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April 9, 2012

Mr. Keith McMullen
U.S. Army Corps of Engineers
Regulatory Branch
1222 Spruce Street
St. Louis, Missouri 63103-2833

RE: Responses to Comment Letters
Public Notice PN #2817
File No. 2011-803, 2011-805, 2011-806

Dear Mr. McMullen:

The Southwestern Illinois Flood Prevention District Council (FPD) is providing herein responses to certain comments received in response to the Public Notice (P-2817) posted for the FPD Levee Improvement Projects located along the Metro East Levee Systems. Comments included in letters of support are not specifically addressed here. Comments addressed herein are included in letters describing concerns from the following agencies and organizations:

1) United States Environmental Protection Agency (USEPA)
2) United States Fish & Wildlife Service (USFWS)
3) American Bottom Conservancy (ABC), Prairie Rivers Network, and Sierra Club-Illinois Chapter,
4) Washington University School of Law, as a representative of ABC
5) Osage Nation
6) Linde Group

Issues and concerns specifically pertaining to the FPD's project design and impacts to water resources are addressed below in italic typeface. Procedural concerns and analysis specific to the Environmental Assessment (EA) and Sec. 408 process are, in general, not addressed in this letter, as the FPD did not prepare the EA associated with this project.

1) RESPONSES TO USEPA COMMENTS

The USEPA letter dated March 7, 2012 noted concerns related to hazardous, toxic, and radioactive waste (HTRW), water resource impacts, mitigation, project description and need, aesthetics/non-native invasive plant species

(NNIS), air quality, and public outreach. Responses to the USEPA's concerns in each of those areas are provided below.

HTRW

Comment:

1. Relief wells are proposed from levee stations 1113+00 to 1116+00 and between stations 1133+00 to 1135+00 within the Metro East Sanitary District levee system. This is an area where groundwater contamination from historical industrial activities is present.

RECOMMENDATION: Implement recommendations provided in the HTRW Preassessment Screen Phase II ESA Design Deficiency Corrections for East St. Louis, Illinois Flood Protection Project Final Report prepared for the U.S. Army Corps of Engineers by ARDL, Inc. (March 10, 2011) to address this contamination. Recommendations include the use of a modified level D of PPE for workers and the monitoring of air within the working area.

FPD Response:

Proposed relief wells for levee stations 1113+00 to 1116+00 will not likely be part of the FPD project. For levee stations 1133+00 to 1135+00, FPD will now only be abandoning one and installing one relief well. Well installation in areas of potential contamination will be performed according to "General Work Procedure for Work in Contaminated Areas", provided within Appendix EA-HTRW of the USACE EA. FPD's health and safety plan (HASP) will be in force during this time, which will dictate personal protective equipment required, including the use of modified level D.

Comment:

2. EPA has provided AMEC and USACE with recent groundwater data from August and December 2011 in the area of contaminated groundwater where construction of relief wells is proposed. EPA understands that relief well construction will consist of 8" wells installed to a depth of 90' with screens from 20' to 90' below ground surface (bgs). At this depth, contaminants are likely to be encountered in the deep hydrogeologic unit (DHU). Since contaminants in the vicinity of the proposed relief wells are likely present only in the DHU, screen intervals that do not penetrate greater than 60' bgs would be expected to minimize or eliminate the surface discharge of contaminants.

RECOMMENDATION: Since there is a potential for groundwater contaminants to be discharged to surface water from relief wells, the need for a discharge permit from Illinois EPA (IEPA) is being investigated. EPA understands that USACE has been in contact with IEPA to obtain the necessary permit(s), and it is understood that IEPA's

final permit decision(s) should be based on all available groundwater data within the contaminated area of the Metro East Santiary District levee system.

FPD Response:

FPD's design consultant, AMEC Environment and Infrastructure (AMEC) has received the August and December 2011 reports for the W.G. Krummrich facility, a USEPA RCRA facility. AMEC also believes it has the most up-to-date groundwater quality data for the Sauget area, including Sauget areas 1 and 2, and Concoco-Phillips. AMEC is currently in discussions with IEPA – Bureau of Water (BOW) regarding discharge requirements for effluent from levee relief discharge structures.

Water Resource Impacts

Comment:

1. The EA and subsequently-provided project information propose impacts to stream, wetlands, and open water systems. These impacts are associated with different project features, including "graded filter installations," "toe drains," "berms" and other features. These features were not described clearly in the EA. Specifically, the EA did not describe the purpose of each type of feature, why that specific work was required in a wetland, stream, or open water system, and how those types of features support the project's goals.

RECOMMENDATION: In the revised EA, the following additional overview information is requested:

- Each specific type of feature and the work involved in installing it;
- Why impacts from that specific feature are necessary in a wetland, stream, or open water system; and
- How installation of that system in a Water or the United States supports the project's goals(s).

FPD Response:

Proposed features include graded filters, toe drains, berms, and riverside clay caps. These features are described below.

A graded filter is generally defined as a soil and/or rock mixture, placed in and on the ground, designed to allow underseepage to emerge from beneath the levee in a controlled manner. The grain size distribution of each filter is designed so that the underlying native soil is protected from erosion during flood events, and uplift forces are reduced to acceptable levels. Graded filters will be installed by excavating to specified depths within a defined area, and placing the specified backfill materials.

A toe drain is generally defined as a soil and/or rock mixture, with or without collection pipe, placed in the ground in a more or less vertical trench, designed to allow underseepage to emerge from beneath the levee in a controlled manner. The grain size distribution of each filter is designed so that the underlying native soil is protected from erosion during flood events, and uplift forces are reduced to acceptable levels. Toe drains will be installed by excavating to specified depths within a defined area, and placing the specified backfill materials.

A berm is generally defined as a soil backfill placed on the ground in the vicinity of the landside levee toe, designed to reduce uplift pressures and allow underseepage to emerge farther from the levee toe. Berms will be installed by placing controlled soil fill several feet thick on the existing ground surface within a defined area.

A clay cap is generally defined as a layer of compacted clay approximately 5 feet thick, placed on or partially embedded into, the riverside slope of the existing levee embankment. The cap is designed to reduce the amount of seepage moving through the levee. Clay caps will be installed by removing topsoil from the existing embankment surface, then placing compacted fill with standard excavating/ grading/compaction equipment. The location of the caps is specified based on either documented reports of seepage through the levee, or documented sandy zones within the levee. Clay caps are the most technically suitable measure to control this problem. The clay caps support the Project goal by allowing the necessary rehabilitation of the levee systems to protect the public and environment.

In general, the need for underseepage controls is more prevalent in areas where there are ditches and low areas (e.g., old borrow pits) near the landside levee toe. In these areas, the low ground elevations result in an increased driving head during the flood event, which in turn results in increased erosion and uplift potential. These low areas coincide in some places with wetland, stream, or open water systems. Graded filters were selected in some of these areas because other types of underseepage controls were not technically feasible, or would have resulted in a larger impact to wetlands, or were economically outside the Sponsor's ability to construct the Project. The proposed underseepage controls support the Project goal by allowing the necessary rehabilitation of the levee systems to protect the public and environment.

Comment:

2. During a conference call with USACE and others on February 27, 2012, EPA expressed confusion over stream impact calculations, noting impacts to Stream WRLS100 (784' of impact) as "temporary" vesus "permanent" impacts. The

determination of a stream impact as either "temporary" or "permanent" affects stream impact credit and debits required for mitigation. EPA does not concur that the impact to WRLS100 is a "temporary" impact since the stream natural substrate will be excavated and sand and gravel will be permanently placed below the ordinary high water mark (OHWM) up to the existing grade fo the stream. As such, EPA consideres this proposed work to be a permanent impact; stream impact calculations should not this as a "permanent" duration with a factor of 0.3m abd bit as a "temporary" duration with a factor of 0.05.

RECOMMENDATION: In a revised EA and compensatory mitigation plan, EPA requests that you provide additional narrative information on how distinctions between "temporary" and "permanent" stream impacts were made, and how that affected calculations for stream mitigation.

FPD Response:

The Illinois Stream Mitigation Method has a limited number of options for describing the Duration and Activity Factors and thus the quantification of project impacts is limited by the method. For example, the Activity Factor "Armor" was used for WRLS100 because that is the closest option provided by the method even though it doesn't quite match the actual activity. The Duration Factor "Temporary" was chosen because even though the substrate will be changed from silt to sand and gravel, the natural course of sediment transport in streams will likely, with time, generate a new silt layer over the sand and gravel. With that in mind the Duration Factor would be "Temporary" or possibly "Short Term". Because of the smaller particle size of the sand and gravel, this can be viewed differently than the Indian Creek impact assessment where we are using rip rap to armor the banks.

With a change from "Temporary" to "Permanent" at WRLS100, our overall need for stream mitigation credits goes from 2,869 to 3,064. Because our mitigation plan will generate an excess number of stream mitigation credits, the permittee will make the change and provide the additional credits.

Comment:

3. EPA was provided with additional project information via email on February 17, 2012; this information included portions of each wetland delineation completed for the project, but did not include wetland data point locations. EPA is concerned that additional undelineated wetlands may be present and/or impacted at the following locations:
    a. Approximate Station numbers 216+00 to 222+00 (along stream WRLS100). Delineation information proved to EPA did not show that any data points were taken along the stream.

b. Approximate Station Numbers 592+00 (potential wetland southwest of Wetlands WLW319 & WLW319a). Delineation information provided to EPA did not show that any data points were taken in this area, which looks like potential wetland and potential stream that would be impacted by the proposed project.
c. Approximate Station Numbers 257+00 to 259+00 (Wetland MESD1). The delineated wetland boundary for Wetland MESD1 is much smaller than the NWI polygon boundary, which extends across the entire vicinity of this area. The delineation shows Data Point MESD-1B taken near the southern edge of the Levee Road, but there aren't any data points that clearly discern the upland Data Point and the Wetland Data point for this wetland.
d. Approximate Station Numbers 1244+00 to 1310+00 (west side of levee). The only wetland delineated in this vicinity is wetland MRW290. Although some of the aerials provided to EPA appear to be 2010 aerials taken during a flood event, EPA is concerned that there is additional undelineated wetland acreage on the west sided of the levee that could potentially be impacted by proposed construction activities.
e. Station Number 292+50. Delineation information provided to EPA did not show that any data points were taken in this area. EPA believes that famed wetland may be present in areas noted as "proposed footprint". It is unclear if impact to any potential wetladns in this area would be required to implement the project.

RECOMMENDATION: EPA recommends that these areas be field verified by the applicant's consultant and/or the USACE, and if necessary, that a supplemental delineation be prepared and included in the revised EA.

FPD Response:

The project areas, including those listed in Part 3 under the Water Resource Impact section of the USEPA letter, were field reviewed by AMEC. All wetlands within the project areas were delineated in accordance the Corps of Engineers Wetlands Delineation Manual (1987 Manual) in conjunction with the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0) (USACE, 2010). Field delineations were subsequently reviewed by the USACE. It should be noted that National Wetland Inventory (NWI) wetland boundaries are often not accurate and are often not indicative of field conditions. Desktop analysis was used to review project areas, but all areas were also reviewed in the field and wetland delineations were based on site-specific field conditions. All project areas were reviewed in the field even though specific data points may not have been recorded in the specific locations identified by USEPA.

Comment:

4. Neither the EA nor the supplementary-provided documents noted any impacts to Wetland WRW100, portions of which are considered scrub-shrub wetland, and portions of which are considered open water. Impact Sheet 13 of 23 and Delineated Features/Proposed Impact Page 13 of 23 show several hundred feet of pipe through this wetland with an outfall to the Mississippi River. It is unclear if this pipe is existing or proposed, and if proposed, if it will be installed via a directional bore or open trench method. Either way, no impacts to this wetland system are noted in any documentation. EPA believes that impacts to this wetland, either temporary or permanent, are foreseeable if this pipe is to be installed as shown on these figures.

RECOMMENDATION: In a revised EA, and any supplemental documentation, provide clarification on any impacts to this wetland system, their duration, and whether or not mitigation is proposed.

FPD Response:

The force main in question has since been eliminated from the project in the wetland reach to the west of the levee. The current plan includes provisions to discharge flow from the new pump station into the existing Hawthorne Pump Station penstock (discharge chamber). From the penstock, flow will be mixed with Hawthorne Pump Station Discharge flow and conveyed via existing culvert to the riverside of the levee system.

Comment:

5. EPA understands that some of the wetland impacts associated with the proposed project will be temporary; however, it is not clear from the EA how temporary wetland impacts will be identified and restored, and how the USACE will assure full restoration of these impacted areas.

RECOMMENDATION: In a revised EA, provide a wetland restoration plan that includes, at a minimum, the following information:

- A summary table of temporary wetland impacts, including station number, wetland name, acreage of impact, and acreage of impact to be restored;
- Narrative information on activities to be undertaken to restore all wetland areas, including affirmation to restore wetlands to pre-construction grades;
- A proposed planting plan to include seed mixes (with species names and oz/acre) and tree/shrub species planting lists (with species names, quantities, installation information, and size of species).

FPD Response:

Temporary impacts to wetlands may occur during the construction of the project within the defined "limits of disturbance", which are preliminarily

identified as a 50-foot buffer surrounding each proposed project component. Temporary impacts to wetlands outside of the defined "limits of disturbance" are not proposed. The "limits of disturbance" will be refined and likely reduced as the 100% project construction plans are developed. Wetlands will be avoided if disturbance is not required for construction or access purposes. Wetland areas will be included on the 100% construction plans and wetlands outside of the permanent project footprint will be avoided if possible. Although it may be necessary to temporarily impact some forested wetlands, it should be noted that the majority of temporary impacts to wetlands will consist of impacts to wetlands that are currently farmed. Once the 100% construction plans are completed, potential temporary impacts to wetlands can be better quantified.

Prior to construction, existing wetlands will be marked in the field using orange fencing (or similar method) so that they can be avoided if at all possible

Restoration of unavoidable impacts will occur as outlined in section 11.0 of Attachment 3 of the application packages dated December 16, 2011. During completion of the 100% plans, limits of disturbance will be refined to avoid and minimize temporary impacts to wetlands, where possible.

