



**Ottawa County**  
*Where You Belong*

Ottawa County Twelfth Annual  
Water Quality Forum  
November 30, 2017

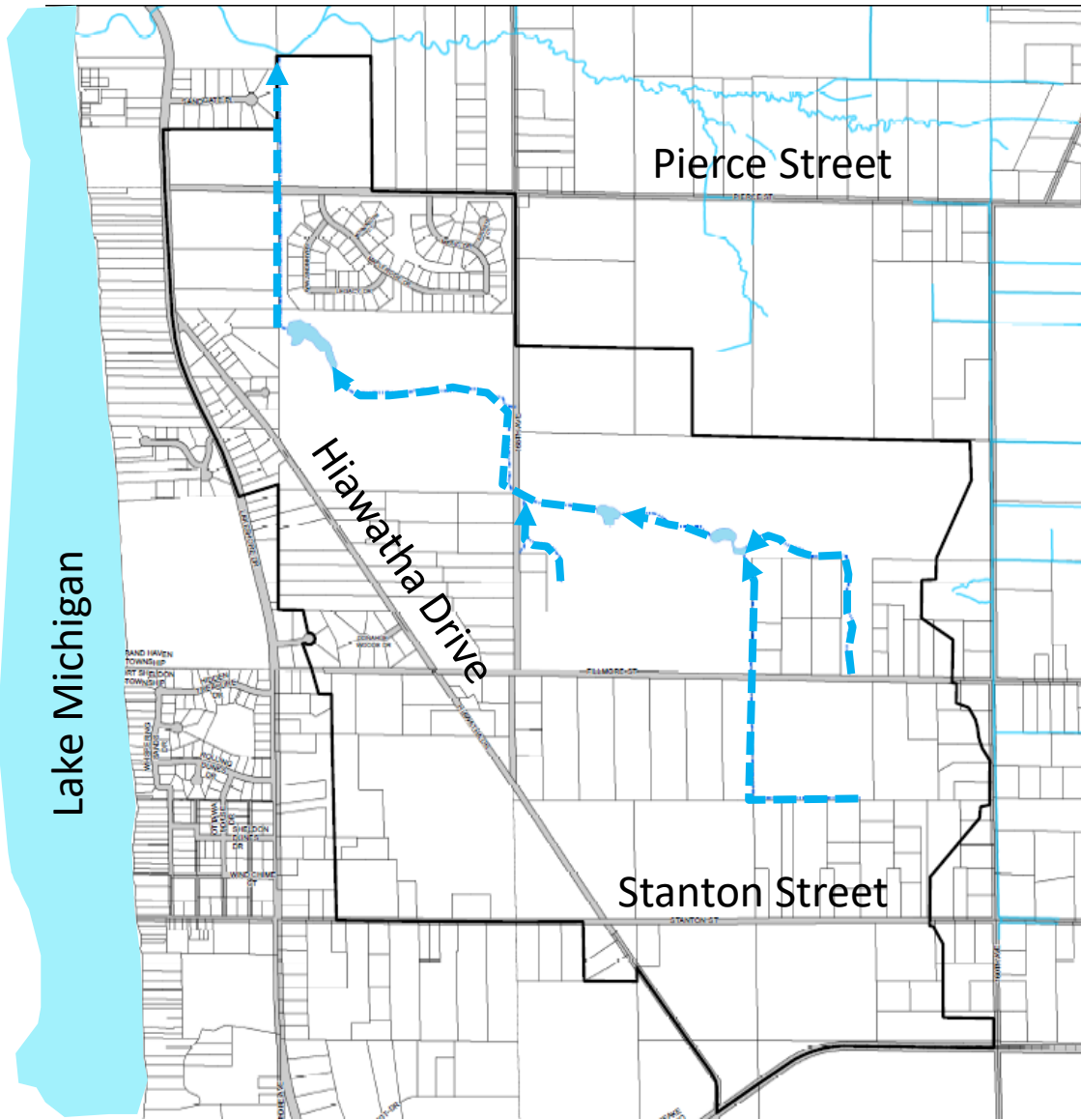
Dana Burd, P.E.  
Melanie Manion, Natural  
Resources Supervisor

## Hiawatha Drain and its Partnerships

Joe Bush, Ottawa County Water Resources Commissioner

**Prein & Newhof**

Little Pigeon Creek



# What is the Hiawatha Drain?

- Petitioned by Grand Haven Charter Township in 2009,
- Two square miles,
- 2.6 miles of infiltration and drainage swale,
- 0.4 miles of enclosed storm water piping,
- Three detention and infiltration basins, and
- An outfall to Little Pigeon Creek.



