corps determines that the Bank is not meeting performance standards that are expected to be achieved at the Bank's current level of development or is not complying with the terms of this Banking Instrument, appropriate action will be taken. Such actions may include, but are not limited to, suspending credit sales, adaptive management, decreasing available credits, utilizing financial assurances, and terminating the instrument.



If the Corps, in consultation with the IRT, determines that the Bank, or a specific portion of the Bank, fails to achieve the performance standards specified in Section IV.H of this Mitigation Banking Instrument, the Corps shall give written notice to the Sponsor of such violation and demand corrective action sufficient to cure the violation and, where the violation involves injury to the Bank resulting from any use or activity inconsistent with the purpose of this Mitigation Banking Instrument to restore the portion of the Bank to its prior condition in accordance with a plan approved by Corps. If the Corps determines that the Bank is operating at a deficit, the Sponsor will be notified that debiting of credits from that Bank should immediately cease. The Sponsor shall cure the violation and notify the Corps of the remedial site activities within 60 days after receipt of notice thereof from the Corps, or under circumstances where the violation cannot reasonably be cured within a 60 day period, update the Corps of the situation and begin curing such violation within the 60 day period and diligently pursue such cure to completion. In the event the Sponsor fails to implement remedial actions necessary to address a failure in meeting the performance standards or for a credit deficit within 60 calendar days, the Corps will notify the Sponsor that debiting from the Bank is indefinitely suspended and will authorize the Midwest Mitigation Oversight Association to draw on the contingency funds to implement the necessary remedial actions.

In the event that a natural disaster destroys all or part of the Bank, all debiting from the Bank shall cease immediately. Such natural disasters include floods, tornados, fires, earthquakes, droughts, disease, regional pest infestation, *etc.*, which the Corps, in consultation with the IRT, determines is beyond the control of the Sponsor to prevent or mitigate. The Sponsor shall not be responsible for restoring acreage for credits which were sold prior to any such natural disaster. However, the Sponsor shall be responsible for restoring acreage for which credits have been released to the Sponsor if those credits are unsold at the time of the natural disaster. If the damage is so severe that the Sponsor and the Corps, in consultation with the IRT, determine that project success is unattainable, then the Sponsor will not be obligated to restore any portion of the Bank and any unsold credits shall be indefinitely suspended or removed from the credit ledger.

B. Closure Provisions

Bank closure will occur when the terms and conditions of this instrument have been determined by the Corps, in consultation with the IRT, to be fully satisfied or until all credits have been debited, whichever is later. Subsequent to bank closure, site management and maintenance will remain the responsibility of the Sponsor.

If adaptive management strategies are unsuccessful and performance standards are unattainable, the Sponsor may request early closure of the Bank and forfeiture of the remaining anticipated credits.



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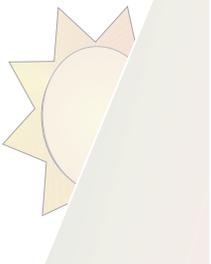
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TERRA TECHNOLOGIES

X. EXECUTION AND AGENCY CONCURRENCE

The Kansas City District, Corps of Engineers, along with the members of the Interagency Review Team, have participated with the bank sponsor (Swallow Tail, LLC) in the development of the Clear Fork Wetland and Stream Mitigation Bank and this banking instrument.

I have determined that the final banking instrument is complete and that the establishment of the Clear Fork Wetland and Stream Mitigation Bank will provide appropriate compensation for impacts to wetlands and streams associated with unavoidable impacts to these resources that result from activities authorized by the Kansas City District's issuance of Department of the Army Permits.



Mark D. Frazier, Chief
Regulatory Branch
Operations Division
Corps of Engineers

Date: 14 JAN 2014



TERRA TECHNOLOGIES

IRT CONCURRENCE:

The U.S. Environmental Protection Agency, along with the members of the Interagency Review Team, has participated with the bank sponsor (Swallow Tail, LLC) in the development of the Clear Fork Wetland and Stream Mitigation Bank and this banking instrument.

I concur that the final banking instrument is complete and that the establishment of the Clear Fork Wetland and Stream Mitigation Bank will provide appropriate compensation for impacts to wetlands and streams associated with unavoidable impacts to these resources that result from activities authorized by the Kansas City District's issuance of Department of the Army Permits.



Date: 12-6-13

Karen A. Flournoy, Director
Water, Wetlands, and Pesticides Division
U.S. Environmental Protection Agency, Region VII



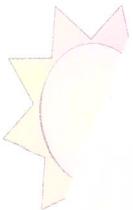
TERRA TECHNOLOGIES

IRT CONCURRENCE:

The U.S. Fish and Wildlife Service, along with the members of the Interagency Review Team, has participated with the bank sponsor (Swallow Tail, LLC) in the development of the Clear Fork Wetland and Stream Mitigation Bank and this banking instrument.

I concur that the final banking instrument is complete and that the establishment of the Clear Fork Wetland and Stream Mitigation Bank will provide appropriate compensation for impacts to wetlands and streams associated with unavoidable impacts to these resources that result from activities authorized by the Kansas City District's issuance of Department of the Army Permits.

_____ Date: _____
Amy Salveter
Field Supervisor,
U.S. Fish and Wildlife Service

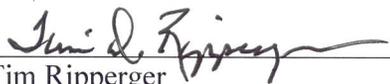


TERRA TECHNOLOGIES

IRT CONCURRENCE:

The Missouri Department of Conservation, along with the members of the Interagency Review Team, has participated with the bank sponsor (Swallow Tail, LLC) in the development of the Clear Fork Wetland and Stream Mitigation Bank and this banking instrument.

I concur that the final banking instrument is complete and that the establishment of the Clear Fork Wetland and Stream Mitigation Bank will provide appropriate compensation for impacts to wetlands and streams associated with unavoidable impacts to these resources that result from activities authorized by the Kansas City District's issuance of Department of the Army Permits.



Tim Ripperger
Deputy Director
Missouri Department of Conservation

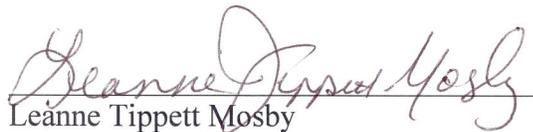
Date: 01/03/14



IRT CONCURRENCE:

The Missouri Department of Natural Resources, along with the members of the Interagency Review Team, has participated with the bank sponsor (Swallow Tail, LLC) in the development of the Clear Fork Wetland and Stream Mitigation Bank and this banking instrument.

I concur that the final banking instrument is complete and that the establishment of the Clear Fork Wetland and Stream Mitigation Bank will provide appropriate compensation for impacts to wetlands and streams associated with unavoidable impacts to these resources that result from activities authorized by the Kansas City District's issuance of Department of the Army Permits.

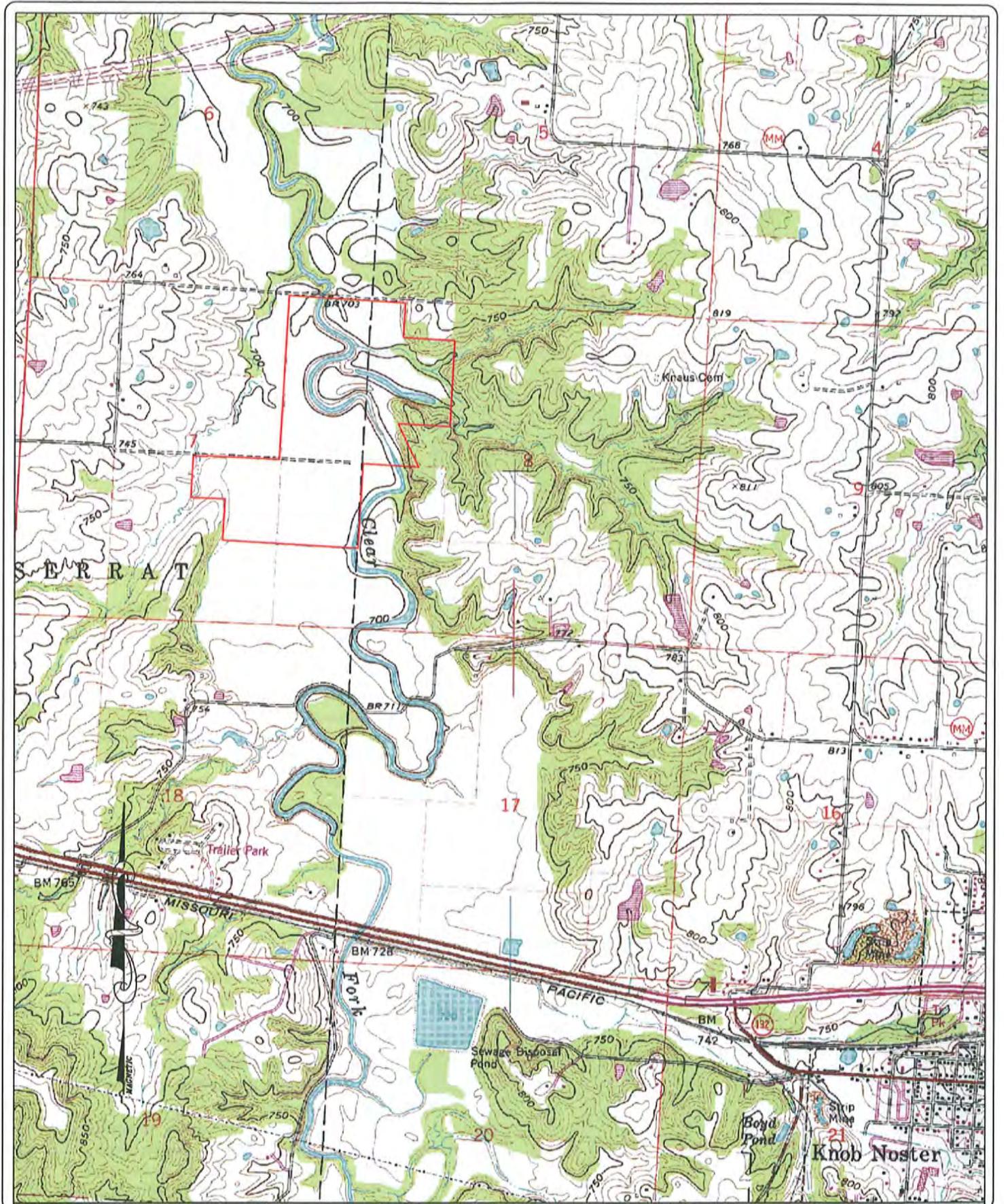


Leanne Tippett Mosby
Director, Division of Environmental Quality
Missouri Department of Natural Resources

Date: 1/7/14

APPENDIX A

FIGURES



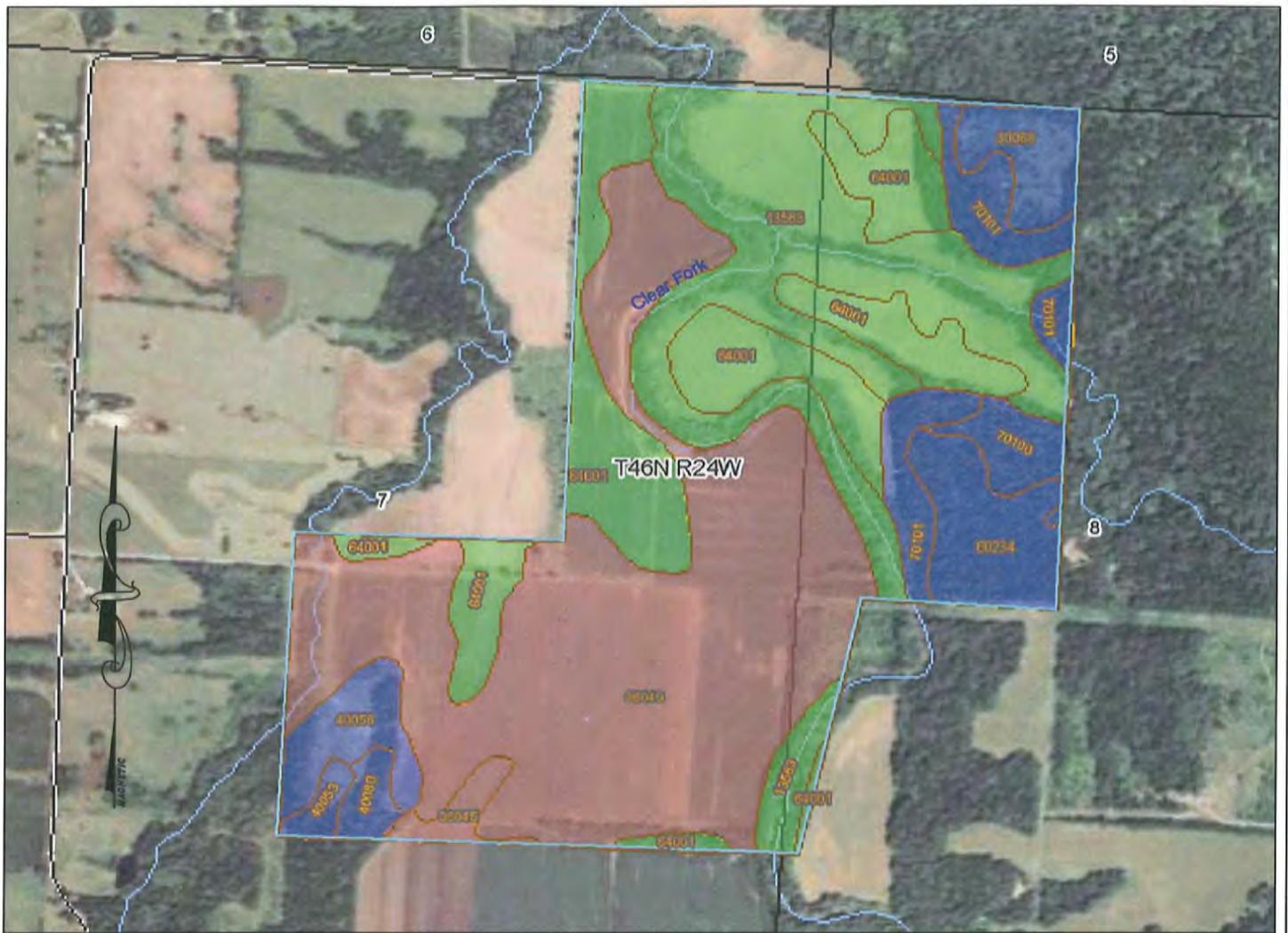
DATE	02/15/11
PROJECT	CLEAR FORK MITIGATION BANK
CLIENT	SWALLOW TAIL, LLC
SCALE	1" = 200'
BY	
CHECKED BY	
APPROVED BY	
DATE	

PROJECT	LOCATION
CLEAR FORK MITIGATION BANK	SWALLOW TAIL, LLC

FIGURE 1



Terra Technologies
 1920 W. 143rd Street, Ste. 140
 Leawood, Kansas 66224
 Tel 913.385.9560 Fax 913.385.5295



Hydric Rating by Map Unit— Summary by Map Unit — Johnson County, Missouri

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
13563	Nodaway silt loam, 0 to 2 percent slopes, occasionally flooded	Partially Hydric	55.1	21.0%
30068	Gorin silt loam, 5 to 9 percent slopes, eroded	Not Hydric	7.2	2.8%
36045	Wabash silty clay, 0 to 2 percent slopes, frequently flooded	All Hydric	3.1	1.2%
36049	Zook silty clay loam, 0 to 2 percent slopes, frequently flooded	All Hydric	104.2	39.8%
40053	Deepwater silt loam, 2 to 5 percent slopes	Not Hydric	1.9	0.7%
40056	Deepwater silt loam, 5 to 9 percent slopes, eroded	Not Hydric	7.7	2.9%
40080	Norris channery silt loam, 14 to 35 percent slopes	Not Hydric	2.7	1.0%
60234	Weller silt loam, 2 to 5 percent slopes	Not Hydric	12.4	4.7%
64001	Freeburg silt loam, 0 to 3 percent slopes, rarely flooded	Partially Hydric	49.4	18.8%
70100	Bolivar fine sandy loam, 5 to 9 percent slopes, eroded	Not Hydric	4.9	1.9%
70101	Bolivar fine sandy loam, 9 to 14 percent slopes, eroded	Not Hydric	13.3	5.1%
Totals for Area of Interest			261.9	100.0%

