

Meadow Green Estates No. 3 Drain Preliminary Engineering Summary



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Meadow Green Estates No. 3 Drain Preliminary Engineering Summary



BOARD OF DETERMINATION OVERVIEW

- **Petition** filed by landowners in the District for maintenance and improvements to alleviate drainage issues
- **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 Engineering Summary



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PRELIMINARY WORK PERFORMED:

- Review the plat maps and history of the subdivision drainage at the OCWRC's Office
- Review and Research existing record information (GIS, aerial photographs, topographic info, previous design drawings, etc.)
- Evaluate existing drainage easements granted in plat documents
- Evaluate appropriate drain extension(s) and determine the lands drained ("Drainage District") by the Meadow Green Estates No. 3 Drain
- Field inspection of the drainage and watercourses within the Meadow Green Estates No. 3 Drain Drainage District
- Provide an **independent and unbiased** assessment of the storm water conditions within the Drainage District
- Compile all analyses and report on those findings at the Board of Determination

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DISTRICT BOUNDARY OVERVIEW:

DISTRICT BOUNDARIES:

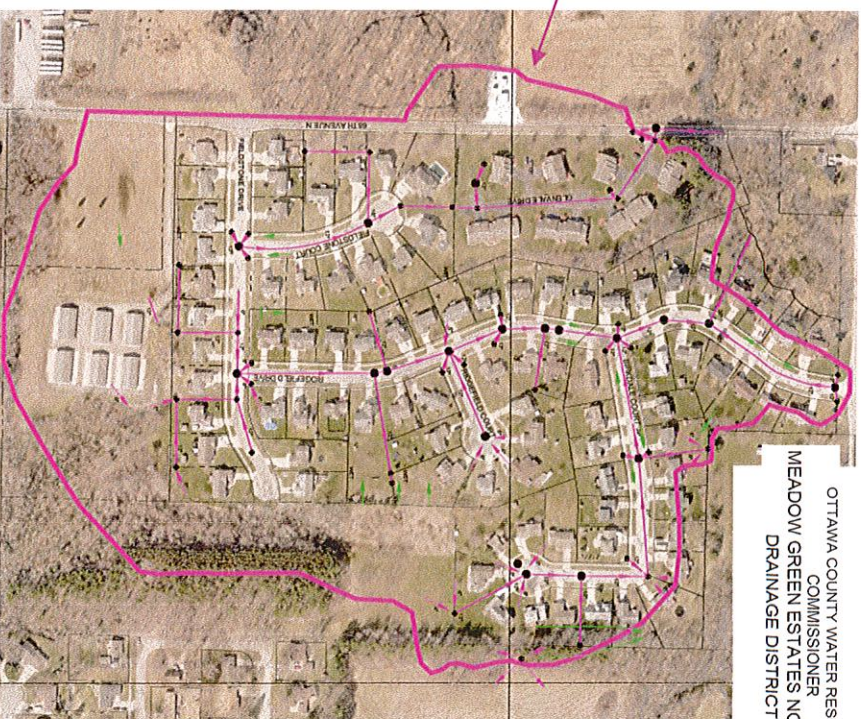
How Determined:

- Topographic Maps
- Ottawa Co. GIS
- Culvert Review
- Site Inspections

Drainage District Boundary Information

- Proposed Drainage District Boundary = 51 Acres
- Entirely within the City of Coopersville

Proposed Drainage
District Boundary



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ORPHAN DRAIN SYSTEM:

WHAT IS THE DIFFERENCE BETWEEN A COUNTY DRAIN AND A PRIVATE (ORPHAN) DRAIN?

County – An existing 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.

Only the final phase of Meadow Green Estates Subdivision was established as County Drain.

