

**IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF OHIO**

_____)	
UNITED STATES OF AMERICA,)	
)	
Plaintiff,)	
)	
v.)	Civil Action No. 3:20-cv-373
)	
GEORGE GRADEL COMPANY, INC.,)	
and FIRST ENERGY NUCLEAR)	
OPERATING COMPANY,)	
)	
Defendants.)	
_____)	

CONSENT DECREE

WHEREAS, the Plaintiff, the United States of America, on behalf of the United States Environmental Protection Agency (“EPA”), filed the Complaint herein against Defendants FirstEnergy Nuclear Operating Company (“FENOC”), and George Gradel Company, Inc. (“Gradel”) (collectively, “Defendants”), alleging that Defendants violated Section 301(a) of the Clean Water Act (“CWA”), 33 U.S.C. § 1311(a);

WHEREAS, the Complaint alleges that Defendants violated CWA Section 301(a) by discharging dredged or fill material and/or controlling and directing the discharge of dredged or fill material into waters of the United States at the Davis Besse Firing Range Site located at 818 Front Street, Port Clinton, Ohio, (the “Site”) and more fully described in the Complaint, without a permit issued by the United States Department of the Army Corps of Engineers (the “Corps”);

WHEREAS, the Complaint seeks (1) to enjoin the discharge of pollutants into waters of the United States in violation of CWA Section 301(a), 33 U.S.C. § 1311(a); (2) to require Defendants, at their own expense and at the direction of EPA, to restore and/or mitigate the

damages caused by their unlawful activities; and (3) to require Defendants to pay civil penalties as provided in 33 U.S.C. § 1319(d);

WHEREAS, except as provided in Paragraphs 1 through 3 of this Consent Decree, the Defendants do not admit to the violations alleged in the Complaint, and do not admit any liability to the United States for the allegations in the Complaint;

WHEREAS, this Consent Decree is intended to constitute a complete and final settlement of the United States' claims for relief under the CWA set forth in the Complaint regarding the Site;

WHEREAS, in order to settle this case and avoid complicated and protracted litigation, Defendants have entered into this Consent Decree, but, except as provided in Paragraphs 1 through 3 of this Consent Decree, nothing in this Consent Decree constitutes, nor shall be treated as, an admission of, or evidence of, a violation of law in any other litigation or forum;

WHEREAS, the United States and Defendants agree that settlement of this case is in the public interest and that entry of this Consent Decree is the most appropriate means of resolving the United States' causes of action under the CWA against Defendants in this case;

WHEREAS, Defendant FENOC has filed a bankruptcy petition in the United States Bankruptcy Court for the Northern District of Ohio (the "Bankruptcy Court"), Case No. 18-50761;

WHEREAS, the United States filed a proof of claim in the Bankruptcy Court on behalf of the EPA with respect to the dispute in this case on October 15, 2018 ("Claim No. 1377");

WHEREAS, Gradel filed a proof of claim with respect to the dispute in this case on July 18, 2018 ("Claim No. 426"); and

WHEREAS, the Court finds that this Consent Decree is a reasonable and fair settlement of the United States' claims for relief against Defendants in the Complaint, and that this Consent Decree adequately protects the public interest in accordance with the CWA and all other applicable federal law.

THEREFORE, before the taking of any testimony upon the pleadings, without further adjudication of any issue of fact or law, and upon consent of the parties hereto by their authorized representatives, it is hereby ORDERED, ADJUDGED and DECREED as follows:

I. JURISDICTION AND VENUE

1. This Court has jurisdiction over the subject matter of these actions and over the parties pursuant to 28 U.S.C. §§ 1331, 1345, and 1355, and Section 309(b) of the CWA, 33 U.S.C. § 1319(b).

2. Venue is proper in the Northern District of Ohio pursuant to CWA Section 309(b), 33 U.S.C. § 1319(b), and 28 U.S.C. §§ 1391(b) and (c), because the Defendants conduct business in this District, the subject property is located in this District, and the causes of action alleged herein arose in this District.

3. For purposes of this Consent Decree, the Complaint states causes of action upon which relief can be granted pursuant to Sections 301, 309 and 404 of the CWA, 33 U.S.C. §§ 1311, 1319 and 1344.

II. APPLICABILITY

4. The obligations of this Consent Decree shall apply to and be binding upon the United States and the Defendants, their officers, directors, agents, employees and servants, and their successors and assigns and any person, firm, association or corporation who is, or will be, acting in concert or participation with any of the Defendants whether or not such person has

notice of this Consent Decree. In any action to enforce this Consent Decree against a Defendant, the Defendant shall not raise as a defense the failure of any of its officers, directors, agents, employees, successors or assigns or any person, firm or corporation acting in concert or participation with the Defendant, to take any actions necessary to comply with the provisions hereof.

5. The transfer of ownership or other interest in the Mitigation Site (as described in Appendix 2 appended hereto and incorporated herein by reference) shall not alter or relieve Defendants of their obligation to comply with all of the terms of this Consent Decree. At least 15 days prior to the transfer of ownership or other interest in the Mitigation Site, the party making such transfer shall provide written notice and a true copy of this Consent Decree to its successors in interest and shall simultaneously notify EPA and the United States Department of Justice at the addresses specified in Section XII below that such notice has been given. As a condition to any such transfer, the Defendant making the transfer shall reserve all rights necessary to comply with the terms of this Consent Decree.

III. SCOPE OF CONSENT DECREE

6. This Consent Decree shall constitute a complete and final settlement of all claims for relief, including injunctive relief and civil penalties, alleged in the Complaint against the Defendants under CWA Section 301 concerning the Site.

7. Defendants' obligations under this Consent Decree are joint and several.

8. Except as in accordance with this Consent Decree, Defendants and Defendants' agents, successors and assigns are enjoined from discharging any pollutant into waters of the United States at the Site, unless such discharge complies with the provisions of the CWA and its implementing regulations.

9. Pursuant to Nationwide Permit 32, found at 82 Fed. Reg. 1,860 (Jan. 6, 2017), this

Consent Decree authorizes the following: (a) Any discharge of dredged or fill material that was placed as of June 1, 2016, in the areas of the Site identified in Appendix 1, to remain in place, subject to the conditions provided in the Nationwide Permit 32 and this Consent Decree; and (b) The discharge of dredged or fill material at the Mitigation Site insofar as such discharge is necessary to complete the work required to be performed pursuant to this Consent Decree, subject to the conditions of the Nationwide Permit 32 and this Consent Decree.

10. Except as authorized in the preceding Paragraph 9: (a) this Consent Decree is not and shall not be interpreted to be a permit or modification of any existing permit issued pursuant to Sections 402 or 404 of the CWA, 33 U.S.C. §§ 1342 or 1344, or any other law; and (b) nothing in this Consent Decree shall limit the ability of the United States Army Corps of Engineers to issue, modify, suspend, revoke or deny any individual permit or any nationwide or regional general permit, nor shall this Consent Decree limit the EPA's ability to exercise its authority pursuant to Section 404(c) of the CWA, 33 U.S.C. § 1344(c).

11. This Consent Decree in no way affects or relieves Defendants of their responsibility to comply with any applicable federal, state, or local law, regulation or permit.

12. This Consent Decree in no way affects the rights of the United States as against any person not a party to this Consent Decree.

13. The United States reserves any and all legal and equitable remedies available to enforce the provisions of this Consent Decree and applicable law.

14. Except as provided in Paragraphs 1 through 3, nothing in this Consent Decree shall constitute an admission of fact or law by any party.

IV. CIVIL PENALTIES

15. Defendants shall pay a civil penalty to the United States in the total amount of \$100,000.00, within 30 days after entry of this Consent Decree and approval of the Bankruptcy

Court. This civil penalty amount has been determined by using the factors set forth in 33 U.S.C. § 1319(d), and is a cash out amount to be paid in full upon approval of the Bankruptcy Court of FENOC's entry into this Consent Decree, and already reflects FENOC's limited ability to pay and bankruptcy.

16. Defendants shall make the above-referenced payment by FedWire Electronic Funds Transfer ("EFT" or wire transfer) to the U.S. Department of Justice account in accordance with current EFT procedures, referencing U.S.A.O. file number (_____), EPA Region 5 and the DOJ case number (90-5-1-1-20652). Payment shall be made in accordance with instructions provided to the Defendants by the Financial Litigation Unit of the United States Attorney's Office for the Northern District of Ohio. Any payments received by the Department of Justice after 4:00 P.M. (Eastern Time) will be credited on the next business day.

17. Upon payment of the civil penalty required by this Consent Decree, Defendants shall provide written notice, at the addresses specified in Section XII of this Consent Decree, that such payment was made in accordance with Paragraph 16 and Claim No. 1377 will be deemed withdrawn by the United States and EPA.

18. If FENOC makes the payment described in Paragraph 15, then Gradel will file a notice of withdrawal of Claim No. 426 with the Bankruptcy Court within seven (7) business days of FENOC's notification of such payment being made by FENOC.

19. Civil penalty payments pursuant to this Consent Decree (including stipulated penalty payments under Section XI) are penalties within the meaning of Section 162(f) of the Internal Revenue Code, 26 U.S.C. § 162(f), or of 26 C.F.R. § 1.162-21 and are not tax deductible expenditures for purposes of federal law.

V. RESTORATION, MITIGATION AND PRESERVATION

20. Upon the entry of the Consent Decree, the Defendants shall perform the

restoration and mitigation project at the Mitigation Site under the terms and conditions stated in Appendix 2 appended hereto and incorporated herein by reference.

21. Upon completion of the terms and conditions of Appendix 2, Defendants shall not mow, cut, clear, cultivate, dredge, excavate, farm, fill, dewater, drain or otherwise disturb in any manner whatsoever the Mitigation Site identified in Appendix 2, except as approved by EPA. Consistent with these requirements, hunting at the Mitigation Site shall be not be prohibited by this Decree.

22. To ensure that the Mitigation Site in Appendix 2 remain undisturbed, Defendants shall, within 15 days after entry of this Consent Decree, record a file-stamped copy of this Consent Decree with the Ottawa County, Ohio Recorder's Office. Thereafter, each deed, title, or other instrument conveying an interest in the Mitigation Site identified in Appendix 2 shall contain a notice stating that the property is subject to this Consent Decree, shall reference the recorded location of the Consent Decree and the restrictions applicable to the property under the preceding Paragraph 21 of this Consent Decree.

VI. 26 U.S.C. SECTION 162(f)(2)(A)(ii) IDENTIFICATION

23. For purposes of the identification requirement of Section 162(f)(2)(A)(ii) of the Internal Revenue Code, 26 U.S.C. § 162(f)(2)(A)(ii), performance by Defendants under Section V (Restoration, Mitigation and Preservation) is restitution or activities required to come into compliance with law.

VII. NOTICES AND OTHER SUBMISSIONS

24. Defendants shall comply with the annual reporting requirements set forth in Appendix 2 of this Consent Decree, and Defendants shall provide the United States with written notice, at the addresses specified in Section XII of this Consent Decree, of whether or not the annual report has been submitted to EPA, along with a copy of the annual report.

25. If any required task in Appendix 2 has not been completed by a required deadline, then the notice shall include the reasons for the delay in completion beyond the scheduled time.

26. In all notices, documents or reports submitted to the United States pursuant to this Consent Decree, the Defendants shall, by signature of a senior management official, certify such notices, documents and reports as follows:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering such information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

VIII. RETENTION OF RECORDS AND RIGHT OF ENTRY

27. Until 5 years after entry of this Consent Decree, Defendants shall preserve and retain all records and documents now in their possession or control or which come into their possession or control that relate in any manner to the performance of the tasks in Appendix 2, regardless of any corporate retention policy to the contrary. Until 5 years after entry of this Consent Decree, Defendants shall also instruct their contractors and agents to preserve all documents, records, and information of whatever kind, nature or description relating to the performance of the tasks in Appendix 2.

28. At the conclusion of the document retention period, Defendants shall notify the United States at least 90 days prior to the destruction of any such records or documents, and, upon request by the United States, Defendants shall deliver any such records or documents to EPA. The Defendants may assert that certain documents, records and other information are privileged under the attorney-client privilege or any other privilege recognized by federal law. If the Defendants assert such a privilege, they shall provide the United States with the following:

(1) the title of the document, record, or information; (2) the date of the document, record, or information; (3) the name and title of the author of the document, record, or information; (4) the name and title of each addressee and recipient; (5) a description of the subject of the document, record, or information; and (6) the privilege asserted by Defendants.

29. A. Until termination of this Consent Decree, the United States and its authorized representatives and contractors shall have authority at all reasonable times to enter the Mitigation Site premises to:

- 1) Monitor the activities required by this Consent Decree;
- 2) Verify any data or information submitted to the United States;
- 3) Obtain samples;
- 4) Inspect and evaluate Defendants' restoration and/or mitigation activities; and
- 5) Inspect and review any records required to be kept under the terms and conditions of this Consent Decree and the CWA.

B. This provision of this Consent Decree is in addition to, and in no way limits or otherwise affects, the statutory authorities of the United States to conduct inspections, to require monitoring and to obtain information from the Defendants as authorized by law.

