

VILLAGE OF GRAYSLAKE
DESIGN ENGINEERING SERVICES
WORK ORDER
GHA PROJECT NO. 4990.024**Project: Haryan Farms Drainage Investigation**

The Village of Grayslake has expressed concerns about the long draw down times of the existing Haryan Farm Subdivision Ponds and the Grayslake Washington Metra Station Pond following the large storm events in July of 2017. It is understood that the Haryan Farm ponds are interconnected and drain north to the Metra Station Pond, which then outlets to an existing drain tile located north of Washington Street and east of the Metra Station Pond. Preliminary calculations indicate that the existing drain tile is undersized based on the approximate area tributary to the Haryan Farms Subdivision ponds. It is unknown at this time if there are any other areas tributary to the existing drain tile.

The Village wishes to develop possible solutions to the long pond drawdown times while keeping the pond's release rate in compliance with the Lake County Watershed Development Ordinance. This effort will include further investigation of the areas are tributary to the existing drain tile and developing an existing conditions model in XP-SWMM to characterize the flow tributary to the existing tile. The existing conditions model would then be utilized to develop a proposed conditions model to identify potential replacement options for the downstream drain tile.

Scope of Services

The following scope of services is based on our understanding of the project, and conversations with the Village:

A. Topographic Survey and Field Reconnaissance

GHA will verify the topographic survey around the existing drain tile discharge (adjacent to Lake Street) and adjacent areas outside of the right-of-way to confirm the invert, size, and the overland flow path to the 48"x36" box culvert under Lake Street. GHA will also survey the upstream end of the existing drain tile inlet and verify the size and invert of the drain tile at this location. It is unclear from the Lake County GIS contour mapping if the existing depressional area northwest of the Metra Station Basin overtops and flows to the west or to the east. The survey crew will take elevations around the Metra Station Basin berm and along presumed low points along Lakeside Drive to determine which direction surface water would overflow to. This information will be used to develop an existing conditions model.

1. All topographic work shall be performed in Illinois State Plane Coordinates, East Zone, North American Datum of 1983 (1986 adjustment) and NAVD '88 elevation datum.
2. Horizontal locations shall be measured to the nearest 0.1 foot. Vertical elevations shall be measured to the nearest 0.01 foot.
3. GHA will locate visible features within the survey area.
4. Utility structures shall include sewer manholes, water valve vaults, telephone and electric vaults, traffic signals, light poles, fire hydrants, and other facilities. The rim/ground elevation will be indicated for these features.

5. Storm sewer manhole structures shall be opened and data regarding the manhole material, pipe sizes, pipe directions, and inverts of all pipes shall be recorded.

B. Existing Condition Review and Drainage Analysis

GHA will utilize Lake County's 1-foot aerial topography, the Village's storm sewer atlas maps, and detailed topographic survey in strategic locations to determine the watershed tributary area to the existing drain tile. An existing conditions model will be developed in XP-SWMM and utilized to create a proposed conditions model to determine several alternative replacement sizes for the drain tile and identify potential downstream impacts.

In order to minimize the amount of field data that will be required to be collected, it is assumed the Village will provide the as-builts / engineering plans and any associated drainage reports available for the Haryan Farm Subdivision, Churchill Junction Subdivision, English Meadows Subdivision, Meadowview School, and the Metra Station. These plans should include storm sewer network information (rims, inverts, diameters), detention basin sizes, topography, and detention basin restrictors. GHA will also coordinate with the Village of Round Lake Beach and the Lake County Planning & Building Department to obtain any available subdivision pertaining to the outlet for Highland Lake, as well as locating any existing drain tile studies of the area.

GHA will provide a summary memorandum for the Village's review. We will make necessary revisions to incorporate any staff comments.

C. Project Management, Recommendations, and EOPC

1. Consultation with the Village will be provided by phone, email, and hard copy documentation. A total of two (2) meetings with Village staff are included.
2. GHA will determine the extent of the drainage concern and develop alternate concepts for improving drainage, including grading, replacing the drain tile, or a combination thereof.
3. GHA will prepare an Engineer's Opinion of Probable Cost (EOPC) for up to three concepts.

Estimate of Manhours and Fee

Phase of Service:

A. Topographic Survey & Field Reconnaissance (60 hours):	\$ 6,500.00
B. Existing Condition Review & Drainage Analysis (142 hours):	\$ 18,900.00
C. Project Management, Recommendations, & EOPC (32 hours):	\$ 4,300.00
D. Reimbursable Expenses	<u>\$ 350.00</u>
Project Total (234 hours):	\$ 30,050.00

Note: Proposed upper limit of compensation is \$ 30,050.00.
This fee will not be exceeded without prior written approval of the Village.

Proposed Schedule

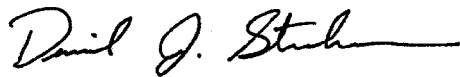
GHA anticipates the following schedule:

<u>Date</u>	<u>Task / Milestone</u>
November 2017	Authorization to Proceed
December 2017	Topographic Survey & Field Reconnaissance
February 16, 2018	Final Analysis & EOPC to Village

Mr. Dan Strahan, PE will serve as the Project Manager and will be the primary contact for the Village. Additional professional staff will provide support as required.

GHA is ready to proceed with data gathering and surveying work (weather permitting) upon receipt of authorization to proceed. We will make every effort to meet the scheduling needs of the Village.

Gewalt Hamilton Associates, Inc.
Submitted By:



Daniel J. Strahan, P.E., CFM
Associate/Senior Engineer

Village of Grayslake
Accepted By:



Name: MICHAEL J. ELLIS
Title: VILLAGE MANAGER
Date: 09/14/2018