Deep Dive into the **NEW** Drainage Structure Module

Sean Thorpe
Software Engineer
Center for Technology & Training
Information Includes:

- Drainage Structure Location
  - GPS Coordinates
  - Linear Reference
- Structure & Cover Features
- Criticality Assessment
- Condition Information
- Administrative Information
- Pipe Information
Standard Module features

- Inspections
- Work Orders
- External Documents
- Mini map
- Defaults
- Multi-Edit
- Print Screen
### Drainage Structure Module

**Drainage Structure**

<table>
<thead>
<tr>
<th>PRNo</th>
<th>Road Name</th>
<th>Milepoint</th>
<th>Between Roads</th>
<th>Structure Type</th>
<th>Install Date</th>
<th>Consequence of Failure</th>
<th>Criticality</th>
<th>Life Expectancy (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Not on PR</td>
<td>0.05</td>
<td>End-Bluestem Ln</td>
<td>Undefined</td>
<td>1/1/1900</td>
<td>Undefined</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>18148</td>
<td>Bluestem Ln</td>
<td>0.05</td>
<td>End-Bluestem Ln</td>
<td>Undefined</td>
<td>1/1/1900</td>
<td>Undefined</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>18263</td>
<td>Brookmist Cir</td>
<td>0.17</td>
<td>End-Bluestem Ln</td>
<td>Undefined</td>
<td>1/1/1900</td>
<td>Undefined</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>18632</td>
<td>Coldwater Dr</td>
<td>0.17</td>
<td>End-Bluestem Ln</td>
<td>Undefined</td>
<td>1/1/1900</td>
<td>Undefined</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>17071</td>
<td>Coneflower Dr</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Drainage Structure Information**

**Drainage Structure Location**

- **GPS Coordinates**
  - GPS Located: Yes
  - Latitude: 41.6513873989336
  - Longitude: -85.8425650561975

- **Linear Reference**
  - City/Township: Jefferson Twp
  - Reference Intersection: Goldenrod Tr
  - Reference Distance: 0.052 mi. (275 ft.)
  - Between Roads: End-Bluestem Ln
  - (MP): Segment Name: (0.052) Goldenrod
  - Is Linear Referenced: True

**Structure Features**

- **Structure Type**: Undefined
  **Add/Edit Structure Type**

- **Sump Depth**: 0.00 Feet
  **Inside Diameter**: 0.00 Feet

**Sump Depth**
Measurement from the bottom of the drainage structure to the outlet invert elevation (includes measurement unit).
### Drainage Structure Information

#### Drainage Structure Location

- **Structure Type**: Manhole
- **Sump Depth**: 0.00 Inches
- **Inside Diameter**: 0.00 Inches
- **Wall Material**: Precast Concrete
- **Wall Thickness**: 0.00 Inches
- **Location**: South side of road (133 feet from road)
- **Surface Type**: Earth/Grass

#### Cover Features

- **Cover Opening Size**: 0.00 Inches
- **Cover Shape**: Circular
- **Grade Ring Height**: 0.00 Inches
- **Top of Frame Elevation**: 802.05 Feet

#### Criticality Assessment

- **Latest Probability of Failure**: Undefined
- **Consequence of Failure**: Undefined
- **Criticality**: 0

#### Condition Information

- **Install Date**: 11/25/2003
- **Latest Condition Grade**: Undefined
- **Life Expectancy (years)**: 0
- **Potential Replacement Year**: 1900

#### Administrative Information

- **External ID**: DS-2018-187
- **Facility ID**: SD-03438
- **Maintained By**: Yes
### Inspection Information

<table>
<thead>
<tr>
<th>Field</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>9/20/2018</td>
</tr>
<tr>
<td><strong>Condition Grade</strong></td>
<td>2 - Minor Deterioration</td>
</tr>
<tr>
<td><strong>Probability of Failure</strong></td>
<td>3 - Occasional</td>
</tr>
<tr>
<td><strong>Inspector Name</strong></td>
<td></td>
</tr>
</tbody>
</table>

#### Water Test Information

<table>
<thead>
<tr>
<th>Field</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turbidity</td>
<td>0.00</td>
</tr>
</tbody>
</table>

#### Cleanout Information

<table>
<thead>
<tr>
<th>Field</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sediment Depth (inches)</td>
<td>0</td>
</tr>
</tbody>
</table>

#### Proposed Activities

<table>
<thead>
<tr>
<th>Field</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity Not Needed</td>
<td>Yes</td>
</tr>
<tr>
<td>Cleanout</td>
<td>No</td>
</tr>
<tr>
<td>New Installation</td>
<td>No</td>
</tr>
<tr>
<td>Remove Obstruction</td>
<td>No</td>
</tr>
<tr>
<td>Repair</td>
<td>No</td>
</tr>
<tr>
<td>Replace</td>
<td>No</td>
</tr>
</tbody>
</table>

