



Resolution No. 29
Fernald Preserve Natural Resource Trustees

Re: Approval of funding for restoration projects at the U.S. DOE Fernald Preserve and the Salamander Run Conservation Area. \$356,253 is approved for restoration at the U.S. DOE Fernald preserve and \$385,696 is approved for restoration work at the Salamander Run Conservation Area.

WHEREAS, the Fernald Preserve Trustee Council was established pursuant to the July 2001 Memorandum of Understanding entered into by the Ohio Environmental Protection Agency ("Ohio EPA"), the United States Department of Energy ("DOE"), and the United States Department of the Interior ("DOI") (collectively, the "Trustees");

WHEREAS, the Natural Resource Damage Consent Decree for the Fernald Preserve, dated November 11, 2008, required DOE to deposit \$13,750,000 into an interest-bearing escrow account in the Registry of the United States District Court for the Southern District of Ohio ("Escrow Account"), and on February 17, 2009, the United States on behalf of DOE deposited \$13,750,000 into the Escrow Account;

WHEREAS, on August 23, 2010, the United States District Court for the Southern District of Ohio ordered the transfer of \$13,781,225.18 from the Escrow Account to the Treasurer, State of Ohio, to be deposited into the Natural Resource Damages Fund, for the Fernald Preserve;

WHEREAS, the Consent Decree, Paragraph 4.6, provides that any transferred funds shall be applied toward the costs of restoration, replacement, or acquisition of the equivalent of injured Natural Resources at and in the vicinity of the Fernald Preserve, as set forth in the Natural Resource Restoration Plan ("NRRP");

WHEREAS, the Consent Decree, Paragraph 4.7, provides that the Trustees shall expend the funds to implement the plan developed pursuant to Section 1.5 of the NRRP;

WHEREAS, on June 17, 2009, the Trustees published a draft Natural Resource Funds Use Plan ("draft NRFUP") for the Fernald site and accepted

comments on the draft NRFUP until August 8, 2009. The Trustees also convened a public availability session on July 8, 2009 at the Fernald site to discuss the draft NRFUP and accept comments and suggestions from the public. On February 23, 2010, the Trustees issued the final Natural Resource Funds Use Plan (“NRFUP”); and

WHEREAS, on July 2, 2013, the Trustees approved Trustee Resolution #25 approving the fee simple purchase of the Probst farm and on January 16, 2014 the property was purchased and is currently referred to as the Salamander Run Conservation Area;

WHEREAS, the attached, ““Fernald Preserve On-Property Ecological Restoration Project Options”,” and associated “Basis of Estimate” have been developed by the DOE to create a wet prairie habitat and expanded/improved forested wetland habitat at the Fernald Preserve, Ohio.

WHEREAS, the attached, “Salamander Run Conservation Area Project: Major Restoration and Enhancement Components for the ±126 acre site,” and associated “Draft Budget” have been developed by the Envirotech under contract to Three Valley Conservation Trust in accordance with Trustee Resolution #25 to establish wet prairie/sedge meadow habitat, vernal pools, filtration wetlands, invasive species control and woodland restoration at the Salamander Run Conservation Area.

NOW THEREFORE BE IT RESOLVED, that the Trustee Council agrees, by unanimous consent, to expend not more than \$356,253 from the Natural Resource Damages Fund, for the Fernald Preserve, for DOE to implement the “Fernald Preserve On-Property Ecological Restoration Project Options” and not more than \$385,696 for Three Valley Conservation Trust to implement the “Salamander Run Conservation Area Project: Major Restoration and Enhancement Components for the ±126 acre site”

Resolution No. 29
Fernald Preserve Natural Resource Trustees

DATED this day of April, 2014

United States Department of the Interior
U. S. Fish and Wildlife Service


By: Jennifer Finfera, Columbus, Ohio Field Office

Resolution No. 29
Fernald Preserve Natural Resource Trustees

DATED this 10th day of April 2014.

Ohio Environmental Protection Agency



By: Thomas A Schneider, Fernald Project Manager

Resolution No. 29
Fernald Preserve Natural Resource Trustees

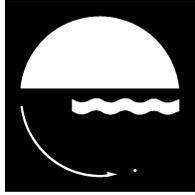
DATED this day of April 2014.

United States Department of Energy



Gwendolyn N. Hooten
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By: Gwen Hooten, Site Manager,
Fernald Preserve, Office of Legacy Management



envirotech
consultants, inc.

SALAMANDER RUN CONSERVATION AREA PROJECT: Major Restoration and Enhancement Components for the ±126 acre site (Figure attached). April 7, 2014.