IX. DISPUTE RESOLUTION

30. Any dispute that arises with respect to the meaning or requirements of this Consent Decree shall be, in the first instance, the subject of informal negotiations between the United States and Defendants affected by the dispute to attempt to resolve such dispute. The period for informal negotiations shall not extend beyond thirty (30) days beginning with written notice by one party to the other affected party or parties that a dispute exists, unless agreed to in writing by those parties. If a dispute between the United States and Defendants cannot be resolved by informal negotiations, then the position advanced by the United States shall be

considered binding unless, within fourteen (14) days after the end of the informal negotiations period, the Defendants file a motion with the Court seeking resolution of the dispute. The motion shall set forth the nature of the dispute and a proposal for its resolution. The United States shall have thirty (30) days to respond to the motion and propose an alternate resolution. In resolving any such dispute, the Defendants shall bear the burden of proving by a preponderance of the evidence that the United States' position is not in accordance with the objectives of this Consent Decree and the CWA, and that the Defendants' position will achieve compliance with the terms and conditions of this Consent Decree and the CWA.

31. If the United States believes that a dispute is not a good faith dispute, or that a delay would pose or increase a threat of harm to the public or the environment, it may move the Court for a resolution of the dispute prior to the expiration of the thirty (30) day period for informal negotiations. The Defendants shall have fourteen (14) days to respond to the motion and propose an alternate resolution. In resolving any such dispute, the Defendants shall bear the burden of proving by a preponderance of the evidence that the United States' position is not in accordance with the objectives of this Consent Decree, and that the Defendants' position will achieve compliance with the terms and conditions of this Consent Decree and the CWA.

32. The filing of a motion asking the Court to resolve a dispute shall not extend or postpone any obligation of Defendants under this Consent Decree, except as provided in Paragraph 40 below regarding payment of stipulated penalties.

X. FORCE MAJEURE

33. Defendants shall perform the actions required under this Decree within the time limits set forth or approved herein, unless the performance is prevented or delayed solely by events which constitute a Force Majeure event. A Force Majeure event is defined as any event arising from causes beyond the control of Defendants, including their employees, agents,

consultants and contractors, which could not be overcome by due diligence and which delays or prevents the performance of an action required by this Consent Decree within the specified time period. A Force Majeure event does not include, inter alia, increased costs of performance, changed economic circumstances, changed labor relations, normal precipitation or climate events, changed circumstances arising out of the sale, lease or other transfer or conveyance of title or ownership or possession of a site, or failure to obtain federal, state or local permits.

34. If Defendants believe that a Force Majeure event has affected Defendants' ability to perform any action required under this Consent Decree, Defendants shall notify the United States in writing within fourteen (14) calendar days after the Defendants become aware of the force majeure event at the addresses listed in Section XII. Such notice shall include a discussion of the following:

- A. what action has been affected;
- B. the specific cause(s) of the delay;
- C. the length or estimated duration of the delay; and
- D. any measures taken or planned by the Defendants to prevent or minimize the delay and a schedule for the implementation of such measures.

Defendants may also provide to the United States any additional information that they deem appropriate to support their conclusion that a Force Majeure event has affected their ability to perform an action required under this Consent Decree. Failure to provide timely and complete notification to the United States shall constitute a waiver of any claim of Force Majeure as to the event in question.

35. If the United States determines that the conditions presented by Defendants constitute a Force Majeure event, then the deadline for the affected action shall be extended by

the amount of time of the delay caused by the Force Majeure event. Defendants shall coordinate with EPA to determine when to begin or resume the operations that had been affected by any Force Majeure event.

36. If the parties are unable to agree whether the conditions constitute a Force Majeure event, or whether the length of time for fulfilling the provision of the Consent Decree at issue should be extended, any party may seek a resolution of the dispute under the procedures in Section IX of this Consent Decree.

37. Defendants shall bear the burden of proving (1) that the noncompliance at issue was caused by circumstances entirely beyond the control of Defendants and any entity controlled by Defendants, including their contractors and consultants; (2) that Defendants or any entity controlled by Defendants could not have foreseen and prevented such noncompliance; and (3) the number of days of noncompliance that were caused by such circumstances.

XI. STIPULATED PENALTIES

38. After entry of this Consent Decree and approval of the Bankruptcy Court, if Defendants fail to timely fulfill any requirement of the Consent Decree (including Appendix 2), the Defendants shall pay a stipulated penalty to the United States for each violation of each requirement of this Consent Decree as follows:

- | | | |
|----|---|--------------------|
| A. | For Day 1 up to and including
Day 30 of non-compliance | \$500.00 per day |
| B. | For Day 31 up to and including
60 of non-compliance | \$750.00 per day |
| C. | For Day 61 and beyond
of non-compliance | \$1,000.00 per day |

Such payments shall be made upon demand by the United States within thirty (30) days of the demand, unless Defendants invoke the provisions of Section IX.

39. Any disputes concerning the amount of stipulated penalties, or the underlying violation that gives rise to the stipulated penalties, that cannot be resolved by the parties pursuant to the Dispute Resolution provisions in Section IX and/or the Force Majeure provisions in Section X shall be resolved upon motion to this Court as provided in Paragraphs 30 and 31.

40. The filing of a motion requesting that the Court resolve a dispute shall stay Defendants' obligation to pay any stipulated penalties with respect to the disputed matter pending resolution of the dispute. Notwithstanding the stay of payment, stipulated penalties shall continue to accrue from the first day of any failure or refusal to comply with any term or condition of this Consent Decree. In the event that Defendants do not prevail on the disputed issue, stipulated penalties shall be paid by Defendants as provided in this Section.

41. To the extent Defendants demonstrate to the Court that a delay or other non-compliance was due to a Force Majeure event (as defined in Paragraph 33 above) or otherwise prevail on the disputed issue, the Court shall excuse the stipulated penalties for that delay or non-compliance only.

42. In the event that a stipulated penalty payment is applicable and not made on time, interest will be charged in accordance with the statutory judgment interest rate provided for in 28 U.S.C. § 1961. The interest shall be computed daily from the time the payment is due until the date the payment is made. The interest shall also be compounded annually.

43. Defendants shall make any payment of a stipulated penalty by FedWire Electronic Funds Transfer ("EFT" or wire transfer) to the U.S. Department of Justice account in accordance with current EFT procedures, referencing U.S.A.O. file number (2015V03391), EPA Region 5 and the DOJ case number (90-5-1-1-20652). Payment shall be made in accordance with instructions provided to the Defendants by the Financial Litigation Unit of the U.S. Attorney's

Office for the Northern District of Ohio. Any payments received by the Department of Justice after 4:00 P.M. (Eastern Time) will be credited on the next business day. Further, upon payment of any stipulated penalties, Defendants shall provide written notice, at the addresses specified in Section XII of this Decree.

XII. ADDRESSES

44. All notices and communications required under this Consent Decree shall be made to the parties through each of the following persons and addresses:

A. TO EPA:

(1) Robert S. Guenther
Associate Regional Counsel
United States Environmental Protection Agency
Region 5 (Mail Code C-14J)
77 West Jackson Boulevard
Chicago, Illinois 60604

and

(2) Elizabeth Murphy
Chief, Water Enforcement and Compliance Assurance Branch
United States Environmental Protection Agency
Region 5 (Mail Code ECW-15J)
77 West Jackson Boulevard
Chicago, Illinois 60604

B. TO THE UNITED STATES DEPARTMENT OF JUSTICE

Chief
Environmental Defense Section
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611
Washington, D.C. 20044-7611

C. TO GRADEL:

John Gradel, Sr.
President
Geo. Gradel Co.
3135 Front Street

Toledo, Ohio 43605

and

David Nunn, Esq.
Eastman & Smith Ltd.
One Seagate, 24th Floor
P.O. Box 10032
Toledo, Ohio 43699

D. TO FENOC:

Jim Meade
FirstEnergy Corp.
800 Cabin Hill Drive
Greensburg, Pennsylvania 15601

and

Terrence S. Finn, Esq.
Roetzel & Andress, A Legal Professional Association
222 S. Main Street, Suite 400
Akron, Ohio 44308

XIII. COSTS OF SUIT

45. Each party to this Consent Decree shall bear its own costs and attorneys' fees in this action. Should Defendants subsequently be determined by the Court to have violated the terms or conditions of this Consent Decree, Defendants shall be liable for any costs or attorneys' fees incurred by the United States in any action against Defendants for the enforcement of this Consent Decree.

XIV. BANKRUPTCY COURT APPROVAL

46. FENOC's entry into this Consent Decree is conditioned upon FENOC receiving the approval of the Bankruptcy Court. Promptly upon receipt of such approval, FENOC shall file Notice thereof with this Court. FENOC shall include in any confirmation order that it proposes in the bankruptcy case that the confirmation order and plan do not in any way release or impair any requirements of this Consent Decree and that any reorganized debtor in the bankruptcy

proceeding shall fully comply with all terms of this Consent Decree.

XV. PUBLIC COMMENT

47. The parties acknowledge that after the lodging and before the entry of this Consent Decree, final approval by the United States is subject to the requirements of 28 C.F.R. § 50.7, which provides for public notice and comment. The United States reserves the right to withhold or withdraw its consent to the entry of this Consent Decree if the comments received disclose facts which lead the United States to conclude that the proposed judgment is inappropriate, improper, or inadequate. The Defendants agree not to withdraw from, oppose entry of, or to challenge any provision of this Consent Decree, unless the United States has notified the Defendants in writing that it no longer supports entry of the Consent Decree.

XVI. CONTINUING JURISDICTION OF THE COURT

48. This Court shall retain jurisdiction over this action in order to enforce or modify the Consent Decree consistent with applicable law or to resolve all disputes arising hereunder as may be necessary or appropriate for construction or execution of this Consent Decree. During the pendency of the Consent Decree, any party may apply to the Court for any relief necessary to construe and effectuate the Consent Decree.

XVII. MODIFICATION

49. Upon its entry by the Court, this Consent Decree shall have the force and effect of a final judgment. Any modification of this Consent Decree shall be in writing, and shall not take effect unless signed by both the United States and the Defendants and approved by the Court; however, modification of the mitigation work in Appendix 2 may be made by written consent of both the United States and the Defendants.

XVIII. TERMINATION

50. Except for Paragraph 21, this Consent Decree may be terminated by either of the

following:

A. Defendants and the United States may at any time make a joint motion to the Court for termination of this Decree or any portion of it; or

B. Defendants may make a unilateral motion to the Court to terminate this Decree after each of the following has occurred:

1. Defendants have obtained and maintained compliance with all provisions of this Consent Decree and the CWA for twelve (12) consecutive months;

2. Defendants have paid all penalties and other monetary obligations hereunder and no penalties or other monetary obligations are outstanding or owed to the United States;

3. Defendants have certified compliance pursuant to subparagraphs 1 and 2 above to the Court and all Parties; and

4. within forty-five (45) days of receiving such certification from the Defendants, U.S. EPA has not contested in writing that such compliance has been achieved. If EPA disputes Defendant's full compliance, this Consent Decree shall remain in effect pending resolution of the dispute by the Parties or the Court.

IT IS SO ORDERED.

Dated and entered this _____ day of _____, 2020.

United States District Judge

ON BEHALF OF THE UNITED STATES IN THE MATTER OF *United States of America v. George Gradel Company, Inc., and FirstEnergy Nuclear Operating Corporation.*



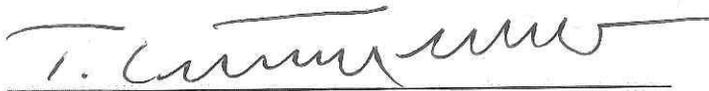
Phillip R. Dupré, Attorney
Environmental Defense Section
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611
Washington, D.C. 20044-7611

Dated: 2/11/2020



Susan Parker Bodine
Assistant Administrator for Enforcement and
Compliance Assurance
U.S. Environmental Protection Agency
1200 Pennsylvania Ave, N.W.
Washington, DC 20460

Dated: 1-31-20



T. Leverett Nelson
Regional Counsel
U.S. Environmental Protection Agency, Region 5
77 W. Jackson Boulevard (C-14J)
Chicago, IL 60604

Dated: 2/10/2020

ON BEHALF OF GEORGE GRADEL CO.


JOHN F. GRADEL, SR.
George Gradel Co.
3135 Front St.
Toledo, Ohio, 43605

Dated: 1/16/2020

ON BEHALF OF FIRST ENERGY NUCLEAR OPERATING COMPANY



Dated: 1/15/20

STEPHEN BURNAZIAN
Corporate Secretary
FirstEnergy Nuclear Operating Company
341 White Pond Drive
Akron, Ohio 44320

rls

**IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF OHIO**

UNITED STATES OF AMERICA,)
)
)
Plaintiff,)
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v.) Civil Action No. _____
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GEORGE GRADEL COMPANY, INC.,)
and FIRST ENERGY NUCLEAR)
OPERATING COMPANY,)
)
Defendants.)