The initial phases of Meadow Green Estates are considered private (orphan) systems currently



30-inch Outlet to Deer Creek

Meadow Green Estates No. 3 Drain

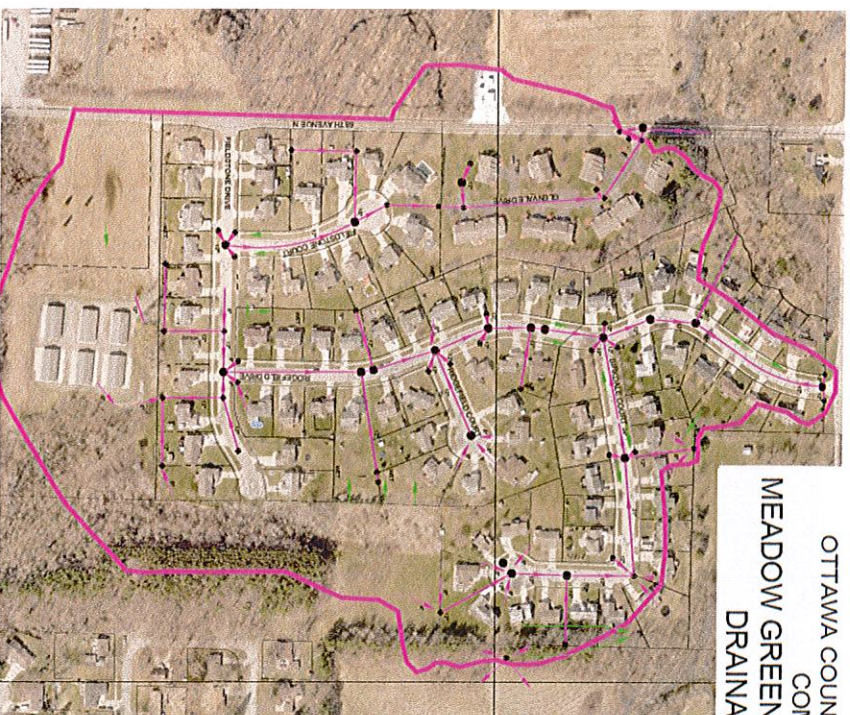
Preliminary Engineering Summary



EXISTING DRAINAGE CONDITIONS OVERVIEW

All the storm sewer would be under the jurisdiction of OCWRC

- Two enclosed storm sewer systems which outlet to Deer Creek near Cleveland Street
- Roadway and rear yard drainage
- Includes drainage outside the platted areas
- Designed for 10-year recurrence interval rainfall event



OTTAWA COUNTY WATER RESOURCES
COMMISSIONER
MEADOW GREEN ESTATES NO 3 DRAIN
DRAINAGE DISTRICT



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EXISTING DRAINAGE CONDITIONS OVERVIEW



Saturated rear lawn area north Birkdale Court and east of Ridgelfield Drive



Heavy vegetation and overgrowth in the watercourse between Ridgelfield Drive and Glenvale Drive

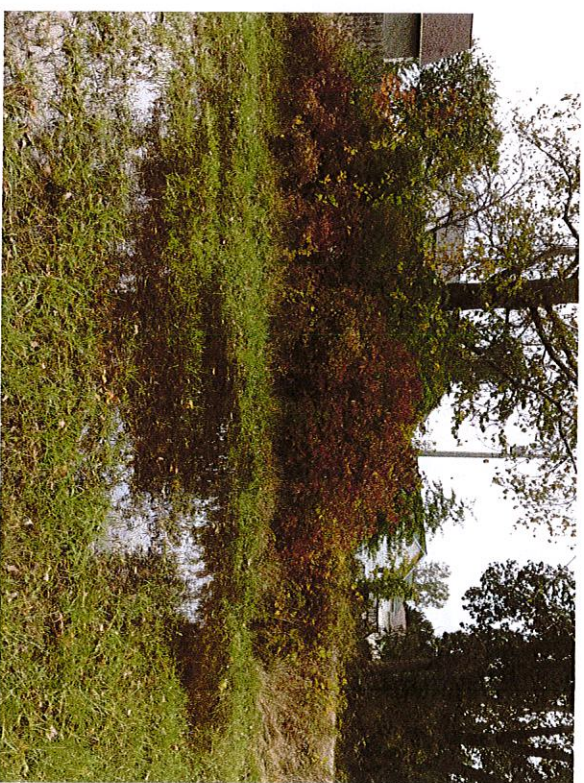
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EXISTING DRAINAGE CONDITIONS OVERVIEW



Detention system with 6-inch outlet connected to the Meadow Green Estates storm sewer system

