N

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

LEGEND

- OPEN WATER (FLAGGED)
- OPEN WATER (NOT FLAGGED)
- WETLAND BOUNDARY
- DATA POINT
- WA 25 WETLAND FLAG
- PALUSTRINE SCRUB-SHRUB (PSS)
- PALUSTRINE EMERGENT (PEM)
- PALUSTRINE FORESTED (PFO)

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DTE FERMI II PLANT
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SURVEYED BY: CB,WW,PW
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N

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

LEGEND

- OPEN WATER (FLAGGED)
- OPEN WATER (NOT FLAGGED)
- WETLAND BOUNDARY
- DATA POINT
- WETLAND FLAG
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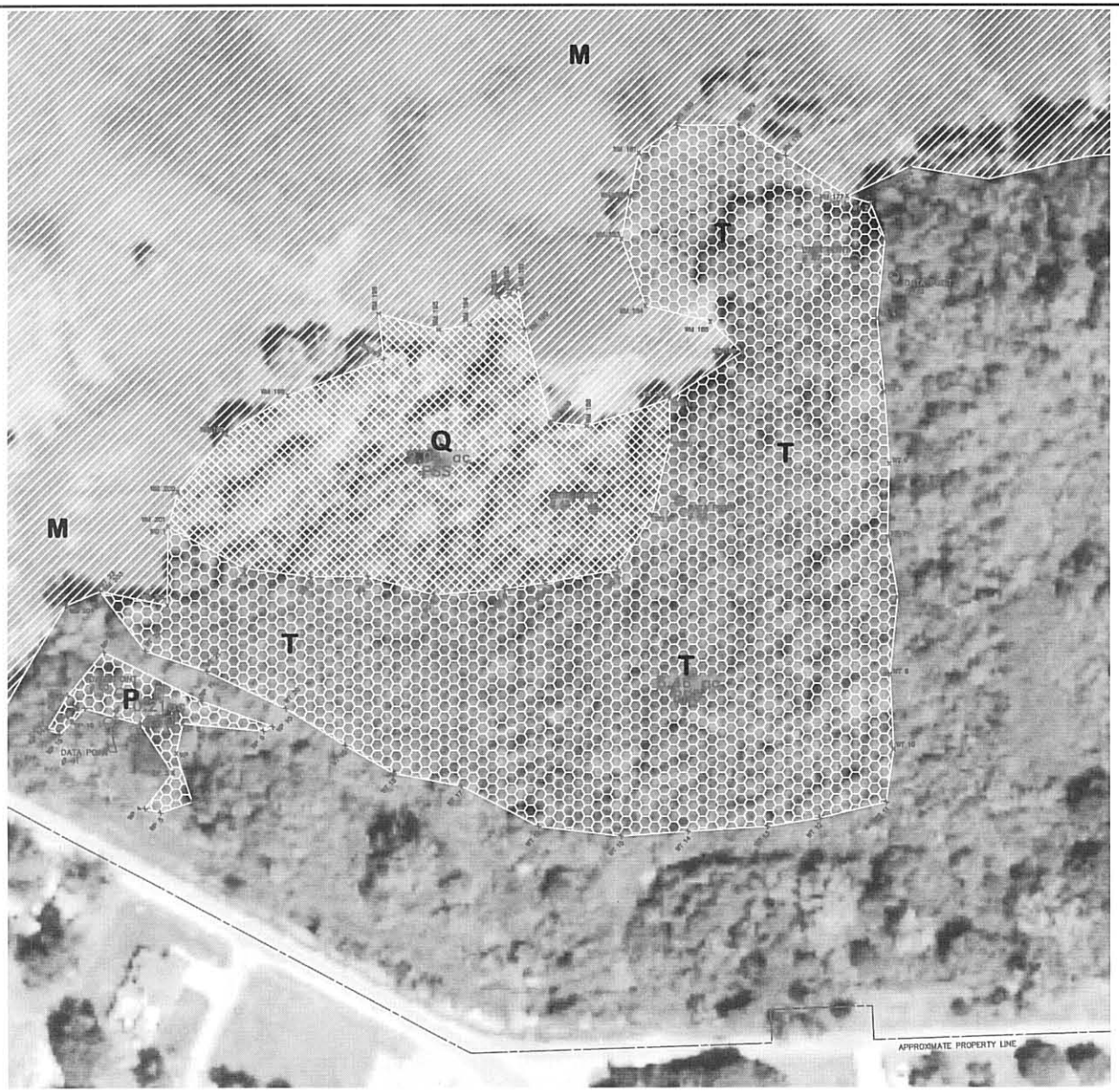

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GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

LEGEND

- OPEN WATER (FLAGGED)
- OPEN WATER (NOT FLAGGED)
- WETLAND BOUNDARY
- DATA POINT
- WA 25 — WETLAND FLAG
- PALUSTRINE SCRUB-SHRUB (PSS)
- PALUSTRINE EMERGENT (PEM)
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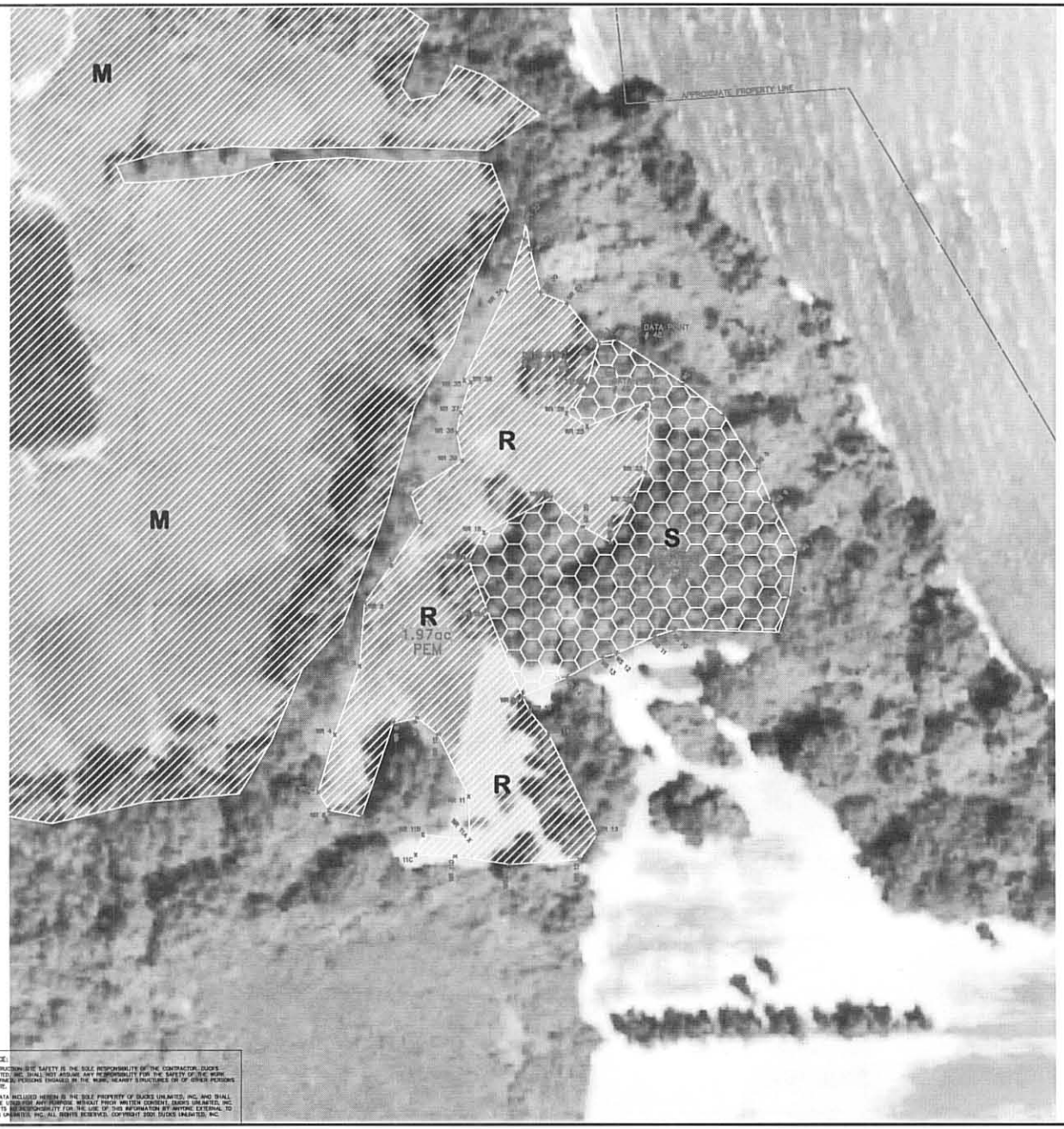

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GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

LEGEND

- OPEN WATER (FLAGGED)
- OPEN WATER (NOT FLAGGED)
- WETLAND BOUNDARY
- DATA POINT
- WETLAND FLAG
- PALUSTRINE SCRUB-SHRUB (PSS)
- PALUSTRINE EMERGENT (PEM)
- PALUSTRINE FORESTED (PFO)

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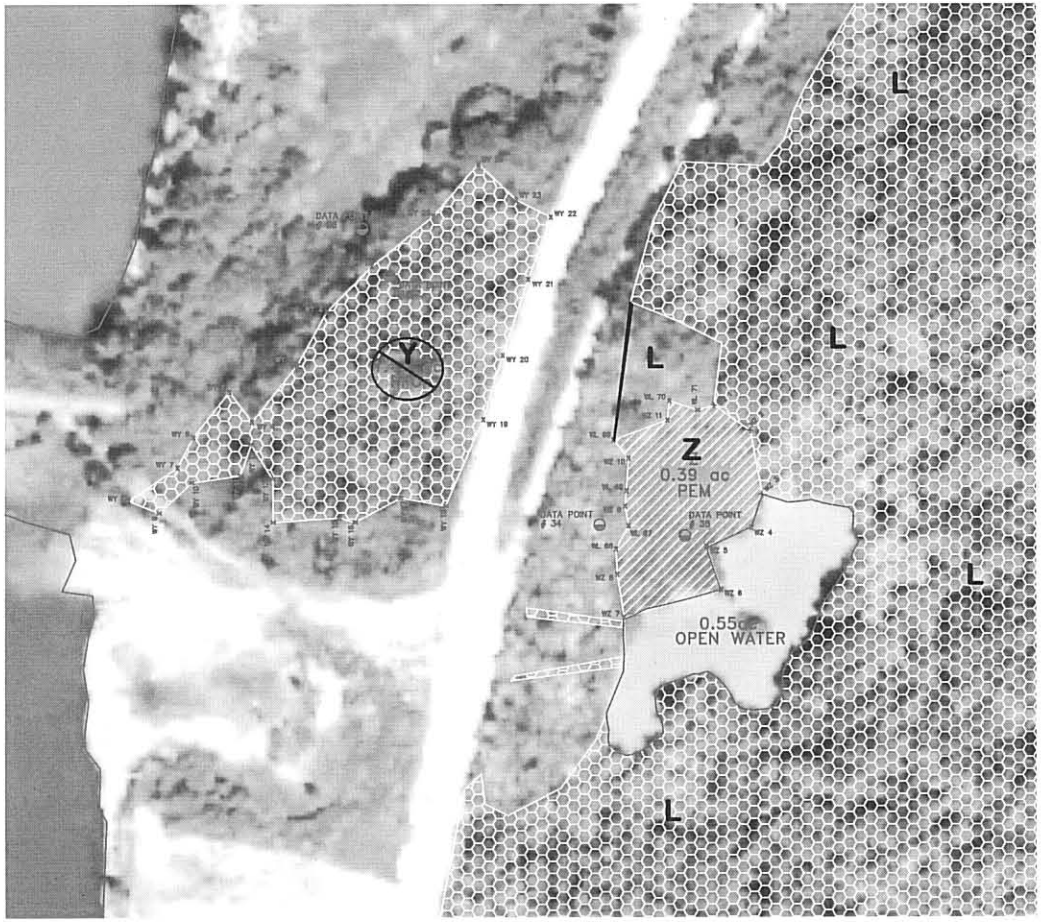

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GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

LEGEND

- OPEN WATER (FLAGGED)
- OPEN WATER (NOT FLAGGED)
- WETLAND BOUNDARY
- DATA POINT
- WETLAND FLAG (WA 25)
- PALUSTRINE SCRUB-SHRUB (PSS)
- PALUSTRINE EMERGENT (PEM)
- PALUSTRINE FORESTED (PFO)

USACE NOTE:

AREA L: ENLARGE-CONNECT WL 69 to WL 74

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GRAPHIC SCALE

(IN FEET)
1 inch = 50 ft.

LEGEND

- OPEN WATER (FLAGGED)
- OPEN WATER (NOT FLAGGED)
- WETLAND BOUNDARY
- DATA POINT
- WETLAND FLAG (e.g. WA 25)
- PALUSTRINE SCRUB-SHRUB (PSS)
- PALUSTRINE EMERGENT (PEM)
- PALUSTRINE FORESTED (PFO)

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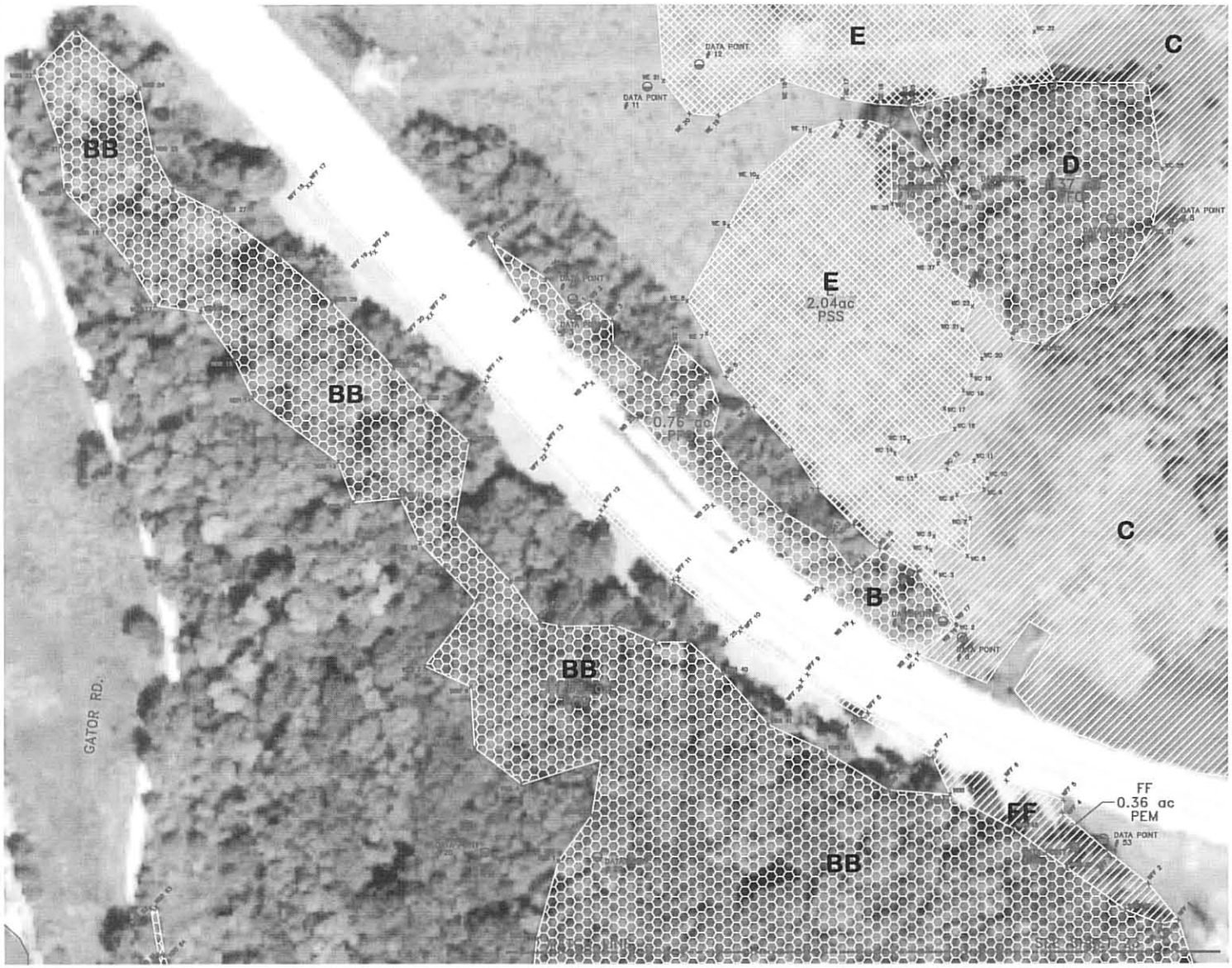

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GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

LEGEND

- OPEN WATER (FLAGGED)
- OPEN WATER (NOT FLAGGED)
- WETLAND BOUNDARY
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- PALUSTRINE SCRUB-SHRUB (PSS)
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- PALUSTRINE FORESTED (PFO)

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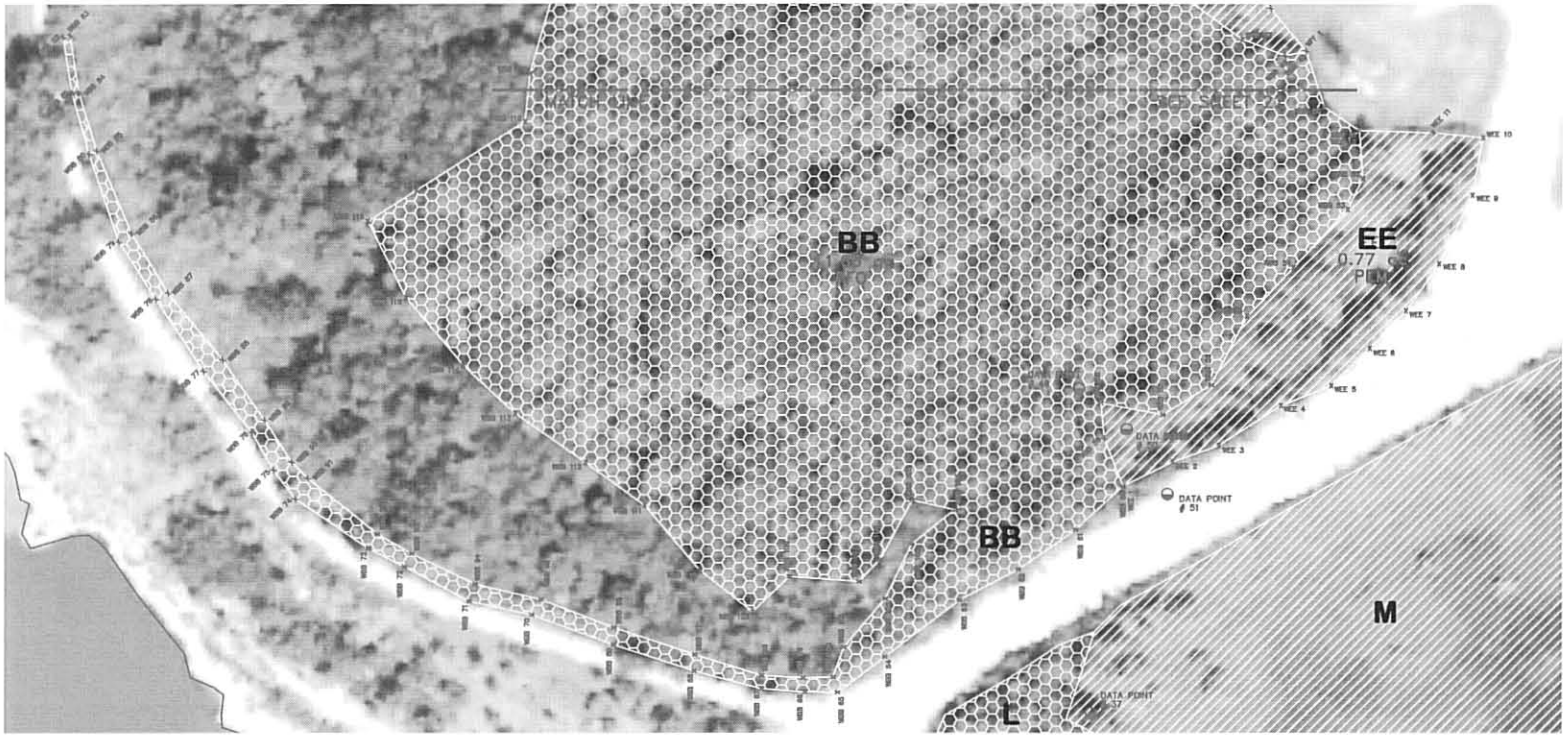

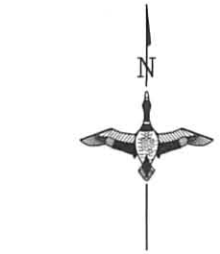

GRAPHIC SCALE

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(IN FEET)
1 inch = 50 ft.

LEGEND

- OPEN WATER (FLAGGED)
- OPEN WATER (NOT FLAGGED)
- WETLAND BOUNDARY
- DATA POINT
- WETLAND FLAG (WA 33)
- PALUSTRINE SCRUB-SHRUB (PSS)
- PALUSTRINE EMERGENT (PEM)
- PALUSTRINE FORESTED (PFO)

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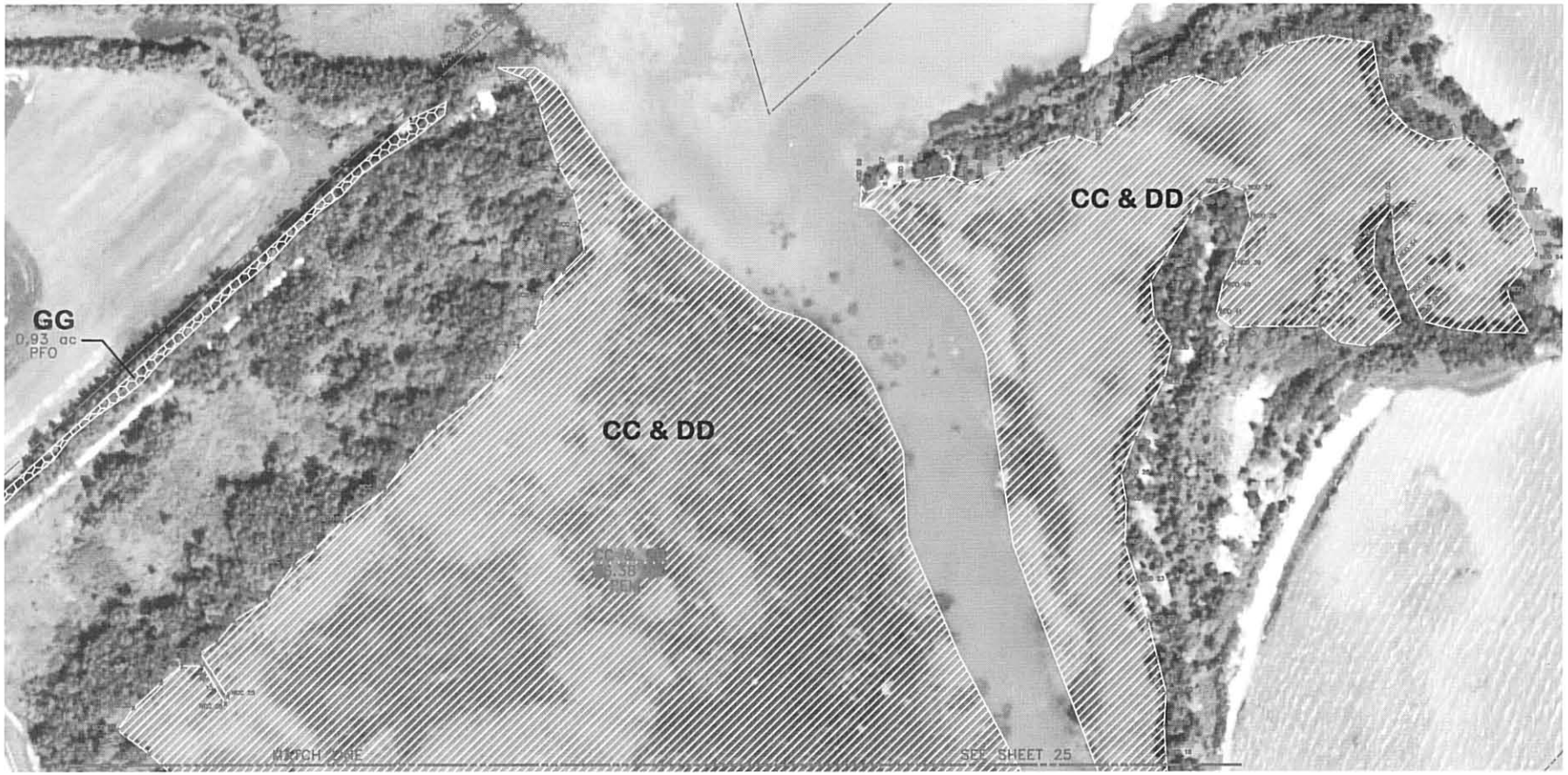

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GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

LEGEND

- OPEN WATER (FLAGGED)
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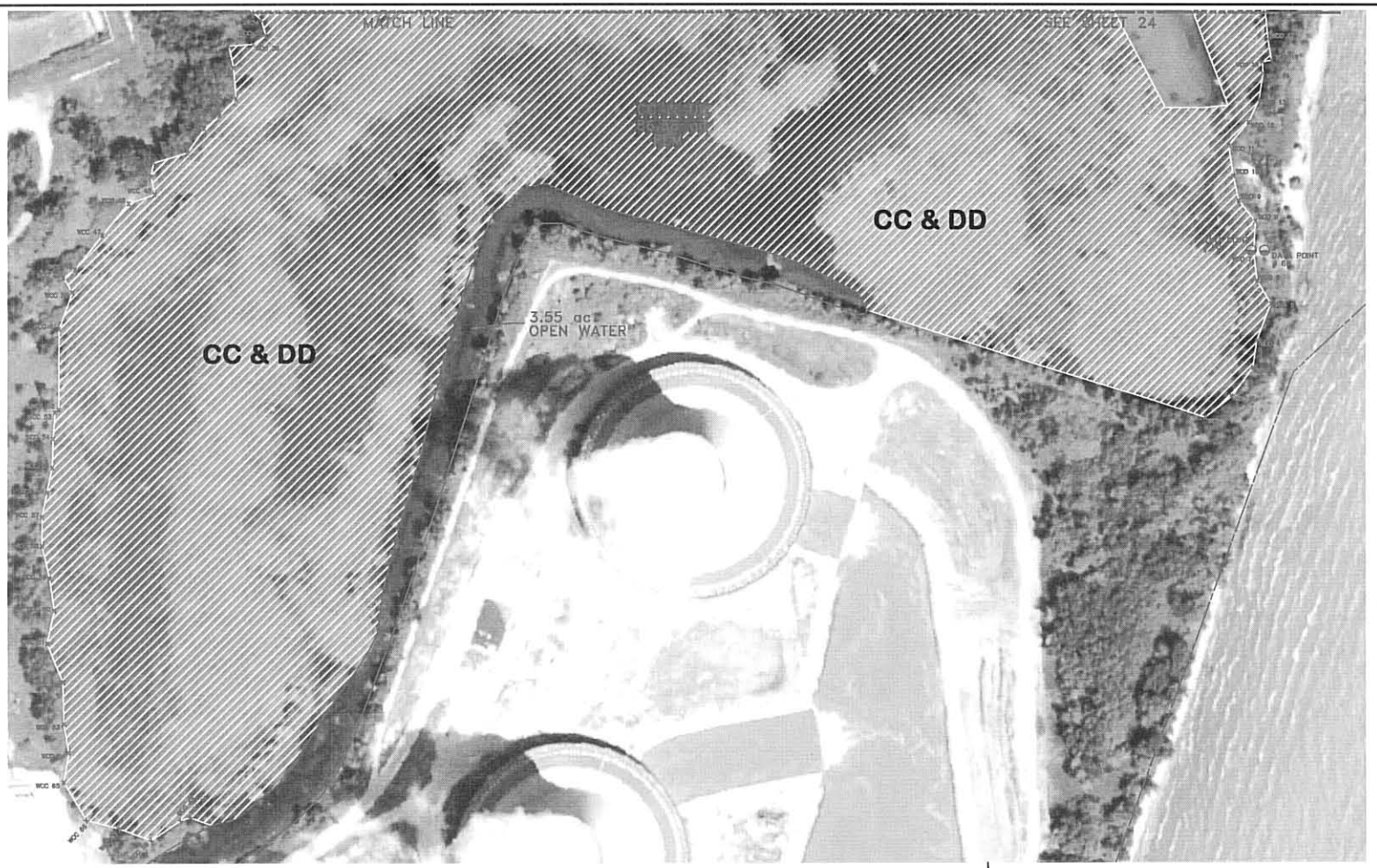