CONSENT DECREE

APPENDIX 1



**IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF OHIO**

UNITED STATES OF AMERICA,)
)
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Plaintiff,)
)
v.) Civil Action No. _____
)
GEORGE GRADEL COMPANY, INC.,)
and FIRST ENERGY NUCLEAR)
OPERATING COMPANY,)
)
Defendants.)
_____)

CONSENT DECREE

APPENDIX 2



Wetland Mitigation and Monitoring Plan FirstEnergy Nuclear Operating Company (FENOC) Mitigation Site

Erie Township, Ottawa County, Ohio

January 2020

Prepared for:

Roetzel & Andress
222 S. Main Street
Akron, Ohio 44308
330-376-2700

Prepared by:

Davey Resource Group, Inc.
295 S. Water Street, Suite 300
Kent, Ohio 44240
330-673-5685



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- H. Location of Mitigation Site on FEMA Flood Hazard Map
- I. Planting and Seed Mix Lists
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Introduction

Davey Resource Group, Inc. (DRG) has been retained by Roetzel & Andress, on behalf of the FirstEnergy Nuclear Operating Company (FENOC) and Gradel Geo Co. (collectively, “the Parties”) to complete the development of this *Mitigation and Monitoring Plan*. The proposed wetland mitigation project will provide compensation for wetland impacts alleged to have occurred during construction of the Davis-Besse Firing Range which is situated on property owned by EPG2, LLC. The Davis-Besse Firing Range and the proposed mitigation site are both located in Erie Township, Ottawa County, Ohio (Appendix A). The proposed mitigation site is located on land owned by John Gradel & Sons Farms, Inc., north of SR 2 (West Lakeshore Drive) and approximately 4,800 feet west of the firing range (Appendix B; see Figure 1). The center point of the Gradel parcel is located at a latitude/longitude of 41.553665, -83.051712 (Appendix C). The Davis-Besse Firing Range and the FENOC Mitigation Site are both located within the Lacarpe Creek – Frontal Lake Erie watershed, with 12-digit Hydrologic Unit Code (HUC) 04100010-05-03.

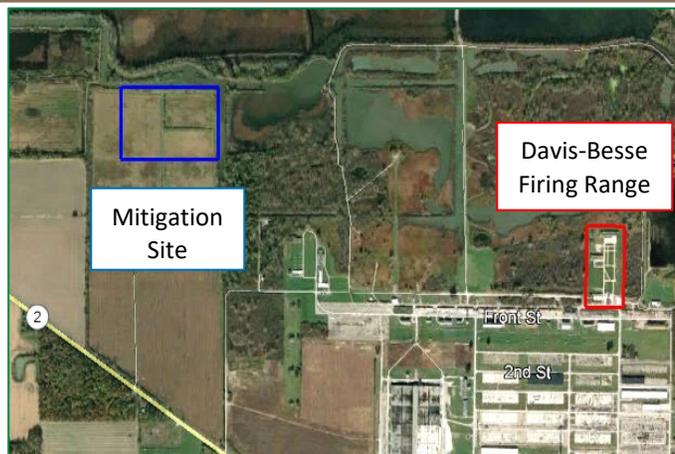


Figure 1. The proposed mitigation site is located approximately 4,800 feet west of the FENOC firing range.

This *Mitigation and Monitoring Plan* was prepared by DRG using the U.S. Army Corps of Engineers’ (USACE) and U.S. Environmental Protection Agency’s (USEPA) rules for compensatory mitigation for losses of aquatic resources. Specifically, this document complies with 33 CFR 332.4 (USACE) and 40 CFR 230.94 (USEPA) regulations.

To compensate for 4.28¹ acres of alleged wetland impacts at the Davis-Besse Firing Range, the Parties propose the restoration of 12.84 acres of wetlands at the FENOC Mitigation Site through wetland re-establishment; this will provide in-kind wetland mitigation at a ratio of 3:1. The physical characteristics of the proposed mitigation site, including soils and hydrology, and its proximity to extensive areas of high-quality wetland all help to ensure that the proposed mitigation project will be ecologically sustainable.

Objectives

The primary objective of the proposed wetland mitigation is to **restore 12.84 acres** of non-forested wetlands through re-establishment. Specifically, the FENOC Mitigation Site will be designed, constructed, and managed to attain the following basic goal:

¹ Although the United States originally alleged impacts to 4.96 acres of wetland, they have subsequently agreed to use 4.28 acres of alleged impact for the purpose of identifying mitigation ratios and calculating required wetland mitigation, as described in this document.

- **Re-establish 12.84 acres of wetlands.** Restoration of high-quality, non-forested wetlands will take place through the manipulation of hydrology (e.g., construction of a small berm, installation of an outflow control structure, re-establishing connectivity to adjacent existing wetlands, disabling surface and sub-surface drainage features), the removal of non-native invasive species, recreating microtopography features (i.e., hummocks), and installation of native seed and nursery stock. To protect the re-established wetlands from incompatible adjacent land uses, 50-foot buffers will be established in the south and west of the mitigation site. Additionally, the mitigation site will receive permanent protection through the recordation of a perpetual real-estate instrument. These restoration activities, more fully described in the *Mitigation Work Plan* section of this document, will re-establish a diverse wetland system to an area that undoubtedly supported wetlands prior to the conversion of the land to agricultural use. In accordance with 33 CFR 332.2, re-establishment of wetlands in these areas will result in *rebuilding a former aquatic resource and will result in a gain of aquatic resource area and functions.*

The report section entitled *Performance Standards* contains details on how the success of high-quality wetlands restoration will be measured. A copy of the FENOC Mitigation Site plan is provided in Appendix D.

Site Selection

The proposed wetland mitigation site is located on land owned by John Gradel & Sons Farms, Inc. (Ottawa County Parcel No. 0160654408529000) in Erie Township, Ottawa County, Ohio. The property has been used for agricultural purposes for decades. According to information obtained from the Ottawa-Lucas East County Farm Service Agency, Natural Resources Conservation Service (NRCS) identified the property as prior converted cropland (see letter to U.S. Department of Justice [DOJ] dated April 22, 2019). Prior converted cropland is defined at 7 CFR 12.2(a)(8) as,

“...a converted wetland where the conversion occurred prior to December 23, 1985, an agricultural commodity had been produced at least once before December 23, 1985, and as of December 23, 1985, the converted wetland did not support woody vegetation and did not meet the hydrologic criteria for farmed wetland.”

According to 33 CFR 328.3(b)(2), prior converted cropland is not Waters of the United States. The proposed mitigation site is currently enrolled in the U.S. Department of Agriculture’s Conservation Reserve Program (CRP, Contract No. 10042A), with the CRP agreement period running from 2013 to 2028. According to 7 CFR 1410.3, the objectives of CRP are to:

“...cost-effectively reduce water and wind erosion, protect the Nation’s long-term capability to produce food and fiber, reduce sedimentation, improve water quality, create and enhance wildlife habitat, and other objectives including, as appropriate, addressing issues raised by State, regional, and national conservation initiatives and encouraging more permanent conservation practices, such as, but not limited to, tree planting.”

Ottawa County lies within the broad, nearly flat plain of the Huron/Erie Lake Plains ecoregion. This ecoregion was historically dominated by large expanses of elm-ash swamps and beech forests. Following settlement, the Huron/Erie Lake Plains ecoregion was cleared and artificially drained to make use of the fertile soil for agricultural production; today, farms producing corn, soybeans, livestock, and other vegetables are abundant throughout the region.

Systematic drainage of the poorly drained, hydric clay soils was accomplished through the installation of surface and sub-surface drainage systems. Urban and industrial areas have also developed throughout portions of the ecoregion. Runoff from agricultural land and direct physical alteration of wetlands and streams in the ecoregion has contributed to the degradation of aquatic resources, including Lake Erie and many of its tributaries.

The proposed mitigation site is located on the southernmost end of Toussaint Marsh, an approximately 2,000-acre wetland system hydrologically connected to Lake Erie and the Toussaint River. This coastal marsh is a remnant of the expansive wetlands that once fringed the shores of western Lake Erie. Although reduced in extent and modified by past human activities as previously described, these remaining coastal marshes are among the most productive areas in the Great Lakes; they provide vital habitat for migratory waterfowl and fish, and perform many important hydrological and ecological functions (Herdendorf 1987).

Site Protection Instrument

The FENOC mitigation site will be afforded permanent protection through recordation of the consent decree entered into between the United States and the Parties. The consent decree includes specific land-use restrictions that will prohibit incompatible uses of the mitigation area that might otherwise jeopardize the objectives of the compensatory mitigation project. The consent decree also incorporates notification provisions that require the Parties to provide advance notice to USEPA and United States Department of Justice (USDOJ) prior to any transfer of ownership or interest in the mitigation site. Transfer of ownership or other interest in the mitigation site will not alter or relieve the Parties of their obligations to comply with the terms of this mitigation plan or the consent decree. The executed consent decree will be recorded with the Ottawa County recorder.

Baseline Information

Secondary Source Information

The 18.12-acre mitigation site is situated on a flat parcel of land that was continuously farmed until being enrolled in CRP. Subsurface drainage tiles and surface ditches were historically installed to remove excess water from the fields; many of these drainage features continue to influence hydrology on the site today. This intensive drainage and manipulation of hydrology on the property facilitated the successful establishment of crops on the site. Since cessation of farming (in association with the property's enrollment in CRP) the area has become populated by a dense mix of hydrophytic species (Photograph 1).



Photograph 1 (8-9-17). *The proposed mitigation area is currently enrolled in the Conservation Reserve Program and primarily supports herbaceous vegetation.*

The mitigation site is shown on the Lacarne Quadrangle of the United States Geological Survey (USGS) map (Appendix E). The nearly level topography of the site ranges in elevation from 572 feet to 575 feet.

The mitigation site is shown on the Lacarne Quadrangle of the National Wetland Inventory (NWI) map, which is provided in Appendix F. Six (6) NWI wetlands are shown within the proposed mitigation site. Three NWI wetlands are mapped in the northern section of the site; these areas are identified as palustrine, emergent, persistent, seasonally flooded wetlands that have been modified by man-made barriers (code PEM1Ch). Large drainage ditches run along the eastern, northern, and western edges of the mitigation site. These ditches are mapped as riverine wetlands with codes R5UBH and L2UBH. Table 1 below contains a list of NWI wetlands identified within the mitigation site parcel. Additionally, large expanses of mapped palustrine wetland systems are located adjacent to the site, associated with the Toussaint Marsh which extends for approximately 3 miles to the northwest.

Table 1. Wetlands within the Study Area as Identified by the National Wetlands Inventory

NWI Wetlands System	Code	Occurrences
Lacustrine, littoral, unconsolidated bottom, permanently flooded	L2UBH	1
Palustrine, emergent, persistent, seasonal, with man-made barriers	PEM1Ch	3
Riverine, unknown perennial, unconsolidated bottom, permanently flooded	R5UBH	2

Hydric soils occupy a large percentage of the proposed wetland re-establishment area, as shown on the Ottawa County Soil Survey map provided in Appendix G. The majority of the mitigation site is underlain by Toledo silty clay (To). Toledo soils are very deep, very poorly drained, hydric soils formed in clayey glaciolacustrine sediments. Smaller portions of the site contain Nappanee silty clay loam (NpA). Nappanee soils are very deep, somewhat poorly drained, non-hydric soils with hydric inclusions. Both of these soils contain high clay content that is conducive to seasonal ponding under natural conditions. In an undrained state, the Toledo and Nappanee series regularly support naturally occurring wetlands; they are suitable for successful wetland restoration. See Table 2 for a list of soil types mapped within the proposed mitigation site.

Table 2. Soil Types Mapped for the Site

Map Unit	Soil Description	Hydric Determination ¹
NpA	Nappanee silty clay loam, 0 to 3 percent slopes	Non-hydric with hydric inclusions
To	Toledo silty clay, 0 to 1 percent slopes	Hydric

¹ As determined by *The Hydric Soils of the United States* 1991

The mitigation site lies entirely within the Federal Emergency Management Agency (FEMA) high risk floodplain area associated with Lake Erie, which is located approximately 0.75 mile northeast of the property. The site's proximity to Lake Erie further highlights the value and benefit that wetland restoration on the property will have for water quality within the watershed; re-established wetlands will help to reduce sediment and nutrient loads within floodwaters. Additionally, periodic flooding will help to ensure that adequate hydrology exists on the site for successful wetland restoration. Appendix H contains a copy of the FEMA flood hazard map.

Vegetation

The proposed mitigation site has been farmed for decades; however, with the cessation of cropping following enrollment in CRP, the site currently supports a mix of hydrophytic species, including: *Phalaris arundinacea* (reed canary grass), *Carex* spp. (sedges), *Juncus effusus* (soft rush), *Scirpus cyperinus* (wool grass), *Phragmites australis* (common reed), *Echinochloa muricata* (rough barnyard grass), and *Bolboschoenus fluviatilis* (river bulrush). Large drainage ditches adjacent to the site to the north and south support wetlands and are primarily dominated by *Nelumbo lutea* (American lotus) as seen in Photograph 2.

Hydrology

The natural hydrology of the proposed mitigation site has been manipulated through past human activities. Large man-made levees on the property about the off-site drainage ditches to the north and south of the parcel; these features prevent stormwater from flowing onto the site during large precipitation events. Within the site itself, surface ditches and underground drainage tile serve to remove excess water from the adjacent fields.



Photograph 2 (8-9-17). Large drainage ditches adjacent to the site are heavily populated with American lotus.

Determination of Credits

The determination of compensatory mitigation credits to be provided by the FENOC mitigation project has been affirmed in a settlement communication letter from USDOJ (dated May 24, 2019), that states:

"...The United States is willing to resolve its claims for civil penalties and injunctive relief against FENOC and Gradel under the Clean Water Act related to the 4.96 acres of alleged impact at the Davis-Besse Firing Range in return for the restoration of 12.84 acres of wetlands at the site identified by the Davey Resource Group..."

