



EXPLANATION OF SIGNIFICANT DIFFERENCES

LITTLE SCIOTO RIVER OU1 SUPERFUND SITE MARION, MARION COUNTY, OHIO

EPA Region 5

2021

I. INTRODUCTION

The United States Environmental Protection Agency (EPA) is issuing this Explanation of Significant Differences (ESD) to document the significant increase in cost between the estimated cost of the remedy selected in the 2016 Record of Decision (ROD) for Operable Unit 1 (OU1) of the Little Scioto River Superfund Site (Site) and the current estimated cost of the remedy. Previously, the estimated cost for OU1 was \$35.5 million; currently, the estimate is \$69.3 million. Notwithstanding this projected increase in costs, EPA has determined that the remedy selected in the 2016 ROD—dry excavation of contaminated sediment and off-site disposal—is still the correct remedy for OU1 and continues to meet the requirements of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). EPA would have selected this remedy even if the projected costs in 2016 had been more consistent with the current estimate. Thus, this ESD does not include any changes to the remedy selected for OU1. It merely explains the differences in the costs between then and now.¹

Under Section 117(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA or Superfund), as amended, EPA is required to publish an ESD when, after issuance of a Record of Decision,² subsequent enforcement or remedial actions differ in any significant respects from the final plan set forth in the ROD. Sections 300.435(c)(2)(i) and 300.825(a)(2) of the NCP set forth the criteria for issuing an ESD and requiring that an ESD be published if, after issuance of the ROD, there is a significant, but not fundamental, difference in the scope, performance, or cost of the remedy. A difference is significant, but not fundamental, if it affects basic features of the remedy such as timing and cost but does not affect the overall approach to managing hazardous waste at a site.³

The remedial investigation (RI)⁴ performed by the EPA at OU1 of the Site identified polyaromatic hydrocarbons (PAHs), benzo(a)pyrene equivalents (BaPE) and arsenic in sediment as the contaminants of concern. EPA's 2016 ROD estimated it would cost \$35.5 million to implement the selected remedy across all areas of OU1, which were then designated as LSR-DWN-2 and part of LSR-DWN-3. OU1 was subdivided into five areas: LSR-UP-1, LSR-DWN-1, LSR-DWN-2, LSR-DWN-3 and LSR-DWN-4. LSR-UP-1 was the section of the river upstream of the

¹ This ESD does not address OU2 of the Site. EPA is performing a Feasibility Study for OU2.

² A ROD documents the EPA's remedy decision.

³ See 55 Fed. Reg. 8,666, 8,771-72 (Mar. 8, 1990).

⁴ An RI determines the nature and extent of contamination at a site for the purposes of developing a ROD.

contaminated sediment and LSR-DWN-1 was the section of the river previously addressed by a removal action. LSR-DWN-2, LSR-DWN-3 and LSR-DWN-4 were downstream of the section previously cleaned up by a removal action. EPA found LSR-DWN-2 and part of LSR-DWN-3 to exceed the risk level of 1×10^{-5} and a Hazard Index (HI) of 1. LSR-DWN-4 does not need a remedy since it meets the cleanup goals.

From approximately September 2018 to December 2018, EPA conducted extensive sediment sampling in LSR-DWN-2 and LSR-DWN-3 during remedial design to better delineate the extent of contamination in these sections of the river. Based on that sampling, EPA determined that the actual volume of contaminated sediment that needs to be excavated is greater than what was originally estimated. In addition, based largely on more up-to-date engineering estimates and factors, EPA determined that the indirect costs of various tasks required by remediation work is greater than what was originally estimated. As a result of the increased volume of contaminated soil and the increased indirect costs of remediating that soil, the current estimated cost of remediating LSR-DWN-2 and LSR-DWN-3 has increased to \$69.3 million.

There are no fundamental differences in the selected remedy between this ESD and the Record of Decision that was publicly noticed on February 17, 2016.

II. SITE BACKGROUND

The Little Scioto River (LSR) Superfund Site (CERCLIS ID# OHN 000 509 590) is located west of the City of Marion in Marion County, Ohio (Appendix A). EPA placed the LSR Site on the National Priorities List (NPL) in September 2009 and is the lead agency for the Site. The Ohio Environmental Protection Agency (Ohio EPA) is the support agency. All EPA Site work to date has been fund-financed.

The LSR Site is comprised of two separate OUs. OU 1 is the LSR and OU 2 is the former Baker Wood Creosoting (BWC) facility (Appendix B), which was the source of PAH contamination in the river sediment. This ESD pertains only to OU 1, which consists of an 8.5-mile stretch of the LSR and includes site features such as the North Rockswale Ditch (NRD), the Rockswale Ditch, the Columbia Ditch, and the Unnamed Ditch.