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GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

LEGEND

- OPEN WATER (FLAGGED)
- OPEN WATER (NOT FLAGGED)
- WETLAND BOUNDARY
- DATA POINT
- WETLAND FLAG (WA 25)
- PALUSTRINE SCRUB-SHRUB (PSS)
- PALUSTRINE EMERGENT (PEM)
- PALUSTRINE FORESTED (PFO)

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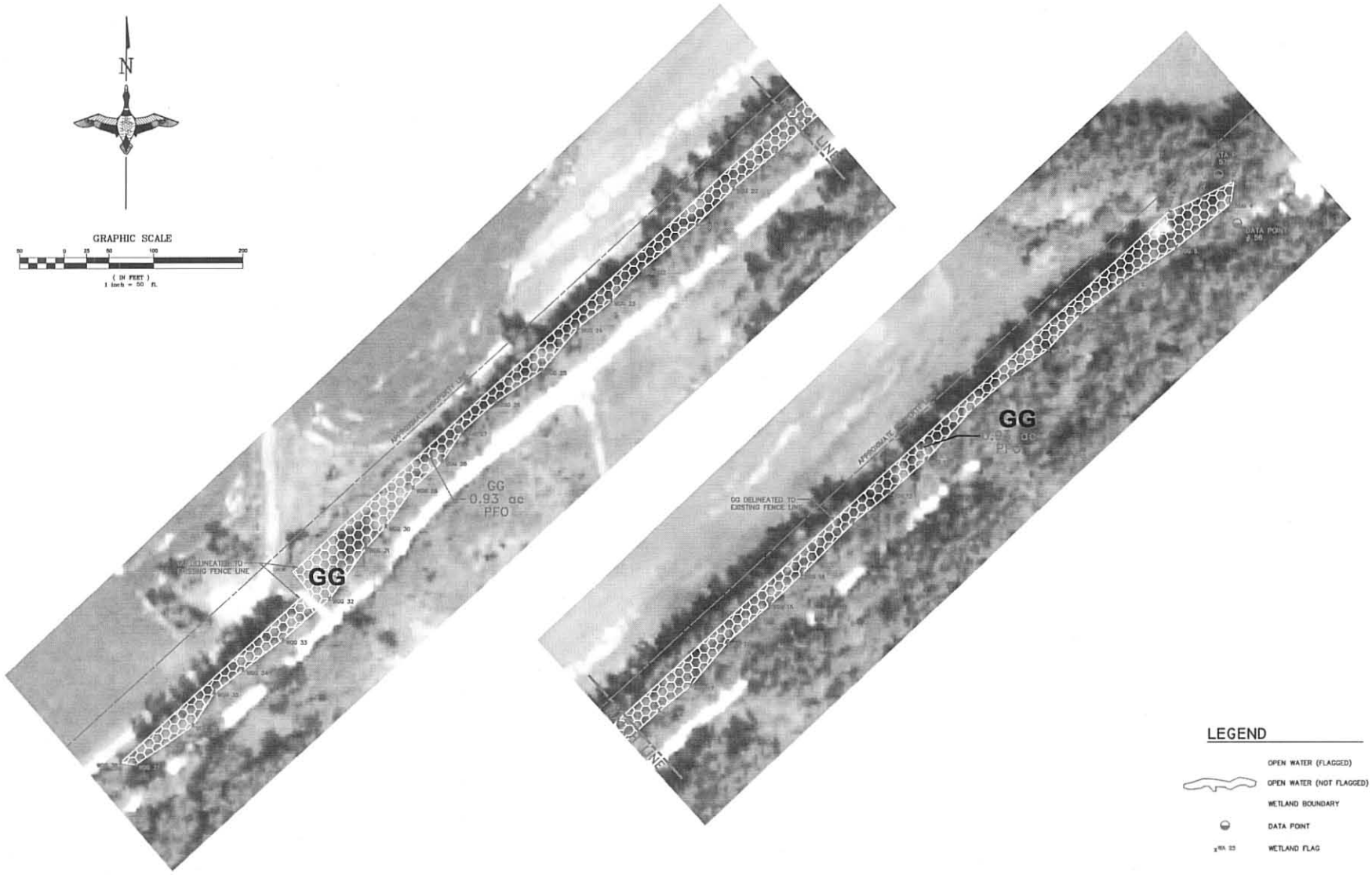

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WETLAND DELINEATION GG
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MONROE COUNTY, MICHIGAN

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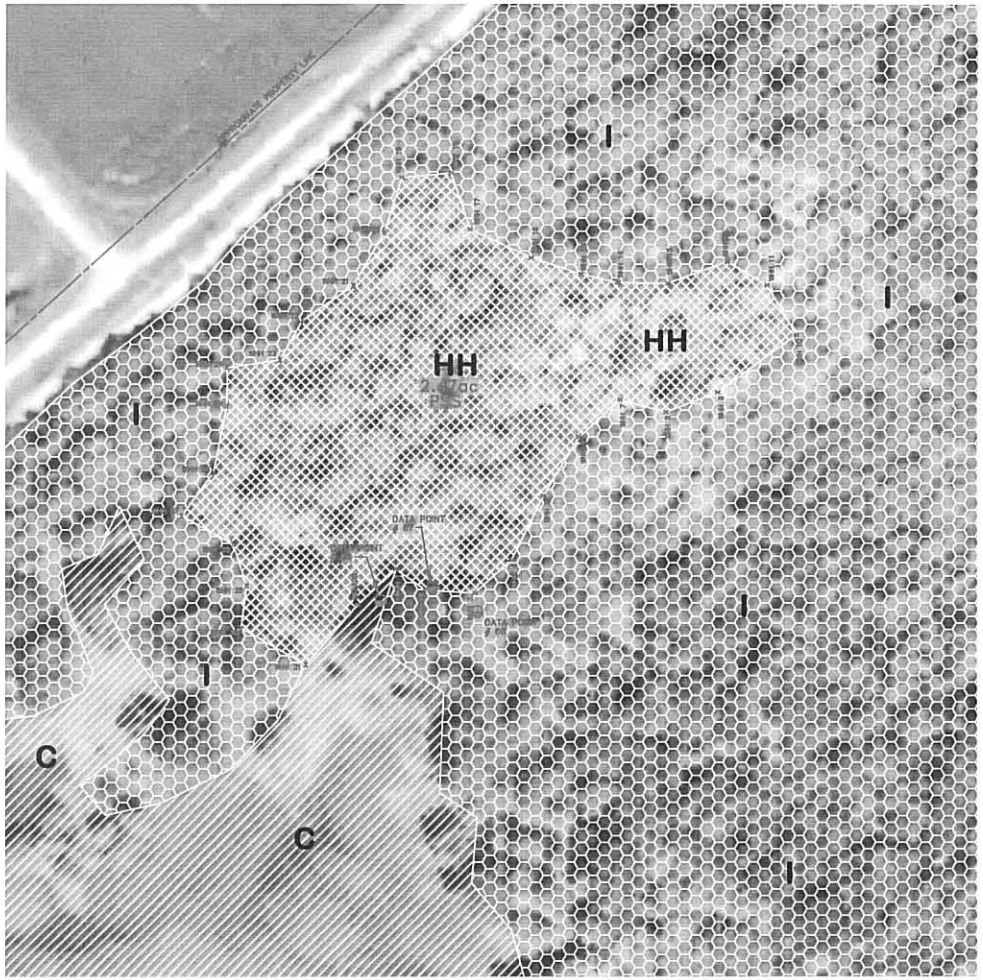

N

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

LEGEND

- OPEN WATER (FLAGGED)
- OPEN WATER (NOT FLAGGED)
- WETLAND BOUNDARY
- DATA POINT
- WETLAND FLAG (WA 25)
- PALUSTRINE SCRUB-SHRUB (PSS)
- PALUSTRINE EMERGENT (PEM)
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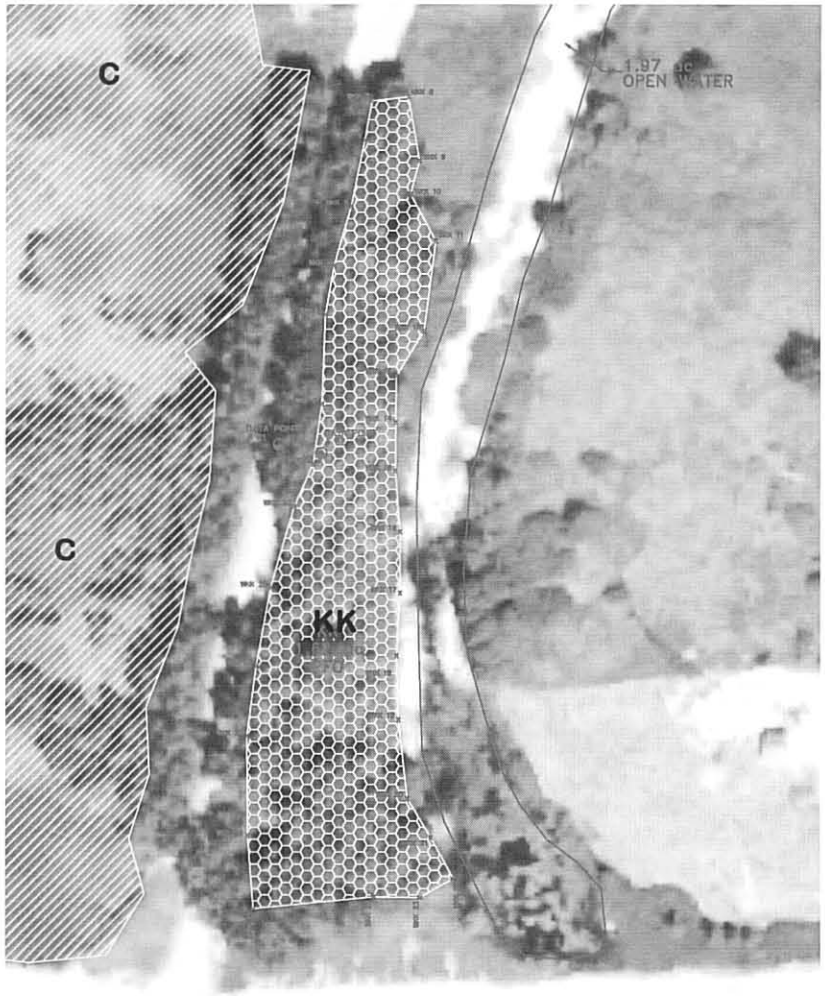

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GRAPHIC SCALE

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(IN FEET)
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APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): 9 November 2010

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Detroit District, Detroit Edison Company-Fermi 3 Nuclear Power Plant, LRE-2008-00443-1

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: MI County/parish/borough: Monroe City: Newport/Frenchtown Township
Center coordinates of site (lat/long in degree decimal format): Lat. 41.96105° **N**, Long. -83.26413° **W**.
Universal Transverse Mercator:
Name of nearest waterbody: Lake Erie
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Lake Erie
Name of watershed or Hydrologic Unit Code (HUC): 4100001

☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:
☒ Field Determination. Date(s): 14 & 15 October 2008, 7 October 2010

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are** *"navigable waters of the U.S."* within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]

☐ Waters subject to the ebb and flow of the tide.
☒ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: Portions of the project site are inundated by waters of Lake Erie.

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** *"waters of the U.S."* within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☒ TNWs, including territorial seas
      ☒ Wetlands adjacent to TNWs
      ☐ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☐ Non-RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      ☐ Impoundments of jurisdictional waters
      ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
      Non-wetland waters: linear feet: width (ft) and/or acres.
      Wetlands: 185 acres.

   c. **Limits (boundaries) of jurisdiction** based on: **Established by OHWM.**
      Elevation of established OHWM (if known): 573.4 (IGLD1985); wetland boundaries defined by 1987 Manual.

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
   Explain: .

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

ENCLOSURE 4

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**
   Identify TNW: **Lake Erie**.

   Summarize rationale supporting determination: Lake Erie is on the Detroit District's list of navigable waters. This waterway is currently used to transport interstate and foreign commerce.

2. **Wetland adjacent to TNW**
   Summarize rationale supporting conclusion that wetland is "adjacent": Areas B, D, E, F, I, L (including additional area), Q, T, Z, AA, GG and HH are contiguous with Lake Erie; Areas G, J, K, O, P, R, S, V, BB, EE, FF, KK are bordering Lake Erie.

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. **Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.**

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. **Characteristics of non-TNWs that flow directly or indirectly into TNW**

   (i) General Area Conditions:
   Watershed size: **Pick List**
   Drainage area: **Pick List**
   Average annual rainfall: inches
   Average annual snowfall: inches

   (ii) Physical Characteristics:
   (a) Relationship with TNW:
   ☐ Tributary flows directly into TNW.
   ☐ Tributary flows through **Pick List** tributaries before entering TNW.

   Project waters are **Pick List** river miles from TNW.
   Project waters are **Pick List** river miles from RPW.
   Project waters are **Pick List** aerial (straight) miles from TNW.
   Project waters are **Pick List** aerial (straight) miles from RPW.
   Project waters cross or serve as state boundaries. Explain: .

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

Identify flow route to TNW[5]: .
Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):
Tributary is: ☐ Natural
☐ Artificial (man-made). Explain: .
☐ Manipulated (man-altered). Explain: .

Tributary properties with respect to top of bank (estimate):
Average width: feet
Average depth: feet
Average side slopes: **Pick List.**

Primary tributary substrate composition (check all that apply):
☐ Silts ☐ Sands ☐ Concrete
☐ Cobbles ☐ Gravel ☐ Muck
☐ Bedrock ☐ Vegetation. Type/% cover:
☐ Other. Explain: .

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: .
Presence of run/riffle/pool complexes. Explain: .
Tributary geometry: **Pick List**
Tributary gradient (approximate average slope): %

(c) Flow:
Tributary provides for: **Pick List**
Estimate average number of flow events in review area/year: **Pick List**
Describe flow regime: .
Other information on duration and volume: .

Surface flow is: **Pick List.** Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☐ Bed and banks
☐ OHWM[6] (check all indicators that apply):
☐ clear, natural line impressed on the bank ☐ the presence of litter and debris
☐ changes in the character of soil ☐ destruction of terrestrial vegetation
☐ shelving ☐ the presence of wrack line
☐ vegetation matted down, bent, or absent ☐ sediment sorting
☐ leaf litter disturbed or washed away ☐ scour
☐ sediment deposition ☐ multiple observed or predicted flow events
☐ water staining ☐ abrupt change in plant community
☐ other (list):
☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):
☐ High Tide Line indicated by: ☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects ☐ survey to available datum;
☐ fine shell or debris deposits (foreshore) ☐ physical markings;
☐ physical markings/characteristics ☐ vegetation lines/changes in vegetation types.
☐ tidal gauges
☐ other (list):

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: .
Identify specific pollutants, if known: .

---

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6] A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7] Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

- ☐ Riparian corridor. Characteristics (type, average width): .
- ☐ Wetland fringe. Characteristics: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:
Properties:
Wetland size: acres
Wetland type. Explain: .
Wetland quality. Explain: .
Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:
Flow is: **Pick List**. Explain: .

Surface flow is: **Pick List**
Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .
- ☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:
- ☐ Directly abutting
- ☐ Not directly abutting
  - ☐ Discrete wetland hydrologic connection. Explain: .
  - ☐ Ecological connection. Explain: .
  - ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW
Project wetlands are **Pick List** river miles from TNW.
Project waters are **Pick List** aerial (straight) miles from TNW.
Flow is from: **Pick List.**
Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .
Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

- ☐ Riparian buffer. Characteristics (type, average width): .
- ☐ Vegetation type/percent cover. Explain: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**
Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed: .

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☒ TNWs: linear feet width (ft), Or, acres.
   - ☒ Wetlands adjacent to TNWs: 158 acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
   - ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

---

[8]See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] **Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.***

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☐ Other: (explain, if not covered above): .

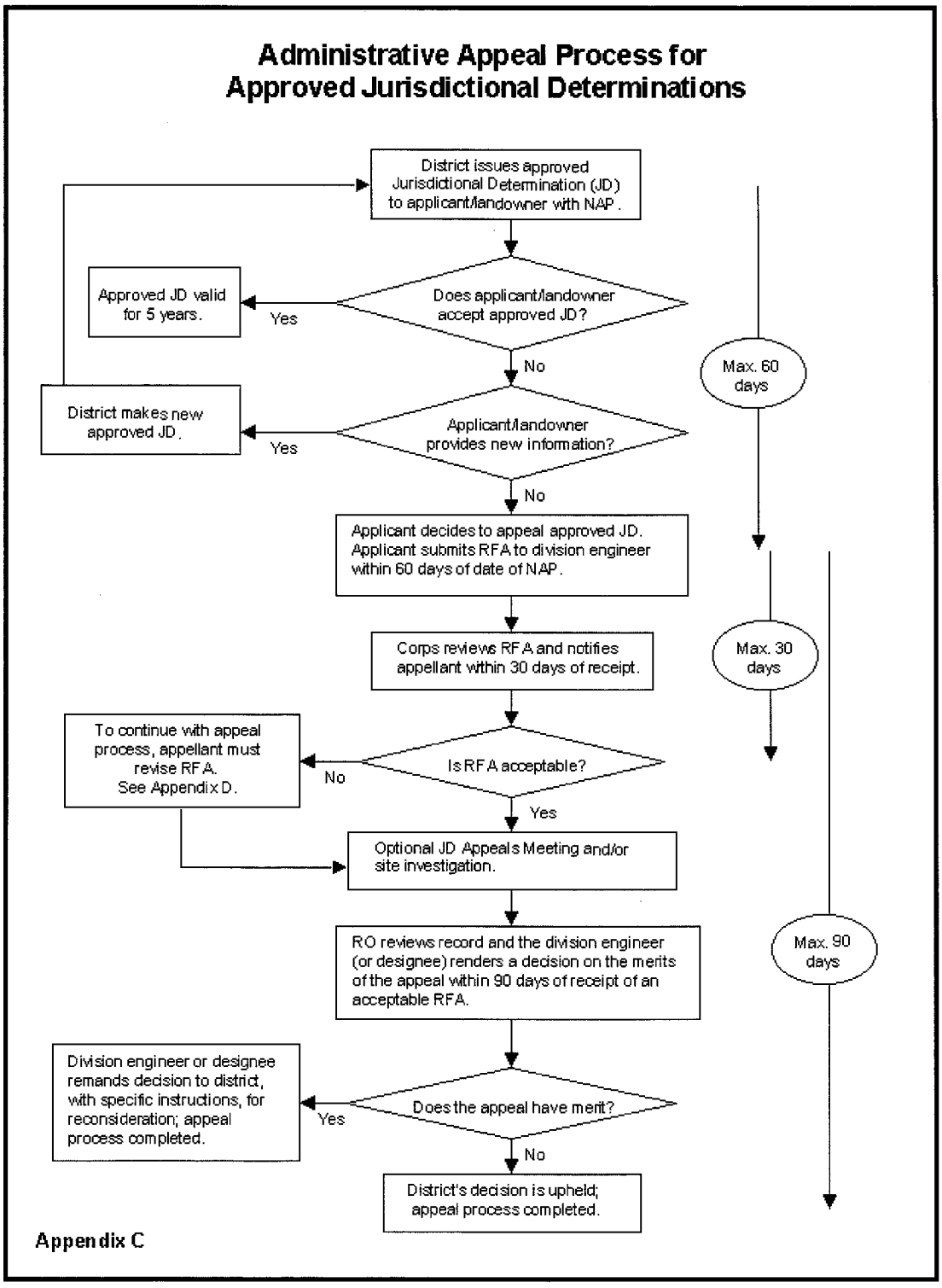
Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: .
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Monroe County Soil Survey.
☐ National wetlands inventory map(s). Cite name: .
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): various from 1949 through 2009.
or ☐ Other (Name & Date): .
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: .



Appendix C

ENCLOSURE 5

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL		
Applicant: Detroit Edison	File Number: LRE-2008-00443-1	Date: 9 November, 2010
Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
X	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/inet/functions/cw/cecwo/reg or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

ENCLOSURE 6

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:	If you only have questions regarding the appeal process you may also contact:
Colette Luff USACE-Detroit, Regulatory Office 477 Michigan Avenue, 6th Floor Detroit, MI 48226-2550 Tel. (313) 226-7485 Fax (313) 226-6763	Pauline Thorndike U.S. Army Corps of Engineers Great Lakes and Ohio River Division 550 Main Street, Room 10-524 Cincinnati, OH 45202-3222 Tel. (513) 684-6212 Fax. (513) 684-2460

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

	Date:	Telephone number:
_____ Signature of appellant or agent.		

Attachment 12-13

Section 12:
Activities that May Impact Wetlands

Fermi 3 Conceptual Aquatic Mitigation Strategy
(following 48 pages)

Fermi 3 Conceptual Aquatic Resource Mitigation Strategy

MDEQ/USACE Joint Permit Application

PREPARED BY:

CONSERVATION CONNECTS

TETRA TECH

2011

Aquatic Resource Conceptual Mitigation Strategy

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1.0 INTRODUCTION

Detroit Edison has developed the following conceptual mitigation strategy to compensate for proposed impacts to aquatic resources associated with construction of Fermi 3 (Proposed Development) at the Enrico Fermi Atomic Power Plant (Fermi site). The Proposed Development site is located on the western shore of Lake Erie at Newport, Monroe County, Michigan on a 1,260-acre parcel owned and managed by Detroit Edison (Figure 1).

A full description of the Proposed Development is presented in the associated Joint Permit Application. Proposed impacts include 30.37 acres of mixed wetland types within the coastal zone of Western Lake Erie and the northern portion of the Ottawa-Stony Watershed, USGS Cataloging Unit and Hydrologic Unit Code (HUC): 04100001. Wetland types are classified broadly according to the U.S. Fish and Wildlife Service Cowardin classification and more specifically according to the Michigan Natural Community classification. Potential impacts include approximately 10.90 acres of palustrine emergent marsh (PEM; Great Lakes marsh), 3.15 acres of palustrine forested wetland (PFO; southern hardwood swamp), 3.91 acres of palustrine scrub shrub (PSS; southern shrub carr), 0.80 acres of PEM (coastal emergent wetland), 5.36 acres of PEM (other emergent wetland), 4.89 acres of PFO (other forested wetland) and 1.37 acres of PSS (other scrub shrub wetland).

To compensate for wetland impacts, Detroit Edison proposes to:

- Restore approximately 82 acres of wetland and enhance existing wetlands offsite in the coastal zone of Western Lake Erie. Restoration will include approximately 52 acres of PEM (Great Lakes marsh), 21 acres of PFO (southern hardwood swamp), and 9 acres of PSS wetland.
- Restore approximately 21 acres of impacted wetlands onsite post-construction.

This conceptual mitigation strategy is based on existing, available data, the attributes of potentially impacted wetlands, watershed priorities, feedback from natural resource professionals and ongoing communication with the regulatory and conservation community. The following narrative provides an overview of the conceptual mitigation strategy and its development.

2.0 MITIGATION GOALS AND OBJECTIVES

The principal goal of this mitigation strategy is to restore, enhance and protect wetland functions and values of equal or greater value than those impacted by construction of the Proposed Development (Figure 2). This goal will be achieved through wetland mitigation activities offsite within the coastal zone and restoration of impact areas onsite post-construction. The specific objectives listed below were developed based on an in-depth evaluation of the natural resources at the impact site and the condition and conservation needs of the surrounding watershed (see Section 3.1). A watershed analysis allowed for integration of watershed attributes including history, current condition, land use trends, stressors, conservation priorities and other conservation efforts in the Ottawa-Stony watershed and the coastal zone

of Western Lake Erie in Monroe County, Michigan (Section 3.1.2). Site level and landscape level perspectives were combined with feedback from regulatory and conservation agency staff to develop an integrated compensation strategy, consistent with guidance from U.S. Army Corps of Engineers (USACE) contained in 33 CFR Part 332 – Compensatory Mitigation for Losses of Aquatic Resources, the Environmental Protection Agency guidance contained in 40 CFR Part 230 – Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material, and the Michigan Department of Environmental Quality (MDEQ) Technical Guidance for Wetland Mitigation (Reference 1).

2.1 Mitigation Overview

Over 500 acres of wetlands are present at the Fermi site. Wetlands potentially impacted by the Proposed Development have been avoided and minimized to the maximum extent practicable. Aquatic resources on the Fermi Site were identified, evaluated and considered throughout the design process. The first consideration was to determine if wetland impacts could be avoided entirely. The second consideration was to minimize potential impacts in terms of both quantity and quality to the maximum extent possible. The third consideration was to develop a mitigation strategy that would compensate for all unavoidable impacts. Design iterations reduced potential wetland impacts from over 150 acres to approximately 30.37 acres of regulated wetlands requiring mitigation (21 acres of which will be restored post-construction). In addition to reducing total acreage of impacts, wetland location and quality were taken into consideration as discussed below and in Section 3.1.

To compensate for the loss of wetlands at the Proposed Development site, Detroit Edison will restore and enhance wetlands of similar ecological type within the same coastal zone. For the purposes of this document, restoration implies returning an area to wetland that once was wetland but currently is not because of past and ongoing modifications. Enhancement implies improving wetland functions in an existing wetland. To achieve the mitigation goal stated above, this conceptual mitigation strategy proposes to implement the following mitigation actions:

- Restore approximately 82 acres of wetland and enhance existing wetlands offsite in the coastal zone of Western Lake Erie. Restoration will include approximately 52 acres of PEM (Great Lakes marsh), 21 acres of PFO (southern hardwood swamp), and 9 acres of PSS wetland.
- Restore approximately 21 acres of impacted wetlands onsite post-construction.

Restoration and enhancement activities proposed for the on- and offsite wetland mitigation projects emphasize heterogeneity in microtopography, vegetation and hydrology to maximize diversity and ecological resilience of wetland habitat. Projects were designed to restore and enhance wetland functions and values including:

- Flood flow attenuation and storage
- Sediment retention

- Food chain support
- Breeding and migration habitat for migratory birds
- Breeding and over-wintering habitat for amphibians
- Increased nutrient cycling
- Increased connectivity of habitat types, and
- Water quality improvements for surface outflow to Lake Erie.

Wetland mitigation has also been designed to specifically replace the functions and values provided by wetlands with proposed impacts at the Fermi site. These functions and values include varying degrees of flood flow attenuation and storage, sediment, nutrient and toxicant retention, and fish and wildlife habitat. Section 3.1.8 details the wetland conditions, functions and values of impacted wetlands. This comprehensive mitigation strategy proposes mitigation that will ultimately restore and enhance significant coastal wetland resources along Lake Erie. Detroit Edison proposes to implement these conservation measures to satisfy the site specific compensation requirements for impacts to wetlands and address critical watershed needs and priorities as described below in Section 3.1.9. Mitigation activities will commence with, or prior to, wetland impacts.

