

FINAL
Natural Resource Restoration Plan
for Fenton Creek Dump Site
St. Louis County, Missouri

Prepared by: U.S. Department of the Interior, Fish and Wildlife Service

Date issued: December 11, 2009

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UNITED STATES FISH AND WILDLIFE SERVICE

ENVIRONMENTAL ACTION STATEMENT

Within the spirit and intent of the Council on Environmental Quality's regulations for implementing the National Environmental Policy Act (NEPA), and other statutes, orders, and policies that protect fish and wildlife resources, I have established the following administrative record and determined that the action of **Fenton Creek Dump Site NRDA Restoration Plan**:

Check One:

- X is a categorical exclusion as provided by 516 DM 2, Appendix 1 and 516 DM 6, Appendix 1. No further NEPA documentation will therefore be made.
- is found not to have significant environmental effects as determined by the attached environmental assessment and finding of no significant impact.
- is found to have significant effects and, therefore, further consideration of this action will require a notice of intent to be published in the Federal Register announcing the decision to prepare an EIS.
- is not approved because of unacceptable environmental damage, or violation of Fish and Wildlife Service mandates, policy, regulations, or procedures.
- is an emergency action within the context of 40 CFR 1506.11. Only those actions necessary to control the immediate impacts of the emergency will be taken. Other related actions remain subject to NEPA review.

Other supporting documents (list): I have evaluated the proposed action in accordance with DOI and USFWS NEPA procedures. The implementation of actions (conservation/restoration of migratory bird habitats) resulting from this plan will result in negligible environmental impacts – these actions will have a positive environmental benefit. Furthermore, the actions resulting from this restoration plan will not have a cumulative, significant effect on the human environment – conversely it will have a cumulative positive benefit to the public. Natural resource damage assessment restoration plans are designated categorical exclusions (number B.11) under 516 DM 8. Based on the criteria in 516 DM 2 Appendix 2, I have determined that no extraordinary circumstances exist that would disqualify this action for a categorical exclusion.

Signature Approval:

Frank M. Sloan 12/11/09
(1) Initiator Date

Lynn M. Lewis 1/21/10
(3) ARD Date

[Signature] 1/13/10
(2) RHPO Date

Charles M. Wooley 1/25/10
(4) R Charles M. Wooley Date
Acting Regional Director

INTRODUCTION

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 as amended by the Superfund Amendments and reauthorization Act of 1986 (herein referred to as CERCLA, 42 U.S.C. 9601 et seq.) provides that the owner or operator of a facility or a vessel shall be liable for damages for injury to, destruction of, or loss of natural resources, including the reasonable costs of assessing the injury, destruction, or the loss resulting from such a release. CERCLA further provides that damages recovered will be used to restore, replace, rehabilitate or acquire the equivalent of (herein referred to as restoration) the injured natural resources. Federal and State agencies responsible have been designated as trustees, on behalf of the public, to ensure the restoration of natural resources that have been injured.

The Secretary of the Interior has been designated as the trustee for natural resources managed by the U.S. Department of the Interior (DOI) including federal lands, migratory birds, threatened and endangered species, anadromous fish and supporting habitats. The Director of the Missouri Department of Natural Resources has been designated as the trustee for natural resources, as defined in CERCLA, within its state's boundaries. Trustees generally have overlapping management interests for the same resources, resulting in co-extensive authority.

In September 1998, the DOI was awarded \$49,707 for damages to natural resources (and \$2,419 for past costs for a total of \$52,126) at the Fenton Creek Dump Site, Fenton, St. Louis County, Missouri. The DOI regulations require the completion of a restoration plan, with public input, prior to expending any settlement funds. The U.S. Fish and Wildlife Service (Service) prepared this restoration plan in consultation with the Missouri Department of Natural Resources (MDNR). Preparation of the restoration plan is the initial step in restoring the natural resources injured as a result of the release of hazardous substances at the Fenton Creek Dump Site.

BACKGROUND

The Fenton Creek (also known as the Chrysler Dump) Site is located at 478 Old South Highway 141 in Fenton, Missouri (NW ¼ NE ¼ SW ¼ Section 35 T44N R5E). The site is bordered on the north and south by residential land, on the west by Old South Highway 141, and on the east by a tributary of Fenton Creek. Immediately east of the site is George Winter County Park, which is owned and managed by the St. Louis County Parks and Recreation Department.