The LSR Site investigation area for OU 1 begins at the State Route 309 bridge and extends to the Scioto River confluence just south of Green Camp, Ohio. This part of the Site is located in a low-density residential area with unrestricted access via farm fields, bridges, state-designated recreation areas, and wildlife areas. Here, the LSR flows north to south and feeds the Scioto River, which in turn is a major tributary to the Ohio River. The LSR is a low-velocity, high-turbidity waterway that ranges between 20 and 49 feet wide and 2 and 5 feet deep. The streambed consists primarily of sand with increasing clay/silt fractions downstream. The topography of the surrounding land area is generally flat with a gentle slope toward the river.

The former BWC facility operated as a lumber preserver using creosote and other compounds from the 1890s until the 1960s. In the 1940s, the Ohio Department of Health (ODH) documented that chemicals from BWC were being discharged into the combined sewers that drained into the NRD and then to the LSR. Information shows that a combined sanitary and storm sewer is located along

the southern border of BWC along Holland Road. The sewer travels west beneath Holland Road and discharges into the NRD and the NRD flows west approximately 0.5 mile before it discharges into the LSR. The BWC drain is now sealed so no further contamination can be released into the NRD or the river.

In 1987, Ohio EPA conducted a biological and water quality study of the LSR and its tributaries. Its 1988 study report concluded that heavy metals and organic chemical contamination had caused severe biological and water quality degradation in the river downstream of the BWC facility and in Rockswale Ditch and Columbia Ditch.

On March 20, 1992, ODH issued an advisory against swimming in, wading in, and eating fish caught from the 4-mile length of the LSR west of Marion from Holland Road south to State Route 739. ODH, in cooperation with Ohio EPA and the Ohio Department of Natural Resources (Ohio DNR), issued consumption advisories under Ohio law (Ohio Revised Code Ch. 3701). ODH issued a sport fish consumption advisory that recommended not eating any fish from this area due to PAH contamination.

From May 1999 through May 2000, EPA conducted a removal site evaluation of the NRD and LSR pertaining to creosote contamination. The EPA study concluded that approximately 4 miles of the river and 0.5 miles of the NRD contained an estimated 40,000 cubic yards of creosote-contaminated sediment.

In June 2002, EPA mobilized to the LSR Site to begin a time-critical removal action under authority of the Oil Pollution Act. From June to December, EPA removed and staged about 7,500 cubic yards of creosote-contaminated sediment from the NRD and about 17,840 cubic yards of contaminated sediment from a portion of the LSR. In May 2003, EPA began transporting the staged material for off-site disposal. The removal action concluded in August 2003.

In May 2006, EPA mobilized to the LSR Site to continue with sediment removal activity in the LSR under its CERCLA removal authority. When completed in September 2006, an additional 23,000 cubic yards of contaminated sediment had been removed from the river and a total of about 5,600 linear feet of river had been addressed. However, EPA and Ohio EPA estimated that about 3.25 miles of the LSR was still adversely impacted.

After the NPL listing in 2009, EPA began a remedial investigation (RI) and feasibility study (FS) at the LSR Site in 2010. The RI focused on (1) verifying whether residual PAHs and metals contamination in the river segment previously addressed during the removal actions were below screening levels, (2) further characterizing surface water and sediment quality in the river and in low-lying areas adjacent to the river, (3) assessing whether any unidentified upstream sources of contamination from connecting waterways existed, and (4) collecting additional background data. In addition, a limited groundwater investigation was conducted adjacent to the river to (1) evaluate the hydraulic connection between the river and shallow groundwater, and (2) assess whether any impacts to shallow groundwater have resulted from contaminants leaching from the sediment into the groundwater. EPA completed the RI report in August 2013 and the FS Report in August 2015.

The ROD was signed on June 17, 2016. The Selected Remedy for OU1 of the LSR site is Alternative 4a - Dry Excavation and Off-Site Disposal. Alternative 4a will address polyaromatic hydrocarbon (PAH) contamination in the river sediment through:

- Isolating and dewatering designated segments of the river;
- Excavating PAH-contaminated sediment to meet cleanup levels;
- Replacing the excavated volumes with clay and then restoring the river flow;
- Disposing of excavated sediment off-site in an approved landfill; and
- Relying on existing institutional controls (ICs) (state fish advisory) to help prevent consumption of impacted fish and mussels until the remedial action objectives are achieved.