2.2 Mitigation Ratios

Ratio of wetland replacement is based on the community type and other attributes of a particular wetland and on guidance from regulatory agencies (see Attachment 12-14 of the associated Joint Permit Application). These guidance ratios are presented in Table 1. A summary of wetland impacts and attributes is provided in Table 2. A more detailed description of the impacted wetlands is provided in Section 12 of the associated Joint Permit Application.

Wetland mitigation objectives proposed here will replace wetland functions and values impacted in the expansion area by restoring 82 acres of wetlands of similar type offsite in the same watershed (coastal zone) at an average replacement ratio of approximately 2.7:1. In addition, several existing wetlands at the offsite mitigation area will be enhanced, and 21 of the 30.37 acres of impacted wetlands onsite will be restored to wetland habitat once construction is complete. Table 1 provides the types and acreages of wetlands impacted, the required ratios and mitigation, and the proposed acreage of mitigation. As per regulatory guidance, the onsite restoration of 21 acres of the impacted wetlands post-construction and the enhancement of existing wetlands at the offsite mitigation area will provide added ecological value and benefits above the required compensatory mitigation. These actions may be proposed to decrease the acreage of mitigation required by 20 percent. This 20 percent decrease is reflected in the total acreage of wetland mitigation proposed in the offsite mitigation plan (Table 1).

In summary, Detroit Edison recognizes the value of coastal wetland habitat along Lake Erie. Avoidance and minimization strategies were employed to minimize impacts to wetlands of high ecological value. Unavoidable impacts were restricted to low quality wetlands and wetland areas to the greatest extent

possible. As described above, each acre of wetland impacted will be compensated for by the restoration of 2.7 acres of high quality, intact wetland, enhancement of existing wetland habitat, and by post-construction restoration of more than 70% of the impacted wetlands onsite. This mitigation strategy proposes compensation at the appropriate level to achieve replacement of lost functions and values, satisfy regulatory mitigation requirements and will also support Detroit Edison's corporate environmental stewardship initiatives through continued collaboration and partnership with U.S. Fish and Wildlife Service and other conservation entities.

3.0 BASELINE INFORMATION

3.1 Impact Area

3.1.1 Location and Ownership

The Proposed Development site is at the Enrico Fermi Atomic Power Plant (Fermi site), Latitude: 41.961 and Longitude: -83.261 on the western shore of Lake Erie at Newport, Monroe County, Michigan on a 1,260-acre parcel owned and managed by Detroit Edison (Figure 1). The impact site is within the coastal zone of Western Lake Erie and the northern portion of the Ottawa-Stony Watershed.

3.1.2 Land Use

Land use on the Fermi site is split mainly into developed areas and swamp or wetland areas. Most of the forested areas on the site are subject to flooding, and, therefore, are considered woody wetlands. The majority of the Fermi site that is not developed is included as part of the Detroit River International Wildlife Refuge (DRIWR), known as the Lagoona Beach Unit. The DRIWR encompasses a 656-acre portion of the Fermi site.

The 1260 acre Fermi site is composed of approximately 16.8% developed areas and 5.1% cropland. Terrestrial habitats account for 61% of the property. The remaining 17% are water bodies, e.g., Quarry Lakes and the main body of Lake Erie that lies east and north of the site. Figure 3 illustrates the extent and location of the habitats identified and the developed areas on the Fermi site. A summary of the acres of each habitat type on the site is provided below (Reference 2).

Habitat	Acres	Percent of Site
Coastal Emergent Wetland Open Water	35	2.8
Coastal Emergent Wetland Vegetated	238	18.9
Grassland: Right-of-Way	29	2.3
Grassland: Idle/Old Field/Planted	75	6.0
Grassland: Row Crop	64	5.1
Shrubland	113	9.0

Thicket	23	1.8
Forest: Coastal Shoreline	47	3.7
Forest: Lowland Hardwood	92	7.3
Forest: Woodlot	117	9.3
Developed Areas	212	16.8
Lakes, Ponds, Rivers	44	3.5
Lake Erie (main body)	171	13.6
Totals	1,260	100

3.1.3 Topography

Topography in the vicinity is fairly flat, with some lower elevation wetland areas along the Lake Erie shoreline, including the Fermi site (Figure 4). To prevent flooding of the developed areas, these areas were elevated during the construction of Fermi 2 using crushed limestone taken from the southwest portion of the Fermi site (Quarry Lakes). Site elevations range from the level of Lake Erie to approximately 25 feet above lake level on the western edge of the site (Reference 3)**.** Topography on the Fermi site is relatively level in the undeveloped areas, with an elevation range of approximately 10 feet over the site according to U.S. Geological Service (USGS) topographic maps.

3.1.4 Soils

The overburden soils at the site consist of lacustrine deposits, glacial till, and rock fill. The rock fill is present only in the immediate area of the reactor; therefore, in the wetland areas, the overburden soils consist of lacustrine deposits and glacial till. The overburden is underlain by the Bass Islands Group dolomite bedrock. Groundwater is present in the overburden and the bedrock. The groundwater in the overburden is unconfined, while the Bass Islands Group aquifer is confined. The glacial till acts as an aquitard between the unconfined groundwater in the overburden and the confined groundwater in the Bass Islands Group aquifer.

The Monroe County Soil Survey (Reference 4) lists soil series Lenawee silty clay loam, ponded (Map Symbol 10) and Lenawee silty clay loam (21) as the primary mapped soil types on the Fermi site. Other soils found on the Fermi property include: urban land (63) on the eastern portion of the site where the existing Fermi 1 and Fermi 2 buildings and infrastructure are located; urban land-Lenawee complex (57) on the southern edge of the Fermi site; Aquents complex (31) and Blount loam (13A) on the northwestern side of the site; Pits-Aquents complex (33) in the southeast portion of the site; water (W) primarily in the southeast and northeast portions of the site; and beaches (27) along the eastern edge of the Fermi property adjacent to Lake Erie. Figure 5 depicts the soil series identified.

3.1.5 Vegetative Communities

Vegetative communities and wetland habitats were evaluated during detailed terrestrial surveys conducted from 2008 through 2010. In 2008 and 2009, spring, summer and fall pedestrian surveys of flora and fauna were conducted in all habitat types including wetlands on the Fermi site (Reference 5). In 2010 individual wetlands were revisited to determine Michigan Natural Community classification and wetland condition and quality. Several upland and wetland vegetative communities have been distinguished at the Fermi site as listed above in Section 3.1.2 - Land Use. An in-depth discussion of vegetative communities for wetland covertypes is provided below in Section 3.1.8 - Wetlands.

Requests for data concerning known or potential occurrences of endangered, threatened, candidate, or special concern plant species on the Fermi site were submitted to the United States Fish and Wildlife Service (USFWS) and the Michigan Natural Features Inventory. In addition, a list of threatened, endangered, or candidate species for Monroe County, Michigan was obtained online from the Michigan Natural Features Inventory. The American lotus (*Nelumbo lutea*) is a state threatened plant species. However, large local populations of American lotus are scattered in areas of southern Michigan, reaching an apparent peak in Monroe County (Reference 6). In the south lagoon, and to a lesser extent in the north lagoon, are large stands of American lotus. American lotus is also abundant in the South Canal (Figure 6).

3.1.6 Wildlife

As discussed in Section 3.1.5 above and Section 3.1.8 below, the Fermi site includes several ecological communities, some of which are considered rare and imperiled. The Fermi site was extensively surveyed for wildlife in 1973 and 1974 (Reference 7) with updates to species occurrences in 2000 and 2002 as part of a wildlife habitat planning effort. The most recent terrestrial and aquatic wildlife surveys were conducted during 2008 and 2009 (References 8 and 12) to confirm data from earlier surveys and to further characterize the wildlife species using the Fermi property. Secondarily, the surveys aided in determining if important species use the site and to guide decisions concerning avoiding, minimizing or compensating for impacts to these species from the proposed expansion. As such, wildlife surveys focused on portions of the Fermi site where construction and operation of Fermi 3 could potentially impact wildlife, whether from habitat destruction, conversion to other habitat types or through general habitat degradation.

The USFWS was consulted concerning the occurrence or potential occurrence of species on or in the vicinity of the Fermi property that are protected under the Endangered Species Act. The USFWS stated that the project occurs within the potential range of some federally listed species, but that the USFWS had no records of occurrence on the Fermi site or in the vicinity, nor was there any designated critical habitat in the area. The USFWS further stated that because of the types of habitat present at Fermi, no further action is required under Endangered Species Act. The USFWS did state that if more than 6

months pass before the project is initiated, then the USFWS should again be contacted to ensure there have been no regulatory changes. Detroit Edison will continue consultations with the USFWS per their recommendations.

The MDNR and the Michigan Natural Features Inventory (Reference 10) was consulted regarding the presence of known or potential occurrences of state-listed threatened or endangered species on the Fermi site. The only species in the USACE/MDEQ-regulated project areas is the Eastern fox snake (*Pantherophis gloydi*).

Based upon the review of the data collected in the terrestrial and aquatic surveys there were no occurrences of federally and/or state listed threatened or endangered species. Based on avian surveys conducted during 2006-2008, the bald eagle (*Haliaeetus leucocephalus*) is the only migratory species of note that has been observed on the Fermi site. None of the previously observed bald eagle nests were observed on the Fermi site as of January 2011. During 2008, while wetland surveys were being conducted, two fox snakes were observed on two separate occasions. In addition, fifteen separate sightings were made by Detroit Edison employees between 1990 and 2007 with 1-6 snakes identified on each occasion. In addition to minimizing wetland impacts, the fox snake's primary habitat, Detroit Edison has developed a draft mitigation plan which will be implemented to minimize the project's impact to the species.

3.1.7 Site Hydrology

Currently the hydrology of the area is influenced by the physical processes of Lake Erie. Lake Erie has a perfect seiche fetch. With a predominant southwest wind, specific locations on Lake Erie are susceptible to great fluctuations in water levels due to sustained winds pushing the lake water to the east, and then, as the winds subside, the water levelizes across the lake. This creates large waterless expanses followed quickly by water inundating creek and river mouths, resulting in a bathtub like “sloshing” effect. This creates unique opportunities for both plants and wildlife. Other local hydrological conditions are dictated by the Swan Creek.

Water is seasonally to permanently present throughout the majority of the Fermi site. Average annual precipitation is 31.5 inches and generally well distributed throughout the year. The site receives direct, surface runoff from a 2,440 acre drainage basin with cropland, wetland and forest as the primary cover types. Surface water is received from Lake Erie during periods of high water and storm events.

The hydrology of the Fermi palustrine emergent (PEM) wetland areas is controlled almost entirely by the elevation of surface water in Swan Creek and Lake Erie. The surface water in Swan Creek and Lake Erie is directly connected to the PEM areas on the Fermi site. Five sets of large-diameter culverts connect the majority of the inland PEM areas west of Doxy Road with the PEM areas that are directly connected with Swan Creek and Lake Erie. These culverts allow free flow of surface water throughout the interconnected PEM areas. Therefore, the surface water level in the majority of the PEM areas is directly

controlled by the surface water elevation of Lake Erie and Swan Creek, rather than groundwater levels. Figure 7 shows the culvert locations and movement of surface water on the Fermi site.

Palustrine forested (PFO) and palustrine scrub-shrub (PSS) areas on the Fermi site are, for the most part, contiguous with the PEM areas. Therefore, these areas are hydraulically connected with the PEM wetlands, so the groundwater level in these areas is influenced by the surface water levels in Swan Creek and Lake Erie. With the exception of a few wetlands separated by berms or roads, the majority of wetland communities on the Fermi property are hydrologically connected and thus considered one wetland system.

3.1.8 Wetlands

Detroit Edison conducted assessments of wetland resources on 1,106 acres of undeveloped lands at the Proposed Development site between 2008 (Reference 13) and 2011. The purpose of these assessments is to identify and integrate natural resource considerations throughout the design and implementation phases of the Proposed Development and to guide mitigation measures including avoidance, minimization and the development of a high quality mitigation strategy to compensate for unavoidable impacts. The assessments are based on existing data and onsite data collection. Existing data include topographic maps, federal and state wetland maps, soil maps, aerial photos, land use data, and ecological survey data from previous studies. Onsite assessment data were collected in each year to delineate wetland boundaries, evaluate wetland functions and services, determine natural community types and assess wetland condition and quality. A jurisdictional determination was completed and minor edits to wetland boundaries were made in 2011 (Figure 8). Watershed assessments of the northern section of the Ottawa-Stony Creek watershed and the coastal zone of Western Lake Erie in Monroe County were completed to further inform development strategies and conservation priorities at the Proposed Development site. This section provides an overview of wetlands with potential impacts associated with the Proposed Development. Section 3.1.2 provides a summary of the watershed assessments.

A functional assessment based on the USACE New England Highway Method (Reference 14) was originally conducted during the 2008 field delineation (Reference 13). In 2010, field observations of wetlands with proposed impacts included a refined assessment of vegetation communities and other wetland characteristics to further describe the condition, functions and services of impact areas. Data collection and analysis methods were based on the Michigan Rapid Assessment Method for Wetlands (MiRAM, Reference 15) and the Delaware Rapid Assessment Procedure (Reference 16) and included metrics such as wetland size and connectivity, adjacent area use, hydrologic alterations and soil disturbance, habitat structure, and presence of invasive species. The results of the 2008/2009 terrestrial surveys, 2010 field visits described above, and feedback from regulatory staff were used to further

evaluate individual wetlands potentially impacted by the Proposed Development and to define appropriate compensation ratios as presented in Table 1.

Over 500 acres of wetland were delineated at the Proposed Development site. The majority of wetlands at the Fermi site were ranked low to medium quality based on factors including hydrological disturbance, presence of invasive species, adjacent land use, fragmentation, human activity, deforestation, etc. There were several wetlands ranked high quality based on connectivity, presence of native, diverse vegetation communities, and wildlife habitat potential. Several other wetlands were given high ecological value based solely on their rare and imperiled status in Michigan even though condition ratings were low (MiRAM guidance, see below). Depending on condition, the principal functions and services provided by wetlands on the Fermi site include flood flow alteration, sediment/toxicant retention, nutrient removal, and fish and wildlife habitat.

Chapter 324, Section 303.01(t) of the Michigan Natural Resources and Environmental Protection Act identifies Michigan Natural Communities that are considered rare and imperiled. These include Great Lakes marsh and southern swamp (southern hardwood swamp). At the Fermi site, these communities are found relatively intact in Wetlands C, M and the South Canal (Great Lakes marsh) and I, F, BB/EE/FF and L (southern swamp, Figure 8). Impacts to these wetlands will require a 5:1 replacement ratio. Wetland E is a combination of emergent marsh/wet meadow and southern shrub carr with direct surface water connection to Lake Erie requiring a 2:1 replacement ratio (coastal wetland ratio). The other wetlands potentially impacted by Fermi 3 activities do not readily fall into a natural community category due to variables such as fragmentation and disturbance. Any wetland considered “other” that is connected hydrologically to Lake Erie or is within 1000 feet of the ordinary high water mark (elevation 571.6 ft IGLD 1955) is considered coastal and a 2:1 mitigation ratio applies. This excludes Wetland A and possibly Open Water H and Wetlands II and JJ. If any of the open water areas were officially developed as stormwater areas exemptions may apply. The depth of open water areas H and U may mean they are not protected as wetlands. Anything up to 2 meters in depth is considered wetland. MDEQ staff indicated that condition and quality are relevant factors in any mitigation proposed for areas that are fragmented with a high level of disturbance (not just invasive species), limited functions and that do not match a natural community description. It would not be expected that these areas, which include B, D, R, T, Y, AA, II, JJ, and KK would require a 5:1 mitigation ratio. These “other” wetlands would require a 2:1 ratio if they are considered coastal and a 1.5:1 ratio if they are not.

Wetlands with proposed impacts and their associated covertypes are presented in Table 2. Mitigation is proposed for approximately 30.37 acres of potential impacts to regulated wetlands due to the Proposed Development. These potential impacts include approximately 10.90 acres of Great Lakes marsh, 3.15 acres of southern hardwood swamp, 3.91 acres of southern shrub carr, 0.80 acres of coastal emergent wetland, 5.36 acres of other emergent wetland, 4.89 acres of other forested wetland and 1.37 acres of other scrub shrub wetland.

3.1.9 Watershed Analysis

As part of the natural resource assessment effort, Detroit Edison conducted a watershed analysis to provide a broader geographic context to guide land use decisions at the Fermi site. The purpose of the watershed assessment is to provide an analysis of land use features of the inland and coastal watersheds that encompass the Fermi site and evaluate the connection between natural resources on the Fermi site and site-specific and watershed conservation priorities. The watershed assessment also provides a landscape level perspective useful in consideration of any land use changes, proposed impacts and proposed compensation strategies.

The Fermi site is located in the northern portion of the Ottawa-Stony watershed (OSW), USGS Cataloging Unit and Hydrologic Unit Code (HUC): 04100001 and the coastal zone of Western Lake Erie in Monroe County (CZM, Figure 9 and 10). The OSW drains areas to the north and west of Lake Erie and flows directly into the lake (Figure 9). The northern portion of the OSW has a drainage basin of approximately 182,733 acres and is dominated by agriculture (55%). Approximately 25% of the OSW land area is in natural cover and approximately 20% is developed (Figure 8). The CZM encompasses approximately 18,697 acres with an almost even interspersion of natural lands (38%), developed lands (38%) and agriculture (24%, Figure 10). Protected lands for conservation and recreation make up approximately 4% of the OSW and 36% of the CZM.

Wetlands comprise approximately 6% of the OSW and 43% of the CZM. The OSW is dominated by vegetated wetlands. Forested wetlands comprise the majority of vegetated wetlands (60%) with the remainder being emergent (24%) and shrub/scrub (15%). The CZM has equal proportions of vegetated and non-vegetated (open water) wetlands. Emergent wetlands are the dominant type comprising 71% of the vegetated wetlands with the remaining wetlands being forested (17%) and scrub shrub (11%).

An approximation of historic wetlands for the OSW and the CZM was developed based on soils classified as >80% hydric (soils >80% of a soil map unit classified as hydric by the Natural Resources Conservation Service) and current mapped wetlands. Former wetlands were defined as areas that are mapped hydric soils (>80% of map unit) but not mapped as wetlands based on the latest wetland maps. The topography and landscape position of the OSW and CZM are ideal for the development of wetlands because the land is very flat and in close proximity to the coast of Lake Erie. Prior to European colonization, approximately 45% of the land area of the OSW was wetland (Figure 11). Based on the most recent wetland maps 6% of the OSW area is currently wetland which constitutes an 86% loss in the OSW. Historically, 77% of the land area of the CZM was wetland (Figure 12). Based on the most recent wetland maps, 43% of the CZM is wetland which constitutes a 44% loss in the CZM.

Watershed Conservation Priorities

Based on natural resource assessments conducted at the Fermi site and within the OSW and CZM, the following wetland-based conservation priorities were identified for this project:

1. Protect and enhance existing high quality wetlands especially those that are directly connected to Lake Erie in the CZM and/or part of a larger wetland complex.
2. Improve a network of natural land use in the CZM and OSW by increasing the amount of large blocks (>50 acres) of natural lands and buffered streams to support ecosystem functions and services and establish corridors to connect large blocks.
3. Restore and enhance wetlands in the CZM to provide wildlife habitat and protect water quality in Lake Erie.
4. Restore wetlands and stream buffers in the OSW to re-establish large wetland complexes and riparian connections.

Because of the Fermi site's location in the lowest reaches of the OSW (in the CZM), any activity onsite will have the greatest local effects (either positive or negative) on coastal resources and Lake Erie itself. Based on the results of the watershed assessment, planned activities at Fermi have strategically avoided and minimized impacts to natural resources of high ecological value to the greatest extent possible. For unavoidable impacts, this mitigation strategy has been designed to address any loss of coastal habitat and the watershed conservation priorities listed above. Specifically, the proposed mitigation will restore 75 acres of coastal wetland including Great Lakes marsh and southern hardwood swamp and reconnect this large block of natural land directly to Lake Erie via a restored and buffered stream channel. In addition, existing wetlands will be enhanced and protected at the offsite mitigation area to decrease invasive species, increase vegetation diversity and provide enhanced habitat for wildlife. Approximately 21 acres of impacted wetlands will be restored post-construction. On- and offsite mitigation actions are in close proximity to existing conservation efforts to help establish connectivity and habitat corridors.

3.2 Onsite Restoration Area Overview

The 21 acres of impacted wetlands that will be restored post-construction include approximately 13 acres of PEM, 3 acres of PFO, and 5 acres of PSS wetland. These areas are described in detail in Section 12 of the associated Joint Permit Application.

3.3 Offsite Mitigation Area Overview

The proposed offsite mitigation area, referred to as the Monroe Site, is approximately 7.25 miles from the Fermi site on Detroit Edison's Monroe Plant, east of Interstate 75, north of La Plaisance Creek and immediately adjacent to Lake Erie (La Plaisance Bay), Town of Monroe, Monroe County, Michigan, in the Ottawa-Stony Watershed (HUC: 04100001, Figures 13 and 14). The Monroe Site is owned and managed by Detroit Edison as part of the Monroe Power Plant, a coal-fired power plant constructed in the early 1970s. The Monroe Site and adjacent areas include active agriculture, early successional old field and shrub habitat, agricultural ditches, small forest patches, existing and restored wetland and grassland habitat, industrial, residential and other developed areas, access roads, highways and Lake Erie.

The proposed mitigation targets a 210-acre agricultural field. Figures 13-17 show location, aerial photo, topography, soils, hydrology, land use, and mapped federal wetlands. The restoration site is primarily active agriculture with small remnants of PEM and PSS wetlands separated from Lake Erie by perimeter dikes. Excess water is pumped from the fields to accommodate farming. The soil observed within the wetland mitigation area is predominately Lenawee silty clay loam, a hydric soil suitable for wetland restoration/creation. The area was dry at the time of a site visit on August 20, 2010 with the exception of existing swales. The pumps were not running. There is a Michigan Department of Transportation (DOT) ditch that currently drains water from Interstate 75 through a ditch adjacent to the southwest corner of this site.

4.0 MITIGATION SITE SELECTION FACTORS

An extensive exploration of potential mitigation projects spanning several years both on- and offsite within the Ottawa Creek and coastal zone of Western Lake Erie has been conducted. The on- and offsite mitigation projects proposed here were determined to be the best based on site selection factors including:

- location, size and attributes of existing habitat;
- quality of mitigation options and likelihood of success based on both ecological and economic factors;
- land ownership and availability;
- adjacent land use;
- value and proximity to existing conservation plans, projects and watershed priorities;
- connectivity of habitat types;
- possible benefits to threatened and endangered species; and
- stewardship capabilities.

5.0 MITIGATION WORK PLAN

A conceptual discussion of on- and offsite work plans including construction techniques and sequence, planting, and conceptual design drawings illustrating the location, type and extent of mitigation actions are discussed here and illustrated in Figures 18 and 19. The conceptual design and work plan are based on existing, available data. Final site plans are contingent upon verification of existing data, collection of additional topography, soil, hydrology and vegetation information, and input and approval by the governing regulatory agencies. Final mitigation plan sets will contain detailed grading, planting and soil erosion and sediment control plans suitable for the mitigation site construction. Wetland mitigation activities including both restoration and enhancement actions will commence with or prior to impacts and once all necessary permits are in place.

Mitigation design emphasizes heterogeneity in vegetation and hydrology to maximize ecological diversity and functional resilience of the wetland. Wetland restoration and enhancement activities are designed to

emphasize techniques that restore functions such as flood flow attenuation and storage, sediment/toxicant retention, nutrient removal, food chain support, breeding and migration habitat for migratory birds, breeding and over-wintering habitat for amphibians, increased nutrient cycling, increased connectivity of coastal habitat types, and water quality improvements for surface outflow. A natural buffer will be established or existing buffers maintained to protect mitigation wetlands. The final mitigation wetland design and management plan will be developed in cooperation with the existing conservation focus areas (e.g., Detroit River International Wildlife Refuge), watershed plans and priorities supported by local, state and federal conservation agencies and organizations.

5.1 Onsite Work Plan

Approximately 21 of the 30.37 acres of proposed wetland impact will be restored to wetland habitat following construction at the Fermi site (Figure 18). Best management practices will be applied to these areas before, during and after construction to the greatest extent possible to facilitate the return of these areas to functional wetland systems. It is anticipated that restoration measures will result in higher quality wetland systems than currently exist in those locations.

5.2 Offsite Work Plan

Offsite wetland restoration and enhancement efforts will replace and repair habitat modified by agricultural practices and hydrological disturbance within sensitive coastal areas (Figure 19). Mitigation actions will increase the abundance, integrity and quality of aquatic habitat types that are currently listed as rare and imperiled in the state of Michigan. The mitigation actions described below will restore a total of 82 acres of wetlands in the 210-acre agricultural area as illustrated in Figure 19. The 82 acres will include approximately 21 acres of forested, 9 acres of scrub shrub, and 52 acres of emergent wetland with direct hydrological connection to Lake Erie. A wetland delineation will be conducted in the 210-acre agricultural field prior to final design. Any existing wetlands that are improved by the mitigation action proposed here will then be counted as enhancement in addition to the restoration acreages proposed above.

A specific objective of the offsite restoration area is to reestablish a direct connection between the current agricultural area and Lake Erie and to redirect runoff from Interstate 75 into the restored wetland. These actions will reconnect a relatively large coastal floodplain area and will allow water to be filtered before it reaches Lake Erie.

5.2.1 Construction and Planned Hydrology

Construction activities in the agricultural area will include clearing, excavating and grading the proposed mitigation area to elevations conducive for development of coastal PEM, PSS and PFO wetlands. The entire restoration area will be restored to two separate but hydrologically connected wetland units. The eastern unit will be directly connected to Lake Erie and water levels in this unit will fluctuate with Lake

Erie water levels. The western unit will be partially connected to Lake Erie and with a wetter hydroperiod than the eastern unit.

Existing fill and an existing berm along the east side and adjacent to Lake Erie will be partially removed to allow water from Lake Erie to enter the proposed wetland area (Figure 19). A meandering waterway excavated to the west of the lake connection will allow for a permanent open water marsh zone in the emergent marsh area, providing habitat for aquatic species. Grading of soils adjacent to this waterway will provide for a variety of water levels and habitat types within the eastern unit.

A low berm will be constructed between the eastern and western restoration units. This berm will be constructed to an elevation that will help to ensure successful restoration of proposed habitat types and acreages in the western unit. A spillway will be constructed in the berm to allow excess water to spill over and enter the eastern unit waterway and eventually flow into Lake Erie. Depending on topography and final design, this spillway will also be constructed at an elevation that will allow high lake levels (e.g., seiche events) to enter the western unit. Additional hydrology will be introduced into the western unit by plugging a drainage ditch that currently flows along the north perimeter of the entire area. This ditch will be plugged to the west of the proposed berm to redirect its water into the western unit. Additionally, a Michigan DOT drainage ditch that currently transfers water from Interstate 75 to La Plaisance Creek and into Lake Erie will be redirected into the western unit. This step will increase water flow into the wetland and also slow floodwater and reduce sediment loading and filter toxicants from runoff water before it reaches Lake Erie. There may be an additional grading and planting plan designed specifically to accommodate requirements of a right-of-way associated with existing electric power lines located along the northern edge of the western unit.

Graded wetland basins will be left rough to establish microtopography essential for creating niches for a variety of wetland plants. The edges of the excavated wetlands will be irregular in shape with variable, shallow slopes. Soil disturbance and compaction will be minimized as much as possible. Earthmoving equipment will be cleaned before deployment to prevent possible contamination by invasive species.

