

# *Mallard Point*

## *Conceptual Designs & Opinion of Costs*

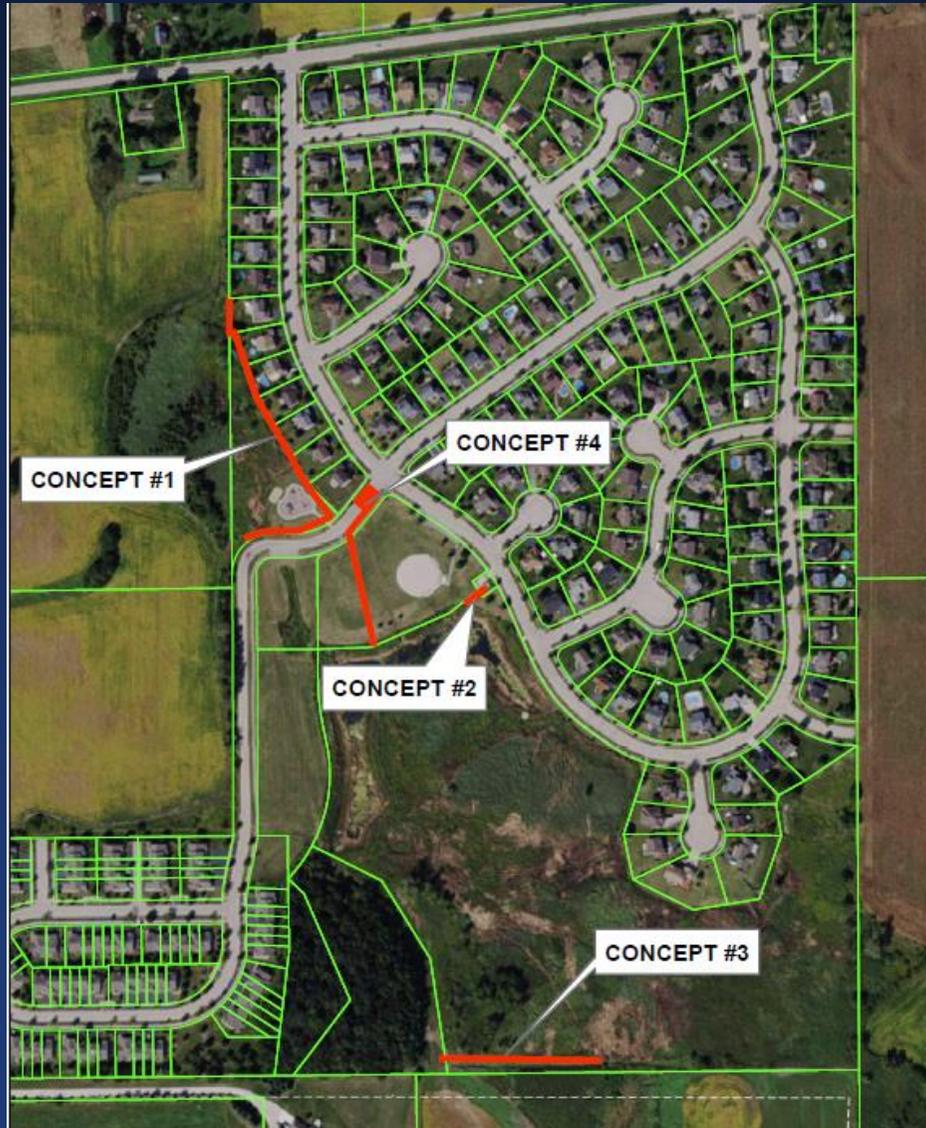
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# Concept Design Overview

- Concept #1 – Storm Sewer Installation
- Concept #2 – Mechanical Pump System
- Concept #3 – Connection of Abandoned Drain Tile to New Drain Tile System
- Concept #4 – Excavation and Maintenance of Perforated Drain Tile System at Mallard Ln.
- Concept #5 – Draintile Maintenance and Installation
- Concept #6 – Wetland Mitigation and Draintile Install