As previously described, although the United States originally alleged impacts to 4.96 acres of wetland, they have subsequently agreed to use 4.28 acres of alleged impact for the purpose of identifying mitigation ratios and calculating required wetland mitigation. The restoration of 12.84 acres of non-forested Category 3 wetlands to compensate for the alleged loss of 4.28 acres of non-forested Category 3 wetlands will provide mitigation at a 3:1 ratio (Table 3). Notably, this exceeds the standard mitigation ratios for these wetland types (2.5:1), as listed in Ohio rules (Ohio Administrative Code 3745-1-54).

Table 3. Determination of Wetland Credits for FENOC Mitigation Site

Mitigation Type	Resource Type	Alleged Impacts (ac.)	Mitigation Ratio	Mitigation Required (ac.)
Re-establishment	non-forested wetland	4.28	3:1	12.84

Mitigation Work Plan

A variety of mitigation construction activities will occur to facilitate the re-establishment of wetlands within the site. Activities will focus on restoring site hydrology, recreating natural site topography, and re-establishing a native plant community. Specific construction, planting, and associated management activities proposed for the site are discussed in detail below.

Invasive Vegetation Control

Prior to commencing earthwork on the site, populations of non-native invasive vegetation within the mitigation area will be controlled. The site currently supports populations of *Phalaris arundinacea* (reed canary grass) and *Phragmites australis* (common reed). These and any other species of invasive vegetation identified within the mitigation area will be treated with a glyphosate-based herbicide specifically listed for use in aquatic environments. The full list of invasive plant species designated for treatment can be found in the *Maintenance Plan* section of this document. Completing treatment prior to earthwork activities will help to reduce the extent of these undesirable species and limit the spread of seed or vegetative propagules (e.g., rhizomes) of these plants into the re-established wetland area. Additional herbicide treatments will be conducted throughout the monitoring period, as needed, per the methods outlined in the *Maintenance Plan* section of this document.

Hydrology Restoration

Tile Search. Prior to initiating earth work, a search for drainage tile will be performed in the wetland re-establishment area; any tile located during the search will be disrupted/disabled to ensure the restoration of pre-agricultural historical site hydrology. Existing tile outlets were observed across the property, many of which outlet to open drainage ditches along the outskirts of the mitigation site (Photograph 3). Tile disabling will be conducted in accordance with NRCS guidelines (NRCS Engineering Field Handbook Part 650.1304(c)): to disrupt and disable the functioning subsurface drainage within the farm fields, a track hoe or similar piece of construction equipment will be used to excavate a trench to a depth of at least 4 feet where functioning drainage tile are found. Tiles discovered in the search will be crushed and disabled. Once disabled, tile lines will be excavated for approximately 50 feet inward from the trench and refilled to create compacted clayey soil plugs that will block the flow of water through the lines. During the tile search, any drainage swales on the site that are functioning to remove water from re-established wetlands will be plugged. These efforts will ensure that adequate hydrology is maintained within the restored wetlands.



Photograph 3 (8-9-17). Existing tile outlets flow into open drainage ditches on the outskirts of the mitigation site.

Berm Construction. Broad, low earth embankments (0 to 2 feet high with 15:1 side slopes) will be created as shown on the mitigation site plans in Appendix D. The berms will establish a wetland cell with a normal pool elevation of 573+/- feet. The mitigation wetlands will typically have standing water depths ranging from 0 to 18 inches. A few depressions will provide temporary maximum water depths of 24 inches; however, actual water depths will vary in accordance with precipitation patterns and local topography. The proposed water depths will facilitate successful establishment of hydrophytic vegetation across the entire site, as they should not exceed the tolerances of marsh species that are adapted to deeper inundation (e.g. *Spartanium* spp., *Spartina pectinata*, *Pontederia cordata*, etc.).

The center portion of the earth embankment will be created of compacted clayey soils. The 15:1 front and back slopes of the embankment will be comprised of excess soils excavated from on site. Ruts caused by the movement of construction equipment through the site will be encouraged and left ungraded so that microtopographic features and small pools can be restored to this area. During the construction process, care will be taken to avoid overcompaction of the soil so as to provide a more suitable planting substrate. A water control structure (e.g. AgriDrain) will be installed within the berm to allow for manipulation of water levels within the restored wetlands to facilitate maintenance (e.g. invasive vegetation control). Hydroperiods will be allowed to fluctuate naturally based upon precipitation; artificial flooding or drawdown of the wetlands is not proposed.

Micro-Topography Restoration

In order to improve habitat heterogeneity within the re-established wetlands, micro-topographic features and small pools will be restored through the use of low ground pressure construction equipment. Minor contouring of small areas, consisting of limited excavation and mounding, will be created to mimic the pit and mound topography associated with windthrown trees that occurs in natural wetlands. The mounds restored during these activities will also function as planting sites for woody species less tolerant of inundation and will help to slow the movement of surface water runoff from the site.

Planting Plan

The goal of this project is to restore a minimum of 12.84 acres of non-forested wetland within the wetland re-establishment area as shown on the map in Appendix D. Seed mixes will be custom blended to include a diversity of native perennial hydrophytes with a variety of hydrologic preferences, and will incorporate sedges, grasses, forbs and woody species (e.g., buttonbush, dogwoods, etc.). In order to improve vegetation community quality, habitat heterogeneity, and to compete with any non-native invasive species within the mitigation site, trees and shrubs will also be planted within the restoration area.

The species under consideration for seeding and planting on the site are provided in Appendix I. The species planted will be native to the region as described in Andreas et al., 2004; Braun 1967; Furlow unpublished; Cooperider 1995; and Fisher 1988.

Planting Methods

Planting will generally be performed by hand in early spring when soil conditions are suitable for planting. Where possible, planting will occur while plants are still dormant and prior to bud break. Areas disturbed during construction will be seeded. A diverse seed mix of native grasses, sedges, shrubs, and forbs will be sown to stabilize soils, minimize compaction, and improve overall plant diversity within restored wetlands. A sedge, wet meadow seed mix will be applied to areas that will have hydrology varying from seasonal inundation to soil saturation. Disturbed upland areas will be sown with a seed mix that includes a variety of wildflowers, grasses, and forbs.

To the extent practicable, efforts will be made to install plant materials according to that species' habitat preferences (e.g., hydrological tolerance). For example, *Acer rubrum* (red maple) is a facultative species of depressional forested wetlands that will tolerate a wide variety of conditions, so this species can be planted in both wetlands and upland areas. *Cephalanthus occidentalis* (common buttonbush) is tolerant of permanent inundation; this species will be planted in the lowest, wettest locations.

Maintenance Plan

Vegetation Control

Invasive plant treatments will occur annually over the course of monitoring, as needed. Table 4 contains a list of invasive species that will be targeted for control within the restoration area. Invasive plants identified within the restoration area will be treated with a glyphosate-based herbicide specifically listed for use in aquatic environments. If possible, treatment will occur before each species is able to set seed. Foliar application rates will be in accordance with label specifications. In addition to application of herbicides, invasive vegetation control may also incorporate mechanical removal, manipulation of site water levels, or soil modification to facilitate establishment of native woody species. Delineation and reporting of invasive plant cover will occur during monitoring in Years 1-5 after completion of construction and planting.

Table 4. Invasive Vegetation

Species	Common Name
<i>Acer platanoides</i>	Norway maple
<i>Ailanthus altissima</i>	tree-of-heaven
<i>Alliaria petiolata</i>	garlic mustard
<i>Alnus glutinosa</i>	European alder
<i>Berberis thunbergii</i>	Japanese barberry
<i>Butomus umbellatus</i>	flowering rush
<i>Catalpa speciosa</i>	northern catalpa
<i>Celastrus orbiculatus</i>	Asian bittersweet
<i>Cirsium arvense</i>	Canada thistle
<i>Conium maculatum</i>	poison hemlock
<i>Coronilla varia</i>	crown vetch
<i>Dipsacus fullonum</i>	common teasel
<i>Dipsacus laciniatus</i>	cut-leaved teasel
<i>Elaeagnus angustifolia</i>	Russian olive
<i>Elaeagnus umbellata</i>	autumn olive
<i>Epilobium hirsutum</i>	hairy willow-herb
<i>Epilobium parviflorum</i>	small-flowered willow-herb
<i>Euonymus alatus</i>	winged euonymus
<i>Euonymus fortunei</i>	wintercreeper
<i>Frangula alnus</i>	glossy buckthorn
<i>Hydrocharis morsus-ranae</i>	common frog-bit
<i>Iris pseudacorus</i>	yellow flag
<i>Ligustrum vulgare</i>	common privet
<i>Lonicera japonica</i>	Japanese honeysuckle
<i>Lonicera maackii</i>	Amur honeysuckle
<i>Lonicera morrowii</i>	Morrow honeysuckle
<i>Lonicera tatarica</i>	Tartarian honeysuckle
<i>Lythrum salicaria</i>	purple loosestrife
<i>Maclura pomifera</i>	osage orange
<i>Microstegium vimineum</i>	Japanese stilt grass
<i>Myriophyllum spicatum</i>	Eurasian watermilfoil
<i>Najas minor</i>	lesser naiad
<i>Nasturtium officinale</i>	watercress
<i>Phalaris arundinacea</i>	reed canary grass
<i>Phragmites australis</i>	common reed
<i>Polygonum cuspidatum</i>	Japanese knotweed
<i>Potamogeton crispus</i>	curly pondweed
<i>Pyrus calleryana</i>	bradford pear
<i>Ranunculus ficaria</i>	lesser celandine
<i>Rhamnus cathartica</i>	common buckthorn
<i>Rosa multiflora</i>	multiflora rose
<i>Schoenoplectus mucronatus</i>	bog bulrush
<i>Sorghum halepense</i>	johnson grass
<i>Typha × glauca</i>	hybrid cattail
<i>Typha angustifolia</i>	narrow-leaved cattail
<i>Viburnum opulus var. opulus</i>	European cranberry-bush
<i>Vinca minor</i>	periwinkle

Hydrology

Post-construction maintenance may include corrective earthwork upon discovery of any additional swales/erosional features, failed ditch plugs, or operational subsurface tiles found to be negatively affecting the restoration area's hydrology. Any earthwork required to address such issues will be conducted during dry periods to minimize disturbance to restored areas to the maximum extent practicable.

Performance Standards

The long-term goal is to develop and manage the site such that high-quality, non-forested wetlands are restored within the mitigation area. Wetland communities planned for the mitigation site are depicted on the mitigation site plan map in Appendix D. Performance standards proposed for the mitigation project are provided below.

1. The goal is to **re-establish 12.84 acres of wetlands**. Wetlands delineations following the *1987 Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and *Regional Supplement to the Corps of Engineers Delineation Manual: Northcentral and Northeast Region* will be performed in Years 1, 3, and 5 after construction and planting.
2. Restored wetlands shall meet a minimum **Vegetation Index of Biotic Integrity (VIBI) score of 64** (per Table 7 of Mack 2007). A VIBI score of 64 is indicative of a Category 3 marsh of impoundment hydrogeomorphic class in the Huron/Erie Lake Plains ecoregion.
3. The **relative cover of all non-Typha invasive plant species will be less than 5% and the relative cover of all invasive species, including Typha spp., will be less than 10%** in the restored wetland areas. A list of invasive species is provided in Table 4 of this document. These species will be managed through active methods of invasive plant control as necessary.
4. There will be at least **75% relative cover of native hydrophytes** within the restored wetlands. If it appears during the monitoring period that the project is not on a strong trajectory to meeting this goal, appropriate planting measures will be implemented.

Monitoring Requirements

Wetland Vegetation, Hydrology, and Soils Monitoring Methodology

Monitoring of the mitigation wetlands will take place for five (5) years. Monitoring will occur during the growing season of each year after completion of construction and planting. Vegetation, hydrology, and soils data will be collected at sampling quadrats distributed across the mitigation site. A minimum of ten monitoring plots will be installed at appropriate locations within the mitigation area following construction and planting. These will be located based on the projected habitat types and hydrologic conditions. The actual location and number of plots will be dependent on the site conditions after construction. The center of each plot will be physically marked through installation of ultraviolet (UV), light-resistant polyvinyl chloride (PVC) stake. Each stake will be identified with permanent unique numbers.

Annual photo documentation of site conditions will be collected at these monitoring locations and will include the stake and stake number. Subsequent photographs will be taken in the same area and with the same direction of view to allow for an accurate portrayal of site development over the course of ecological monitoring. During each annual monitoring site visit, vegetation (species cover), hydrology data (depth of inundation, depth to saturation, primary and secondary hydrology indicators), and soils data (chroma, hydric soils indicators) will be collected at each monitoring plot. During establishment of the fixed monitoring locations, a minimum of four plots will be situated within those portions of the site underlain by Nappanee soils. The purpose of this stratified sampling effort is to ensure that development of hydric soil indicators is adequately documented within the areas of Nappanee soils.

Wetlands Delineations

Comprehensive wetlands delineations will be conducted in Years 1, 3, and 5, using the protocols presented in the 1987 Corps Delineation Manual and applicable and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region*. Delineation data sheets documenting the wetland/upland boundary will be prepared and included in those years' monitoring reports.

VIBI Monitoring

Monitoring protocols will follow the Integrated Wetlands Assessment Program: Part 9: Field Manual for the Vegetation Index of Biotic Integrity for Wetlands v. 1.4 (Mack 2007). The VIBI is a Level 3, intensive statistical wetlands monitoring methodology developed and used by Ohio Environmental Protection Agency at natural and mitigation sites. The VIBI measures the ecological condition of wetlands and will be used to assign a Category (i.e. 1, 2, or 3) to the wetlands restored on the site.