5.2.2 Planned Vegetation and Habitat Features

Existing wetlands at the offsite enhancement area will be treated with herbicide to kill invasive plant species including common reed, cattail and reed canary grass. A treatment plan will be implemented with herbicide applied in years 1-3, year 5, year 7 and year 10, or adjusted as needed. Response from native vegetation will be facilitated by removing dead, chemically treated vegetation through mechanical removal after each treatment. MDEQ, MDNR, Ducks Unlimited and other participating land managers are currently experimenting with various techniques for controlling common reed in coastal wetlands along Saginaw Bay. The techniques being tested include glyphosate, imazapyr, and a glyphosate/imazapyr mixture along with mechanical management actions. The USFWS Detroit River International Wildlife Refuge is also evaluating Phragmites control techniques in coastal wetlands immediately north of the

Fermi site. The treatment plan for the mitigation enhancement project proposed here will be based on the MDEQ Guide to the Control and Management of Invasive Phragmites (Reference 17), the most current results of the Saginaw Bay study, and on consultation with regulatory and conservation agency staff who have extensive knowledge of chemical control of invasive species in the coastal zone of Western Lake Erie.

The offsite restoration area and buffer will be planted and seeded to establish a native plant community, prevent soil erosion, increase the likelihood of mitigation success, and minimize the opportunity for invasive species to become established. Forested, shrub and emergent wetlands will be planted and seeded to closely resemble vegetation communities typical of southern hardwood swamps, southern shrub carr and Great Lakes marsh prior to invasion of common reed and other invasive and exotic species. These vegetation communities are described in Natural Communities of Michigan: Classification and Description (Reference 18). Seed will be adapted to northern United States ecotypes and will be applied in a manner and at a rate that will allow effective establishment of the wetland pool area and wetland margins. Planting and seeding of these species will stabilize soil structure, provide biological diversity, restore ecosystem functionality, and protect against invasion by exotic and invasive herbaceous species. Construction areas will be seeded with a mix to prevent erosion, stabilize excavated areas and establish an herbaceous community typical of the region. Re-vegetation of wetland areas will be accomplished by using a combination of potted trees and shrubs, plugs, rootstock cuttings, and seed. Plant species will be chosen for their proven hardiness in the area, their ability to out-compete invasive plant species, wildlife value and their overall suitability to develop native communities. The species all will occur naturally within the region and no exotic or potentially nuisance species will be utilized. Wild-type nursery stock of an age and condition suitable for transplantation will be used. The precise list of species to be planted will be dependent on availability of nursery stock. Final design will include species lists, quantities and locations for container, plug and seed stock.

Habitat structures will be placed on the site following construction and prior to seeding and planting at a minimum of six per acre as required by MDEQ mitigation guidance (Reference 1). Habitat structures include whole trees, logs, snags, tree stumps and sand mounds. Some habitat structures, namely tree stumps, whole trees, and logs, may be taken from the impacted areas at the Proposed Development site.

6.0 PROTECTION

Ownership of on- and offsite mitigation areas will remain with Detroit Edison. The restored and enhanced mitigation wetlands will be permanently protected as directed by regulatory requirements to preserve the wetland functions restored.

7.0 PERFORMANCE STANDARDS

Performance standards for on- and offsite mitigation areas will be based on the goals and objectives of the mitigation projects as well as the character of existing wetlands surrounding the mitigation site. The

general standards listed below were developed using the MDEQ Technical Guidance for Wetland Mitigation (Reference 1). These standards will be refined with final design and will be used to evaluate development and overall success of the mitigation project:

1. Construction has been completed in accordance with approved plans and specifications in the permit.
2. The wetland has soil saturation and/or evidence of inundation via water potential or water height measurements during the growing season during the required monitoring period.
3. A 6-inch layer of high-quality soil, from the A horizon of an organic or loamy surface texture soil, is present over the entire mitigation area.
4. The mitigation wetland is free of oil, grease, debris, and all other contaminants.
5. A minimum of six habitat structures, consisting of at least three types, have been placed per acre of mitigation wetland with at least 50% of each structure extending above the normal water level.
6. Mean percent cover of native wetland species (those with a regional indicator status of FAC, FAC+, FACW +/-, or OBL in the U.S. Fish and Wildlife Service report entitled National List of Plant Species that Occur in Wetlands, North Central Region 3, Reference 19), in the herbaceous layer at the end of the monitoring period is not less than 60% for a PEM wetland and 80% for PFO and PEM (wet meadow) wetlands.
7. Open water with no emergent or floating vegetation will not exceed 20% of the mitigation wetland area.
8. Extensive areas of bare soil shall not exceed 5% of the mitigation wetland area, with the exception of heavily shaded portions of the PFO portion of the mitigation site.
9. The minimum number of native wetland species per wetland type shall not be less than 15 species for PSS, PFO and PEM wetlands and not less than 20 species for PEM – wet meadow.
10. At the end of the monitoring period, the mitigation wetland will support a minimum of:
    a. 300 individual surviving, established, and free-to-grow trees per acre in the PFO wetlands that are classified as native wetland species and consisting of at least three different plant species.
    b. Eight native wetland species of grasses, sedges, or rushes in PEM - wet meadow wetlands.
11. At the end of the fifth monitoring year, no more than 10 percent of the vegetation will consist of the following invasive species: purple loosestrife, common reed and reed canary grass.

The success of this wetland mitigation project will be determined based on the performance standards outlined above along with any additional conditional standards identified and agreed on by the USACE and upon final design or during the permitting process.

8.0 MONITORING

Monitoring activities completed at the mitigation site will be conducted as described by MDEQ Technical Guidance for Wetland Mitigation represented below (Reference 1). This monitoring plan also satisfies USACE guidance contained in 33 CFR Part 332 – Compensatory Mitigation for Losses of Aquatic Resources. A monitoring plan is necessary to evaluate the mitigation wetland in regards to meeting the performance standards of the project. Monitoring visits will be performed annually beginning with the first growing season after construction is completed. Emergent wetlands will be monitored for a minimum of 5 years and shrub and forested wetlands will be monitored for a minimum of 10 years or until performance standards are met following the year that construction is completed, as follows:

1. During construction provide one-time photographic documentation of high quality soil placement across the site.

2. Measure inundation and saturation at all staff gauges, monitoring wells, and other stationary points shown in the mitigation plan monthly during the growing season. Hydrology data shall be measured and provided at sufficient sample points to accurately depict the water regime of each wetland type.

3. Sample vegetation in plots located along transects shown in the mitigation plan once between July 15 and August 31. The number of sample plots necessary within each wetland type shall be determined by use of a species-area curve or another approach approved by the MDEQ and USACE. The minimum number of sample plots for each wetland type shall be no fewer than five (5). Sample plots shall be located on the sample transect at evenly spaced intervals or by another approach acceptable to the MDEQ and USACE. If additional or alternative sample transects are needed to sufficiently evaluate each wetland type, they must be approved in advance in writing by the MDEQ and USACE. The herbaceous layer (all non-woody plants and woody plants less than 3.2 feet in height) shall be sampled using a 3.28 foot by 3.28 foot (1 square meter) sample plot. The shrub and tree layer shall be sampled using a 30-foot radius sample plot. The data recorded for each herbaceous layer sample plot shall include a list of all living plant species, and an estimate of percent cover in 5 percent intervals for each species recorded, bare soil areas and open water relative to the total area of the plot. The number and species of surviving, established and free-to-grow trees and surviving, established, and free-to-grow shrubs shall be recorded for each 30-foot radius plot. Provide plot data and a list of all the plant species identified in the plots and otherwise observed during monitoring. Data for each plant species will include common name in English, scientific name, wetland indicator category

from the U.S. Fish and Wildlife Service's National List of Plant Species That Occur in Wetlands for Region 3 (Reference 19), and whether the species is considered native according to the Michigan Floristic Quality Assessment (Reference 20). Nomenclature shall follow Reference 21 through Reference 23. The location of sample transects and plots will be identified in the monitoring report on a plan view showing the location of wetland types. Sample transects shall be permanently staked at a frequency sufficient to relocate the transect in the field.

4. Delineate any extensive (greater than 0.01 acre in size) open water areas, bare soil areas, areas dominated by invasive species, and areas without a predominance of wetland vegetation, and provide their location on a plan view.

5. Document any sightings or evidence of wading birds, songbirds, waterfowl, amphibians, reptiles, and other animal use (lodges, nests, tracks, scat, etc.) noted within the wetland during monitoring. Note the number, type, date, and hour of the sightings and evidence.

6. Inspect the site during all monitoring visits and inspections for oil, grease, man-made debris, and all other contaminants and report findings. Rate (e.g., poor, fair, good, excellent) and describe the water clarity in the mitigation wetland and determine source(s) of turbidity.

7. Provide annual photographic documentation of mitigation wetland development during vegetation sampling from permanent photo stations located within the mitigation site. At a minimum, photo stations shall be located at both ends of each transect. Photos will be labeled with the location, date, and direction.

8. Provide the number, type and location of habitat structures placed and representative photographs of each structure type.

9. Conduct a wetland delineation to determine the area meeting all three wetland criteria (dominance by hydrophytic vegetation, wetland hydrology and hydric soils) at the completion of the monitoring period. Include the wetland delineation in the final monitoring report as a supplement and include the estimated wetland acreage in the report.

10. Provide a written summary of data from previous monitoring periods and a discussion of changes or trends based on all monitoring results.

11. Provide a written summary of all the problem areas that have been identified and potential corrective measures to address them.

Monitoring reports shall cover the period of January 1 through December 31 of each year following planting. Reports will be submitted to Detroit Edison before January 31 of the following year. Detroit Edison will forward the annual reports to the appropriate regulatory agencies. Additional monitoring beyond the 5 or 10-year standard monitoring period may be required if all performance standards are not met to the satisfaction of MDEQ and USACE.

9.0 MAINTENANCE, LONG-TERM AND ADAPTIVE MANAGEMENT

When monitoring indicates that a performance standard is not being met or will not be met, that standard will be evaluated to determine if more time is needed for site development and maturation or if a remedial action may be required. This will be accomplished by consulting wetland experts and permitting agencies to determine an appropriate course of action. Remedial measures may include seeding or planting, additional non-native plant control and/or erosion control measures. In rare circumstances, contingencies may require re-grading the wetland basin, removal or addition of water control structures and access control. An implementation timetable will be constructed to correct deficiencies noted in the annual monitoring report. It is the responsibility of Detroit Edison to address adaptive management issues. Once the monitoring period is over, the completed wetland will be protected and managed as needed and specified in the site management plan.

10.0 FINANCIAL ASSURANCES

Financial assurances at the appropriate level and type will be provided by Detroit Edison for completion of the mitigation strategy described above. Cost estimates for implementation of the mitigation strategy will be provided with final design to determine the financial assurance amount.

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TABLES AND FIGURES

Table 1. Wetland Impacts, Proposed Mitigation and Ratios

Wetland Type - Emergent Marsh	**Fermi 3 Impacted Areas (Acres)**	**Mitigation Ratio for Wetland Type**	**Required Mitigation (Acres)**	**20% Decrease for Enhancement**	**Mitigation Plan Compensation (Acres)**
Great Lakes marsh (rare/imperiled)	10.90	5:1	54.50	43.60	52
Great Lakes marsh (rare/imperiled) *	2.29	0:0	0.0	0.00	0
Palustrine emergent (coastal)	0.80	2:1	1.60	1.28	0
Palustrine emergent (other)	5.36	1.5:1	8.04	6.43	0
Emergent Marsh Totals	**19.35**		**64.14**	**51.31**	**52**
Wetland Type - Forested Wetland	**Fermi 3 Impacted Areas (Acres)**	**Mitigation Ratio for Wetland Type**	**Required Mitigation (Acres)**	**20% Decrease for Enhancement**	**Mitigation Plan Compensation (Acres)**
Southern hardwood swamp (rare/imperiled)	3.15	5:1	15.75	12.60	21
Palustrine forested (coastal and other)	4.89	2:1	9.78	7.82	0
Forested Wetland Totals	**8.04**		**25.53**	**20.42**	**21**
Wetland Type - Scrub Shrub Wetland	**Fermi 3 Impacted Areas (Acres)**	**Mitigation Ratio for Wetland Type**	**Required Mitigation (Acres)**	**20% Decrease for Enhancement**	**Mitigation Plan Compensation (Acres)**
Southern shrub carr (coastal)	3.91	2:1	7.82	6.26	9
Palustrine scrub shrub (other)	1.37	2:1	2.74	2.19	0
Shrub/Scrub Wetland Totals	**5.28**		**10.56**	**8.45**	**9**
Total Wetlands	**Fermi 3 Impacted Areas Requiring Mitigation (Acres)****	**Combined Mitigation Ratio for All Wetland Types**	**Required Mitigation (Acres)**	**20% Decrease for Enhancement**	**Mitigation Plan Compensation (Acres)**
Wetland Totals	**30.37**	**3.2:1**	**100.23**	**80.18**	**82**

*Approximately 2.29 acres of temporary impact associated with construction of transmission lines. As per communication with regulatory staff this impact requires a permit and restoration after impact but no additional mitigation.

**Total impacts minus 2.29 acres of temporary impacts described in note above.

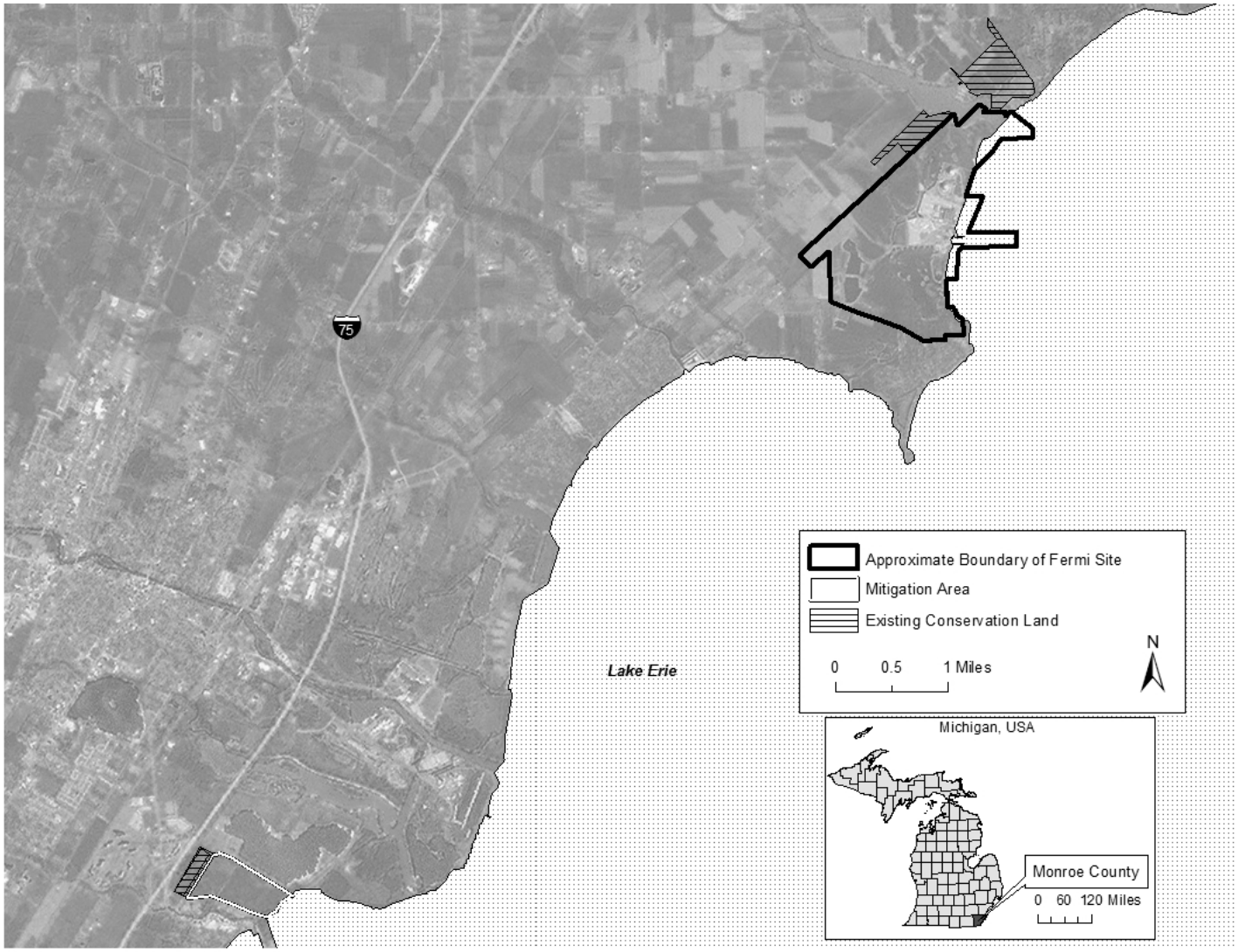
Table 2. Wetland Impacts and Attributes Summary Table (Sheet 1 of 2)

ID	Type/General Description	Total Size (acres)	Impact (acres)	Jurisdiction	Condition/ Primary Function	Guidance Mitigation Ratio
B	Linear PFO	0.76	0.76	MDEQ/USACE	Low/ Floodflow alteration, sediment, toxicant retention, nutrient removal and wildlife habitat	2:1
C	Great Lakes marsh, fragmented from Lake Erie by access roads, but connected hydrologically through culverts	48.18	9.73	MDEQ/USACE	Medium (high ecological value)/ Floodflow alteration, sediment, toxicant retention, nutrient removal and wildlife habitat	5:1
D	Palustrine forested wetland with partially open canopy	1.37	1.37	MDEQ/USACE	Medium/ Floodflow alteration, sediment, toxicant retention, nutrient removal and wildlife habitat	2:1
E-North	North: Palustrine mix of scrub-shrub, emergent marsh/wet meadow, in two sections split by Wetland D,	2.67	1.87	MDEQ/USACE	Medium/Floodflow alteration, sediment, toxicant retention, nutrient removal and wildlife habitat for both portions of E	2:1
E-South	South: Southern shrub carr or other coastal wetland type	2.04	2.04			
F	PFO southern hardwood swamp, relatively intact,	31.07	2.71	MDEQ/USACE	Medium (high ecological value)/Floodflow alteration, sediment, toxicant retention, nutrient removal and wildlife habitat	5:1
H	PEM edge around a created open water pit	0.10	0.10	MDEQ	Low/Minimal floodflow alteration, sediment/toxicant retention and nutrient removal	1.5:1
I	PFO southern hardwood swamp, relatively intact, indirectly connected to Lake Erie, provides a buffer for the interior and less disturbed wetland	39.74	0.10	MDEQ/USACE	Medium (high ecological value)/Floodflow alteration, sediment, toxicant retention, nutrient removal and wildlife habitat	5:1
U	PEM edge around a created open water canal	0.15	0.15	MDEQ/USACE	Low/Minimal floodflow alteration, sediment/toxicant retention and nutrient removal.	1.5:1
W	PEM wet meadow wetland	4.59	4.59	MDEQ	Low/ Floodflow alteration, sediment, toxicant retention, nutrient removal and marginal wildlife habitat	1.5:1

Table 2. Wetland Impacts and Attributes Summary Table (Sheet 2 of 2)

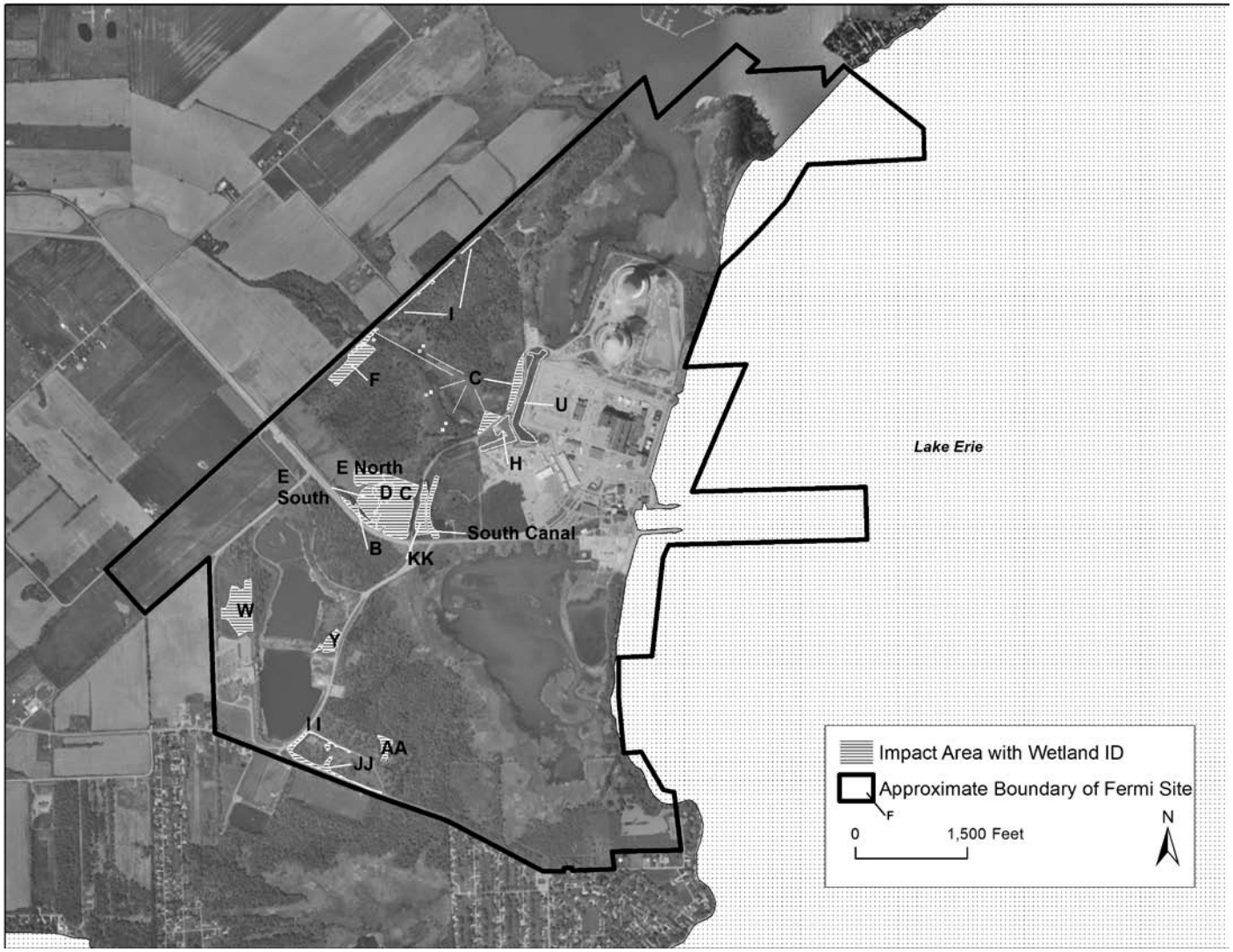
ID	Type/General Description	Total Size (acres)	Impact (acres)	Jurisdiction	Condition/ Primary Function	Guidance Mitigation Ratio
Y	PFO fragmented early successional with mixed vegetation and a partially open canopy	1.14	1.14	MDEQ	Low/Marginal wildlife habitat for edge species and limited water storage.	2:1
AA	PEM established spoil area	0.80	0.80	MDEQ/USACE	Low/Minimal floodflow alteration, sediment/toxicant retention and nutrient removal	2:1
II	PEM ditch, contains vegetation communities with high structural diversity and low species diversity with well-established invasive species populations	0.52	0.52	MDEQ	Low/ minimal floodflow alteration, sediment/toxicant retention and nutrient removal	1.5:1
JJ	PSS established spoil area	1.37	1.37	MDEQ	Low/ minimal floodflow alteration, sediment/toxicant retention and nutrient removal	1.5:1
KK	PFO linear wetland, connected to the South Canal	1.62	1.62	MDEQ/USACE	Low/ floodflow alteration, sediment/toxicant retention, nutrient removal, marginal wildlife habitat for edge species	2:1
South Canal	PEM Great Lakes marsh hydrologically connected to Lake Erie	1.97	1.17	MDEQ/USACE	Medium/ fish and wildlife habitat, floodflow alteration, sediment, toxicant retention and nutrient removal	5:1