# Concept Design Overview

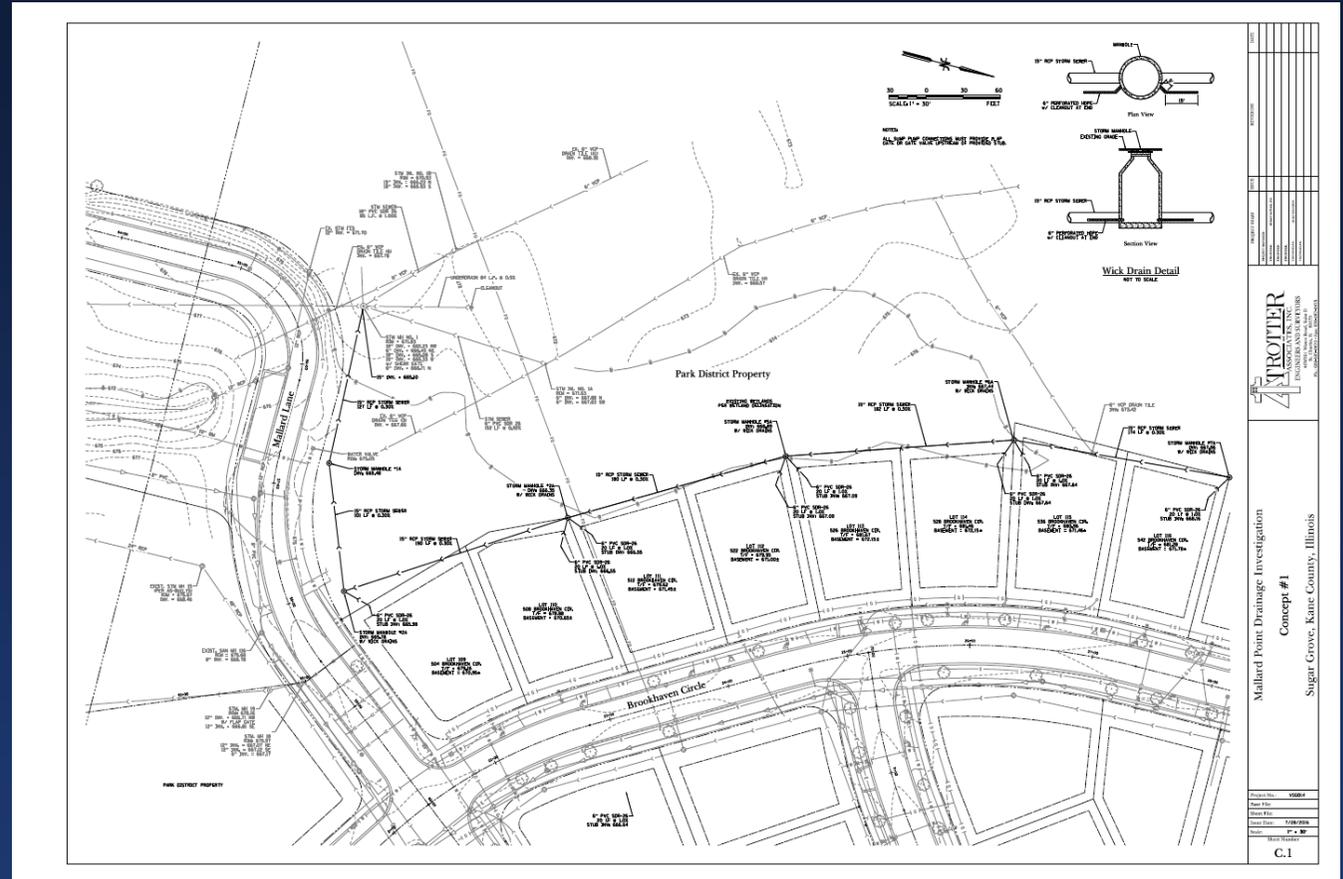


# Concept #1

Opinion of Probable Costs:  
**\$309,725**

## Description:

- Provides connection point for adjacent homeowners to connect sump pump discharge.
- Provides a secondary groundwater control measures through “wick drains” at all structure locations.