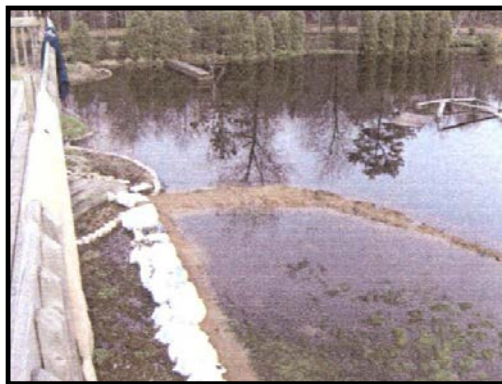
# What is the Hiawatha Drain?



# What is the Hiawatha Drain?



# What is the Hiawatha Drain?



# What is the Hiawatha Drain?



# Partnerships

*“The journey of a thousand miles begins with a single step” – Lao Tzu*



Joe Bush, Ottawa County Water Resources Commissioner



## Ottawa County Parks & Recreation Commission

John Scholtz, Director  
Curtis TerHaar, Coordinator of Park Planning and Development  
Melanie Manion, Natural Resources Supervisor

Additional Partners:  
Ottawa County Road Commission  
Grand Haven Charter Township  
Port Sheldon Township



# Natural Features



- Pine Plantation → Oak Savanna
- Seasonal and Yearly Groundwater Level Fluctuations
- Coastal Plain Marsh Areas





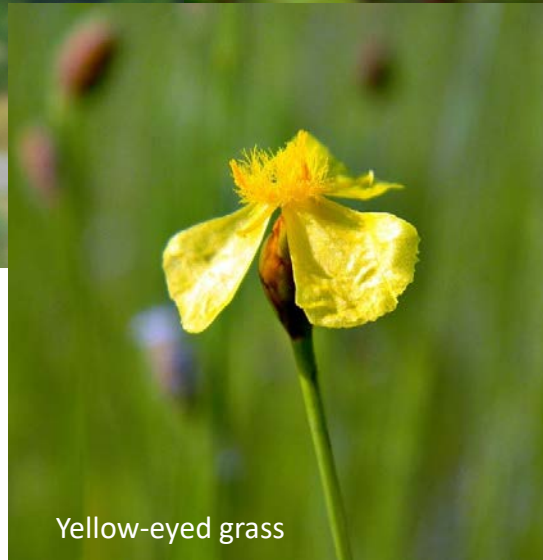
# Plants



big bluestem



meadow beauty  
(Martinus)



