Sheldon Dunes No. 2 Drain
Preliminary Engineering Summary

Ottawa County
Where You Belong

Sheldon Dunes No. 2 Drain
Board of Determination

November 17, 2022

Joe Bush
Ottawa County Water Resources Commissioner

Presented by:
Joe Westerbeke, PE, CFM

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BOARD OF DETERMINATION OVERVIEW

- **Petition** filed by Port Sheldon Township for maintenance and improvements to alleviate drainage issues and to designate a County Drain and drainage district
- **Michigan Drain Code** requires a Board of Determination meeting
- **Board** composed of 3 disinterested members outside of Township affected
- Determine project **necessity** based on public health, welfare and convenience after hearing testimony

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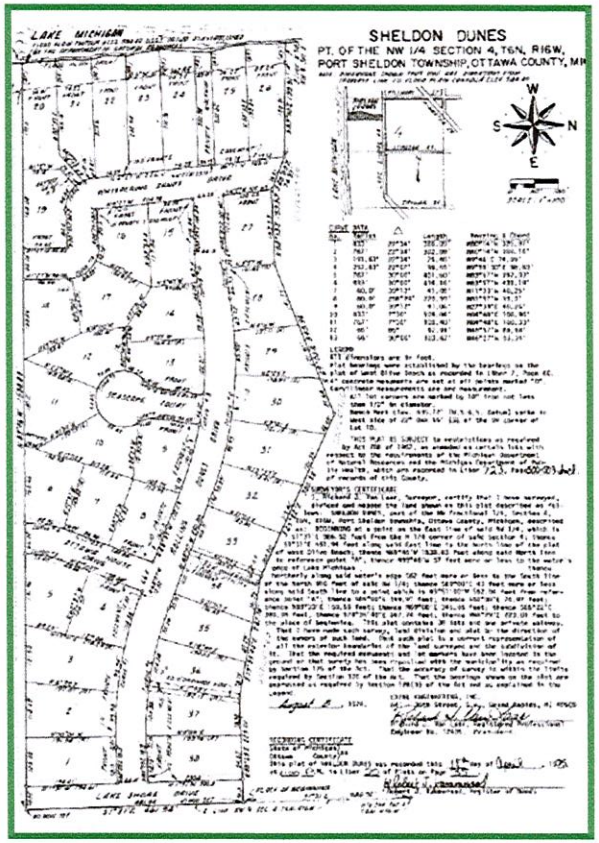
PRELIMINARY WORK PERFORMED

- Review the plat maps and history of drainage
- Review and research existing record information (GIS, aerial photographs, topographic info, etc.)
- Evaluate drainage system to be established as drain and determine the lands drained (watershed or "Drainage District")
- Field inspection of the infrastructure within the Drainage District
- Provide an **independent and unbiased** assessment of the storm water conditions within the Drainage District
- Report on those findings at the Board of Determination



Sheldon Dunes No. 2 Plat Map

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DRAIN AND DISTRICT BOUNDARY OVERVIEW

Drain Route & District Boundaries:

