Stormwater Pond Assessment Township of West Lincoln

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Matrix Solutions Inc.
A Montrose Environmental Company

Agenda

- What is a Stormwater Management Pond
- Design and Approvals
- Stormwater Management Pond Assessment Program
- Results and Recommendations
- Oil Grit Separator Assessments

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What is a Stormwater Management Pond

- Water quality control
  - Removes sediment from urban runoff
  - Target efficiency is based on receiving system
  - Achieved through a permanent pool volume
- Water quantity and erosion control
  - Attenuates flow to prevent downstream flooding and erosion
  - Reducing post-development to pre-development discharge rates
  - Achieved through an active storage and outlet control structure
- Infrastructure that needs to be maintained

Design and Approvals

- Stormwater Management Ponds are designed to MECP guidelines
- Approval is received from MECP via an Environmental Compliance Approval (ECA)
- All approvals now fall under the Consolidated Linear Infrastructure (CLI) ECA managed by the Township
- The CLI ECA requires Municipalities to monitor and maintain Stormwater Management Ponds
- So where to start?

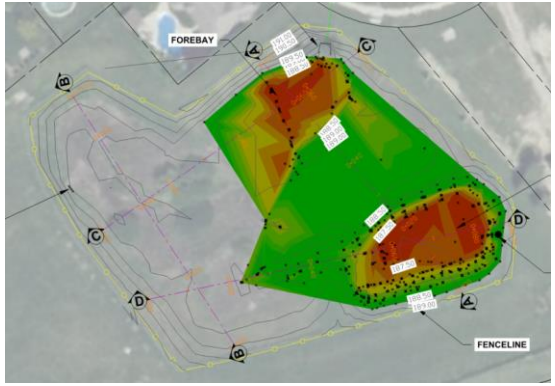
Stormwater Management Pond Assessment

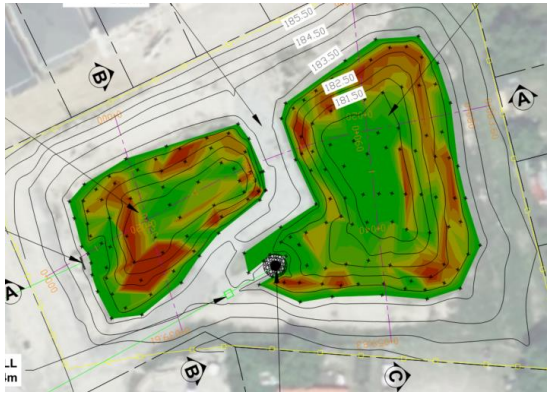
- Assess the condition of infrastructure
  - Is the facility functioning as per the original design?
  - Blocked outlets, high water levels, invasive species, etc.
- Determine the available storage volume
  - Bathymetric survey
  - Is the facility providing water quality treatment?
  - Remove sediment when suspended solids removal target is not met – typically 30% full of sediment

Streamside SWMP

Results and Recommendations

- Field program included:
  - 8 stormwater management ponds
  - 4 oil grit separators
- Sediment Results:
  - 5 ponds require cleanout now
    - Hornak SWMP 2 – 146% full
    - Townline SWMP 4 – 141% full
    - Attema SWMP 6 – 111% full
    - Oakdale SWMP 3 – 107% full
    - Streamside SWMP 1 – 74% full
  - 1 pond requires cleanout in 5 years
    - Sheridan SWMP 7 – Forebay 67% full, full pond 21% full
  - Estimated cost for design and construction = $2.59 Million





