

Lovell Park South Drain

BOD - Preliminary Engineering Summary



Board of Determination
July 10, 2018

**Ottawa County Water
Resources Commissioner**
Joe Bush

Presented By: Ryan C. McEnhill, PE

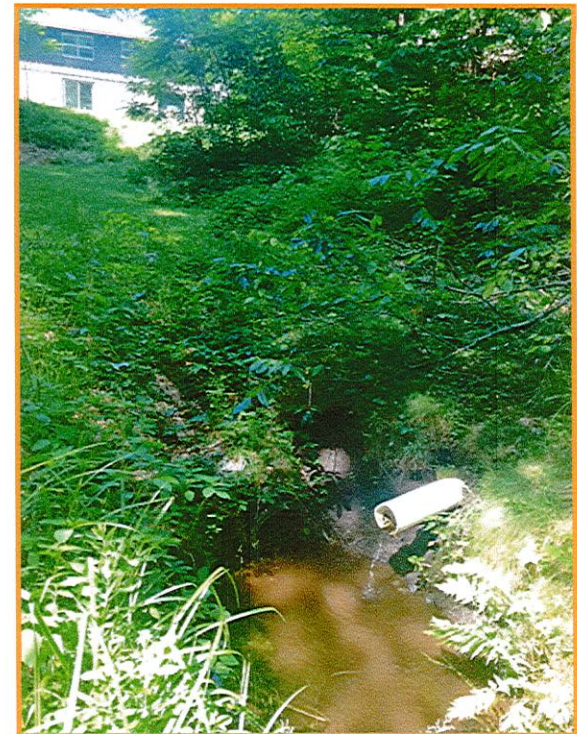
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BOARD OF DETERMINATION OVERVIEW

- **Petition** from Spring Lake Township to establish system as County Drain and provide maintenance and improvements
- **Michigan Drain Code** requires a Board of Determination meeting
- **Board** comprised of three disinterested members outside Townships affected
- Determine project **necessity** based on public health, welfare and convenience after hearing testimony



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WORK PERFORMED

- Review the Chapter 3 Application to Layout and Designate a Drainage District and the Chapter 4 Petition for Locating, Establishing and Constructing a Drain
- Review and research existing record information (GIS, aerial photographs, topographic info, previous design drawings, etc.)
- Verify the lands drained (“Drainage District”) by the Lovell Park South Drain
- Site Inspection of the drainage and watercourses within the Lovell Park South 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 a Board of Determination

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DISTRICT BOUNDARY OVERVIEW

DISTRICT BOUNDARIES:

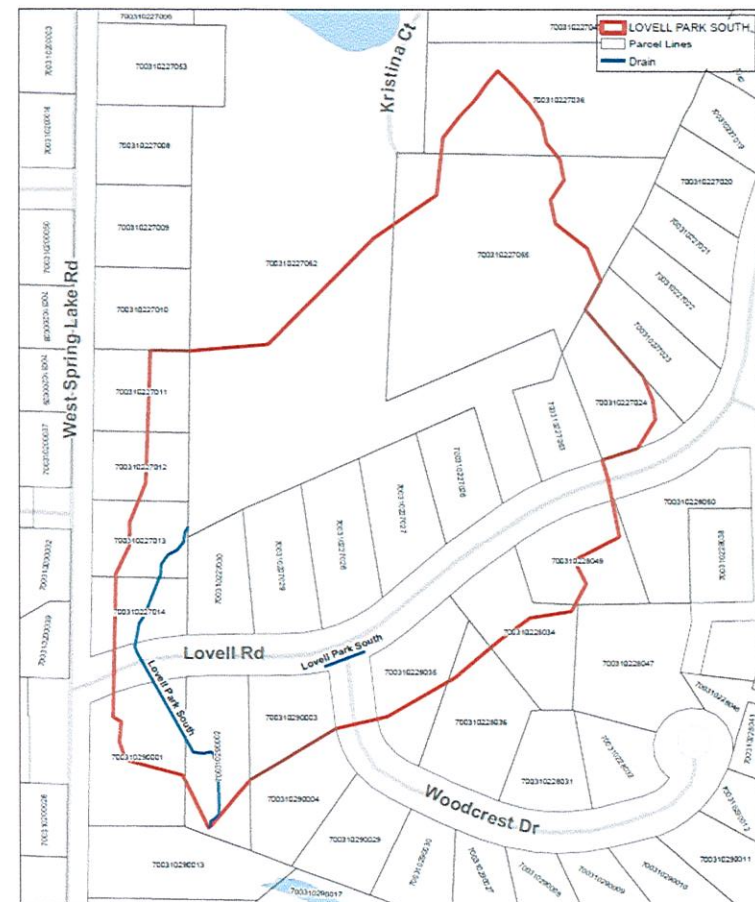
Proposed Lovell Park South Drain Drainage District Boundary

