PROJECT MANUAL

FOR

Fox River Impoundment Dredging 2022-2026

Waterford Waterway Management District (WWMD)

Town of Waterford, Racine County, Wisconsin

May 2022

Fox River Impoundment Dredging 2022-2026

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ADVERTISEMENT FOR BIDS

PROJECT: Fox River Impoundment Dredging 2022-2026

Waterford Waterway Management District (WWMD)

Town of Waterford, Racine County, Wisconsin

BID DEADLINE: June 10, 2022
2:00 p.m., Local Time

NOTICE

Sealed bids for the above project will be received by Mr. Grant Horn, Waterford Waterway Management District, at the Waterford Town Hall, 415 N Milwaukee Street, Waterford, WI 53185 beginning 1/2 hour prior to the Bid Deadline. Immediately thereafter, the bids will be publicly opened and read aloud.

- Work shall include dredging of approximately 150,000 cubic yards (CY) of inland lake sediments, over 4 years, from more than 500 riparian owners and navigation paths on Tichigan Lake, Buena Lake, and the Fox River within the limits shown on the Drawings and in accordance with Technical Specifications.
- The Contractor is responsible for dredging, dewatering the Dredge Material, treatment and discharge of Contact Water, and transportation and disposal of the Dewatered Dredge Material to Contractor selected Disposal Site(s), as required by the Technical Specifications, permits, and other Contract Documents.
- The Contractor shall provide facilities, plans, equipment, materials, labor, overhead, administration, and profit to satisfactorily construct and perform the Work. The following general summary of activities associated with the Work does not limit the Contractor's responsibility to provide a complete and usable installation in accordance with the Contract, Plans, Specifications, and Drawings, hereinafter referred to as the Contract Documents.

A pre-bid meeting to examine the project site will be held on Wednesday, May 18, 2022 at 1:00 p.m. Meet at the DNR boat landing at the north end of the lake (see the project Drawings).

BID SECURITY

Bids must be accompanied by bid security in the amount of 5% of the maximum bid amount. Bid and bid security may not be withdrawn for a period of 60 days after the Bid Deadline.

Bid security will be retained if the Bidder is awarded the Work and fails to execute the Agreement and furnish 100% Performance and Payment Bonds.

QUALIFICATIONS

Bidders shall submit a Statement of Bidder's Qualifications with their bid.

RIGHTS RESERVED

Owner reserves the right to reject any or all bids and to waive informalities in any bid.

BIDDING DOCUMENTS

Bidding documents may be examined at Builders Exchanges in Appleton, Eau Claire, La Crosse, Milwaukee, and Wausau. Bidding documents may be obtained in PDF electronic format by download from the Quest Construction Published by authority of: Waterford Waterway Management District (WWMD).

Bid documents can be requested from Kieser & Associates:

John Jacobson at j.jacobson@kieser-associates.com

Published by authority of: Waterford Waterway Management District (WWMD)

INSTRUCTIONS TO BIDDERS

1. SUMMARY

A. The following documents shall be completed and submitted with each bid:

1. Bid Form
2. Bid Security
3. Statement of Bidder's Qualifications
4. If submitting on Contract B, Statement of Disposal Site Location and Route to Disposal Site

2. PREPARATION OF BIDS

A. Bids shall be prepared on the form provided in this Project Manual and submitted as specified. Bids will be received for the contracts listed on the Bid Form. All blank spaces for bid prices shall be completed, in ink or typewritten, in both words and figures where provided. In case of discrepancy, written words shall govern over figures for lump sum bids and unit prices shall govern over extended amounts for unit price bids. Bidder must sign the bid.

B. Bids may be rejected for the following reasons: alterations of the form, additions to the form, alternates not specified, incomplete bids, erasures, unbalanced prices, and irregularities of any kind. The term "unbalanced prices" shall mean the use of one or more unit prices that do not reflect the reasonable actual costs of labor, equipment, materials, profit, overhead costs, and indirect costs of the bidder for the item(s).

C. Submit original Bid Form and required supporting documents in a sealed envelope. Remove Bid Form from Project Manual; do not submit entire Project Manual. Mark the exterior of the envelope as follows:

BID
(Project Name)
(Contract Bid Upon)
(Bidder's Name and Address)

D. If forwarded by mail, the sealed envelope containing the bid shall be enclosed in another envelope addressed as specified.

3. FAX TRANSMISSION AND E-MAIL

A. Fax transmission or e-mailing of Bid Form or required supporting documents to individual designated to receive bids will not be acceptable.

4. WITHDRAWAL OR MODIFICATION OF BID

A. Unless prohibited by laws and regulations, a bid may be withdrawn by an appropriate document duly executed in the same manner that a bid must be executed and delivered to the place where bids are to be submitted prior to the Bid Deadline. Upon receipt of such notice, the unopened bid will be returned to the bidder.

B. If a bidder wishes to modify its bid prior to the Bid Deadline, bidder must withdraw its initial bid in the manner specified above and submit a new bid prior to the Bid Deadline.

C. Thereafter, a bid may not be withdrawn or modified during the bid holding period specified in the Advertisement for Bids.

5. BID SECURITY

A. Bids shall be accompanied by a bid bond, certified check, or bank cashier's check in the amount specified in the Advertisement for Bids made payable to Owner as a guarantee that the bidder will enter into a contract and furnish bonds. Certified checks shall be drawn on the account of the bidder. Bid bonds shall be executed by the bidder and by a surety corporation licensed to transact business in the state where the project is located.

B. Bidders shall require Attorneys-in-fact who execute bid bonds or contract bonds to affix thereto a certified and current copy of their power of attorney.

C. Bid security of the three lowest bidders for each contract will be released when the applicable contract has been executed or, if no award has been made within the specified bid holding period, upon demand of the bidder at any time thereafter so long as bidder has not been notified of acceptance of its bid. All other bid securities will be released within 10 days after the opening of bids.

6. LIQUIDATED DAMAGES FOR FAILURE TO ENTER INTO CONTRACT

A. The successful bidder, upon failure or refusal to execute and deliver the contract and bonds required within 10 days after receiving Notice of Award, shall forfeit the bid security to Owner as liquidated damages for such failure or refusal.

7. QUALIFICATIONS OF BIDDER

A. A bidder who has not submitted qualifications to the Owner shall submit a Statement of Bidder’s Qualifications to the Owner with its bid on the form contained in this Project Manual (or a similar form containing the same information).

B. Before the award of any contract, the Owner shall be satisfied that the bidder, (a) maintains a permanent place of business, (b) has adequate equipment to do the work properly and expeditiously, (c) has a suitable financial status to meet obligations incident to the work, (d) has appropriate technical experience, and (e) has satisfactorily completed contracts of similar nature and magnitude.

8. ADDENDA AND INTERPRETATIONS

A. No binding interpretation of the meaning or intent of the drawings, specifications, or other bidding documents will be made to any bidder orally. Requests for such interpretation shall be made to Kieser & Associates, LLC in writing. Requests received less than 7 days prior to the Bid Deadline may not be answered. Interpretations or clarifications considered necessary in response to such requests will be issued by addenda mailed or delivered to all parties recorded having received the bidding documents. All addenda so issued shall become part of the bidding documents and shall be acknowledged with the bid. Failure of any bidder to receive any such addendum or interpretation shall not relieve such bidder from any obligation under this bid as submitted.

9. SUBSTITUTIONS (BID PHASE)

A. Bids shall be based on those products, materials, and equipment specified or described in the bidding documents, or those substitute or "or equal" items approved by addendum.

B. Products, materials, and equipment identified in the bidding documents by reference to a manufacturer's name, catalog number, or model are identified for the purpose of establishing a standard of type, function, appearance, and quality. Bidders desiring to submit bids for manufacturers or products not previously named shall submit a substitution request for approval not later than 14 days prior to the Bid Deadline.

C. Requests for substitution of alternate products or use of "or equal" items shall be submitted with complete references to manufacturer's product identification and specification data indicating composition, guarantee, availability, applicable standards or agency approvals met or exceeded, restrictions imposed on product, and manufacturer's recommended method of application or installation. A substitution or an "or equal" item will be considered acceptable if the product will perform adequately the duties imposed by the general design and, in the opinion of the A/E, is of equal substance, quality, appearance, and function, unless the named item is necessary for interchangeability or if the named product has been demonstrated to be most cost-effective. If approved by addendum, the requested substitution or "or equal" item may be included in the Contract Bid amount.

11. STATEMENT OF DISPOSAL SITE LOCATION AND ROUTE TO DISPOSAL SITE

A. Bidders are required to submit, with the bid, a map of disposal site(s) and route for hauling dredge d sediments from the WWMD approved offloading sites to the Contractor selected WWMD approved disposal site(s). Submittal shall be on Bidders' company letterhead. Failure to complete this will be considered cause to recommend rejection of the bid.

12. ALTERNATE BIDS

A. If alternate bids are requested, bidder shall state the amount to be added to or deducted from the base bid for making the changes required under each alternate. The stated amount shall include all incidental work and adjustments as may be necessary or required to fully complete the alternate work.

13. LIST OF SUBCONTRACTORS

A. Bidders are required to submit, with the Bid Form, a list of subcontractors. Failure to complete this list may be considered cause to recommend rejection of the bid.

B. Bidders are specifically advised that any person, firm or other party to whom it is proposed to award a subcontract under this contract must be acceptable to Owner. If Owner, after due investigation, has reasonable objection to any proposed subcontractor or supplier, Owner may, before the Notice of Award is given, request apparent successful bidder to submit a substitute without an increase in the bid. If apparent successful bidder declines to make any such substitution, Owner may award the Contract to the next lowest bidder that proposes to use acceptable subcontractors and suppliers. Declining to make requested substitutions will not constitute grounds for forfeiture of the bid security of any bidder.

14. AWARD OF CONTRACT

A. Contracts will be awarded on the basis of lowest responsible, responsive total base bid amount, or combination of base and alternate bid amounts.

B. The Owner reserves the right to reject any or all bids, including bids which, in the opinion of Owner, are excessive or not sufficient to properly carry out the work. The Owner reserves the right to reject the bid of bidders who have previously failed to properly perform or complete on time contracts of similar nature.

C. Bidder shall, if awarded a contract, deliver executed agreement forms within 10 days of the date of the Notice of Award, including satisfactory bonds which shall remain in effect for one year after acceptance of the work and component parts by the Owner. Said bonds shall be 100% Performance Bond and 100% Labor and Material Payment Bond in the amount of Bid and on forms furnished by Owner.

15. GEOTECHNICAL DATA

A. Subsurface investigations have been performed pertaining to this project site. A copy of the geotechnical data is available upon request.

16. PRE-BID MEETING

A. A pre-bid meeting will be held at the place and time indicated in the Advertisement for Bids. Representatives of Owner and Kieser and Associates will be present to discuss the project. Bidders are encouraged to attend and participate in the meeting. Kieser and Associates will transmit to all bidding document holders of record such Addenda as considered necessary in response to questions arising at the meeting.

17. BID PHASE SITE VISIT AND SEDIMENT SAMPLING / COLLECTION

A. During the entirety of the bid phase, bidders will be granted access to the body of the Lake via publicly accessible boat landings (as indicated on the Drawings). Bidders are encouraged to tour the lake, collect sediment, and make note of existing conditions as needed to prepare bids. Sediment samples and lake water samples may be collected and used by bidder for testing and/or other uses during bid phase. Each bidder is limited to obtaining 20 gallons of sediment for sampling and 20 gallons of overlaying lake water for sampling during the bid phase.

BID FORM

PROJECT: Fox River Impoundment Dredging 2022-2026

Waterford Waterway Management District (WWMD)

Town of Waterford, Racine County, Wisconsin

BID DEADLINE: June 10, 2022

2:00 p.m., Local Time

To: Waterford Waterway Management District (WWMD)

We _____(Name of Bidder) acknowledge that we have received the Contract Documents, prepared by Kieser & Associates, LLC and dated May 2022 that are listed in the Project Manual Table of Contents and Drawing Sheet Index. We hereby agree to provide all labor, material, equipment, and services required to complete the work in strict accordance with the Contract Documents for the following stated amounts.

SCHEDULE OF VALUES

Item	Description	Unit	Unit Price ($/Unit)	Quantity	Total ($)
1	**Procurement of Access and Leasing Agreements**	MO			
2	**Mobilization and Demobilization** **Health and Safety Requirements** **Project Management and Coordination** **Site Security**	LS		1	
3	**Permit and Regulatory Requirements**	LS		1	
4	**Submittals**	LS		1	
5	**Site Preparation** **Site Controls and Temporary Facilities** **Environmental Controls**	LS		1	
6	**Dredging and Dewatering** **Transport Dredge Material to Processing Area** **Bathymetric Surveys** **Turbidity Controls**	CY			
7	**Contact Water Discharge**	DAY			
8	**Dredged Material Transport and Disposal**	-	-	-	-
8a	Off Site Transport of Dredged Material	TON			
8b	Disposal of Dredged Material at a Permitted Location/Facility	TON			
9	**Site Restoration**	LS		1	
				Subtotal	
10	**Bond**	LS		1	
				Total (Base Cost)	

Additional Items Not Covered by the Bid Form					
	Alternate add/deduct for beginning dredging in the 2023 dredging season	LS		1	
				Total (Additional Items)	
				Grand Total	

BID SECURITY

Accompanying this bid is bid security payable to Owner in the form stipulated in the Instructions to Bidders, which is at least 5% of the maximum bid amount, and will be retained by Owner as liquidated damages if the undersigned fails to execute agreements and furnish bonds within 10 days after Notice of Award.

WITHDRAWAL OF BID

It is agreed that this bid and bid security may not be withdrawn for a period of 60 days after the Bid Deadline.

TIME OF COMPLETION

The undersigned agrees, if awarded Contract to start work within 10 calendar days after "Notice to Proceed" and to substantially complete the work available dredging window each year, as identified by the dredging permit and the contractor's schedule. Note: all dredging must be completed by November 1, 2026.

The contractor schedule shall take into account the possibility of beginning dredging in 2022 and shall give an alternate price to hold off dredging till 2023.

No adjustments to time of completion will be allowed for accommodations based on potential early-in or late-out ice seasons on the Lake. Contractor to plan schedule accordingly.

BIDDER'S WARRANTY

By the act of submitting a bid for the proposed work, the bidder warrants that:

1. Bidder and its subcontractors have carefully and thoroughly reviewed the Contract Documents and have found them complete, free of ambiguities, and sufficient for the purpose intended; further that,

2. Bidder and all workers, employees, and subcontractors are skilled and experienced in the type of work represented by the Contract Documents; further that,

3. Bid is based solely upon the Contract Documents and properly issued written addenda and not upon any other representation; further that,

4. Bidder has carefully examined the site of the work and from its investigations is satisfied as to the nature and location of work, the character, quality, quantities of materials, and difficulties to be encountered, the kind and extent of equipment and other facilities needed for performance of the work, the general and local conditions, and other items which may, in any way, affect the work or its performance; and further that,

5. Neither the bidder nor its employees, agents, prospective suppliers, or subcontractors have relied upon any verbal representations allegedly authorized or unauthorized from the Owner, its employees, or agents, including architects, engineers, and consultants, in assembling the bid.

LIST OF SUBCONTRACTORS

The following is a list of subcontractors whose bids were used in this bid. It is agreed that after submission of this list, no change may be made in subcontractors as listed without submitting change for Owner review in accordance with the conditions of the contract. If there are no subcontractors, state "None."

Subcontract:	Subcontractor:

ADDENDA

The undersigned acknowledges receipt of addenda_____ to

_____ inclusive.

ORGANIZATION AND AUTHORITY

The undersigned hereby certifies that the bidder is organized as indicated below and that all statements herein are made on behalf of such bidder.

Business Name _____ Business Address

Telephone Number _____

Fax Number

E-Mail Address

State Contractor Registration/License No. (if applicable) _____

(Complete applicable paragraph 1, 2, 3, or 4.)

1. Corporation. Bidder is a corporation organized under the laws of the state of_____ . Its corporate president is_____ and its corporate secretary is _____ . The_____ is authorized to submit bids and sign construction contracts for the bidder by action of the board of directors.

2. Limited Liability Corporation. Bidder is a limited liability corporation organized under the laws of the state of_____ . Its members are_____ _____ . The _____ is authorized to submit bids and sign construction contracts for the bidder.

3. Partnership. Bidder is a partnership consisting of partners _____ and_____.

4. Sole Trader. Bidder is an individual doing business as_____.

SWORN STATEMENT

I, being duly sworn, hereby certify that I have examined and carefully prepared this bid from the Contract Documents and have checked the same in detail before submitting this bid; that I have full authority to make such statements and submit this bid on behalf of the above bidder; and that said statements are true and correct.

Signature_____

Name and Title _____

(Seal, if bid is by a corporation)

Subscribed and sworn to before me this _____

day of , 20_____

_____ Notary Public

_____County, _____

My Commission expires _____

STATEMENT OF BIDDER'S QUALIFICATIONS

To: Project:

Date:

The following experience record, as of date shown, shall be submitted to the Owner with the bid. All questions shall be answered fully. The contents of this form will be considered confidential to the extent allowed by applicable laws and regulations.

Name of Bidder:

Business Address:

Street

City State Zip Code

1. Number of years in business as a Contractor under the present:

   Business Name _____

   As Principal Contractor _____As a Sub-Contractor _____

2. Class of work you are equipped to perform: _____

3. Class of work you usually sublet: _____

4. Have any members of your concern ever operated under any other business name?

   _____ . If so, give details: _____

5. Have you ever failed to qualify as a responsible bidder? _____ If so, give details:

6. Have you ever refused to enter into a contract after the award is made to you?

   _____ . If so, give details: _____

7. Have you ever failed to complete any work? _____. If so, give details:

   _____

8. Has any surety or financial institution ever experienced loss on your concern?

   _____ . If so, give details: _____

9. Give name, address, and telephone number of Owner; type of work; and the contract amount of at least three projects completed in the last three years:

Owner Name, Address, Telephone No.	Type of Work	Contract Amount
		$
		$
		$

10. Give name, address, and telephone number of Owner; type of work; and the contract amount of projects now in process of construction:

Owner Name, Address, Telephone No.	Type of Work	Contract Amount
		$
		$
		$
		$
		$

11. Indicate your experience in the construction of work similar to this project (if not demonstrated by Questions 9 and 10, above):

12. Give construction experience of principal individuals of your organization:

Name	Position	Years of Experience	Size and Type of Work

13. Attach a list of your major equipment pertinent to this project.

14. Are there any judgments, suits, or claims pending against you? _____ If so, give details:

_____

15. Does your organization operate as a corporation, partnership, or individual?

A. If a corporation, when incorporated: _

In which state incorporated: _____

List name, title, and address of all officers:

Name	Title	Address

B. If a partnership, date of organization: _____

General, Limited, or Associated? _____

List name, address, and proportional interest of parties:

Name	Address		Proportional Interest

16. If requested prior to award of contract, provide to the Owner an accurate, up-to-date, condensed financial statement of the corporation, partnership, or individual. The undersigned hereby declares and certifies that the foregoing is a true statement of the experience and condition of the organization, therein first given and that any agency or individual herein named authorized to supply any information as may be deemed necessary to verify this statement.

Signed

Title

Subscribed and sworn to before me this _____

day of , 20 _____

_____ Notary Public

_____ County, _____

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

SECTION 01 01 00

GENERAL REQUIREMENTS

1.01 PROJECT DESCRIPTION

A. This section provides a general description of the Work. The Contractor shall refer to the appropriate detailed Specification sections for project specifics.

B. Work shall include dredging of approximately 150,000 cubic yards (CY) inland lake sediments, over 4 years, from more than 500 riparian owners and navigation paths on Tichigan Lake, Buena Lake, and Fox River within the limits shown on the Drawings and in accordance with Technical Specifications.

The Contractor is responsible for dredging, dewatering the Dredge Material, treatment and discharge of Contact Water, and transportation and disposal of the Dewatered Dredge Material to Contractor selected Disposal Site(s), as required by the Technical Specifications, permits, and other Contract Documents.

The Contractor shall provide facilities, plans, equipment, materials, labor, overhead, administration, and profit to satisfactorily construct and perform the Work. The following general summary of activities associated with the Work does not limit the Contractor's responsibility to provide a complete and usable installation in accordance with the Contract, Plans, Specifications, and Drawings, hereinafter referred to as the Contract Documents. This summary provides the major component of construction activities.

C. Major components of the Work include the following:

1. Establishing and enforcing health and safety provisions for the duration of the Work.
2. Permitting and regulatory requirements.
    a. Comply with permits obtained by others and by the Contractor.
    b. Complying with Contract Documents.
    c. Obtaining and complying with applicable local permits and approvals.
    d. Complying with all applicable local, state and federal laws and regulations.
3. Obtain access and lease agreements for any real estate to support this Work.
4. Submittals.
5. Mobilization and Demobilization.
6. Site Controls and Temporary Facilities.
7. Environmental Controls.
    a. Dust and emissions control.
    b. Erosion and sediment control.
    c. Turbidity and floatable control.
8. Site Preparation
    a. Utility location.
    b. Clearing and grubbing.
    c. Fence installation.
    d. Top soil stripping.
    e. Traffic control.
    f. Pavement removal.
9. Material Management Areas.
    a. Provide and maintain,

i. Dredged material, and equipment staging and material stockpiling areas.
ii. Material loading/un-loading area.

10. Sediment Removal
    a. Installation and commissioning of sediment floatables containment structures, and navigational signage, lighting, and buoys.
    b. Removal of sediments as follows:
        i. In the 25-foot-wide navigation lanes as indicated in Figures 1 through 37 remove sediments as indicated to a maximum water depth of 5 feet from the Ordinary- High Water (OHW) elevation of 773.7 ft (NAVD 88) MSL (as controlled by the dam at Waterford) or to hard pan, whichever is the higher elevation, to create a five (5) feet deep navigable channel in areas shown on Drawings.
        ii. For each riparian owner indicated in the project, and within a 30 foot pathway as dictated by the riparian owner (see detail), remove up to 50 cubic yards of sediment over a 3-year period for a total of 150 cubic yards for each riparian owner. Yardage must be located within the 30-foot-wide designated pathway with a maximum depth of 5 foot of water level (below the minimum water elevation) or to hardpan whichever is the highest elevation.
    c. Processing dredged sediment.
11. Contact Water Treatment and Discharge.
    a. Treatment of contact water.
    b. Discharge treated contact water to local publicly owned treatment works (POTW) under a project-specific agreement (to be obtained by the Owner) or return treated contact water back to the Lake under an appropriate permit (presently not provided by the Owner).
12. Transportation and disposal of processed dredged sediment.
    a. Contractor shall dispose of processed dredged sediment in accordance with State of Wisconsin Solid Waste Management procedures.
    b. Disposal Sites may be: (i) individual permitted landfill sites, such as a currently permitted licensed landfill site; or (ii) land application to agricultural field in accordance with applicable WDNR permit.
    c. Any disposal on State land shall be preapproved and meet all state and federal rules and regulations and reviews (Section 7 Federal Review and Cultural Resources Review per WDNR).
    d. Disposal Sites shall have a stormwater permit and a Stormwater Pollution Prevention Plan (SWPPP), and meet requirements of the permit. (Stormwater permitting; contact Pete Wood, 262-822-8227)
13. Restoration.
    a. Restoration of temporarily impacted wetlands.
    b. Upland surface improvement replacement and repairs.
    c. Shoreline restoration near the loading/un-loading area.

1.02 WORK BY OTHERS

A. Owner (through individual property owners) will be responsible for removing docks where they interfere with the dredging limits. If Owner (through individual property owners) do not remove the docks before the Contractor is ready to dredge, the Contractor must avoid the dock with a 10-foot buffer. Contractor must give 30-calendar day notice to A/E of planned dredging in each bay in order to give adequate notice to property owners to remove their docks. Contractor is responsible for maintaining adequate buffer around personal property of the Lake shoreline owners. In event that personal property is left in the lake, Contractor is responsible for any damages to personal property that has not been removed from the dredging areas. Contractor is not responsible for dredging the areas that they cannot access due to personal property impeding the workspace. Note – The Waterford Watershed Management District is in coordination with several local dock / lift removal companies to help coordinate the removal of personal property before dredging is to begin.

1.03 REAL ESTATE LEASE AND ACCESS AGREEMENTS

A. Obtaining necessary access and lease agreements for the staging and material management area, and access locations are the responsibility of the contractor. The Contractor shall secure access and lease agreements prior to mobilization.

B. All staging or operations as outlined in the Contract documents must be approved by the Waterford Waterways Management District, the appropriate government approval agency, and the Wisconsin Department of Natural Resources.

C. Contract documents depict locations of four (4) access points and the marina ramps. These access points are privately or publicly owned, and no negotiation has taken place for their use to support this Work.

D. Contract documents depict location of an available Site for the material management and staging area. The Owner had notified the property owner with the intent, but no negotiation has taken place for its use to support this Work.

1.04 WORK SEQUENCE

A. The work shall be performed in accordance with general phasing (outlined for each disposal site the Contractor chooses to utilize) below. Contractor shall be responsible of the specific sequence of work within this general outline.

1. If the Contractor choose to phase the project it must align the phases as follows:
2. Phase 1: Pre-dredging disposal site(s) grading: erosion control installation and site preparation at each disposal site before beginning to dredge and haul sediments. Contractor shall not start Phase 1 for any disposal site more than three (3) months ahead of planning to use any disposal site for active disposal of dredged sediments. Note: Contractor shall procure dredging disposal sites per Section 35 20 13 – Dredging.
3. Phase 2: Dredging, dewatering, and disposal of sediments at the site.

4. Phase 3: Site reclamation at the disposal site(s). Contractor shall not start Phase 3 for any disposal site until adequate dewatering of the dredged material has been confirmed per Section 35 20 13 – Dredging.

1.05 PROJECT MEETINGS

A. A preconstruction conference will be scheduled after award of contract and prior to beginning work on this contract. This meeting shall be attended by Owner, Engineer, and an authorized representative of Contractor.

B. Periodic progress meetings will be held at project site at times designated by Owner or Engineer. A responsible representative of Contractor who can bind Contractor to decisions shall attend.

1.06 PROJECT SCHEDULE

A. Construction Period Schedule

1. The Contractor shall complete Work in accordance with approved schedule.

B. Dredging Period Restriction

1. The Contractor's Work in water will be subject to State of Wisconsin fisheries and wildlife window restrictions, which specifies the allowed and prohibited dredging periods. The Owner may apply for a waiver to extend the allowed dredging window. If a waiver is granted, the Contractor will be informed accordingly.
2. If no waiver is granted, intrusive Work in waterways shall not occur from October 1st through July 31st.

C. Work Period Restrictions. No work is allowed during the following periods:
1. Before May 30th (over Memorial Day weekend).
2. Over July 4th (July 1, 2, 3, and 4th).
3. Over Labor Day weekend (Saturday, Sunday, and Monday)
4. Weekdays between sundown and sunrise.
5. Regular weekends between sundown and sunrise.
6. Any other timeline restricted by permit requirements.

1.07 SUBMITTALS

A. Submit the following for review as listed below and as indicated in individual specification sections. Unless otherwise stated, all submittals shall be made electronically in portable document format (PDF) to the Owner and Engineer.

1. Construction Schedule: Submit within fifteen (15) days after notice to proceed.
2. Shop Drawings: Submit at least ten (10) days prior to relevant operation.
3. Product Data: Submit prior to shipment to the Site.
4. Certificates of Compliance: Submit prior to relevant operation.
5. Permits and Approvals: Submit within 24 hours of receipt.

6. Test Reports: Submit within 24 hours of receipt.

B. Shop drawing and product data submittals shall bear the stamp of approval of Contractor as evidence of accuracy, compatibility, and conformance with contract requirements. Drawings and product data not so stamped will be returned without being examined. Where manufacturer's standard literature includes multiple products or options, identify the specific products and options as required for this project. Specific written notice shall be given of each variation that shop drawings and product data may have from requirements of the Contract Documents.

C. Products subject to shop drawing, product data, or sample review shall not be used in the work until submittals have been reviewed and bear the stamp and signature of A/E. Submittals will only be reviewed for general conformance with the design concept of the project and general compliance with the information given in the Contract Documents. Contractor shall be responsible for confirming and correlating all quantities and dimensions, selecting fabrication processes and the means and methods of construction, coordinating its work with that of all other trades, and performing all work in a safe and satisfactory manner. Corrections or comments made on submittals shall not relieve Contractor from compliance with requirements of Drawings and Specifications and shall not be considered an order for extra work.

1.08 PERMITS AND CODES

A. Contractor shall obtain the following permits, licenses, and approvals:

1. WDNR’s Individual Permit for Lake Dredging. Note: Contractor may submit the proposed changes (mechanical dredging and associated mechanical dredging disposal site) as modifications to the existing WDNR IP-SC-2022-52-00389.).
2. WDNR’s Construction Site Stormwater Permit.

B. Contractor shall comply with the requirements of the above permits, licenses, and approvals.

C. Contractor shall provide all other necessary permits and licenses and pay all fees, taxes, and royalties, unless otherwise indicated.

D. Comply with local and municipal ordinances and applicable state and national codes. Contractor is responsible for applying for Carriage Water from Dredging Operations General Permit to ensure return water from disposal site complies with Wis. Adm. Code NR 151 standards. Sampling locations, frequency, and monitoring requirements will be determined with that permitting. Permit was not applied for in advance, as the requirements vary depending on polymer additives used, pumping rates, etc. See the information at the following link for more details and instructions to apply for this permit: http://dnr.wi.gov/topic/wastewater/documents/46558_fs.pdf

1.09 TEMPORARY UTILITIES

A. Contractor shall be responsible for providing temporary electric power as required for construction purposes. Provide portable power supply or make arrangements with local utility company.

B. Contractor shall be responsible for obtaining water for its needs. Pay cost of water used and meter rental, if applicable.

