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Final Work Plan

**Centredale Manor
Sediment Collection at Manton Pond**

**Centredale Manor Restoration
Project Superfund Site
North Providence, Rhode Island**

**Final Work Plan
Sediment Sample Collection at Manton Pond
Centredale Manor Restoration Project Superfund Site**

Prepared for:

U.S. Army Corps of Engineers, New England District

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Prepared by:

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INTRODUCTION

This work plan is based on the scope of work provided by the U.S. Army Corps of Engineers (COE) dated October 15, 2004. This work will be performed under Task Order No. 01 for Contract No. DACW33-01-D-0004, *Centredale Manor Restoration Project Superfund Site*. Sampling will be conducted at the Centredale Manor Restoration Project (CMRP) site in North Providence, Rhode Island. Sediment samples will be collected from five locations within Manton Pond (Figure 1) during a one-day sampling event. The samples will be analyzed for dioxin/furans and the data will be interpreted within the Feasibility Study report. The sediment collection will be conducted in accordance with the following documents:

Final Quality Assurance Project Plan Addendum 3 for the Lyman Mill Pond Sediment Investigation, Centredale Manor Restoration Project Site (QAPP Addendum 3; March, 2005).

Final Health and Safety Plan for the Lyman Mill Pond Sediment Investigation, Centredale Manor Restoration Project Superfund Site (HASP; March, 2005).

Final Field Sampling Plan for the Lyman Mill Pond Sediment Investigation, Centredale Manor Restoration Project Superfund Site (FSP; March, 2005).

Sediment sample collection details are provided below.

SEDIMENT SAMPLE COLLECTION

Sediment samples will be collected from five locations in Manton Pond (Table 1, Figure 1). A systematic sampling approach, based on professional judgment, was used to select sample locations to provide spatial coverage in areas where data are not currently available. Sample locations may be adjusted in the field to target depositional areas that can be clearly identified based on a visual inspection of the pond and pond sediment. For example, if sediment material collected from a proposed location is comprised of coarse sand and gravel, then the location will be adjusted to target finer material. The pond will be sampled during a single day sampling event conducted by two Battelle staff. The Chief Field Scientist will survey Manton Pond during the Lyman Mill Coring Survey in order to determine sampling logistics (type of vessel required, launch point, etc).

Samples will be obtained using the following protocol:

- The field crew will navigate using a handheld Garmin Promark IV GPS unit. The accuracy of the handheld GPS unit is ± 10 ft.
- The field crew will navigate to within 10 ft of the sampling site.
- Water depth will be recorded at each location.
- At each location, the best possible field observations will be made to determine whether or not a recognizable channel is present. If the channel location is visually obvious, then field observations will be made regarding the physical/geomorphic description of the location, in terms of being within the flow channel, or in relatively still water adjacent to the channel.
- One surface grab sample (top 6 inches) will be collected at each location using a modified 0.04 m³ VanVeen grab sampler.
- Sediment will be transferred from the grab to a pre-cleaned bowl, mixed well, and two separate aliquots removed, to a 125 mL and 1 L glass jar, using a pre-cleaned stainless steel spatula. Sediment in direct contact with the side of the grab will not be collected for chemical analysis.

- The sediment grab will be cleaned prior to moving to the next station using site water and a bristle brush. Dedicated pre-cleaned bowls and spatulas will be used at each location so that decontamination is not necessary in the field.
- The boat will not be anchored at each station because the current velocities are expected to be low. The actual latitude and longitude of each probing location will be recorded electronically using the GPS at the time of sampling and will be recorded in the field notes.
- A brief description of the sediment (i.e., texture, color, odor) will be noted in the field notes.
- Sediment samples will be labeled using the IDs listed in Table 1.
- Sediment samples will be stored on ice during sampling and during transport back to Battelle, Duxbury. Upon arrival in Duxbury, samples will be stored in a cold room maintained at 4°C. Samples for dioxin/furan testing will be shipped to the Battelle Columbus; archive samples will be stored at Battelle Duxbury for potential geotechnical analyses. Sediment sample container type, required sample size, preservation requirements, and holding times are listed in Table 2.