How Determined:

- County 1-foot Topographic Contours
- Ottawa Co. GIS
- Culvert Review
- Site Inspections

Drainage District Boundary Information:

- Proposed Lovell Park South Drainage District Boundary = 12.7 Acres
 - Entirely in Spring Lake Township
 - Approximately 21 properties within Proposed Drainage District Boundary



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EXISTING DRAINAGE SYSTEM CONDITIONS OVERVIEW

- 'Orphan Drain' system
- Flooding at the intersection of Lovell Road and West Spring Lake Road
- Undersized culverts restricting flow
- Combination of enclosed and open drain system through rear yards south of Lovell Road
- Discharges to tributary of Spring Lake



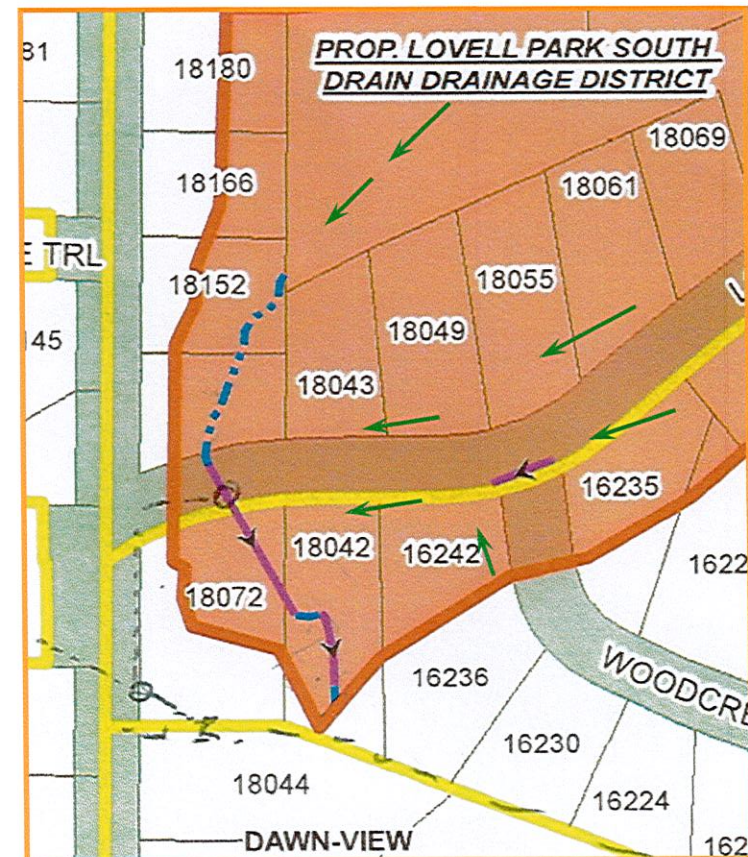
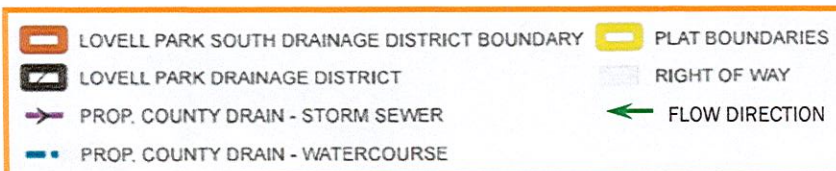
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SUMMARY OF EXISTING DRAIN SYSTEM