Mitigation

Comment:

1. In discussions during the February 27, 2012, conference call, EPA learned that none of the locations proposed for mitigation in the conceptual mitigation plan submitted with the EA will be used as the mitigation site, and that the applicant is currently in negotiations with several landowners for additional potential mitigation sites. As the conceptual mitigation plan submitted with the EA is no longer a current document, EPA is not providing comments herein on these proposed mitigation sites.

RECOMMENDATION: In a revised EA, provide an updated conceptual mitigation plan outlining how proposed stream and wetland mitigation will compensate for proposed impacts to wetlands and streams. The conceptual mitigation plan should follow the outline of the USACE Mitigation Rule (33CFR 332) including sequencing and requirements. EPA would not support the signing of a Finding of No Significant Impact until conceptual mitigation is identified and presented to reviewers in as much detail as possible.

FPD Response:

A revised detailed mitigation plan is enclosed. The mitigation plan follows the USACE Mitigation Rule (33 CFR 332).

Project Description and Need
Comment:

1. The proposed project is designed to make improvements to Federal projects in order to receive FEMA accreditation in accordance with 44 CFR 65.10. This Section of the Code of Federal Regulations provides the minimum design, operation, and maintenance standards levees must meet and continue to meet in order to be recognized as providing protection from the base flood, or the one-percent-annual-chance flood on Flood Insurance Rate Maps. If FEMA accreditation is not received, economic consequences can affect current and future homeowners and businesses in terms of costly flood insurance.

RECOMMENDATION: The EA should be revised to include additional information regarding FEMA mapping. For example, does the proposed action constituted a first accreditation or a re-accreditation? If this action serves as a re-accreditation, what parameters have changed resulting in the need for improvements and re-accreditation? Have recent high-water events caused the proposed changes? What parameters might trigger additional changes?

FPD Response:
The proposed action is a re-accreditation of currently accredited levees. The re-accreditation is a part of regularly scheduled updating of maps by FEMA. The age of the levees has resulted in minor deterioration and the purpose of this project is to make improvements to ensure that the levees continue to provide 100 year level of protection.

Aesthetics/Non-native invasive plant species (NNIS)
Comment:

1. The EA indicates that areas where the ground surface is disturbed would be reseeded and returned to pre-project conditions.

RECOMMENDATION: In a revised EA, provide additional information to include a species list for areas to be reseeded and the density of planting. Additionally, EPA requests information concerning best management practices designed to prevent the spread of NNIS during construction and maintenance activities be included in this discussion.

FPD Response:
As discussed in the permit application packages, a regionally appropriate permanent seed mixture specifically developed for wetlands will be used to seed temporarily impacted wetlands. The planting of cattails or purple loosestrife or other noxious or invasive weeds will NOT be permitted.

Best management practices and appropriate seeding requirements for disturbed areas will be included in 100% construction specifications and a site-specific Storm Water Pollution Prevention Plan (SWPPP), which will be required as part of the National Pollutant Discharge Elimination System (NPDES) construction permitting.

Air Quality

Comment:

1. The EA indicates that a Clean Air Act General Conformity Determination was prepared for the proposed action. The discussion indicates the assessment is conservative because it assumes all required construction equipment would be operating concurrently at all three levee systems in a single year. At this juncture of the design phase, detailed information describing types and numbers of construction equipment has not yet been developed. The EA states that minor, short-term effects on air quality are expected during construction, but does not discuss measures to reduce these impacts.

RECOMMENDATION: Provide information on potential mitigation measures, such as use of low diesel fuel, anti-idling policies, etc., for all construction equipment and vehicles.

FPD Response: See response to Comment 2, below.

Comment:

2. Air Quality Impacts related to construction traffic, machinery and equipment can affect the surrounding communities, sensitive populations and construction workers exposed to resulting diesel emissions. The National Institute for Occupational Safety and Health (NIOSH) has determined that diesel exhaust is a potential human carcinogen. In additional, the acute exposures to diesel exhaust have been linked to health problems such as eye and nose irritation, headaches, nausea, and asthma.

RECOMMENDATION: Although every construction site is unique, common actions can reduce exposure to diesel exhaust. We request commitment to the following measures for periods when machinery or equipment are emitting diesel exhaust for either transmission line or substation construction:

- Using low-sulfur diesel fuel (less than 0.05% sulfur);
- Retrofitting engines with an exhaust filtration device to capture diesel particulate matter before it enters the construction site;
- Positioning the exhaust pipes so that diesel fumes are directed away from the operator and nearby workers;
- Ensuring adequate ventilation if diesel equipment is operated indoors;

- Using enclosed, climate-controlled cabs pressurized and equipped with high efficiency particulate air (HEPA) filters to reduce operators' exposure to diesel fumes;
- Maintaining all diesel engines, via the manufacturer's recommended maintenance schedule and procedures, to keep exhaust emissions low;
- Turning off engines when vehicles are stopped for more than a few minutes, and training diesel-equipment operators to perform routine inspection and maintenance of filtration devices;
- When purchasing a new vehicle, ensuring that it is equipped with the most advanced emission control systems available;
- With older vehicles, using electric starting aids such as block heaters to warm the engine, avoid difficulty starting, and thereby reduce diesel emissions; and
- Using respirators to control exposure to diesel emissions.

FPD Response:

The FPD is committed to the protection of worker safety and will require all work be performed in accordance with a site-specific health and safety plan, which will be up-dated as necessary to address potential exposure to diesel fumes. The FPD will evaluate the above-listed measures and incorporate them into the health and safety plan, as appropriate. In addition, contractors will be required to utilize and operate equipment in compliance with Federal and State regulations.

Public Outreach

Comment:

1. The EA included a distribution list of various officials, agencies, organization, and individuals that received the document. During the February 27, 2012, conference call between EPA, USACE, and AMEC, it was stated that press releases notifying the public of the availability of the EA for review and comment had been released and that the levee districts hold meetings every month.

RECOMMENDATION: In a revised EA, discuss all efforts taken to inform the public of proposed actions and any concerns or questions submitted/received from the public. How those issues were addressed should be incorporated into the project analysis. This information is beneficial to understand public concerns associated with the project.

FPD Response:

Since the EA was issued by the USACE, the FPD was not directly responsible for providing the formal notice and distribution of the document. However, the FPD operates in a notably transparent manner. The Board of the organization meets in public session monthly, and the media and public are invited to attend and many do

so. The Council also hosts a website (www.floodpreventiondistrict.org) that is used to distribute all materials related to the Board meetings as well as documents produced as part of the project. The EA and its contents, along with many other ongoing project design and impact issues have been discussed during public Board meetings and widely reported in the media. The Council responded immediately and fully (within one day) to two voluminous FOIA requests submitted during the comment period.

2) <u>RESPONSES TO USFWS COMMENTS</u>

Comment:
The USFWS concurs with the Finding of No Significant Impact (FONSI), but has the following recommendations:

- The Service requests that the Corps and the FPD continue to coordinate with the Service in the development of the final wetland mitigation plan.
- The Service recommends that project impacts are mitigated for in the vicinity of the project area in Madison County and near Horseshoe Lake or Frank Holten State Park.
- The Service recommends that the areas proposed for mitigation be examined for the potential to restore the presettlement natural communities as described in "An Evaluation of Ecosystem Restoration Options For the Middle Mississippi River Regional Corridor" (MMRC) prepared by Mickey E. Heitmeyer for the St.Louis District, Corps of Engineers and the MMRP.
- The Service requests that the Corps and the FPD coordinate with the Service in the selection of appropriate borrow sites due to potential contaminants in the area.
- Tree clearing should not occur during the period of April 1 to September 30.
- Pre-construction surveys for decurrent false aster should be performed in suitable habitat areas prior to construction. The Service should be notified if the species is found.
- The project should follow the National Bald Eagle Management Guidelines to minimize potential project impacts to bald eagles.

FPD Response:

- ***The FPD has taken the Service's recommendations under consideration and is submitting a revised Wetland Mitigation Plan.***
- ***A proposed mitigation site is discussed in the revised Wetland Mitigation Plan.***
- ***The FPD has developed a revised Wetland Mitigation Plan which proposes to restore native species to the proposed mitigation site. The native species proposed in the mitigation plan are appropriate for the regional landscape setting and are consistent with historic vegetative communities in the American Bottoms.***

- ***No borrow sites have been identified within the project area. Any borrow material required for construction will be supplied by the contractor.***
- ***The FPD will restrict tree clearing during the period of April 1 to September 30, unless otherwise authorized by the USFWS.***
- ***Pre-construction surveys for decurrent false aster will be performed in suitable habitat areas prior to construction.***
- ***No bald eagle nests are known to occur within a mile of the project area; however, if a nest is identified in proximity to the project, the FPD will comply with the National Bald Eagle Management Guidelines, as appropriate.***

3) <u>RESPONSES TO ABC, PRAIRIE RIVERS NETWORK AND SIERRA CLUB COMMENTS</u>

Ms. Kathy Andria of the ABC, Ms. Kim Knowles of Prairie Rivers Network, and Ms. Cindy Skrukrud of the Sierra Club submitted comments on behalf of their members via email on March 7, 2012 to Mr. Keith McMullen and Mr. Tim George of the USACE. Comments and concerns identified in the email include concerns about the proposed repairs and potential uncontrolled seepage, the need for an independent external peer review, the handling of discharge water from contaminated areas, pipelines/leaks in the Hartford area, climate change, increased development within the floodplain, and safety of residents.

FPD Response:

The FPD disagrees that the repairs could result in uncontrolled seepage. The repairs have been designed using sound engineering principles and design methods by licensed engineers that were carefully selected by the SFPDC based on their qualifications and experiences on similar projects. Levee improvements will be maintained and operated in a safe manner. The project design is being thoroughly reviewed by the USACE and others and the FPD is committed to reaching concurrence with the Corps that the design will improve the performance of the levee system.

Almost any natural or human-made structure carries some risk of a failure, and human-made structures generally are not and cannot be designed to eliminate all levels of risk. However, there are accepted design principles and standards and there is a large body of knowledge in the engineering community on which to base levee design.

The FPD and AMEC are currently working with the Illinois Environmental Protection Agency (IEPA) to address concerns pertaining to the discharge of groundwater from contaminated sites.

AMEC has up-to-date groundwater quality information obtained from the IEPA for the Hartford area, including information gathered from the Hartford

Working Group (HWG), a consortium of potentially responsible parties for hydrocarbon impact (from various sources) in the Village of Hartford. AMEC also evaluated groundwater quality information along the levee centerline in the area of the proposed levee relief wells.

Additional information addressing the concerns voiced in the ABC, Prairie Rivers Network and Sierra Club Comments is included with the responses to the Washington University comments below.

4) RESPONSES TO WASHINGTON UNIVERSITY SCHOOL OF LAW CIVIL JUSTICE CLINIC – INTERDISCIPLINARY ENVIRONMENTAL CLINIC COMMENTS

The Washington University School of Law identified the following seven concerns:

1. ABC has been harmed by the Corps' failure to comply with FOIA.
2. The project is a major modification under § 408 of the Rivers and Harbors Act.
3. The wetlands mitigation plan is inadequate.
4. The EA fails to address global climate change.
5. The EA fails to sufficiently address hydrologic conditions associated with the project.
6. The EA fails to address potential liquefaction impacts.
7. The EA fails to sufficiently address potential environmental impacts from contamination during flooding.

For the sake of brevity, the full text of these comments is not included verbatim herein, but responses are provided below.

Washington University Law School Comment:

1. ABC has been harmed by the Corps' failure to comply with FOIA

FPD Response:

FPD is not in a position to respond to this comment, although almost all of the documents requested of the Corps by ABC were provided in a timely fashion by the SFPDC.

Comment:

2. The project is a major modification under § 408 of the Rivers and Harbors Act.

FPD RESPONSE:

The FPD is not in a position to respond to this comment.

Comment:

3. The wetlands mitigation plan is inadequate.

FPD Response:

A revised mitigation plan is enclosed. The mitigation plan follows the USACE Mitigation Rule (33 CFR 332).

Comment:

4. The EA fails to address global climate change.

FPD Response:

Based on a conference call between AMEC and the USACE on March 28, 2012, Mr. Tim George (USACE) indicated that the USACE would address Washington University's question concerning global climate change and did not require input from the FPD or AMEC.

Comment:

5. The EA fails to sufficiently address hydrologic conditions associated with the project;
    a. the EA fails to sufficiently address the impacts of climate change, floodplain urbanization, and river training structures on current and future hydrologic conditions of the Upper Mississippi River.

FPD Response:

The comments pertaining to hydrology refer to the impacts of climate change and floodplain urbanization on the Southwestern Illinois study area, and request revisions to the EA to address these concerns. One comment also refers to consideration of river training structures on the Mississippi River and its effects on the study area.

1. ***Climate Change***
   The hydrologic analysis was performed using methods appropriate for the study area. The latest available land use data, and rainfall data as recommended in the State of Illinois Bulletin 70 was utilized in the study. The rainfall distributions used in the study take the 'St. Louis Urban Effect' felt predominantly in St. Clair and Madison counties into consideration.

2. ***Floodplain Urbanization***
   The majority (approximately 95%) of the hydrologic study area lies in St. Clair and Madison Counties. In 2009, St. Clair County passed an ordinance similar to the 2000 Madison County Stormwater Management Ordinance cited in the EA. Since these ordinances ensure temporary detention of stormwater at the site before it is released to the downstream tributaries, the change in stormwater

runoff resulting from future development is not expected to be significant. In such a case, the proposed levee improvements would be sufficient to convey any additional stormwater resulting from urbanization.

3. ***River Training Structures***
   The hydrology calculations for the study area involved using the results of the USACE's 2004 Upper Mississippi River Flood Frequency Study (UMRSFFS) of the Mississippi River. This study considered historic flood events, and the model was calibrated to stream gages located in the study area. The results therefore reflect the current river conditions and any impact river training structures may have as best possible.

Comment:

b. The EA fails to sufficiently address interior hydrologic conditions associated with the proposed project during flooding.

FPD Response:

The comments in this section pertain to effects of graded filters and blanket drains that are part of the proposed improvements on the interior flooding conditions, and "request details of potential interior hydrologic conditions during flooding, including the ability of the proposed improvements to withstand floods higher than a 100-year level".