Yellow-eyed grass



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Recreation Commission

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# Plants

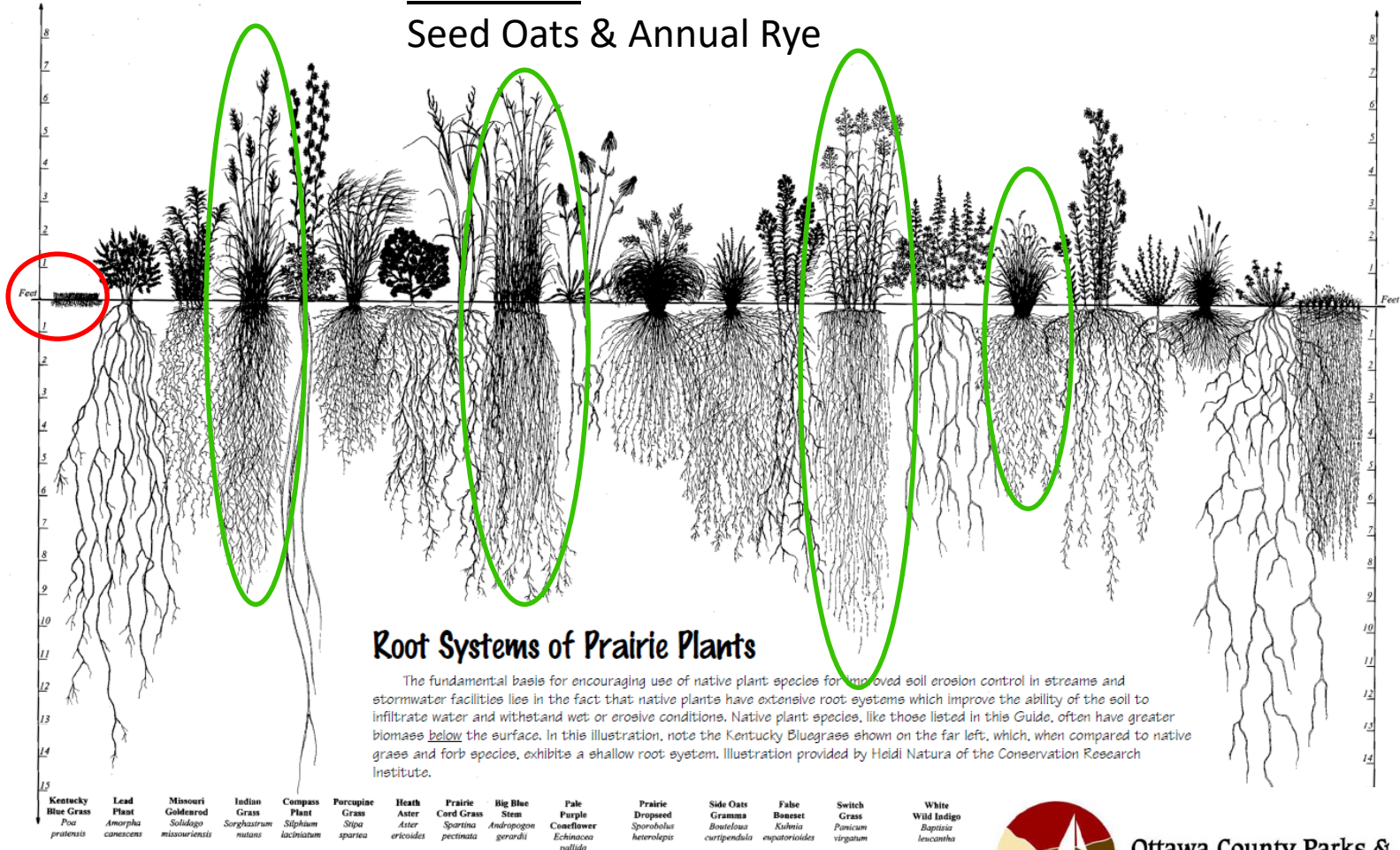
## Native Mix

Big Bluestem, Switch Grass, Little Bluestem, Indian Grass

## Cover Mix

Seed Oats & Annual Rye

Turf  
Grass



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# Animals



woodcock  
(Dewitt)