Figure 1: Site Location Map



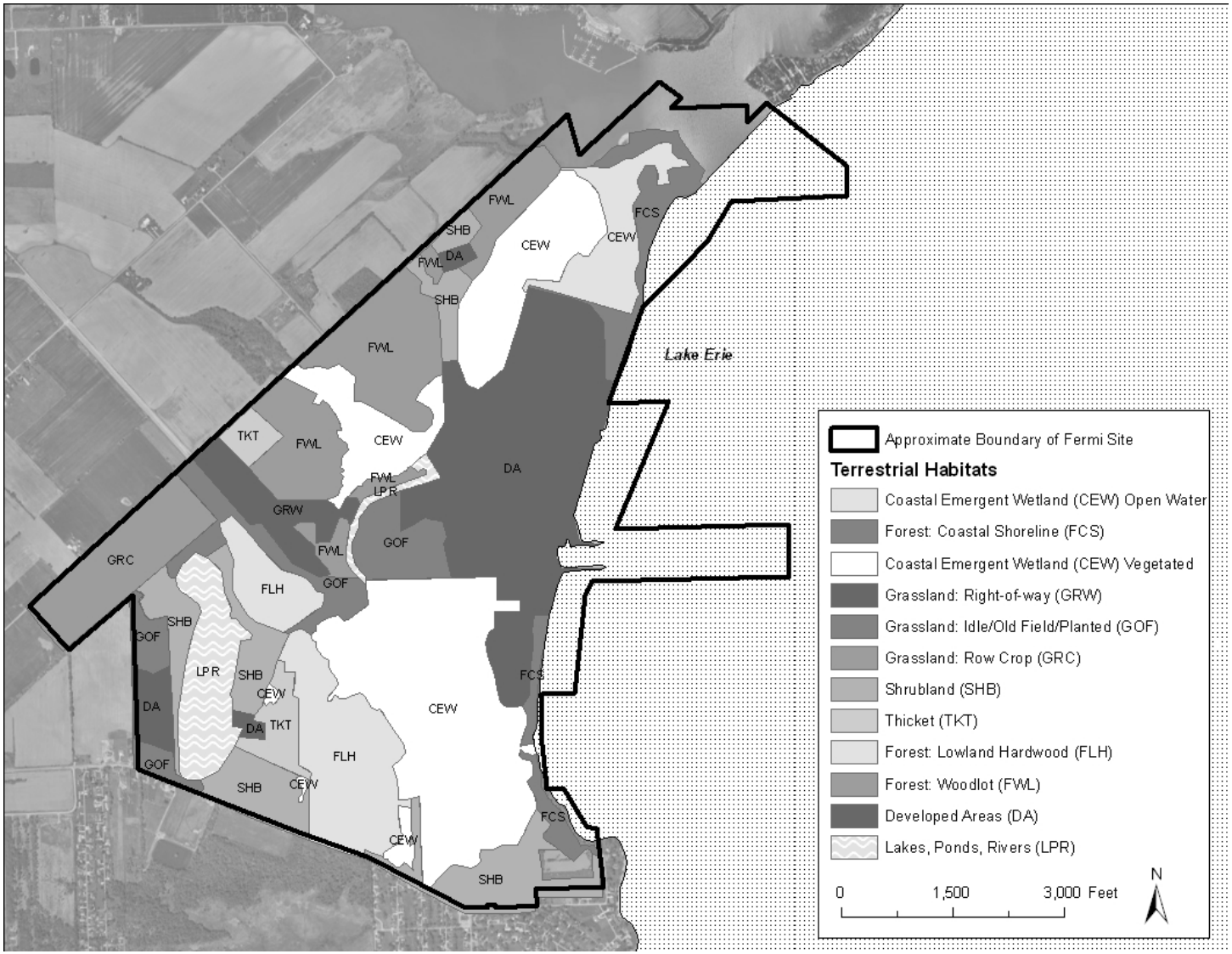
Source: Reference 24

Figure 2: Wetland Impact Area Map



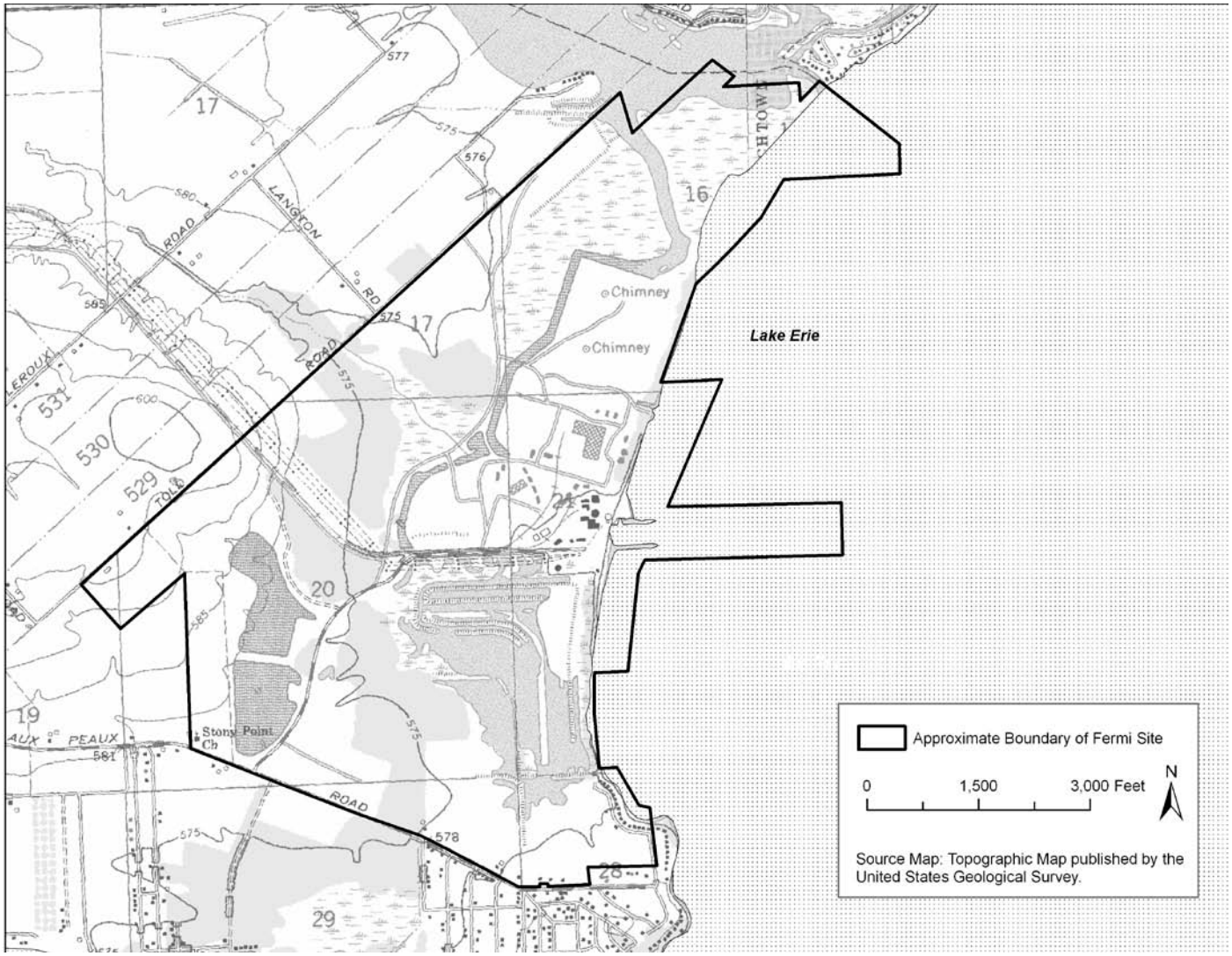
Source: Reference 24

Figure 3: Land Uses on the Fermi Site



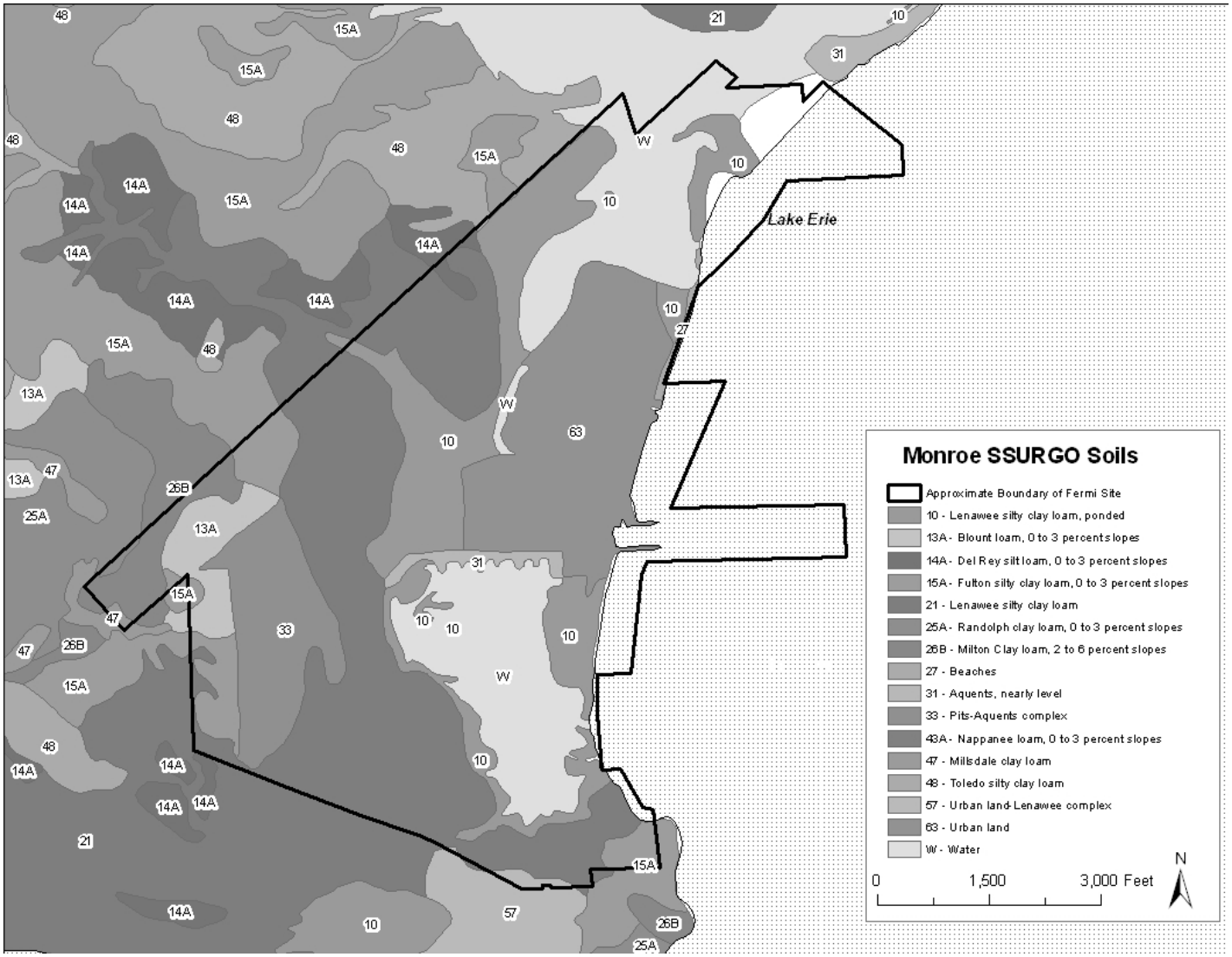
Source: Reference 2

Figure 4: Topography of the Fermi Site



Source: Reference 31

Figure 5: Soil Types on the Fermi Site



Source: Reference 32

Figure 6: Observed Locations of American Lotus on the Fermi Site

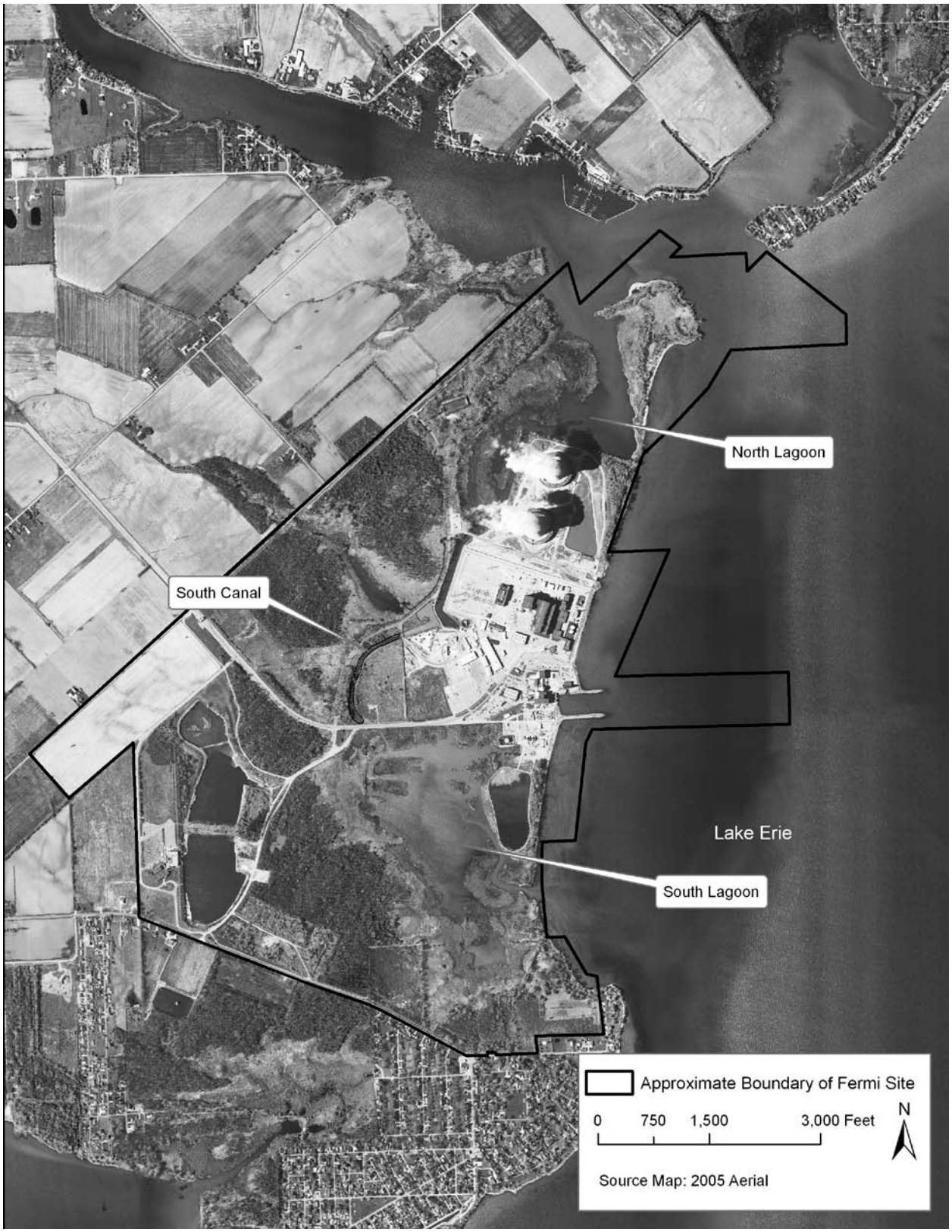


Figure 7: Culvert Locations on the Fermi Site

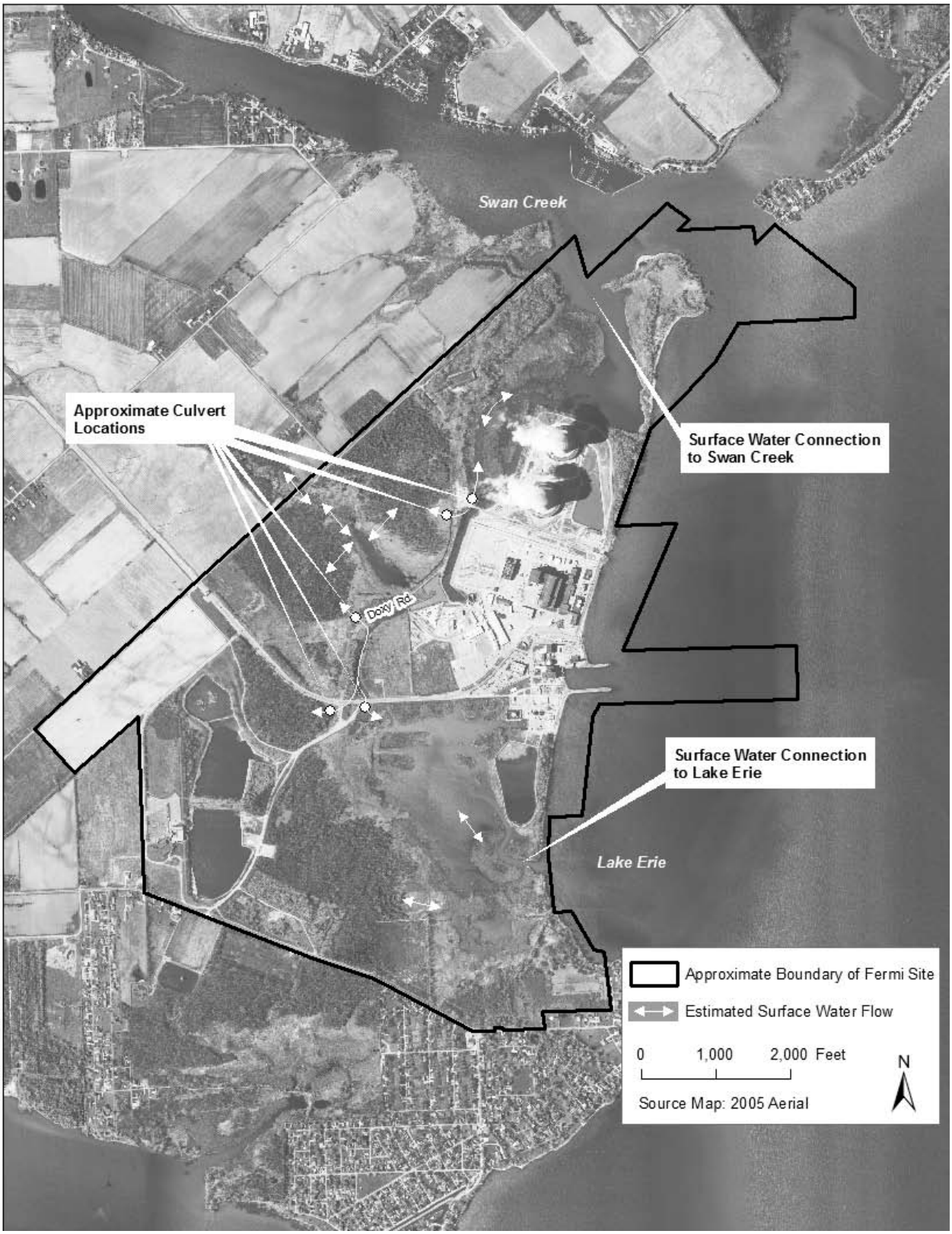


Figure 8: Wetlands Delineated on the Fermi Site

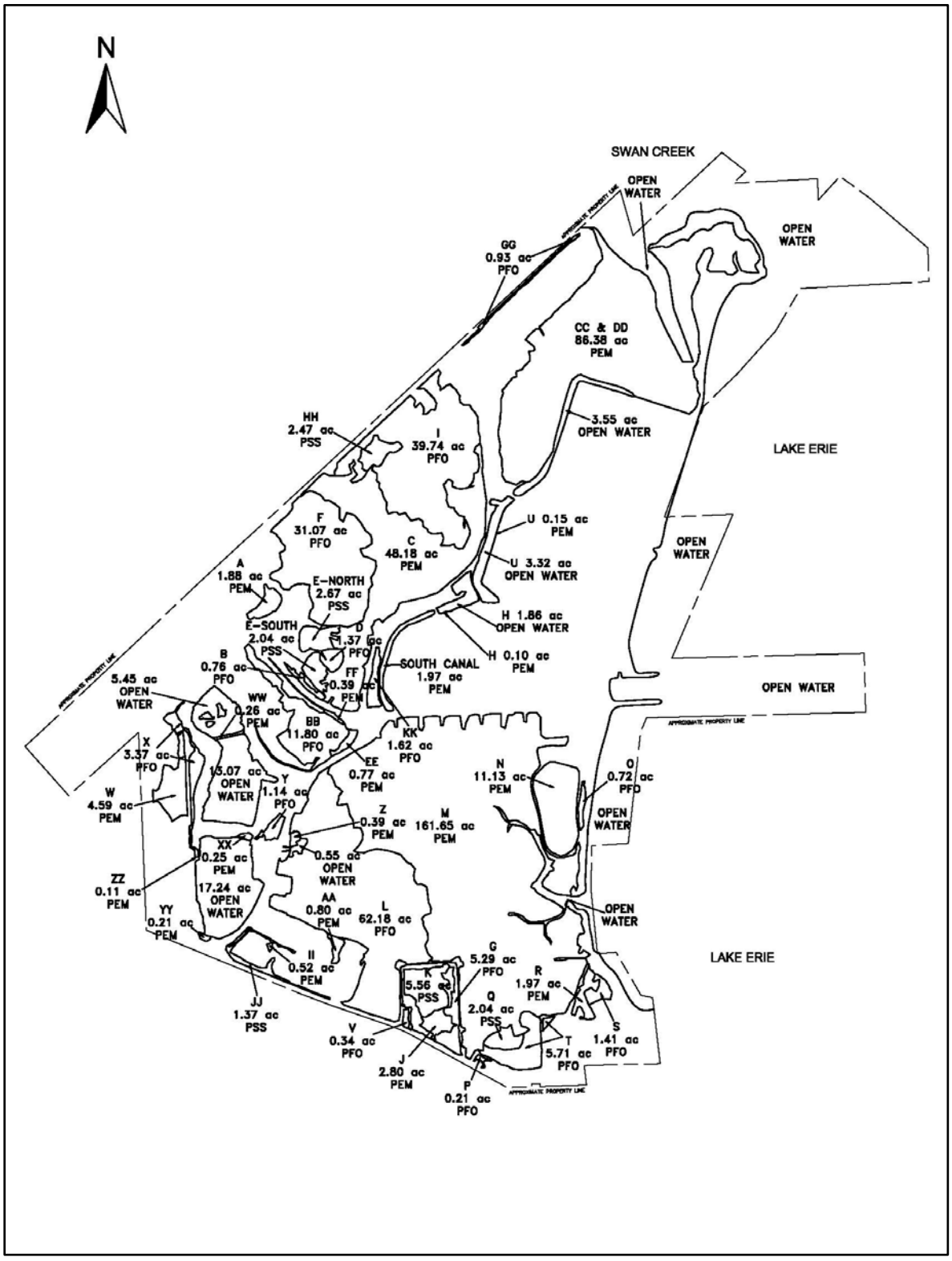
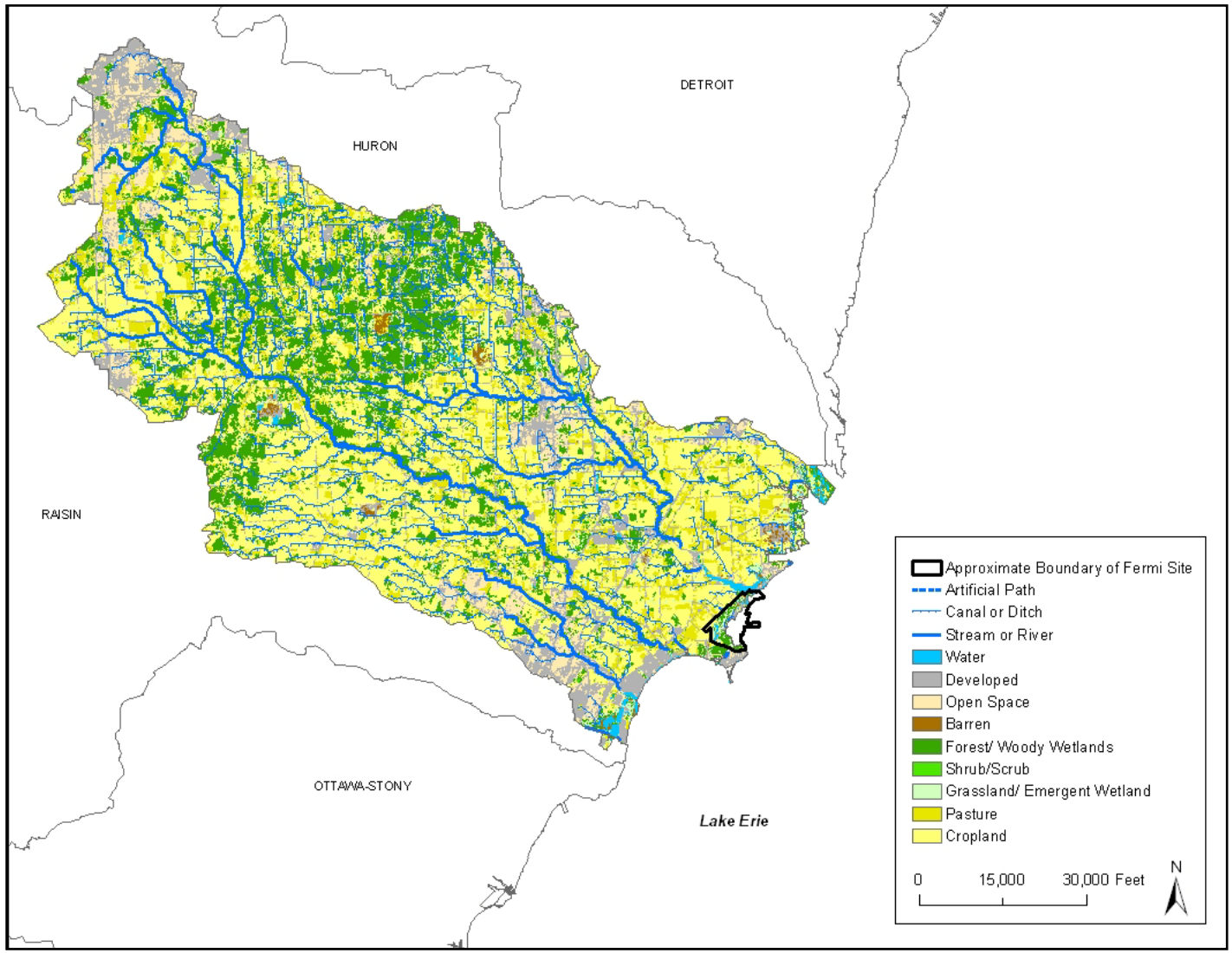
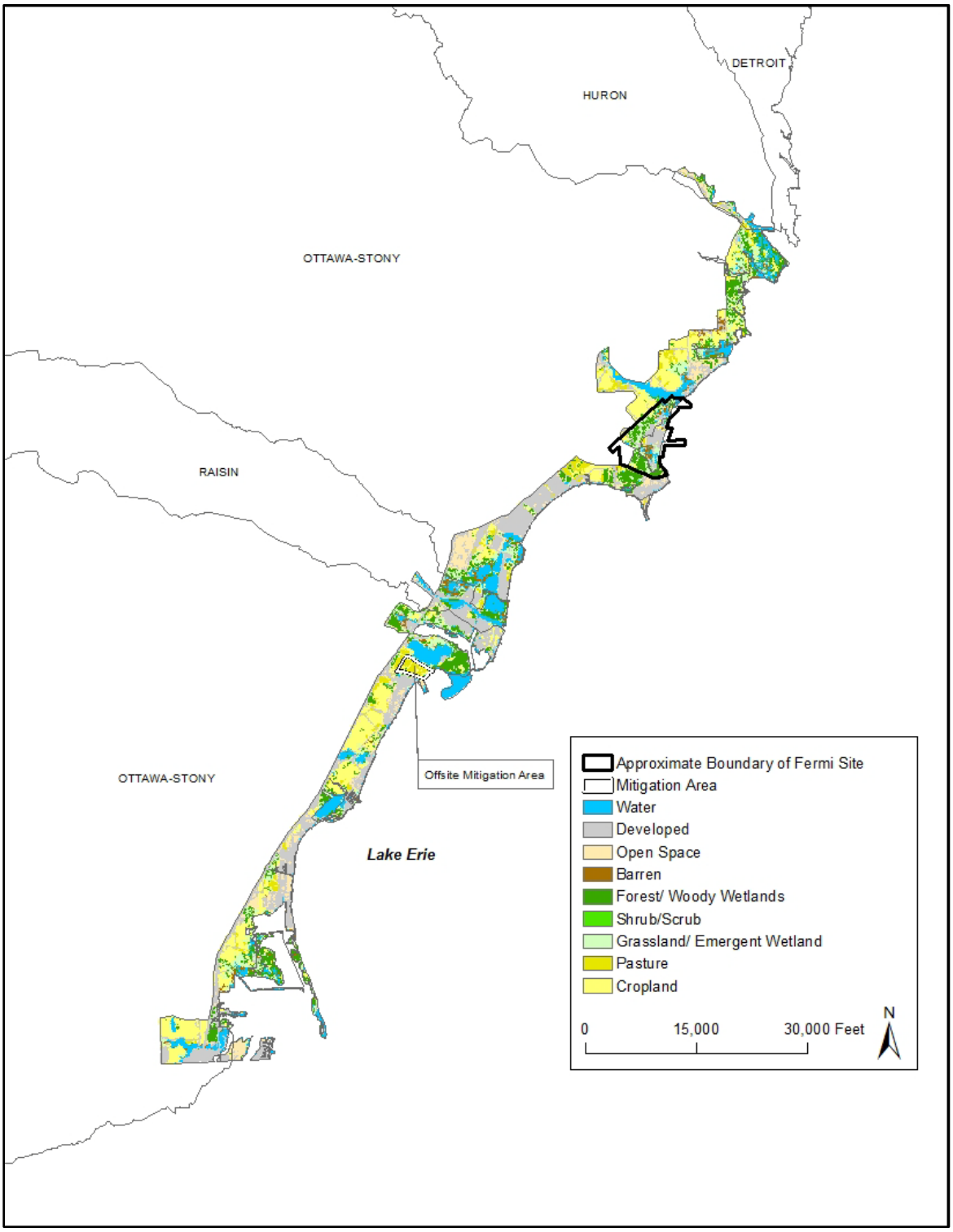