The site encompasses a relict meandering channel and a series of disturbed old terraces that are adjacent to the intermittent tributary of Fenton Creek. An aerial photographic review (Golder Associates, Inc. 1997) revealed that the meandering tributary channel was diverted from its previous course between the years of 1960 and 1964. The meanders were removed to produce a newly developed straight channel.

The Fenton Creek/Chrysler Dump Site consisted of an overstory of large trees including, but not limited to, various oak species (*Quercus* spp.), silver maple (*Acer saccharinum*), American elm (*Ulmus americana*), and American sycamore (*Platanus occidentalis*). The understory contained

saplings of these species as well as box elder (*A. negundo*) trees. Common herbaceous plant species included, but was not limited to, wood nettle (*Laportea canadensis*), poison ivy (*Toxicodendron radicans*), and jewelweed (*Impatiens capensis*). These plants are typical of midwest bottomland forests.

A portion of the site lies within the 10-year floodplain. The site was completely flooded in 1993 and 1995. The surface water from the contaminated area on-site flows overland to an intermittent tributary. The intermittent tributary flows into Fenton Creek, a perennial stream, and Fenton Creek flows approximately 0.5 miles to the Meramec River.

The contaminated area was reported to the MDNR by a neighbor in 1991. Several site inspections were completed by the MDNR and U.S. Environmental Protection Agency (EPA). The paint waste found at the site was from the Chrysler Motors plant located in Fenton, Missouri. The dumping occurred for at least 5 years between 1957 and 1967. The site contained hardened blue-gray paint sludge in the soil, at an average depth of 3 feet, and decaying drums in an old creek channel paralleling a tributary flowing into Fenton Creek. The estimated areal extent of the paint waste disposal area was 22,500 ft². Adjacent to the paint waste, solid waste consisting of metallic debris, glass, concrete, plastic, tires, household waste, and other non-putrescible constituents was disposed. The areal extent of the solid waste was estimated to be 35,000 ft². Within the extent of the paint and solid waste area, there were identified non-native surficial soils consisting of black to brown granular materials containing soil, ash, metal, and glass debris. The areal extent of the site that was affected during remediation was approximately 2.5 acres; the areal extent of the contaminated land was approximately 1.3 acres.

Soil and sludge samples from on-site were collected along with water and sediment samples from the tributary and Fenton Creek. Constituents found in the soil and sludge samples include di-n-butylphthalate, bis(2-ethylhexyl)phthalate, naphthalene, 2-methylnaphthalene, xylenes, toluene, ethylbenzene, barium, cadmium, chromium, lead, selenium, arsenic, mercury, silver, and zinc. Pre-flood 1993 sediment samples from the tributary exhibited detectable levels of barium, cadmium, chromium, lead, selenium, arsenic, silver, and zinc. Zinc was also detected in surface water samples from the tributary and at the confluence of the tributary and Fenton Creek. Post-flood 1993 sample collection data suggests that the site may have contributed bis(2-ethylhexyl)phthalate, chromium, and arsenic to Fenton Creek (DNR 1993). The key contaminants of concern on-site, which triggered an EPA removal action, were high concentrations (exceedance of federal site screening standards) of arsenic, barium, cadmium, chromium, lead, and zinc, and the ignitability of the paint sludge due to the organic chemicals detected (EPA 1997).

The EPA removal action at the site included excavation of all paint wastes and associated debris and soils. The material was containerized and transported offsite. The reclamation included replacement of excavation area with clean-fill, grading and seeding of the remediated area and re-establishing the original meanders of the creek.