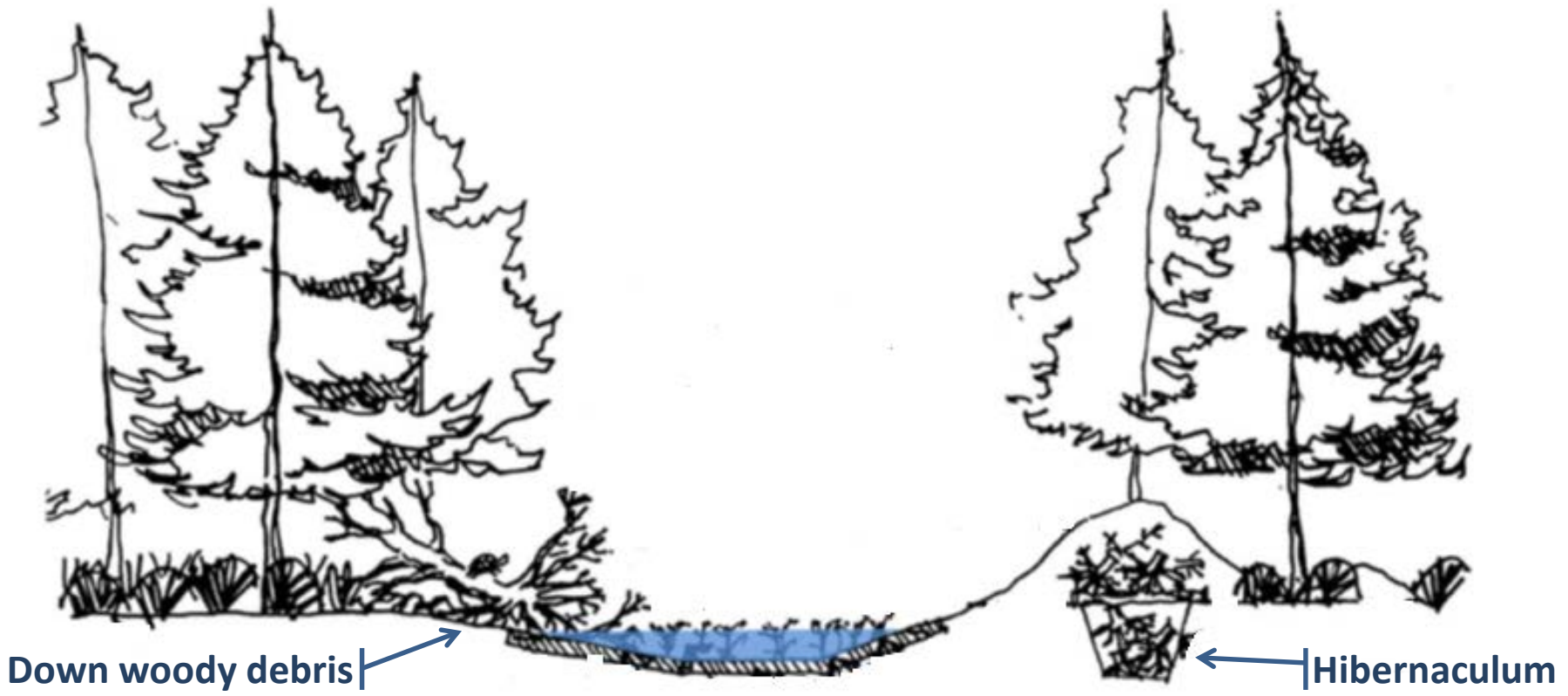


wood frog  
eggs (Mifsud)



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# Environmental Partners

- Ottawa County Water Resources Commissioner
- Ottawa County Parks
- Herpetologist – David Mifsud, HRM
- Botanist – William Martinus
- Wetland/Aquatic Biologist – Stu Koegege, GEI
- Coastal Zone Management – OGL, NOAA, DEQ