C. Contractor shall provide temporary outside toilets sufficient for construction workers. Toilets shall be self-contained chemical type and shall comply with applicable Codes. Maintain sanitary facilities in a clean and sanitary condition; supply toilet paper until completion of project.

1.10 CONSTRUCTION PARKING

A. Contractor shall be responsible for securing parking for their needs.

1.11 PROTECTION

A. Furnish and maintain proper barricades, fences, signal lights, warning signs, and personnel as required to properly protect and safeguard the work, persons, animals, and property against injury. Contractor responsible for selecting and maintaining adequate site safety protection. No specific protection (i.e.- site security or site fencing) is required at the disposal site nor any other part of the project.

1.12 ENVIRONMENTAL CONTROLS

A. See Section 01 57 19 for environmental control provisions.

1.13 TRAFFIC CONTROL

A. Conduct operations to ensure minimum interference with streets, walks, and adjacent facilities not part of construction project.

B. Do not close or obstruct streets, walks, or other occupied or used facilities without permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.

C. It is understood by the WWMD that dredging operations will temporarily restrict vessel traffic on the Lake. The Contractor is responsible for posting and maintaining posting at the three public boat landings (see Drawings) that there is an active dredging project in progress and that boating traffic will be impacted (or limited / restricted) in some areas. See Section 35 20 14 for details.

1.14 PRODUCT REQUIREMENTS

A. General: Provide new products manufactured and conditioned for the particular application as recommended by manufacturer, unless otherwise noted. Transport, handle, store, and protect products as specified and in accordance with manufacturer's recommendations.

B. Acceptable Manufacturers: Products, materials, and equipment identified by reference to a manufacturer's name, catalog number, or model are identified for the purpose of establishing a standard of type, function, appearance, and quality. Unless otherwise noted, any other product, material, or equipment which will perform adequately the duties imposed by the general design will be considered for substitution in accordance with the provisions below.

C. Bid Phase Substitutions: Substitutions and "or equal" items proposed prior to the Bid Deadline shall be submitted in accordance with the Instructions to Bidders.

D. Construction Phase Substitutions: Substitutions and "or equal" items proposed after Contract has been awarded shall be submitted for approval prior to their use. Consideration will be given only to proposed substitutions and "or equal" items where:

1. The products named in the Contract Documents are no longer available or cannot be provided within the Contract Time.
2. The manufacturers' standard products are no longer in conformance with the specified requirements.
3. Owner's interests may be adversely affected.

E. Substitution Procedures: Requests for substitution of alternate products or use of "or equal" items shall be submitted with complete references to manufacturer's product identification and product data indicating composition, guarantee, availability, applicable standards or agency approvals met or exceeded, restrictions imposed on product, and manufacturer's recommended method of application or installation. A substitution or an "or equal" item will be considered acceptable if the product will perform adequately the duties imposed by the general design and, in opinion of A/E, is of equal substance, quality, appearance, and function, unless the named item is necessary for interchangeability or if the named product has been demonstrated to be most cost-effective.

1.15 SURVEYS, STAKING, LINE AND GRADE

A. Owner will provide bathymetry of the Work Area based on a hydrographic survey conducted on April 2022. Electronic files (.xml surfaces) will be provided to Contractor. Contractor shall provide all other survey staking and layout as required to complete the Work.

B. Contractor shall be required to survey the property limits of any disposal site property to ensure that all work is within the limits indicated on the Drawings.

1.16 FIELD MEASUREMENTS AND INSPECTION OF SURFACES

A. Contractor shall layout its Work based on the Drawings and April 2022 bathymetry provided by Engineer and shall be solely responsible for the accuracy of its measurements. Verify grades, lines, levels, locations, and dimensions as shown on Drawings, and inspect surfaces that are to receive work before proceeding with fabricating, assembling, fitting, or erecting. Notify Engineer in writing in case of unsuitable conditions, defective substrates, or discrepancies in Contract Documents. Starting of Work shall imply acceptance of conditions.

B. Correct any errors or defects due to faulty measurements, improper layout, or failure to report discrepancies.

1.17 CONSTRUCTION CLEANING

A. Keep work area free of accumulations of surplus materials, rubbish, and debris.

1.18 PUNCH LIST

A. A "punch list" will be prepared and distributed to Contractor at Substantial Completion. Items on punch list shall be completed within 30 days. Required submittals (see below) shall be completed prior to or when requesting final payment.

1.19 CLOSEOUT SUBMITTALS

A. Submit the following items to Engineer prior to or with final Application for Payment:

1. Project record drawings marked to show all changes made during construction. Dimension underground and concealed work and utilities from permanent reference points; record vertical distances. Make and record measurements to the nearest 0.5 ft on a clean drawing set.
2. Evidence of continuing insurance coverage complying with insurance requirements (see Conditions of the Contract).
3. Contractor's affidavit, along with final releases and waivers of liens as required by Owner, indicating that all debts and claims against project (less amounts withheld by Owner) have been paid in full or otherwise satisfied.
4. Consent of surety company to final payment.

1.20 DEFINITIONS

A. Dimensions on drawings and details are subject to field measurements.

B. References to "Division 00" shall mean the Bidding Requirements and Contracting Requirements.

C. References to "WDNR" shall mean Wisconsin Department of Natural Resources.

D. References to "WIDOT Std. Spec." shall mean Wisconsin Department of Transportation, Standard Specifications for Highway and Structure Construction, latest edition.

E. References to "A/E", "Architect", or "Engineer" shall mean Kieser and Associates.

F. References to "Owner" shall mean Waterford Waterways Management District (WWMD).

END SECTION

SECTION 01 20 00

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01 SUMMARY

A. This Section includes:

1. Related Sections
2. Submittals
3. Bid Schedule
4. Application for Payment
5. Change Procedures
6. Unit Prices
7. Measurement of Quantities
8. Eliminated Items
9. Measurement and Payment of Bid Schedule Items

1.02 RELATED SECTIONS

A. Section 01 01 00 – General Requirements

1.03 SUBMITTALS

A. Revised Bid Schedule

B. Applications for Payment

1.04 BID SCHEDULE

A. See Attachment 01 20 00 – 1

B. Revise Schedule to list approved Change Orders with each Application of Payment

1.05 APPLICATION FOR PAYMENT

A. The Contractor shall submit electronic file of each Application for Payment in form approved by Owner.

B. For Content and Format, the Contractor shall use Bid Schedule for listing items in Application for Payment.

C. Submit updated construction schedule and progress report with each Application for Payment.

D. Payment Period: Submit at intervals required by Owner.

E. The Contractor shall submit all submittals as specified in Section 01 01 00 – General Requirements.

F. Substantiating Data: When Owner requires substantiating information, submit data justifying dollar amounts in questions. Include the following with Application for Payment:

1. Current construction photographs

2. Construction Progress Schedule, current

3. Survey data and calculations of quantities

4. Supporting data and information to support actual unit rate quantities prior to Application for Payment

5. Subcontractor or vendor invoices

6. Overdue submittals

1.06 CHANGE PROCEDURES

A. The Contractor shall submit name of individual who is authorized to receive change documents and is responsible for informing others in Contractor's organization or Subcontractors of changes to the Work.

B. The Contractor shall study and compare Contract Documents before commencing Work. The Contractor shall promptly notify Owner of any error, inconsistency, omission, or apparent discrepancy.

C. Requests for Interpretation (RFI) and Clarifications: Allot time in construction scheduling for liaison with Owner; establish procedures for handling queries and clarifications.

1. Use Owner approved form for requesting interpretations.

2. Owner may respond with a direct answer on the RFI form.

D. The Owner may issue a Change Order to the Contractor, including a detailed description of proposed change with supplementary or revised quantities, Drawings, and specifications, and a change in contract time for executing the change. Owner will issue Change Orders for signatures of parties as provided in conditions of the Contract.

E. Contractor may propose changes by submitting a request for change to Owner, describing proposed change and its full effect on the Work. Request for change shall include a statement describing the reason for the change and the effect on Contract sum/price and Contract time with full documentation.

F. Correlation of Contractor Submittals:

1. The Contractor shall promptly revise Bid Schedule, and Application for Payment forms to record each authorized Change Order as separate line item and adjust Contract sum/price.

2. The Contractor shall promptly revise schedules to reflect changes, revise sub schedules to adjust times for other items of work affected by the change and resubmit.

1.07 UNIT PRICES

A. Unit Quantities: Quantities and measurements indicated on Bid Schedule are for Contract purposes only. Actual quantities of work done in accordance with Contract Documents shall determine payment.

B. Payment includes full compensation for required labor, products, tools, equipment, plant and facilities, transportation, services, and incidentals; erection, application, or installation of item of the Work; overhead; and profit.

C. Items of Work not specifically included in this Section for measurement and payment as described herein will not be measured for payment but will be considered subsidiary to the cost of the related work items. Minor items and incidentals necessary to complete the Work in a workman-like manner and provide complete, serviceable facilities shall be included in the sum of the Work items and furnished even if not specifically called for in the Drawings and Specifications.

D. Final payment for Work governed by unit prices will be made on basis of actual measurements and quantities accepted by Owner multiplied by unit sum/price for Work incorporated in or made necessary by Work.

1.08 MEASUREMENT OF QUANTITIES

A. Measurement of Weight:

1. Weigh Scales – shall be provided by the Contractor and certified in accordance with applicable State Laws and Regulations within past year. Contractor shall submit copy of certificate to Owner.

2. The term “ton” means the short ton consisting of 2,000 pounds.

3. For shipments to off-site disposal facility, trucks shall be weighed at the receiving facility for the purpose of measuring the quantity of Unit Bid Item for payment.

B. Measurement by Length/Area/Volume:

1. Materials that are to be measured by the vehicular measure shall be hauled in vehicles approved by the Owner and measured at the point of delivery. Vehicles for this purpose may be of any size or standard type and found acceptable by the Owner, provided that the body is of such shape that its capacity and actual contents can be readily and accurately determined. Each load shall be leveled upon its arrival at the point of delivery, if so directed by the Owner. Deductions will be made in half cubic yard increments on loads that contain less than the vehicle capacity. Each hauling vehicle shall bear a legible identification mark conspicuously located for identification.

2. Materials that are to be measured as in-place volumes will be determined by survey results and a computer-aided design (CAD) software.

3. Measurement of Liquid Volume shall be measured by U.S. gallon using a flow meter or other method of documentation approved by the Owner.

4. Measurement by Area shall be measured by square dimensions using survey data and a CAD software.

5. Linear Measurement: Linear dimensions shall be measured at item centerline or mean chord.

6. Lump Sum: Measured by percent complete of work completed.

7. Daily or Hourly: Measured by onsite time, of work conducted in accordance with Contract Documents, documented in daily reports and verified by Owner.

8. Stipulated Sum/Price Measurements: Items measured by weight, volume, area, or linear means or combination, as appropriate, as completed item or unit of the Work.

1.09 ELIMINATED ITEMS

A. Should any items or components of a contract unit bid item contained in the Specifications and Drawings be found unnecessary for the completion of the Work, the Owner will provide written direction eliminating this Work from the Contract. This action shall in no way invalidate the Contract Agreement.

B. Contractor shall be paid for actual approved Work done and all documented costs incurred, including mobilization of materials prior to elimination of such items.

1.10 MEASUREMENT AND PAYMENT OF BID SCHEDULE ITEMS

A. Bid Item 1 – Procurement of Access and Leasing Agreements

1. This item includes all materials and labor to determine and acquire necessary access and leasing agreements for the duration of the Work in accordance with Section 01 01 00 – General Requirements.

2. Measurement and Payment: This item will be measured on a lump sum basis as one unit, complete as specified. Payment will be made monthly per the duration of access and lease agreements at the Contract lump sum price proposal in accordance with Contract Documents.

B. Bid Item 2 – Mobilization and Demobilization, Health and Safety Requirements, Project Management and Coordination, and Site Security

1. Mobilization of sufficient labor, equipment, and material to adequately advance the Work in accordance with the Contract Documents and the demobilization of such labor, equipment, and material upon completion of the Work as specified in the Contract Documents. This item also includes Contractor's labor to comply with the health and safety requirements, provide site security and perform project management and coordination.

2. Measurement and Payment: This item will be measures on a lump sum basis as one unit, completed as specified. Half the lump sum payment will be made on the basis of satisfactory evidence of mobilization of at least thirty percent (30%) of the total anticipated labor, equipment and materials to adequately advance Work in accordance with the Contract documents. Remaining half of the lump sum payment will be made upon completion of work and removal of all equipment and personnel.

C. Bid Item 3 – Permit and Regulatory Requirements

1. This item includes all materials, labor, and equipment to secure permits and achieve regulatory requirements as specified in the Contract Documents.

2. Measurement and Payment: This item will be measured on a lump sum basis as one unit, complete as specified. Payment will be made at the Contract lump sum price proposal in accordance with Contract Documents.

D. Bid Item 4 – Submittals

1. This item includes all materials and labor required to complete the Work of writing and distributing Planning Documents and other submittals specified in the Contract Documents.

2. Measurement and Payment: This item will be measured on a lump sum basis as one unit, complete as specified. Payment will be made at the Contract lump sum price proposal in accordance with Contract Documents.

E. Bid Item 5 – Site Preparation, Site Controls and Temporary Facilities, and Environmental Controls

1. This item consists of all materials, labor, and equipment to implement the Site Preparation (i.e., utility location, clearing and grubbing, fence installation, top soil stripping, traffic control, pavement removal), Site Controls and Temporary Facilities, and Temporary Environmental Controls (i.e., dust and emission; erosion and sediment controls) Work specified in:

    a. Section 01 01 00 – General Requirements

    b. Section 31 05 10 – Site Preparation

2. Measurement and Payment: This item will be measured on a lump sum basis as one unit, completed as specified. Payment will be made at the Contract lump sum price proposal in accordance with Contract Documents.

F. Bid Item 6 – Dredging and Dewatering, Transport Dredge Material to Processing Area, Bathymetric Surveys, and Turbidity Controls

1. This item consists of all materials, labor, and equipment necessary to: (i) complete the Work of removing sediment within the limits to the grades specified in the Contract Documents; (ii) transport dredged material to the processing area; (iii) dewater dredged sediment (iv) implement waterway environmental controls; and (v) perform pre- and post-construction surveys as detailed in Sections 31 23 21 and 35 20 13.

2. Measurement and Payment: This item will be measured on for payment by the volumetric unit of the dewatered sediment as documented by trucking slips and measured by the calibrated truck weight scales. Payment will be made at the Contract fixed unit price proposal in accordance with the Contract Documents.

G. Bid Item 7 – Contact Water Discharge

1. This item consists of all materials, labor, and equipment to complete operation, maintenance, expendables, storage, analytical testing, and all permit requirements for the contact water storage, treatment (if necessary) and discharge as specified in Section 31 23 21.

2. If treatment system is necessary to meet permit requirements, this item also includes all materials, labor, and equipment to implement water treatment system mobilization and demobilization (including system setup and commissioning) as specified in Section 31 23 21.

3. Measurement and Payment: This item will be measured on a daily basis of operation (days of actual water treatment system and discharge operation). Payment will be made at the Contract fixed unit price proposal in accordance with the Contract Documents. A day of operation shall be any 24-hour period where the water treatment system and discharge is in operation for more than 8 hours.

H. Bid Item 8 – Dredged Material Transport and Disposal

1. This item consists of all materials, labor, and equipment necessary to load, manifest, transport, and dispose of processed dredge material at either an off-site disposal site (8a) or an approved disposal facility (8b) in accordance with Sections 31 23 21 and 35 20 13, Contract Documents, and approved Plans.

2. Measurement and Payment: This item will be measured on for payment on a per ton basis as documented by calibrated scale tickets. Payment will be made at the Contract fixed unit price proposal in accordance with the Contract Documents.

I. Bid Item 9 – Site Restoration

1. This item consists of all materials, labor, and equipment necessary to complete shoreline and wetland habitat restoration including preparation to complete the Work in accordance with Contract Documents.

2. Measurement and Payment: This item will be measured on a lump sum basis as one unit, completed as specified. Payment will be made at the Contract lump sum price proposal in accordance with Contract Documents.

J. Bid Item 10 – Bond

1. This item consists of all materials, labor, and equipment necessary to obtain bonding and surety in accordance with the Contract Documents.

2. Measurement and Payment: This item will be measured on a lump sum basis as one unit, complete as specified. Payment will be made at the Contract lump sum price proposal in accordance with the Contract Documents.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 31 05 10

SITE PREPARATION

PART 1 GENERAL

1.01 SUMMARY

A. Provide site preparation as shown and as specified. Comply with applicable provisions of Divisions 00 and 01.

B. Work includes, but is not limited to:

1. Protection of improvements, plants, and utilities.
2. Location of utilities and coordination with utility companies.
3. Clearing and grubbing.
4. Fencing installation.
5. Installation of temporary utilities.
6. Removal and replacement of improvements.
7. Clearing and grubbing trees and vegetation.
8. Topsoil salvage.
9. Debris disposal.

C. Site preparation shall be conducted in accordance with applicable local, State and Federal law, code, regulation, and guidance including, but not limited to:

1. Local utility requirements.
2. Wisconsin Department of Transportation (WDOT) Standard Specifications for Highway and Structure Construction, latest edition.

D. Work shall be integrated with and comply with applicable Project Plans and Permits, including but not limited to:

1. Stormwater Pollution Prevention Plan (SWPPP)
2. Wisconsin DNR NPDES Permit for Construction.
3. Carriage Water Discharge Permit.

1.02 GENERAL REQUIREMENTS

A. Prior to commencing the site preparation activities, the Contractor shall confirm the locations of all underground and overhead utilities. The Contractor is responsible to ensure all utilities are identified.

B. Do not commence any earth disturbing site preparation activities until temporary erosion and sedimentation control measures are in place.

C. Site preparation generated materials shall become Contractor's property and shall be removed from the Site and disposed in accordance with applicable local, State and Federal laws, code, and regulations.

PART 2 (NOT USED)

PART 3 EXECUTION

3.01 PROTECTION

A. Protect improvements on site and on adjoining properties. Provide barricades, coverings, or other types of protection as necessary to prevent damage and to safeguard against injury. Restore to original condition improvements damaged by the work or improvements which required temporary removal during construction.

B. Protect existing vegetation indicated to remain against unnecessary cutting, breaking, bruising, or smothering by stockpiling excavated materials or parking of vehicles within drip line. Provide temporary fences, tree wells, barricades, or guards; repair or replace trees and vegetation damaged by construction operations.

C. Maintain survey monuments, reference points, and benchmarks; notify Owner of disturbance to markers.

D. No extra payment or time will be allowed for protection work that could have been suspected or anticipated by site inspection and interpretation of bidding documents prior to execution of contract.

3.02 LOCATING EXISTING UTILITIES

A. No utilities (underground or overhead) are shown on the Drawings. There are utilities on-site both at the Disposal Sites at the properties along the project and along the mechanical and/or hydraulic dredge sites or pipe routes. There may be other utilities within project area that are not shown.

B. Notify all affected utility companies of construction operations at least three working days before beginning work near their facilities. Do not begin excavation work until underground utility locations have been marked.

C. Use caution when excavating so that exact location of underground utilities, both known and unknown, may be determined. Provide adequate protection and support for utilities during construction operations.

D. If uncharted or incorrectly charted utilities are encountered during excavation work, or if proposed construction conflicts with existing utilities, give prompt notice and submit proposed solution to A/E for approval. Cooperate with Owner and public and private utility companies to keep their services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.

3.03 SITE CLEARING

A. At the disposal sites to be used (disposal sites are intentionally oversized and Contractor may choose not to use all available sites):

1. Remove trees, stumps, snags, shrubs, brush, heavy growths of grass, weeds and other vegetation, improvements, rubbish and debris, and obstructions that interfere with proposed construction; remove items only as necessary for completion of work.

2. Cut brush and vegetation flush with ground. Grub out stumps, roots having a diameter of 2 in. or larger, and root clusters to a depth of at least 2 ft below subgrade elevation for pavements, structures, and embankments and 6 in. below ground surface in other areas.

3. Carefully and cleanly cut roots and branches of trees indicated to be left standing, where such roots and branches obstruct new construction. Cut back roots a minimum of 1 ft from concrete work, paving, and structures and to a depth of not less than 2 ft below structures, foundations, and embankments.

B. For downed woody vegetation encountered in the lake bed (below ordinary high water mark), do not remove any material or relocate. Remove loose woody debris (deposited by high flow events) that is above the ordinary high water mark in each bay to be dredged. Dispose of removed material legally. Comply with federal, state, and local laws and regulations. Adhere to offsets at outlined in the Drawings.

3.04 TOPSOIL STRIPPING

A. Topsoil shall include all friable, fertile, loam soil suitable for grass and plants, found at surface, reasonably free of subsoil, clay lumps, stones, objects over 2-in. diameter, weeds, large roots, root clusters, and other objectionable material.

B. Strip topsoil from project area to whatever depths encountered; prevent intermingling with underlaying subsoil or other objectionable material. Remove heavy growths of grass from areas before stripping topsoil. Where trees are indicated to remain, terminate stripping a sufficient distance from such trees to prevent damage to root system.

C. Stockpile topsoil in storage piles in areas where designated. Construct storage piles to freely drain surface water. Cover or sprinkle water on storage piles to prevent windblown dust.

3.05 GEOTEXTILE DEWATERING CONTAINER REMOVAL AND DISPOSAL

A. Remove of and dispose of any portion of geotextile dewatering bags that would be encountered within three feet of finished grade.

B. Dispose of removed portions of the geotextile dewatering container by legally landfilling as municipal solid waste. Comply with federal, state, and local laws and regulations.

3.06 DEBRIS DISPOSAL

A. Remove debris and excess materials from site and legally dispose of it. Burning of combustible materials on site will be permitted only if authorized by official permit and approved by Owner; submit copy of burning permit to Owner. Burning areas and times may be designated by Owner. Comply with federal, state, and local laws and regulations.

END OF SECTION

SECTION 31 22 00

DISPOSAL SITE GRADING

PART 1 GENERAL

1.01 SUMMARY

A. Provide grading as specified. Comply with applicable provisions of Divisions 00 and 01.

B. This section is related to the earthwork for preparation and restoration of the disposal sites. If the Contractor choose to dispose of processed Dredged Material to a permitted landfill, requirements of this Section does not apply.

1.02 RELATED SECTIONS

31 05 10 Site Preparation.
31 24 00 Embankments - Settling Basin and Farm Access Crossing.

1.03 SUBMITTALS

A. Submit list of disposal sites and schedule for disposal sites that Contractor has chosen to use (available disposal sites are intentionally oversized for this project – the Contractor may decide not to use all available sites). Complete this submittal within ten (10) days after Notice to Proceed with the project.

B. Variances in Final Grading: If Contractor chooses to vary final grading at any of the disposal site from what is shown on the Drawings or specified on approved as submitted, Contractor shall submit modifications to the proposed final grading for each site. Submittal shall include an electronic computer aided design (CAD) file and scaled .pdf or hard copy drawing of the disposal site indicating extent of final grading, max fill depths, maximum side slopes, and overall site drainage from the proposed finished grades.

1.04 CLASSIFICATION

A. Excavation of materials encountered under this work will be unclassified with regard to type, difficulty to remove, or suitability for use in construction.

1.05 TESTING

A. Engineer may perform construction quality assurance (CQA) tests or inspections to verify that soils and completed work meet specified requirements. CQA testing or inspections in no manner relieves the Contractor to perform Work specified herein this Section and perform construction quality control (CQC) tests or inspections in conformance with the Contract Documents. Where soil materials do not conform to type or density specified, soil shall be replaced or reworked to conform. Cost of extra tests for replaced or reworked areas shall be paid for by Contractor.

1.06 PROTECTION

A. Protect existing improvements, utilities, trees and shrubs, and reference marks in accordance with Section 31 05 10 – Site Preparation.

SECTION 31 22 00

DISPOSAL SITE GRADING

PART 2 PRODUCTS

2.01 SOIL MATERIALS, GENERAL

A. Soil materials shall be free of organic matter, debris, frozen soils, ice, and other objectionable materials. Rock particles larger than maximum size of 6 inches specified shall be removed prior to placement of soil.

B. Select existing material from required excavations for fill or backfill.

2.02 GENERAL SITE FILL

A. Select, natural, free draining soils complying with ASTM D2487 soil classification groups GW, GP, SW, SP, GM, GC, SM, SC, ML, or combinations thereof, and suitable for compaction. Maximum aggregate size shall be 1/2 specified lift thickness.

PART 3 EXECUTION

3.01 GRADING

A. Grade areas within project limits to achieve cross sections, lines, and elevations indicated. Finish surface to be reasonably smooth and free from irregular surHface changes. Provide a smooth transition between adjacent existing grades and new grades.

B. Finish subgrades for disposal site preparation and reclamation to within the following tolerances (for each requirement listed on the Drawings):

1. Max Fill Depth: Elevation within plus 6 in. from maximum.

2. Max Side Slopes: Slope within 4H:1V steeper than maximum

3.02 SUBGRADE EXAMINATION AND PREPARATION

A. Examine subgrade prior to placement of fill. Remove organic materials and debris subject to rot or corrosion. Plow, strip, or break-up sloped surfaces steeper than 1 vertical to 4 horizontal so that fill material will bond with subgrade.

B. In structure, pavement, and walk areas, proof-roll exposed subgrade with a large vibratory roller rated for a minimum compactive force of 20,000 lb to compact subgrade and detect areas which must be undercut or improved. If ruts deeper than 2-inches are observed, the soft subgrade may continue to be proof-rolled until rutting is no deeper than 2-inches. If this condition cannot be achieved, the Contractor shall inform Engineer of unsuitable, unconsolidated subgrade soils.

C. After subgrade soil is stable, scarify top 6 to 8 in., moisture condition, and compact surface to density specified in Part 4 Schedules.

D. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Engineer, without additional compensation.

3.03 ADDITIONAL EXCAVATION (OVER EXCAVATION)

A. If unsuitable bearing materials, such as poorly compacted fill, existing foundations, rubble, debris, or organic deposits, are encountered at required subgrade elevations, carry excavations deeper and replace excavated material with properly compacted Structural Fill as directed by Engineer.

B. Where over excavation below footing subgrade is required, widen over excavation beyond footing edges at least 1 ft for each 1 ft of over excavation depth.

C. Removal of unsuitable material and its replacement as directed will be paid for as extra work unless a pay item is included in the Bid Schedule. Do not proceed with extra or unit price work until authorized.

3.04 FILLING

A. Do not place fill until subgrade preparation has been examined and an approved by testing agency.

B. Place and compact fill materials in layers to required elevations as follows:

1. Under grass and planted areas: Use General Site Fill.

C. Place fill in approximately horizontal layers; do not exceed maximum lift thickness specified in Part 4 Schedules before compaction.

D. During placement and compaction, maintain moisture content of materials within optimum range. Compact each layer of fill to not less than the percentage of maximum density specified in Part 4 Schedules.

E. Do not place fill on frozen subgrade.

3.05 MAINTENANCE

A. Protect newly graded areas from traffic and erosion and keep free of trash and debris. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.

B. Maintain erosion control measures to prevent run-off and sediment pollution of adjacent water courses.

3.06 DISPOSAL OF EXCESS AND WASTE MATERIALS

A. Remove excess excavated material and legally dispose of it off-site or, if available, at a place on-site as designated by Engineer.

B. Remove trash, debris, and other waste materials and legally dispose of them off-site.

PART 4 SCHEDULES

4.01 COMPACTION SCHEDULE

Location	Lift Thickness	Compaction [1]
Disposal Sites, General Site Grading	8"-10"	90%

[1] Percent of maximum density determined in accordance with ASTM D1557 (Modified Proctor test).

END OF SECTION

SECTION 31 23 21

DEWATERING AND CONTACT WATER DISCHARGE

PART 1 GENERAL

1.01 SUMMARY

A. This Section presents details regarding the Dredged Material Dewatering and Contact Water treatment and discharge work.
B. The Contractor shall furnish all labor, tools, transportation, and installation of equipment necessary to perform Dredged Material Dewatering and Contact Water treatment and discharge work as specified herein and as depicted on the Drawings.

1.02 RELATED SECTIONS

01 01 00 General Requirements.

31 05 10 Site Preparation.

1.03 DEFINITIONS

A. Contact Water – Water decanted and removed from Dredged Material, including stormwater that comes in contact with Dredged Material during Dewatering, and wash water collected from tire washing processes.
B. Dewatering – Processing of Dredged Material to meet free liquid requirements of off-site transportation.
C. Debris – Material separated from dredged sediments during the material separation process or any object greater than 6 inches, including but not limited to: wood, pilings, concrete, tires, plastic, rocks, rubbish, wire/cable/chain, sheet metal, and anchors.
D. Dredged Material – Dredged Sediment and Debris removed from the dredge area.
E. Dredged Material Management Area – Area where Dredged Material and Debris may be placed for dewatering, processing, or staging prior to transportation and/or disposal.
F. Processed Dredged Material (PDM) – Dredged Material which has been dewatered and handled to meet the acceptance criteria for transportation and/or disposal.

1.04 SUBMITTALS

A. Dewatering Plan to be submitted for review and approval at within ten (10) days after notice to proceed and at least thirty (30) days before start of dredging. The plan shall be prepared by a professional engineer registered in State of Wisconsin. The Dewatering Plan shall demonstrate compliance with the requirements outlined in this Section, and Contract Documents. The plan shall describe the sequencing, details, and means and methods for dewatering including but not limited to:

    1. A schedule and flow chart showing all steps of Dredged Material management beginning with dredging through loading PDM for eventual transportation and/or disposal; throughputs and hold times associated with processing, testing, and end-placement; decision points, reprocessing activities, and their inter-relationship to demonstrate adequate process capacity.

2. A detailed description of a Dredged Material Management Area including but not limited to the following:
   a. Location, size, and layout of the Dredged Material Management Area with a description of the proposed temporary facilities, features and environmental controls.
   b. Description of the materials and specific approaches to be used for the construction of the Dredged Material Management Area.
   c. Description of the specific approaches to be used to collect, store, and transport runoff from the Dredged Material Management Area.