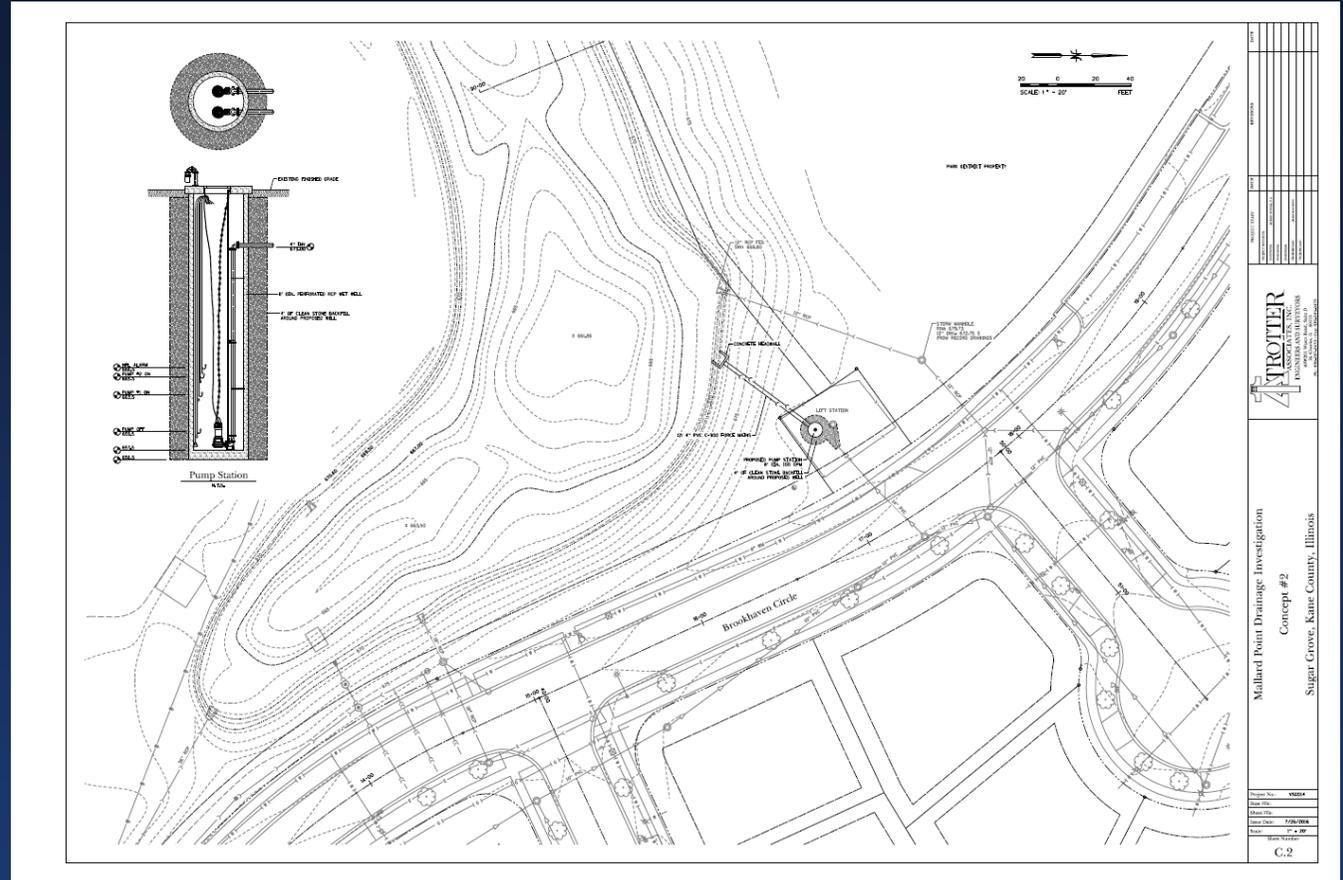


# Concept #2

Opinion of Probable Costs:  
**\$340,488**

## Description:

- Mechanical pump system at existing lift station
- Provides groundwater control measures at lowest elevation