- Restore ±21 Ac. of prairie and herbaceous wetlands within the existing cultivated fields using native ecoregion flora. The topography of the cultivated fields range from relatively flat to sloping ground, with low to moderate gradients and concave drainage ways. Native prairie restoration is recommended for the largest portion of these fields on the flattest ground and along adjacent slopes. A number of potential headwater drainage ways and adjacent flats and/or shallow depressions, especially in the south fields, appear to be favorable for wetland and/or filter-buffer zone development. Both restoration approaches would use high quality native grass and forb seed mixes, with hydrophytic species used for wetland areas. Wetland restoration would include tile searches and decommissioning tile lines where adjacent property owners are not affected.

The restored habitats in this area include Prairie, Wet Prairie, Sedge Meadow and Scrub-shrub, including 32+ species per habitat type. On the ground seed densities will be approximately 150 to 200 seeds per square foot. The best restoration results from cropped agricultural fields require “Round-Up Ready” corn prior to being restored.

- Restore ±7 Ac. of herbaceous meadow within the pasture areas including the farm roads located south of the original farmstead in the area between the north and south cropped fields. Potential restoration in this area would include about 1 to 2 acres of emergent filtration zones downslope from the farmstead, with herbaceous or mixed herbaceous-woody wetlands where hydric soils occur. Another area of the herbaceous meadow, approximately ½ acre located between the forest and cropped field on relatively flat ground appears to be an ideal location for shallow vernal pool development. Portions of, or the remaining areas of the herbaceous meadow, especially in the vernal pool area and the pond area are recommended for shrub and/or forest seeding and plantings to establish better wildlife corridors or connections between the existing forest and the restored habitats. Restoring this area will re-establish various headwater tributary functions and conservation links at the site.

As part of the restoration in this area, wildlife habitat associated with the pond would be improved by installing the appropriate water control structure and raising the water level to merge it with the adjacent wetland areas along the existing low vegetated shelf. Increasing the pool water depth would create more amphibian and reptile feeding, breeding, nursery and over-winter habitat.

- Mechanical and/or herbicide treatments for ‘strips’ with high honeysuckle densities along the forest edges and other boundaries, as shown in the referenced figure, is recommended. The high density strip, about 15’ wide along the edge of the existing cultivated fields, especially the fields located in the middle of the site, comprise a relatively wide range of age classes (from <0.5” to 4”) with densities exceeding 3 to 4,000 per acre. A conservative effort to eradicate *Lonicera* along these exposures is recommended.
- Two areas were delineated for honeysuckle treatments in the forested area. The first is designated the “primary” area which includes the flatter more accessible forest areas encompassing approximately 36 Ac. of the site. The primary treatment area includes numerous ephemeral drainages and several wetlands with lower honeysuckle densities. Access to the “secondary” forest treatment area is more difficult because of steeper slopes and ravines. This area is approximately 56 Ac., has greater stream side exposure and includes a relative deep ravine which makes access to the west side of the site difficult. Honeysuckle shrub densities in the interior forest areas were quite uniform in age and had densities up to ± 5676 per acre (Mean = 2973 per acre). Management of treatments used within the interior forest areas will follow reasonable procedures to ensure maximum *Lonicera* removal while maintaining the native vegetation. The initial treatments will occur in designated areas followed by assessments to determine success so that procedural adjustments can be made, if needed.
- Forest seeding and planting will begin the growing season following completion of the herbicide and mechanical treatments. Restoration will initially focus on using seeding and planting techniques to enhance and/or re-establish the herbaceous and shrub layers in selected areas, with mid-story and canopy tree species included in the plantings to contribute to the overall forest structure in the future. Seeding and planting of native species recognized for the region is anticipated in targeted areas where recovery is most needed and the greatest success will be achieved.
- Long term monitoring and management designed to minimize *Lonicera* re-invasion should be implemented to ensure adequate forest development in the future. Monitoring to detect *Lonicera* regrowth should be performed annually for at least five years following completion of the initial treatments and additional treatments conducted, if needed.