3. An equipment list including all equipment to be used for handling and transport of Dredged Material for dewatering and end-placement, if applicable.

4. A detailed description of equipment, methods, and techniques for removing and transporting Contact Water. Acceptable methods include:
   a. Geotextile tube dewatering
   b. Mechanical filter press dewatering
   c. Passive aeration and dewatering
   d. Solidification through mixing with amendment(s)
   e. Soil turning
   f. Size-based sorting of Dredged Material and Debris

5. Description of proposed dust control and odor mitigation measures at the Dredged Material Management Area.

6. A detailed description of means and methods to meet discharge water quality standards required by permits. Additionally describe corrective action that will be taken if permits standards are not met.

7. If applicable, description of solidification amendment(s), proposed mix design, equipment, and means for mixing the Dredged Material with amendment(s).

8. If applicable, pumping methods, mass balance of the pumping flow rates, chemical make-down, amount of dilution water, filtrate volume, density measurement, and percent solids – all integrated into a real-time control system, showing a method of collection and discharge point.

9. If applicable, details and layout of dry or emulsion polymer make down and metering system, including: chemical make-down details including polymer type, polymer injection system / location, flocculation monitoring, and filling method.

B. Product Data:

10. Submit product literature and specifications for materials used to construct the Dredged Material Management Area and related components.

11. If applicable, submit manufacturer's installation instructions for the geotextile containers and ancillary features used to construct the geotextile tube dewatering containers.

C. Shop Drawings:

1. Submit fabrication drawings of the materials, ancillary features, and method of installation details for the complete system.

D. Materials Certification:

1. Submit signed certification from vendors or manufacturer indicating materials utilized meet the project specification requirements and are designed specifically for this purpose.

2. Details and layout of dry or emulsion polymer make down and metering system, including: chemical make-down details including polymer type, polymer injection system / location, flocculation monitoring, and filling method.

E. Test Report:

1. If applicable, submit a copy of Geotextile Dewatering Test (GDT) for the specific material to be dewatered.

F. Permit:

1. Submit a copy of approved "Carriage Water from Dredging Operations General Permit" including full copy of application materials and permit conditions.

1.05 PERMITS

A. Dewatering Permit: Contractor's method of accommodating seepage may require a high-capacity dewatering permit, a pit trenching permit, or similar permit. Contact WDNR for more details. Required dewatering permit(s) shall be obtained at Contractor's cost and no additional schedule allowance will be given to accommodate the permit review period. Contractor shall apply for the WDNR's "Carriage Water from Dredging Operations General Permit" and comply with all applicable terms and standards of the permit. See Section 01 01 00 1.07 PERMITS AND CODES for additional information.

B. Permit Compliance: Should the Contractor's actions or construction not be in compliance with the applicable permits, Contractor shall remedy situation as directed by Owner, and all costs associated with those actions shall be borne by Contractor.

1.06 SITE CONDITIONS

A. Information on the in-situ sediment is presented upon request

1.07 PRODUCT DELIVERY, HANDLING, AND STORAGE

A. Product Delivery: If applicable, products and all related components shall be delivered to the project site in manufacturer approved containers, protective wrap or cover. Each container shall be clearly labeled for easy identification.

B. Product Handling: If applicable, no hooks, tongs, or other sharp instruments shall be used for handling geotextile tube containers. In addition, the container shall not be dragged

along the ground. Containers shall be unrolled into position as recommended by the manufacturer.

C. Product Storage: All products and related components shall be stored in areas where water cannot accumulate, elevated off the ground, and protected from conditions that will affect its properties or performance. Products shall not be exposed to temperatures or duration of storage time that exceed manufacturer recommendations.

1.08 PRODUCT REPAIR (IF NEEDED)

A. Damaged material during the project, shall be repaired per manufacturer's recommendations or be replaced with a new product. Contractor shall report all damages to Engineer and allow for re-inspection by Engineer of the damaged area before resuming dewatering process.

PART 2 PRODUCTS

2.01 DESIGN REQUIREMENTS

A. Contractor shall be responsible for: means and methods for dewatering work areas, including actual field dimensions, configurations, stability, and dewatering capacity. Contractor shall also be responsible for all safety precautions and programs related to the work.

B. Design dewatering system for the conditions as required by WDNR memo available upon

request

2.02 GEOTEXTILE DEWATERING CONTAINERS

A. If the Contractor proposes geotextile tube dewatering, approved manufactured geotextile dewatering containers for this project are:

1. ACE Geosynthetics ACETube (www.geoace.com/e/acetube.htm).
2. Geo-Synthetics, LLC Geostrux Geotextile Tubes (www.geo-synthetics.com/geotextile-tubes/).
3. Land Marine Supply – FabricTube http://www.landmarinesupply.com/products/fabrictube-dewatering/)
4. TenCate Geosynthetics - Geotube Container (www.tencategeo.eu/en/products/tencate-geotube/Dewatering-Geotube).
5. US Fabrics 450T EcoTube (www.usfabricsinc.com/products/us-450t-ecotube).

PART 3 EXECUTION

3.01 GENERAL

A. Verify existing conditions as shown on the Drawings and become thoroughly familiar with the Site, the Site conditions, and all portions of the Work described in the Contract Documents.

B. Locate underground and overhead utilities and conduct Site preparation as set forth in Section 31 05 10 – Site Preparation.

C. Conduct Work in accordance with the Contract Documents and the approved Dewatering Plan.

D. Implement environmental controls for spill prevention, dust, and odor in accordance with the approved Dewatering Plan.

E. Notify the Engineer of any proposed changes needed to accommodate field conditions prior to their implementation for review and approval. Approved changes shall be documented in writing and submitted to Engineer within seven (7) days of approval.

F. All operators shall have a minimum of one (1) year of experience with the type of equipment they are to be operating.

3.02 DEWATERING AND CONTACT WATER DISCHARGE

A. Protect and maintain the stability of banks, docks, and other structures and features adjacent to Work area that could be impacted by the operations. Repair damages to structures and/or features resulting from material processing (e.g., loading and unloading, dewatering) operations at Contractor's expense.

B. Debris shall be separated from Sediment and managed separately. Debris shall be washed either on the barge or within the Dredged Material Management Area. Regardless, wash water must be captured and transported for proper discharge.

C. Maintain the integrity of constructed surfaces in the Dredged Material Management Area. Inspections shall be performed at least weekly and may be accompanied by the Owner or Engineer. Contractor is responsible for any required repairs related to any defects and deficiencies identified during the inspections.

D. The Dredged Material Management Area shall be sized and constructed based on the Contractor's expected dredge production rate, solids content, and pumping rates. The Contractor will not be compensated for downtime related to the delays arise from the limitations of Dredged Material Management Area.

E. Contact Water will drain to a sump area and will be transferred to the water treatment system or discharge point. Contact Water shall meet the requirements of the Carriage Water from Dredging Operations General Permit or project-specific agreement with a POTW prior to discharge. Contact Water shall not be left overnight and must be discharged or stored in a frac tank at the end of each day.

F. The Contractor shall implement Dredged Material management procedures in accordance with the approved Dewatering Plan to sufficiently dewater material to allow for transportation and/or disposal in accordance with the requirements of Contract Documents.

G. The Contractor shall be responsible for ensuring that all material loaded for off-Site transportation, storage, or disposal meets all relevant criteria in accordance with permit requirements and applicable and local, state, and federal laws and regulations, and meets the acceptance requirements of the receiving disposal facility.

3.03 DISPOSAL

A. Dredged material shall be transported and deposited in disposal sites selected and arranged for by Contractor. Furnish a legal document giving written permission for use of selected disposal area. Contractor-selected disposal sites shall be subject to approval. Expenses incurred in connection with providing and making available such disposal areas shall be borne by Contractor, and materials deposited thereon, and operations in connection therewith shall be at Contractor's risk.

B. Any material that is deposited elsewhere than in places designated or approved will not be paid for and Contractor will be required to remove such misplaced material and deposit it where directed at his expense.

C. Leakage or spillage of hauled materials on to public roads and streets will not be permitted, and if unavoidably done, shall be removed daily in a manner acceptable to Owner. Material boxes of hauling equipment shall be of watertight construction and shall not be loaded over their rated capacity; nor shall loads exceed limits of local thoroughfares over which they operate. Comply with laws and regulations pertaining to operation of vehicles.

END OF SECTION

SECTION 31 24 00

EMBANKMENTS – SETTLING BASIN AND FARM ACCESS CROSSING

PART 1 GENERAL

1.01 SUMMARY

A. Provide earth embankments as shown and as specified. Comply with applicable provisions of Divisions 00 and 01.

B. This section is related to the settling basin and farm access crossing embankments.

1.02 RELATED SECTIONS

31 05 10 Site Preparation.
31 22 00 Disposal Site Grading.

1.03 SUBMITTALS

A. Test Reports: Submit reports for laboratory and field tests required under "Testing" article.

B. Make submittals in accordance with Section 01 01 00.

1.04 TESTING

A. General: Contractor shall arrange and pay for laboratory and field testing of fill material by a qualified testing agency, acceptable to Owner and independent of Contractor.

B. Laboratory Testing:

1. Fill materials shall be tested for gradation in accordance with ASTM C136 and ASTM C117 for conformance with ASTM D2487 gradation limits, and for liquid limit and plasticity index in accordance with ASTM D4318. Optimum moisture-maximum density curve for fill material shall be determined in accordance with ASTM D1557.
2. Results of laboratory tests shall be received prior to any material placement.

C. Field Testing:

1. Perform a minimum of one density test for each vertical foot of fill for every 100 lin ft of embankment fill.
2. Field density tests shall be in accordance with ASTM D6938 or ASTM D1556.
3. Where soil materials do not conform to type or density specified, soil shall be replaced or reworked to conform. Cost of extra tests for replaced or reworked areas shall be paid for by Contractor.

1.05 PROTECTION

A. Protect existing improvements, utilities, trees and shrubs, and reference marks in accordance with Section 31 05 10.

PART 2 PRODUCTS

2.01 SOIL MATERIALS, GENERAL

A. Soil materials shall be free of organic matter, debris, frozen soils, ice, and other objectionable materials. Rock particles larger than maximum size specified for each type of material shall be removed prior to placement of soil. If not otherwise specified, rock particles shall be no larger than 1/2 the specified lift (layer) thickness.

B. Obtain fill materials from required excavations and grading within disposal site limits.

2.02 EMBANKMENT FILL

A. Select, natural, free draining soils complying with ASTM D2487 soil classification groups SP, ML, SM, CL, or combinations thereof, and suitable for compaction. Maximum aggregate size shall be 3 in.

B. Material shall be non-plastic during plastic limit portion of Atterberg Limits test. Direct shear tests shall indicate that friction angle of material is 30 deg or greater.

PART 3 EXECUTION

3.01 FOUNDATION PREPARATION

A. Foundations for embankment fill shall be stripped in accordance with Section 31 05 10 to remove vegetation and topsoil. If shown, or required to remove unsuitable materials, provide excavation work.

B. Except as otherwise specified, grade earth foundation surfaces to remove surface irregularities and scarify parallel to axis of fill or otherwise acceptably score and loosen to a minimum depth of 2 in. Control moisture content of loosened material as specified for embankment fill, and compact and bond surface materials with first layer of fill as specified for subsequent layers of fill.

C. Foundation and abutment surfaces shall be not steeper than 1 horizontal to 1 vertical, unless otherwise specified. Fill test pits and other cavities with material conforming to specifications for earth fill.

D. Keep earth abutment surfaces free of loose, uncompacted earth in excess of 2 in. in depth normal to slope and at a moisture content that embankment fill can be compacted against them to affect a good bond between fill and abutments. Clear rock foundation of loose materials by hand or other effective means. Keep foundations and abutments free of standing water when fill is placed.

E. Occasional rock outcrops in foundations for embankment fill, except in dams and other structures designed to restrain movement of water, shall not require special treatment if they do not interfere with compaction of foundation and initial layers of fill or bond between foundation and fill.

3.02 PLACEMENT

A. Do not place fill until required excavation and foundation preparation have been inspected and approved. Do not place fill upon frozen surface; no snow, ice, or frozen material shall be incorporated in fill.

B. Place fill in approximately horizontal layers; do not exceed maximum loose layer thickness specified. Spread piles and windrows uniformly. Spreading and compacting equipment shall travel approximately parallel to centerline of embankment.

C. Earth fill in dams, levees, and embankments designed to retain water shall meet the following requirements:

1. Distribute materials throughout each zone uniformly, free from lenses, pockets, or layers differing substantially in texture or graduation.
2. Scarify layers too hard and smooth for proper bond with succeeding layer; scarify parallel to axis of fill to a depth of 2 in.
3. Maintain top surfaces of fills approximately level during construction, except provide a crown or cross-slope of not less than 2 percent for drainage. If the work requires fill to be placed higher at parts of an embankment, maintain top surface of each part level as specified above.
4. Place fill in continuous layers from abutment to abutment, except where openings to facilitate construction or to allow stream flow are authorized. Route equipment travel approximately parallel to embankment centerline.
5. Construct embankments required to be built at different levels so slopes of bonding surfaces between adjacent levels of embankment are not steeper than 2 horizontal to 1 vertical. Strip bonding surface of loose material and scarify, moisten, and recompact at specified moisture content and density to insure good bond with new fill.

3.03 CONTROL OF MOISTURE CONTENT

A. During placement and compaction of fill, maintain moisture content of materials being placed within the specified range.

B. Apply water to fill materials by sprinkling at excavation site or during placement of fill if necessary. Obtain uniform moisture distribution by discing, blading, or other approved methods prior to compaction of layer. If material is too wet when deposited on fill remove or dry it to specified moisture content prior to compaction.

C. If top surface of preceding layer of compacted fill or a foundation or abutment surface in zone of contact with fill becomes too dry to permit suitable bond, scarify and moisten it by sprinkling to an acceptable moisture content prior to placement of next layer of fill.

3.04 COMPACTION

A. Compact each layer of fill to a mass density not less than the percent of maximum density specified in 4.01 Embankment Compaction Schedule.

3.05 REMOVAL AND REPLACEMENT OF DEFECTIVE FILL

A. Fill placed at densities lower than the specified minimum density, or at moisture contents outside the specified acceptable range or otherwise not conforming to requirements shall be removed and replaced by acceptable fill. Replacement fill and foundation preparation shall conform to all requirements.

3.06 DISPOSAL OF EXCESS AND WASTE MATERIALS

A. Remove excess excavated material and legally dispose of it off-site or, if available, at a place on-site as designated by A/E.

B. Remove trash, debris, and other waste materials and legally dispose of them off-site.

PART 4 SCHEDULES

4.01 EMBANKMENT COMPACTION SCHEDULE

Use	Material Type	Layer Thickness (Max) Machine Compaction	Layer Thickness (Max) Hand Compaction	Moisture Content	Compaction Density *
Settling Basin and Farm Access Embankments	Fill	8"-10"	N/A	+/- 2% of optimum	95%

*ASTM D1557 (Modified Proctor density)

END OF SECTION

SECTION 31 37 00

RIPRAP

PART 1 GENERAL

1.01 SUMMARY

A. Provide loose rock riprap, including geotextile filter fabric, as shown and as specified. Comply with applicable provisions of Divisions 00 and 01.

1.02 SUBMITTALS

A. Product Data:

1. Submit information on sources of riprap. Provide access to sources to enable A/E to inspect and obtain samples. Do not deliver riprap until reviewed by A/E.
2. Submit fabric product data. Include material samples, certification of physical properties, and installation procedures.

B. Make submittals in accordance with Section 01 01 00.

1.03 TESTING

A. A/E may perform tests to verify that riprap and completed work meet specified requirements. However, these tests are not intended to provide Contractor with information it may need to assure that materials and workmanship meet requirements of specifications, and their performance will not relieve Contractor of responsibility of performing its own tests for that purpose.

1.04 DELIVERY, STORING, AND HANDLING

A. Store and handle fabric in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.01 RIPRAP

A. Durable field or quarry stone that is sound, hard, dense, resistant to the action of air and water, and free of seams, cracks, or other structural defects. Use stone pieces with a length and width no more than twice the thickness.

B. Riprap gradation shall be as follows, where average dimension of stone pieces is determined by averaging measurements of thickness, width, and length.

Average Dimension Range (Inches)	Fraction of Gross In-Place Riprap Volume Occupied By Stones
>16	0%
11 - 13	10% - 14%
9 - 11	15% - 21%
4 - 9	20% - 28%
<4	5% - 7%
<1	2% or less

2.02 GEOTEXTILE FILTER FABRIC

A. Fabric shall be a woven or nonwoven polyester, polypropylene, stabilized nylon, polyethylene, or polyvinylidene chloride material whose function is to pass ground water from beneath fabric while restricting migration of subgrade soil particles into overlying stone ballast. Fabric shall be treated to ensure stability under ultraviolet radiation (sunlight).

B. Provide fabric with the following performance and in-service properties (properties shall be in both principal fabric directions where applicable):

Property	Value	Test
Grab Tensile Strength	205 lb (min.)	ASTM D4632
Puncture Strength	400 lb (min.)	ASTM D6241
Apparent Breaking Elongation	15% (min.)	ASTM D4632
Apparent Opening Size	30 sieve (max.)	ASTM D4751
Permittivity	0.12 sec^{-1} (min.)	ASTM D4491

PART 3 EXECUTION

3.01 SUBGRADE PREPARATION

A. Grade subgrade surfaces to lines and grades as shown with an allowance for riprap. Remove organic materials. Compact soft subgrade soils. When fill to achieve subgrade lines is required, provide granular materials.

3.02 FABRIC INSTALLATION

A. Provide fabric under all riprap, unless otherwise shown. Install fabric as shown and in accordance with manufacturer's recommendations.

B. Surface to receive fabric shall be smooth and free of obstructions, depressions, and debris. Lay fabric parallel to direction of water flow.

C. If lapping of fabric is required, minimum overlap shall be 2 ft. Overlaps may be eliminated if fabric sections are either factory or field sewn. Seam strength shall be at least 80% of fabric tensile strength.

D. Secure fabric in place to prevent shifting before or during placement of stone or riprap.

E. Repair or replace torn or punctured fabric in accordance with manufacturer's instructions; no extra compensation will be allowed.

3.03 EQUIPMENT-PLACED ROCK RIPRAP

A. Riprap shall be placed to full course thickness in one operation from base of slope upward; height of riprap freefall shall not exceed 1 ft. Riprap shall be reasonably homogeneous with larger rocks uniformly distributed and firmly in contact and smaller rocks and spalls rammed into voids between larger rocks to interlock and form an even surface.

B. Hand placement will be required where necessary to correct obvious irregularities and to prevent damage to adjacent improvements and wherever equipment placement methods are unsatisfactory.

3.04 HAND-PLACED RIPRAP

A. Riprap shall be securely bedded with larger rocks firmly in contact one to another. Spaces between larger rocks shall be filled with smaller rocks and spalls. Smaller rocks shall not be grouped as a substitute for larger rock. Flat slab rock shall be laid on edge.

END OF SECTION

SECTION 35 20 13

DREDGING

PART 1 GENERAL

1.01 SUMMARY

A. This section presents details regarding the Contractor's dredging work.
B. The Contractor shall furnish all labor, tools, transportation, and installation of equipment necessary to perform dredging and post-dredge confirmation as specified herein and in accordance with the Contract Documents.
C. Dredging shall extend five (5) feet from the sediment surface within the limits depicted in Drawings. The Work specified in this Section shall include, but not limited to: removal of debris, removal of sediment, and transportation of dredged material to Dredged Material Management Area.
D. The Work specified in this Section shall be integrated with and comply with applicable Project Plans and Permits, and local, state and federal permits, laws and regulations.

1.02 RELATED SECTIONS

01 01 00 General Requirements

31 05 10 Site Preparation

1.03 DEFINITIONS

A. Allowable Overdredge (OD) – Depth below grade that is not required to be removed but for which the Contractor will be paid for, if removed.
B. Dredged Material – Dredged Sediment and Debris removed from the dredge area.
C. Excessive Dredging – Material removed outside the dredge area or below the allowable OD will be considered excessive. Removal and handling, dewatering and disposal of excessive dredge material will not be paid by the Owner.
D. Grade – The grade of final dredge surface, down to five (5) foot below Ordinary High Water Elevation or Hard Pan (OHW Elevation 773.7 NAVD 88), the Contractor must achieve for approval of completion of Work.
E. Overdredge (OD) Volume – In situ volume between Grade and Allowable OD that is not required to be removed, but for which the Contractor will be paid if it is removed.
F. Required Dredge Volume – In situ volume of material, excluding OD Volume, that the Contractor must remove prior to approval of completion of Work.
G. Side Slopes – Slope of the cut or fill expressed as the ratio of horizontal distance to vertical distance.

1.03 SUBMITTALS

A. Dredging Work Plan – Submit thirty (30) days prior to start of Work. The Contractor shall demonstrate compliance with the requirements outlined herein and Contract Documents. The Plan shall include a detailed narrative description; proposed sequencing, details, and means and methods of all dredging operations; shop drawings; manufacturer's cut, data, and specification sheets, and all other supporting data for proposed dredging Work including, but not limited to, the following:

SECTION 35 20 13

DREDGING

1. Mobilization:
   a. Proposed means and methods for mobilization and deployment of dredging and support equipment.
   b. Provide details on environmental and turbidity control measures in the Work Area.

2. Equipment:
   a. Provide a list of dredge equipment to be used, including specifications and capacities, design of barges/dredging equipment, and details regarding their conformance with Section 16.L: Floating Cranes/Derricks, Crane Barges, and Auxiliary Shipboard-Mounted Cranes in the USACE Safety and Health Requirements (USACE 2014 "EM 385-1-1").
   b. Description of fuel storage areas and refueling procedures.
   c. Description of global positioning system (GPS) to be used.
   d. Description of dredge control telemetry and visualization software to be used.

3. Scheduling:
   a. Proposed sequencing of all major dredging operations and other Work elements (e.g., dewatering, dredged material transportation and disposal).
   b. Provide anticipated dredge production rates.
   c. Planned schedule (order and estimated timeframe) for dredging each of the bays. Submit by bay number outlined on the Drawings.
   d. Update schedule when changes are anticipated and provide A/E with a minimum of 30 calendar day notice prior to starting work in any new bay. Notice may be given for several bays at one time. Note: This requirement is to help provide private landowners adequate notice prior to their respective areas of the lake being dredged. This requirement is not related to working hours. Working hours are to remain as indicated in Section 01 01 00 - General Requirements. Complete this submittal within 10 days after Notice to Proceed with the project.

4. Proposed means and methods for the following:
   a. Dredging in the Work Area including but not limited in areas of shallow draft.
   b. Temporary environmental control measures and best management practices to minimize the turbidity, resuspension of sediments and control of odor and emissions.
   c. Separating debris from dredged sediment, and management of debris for disposal.
   d. Transportation of dredged material onto the dredged material management area.
   e. If applicable, removing and transporting excess dredge (i.e., decant) water from barges to the dredged material management area.
   f. Monitoring, surveying, and reporting dredging progress to meet the final grades as specified herein.
   g. Protecting structures, utilities, banks, and docks during dredging.
   h. Tying up and securing barges and other equipment.
   i. Keeping up the public clear of dredging operations.

5. Personnel:
   a. The Contractor shall provide the most recent certifications of all equipment operators (i.e., barge captains, crane operators, etc.) and their qualifications, including years of experience.

b. The Contractor shall provide the name and credentials of the third-party surveyor(s) completing the pre- and post-dredge and progress surveys.

6. Daily Inspections:
   a. Inspection forms of all barges and scows including load limits.
   b. Procedures for inspecting major equipment (e.g., bucket, pumps, piping, etc.), including inspection frequency and proposed plan for addressing equipment malfunction.
   c. The Contractor shall provide the name and credentials of the third-party surveyor(s) completing the pre- and post-dredge and progress surveys.

B. Disposal Site Schedule and Work Plan: Prior to beginning work, submit for information only a complete schedule of dredging disposal site operations, equipment to be utilized, and procedures. Include a proposed disposal site location, route to the disposal site, disposal site layout, plan for dewatering and stabilizing sediments in the disposal site, and sediment site reclamation plan. Include a plan for quality control covering methods, tests, frequency, and reports.

C. The Contractor shall submit shop drawings at least thirty (30) days

D. The Contractor shall submit weekly progress reports. The weekly progress reports shall include the following:

1. Summary of personnel on-site and hours.

2. Summary of equipment on site.

3. Estimated dredge volume.

4. Estimated volume of dewatered dredge material (if applicable).

5. Any inspection of the Work and findings, including deficiencies and corrective actions.

6. Odor control measures completed.

7. Any communications received by the Owner.

E. Photos and Video Recording: Submit digital color photos (JPG-format) and video recording of access points as specified in the “Access” article below

F. The Contractor shall perform the surveys described herein and provide submittals to the Owner as follows:

1. A recent hydrographic survey of the existing bathymetry is available to the Contractor (dated April 2022). The Contractor shall perform a pre-dredge survey and survey results shall be submitted with the following information:
   a. Sorted minimum and average soundings data in easting, northing, and elevation format (XYZ).
   b. A bathymetry map depicting 0.5-feet contours within the Work Area.

c. A calculated total required dredge and maximum allowed OD volumes.

2. Required post-dredge survey of each bay with the following details:
   a. Sorted minimum and average soundings data in easting, northing, and elevation format (XYZ).
   b. A bathymetry map depicting 0.5-feet contours within the Work Area with minimum sounding from each grid cell (soundings below grade shall be in one color, while soundings above grade shall be another).
   c. Total dredge volume to grade calculation.
   d. Total OD volume calculation.

G. Make Submittals in accordance with Section 01 01 00.

1.04 PERMITS

A. Contractor shall obtain and pay for necessary licenses and permits, and comply with applicable Federal, State and local laws and regulations. Display permits where directed by Owner. Contractor may submit the proposed changes (mechanical dredging and associated mechanical dredging disposal site) as modifications to the existing WDNR IP-SC-2018-57-00802 (See Appendix A).

B. Permit Compliance: Should the Contractor's actions or construction not be in compliance with the applicable permits, Contractor shall remedy situation as directed by Owner, and all costs associated with those actions shall be borne by Contractor.

1.05 ACCESS

A. Contactor shall be responsible for access easements to dredge site, accessible via the County Boat Landing or any other access as needed for his operation.

B. Contractor shall furnish easements to the disposal area and between disposal area and dredging area as needed for their operation.

C. Contractor shall identify route from disposal area and dredging area. The route shall be selected to minimize traffic township and county roads.

D. Take photos and video recording of access points prior to start of work to document original conditions.

E. Contractor shall be responsible for any damage or deterioration of the access route between the disposal site and the dredge site (accessible via the County Boat Landing).

F. Contractor shall secure access to the Lake from publicly owned boat landings or private land owners and the contractor shall not haul sediments from any other route than he has identified above.

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DREDGING

1.07 ENVIRONMENT PROTECTION

A. Comply with applicable Federal, State, and local laws and regulations concerning environmental pollution control and abatement.

1. Note: Contractor is responsible for monitoring turbidity levels outside the dredge area and returning work area to base level turbidity readings before completing work in any one area. In lieu of using turbidity barriers in the bays that are being dredged, Contractor may submit a turbidity monitoring plan, including methods to reduce turbidity, specifications of their dredging equipment intended to limit turbidity, and a turbidity monitoring plan that includes sampling. The turbidity monitoring plan is subject to WDNR review and approval prior to start of work. Submit the plan to A/E and A/E will coordinate review with WDNR.

1.08 PROTECTION

A. Provide sufficient barricades and protective devices around excavations to safeguard against injury. Provide and maintain sufficient safety lanterns at night. Comply with Section 31 05 10 – Site Preparation.

B. Comply with applicable Federal, State, and local laws and regulations concerning environmental pollution control and abatement.

1.09 EXPLOSIVES

A. Use of explosives is not permitted.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 DREDGING EQUIPMENT

A. Types and capacities of equipment suitable for use at the site and production rates to be obtained are the responsibility of Contractor.

B. Dredge equipment shall be equipped with real time kinematic (RTK) global positioning system (GPS) and dredge visualization/tracking software (e.g., Hypack, Teledyne PDS Dredge, etc.).

C. All tow boats and self-propelled barges shall be equipped with DGPS navigational equipment, radar, corrected compass, at least two-way marine VHF radios, and depth sounding equipment.

D. All floating plants, dredging equipment and marine vessels shall have adequate lighting and proper reflection for periods of restricted visibility in accordance with OSHA 29 CFR 1926.56.

E. All vessels and work boats shall meet U.S. Coast Guard requirements.

SECTION 35 20 13

DREDGING

3.02 GENERAL

A. The Contractor shall verify existing conditions as shown on the Drawings and become thoroughly familiar with the Site, Site conditions, and all portions of the Work.

B. The Contractor shall conduct Work in accordance with approved Dredging Work Plan and permit requirements.

C. The Contractor shall notify Owner of any proposed changes needed to accommodate field conditions prior to their implementation for approval. Approved changes shall be documented in Weekly Progress Reports.

D. The Contractor shall allow and provide safe access to the Owner and Engineer for observation during the Work.

3.03 DREDGING

A. The Contractor shall sequence the Work in an orderly and logical manner, account for the stability of shorelines and banks and nearby structures.

B. The Contractor shall provide and install turbidity curtain around the dredge equipment (i.e., moonpool) to minimize transportation of suspended solids. Design and orientation of the turbidity curtain shall be modified as necessary due to varying depths and/or changing conditions.

C. Discharges of fuel, oil, or other materials into the Work Area are strictly prohibited. The Contractor shall immediately notify the Engineer if accidental discharge occurs and shall take appropriate actions to mitigate spill/release.

D. The Contractor shall remove sediment to the extents and grades shown on Drawings and within depth and tolerances specified herein.