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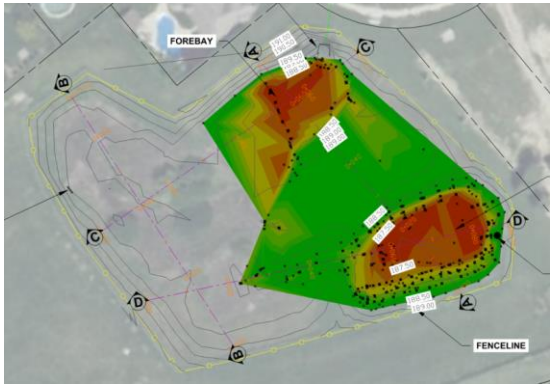
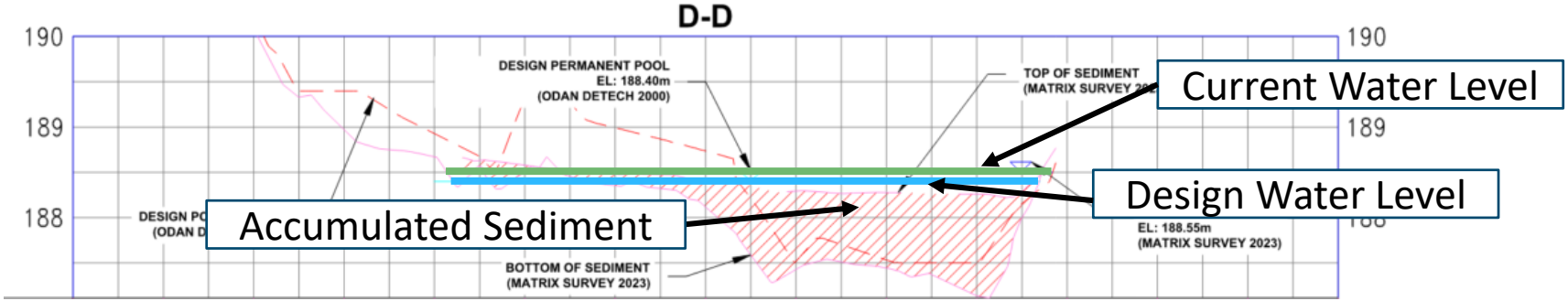
Sediment Accumulation Results

Hornak SWMP

1,022 m^3 of sediment

Locate and assess outlet structure during construction. Consider replacing rip rap jacket if filled with sediment.





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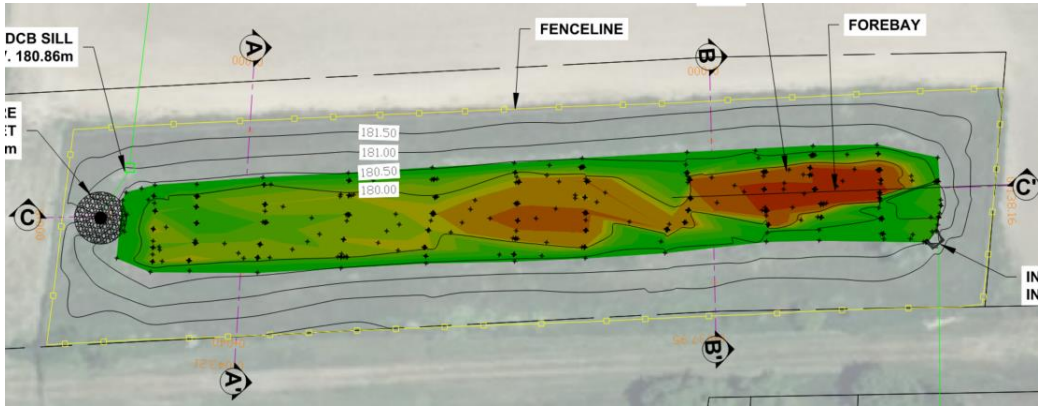
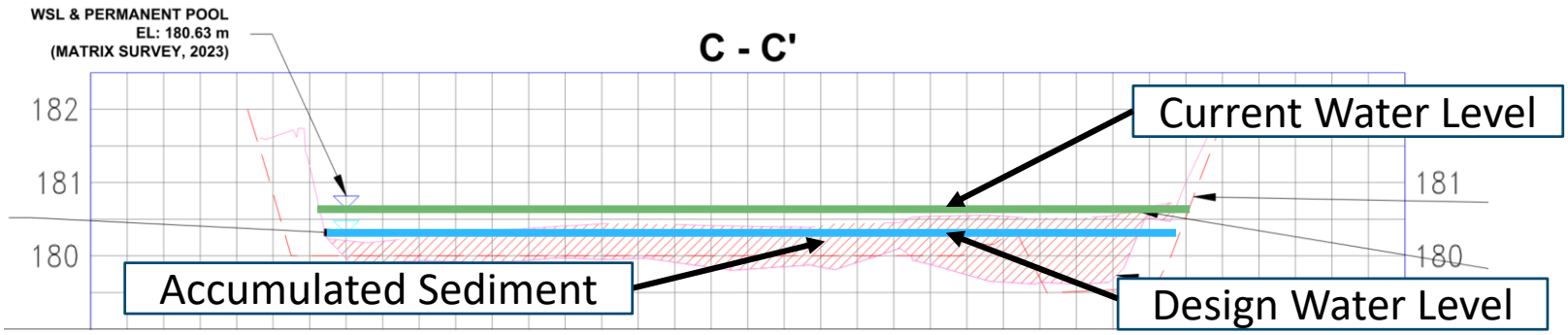
Sediment Accumulation Results