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# Partnerships



Ottawa County Parks &  
Recreation Commission

John, Curt, Melanie



Joe Bush

Ottawa County Water  
Resources Commissioner



David Mifsud,  
Herpetological  
Resource Management



Stu Koege

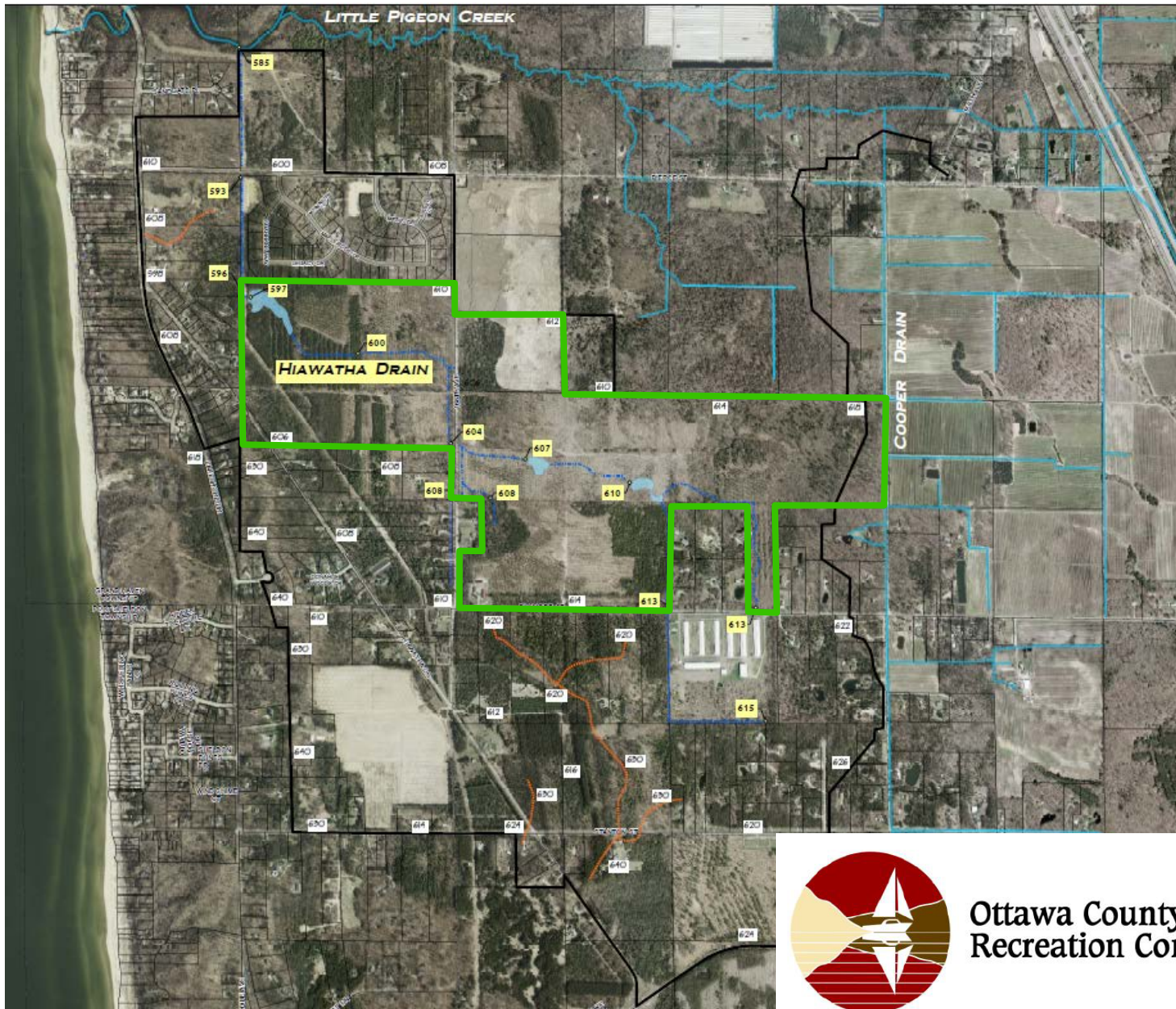


William  
Martinus &  
Associates



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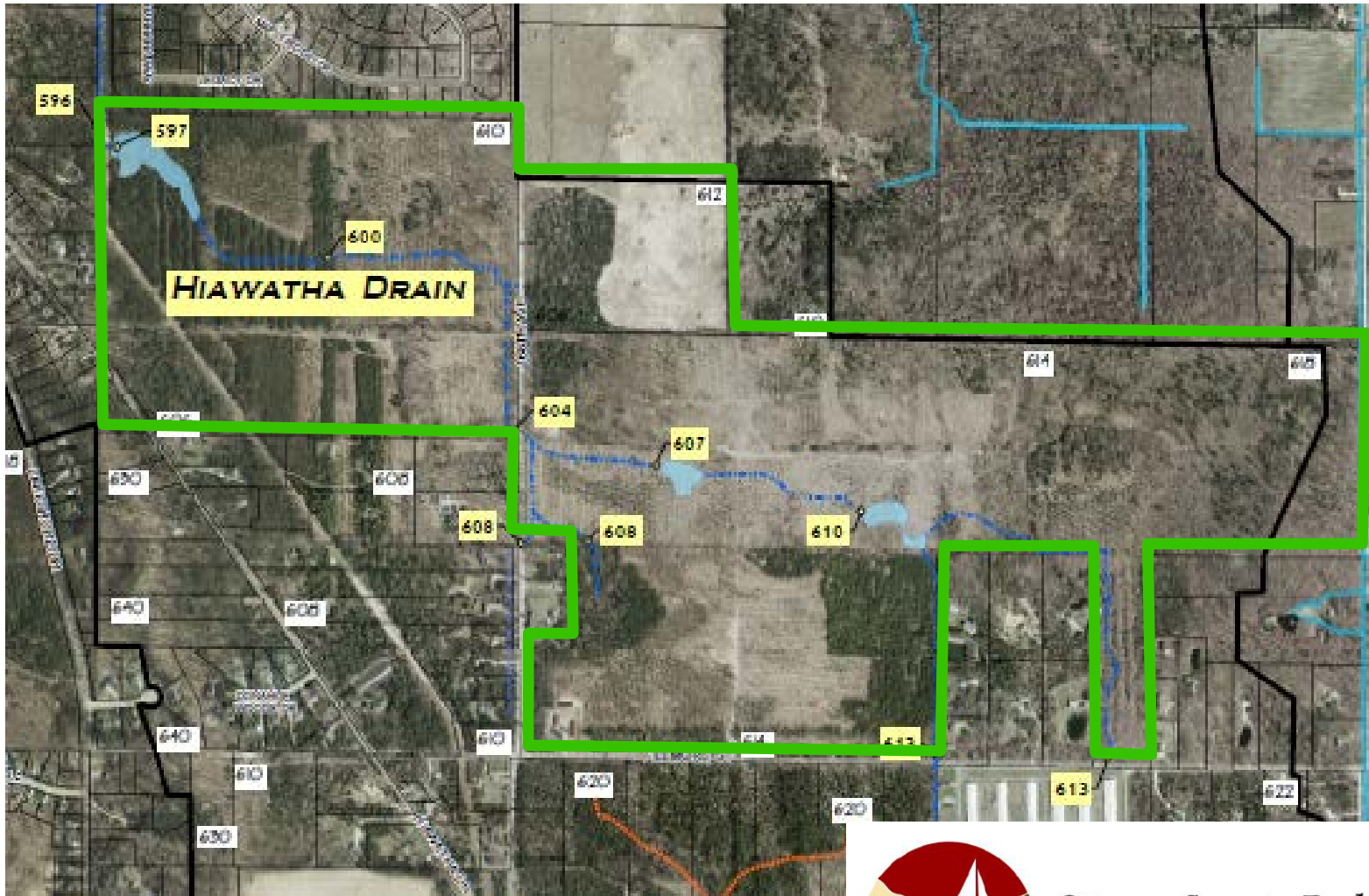




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# Hiawatha Drain – Habitat Goals