Soil Ratings

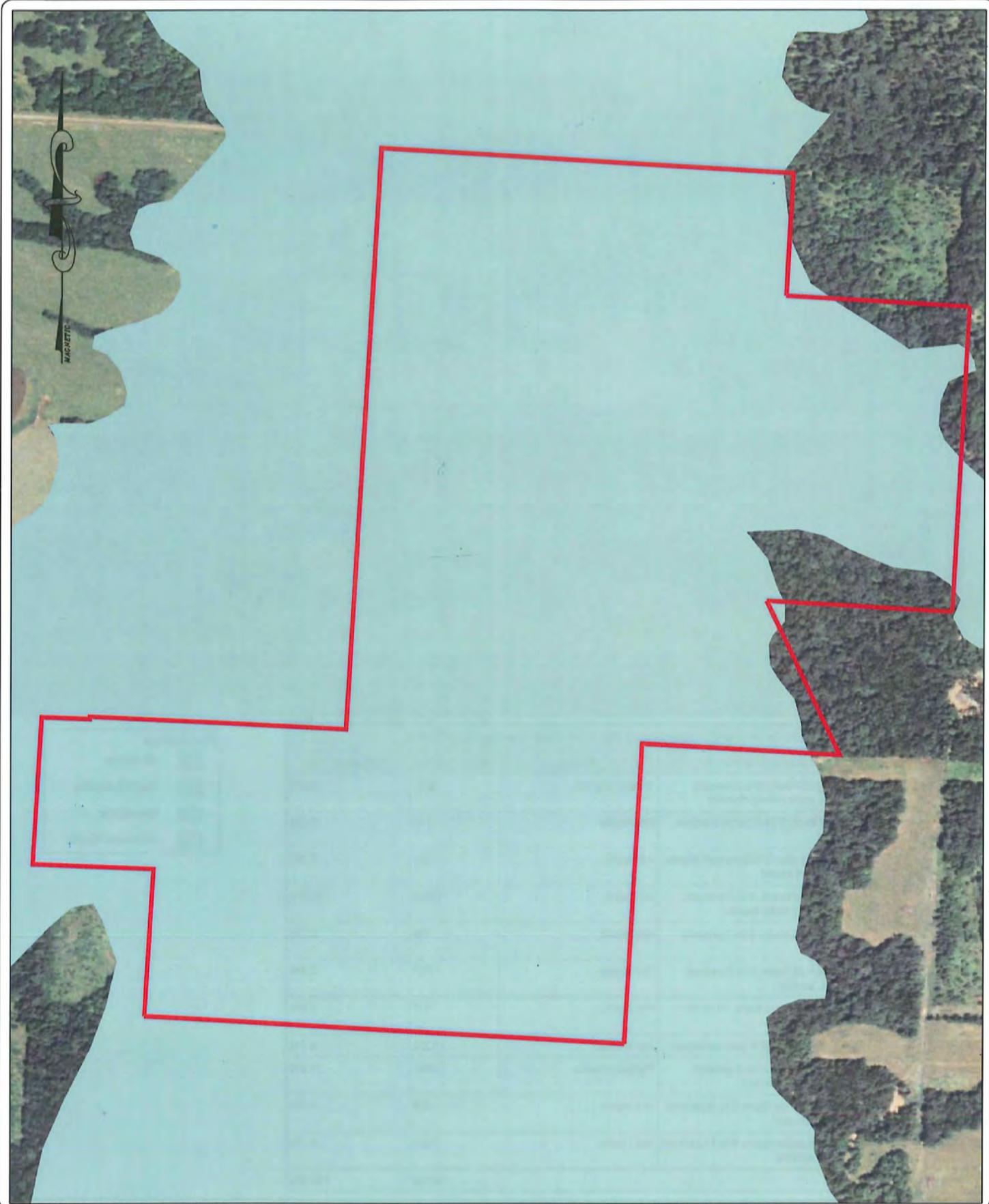
- All Hydric
- Partially Hydric
- Not Hydric
- Unknown Hydric

DATE	02/15/11
BY	SWALLOW TAIL, LLC
PROJECT	CLEAR FORK MITIGATION BANK
CLIENT	SWALLOW TAIL, LLC
SHEET NO.	HYDRIC SOILS
TOTAL SHEETS	1

FIGURE 3



Terra Technologies
 1920 W. 143rd Street, Ste. 140
 Leawood, Kansas 66224
 Tel 913.385.9560 Fax 913.385.5295



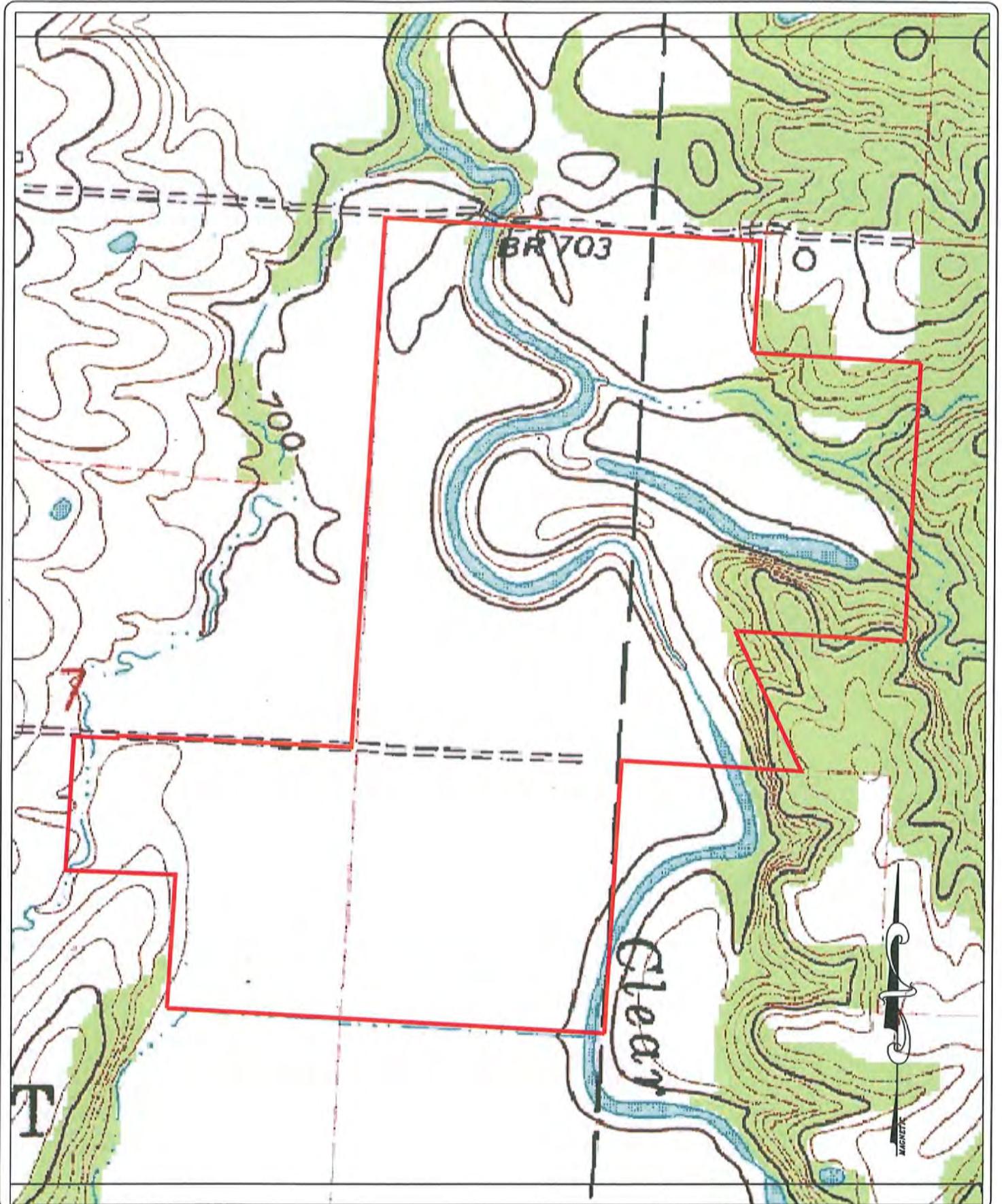
DATE	02/15/17
BY	SWALLOW TAIL, LLC
PROJECT	CLEAR FORK MITIGATION BANK
CLIENT	SWALLOW TAIL, LLC
SCALE	1" = 100'
NO. OF SHEETS	1
SHEET NO.	XXX

SHEET TITLE	100-YEAR FLOODPLAIN
PROJECT	CLEAR FORK MITIGATION BANK
CLIENT	SWALLOW TAIL, LLC

FIGURE 4



Terra Technologies
 1920 W. 143rd Street, Ste. 140
 Leawood, Kansas 66224
 Tel 913.385.9560 Fax 913.385.5295

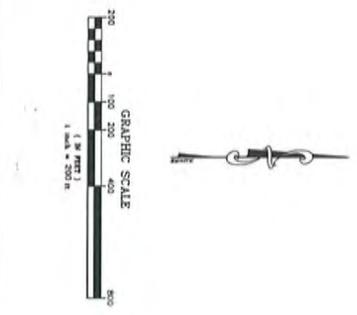
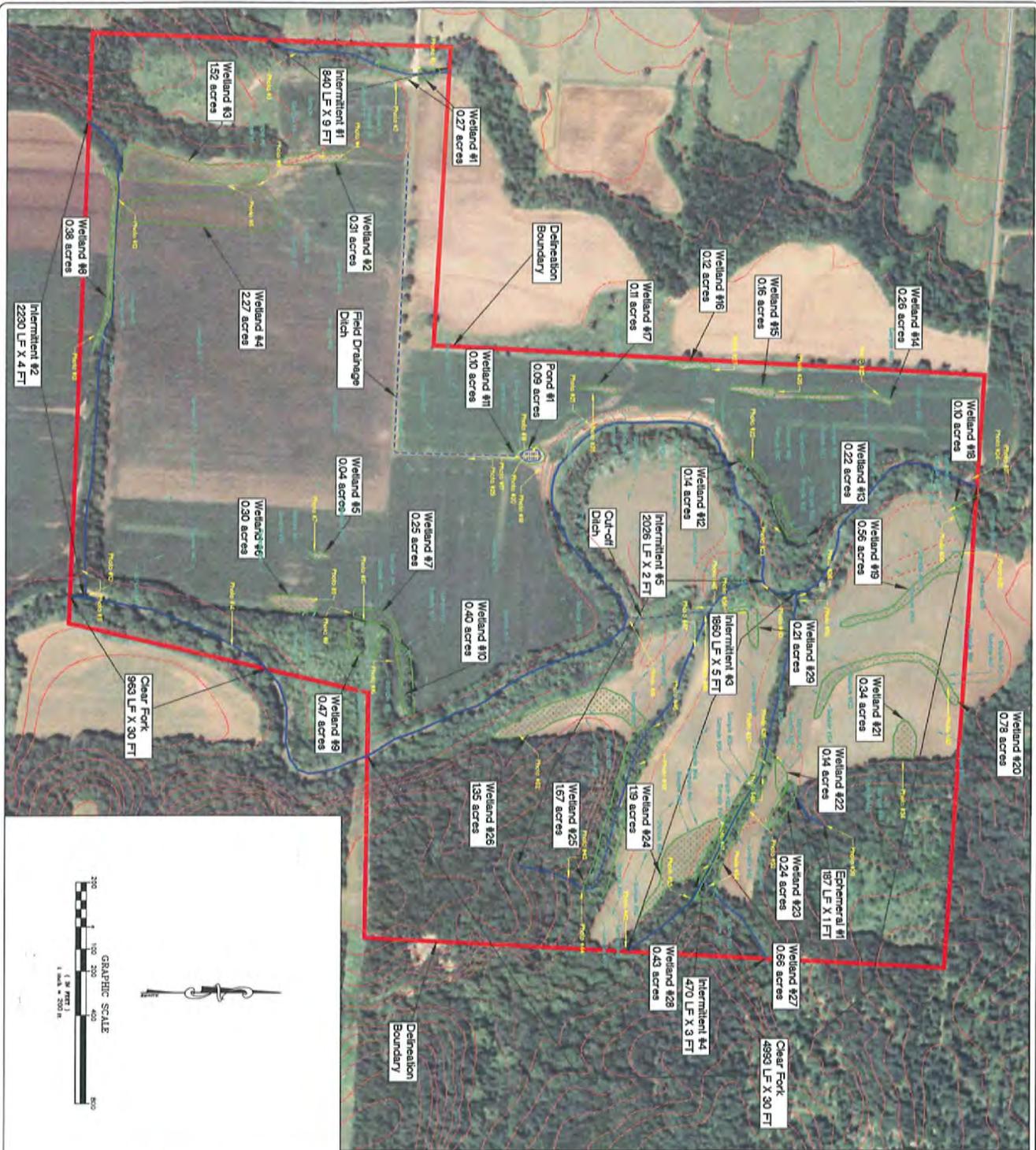


DATE	02/15/11
SCALE	AS SHOWN
PROJECT	CLEAR FORK MITIGATION BANK
CLIENT	SWALLOW TAIL, LLC
PROJECT NO.	
SHEET NO.	1
TOTAL SHEETS	1
DATE	
BY	
CHECKED	
APPROVED	
DATE	

FIGURE 5



Terra Technologies
 1920 W. 143rd Street, Ste. 140
 Leawood, Kansas 66224
 Tel 913.385.9560 Fax 913.385.5295



Site Location
 Northern Johnson County, Missouri
 T46N - R24W - S7 & S8
 240 ACRES

JURISDICTIONAL ASSESSMENT

Wetland 1: 0.27 acres (PEH)
 Wetland 2: 0.31 acres (Farmed)
 Wetland 3: 1.52 acres (Farmed)
 Wetland 4: 2.27 acres (Farmed)
 Wetland 5: 0.04 acres (Farmed)
 Wetland 6: 0.30 acres (Farmed)
 Wetland 7: 0.25 acres (Farmed)
 Wetland 8: 0.38 acres (PEH)
 Wetland 9: 0.47 acres (Scrib-Shrub)
 Wetland 10: 0.40 acres (Forested)
 Wetland 11: 0.10 acres (PEH)
 Wetland 12: 0.14 acres (Farmed)
 Wetland 13: 0.22 acres (Farmed)
 Wetland 14: 0.26 acres (Farmed)
 Wetland 15: 0.16 acres (Farmed)
 Wetland 16: 0.12 acres (Farmed)
 Wetland 17: 0.11 acres (Farmed)
 Wetland 18: 0.10 acres (Forested)
 Wetland 19: 0.56 acres (Farmed)
 Wetland 20: 0.78 acres (Farmed)
 Wetland 21: 0.34 acres (Farmed)
 Wetland 22: 0.14 acres (Farmed)
 Wetland 23: 0.24 acres (Farmed)
 Wetland 24: 1.19 acres (Farmed)
 Wetland 25: 1.67 acres (Farmed)
 Wetland 26: 1.35 acres (Farmed)
 Wetland 27: 0.66 acres (Farmed)
 Wetland 28: 0.43 acres (Forested)
 Wetland 29: 0.21 acres (Farmed)
TOTAL WETLAND AREA: 14.99 ACRES

Intermittent 1: 187 LF, OHWM: 1 FT,
 Riparian Corridor >50 FT
TOTAL EPHEMERAL LENGTH: 187 LF

Intermittent 2: 2230 LF, OHWM: 4 FT
 Intermittent 3: 1860 LF, OHWM: 5 FT
 Intermittent 4: 470 LF, OHWM: 3 FT
 Intermittent 5: 2026 LF, OHWM: 2 FT
TOTAL INTERMITTENT LENGTH: 7,426 LF

Perennial 1: (Clear Fork): 5956 LF,
 OHWM: 30 FT
TOTAL PERENNIAL LENGTH: 5,956 LF

FIGURE 7

Terra Technologies
 1920 W. 143rd St., Ste. 140
 Leawood, Kansas 66224
 Tel 913.385.9560 Fax 913.385.5295

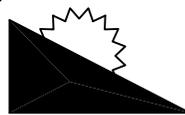
DATE	03/27/2018
BY	J.A.
PROJECT	JURISDICTIONAL ASSESSMENT
CLIENT	PROPOSED CLEAR FORK MITIGATION BANK
	SWALLOW TAIL, LLC

APPENDIX B
HISTORICAL AERIAL PHOTOGRAPHS



Historical Aerial Photo
1950

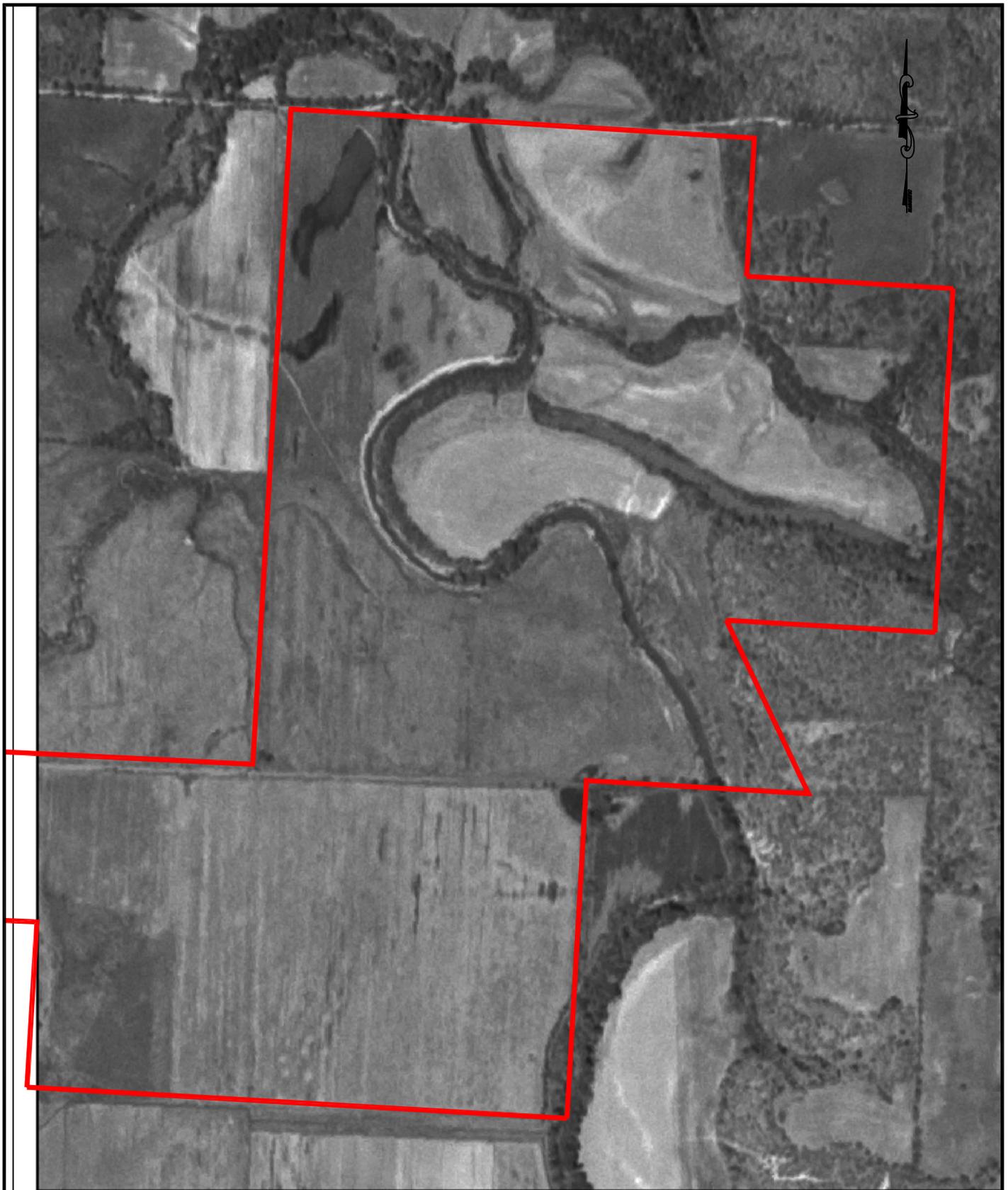
Revisions		
No.	Description	Date



**Terra
Technologies**
1920 West 143rd Street, Suite 140 Leawood, KS 66224

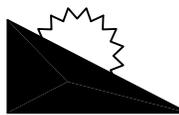
Clear Fork
Wetland & Stream
Mitigation Bank
Johnson County
Missouri