SALAMANDER RUN CONSERVATION AREA

 **Project Boundary**
Approximately 126 Acres

 **Honeysuckle - Primary**
Approximately 36 Acres

 **Honeysuckle - Secondary**
Approximately 56 Acres

 **Honeysuckle Strip Treatments**
Approximately 4700 Ln. Ft.

 **Prairie Restoration**
Approximately 21 Acres

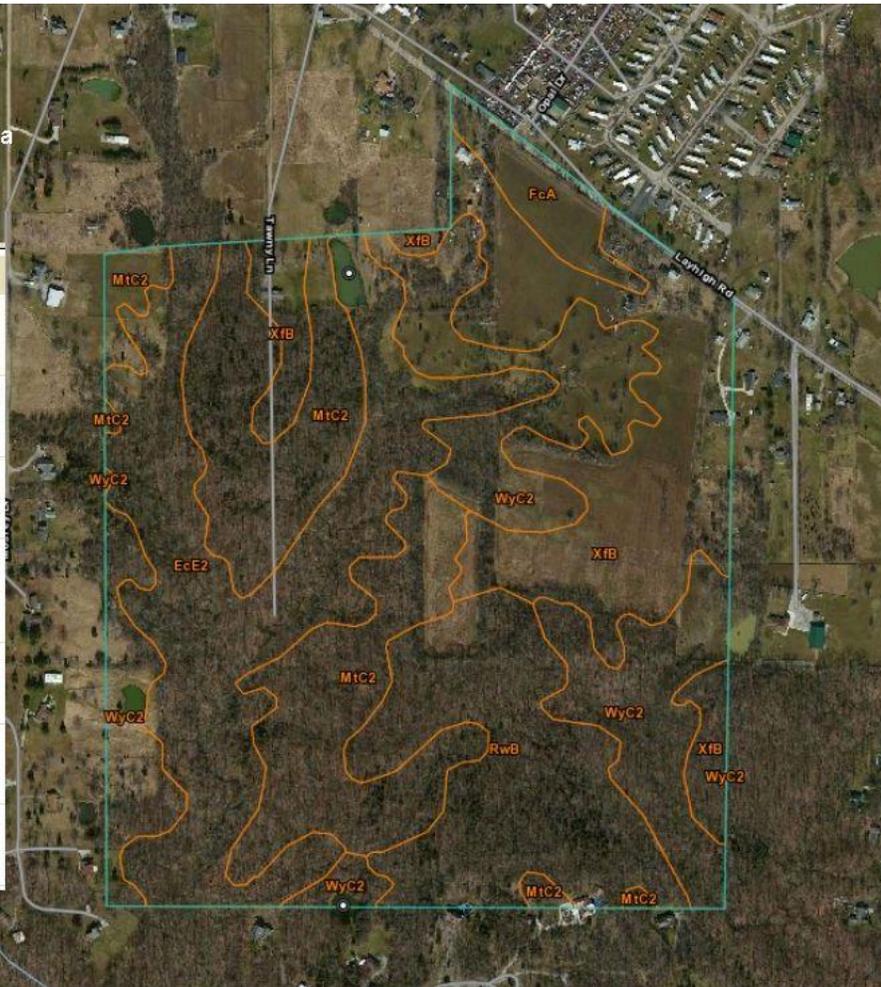
 **Pasture, Pond, Farm Road**
Approximately 7 Acres