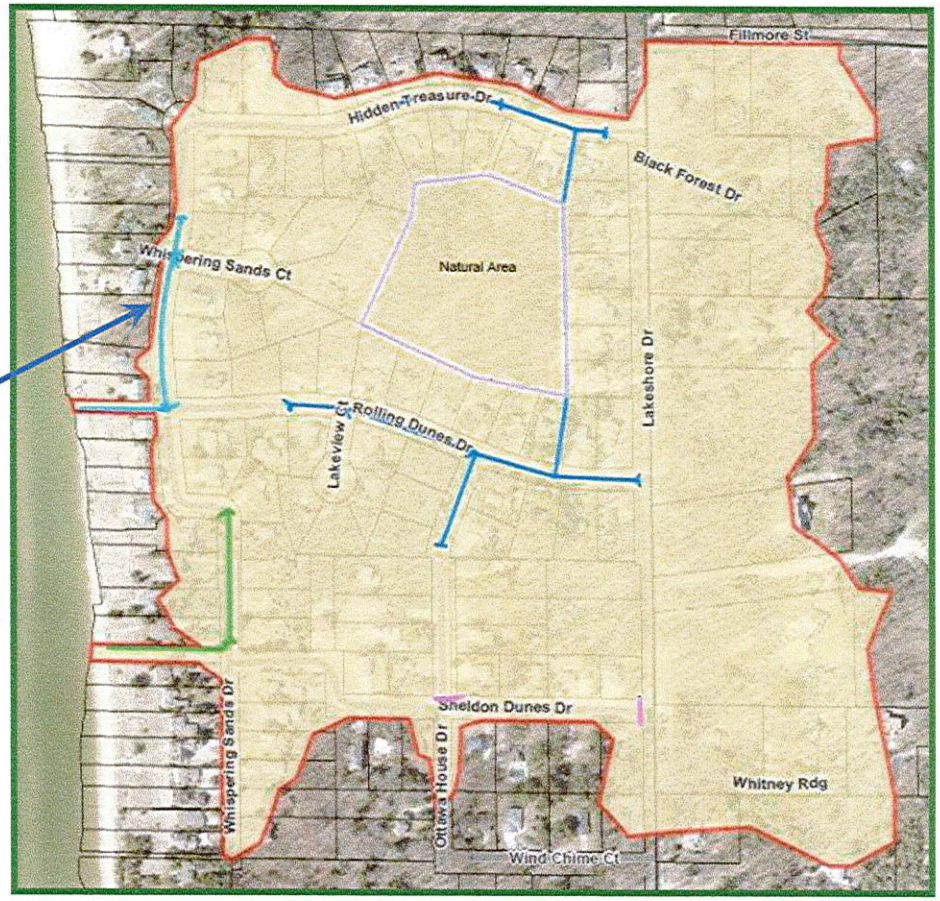
How They're Determined:

- Stormwater System Review
- Topographic Maps
- Ottawa Co. GIS
- Site Inspections

Proposed Drainage District Boundary

Drainage District Boundary Information:

- Proposed Drainage District Boundary = 85 Acres
- Entirely within Port Sheldon Township



Sheldon Dunes No. 2 Drain and Drain District

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ORPHAN DRAIN SYSTEM

What is the difference between a County Drain and a Private (Orphan) Drain?

County – A drain on which the County Drain Commissioner legally maintains & oversees any improvements.

Private – Drains not under the jurisdiction of the Drain Commissioner. Private landowners, Subdivision Associations, Township, etc. must maintain or improve.

All stormwater infrastructure within the drain district is considered private (orphan) systems currently

Ponding at Whispering Sands Drive and Sheldon Dunes Drive intersection.

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EXISTING DRAINAGE CONDITIONS OVERVIEW

Soil Conditions:

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CovabB	Covert-Pipestone sands, 0 to 6 percent slopes	0.0	0.0%
DNL	Dune land	4.3	1.5%
Lb	Lake beaches	6.4	2.2%
PlfabB	Plainfield sand, lake plain, 0 to 6 percent slopes	31.2	11.0%
PlfacD	Plainfield sand, dunes, 6 to 18 percent slopes	114.2	40.1%
PlfacF	Plainfield sand, dunes, 18 to 60 percent slopes	63.2	22.2%
Totals for Area of Interest		**284.5**	**100.0%**

Primary Soil Characteristics:

- Plainfield Sand
- Depth to water table at greater than 80 inches below grade
- High infiltration rates

USGS Web Soil Survey Report

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EXISTING DRAINAGE CONDITIONS OVERVIEW