The hydrologic analysis conducted in the study area included an analysis of the interior water surface elevations resulting from any increased flows caused by the proposed improvements to the levees. Where these improvements caused an increase in the elevations, new pump stations were proposed. This was the basis for the statement cited in the EA: "The net effect of the proposed drainage structures along with new pump stations is a zero flow increase in the levee interior during a 500-year flood event. With these measures, the proposed project has no significant effect on interior hydrologic conditions in the project area". Therefore, increased flows resulting from relief wells, graded filters etc .have been considered in the analysis and improvements proposed accordingly.

Comment:

6. The EA fails to address potential liquefaction impacts; and

FPD Response:

While there may be some risk associated with liquefaction, the joint probability of the occurrence of an earthquake at the time of the base flood is very low. FEMA does not require evaluation of this joint probability and it is therefore not considered in the scope of the project. The scope of this project is not to determine what risk is acceptable; it is only to meet a predetermined standard

set by FEMA so certification can be obtained. No work will be performed on the levee than will cause any increase in the likelihood of liquefaction, and many of the measures being implemented will reduce that potential.

Comment:

7. The EA fails to sufficiently address potential environmental impacts from contamination during flooding.

FPD Response:

AMEC believes it has up-to-date groundwater quality data in areas that have a known environmental legacy. AMEC is currently discussing discharge requirements with IEPA BOW for levee relief structure effluent.

5) RESPONSES TO THE OSAGE NATION HISTORIC PRESERVATION OFFICE COMMENTS

The Osage Nation, in a letter dated February 2, 2012, requested that a cultural reconnaissance survey be conducted for the proposed USACE St. Louis District PN#2817; MVS-2011-803, 805, 806; 100-year protection certification for the WR, MESD, and PDP/FL Levee Systems in Madison, St. Clair, and Monroe Counties

FPD Response:

The FPD has provided the USACE with the following reports:

- ***Bradley, Dawn M., Nathan C. Scholl, Chad Knopf, Savannah Darr and Amanda Kincaid – 2012. "Phase I Archaeological and Geomorphological Survey for the Southwest Illinois Levee Certification Design Project Madison, St. Clair and Monroe Counties, Illinois." AMEC Earth and Infrastructure, Inc. Louisville, KY***

- ***Kincaid, Amanda, Mathia Scherer and Kari Krause – 2012. "An Architectural Survey for the Southwest Illinois Levee Certification Design Project Madison, St. Clair and Monroe Counties, Illinois". AMEC Earth and Infrastructure, Inc. Louisville, KY***

- ***Booth, Don L., Edwin R. Hajic, Michele Lorenzini, Ryan J. Reed, Steve J. Dasovich – 2009. "Phase One Cultural Resource Investigation: Prairie Du Pont and Fish Lake Levee Improvements, St. Clair and Monroe County, Illinois. SCI Engineering, Inc., O'Fallon, IL."***

The FPD understands that the USACE has agreed to forward these reports to the Osage Nation Historic Preservation Office.

6) RESPONSES TO THE LINDE GROUP COMMENTS

The Linde Group, in a letter dated February 8, 2012, expressed concerns pertaining to the construction of the project and potential impacts to pipelines and infrastructure.

FPD Response:

Complete 60% design construction drawings were sent to all utilities and municipalities known to be in the vicinity of the project. Copies of the 60% design plans can be issued to the Linde Group for conflict review. Please provide a contact name and address to coordinate the plan submittal.

Thank you for the opportunity to address these comments concerning our project. If you need additional information, please contact me directly or our consultant, Mr. Jon Omvig of AMEC Environment & Infrastructure, Inc. at (636) 386-3800.

Sincerely,

Les Sterman
Chief Supervisor of Construction and the Works

cc: Thaddeus Faught – IEPA
Michael Feldmann - USACE
Joseph Kellett - USACE
Gary Andruska – USACE
Bruce Munholand - USACE

enclosure: Revised Wetland and Stream Mitigation Plan

SCI ENGINEERING, INC.
650 Pierce Boulevard
O'Fallon, Illinois 62269
618-624-6969 Fax 618-624-7099
www.sciengineering.com

Formal Mitigation Plan

SOUTHWESTERN ILLINOIS FLOOD PREVENTION DISTRICT MITIGATION SITE MADISON COUNTY, ILLINOIS

April 2012

Prepared for:

ROXANA LANDFILL, INC.
and
SOUTWESTERN ILLINOIS FLOOD PREVENTION DISTRICT COUNCIL

SCI No. 2010-3162.31

SCI ENGINEERING, INC.
CONSULTANTS IN DEVELOPMENT,
DESIGN AND CONSTRUCTION
GEOTECHNICAL
ENVIRONMENTAL
NATURAL RESOURCES
CULTURAL RESOURCES
CONSTRUCTION SERVICES

April 5, 2012

Mr. Les Sterman
Southwestern Illinois Flood Protection District Council
104 United Drive
Collinsville, Illinois 62234

RE: Formal Mitigation Plan
Southwestern Illinois Flood Prevention District Mitigation Site
Madison County, Illinois
CE File No. 2011-803, -805, -806 (P-2817)
SCI No. 2010-3162.31

Dear Mr. Sterman:

We are pleased to submit our report entitled *Formal Mitigation Plan – Southwestern Illinois Flood Prevention District Mitigation Site – Madison County, Illinois*, dated March 2012. The proposed project includes improvements along the 74-mile levee system protecting the St. Louis Metro East region. The project will ultimately result in impacts to wetlands and waterbodies, which will require compensatory mitigation. The proposed mitigation site is intended to function as site-specific mitigation for the levee improvements project. The enclosed plan describes the methods by which the Southwestern Illinois Flood Prevention District will mitigate for impacts to waters of the United States associated with the development of the proposed project. In summary, approximately 30.9 acres of constructed emergent wetland, 18.4 acres of constructed forested wetland, 5.2 acres of wet mesic prairie, 6.4 acres of preserved riparian corridor, and 1.1 acres of created riparian corridor will be provided.

You can reach me at (618) 206-3041 or sharding@sciengineering.com if you have any questions or comments.

Respectfully,

SCI ENGINEERING, INC.

Scott D. Harding, CPSS/SC
Vice President

Enclosure

C: Mr. Brian Power; Roxana Landfill, Inc.
Mr. Steve Stumne; AMEC Environment & Infrastructure
Mr. Dan Feezor; Feezor Engineering

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SOUTHWESTERN ILLINOIS FLOOD PREVENTION DISTRICT MITIGATION SITE MADISON COUNTY, ILLINOIS

1.0 INTRODUCTION

On behalf of the Southwestern Illinois Flood Prevention District (FPD) and Roxana Landfill, Inc., SCI Engineering, Inc. (SCI) has developed a stream and wetland mitigation area whose future credits will be provided for compensatory mitigation. The permittee will be the responsible party for site operation and maintenance until performance objectives are met and the U.S. Army Corps of Engineers (CE) releases FPD from its obligation. The purpose of this document is to establish guidelines and responsibilities for the establishment, maintenance and preservation of the mitigation site. The site will be provided as compensatory mitigation for unavoidable impacts to waters of the United States, including wetlands, streams, tributaries, and creeks during improvements to the 74-mile levee system protecting the St. Louis Metro East region. This site is intended to function as site-specific mitigation for the FPD levee improvements project.

The main objective of the mitigation site will be the establishment a wetland habitat area consisting of emergent and forested wetlands, and the preservation and creation along the riparian corridor of two adjacent creeks. These features were once a major component of floodplains throughout Illinois. A total of 64 acres will be included as mitigation and will be preserved and protected under a declaration of covenants and restrictions. Approximately 51.3 acres will be constructed as emergent wetland, forested wetland, and wet mesic prairie habitat areas. Additionally, approximately 1.1 acres of planted riparian corridor creation and 6.4 acres of riparian corridor preservation will be provided along Indian Creek and Cahokia Creek. The mitigation site is located in the same watershed as the levee system where many of the impacts will occur. Indian Creek, which will be directly impacted by the levee improvements, will directly benefit from the mitigation through riparian corridor preservation.

2.0 SITE SELECTION

The proposed mitigation site is located near Roxana, Illinois (Sections 7 and 8, Township 4 North, Range 8 West) in the floodplain of Indian Creek and Cahokia Creek, near the confluence of these waterways (Figure 1). Current land use, topography, soils, hydrology, engineering factors, ease of maintenance, and current site ownership were considered during the selection process. The proposed mitigation site was selected for use over the others considered as the proposed site best meets the assessment criteria. The majority of the site currently exists as agricultural fields with fragmented wooded riparian corridors

along the banks of Indian Creek and Cahokia Creek. Mr. Scott Harding, of SCI, and Mr. Jerry Berning, a former Natural Resources Conservation Service (NRCS) soil scientist, evaluated the on-site soils and determined that they have potential to be converted into constructed wetlands. Hydrology for the mitigation site will potentially be provided via runoff from adjacent properties to the north and penetration of the seasonally high water table. Existing roads allow for access to the site during construction and maintenance activities. The site is owned solely by Roxana Landfill, Inc., eliminating the need for coordination between property owners for activities such as mitigation site construction, deed restriction, and maintenance.

The proposed mitigation site is located within a 100-year floodplain of Indian Creek and Cahokia Creek (Figure 3). Floodplain areas naturally form a complex physical and biological system that supports a variety of natural resources and provides natural flood and erosion control. Naturally-vegetated floodplains also provide a groundwater filtering system, by slowing flood runoff and allowing the water to percolate through the soil to the water table, replenishing the groundwater supply. Throughout the state of Illinois, much of the naturally vegetated floodplain land has been lost due to development or converted to agricultural use. The location of the proposed mitigation site will restore the current agricultural area to a more naturally-vegetated floodplain. The constructed wetlands and enhanced riparian corridor will improve the functional quality of the floodplain, and will help to increase water quality within the adjacent creeks and the watershed as a whole.

3.0 OBJECTIVES

The permittee intends to create, maintain, and protect approximately 54.5 acres of emergent and forested wetlands, as well as wet mesic prairie areas. The constructed wetlands are intended to provide habitat for wildlife, and perform many of the functions of naturally-occurring wetlands found in this region. Two wet mesic prairie areas totaling 5.2 acres in size will be seeded and preserved within the emergent wetland area to increase the diversity of available habitat within the wetland complex. In addition, approximately 1.1 acres of riparian corridor creation and 6.4 acres of preserved riparian corridor are intended be provided along Indian Creek and Cahokia Creek. Riparian corridor creation plantings will be provided in areas along Cahokia Creek where the riparian corridor has been removed due to agricultural activities. As discussed in Section 2.0, the proposed mitigation site will help to restore the floodplain of Indian Creek, Cahokia Creek, and the Mississippi River watershed, increasing the water quality and functional value of these waterbodies.

4.0 SITE PROTECTION INSTRUMENT

The approximately 62-acre mitigation site will be preserved and protected under a declaration of covenants and restrictions. The declaration will prohibit activities which are incompatible with the intention of the mitigation site, such as clearing of vegetation and disturbance of soils. The site will be protected as compensatory constructed wetland and enhanced riparian corridor mitigation in perpetuity by the declaration.

5.0 BASELINE INFORMATION

The approximately 62-acre proposed mitigation site primarily exists as agricultural fields bordered to the west by Indian Creek and to the southeast by Cahokia Creek (Figure 4). Roxana Landfill and its associated borrow areas are located to the north of the site. The topography of the site is mostly flat, with runoff draining to both Indian Creek and Cahokia Creek (Photos 4, 6, 7, 8). Our review of historical aerial photographs indicates that the site has been utilized for agricultural crop production since at least 1988. The National Wetlands Inventory (NWI) map was also reviewed for the mitigation site (Figure 2). Two Phase II completed archaeological areas (11MS2067, 11MS2069), located within the proposed mitigation site boundaries, have been recorded with the Illinois Historic Preservation Agency (IHPA). These areas will be avoided and will remain undisturbed during construction of the proposed mitigation site.

Soil borings to 80 inches indicated the seasonal high water table on the site varied from 5 inches to 18 inches below the surface. There are no existing wetlands within the proposed mitigation site boundaries. During the site survey, Mr. Berning and Mr. Harding evaluated the on-site soils by advancing 7 soil borings to 80 inches within the mitigation area. The soil characteristics observed indicate that, at one time, the area may have existed as a wetland, having the components of wetland hydrology, hydric soil, and hydrophytic vegetation. The proposed mitigation site is mapped as Prior Converted (PC) Cropland on the NRCS Wetland Maps. Additionally, SCI has reviewed geotechnical boring logs taken through the mitigation site and areas to the north. The area has since been sufficiently modified to accommodate agricultural use and no longer meets the specific hydrologic criteria of a wetland. Additionally, Roxana Landfill submitted a wetland determination request form to the NRCS. On March 15, 2012, the NRCS issued a Certified Wetland Determination (Appendix D) stating that the proposed mitigation site is considered to be Prior Converted (PC) Cropland and does not meet farmed wetland hydrology criteria. Therefore, no jurisdictional wetlands will be impacted by the proposed mitigation activities.

5.1 Observed Site Conditions

Two site visits were conducted on January 3, 2012, and March 6, 2012, to perform field reconnaissance. The majority of the proposed mitigation site currently exists as tilled agricultural fields with no vegetation. Vegetated areas observed were limited to the existing riparian corridor areas. Dominant vegetative species within the existing riparian corridor include silver maple, honey locust, cottonwood, Virginia wild rye, and riverbank grape. Two stands of Johnson grass, a noxious weed, were identified within the existing riparian corridor along Cahokia Creek (Photo 5). These areas are targeted to be treated for elimination prior to any mitigation construction.

Soil borings on the site were taken to depths of approximately 80 inches. Soils were generally classified as silt loam to a depth of approximately 8 inches underlain by silty clay loam or alluvium. The permeability of the soils at the depth where excavation will occur is anticipated to be low enough to retain water and should be suitable for a wide variety of planted species. Some sandy subsoil was noted at greater depth and should not be penetrated with excavation in order for the planned constructed wetlands to hold water. The soils that occur on site were mapped by the USGS Web Soil Survey (WSS) as Lawson silt loam, Ridgway silt loam, Raddle silt loam, Coffeen silt loam, and Geff silt loam. All soils were listed as "Not Hydric" by the WSS.