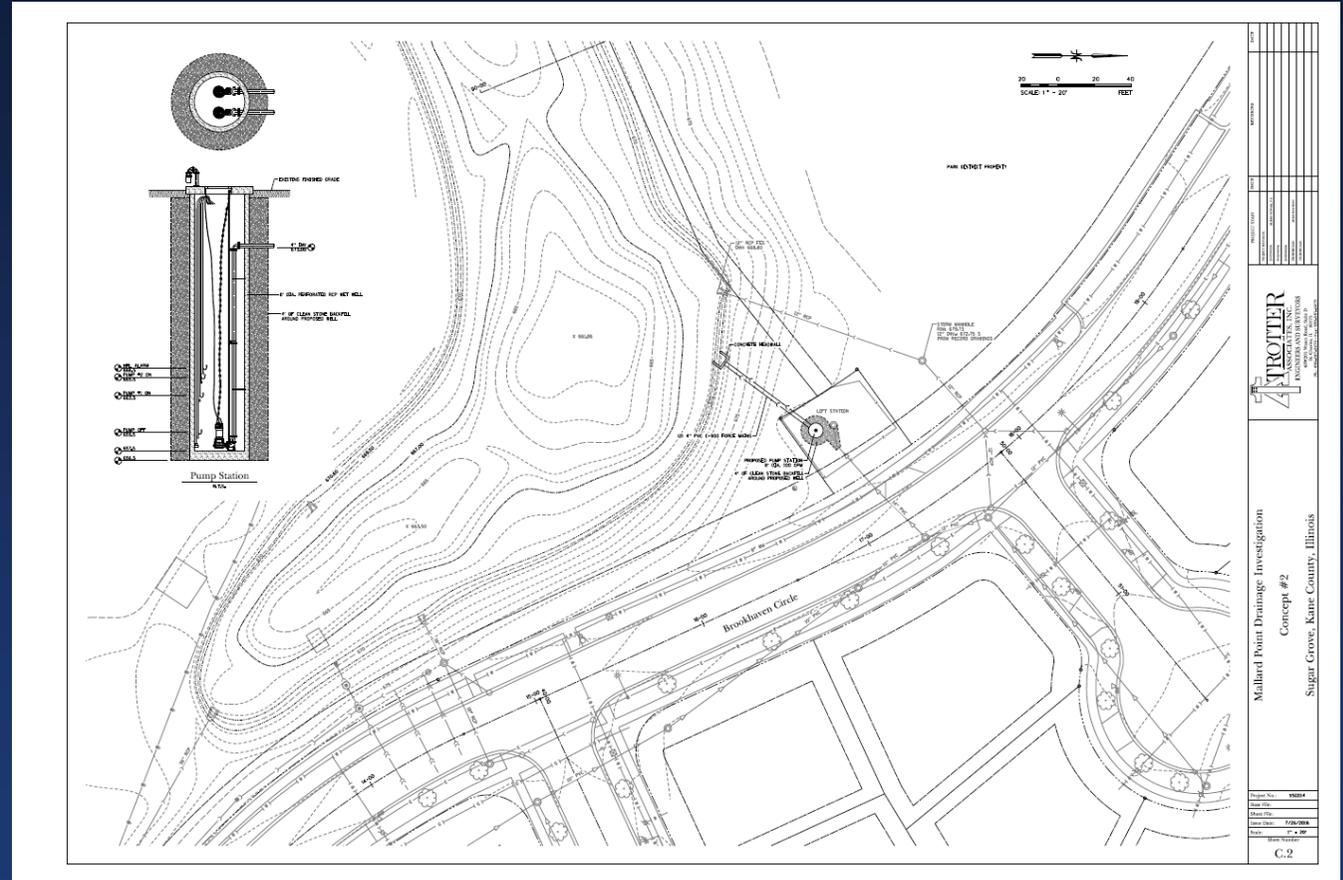
# Concept #2

## Benefits:

- Location can “piggy-back” on existing services at lift station (electric, generator, etc.)
- Pumps and cycle time can be measured and changed based on groundwater conditions