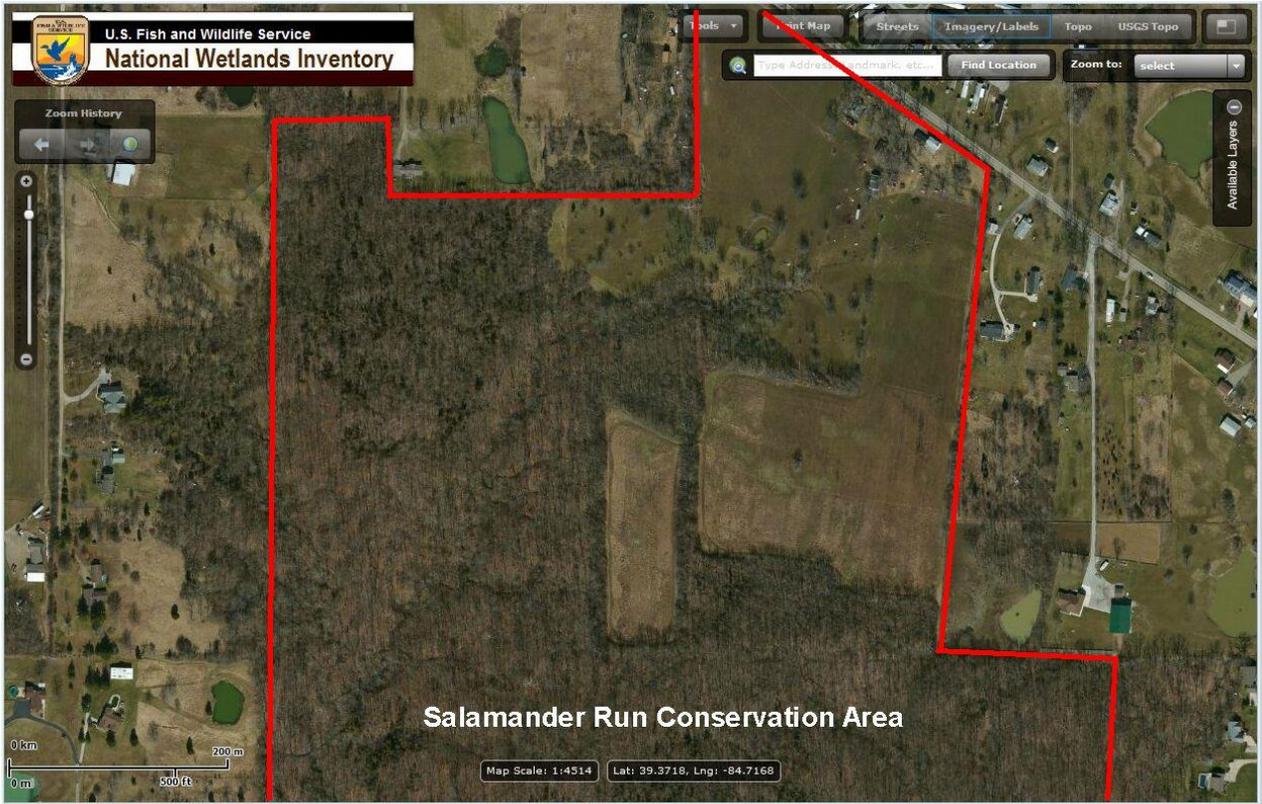


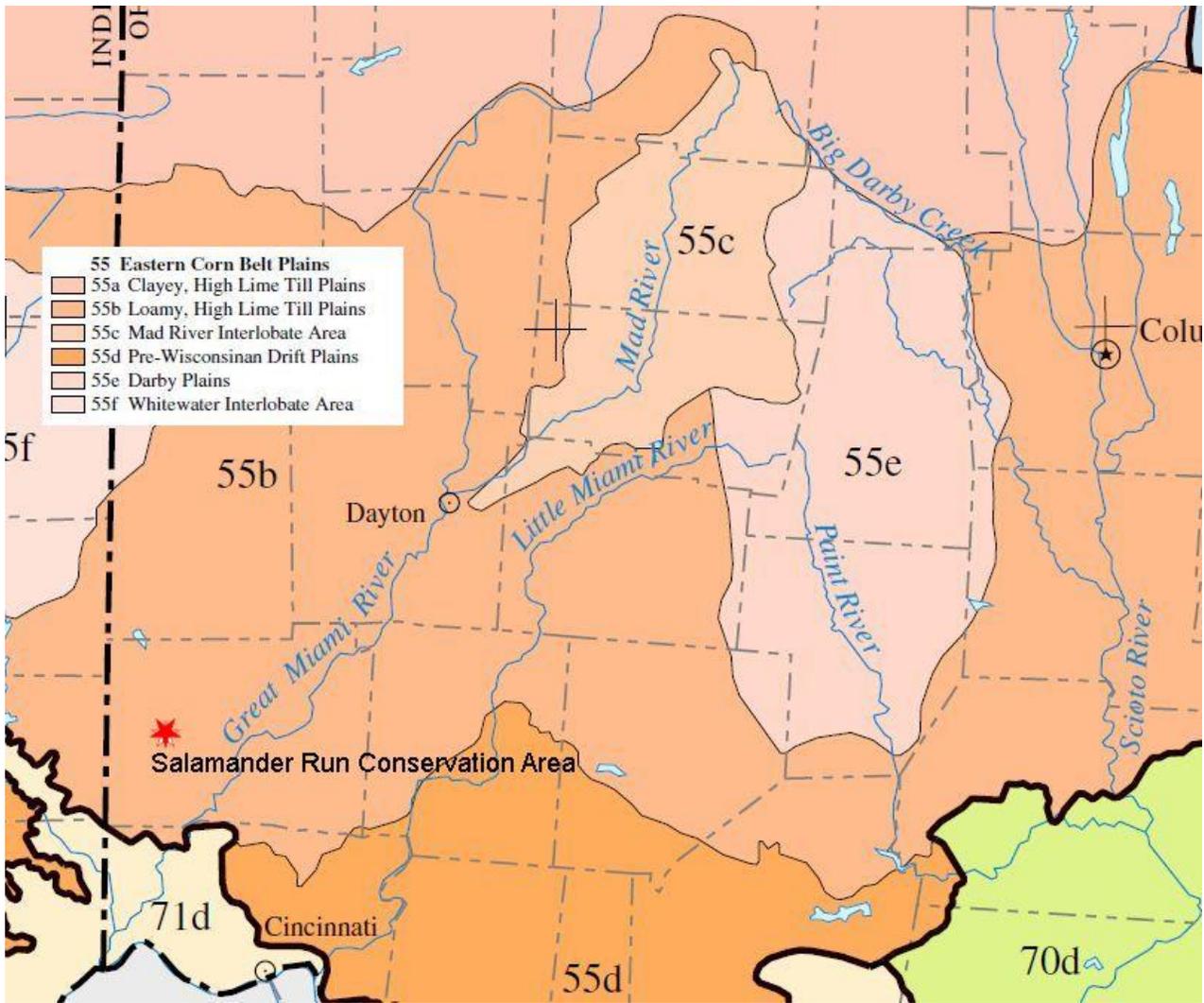
Salamander Run Conservation Area
AERIAL

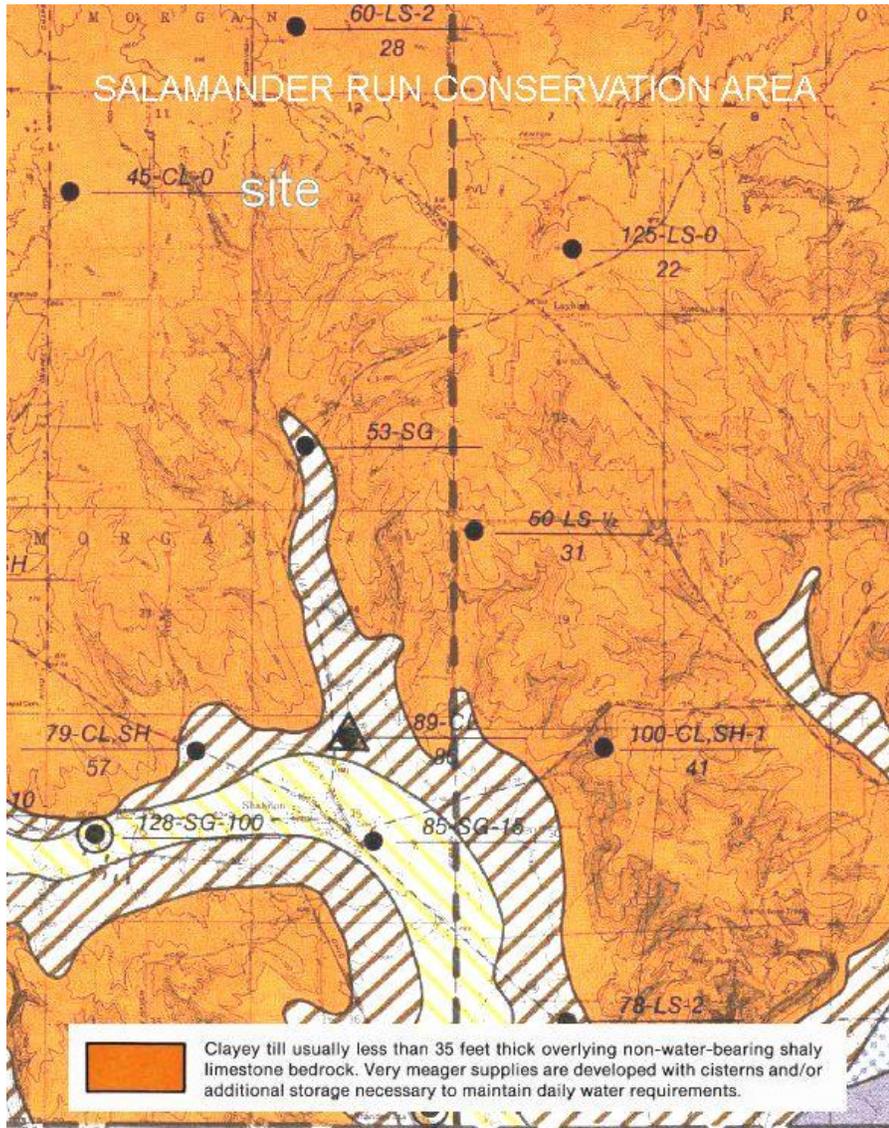
Salamahder Run Conservation Area
NRCS SOILS

Butler County, Ohio (OH017)	
Map Unit Symbol	Map Unit Name
EcE2	Eden silty clay loam, 15 to 25 percent slopes, moderately eroded
FcA	Fincastle silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes
MtC2	Miamian-Russell silt loams, bedrock substratum, 6 to 12 percent slopes, moderately eroded
RwB	Russell-Miamian silt loams, bedrock substratum, 2 to 6 percent slopes
Wyc2	Wynn silt loam, 6 to 12 percent slopes, moderately eroded
XfB	Xenia silt loam, bedrock substratum, 2 to 6 percent slopes









Fernald Preserve
On-Property Ecological Restoration Project Options
October 2013

On-property ecological restoration projects can be funded by the 2008 Fernald natural resource damage settlement. Several projects were undertaken in 2012, and the Fernald Natural Resource Trustees (NRTs) have requested ideas for additional projects. Below are two options for consideration.