As mentioned above, the Fenton Creek/Chrysler Dump Site is adjacent to the George Winter County Park, a part of the St. Louis County Park system. The Fenton Creek/Chrysler Dump Site

is located on an 11.49 acre tract of land previously owned by the Chott family. As part of the settlement agreement, 5.7 contiguous acres of the Chott's land was to be either deeded over to the St. Louis County Parks (County) for addition to the George Winter County Park, or a deed restriction was to be placed on the property for conservation purposes. The consent decree required the Chott family to coordinate with the Service on the specific location and language of the deed restriction. However, that coordination occurred after the Chott's recorded the deed restriction. The deed restriction did not exclude any portion of the property (including the 5.7 acres intended for restriction) from commercial purposes. Subsequently, the Chott family sold the entire 11.49 parcel to a commercial development corporation. In 2007, the Service began negotiations with the current property owner to place deed restrictions on 5.7 acres of the site and to restore the stream and riparian zone on the site in conjunction with the landowner's site development plan. These negotiations, which were outside the scope of this restoration plan, were successfully concluded in 2008.

TRUST RESOURCES

Endangered species, migratory birds, anadromous fish and Federal lands are listed in the National Contingency Plan (NCP) at 40 CFR §300.600 as natural resources for which the Secretary of the DOI has trusteeship. The Service administers endangered species authorities for the DOI, pursuant to the Endangered Species Act, as amended (16 U.S.C. 1531 *et seq.*). The Service administers migratory bird authorities for the DOI, pursuant to the Migratory Bird Treat Act, as amended (16 U.S.C. 703 *et seq.*).

- The pink mucket pearly mussel (*Lampsilis abrupta*), a federally listed endangered species, has been found in the Meramec River downstream from the confluence of Fenton Creek.
- Migratory birds are known to use the site as witnessed by Service personnel during a site visit. See Appendix A for a list of probable species that would use a wooded riparian area in St. Louis County, MO.

Loss of Habitat

Prior to the removal action, the site was composed of large trees, tree saplings, and thick ground vegetation. This type of habitat is utilized by many migratory bird species (see Appendix A). The removal action included excavation of all paint wastes and associated debris and soils. The material was containerized and transported offsite. The habitat on-site was destroyed by these actions due to the equipment needed to complete the tasks. The removal action included replacement of the excavated soil with clean-fill, grading, stabilization and seeding of the area, and re-establishing the original meanders of the creek.

Direct Effects of the Contamination

There are a variety of routes by which contaminants can move through the environment and produce an adverse effect on ecological receptors. At the Fenton Creek/Chrysler Dump Site,

animals could directly ingest contaminants that accumulate in body tissue of their prey; become entrained in the gut contents of prey; or be present as dust or residual soil on vegetation. Animals may also incidentally ingest contaminated surface soil and sediment as part of their normal feeding, preening or grooming, nesting, or other behavioral practices.

The Service does not contend that the concentrations of contaminants found in the tributary of Fenton Creek are at significant volumes to cause direct adverse effects to the pink mucket pearly mussel in the Meramec River. Migratory birds may be directly or indirectly (through the food chain) affected by the contaminants found on the site.

Little information is known about the effects of the organic plastic additives on natural resources. However, bis (2-ethylhexyl) phthalate has been studied and readily adsorbs onto organic particulates in soil, water, and biota. The chemical is known to bioaccumulate in aquatic organisms, especially invertebrates (EPA 1979, ATSDR 1993). Bis (2-ethylhexyl) phthalate can concentrate in animal and human tissues and organs, but rapidly metabolizes in mammals and birds, and is not expected to biomagnify extensively (EPA 1979, O'Shea and Stafford 1980). Based on the review of current information found in the Fenton Creek/Chrysler Dump Site administrative record, phthalate levels found in the soil do not pose a threat to migratory birds.

Arsenic concentrations were also in the soil samples collected from the Fenton Creek/ Chrysler Dump Site, but not at levels of concern for migratory birds. Even though the individual concentration levels are not injurious to migratory birds, the additive effect may have caused adverse effects as a result of the incidental ingestion of the paint sludge..

Sublethal effects of cadmium in birds include growth retardation, anemia, and testicular damage (Hammons *et al.* 1978). Mallard (*Anas platyrhynchos*) ducklings fed 20 ppm dietary cadmium for 12 weeks developed mild to severe kidney lesions and their blood chemistry was altered. Young black ducks (*A. rubripes*) produced from parents fed 4 ppm dietary cadmium for 4 months before egg laying developed an altered avoidance behavior, hyper-responsiveness (Heinz and Haseltine 1983). Heinz and Haseltine (1983) observed this behavioral effect at low dietary cadmium levels and considered it harmful to wild birds. Eisler (1985) concluded that adverse effects on fish and wildlife are observed or are probable when cadmium concentrations exceed 0.003 ppm in freshwater, 0.1 ppm in the diet, or 0.1 mg Cd/m³ in the air. Cadmium concentrations on-site ranged from non-detect to 598 ppm. Based on this information, cadmium posed a threat to migratory birds.