1. Remove the top five (5) feet of sediment from existing bathymetry.

2. Side slopes for all dredging activities are not to be steeper than 1V:4H, unless otherwise approved.

3. Maximum OD allowance is six (6) inches (0.5 feet).

E. Any damages to the adjacent bank, structures (i.e. piers), and features during dredging operations shall be repaired at the cost of the Contractor.

F. If unanticipated conditions are encountered, the Contractor shall immediately stop work and notify the Owner. Following resolution, the Contractor will provide written notification to the Owner detailing the unanticipated conditions and approved resolution.

G. Transport and manage Dredged Material in accordance with the approved Plans and Contract Documents.

H. The Contractor is advised of the potential of encountering small to large Debris, including but not limited to wood Debris, wood pilings, wooden planks, stumps, logs, branches, and rubbish, within the work area. The Dredging Subcontractor at its own discretion has the option to perform a debris survey at its own expense. It is up to the Contractor to determine if Debris shall be removed prior to or during dredging to avoid inhibiting dredge production.

I. If the Contractor encounters oversize Debris that cannot be removed with available equipment to the extent practicable, Contractor shall first attempt to dissect (e.g., chewing) the portion of the Debris that falls within the work limits (horizontally or vertically). If the Contractor cannot dissect the oversize Debris, Contractor shall provide written notification to the Owner and Engineer with a proposed approach on working around the Debris.

J. Debris shall be separated from Sediment and managed separately.

3.04 SURVEY AND ACCEPTANCE

A. All survey data shall be consistent with the coordinate system and datum used in the Contract Documents.

B. Surveys shall be submitted as .xml files along with written descriptions of the areas surveyed. Each submittal shall include a cover memo with a table of the files included clearly outlined and a summary of the volume removed from pre- survey to post-survey for each bay.

C. All bathymetric surveys shall conform to the following requirements:

1. For marine surveys, accuracies shall meet ± 4 inches for repeatability and ± 6 inches for typical standard deviation.

2. A minimum 100% coverage must be obtained for all as-built surveys for payment, volume calculation, and payment.

3. Bathymetric survey results shall be binned to 3-ft by 3-ft matrix.

4. Soundings shall be recorded to the nearest 0.5 inches.

D. Conduct bathymetric surveys as follows:

1. Sorted minimum and average soundings data in XYZ format.

2. Pre-dredge Survey – Conduct and submit a bathymetric survey prior to commencing the work depicting 0.5-feet contours within the Work area.

3. Post-dredge Survey – Conduct bathymetric survey depicting 0.5-feet contours within the work area with minimum soundings from each grid cell (soundings below grade shall be in one color, while soundings above grade shall be another) to verify that sediment has been removed as specified herein.

4. If Contractor elects to sequence the dredging in smaller sections (each bay), post-dredge surveys shall be completed for each bay prior to subsequent work. A single

consolidated post-dredge survey of the entire Work area is required upon completion of dredging Work.

5. If surveys indicate that required grades have not been met in all grids, the Contractor shall re-dredge any grid with elevation greater than the final grade elevation as specified herein.

6. Post-dredge surveys will be used for payment quantity calculations.

3.05 POST-CONSTRUCTION CLEANUP

A. Obliterate all signs of temporary construction facilities such as haul roads, work areas, buildings, stockpiles of excess or waste materials, or other vestiges of construction. Disturbed areas shall be graded and filled as required.