Aerial Photograph	
1950	
DRAWING	DATE
1	NOV 2012



Historical Aerial Photo
1952

Revisions		
No.	Description	Date



**Terra
Technologies**
1920 West 143rd Street, Suite 140 Leawood, KS 66224

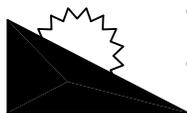
Clear Fork
Wetland & Stream
Mitigation Bank
Johnson County
Missouri

Aerial Photograph	
1952	
DRAWING	DATE
2	NOV 2012



Historical Aerial Photo
1958

Revisions		
No.	Description	Date



**Terra
Technologies**

1920 West 143rd Street, Suite 140 Leawood, KS 66224

Clear Fork
Wetland & Stream
Mitigation Bank
Johnson County
Missouri

Aerial Photograph

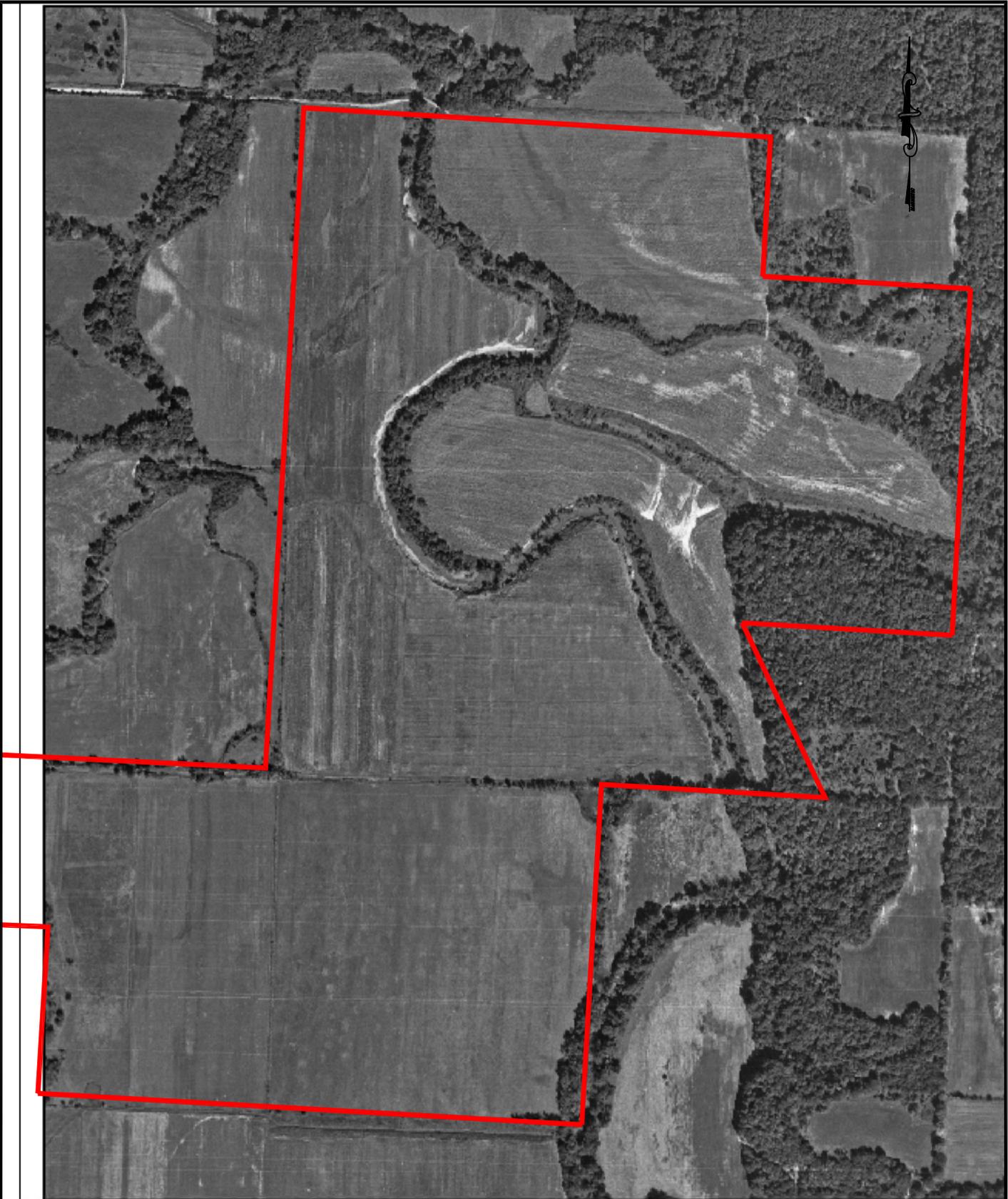
1958

DRAWING

DATE

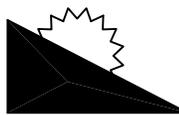
3

NOV 2012



Historical Aerial Photo
1965

Revisions		
No.	Description	Date



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1920 West 143rd Street, Suite 140 Leawood, KS 66224

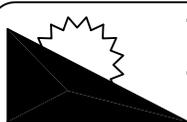
Clear Fork
Wetland & Stream
Mitigation Bank
Johnson County
Missouri

Aerial Photograph	
1965	
DRAWING	DATE
4	NOV 2012



Historical Aerial Photo
1972

Revisions		
No.	Description	Date



**Terra
Technologies**

1920 West 143rd Street, Suite 140 Leawood, KS 66224

Clear Fork
Wetland & Stream
Mitigation Bank
Johnson County
Missouri

Aerial Photograph

1972

DRAWING

DATE

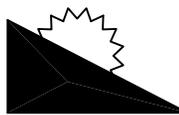
5

NOV 2012



Historical Aerial Photo
1980

Revisions		
No.	Description	Date



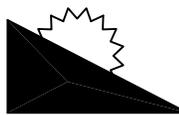
**Terra
Technologies**
1920 West 143rd Street, Suite 140 Leawood, KS 66224