One focus plot, totaling 50m x 20m, will be established in the restoration area. A VIBI score will be calculated using vegetation cover data gathered from the focus plot. The focus plot will be located at the time of the VIBI field survey in Year 3. The focus plot will be monitored in Years 3 and 5. Data collected at the focus plot will include soils, hydrology, and vegetation information, as well as stem counts of all woody vegetation present.

Monitoring Reports

A baseline as-built report will be submitted in a letter format within 90 days of completing construction and planting. It is anticipated that construction will occur in the fall and planting will begin the subsequent spring. The baseline letter report shall include the following information:

- A drawing showing the as-built conditions of the mitigation area. This drawing will include water levels, as applicable. An 11- by 17-inch drawing will be provided.
- Color photographs and a photograph location map.
- A list of all seed mixes applied and a map showing locations and densities of installed trees, shrubs, and/or forbs will be provided. Wetlands Vegetation Indicator Status (Lichvar et al. 2016) and strata (e.g., herb, shrub, tree) will also be included for the installed plant material.

Annual monitoring reports will be prepared and submitted in Years 1 through 5 from construction or until mitigation goals are met. Table 5 presents a summary of the project's anticipated monitoring and reporting schedule. Monitoring reports will be submitted to the agency(s) by December 31 of each monitoring year and will include the following information based upon data collected during the monitoring site visit completed during the growing season:

- A copy of the as-built map.
- Color photographs and a photograph location map.
- A comprehensive plant species list.
- Water depths and hydrological indicators
- Soil chromas and hydric soil indicators
- VIBI data and analysis (Years 3 and 5).
- Wetlands delineation (Years 1, 3, and 5).
- A discussion regarding whether or not the objectives of the mitigation project are being met and a plan with an implementation timetable to correct any deficiencies.

Table 5. Anticipated Wetland Monitoring Activities

Monitoring Activity	Years Post-Construction ¹					
	0	1	2	3	4	5
Wetland Delineation	–	X	–	X	–	X
Hydrologic and Soil Monitoring	–	X	X	X	X	X
Vegetation Sampling	–	X	X	X	X	X
VIBI Data and Analysis	–	–	–	X	–	X
As-Built Report	X	–	–	–	–	–
Monitoring Report	–	X	X	X	X	X

¹ Variation from this schedule may be made by the Parties in consultation with the regulatory agency(s).

Long-Term Management Plan

The restored wetland areas at the FENOC Mitigation Site will require little to no active management once the native plant material installed in the restoration area has become established and the targeted non-native invasive species have been controlled. As noted in the preamble to the federal mitigation rule, there may be occasions where long-term management is no longer necessary because a compensatory mitigation project has developed to the point where active management measures are no longer needed to fulfill the objectives of that project; such an eventuality is ultimately anticipated for the FENOC Mitigation Site.

Signage identifying the wetland restoration area as a mitigation site and conservation area will be posted at the corners of the project area boundary and not more than 150 feet apart along the sides.

Adaptive Management Plan

If the mitigation site is not adequately vegetated by the end of the second year, a supplemental planting plan will be developed. Native plant or seed material will be obtained from commercial plant nurseries or, if possible, from nearby wetlands.

If the regulatory agency(s) determine that the site (or any portion thereof) is failing to establish or that it is not making satisfactory progress towards meeting the performance goals within the monitoring period, the Parties will develop a remedial action plan to correct the deficiencies. The remedial action plan will be submitted to the regulatory agency(s) within 90 days of receipt of written notification of deficiencies from the agency(s). Within 60 days of receipt of the remedial action plan, the regulatory agency(s) will provide written acceptance of the submitted plan or a modified plan acceptable to all parties. The remedial action plan will then be implemented within six months, or at a time directed by the remedial action plan.

Financial Assurances

Within the USACE white paper, *Implementing Financial Assurance for Mitigation Project Success* (2016), the agency states:

“...for many smaller permittee-responsible mitigation projects, it may be determined to be impractical to require conventional financial assurances, so alternative mechanisms may be used instead, such as permit special conditions requiring projects to be constructed and managed to meet performance standards...”

Additionally, 33 CFR 332.3(n) explains that the goal of financial assurances is to:

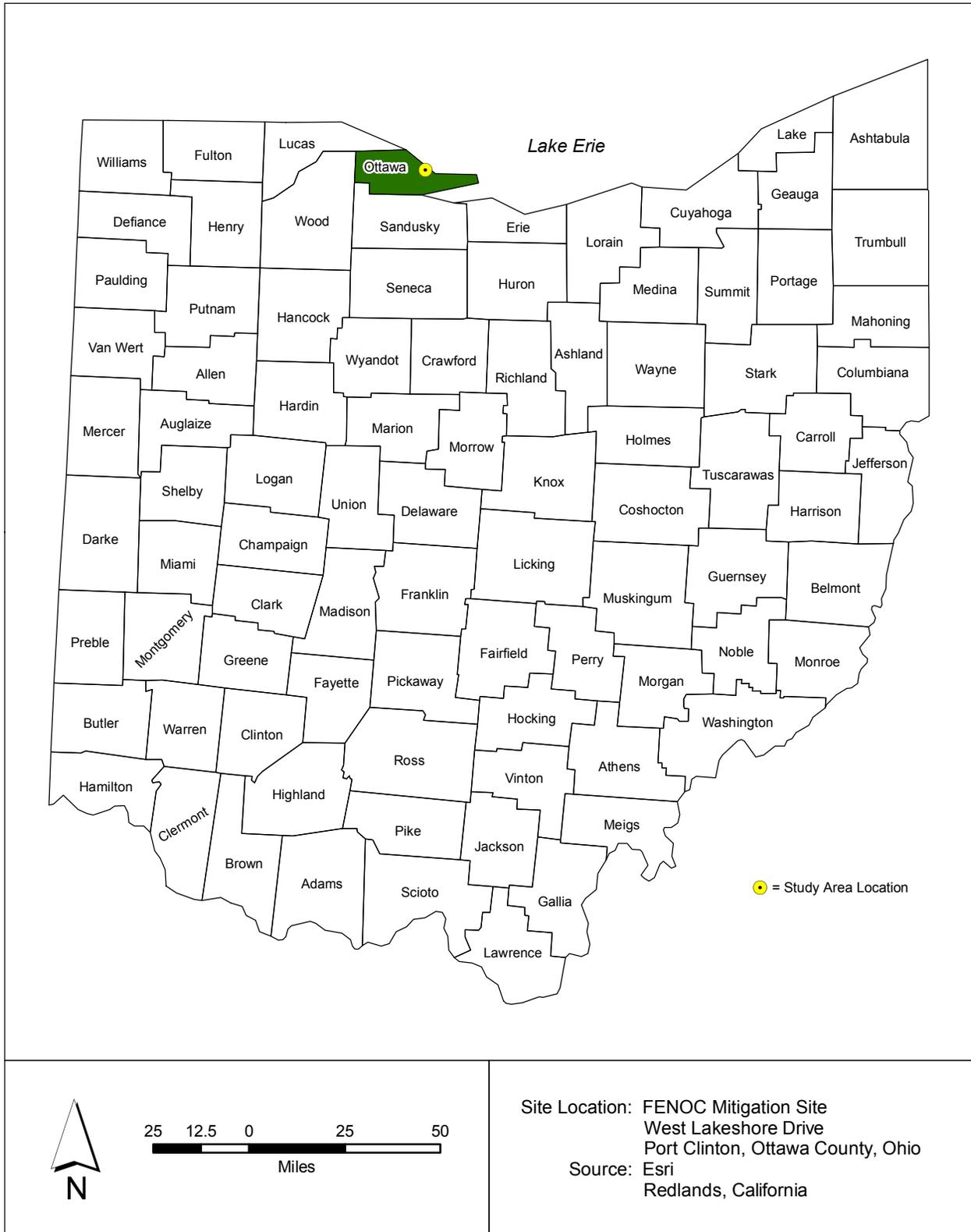
“...ensure a high level of confidence that the compensatory mitigation project will be successfully completed, in accordance with applicable performance standards”.

As part of the settlement with U.S. DOJ for the alleged wetland impacts, the Parties will enter into a Consent Decree and Statement of Work to ensure compliance with the proposed compensatory mitigation and associated ecological monitoring. The Consent Decree affords the federal government with legal leverage over the Parties, and thus provides a high level of confidence that the compensatory mitigation project will be completed in accordance with the performance standards described in this document. As such, no traditional financial assurances (e.g., performance bond, escrow account) are warranted or proposed.

References

Please see Appendix J for a list of references consulted while conducting the field study and preparing this report.

Appendix A Location of Ottawa County on Ohio County Map



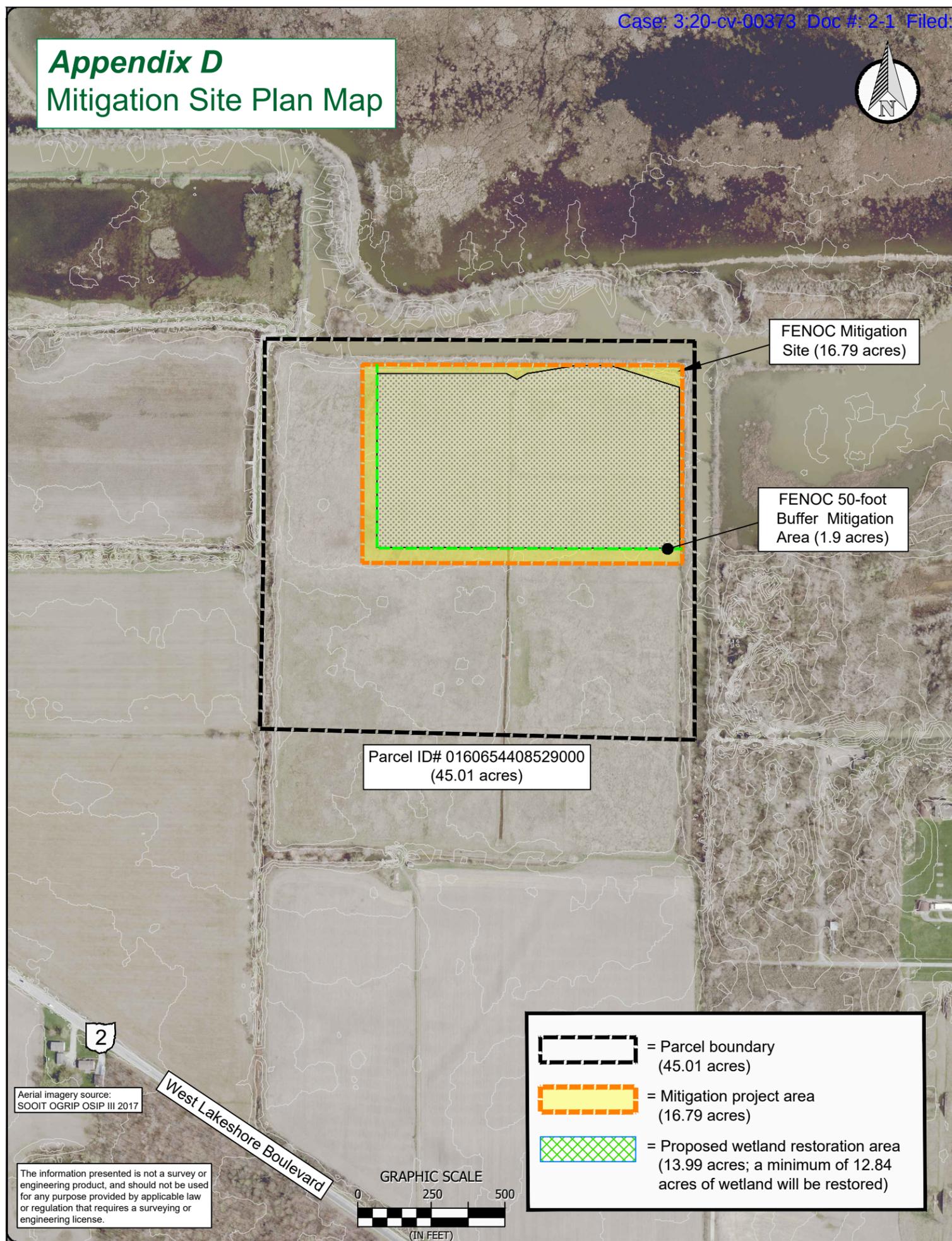
Appendix B Location of Mitigation Site on Highway Map