END OF SECTION

Figure 1 - Overall Site Map

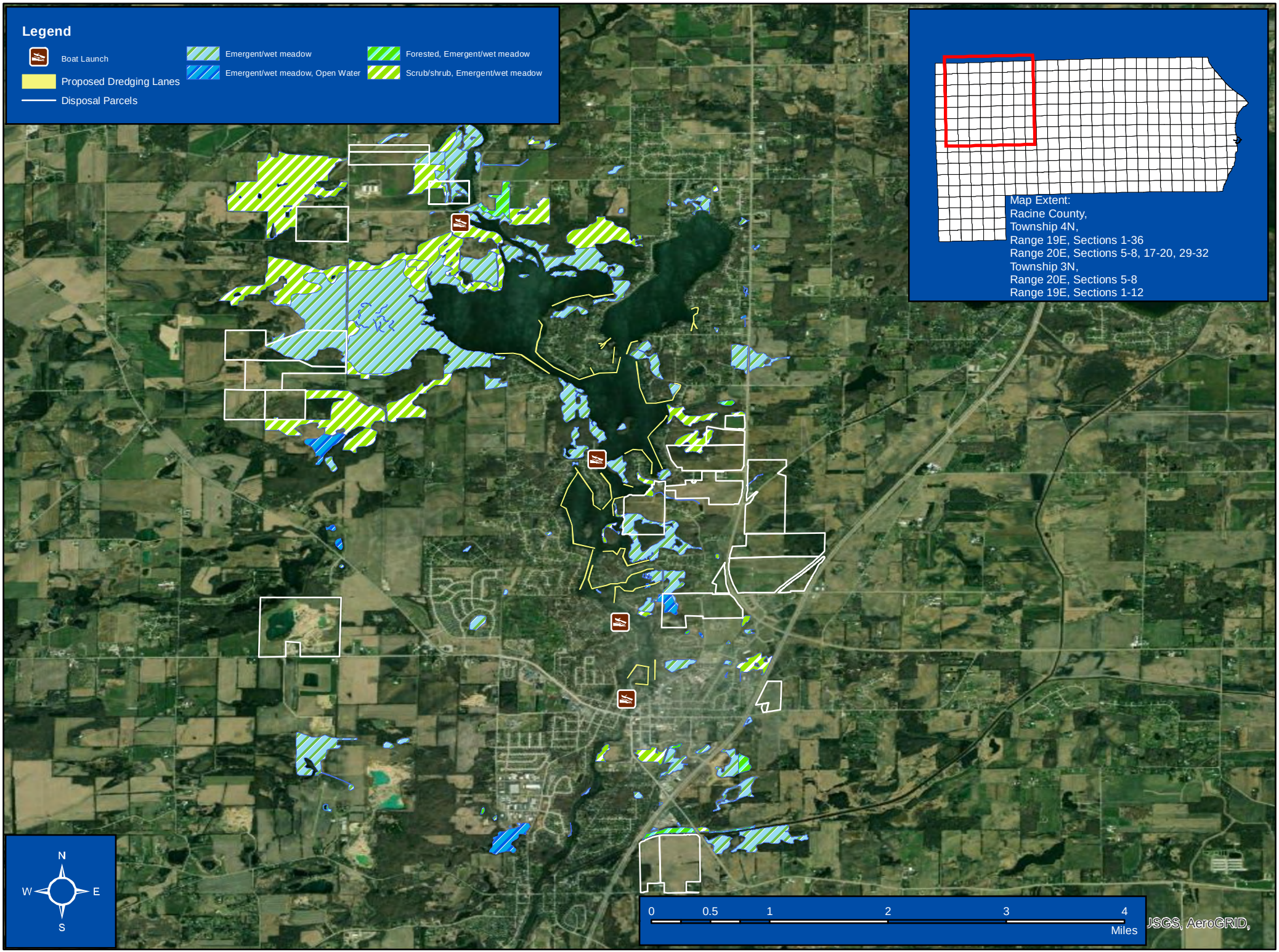


Figure 2 - Arsenic Exceedance Points

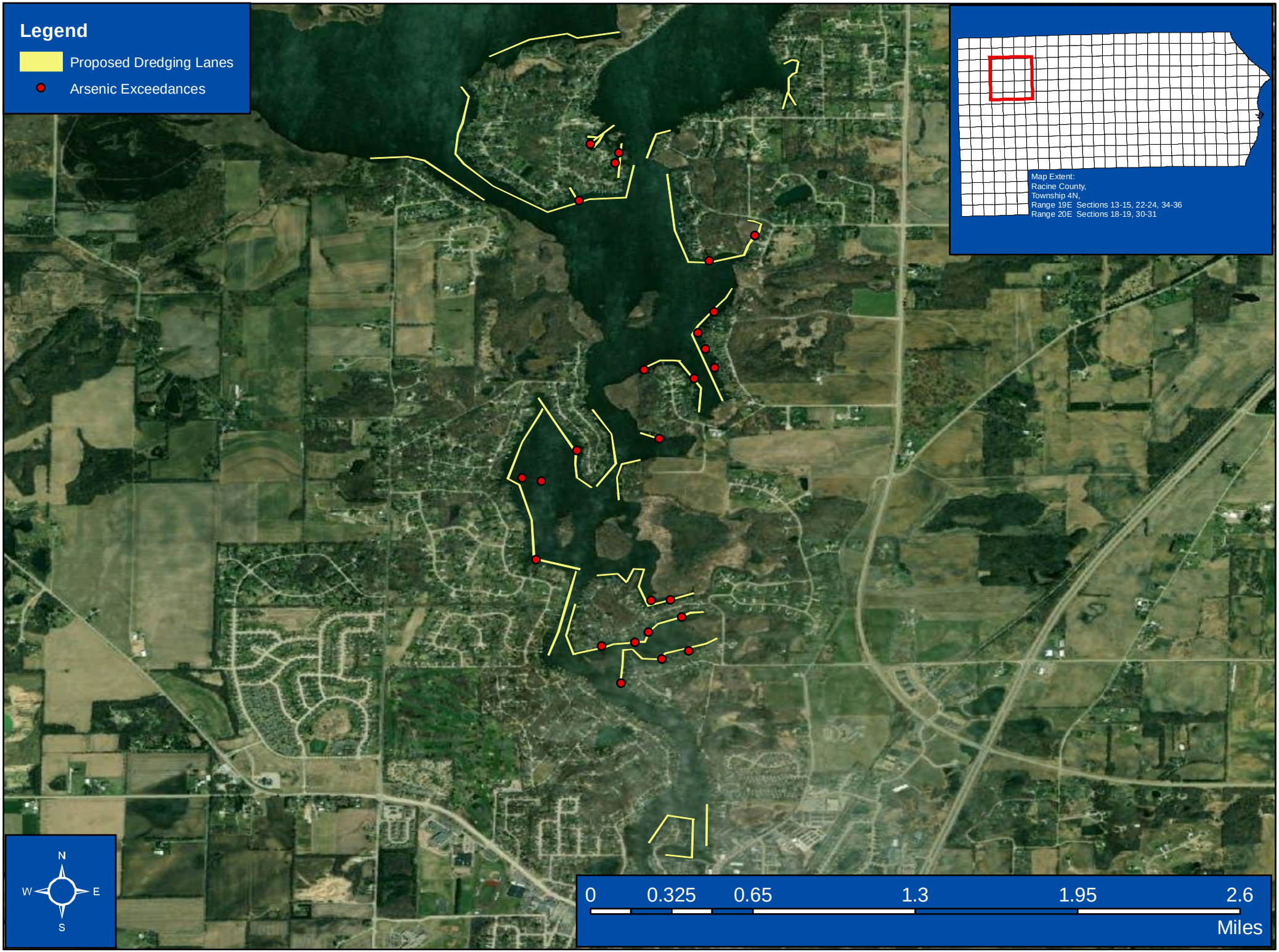


Figure 3 - Proposed Dredging Area

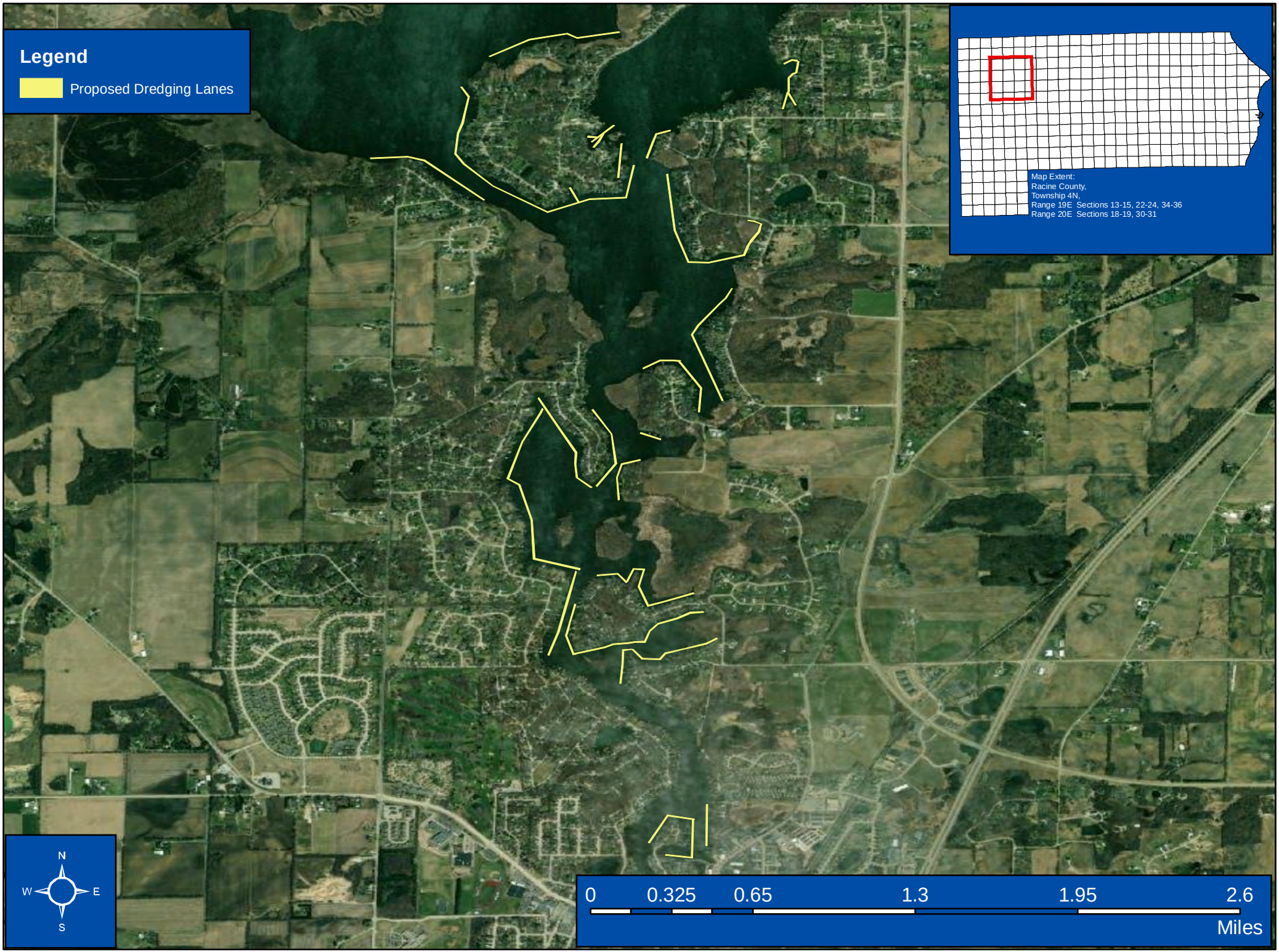


Figure 4 - North Polygon 1 Dredging Area

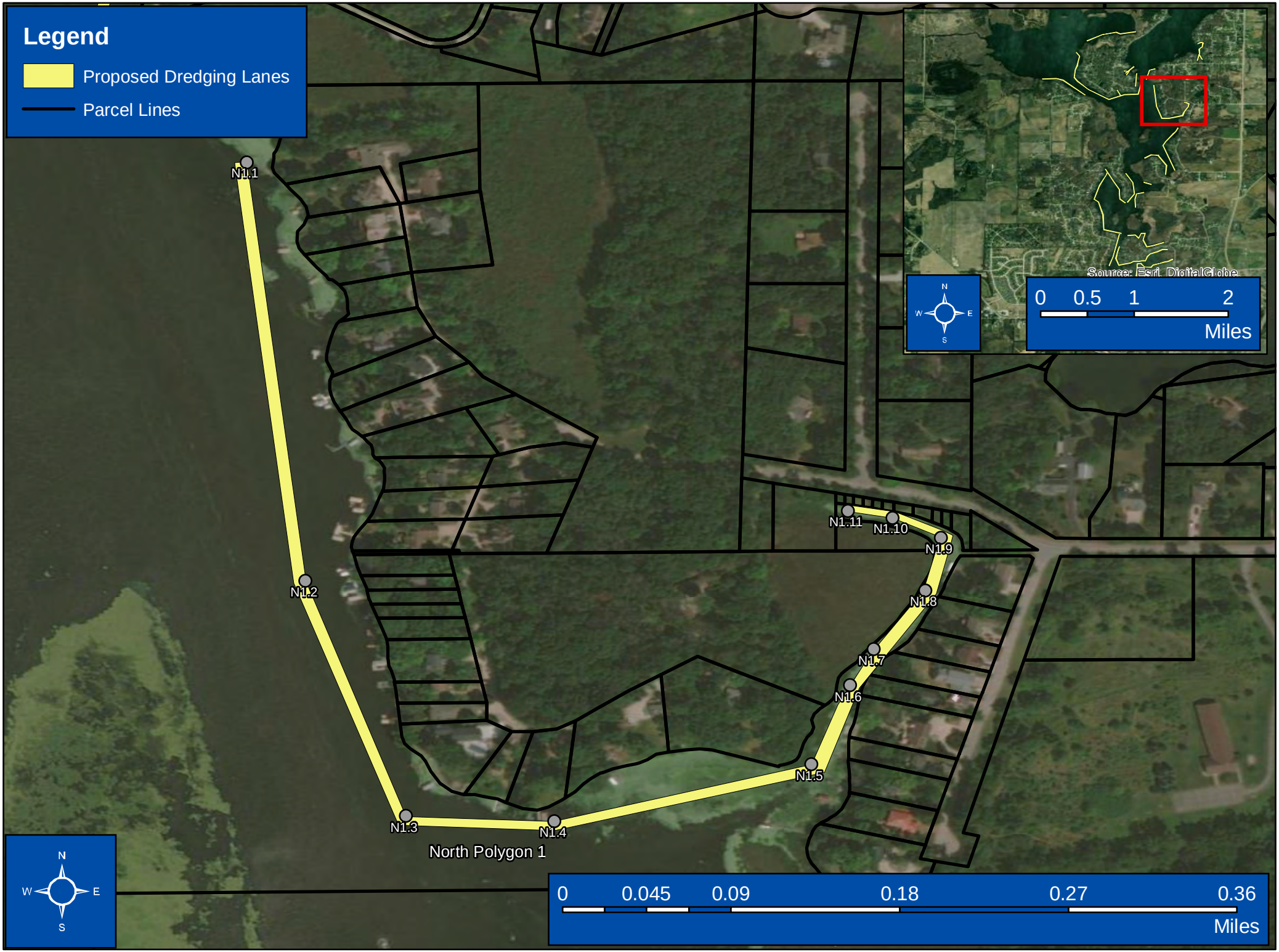


Figure 5 - North Polygon 2 Dredging Area

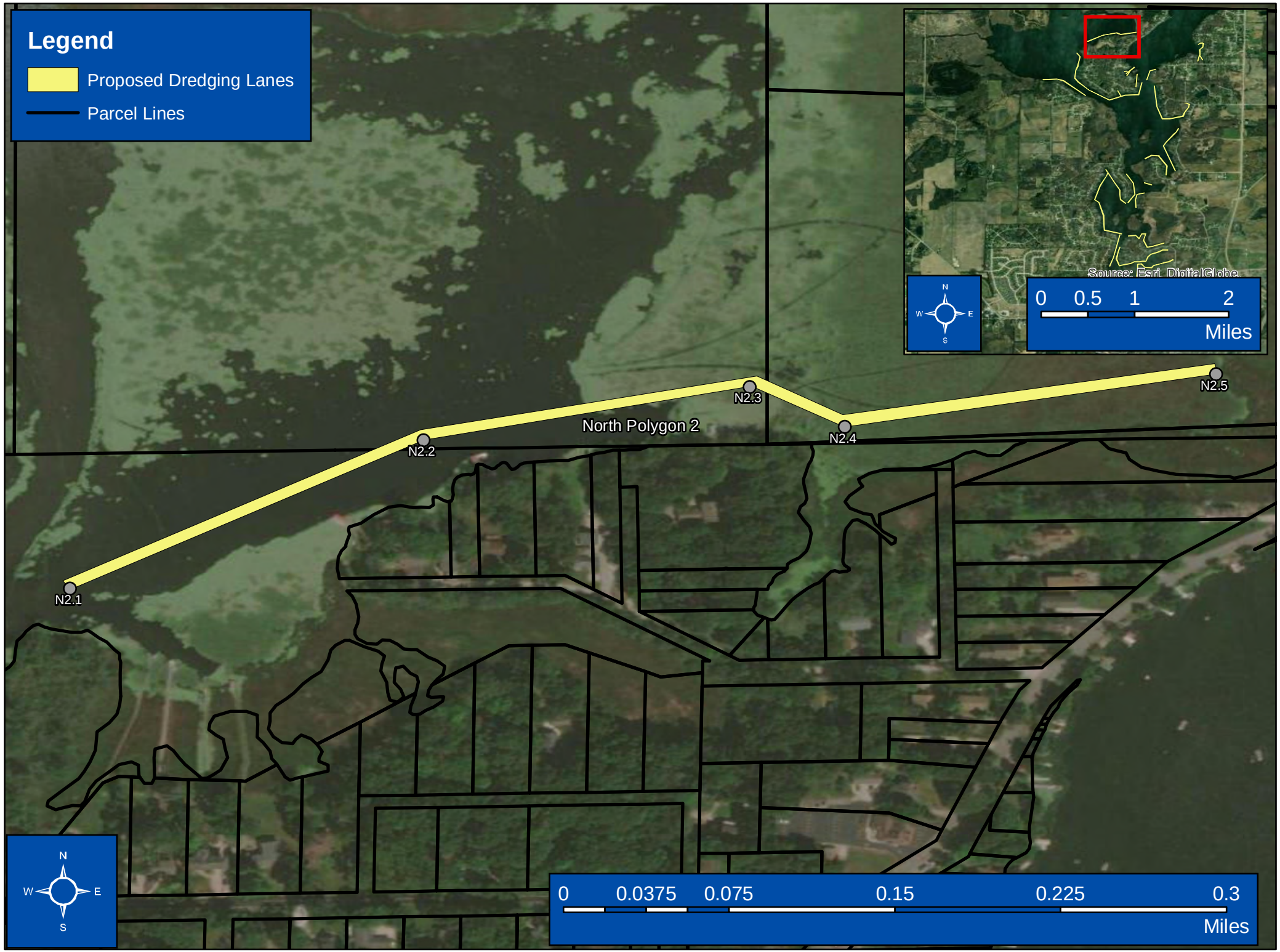


Figure 6 - North Polygon 3 Dredging Area

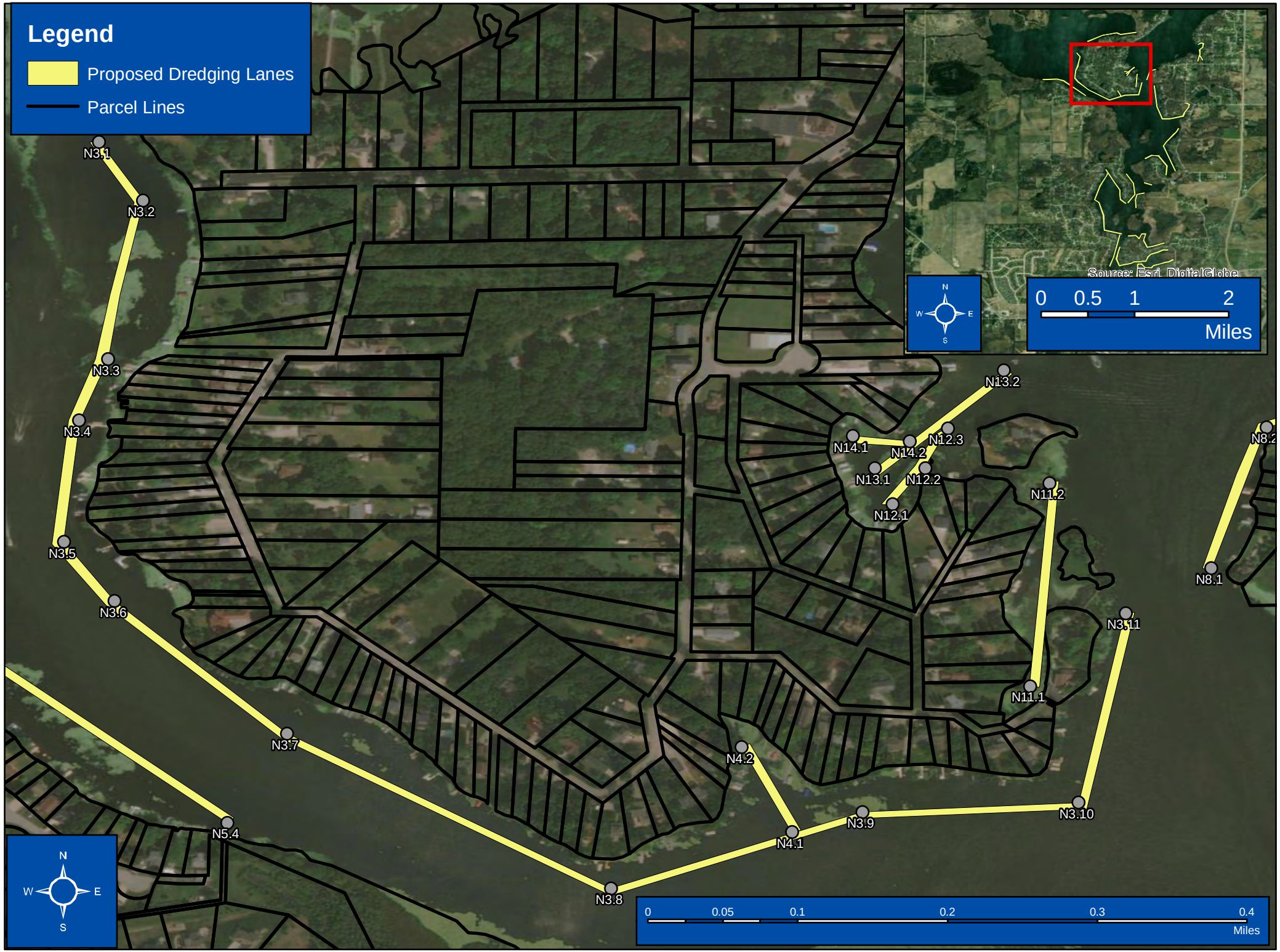


Figure 7 - North Polygon 4 Dredging Area

Figure 8 - North Polygon 5 Dredging Area

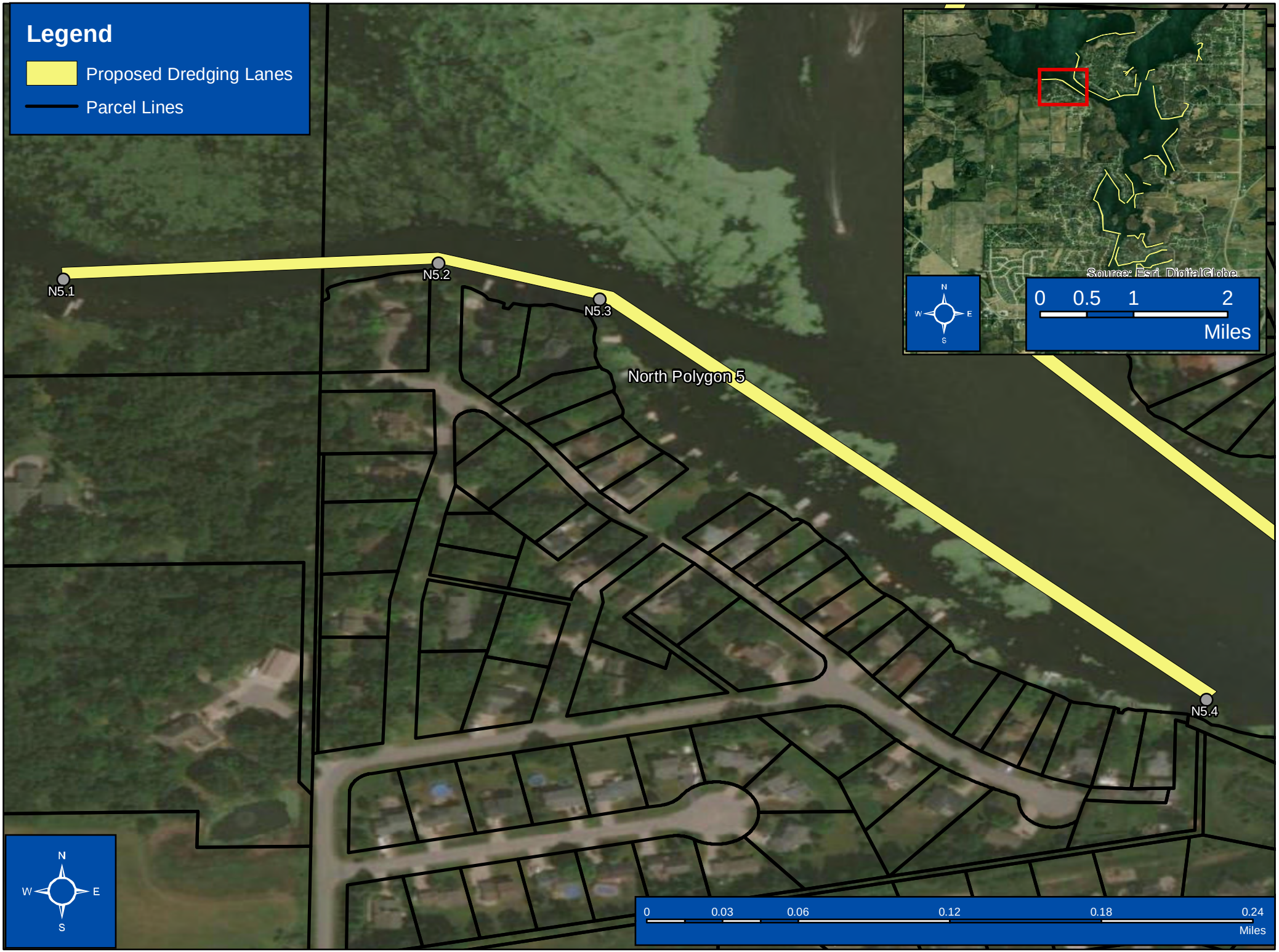


Figure 9 - North Polygon 6 Dredging Area

Figure 10 - North Polygon 7 Dredging Area

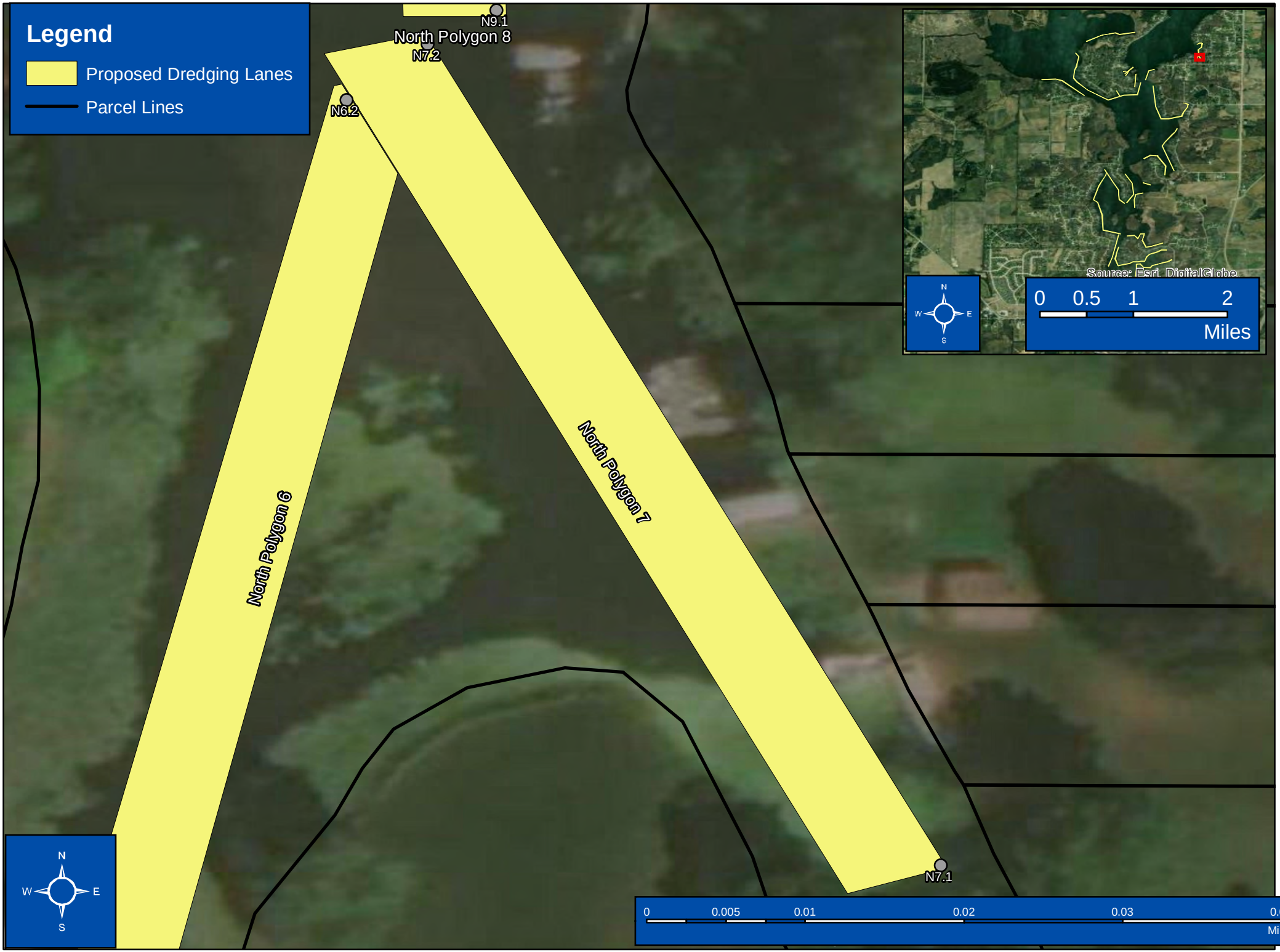


Figure 11 - North Polygon 8 Dredging Area

Figure 12 - North Polygon 9 Dredging Area

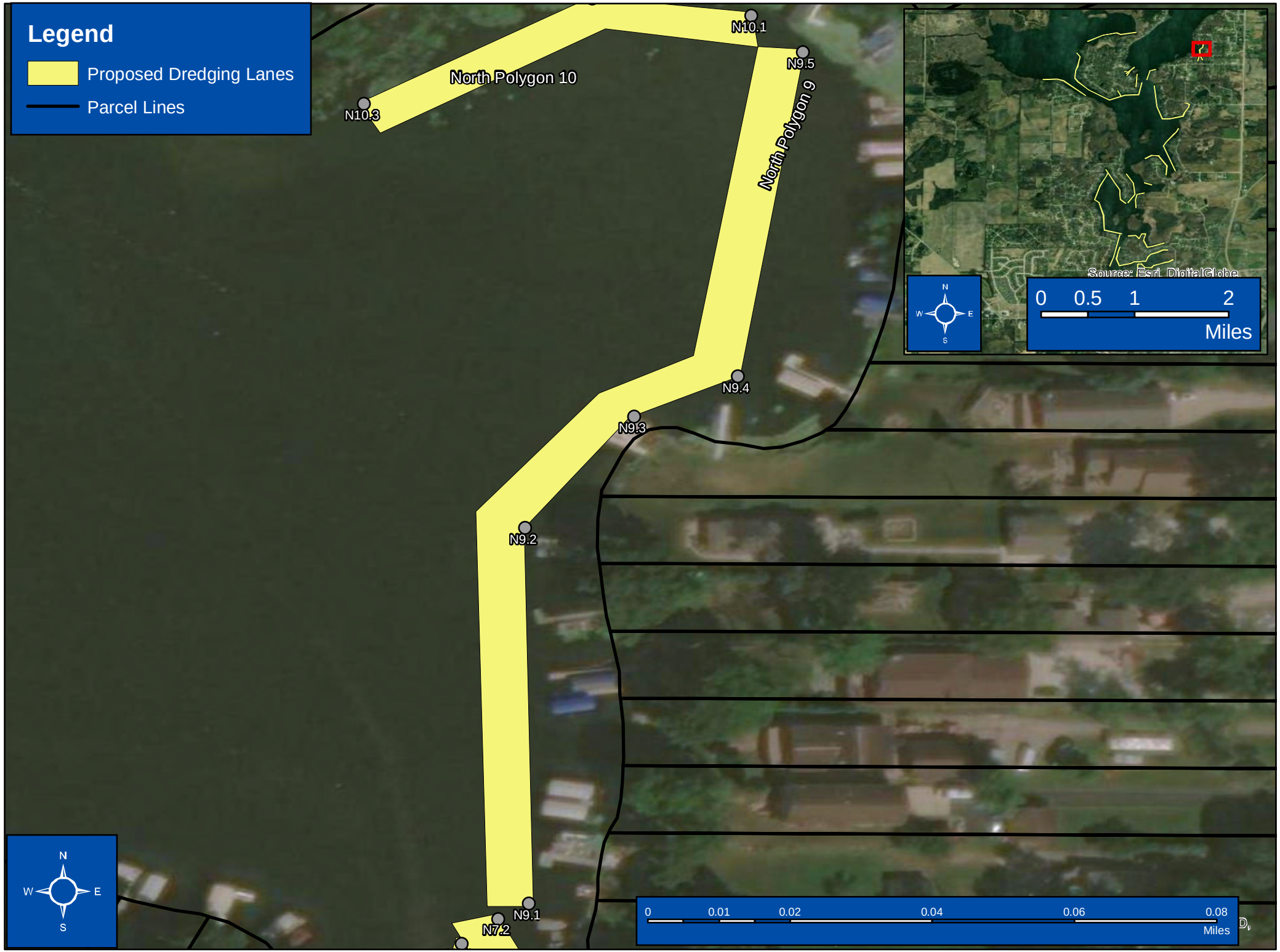


Figure 13 - North Polygon 10 Dredging Area

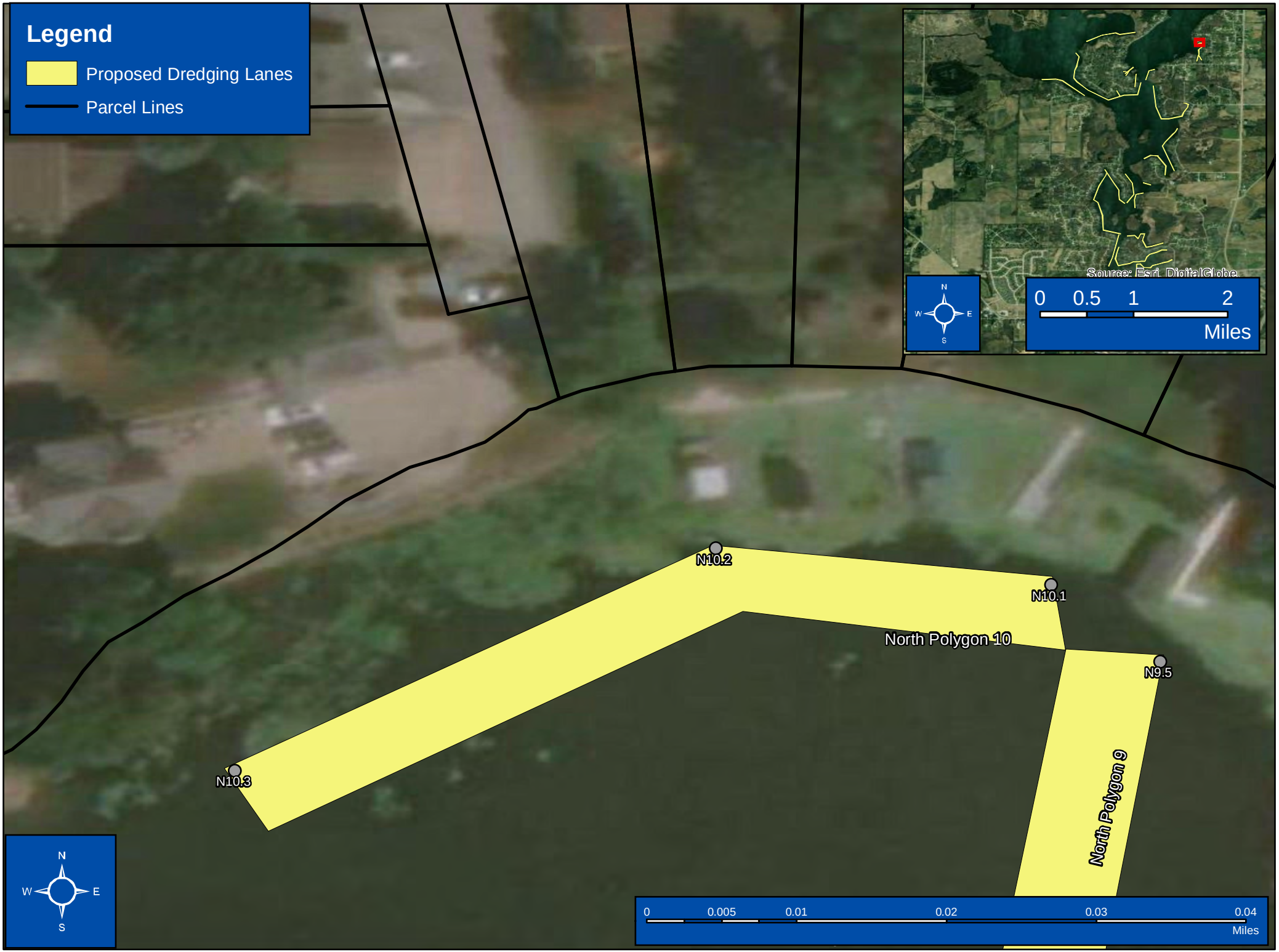


Figure 14 - North Polygon 11 Dredging Area

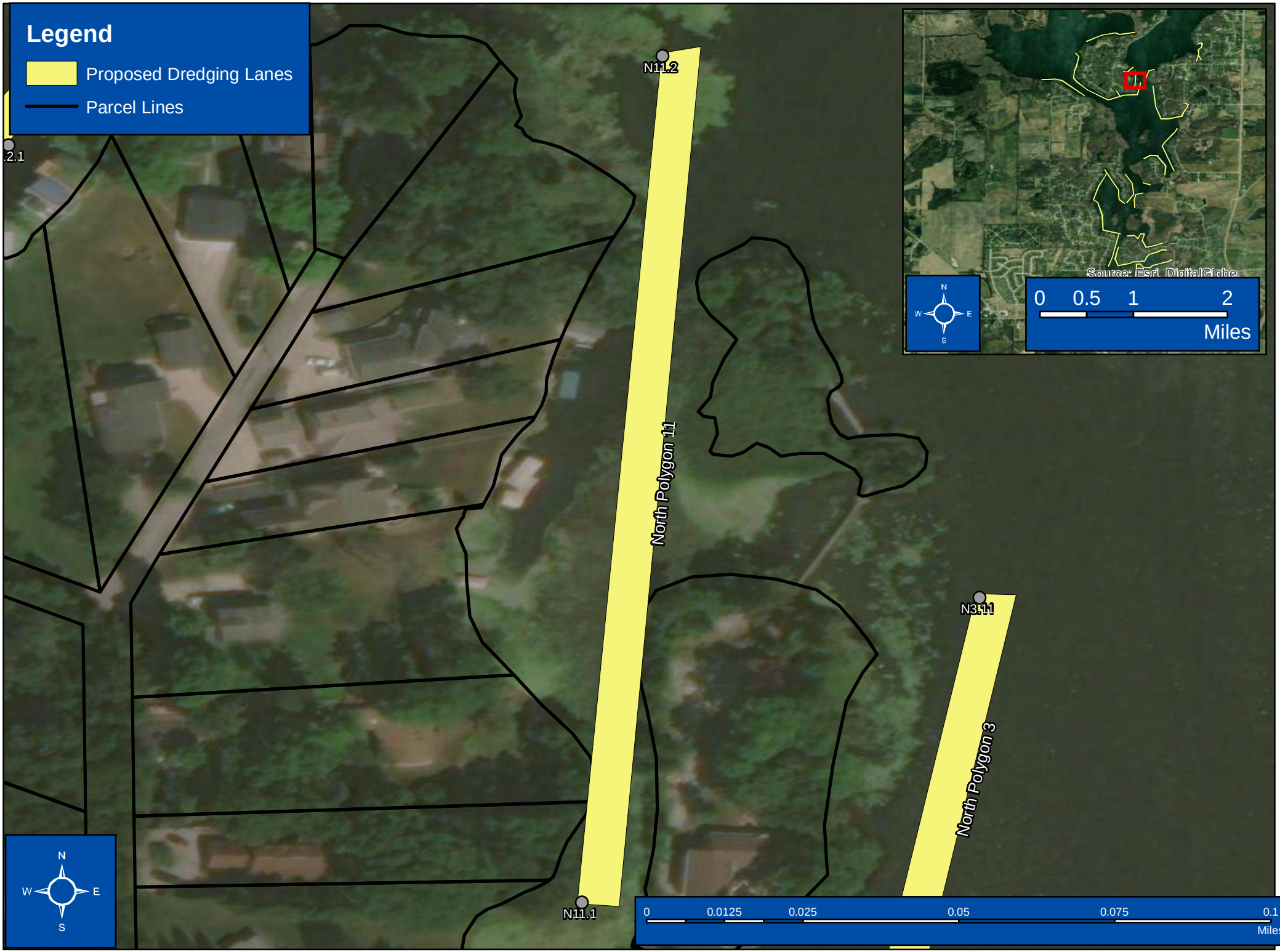


Figure 15 - North Polygon 12, 13, and 14 Dredging Areas

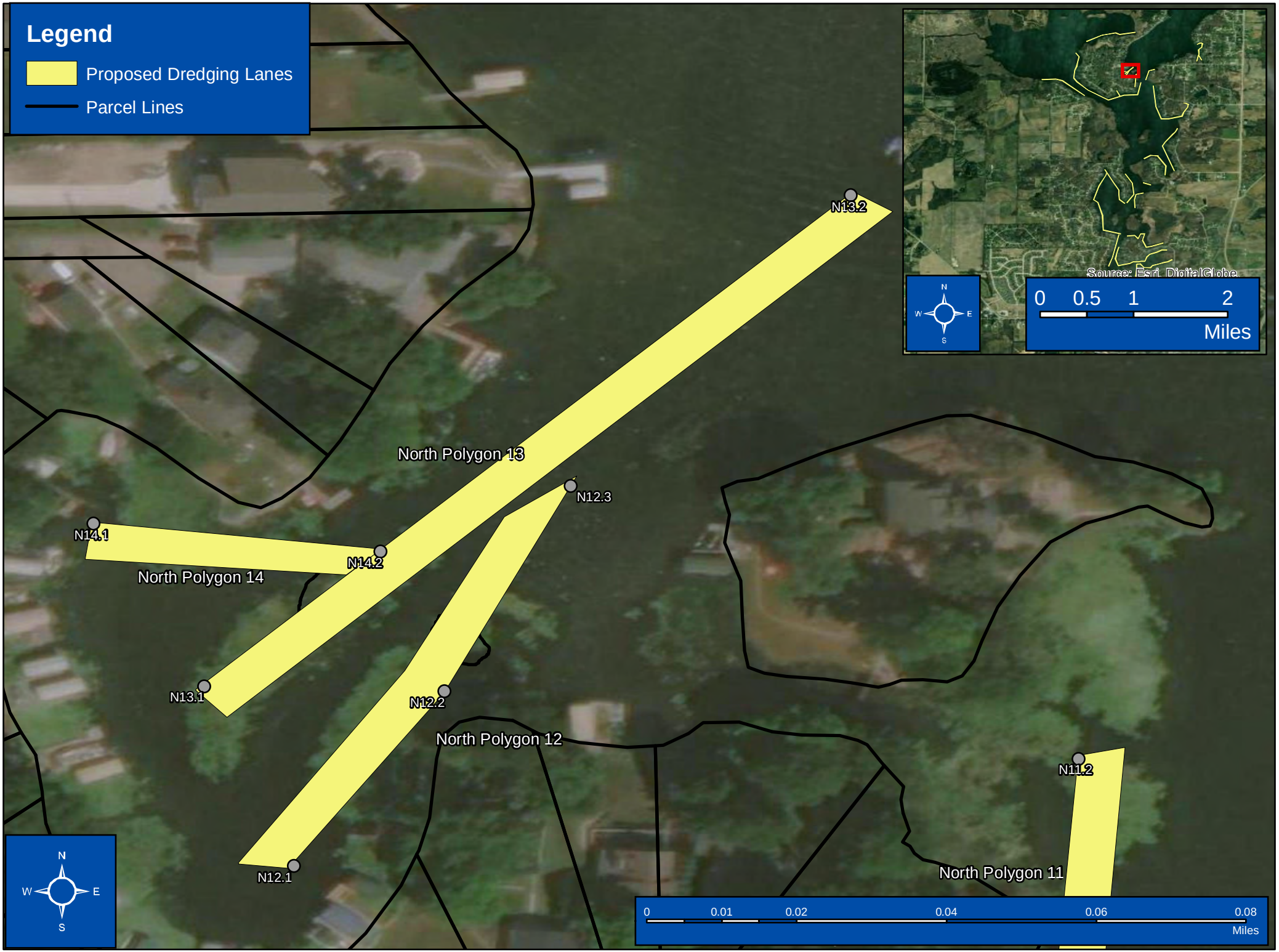


Figure 16 - Central Polygon 1 Dredging Areas

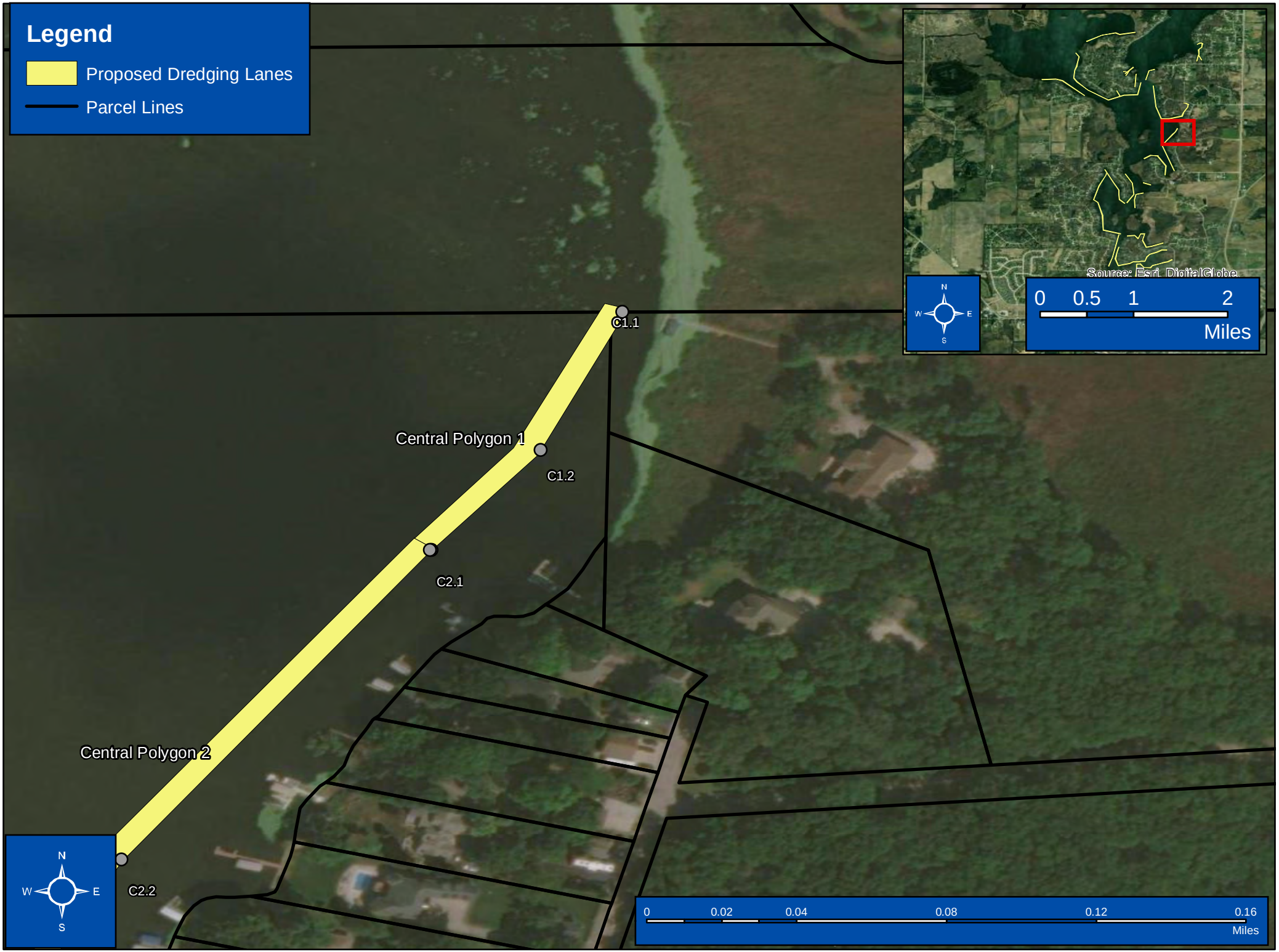


Figure 17 - Central Polygon 2 Dredging Areas

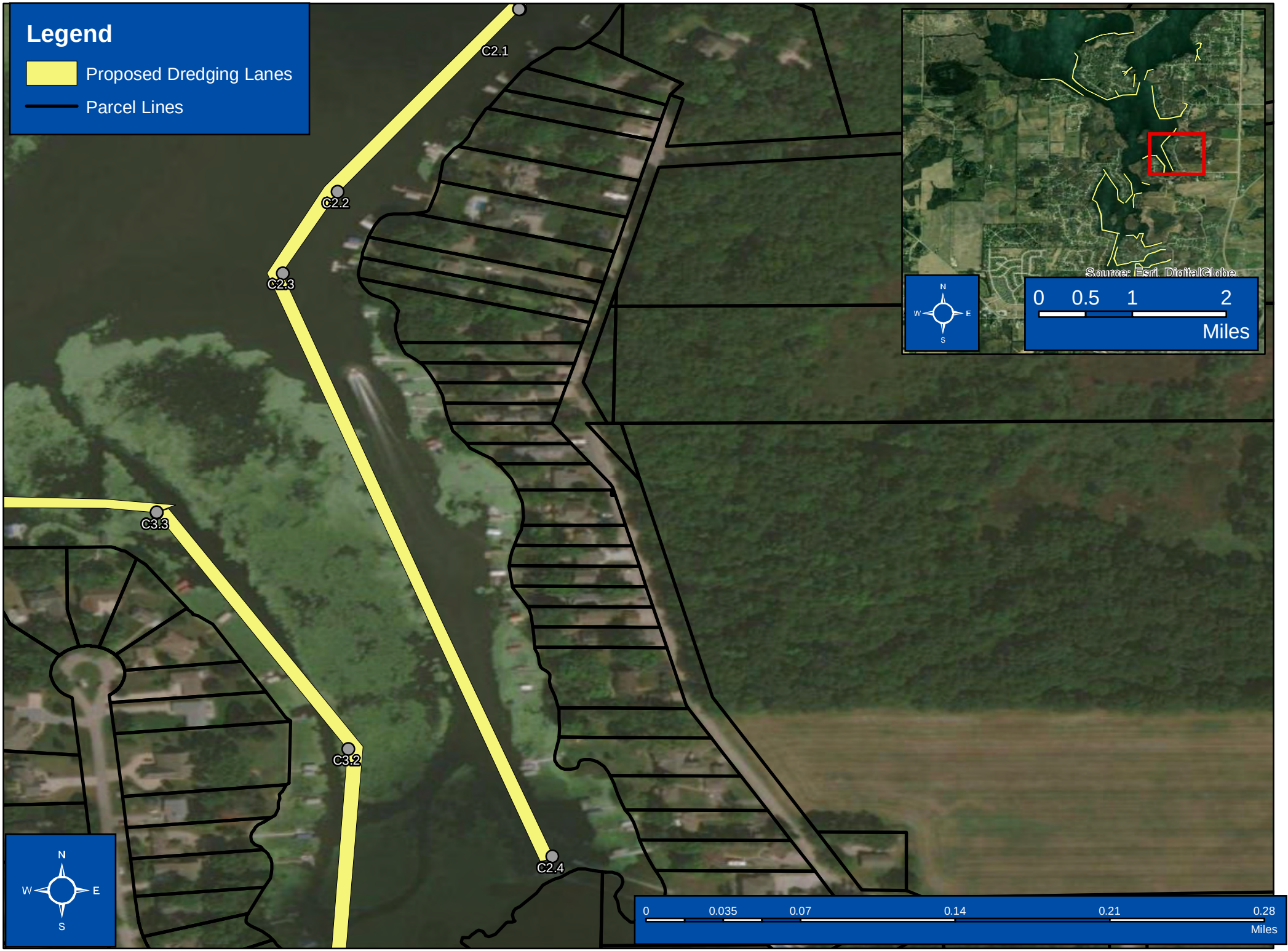


Figure 18 - Central Polygon 3 Dredging Areas

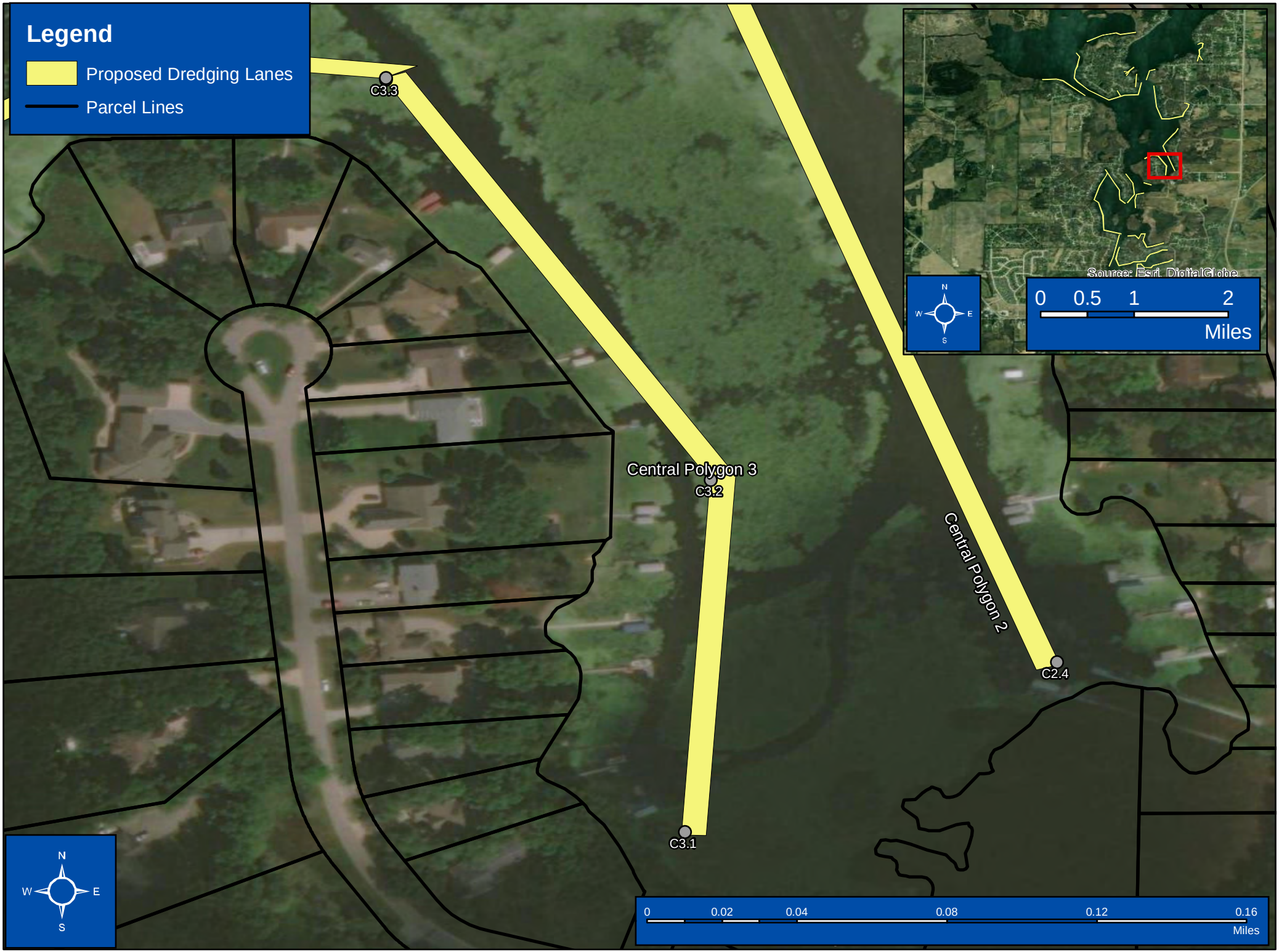


Figure 19 - Central Polygon 4 Dredging Area

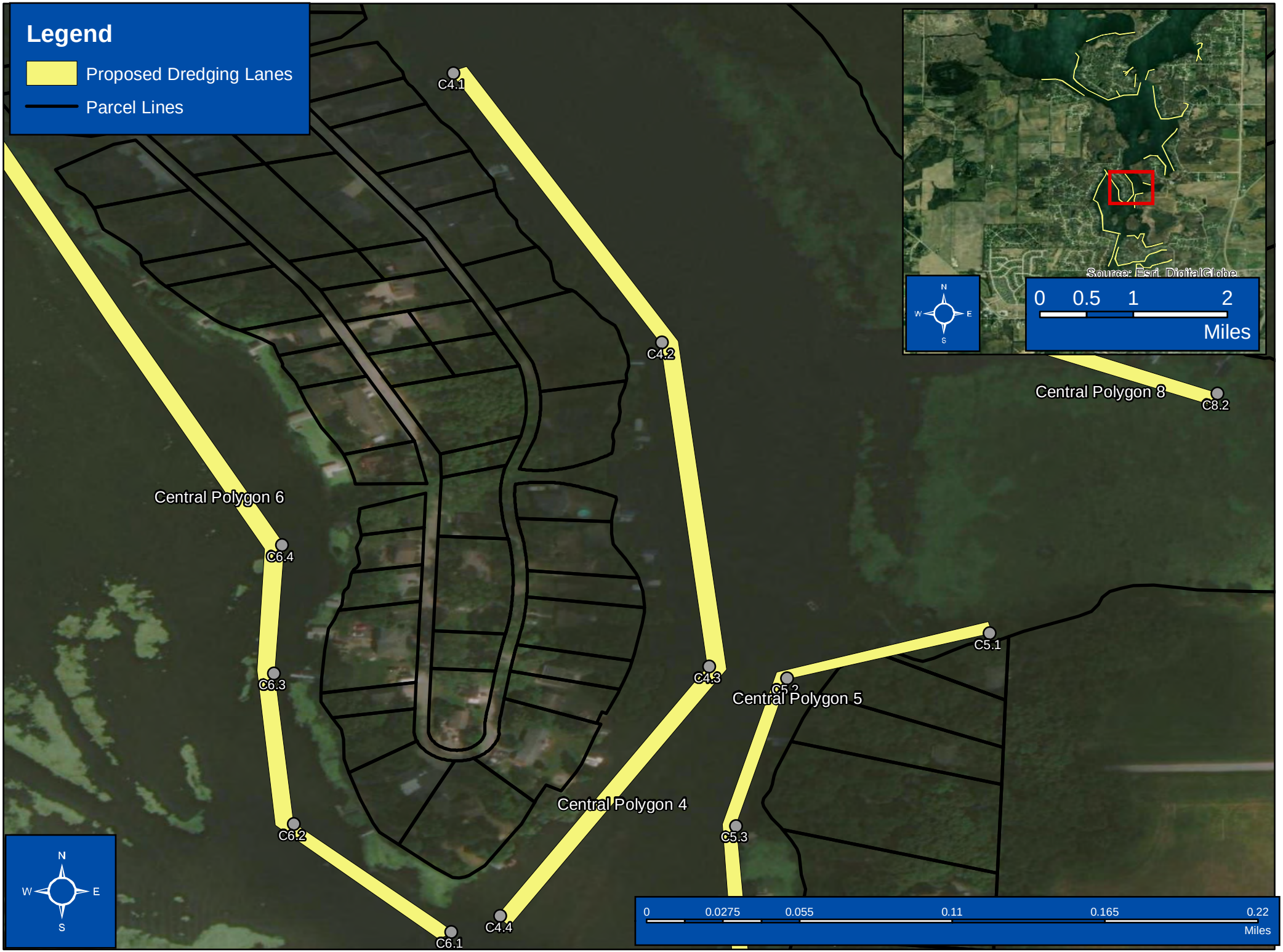


Figure 20 - Central Polygon 5 Dredging Area

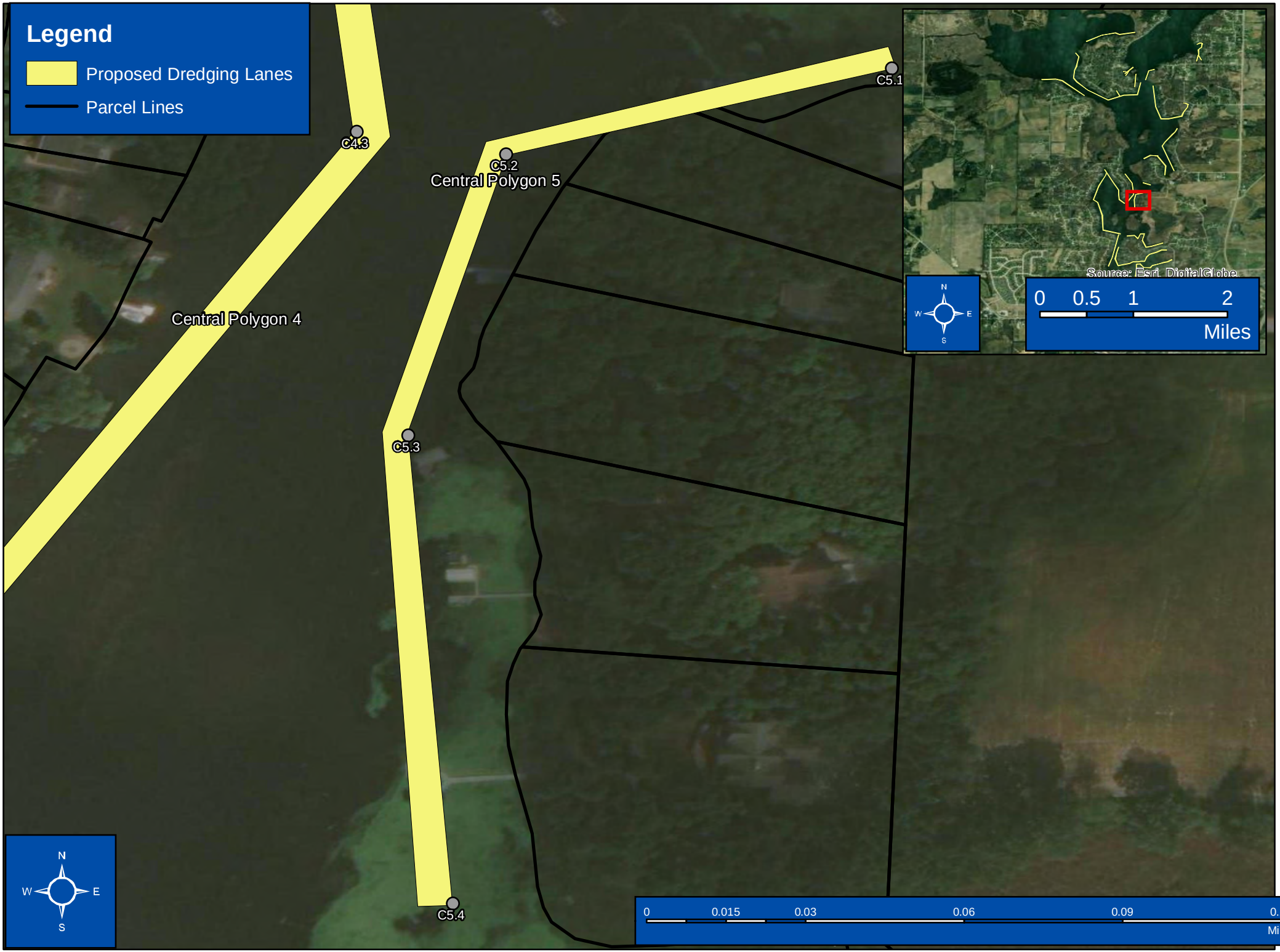