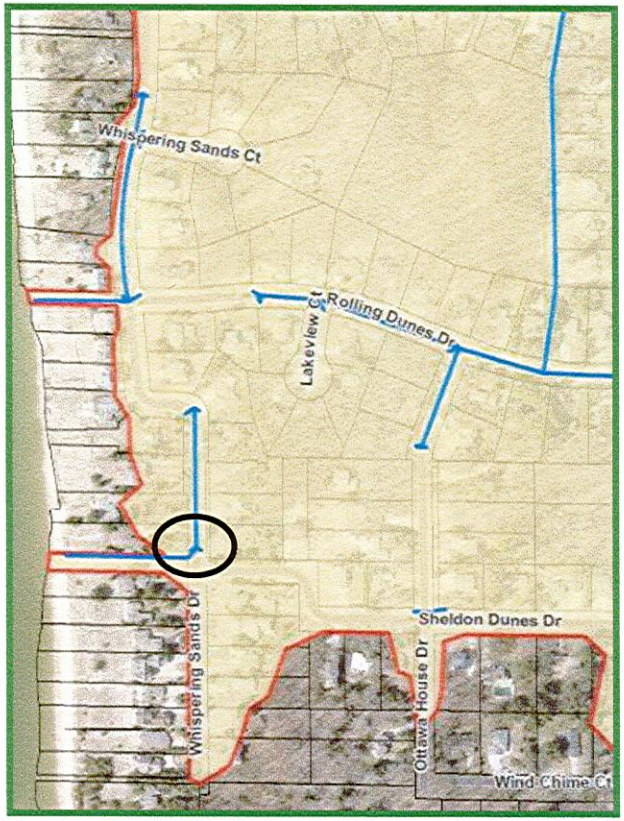
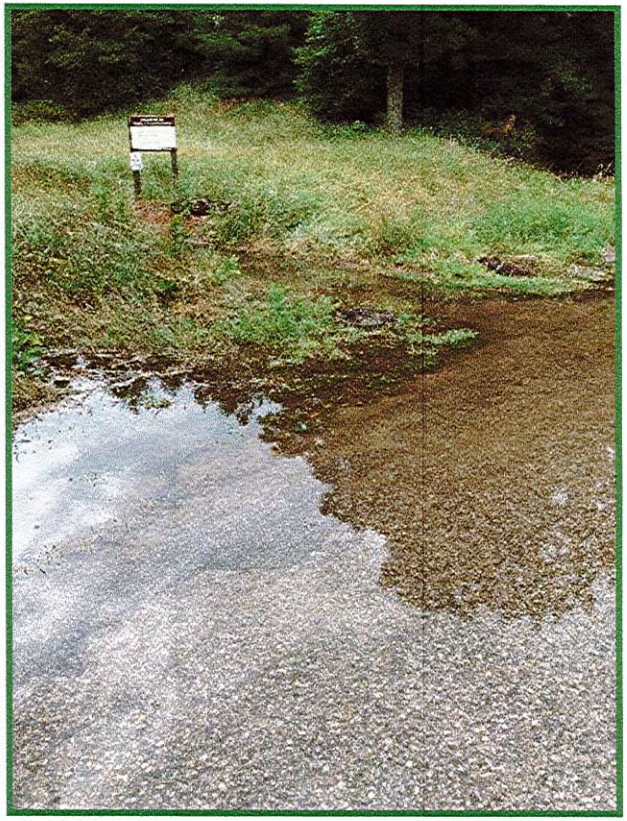


Photo Location

Standing water on east side of Whispering Sands Dr.



Standing water on west side of Whispering Sands Dr at public beach walkway.

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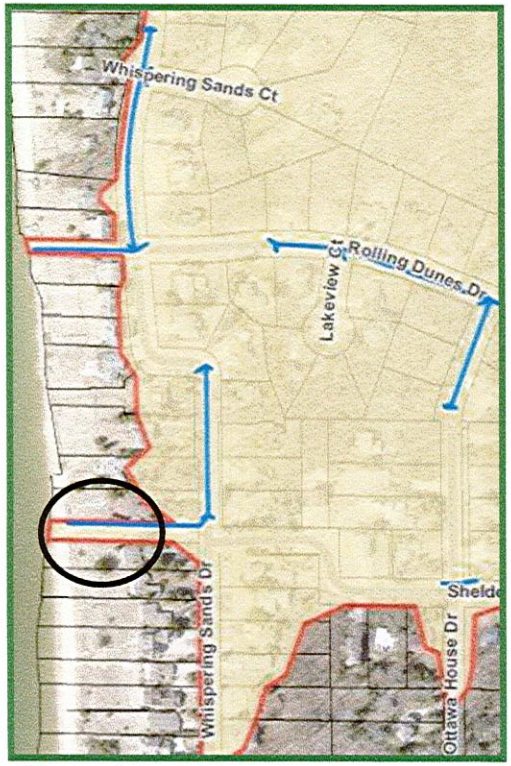