Clear Fork
Wetland & Stream
Mitigation Bank
Johnson County
Missouri

Aerial Photograph	
1980	
DRAWING	DATE
6	NOV 2012



Revisions		
No.	Description	Date



**Terra
Technologies**
1920 West 143rd Street, Suite 140 Leawood, KS 66224

Clear Fork
Wetland & Stream
Mitigation Bank
Johnson County
Missouri

Aerial Photograph
March 8, 1996
DRAWING DATE
7 NOV 2012



NE 250th Rd

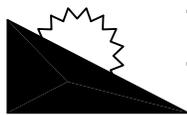


1562 ft

© 2012 Google

lat 38.793214° lon -93.593710° elev 698 ft

Revisions		
No.	Description	Date



**Terra
Technologies**
1920 West 143rd Street, Suite 140 Leawood, KS 66224

Clear Fork
Wetland & Stream
Mitigation Bank
Johnson County
Missouri

Aerial Photograph	
2002	
DRAWING	DATE
8	NOV 2012



NE 250th Rd

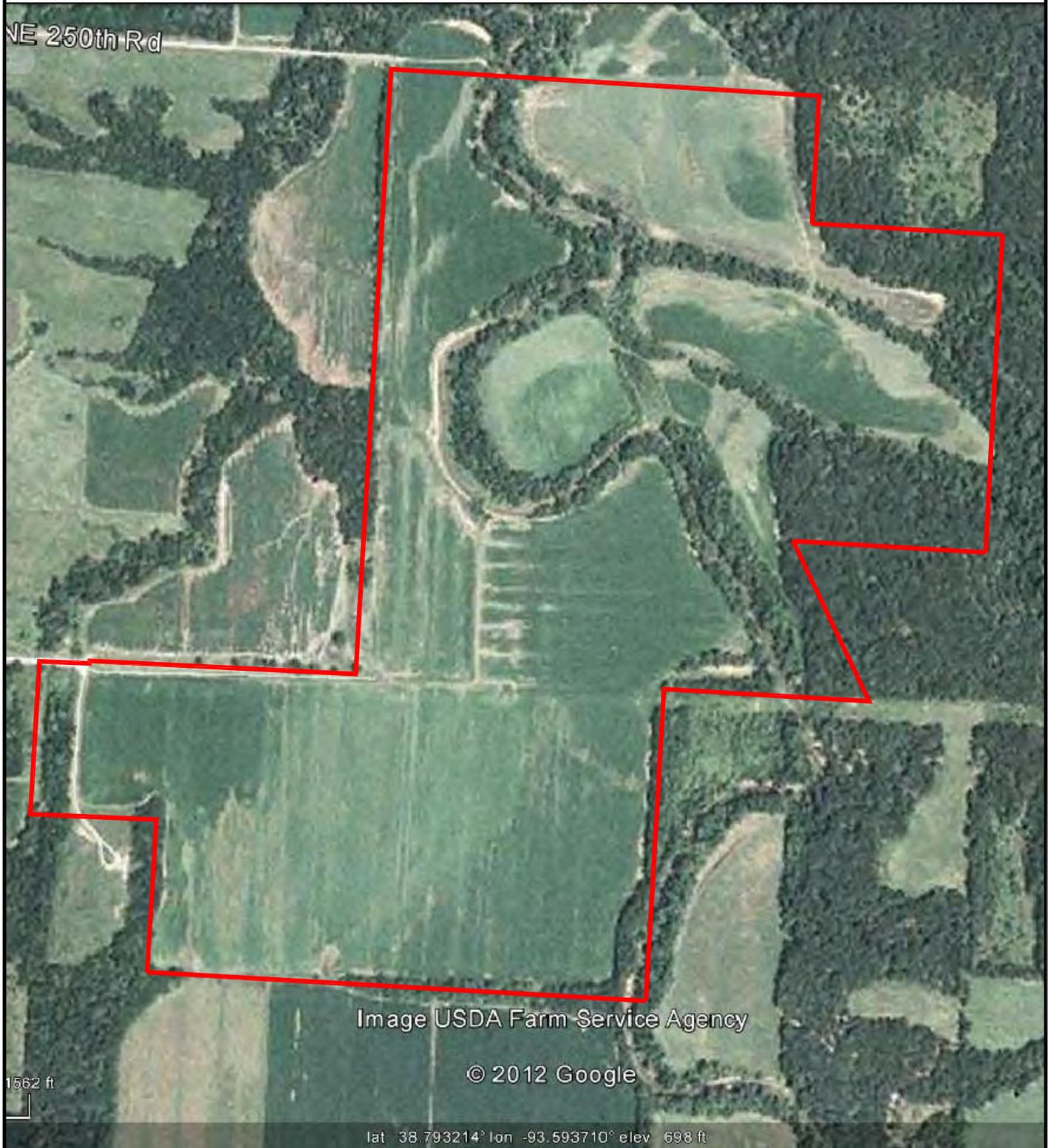


Image USDA Farm Service Agency

© 2012 Google

1562 ft

lat 38.793214° lon -93.593710° elev 698 ft

Revisions		
No.	Description	Date



**Terra
Technologies**
1920 West 143rd Street, Suite 140 Leawood, KS 66224

Clear Fork
Wetland & Stream
Mitigation Bank
Johnson County
Missouri

Aerial Photograph
July 28, 2004
DRAWING 9 DATE NOV 2012

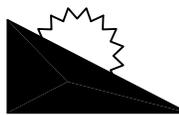


NE 250th Rd
201

Image © 2012 DigitalGlobe
© 2012 Google

1562 ft

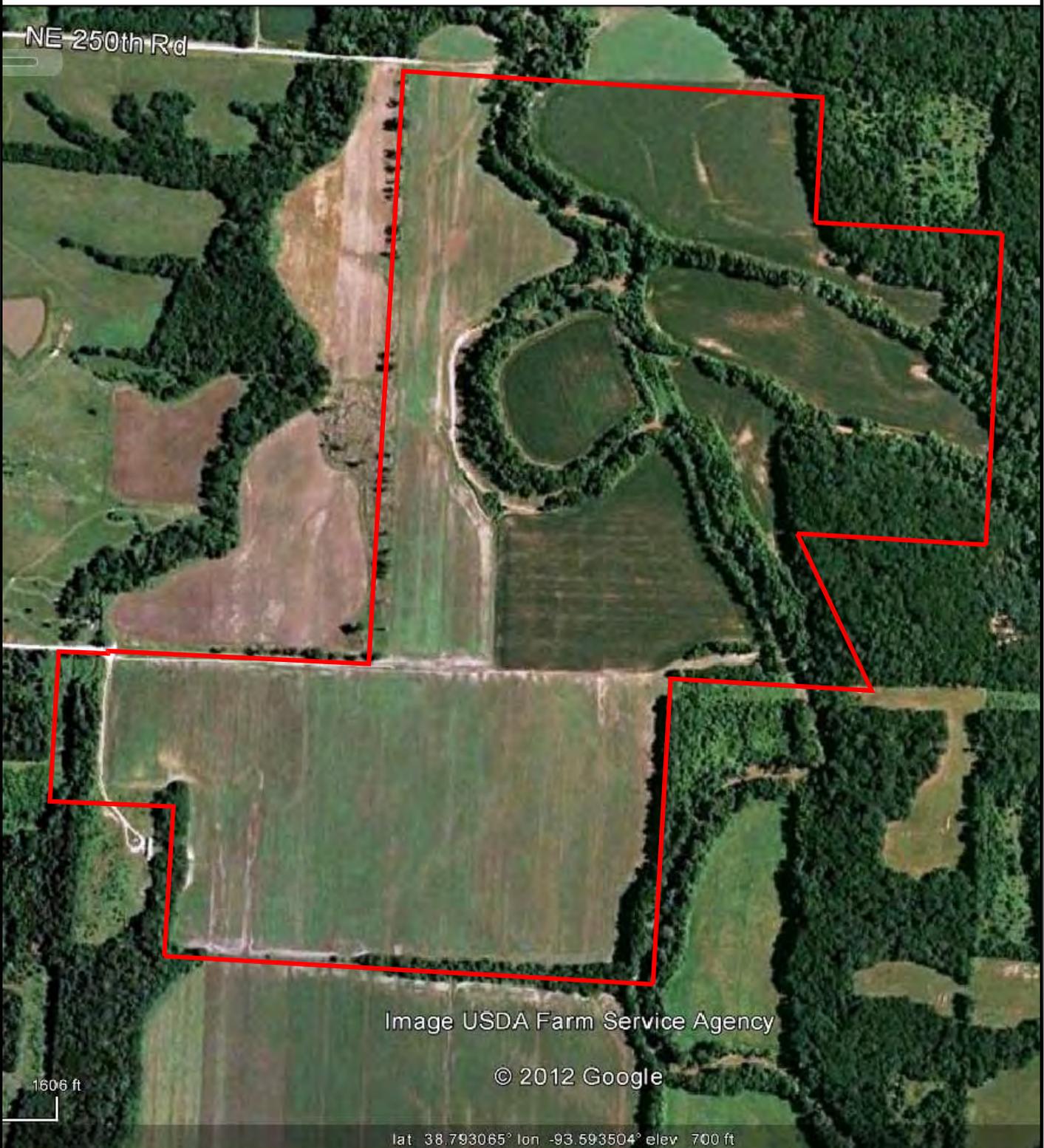
Revisions		
No.	Description	Date



**Terra
Technologies**
1920 West 143rd Street, Suite 140 Leawood, KS 66224

Clear Fork
Wetland & Stream
Mitigation Bank
Johnson County
Missouri

Aerial Photograph	
February 11, 2005	
DRAWING	DATE
10	NOV 2012



NE 250th Rd

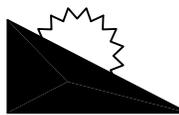
Image USDA Farm Service Agency

© 2012 Google

lat 38.793065° lon -93.593504° elev 700 ft

1606 ft

Revisions		
No.	Description	Date



Terra Technologies
1920 West 143rd Street, Suite 140 Leawood, KS 66224

Clear Fork
Wetland & Stream
Mitigation Bank
Johnson County
Missouri

Aerial Photograph	
June 14, 2005	
DRAWING	DATE
11	NOV 2012



NE 250th Rd
201

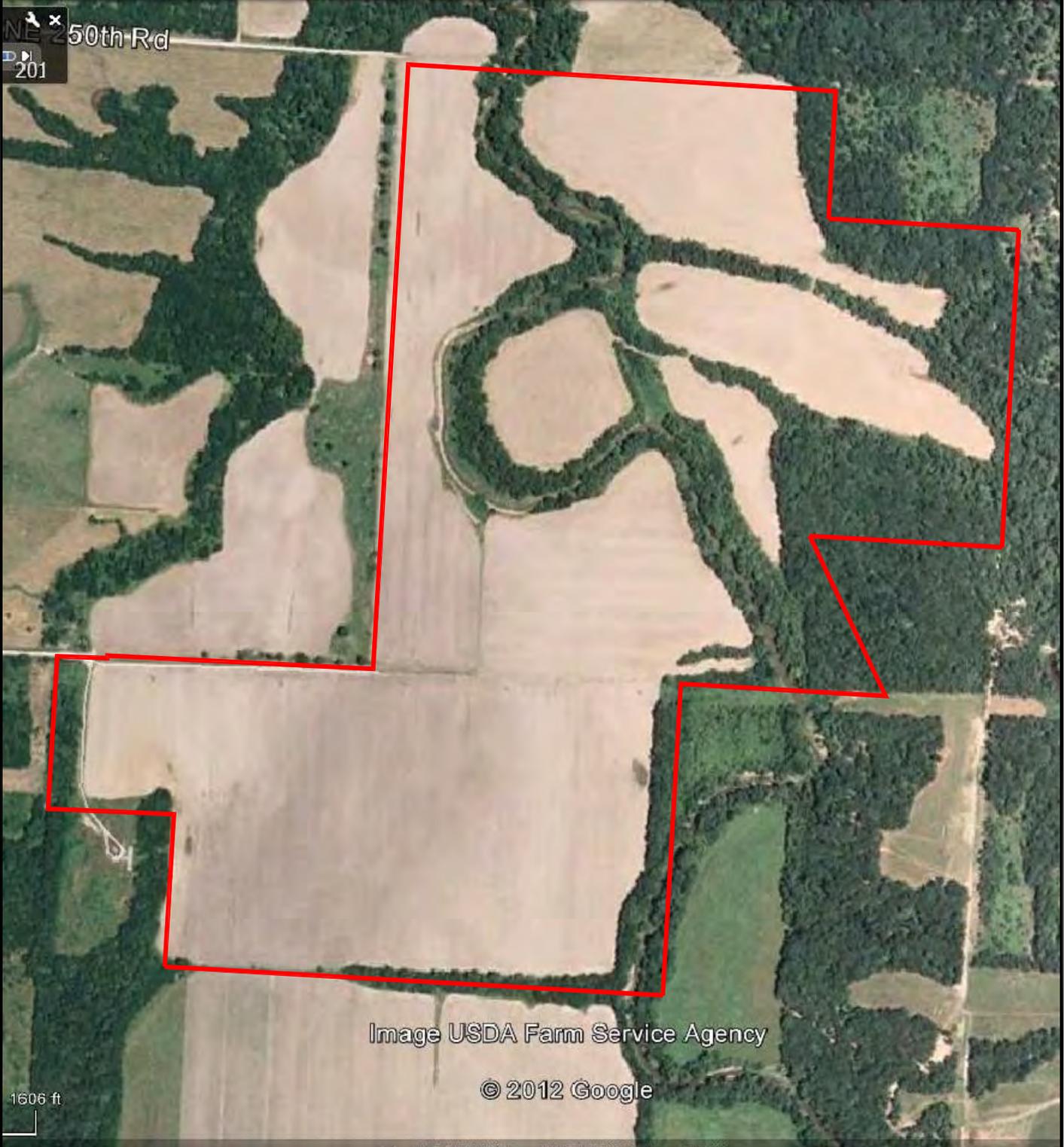
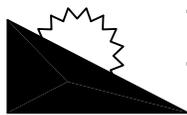


Image USDA Farm Service Agency

© 2012 Google

1606 ft

Revisions		
No.	Description	Date



**Terra
Technologies**
1920 West 143rd Street, Suite 140 Leawood, KS 66224

Clear Fork
Wetland & Stream
Mitigation Bank
Johnson County
Missouri

Aerial Photograph	
June 9, 2006	
DRAWING	DATE
12	NOV 2012



NE 250th Rd

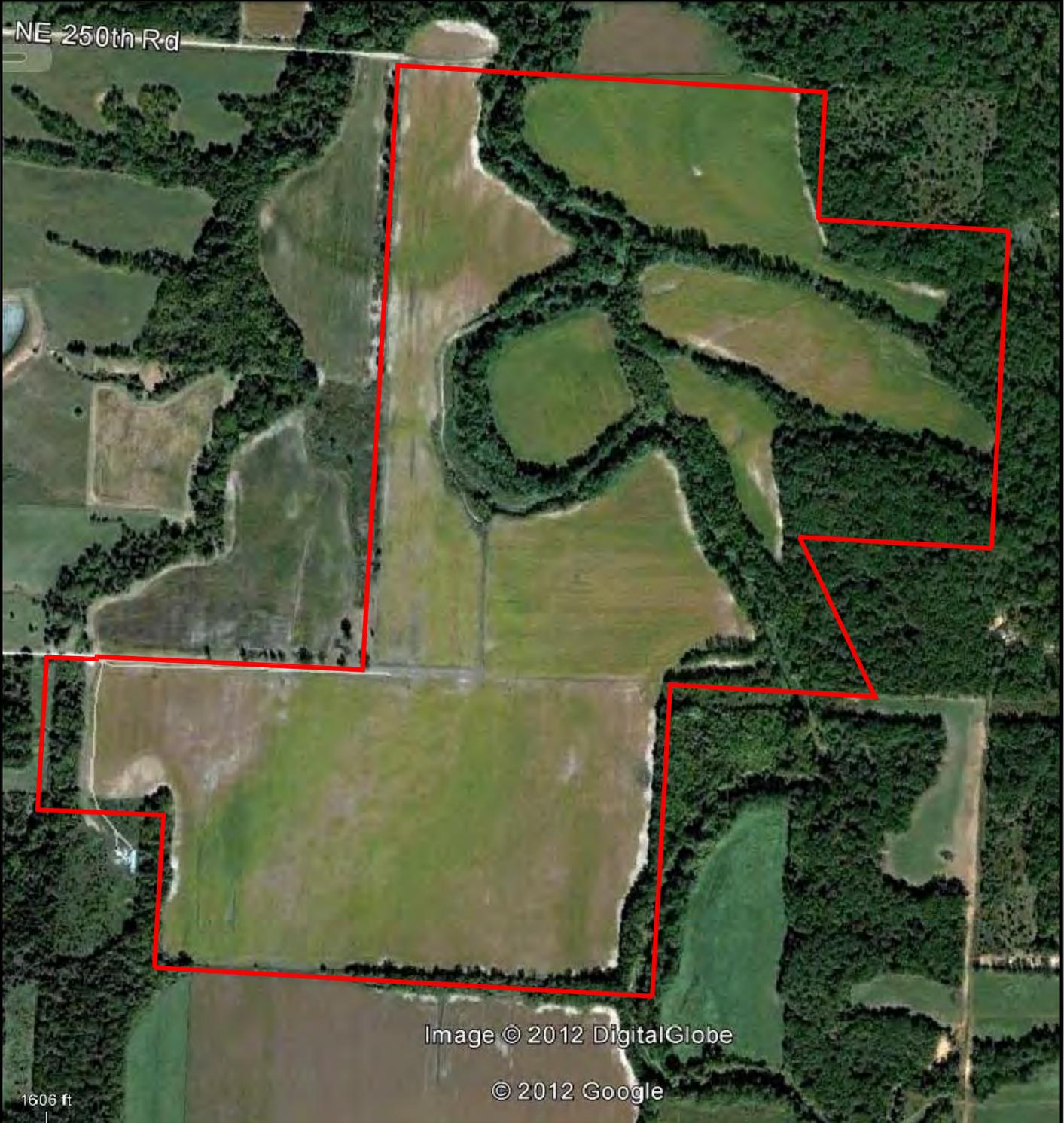
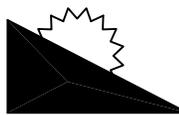


Image © 2012 DigitalGlobe

© 2012 Google

1606 ft

Revisions		
No.	Description	Date



**Terra
Technologies**
1920 West 143rd Street, Suite 140 Leawood, KS 66224

Clear Fork
Wetland & Stream
Mitigation Bank
Johnson County
Missouri

Aerial Photograph	
September 30, 2006	
DRAWING	DATE
13	NOV 2012



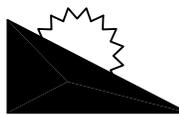
NE 250th Rd
201

Image USDA Farm Service Agency

© 2012 Google

1606 ft

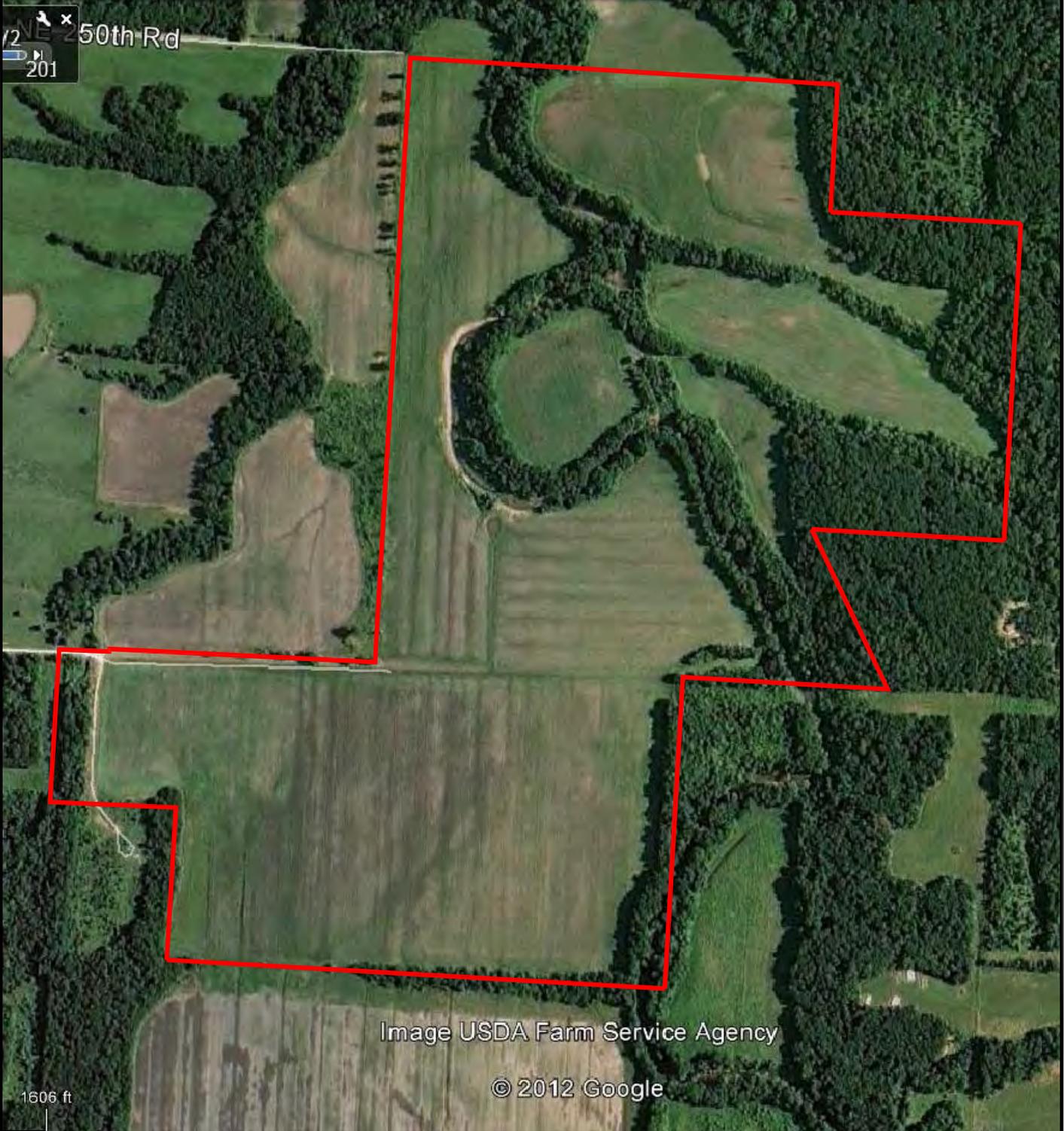
Revisions		
No.	Description	Date



**Terra
Technologies**
1920 West 143rd Street, Suite 140 Leawood, KS 66224

Clear Fork
Wetland & Stream
Mitigation Bank
Johnson County
Missouri

Aerial Photograph	
June 14, 2007	
DRAWING	DATE
14	NOV 2012



201

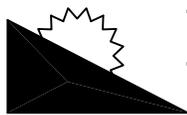
50th Rd

Image USDA Farm Service Agency

© 2012 Google

1606 ft

Revisions		
No.	Description	Date



**Terra
Technologies**
1920 West 143rd Street, Suite 140 Leawood, KS 66224

Clear Fork
Wetland & Stream
Mitigation Bank
Johnson County
Missouri

Aerial Photograph	
June 15, 2009	
DRAWING	DATE
15	NOV 2012



Click to open the time op
201

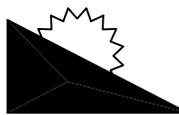


Image USDA Farm Service Agency

© 2012 Google

1606 ft

Revisions		
No.	Description	Date



**Terra
Technologies**
1920 West 143rd Street, Suite 140 Leawood, KS 66224

Clear Fork
Wetland & Stream
Mitigation Bank
Johnson County
Missouri

Aerial Photograph	
July 8, 2010	
DRAWING	DATE
16	NOV 2012

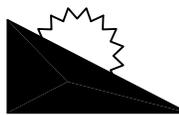


NE 250th Rd
201

© 2012 Google

lat 38.793065° lon -93.593504° elev 700 ft

Revisions		
No.	Description	Date



**Terra
Technologies**
1920 West 143rd Street, Suite 140 Leawood, KS 66224

Clear Fork
Wetland & Stream
Mitigation Bank
Johnson County
Missouri

Aerial Photograph	
August 27, 2012	
DRAWING	DATE
17	NOV 2012

APPENDIX C
PHOTOGRAPHIC DOCUMENTATION

PHOTO LOG

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: CG	
COMMENTS: Photo of Intermittent # 1 just off the property boundary. OHWM of I-1 averages 9 feet. View faces South.	
PHOTO #: 1	

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: CG	
COMMENTS: Photo of emergent Wetland # 1. W-1 exists as a linear wetland along Intermittent # 1. View faces West.	
PHOTO #: 2	

PHOTO LOG

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: CG	
COMMENTS: Photo of Intermittent # 1 further upstream. View faces Northwest.	
PHOTO #: 3	

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: CG	
COMMENTS: Photo of farmed Wetland # 2. View faces South.	
PHOTO #: 4	

PHOTO LOG

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: CG	
COMMENTS: Photo of farmed Wetland # 3. View faces Southwest.	
PHOTO #: 5	

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: CG	
COMMENTS: Photo of farmed Wetland # 4. View faces Southeast.	
PHOTO #: 6	

PHOTO LOG

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: CG	
COMMENTS: Photo of farmed Wetland # 5. View faces East.	
PHOTO #: 7	

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: CG	
COMMENTS: Photo of farmed Wetland # 6. View faces South.	
PHOTO #: 8	

PHOTO LOG

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: CG	
COMMENTS: Photo of farmed Wetland # 7. View faces Northeast.	
PHOTO #: 9	

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: CG	
COMMENTS: Photo of confluence of Intermittent # 2 with Clear Fork. OHWM of I-2 averages 4 feet. View faces Southeast.	
PHOTO #: 10	

PHOTO LOG

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: CG	
COMMENTS: Photo of Intermittent # 2 further upstream. View faces Southwest.	
PHOTO #: 11	

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: CG	
COMMENTS: Photo of emergent Wetland # 8 within the margin of Intermittent # 2. View faces Northwest.	
PHOTO #: 12	

PHOTO LOG

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: CG	
COMMENTS: Photo of Intermittent # 2 entering the parcel in the far southwest corner. View faces Southwest.	
PHOTO #: 13	

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: CG	
COMMENTS: Photo of Clear Fork further downstream. View faces East.	
PHOTO #: 14	

PHOTO LOG

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: CG	
COMMENTS: Photo of shrub Wetland # 9. View faces East.	
PHOTO #: 15	

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: CG	
COMMENTS: Photo of NWI mapped forested Wetland # 10. View faces North.	
PHOTO #: 16	

PHOTO LOG

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: CG	
COMMENTS: Photo of Pond # 1 surrounded by farmed fringe Wetland # 11. View faces North.	
PHOTO #: 17	

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: CG	
COMMENTS: Photo of Pond # 1 spillway. View faces North.	
PHOTO #: 18	

PHOTO LOG

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: CG	
COMMENTS: Photo of spillway from Pond # 1 emptying into Clear Fork. View faces Northwest.	
PHOTO #: 19	

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: CG	
COMMENTS: Photo of erosional feature with no OHWM along Clear Fork. View faces Northwest.	
PHOTO #: 20	

PHOTO LOG

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: CG	
COMMENTS: Photo of Clear Fork further downstream. View faces Northeast.	
PHOTO #: 21	

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: CG	
COMMENTS: Photo of farmed Wetland # 12. View faces East.	
PHOTO #: 22	

PHOTO LOG

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: CG	
COMMENTS: Photo of farmed Wetland # 13. View faces Northeast.	
PHOTO #: 23	

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: CG	
COMMENTS: Photo of low-water crossing along Clear Fork. View faces Southeast.	
PHOTO #: 24	

PHOTO LOG

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: CG	
COMMENTS: Photo of farmed Wetland # 14. View faces Northeast.	
PHOTO #: 25	

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: CG	
COMMENTS: Photo of farmed Wetland # 15. View faces South.	
PHOTO #: 26	