Option A: North Woodlot Enhancement

The North Woodlot encompasses approximately 108 acres across the northern portion of the Fernald site. It includes a mosaic of old field, wetland and forest communities. A 26-acre forested wetland was delineated across the project area in 1993. This wetland system is the main source of surface water for the Phase II Wetland Mitigation Project. Figure 1 shows the location of the wetland and other communities. Restoration of the area took place in 2004, and consisted primarily of invasives removal and native grass/forb establishment. A public hiking trail was constructed across the area in 2009. The intent of the restored area is to maintain a high variety of wildlife habitat, with open areas interspersed between successional woodlots. The “prairie pocket,” with warm season native bunch grasses, provides forage and cover space for ground-nesting birds.

There are several opportunities for enhancement of this area. Invasive woody vegetation has been cleared in several locations from 2009 to 2013, but herbaceous vegetation has not been actively managed. Upland communities may be further “opened up” by continuing with woody invasives removal and clearing cool season grasses.

Cool season grasses may also be removed from portions of the forested wetland. The jurisdictional wetland appears to be dominated by cool season grasses in places. In addition, there is a high frequency of green ash across the wetland area, which is anticipated to be impacted by emerald ash borer in the near future. The proposed plan is to enhance the wetland area with selected eradication of cool season grasses, installation of woody vegetation and minor grading to add several vernal pools and an emergent wetland component to the North Woodlot.

Project implementation would consist of the following steps:

1. Conduct a baseline wetland delineation of the project area (update the 1993 wetland delineation)
2. Obtain substantive equivalent of permitting for wetland dredge/fill (U.S. Army Corp of Engineers Nationwide Permit 3 or 27)
3. Conduct a phase I archaeological survey of the project area
4. Clear woody invasives from Upland Areas 1 and 2, and accessible wetland areas
5. Bush-hog and disc Upland Areas 1 and 2, and accessible wetland areas
6. Procure equipment and labor (one bulldozer and one skid steer)
7. Grade vernal pools at select locations (Wetland Areas 1 and 2)
8. Scrape additional depressions at select locations (Remove topsoil first, then use clay for building access as needed)
9. Plant trees and shrubs at wetland areas and Planting Area
10. Install deer enclosure fencing

11. Re-seed all disturbed areas

A preliminary estimate of the construction cost for this project is \$114,000. This assumes that woody invasives removal, bush-hog and discing will be conducted as part of routine restored area maintenance. Construction is estimated as a five week duration.

Grading activities will need to be conducted to ensure that the hydrology of the project area is not altered. The existing watershed is very successful in feeding the Phase II Wetland Mitigation Project. Several test holes may need to be dug prior to field implementation. If sand lenses are encountered at any time, grading plans may need to be altered.

Follow-up activities include implementation monitoring to evaluate woody vegetation survival and herbaceous cover and amphibian monitoring within constructed pools. A post-restoration wetland delineation should be conducted as well.

Option B: Paddys Run West Wetland Restoration

The Paddys Run West restoration project encompasses approximately 43 acres on the western portion of the Fernald Preserve (Figure 2). It consisted of prairie establishment within former pasture areas and expansion of the forested riparian corridor along Paddys Run. The northern prairie area consists of about 22 acres. It was seeded in June 2005 and is one of the most productive prairies on property in terms of biomass. Prescribed burns were conducted in spring 2009 and 2010 on the northern and center portion of the prairie. The Southern portion of the prairie was mowed in fall 2011 and subsequently incorporated into the Paddys Run Tributary (PRT) restoration project.

Design planning for the PRT project indicated that site topography and soils are conducive to wetland establishment. High-quality forested wetlands are located adjacent to the project area. It is suspected that agricultural drain tiles have altered hydrological conditions for the project area. A number of collapsed and functioning tiles have been observed following each burn and during the PRT project. In addition, several wetland areas have been developing within the prairie area in recent years, as drain tiles have collapsed. It is suspected that much of the established prairie would transition to a wetland community once remaining drain tiles are collapsed.

The proposed activity is to dig a “key trench” along the eastern edge of the project area, with the intent of exposing agricultural tiles that are draining the field. All uncovered tiles would be collapsed and plugged. The trench would then be re-filled in compacted lifts. Approximately 1,500 linear ft. of trench would be excavated, generally following the existing site topography. Figure 2 shows the proposed trench location.

Project implementation would consist of the following steps:

1. Conduct a baseline wetland delineation of the project area.
2. Clear existing vegetation with prescribed burn and/or mow/rake/bale
3. Conduct a phase I archaeological survey of the project area
4. Procure equipment and labor (one excavator and one bulldozer)
5. Remove topsoil from trenching area
6. Excavate trench (generally south to north direction)

7. Excavate all exposed drain tiles back approximately 10 ft., replacing with compacted clay
8. Re-fill with compacted lifts.
9. Replace topsoil
10. Seed disturbed areas with mesic tallgrass prairie mix