Photo Location

Pipe segment protruding from near the top of the dune of private beach

Sand in the pipe outlet immediately after rain event

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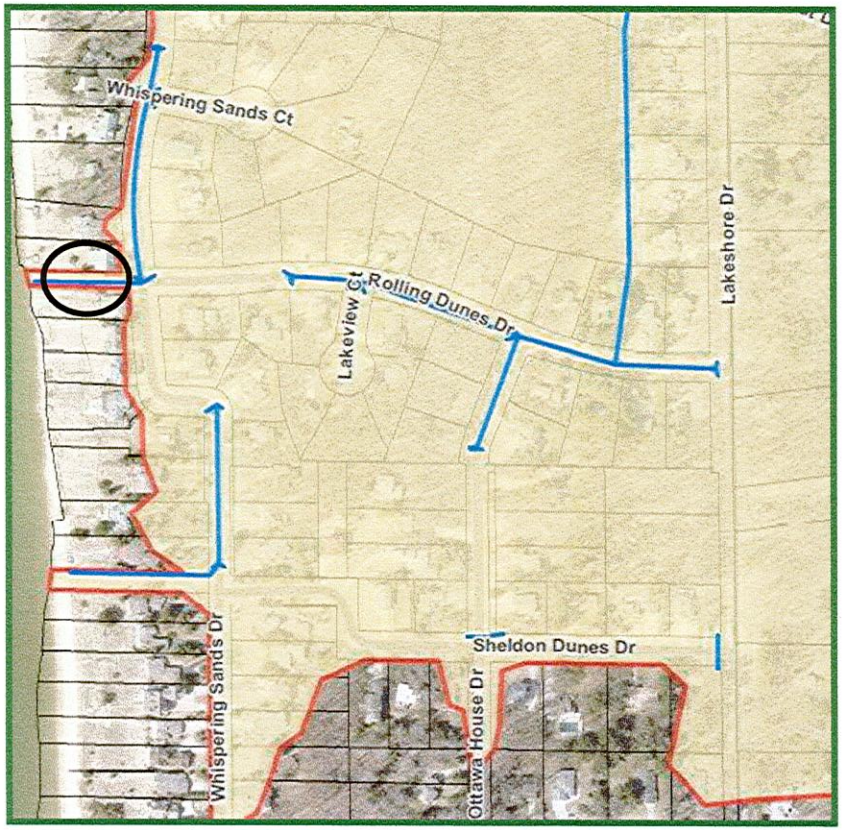
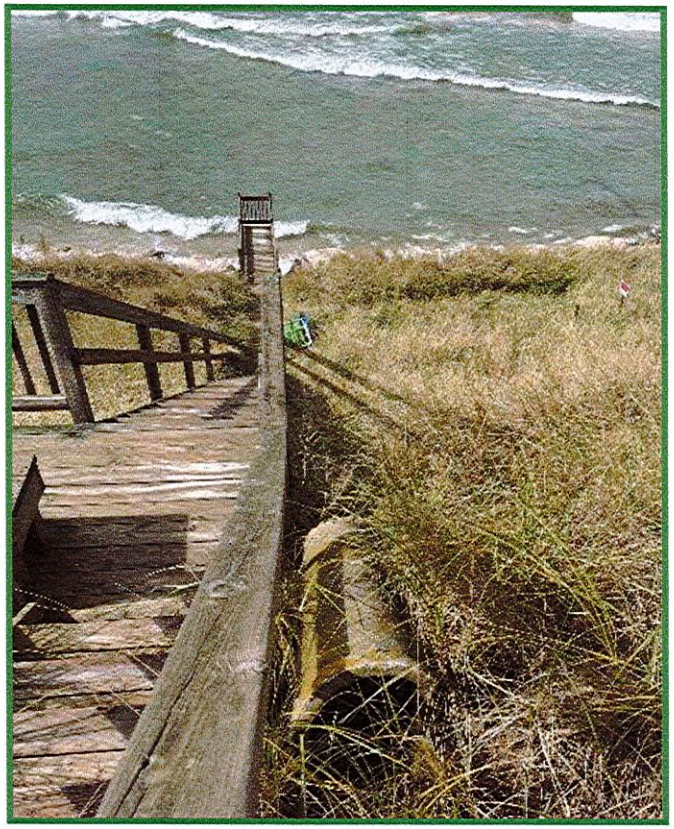