This action will provide for a clean sediment layer, which will then allow for a healthy benthic community to thrive in the river. The fish/mussels consumption advisory could then be lifted by the Ohio Department of Public Health when the fish and mussels are safe to eat. The 2016 ROD estimated that the total cost of implementing Alternative 4a would be \$35.5 million to implement over four to six construction seasons. The total cost includes a capital cost estimate of \$34.8 million and an estimated present worth operation and maintenance (O&M) cost of \$0.7 million.

The table below shows the cost comparison for each alternative based on the Remedial Investigation/Feasibility Study. Areas to be addressed by the preferred alternative are displayed in figure 8 of the ROD (Appendix C).

Cost Comparison for the Remedial Alternatives

	Alternative	Capital Cost (in millions)	Annual O&M Cost (in millions) (30 years)	Total Present Worth Cost (in millions)
1	No Action	\$ 0	\$ 0	\$ 0
2	MNR	\$0.4	\$1.4	\$1.8
3	Capping	\$22.0	\$5.7	\$27.7
4a	Excavate	\$34.8	\$0.7	\$35.5
4b	Dredge	\$39.0	\$0.7	\$39.7

Consistent with the ROD, EPA performed remedial design activities in OU1 from June 2018 to January 2021.

III. EXPLANATION OF SIGNIFICANT DIFFERENCES

A. Explanation of the Significant Differences

In 2016, EPA estimated that it would cost \$35.5 million to remediate OU1 based on data generated during the RI/FS. Forty sediment samples were collected from the entire length of the LSR and associated ditches during the RI along with measuring the width of the river and sediment depth (Appendix D). Remedial design sampling focused only on the areas that will be addressed in the selected remedial alternative, LSR-DWN2 and LSR-DWN3. During the Remedial Design (RD), 137 sediment samples were collected, and sediment thickness and river widths were also measured at each of these locations (Appendix E). As a result of more robust data collected within LSR-DWN2 & LSR-DWN3 during the RD phase, EPA has determined that the volume of contaminated sediment is greater than originally estimated. These changes have increased the total estimated volume of contaminated sediment to be excavated from approximately 98,000 cubic yards to approximately 129,500 cubic yards. This increased quantity of sediment correspondingly increased the construction management costs as there is more material to excavate, manage, and dispose. In addition, based largely on more up-to-date engineering estimates, EPA has determined that indirect costs for this project are also higher than previously estimated.

Assumptions used to calculate the indirect project costs that resulted in the higher overall design costs. This includes:

Item	FS/ROD	Prefinal Design
Bonding	Not included	2.5%
Escalation Rate	1.48%	9.3% (total over 3 years)
Contingency	Not included	15 %
Project management and construction management	0.8%	11% (total)

As can be seen from the table above, the FS did not include the cost of obtaining a payment and performance bond as well as a contingency cost. The FS included an escalation rate of 1.48% versus the RD escalation rate of 9.3%. Estimated project management and construction management costs were significantly higher in the RD. In total, these indirect costs added approximately \$21.5 million to the project.

As a result of these major factors, the estimated cost to implement the selected remedy in OU1 is now \$69.3 million. Based on the increased costs for Alternative 4a, EPA anticipates commensurate cost increases for the other alternatives as well such that the comparison of alternatives and remedy selection in the ROD remains valid.

IV. SUPPORT AGENCY COMMENTS

The Ohio Environmental Protection Agency supports this ESD.

V. FIVE YEAR REVIEWS

If this remedy results in hazardous substances, pollutants, or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure, EPA will review the remedy no less often than every five years from the start of construction to ensure that the remedy is, or will be, protective of human health and the environment.

VI. AFFIRMATION OF STATUTORY DETERMINATIONS

The remedy selected in the 2016 ROD remains fundamentally unaltered, and the statutory determinations made in the ROD still apply. The significant change to the remedial action is an increase in the cost due primarily to an increase in the estimated volume of contaminated sediment and an increase in the indirect costs of the remediation work.

The remedy remains protective of human health and the environment and will comply with federal and state requirements that are legally applicable or relevant and appropriate to the remedial action. The remedy remains technically feasible, cost-effective and satisfies the requirements of CERCLA and the NCP.

VII. PUBLIC PARTICIPATION AND THE ADMINISTRATIVE RECORD

EPA, in consultation with Ohio EPA, has issued this ESD for the LSR OU1 site remedy and is making this explanation and supporting information available to the public via the administrative record and the information repositories (noted below). Pursuant to NCP § 300.435(c)(i), EPA will publish a notice in a newspaper of local circulation that briefly summarizes the ESD and provides a basic reason for such differences. In coordination with Ohio EPA, EPA will observe community reaction to the notice placed in the newspaper. If numerous questions or significant reaction from the public is forthcoming, EPA is prepared to offer to meet with the public to discuss these changes. By so doing, EPA will meet the public participation requirements of Section 300.435(c)(2)(i) of the NCP and Section 117(c) of CERCLA. An electronic copy of this ESD will also be available online at: <https://cumulis.epa.gov/supercpad/cursites/csinfo.cfm?id=0509950>.