Studies involving chromium fed to adult chickens (*Gallus gallus*) at 100 ppm for 32 days and American black ducks (*Anas rubripes*) at 10 ppm for 5 months showed no adverse effects on survival and reproduction (Eisler 1986). However, ducklings from the treated adults had altered growth patterns and survival was reduced (Eisler 1986). Chromium also exhibited teratogenic effects in chicken embryos producing short and twisted limbs, parrot beaks, everted viscera and growth stunting (Eisler 1986). Chromium levels in the soils ranged from non-detect to 12.7 ppm. Based on this information, chromium may have caused adverse effects to migratory bird young.

The effects of lead on birds have been widely documented due to the widespread exposure of

avian species to lead shot. However, elevated tissue concentrations and associated physiological effects are seen in birds exposed to other sources of environmental lead contamination such as urban and industrial areas and waste dumps (Hutton and Goodman 1980, Leonzio *et al.* 1986). Effects of lead absorbed by birds include damage to the nervous system, muscular paralysis, inhibition of heme-biosynthesis enzymes [notably d-aminolevulinic acid dehydratase (ALAD)], and damage to kidneys and liver (Mudge 1983, Eisler 1988). American kestrel (*Falco sparverius*). Nestlings orally dosed with metallic lead powder daily for ten days at 25 ppm body weight exhibited ALAD depression in all tissues examined; at 125 ppm body weight there was reduced growth, reduced brain weight, abnormal skeletal development, and depression of ALAD in hematopoietic tissues; at 625 ppm body weight there was mortality, reduced growth, reduced kidney and liver weight, abnormal skeletal development, and ALAD depression in all tissues examined (Hoffman *et al.* 1985a,b). Lead levels in the soils range from non-detect to 18,000 ppm. Based on this information, migratory birds could be adversely affected from lead.

Zinc is an essential nutrient to life, but fed in excess to birds can cause inhibited chick growth, immunosuppression in chicks and reduced survival (Eisler 1993). The pancreas and bone are primary targets in birds affected by zinc (Eisler 1993). Pancreatic degeneration and reduced survival occurred in *Anas* ducks fed diets containing 2,500-3,000 ppm zinc ration (NAS 1979, Gassaway and Buss 1972). Poultry chicks suffered reduced growth at 2000-3000 ppm zinc in their diet, and died when fed 8000 ppm zinc (Eisler 1993). Zinc concentrations in the soils ranged from non-detect to 36,100 ppm. Based on this information, zinc levels found on the site could have adversely affected migratory birds.

RESTORATION ALTERNATIVES

A total of three alternative restoration plans were considered under the National Environmental Policy Act of 1969 (NEPA): 1) Natural recovery (No-Action); 2) Replacement off-site; and 3) Restore or rehabilitate on-site and/or adjacent to the site.

Alternative 1: Natural Recovery (No-Action)

Evaluation of the natural recovery (No-Action) alternative is required by NEPA to determine if restoration is needed and to provide baseline comparison with other alternatives. On the basis of the length of time required to replace habitat suitable for migratory birds, and the incremental natural development of habitat value during the grow-out period, it is assumed that at least 30 years from the date of initial remediation work will be required before the injury to trust resources is made whole. However, this area of St. Louis County is rapidly developing. Cumulative impacts of urbanization and industrialization over a 30 year period in this area will eliminate most of the remaining habitat. It is likely that the only remaining habitat will be in the George Winter County Park, which is adjacent to the site. Since growth in the area will reduce existing habitat and minimize the potential incremental natural development of habitat, the No-Action alternative will not compensate for adverse impacts to natural resources and the services they provide to the public.

