STORMWATER MANAGEMENT COMMISSION

MEMORANDUM

TO: Lake County Stormwater Management Commission **DATE:** December 19, 2019

FROM: Kurt Woolford, Chief Engineer
Mike Warner, Executive Director

RE: Stormwater Infrastructure Repair Fund (SIRF) – FY20 Budget $108,000

ACTION REQUESTED: APPROVAL OF ELIGIBILITY AUTHORIZATIONS

Grayslake Community High School District 127—Grayslake Central High School Drainage Relief

SMC staff recommend approval of the Eligibility Authorization for the Grayslake Community High School District 127 project. The proposed project scope involves regrading swales, expanding existing flood storage area (0.06 ac-ft to 0.3 ac-ft), and constructing an enhanced berm. The proposed work supports other improvements implemented by District 127 to reduce drainage to this area. Consistent with SIRF program objectives, the project will benefit multiple jurisdictions, reduce flood hazard for flood events up to the 100-year, 24-hour storm event (for runoff from the District's property), and help alleviate and reduce nuisance flooding. The estimated project cost is $70,000, with local cost share of $36,000 and a requested SIRF funding amount of $34,000. The SIRF Eligibility Authorization Form, which includes a project description, location map, and other information, for this project is attached.

Ela Township Highway Department—Starry Lane Drainage Improvement

SMC staff recommend approval of the Eligibility Authorization for the Ela Township Highway Department's project. The proposed project scope involves installation of four inlet structures and approximately 730 feet of 10-inch PVC storm sewer pipe within the Township right-of-way from Starry Lane to Highland Drive. Consistent with SIRF program objectives, the project will benefit multiple jurisdictions, provide relief during flood events up to and including the 10-year, 24-hour storm event, and help alleviate and minimize structural damage to residential property from flooding. The estimated project cost is $321,631.50, with a local cost share of $282,631.50 and a requested SIRF funding in the amount of $39,000. The SIRF Eligibility Authorization Form, which includes a project description, location map, and other information, for this project is attached.

Village of Green Oaks—Meadow Haven Creek Drainage Improvement

SMC staff recommends approval of the Eligibility Authorization for the Village of Green Oak's Project. The proposed project scope involves replacing three failing culverts (one culvert each on Shannondale Road, Heathercliff Drive, and Guerin Road), clearing invasive species and regrading 275 l.f. of creek channel, installing two riffle checks, and revegetating disturbed areas with native plants. Consistent with SIRF program objectives, the project will benefit multiple jurisdictions, enhance water equality using Best Management Practices, reduce structural damage for residential structures at least the 10-year design storm, and reduce nuisance flooding. The estimated project cost is $315,000, with a local cost share of $300,000 and a requested SIRF funding amount $15,000. Attached is the SIRF Eligibility Authorization Form for the project, which includes a project description, location map, and other pertinent information.

City of Waukegan-1515 MacArthur Street Drainage Swale

SMC staff recommend approval of the Eligibility Authorization for the City of Waukegan's project. The proposed project scope includes replacing a 15-inch pipe with a swale to carry storm water runoff from approximately 40 acres of tributary area. Consistent with SIRF program objectives, the project will benefit multiple jurisdictions, provide relief during flood events up to and including the 10-year, 24-hour storm event, and help alleviate and minimize structural damage to residential property from flooding. The location of this project is located within the IEPA Environmental Justice Buffer Area. The estimated project cost is $30,000, with a local cost share of $10,000 and a requested SIRF funding in the amount of $20,000. The SIRF Eligibility Authorization Form, which includes a project description, location map, and other information, for this project is attached.

SMC Use Only

Received_____

Stormwater Infrastructure Repair Fund
Eligibility Authorization Form

<u>Disclaimer:</u> Approval of the project described herein is an acknowledgement of potential program eligibility only and in no way authorizes payment of funds, reimbursement of expenses incurred for the project and does not guarantee any future funding for the project. Funding may be available once the project has met all the eligibility requirements and a project agreement has been approved and executed by the Commission.