Photo Location



Broken pipe segment laying on the dune as a resulting of shifting dune

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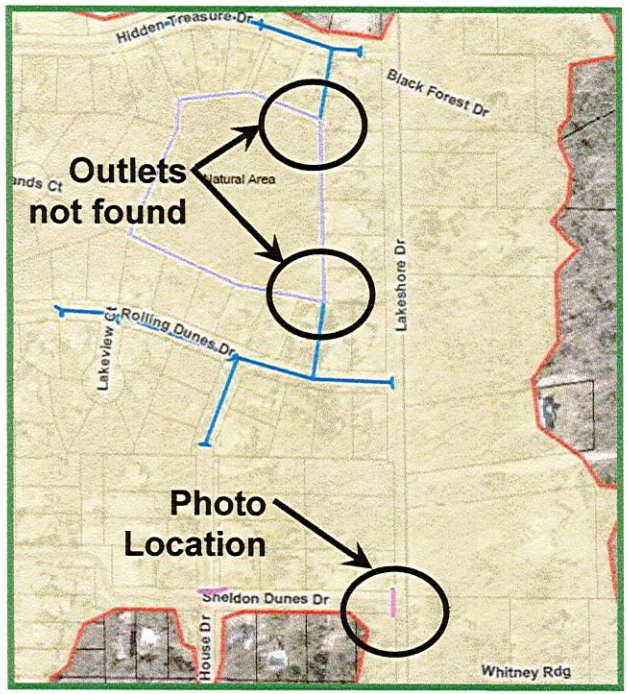
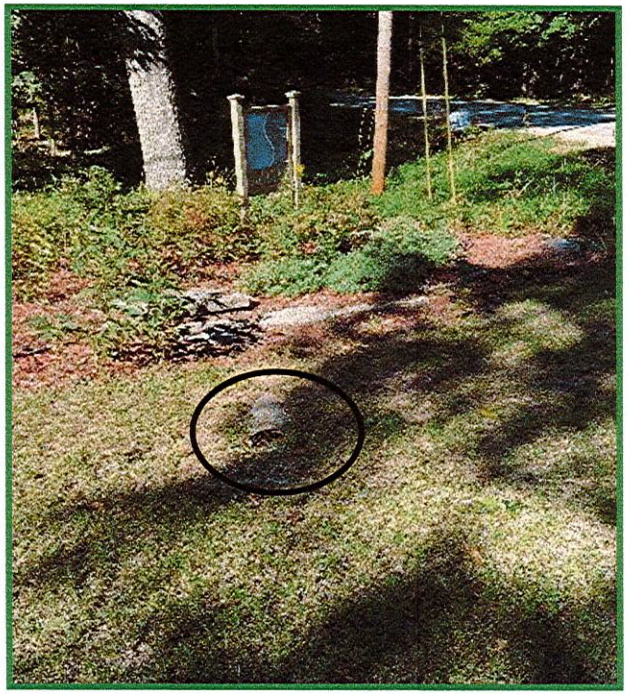


Photo Location

Culvert filled with sediment



Culvert filled with sediment

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EXISTING DRAINAGE CONDITIONS OVERVIEW

SUMMARY

- Ponding in various areas throughout drainage district.
- Some existing catch basins appear to be buried and/or filled with sediment.
- Segments of storm sewers appear to be buried and/or filled with sediment.

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POTENTIAL SOLUTIONS

- Perform maintenance on existing storm sewer system
- Review existing storm sewer system capacity and ensure all problem areas are serviced
- Provide solutions that focus on infiltration given the sandy soils throughout the district

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NEXT STEPS

- Public Testimony
- Board to Determine Necessity of Petition
- If project found not necessary:
  - Project ends
- If project found necessary:
  - Review public testimony from tonight
  - Evaluate scope of project and design alternatives
  - Finalize Design (obtain easements and permits, if necessary, and prepare bid plans)