Figure 9: Land Use Land Cover (2001) in the Ottawa-Stony Watershed



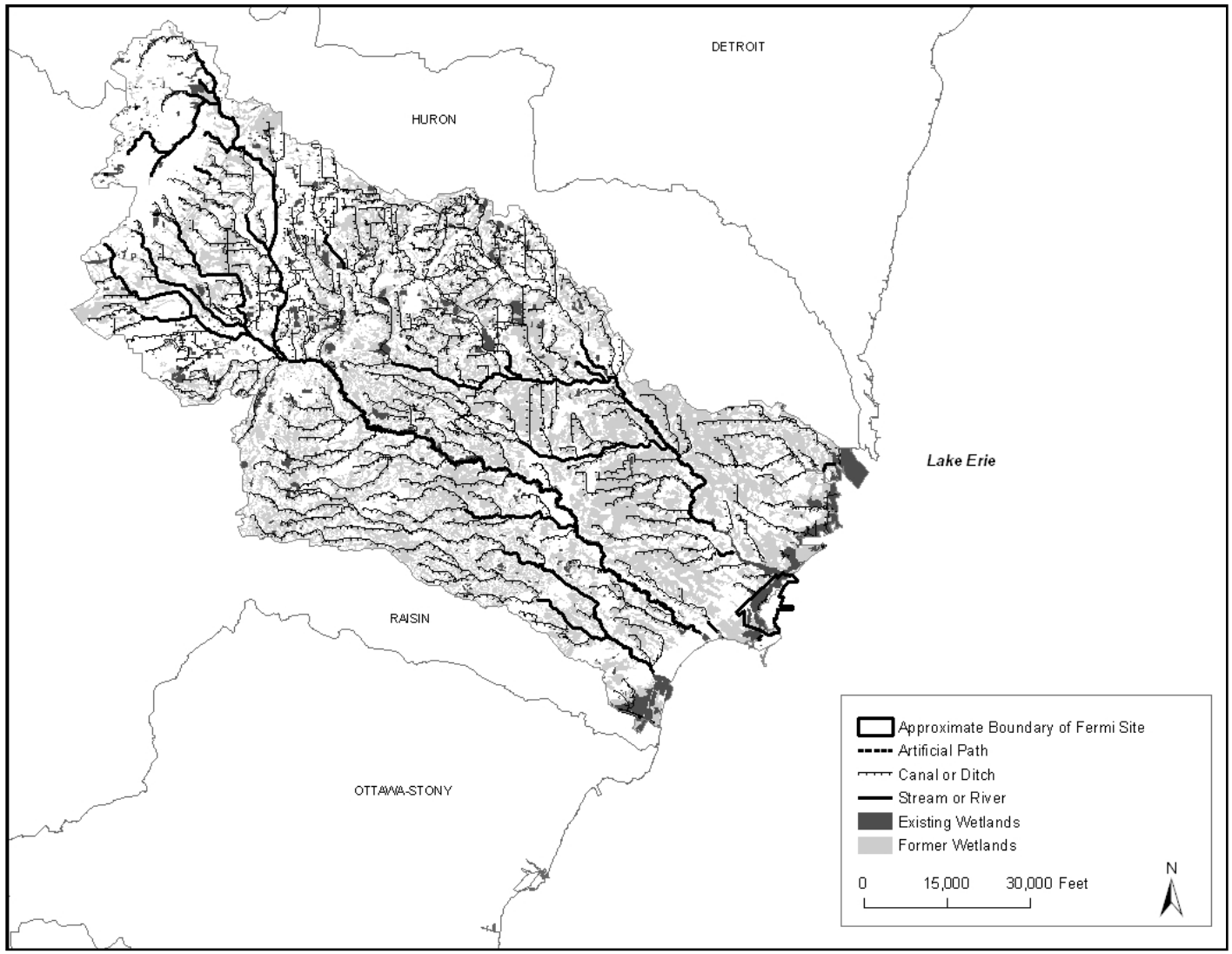
Source: Reference 25 and Reference 26

Figure 10: Land Use Land Cover (2001) in the Coastal Zone of Lake Erie



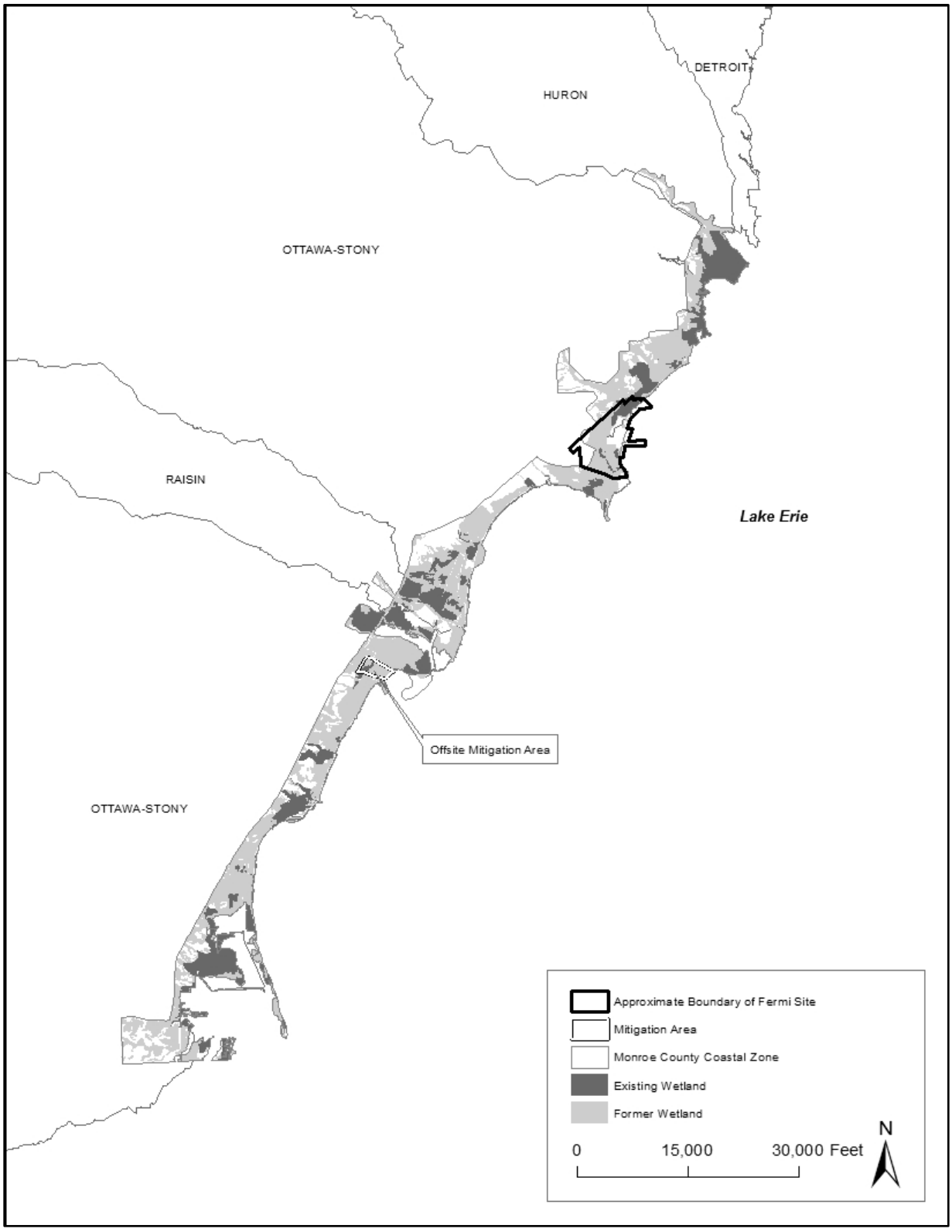
Source: Reference 26 and Reference 27

Figure 11: Existing and Former Wetlands in the Ottawa-Stony Watershed



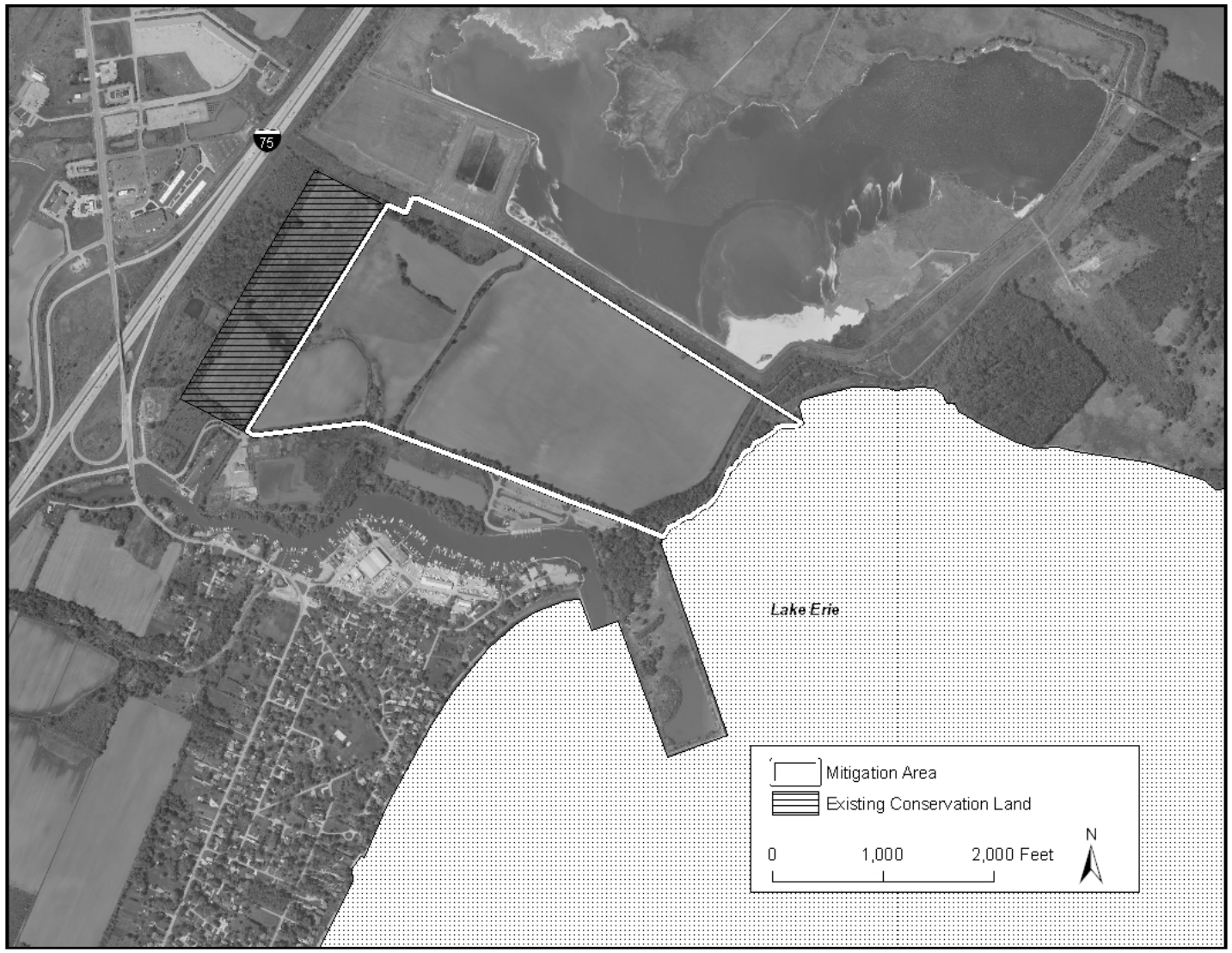
Source: Reference 25 and Reference 28 through Reference 30