Figure 21 - Central Polygon 6 Dredging Area

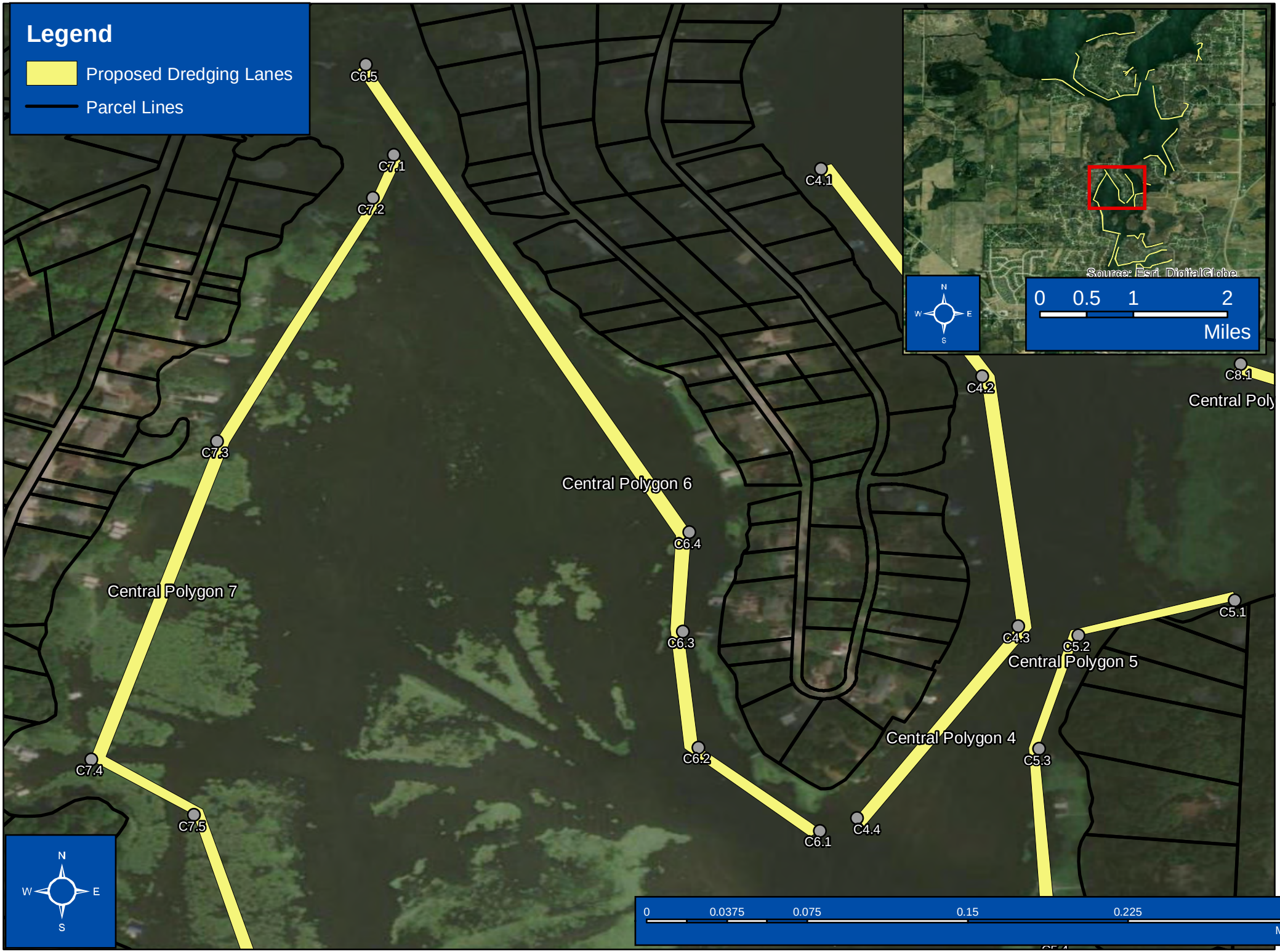


Figure 22 - Central Polygon 7 Dredging Area

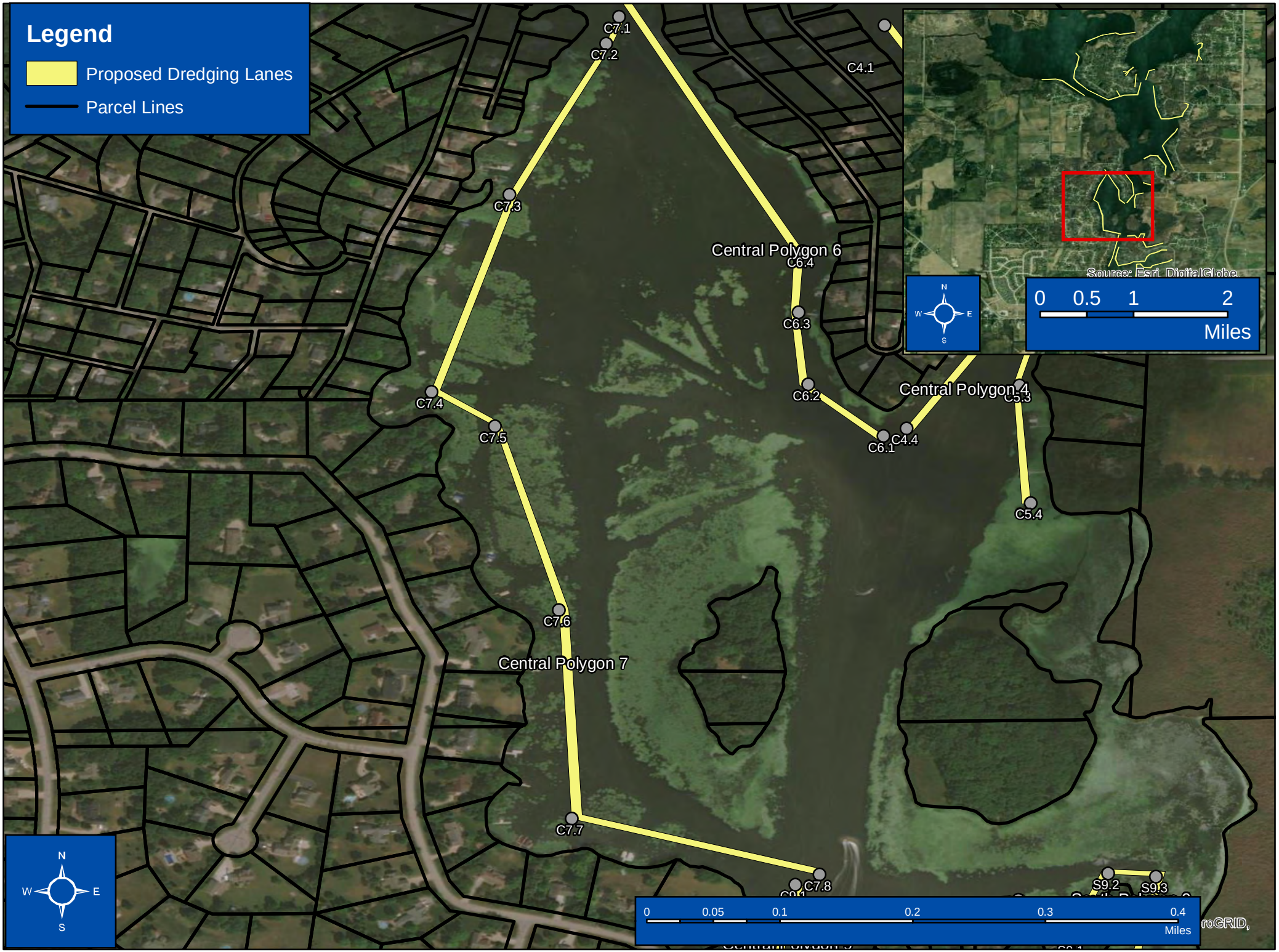


Figure 23 - Central Polygon 8 Dredging Area

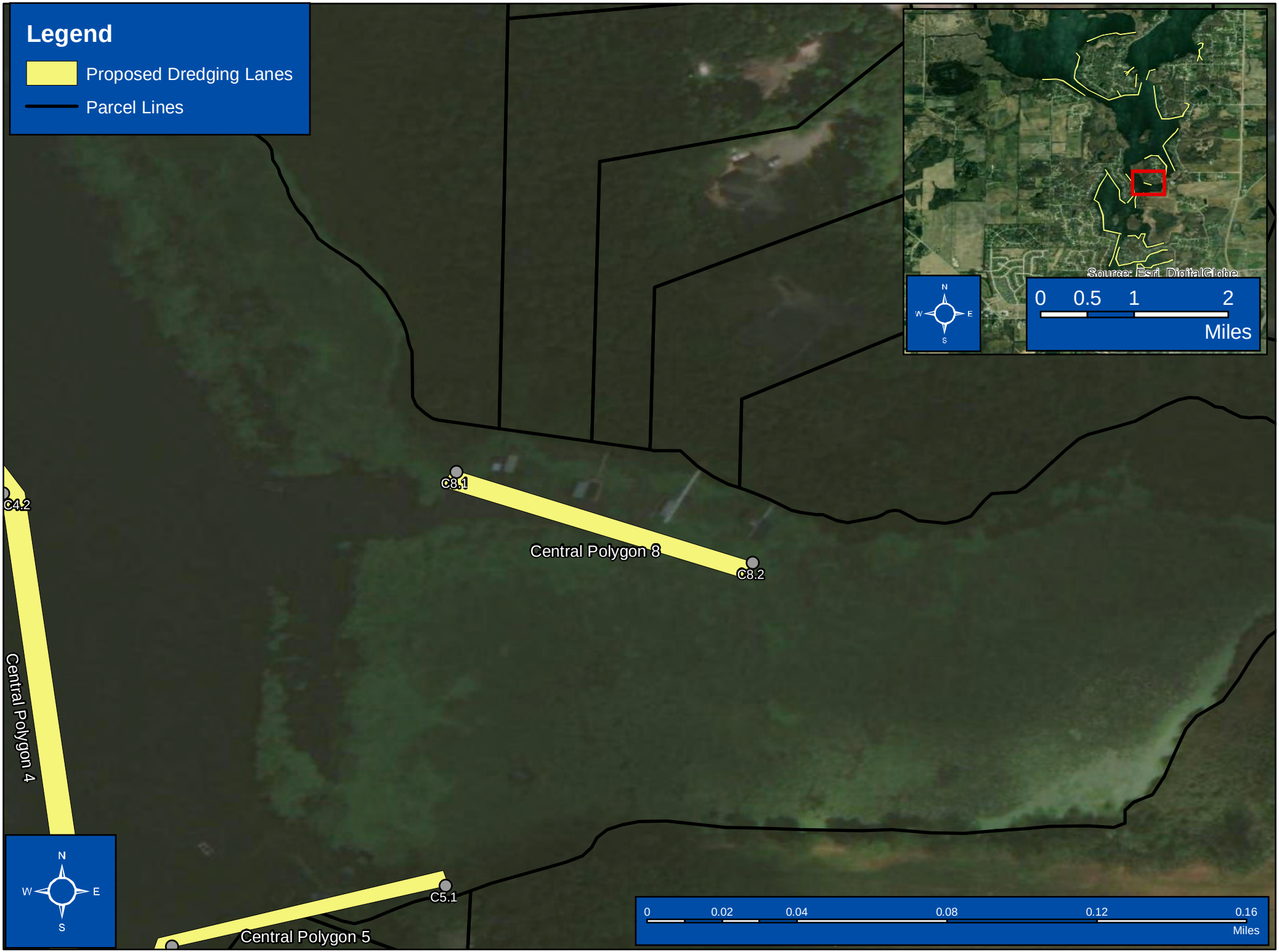


Figure 24 - Central Polygon 9 Dredging Area

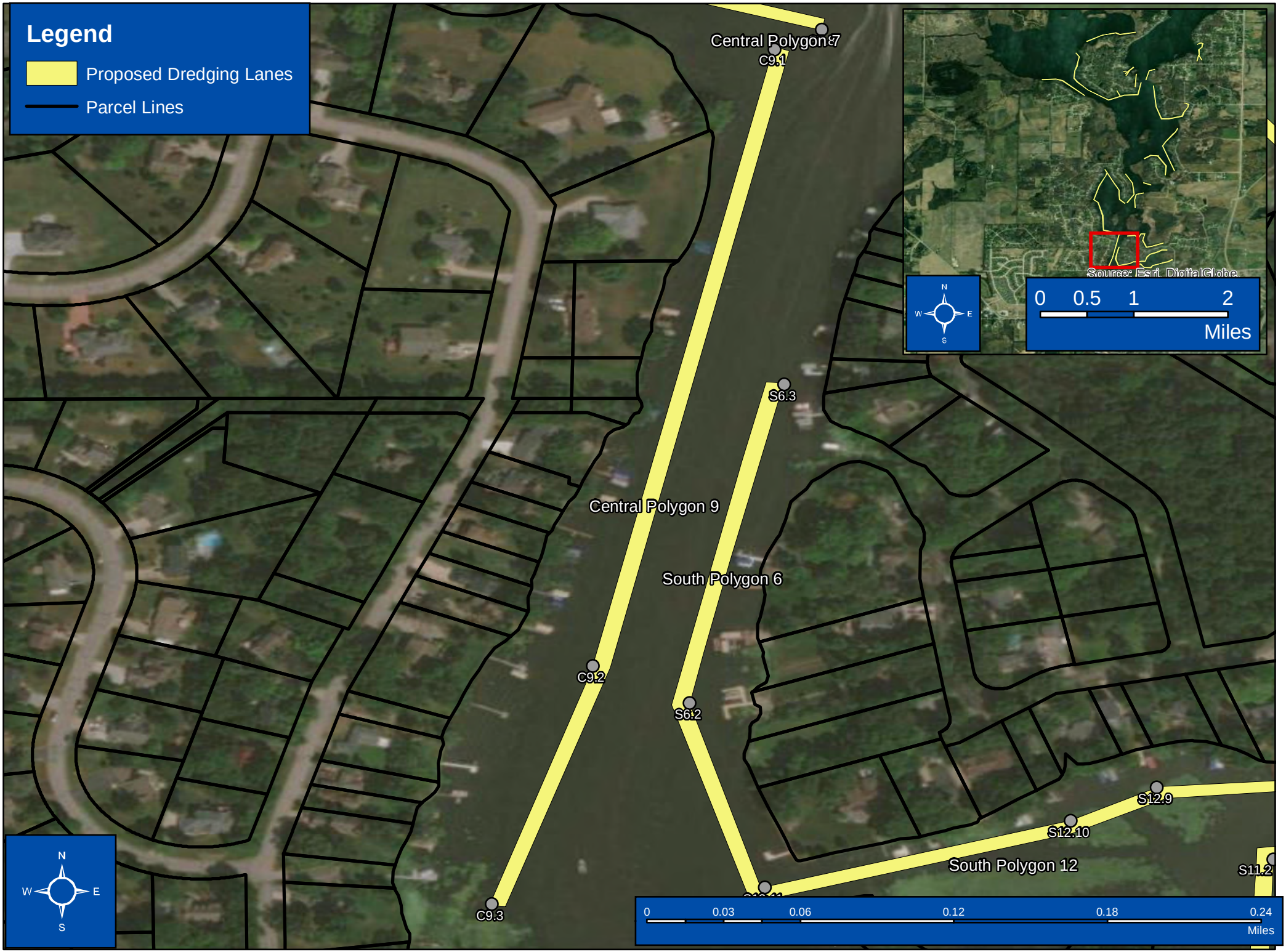


Figure 25 - Central Polygon 10 Dredging Area

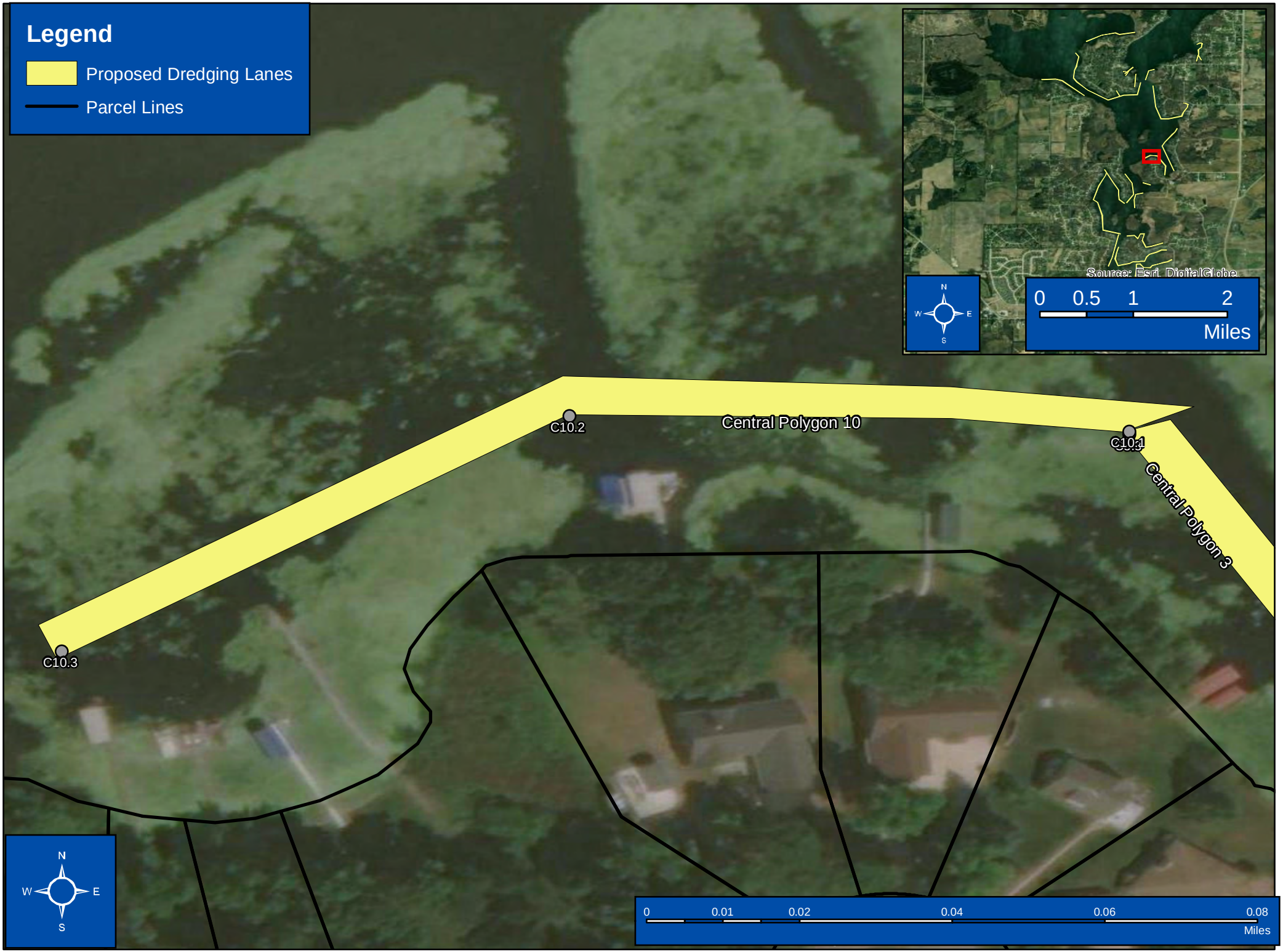


Figure 26 - South Polygon 1 Dredging Area

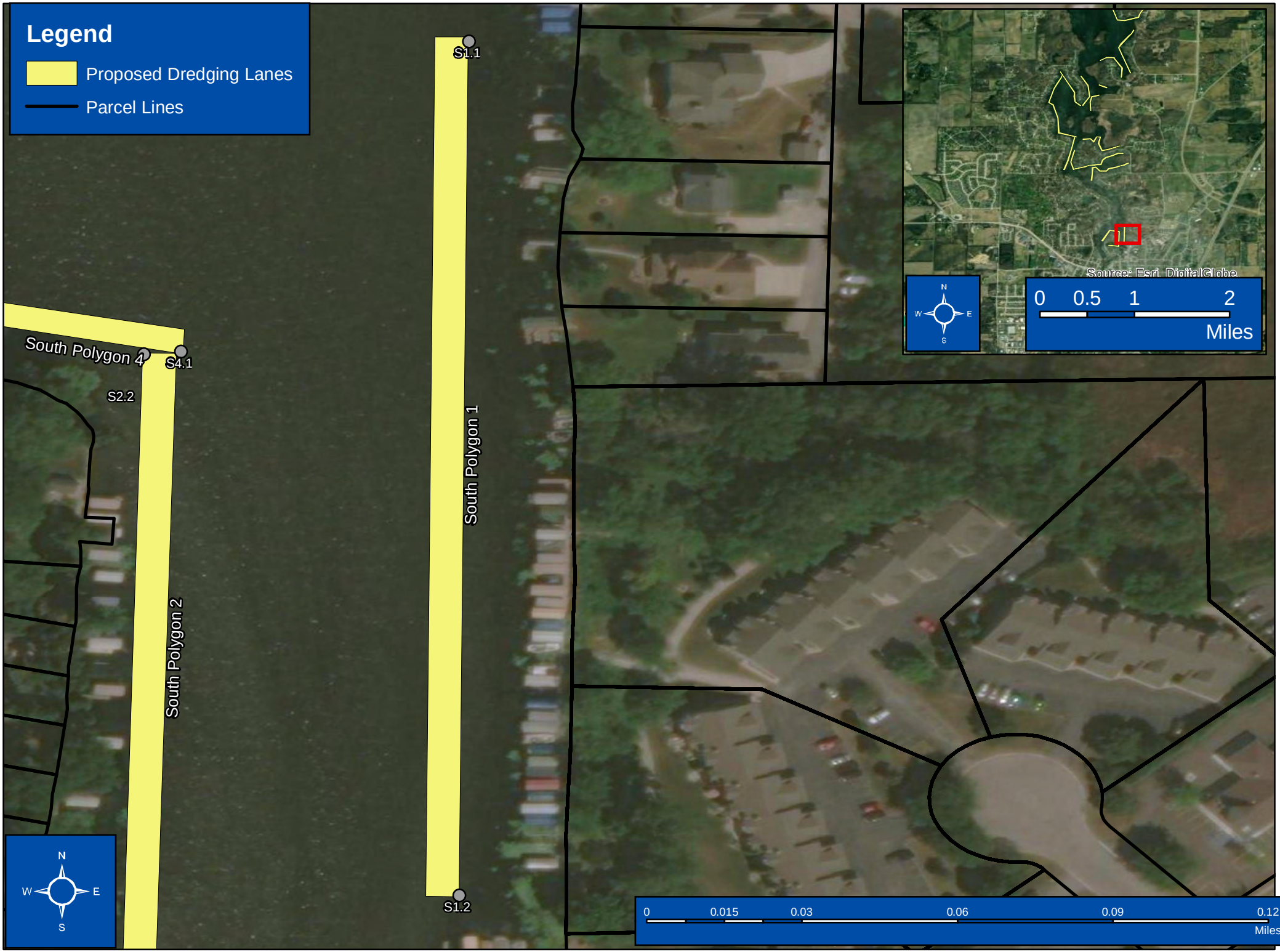


Figure 27 - South Polygon 2, 3, 4, & 5 Dredging Areas

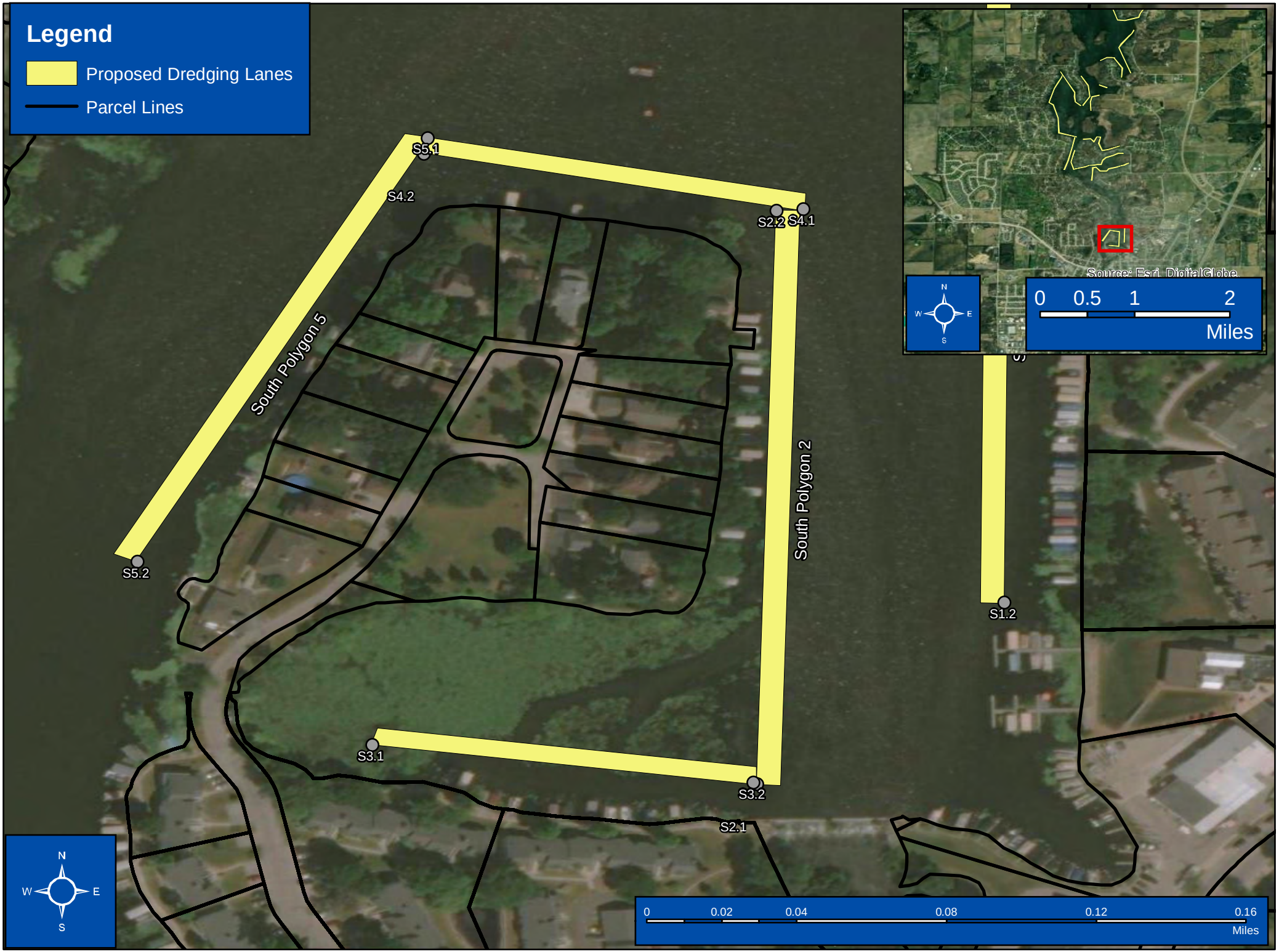


Figure 28 - South Polygon 6 Dredging Area

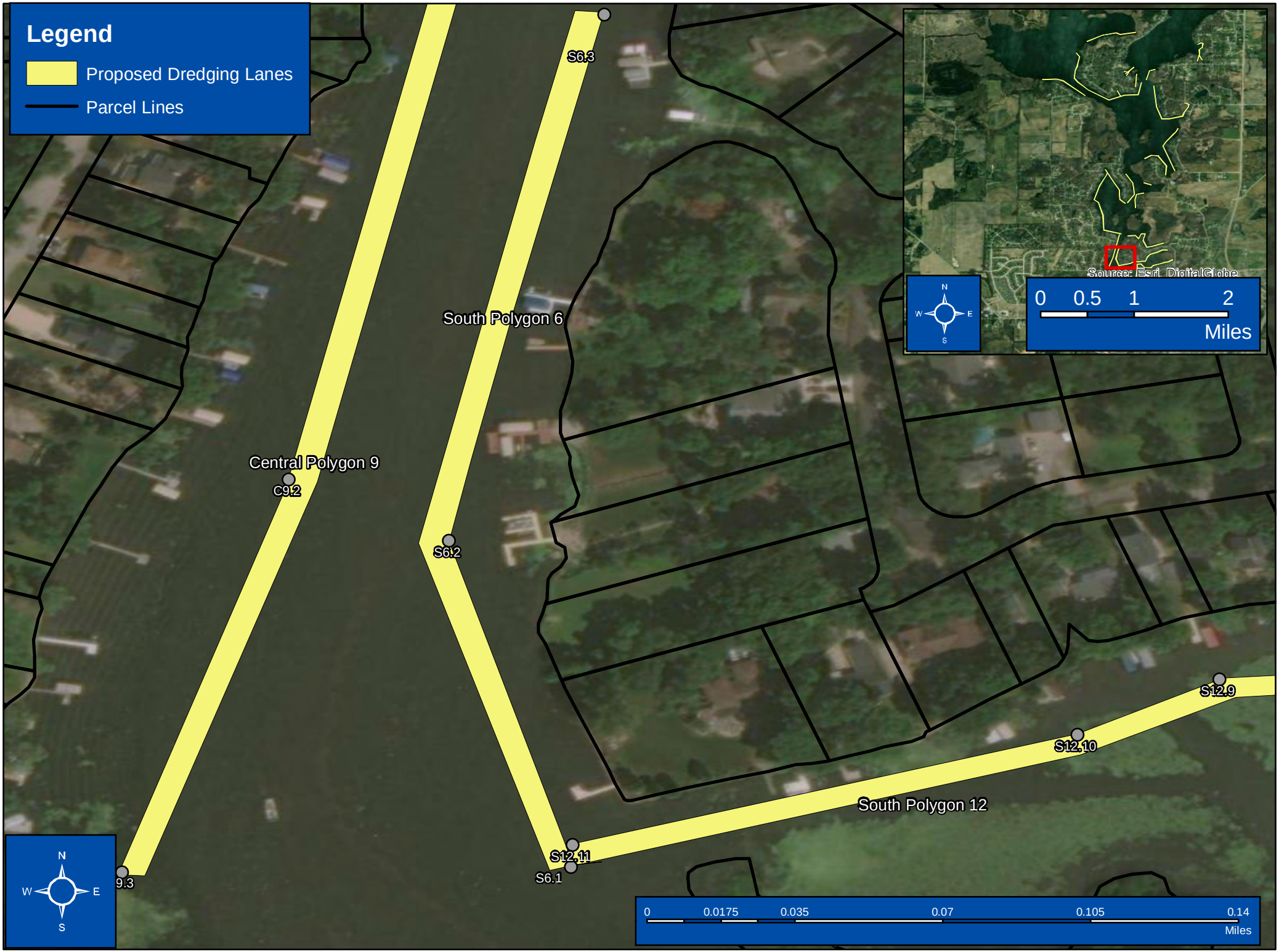


Figure 29 - South Polygon 7 Dredging Area

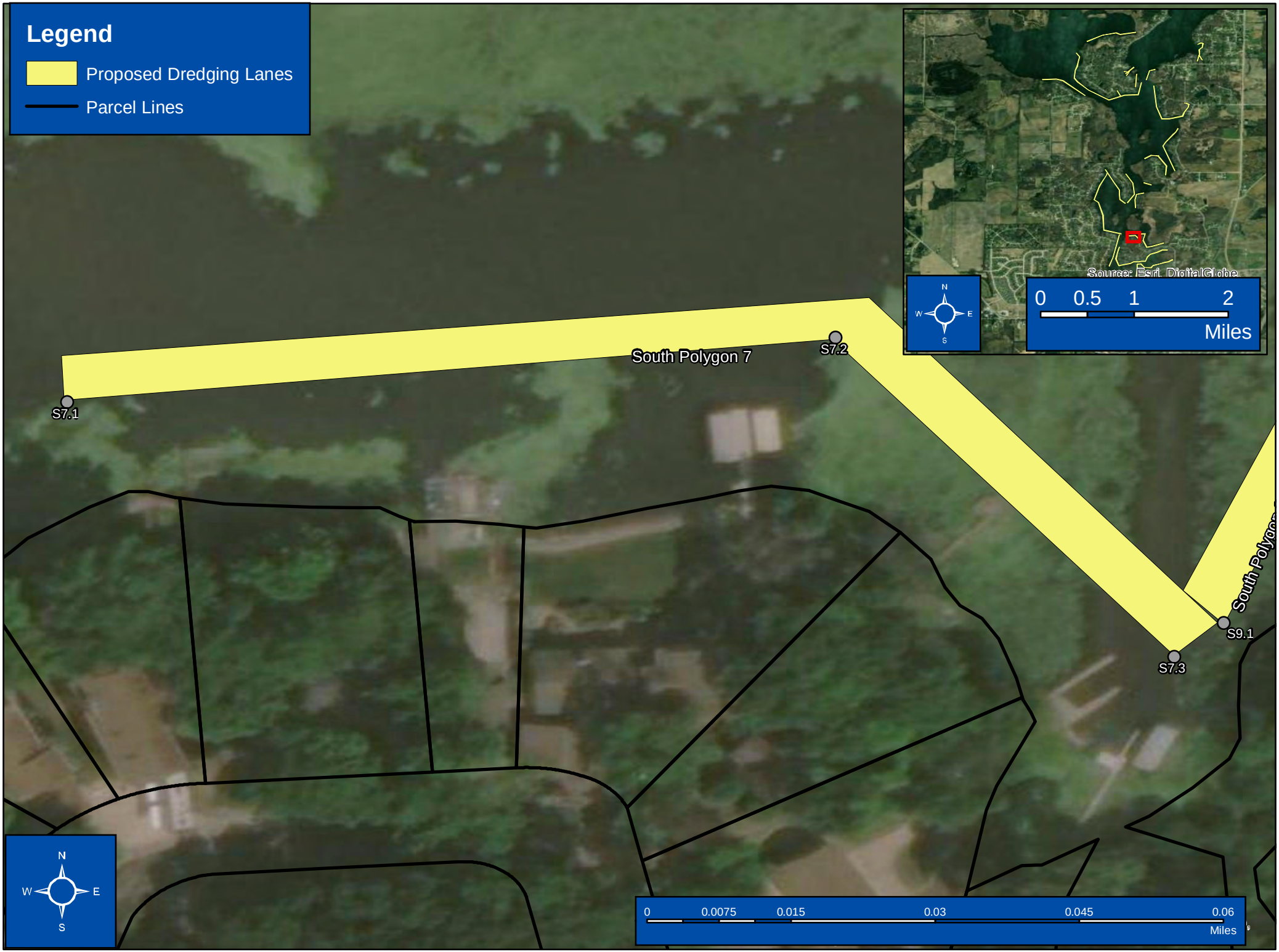


Figure 30 - South Polygon 8 Dredging Area

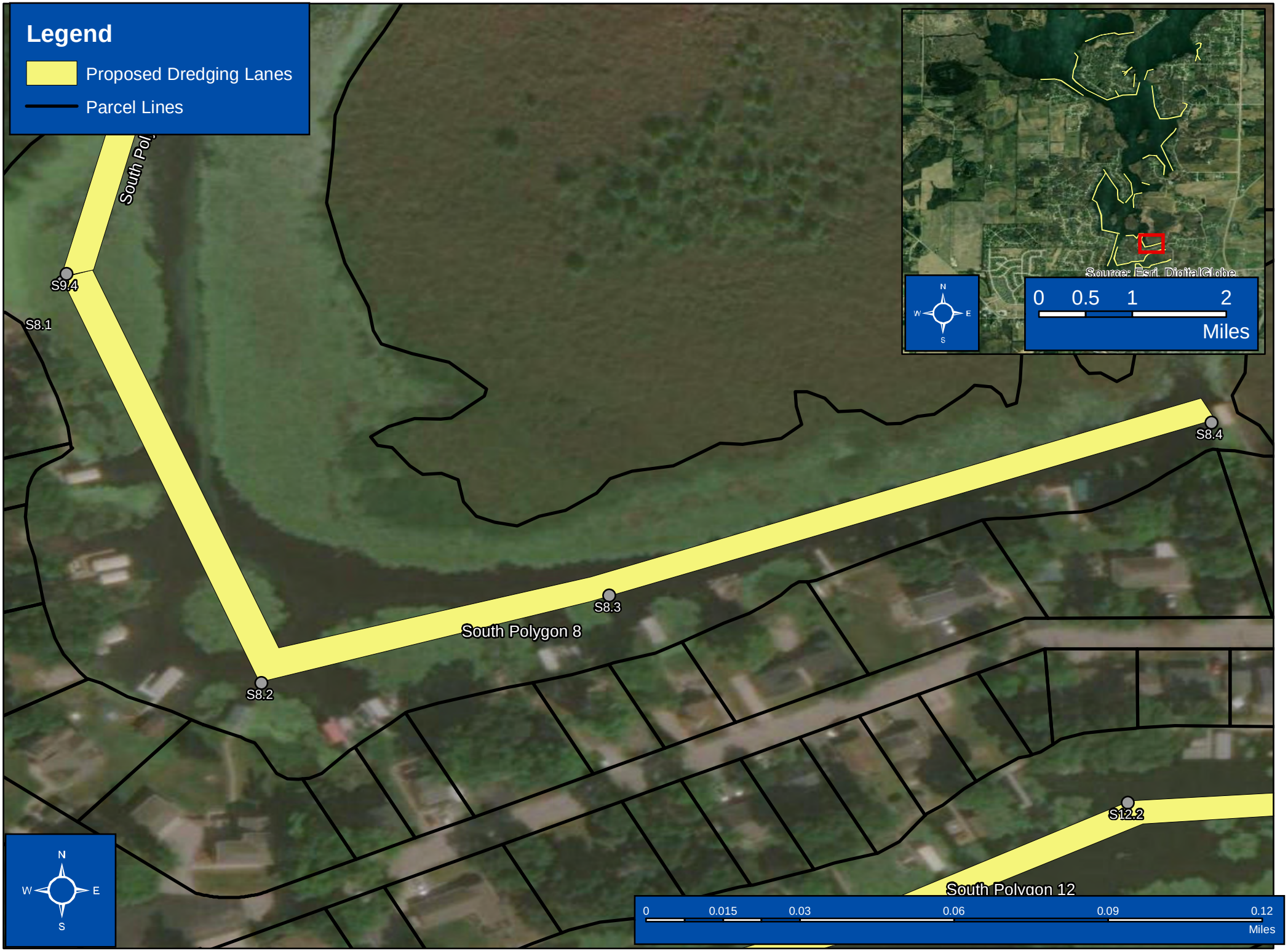


Figure 31 - South Polygon 9 Dredging Area

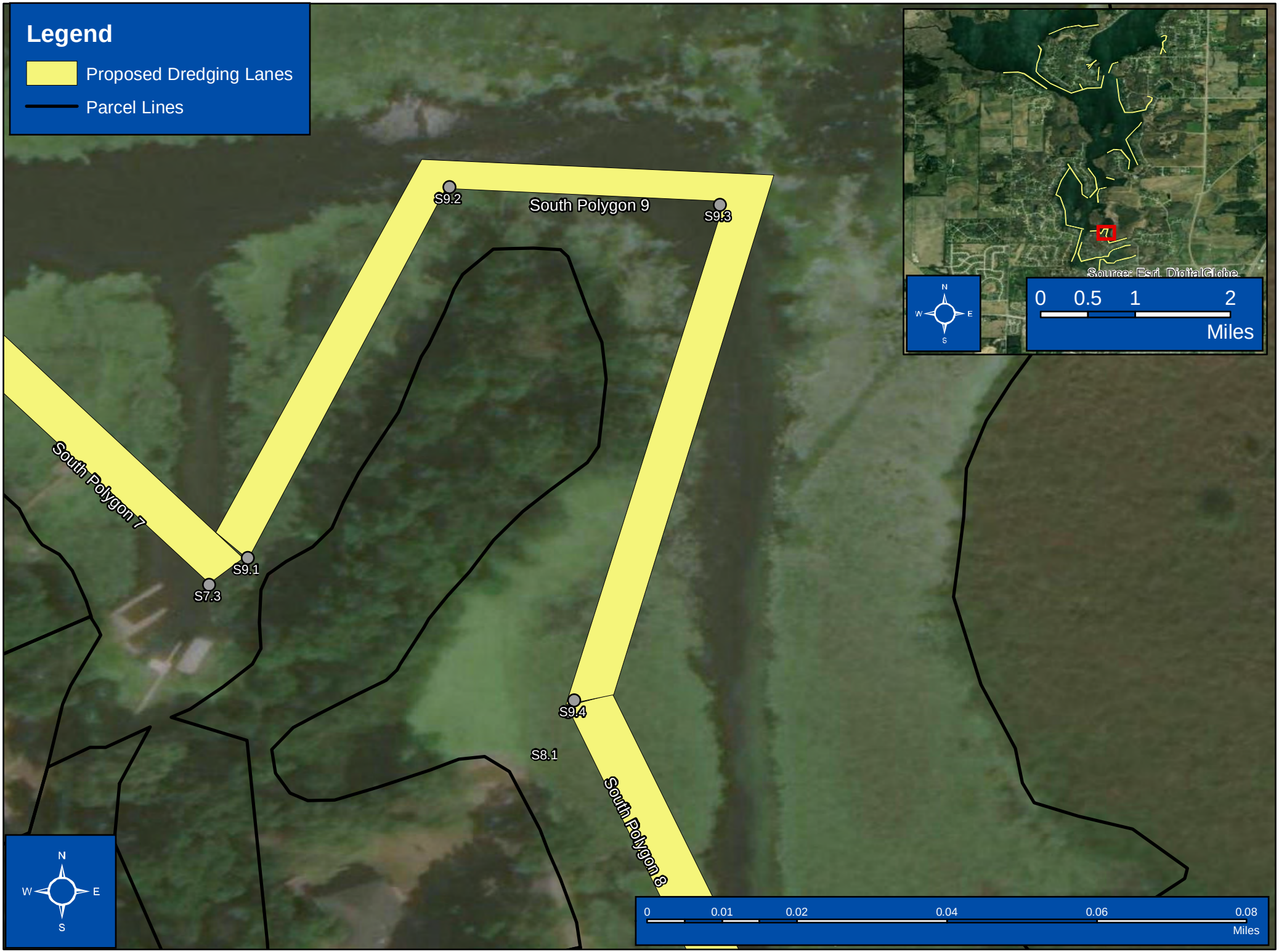


Figure 32 - South Polygon 10 Dredging Area

Figure 33 - South Polygon 11 Dredging Area

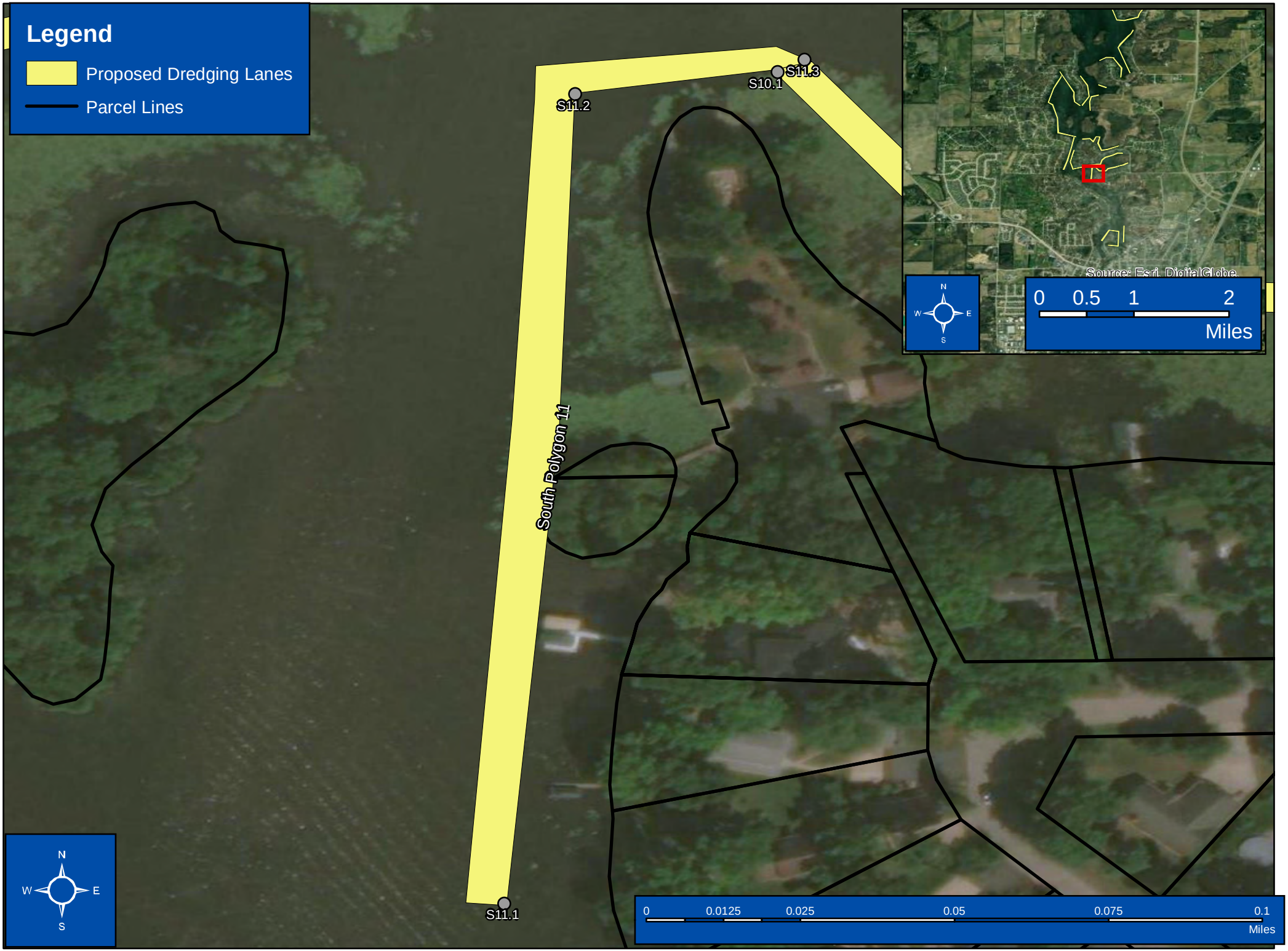


Figure 34 - South Polygon 12 Dredging Area

Figure 35. Central Dredging Channel Inner Vertices

Point ID	Latitude	Longitude	Easting (ft)	Northing (ft)
C1.1	42.79986191	-88.20842743	2449296	296689.75
C1.2	42.79932785	-88.20874786	2449215.25	296493.4063
C1.3	42.79894257	-88.20916748	2449104.75	296349.9063
C2.1	42.79894257	-88.20917511	2449103.25	296349.875
C2.2	42.79774475	-88.2103653	2448793	295906.9688
C2.3	42.79721069	-88.21072388	2448701.25	295710.4063
C2.4	42.79338837	-88.20896149	2449205	294326.9375