Applicant Jurisdiction (s) (Community, Township, HOA)	Grayslake Community High School District 127		
Brief Project Title	Grayslake Central High School Drainage Relief Project		
General Location	400 N. Lake St., Grayslake, IL		
Contact Person	Michael G. Zelek, Assoc. Superintendent/CSBO		
Address	400 N. Lake St.		
City, State Zip	Grayslake, IL 60030	Phone	847-986-3444

Resource Request

☒ SIRF Funds ☐ SMC Staff Capacity ☐ Combination Funds and Staff

Project Description (use additional sheets if necessary):

The proposed project scope involves reducing the frequency of downstream flooding at several properties by regrading swales, expanding existing flood storage area on school property from 0.06 ac-ft to 0.3 ac-ft, and constructing an enhanced berm on the most flood-prone lots. This work supports other improvements implemented by District to reduce drainage to this area.

Cost Estimate	$70,000	Applicant Share	$36,000	SIRF Share	$34,000

In-Kind Service Person Hours: Applicant: n/a SMC: n/a

In-Kind Service Description: n/a

Project Timing Start Date: May 2020 Completion Date: September 2020

Summary of Project Area Damages (Quantify Below # and type of damages incurred or threatened to occur)

Damage Priority	Flood Damage Type	Number of Occurrences	Frequency of Occurrences (e.g. Every Year, every two years)
1	Structural Damage	4 structures	Once in Past 10 Years
2	Flooded Building	2 residences	Every Few Years (Primarily Crawl Space)
3	Health and Safety	7 locations	~3-4 times per year
4	Road Flooding	1 road (Behm Dr)	Every Few Years
5	Disruption of Revenue	0	N/A
6	Parking Lot Flooding	0	N/A
7	Nuisance Flooding	7 lots	Multiple times per year after every significant rainfall event exceeding 1"

Summary of Project Benefits (how much of the quantified damage is to be relieved and to what extent)
Addresses an area of known depressional storage flooding (Flood Problem Area identified in 2014 Mill Creek Watershed and Flood Mitigation Plan). Proposed expansion of the depressional area increases storage capacity up to the 100-year event for runoff from the School District's property resulting in a significant reduction in frequent flooding at adjacent residences. Water quality improvements also will occur by removing sediment and using native plants to filter runoff. Project will help reduce/minimize local nuisance flooding at 7 lots as well as occasional flooding on Behm Drive.

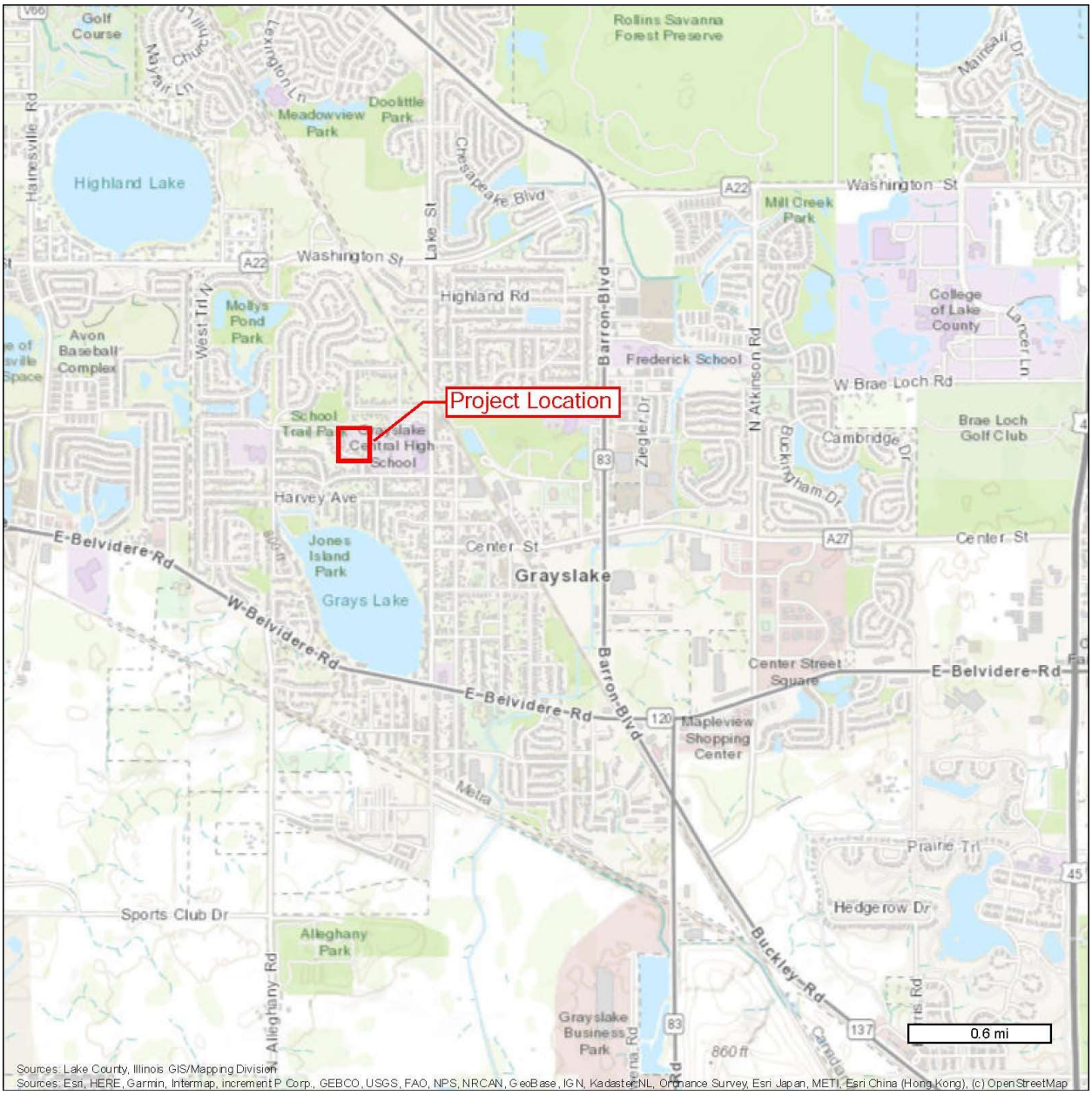
Statement of Local Commitment (assurance that applicant has enough matching funds and staff capacity)
Grayslake Community High School District 127 has funds sufficient to cover the indicated project costs.