Pursuant to NCP § 300.825(a)(2), this ESD will become part of the Administrative Record file for the Site. The Administrative Record for the response actions related to the Site is available for public review at the following locations:

Marion Public Library
445 E. Church Street
Marion, Ohio

The Administrative Record file and other relevant reports and documents are also available for public review at the EPA Region 5 office at the following location:

EPA Region 5 Records Center
77 West Jackson Boulevard – 7th Floor
Chicago, IL 60604

Hours: Monday to Friday: 8:00 am – 4:00 pm

Finally, the Administrative Record is available online at:

<https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0509950>

For any questions regarding this ESD, please contact:

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VIII. AUTHORIZING SIGNATURE

EPA has determined that the changes to the estimated cost of the remedy for the LSR OU1 Superfund Site provided in this ESD are significant but do not fundamentally alter the selected remedial action for OU1. Therefore, I approve the issuance of this ESD for the LSR OU1 Superfund Site.



Michael S. Regan
Administrator

DEC 13 2021

Date

Appendices

Appendix A – Site Map

Appendix B – Site Features Map

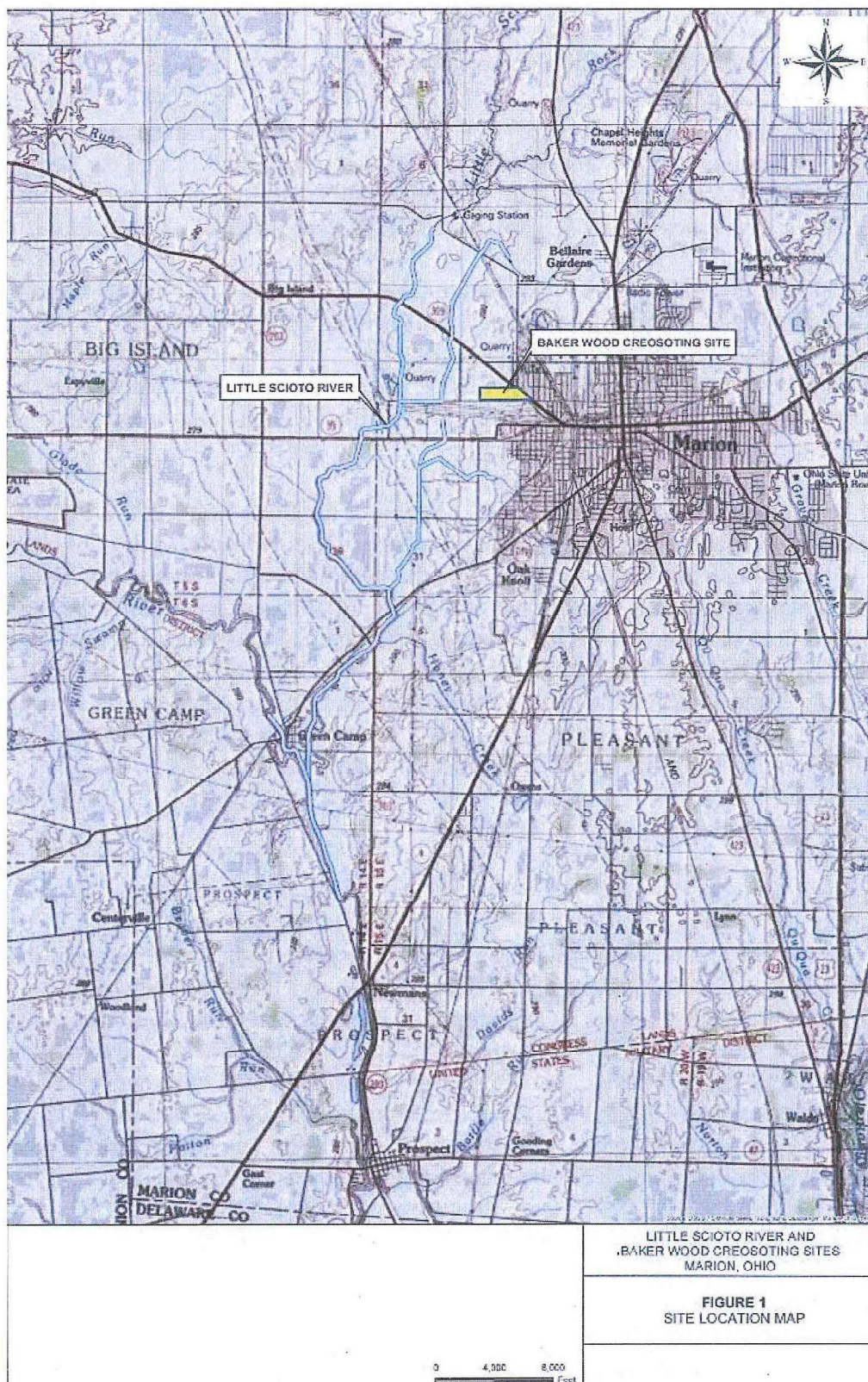
Appendix C – Areas Addressed in ROD

Appendix D – RI Sampling Locations

Appendix E – LSR-DWN2 & LSR-DWN3 RD Sampling Transects

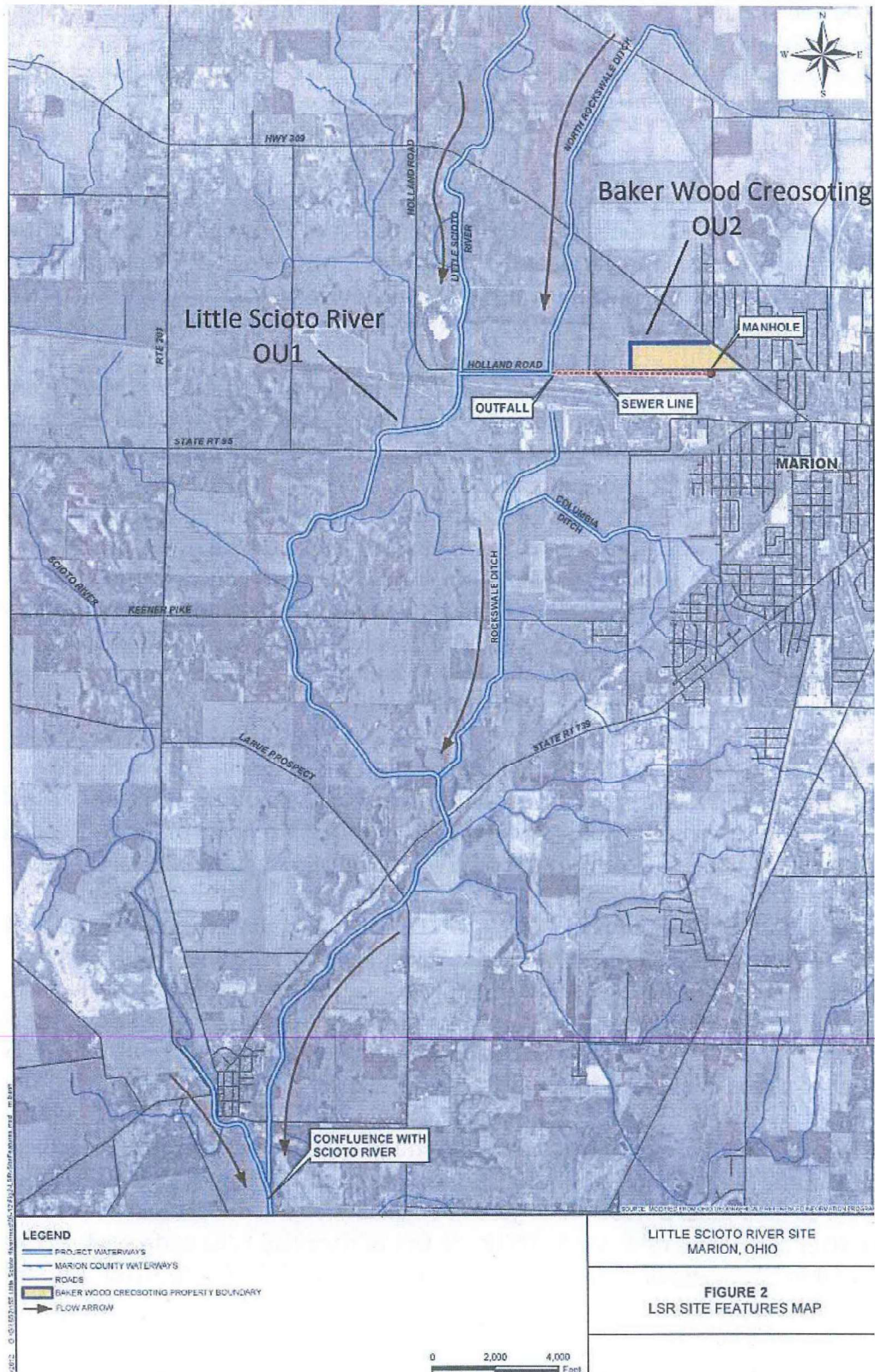
Appendix A – Site Map

Figure 1: Site Map



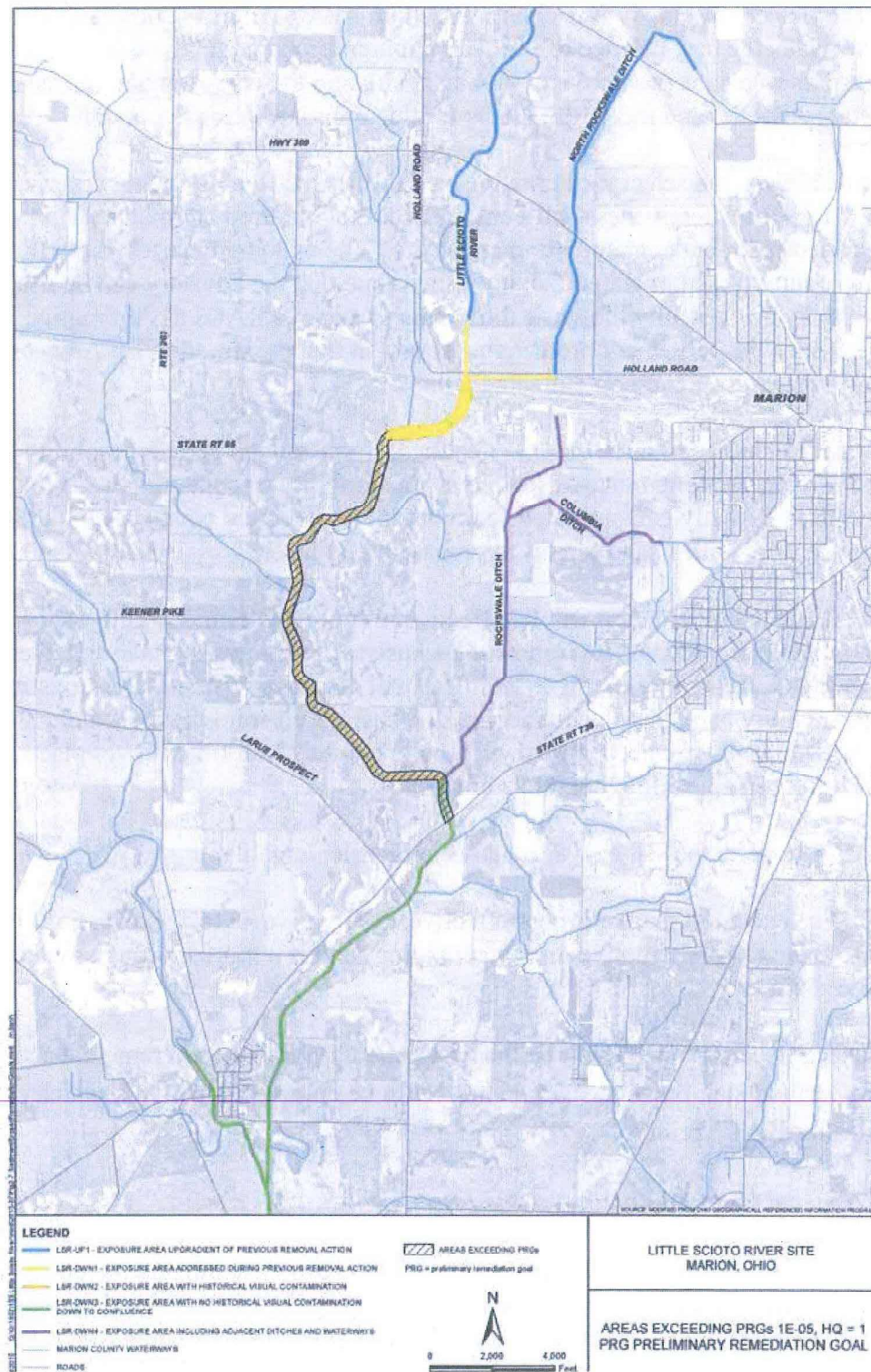
Appendix B – Site Features Map

Figure 2: Site Features

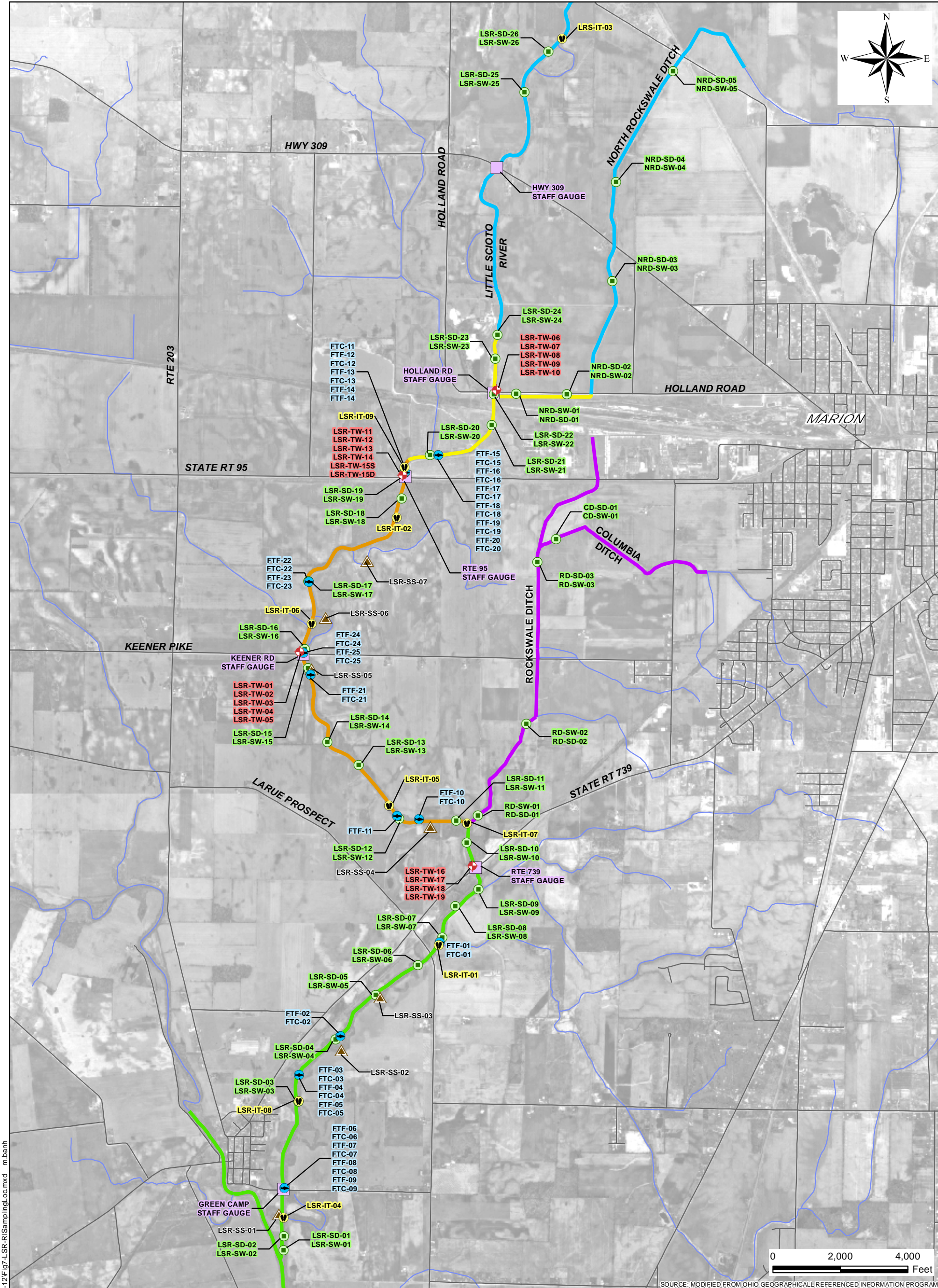


Appendix C – Areas Addressed in ROD

Figure 8: Areas to be addressed by the preferred alternative



Appendix D – RI Sampling Locations



LEGEND	
	INVERTEBRATE SAMPLING LOCATION
	FISH SAMPLING LOCATION
	GROUNDWATER SAMPLING LOCATION
	SEDIMENT AND SURFACE WATER SAMPLING LOCATION
	SURFACE SOIL SAMPLING LOCATION
	STAFF GAUGE
	LSR-UP1 - EXPOSURE AREA UPGRADIENT OF PREVIOUS REMOVAL ACTION
	LSR-DWN1 - EXPOSURE AREA ADDRESSED DURING PREVIOUS REMOVAL ACTION
	LSR-DWN2 - EXPOSURE AREA WITH HISTORICAL VISUAL CONTAMINATION
	LSR-DWN3 - EXPOSURE AREA WITH NO HISTORICAL VISUAL CONTAMINATION DOWN TO CONFLUENCE WITH SCIOTO RIVER
	LSR-DWN4 - EXPOSURE AREA INCLUDING ADJACENT DITCHES AND WATERWAYS
	MARION COUNTY WATERWAYS
	ROADS