Appendix C Location of Mitigation Site on Aerial Photograph



Appendix D Mitigation Site Plan Map

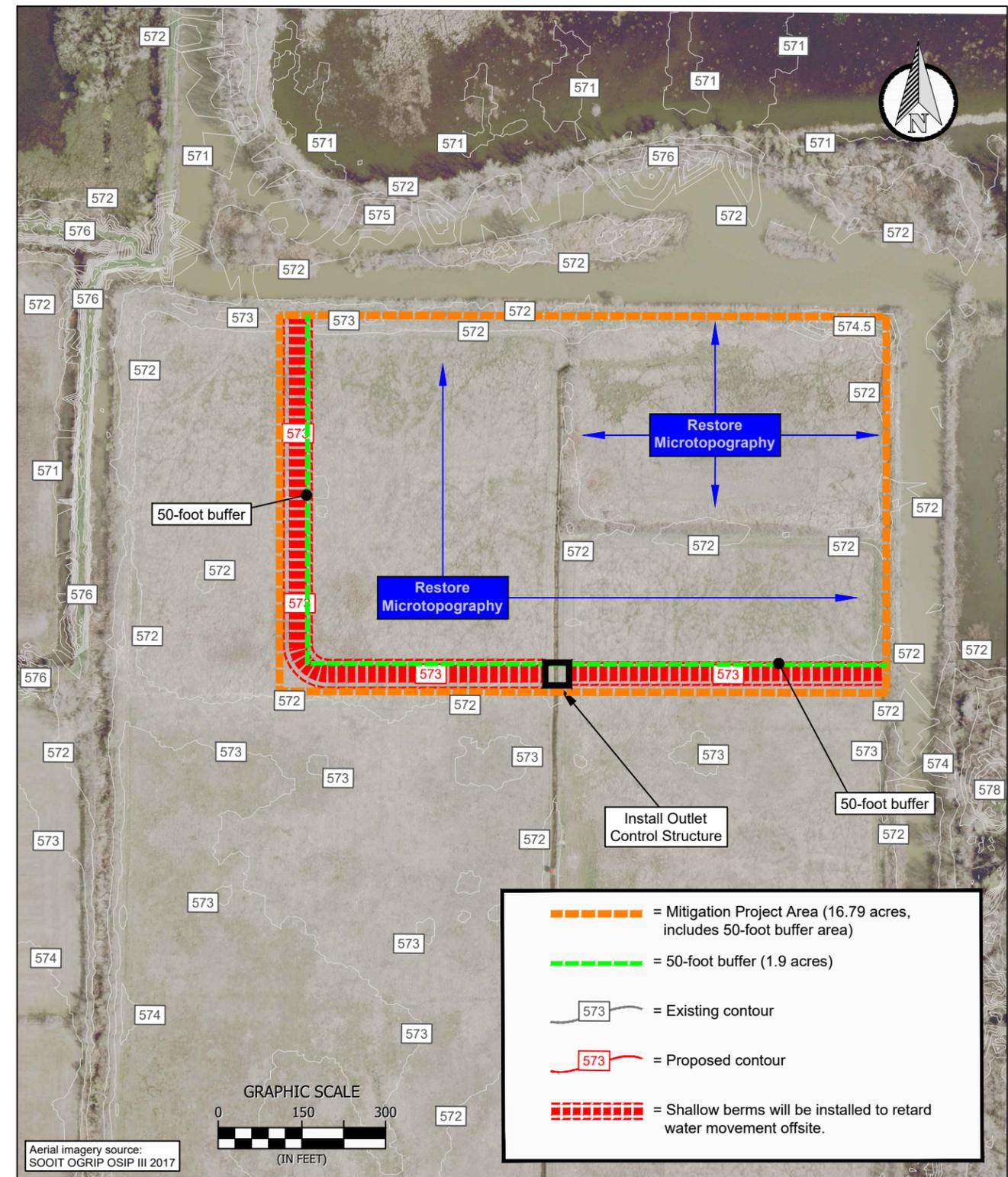


- = Parcel boundary (45.01 acres)
- = Mitigation project area (16.79 acres)
- = Proposed wetland restoration area (13.99 acres; a minimum of 12.84 acres of wetland will be restored)

Aerial imagery source: SOOIT OGRIP OSIP III 2017

The information presented is not a survey or engineering product, and should not be used for any purpose provided by applicable law or regulation that requires a surveying or engineering license.

Wetlands Restoration



- = Mitigation Project Area (16.79 acres, includes 50-foot buffer area)
- = 50-foot buffer (1.9 acres)
- = Existing contour
- = Proposed contour
- = Shallow berms will be installed to retard water movement offsite.

Aerial imagery source: SOOIT OGRIP OSIP III 2017

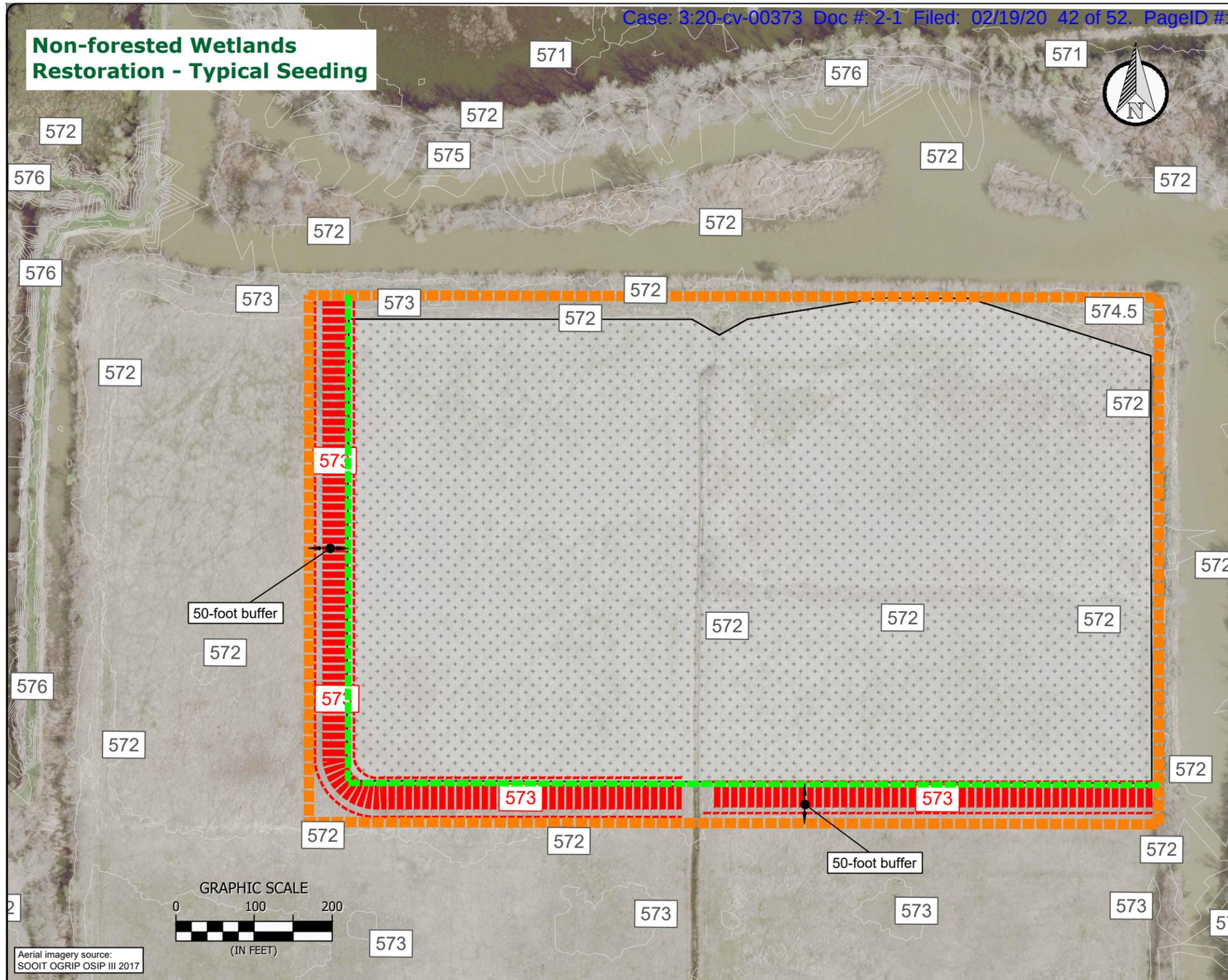
Prepared by
DAVEY
Resource Group

Prepared for
Roetzel & Andress

FENOC Mitigation Site
West Lakeshore Drive
Port Clinton, Ottawa County, Ohio

Data used to produce this map were collected on August 9, 2017

Non-forested Wetlands Restoration - Typical Seeding



Aerial imagery source: SOOIT OGRIP OSIP III 2017

- = Mitigation Project Area (16.79 acres, includes 50-foot buffer area)
- = 50-foot buffer (1.9 acres)
- = Existing contour
- = Proposed contour
- = Shallow berms will be installed to retard water movement offsite.
- = Wetland planting and seeding area (13.99 acres)

The information presented is not a survey or engineering product, and should not be used for any purpose provided by applicable law or regulation that requires a surveying or engineering license.

Wetland Seed Mix Species List (Dependent upon availability)

Scientific Name	Common Name	Indicator Status ¹	C of C ²
<i>Agrimonia parviflora</i>	harvestlice	FAC	2
<i>Andropogon gerardii</i>	big bluestem	FACU	5
<i>Asclepias incarnata</i>	swamp milkweed	OBL	4
<i>Bidens cernua</i>	nodding burr-marigold	OBL	3
<i>Carex crinita</i>	fringed sedge	OBL	3
<i>Carex frankii</i>	Frank's sedge	OBL	2
<i>Carex lupulina</i>	hop sedge	OBL	3
<i>Carex lurida</i>	shallow sedge	OBL	3
<i>Carex stricta</i>	uptight sedge	OBL	5
<i>Carex vulpinoidea</i>	common fox sedge	OBL	1
<i>Clematis virginiana</i>	devil's-darning-needles	FAC	3
<i>Cornus amomum</i>	silky dogwood	FACW	2
<i>Cornus racemosa</i>	gray dogwood	FAC	1
<i>Elymus virginicus</i>	Virginia wild rye	FACW	3
<i>Eupatorium perfoliatum</i>	common boneset	FACW	3
<i>Euthamia graminifolia</i>	flat-top goldenrod	FAC	2
<i>Glyceria septentrionalis</i>	floating manna grass	OBL	6
<i>Ilex verticillata</i>	common winterberry	FACW	6
<i>Juncus effusus</i>	lamp rush	OBL	1
<i>Leersia oryzoides</i>	rice cut grass	OBL	1
<i>Lindera benzoin</i>	northern spicebush	FACW	5
<i>Lobelia siphilitica</i>	great blue lobelia	FACW	3
<i>Mimulus ringens</i>	Allegheny monkey-flower	OBL	4
<i>Onoclea sensibilis</i>	sensitive fern	FACW	2
<i>Panicum virgatum</i>	wand panic grass	FAC	4
<i>Penstemon digitalis</i>	foxglove beardtongue	FAC	2
<i>Penthorum sedoides</i>	ditch-stonecrop	OBL	2
<i>Pontederia cordata</i>	pickerelweed	OBL	6
<i>Ratibida pinnata</i>	grey-headed coneflower	UPL	5
<i>Sambucus nigra</i>	black elder	FACW	3
<i>Schoenoplectus acutus</i>	hard-stem club-rush	OBL	7
<i>Schoenoplectus tabernaemontani</i>	soft-stem club-rush	OBL	2
<i>Scirpus atrovirens</i>	dark-green bulrush	OBL	1
<i>Scirpus cyperinus</i>	cottongrass bulrush	OBL	1
<i>Solidago patula</i>	round-leaf goldenrod	OBL	6
<i>Sparganium americanum</i>	American burr-reed	OBL	6
<i>Sparganium eurycarpum</i>	broad-fruit burr-reed	OBL	4
<i>Symphotrichum novae-angliae</i>	New England American-aster	FACW	2
<i>Symphotrichum puniceum</i>	purple-stem American-aster	OBL	7
<i>Verbena hastata</i>	sinpler's-joy	FACW	4
<i>Vernonia gigantea</i>	giant ironweed	FAC	2

Seeding Period

After grading operations are completed, topsoils and any organic materials have been added, restoration area seeding will commence. If unable to seed before the re-graded soils become crusted over, soils must be re-scarified or lightly cultivated prior to seeding to ensure good soil contact.

Seeding shall not typically take place when the ground is frozen, when overlying water is frozen, or when conditions are otherwise unsatisfactory for seeding. Inundated areas will not be seeded. Frost seeding may be employed at the direction of the restoration ecologist.

Seeding Application

Seed will be applied over the disturbed areas of the restoration area. For small areas, hand-raking and seeding with a drop spreader or hand-broadcasting at a rate of 15-20 pounds per acre or as specified is acceptable.

For native seed mixes it is generally not recommended nor anticipated that soil amendments or fertilizers will be necessary, but if a soil test prior to seeding dictates an extreme deficiency that will negatively affect designed restoration goals, deficiencies will be addressed as appropriate to meet design intent.