Alternative 2: Replacement Off-Site

Replacement refers to substituting natural resources or services for those injured such as enhancing habitats away from the site of impact to provide comparable services or values in terms of fish and wildlife production. Acquisition and enhancement of additional habitat will be considered in the vicinity of Fenton Creek/Chrysler Dump Site. As mentioned previously, St. Louis County is rapidly developing, and cumulative impacts of urbanization and industrialization are likely to eliminate most of the remaining forested, as well as other natural habitat, available for migratory birds. The acquisition of additional land would help offset this loss of habitat. An acre of noncommercial land in the vicinity of the Fenton Creek/Chrysler Dump Site costs about \$15,000. Settlement funds available for restoration totals about \$61,000. Utilizing the settlement restoration funds available, about four acres of land could be purchased. This estimate does not include acquisition fees or restoration costs, so actual acreage purchased would be significantly less. In addition, fragmentation of larger expanses of habitat into small interspersed parcels is of less value as habitat. Since very little land could be purchased and restored in the vicinity of Fenton Creek, and fragmentation of habitat is less optimal. The replacement alternative would not effectively compensate the public for the injured natural resources and services provided.

Alternative 3: Restoration/Rehabilitation On/Near Site

Restoration/Rehabilitation refers to improving existing conditions on or near the site to enhance migratory bird or other natural habitat. Due to its setting adjacent to George Winter County Park and the sale of the site to a commercial developer, this alternative focuses on restoring/rehabilitating habitat at George Winter Park.

There are a number of potential restoration options available adjacent to the original dump site at George Winter County Park, as well as in areas upstream within the Meramec watershed. Restoration funds could be used to:

1. restore a portion of existing park land to bottomland forest, and/or
2. enhance a unique spring-fed wetland in the existing park land, and/or
3. restore riparian habitat in upstream sites along the Meramec

The St. Louis County Park system developed a list of trees and shrubs to be used to restore land to bottomland forest. The area to be restored is in the floodplain of the Meramec River and periodically floods. Plants selected are those that would typically exist in this type of habitat. Trees and shrubs may include, but are not limited to, the following species: swamp white oak (*Quercus bicolor*), pin oak (*Quercus palustris*), hackberry (*Celtis occidentalis*), swamp dogwood (*Cornus obliqua*), deciduous holly (*Ilex decidua*), cottonwood (*Populus deltoides*), pecan (*Carya illinoensis*), and sycamore (*Platanus occidentalis*)

In George Winter Park, and adjacent to the Fenton Creek/Chrysler Dump Site, groundwater surfaces at the bottom of a small limestone outcropping, creating a pool. The water pools in a small depression that flows in a small channel toward the Meramec River. During dry

conditions, flow in the channel disappears before reaching the river. There is continual flow of groundwater though, even when there are long periods of no rain. Prior to the park system acquiring this property, attempts were made to drain the wetlands by installing a pipe and draining the water to Fenton Creek. The pipe is still in place and some water continues to drain from the area.

The area provides the opportunity to restore and enhance a spring-fed wetland. The wetland creates a distinct environment for migratory birds and an excellent educational area for the public. The County park system proposed expanding the existing wetland by excavating pools near the existing wetlands and possibly creating small berms to hold water. In addition, the pipe which drains the area would be closed off. These actions would restore the natural hydrology of the wetland. Each new pool would be planted with emergent wetland plants such as pickerel weed (*Pontederia cordata*) and spatterdock (*Nuphar luteum*).

Restoration of hardwood trees in upstream sites along the Meramec would reduce overland erosion and sedimentation into the Meramec, improving water quality for the pink mucket pearly mussel and other aquatic life within the Meramec system. Bottomland forests would improve the riparian habitat quality for migratory birds using the Meramec valley area. St. Louis County Parks staff have indicated that Buder Park, located on the Meramec may have 5-10 acres currently in mowed grass that would be appropriate to convert to riparian habitat. Shaw Nature Reserve, also along the Meramec, has farmed acreage along the river that they desire to restore to hardwood forest or canebrakes. Vegetation for these areas may include, but are not limited to, the following species: giant cane (*Arundinaria gigantea*) swamp white oak (*Quercus bicolor*), pin oak (*Quercus palustris*), hackberry (*Celtis occidentalis*), swamp dogwood (*Cornus obliqua*), deciduous holly (*Ilex decidua*), cottonwood (*Populus deltoides*), pecan (*Carya illinoensis*), and sycamore (*Platanus occidentalis*)