## Limitations:

- Requires long-term maintenance
- Will require electricity

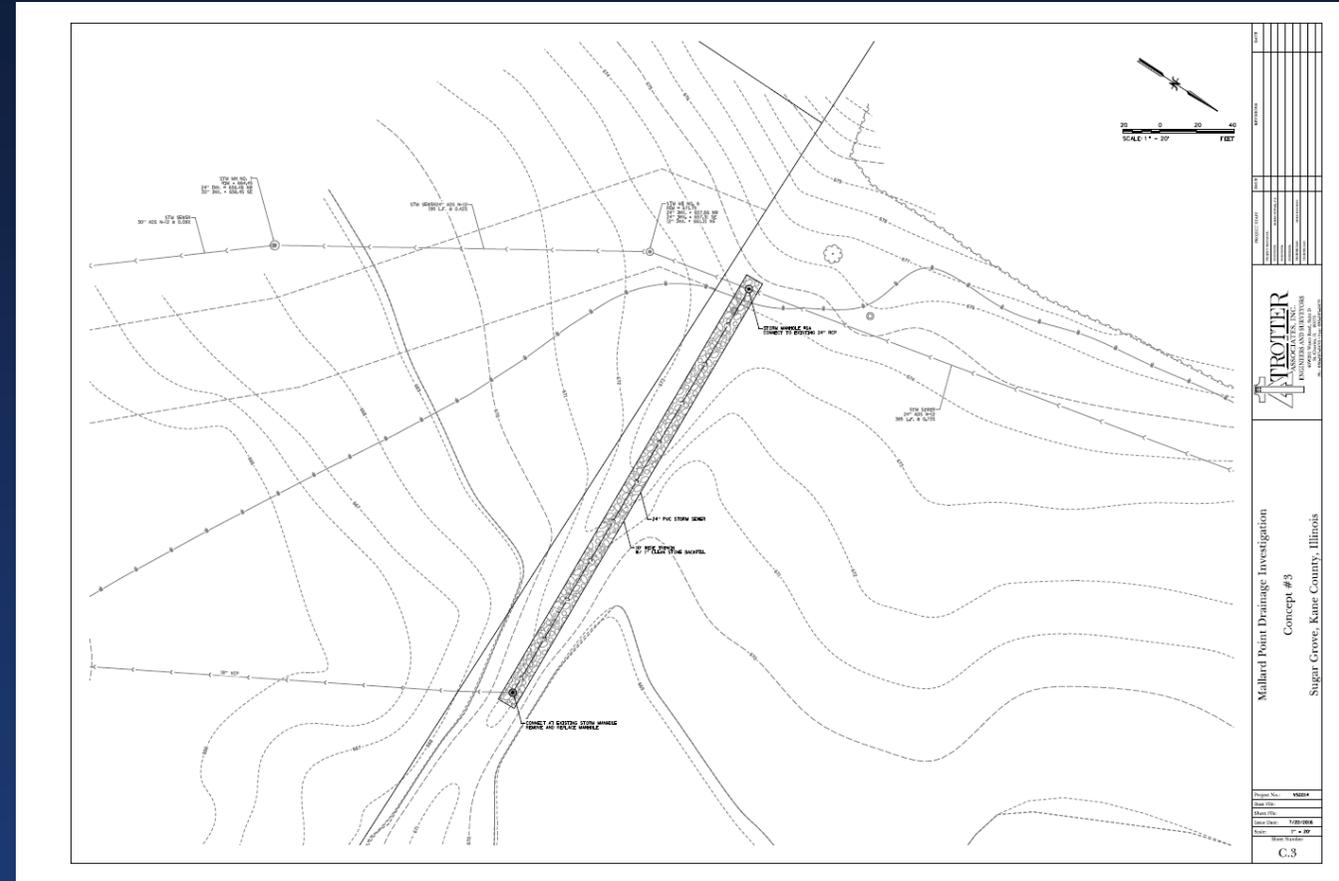


# Concept #3

Opinion of Probable Costs:  
**\$85,000**

## Description:

- Connection of existing drain tile to 'new' drain tile system.