LITTLE SCIOTO RIVER SITE
MARION, OHIO

FIGURE 7
LSR RI SAMPLING LOCATION MAP



Appendix E - LSR-DWN2 & LSR-DWN3 RD Sampling Transects

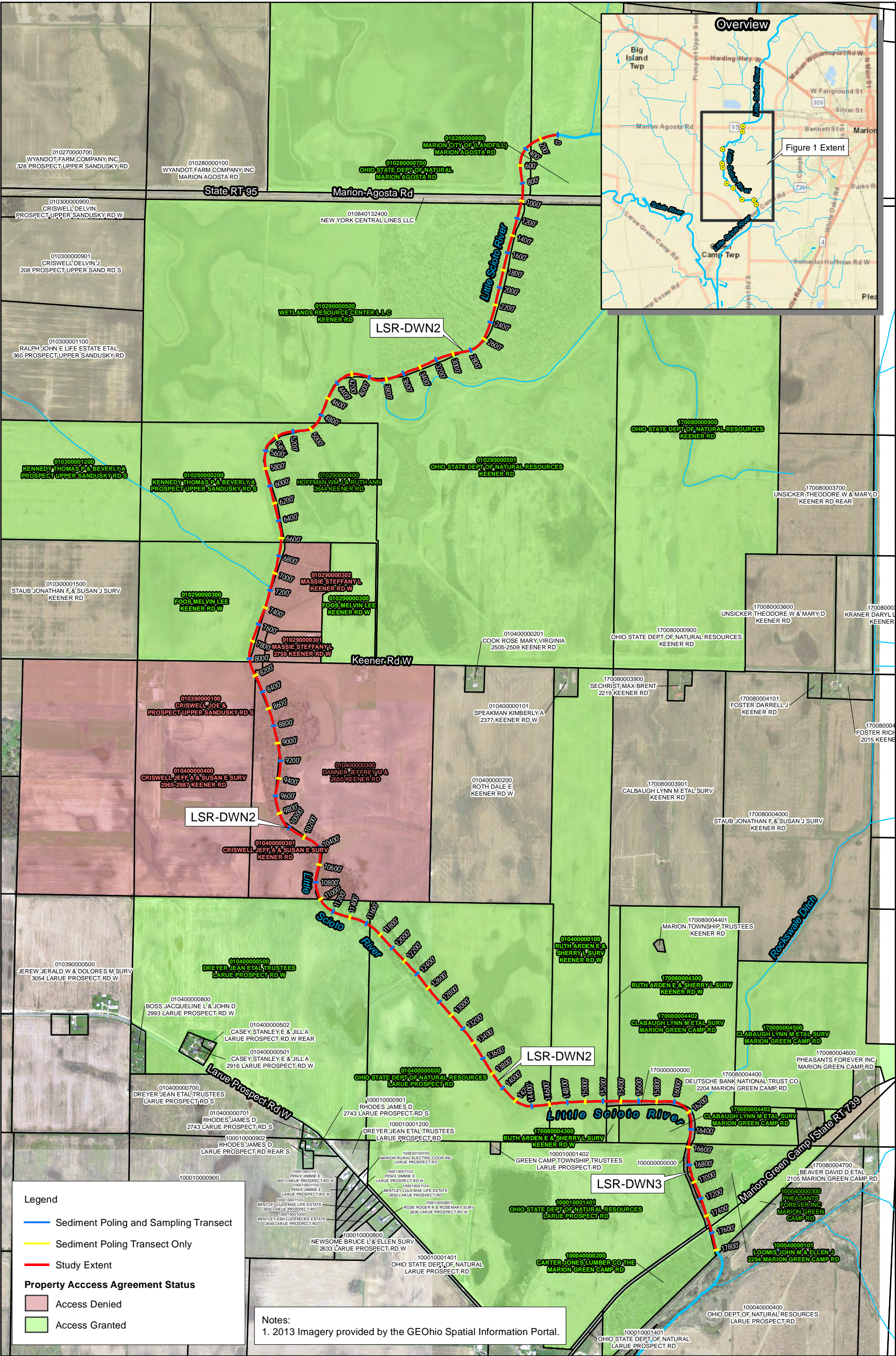


Figure 1
Site Location
Sediment Investigation Summary Report
Little Scioto River Site
Marion, Ohio