

**PADDYS RUN EAST
NATURAL RESOURCE
CONCEPTUAL DESIGN PLAN**

**FERNALD CLOSURE PROJECT
FERNALD, OHIO**



JANUARY 2004

U.S. DEPARTMENT OF ENERGY

**20911-PL-0003
REVISION A
DRAFT**

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ACRONYM LIST

A2PII	Area 2, Phase II Certification Area
A2PII	Area 2, Phase III Certification Area
LM	Legacy Management
NRRDP	Natural Resource Restoration Design Plan
NRT	Natural Resource Trustees
PPDD	Pilot Plant Drainage Ditch
SSOD	Storm Sewer Outfall Ditch
SWU	Southern Waste Units
TSA	Truck Staging Area

1.0 PURPOSE OF CONCEPTUAL DESIGN

This conceptual design is intended to provide the Fernald Natural Resource Trustees (NRT's) and the Agencies the opportunity to review and comment on DOE's restoration approach for the Paddys Run East (PRE) Project. It is important that the NRTs and Agencies provide input to this Conceptual Design due to the complexity of the PRE Project and the phased approach to implementation before the development of the full Natural Resource Restoration Design Plan (NRRDP). This Conceptual Design will help define the project area, schedule for implementation, and general restoration activities planned for the area.

The PRE Project will be implemented in phases due to the required integration with ongoing remedial activities. Aquifer restoration infrastructure will continue to be present in the project area until Site Closure. The 23-acre set aside area is still under consideration for potential borrow activities and potential infrastructure to support Legacy Management (LM) and is outside the scope of the current restoration baseline. The Silos Project may also require a portion of the Southern Pine Plantation for a truck staging area. The activities listed above will require a phased implementation to the PRE Project, which is defined further in Section 3.0.

This Conceptual Design will not provide planting patch tables and seeding tables, although the same techniques and species used in previous restoration projects are planned for this project. Additional details such as the monitoring approach and planned maintenance activities are not discussed in this Conceptual Design. The NRRDP will address these issues along with input received on this Conceptual Design.

2.0 RESTORATION PROJECT BOUNDARY

The PRE Project covers the area East of Paddys Run and South of the Pilot Plant Drainage Ditch (PPDD). The Southern Waste Unit (SWU) footprint is excluded from the project as it is already restored. The 23-acre set-aside area is also outside the scope of the project. A number of areas that are required for ongoing Aquifer Restoration work are also not within the scope of the project. Generally, the Area 2, Phase II and Area 2 (Figure 1) and the Area 2, Phase III Certification Areas (Figure 2) are the focus of this restoration project.

The PPDD borders the Northern edge of the project area. Final restoration of the PPDD (i.e., installation of trees and shrubs) will be completed as part of the Silos Restoration Project. Soil remediation of the PPDD will likely require that water be permanently diverted through the PRE Project Area as shown on Figure 1. The existing basin from the Arsenic Hot Spot in A2PII would be used in its current configuration as an initial collection point. Additional grading would then be performed to move water southwest to Paddys Run through the shallow excavation created during debris removal in A2PII. Stream diversion activities will be addressed as part of the PRE NRRDP. The new channel will represent the northern boundary of the PRE project. All planting activities required in the remediated PPDD will be performed as part of the Silos Restoration Project.

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CIVIL & STR. ENGINEER	SAFETY ENG. MAINTENANCE
ELECTRICAL ENGINEER	ENV. PROTECT.
INSTRUMENT MECHANICAL	WASTE MANGM.
CHECKED	SECURITY PROJECTS
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PADDYS RUN EAST
NATURAL RESOURCE RESTORATION
CONCEPT PLAN
DATE: 09/23/03
DRAWN: K.L. RABBITT
FIGURE 1

Area 2 Ph 3 planting plan OSD\F3.lind8392 Friday December 12 2003 10:58:42 AM EST



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SEEDING ONLY TABLE	
SEEDING AREA	ACRES
(A)	7.33 ACRES
(B)	10.00 ACRES

PLANTING PLAN TABLE	
PLANTING AREA	ACRES
(1)	1.26 ACRES
(2)	1.55 ACRES
(3)	1.80 ACRES
(4)	.74 ACRES
(5)	1.07 ACRES
(6)	1.21 ACRES
(7)	1.31 ACRES
(8)	.65 ACRES

POTENTIAL BORROW AND COMMUNITY USE 23 ACRES

AREA 2 PHASE III

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PADDYS RUN EAST
 NATURAL RESOURCE RESTORATION
 CONCEPT PLAN
 FIGURE 2

Paddy's Run
 DATE: 08/18/03
 DRAWN: K.L. RABBITT

FILE NAME: osdf/Paddys Run/Area 2 Ph 3 planting plan.dgn

3.0 RESTORATION SCHEDULE

The target date for submittal of the Final NRRDP to the NRTs and Agencies will be the end of February 2004 assuming comments have been received from the NRTs and Agencies. This will allow adequate time for the resolution and incorporation of NRT and Agency comments on the Conceptual Design. Pre-design sampling will be conducted across the project area in January to support development of the Final NRRDP.