No evidence of wetland hydrology was observed within the mitigation area. Precipitation and runoff from adjacent properties are not retained within the mitigation site and drains off site through existing agricultural swales into Indian Creek and Cahokia Creek (Photos 7 and 8). No evidence of regular flooding from Indian Creek or Cahokia Creek was observed during either of our site visits. However, occasional floods occur that would bring water into the proposed constructed wetland. Wetland determination data sheets containing the results of field reconnaissance have been included as Appendix A.

6.0 DETERMINATION OF CREDITS

Based on the unavoidable impacts to waters of the United States during the levee improvements proposed by FPD, the CE has required that 51.3 credits of wetland mitigation and 2,869 stream credits be provided. Specifically, the CE has required that the wetland consist of 18.4 forested wetland credits and 32.9 emergent wetland credits. The number of wetland mitigation credits needed was determined using mitigation ratios provided by the CE. The number of riparian corridor mitigation credits needed was determined by using the methodology of the *Illinois Stream Mitigation Guidance* (Version 1.0) (Appendix B).

Wetland mitigation will be provided at a 1:1 ratio of credits to acres. Therefore approximately 18.4 acres of forested wetland and 30.9 acres of emergent wetland will be created, for a total of 49.3 acres of wetland habitat. Wet mesic prairie mitigation will be provided at a 0.5:1 ratio of credits to acres. Wet mesic prairie mitigation was assigned a half acre per credit value as the wetland hydrology of this area will be less consistent than the hydrology of a typical emergent wetland area. Approximately 5.2 acres of wet mesic prairie will be provided, to account for a total of 2.6 credits. The proposed approximately 54.5 acres of forested wetland, emergent wetland, and wet mesic prairie will provide 51.9 wetland mitigation credits. A total of approximately 1.1 acres of planted riparian corridor creation and 6.4 acres of preserved riparian corridor will be provided to account for the needed 2,869 mitigation credits as determined by using the "Illinois Stream Mitigation Method" Worksheet (Appendix B).

7.0 MITIGATION WORK PLAN

7.1 Constructed Wetlands

The proposed emergent and forested wetlands (Photos 1 and 3) on site will likely be graded in one phase. This overall construction will involve the excavation, hydrological adjustments, and seeding/planting necessary to convert the site into wetland habitat as described below. Excavation and construction of the wetlands will be initiated by Roxana Landfill, Inc., and will begin concurrent with the permitted impacts.

A combined emergent/forested wetland basin, as well as two additional forested wetland basins, will be excavated on the site. The locations of these basins are depicted on Figure 5. The wetland basin will be excavated to depths of approximately 12 inches within the forested wetland areas and to 24 inches within the emergent wetland areas. A conceptual cross-section of the emergent and forested wetland basin is provided on Figure 5. The proposed undulations of the graded surface will provide for varying water depths, promoting the creation of micro-habitats within the emergent wetland areas ranging from inundated to mesic (medium moist). The excavated material will be stockpiled for future use as a soil cap for the adjacent landfill, or to be sold as fill for the levee improvements. The side slopes along the basin will not exceed 4:1 (H:V). Additional subsoil analysis may be necessary to determine if the alluvial soils found at the excavation depths contain a sufficient seedbank to naturally revegetate the site with herbaceous cover. If necessary, the top 6 to 8 inches of topsoil can be stockpiled and used to line the emergent portion of the wetland basin following excavation. After topsoil is placed in the basin to provide a seedbank, the finished grade of the emergent wetland would exist at approximately 18 inches below the original surface elevation. The target water depth within the constructed wetlands will vary from saturated soil to 18 inches of standing water. Wet mesic prairie habitat will be located within the

emergent/forested wetland basin to provide increased habitat diversity within the mitigation area. These areas will not be graded and will be seeded with big bluestem. Hydrology will be provided to the wet mesic prairie habitat by the adjacent constructed emergent wetland.

7.1.1 Constructed Wetland Hydrology

Hydrology on the site will come from multiple sources. The primary source of hydrology for the wetland basin will likely be runoff from adjacent areas. Hydrology will be supplemented by diversion of drainages on the site to the wetland basin. Soil borings to 80 inches indicated the seasonal high water table on the site varied from 5 to 18 inches below the surface. The excavation of the wetland basin to a depth of 12 to 24 inches will likely penetrate the seasonal high water table, allowing groundwater to be a source of wetland hydrology. While flooding from Indian Creek and Cahokia Creek does not appear to occur regularly, flood events from the creeks will provide hydrology to the site when flooding does occur. Precipitation will also be directly retained within the wetland basin and will contribute to the hydrology of the wetland area. Four outfalls will be constructed within four of the existing agricultural swales. Geofabric textile material and rip rap will be installed at each outfall location to reduce the potential for scour during flood events.

7.1.2 Constructed Wetland Vegetation

The natural seed bank in the alluvial soil should likely contain a sufficient seedbank to naturally revegetate the site with herbaceous cover. Supplemental planting of emergent areas will be performed if natural revegetation does not occur. Plant plug species suited for mesic to saturated soil conditions can be used in the areas planned for supplemental planting. The majority of supplemental plantings on the site can consist of a seed mix composed of species listed in Table 7.1 for emergent areas. A specific planting list with species composition and planting rates will be developed if planting becomes necessary.

Table 7.1 – Recommended Herbaceous Wetland Vegetation Species

Common Name	Scientific Name	Indicator Status
Sweet Flag	*Acorus calamus*	OBL
Swamp Milkweed	*Asclepias incarnata*	OBL
Panicled Aster	*Aster simplex*	FACW
Tickseed - Sunflower	*Bidens coronata*	OBL
Sweet Joe Pye Weed	*Eupatorium purpureus*	FAC
Northern Bedstraw	*Galium boreale*	FAC
White Avens	*Geum canadense*	FAC

Table 7.1 – Recommended Herbaceous Wetland Vegetation Species (continued)

Common Name	Scientific Name	Indicator Status
Sneezeweed	*Helenium autumnale*	FACW
Pinkweed	*Polygonum pensylvanicum*	FACW
Blue Flag Iris	*Iris virginiea shrevei*	OBL
Great Blue Lobelia	*Lobelia siphilitica*	FACW
Bunch Flower	*Melanthium virginicum*	FACW
Monkey Flower	*Mimulus ringens*	OBL
Ditch Stonecrop	*Penthorum sedoides*	OBL
Bristly Buttercup	*Ranunculus hispidus*	FAC
Barnyard Grass	*Echinochloa crusgalli*	FACW
Slender Wheat Grass	*Agropyron trachycauluna*	FAC
Bearded Beggar Ticks	*Bidens gristosa*	FACW
Fringed Sedge	*Carex crinita*	OBL
Fox Sedge	*Carex vulpinoidea*	OBL
Switch Grass	*Panicum virgatum*	FAC
Fowl Manna Grass	*Glyceria striata*	OBL
Rice Cut Grass	*Leersia oryzoides*	OBL
Dark-green Bulrush	*Scripus atrovirens*	OBL
Cord Grass	*Spartina pectinata*	FACW
Bur-Reed Sedge	*Carex sparganioides*	FAC
Wool Grass	*Scirpus cyperinus*	OBL
Softstem Bulrush	*Scirpus validus*	OBL

Tree and shrub plantings will be conducted within the forested wetland areas on a 20-foot spacing, as recommended by the tree supplier. The total acreage of forested wetland to be planted is approximately 18.4 acres. Given the recommended 20-foot spacing, approximately 2,006 trees will be planted within the forested wetland. Native tree and shrub species to be planted will consist of flood tolerant species, many of which will be mast producing trees. The trees will consist of 2- to 3-gallon containerized advanced root system varieties, such as Root Production Method (RPM) trees. This method involves manipulation of the trees root system as seedlings, which has been proven to produce faster growing trees with higher survival rates. Plantings shall be conducted in spring (March 1 through April 30) or fall (October 20 through December 10), as recommended by the tree supplier. A list of suitable tree and shrub species to be planted is presented in Table 7.2 below. This species list is subject to modification as additional site

condition information relating to tree survivability is collected. A companion crop seed mixture of red top and annual rye grass will be planted between planted trees to reduce competition from woody and herbaceous vegetation.

Table 7.2 – Recommended Forested Wetland Tree Species

Common Name	Scientific Name	Indicator Status
American Sycamore	*Platanus occidentalis*	FACW
Swamp Chestnut Oak	*Quercus michauxii*	FACW
Northern Spicebush	*Lindera benzoin*	FACW
Red-Osier Dogwood	*Cornus stolonifera*	FACW
Overcup Oak	*Quercus lyrata*	OBL
Black Ash	*Fraxinus nigra*	FACW
Bald Cypress	*Taxodium distichum*	OBL
Eastern Cottonwood	*Populus deltoides*	FAC
Honey-Locust	*Gleditsia triacanthos*	FAC
Common Buttonbush	*Cephalanthus occidentalis*	OBL
Pin Oak	*Quercus paulstris*	FACW
Swamp White Oak	*Quercus bicolor*	FACW
American Elder	*Sambucus canadensis*	FACW
Nuttall Oak	*Quercus nutialli*	OBL

Newly-graded wetland slopes (no steeper than 4:1) will be planted using a cover or nurse crop in an effort to control potential erosion. A nurse crop composed of quick growing, annual species such as red top, oats or annual rye grass will be used. The nurse crop will stabilize the soil until natural vegetation becomes established.

7.2 Preserved and Created Riparian Corridor

A portion of the riparian corridor along Indian Creek and Cahokia Creek will be preserved as part of the required mitigation. A total of 6.4 acres of existing riparian corridor will be preserved under a declaration of covenants and restrictions. Riparian corridor planting will be conducted within portions of the existing riparian corridor which have been impacted by agricultural activities (Photo 2). The riparian corridor will be planted on a 20-foot spacing, as recommended by the tree supplier. The total acreage of riparian corridor to be planted is approximately 1.1 acres. Given the recommended 20-foot spacing, approximately 120 trees will be planted within the proposed riparian corridor. Native tree species to be

planted will consist of a mix of flood tolerant to somewhat flood tolerant species. A list of recommended tree species to be planted is presented in Table 7.3 below. This species list is subject to modification as additional site condition information relating to tree survivability is collected.

Table 7.3 – Recommended Riparian Corridor Tree Species

Common Name	Scientific Name	Indicator Status
Serviceberry	*Amelanchier arborea*	FACU
American Plum	*Prunus american*	UPL
Red Chokeberry	*Aronia melanocarpa*	FACW
Bitternut Hickory	*Carya cordiformis*	FAC
Pecan	*Carya illinoiensis*	FAC
Shagbark Hickory	*Carya ovata*	FACU
Hackberry	*Celtis occidentalis*	FAC
American Hazlenut	*Corylus americana*	FAC
Black Walnut	*Juglans nigra*	FACU
Common Persimmon	*Disopyros virginiana*	FAC
Kentucky Coffeetree	*Gymmocladus dioicous*	UPL
Black Gum	*Nyssa sylvatica*	FAC
Hop Tree	*Ptelea trifoliata*	FACU
Swamp White Oak	*Quercus bicolor*	FACW
Shingle Oak	*Quercus imbricaria*	FAC
Overcup Oak	*Quercus lyrata*	OBL
Bur Oak	*Quercus macrocarpa*	FAC
Swamp Chestnut Oak	*Quercus michauxii*	FACW
Red Oak	*Quercus rubra*	FACU
Pin Oak	*Quercus palustris*	FACW
Carolina Buckthron	*Rhamnus caroliniana*	FAC
Vernal Witchhazel	*Quercus imbricaria*	FAC

Many of the recommended trees selected for planting consist of mast-producing species, which provide high wildlife value. The trees will consist of 2- to 3-gallon containerized advanced root system varieties, such as Root Production Method (RPM) trees. This method involves manipulation of the trees root system as seedlings, which has been proven to produce faster growing trees with higher survival rates. Plantings shall be conducted in spring (March 1 through April 30) or fall (October 20 through December 10), as recommended by the tree supplier. A companion crop seed mixture of red top and annual rye grass will be planted between spread trees to reduce competition from woody and herbaceous

vegetation. The planted riparian corridor should enhance the quality of Cahokia Creek by reducing the erosion potential along the channel, providing increased wildlife value, increasing dissolved carbon compounds and particulate organic detritus, and providing shade and lower water temperatures within the channels.

8.0 MAINTENANCE PLAN

Scheduled maintenance of the mitigation site will be required in an effort to control invasive or exotic species, such as the Johnson grass identified during our field reconnaissance. These invasive species will be treated with an appropriate herbicide prior to tree planting. Herbicide treatment will be applied at appropriate intervals as needed to control surviving invasive or exotic vegetation following the completion of construction and planting. Annual monitoring observation studies of the constructed wetlands and riparian corridors will be conducted for a period of five years following construction completion. During each annual monitoring event, the mitigation site will be observed for any potential deficiencies which may require maintenance or improvements. Potential deficiencies may include too much or insufficient wetland hydrology, problematic erosion, insufficient survivorship of emergent wetland or forested wetland vegetation, and the presence of additional invasive species or noxious weeds. If problems or deficiencies are identified, necessary measures will be taken to restore the mitigation site to its intended condition. All hydrologic adjustments and water control structures that may be proposed must be approved by the CE before being implemented.

9.0 PERFORMANCE STANDARDS

9.1 Constructed Wetland Performance

Performance standards for the constructed wetland areas are based primarily on the survival of hydrophytic vegetation. Hydrophytic vegetation is defined as species that are best suited or specially adapted to life under moist or saturated soil conditions that result in a substrate that is at least periodically deficient in oxygen. Hydrophytic species are characterized as having an indicator status of facultative or wetter (OBL, FACW, or FAC). Table 9.1 shows the anticipated performance standards for constructed wetland vegetation to be achieved at each year of monitoring.