PREFERRED ALTERNATIVE

The preferred alternative is #3 - Restoration/Rehabilitation On/Near Site. Rapid urbanization and industrialization in the area has and will continue to reduce existing habitat as well as minimize the potential incremental natural development of habitat. Restoration efforts within George Winter County Park will increase habitat for injured trust resources. Incorporating restored areas into the St. Louis County Park system will ensure that these areas can be maintained as habitat in perpetuity in an area of rapid urbanization. Additionally, expansion of existing habitat decreases the development of fragmented habitats. Restoration of the remediated or near site area will restore the natural resources injured as a result of the hazardous substances released at the Fenton Creek/Chrysler Dump Site. Restoration of upstream areas will benefit the water quality flowing into the area, as well as benefiting migratory birds which utilize the Meramec River corridor.

BUDGET SUMMARY AND TIMETABLE

With the 1998 Consent Decree, the DOI recovered \$52,126 in NRDAR funds. The funds have been kept in an interest bearing account since that time. The current balance is \$61,861. In

general, this sum will be spent on restoration activities for the Fenton Creek/Chrysler Dump Site. Specific fund distribution for restoration activities will not be possible until projects are selected.

The Trustees would like to begin restoration projects in calendar year 2010.

Restoration completion would be projected for December 2010.

Project monitoring will be implemented for a minimum of 5 years. The Service may seek conservation easements if necessary that would continue in perpetuity. .

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Missouri Department of Conservation
St. Louis County Parks Department
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PUBLIC COMMENTS AND TRUSTEE'S RESPONSES

Public Comments

Public review of the Draft Restoration Plan is an integral component of the assessment and restoration planning process. Through the public review process, the Trustees sought public comment on the actions proposed to restore injured natural resources or replace lost resource services. The Trustees accepted public comments for 30 days (October 18, 2009 through November 18, 2009). A legal notice was placed in the *St. Louis Post Dispatch* newspaper of St. Louis, MO and ran prior to the public meeting on October 21, 2009. No written comments were received during the 30-day public comment period. The public meeting was held at the Riverchase of Fenton facility and two verbal comments from the three attendees were received at that time.

Trustee Responses to Public Comments

Comment #1:

What is the status of the development of the Chott property, has the Corps of Engineers given the developers [Mr. Grewe] permission to move the creek?

Response:

The developer, Grewe Inc. was denied a rezoning permit for commercial development by the City of Fenton during the summer of 2009. There have been no subsequent requests for rezoning. The St. Louis District of the Corps of Engineers issued a 404 permit for the relocation of Fenton Creek on August 17, 2009. This permit authorizes the impacts to the creek, but does not supersede any other permits necessary for development. This permit requires the restoration of the re-channelized creek including replanting native trees.

Comment #2:

Can more restoration improvements be made in Winter Park, which is closer to the area of impact?

Response:

We initially asked St. Louis County Parks staff how much habitat can be restored at George Winter Park, and their response was approximately 4 acres of old fields and an acre of additional wetland enhancement. It is our intention to cooperatively work with them to restore

these areas in 2010. We will work with them to assess whether there are any other overlooked opportunities for restoration at George Winter Park.

NATIONAL ENVIRONMENTAL POLICY ACT COMPLIANCE

The preferred alternative, restoration/rehabilitation on/near site, will result in improved habitats which will increase biological diversity. In addition, expansion of existing habitat within the George Winter County Park, provides for wildlife needs better than the development of fragmented habitats. These improvements may have initial disturbances to the environment but these disturbances will be minimal and short-term. Therefore, restoration will have no significant environmental effects and is not a major federal action that would affect the human environment, within the meaning of Section 102 (2)(c) of the National Environmental Policy Act of 1969.

Endangered Species Act Compliance

This Restoration Plan/Environmental Assessment complies with Section 7 of the Endangered Species Act (ESA) of 1973 as amended, 16 U.S.C. 1531, et seq., and its implementing regulation (50 C.F.R. 402) (Appendix A).