Figure 12: Existing and Former Wetlands in the Coastal Zone of Lake Erie



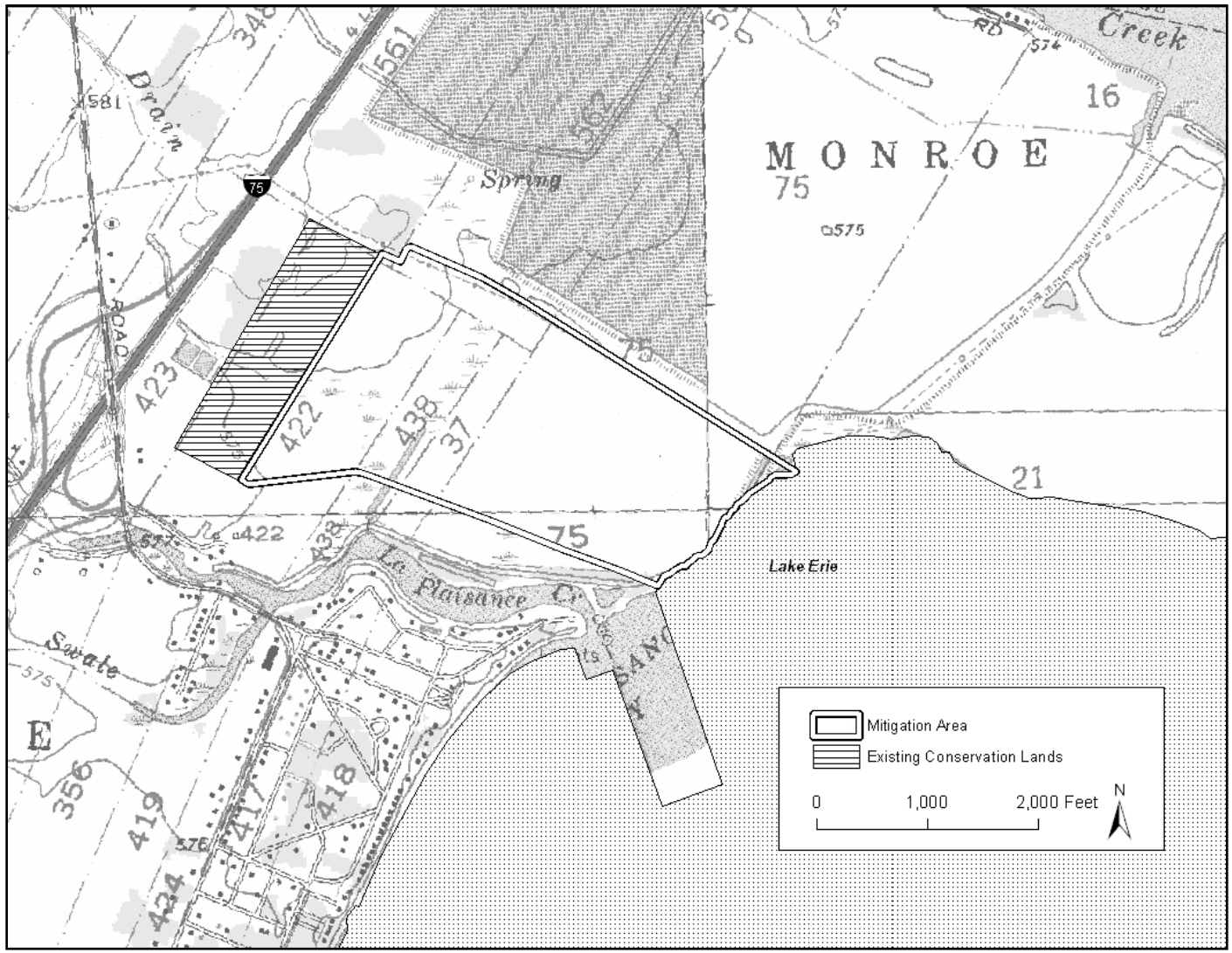
Source: Reference 27 and Reference 30

Figure 13: Offsite Mitigation Project Area Aerial Photo



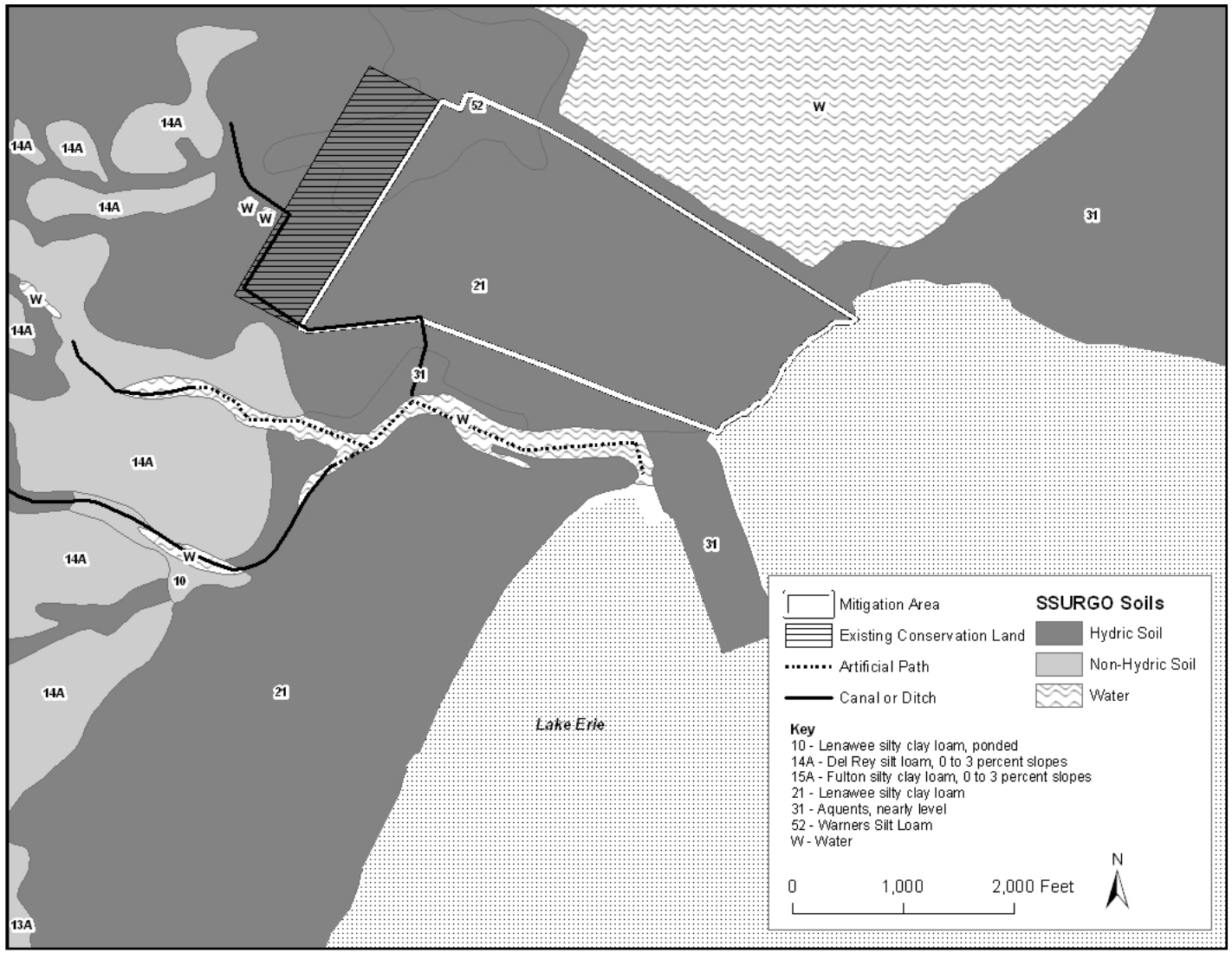
Source: Reference 24

Figure 14: Offsite Mitigation Area Topographic Map



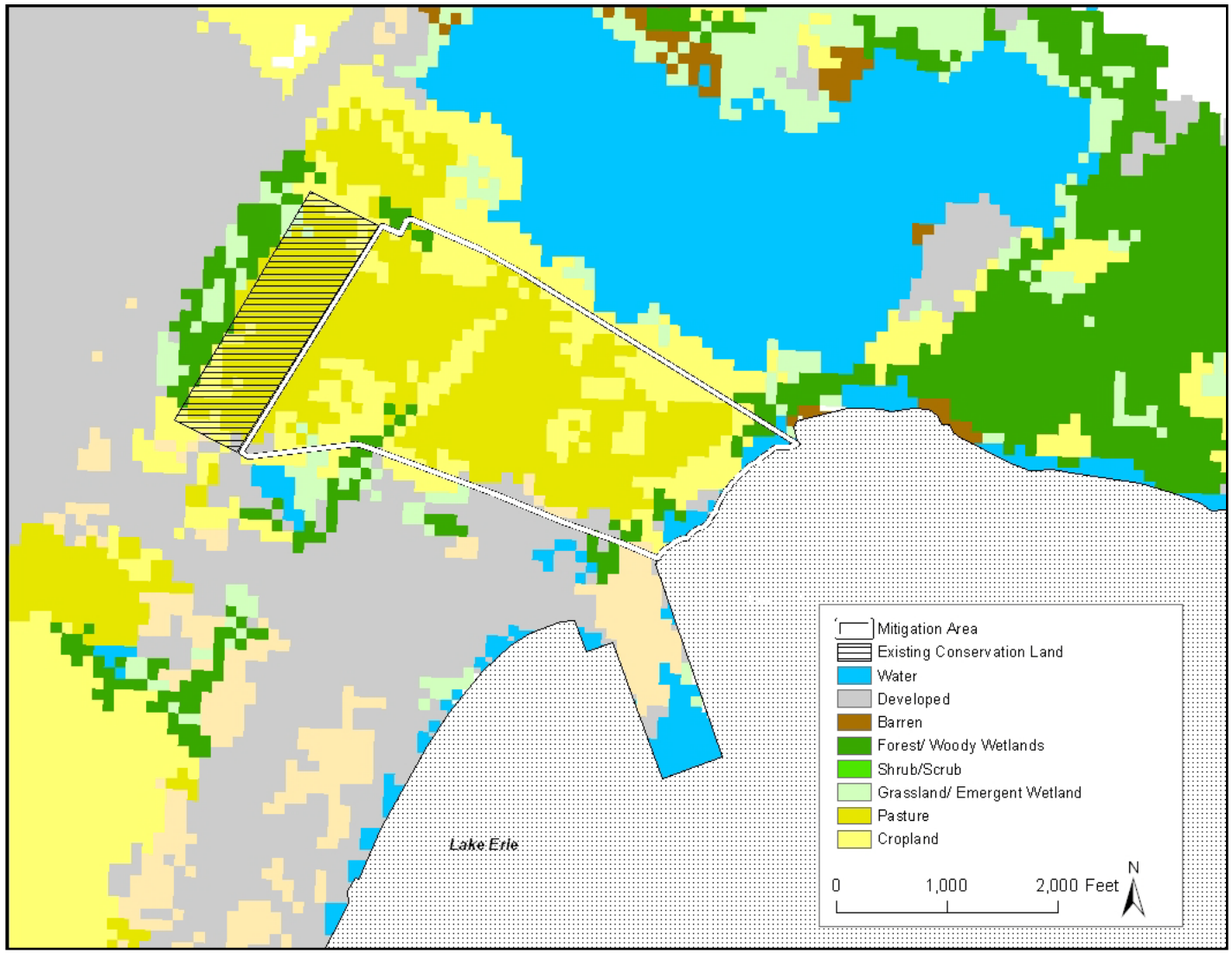
Source: Reference 31

Figure 15: Offsite Mitigation Area Soils and Hydrology Map



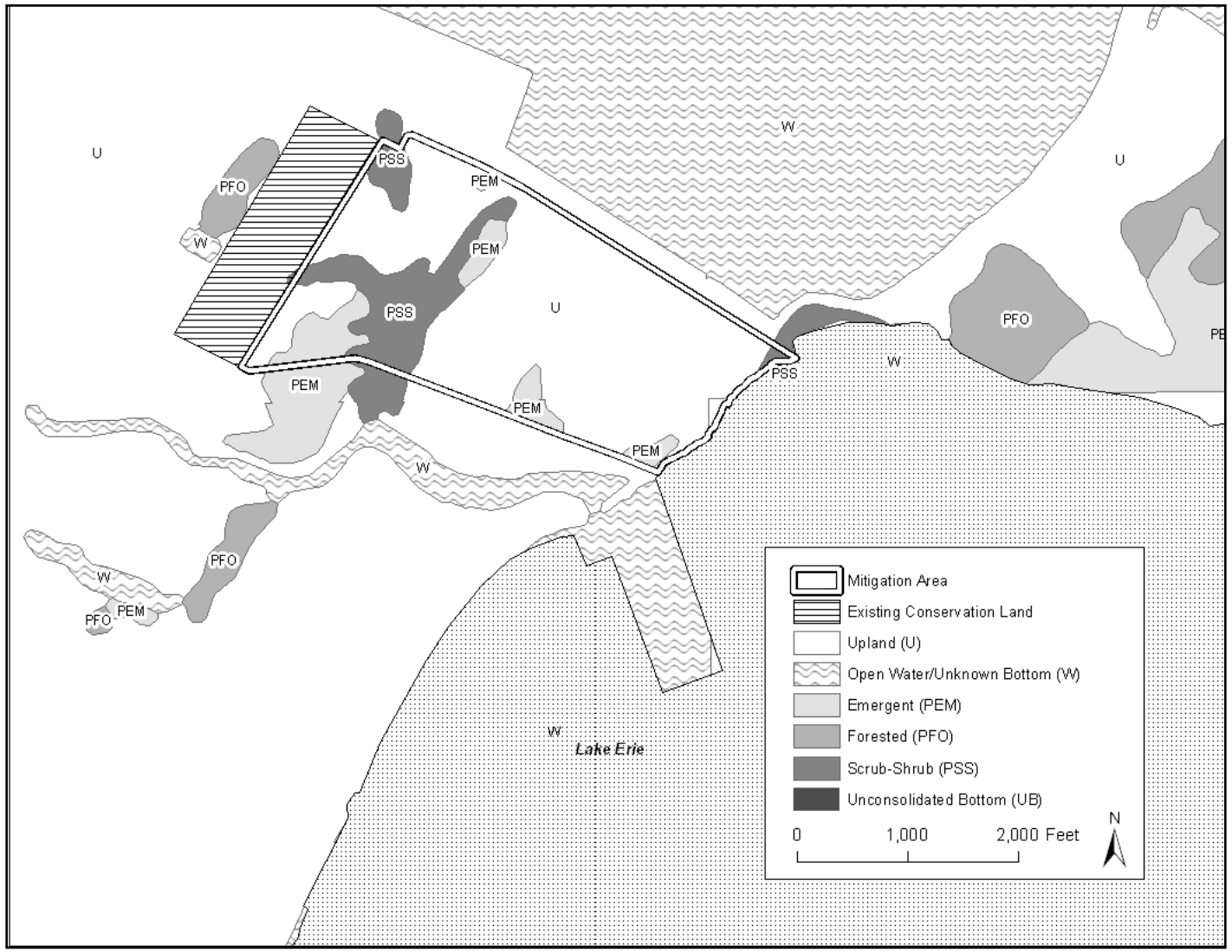
Source: Reference 25 and Reference 32

Figure 16: Offsite Mitigation Area Covertype Map



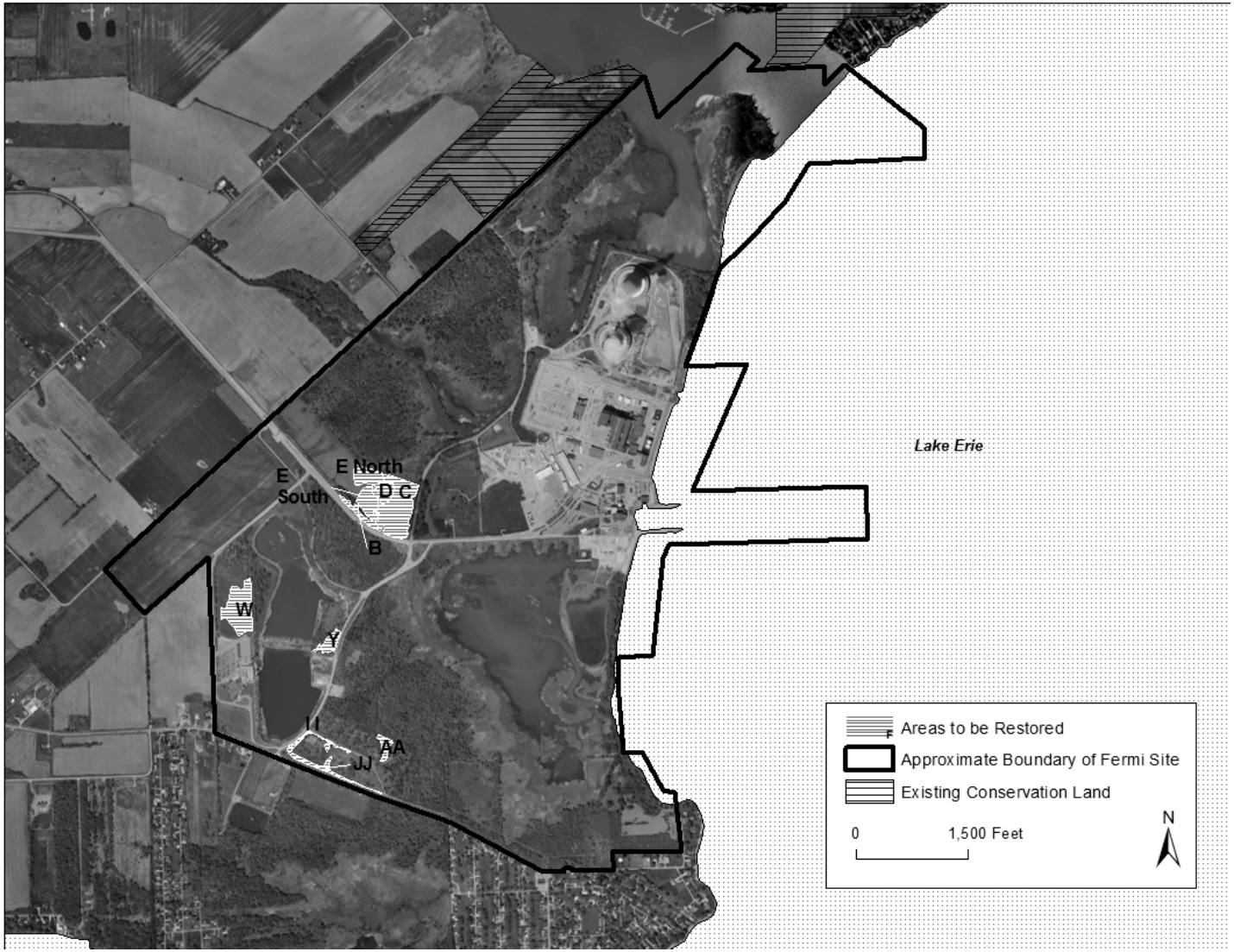
Source: Reference 26

Figure 17: Offsite Mitigation Area Federal Mapped Wetlands



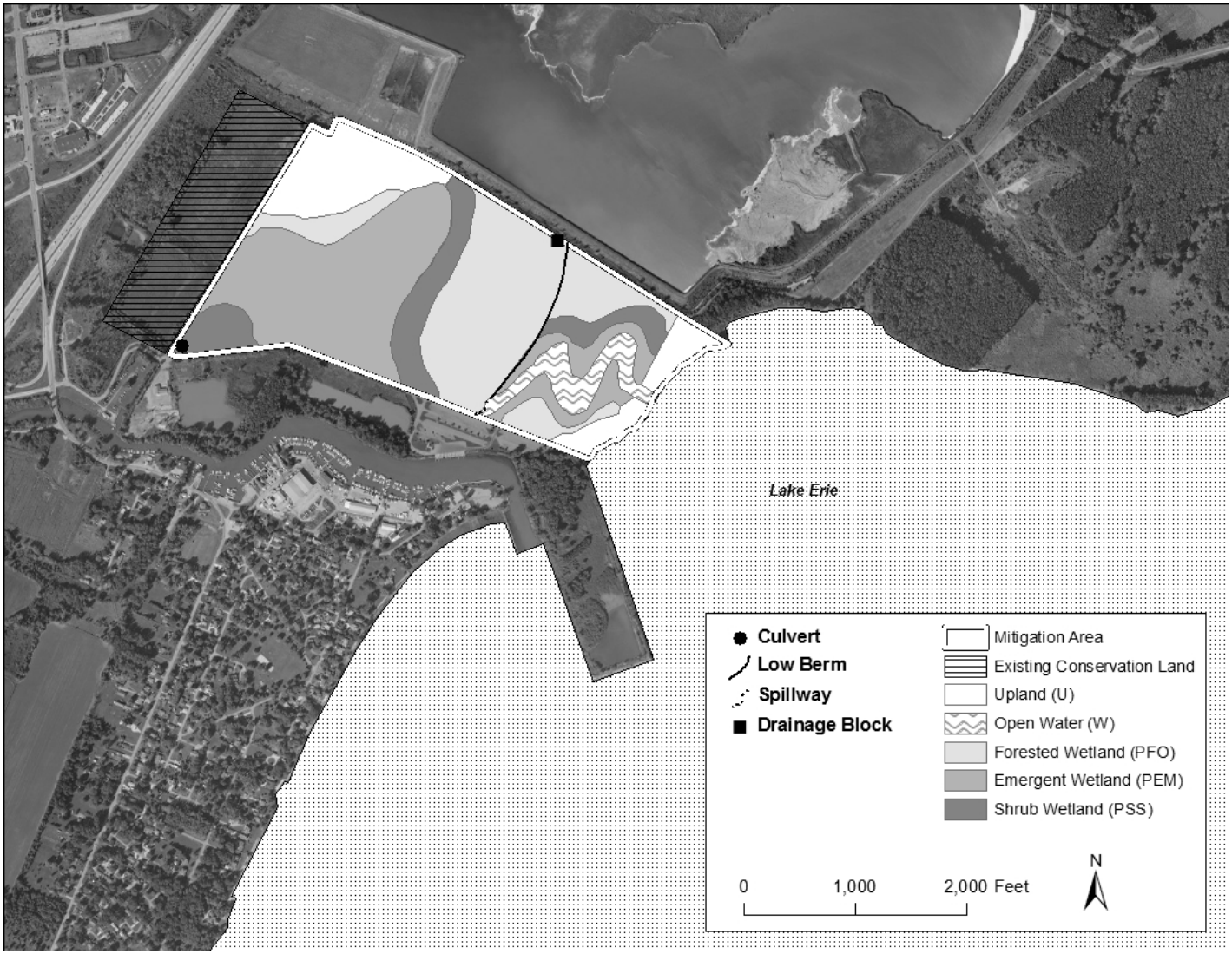
Source: Reference 30

Figure 18: Onsite Mitigation Conceptual Plan



Source: Reference 24

Figure 19: Offsite Mitigation Conceptual Plan



Source: Reference 24

Attachment 12-14

Section 12:
Activities that May Impact Wetlands

Detroit Edison Correspondence with MDNRE
(following 4 pages)

The Detroit Edison Company
One Energy Plaza, Detroit, MI 48226-1279

DTE Energy
Detroit Edison

December 15, 2010
2010-MEP-F3COLA-0071

Michigan Department of Natural Resources and Environment
Attention: Katherine David
P.O. Box 30473
Lansing, MI 48909

Subject: Letter of Understanding, Documenting Conclusions of the Fermi Site Meeting October 7, 2010

Dear Ms. David,

This letter is a follow-up to the onsite meeting held at the Fermi location on October 7, 2010. Based on review of wetlands and discussions with the Michigan Department of Natural Resources and Environment (MDNRE) on October 7, 2010, this letter describes Detroit Edison's understanding of the compensation ratios that MDNRE will require to mitigate impacts to wetlands which may result from future Fermi 3 construction activities.

Wetland evaluations and ratios provided in this letter are based on the following:

- A review of wetland types using the wetland classification system presented in the Fermi 3 Combined Operating License Application (Attachment 1)
- A review of wetland types using the Natural Communities of Michigan: Classification and Description, 2007
- The September 13, 2010 discussion with MDNRE regarding the Fermi Site Wetlands Overview (Attachment 2)
- Section 324.30301 of Michigan's Natural Resources and Environmental Protection Act
- The October 7, 2010 onsite review and discussion of wetlands and mitigation ratios with MDNRE.

The following attachments referenced in this letter are contained on the enclosed CD:

- Attachment 1 – Fermi Site Wetland Delineation
- Attachment 2 – Fermi Site Wetlands Overview and Meeting Notes
- Attachment 3 – *Fermi 3 Extended Terrestrial Vegetation Survey Final Report*, Black and Veatch, October 2009

- Attachment 4 – *Aquatic Ecology Characterization Report Detroit Edison Company Fermi 3 Project Final Report*, AECOM Environment, November 2009
- Attachment 5 – Canal Survey
- Attachment 6 – Water Elevation in Canals at Culvert Crossings

Wetlands and Compensation Ratios

- Wetlands I, L, F and the combined area of Wetlands BB, EE, and FF represent relatively intact coastal wetlands with vegetation communities typical of southern hardwood swamps. Southern hardwood swamp is a Michigan Natural Community that is considered rare and imperiled by MDNRE and the compensation ratio for any impacts will be made at a ratio of 5:1. MDNRE requested the vegetation analysis for Wetland BB and it is provided in Attachment 3.

- Wetlands C and M represent the Great Lakes marsh Michigan Natural Community which is considered rare and imperiled by MNDRE. The compensation ratio for impacts to these wetlands will be made at 5:1.

- Wetland A is a small, isolated wetland that does not represent a Michigan Natural Community but is regulated by MDNRE. The compensation ratio for impacts to this wetland will be made at 1.5:1.

- Wetland AA is an emergent marsh dominated by non-native species. It does not represent a Michigan Natural Community but maintains a connection to Lake Erie. The compensation ratio for impacts to this wetland will be made at 2:1.

- Wetland II and JJ are located along roadside ditches. They do not represent a Michigan Natural Community and are non-coastal. The compensation ratio for impacts to these areas will be made at 1.5:1.

- Wetlands B, D and Y are forested wetlands and are similar in composition. These areas each have a high level of disturbance with both pioneer and non-native species being the major representatives. The wetlands are coastal, but do not represent a Michigan Natural Community. The compensation ratio for impacts to these wetlands will be made at 2:1.

- The southern canal, located to the east of and adjacent to wetland KK, is connected to Wetland M and Lake Erie. The area is shallow enough to support vegetation zones typical of Great Lakes marsh communities including submerged aquatic, floating-leaved, weak-stemmed, and robust emergent vegetation. The Great Lakes marsh Michigan Natural Community is considered rare and imperiled by MNDRE. The compensation ratio for impacts to these wetlands will be made at 5:1 and will integrate the functions and values that this area supports for aquatic species (Attachment 4).

- The wetland edge along H and U is narrow, steep and dominated by invasive species. Compensation ratio for impacts to wetland edge in H and U will be made at 1.5:1. The open water areas of H and U are not considered wetland and there is no mitigation proposed for any impacts to these areas. MDNRE asked to review the aquatic species present in H and U (Attachment 4) and elevation survey data. The canal survey data for H, U, and for the southern canal (discussed above) is provided in Attachment 5.

- Wetland KK is a highly disturbed, early successional forested wetland that, while connected to the coastal system, is not a natural community. The compensation for impacts to this wetland will be made at 2:1.

- Wetland E is shown represented on the map in two distinct parts, one more northerly and one more southerly. The northern portion is an emergent marsh/wet meadow that does not represent a Michigan Natural Community and the southern portion could be either a southern shrub carr or other coastal wetland type. The compensation ratio for impacts to both of these wetlands will be made at 2:1.

At the October 7, 2010, meeting there was a request that functionality of culverts connecting the canals, wetlands, and Lake Erie be confirmed. Survey elevations were taken at the surface of the water in each of the canals and these data are provided in Attachment 6. All of the connected canals had the same elevation of 572.5', demonstrating that the culverts that connect these canals are functional. Note that the isolated central canal, open water H, displays disconnection from the other canals with a surface elevation of 573.2'.

Detroit Edison requests that MDNRE respond with concurrence, corrections, and comments to this letter within 60 days.

If you have any questions, or need additional information, please contact me at (313) 235-3368.

Sincerely,

Randall D. Westmoreland, Technical Expert
Nuclear Development – Licensing
Detroit Edison Company

Attachments:
1) Fermi Site Wetland Delineation
2) Fermi Site Wetlands Overview and Meeting Notes

3) *Fermi 3 Extended Terrestrial Vegetation Survey Final Report*, Black and Veatch, October 2009
4) *Aquatic Ecology Characterization Report Detroit Edison Company Fermi 3 Project Final Report*, AECOM Environment, November 2009
5) Canal Survey
6) Water Elevation in Canals at Culvert Crossings

cc: Colette Luff, US Army Corps of Engineers
Bruce Olsen, US NRC (with Attachments 2, 5 and 6 as hard copies, i.e. no CD)

Attachment 14-1

Section 14:
Bridges and Culverts

Construction Area 5
(following 4 pages)

Attachment 14-1 Construction Area 5

CONSTRUCTION AREA 5 (SOUTH CANAL) CULVERT

	Existing	**Proposed**
Culvert Type	None	Twin precast 3-sided arch culvert (24 feet x 6 feet)
Entrance Design	N/A	Wingwalls
Total Structure Waterway Opening	360 sq. feet	288 sq. feet
Elevation of Culvert Crown/Bottom of Beam	N/A	577
Elevation of Road Grade at Structure	N/A	Varies (578 to 579)
Elevation of Low Point of Road	N/A	578
Bridge Span Length	N/A	2 feet x 24 feet
Bridge Width (parallel to stream)	N/A	880 feet
Bridge/Culvert Rise	N/A	6 feet
Approach Slope Fill	N/A	N/A
Streambed Within Culvert	570.0 – Downstream 571.0 – Upstream	570.0 – Downstream 571.0 - Upstream
Distance from Low Point of Road to Mid-Point of Crossing	N/A	40 feet

Refer to Figures 12-6B, 14-1A, 14-1B

Attachment 14-1 Construction Area 5

Cross-sectional Area of Primary Channel	360 sq. feet
Average Stream Width at MDEQ and USACE OHWM Outside Structure	
Upstream	60 feet
Downstream	60 feet

Reference Datum Used ☐NGVD 29 ☐NAVD 88 ☒IGLD 85 ☐other

High Water Elevation Not available

Refer to photographs in Attachment 12-6

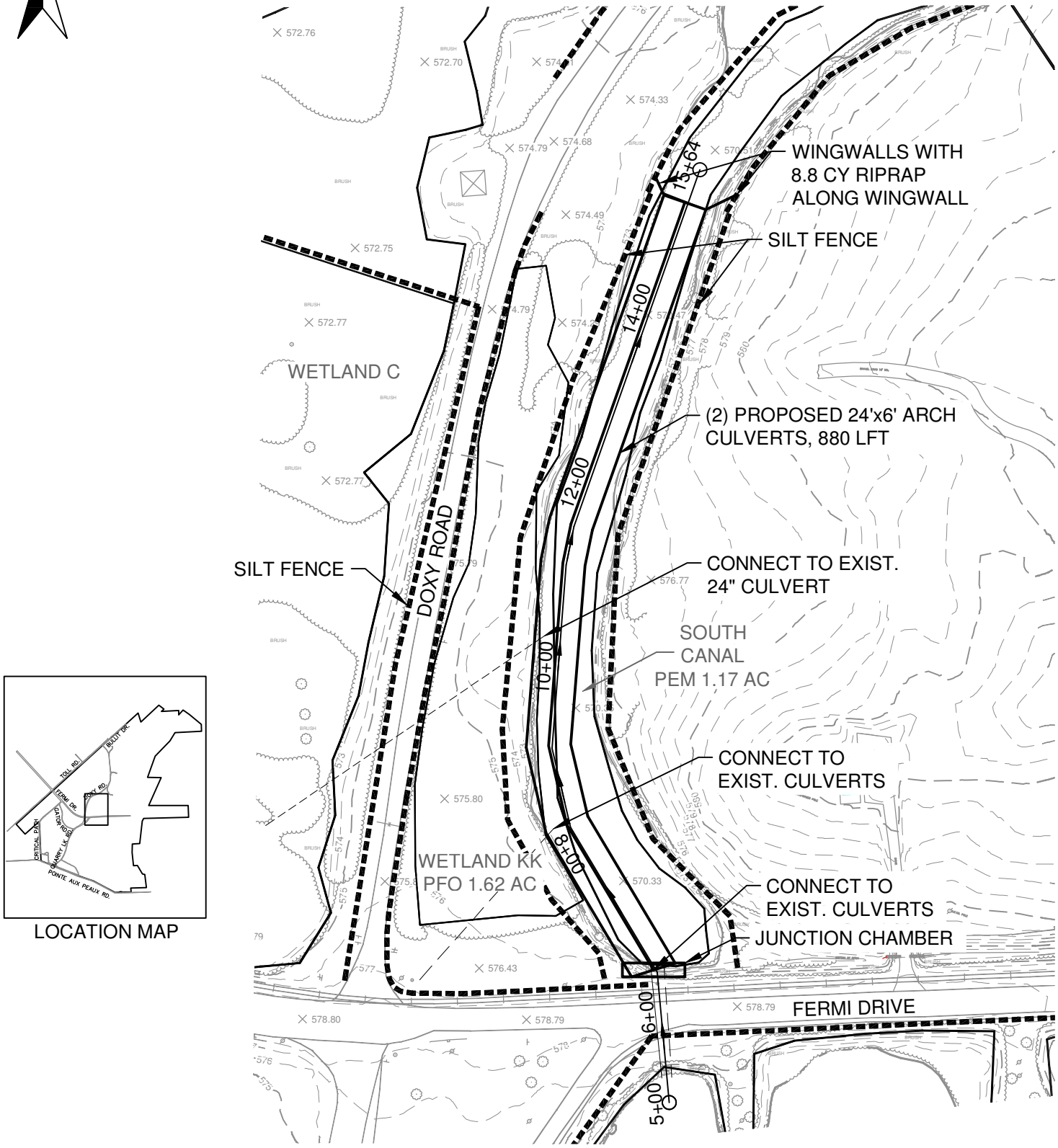


FIGURE 14-1A CONSTRUCTION AREA 5 PLAN VIEW

SCALE: 1"=150'

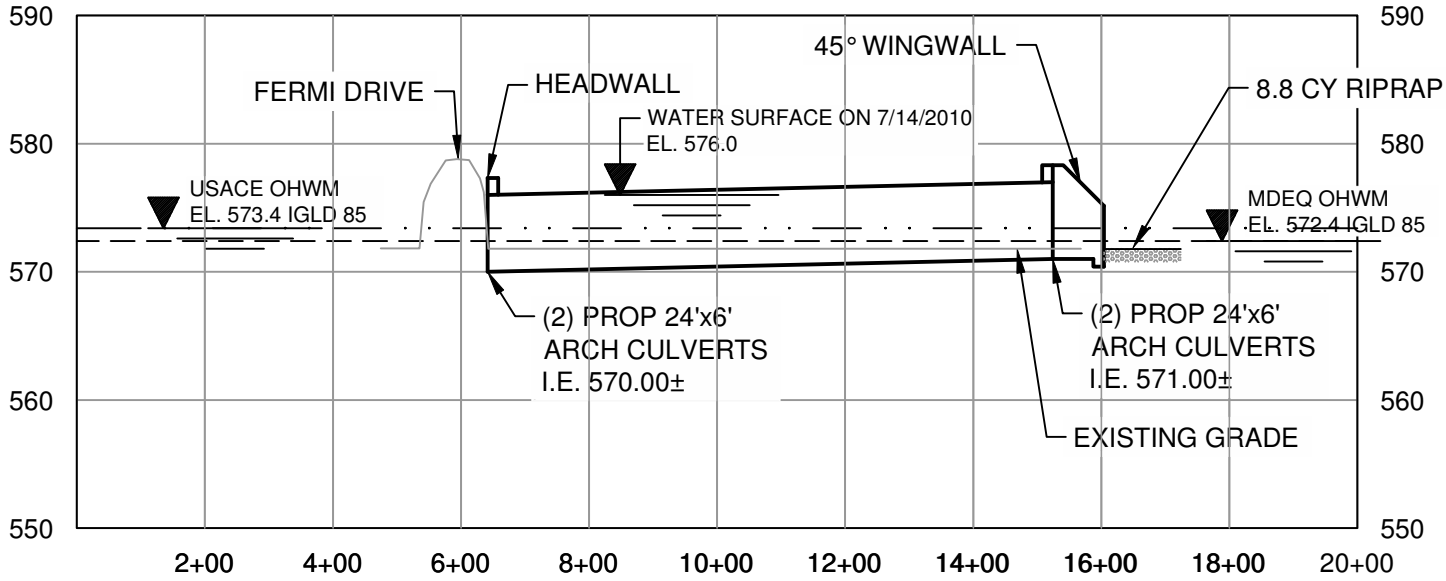


FIGURE 14-1B
CONSTRUCTION AREA 5 PROFILE OF PROPOSED SOUTH CANAL CULVERTS

SCALE: 1"=300' HORZ.; 1"=20' VERT. (IGLD 85 DATUM)

Attachment 14-2

Section 14:
Bridges and Culverts

New Operations Access Road
(following 10 pages)

Attachment 14-2 New Operations Access Road

TOLL ROAD BOX CULVERT

	Existing	**Proposed**
Culvert Type	Steel I-beam bridge	Precast box culvert
Entrance Design	Projecting	Wingwalls
Total Structure Waterway Opening	35 sq. feet	68 sq. feet
Elevation of Culvert Crown/Bottom of Beam	574.6	574.9
Elevation of Road Grade at Structure	575.8	576.76
Elevation of Low Point of Road	575.8	575.8
Bridge Span Length	12 feet	22 feet
Bridge Width (parallel to stream)	14 feet	50 feet
Bridge/Culvert Rise	2.8 feet	3.1 feet
Approach Slope Fill	0 feet	0.96 feet
Streambed Within Culvert	571.8 – Downstream 572.0 – Upstream	571.8 – Downstream 572.0 - Upstream
Distance from Low Point of Road to Mid-Point of Crossing	0 feet	60 feet

Refer to Figures 14-2A through 14-2G

Attachment 14-2 New Operations Access Road

Cross-sectional Area of Primary Channel	75 square feet (within first 6 inches of depth)
Average Stream Width at MDEQ and USACE OHWM Outside Structure	
Upstream	200 feet
Downstream	260 feet
Reference Datum Used	☐NGVD 29 ☐NAVD 88 ☒IGLD 85 ☐other
High Water Elevation	Not available

Included Photos

Photo – 14a: Downstream of existing culvert

Photo – 14b: Downstream of existing culvert

Attachment 14-2 New Operations Access Road

Photo – 14c: Upstream of existing culvert

Photo – 14d: Upstream side of existing culvert

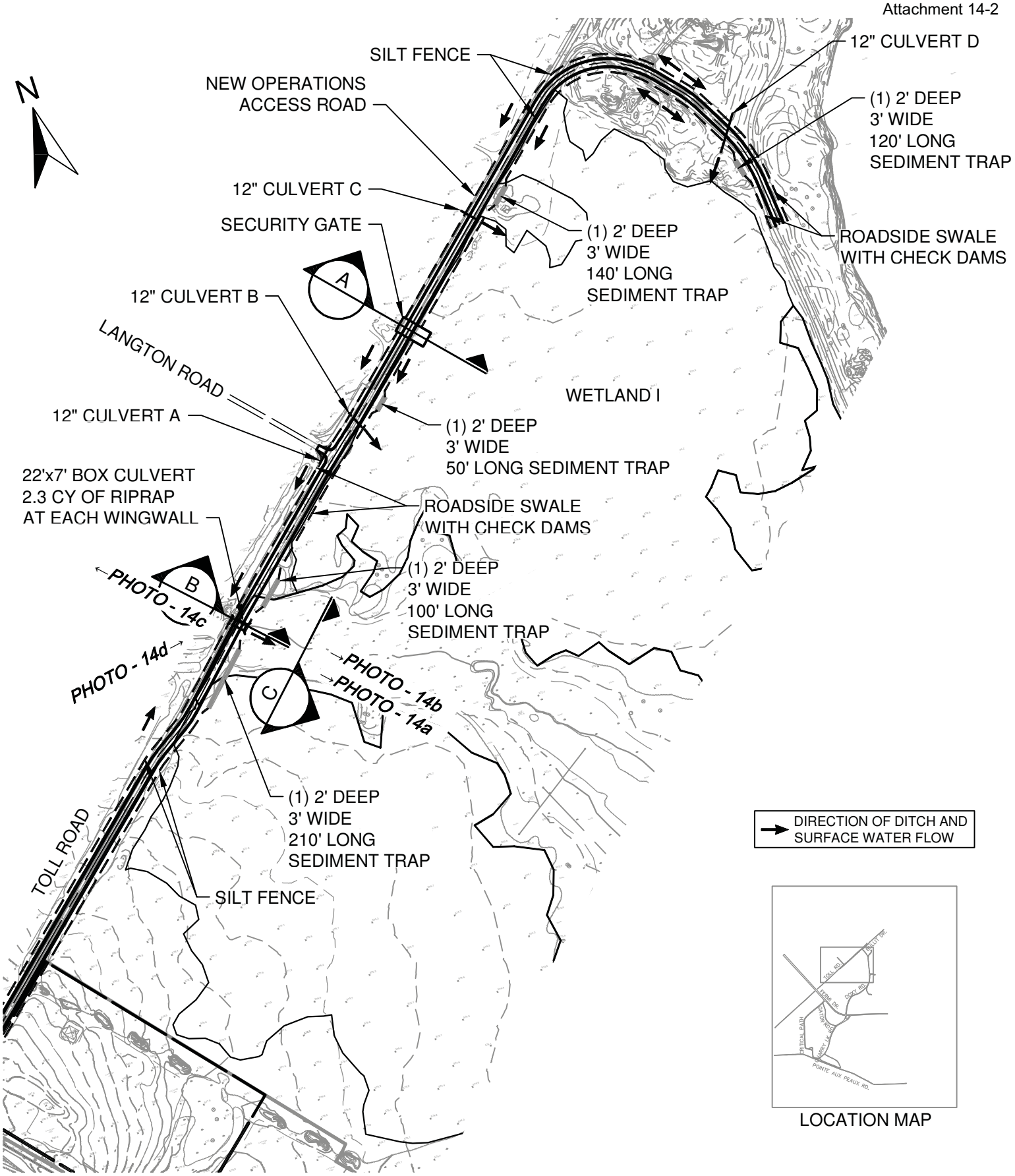
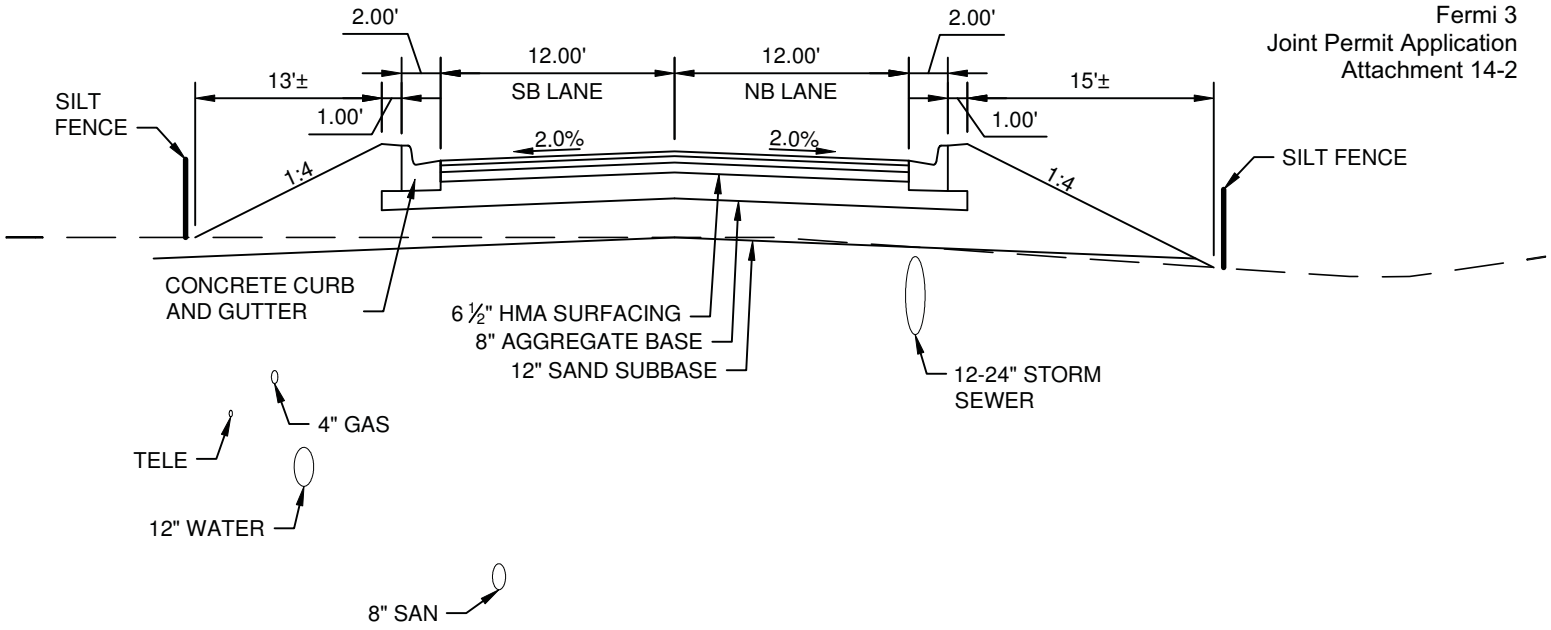