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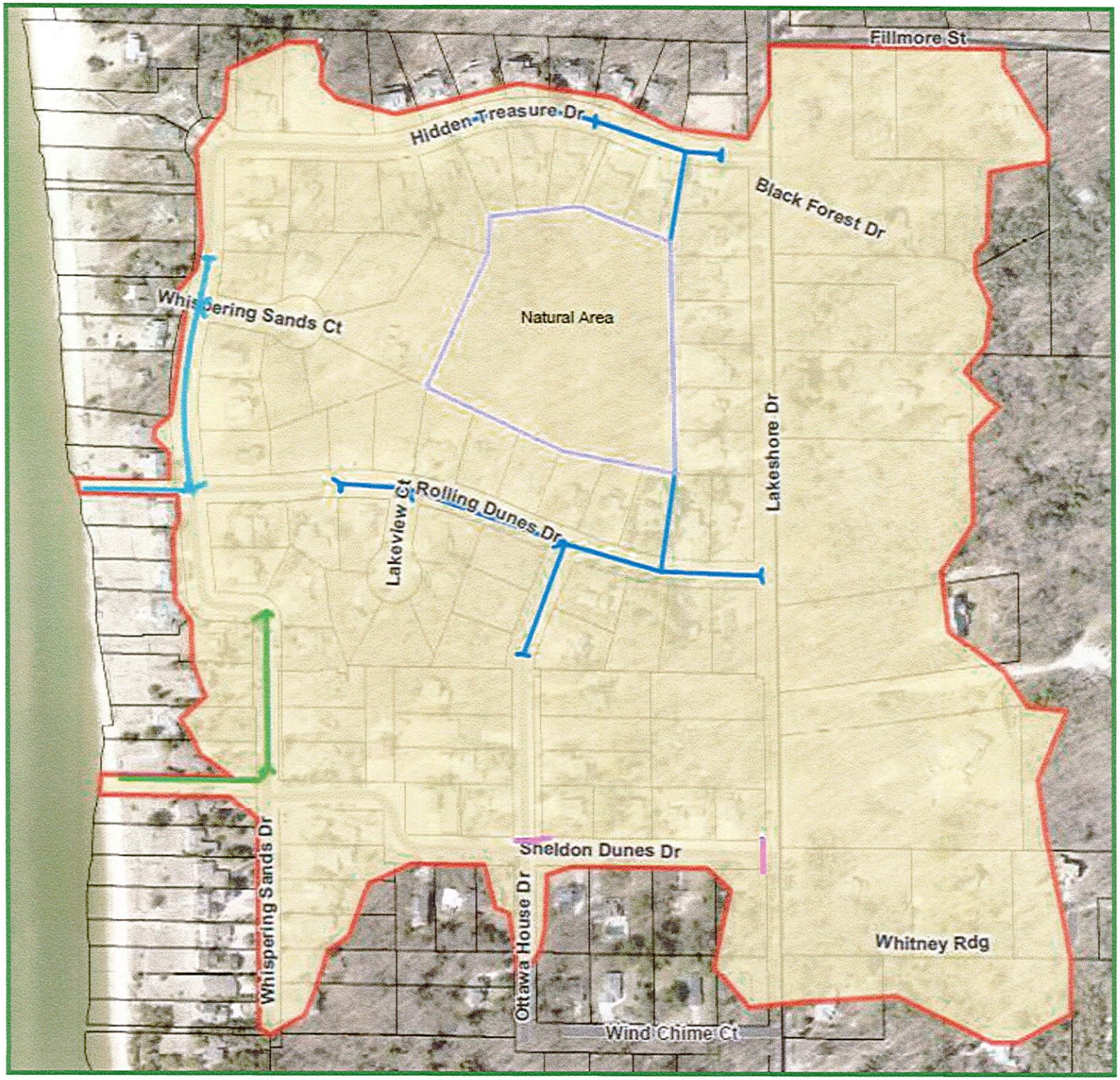
Fillmore St
Hidden Treasure Dr
Black Forest Dr
Whispering Sands Ct
Natural Area
Lakeshore Dr
Lakeview Ct
Rolling Dunes Dr
Whispering Sands Dr
Sheldon Dunes Dr
Ottawa House Dr
Whitney Rdg
Wind Chime Ct