Planting activities in the PRE Project are scheduled to start October 1, 2004. Initial planting work will focus on the area East of the Storm Sewer Outfall Ditch (SSOD). Chipping in the Southern Pines is scheduled to begin in January 2005. Planting in the Southern Pines is scheduled for the Spring and Fall of 2005.

The construction of the Silos Truck Staging Area (TSA) is being designed for the area immediately South of the AWWT (i.e., Area 7). A portion of the Southern Pines in A2PII may also be required to support the TSA depending on size requirements for the facility. The TSA may require may require the acceleration of chipping activities in the Southern Pines. In the event that chipping is required to support the construction of the TSA, efforts will be made to complete any additional chipping to support restoration at the same time. Design of the TSA is currently in process and it is expected that the amount of clearing required for TSA will be known by time the NRRDP is submitted. The NRRDP will contain a clearing plan for the Southern Pines.

Restoration activities in the PRE Project Area will be ongoing from October 2004 through December 2005. All restoration activities except for the TSA (if needed) will be complete by December 31, 2005. The area designated for the Silos TSA will be restored following the removal of the facility.

4.0 SCOPE OF RESTORATION WORK

4.1 AREA 2, PHASE II FORESTED AREA

The target area for the relocation of the PPDD is shown on Figure 1. The restoration of this area will include grading activities to tie existing basins and shallow pools together to allow drainage to reach Paddys Run. Revegetation of this area will include seeding with native grasses, the installation of wetland plugs and the installation of select trees and shrubs appropriate for the hydrologic conditions. Existing woody vegetation will be left intact to the degree possible. Invasive species present in the area (e.g., bush honeysuckle) will be removed to the degree possible.

A large area of existing forest is present along Paddys Run Stream as shown on Figure 1. Restoration of this area will primarily focus on the removal of select invasive species (e.g., bush honeysuckle). Any planting of trees and shrubs in this area will be focused in select areas along existing and historic roadways. It is expected that a number of areas will be suitable for planting once honeysuckle is removed from the area. The degree of planting in this area will be discussed in the NRRDP.

4.2 SOUTHERN PINE PLANTATION

The restoration of the Southern Pine Plantation will be implemented in a manner very similar to the Northern Pine Plantation. Approximately 50% of the Southern Pines will be cleared, depending on the requirements for the Silos TSA. Clearing will focus primarily on the stressed and dead Australian Pines. Some "islands" of pines will be left in place to provide cover for existing wildlife. Clearing will occur in the winter months to minimize any impacts to songbirds and other wildlife. A clearing plan will be included in the NRRDP.

Once clearing is complete, the installation of native trees and shrubs will occur in the majority of the Southern Pines footprint. Some areas will be left open around vernal pools and wetland features for diversity. Planting in the Southern Pine Plantation and adjacent woodlots described above, will include the installation of 2,240 saplings, 1,260 shrubs and 5,600 seedlings.

A number of areas within the Southern Pines will be suitable for the creation of new wetlands and vernal pools. Additional areas such as the Wheel Wash Facility footprint and the existing retention basin in the southeast corner of the Southern Pines will be suitable for the restoration of wetlands and vernal pools.

The concept for restoration of the Southern Pines has always included some open areas of prairie grass within the patches of planted woody vegetation, similar to the restoration approach implemented in the Northern Pines. The footprint of the Silos Truck Staging Area if required, will be planned as an open area of prairie grass that will be seeded once the staging area has been removed. It is expected that the footprint of the TSA will be located in an area that will be very suitable for new wetland acreage. Planting of trees and shrubs will be focused in areas around the TSA, with the restoration of the TSA footprint focusing on the creation of wetland or vernal pool and the seeding of prairie grasses.

4.3 AREA 2, PHASE III

Restoration of the SSOD Corridor will focus on the removal of invasive species and the expansion of the existing wooded corridor. Figure 2 outlines the general planting approach proposed for the SSOD corridor. As stated above, this will be the first planting to occur in the PRE Project. Approximately 1,584 saplings, 828 shrubs and 4,000 seedlings are planned for the SSOD corridor. It is expected that the majority (if not all) of planting in this area can be completed in the Fall of 2004.

The SSOD Corridor contains a number of roads and well houses supporting the Aquifer Restoration Project. As shown on Figure 2, the planting approach for the SSOD corridor will work around the existing infrastructure that will be required through Closure of the FCP and into LM.

REFERENCES

U.S. Department of Energy, 1999, "Certification Report for Area 2, Phase III – Part One," Final, Fernald Environmental Management Project, DOE, Fernald Area Office, Cincinnati, Ohio.

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