C3.1	42.79272842	-88.21039581	2448824.5	294079.2813
C3.2	42.79409027	-88.21029663	2448840.5	294575.75
C3.3	42.79563904	-88.21154785	2448491.5	295132.8125
C4.1	42.79283142	-88.21656036	2447169.25	294081.4375
C4.2	42.79143143	-88.21546936	2447472.25	293576.4063
C4.3	42.78974152	-88.21522522	2447551	292962.2188
C4.4	42.7884407	-88.21631622	2447269	292482.3125
C5.1	42.78991318	-88.21376801	2447942.5	293033.9063
C5.2	42.78968048	-88.21482086	2447661	292942.3438
C5.3	42.78890991	-88.21508789	2447595.25	292660.375
C5.4	42.78762817	-88.21496582	2447638	292194.25
C6.1	42.78835678	-88.21656799	2447201.5	292450.0625
C6.2	42.78891754	-88.21739197	2446976.75	292650.5625
C6.3	42.78970337	-88.21749878	2446943	292935.5313
C6.4	42.79037476	-88.217453	2446949	293180.3125
C6.5	42.79353714	-88.21964264	2446337.5	294320.2813
C7.1	42.79292679	-88.2194519	2446392.75	294099.0625
C7.2	42.79263687	-88.21958923	2446357.25	293992.25
C7.3	42.79098892	-88.22064972	2446086.5	293386
C7.4	42.78883743	-88.22149658	2445875.25	292597.9375
C7.5	42.78846359	-88.22080231	2446064.75	292465.125
C7.6	42.78646088	-88.22010803	2446266.75	291738.9375
C7.7	42.78418732	-88.2199707	2446322	290912.125
C7.8	42.78357697	-88.21726227	2447052.25	290705.3438
C8.1	42.79151535	-88.21372223	2447941.25	293617.25
C8.2	42.79116058	-88.21257782	2448251.5	293495.5938
C9.1	42.78346634	-88.2175293	2446981.5	290662.75
C9.2	42.77997589	-88.21855927	2446732.75	289384.6563
C9.3	42.7786293	-88.21913147	2446589.5	288890.5938
C10.1	42.79564667	-88.21154785	2448491.5	295134.9375
C10.2	42.79567337	-88.21261597	2448206.5	295139.5313
C10.3	42.79522705	-88.21357727	2447951.75	294971.5313