National Historic Preservation Act Compliance

Section 106 of the National Historic Act requires consultation if a resource restoration proposal may affect a cultural property. There are no known cultural resources in either the remediated area or the immediate adjacent park area included in the preferred alternative and therefore consultation under Section 106 is not required for this restoration.

Clean Water Act Compliance

Clean Water Act compliance is applicable to any restoration activities that involve construction that disturbs more than one acre of land. Implementation of best management practices will be required to control erosion and minimize pollutant runoff.

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APPENDIX A
PROBABLE AVIAN SPECIES

Rusty blackbird (<i>Euphagus carolinus</i>)	Eastern phoebe (<i>Sayornis phoebe</i>)
Tennessee warbler (<i>Vernivora peregrina</i>)	American redstart (<i>Setophaga ruticilla</i>)
Eastern bluebird (<i>Sialia sialis</i>)	American robin (<i>Turdus migratorius</i>)
Wilson's warbler (<i>Wilsonia pusilla</i>)	Chipping sparrow (<i>Spizella passerina</i>)
Indigo bunting (<i>Passerina cyanea</i>)	Field sparrow (<i>Spizella pusilla</i>)
Yellow warbler (<i>Dendroica petechia</i>)	Fox sparrow (<i>Passerella iliaca</i>)
Northern cardinal (<i>Cardinalis cardinalis</i>)	Song sparrow (<i>Melospiza melodia</i>)
Yellow-rumped warbler (<i>Dendroica coronata</i>)	Tree swallow (<i>Iridoprocne bicolor</i>)
Gray catbird (<i>Dumetella carolinensis</i>)	Wood thrush (<i>Hylocichla mustelina</i>)
American woodcock (<i>Philohela minor</i>)	Tufted titmouse (<i>Parus bicolor</i>)
Black-capped chickadee (<i>Parus atricapillus</i>)	Eastern towhee (<i>Pipilo erythrophthalmus</i>)
Downy woodpecker (<i>Picoides pubescens</i>)	Veery (<i>Hylocichla fuscescens</i>)
Carolina chickadee (<i>Parus carolinensis</i>)	Bell's vireo (<i>Vireo bellii</i>)
Hairy woodpecker (<i>Picoides villosus</i>)	Philadelphia vireo (<i>Vireo philadelphicus</i>)
Brown-headed cowbird (<i>Molothrus ater</i>)	Red-eyed vireo (<i>Vireo olivaceus</i>)
Red-headed woodpecker (<i>Melanerpes erythrocephalus</i>)	Warbling vireo (<i>Vireo gilvus</i>)
American crow (<i>Corvus brachyrhynchos</i>)	Yellow-throated vireo (<i>Vireo flavifrons</i>)
Yellow-billed cuckoo (<i>Coccyzus americanus</i>)	Cerulean warbler (<i>Dendroica cerulea</i>)
Carolina wren (<i>Thryothorus ludovicianus</i>)	Chestnut-sided warbler (<i>Dendroica pensylvanica</i>)
Northern flicker (<i>Colaptes auratus</i>)	
Winter wren (<i>Troglodytes troglodytes</i>)	
Great crested flycatcher (<i>Myiarchus crinitus</i>)	
Connecticut warbler (<i>Oporornis agilis</i>)	
Least flycatcher (<i>Empidonax minimus</i>)	
Palm warbler (<i>Dendroica palmarum</i>)	
Yellow-bellied flycatcher (<i>Empidonax flaviventris</i>)	
Prothonotary warbler (<i>Protonotaris citrea</i>)	
American goldfinch (<i>Carduelis tristis</i>)	
Common grackle (<i>Quiscalus quiscula</i>)	
Blue grosbeak (<i>Guiraca caerulea</i>)	
Red-tailed hawk (<i>Buteo jamaicensis</i>)	
Ruby-throated hummingbird (<i>Archilochus colubris</i>)	
Blue jay (<i>Cyanocitta cristata</i>)	
Eastern kingbird (<i>Tyrannus tyrannus</i>)	
Orchard oriole (<i>Icterus spurius</i>)	
Barred owl (<i>Strix varia</i>)	
Eastern screech owl (<i>Otus asio</i>)	
Northern parula (<i>Parula americana</i>)	
Eastern wood-pewee (<i>Contopus virens</i>)	