- 12-inch concrete culvert under Lovell Rd. (Approx. 10 acres of upstream tributary)
- 24 feet of grade change from northern most point of proposed district to culvert inlet under Lovell Road
- Converts to 12-inch CMP
- Combined of open and enclosed drain south of Lovell Road in rear yards
- No existing culvert in place under Woodcrest Drive



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EXISTING DRAINAGE SYSTEM CONDITIONS OVERVIEW

PROMINENT FLOODING LOCATIONS



Flooding occurs on the north side of the roadway due to large contributing watershed and undersized culvert



Prolonged standing water extending into roadway due to lack of storm water infrastructure

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EXISTING DRAINAGE SYSTEM CONDITIONS OVERVIEW



Left Photo: 12" RCP culvert inlet on north side of Lovell Road east of Spring Lake Road



Right Photo: 12" HDPE culverts with intermittent open channels in rear yards south of Lovell Road

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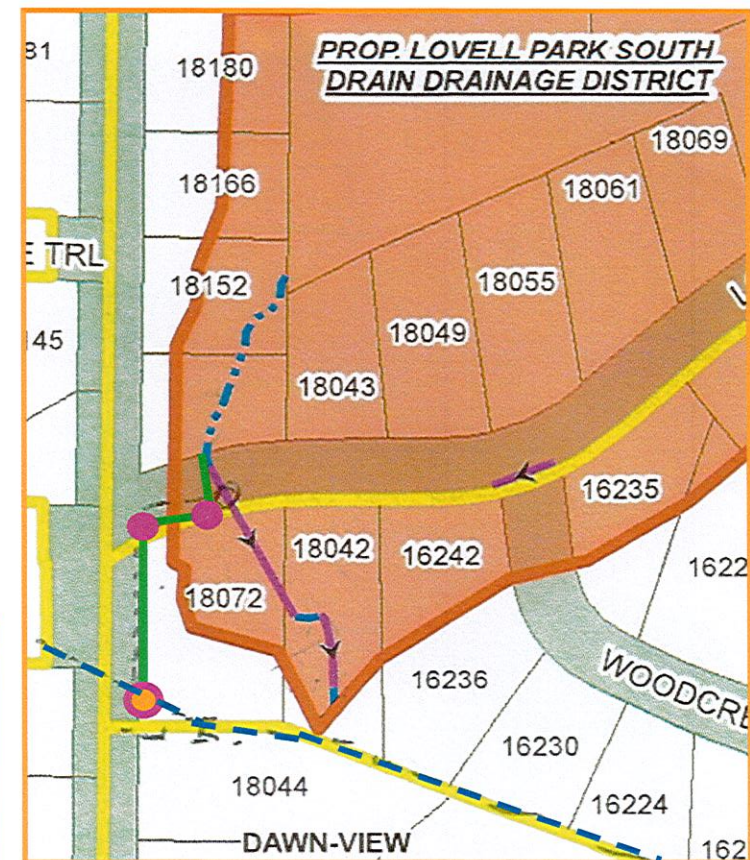
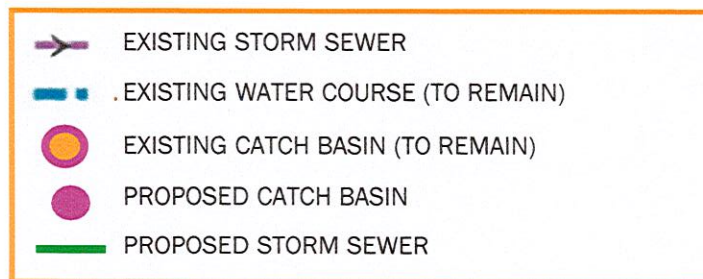


POTENTIAL ROUTES TO ALLEVIATE DRAINAGE ISSUES

- **EXISTING ALIGNMENT:**
 - **Rear Yards**
- **POTENTIAL ALIGNMENT:**
 - **Within Existing Public ROW**

IMPROVEMENTS

- **Additional inlet structures to collect runoff from the roadway**
- **Properly sized infrastructure**
- **Reduce impact to private property**



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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)