- Mimic Coastal Plain Marsh conditions
- Fluctuating Vernal Pond Conditions
- Habitat BMPs – Breeding, Nesting, Foraging
  - Brush Piles
  - Hibernaculum (Trench and Fill types)
  - Upland and Emergent –
    - Rock Pile/Refuge Sites
    - Cover Logs
    - Root wads
- Natural Establishment of Native Species
- Control Invasive Species

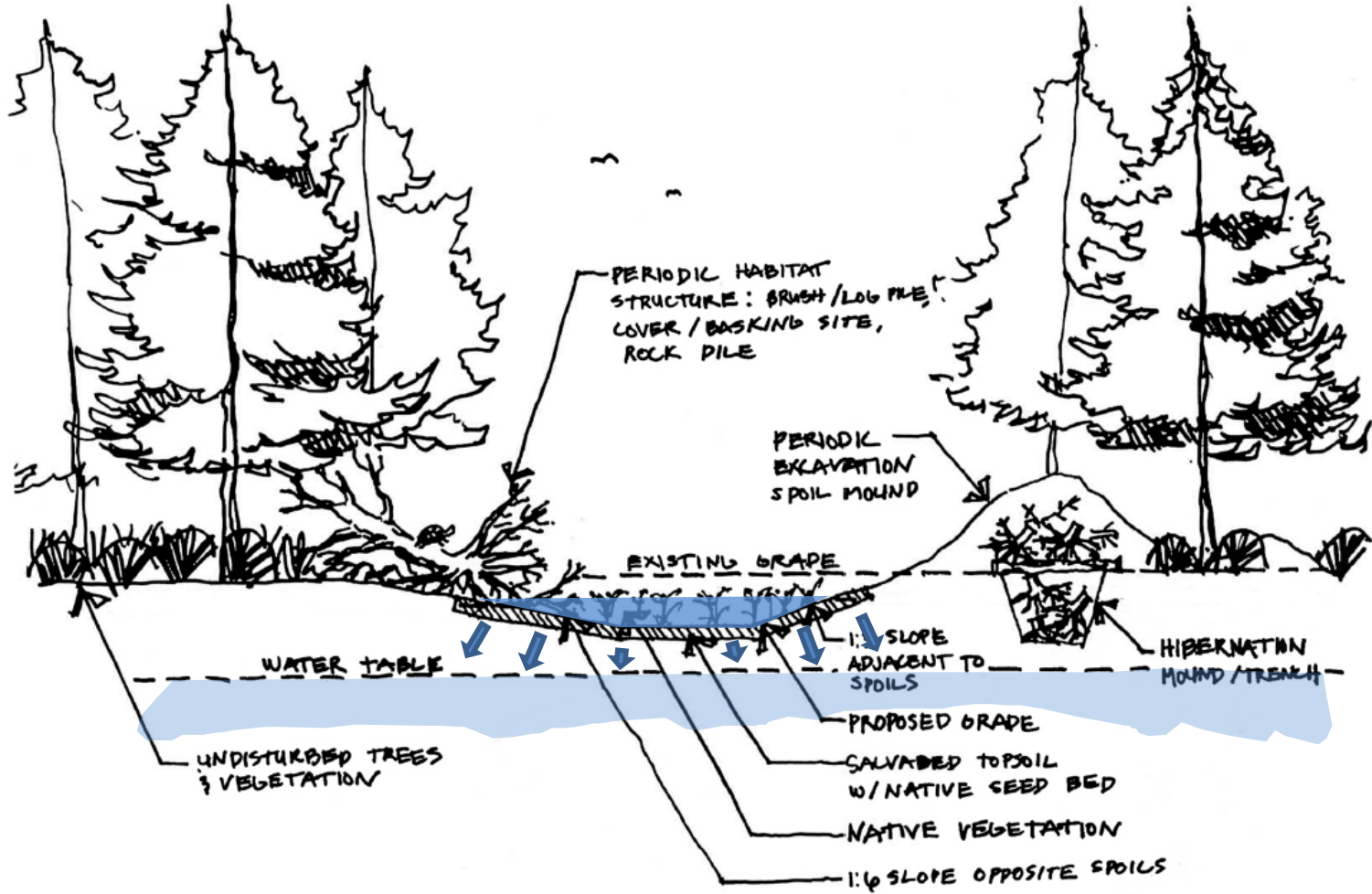


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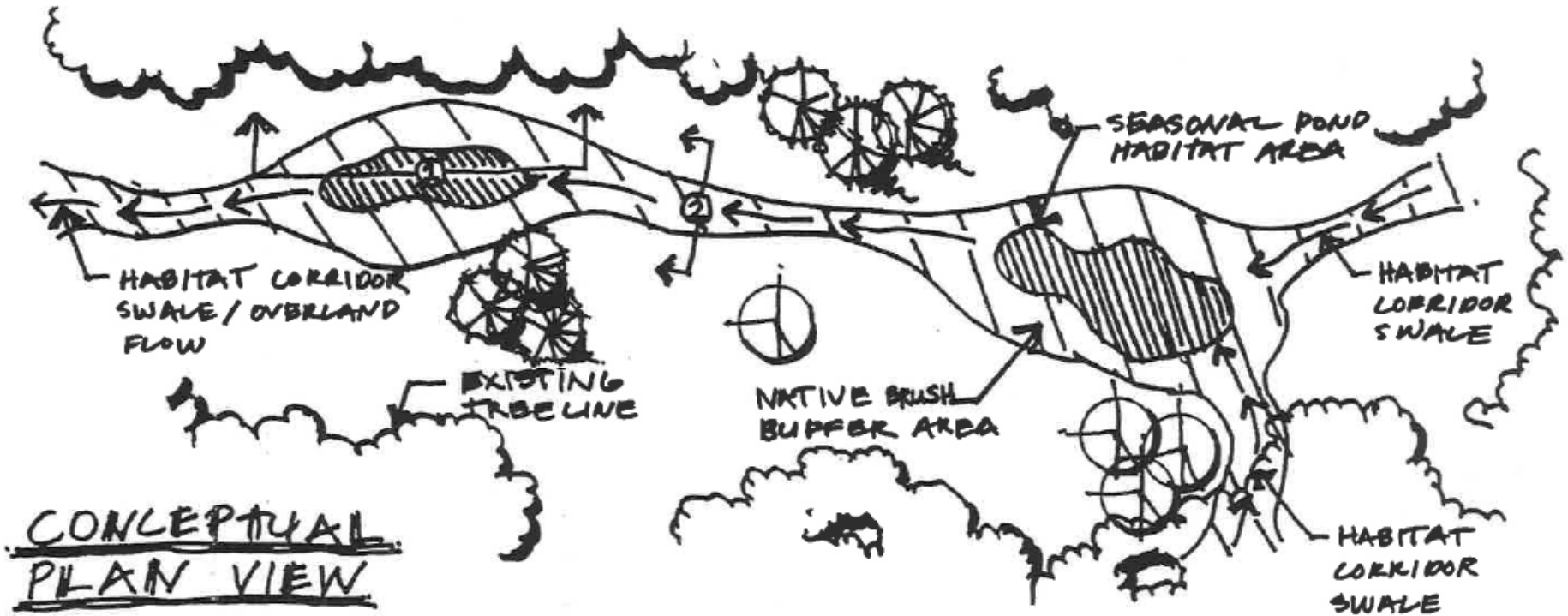