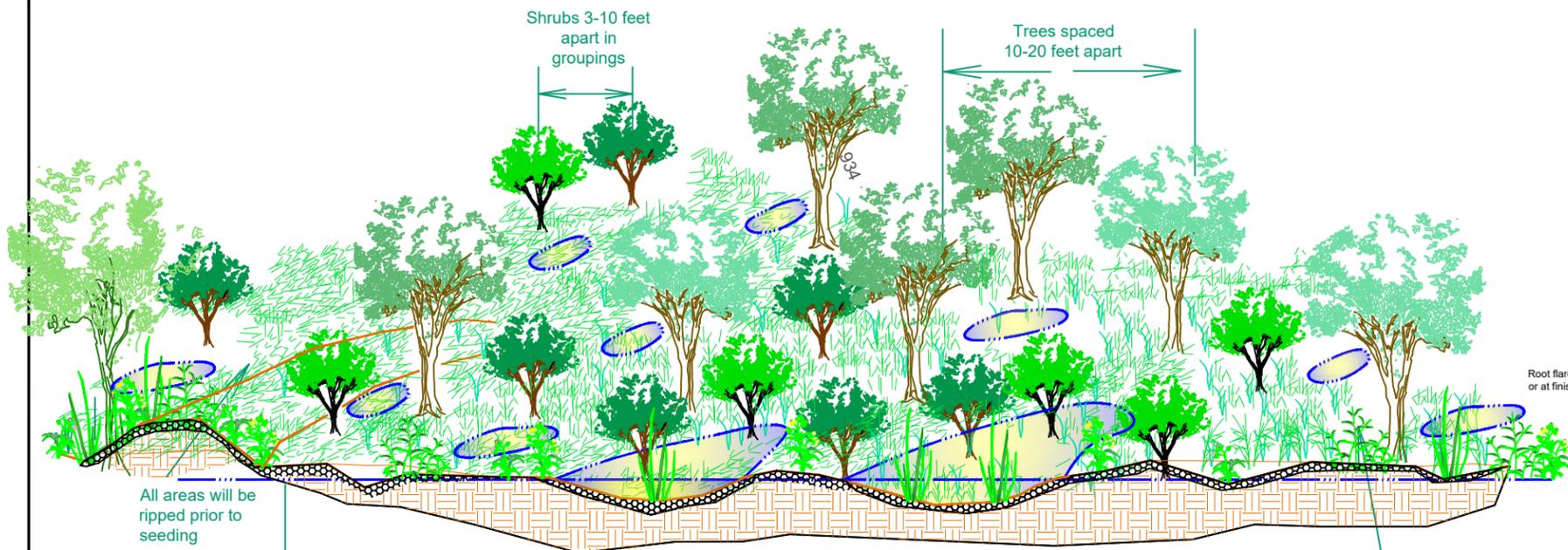


FENOC Mitigation Site
West Lakeshore Drive
Port Clinton, Ottawa County, Ohio

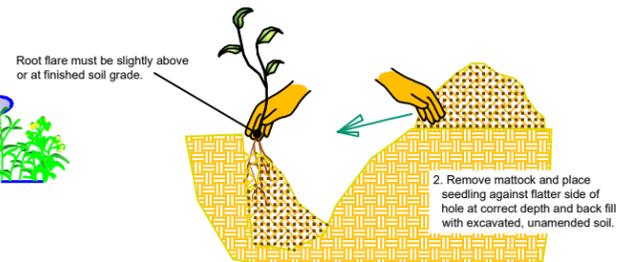
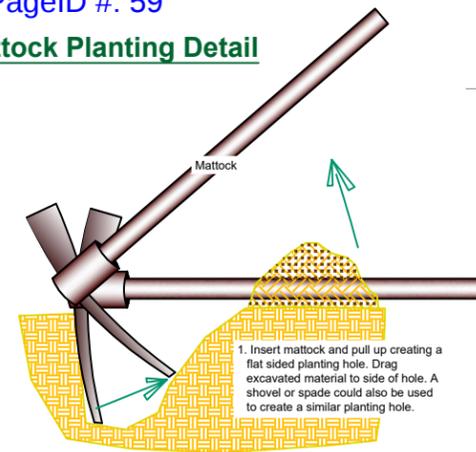
Data used to produce this map were collected on August 9, 2017

Map Sheet 2 of 3

Typical Wetlands Micro-macro Topography and Pool Restoration



Mattock Planting Detail



Tree and Shrub Species List

Scientific Name	Common Name	Habit
<i>Acer rubrum</i>	red maple	tree
<i>Acer saccharinum</i>	silver maple	tree
<i>Acer saccharum</i>	sugar maple	tree
<i>Amelanchier laevis</i>	smooth serviceberry	tree
<i>Aronia melanocarpa</i>	black chokeberry	shrub
<i>Cephalanthus occidentalis</i>	common buttonbush	shrub
<i>Cornus alba</i>	red osier	shrub
<i>Cornus amomum</i>	silky dogwood	shrub
<i>Hamamelis virginiana</i>	American witch-hazel	shrub
<i>Ilex verticillata</i>	common winterberry	shrub
<i>Lindera benzoin</i>	northern spicebush	shrub
<i>Liriodendron tulipifera</i>	tuliptree	tree
<i>Nyssa sylvatica</i>	black tupelo	tree
<i>Platanus occidentalis</i>	American sycamore	tree
<i>Populus heterophylla</i>	swamp cottonwood	tree
<i>Quercus alba</i>	northern white oak	tree
<i>Quercus bicolor</i>	swamp white oak	tree
<i>Quercus macrocarpa</i>	burr oak	tree
<i>Quercus palustris</i>	pin oak	tree
<i>Quercus rubra</i>	northern red oak	tree
<i>Salix bebbiana</i>	gray willow	shrub
<i>Salix nigra</i>	black willow	tree
<i>Salix sericea</i>	silky willow	shrub
<i>Sambucus nigra ssp. canadensis</i>	American black elder	shrub
<i>Spiraea tomentosa</i>	steepleshub	shrub
<i>Viburnum lentago</i>	nannyberry	shrub

NOTE: Actual species of trees and shrubs are subject to change based on availability and post-construction site conditions, including hydrology and photo-period.

Typical isometric

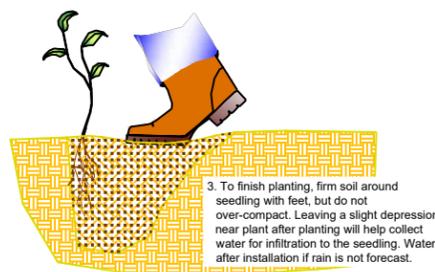
Restored topography of wetland pools through the excavation, rutting, and rough grading of the entire restoration area.

NOT TO SCALE

Typical cross-section

Restored topography of wetland pools through the excavation, rutting, and rough grading of the entire restoration area.

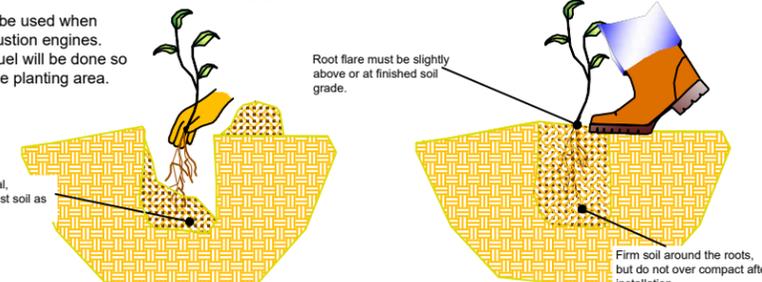
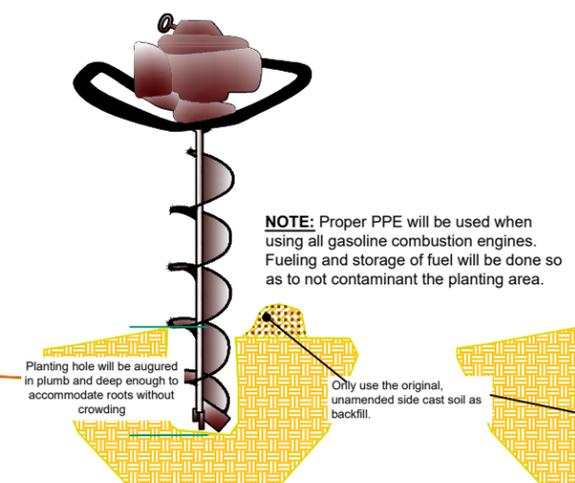
Strip top soil in areas to be excavated, mimic elevation of adjacent converted wetlands elevation



Auger Planting Detail

GENERAL NOTES: AUGER BARE-ROOT TREE and SHRUB SEEDLING PLANTING SPECIFICATIONS

- Using an auger, create a plumb planting hole deep enough to accommodate the rootball, specifically the length of the root mass, in the planting hole without crowding so that the trunk flare will be at finished grade and the tree/shrub is straight and plumb.
- Completely tease apart root system, repositioning any girdling or potentially girdling roots.
- Place the plant in the hole slightly deeper than the trunk flare and backfill planting hole with existing augured out unamended soil. Lift the tree/shrub seedling lightly to straighten roots and bring root trunk flare to finished grade; gently firm the soil around the roots, and thoroughly water.
- If directed or recommended by the restoration ecologist, mulch the entire planting surface with composted wood chips/bark applied no less than 2 inches deep and no more than 3 inches deep, leaving 3 inches adjacent to the tree/shrub trunk free of mulch.



Small shallow berms will be placed to retard water movement off the site.

Random wetland pools will be restored by rough grading and small excavations.

Roughly reapply striped topsoil over excavated areas. These areas will be roughly re-graded to create micro- and macro-topography features. This area and the entire mitigation area will then be ripped/disc'd and will be seeded with a native forested wetlands seed mix and cover crop (if necessary).



Know what's below. Call before you dig.

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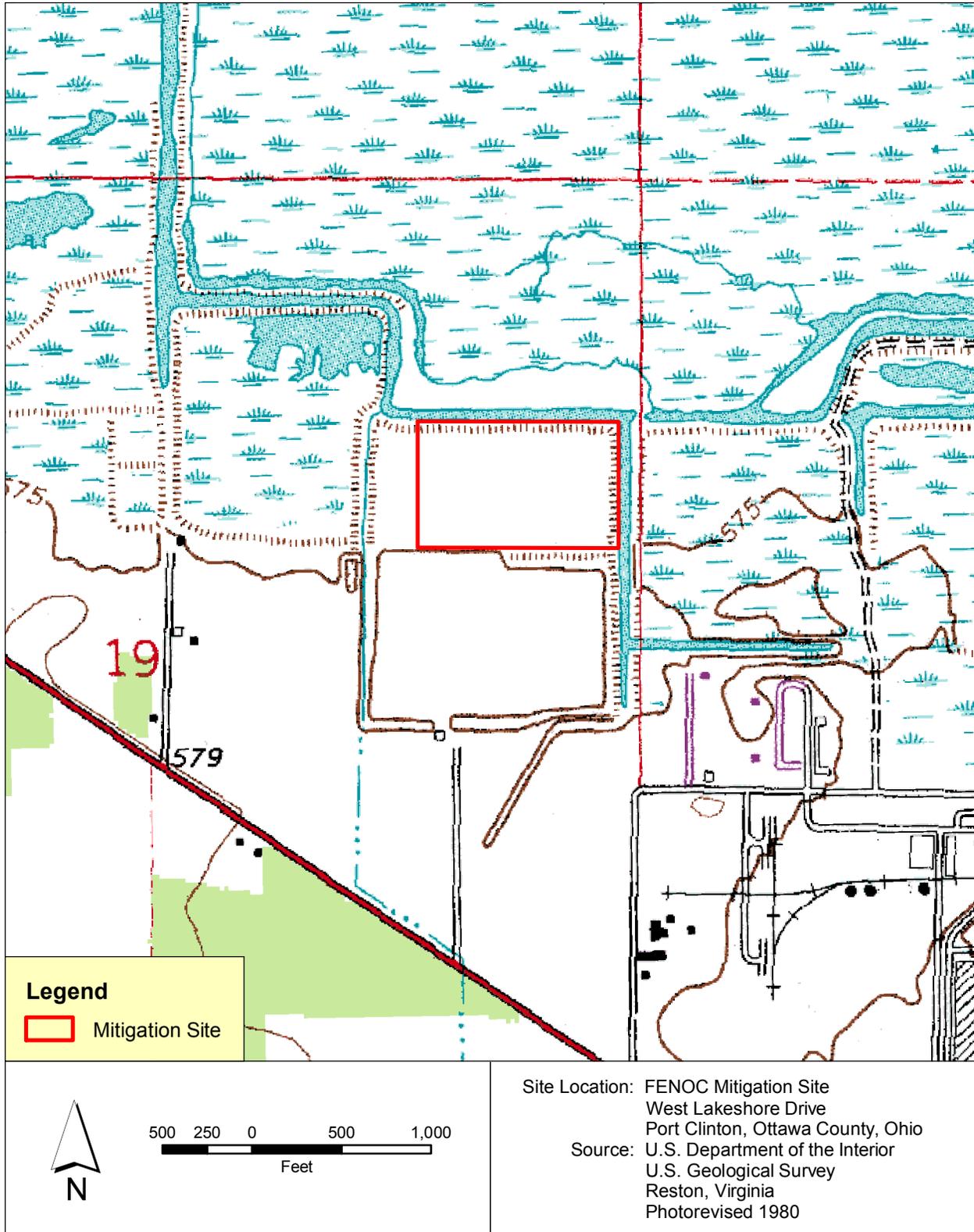
Prepared for
Roetzel & Andress

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Port Clinton, Ottawa County, Ohio