PHOTO LOG

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: CG	
COMMENTS: Photo of farmed Wetland # 16. View faces South.	
PHOTO #: 27	

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: CG	
COMMENTS: Photo of farmed Wetland # 17. View faces West.	
PHOTO #: 28	

PHOTO LOG

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: CG	
COMMENTS: Photo of field drainage ditch. View faces South.	
PHOTO #: 29	

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: GW	
COMMENTS: Photo of forested Wetland # 19. View faces Northwest.	
PHOTO #: 30	

PHOTO LOG

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: GW	
COMMENTS: Photo of condition of agricultural field east of Clear Fork. View faces Southeast.	
PHOTO #: 31	

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: GW	
COMMENTS: Photo of farmed Wetland # 19. The wetland is indicated on the NWI map. View faces South.	
PHOTO #:32	

PHOTO LOG

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: GW	
COMMENTS: Photo of farmed Wetland # 20. View faces West.	
PHOTO #: 33	

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: GW	
COMMENTS: Photo of farmed Wetland # 21. View faces West.	
PHOTO #: 34	

PHOTO LOG

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: GW	
COMMENTS: Photo of the confluence of Intermittent # 3 with Clear Fork. OHWM of I-3 averages 5 feet. View faces South.	
PHOTO #: 35	

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: GW	
COMMENTS: Photo of Intermittent # 1 upstream of previous photo. View faces Southeast.	
PHOTO #: 36	

PHOTO LOG

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: GW	
COMMENTS: Photo of erosional swale connecting to Intermittent # 3. View faces Northeast.	
PHOTO #: 37	

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: GW	
COMMENTS: Photo of farmed Wetland # 22 and forested Wetland # 23 in the background. View faces Northeast.	
PHOTO #: 38	

PHOTO LOG

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: GW	
COMMENTS: Photo of Ephemeral # 1. Ephemeral # 1 empties into Wetland # 23 and connects to Intermittent # 3 via the erosional swale seen in Photo # 37. OHWM of E-1 averages 2 feet. View faces Southwest.	
PHOTO #: 39	

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: GW	
COMMENTS: Photo of field crossing along Intermittent # 3. View faces West.	
PHOTO #: 40	

PHOTO LOG

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: GW	
COMMENTS: Photo of farmed Wetland # 24. View faces Southeast.	
PHOTO #: 41	

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: GW	
COMMENTS: Photo of Intermittent # 3 entering the property. View faces East.	
PHOTO #: 42	

PHOTO LOG

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: GW	
COMMENTS: Photo of forested Wetland # 25 along slough south of Intermittent # 3. View faces Southwest.	
PHOTO #: 43	

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: GW	
COMMENTS: Photo of Intermittent # 5 emptying into forested Wetland # 25. OHWM of E-5 averages 2 feet. View faces West.	
PHOTO #: 44	

PHOTO LOG

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: GW	
COMMENTS: Photo of Intermittent # 5 upstream of the previous photo. View faces East.	
PHOTO #: 45	

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: GW	
COMMENTS: Photo of Intermittent # 5. View faces Southeast.	
PHOTO #: 46	

PHOTO LOG

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: GW	
COMMENTS: Photo of farm crossing along Intermittent # 5. View faces East.	
PHOTO #: 47	

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: GW	
COMMENTS: Photo of agricultural drainage ditch created by previous landowner. View faces South.	
PHOTO #: 48	

PHOTO LOG

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: GW	
COMMENTS: Photo of cut-off ditch emptying into Intermittent # 5. View faces West.	
PHOTO #: 49	

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: GW	
COMMENTS: Photo of the confluence of Intermittent # 5 with Clear Fork. View faces Southwest.	
PHOTO #: 50	

PHOTO LOG

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: GW	
COMMENTS: Photo of confluence of drainage ditch with Clear Fork. View faces Southwest.	
PHOTO #: 51	

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: GW	
COMMENTS: Photo of farmed Wetland # 26. View faces Southwest.	
PHOTO #: 52	

PHOTO LOG

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: GW	
COMMENTS: Photo of forested Wetland # 27. View faces Southwest.	
PHOTO #: 53	

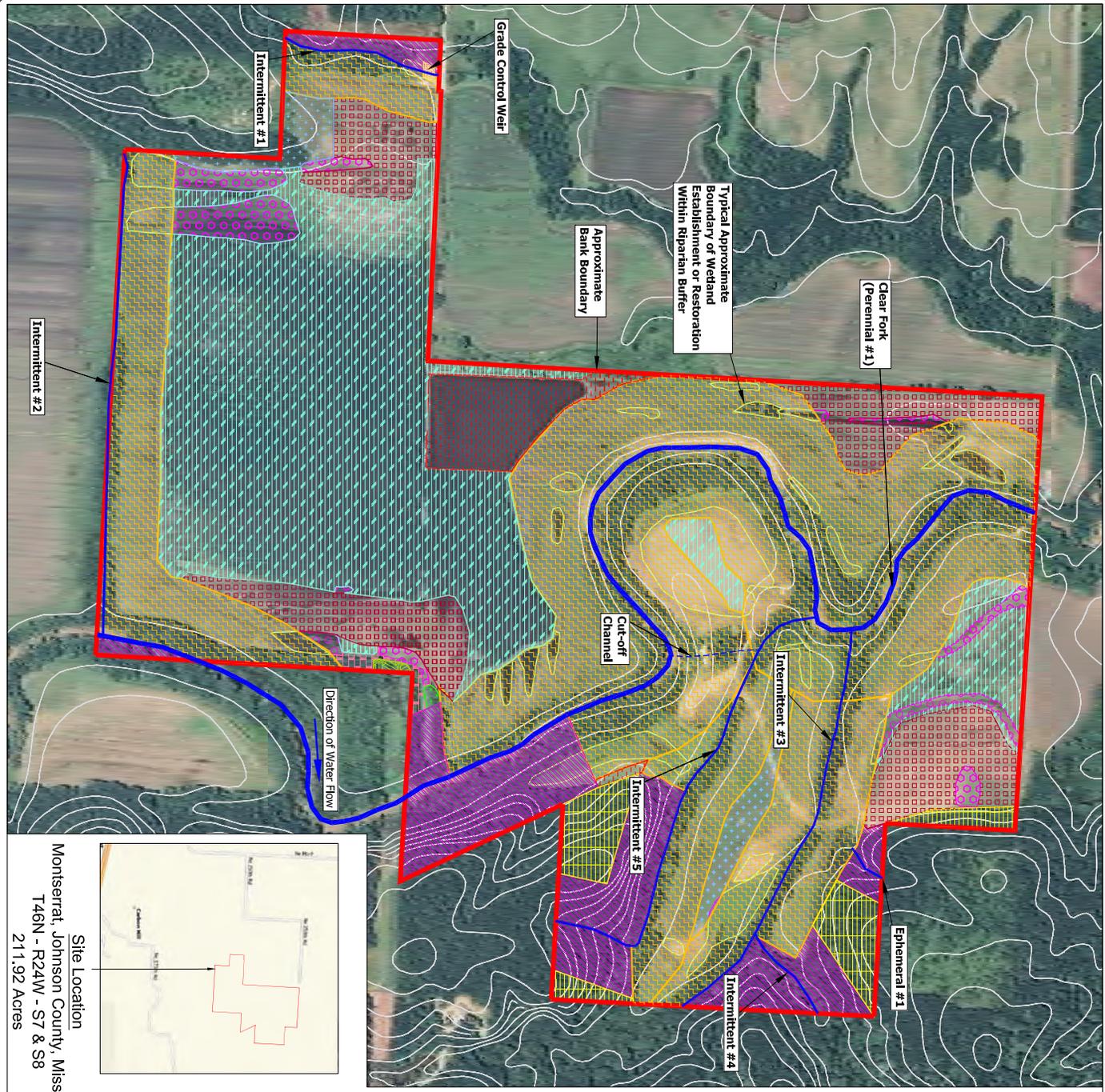
DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: GW	
COMMENTS: Photo of confluence of Intermittent # 3 and 4. OHWM of I-4 averages 3 feet. View faces Southeast.	
PHOTO #: 54	

PHOTO LOG

DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: GW	
COMMENTS: Photo of Intermittent # 4 further upstream, near parcel boundary. View faces Northeast.	
PHOTO #: 55	

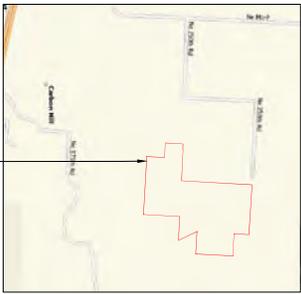
DATE: 06/25/2008	SITE NAME: Clear Fork Wetland & Stream Mitigation Bank
TAKEN BY: GW	
COMMENTS: Photo of farmed Wetland # 28. View faces North.	
PHOTO #: 56	

APPENDIX D
BANK DEVELOPMENT PLAN



Note: Wetlands Within a Riparian Buffer Are Counted Within The Acreage Total For Riparian Buffer Restoration or Riparian Buffer Enhancement And Are Not Proposed For Wetland Credit.

	Riparian Buffer Restoration	97.41 Acres
	Riparian Buffer Enhancement	19.40 Acres
	Herbaceous Wetland Establishment	55.16 Acres
	Herbaceous Wetland Rehabilitation	5.35 Acres
	Forested Wetland Establishment	18.13 Acres
	Forested Wetland Enhancement	0.11 Acre
	Scrub Shrub Wetland Establishment	5.43 Acres
	Scrub Shrub Wetland Rehabilitation	0.15 Acre
	Upland Buffer Establishment	4.13 Acres
	Upland Buffer Enhancement	0.60 Acre
	Upland Buffer Preservation	5.77 Acres
	Stream Channel	
	U.S. Geological Survey 10-Foot Contour	



Site Location
 Montserrat, Johnson County, Missouri
 T46N - R24W - S7 & S8
 211.92 Acres

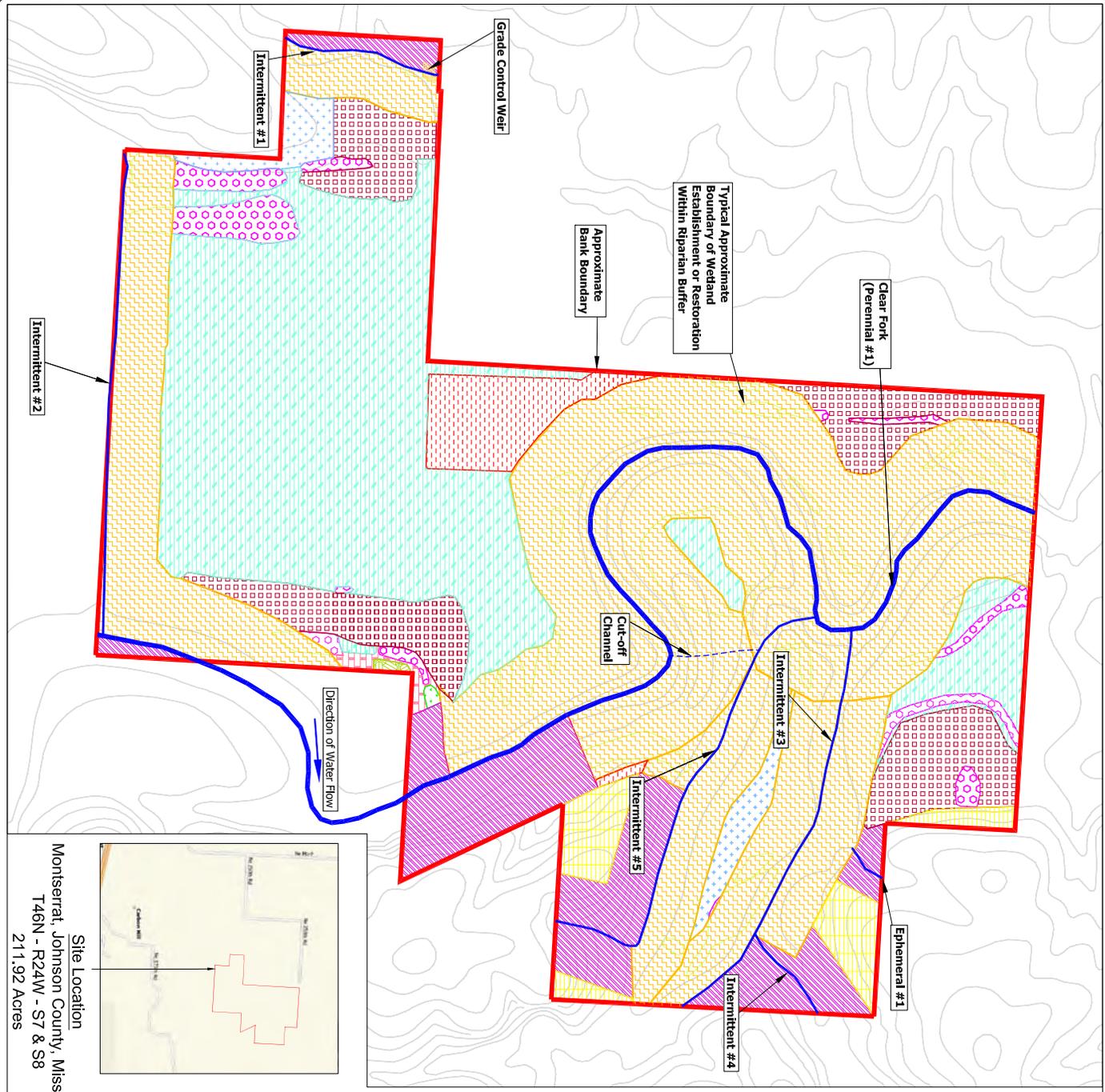


DATE	09/12/08
DESIGNED BY	SKS
CHECKED BY	SKS
SHEET NO.	1
TITLE	RESTORATION DESIGN
PROJECT	CLEAR FORK WETLAND & STREAM MITIGATION BANK
CLIENT	SWALLOW TAIL, LLC
DATE	02/26/09
REVISIONS	
10/12/10	REVISIONS
07/04/11	REVISIONS
11/07/12	REVISIONS

Terra Technologies

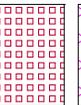
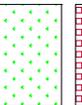
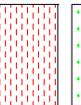
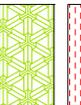
1920 W. 143rd St., Ste. 140
 Leawood, Kansas 66224

Tel 913.385.9560 Fax 913.385.5295



Site Location
 Montserrat, Johnson County, Missouri
 T46N - R24W - S7 & S8
 211.92 Acres

Note: Wetlands Within a Riparian Buffer Are Counted Within The Acreage Total For Riparian Buffer Restoration or Riparian Buffer Enhancement And Are Not Proposed For Wetland Credit.

-  Riparian Buffer Restoration
97.41 Acres
-  Riparian Buffer Enhancement
19.40 Acres
-  Herbaceous Wetland Establishment
55.16 Acres
-  Herbaceous Wetland Rehabilitation
5.35 Acres
-  Forested Wetland Establishment
18.13 Acres
-  Forested Wetland Enhancement
0.11 Acre
-  Scrub Shrub Wetland Rehabilitation
5.43 Acres
-  Scrub Shrub Wetland Establishment
0.15 Acre
-  Upland Buffer Establishment
4.13 Acres
-  Upland Buffer Enhancement
0.60 Acre
-  Upland Buffer Preservation
5.77 Acres
-  Stream Channel
-  U.S. Geological Survey
10-Foot Contour



DATE	09/12/08
DESIGNED BY	SWANSON
CHECKED BY	SWANSON
DATE	09/12/08
REVISIONS	
NO.	DESCRIPTION
1	02/20/09 REVISIONS
2	07/22/10 REVISIONS
3	07/04/11 REVISIONS
4	11/07/12 REVISIONS

SHEET TITLE	RESTORATION DESIGN (WITHOUT AERIAL PHOTOGRAPH)
PROJECT	CLEAR FORK WETLAND & STREAM MITIGATION BANK
CLIENT	SWALLOW TAIL, LLC



Terra Technologies
 1920 W. 143rd St., Ste. 140
 Leawood, Kansas 66224
 Tel 913.385.9560 Fax 913.385.5295