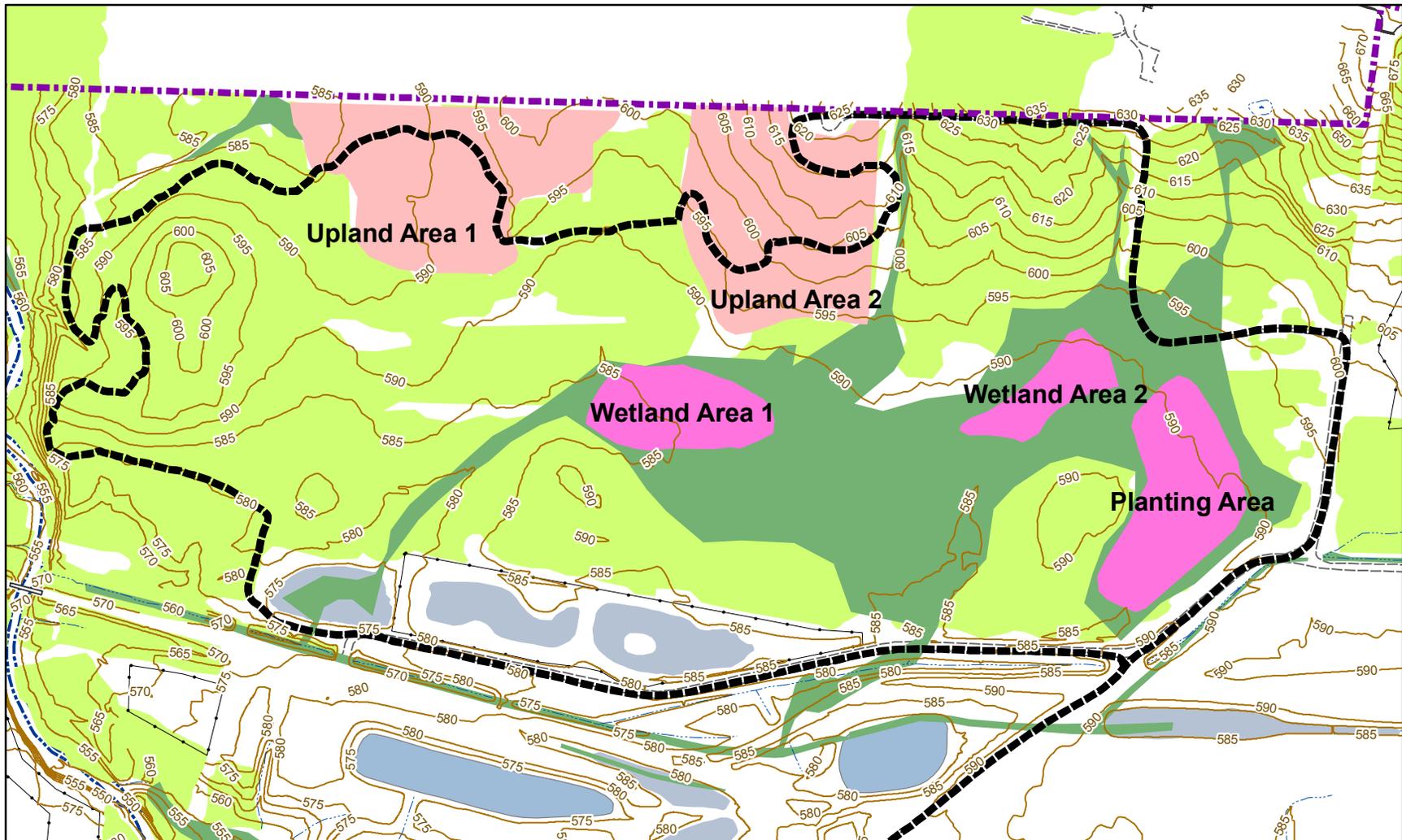
A preliminary estimate of the construction cost for this work is approximately \$54,000. This assumes a four week project duration.

Follow-up activities would include implementation monitoring of seeded areas and a follow-up wetland delineation to determine the extent of wetland restoration.

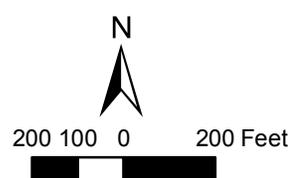
Path Forward

Upon resolution by the NRTs to undertake one or both of the proposed projects, DOE will initiate a Baseline Change Proposal (BCP) to authorize the added scope to the LMS contract. The BCP will include a formal cost estimate, which will serve as the basis for transfer of funds from the settlement fund to DOE, if needed. There is approximately \$115,000 in leftover funds from the original NRT projects in 2012.

If the BCP is approved in spring 2014, then design, procurement and field investigations (i.e. wetland delineation, permitting, archaeological survey) can commence, with a planned construction timeframe of September/October 2014.