Table 9.1 – Constructed Emergent Wetland Performance Standards

Post-Construction Growing Season	Percent Hydrophytic Species Composition	Percent Relative Cover of Hydrophytic Species
after 1 growing season	40	40
after 2 growing seasons	50	50
after 3 growing seasons	60	60
after 4 growing seasons	70	70
after 5 growing seasons	80	80

At the end of the each growing season following wetland construction, the herbaceous vegetation identified in the emergent wetlands should be composed of at least the respective percentage of hydrophytic species as listed in Table 9.1. In addition, the relative cover of hydrophytic herbaceous species within the wetland should total at least the respective percentage listed in Table 9.1. Relative cover should be interpreted as the cover of all hydrophytic species as a percent of the total plant cover.

Trees planted within the forested wetland are required to exhibit an 80 percent survival rate after five consecutive growing seasons. In the event that the overall survival rate of the planted trees falls below the required 80 percent, non-surviving trees will be replaced with in-kind species. If poor survivability trends develop for specific species, alternate species (approved by the CE) may be planted. Dead woody species will remain on the site as an enhancement to wildlife habitat.

Soils are also influenced by inundation and saturation. Soil color changes under wetland conditions resulting from reduction/oxidation processes are most commonly noted with matrix colors eventually approaching 10YR 4/1 or 10YR 5/1 or becoming gleyed. Iron and manganese concretions may also develop in areas with an active water regime. However, soils develop these characteristics at a relatively slow rate, depending on their physical composition. Therefore, over-dependence on soil color as an indicator of constructed wetland success will not be practiced.

9.2 Created Riparian Corridor Performance

Performance standards for the planted areas of the created riparian corridor will be based on percent survivorship of planted tree species. At the end of the each growing season after initial planting, the created riparian corridor should exhibit 80 percent survival rate for planted tree species. In the event that the overall survival rate of the planted trees falls below the anticipated performance standard,

non-surviving trees will be replaced with in-kind species. If poor survivability trends develop for specific species, alternate species (approved by the CE) may be planted. Dead planted trees will remain on the site as an enhancement to wildlife habitat.

10.0 MONITORING REQUIREMENTS

The mitigation observation studies will be conducted annually, for a period of five years following final grading and planting of the mitigation site. If, after five years, the mitigation site has met, or shows progressive improvements toward meeting the performance standards set forth in this mitigation plan, monitoring observation will no longer be necessary. However, if any area of the site does not sufficiently meet the anticipated requirements of the CE, further monitoring and improvements may be required. The data collected in each annual study will be detailed in a formal report, including photographs and suggestions or plans to improve or repair any deficiencies that may exist. The annual report will be submitted to the CE each year. The permittee will then work in conjunction with the CE to determine a suggested plan of improvement to implement if deemed necessary. The monitoring reports as well as any necessary corrective measures are the responsibility of the permittee.

10.1 Constructed Wetland Monitoring

The constructed wetland portions of the mitigation site will be observed to determine if the required performance standards (discussed in Section 9.0) have been met. The general condition of the constructed wetland and open water areas will also be observed. Twelve monitoring plots will be established within the constructed wetland areas of the mitigation site. The location of these monitoring plots will be surveyed and recorded using a sub-meter-accurate global positioning system (GPS) unit. An approximately 0.25-acre area will be surveyed around each GPS-recorded monitoring plot location during the monitoring observation study for each growing season. Four monitoring plots will be established within the forested wetland, and seven monitoring plots will be established within the emergent wetland. Vegetative species composition within each monitoring plot will be inventoried. Percent hydrophytic species composition and percent relative coverage of hydrophytic species will also be observed. For monitoring plots within forested wetland areas, planted tree survivorship and general health will be observed and a total stem count of woody vegetation will be conducted. Stems per acre of woody vegetation within the forested wetland areas should increase during each successive growing season as natural succession and revegetation occur. Overall trends for natural succession and revegetation of woody species will be observed. Soil samples and photographs will be taken within each

monitoring plot. In addition to the observations conducted at the monitoring plots, the overall condition of the constructed wetlands, including wetland hydrology, will be observed by conducting a meandering walk-through of the wetland basin.

10.2 Preserved and Created Riparian Corridor Monitoring

Three monitoring plots will be established within the created riparian corridor area along Cahokia Creek. The location of these monitoring plots will be surveyed and recorded using a sub-meter-accurate GPS unit. An approximately 0.25-acre area will be surveyed around each GPS-recorded monitoring plot location during the monitoring observation study for each growing season. Monitoring plots will occur approximately every 300 to 500 lineal feet within the planted areas of the corridor. Adjustments to the spacing of the sample plots may be made to more accurately provide documentation within the planted portions of the riparian corridor. Monitoring at each of the three plots will occur annually. At each monitoring plot, planted tree survivorship and general health will be observed. Stems per acre of woody vegetation within the created riparian areas should increase during each successive growing season as natural succession and revegetation occur. Overall trends for natural succession and revegetation of woody species will be observed. Photographs will be taken within each monitoring plot. The overall condition of the preserved and created riparian corridor, including the presence of invasive or noxious weed species, will be observed by conducting a meandering survey of the corridor.

11.0 LONG-TERM AND ADAPTIVE MANAGEMENT PLAN

The permittee will be responsible for all long-term management necessary to ensure the sustainability of the constructed wetlands and created riparian corridor. The permittee has proposed to contract with Roxana Landfill, Inc. and their consultant (SCI) for the creation of the proposed mitigation. The permittee and its associates will coordinate with the CE and other necessary parties to develop adaptive management strategies to address any deficiencies that may develop.

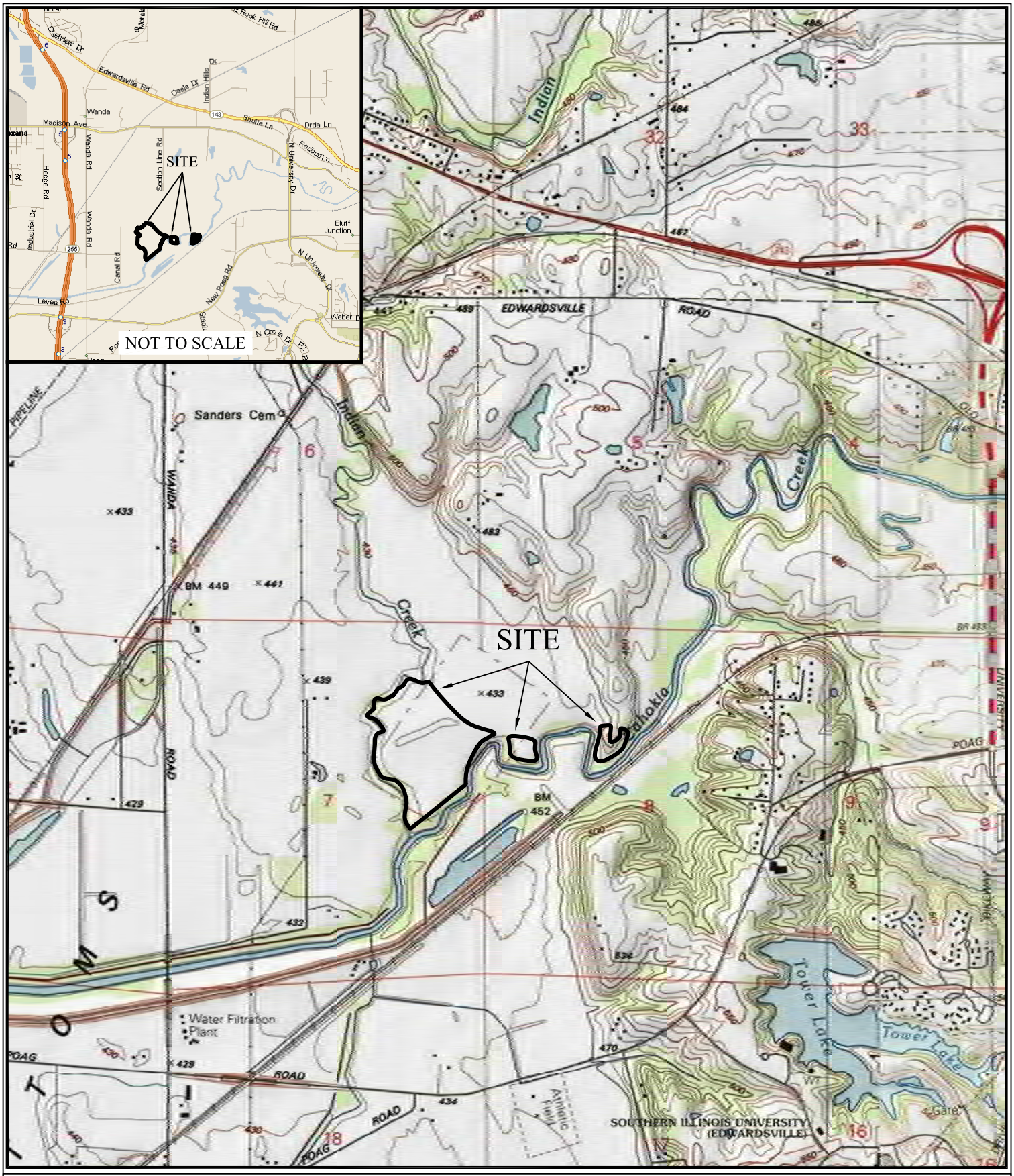
12.0 FINANCIAL ASSURANCES

The Southwestern Illinois Flood Protection District Council (FPD Council) is responsible for providing the necessary financial assurances to ensure that the approved wetland mitigation, monitoring and contingency plans are properly implemented for the duration of the project and that the various wetland types meet their intended functions. Implementation of the measures described in this plan will be funded utilizing proceeds from a dedicated sales tax that was authorized in the Illinois Flood Prevention District Act (70 ILCS 750/) and approved by St. Clair, Madison and Monroe Counties. The tax has been collected since 2009. The FPD Council has entered into an agreement with the property owner, Roxana

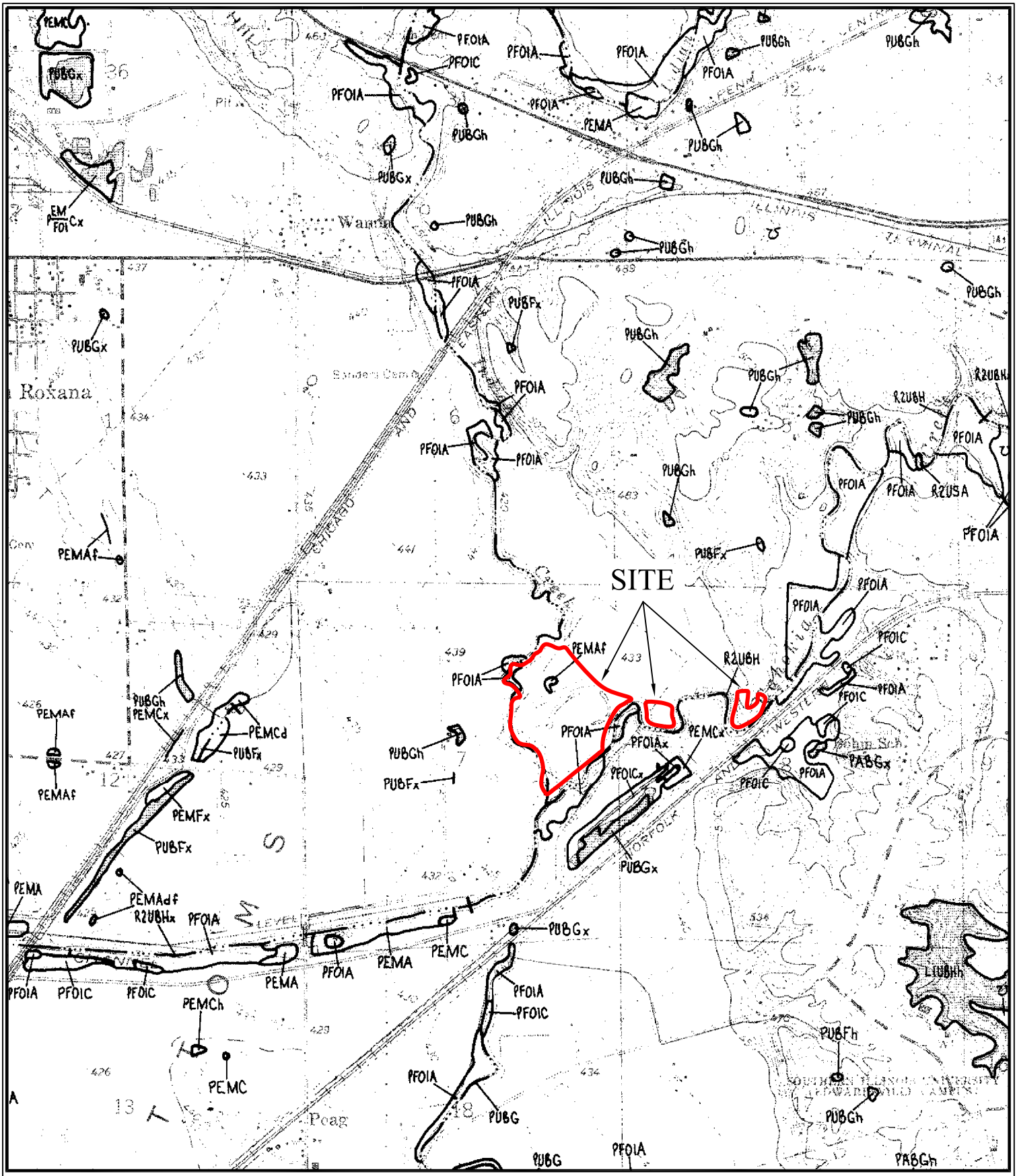
Landfill, Inc., who will continue to own the property and will execute the earthwork in accordance with this plan with implementation support from their subcontractor SCI Engineering, Inc. Together these entities will perform construction, maintenance and monitoring activities in accordance with this compensatory wetland mitigation plan, as funded by the FPD Council. The FPD Council has dedicated project funding to maintain the services of both Roxana Landfill, Inc. and SCI for the duration of mitigation construction, maintenance, and monitoring until prescribed performance standards are satisfied.