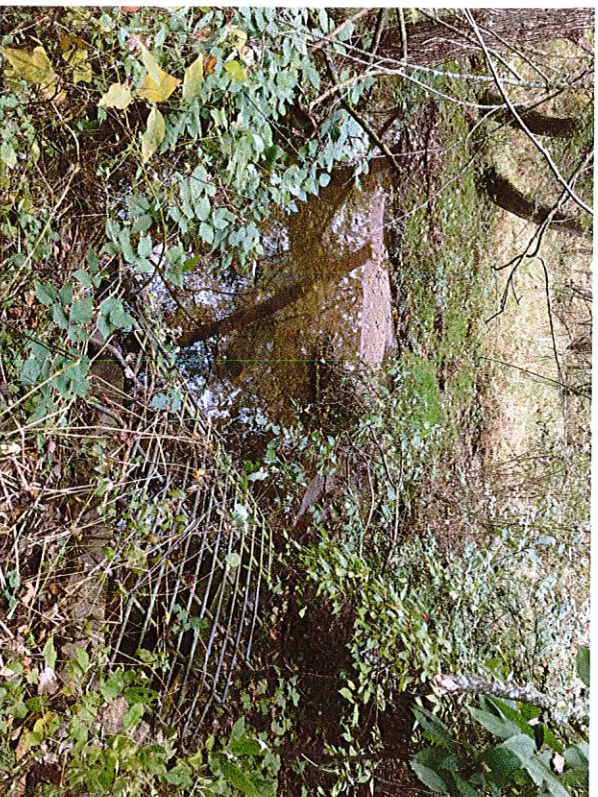


Standing water south of the driveway to the storage facility with no proper outlet available

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EXISTING DRAINAGE CONDITIONS OVERVIEW



Heavy sediment deposition at the 30-inch outlet to the Deer Creek tributary

SUMMARY

- No pre-treatment of storm water prior to discharge to Deer Creek
- Includes significant drainage areas outside the platted areas
- Designed for 10-year recurrence interval rainfall event, including rear yard areas
- Existing soils in swale areas causing prolonged standing water and saturated conditions

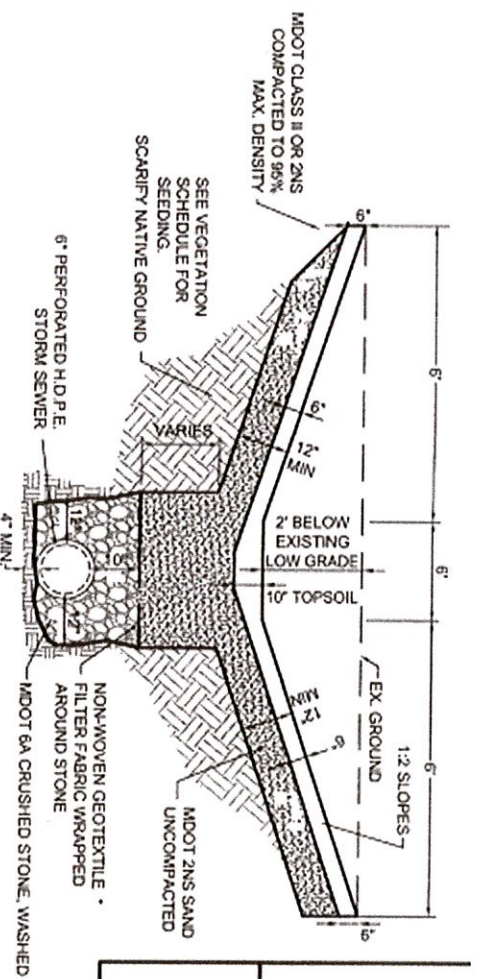
Meadow Green Estates No. 3 Drain

Preliminary Engineering Summary



SOLUTIONS

- ◆ Removal of Loamy soils in rear yard swale areas to allow for soil infiltration (see detail inset)
- ◆ Rear yard storm sewer sized to accommodate the 25-year rainfall event
- ◆ Review off-site drainage impact on existing enclosed storm sewer system
- ◆ Review pre-treatment BMP's for water quality



Infiltration Trench Detail

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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:
 - Evaluate scope of project and design alternatives
 - Scope Meeting to discuss design with property owners and municipalities
 - Finalize Design (obtain easements and permits, if necessary, and prepare bid plans)