- Fernald Preserve Boundary
- Deer Fence Area
- Historical Wetland
- Treeline
- Contour - 5 ft
- Open Water
- Intermittent Stream
- Wetland
- Intermittent Drainage



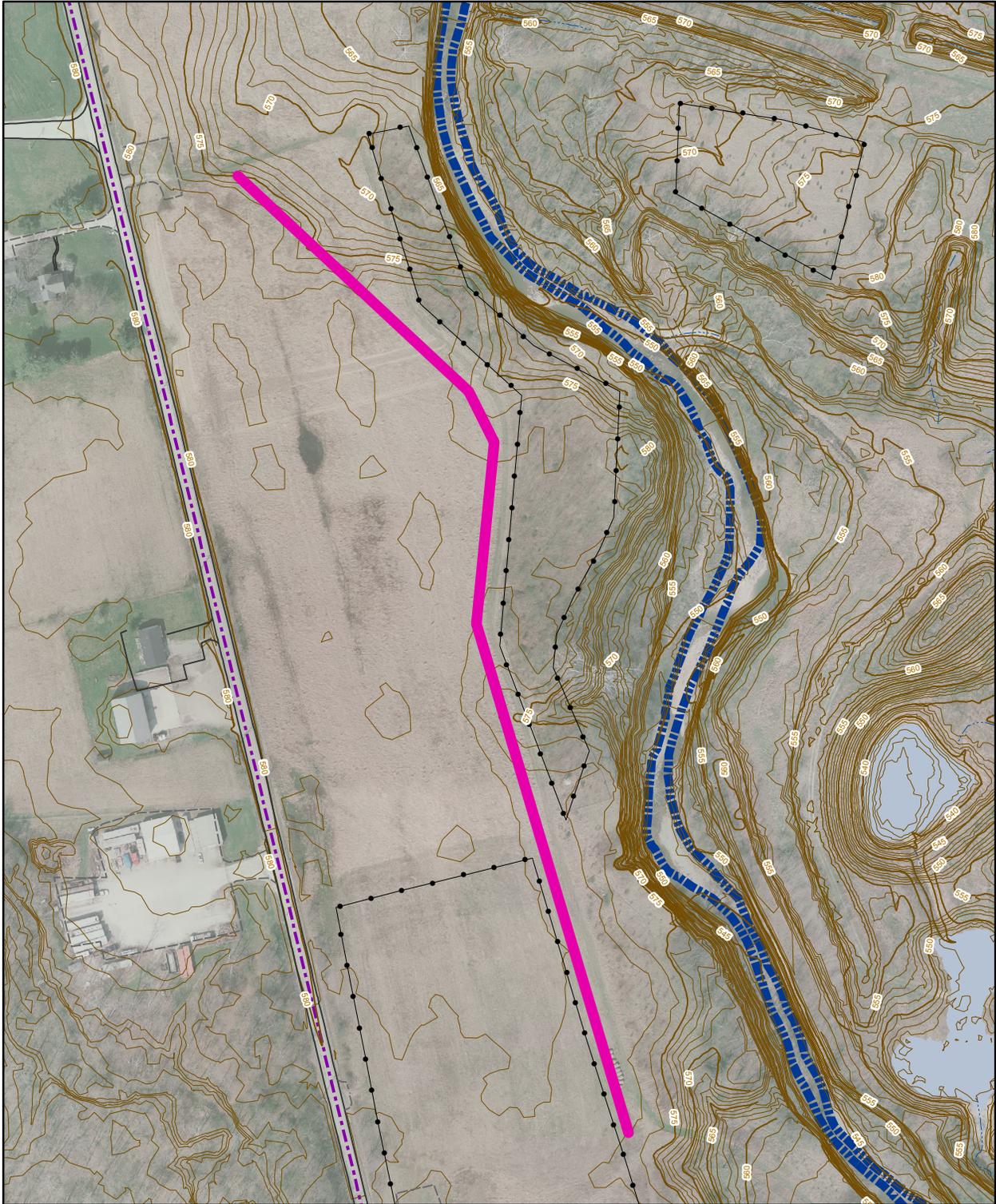
U.S. DEPARTMENT OF ENERGY
GRAND JUNCTION, COLORADO

Work Performed by
S.M. Stoller Corporation
Under DOE Contract
No. DE-AM01-07LM00060

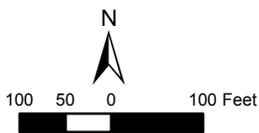
Figure 1
North Woodlot Wetland Enhancement

October 31, 2013

north_woodlot_wetland_enhance_letter



- Key Trench
- Deer Fence Area
- Paddys Run
- Intermittent Drainage



U.S. DEPARTMENT OF ENERGY
GRAND JUNCTION, COLORADO

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Figure 2
Paddys Run West Wetland Restoration

October 31, 2013

paddys_run_west_key_trench