Townline SWMP

613 m^3 of sediment

Clear outlet of sediment and vegetation





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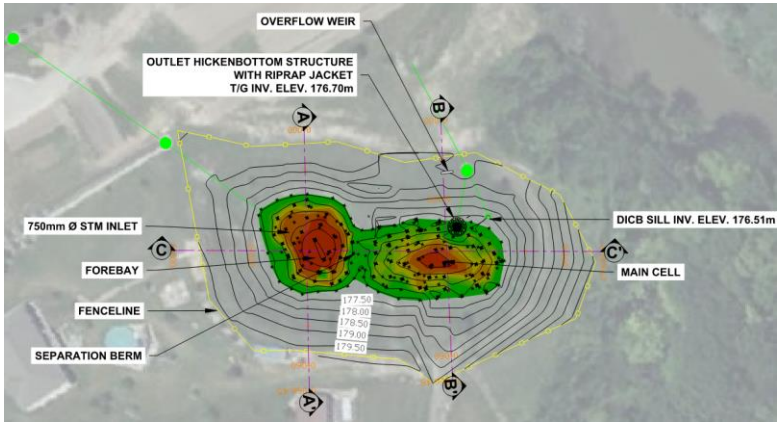
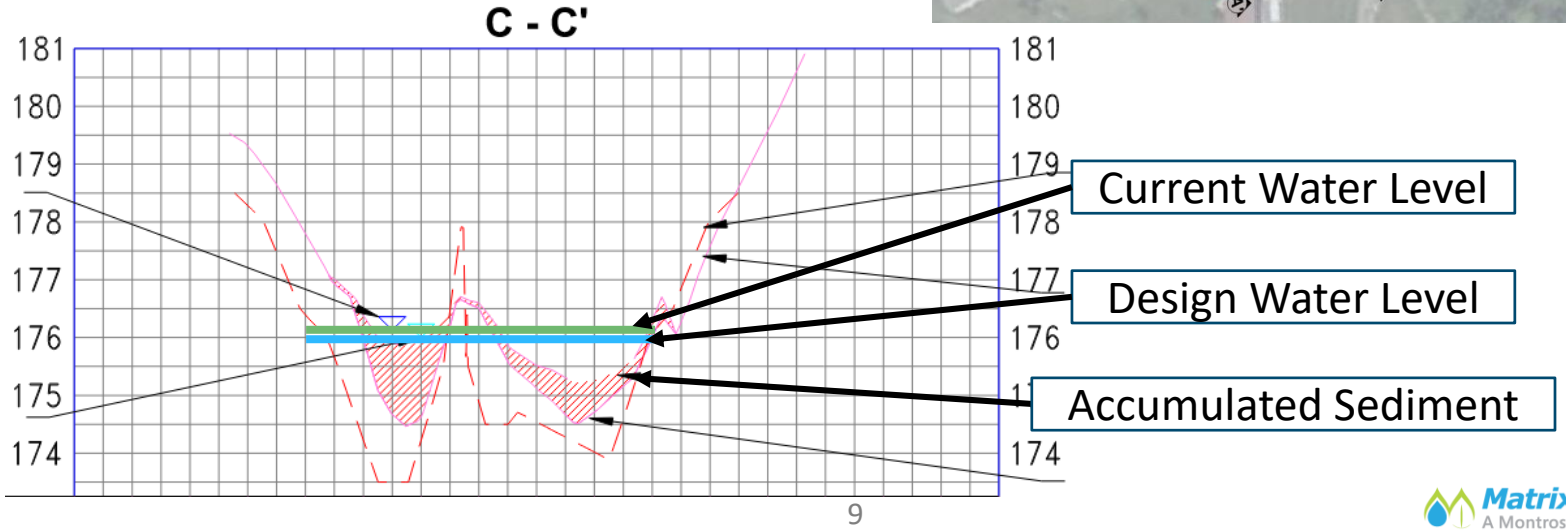
Sediment Accumulation Results