13.0 LIMITATIONS

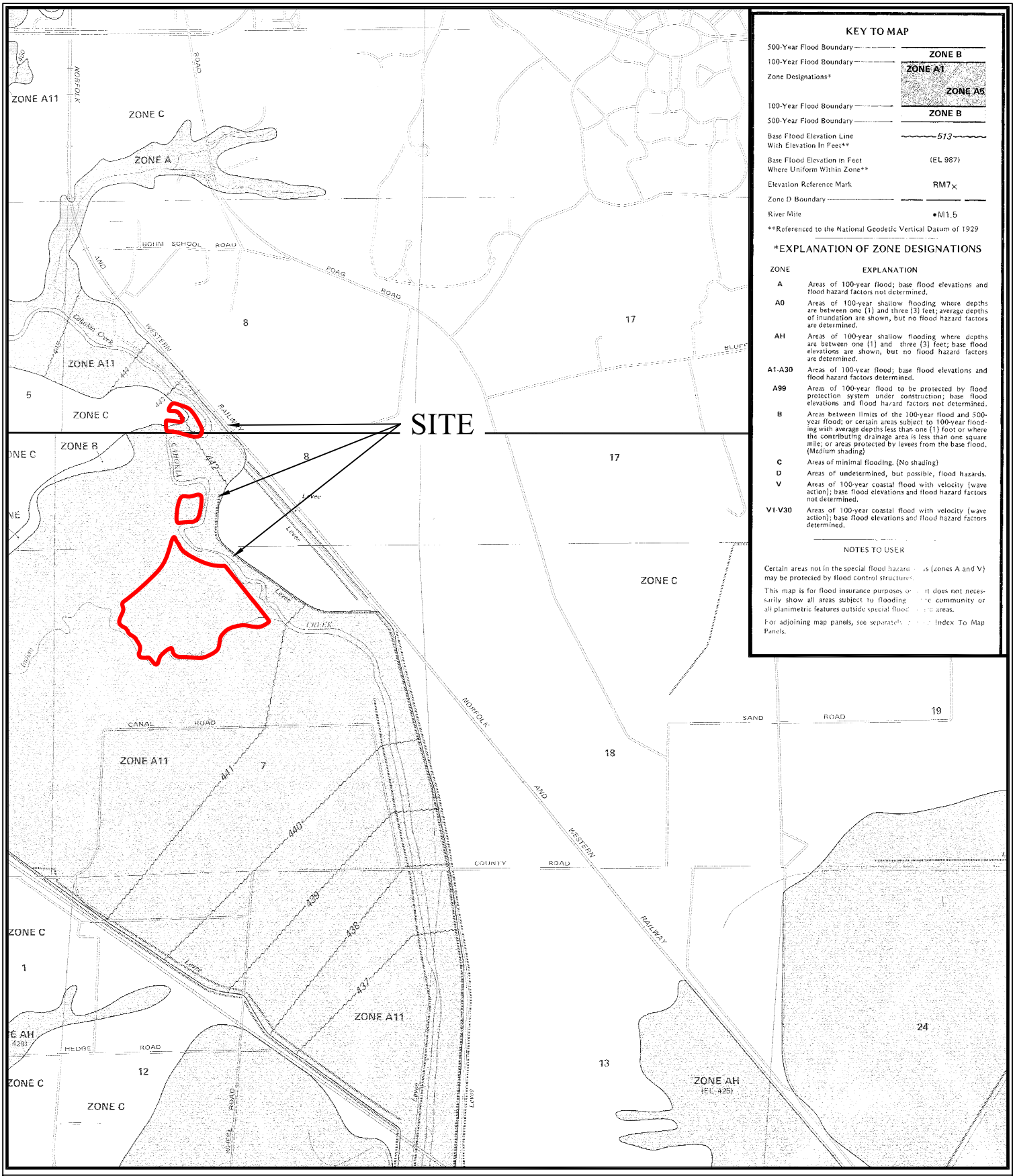
This report has been prepared for the exclusive use of Southwestern Illinois Flood Prevention District Council and Roxana Landfill, Inc. SCI is not responsible for independent conclusions or recommendations made by others. SCI is not responsible for surveys, calculations, or plans that were prepared by others. Furthermore, written consent must be provided by SCI should anyone other than our clients and their lender (if applicable) wish to excerpt, or rely on, the contents of this report. Additionally, SCI in no way guarantees the successful establishment of the aforementioned mitigation areas. The plan is based on practices commonly performed and accepted. Various unforeseen factors beyond our control can lead to the failure of a mitigation area.



	PROJECT NAME SWIFPD MITIGATION SITE MADISON COUNTY, ILLINOIS			**General Notes/Legend** USGS TOPOGRAPHIC MAP WOOD RIVER, ILLINOIS - MISSOURI QUADRANGLE DATED 1993 PHOTO REVISED 1994 10' CONTOURS EDWARDSVILLE, ILLINOIS QUADRANGLE DATED 1991 PHOTO REVISED 1998 10' CONTOURS	N W E S
	VICINITY AND TOPOGRAPHIC MAP				**SCALE** 1" = 2000'
	DRAWN BY RCV **CHECKED BY** SDH	**DATE** 04/2012	**JOB NUMBER** 2010-3162.31	MICROSOFT STREETS AND TRIPS 2007	**FIGURE** 1



	PROJECT NAME SWIFPD MITIGATION SITE MADISON COUNTY, ILLINOIS	General Notes/Legend NATIONAL WETLANDS INVENTORY MAP WOOD RIVER, ILLINOIS - MISSOURI QUADRANGLE DATED 1993 10' CONTOURS	N W E S	
	NATIONAL WETLANDS INVENTORY MAP			SCALE 1" = 2000'
	DRAWN BY RCV CHECKED BY SDH	DATE 04/2012	JOB NUMBER 2010-3162.31	FIGURE 2



PROJECT NAME			
SWIFPD MITIGATION SITE MADISON COUNTY, ILLINOIS			
FLOOD MAP			
DRAWN BY RCV	**DATE**	**JOB NUMBER**	
CHECKED BY SDH	04/2012	2010-3162.31	

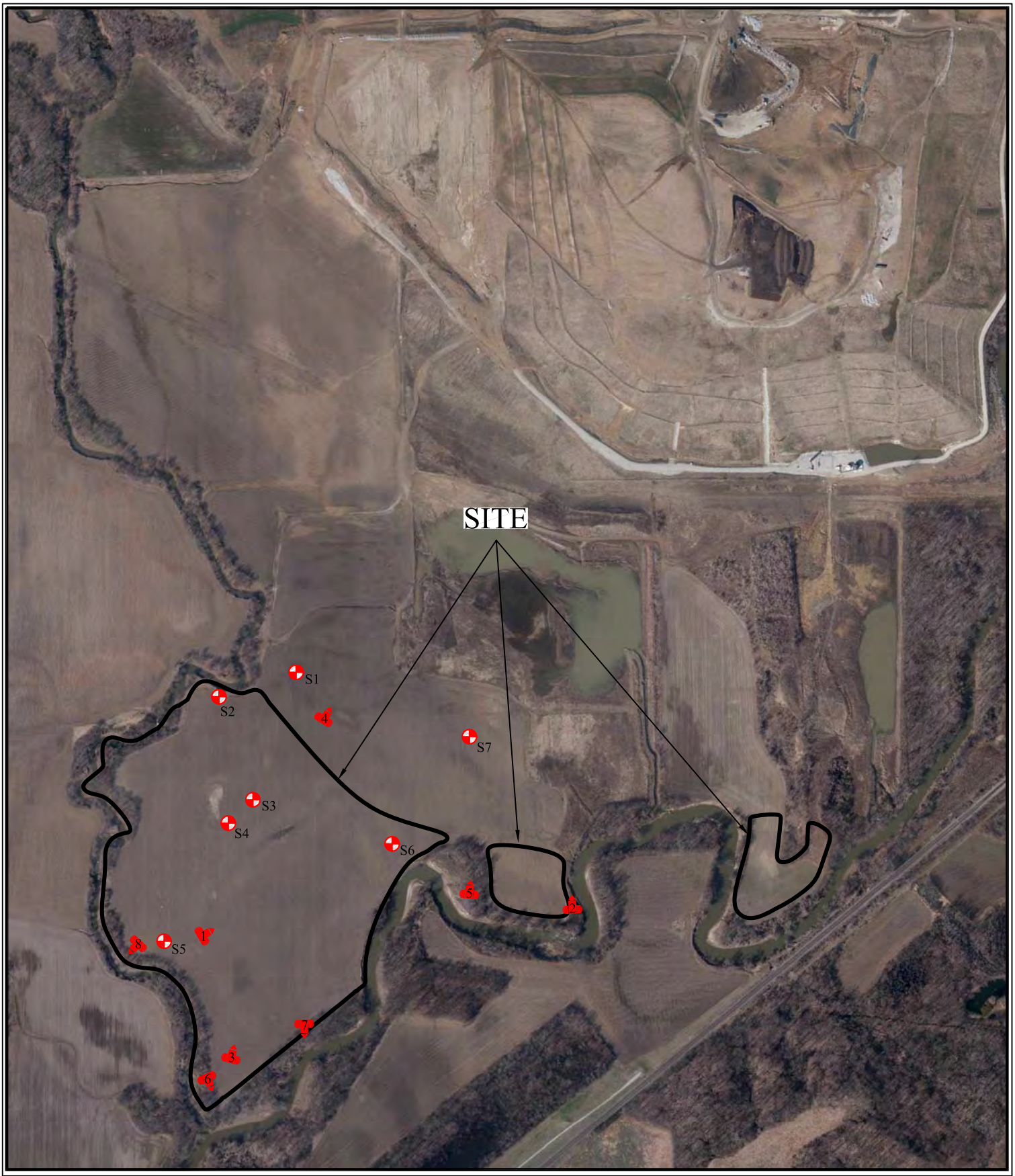
General Notes/Legend

FLOOD INSURANCE RATE MAP
MADISON COUNTY, ILLINOIS
MAP NUMBER:
1704360115B & 1704360095B
MAP REVISED:
APRIL 15, 1982

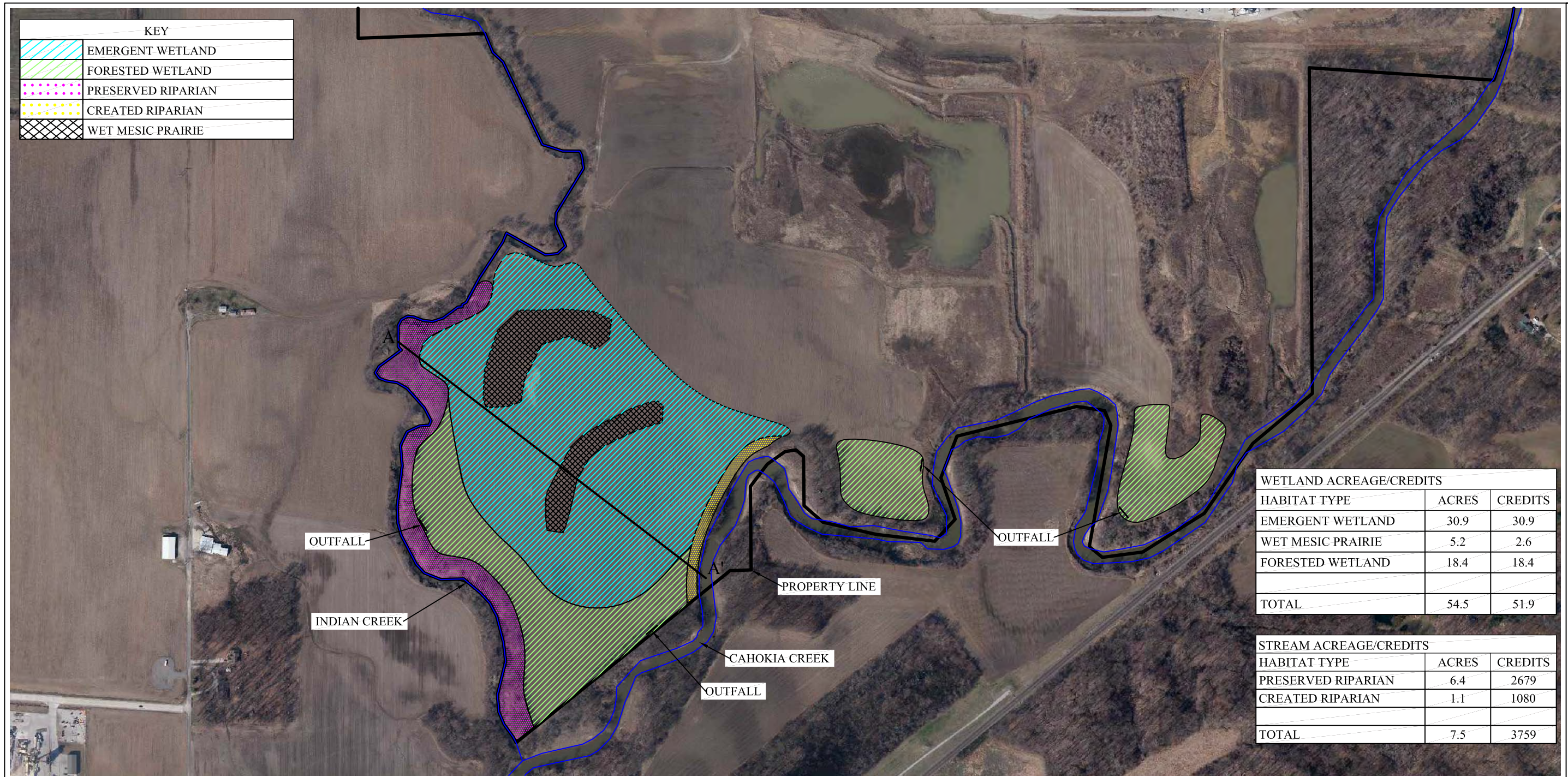
E
N S
W

SCALE 1" = 2000'