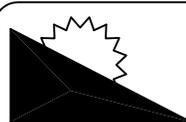
Riparian & Upland Buffer Seed Blend

Common Name	Scientific Name
Big Bluestem	<i>Andropogon gerardii</i>
Butterfly Milkweed	<i>Asclepias tuberosa</i>
White Indigo	<i>Baptisia alba</i>
Blue False Indigo	<i>Baptisia australis</i>
Bur Marigold	<i>Bidens aristosa</i>
False Aster	<i>Boltonia asteroides</i>
Sideoats Grama	<i>Bouteloua curtipendula</i>
Buffalo Grass	<i>Bouteloua dactyloides</i>
Pale Indian Plantain	<i>Cacalia atriplicifolia</i>
Blue Joint Grass	<i>Calamagrostis canadensis</i>
Porcupine Sedge	<i>Carex hystericina</i>
Inland Sea Oats	<i>Chasmanthium latifolium</i>
Lanceleaf Coreopsis	<i>Coreopsis lanceolata</i>
Prairie Coreopsis	<i>Coreopsis palmata</i>
White Prairie Clover	<i>Dalea candida</i>
Purple Prairie Clover	<i>Dalea purpurea</i>
Bundleflower	<i>Desmanthus illinoensis</i>
Pale Purple Coneflower	<i>Echinacea pallida</i>
Purple Coneflower	<i>Echinacea purpurea</i>
Canada Wild Rye	<i>Elymus canadensis</i>
Riverbank Wild Rye	<i>Elymus riparius</i>
Virginia Wild Rye	<i>Elymus virginicus</i>
Rattlesnake Master	<i>Eryngium yuccifolium</i>
Eupatorium, Boneset	<i>Eupatorium perfoliatum</i>
Maxmillian's Sunflower	<i>Helianthus maximilianii</i>
Sunflower, Ashy	<i>Helianthus mollis</i>
Ox Eye Sunflower	<i>Heliopsis helianthoides</i>
Roundhead Lespedeza	<i>Lespedeza capitata</i>
Blazing Star, pycnostachya	<i>Liatris pycnostachya</i>
Horsemint	<i>Monarda citriodora</i>
Wild Bergamont	<i>Monarda fistulosa</i>
Showy Primrose	<i>Oenothera speciosa</i>
Switchgrass	<i>Panicum virgatum</i>
Smooth Beardtongue	<i>Penstemon digitalis</i>
Parsely, Prairie	<i>Polytaenia nuttallii</i>
Prairie Cinquefoil	<i>Potentilla arguta</i>
Mint, Virginia Mountain	<i>Pycnanthemum virginianum</i>
Coneflower, Prairie (Yellow)	<i>Ratibida columnifera</i>
Grey Headed Coneflower	<i>Ratibida pinnata</i>
Coneflower, Orange	<i>Rudbeckia fulgida</i>
Missouri Black Eyed Susan	<i>Rudbeckia missouriensis</i>
Sweet Black Eyed Susan	<i>Rudbeckia subtomentosa</i>
Sage, Pitchers	<i>Salvia azurea</i>
Little Bluestem	<i>Schizachyrium scoparium</i>
Rosinweed	<i>Silphium integrifolium</i>
Compass Plant	<i>Silphium laciniatum</i>
Cup Plant	<i>Silphium perfoliatum</i>
Stiff Goldenrod	<i>Solidago rigida</i>
Indiangrass	<i>Sorghastrum nutans</i>
Prairie Cordgrass	<i>Spartina pectinata</i>
Smooth Aster	<i>Symphotrichum laeve</i>
New England Aster	<i>Symphotrichum novae-angliae</i>
Aromatic Aster	<i>Symphotrichum oblongifolius</i>
Sky Blue Aster	<i>Symphotrichum oolentangiense</i>
Ohio Spiderwort	<i>Tradescantia ohioensis</i>
Eastern Gamma Grass	<i>Tripsacum dactyloides</i>
Wingstem, Yellow	<i>Verbena alternifolia</i>

Wetland Seed Blend

Common Name	Scientific Name
Sweet Flag	<i>Acorus calamus</i>
Foxglove, Slender False	<i>Agalinis tenuifolia</i>
Yellow Giant Hyssop	<i>Agastache nepetoides</i>
Small Flowered Agrimony	<i>Agrimonia parviflora</i>
Creeping Bentgrass	<i>Agrostis stolonifera</i>
Water Plantain	<i>Alisma plantago-aquatica</i>
Small Flowered Water Plantain	<i>Alisma subcordatum</i>
Large Flowered Water Plantain	<i>Alisma triviale</i>
Valley Red Stem	<i>Ammannia coccinea</i>
Big Bluestem	<i>Andropogon gerardii</i>
Marsh Milkweed	<i>Asclepias incarnata</i>
American Sloughgrass	<i>Beckmannia syzigachne</i>
Bur Marigold	<i>Bidens aristosa</i>
Nodding Bur Marigold	<i>Bidens cernua</i>
Beggar's Tick	<i>Bidens frondosa</i>
Bidens mix	<i>Bidens spp</i>
False Aster	<i>Boltonia asteroides</i>
Blue Joint Grass	<i>Calamagrostis canadensis</i>
Bebb's Sedge	<i>Carex bebbii</i>
Copper Oval Sedge	<i>Carex bicknellii</i>
Bearded Sedge	<i>Carex comosa</i>
Lakebank Sedge	<i>Carex lacustris</i>
Sedge mix	<i>Carex spp.</i>
Awlfruit Sedge	<i>Carex stipata</i>
Fox Sedge	<i>Carex vulpinoidea</i>
Eupatorium, coelestinum	<i>Conoclinium coelestinum</i>
Flatsedge, Chufa	<i>Cyperus esculentus</i>
Flatsedge mix	<i>Cyperus spp.</i>
Beak Grass	<i>Diarrhena americana</i>
Three-Way Sedge	<i>Dulichium arundinaceum</i>
Rough Barnyard Grass	<i>Echinochloa muricata</i>
Creeping Spikerush	<i>Eleocharis palustris</i>
Spikerush mix	<i>Eleocharis spp.</i>
Riverbank Wild Rye	<i>Elymus riparius</i>
Virginia Wild Rye	<i>Elymus virginicus</i>
Boneset	<i>Eupatorium perfoliatum</i>
Tall Boneset	<i>Eupatorium serotinum</i>
Spotted Joe Pye Weed	<i>Eutrochium maculatum</i>
Fowl Mannagrass	<i>Glyceria striata</i>
Sneezeweed	<i>Helenium autumnale</i>
Rose Mallow mix	<i>Hibiscus spp.</i>
Harlequin Blue Flag	<i>Iris versicolor</i>
Blue Flag Iris	<i>Iris virginica</i>
Soft Rush	<i>Juncus effusus</i>
Rush, Interior	<i>Juncus interior</i>
Path Rush	<i>Juncus tenuis</i>
Torrey's Rush	<i>Juncus torreyi</i>
Rice Cutgrass	<i>Leersia oryzoides</i>
Marsh Blazing Star	<i>Liatris spicata</i>
Cardinal Flower	<i>Lobelia cardinalis</i>
Blue Lobelia	<i>Lobelia siphilitica</i>
Seedbox	<i>Ludwigia alternifolia</i>
Marsh Primrose-Willow	<i>Ludwigia palustris</i>
Water Horehound	<i>Lycopus americanus</i>
Wing-Angle Loosestrife	<i>Lythrum alatum</i>
Monkey Flower	<i>Mimulus ringens</i>
Horsemint	<i>Monarda citriodora</i>
Switchgrass var. Blackwell	<i>Panicum virgatum</i>
Green Arrow Arum	<i>Peltandra virginica</i>
Foxglove Beardtongue	<i>Penstemon digitalis</i>
Ditch Stonecrop	<i>Penthorum sedoides</i>
Knotweed mix	<i>Persicaria spp. / Polygonum spp.</i>
Obedient Plant	<i>Physostegia virginiana</i>
Pondweed mix	<i>Potamogeton spp.</i>
Slender Mountain Mint	<i>Pycnanthemum tenuifolium</i>
Arrowhead mix	<i>Sagittaria spp.</i>
Lizard's Tail	<i>Saururus cernuus</i>
Hardstem Bulrush	<i>Schoenoplectus acutus</i>
Bulrush, Olneys	<i>Schoenoplectus americanus</i>
River Bulrush	<i>Schoenoplectus fluviatilis</i>
Softstem Bulrush	<i>Schoenoplectus tabernaemontani</i>
Dark Green Bulrush	<i>Scirpus atrovirens</i>
Bulrush, Woolgrass	<i>Scirpus cyperinus</i>
Rufous Bulrush	<i>Scirpus pendulus</i>
Giant Goldenrod	<i>Solidago gigantea</i>
Riddell's Goldenrod	<i>Solidago riddellii</i>
American Bur Reed	<i>Sparganium americanum</i>
Giant Bur Reed	<i>Sparganium eurycarpum</i>
Prairie Cordgrass	<i>Spartina pectinata</i>
New England Aster	<i>Symphotrichum novae-angliae</i>
Purple Stemmed Aster	<i>Symphotrichum puniceum</i>
Aster mix	<i>Symphotrichum spp.</i>
Eastern Gama Grass	<i>Tripsacum dactyloides</i>
Blue Vervain	<i>Verbena hastata</i>
Culver's Root	<i>Veronicastrum virginicum</i>

Revisions		
No.	Description	Date



**Terra
Technologies**

1920 West 143rd St., Suite 140, Leawood, KS 66224

Clear Fork
Wetland & Stream
Mitigation Bank
Johnson County
Missouri

Planting and Seeding Lists

DRAWING

DATE

4

NOV 2012

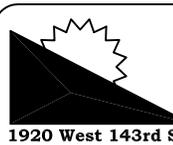
Riparian Buffer Restoration

	<u>Common Name</u>	<u>Scientific Name</u>	<u>Wetland Indicator</u>	<u>Number Planted</u>
Tree	Red maple	Acer rubrum	FAC	217
Tree	Silver Maple	Acer saccharinum	FACW	380
Tree	River Birch	Betula nigra	FACW	217
Tree	Shellbark Hickory	Carya laciniosa	FACW	217
Tree	Shagbark Hickory	Carya ovata	FACU	161
Tree	Sugarberry	Celtis laevigata	FACW	56
Tree	Hackberry	Celtis occidentalis	FAC	161
Tree	Eastern Redbud	Cercis canadensis	FACU	161
Tree	Persimmon	Diospyros virginiana	FAC	217
Tree	Green Ash	Fraxinus pennsylvanica	FACW	236
Tree	Deciduous Holly	Ilex decidua	FACW	56
Tree	Black Walnut	Juglans nigra	FACU	161
Tree	American Sycamore	Platanus occidentalis	FACW	385
Tree	White Oak	Quercus alba	FACU	161
Tree	Swamp White Oak	Quercus bicolor	FACW	56
Tree	Bur Oak	Quercus macrocarpa	FAC	161
Tree	Pin Oak	Quercus palustris	FACW	217
Tree	Chinkapin Oak	Quercus prinoides	FACU	161
Tree	Northern Red Oak	Quercus rubra	FACU	161
Tree	Shumard Oak	Quercus shumardii	FACW	209
Tree	Black Oak	Quercus velutina	UPL	161
Tree	American Basswood	Tilia americana	FACU	161
Tree	American Elm	Ulmus americana	FACW	218
			TOTAL TREES:	4,291
Shrub	Serviceberry	Amelanchier laevis/arborea	UPL/FACU	223
Shrub	Bush indigo	Amorpha fruticosa	FACW	5
Shrub	Buttonbush	Cephalanthus occidentalis	OBL	107
Shrub	Silky Dogwood	Cornus amomum	FACW	136
Shrub	Rough-leaved Dogwood	Cornus drummondii	FAC	431
Shrub	Flowering Dogwood	Cornus florida	FACU	423
Shrub	Downy Hawthorn	Crataegus mollis	FAC	323
Shrub	Common Withchazel	Hamamelis virginiana	FACU	100
Shrub	Common Winterberry	Ilex verticillata	FACW	98
Shrub	Ninebark	Physocarpus opulifolius	FACW	323
Shrub	Smooth Sumac	Rhus glabra	UPL	322
Shrub	Peach-leaved Willow	Salix amygdaloides	FACW	426
Shrub	Elderberry	Sambucus nigra	FACW	426
Shrub	Southern Arrowwood	Viburnum dentatum	FAC	559
Shrub	Nannyberry	Viburnum lentago	FAC	421
			TOTAL SHRUBS:	3,852

Riparian Buffer Enhancement

	<u>Common Name</u>	<u>Scientific Name</u>	<u>Wetland Indicator</u>	<u>Number Planted</u>
Tree	Ohio Buckeye	Aesculus glabra	FAC	83
Tree	Paw Paw	Asimina triloba	FAC	81
Tree	Sugarberry	Celtis laevigata	FACW	67
Tree	Hackberry	Celtis occidentalis	FAC	16
Tree	Eastern Redbud	Cercis canadensis	FACU	91
Tree	Deciduous Holly	Ilex decidua	FACW	16
Tree	Chinkapin oak	Quercus muehlenbergii	FAC	83
Tree	Pin Oak	Quercus palustris	FACW	83
			TOTAL TREES:	520
Shrub	Rough-leaved Dogwood	Cornus drummondii	FAC	83
Shrub	Flowering Dogwood	Cornus florida	FACU	83
Shrub	Possum haw	Ilex decidua	FACW	67
Shrub	Aromatic Sumac	Rhus aromatica	UPL	25
Shrub	Elderberry	Sambucus canadensis	FACW-	83
Shrub	Southern Arrowwood	Viburnum dentatum	FAC	94
Shrub	Nannyberry	Viburnum lentago	FAC	83
			TOTAL SHRUBS:	518

Revisions		
No.	Description	Date



**Terra
Technologies**
1920 West 143rd St., Suite 140, Leawood, KS 66224

Clear Fork
Wetland & Stream
Mitigation Bank
Johnson County
Missouri

Planting and Seeding Lists

DRAWING	DATE
5	NOV 2012

Scrub Shrub Wetland Establishment

	<u>Common Name</u>	<u>Scientific Name</u>	<u>Wetland Indicator</u>	<u>Number Planted</u>
Shrub	Bush indigo	Amorpha fruticosa	FACW	405
Shrub	Buttonbush	Cephalanthus occidentalis	OBL	754
Shrub	Silky Dogwood	Cornus amomum	FACW	403
Shrub	Peach-leaved Willow	Salix amygdaloides	FACW	403
Shrub	Elderberry	Sambucus nigra	FACW	403
Shrub	Ninebark	Physocarpus opulifolius	FACW	132
<u>TOTAL SHRUBS:</u>				<u>2500</u>

Scrub Shrub Wetland Rehabilitation

	<u>Common Name</u>	<u>Scientific Name</u>	<u>Wetland Indicator</u>	<u>Number Planted</u>
Shrub	Bush indigo	Amorpha fruticosa	FACW	4
Shrub	Silky Dogwood	Cornus amomum	FACW	4
<u>TOTAL SHRUBS:</u>				<u>8</u>

Forested Wetland Establishment

	<u>Common Name</u>	<u>Scientific Name</u>	<u>Wetland Indicator</u>	<u>Number Planted</u>
Tree	Red maple	Acer rubrum	FAC	37
Tree	Silver Maple	Acer saccharinum	FACW	77
Tree	River Birch	Betula nigra	FACW	32
Tree	Shellbark Hickory	Carya laciniosa	FACW	27
Tree	Sugarberry	Celtis laevigata	FACW	27
Tree	Persimmon	Diospyros virginiana	FAC	27
Tree	Green Ash	Fraxinus pennsylvanica	FACW	33
Tree	Deciduous Holly	Ilex decidua	FACW	27
Tree	American Sycamore	Platanus occidentalis	FACW	77
Tree	Swamp White Oak	Quercus bicolor	FACW	32
Tree	Pin Oak	Quercus palustris	FACW	36
Tree	Shumard Oak	Quercus shumardii	FACW	25
Tree	American Elm	Ulmus americana	FACW	25
<u>TOTAL TREES:</u>				<u>482</u>
Shrub	Buttonbush	Cephalanthus occidentalis	OBL	58
Shrub	Silky Dogwood	Cornus amomum	FACW	87
Shrub	Rough-leaved Dogwood	Cornus drummondii	FAC	46
Shrub	Common Winterberry	Ilex verticillata	FACW	46
Shrub	Peach-leaved Willow	Salix amygdaloides	FACW	54
Shrub	Elderberry	Sambucus nigra	FACW	44
Shrub	Southern Arrowwood	Viburnum dentatum	FAC	85
Shrub	Nannyberry	Viburnum lentago	FAC	44
<u>TOTAL SHRUBS:</u>				<u>464</u>

Forested Wetland Enhancement

	<u>Common Name</u>	<u>Scientific Name</u>	<u>Wetland Indicator</u>	<u>Number Planted</u>
Tree	Ohio Buckeye	Aesculus glabra	FAC	1
Tree	River Birch	Betula nigra	FACW	4
Tree	Sugarberry	Celtis laevigata	FACW	1
Tree	Eastern Redbud	Cercis canadensis	FACU	1
Tree	Pin Oak	Quercus palustris	FACW	5
<u>TOTAL TREES:</u>				<u>11</u>
Shrub	Rough-leaved Dogwood	Cornus drummondii	FAC	5
Shrub	Flowering Dogwood	Cornus florida	FACU	1
Shrub	Southern Arrowwood	Viburnum dentatum	FAC	5
<u>TOTAL SHRUBS:</u>				<u>11</u>

Revisions		
No.	Description	Date



**Terra
Technologies**

1920 West 143rd St., Suite 140, Leawood, KS 66224

Clear Fork
Wetland & Stream
Mitigation Bank
Johnson County
Missouri

Planting and Seeding Lists

DRAWING	DATE
6	NOV 2012

APPENDIX E

FINANCIAL ASSURANCES:
LETTER OF CREDIT EXAMPLE



December 4, 2013

Midwest Mitigation Oversight Association
21301 Shelby Lane
Belton, Missouri 64012

Gentlemen:

We hereby open our irrevocable credit in favor of the Midwest Mitigation Oversight Association for the sum or sums not to exceed a total of EIGHTY THREE THOUSAND EIGHT HUNDRED AND FIFTY AND NO/100 DOLLARS (\$83,850.00), to be made available by the request of the United States Army Corps of Engineers for payment at sight upon the presentation of a draft accompanied by the following statement:

"The undersigned certifies that a claim is presented against Swallow Tail, L.L.C., as it has been determined by the United States Army Corps of Engineers that Swallow Tail, L.L.C. has defaulted on some or all of the obligations, covenants, terms, and conditions of the Clear Fork Stream and Wetland Stream Mitigation Bank Instrument, and the amount of the drawing will be used to implement corrective measures for the mitigation bank. Under Letter of Credit No. 75201211-75010, we are providing this documentation instructing Country Club Bank to pay proceeds in the amount of \$83,850.00 (or a lesser amount determined by the United States Army Corps of Engineers to be sufficient to bring the mitigation bank back into compliance with its Mitigation Banking Instrument) to the Midwest Mitigation Oversight Association to direct the activities requested by the United States Army Corps of Engineers. Please wire said proceeds to the Midwest Mitigation Oversight Association's current account at the financial institution of its choice."