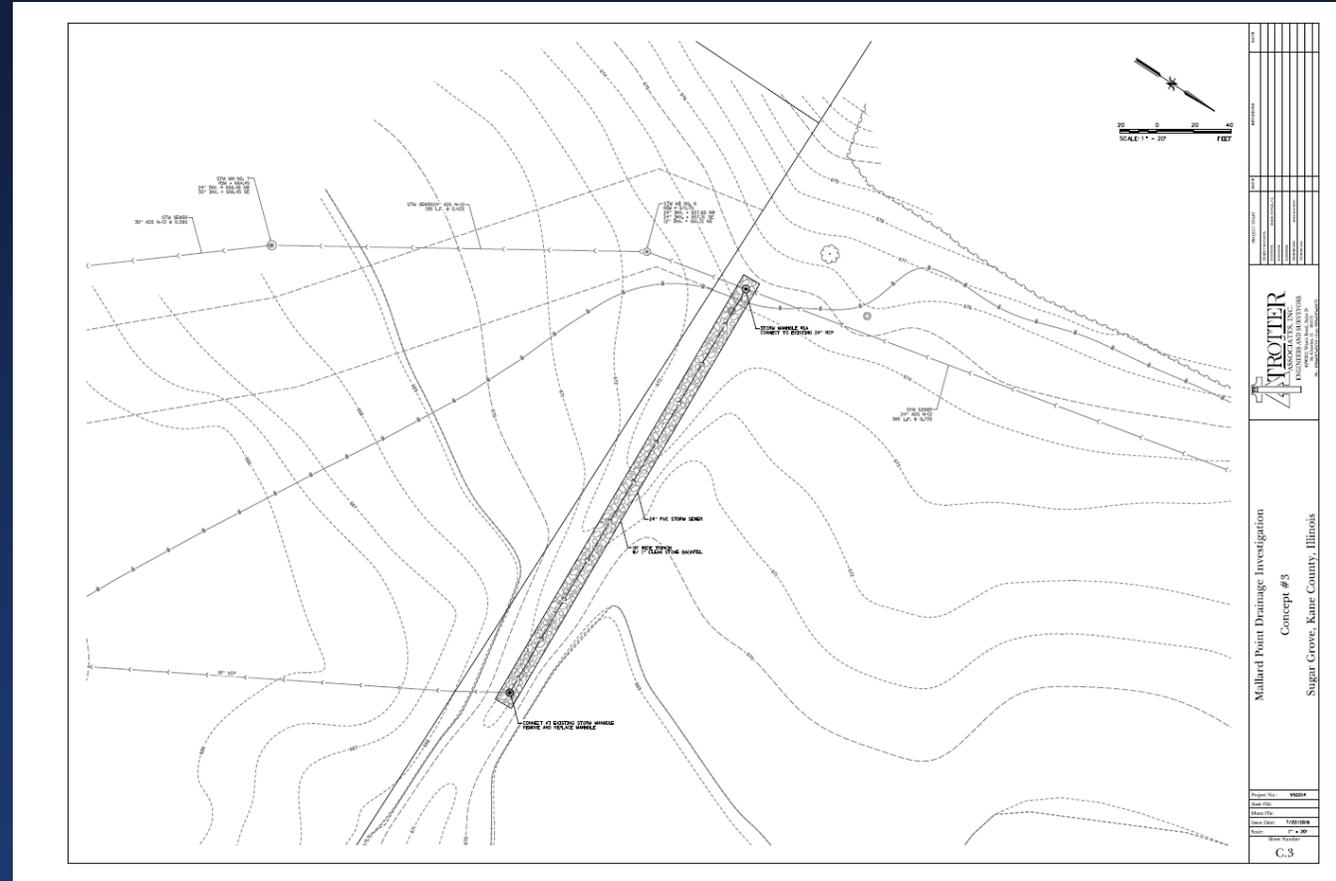
# Concept #3

## Benefits:

- Provides additional outfall for downstream groundwater control system that is owned and maintained by the Village
- Provides “safety net” for downstream drain tile failures, clogs, etc.

## Limitations:

- Permitting may be lengthy due to environmentally sensitive area
- Concept does not provide a means of estimating a measurable amount of relief of Mallard Point groundwater system



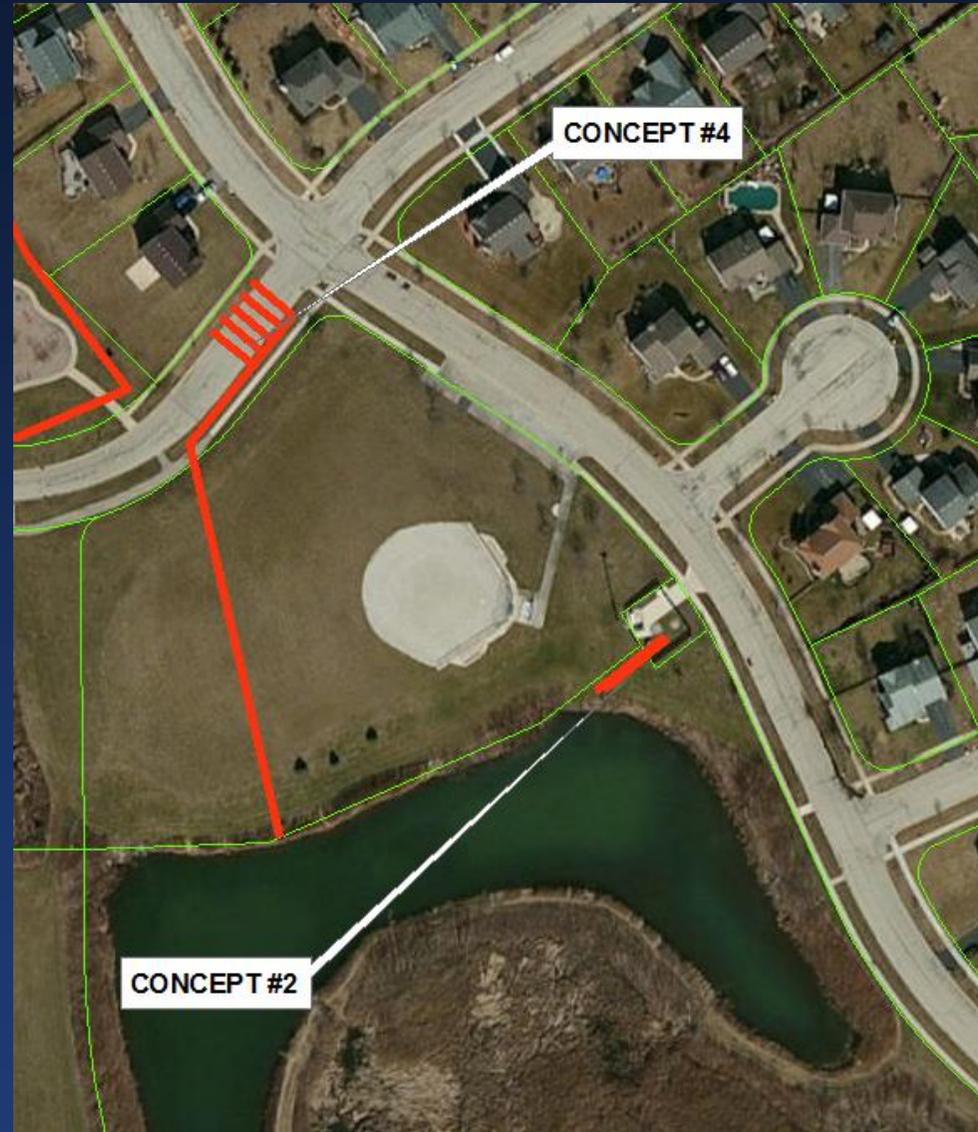
# Concept #4

Opinion of Probable Costs:

\$82,653

Description:

- Rehabilitation and exploration of perforated drainage system at Mallard Ln.