FIGURE 3



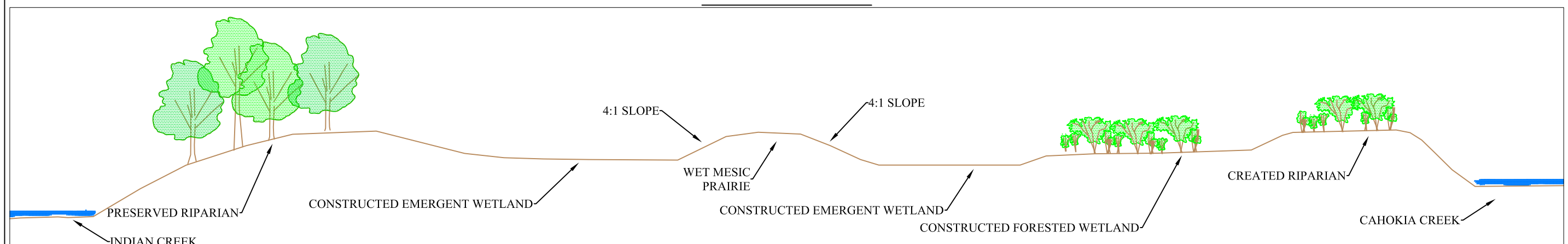
	PROJECT NAME SWIFPD MITIGATION SITE MADISON COUNTY, ILLINOIS	General Notes/Legend INDICATES APPROXIMATE SOIL BORING LOCATIONS INDICATES PHOTOGRAPH LOCATION, DIRECTION AND DESIGNATION	N W E S	
	AERIAL PHOTOGRAPH	AERIAL PHOTOGRAPH OBTAINED FROM http://earth.google.com/		SCALE 1" = 700'
	DRAWN BY RCV CHECKED BY SDH	DATE 04/2012	JOB NUMBER 2010-3162.31	FIGURE 4



WETLAND ACREAGE/CREDITS		
HABITAT TYPE	ACRES	CREDITS
EMERGENT WETLAND	30.9	30.9
WET MESIC PRAIRIE	5.2	2.6
FORESTED WETLAND	18.4	18.4
TOTAL	54.5	51.9

STREAM ACREAGE/CREDITS		
HABITAT TYPE	ACRES	CREDITS
PRESERVED RIPARIAN	6.4	2679
CREATED RIPARIAN	1.1	1080
TOTAL	7.5	3759

PLAN VIEW



CONCEPTUAL CROSS SECTION, A - A'

NOT TO SCALE

General Notes/Legend

DIMENSIONS AND LOCATIONS ARE APPROXIMATE; ACTUAL MAY VARY.
DRAWING SHALL NOT BE USED OUTSIDE THE CONTEXT OF THE REPORT FOR WHICH IT WAS GENERATED.

PROJECT NAME

SWIFPD MITIGATION SITE
MADISON COUNTY, ILLINOIS

PROPOSED MITIGATION SITE PLAN

N
W E
S

SCALE	1" = 500'
JOB NUMBER	2010-3162.31
DATE	04/2012
DRAWN BY	RCV
CHECKED BY	SDH
FIGURE	5

Appendix A

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site:	Roxana Landfill	City/County:	Roxana	Sampling Date:	1/3/12
Applicant/Owner:	Republic Services/FPD Council	State:	IL	Sampling Point:	S1
Investigator(s):	Scott Harding	Section, Township, Range:		S7 T4N R8W	
Landform (hillslope, terrace, etc.):	_____	Local relief (concave, convex, none):		_____	
Slope (%):	_____	Lat: _____	Long: _____	Datum:	_____
Soil Map Unit Name:	_____	NWI classification:		_____	
Are climatic/hydrologic conditions on the site typical for this time of year?		Yes ☒ No ☐ (If no, explain in Remarks.)			
Are Vegetation Y, Soil Y, or Hydrology N significantly disturbed?		Are "Normal Circumstances" present?		Yes ☐ No ☒	
Are Vegetation N, Soil N, or Hydrology N naturally problematic?		(If needed, explain any answers in Remarks.)			

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present:	Yes ☐ No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Hydric Soil Present:	Yes ☐ No ☒		
Wetland Hydrology Present:	Yes ☐ No ☒		
Remarks: area is a tilled field cleared of vegetation			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species across all Strata: _____ (B)

Percent of Dominant Species that are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x1 = _____
FACW species _____	x2 = _____
FAC species _____	x3 = _____
FACU species _____	x4 = _____
UPL species _____	x5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

_____ Dominance Test is >50%

_____ Prevalence Index is ≤3.0[1]

_____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

_____ Problematic Hydrophytic Vegetation1 (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks: (Include photo numbers here or on a separate sheet.) Area is a tilled field cleared of vegetation

SOIL

Sampling Point: S1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features					
	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 6/3						sil	
20-40	10YR 5/4						sicl	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epidedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Coast Prairie Redox (A16)
- ☐ Iron-Manganese Masses (F12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D2)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☒ No ☐ Depth (inches): 18

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site:	Roxana Landfill	City/County:	Roxana	Sampling Date:	1/3/12
Applicant/Owner:	Republic Services/FPD Council	State:	IL	Sampling Point:	S2
Investigator(s):	Scott Harding		Section, Township, Range:	S7 T4N R8W	
Landform (hillslope, terrace, etc.):	_____		Local relief (concave, convex, none):	_____	
Slope (%):	_____	Lat: _____	Long: _____	Datum:	_____
Soil Map Unit Name:	_____		NWI classification:	_____	
Are climatic/hydrologic conditions on the site typical for this time of year?			Yes ☒ No ☐ (If no, explain in Remarks.)		
Are Vegetation Y, Soil Y, or Hydrology N significantly disturbed?			Are "Normal Circumstances" present?	Yes ☐ No ☒	
Are Vegetation N, Soil N, or Hydrology N naturally problematic?			(If needed, explain any answers in Remarks.)		

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present:	Yes ☐ No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Hydric Soil Present:	Yes ☒ No ☐		
Wetland Hydrology Present:	Yes ☐ No ☒		
Remarks: area is a tilled field cleared of vegetation			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species across all Strata: _____ (B)

Percent of Dominant Species that are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x1 = _____
FACW species _____	x2 = _____
FAC species _____	x3 = _____
FACU species _____	x4 = _____
UPL species _____	x5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

_____ Dominance Test is >50%

_____ Prevalence Index is ≤3.0[1]

_____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

_____ Problematic Hydrophytic Vegetation1 (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks: (Include photo numbers here or on a separate sheet.) Area is a tilled field cleared of vegetation

SOIL

Sampling Point: S2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features					
	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 3/1						sic	
20-40	10YR 4/2						sic	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epidedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Coast Prairie Redox (A16)
- ☐ Iron-Manganese Masses (F12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D2)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site:	Roxana Landfill	City/County:	Roxana	Sampling Date:	1/3/12
Applicant/Owner:	Republic Services/FPD Council	State:	IL	Sampling Point:	S3
Investigator(s):	Scott Harding	Section, Township, Range:		S7 T4N R8W	
Landform (hillslope, terrace, etc.):	_____	Local relief (concave, convex, none):		_____	
Slope (%):	_____	Lat: _____	Long: _____	Datum:	_____
Soil Map Unit Name:	_____	NWI classification:		_____	
Are climatic/hydrologic conditions on the site typical for this time of year?		Yes ☒ No ☐ (If no, explain in Remarks.)			
Are Vegetation Y, Soil Y, or Hydrology N significantly disturbed?		Are "Normal Circumstances" present?		Yes ☐ No ☒	
Are Vegetation N, Soil N, or Hydrology N naturally problematic?		(If needed, explain any answers in Remarks.)			

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present:	Yes ☐ No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Hydric Soil Present:	Yes ☒ No ☐		
Wetland Hydrology Present:	Yes ☐ No ☒		
Remarks: area is a tilled field cleared of vegetation			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species across all Strata: _____ (B)

Percent of Dominant Species that are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x1 = _____
FACW species _____	x2 = _____
FAC species _____	x3 = _____
FACU species _____	x4 = _____
UPL species _____	x5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

_____ Dominance Test is >50%

_____ Prevalence Index is ≤3.0[1]

_____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

_____ Problematic Hydrophytic Vegetation1 (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks: (Include photo numbers here or on a separate sheet.) Area is a tilled field cleared of vegetation

SOIL

Sampling Point: S3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features					
	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2						sil	
8-42	10YR 4/2						sicl	
42-50	10YR 4/2						strat silt/sand	
50+	10YR 4/1						sic	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epidedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Coast Prairie Redox (A16)
- ☐ Iron-Manganese Masses (F12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks: We estimate the seasonal high water table is near the surface (<8")

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D2)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site:	Roxana Landfill	City/County:	Roxana	Sampling Date:	1/3/12
Applicant/Owner:	Republic Services/FPD Council	State:	IL	Sampling Point:	S4
Investigator(s):	Scott Harding	Section, Township, Range:		S7 T4N R8W	
Landform (hillslope, terrace, etc.):	_____	Local relief (concave, convex, none):		_____	
Slope (%):	_____	Lat: _____	Long: _____	Datum:	_____
Soil Map Unit Name:	_____	NWI classification:		_____	
Are climatic/hydrologic conditions on the site typical for this time of year?		Yes ☒ No ☐ (If no, explain in Remarks.)			
Are Vegetation Y, Soil Y, or Hydrology N significantly disturbed?		Are "Normal Circumstances" present?		Yes ☐ No ☒	
Are Vegetation N, Soil N, or Hydrology N naturally problematic?		(If needed, explain any answers in Remarks.)			

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present:	Yes ☐ No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Hydric Soil Present:	Yes ☒ No ☐		
Wetland Hydrology Present:	Yes ☐ No ☒		
Remarks: area is a tilled field cleared of vegetation			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species across all Strata: _____ (B)

Percent of Dominant Species that are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x1 = _____
FACW species _____	x2 = _____
FAC species _____	x3 = _____
FACU species _____	x4 = _____
UPL species _____	x5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

_____ Dominance Test is >50%

_____ Prevalence Index is ≤3.0[1]

_____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

_____ Problematic Hydrophytic Vegetation1 (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks: (Include photo numbers here or on a separate sheet.) Area is a tilled field cleared of vegetation

SOIL

Sampling Point: S4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features					
	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/2						sil	
7-36	10YR 4/2						sicl	
36+	10YR 4/3						stratified silts	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epidedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Coast Prairie Redox (A16)
- ☐ Iron-Manganese Masses (F12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D2)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site:	Roxana Landfill	City/County:	Roxana	Sampling Date:	1/3/12
Applicant/Owner:	Republic Services/FPD Council	State:	IL	Sampling Point:	S5
Investigator(s):	Scott Harding		Section, Township, Range:	S7 T4N R8W	
Landform (hillslope, terrace, etc.):	_____		Local relief (concave, convex, none):	_____	
Slope (%):	_____	Lat: _____	Long: _____	Datum:	_____
Soil Map Unit Name:	_____		NWI classification:	_____	
Are climatic/hydrologic conditions on the site typical for this time of year?			Yes ☒ No ☐ (If no, explain in Remarks.)		
Are Vegetation Y, Soil Y, or Hydrology N significantly disturbed?			Are "Normal Circumstances" present?	Yes ☐ No ☒	
Are Vegetation N, Soil N, or Hydrology N naturally problematic?			(If needed, explain any answers in Remarks.)		

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present:	Yes ☐ No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Hydric Soil Present:	Yes ☒ No ☐		
Wetland Hydrology Present:	Yes ☐ No ☒		
Remarks: area is a tilled field cleared of vegetation			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species across all Strata: _____ (B)

Percent of Dominant Species that are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x1 = _____
FACW species _____	x2 = _____
FAC species _____	x3 = _____
FACU species _____	x4 = _____
UPL species _____	x5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

_____ Dominance Test is >50%

_____ Prevalence Index is ≤3.0[1]

_____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

_____ Problematic Hydrophytic Vegetation1 (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks: (Include photo numbers here or on a separate sheet.) Area is a tilled field cleared of vegetation

SOIL

Sampling Point: S5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features					
	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2						sil	
8-36	10YR 4/2						sicl	alluvium

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epidedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Coast Prairie Redox (A16)
- ☐ Iron-Manganese Masses (F12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D2)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site:	Roxana Landfill	City/County:	Roxana	Sampling Date:	1/3/12
Applicant/Owner:	Republic Services/FPD Council	State:	IL	Sampling Point:	S6
Investigator(s):	Scott Harding	Section, Township, Range:		S7 T4N R8W	
Landform (hillslope, terrace, etc.):	_____	Local relief (concave, convex, none):		_____	
Slope (%):	_____	Lat: _____	Long: _____	Datum:	_____
Soil Map Unit Name:	_____	NWI classification:		_____	
Are climatic/hydrologic conditions on the site typical for this time of year?		Yes ☒ No ☐ (If no, explain in Remarks.)			
Are Vegetation Y, Soil Y, or Hydrology N significantly disturbed?		Are "Normal Circumstances" present?		Yes ☐ No ☒	
Are Vegetation N, Soil N, or Hydrology N naturally problematic?		(If needed, explain any answers in Remarks.)			

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present:	Yes ☐ No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Hydric Soil Present:	Yes ☒ No ☐		
Wetland Hydrology Present:	Yes ☐ No ☒		
Remarks: area is a tilled field cleared of vegetation			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species across all Strata: _____ (B)

Percent of Dominant Species that are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x1 = _____
FACW species _____	x2 = _____
FAC species _____	x3 = _____
FACU species _____	x4 = _____
UPL species _____	x5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

_____ Dominance Test is >50%

_____ Prevalence Index is ≤3.0[1]

_____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

_____ Problematic Hydrophytic Vegetation1 (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks: (Include photo numbers here or on a separate sheet.) Area is a tilled field cleared of vegetation

SOIL

Sampling Point: S6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features					
	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-30	10YR 3/2						sil	
30+	10YR 4/2		10YR 3/3				stratified silts	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epidedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Coast Prairie Redox (A16)
- ☐ Iron-Manganese Masses (F12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D2)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site:	Roxana Landfill	City/County:	Roxana	Sampling Date:	1/3/12
Applicant/Owner:	Republic Services/FPD Council	State:	IL	Sampling Point:	S7
Investigator(s):	Scott Harding	Section, Township, Range:		S8 T4N R8W	
Landform (hillslope, terrace, etc.):	_____	Local relief (concave, convex, none):		_____	
Slope (%):	_____	Lat: _____	Long: _____	Datum:	_____
Soil Map Unit Name:	_____	NWI classification:		_____	
Are climatic/hydrologic conditions on the site typical for this time of year?		Yes ☒ No ☐ (If no, explain in Remarks.)			
Are Vegetation Y, Soil Y, or Hydrology N significantly disturbed?		Are "Normal Circumstances" present?		Yes ☐ No ☒	
Are Vegetation N, Soil N, or Hydrology N naturally problematic?		(If needed, explain any answers in Remarks.)			