This Letter of Credit must remain valid until Swallow Tail, L.L.C. receives a letter of notification from the United States Army Corps of Engineers stating that Swallow Tail, L.L.C. has met all of the success criteria as well as all of the terms and conditions contained within the Clear Fork Stream and Wetland Stream Mitigation Bank Instrument and Bank Development Plan or until all compensatory mitigation credits have been sold at the bank, whichever is later.

The annual expiration date for this Letter of Credit is December 4, 2014. **However, this Letter of Credit is automatically renewed for each subsequent year, following annual expiration, until such time that the United States Army Corps of Engineers provides the letter of notification releasing Swallow Tail, L.L.C. from its requirement to maintain this Letter of Credit at Country Club Bank.** Country Club Bank and Swallow Tail, L.L.C. will notify the United States Army Corps of Engineers, annually, that the value of the required Letter of Credit is in full force and effect for the annual renewal period. Swallow Tail, L.L.C. and/or Country

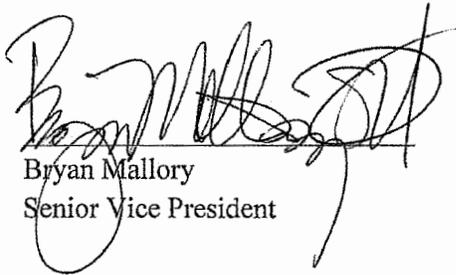
Club Bank must notify the United States Army Corps of Engineers immediately upon the commencement of any bankruptcy proceedings. This notification must be sent to United States Army Corps of Engineers, 635 Federal Building, 601 East 12th Street, Kansas City, Missouri 64106-2824 (Attn: OD-R, Suite 402).

If Country Club Bank can no longer provide a valid Letter of Credit, the Corps of Engineers and Swallow Tail, L.L.C. must be notified at least 60-days prior to the annual, or any other, expiration date of the current Letter of Credit.

This Letter of Credit is subject to the Uniform Customs and Practice for Documentary Credits, 2007 Revision, ICC Publication No. 600.

Any notice required hereunder will be deemed to have been given when received by you.

COUNTRY CLUB BANK



Bryan Mallory
Senior Vice President

APPENDIX F

SITE PROTECTION INSTRUMENT EXAMPLE



Recorded in Johnson County, Missouri

Date and Time: 12/11/2013 at 12:47:12 PM

Instr #: 373740 Book: 3496 Page: 124

Instrument Type: EASE

Page Count: 10

Recording Fee: \$51.00 S

Grantor: SWALLOW TAIL LLC

Grantee: MIDWEST MITIGATION OVERSIGHT ASSOCI...



Jan Jones
Jan Jones
Recorder of Deeds

10
swallow
ew

1. Title of Document: Conservation Easement
2. Date of Document: December 1, 2013
3. Grantor: Swallow Tail LLC
24820 Miller Road
Harrisonville, MO 64701
4. Grantees: Midwest Mitigation Oversight Association, Inc., a Missouri non-profit corporation and its successors in interest
5. Statutory Mailing Address: Mr. James Drake
c/o Midwest Mitigation Oversight Association
21301 Shelby Lane
Belton, MO 64012
6. Property Descriptions: Exhibits A1-A2, Pages 8-9
7. Reference Books and Pages: None

CONSERVATION EASEMENT

THIS DEED OF CONSERVATION EASEMENT is given this 1 day of December, 2013, by Swallow Tail LLC ("Grantor"), having an address of 24820 Miller Road, Harrisonville Missouri, 64701 ("Grantor"), to Midwest Mitigation Oversight Association Incorporated, having an address of 21301 Shelby Lane, Belton Missouri, 64012 ("Grantee"). As used herein, the term "Grantor" shall include any and all heirs, successors, or assigns of the Grantor, and all subsequent owners of the Property (as hereinafter defined), and the term "Grantee" shall include any successor or assignee of Grantee.

WITNESSETH:

WHEREAS, Grantor is the sole owner in fee simple title of certain lands situated in Johnson County, Missouri, more particularly described in Exhibit A-1 and A-2, attached hereto and incorporated herein ("Property"); and

WHEREAS, Department Permit No. 2008-01435 of the U.S. Army Corps of Engineers ("Corps") (hereinafter referred to as the "Permit") authorizes certain activities which affect waters of the United States; and

WHEREAS, the Permit requires that Grantor preserve, enhance, restore, or mitigate wetlands or uplands located on the Property; and

WHEREAS, Grantor, in consideration of the issuance of the Permit to construct and operate the permitted activity, and as an inducement to the issuance of the Permit, is willing to grant a perpetual Conservation Easement over the Property; and

NOW THEREFORE, in consideration of the above and mutual covenants, terms conditions, and restrictions contained herein, together with other good and valuable consideration, the adequacy and receipt of which is hereby acknowledged, Grantor hereby voluntarily grants and conveys a perpetual Conservation Easement for and in favor of Grantee upon the property, which shall run with the land and be binding upon the Grantor, and shall remain in full force and effect forever.

The scope, nature, and character of this Conservation Easement shall be as follows:

1. **Purpose:** The purpose of this Conservation Easement is to retain and maintain land or water areas on the Property in their natural, vegetative, hydrologic, scenic, open, or wooded condition and to retain such areas as suitable habitat for fish, plants, or wildlife. Those wetland or upland areas that are to be restored, enhanced, created, or preserved on the Property shall be retained and maintained in the restored, enhanced, created, or preserved condition as described in the Permit and/or in the associated compensatory mitigation plan for the Property.

2. **Rights of Grantee:** The following rights are conveyed to the Grantee and to the Corps by this easement:

a. The right to take action to preserve and protect the environmental value of the Property; and

b. The right to prevent any activity on or use of the Property that is inconsistent with the purpose of this Conservation Easement, and to require the restoration of areas or features of the Property that may be damaged by any inconsistent activity or use;

c. The right to enter upon and inspect the Property in a reasonable manner and at reasonable times to determine if Grantor is complying with the covenants and prohibitions contained in this Conservation Easement; and

d. The right to proceed at law or in equity to enforce the provisions of this Conservation Easement, and to prevent the occurrence of any of the prohibited activities hereinafter set forth.

3. Prohibited Uses: Except for restoration, creation, enhancement, preservation, maintenance, and monitoring activities, or surface water management improvements, required by the Permit, or required by the compensatory mitigation plan, or are otherwise approved by the Corps, the following activities are prohibited on the Property:

a. Construction of any structure or object (i.e., buildings, roads, above or below ground utilities, signs, billboards etc.) without written approval from the Corps of Engineers prior to construction;

b. Dumping or placing of soil or other substance or material as landfill, or dumping or placing of trash, waste, or unsightly or offensive materials;

c. Removal or destruction of trees, shrubs, or other vegetation, except for the removal of nuisance, exotic, or non-native vegetation in accordance with a maintenance plan approved by Corps;

d. Planting of nuisance, exotic, or non-native plants as listed by the State of Missouri;

e. Exploration for, or extraction of, oil or gas in such a manner as to affect the surface, or excavation, dredging, or removal of coal, loam, peat, gravel, soil, rock, or other material substance;

f. Use of motorized and non-motorized vehicles, the keeping or riding of horses, grazing, livestock confinement, or other surface use that may affect the natural condition of the Property, except for vehicle use for purposes of maintenance and upkeep;

g. Tilling, plowing, planting of crops, digging, mining, or other activities that are or may be detrimental to drainage, flood control, water conservation, water quality, erosion control, soil conservation, or fish and wildlife habitat preservation, including but not limited to ditching, diking, and fencing;

h. The extraction of water from the Property or the impoundment of water on the Property so as to affect the hydrology of the Property;

i. Acts or uses detrimental to the aforementioned retention and maintenance of land or water areas;

j. Acts or uses detrimental to the preservation of the structural integrity or physical appearance of sites or properties of historical, architectural, archaeological, or cultural significance.

4. Reserved Rights: Grantor reserves all rights as owner of the Property, including the right to engage in uses of the Property that are not prohibited herein, and that are not inconsistent with the intent and purposes of this Conservation Easement.

5. Taxes: Grantor shall pay any and all applicable real property taxes and assessments levied by competent taxing authority on the Property.

6. Maintenance: Grantor shall, at Grantor's sole expense, operate, maintain and keep up the Property consistent with the purpose of this Conservation Easement. Grantor shall remove from the Property any nuisance, exotic, or non-native plants as listed by the State of Missouri and shall maintain the hydrology of the Property as it currently exists or as otherwise required by the Permit or as required by the compensatory mitigation plan or as required by the Corps approved final mitigation banking instrument.

7. Hazardous Waste: Grantor covenants that if any hazardous substances or toxic waste exist or has been generated, treated, stored, used, disposed of, or deposited in or on the Property, or there are or have been any underground storage tanks on the Property, Grantor shall be responsible for any and all necessary costs of remediation.

8. Public Access: No right of access by the general public to any portion of the Property is conveyed by this Conservation Easement.

9. Liability: Grantor shall continue to retain all liability for any injury or damage to the person or property of third parties that may occur on the Property arising from ownership of the Property. Neither Grantor, nor any person claiming by or through Grantor, shall hold Grantee liable for any damage or injury that may occur on the Property.

10. Recording Requirements: Grantor must record this Conservation Easement in the official records of Johnson County, Missouri, and shall re-record it at any time Grantee or the Corps may require to preserve their rights. Grantor shall pay all recording costs, fees and taxes necessary at any time to record this Conservation Easement in the public records. Grantor shall thereafter insert the terms and restrictions of this Conservation Easement in any subsequent deed or other legal instrument by which Grantor divests himself/herself/itself of any interest in the Property, and shall provide a photocopy of the recorded Conservation Easement to the new owner(s).

11. **Enforcement:** The terms and conditions of this Conservation Easement may be enforced in an action at law or equity by the Grantee or the Corps against the Grantor violating or attempting to violate these Restrictions. Venue for any such action shall be in Johnson County, Missouri. Enforcement of this Conservation Easement shall be at the reasonable discretion of the Grantee or the Corps, and any forbearance on behalf of Grantee or the Corps to exercise its or their rights hereunder in the event of any breach by Grantor shall not be deemed or construed to be a waiver of rights. Any costs incurred in enforcing, judicially or otherwise, the terms, provisions, and restrictions of this Conservation Easement, including without limitation, the costs of suit, and attorney's fees, shall be borne by and recoverable against the non-prevailing party in such proceedings, except that such costs shall not be recoverable against the Corps. In addition, if the Grantee or the Corps shall prevail in an enforcement action, such party shall also be entitled to recover that party's cost of restoring the land to the natural vegetative and hydrologic condition existing at the time of execution of these Restrictions or to the vegetative and hydrologic condition required by the Permit and/or as required by the associated compensatory mitigation plan.

12. **Assignment of Rights:** Grantee shall hold this Conservation Easement exclusively for conservation purposes. Grantee will not assign its rights and obligations under this Conservation Easement, except to another legal entity qualified to hold such interests under applicable state and federal laws and committed to holding this Conservation Easement exclusively for the purposes stated herein. Grantee shall notify the Corps in writing of any intention to reassign this Conservation Easement to a new grantee at least sixty (60) days in advance thereof, and the Corps must accept the assignment in writing. The new grantee shall then deliver a written acceptance to the Corps. The assignment instrument must then be recorded and indexed in the same manner as any other instrument affecting title to real property and a copy of the assignment instrument shall be furnished to the Corps. Failure to comply with the assignment procedure herein stated shall result in invalidity of the assignment. In the event of dissolution of the Grantee or any successor, or failure for 60 days or more to execute the obligations of this Conservation Easement, the Grantee shall transfer this Conservation Easement to a qualified and willing grantee. Upon failure of the Grantee or any successor to so transfer the Conservation Easement, the Corps shall have the right to sue to force such an assignment to a grantee to be identified by the Court.

13. **Successors:** The covenants, terms, conditions, and restrictions of this Conservation Easement shall be binding upon, and inure to the benefit of the parties hereto and their respective personal representatives, heirs, successors, and assigns, and shall continue as a servitude running in perpetuity with the Property.

14. **Notices:** All notices, consents, approvals, or other communications hereunder shall be in writing and shall be deemed properly given if sent by United States certified mail, return receipt requested, addressed to the appropriate party or successor-in-interest.

15. **Severability:** If any provision of this Conservation Easement or the application thereof to any person or circumstances is found to be invalid, the remainder of the provisions of this Conservation Easement shall not be affected thereby, as long as the purpose of the Conservation Easement is preserved.

16. Alteration or Revocation: This Conservation Easement, granted in perpetuity, may be amended, altered, released, canceled, or revoked only by written agreement between the parties hereto or their heirs, assigns, or successors in interest, which shall be filed in the public records of Johnson County, Missouri. No action shall be taken, however without advance written approval thereof by the Corps. Corps approval shall be by letter attached as an exhibit to the document amending, altering, canceling, or revoking the Conservation Easement, and said letter shall be informal and shall not require notarization. It is understood and agreed that Corps approval requires a minimum of sixty (60) days written notice, and that the Corps may require substitute or additional mitigation, a separate conservation easement or alternate deed restrictions, or other requirements as a condition of approval. Any amendment, alteration, release, cancellation, or revocation together with written Corps approval thereof shall then be filed in the public records of Johnson County, Missouri, within 30 days thereafter.

17. Controlling Law: The interpretation and performance of this Conservation Easement shall be governed by the laws of the State of Missouri.

GRANTOR FURTHER COVENANTS that Grantor is lawfully seised of said Property in fee simple; that the Property is free and clear of all encumbrances that are inconsistent with the terms of this Conservation Easement and that no mortgages or other liens exist; that Grantor has good right and lawful authority to convey this Conservation Easement, and that it hereby fully warrants and defends the title to the Conservation Easement hereby conveyed against the lawful claims of all persons whomsoever.

TO HAVE AND TO HOLD, the Grantor covenants that he, she, or they are vested with good title to the easement area and will warrant and defend the same on behalf of the Grantee against all claims and demands. The Grantor covenants to comply with the terms and conditions enumerated in this document for the use of the easement area and adjacent lands for access, and to refrain from any activity not specifically allowed or that is inconsistent with the purposes of this easement deed. The covenants, terms, conditions, restrictions, and purpose imposed with this Conservation Easement shall be binding upon Grantor, and shall continue as a servitude running in perpetuity with the Property.

Dated this 1 day of December, 2013

Grantor(s): Swallow Tail, LLC

David L. Flick for Swallow Tail LLC

ACKNOWLEDGEMENT

STATE OF Missouri

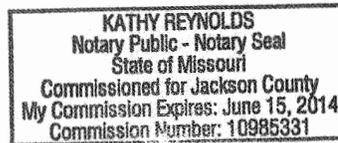
COUNTY OF Jackson

On this 1 day of December, 2013, before me, the undersigned, a Notary Public in and for said State personally appeared David L. Flick, Managing Member, know or proved to me to be the person(s) described in and who executed the foregoing instrument, and acknowledged that he executed the same as his free act and deed.

IN TESTIMONY WHEREOF, I have hereunto set my hand and official seal the day and year first above written.

Notary Public for the State of Missouri
Residing at 1136 SW Pacific Dr Lees Summit MO 64081
My Commission Expires June 15 2014

Kathy Reynolds

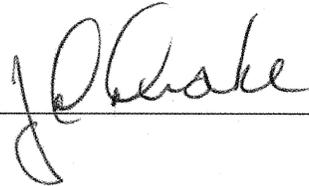


ACCEPTANCE BY GRANTEE:

I, James D. Drake, President, being the duly authorized representative of the Grantee, do hereby accept this Conservation Easement Deed with respect to the rights and duties of the Midwest Mitigation Oversight Association Incorporated, Grantee.

Dated this 1 day of December, 2013.

Signature

A handwritten signature in cursive script, appearing to read "J. Drake", written over a horizontal line.