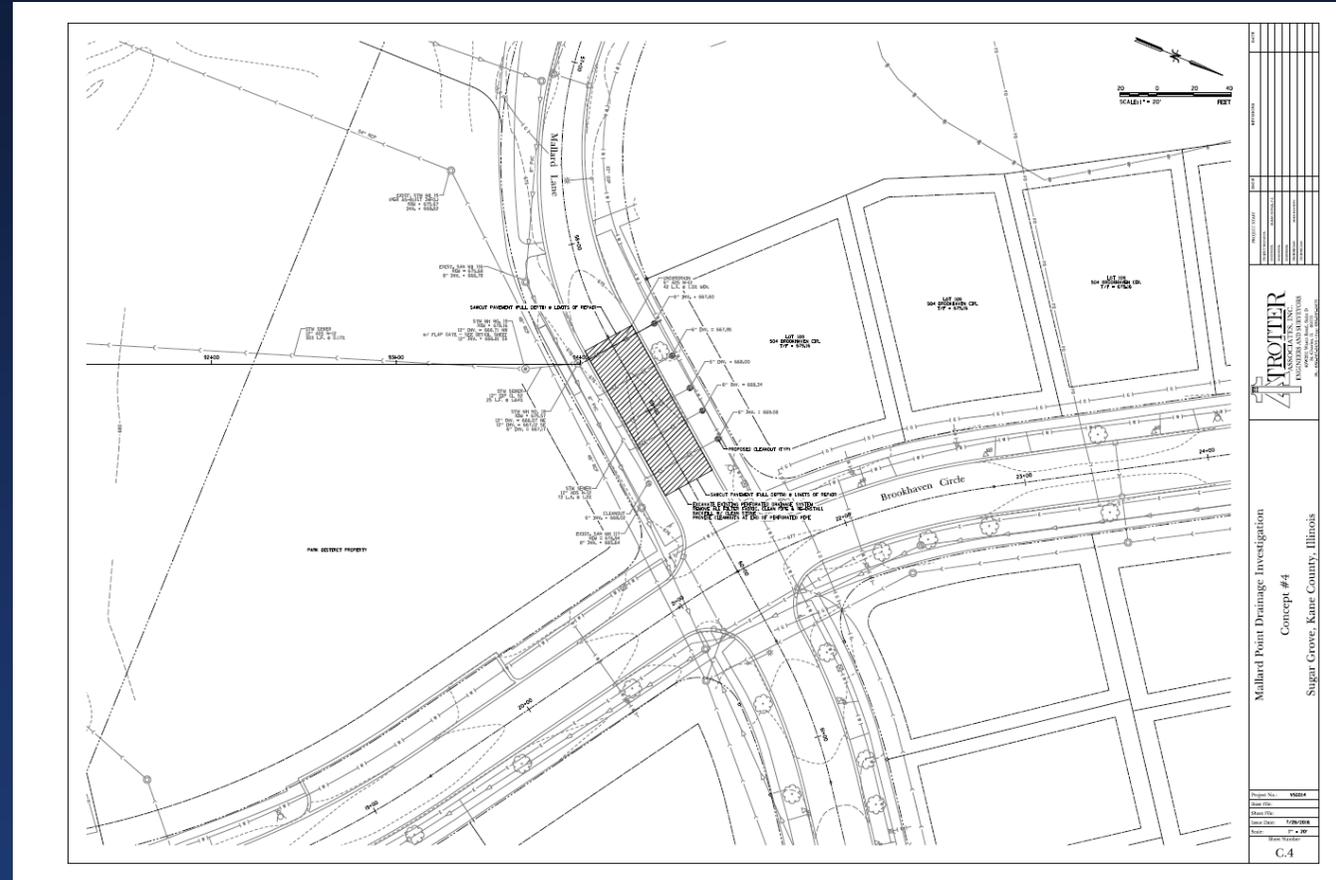
# Concept #4

## Benefits:

- Provides additional access for future maintenance of area with installation of Clean Outs
- Provides visual inspection of drainage system for Red Ochre for long-term maintenance requirements
- Allows for thorough cleaning of existing system
- Secondary groundwater control “safety net”

## Limitations:

- Concept does not provide a means of estimating a measurable amount of relief of overall Mallard Point groundwater system
- Estimated to provide relief for localized area
- Will require long-term maintenance and cleaning



# Re-Evaluation of Concept Designs



# Concept 5

- Concept #5a
  - Wetland Maintenance
  - Draintile Spot Repairs
- Concept 5b
  - Draintile installation