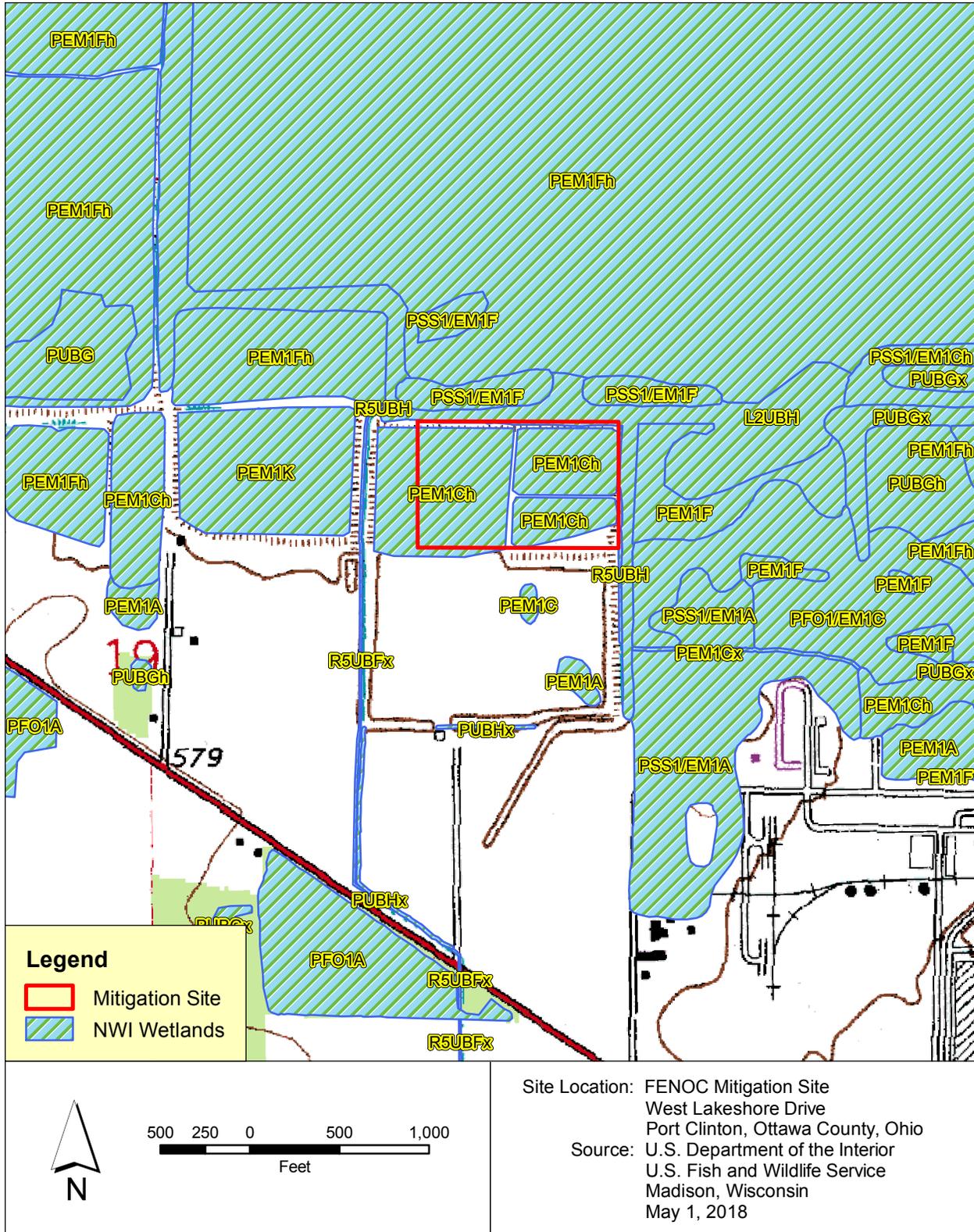
Data used to produce this map were collected on August 9, 2017

Map Sheet 3 of 3

Appendix E Location of Mitigation Site on USGS 7.5-Minute Topographic Map (Lacarne Quadrangle)



Appendix F Location of Mitigation Site on National Wetlands Inventory Map (Lacarne Quadrangle)



Appendix G Location of Mitigation Site on Ottawa County Soil Survey Map



Appendix H
Location of Mitigation Site on FEMA Flood Hazard Map

National Flood Hazard Layer FIRMette



Legend

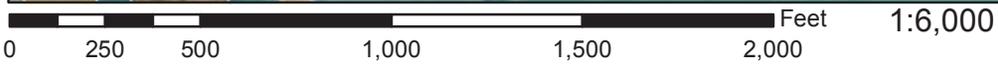
SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

- | | | |
|-----------------------------|--|---|
| SPECIAL FLOOD HAZARD AREAS | | Without Base Flood Elevation (BFE)
Zone A, V, A99 |
| | | With BFE or Depth Zone AE, AO, AH, VE, AR |
| | | Regulatory Floodway |
| OTHER AREAS OF FLOOD HAZARD | | 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X |
| | | Future Conditions 1% Annual Chance Flood Hazard Zone X |
| | | Area with Reduced Flood Risk due to Levee. See Notes. Zone X |
| | | Area with Flood Risk due to Levee Zone D |
| OTHER AREAS | | Area of Minimal Flood Hazard Zone X |
| | | Effective LOMRs |
| GENERAL STRUCTURES | | Area of Undetermined Flood Hazard Zone D |
| | | Channel, Culvert, or Storm Sewer |
| | | Levee, Dike, or Floodwall |
| OTHER FEATURES | | 20.2 Cross Sections with 1% Annual Chance Water Surface Elevation |
| | | 17.5 Coastal Transect |
| | | Base Flood Elevation Line (BFE) |
| | | Limit of Study |
| | | Jurisdiction Boundary |
| | | Coastal Transect Baseline |
| MAP PANELS | | Digital Data Available |
| | | No Digital Data Available |
| | | Unmapped |
| | | The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location. |

41°33'23.36"N
83°3'29.35"W



USGS The National Map: Orthoimagery. Data refreshed April, 2019.



41°32'56.44"N
83°25'1.89"W

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 6/17/2019 at 4:58:11 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Appendix I

Planting and Seed Mix Lists

Tree and Shrub Species List (Dependent on availability)

Scientific Name	Common Name	Habit	Indicator Status ¹	C of C ²
<i>Acer rubrum</i>	red maple	tree	FAC	2
<i>Acer saccharinum</i>	silver maple	tree	FACW	3
<i>Acer saccharum</i>	sugar maple	tree	FACU	5
<i>Amelanchier laevis</i>	smooth serviceberry	tree	FAC	5
<i>Aronia melanocarpa</i>	black chokeberry	shrub	FAC	5
<i>Cephalanthus occidentalis</i>	common buttonbush	shrub	OBL	6
<i>Cornus alba</i>	red osier	shrub	FACW	3
<i>Cornus amomum</i>	silky dogwood	shrub	FACW	2
<i>Hamamelis virginiana</i>	American witch-hazel	shrub	FACU	5
<i>Ilex verticillata</i>	common winterberry	shrub	FACW	6
<i>Lindera benzoin</i>	northern spicebush	shrub	FACW	5
<i>Liriodendron tulipifera</i>	tuliptree	tree	FACU	6
<i>Nyssa sylvatica</i>	black tupelo	tree	FACW	7
<i>Platanus occidentalis</i>	American sycamore	tree	FACW	7
<i>Populus heterophylla</i>	swamp cottonwood	tree	OBL	9
<i>Quercus alba</i>	northern white oak	tree	FACU	6
<i>Quercus bicolor</i>	swamp white oak	tree	FACW	7
<i>Quercus macrocarpa</i>	burr oak	tree	FACU	6
<i>Quercus palustris</i>	pin oak	tree	FACW	5
<i>Quercus rubra</i>	northern red oak	tree	FACU	6
<i>Salix bebbiana</i>	gray willow	shrub	FACW	5
<i>Salix nigra</i>	black willow	tree	OBL	2
<i>Salix sericea</i>	silky willow	shrub	OBL	4
<i>Sambucus nigra</i> ssp. <i>canadensis</i>	American black elder	shrub	FACW	3
<i>Spiraea tomentosa</i>	steeplebush	shrub	FACW	4
<i>Viburnum lentago</i>	nannyberry	shrub	FAC	5

¹ From Lichvar et al. 2016

² From Andreas et al. 2004

Wetland Seed Mix Species List
(Dependent upon availability)

Scientific Name	Common Name	Indicator Status ¹	C of C ²
<i>Agrimonia parviflora</i>	harvestlice	FAC	2
<i>Andropogon gerardii</i>	big bluestem	FACU	5
<i>Asclepias incarnata</i>	swamp milkweed	OBL	4
<i>Bidens cernua</i>	nodding burr-marigold	OBL	3
<i>Carex crinita</i>	fringed sedge	OBL	3
<i>Carex frankii</i>	Frank's sedge	OBL	2
<i>Carex lupulina</i>	hop sedge	OBL	3
<i>Carex lurida</i>	shallow sedge	OBL	3
<i>Carex stricta</i>	uptight sedge	OBL	5
<i>Carex vulpinoidea</i>	common fox sedge	OBL	1
<i>Clematis virginiana</i>	devil's-darning-needles	FAC	3
<i>Cornus amomum</i>	silky dogwood	FACW	2
<i>Cornus racemosa</i>	gray dogwood	FAC	1
<i>Elymus virginicus</i>	Virginia wild rye	FACW	3
<i>Eupatorium perfoliatum</i>	common boneset	FACW	3
<i>Euthamia graminifolia</i>	flat-top goldentop	FAC	2
<i>Glyceria septentrionalis</i>	floating manna grass	OBL	6
<i>Ilex verticillata</i>	common winterberry	FACW	6
<i>Juncus effusus</i>	lamp rush	OBL	1
<i>Leersia oryzoides</i>	rice cut grass	OBL	1
<i>Lindera benzoin</i>	northern spicebush	FACW	5
<i>Lobelia siphilitica</i>	great blue lobelia	FACW	3
<i>Mimulus ringens</i>	Allegheny monkey-flower	OBL	4
<i>Onoclea sensibilis</i>	sensitive fern	FACW	2
<i>Panicum virgatum</i>	wand panic grass	FAC	4
<i>Penstemon digitalis</i>	foxglove beardtongue	FAC	2
<i>Penthorum sedooides</i>	ditch-stonecrop	OBL	2
<i>Pontederia cordata</i>	pickerelweed	OBL	6
<i>Ratibida pinnata</i>	grey-headed coneflower	UPL	5
<i>Sambucus nigra</i>	black elder	FACW	3
<i>Schoenoplectus acutus</i>	hard-stem club-rush	OBL	7
<i>Schoenoplectus tabernaemontani</i>	soft-stem club-rush	OBL	2
<i>Scirpus atrovirens</i>	dark-green bulrush	OBL	1
<i>Scirpus cyperinus</i>	cottongrass bulrush	OBL	1
<i>Solidago patula</i>	round-leaf goldenrod	OBL	6
<i>Sparganium americanum</i>	American burr-reed	OBL	6
<i>Sparganium eurycarpum</i>	broad-fruit burr-reed	OBL	4
<i>Symphyotrichum novae-angliae</i>	New England American-aster	FACW	2
<i>Symphyotrichum puniceum</i>	purple-stem American-aster	OBL	7
<i>Verbena hastata</i>	sinpler's-joy	FACW	4
<i>Vernonia gigantea</i>	giant ironweed	FAC	2

¹ From Lichvar et al. 2016

² From Andreas et al. 2004

Upland Seed Mix Species List
(Dependent upon availability)

Scientific Name	Common Name	Indicator Status ¹	C of C ²
<i>Andropogon gerardii</i>	big bluestem	FAC	5
<i>Asclepias syriaca</i>	common milkweed	FACU	1
<i>Bouteloua curtipendula</i>	sideoats gramma	UPL	8
<i>Chamaecrista fasciculata</i>	sleepingplant	FACU	3
<i>Coreopsis tripteris</i>	tall tickseed	FAC	5
<i>Desmodium paniculatum</i>	showy tick-trefoil	FACU	3
<i>Echinacea purpurea</i>	purple coneflower	UPL	6
<i>Elymus canadensis</i>	nodding wild-rye	FACU	6
<i>Elymus riparius</i>	riverbank wild-rye	FACW	5
<i>Elymus hystrix</i>	eastern bottlebrush grass	FACU	4
<i>Elymus virginicus</i>	Virginia wild-rye	FACW	3
<i>Lespedeza capitata</i>	round-head bush-clover	FACU	5
<i>Monarda fistulosa</i>	oswego-tea	FACU	3
<i>Panicum virgatum</i>	switch grass	FAC	4
<i>Penstemon digitalis</i>	foxglove beardtongue	FAC	2
<i>Physostegia virginiana</i>	obedient plant	FACW	5
<i>Pycnanthemum virginianum</i>	Virginia mountain-mint	FACW	4
<i>Ratibida pinnata</i>	gray-headed coneflower	UPL	5
<i>Rudbeckia hirta</i>	black-eyed-susan	FACU	1
<i>Rudbeckia triloba</i>	brown-eyed-susan	FACU	5
<i>Schizachyrium scoparium</i>	little false bluestem	FACU	5
<i>Solidago canadensis</i>	Canada goldenrod	FACU	1
<i>Solidago juncea</i>	plume goldenrod	UPL	2
<i>Sorghastrum nutans</i>	Indian grass	FACU	5
<i>Symphotrichum lateriflorum</i>	calico aster	FACW	2
<i>Symphotrichum novae-angliae</i>	New England aster	FACW	2
<i>Symphotrichum praealtum</i>	veiny lined aster	FACW	6
<i>Tradescantia ohiensis</i>	bluejacket	FACU	5
<i>Vernonia gigantea</i>	tall ironweed	FAC	2
<i>Verbesina alternifolia</i>	wingstem	FACW	5
<i>Zizia aurea</i>	golden alexanders	FAC	6

¹ From Lichvar et al. 2016

² From Andreas et al. 2004

Appendix J References

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