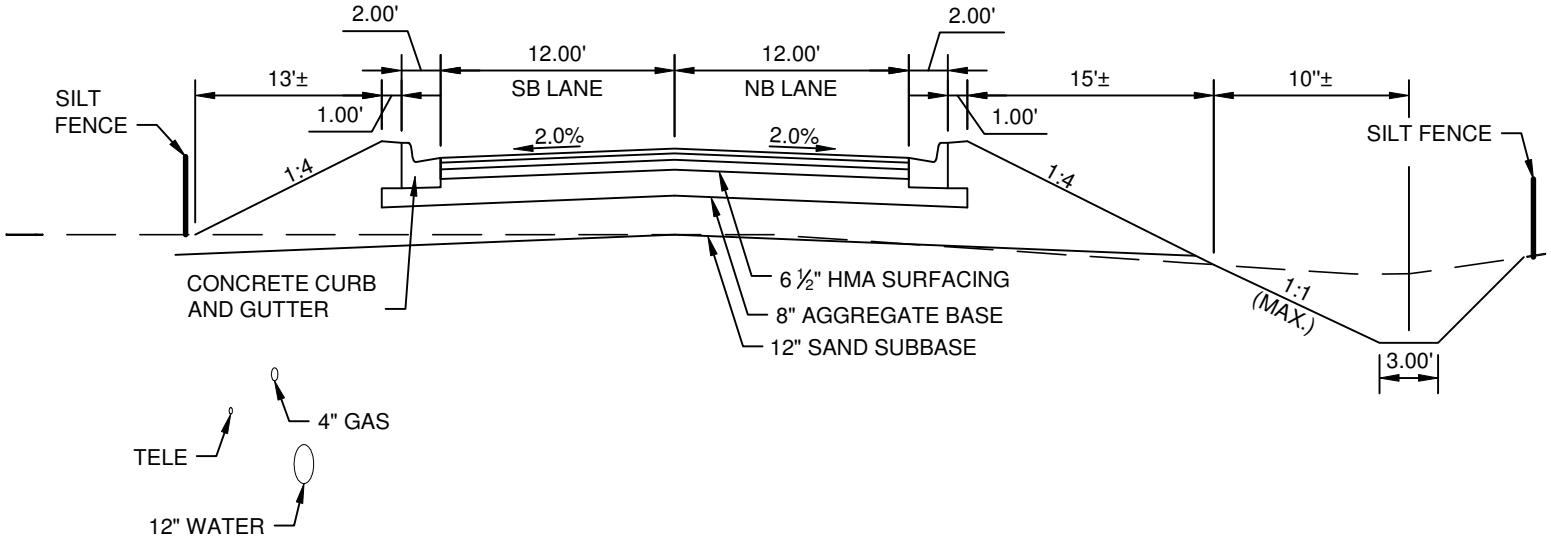
FIGURE 14-2A NEW OPERATIONS ACCESS ROAD PLAN VIEW

SCALE: 1"=500'



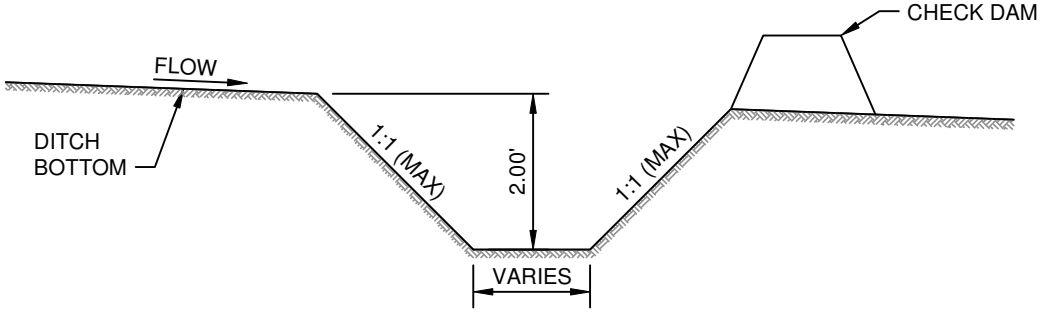
CURB AND GUTTER
TYPICAL SECTION

SCALE: 1"=10'



SEDIMENT TRAP
TYPICAL SECTION

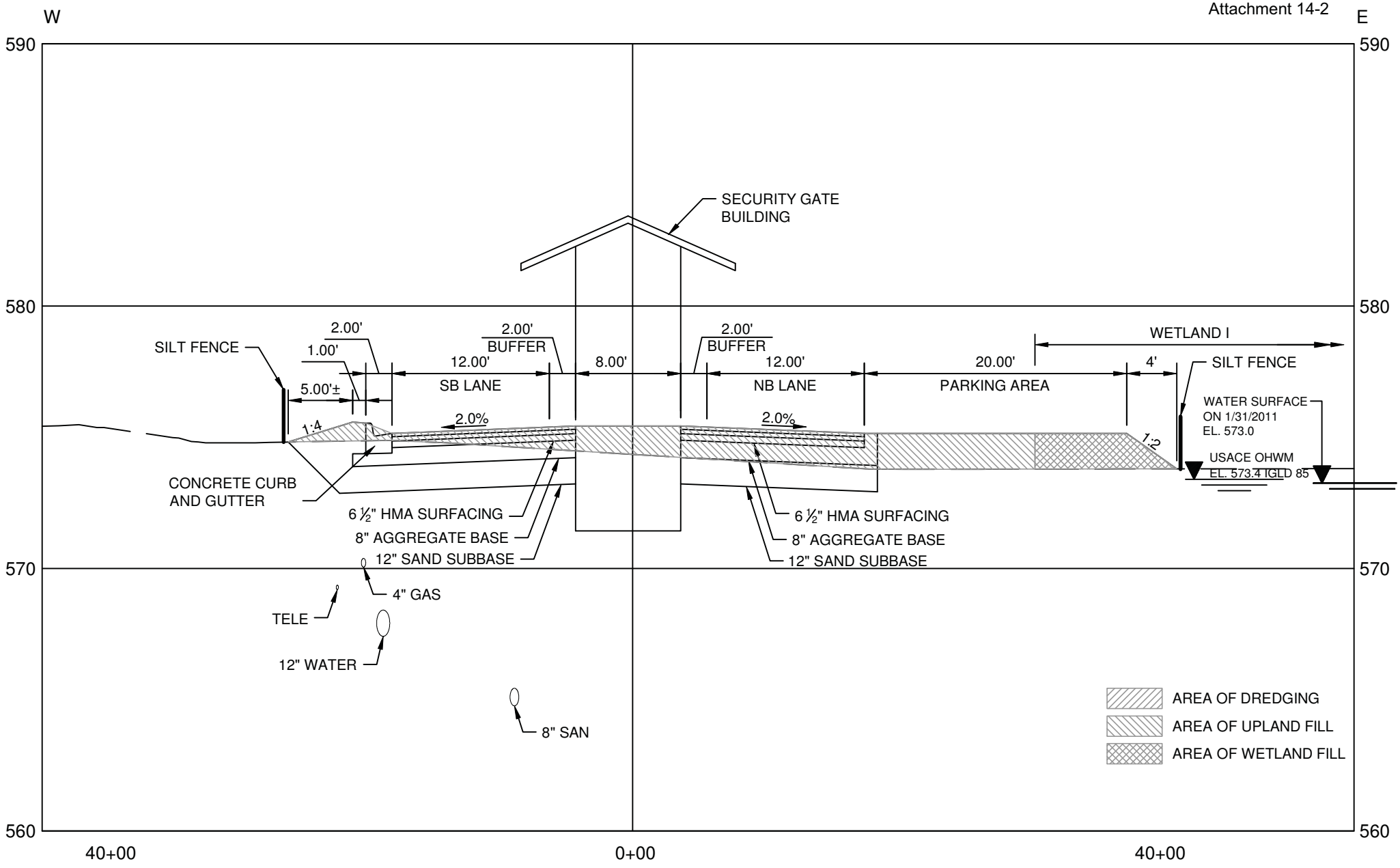
SCALE: 1"=10'



TYPICAL SEDIMENT TRAP
DETAIL PROFILE

SCALE: 1"=5'

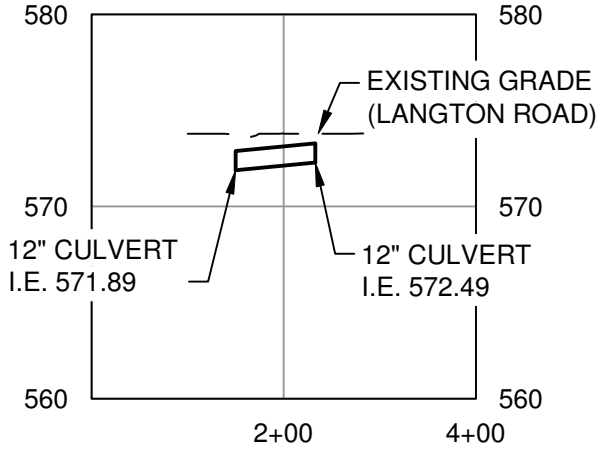
FIGURE 14-2B NEW OPERATIONS ACCESS ROAD
TYPICAL SECTION FOR CURB AND GUTTER
TYPICAL SECTION AND DETAIL PROFILE SEDIMENT TRAP



A SECURITY GATE SECTION

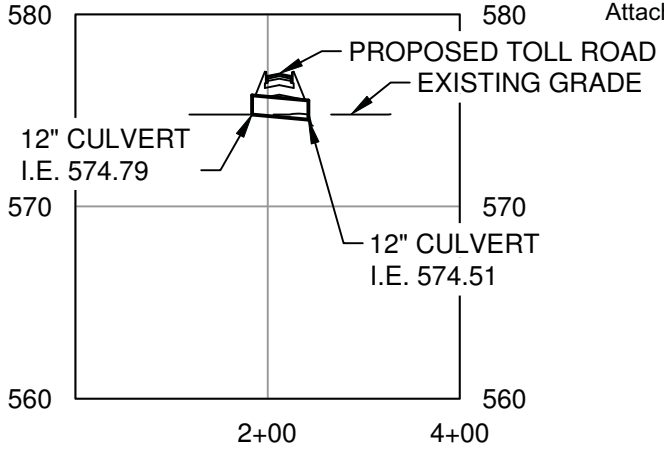
SCALE: 1"=10' HORZ.; 1"=5' VERT. (IGLD 85 DATUM)

FIGURE 14-2C NEW OPERATIONS ACCESS ROAD SECURITY GATE SECTION 'A' DETAILS



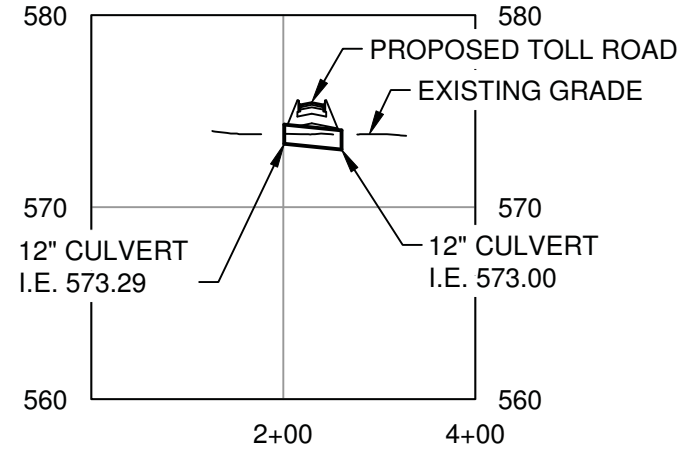
PROFILE OF PROPOSED CULVERT A (LOOKING NORTHWEST)

SCALE: 1"=200' HORZ.;1"=20' VERT. (IGLD 85 DATUM)



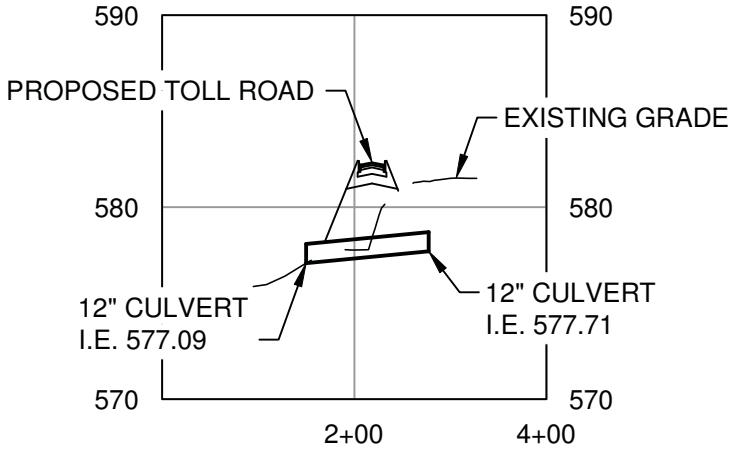
PROFILE OF PROPOSED CULVERT C (LOOKING EAST)

SCALE: 1"=200' HORZ.;1"=20' VERT. (IGLD 85 DATUM)



PROFILE OF PROPOSED CULVERT B (LOOKING EAST)

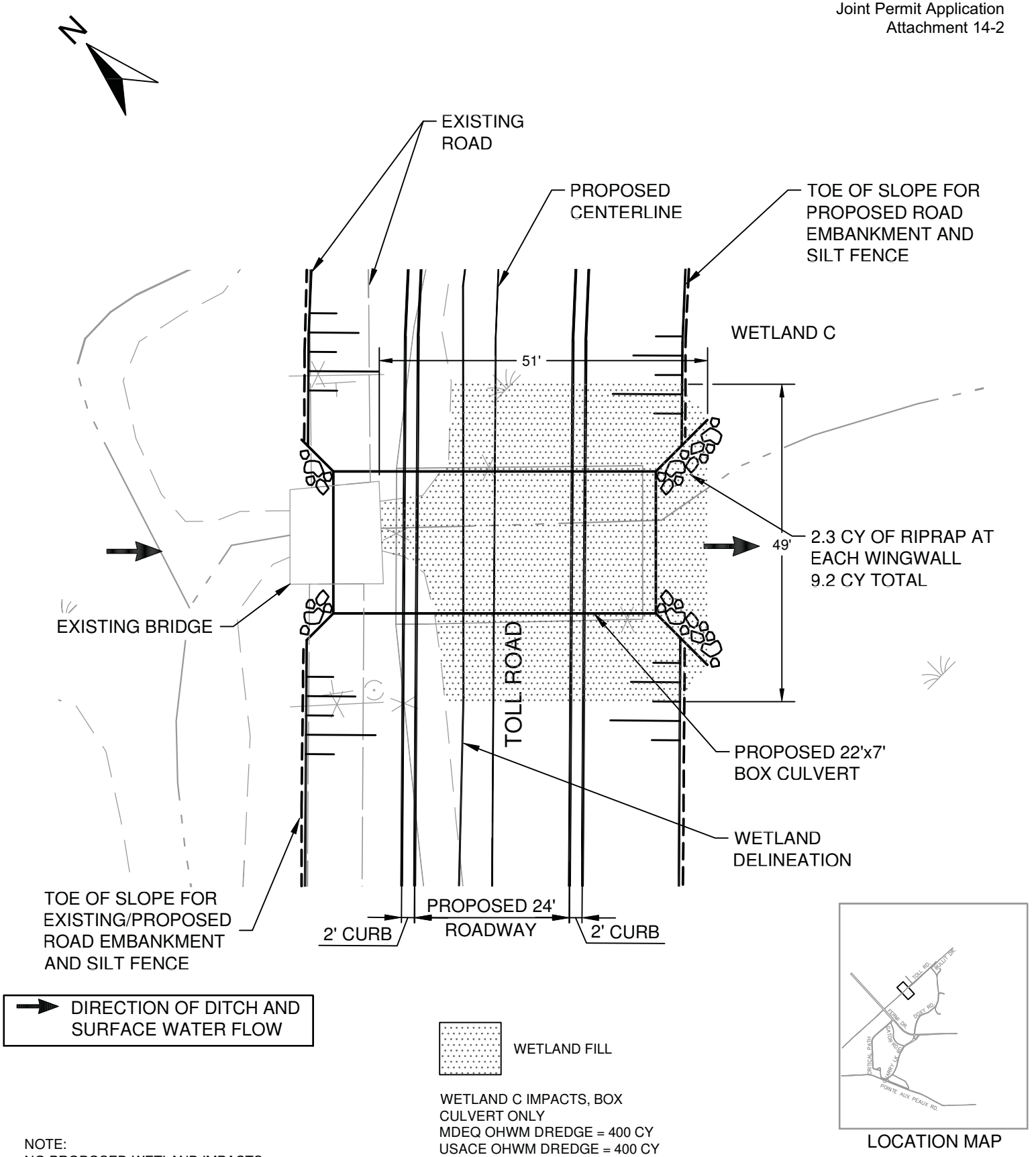
SCALE: 1"=200' HORZ.;1"=20' VERT. (IGLD 85 DATUM)



PROFILE OF PROPOSED CULVERT D (LOOKING NORTHWEST)

SCALE: 1"=200' HORZ.;1"=20' VERT. (IGLD 85 DATUM)

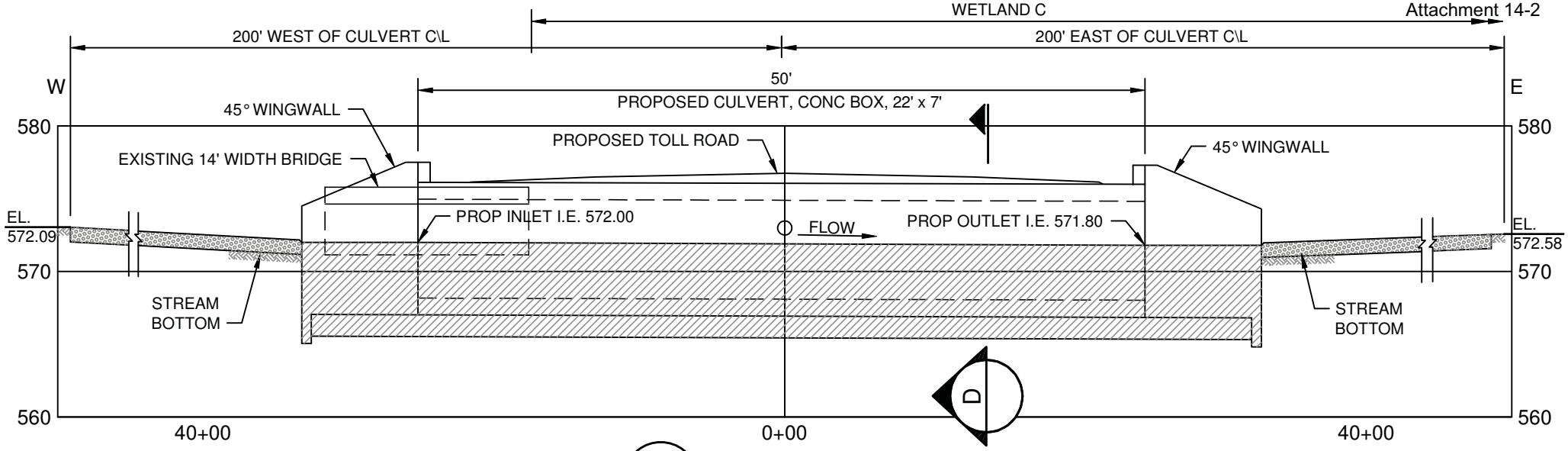
FIGURE 14-2D NEW OPERATIONS ACCESS ROAD PROFILE OF PROPOSED CULVERTS A - D



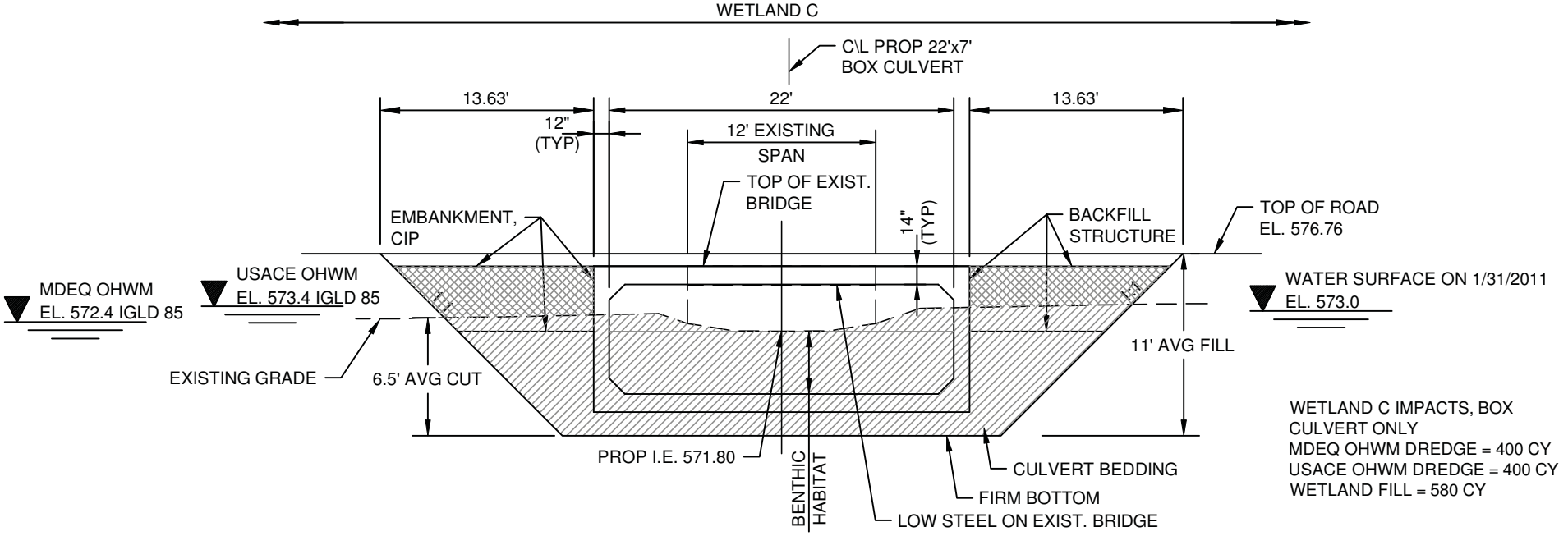
NOTE:
NO PROPOSED WETLAND IMPACTS ALONG NORTHWESTERLY EDGE OF ROAD.

FIGURE 14-2E
NEW OPERATIONS ACCESS ROAD 22'x7' BOX CULVERT PLAN VIEW

SCALE: 1"=20'

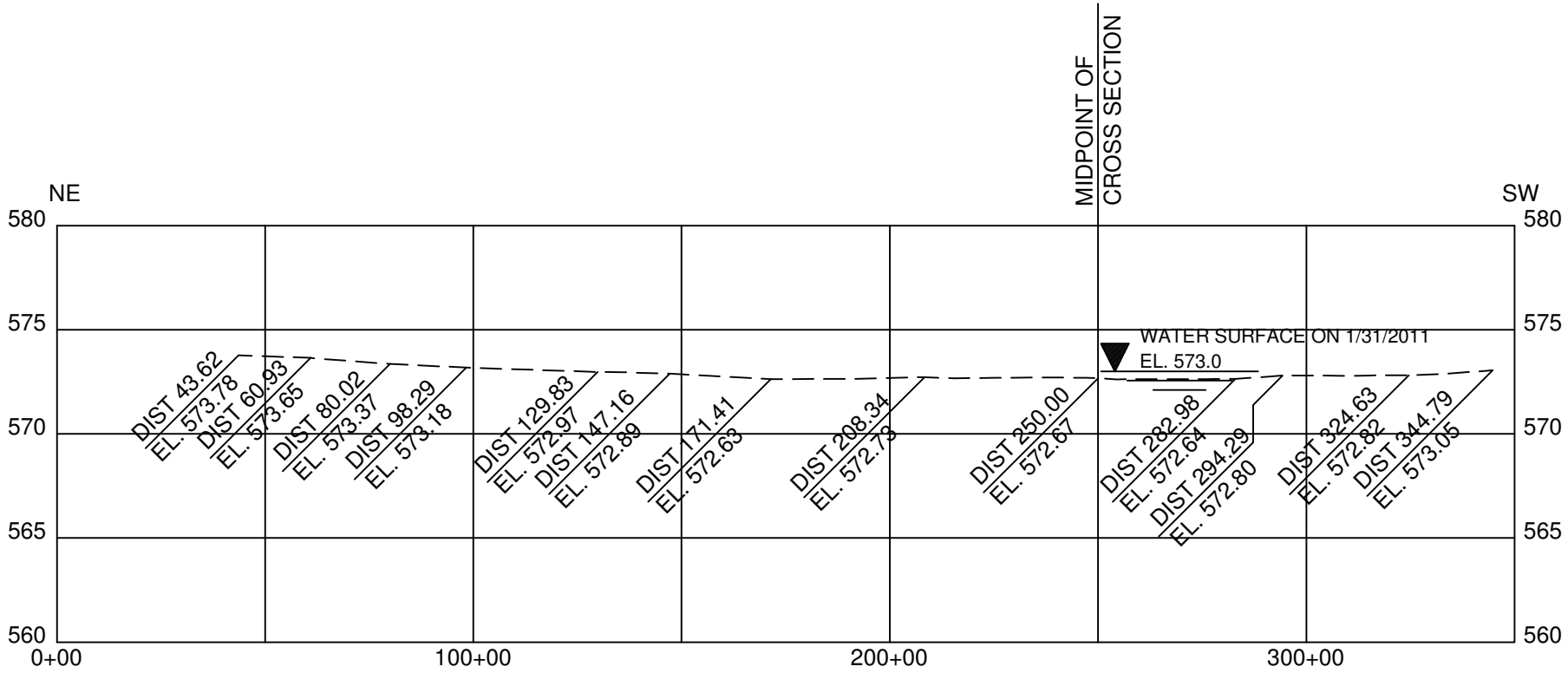


B ELEVATION
SCALE: 1"=10' (IGLD 85 DATUM)



D SECTION VIEW (LOOKING WEST)
SCALE: 1"=10' (IGLD 85 DATUM)

FIGURE 14-2F NEW OPERATIONS ACCESS ROAD ELEVATION 'B' AND SECTION 'D' DETAILS



C

STREAM CROSS SECTION
200 FEET DOWNSTREAM OF PROPOSED TOLL ROAD (LOOKING DOWNSTREAM)

SCALE: 1"=40' HORZ.; 1"=5' VERT. (IGLD 85 DATUM)

FIGURE 14-2G NEW OPERATIONS ACCESS ROAD SECTION 'C' DETAILS