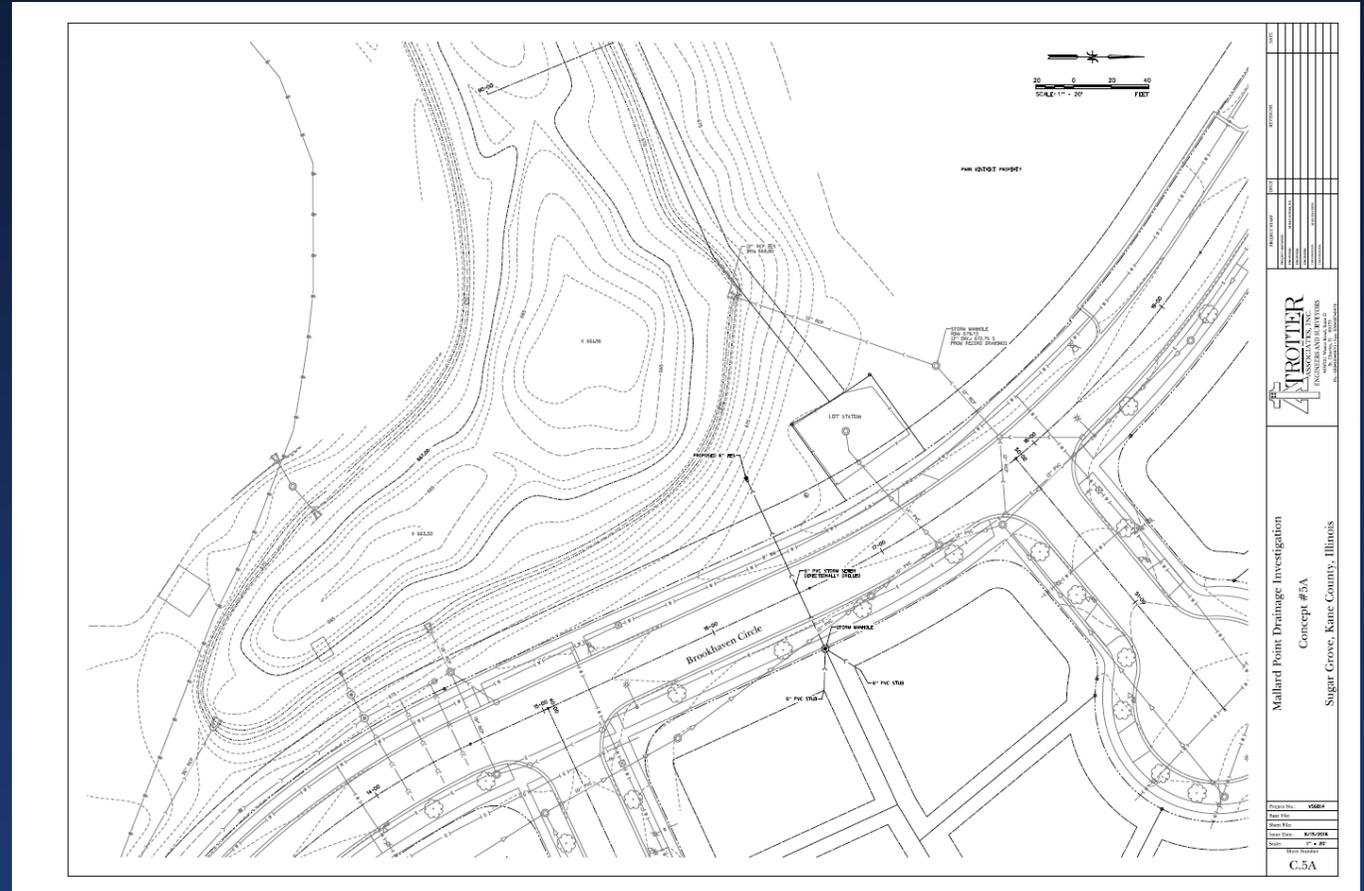
# Concept #5

## Benefits:

- Provides relief of existing sub-surface drainage system at multiple locations within Mallard Point
- Secondary groundwater control “safety net”

## Limitations:

- Concept does not provide a means of estimating a measurable amount of relief of overall Mallard Point groundwater system
- Estimated to provide relief for localized area



# Concept #6

**Opinion of Probable Costs:**  
**\$300,000-\$370,000**

## **Description:**

- **Mitigation of wetlands north of existing park for future park use**
- **Installation of new drain tile along park property line with service connections east to properties along Brookhaven Circ.**



# Concept #6

## Benefits:

- Provides relief of existing sub-surface drainage system at existing low lying area
- Provides an effective means to route offsite tributary water through existing municipal drainage system.
- Allows park expansion area
- Creates a sub-surface drainage system that is not privately owned or maintained

## Limitations:

- Concept does not provide a means of estimating a measurable amount of relief of overall Mallard Point groundwater system
- Estimated to provide relief for localized area