Table 1. Sampling Locations and IDs for Sediment Sampling (NAD83)

Boring ID	Easting	Northing	Sample ID
MAP-SD-3001	335126	275217	MAP-SD-3001-0005-01
MAP-SD-3002	335465	274897	MAP-SD-3002-0005-01
MAP-SD-3003	335494	274632	MAP-SD-3003-0005-01
MAP-SD-3004	335760	274203	MAP-SD-3004-0005-01
MAP-SD-3005	335676	273969	MAP-SD-3005-0005-01

Table 2. Sediment Sample Container, Sample Size, Preservation Requirements, Holding Times and Analytical Laboratories

Matrix	Analytical Parameter	Minimum Sample Volume	Containers	Preservation Requirements	Maximum Holding Time	Laboratory for Shipping
Sediment	Dioxin/ Furan	¾ full	125 mL glass jar (with Teflon lined cap)	Cold (4±2°C)	1-year	Henry Pham Battelle Columbus 505 King Ave. Columbus, OH 43201 (614) 424-4028
Sediment	Archive (potential geotechnical)	¾ full	1 L glass jar (with Teflon lined cap)	Cold (4±2°C)	Not applicable	Jeff Newell Battelle Duxbury 397 Washington St. Duxbury, MA 20332 (781) 934-5270

INVESTIGATIVE DERIVED WASTE (IDW)

Investigative Derived Waste (IDW) from the sediment collection activities will be contained in a 55-gallon drum, which will be stored located in a secure area near Allendale Pond and will remain there until all the sampling activities are completed. IDW will include personal protective equipment (e.g. nitrile gloves), sediment material, and associated sampling equipment. Battelle’s sub-contractor, ONYX Environmental, will be responsible for the transportation and disposal of the IDW (dioxin bearing, non-F027 listed waste). Transportation and disposal is tentatively scheduled for August 2005, at the completion of all planned field investigations.

SAMPLE ANALYSIS

The sediment samples will be analyzed for dioxin/furans (17 congeners); no additional analyses will be performed, although an archive sample will be stored at Battelle Duxbury for potential geotechnical analysis. Sample analyses will be conducted in accordance with the *Draft Quality Assurance Project Plan Addendum 3* prepared to support the Lyman Mill Pond Sediment Investigation (Battelle, 2005), with the following exceptions:

- a. Analysis parameters are limited to dioxin/furans.
- b. No field QC samples will be collected (e.g., rinsate blank).
- c. Laboratory-based QC samples for the sediment dioxin/furan testing will include one procedural blank (PB), one laboratory control sample (LCS), a matrix spike and a duplicate matrix spike (MS and MSD), and a standard reference material (SRM).

Samples will be stored at Battelle for a period of up to 6 months, after which samples will either be disposed or returned to the COE.

DATA MANAGEMENT AND REPORTING

Field notes and laboratory data will be submitted for third party validation as specified in the QAPP Addendum 3 (March, 2005). USEPA Region 1 will be responsible for third party validation of the dioxin/furan data.

Field and final, validated analytical data will be loaded into the project database in accordance with the *Final Data Management Plan Update, Interim Data Collection, Centredale Manor Restoration Project Site* (DMP Update; September, 2002), as modified in the *Addendum to the Data Management Plan* (January, 2004). Battelle will be responsible for providing final, validated dioxin/furan data in electronic format as specified in the DMP.

Sample collection and analysis results will be provided in a letter report that will briefly describe the methods and results of the sampling effort. The letter report will include tables of the final, validated data and a map showing the sample locations. The letter report will not include an interpretation of the contaminant data. The letter report will be prepared and submitted once all data are available as final, validated data.