# Hiawatha Drain



*Conveyance*

# Hiawatha Drain

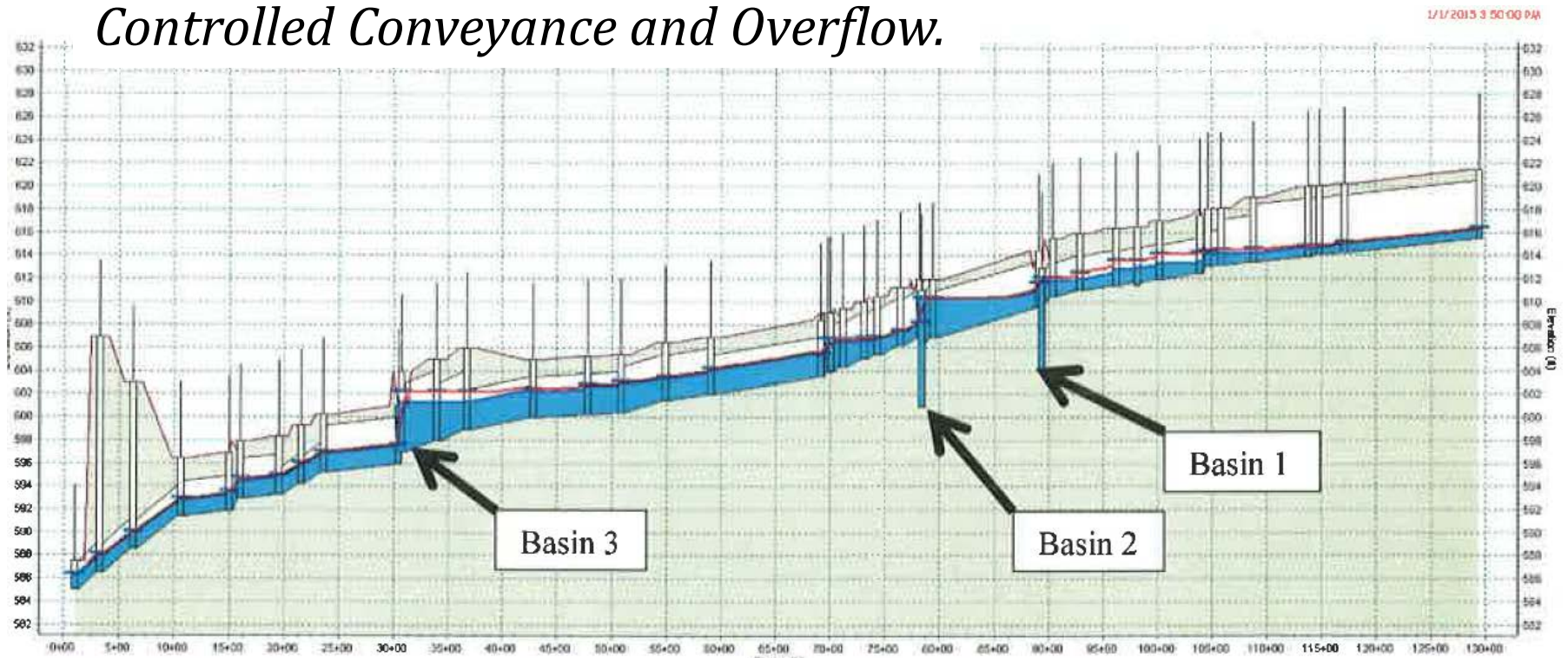


*Controlled Overland  
Flow*



# Hiawatha Drain

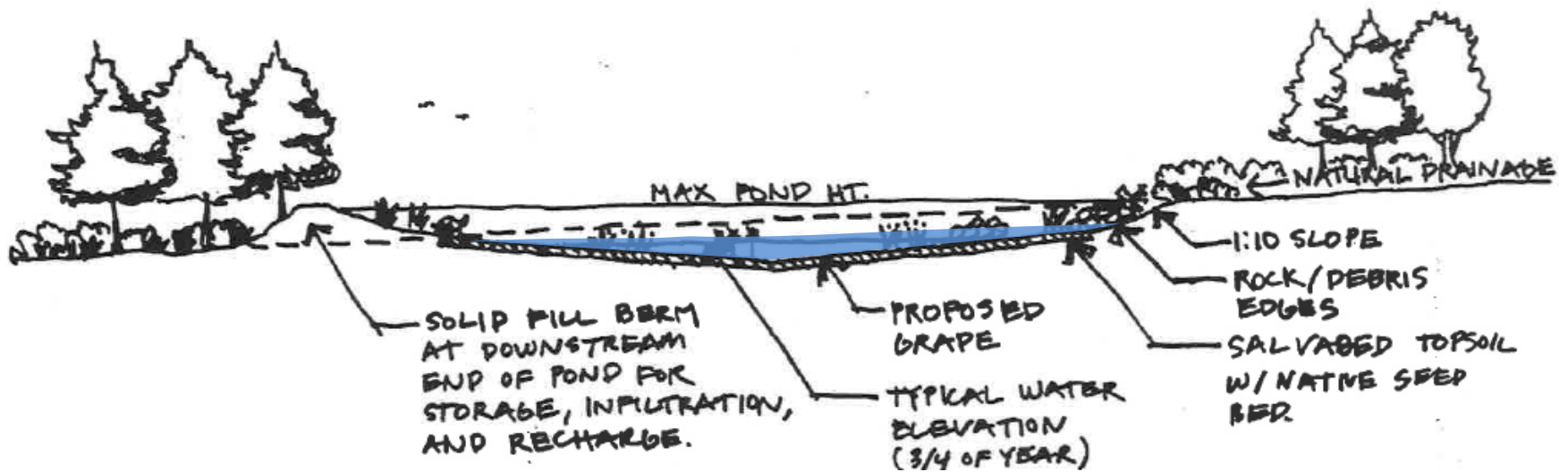
*The Drain provides a route for  
Controlled Conveyance and Overflow.*



Profile view of proposed Hiawatha Drain from hydraulic model



# Hiawatha Drain



*Typical detention basin/vernal pond section view*

*Storage*



# Partnerships & Future Objectives



Joe Bush



Ottawa County Parks & Recreation Commission



David Mifsud

Ottawa County Road Commission

William Martinus & Associates

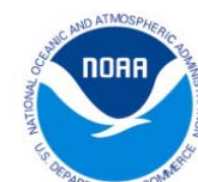


GRAND HAVEN CHARTER TOWNSHIP



Private Easement Partners

GDW Farms Turkey Farm



Port Sheldon Township

Prein & Newhof

What is the Hiawatha Drain?  
*...An opportunity to think differently*





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