Signature of Authorized Representative of the Cost Sharing Entity

Michael G Zelek
Associated Superintendent/CSBO
Grayslake Community High School District 127

Requested Attachments:

1. Location Map
2. Detailed project Description
3. Detailed (per criteria) Statement on Benefits, including quantifiable benefits.
4. Statement of compliance with SMC policies, local plans and Ordinance
5. Other comments or supporting documents.



Location Map for the Grayslake Central High School Drainage Relief Project, Grayslake, Illinois.

GRAYSLAKE CENTRAL – DRAINAGE RELIEF PROJECT

Summary of Drainage Conditions October 04, 2019

The District has received communications from a neighboring property at 329 Behm Drive regarding concerns of storm water runoff from the District's softball and baseball fields located north of the subject property. The Resident asserts that stormwater drainage from these fields has been causing flooding and damage to the property. The drainage from these athletic fields flows south to a ditch located along the rear yard of the residential property. This ditch then drains westerly to a 12" diameter Village of Grayslake storm sewer located near the southwest corner of the softball field. This storm sewer routes northwesterly under a residential garage and connects to a 24" storm sewer in Behm Drive.

The primary cause of the drainage issue is the lack of capacity of the municipal storm sewer draining this area. The pipe is simply not large enough to adequately convey storm water runoff from tributary area. This results in this swale filling with storm water and overtopping the adjacent berm into the yard of the resident during larger rain events. This issue is compounded by the fact that the noted residence is among the lowest properties in the neighborhood, and the lowest directly adjacent to the School. The property is also located at a sag in Behm Drive. For these reasons, the subject property has been historically prone to flooding.

Since 2005, the District has made several improvements to reduce the drainage to this specific drainage ditch in an attempt to reduce the frequency of flooding at the subject property. A 2005 project flattened the up-slope areas. This leveling of the up-slope area slows the flow of water across the grass allowing additional time for the water to be absorbed by the soils. The most notable improvement was completed in 2016 with the installation of a wall along the east side of the baseball stadium and associated drainage improvements installed north of the tennis courts. These improvements reduced the area draining to this ditch by over 1.5 acres, and re-directed drainage from the parking lot area toward the detention basin south of the tennis courts.

Most recently, the Village of Grayslake replaced the open pipe outlet using a Flared End Section. Previously, a chain link fence was located immediately in front of the pipe to prevent large debris from entering the storm drainage system, but would clog frequently with smaller debris and leaves. Reconfiguring this inlet reduced the likelihood of clogging at that location. The Village also extended a berm along the swale in an attempt to direct drainage to the end section.

Even with these improvements, the Village storm sewer that drains this area remains undersized. Given the current watershed conditions, this outlet pipe has a drainage capacity of approximately 1 inch of rainfall per hour. This approximation excludes additional off-site flows from other residential properties and assumes that the downstream Village storm sewers flowing freely with no blockages or backups from other portions of the drainage system, which is unlikely to be the case for larger rain events.