### Add/Edit Proposed Activities

Add/Memo

### Condition Grade

Asset condition rating based on quantitative measures (example: 5% of the asset needs minor maintenance).
## Pipe Information

### Inlet at 0 Degrees
- **Compass Orientation**: 0.00
- **Diameter**: 18.00 Inches
- **Flow Direction**: Inlet
- **Invert Elevation**: 802.05 Feet
- **Rim to Invert**: 0.00 Feet
- **Pipe Shape**: Circular
- **Pipe Inventory ID**: DP-03438-003
- **Pipe Material**: PVC or Plastic
- **Pipe Inlet From**: DS-2017-770
- **Pipe Outlet To**:  
- **Pipe Length (in feet)**: 133
- **Pipe Memo**: 

### Outlet at 135 Degrees
- **Compass Orientation**: 135.00
- **Diameter**: 18.00 Inches
- **Flow Direction**: Outlet
- **Invert Elevation**: 801.89 Feet
- **Rim to Invert**: 0.00 Feet
- **Pipe Shape**: Circular
- **Pipe Inventory ID**: DP-03438-005
- **Pipe Material**: PVC or Plastic

[Delete Pipe Information...](#)
Also included:

- Documents
- Work Orders
- Defaults
- Multi-edit
Map Labels

- Cover Shape
- Facility ID
- Structure Type
- Sump Depth
- Wall Material
Legends

All fields that are numeric will have the option to be used as a legend.
All fields (including Custom fields) can be used in filters.
** New Features **
(these will be expanded to other modules in the future)
Structures not attached to roadway

This is the first module where an asset doesn’t have to be linear referenced to a road.
Selection Information: Unreferenced shows as PRNo=0

<table>
<thead>
<tr>
<th>PRNo</th>
<th>Cover Opening Size</th>
<th>Sump Depth</th>
<th>Inside Diameter</th>
<th>Grade Ring Height</th>
<th>Wall Thickness</th>
<th>Top of Frame Elevation</th>
<th>Is Linear Referenced</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0</td>
</tr>
</tbody>
</table>
Drainage Module: Shows as PRNo=0  Not on PR, Linear Reference = unreferenced
Filter: Is Linear Referenced

Drainage Structure Filter Builder

- Open
- Save
- Delete
- Clear

Drainage Structure

Find field...

Operator: Value:

Group: 1

<table>
<thead>
<tr>
<th>Group</th>
<th>Field</th>
<th>Operator</th>
<th>Value(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Is Linear Referenced</td>
<td>&lt;&gt;</td>
<td>True</td>
</tr>
</tbody>
</table>
Custom Fields

Add/Edit Custom Field:
- Choose Type
- Define Label
- Optional Description

Edit Lookup values (if applicable)
Set value & save (just like all other fields)
### Facility Group Name [Lookup]

**Cover Type [Lookup]**

<table>
<thead>
<tr>
<th>Custom Type</th>
<th>Lookup</th>
</tr>
</thead>
<tbody>
<tr>
<td>Label</td>
<td>Cover Type</td>
</tr>
<tr>
<td>Abbreviated Name</td>
<td>CvrType</td>
</tr>
</tbody>
</table>

**Description**
This field represents the type of cover for this drainage structure.

**Created Date**
7/25/2018

### Structure Depth (in inches) [Whole Number]

**Storage Capacity (in cubic feet) [Whole Number]**

<table>
<thead>
<tr>
<th>Custom Type</th>
<th>Whole Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Label</td>
<td>Storage Capacity (in cubic feet)</td>
</tr>
<tr>
<td>Abbreviated Name</td>
<td>StorgCap</td>
</tr>
</tbody>
</table>

**Description**
This field represents the Storage Capacity in cubic feet of the drainage structure.

**Created Date**
7/27/2018

---

### Facility Group Name [Lookup]
Importing data from another GIS source

1. Add GIS file as an external layer in Roadsoft
2. File, Import, Import Drainage Structure
3. Map data fields, Preview and Import
Add External Layer

Use Add in Map Layers box – External layer (or drag and drop)
Choose to import Drainage Structures

File menu,
Import,
Import Drainage Structure
Import: 3) Map fields & import
Data Import Form – Step 1

Use drop-down to select which External Layer to use for the import
Map external fields to Roadsoft Drainage Structure fields by dragging and dropping.
If necessary, you can Add/Edit Custom Fields right from this form.
Select mapped field set (External to Roadsoft) and set Roadsoft values for each External value.
Data Import Form – Step 4

Use the Preview Data button to preview what data will import for each field
Data Import Form – Step 4 (if necessary)

Remove field Mapping and re-map fields until previewed data gives desired results
Data Import Form – Step 5

Import the data
Future Plans?

- Expand features to other modules
- Linear Drainage features?
- Other suggestions?
Roadsoft Tech Support

(906) 487-2102
roadsoft@mtu.edu
www.roadsoft.org

Roadsoft Manual