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present:	Yes ☐ No ☒	**Is the Sampled Area within a Wetland?**	**Yes ☐ No ☒**
Hydric Soil Present:	Yes ☒ No ☐		
Wetland Hydrology Present:	Yes ☐ No ☒		
Remarks: area is a tilled field cleared of vegetation			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1. _____			
2. _____			
	_____ = Total Cover		

Dominance Test worksheet:

Number of Dominant Species that are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species across all Strata: _____ (B)

Percent of Dominant Species that are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index Worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x1 = _____
FACW species _____	x2 = _____
FAC species _____	x3 = _____
FACU species _____	x4 = _____
UPL species _____	x5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

_____ Dominance Test is >50%

_____ Prevalence Index is ≤3.0[1]

_____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

_____ Problematic Hydrophytic Vegetation1 (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks: (Include photo numbers here or on a separate sheet.) Area is a tilled field cleared of vegetation

SOIL

Sampling Point: S7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features					
	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-60	10YR 5/2						sil-sicl	lacustrine

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epidedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 5 cm Mucky Peat or Peat (S3)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ Coast Prairie Redox (A16)
- ☐ Iron-Manganese Masses (F12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Gauge or Well Data (D9)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D2)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☒ No ☐ Depth (inches): 12

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix B

Illinois Stream Mitigation Method

Project Name: Southwestern Illinois Flood Prevention District Mitigation Site Date: 3-7-12
ORM Number:
Riparian Worksheet

Factor	Preservation	Creation	Stream Reach 3	Stream Reach 4	Stream Reach 5
Priority	0.2	0.2			
Net Benefit Streamside A	0.2	0.4			
Net Benefit Streamside B					
Supplemental Buffer Credit	0	0	0	0	0
Monitoring	0.25	0.2			
Site Protection	0.1	0.1			
Mitigation Construction Timing	0.3	0.3			
Temporal Lag (Years)	0	0			
Sum of Factors **(m)** =	1.05	1.2	0	0	0
Linear Feet of Buffer (do not count each bank separate) **(lf)** =	2679	900			
Credits **(c) = (m) x (lf) =**	2812.95	1080	0	0	0
Mitigation Factor	1	1			
Credits Reach	2812.95	1080	0	0	0

Total Riparian Credits Generated 3892.95

Buffer width (on one side of the stream) Equal to or greater than	% Buffer that needs planting		
	*Buffer Creation and Restoration Exotic Removal and (51-100%)Planting	Buffer Enhancement Exotic Removal and (10-50%)Planting	Buffer Preservation (<10%)Planting
300 feet	2.4	0.95	0.65
275 feet	2.3	0.9	0.625
250 feet	2.2	0.85	0.6
225 feet	2.1	0.825	0.55
200 feet	2	0.8	0.5
175 feet	1.8	0.75	0.45
150 feet	1.6	0.7	0.4
125 feet	1.4	0.65	0.35
100 feet	1.2	0.6	0.3
75 feet	0.8	0.4	0.2
50 feet Minimum Buffer Width (MBW) for credit	0.4	0.2	0.1
25 feet required	0	0	0

Illinois Stream Mitigation Method with Explanation

Project Name: Southwestern Illinois Flood Prevention District Mitigation Site Date: 3-7-12
ORM Number:
Riparian Worksheet For both Indian and Cahokia Creeks

Factor	Preservation	Creation	Stream Reach 3	Stream Reach 4	Stream Reach 5
Priority	0.2	0.2			
Net Benefit Streamside A	0.2	0.4			
~~Net Benefit Streamside B~~					
Supplemental Buffer Credit	0	0	0	0	0
Monitoring	0.25	0.2			
Site Protection	0.1	0.1			
Mitigation Construction Timing	0.3	0.3			
Temporal Lag (Years)	0	0			
Sum of Factors (m) =	1.05	1.2	0	0	0
Linear Feet of Buffer (do not count each bank separate) (lf) =	2679	900			
Credits (c) = (m) x (lf) =	2812.95	1080	0	0	0
Mitigation Factor	1	1			
Credits Reach	2812.95	1080	0	0	0

Total Riparian Credits Generated 3892.95

Priority = Streams are secondary priority (0.2) in the watershed as they are adjacent to a proposed mitigation site

Net Benefit = Width of corridor and amount of planting utilized in the table below to determine the net benefit factor. As only one side of the stream is being enhanced, Streamside B was not utilized

Monitoring, Site Protection, Mitigation Construction Timing, Temporal Lag = Factors are chosen based on the amount or type provided for each category

Mitigation Factor = The mitigation is located within the watershed in which the impacts occurred indicating a mitigation factor of 1

Buffer width (on one side of the stream) Equal to or greater than	% Buffer that needs planting		
	*Buffer Creation and Restoration Exotic Removal and (51-100%)Planting	Buffer Enhancement Exotic Removal and (10-50%)Planting	Buffer Preservation (<10%)Planting
300 feet	2.4	0.95	0.65
275 feet	2.3	0.9	0.625
250 feet	2.2	0.85	0.6
225 feet	2.1	0.825	0.55
200 feet	2	0.8	0.5
175 feet	1.8	0.75	0.45
150 feet	1.6	0.7	0.4
125 feet	1.4	0.65	0.35
100 feet	1.2	0.6	0.3
75 feet	0.8	0.4	0.2
50 feet Minimum Buffer Width (MBW) for credit	0.4	0.2	0.1
25 feet required	0	0	0

Table utilized to determine the Net Benefit factor

= Data for created riparian corridor areas

= Data for preserved riparian corridor areas

Appendix C

Photo 1. Location of proposed constructed emergent and forested wetland basin, facing north

Photo 2. Location of proposed created riparian corridor, facing north

Photo 3. Overview of proposed forested wetland, emergent wetland, and wet mesic prairie areas, facing northeast

Photo 4. Existing swale in agricultural field, facing northeast

Photo 5. Stand of Johnson grass within the riparian corridor, facing northeast

Photo 6. Confluence of Indian Creek and Cahokia Creek, facing southeast

Photo 7. Swale leading to Cahokia Creek, facing southeast

Photo 8. Swale leading to Indian Creek, facing southwest

Appendix D

United States Department of Agriculture

NRCS

Natural Resources Conservation Service
7205 Marine Road
Edwardsville IL 62025
(618) 656-7300 x 3

www.il.nrcs.usda.gov

March 15, 2012

Roxana Landfill Inc.
PO Box 97
Roxana IL 62084

RE: FSA 1026, Certified Wetland Determination

Dear Roxana Land Fill Inc.,

This is to notify you that as of the date of this letter, I am making a technical determination that, on Tract 13117, fields 1, 2, and 3, with a combined acreage of 176.5 acres, shown in Section I of the attached **NRCS-CPA-026E "HIGHLY ERODIBLE LAND AND WETLAND CONSERVATION DETERMINATION"** form and attached map, is considered NHEL/PC.

This HEL/WC determination does not include "other waters of the United States" as defined by the US Army Corps of Engineers, which include but are not limited to tidal waters, lakes, rivers, streams, mud flats and intermittent and perennial streams which are regulated under the Clean Water Act. Contact the US Army Corps of Engineers and the Illinois DNR - Office of Water Resources, regarding additional permit requirements.

Sincerely,

Dan Steinmann
District Conservationist
Madison County NRCS

Enclosure CPA 026's with maps

United States Department of Agriculture

Natural Resources Conservation Service

NRCS-CPA-026e
1/2011

HIGHLY ERODIBLE LAND AND WETLAND CONSERVATION DETERMINATION

Name Address:	Roxana Landfill Inc. PO Box 97 Roxana IL 62084	Request Date: 03/06/2012	County: Madison
		Tract No: 14602	Farm No.: 10380
		Agency/Person Requesting Determination:	FSA

Section I - Highly Erodible Land

Is a soil survey now available for making a highly erodible land determination?	Yes
Are there highly erodible soil map units on this farm?	Yes

Fields in this section have undergone a determination of whether they are highly erodible land (HEL) or not; fields for which an HEL Determination has not been completed are not listed. In order to be eligible for USDA benefits, a person must be using an approved conservation system on all HEL.

Field(s)	HEL(Y/N)	Sodbust (Y/N)	Acres	Determination Date
1	No	No	16.99	
2	No	No	69.97	
3	No	No	89.59	

The Highly Erodible Land determination was completed in the office.

Section II - Wetlands

Are there hydric soils on this farm?	Yes

Fields in this section have had wetland determinations completed. See the Definition of Wetland Label Codes for additional information regarding allowable activities under the wetland conservation provisions of the Food Security Act and/or when wetland determinations are necessary to determine USDA program eligibility.

Field(s)	Wetland Label*	Occurrence Year (CW)**	Acres	Preliminary Determination Date	Final Certification Date
1	PC		16.99	03/15/2012	03/15/2012
2	PC		69.97	03/15/2012	03/15/2012
3	PC		89.59	03/15/2012	03/15/2012

The Preliminary Wetland Determination was completed in the office.
It was mailed to the USDA participant.

Remarks:

I certify that the above determinations are correct and were conducted in accordance with regulations and procedures contained in 7 CFR Part 12 and the National Food Security Act Manual.

Signature: Designated Conservationist	Date
	03/15/2012

I certify the above determinations as Final. Preliminary Appeal Rights have been either concluded or not utilized in accordance with regulations and procedures contained in 7 CFR Part 614 and the National Food Security Act Manual.

Signature:	Date

DEFINITIONS OF WETLAND LABELS

AW	Artificial Wetland: An area that was formerly a non-wetland area under natural conditions but now exhibit wetland characteristics because of the influence of human activities. These areas are exempt from the Food Security Act of 1985, as amended. This label includes irrigation induced wetlands.
CC	Commenced Conversion: A wetland, farmed wetland, farmed wetland pasture, or converted wetland on which the conversion began but was not completed before December 23, 1985, was approved by FSA to continue, and the conversion was completed by January 1, 1995.
CPD	COE Permit with Mitigation: A converted wetland authorized by a permit issued under Section 404 of the Clean Water Act. Production of agricultural commodities is allowed subject to conditions of the permit.
CWE	Categorical Minimal Effect: A wetland that meets specific categories of conversion activities that have been determined by NRCS to have minimal effect, individually and cumulatively, on the function and values of the wetland and the wetlands in the watershed.
CW	Converted Wetland: A wetland converted between December 23, 1985 and November 28, 1990. Production of an agricultural commodity or additional manipulation of these areas will yield UDSA benefit ineligibility. Also, these areas are wetlands converted after December 23, 1985 by a county, drainage district or similar entity. For these instances, production of an agricultural commodity or forage for mechanical harvest or additional manipulation will cause ineligibility for USDA program benefits.
CW+year	Converted Wetland +(year the conversion occurred): A wetland converted after November 28, 1990 where the USDA program participant is ineligible for benefits until the wetland is restored or mitigated unless an exemption applies.
CWNA*	Converted Wetland Non-Agricultural Use: A wetland converted after November 28, 1990 to a use other than agricultural commodity production.
CWTE	Converted Wetland Technical Error: A wetland converted or commenced after December 23, 1985 based on an incorrect NRCS determination. This label does not apply to obvious wetlands as defined in the National Food Security Act Manual.
FW	Farmed Wetland: A wetland that is farmed under natural conditions, was manipulated and planted before December 23, 1985 but still meets wetland criteria, and addresses either of the pothole, playa or pocosin criterions. These areas may be farmed and maintained as documented before December 23, 1985 as long as they are not abandoned (i.e., management or maintenance for commodity production ceased for five consecutive years).
FWP	Farmed Wetland Pasture or Hayland: A wetland that is used for pasture or haying under natural conditions, was manipulated and planted before December 23, 1985, meets the inundation or saturation criteria, but still meets wetland criteria. These areas may be farmed and maintained as documented before December 23, 1985 as long as they are not abandoned (i.e., management or maintenance for commodity production ceased for five consecutive years).
MIW	Mitigation Exemption: A converted wetland, farmed wetland or farmed wetland pasture of which the acreage, functions and values lost have been compensated for through an NRCS approved mitigation plan.
MW	Minimal Effect Exemption: A converted wetland that is exempt from the wetland conservation provisions of the Food Security Act of 1985, as amended, based on an NRCS determination that the conversion has or will have a minimal effect, individually and cumulatively, on the functions and values of the wetland and the wetlands in the watershed.
MWM	Mitigation Site: The site of wetland restoration, enhancement, or creation serving as mitigation for the mitigation exemption (MIW) site.
NI*	Not Inventoried: An area where no wetland determination has been conducted.
NW	Non-Wetland: An area that does not contain a wetland. Also includes wetlands converted before December 23, 1985, but a commodity crop was not produced and the area does not meet wetland criteria. The area has not been abandoned.
PC	Prior Converted Cropland: A wetland converted to cropland before December 23, 1985, and as of December 23, 1985 was capable of being cropped and did not meet farmed wetland hydrology criteria. These areas are not subject to the wetland conservation provisions of the Food Security Act of 1985, as amended, unless further drainage manipulation affects adjacent wetlands.
TP	Third Party Exemption: A wetland converted after December 23, 1985 by a third party who is not associated with the participant, and without the participant's collusion, fraud, scheme or device. A third party does not include predecessors in interest on the tract, drainage districts, or other local government entities.
W	Wetland: An area meeting wetland criteria that was not converted after December 23, 1985. These areas include farmed wetlands and farmed wetland pasture that have been abandoned.
WX	Manipulated Wetlands: A wetland manipulated after December 23, 1985, but the manipulation was not for the purpose of making production possible and production was not made possible. These areas include wetlands manipulated by drainage maintenance agreements.

*These labels are no longer used for certified wetland determinations completed after posting of the revised National Food Security Act Manual Part 514-516 (February 8, 2008).

Farm 10380
Tract 14602

Certified Wetland Determination
Roxana Land Fill Inc.

Madison County

0 500 1,000 2,000 Feet