Figure 36. Northern Dredging Channel Inner Vertices

Point ID	Latitude	Longitude	Easting (ft)	Northing (ft)
N1.1	42.80649948	-88.21217346	2448239.75	299086.875
N1.2	42.80326843	-88.21172333	2448386.75	297911.5625
N1.3	42.80145264	-88.21094513	2448609	297254.0625
N1.4	42.80141068	-88.20979309	2448917.5	297246.0625
N1.5	42.80185318	-88.20780945	2449446.25	297418.125
N1.6	42.80245972	-88.2075119	2449522.25	297641.3438
N1.7	42.802742	-88.2073288	2449568.25	297744.5938
N1.8	42.80319595	-88.20693207	2449672.25	297912.4063
N1.9	42.80360031	-88.20681	2449701.5	298061.5313
N1.10	42.80375671	-88.20718384	2449599.75	298115.375
N1.11	42.80381012	-88.20753479	2449506.25	298132.8438
N2.1	42.81330109	-88.22249603	2445418.5	301505.5313
N2.2	42.81427383	-88.22018433	2446031	301873.0625
N2.3	42.81462097	-88.21804047	2446601.75	302012.3438
N2.4	42.81436157	-88.21742249	2446771	301920.6563
N2.5	42.8147049	-88.21498871	2447420.5	302059.9688
N3.1	42.81156158	-88.22409058	2445003.25	300863.0625
N3.2	42.81099701	-88.22366333	2445121.75	300659.2188
N3.3	42.8094635	-88.22400665	2445042.5	300098.0938
N3.4	42.80887222	-88.22428131	2444972.75	299881.6875
N3.5	42.8076973	-88.2244339	2444942	299452.5625
N3.6	42.80712891	-88.22393799	2445078.5	299247.6563
N3.7	42.80584335	-88.22227478	2445534.75	298789.0625
N3.8	42.80435181	-88.21914673	2446386.5	298263.5
N3.9	42.80508804	-88.21671295	2447032.5	298546.3438
N3.10	42.8051796	-88.2146225	2447592.25	298591.0625
N3.11	42.80701065	-88.21417236	2447700.5	299260.9688
N4.2	42.80571365	-88.21788025	2446714.75	298767.75
N4.1	42.80489349	-88.21739197	2446852	298470.5938
N5.4	42.80498505	-88.22284698	2445387	298473.3125
N5.3	42.80727768	-88.22632599	2444436.25	299289.125
N5.2	42.80748367	-88.22724915	2444187.5	299359.0938
N5.1	42.80739212	-88.22940063	2443611	299313.4063
N6.1	42.81028366	-88.20554352	2449989	300502.9375
N6.2	42.81121826	-88.20526123	2450058	300846.0625
N7.1	42.81052017	-88.20471191	2450209.25	300594.5
N7.2	42.81127167	-88.20518494	2450077.5	300864.9688
N9.1	42.81130219	-88.2051239	2450094	300876.7188
N9.2	42.81206512	-88.20513153	2450086	301155.5313
N9.3	42.81229401	-88.20491028	2450144	301239.3438
N9.4	42.81237411	-88.20469666	2450199.75	301270.4375
N9.5	42.81303406	-88.20456696	2450230.25	301511.6563
N8.1	42.80744171	-88.21334839	2447918.25	299423.625
N8.2	42.80880737	-88.2128067	2448051	299923.25
N8.3	42.80902481	-88.21200562	2448266.25	300007.5938
N10.1	42.81311035	-88.20466614	2450201.5	301538.0938
N10.2	42.81314468	-88.2049942	2450114.25	301549.0313
N10.3	42.81293106	-88.20545959	2449991.25	301468.0938
N11.1	42.80630493	-88.21508789	2447458.5	298998.0938
N11.2	42.80826569	-88.21490479	2447493.25	299714.6875
N12.1	42.80805969	-88.21642303	2447088.25	299630.5313
N12.2	42.80840683	-88.21611023	2447169.75	299758.9063
N12.3	42.80879593	-88.21588898	2447225.75	299901.3125
N13.1	42.80840683	-88.21659088	2447038.75	299756.0938
N13.2	42.80935669	-88.21534729	2447366.5	300108.8438
N14.1	42.80871964	-88.2168045	2446979	299869.25
N14.2	42.80866623	-88.21625519	2447128.25	299852.9688

Figure 37. Southern Dredging Channel Inner Vertices

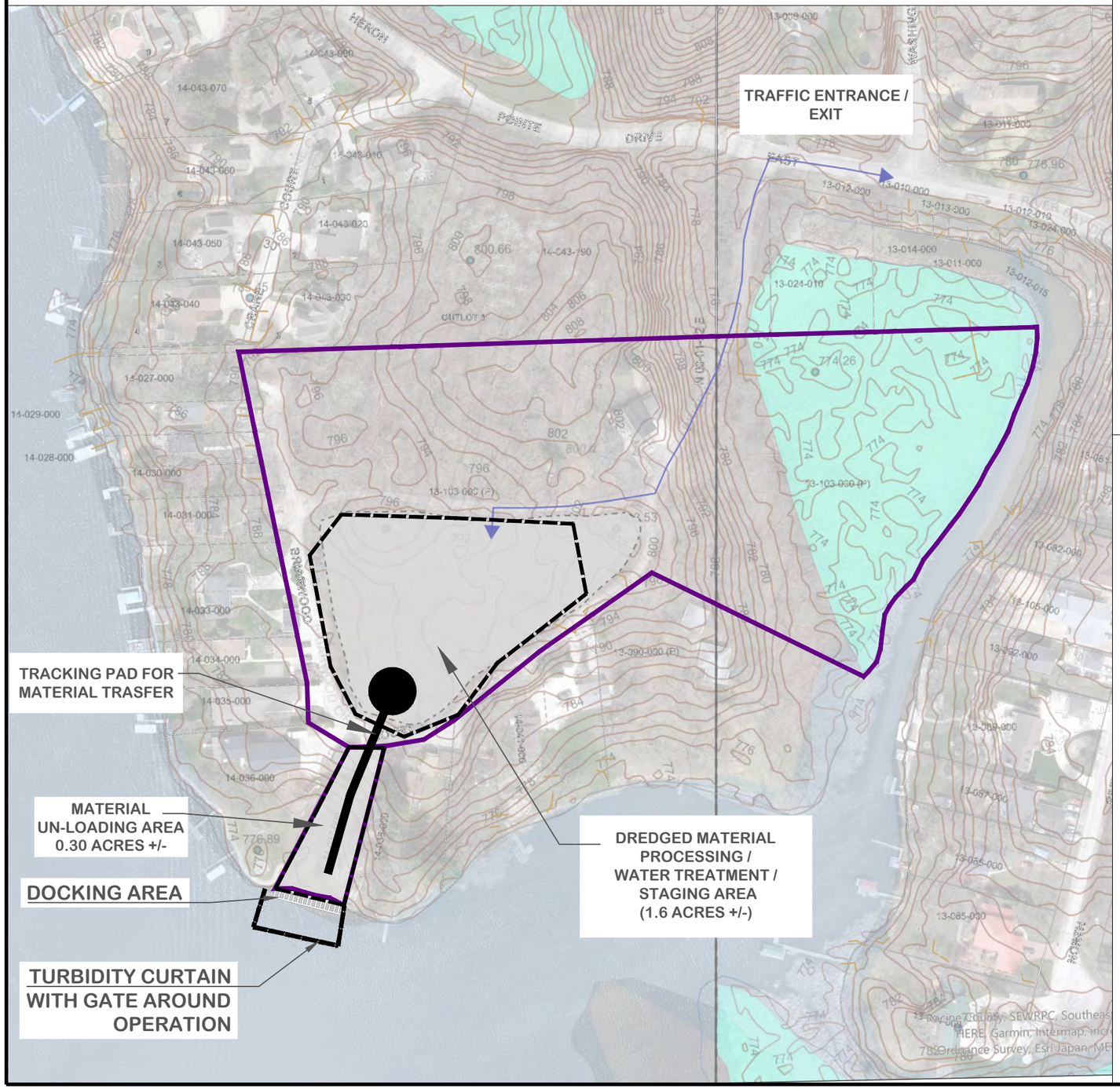
Point ID	Latitude	Longitude	Easting (ft)	Northing (ft)
S1.1	42.76995087	-88.2098465	2449149.75	285781.8438
S1.2	42.76756287	-88.20987701	2449161	284911.75
S2.1	42.76686096	-88.21083069	2448909.75	284650.5313
S2.2	42.7690773	-88.21075439	2448912.75	285458.2188
S3.1	42.76700974	-88.21231842	2448509.5	284697.125
S3.2	42.76686859	-88.21084595	2448906	284652.9375
S4.1	42.76908112	-88.21065521	2448940.5	285461.3125
S4.2	42.76929474	-88.21212006	2448545.25	285530.5938
S5.1	42.76935577	-88.2121048	2448548.5	285553.2188
S5.2	42.76771927	-88.21322632	2448260.25	284950.0938
S6.1	42.77864456	-88.21759033	2447002.75	288906.1563
S6.2	42.77976227	-88.21800995	2446881.75	289311.1563
S6.3	42.78157043	-88.21747589	2447010.75	289972.3125
S7.1	42.78320313	-88.21625519	2447325.75	290574.7188
S7.2	42.78330231	-88.21509552	2447636	290616.9063
S7.3	42.78282166	-88.21459198	2447776.75	290444.3438
S8.1	42.7825737	-88.21389771	2447964.75	290358.5
S8.2	42.78144455	-88.21333313	2448124.5	289950.1563
S8.4	42.78217697	-88.21065521	2448837.5	290232.9688
S8.3	42.78168869	-88.21234894	2448385.75	290045.625
S9.1	42.78287125	-88.21451569	2447796.25	290463.5625
S9.2	42.78358841	-88.21412659	2447895.25	290726.9688
S9.3	42.78355408	-88.21360016	2448035.75	290717.4063
S9.4	42.78259659	-88.21388245	2447967.75	290366.9063
S10.1	42.77893448	-88.2142334	2447902.5	289029.9063
S10.2	42.77838135	-88.21369171	2448053	288832.5
S10.3	42.77835846	-88.21260071	2448345.5	288830.4063
S10.4	42.77869797	-88.21228027	2448429	288955.5
S10.5	42.77901459	-88.21096802	2448777.5	289077.9375
S10.6	42.77927017	-88.2098999	2449063.25	289178.125
S10.7	42.7795639	-88.20930481	2449219.5	289288.0938
S11.1	42.77697754	-88.21487427	2447745.25	288313.8125
S11.2	42.77888107	-88.21470642	2447775	289008.375
S11.3	42.77896118	-88.21417236	2447919.25	289040.7188
S12.1	42.781147	-88.21013641	2448984	289859.9063
S12.2	42.78110504	-88.21089172	2448782.75	289840.9375
S12.3	42.78046417	-88.21276855	2448284.5	289596.1563
S12.4	42.78079224	-88.21166229	2448579	289721.625
S12.5	42.78005219	-88.21324921	2448156.75	289442.9375
S12.6	42.77943802	-88.21353149	2448087.75	289217.8125
S12.7	42.77942657	-88.21413422	2447924.75	289210.1563
S12.8	42.77933884	-88.21451569	2447823.75	289176.625
S12.9	42.77928925	-88.21537018	2447595	289152.9063
S12.10	42.77909851	-88.21585846	2447465.5	289081.1875
S12.11	42.77872086	-88.21759033	2447003.75	288933.3438

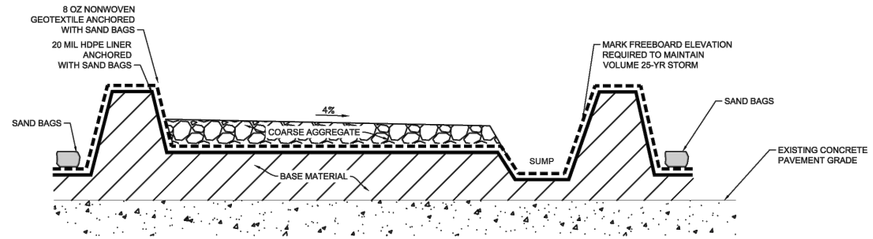
North Tichigan Lake	
EcoWaterWays ID	New ID
Polygon 5	North 1
Polygon 5a	
Polygon 7	North 2
Polygon 8a	North 3
Polygon 8b	
Polygon 8c	
Polygon 10	North 4
Polygon 11	North 5
Polygon 12	North 6
Polygon 13	North 7
Polygon 14a (690 ft)	North 8
Polygon 14b (750 ft)	North 9
Polygon 15	North 10
Channel 1	North 11
Channel 2	North 12
Channel 3	North 13
Channel 4	North 14

Central Tichigan Lake	
EcoWaterWays ID	New ID
Polygon 0	Central 1
Polygon 1	Central 2
Polygon 2	Central 3
Polygon 5	Central 4
Polygon 6	Central 5
Polygon 7	Central 6
Polygon 8	Central 7
Polygon 10	Central 8
Polygon 11	Central 9
Polygon 13	Central 10

South Tichigan Lake	
EcoWaterWays ID	New ID
Polygon 13	South 1
Polygon 14	South 2
Polygon 15	South 3
Polygon 16	South 4
Polygon 17	South 5
Polygon 18	South 6
Polygon 19	South 7
Polygon 20	South 8
Polygon 21	South 9
Polygon 22	South 10
Polygon 23	South 11
Polygon 24	South 12

DRAWN BY: JAJ CHECKED BY: MSK REVISED:





NOTES:

1. CONTRACTOR SHALL DETERMINE AND PROPOSE DETAILED DESIGN OF THE DEWATERING AND DECONTAMINATION PADS FOR APPROVAL.
2. THE DEWATERING AND DECONTAMINATION PAD DIMENSIONS AND LAYOUT SHALL NOT LIMIT THE DREDGE PRODUCTION RATES.

DETAIL (TYP.)
DEWATERING PAD/ DECONTAMINATION PAD
SCALE: NTS

Notes:

1. Approximate 100-yr floodplain elevation is 776 ft.
2. Parcel boundaries and topographic survey are provided by Racine County WI Map Book. Elevations are in feet based on the National Geodetic Vertical Datum (NGVD29). The Grid coordinate system corresponds to Wisconsin State Plane South, related to North American Datum of 1927 (NAD 27).
3. During material unloading activities, suspended sediment control measures will be implemented to prevent migration of sediment away from the work area.
4. Workers/equipment should not be parked/staged in the wetlands.
5. Indicated environmental controls are in proposed locations and the Contractor shall submit a plan prior to construction that identify exact layout and locations of all environmental controls.
6. The material unloading and dredged material processing, water treatment, support and staging area and layout shown are conceptual. The Contractor shall secure access and lease agreements to necessary land, determine exact location and layout and submit to the owner for review and approval.
7. Trucks and equipment must queue within established and approved staging areas, queuing in local streets is prohibited.
8. Contractor shall inspect truck routes daily for spillage, dust, or other site related impacts. Any impacts must be returned to original condition daily to the satisfaction of the owner.
9. Truck route is typical. The Contractor shall propose a truck route to minimize interference to land owner and neighboring community.

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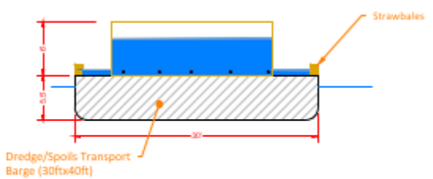
SAMPLE
STAGING AREA AND
TEMPORARY FACILITIES

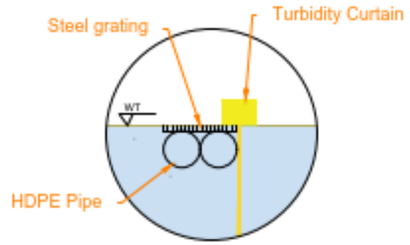
WATERFORD WATERWAY
MANAGEMENT DISTRICT
DREDGING PROJECT

DRAWING
F-38

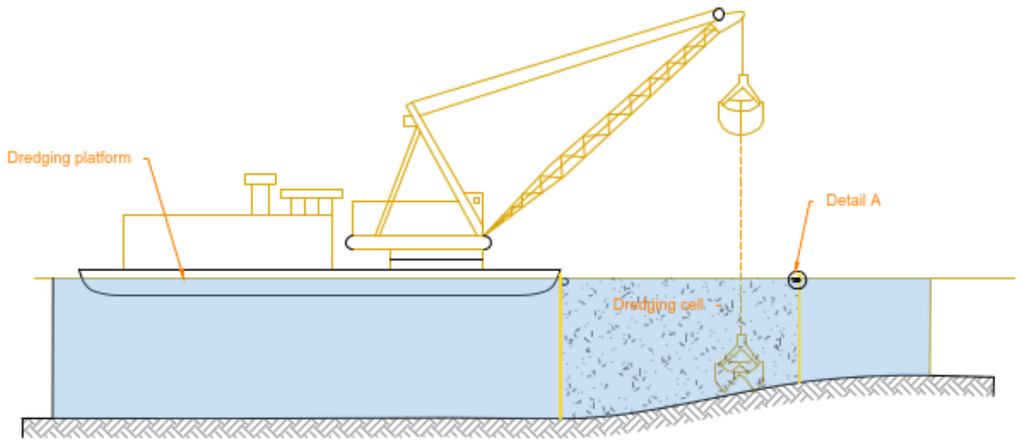
DRAWN BY: JAJ CHECKED BY: MSK REVISED:



Typical section: Dredge/Spoils Transport Barge



Typical: Detail A



Typical Section: A-A

MOONPOOL TURBIDITY CONTROL CELL (SEE DETAIL A)

DREDGE BARGE (SEE TYPICAL SECTION)

DREDGED MATERIAL TRANSPORT BARGE (SEE TYPICAL SECTION AND NOTES)

NORTH POLYGON 1 DREDGING LANE

DREDGE MATERIAL TRANSPORT PIPELINE (SEE NOTES)

N1.1 N1.2 N1.3 N1.4 N1.6 N1.7 N1.8 N1.9 N1.10 N1.11

Notes:

1. The Contractor shall utilize a moonpool turbidity control cell as shown. The Contractor shall provide exact dimensions and layout of dredge barge, moonpool turbidity control cell, and dredged material transport barge or pipeline.
2. Beyond practices described in the Contract Documents, Best Management Practices (BMP) engineering controls (e.g., silt curtains, air curtains and/or secondary containment) shall be used during dredging to meet water quality permit requirements.

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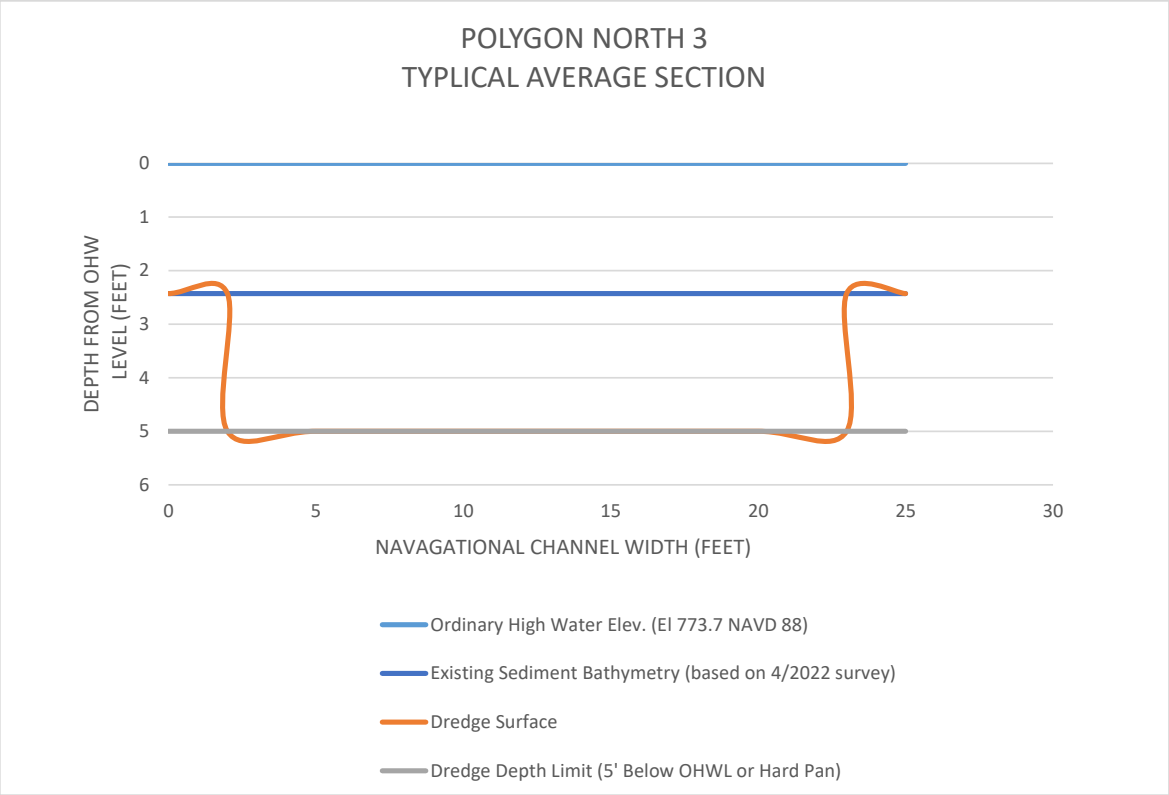
Geosyntec consultants

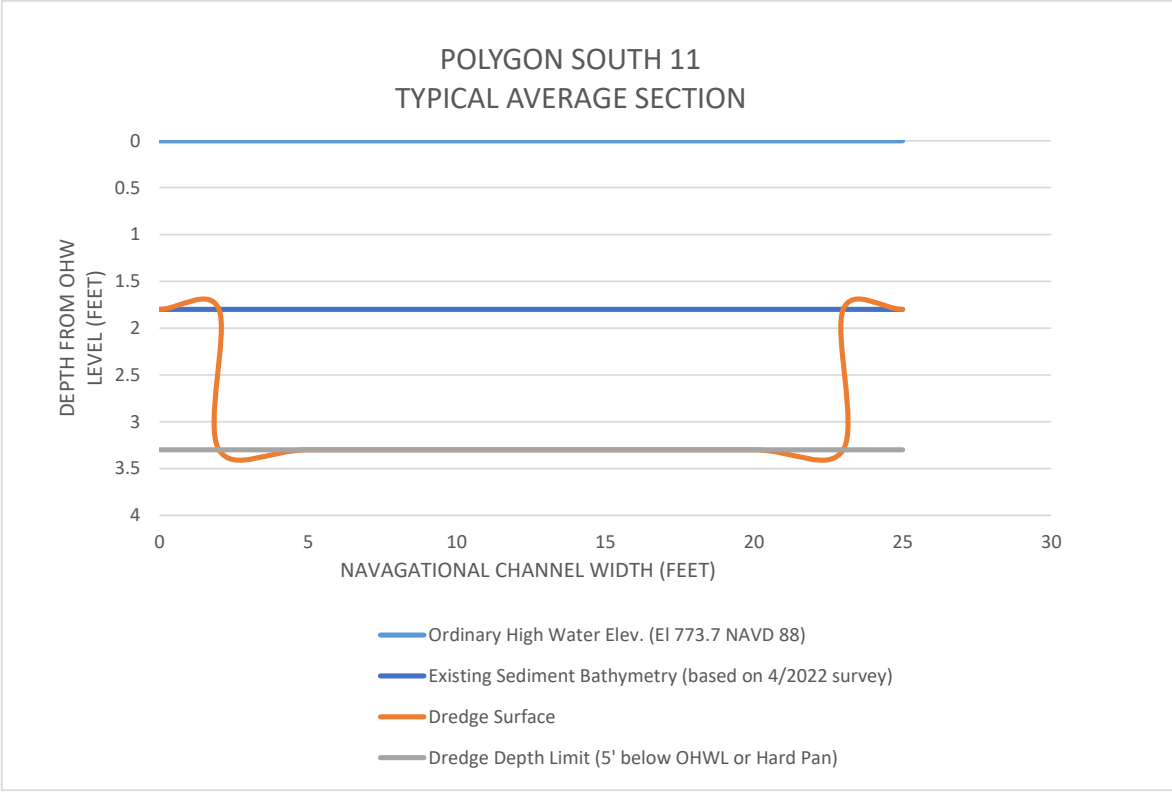
SAMPLE DREDGING AREA AND PROTECTION AROUND DREDGING

WATERFORD WATERWAY MANAGEMENT DISTRICT DREDGING PROJECT

DRAWING
F-39

FIGURE 40





Based on Bathymetric Survey on April 20 to 22, 2022. Stream Level at Waterford Dam averaged 773.60 feet NAVD 88. USGS Gage 05544348. Ordinary High Water Elevation Waterford Dam 773.7 feet NAVD 88 (75th Percentile based on 5 years of water levels at gage 05544348). Summer Low Level based on 5 years of data 773.50 feet.

Figure 41 - Sample Bathymetric Map 4/2022

Waterford Waterway Management District
Navigation and Hydraulic Management Committee
05.12.22

Individual Parcel Project Area Description:

Prior to dredging start each year, owners in designated areas to be dredged, will be provided with painted rebar rods to mark the desired dredge starting points, both from shore towards the water and from their pier to the left or right. If the rebar is pounded into the bottom 12" from shore, this is an indicator that the owner would like the dredging to continue all the way to the shoreline. No dredging shall take place past the marker towards the shore. If no marker is present, dredging shall stop 3'-0" from a rip-rap wall from the furthest exposed rock above the surface of the water and 12" from any other shoreline type. If the owner places the stake further from shore, indicating dredging is not desired all the way to the shoreline, than dredging shall stop at the indicator and not get any closer to shore. The reason for this is that some owners may already have hard bottom or desirable structure on a portion of their shoreline under the water.

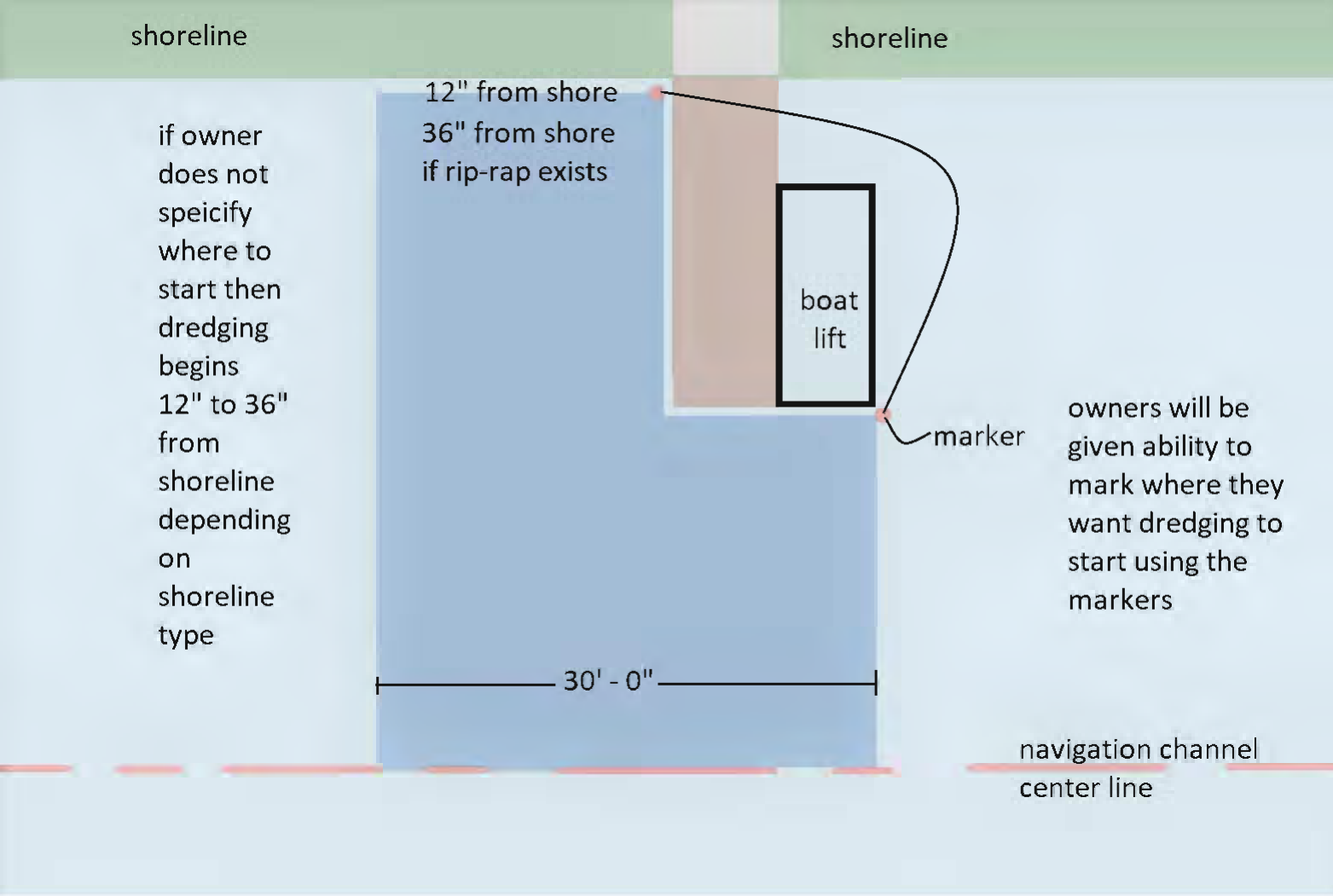
Owners may indicate which side of their pier should be the outer starting limit of the 30' wide lane, by pounding the stake into the bottom 1' in front of the water facing corner of their boat lift or 10' to the left or right of the pier if no boat lift is present.

Dredging shall start, unless otherwise indicated, from the centerline of the navigation channel on a line perpendicular to the shore on the side of the pier in which the boat lift is sitting. Dredging starts 10' to the left or right of each pier, and continues 30' in the direction towards the center of the pier. Dredging shall be programmed to a depth of three feet below the surface of the water, moving towards shore, until 50 cubic yards has been removed. Dredger shall set GPS coordinates at each parcel to ensure the dredge area is no wider than 30' relative to the linear shoreline. For parcels with multiple boat lifts which are greater than 30' apart from the port side of one pier to the starboard side of the other, the owner may indicate desired starting location using painted steel rebar rods provided by the WWMD to indicate desired lane, no greater than 30' wide. If the owner does not mark the desired project work area, the dredger will choose to start from the boat lift that appears to be the largest or most well-maintained.

There may be parcels included in the project scope with shorelines that do not have a pier or a lift in the water at the time dredging begins and the owner has not marked the starting/stopping locations. In these cases the dredger shall begin using any shoreline indicators such as a gravel/stone/concrete path to where the pier may have been located and begin 10' to the right or left of one side of said path.

The excavator's bucket shall not dig any closer than 12" from any pier or boat lift frame to avoid damage to lifts and piers. The dredger will not dig behind (on the shoreline side) of any boat lift or over any pier that is parallel, or relatively parallel, to the shoreline.

Once the dredger has removed 50 cubic yards, the project is complete for the subject parcel.


shoreline
shoreline
12" from shore
36" from shore
if rip-rap exists
if owner does not speicify where to start then dredging begins 12" to 36" from shoreline depending on shoreline type
boat lift
marker
owners will be given ability to mark where they want dredging to start using the markers
30' - 0"
navigation channel center line