Attema SWMP

437 m^3 of sediment





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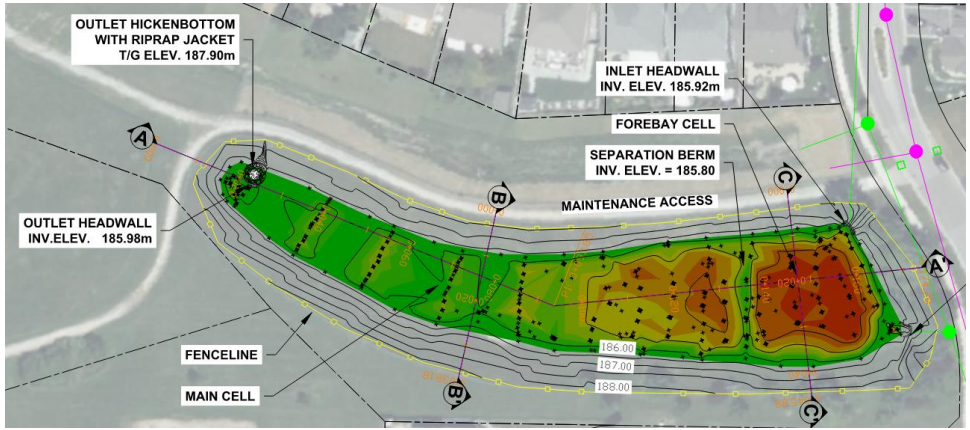
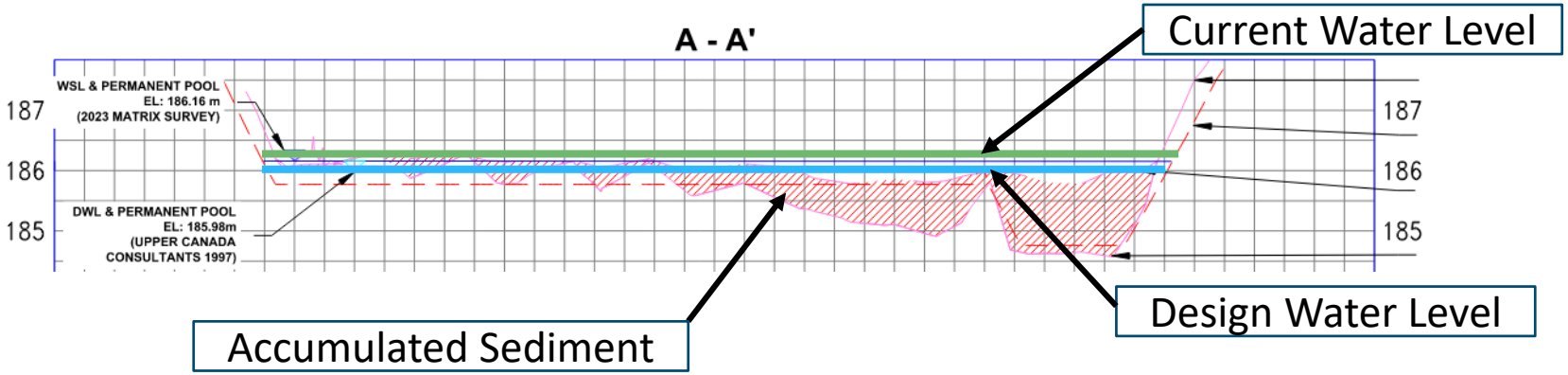
Sediment Accumulation Results