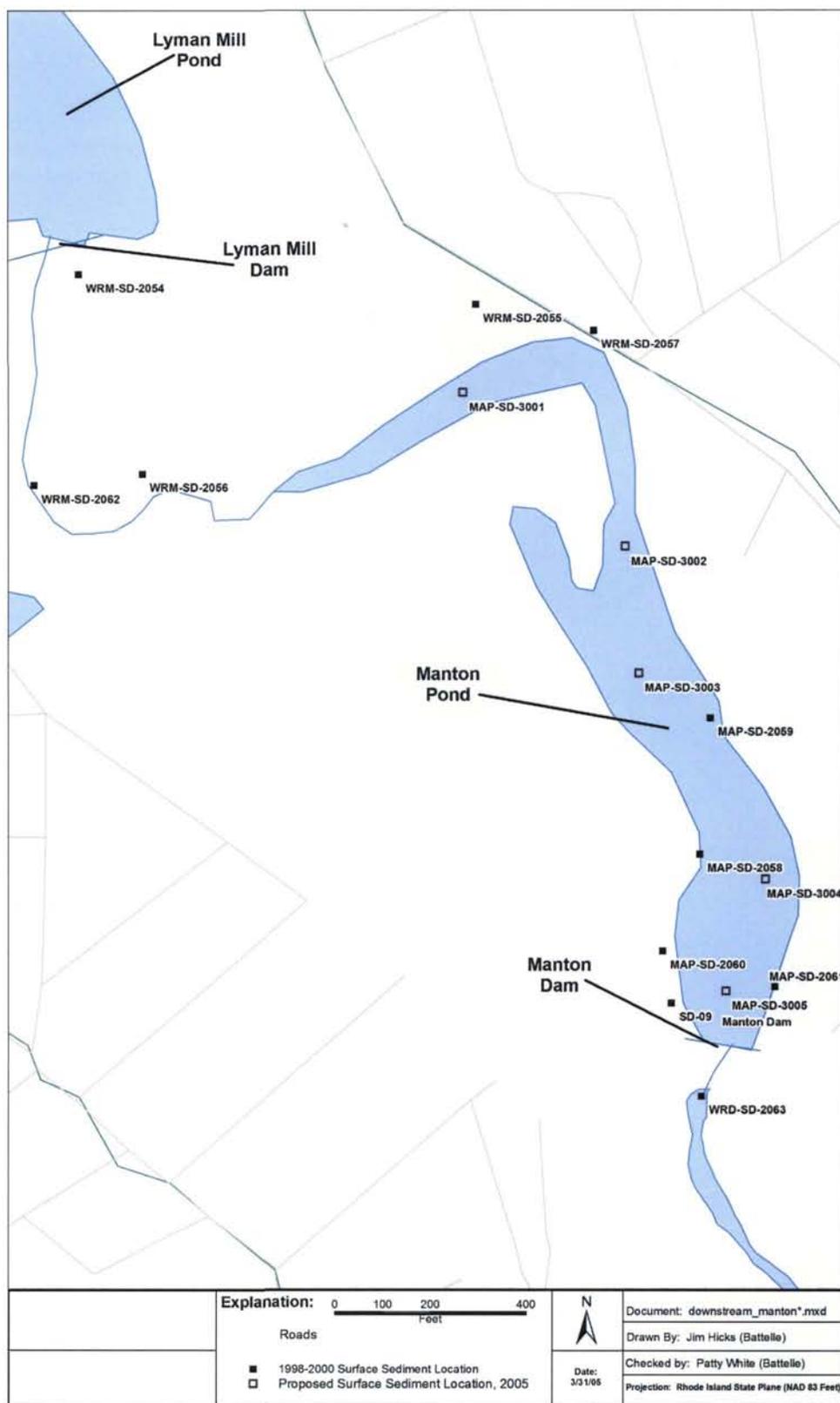


Figure 1. Sediment Sample Locations