Title

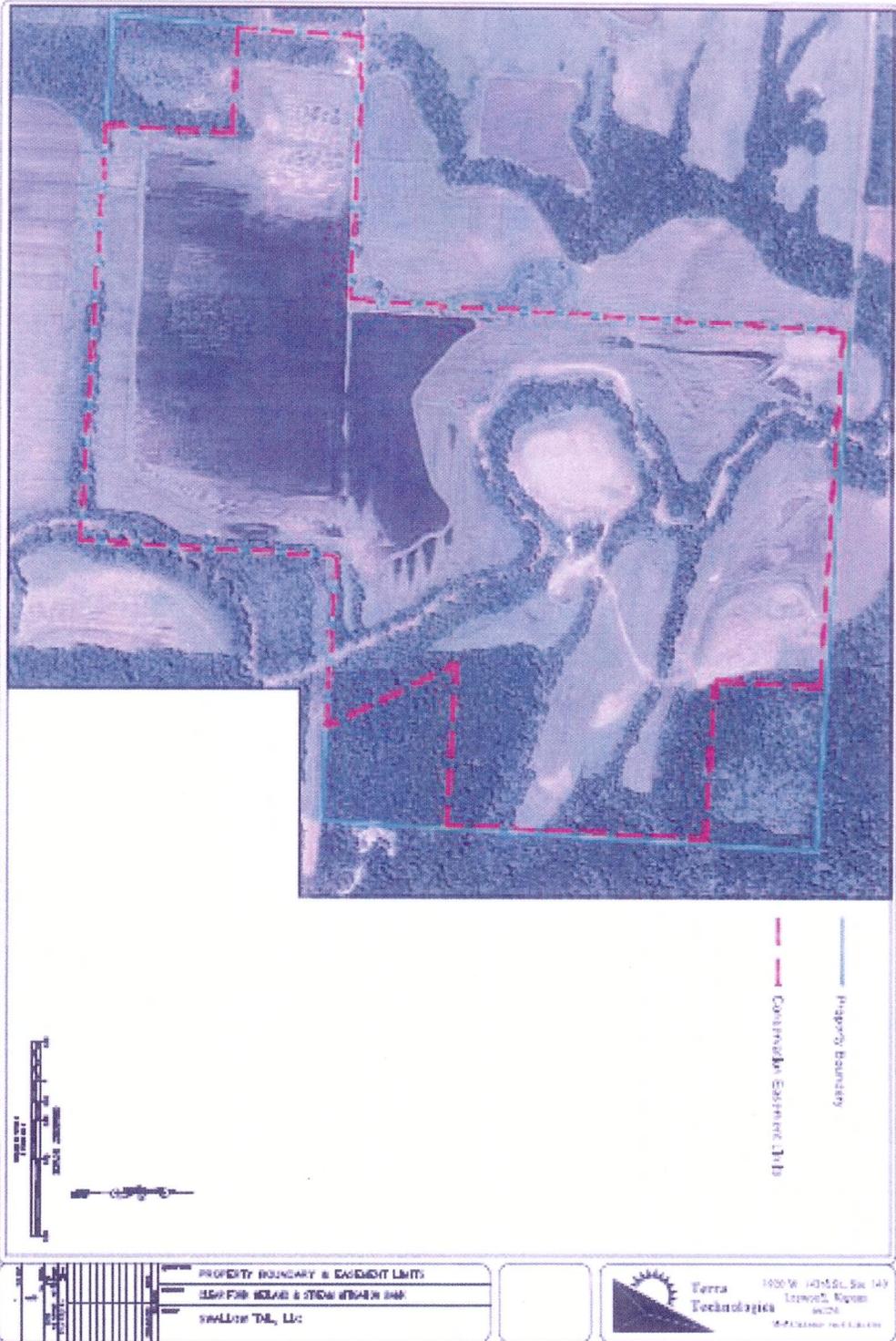
President

Exhibit A-1

PART OF A TRACT OF LAND DESCRIBED IN BOOK 3251, PAGE 151 IN THE OFFICE OF THE RECORDER OF DEEDS IN JOHNSON COUNTY, MISSOURI, BEING PART OF THE NORTH HALF OF THE SOUTHEAST QUARTER OF SECTION 7, THE EAST HALF OF THE NORTHEAST QUARTER OF SECTION 7, AND THE WEST HALF OF THE NORTHWEST QUARTER OF SECTION 8, ALL IN TOWNSHIP 46, RANGE 24, JOHNSON COUNTY, MISSOURI, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHEAST CORNER OF THE NORTH HALF OF THE SOUTHEAST QUARTER OF SECTION 7, AFORESAID, THENCE SOUTH ALONG THE EAST LINE OF SAID SOUTHEAST QUARTER TO THE SOUTHEAST CORNER OF THE NORTH HALF OF THE SOUTHEAST QUARTER OF SAID SECTION 7; THENCE WEST ALONG THE SOUTH LINE OF SAID NORTH HALF TO A POINT ON SAID LINE THAT IS 570 FEET EAST OF THE SOUTHWEST CORNER OF THE NORTH HALF OF THE SOUTHEAST QUARTER OF SAID SECTION 7; THENCE NORTH, PARALLEL WITH THE WEST LINE OF SAID SOUTHEAST QUARTER, 657 FEET; THENCE WEST, PARALLEL WITH THE SOUTH LINE OF THE NORTH HALF OF SAID SOUTHEAST QUARTER TO A POINT THAT IS 30 FEET EAST OF THE WEST LINE OF SAID SOUTHEAST QUARTER; THENCE NORTH, PARALLEL WITH THE WEST LINE OF SAID SOUTHEAST QUARTER TO A POINT THAT IS 17.5 FEET SOUTH OF THE NORTH LINE OF THE SOUTHEAST QUARTER OF SAID SECTION 7; THENCE EAST, PARALLEL WITH THE NORTH LINE OF THE SOUTHEAST QUARTER OF SAID SECTION 7, 215 FEET; THENCE NORTH, PARALLEL WITH THE WEST LINE OF THE SOUTHEAST QUARTER OF SAID SECTION 7, 17.5 FEET TO A POINT ON THE NORTH LINE OF THE SOUTHEAST QUARTER OF SAID SECTION 7; THENCE EAST ALONG SAID NORTH LINE TO THE SOUTHWEST CORNER OF THE EAST HALF OF THE NORTHEAST QUARTER OF SAID SECTION 7; THENCE NORTH ALONG THE WEST LINE OF SAID EAST HALF TO A POINT ON SAID LINE BEING 30 FEET SOUTH OF THE NORTH LINE OF THE EAST HALF OF THE NORTHEAST QUARTER OF SAID SECTION 7; THENCE EAST, PARALLEL WITH THE NORTH LINE OF SAID EAST HALF OF THE NORTHEAST QUARTER TO A POINT ON THE EAST LINE OF THE NORTHEAST QUARTER OF SAID SECTION 7; CONTINUING THENCE EAST ALONG A LINE 30 FEET SOUTH OF AND PARALLEL WITH THE NORTH LINE OF THE WEST HALF OF THE NORTHWEST QUARTER OF SECTION 8, TOWNSHIP 46, RANGE 24, JOHNSON COUNTY, MISSOURI, 517 FEET; THENCE SOUTH, PARALLEL WITH THE EAST LINE OF THE WEST HALF OF THE NORTHWEST QUARTER OF SAID SECTION 8, 550 FEET; THENCE EAST, PARALLEL WITH THE NORTH LINE OF THE WEST HALF OF THE NORTHWEST QUARTER OF SAID SECTION 8 TO A POINT BEING 25 FEET WEST OF THE EAST LINE OF THE WEST HALF OF SAID SECTION 8; THENCE SOUTH, PARALLEL WITH THE EAST LINE OF SAID WEST HALF TO A POINT BEING 667 FEET NORTH OF THE SOUTH LINE OF THE WEST HALF OF THE NORTHWEST QUARTER OF SAID SECTION 8; THENCE WEST, PARALLEL WITH SAID SOUTH LINE, 828 FEET; THENCE IN A SOUTHEASTERLY DIRECTION TO A POINT ON THE SOUTH LINE OF THE WEST HALF OF THE NORTHWEST QUARTER OF SAID SECTION 8 THAT IS 480 FEET WEST OF THE SOUTHEAST CORNER OF THE WEST HALF OF THE NORTHWEST QUARTER OF SAID SECTION 8; THENCE WEST ALONG SAID SOUTH LINE TO THE SOUTHWEST CORNER OF SAID NORTHWEST QUARTER, ALSO BEING THE POINT OF BEGINNING; SUBJECT TO ANY EXISTING EASEMENTS OR RIGHTS-OF-WAY.

Exhibit A-2



APPENDIX G
SPONSOR QUALIFICATIONS

SWALLOW TAIL, LLC

Osage Plains Wetland & Stream Mitigation Bank Cass County, Missouri



Swallow Tail is the Sponsor of the first approved private wetland and stream mitigation bank in western Missouri. The primary restoration activities on this roughly 40-acre property included the widening of the riparian corridor of the East Branch of the South Grand River to 300 feet on one side for more than a half mile and the restoration and enhancement of about 20 acres of wetlands in a diversity of habitats and landscape positions. These improvements to water quality and wildlife habitat are used for compensatory mitigation for impacts to waters of the United States in the Central Plains / Osage / South Grand Ecological Drainage Unit which encompasses the upper portion of the Osage River watershed in Missouri.

Swallow Tail recognized that the site, which had been in row crop production for decades, had a significant amount of local topographic variability and a favorable position in the landscape for wetland development. The enhancement of the site's intricate topography has led to a wide variety of microhabitats along a hydrologic gradient which allowed for the establishment of a high amount of botanical diversity because of Swallow Tail's extensive planting of a wide diversity of appropriate native plant species to match the unique topography, soil and hydrologic conditions of the site.

The site receives almost 400 acres of local runoff from adjacent agricultural properties via several small streams that flow across the property into the East Branch of the South Grand River. By detaining much of that runoff in the site's restored and enhanced floodplain wetlands, the Sponsor was able to decrease the amount of nutrients, sediment and agricultural pollution that flows into the East Branch of the South Grand River and downstream waters, including Truman Lake and Lake of the Ozarks. In addition, the East Branch of the South Grand River floods the site at least annually so the development of a significant amount of floodplain wetlands on the site also provides some level of water quality improvement of those flood waters. Moreover, the excavation of the eastern floodplain areas and the creation of floodplain pools in the western half of the site has significantly increased the flood storage capacity of the property.



Wildlife has responded very favorably to the restoration of the site's riparian, wetland and upland buffer habitats. A variety of frogs and salamanders now inhabit the site along with a diversity of waterfowl, wading birds, turtles and other species adapted to the shallow marsh habitat that is the site's dominant feature.

The Bank has completed its final year of formal monitoring having met all of its performance standards successfully.



SWALLOW TAIL, LLC

Sni-A-Bar Creek Wetland & Stream Mitigation Bank Jackson County, Missouri

Swallow Tail restored this roughly 70-acre mitigation bank adjacent to Sni-A-Bar Creek, which is a primary tributary of the Missouri River. This site previously consisted of two row crop fields and a moderately thin existing riparian corridor along the stream. Some of the attributes of this property that made it a good candidate for restoration included its position in the floodplain, the long length of perennial streams along the periphery of the site and the presence of poorly drained hydric soils. In addition, the observation of several small degraded wetlands existing in shallow depressions was a sign of the potential of this site to support a much greater amount of wetlands under the right conditions.

In order to improve water quality and wildlife habitat on the property, several activities were undertaken to restore the mitigation bank to its likely pre-settlement state. The riparian corridor of Sni-A-Bar Creek was widened to 300 feet on one side for more than a mile and the same was done to roughly 750 linear feet of an unnamed perennial tributary. Additionally, the connection between the stream and its floodplain was enhanced by creating multiple holes in two agricultural levees that regularly protected the farm fields from flooding. Roughly 27.5 acres of forested and herbaceous wetlands were established on the floodplain in order to provide water quality, wildlife habitat and flood abatement benefits.

The increase in quality and quantity of stream, riparian and wetland ecosystems is being used as compensatory mitigation for unavoidable impacts to waters of the United States throughout the Central Plains / Blackwater / Lamine Ecological Drainage Unit which includes the watersheds of the primary tributaries to the Missouri River from Kansas City to mid-Missouri.

Approved in 2009, this site is continuing to mature and progress through the appropriate stages of ecological succession that have been accelerated by Swallow Tail's planting of a diversity of early, mid- and late successional herbaceous and woody species throughout the site.



SWALLOW TAIL, LLC

Stranger Creek Wetland & Stream Mitigation Bank Leavenworth County, Kansas



Swallow Tail owns and operates the 65-acre Stranger Creek Wetland & Stream Mitigation Bank which has been approved as the first stream mitigation bank in Kansas and the first wetland mitigation bank outside of Johnson County.

This property contains one side of a half mile of Stranger Creek, the largest tributary to the Lower Kansas River. Although it is listed by the State of Kansas as a High-Priority Fishery Resource, Stranger Creek is heavily impacted by agriculture in the vicinity of this property. Before the initiation of restoration activities, this parcel was a row crop farm field with relatively thin riparian corridors along Stranger Creek and an intermittent tributary. The Stranger Creek stream bank was highly eroded along a portion of this property and two small intermittent streams that carry runoff from the adjacent agricultural properties across the site had been previously channelized into functionally impaired drainage ditches. As a result of these factors and the presence of similar conditions throughout its watershed, Stranger Creek is listed as being impaired biologically by excess nutrients and/or sediments downstream of this restoration site.



Swallow Tail recognized the restoration potential of this site and initiated several important ecological improvements. These included reducing stream bank erosion along Stranger Creek by constructing a 300-foot long longitudinal peaked stone toe bank stabilization project and planting willow cuttings along 1,800 feet of the Stranger Creek bank, widening the Stranger Creek riparian corridor to 300 feet, creating or restoring more than 18 acres of floodplain wetlands and restoring more than 3,000 linear feet of the channelized intermittent streams to natural stream channels in their likely historic alignment with 200-foot wide riparian corridors.

As a result of these restoration activities, this mitigation bank is reducing the amount of nutrients and sediment flowing to Stranger Creek across the property, is providing additional flood storage capacity and is acting as valuable habitat for wildlife. After only two full growing seasons, the site is supporting a variety of reptiles, amphibians, waterfowl and wading birds. The ecological restoration and enhancement of the wetland and stream habitats on this property are being used as compensation for impacts to those habitats in much of northeastern Kansas, including most of Johnson County.



INTRODUCTION

Terra Technologies Inc. is an innovative consulting firm with a focus on Clean Water Act Section 404 and 401 permitting and compensatory mitigation as well as biotechnical and environmental engineering. This focus requires an extensive amount of horticultural and biological expertise that also has application in a broad range of areas including large and small scale wetland and stream system development, wildlife habitat enhancement projects, ecologically-sensitive stream stabilization design and environmental remediation. The scientists and engineers at Terra Technologies provide a wide array of services including Clean Water Act 404/401/402 permit applications, compensatory mitigation design, rare and endangered species audits, environmental investigations, development of erosion and sediment control plans, and rain garden/natural stream channel design.

Terra Technologies has successfully completed numerous biotechnical design projects across the Midwest. No less than 40 mitigation, constructed wetland, and stream bank stabilization projects are currently in construction or design in the greater St. Louis, Columbia, and Kansas City areas. Our scientists will also perform 100+ wetland delineations, covering approximately 15,000 development acres annually.

Terra Technologies combines the skills and experience of licensed professional engineers with the fields of wetland ecology, horticulture, soil bioengineering, stream geomorphology, agrohistology, botany, wildlife biology and agronomy. This unique combination allows for the consideration and implementation of a broad range of solutions for Clean Water Act permitting, compensatory mitigation and storm water problems in both urban and rural areas. With a professional staff of experienced scientists and engineers, our clients have the advantage of diversified resources and the expertise of the entire firm.

Terra Technologies has been involved with numerous compensatory mitigation projects, including several large wetland and stream mitigation banks. Our design approach considers the existing site topography, hydrology, soils, and vegetation and then increases the amount of surface hydrology





through the manipulation of water inputs and the creation of extensive and varied microtopography. This microtopography creates a variety of hydrologic gradients within the onsite soils which leads to a diversity of microhabitats that support a wide diversity of plant life. All compensatory projects are seeded and planted with a large number of appropriate native herbaceous and woody species.

Our firm also has extensive expertise with stream stabilization and restoration projects. Terra Technologies can specify and implement a variety of materials and techniques including erosion control blankets, turf reinforcing matrices, wire reinforced turf reinforcing matrices, geocellular confinement, biogabions, preplanted coir fiber logs, landscaped open-face modular wall systems, articulated concrete block systems, pool and riffle systems, bonded fiber matrices, and others. Terra Technologies constantly looks at new applications for existing products that can be used for biotechnical solutions. When appropriate, pure vegetative stabilization approaches can also be effective. In all of our compensatory mitigation approaches Terra Technologies strives to provide long term solutions that work with, rather than against, natural environmental processes.

The key to any compensatory mitigation project is the long-term establishment of appropriate site hydrology as well as self-sustaining and low maintenance vegetation that is indigenous to the area. If the vegetation fails to establish, the long-term success of the project is in serious question. Pioneering vegetation often invades the initial establishment phase but is usually considered undesirable over the long term. Many of the initial plant materials mature and die within the first few growing seasons or dominate the environment such that more desirable plant materials cannot become established. A mature restoration project should contain





a balanced mix of desirable riparian vegetation and grasses that do not require extensive maintenance to preserve the balance and control undesirable vegetation. Therefore, a complete understanding of the succession of plant communities is necessary to assure the long-term success of the project. Terra Technologies brings the necessary knowledge of agrostology, horticulture, soil bioengineering, and botany to the project to assure long-term success.

Terra Technologies is comprised of highly qualified professionals with extensive experience and a range of engineering and scientific disciplines. We are recognized by our clients for providing value-added environmental engineering alternatives while responding rapidly to clients' needs. In total, more than 600 mitigation projects have been completed since the Company was founded in 1992.



APPENDIX H

MISSOURI STATE HISTORIC PRESERVATION OFFICE
CORRESPONDENCE



Jeremiah W. (Jay) Nixon, Governor • Mark N. Templeton, Director

DEPARTMENT OF NATURAL RESOURCES

www.dnr.mo.gov

June 9, 2010

David Flick
Swallow Tail LLC
4707 West 135th Street, Suite 280
Leawood, Kansas 66212

Re: Phase II Testing, 23JO1596, Montserrat Wetlands Project (COE) Johnson County, Missouri

Dear Mr. Flick:

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 May 2010 report entitled *Cultural Resource Investigations, Phase II Testing – 23JO1596, Montserrat Wetlands Project, Johnson County, Missouri* by the Environmental Research Center of Missouri, Inc. Based on this review it is evident that a thorough and adequate testing program has been conducted. We concur with the investigator's recommendation that archaeological site 23JO1596 is eligible for inclusion in the National Register of Historic Places under Criterion D, potential to yield information important to the understanding of prehistoric settlement patterns and subsistence strategies. We also concur that the proposed project will have **no adverse effect** on the condition that a plan documenting the avoidance during project activities and the long range preservation of 23JO1596 is submitted to this office.

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 **(010-JO-08)** on all future correspondence or inquiries relating to this project.

Sincerely,

STATE HISTORIC PRESERVATION OFFICE

A handwritten signature in black ink, appearing to read 'Mark A. Miles'.

Mark A. Miles
Director and Deputy
State Historic Preservation Officer

MAM:jd

c Joe Cothorn, EPA
Mark Frazier, COE/KC
Craig Sturdevant, ERC