Oakdale SWMP

1,413 m^3 of sediment

Remove sediment and vegetation from outlet HW



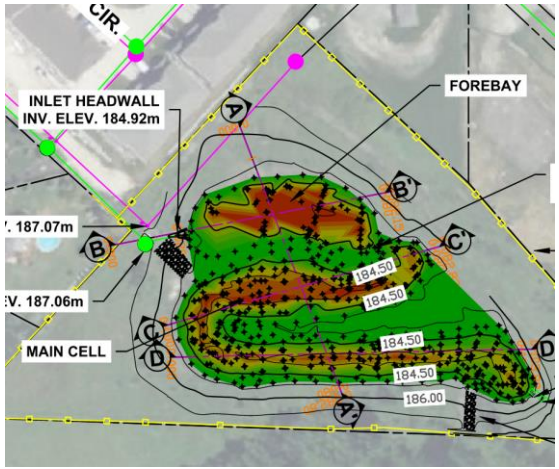


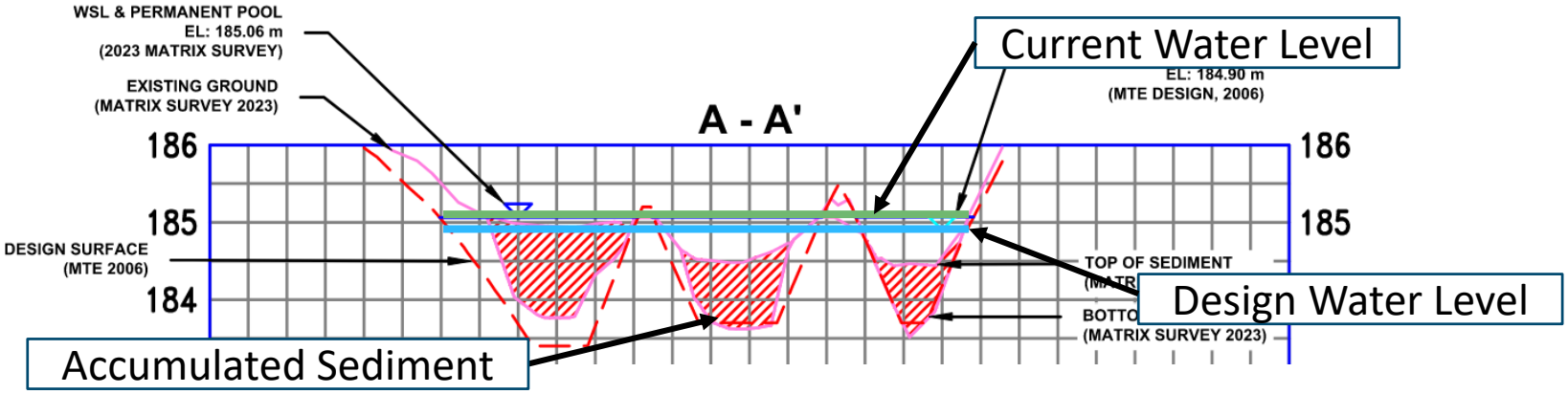
Sediment Accumulation Results

Streamside SWMP

1,672 m^3 of sediment

Dredge forebay to meet design depth





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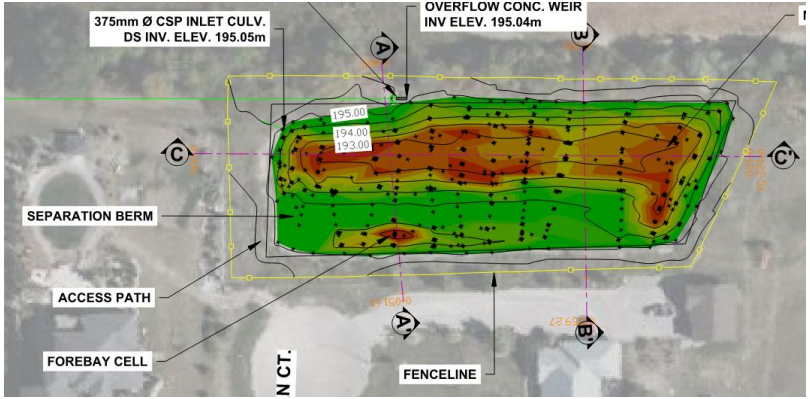
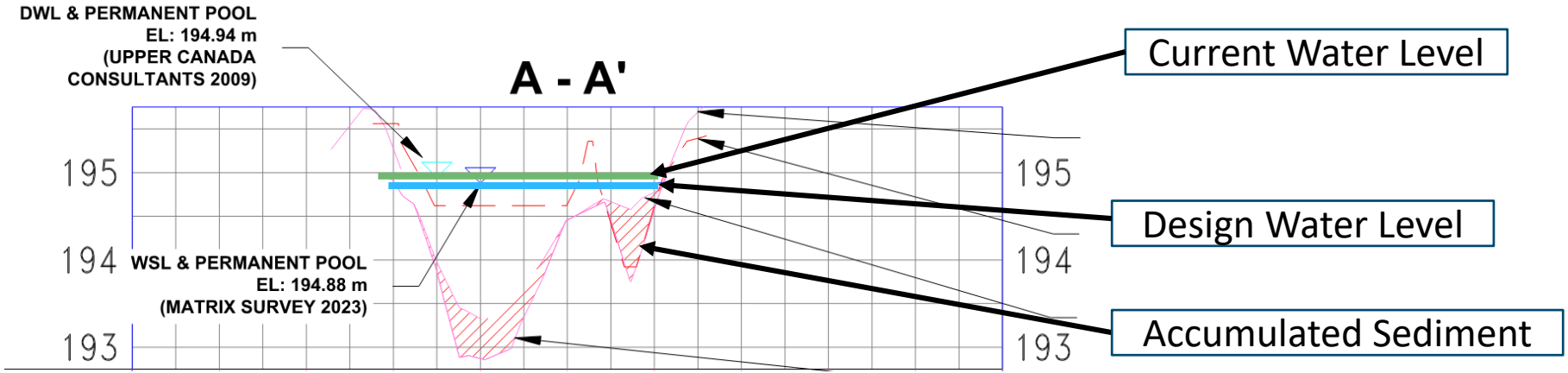
Sediment Accumulation Results

Sheridan SWMP

883 m^3 of sediment





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Results and Recommendations

- Condition Assessment:
  - 5 ponds with minor condition issues (i.e. remove vegetation/trees, remove phragmites, install gate lock)
  - 1 pond (Riverview Estates) with minor facility improvements that Township's Operations Department could address
  - Costs for repair included in capital costs for cleanout

Dennis Dr SWMP

Attema Crescent SWMP

Townline SWMP

Prioritization

1. Hornak SWMP 2 – Cleanout, Remove vegetation overgrowth and invasive phragmites
2. Townline SWMP 4 – Cleanout, Remove cattails
3. Attema SWMP 6 – Cleanout only
4. Oakdale SWMP 3 – Cleanout, clear vegetation/trees by inlets
5. Streamside SWMP 1 – Cleanout
6. Sheridan SWMP 7 – Cleanout

Recommendation: City's own forces complete identified repair items at the Riverview Estates Pond (repair inlet great, remove vegetation in the pond block, locate and expose a buried MH cover, install warning signage, address public encroachment issue).

Pond Maintenance Recommendations

- In Matrix's SWMF Assessment report, we have identified some maintenance recommendations that can be completed by Township staff (i.e. vegetation removal, installation of SWM Pond warning signs)
- Annual inspections of facilities to ensure proper function and identify issues.
- The standard recommendation for pond sediment survey programs is every 10 years since the last cleanout or inspection. Annual sediment loading rate will be determined to forecast the sediment cleanout year.

Results and Recommendations OGS Units

- OGS AM00515 (at West Lincoln Community Centre) has approximately 600 mm depth of sediment accumulated. Recommend cleanout now.
- Other three OGS units have little to no sediment and no condition issues observed:
  - CM04305 (15 Brookside Terrace)
  - DM06285 (Townline Rd & Rock St)
  - DM06175 (Townline Rd & Alma Dr)
- Township should implement an annual inspection program

Questions

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