Further increasing the capacity of the drainage swale near this location would not have a significant reduction in the frequency of flooding onto the neighboring property as the flow remains restricted by the downstream conveyance system. The most notable benefit to widening this drainage swale is the increase of storage capacity within the swale itself. In conjunction with this, the storage potential could be further increased by excavating an increased depression at the southwest corner of the parcel. The re-grading of

the area could provide an additional 0.24 acre-feet of storage within the District's property. This additional storage would delay the overtopping into the residential property, thereby providing a reduction in the flooding frequency, but would not eliminate flooding of the neighboring residence given the inadequate capacity of the pipe receiving this drainage.

The attached exhibit CX-1 represents the recommended action for enlarging the storage capacity of the drainage swale area. The project scope includes excavation of the District's southwest property corner to the extent feasible. The size of the storage facility will be limited by maintaining approximately a 10' wide area adjacent to the up-slope athletics facilities to allow for maintenance access to the fields. Beyond this 10' offset, a 3:1 slope would be provided to the largest available area for water storage. The drainage swale adjacent to the neighboring property would be widened to the greatest extent possible and the top of berm elevation raised to the elevation of the neighboring property corner. In doing so, the depth of storage volume within the depression will be maximized prior to overtopping into the neighboring property.

Given the flat grades within the storage and swale area being used, the site within the storage limits will be stabilized using native plugs and plantings. The site will also include seeding, but the use of plugs and planting are preferred to provide reduced vegetation times to minimize erosion and obtain final stabilization.

In total, the storage volume provided is estimated to increase from approximately 0.06 acre-feet to 0.30 acre-feet. This increases the storage for the runoff from the School District property from approximately the 2 year rain event to the 100 year rain event for the runoff from the District property. This management of the runoff from the existing District tributary to the known flooding area will reduce the frequency of flooding at the neighboring residential properties.

Grayslake Central High School Drainage Relief Project
Statement on Benefits, including Quantifiable Benefits

Below is a summary of the project benefits based on the project prioritization criteria included in the WMB Project Proposal packet.

1-3. Structural Damage/Flooded Buildings/Health & Safety- 2 residential structures (+2 detached garages) were impacted by the 2017 flooding; smaller storms produce mostly crawl flooding. Although this does not provide full 100 year storage for the full watershed to this region, it does increase the storage capacity of the depression to contain the 100-year rainfall event for the runoff from the District's property. This equates to a significant reduction in the frequent flooding experienced at the residential properties adjacent to the depression. In addition to providing additional flood storage volume, this reduces the conveyance demand for smaller rain events, thereby allotting additional conveyance capacity for other portions of the municipal drainage system that experience flooding during these smaller rain events. This additional volume also results in improved depressional storage for all rain events.

The flooding in the vicinity of the project has frequently flooded several residences. The residence immediately adjacent to the project has experienced flooding of the garage and crawl space on several occasions. During the flood of 2017, the water level in the crawl space rose to the top of the floor joists and the underside of the floor decking. The residence across Behm Drive experienced flooding above the first floor of the residence. Several other residential structures in the immediate area were also impacted as a result of that flood. The flood of 2017 saw rainfalls far exceeding the 100-year rainfall event, but similar flooding of Behm Drive and the adjoining residential structures is not an uncommon experience, as noted in the 2014 Mill Creek Watershed and Flood Mitigation Plan.

4. Road Flooding- The affected depressional area is located entirely within the rear yards of residential properties; however, Behm Road is affected by the flooding during extreme events. During the flood of 2017, Behm Drive was under over a foot of water.

5. Disruption of Revenue- The affected depressional area is located entirely within the rear yards of residential properties and on school property; no commercial or revenue-generating areas are affected.

6. Parking Lot Flooding- No parking lot areas are within the affected depressional area. This area consists of residential structures and residential garages that have been impacted by flooding.

7. Nuisance Flooding- As noted above, on a regular basis depending on the frequency of storm events. Ponding occurs in the rear yards, affecting approximately 7 lots. The lots adjacent to the school property experiences rear yard flooding several times per year, during approximately 1" or greater rain events. This expands the depressional storage to contain approximately the 100-year runoff from this portion of the school's athletics areas to minimize to the extent practicable the flooding of adjoining properties for lesser rain events.

Applicant: **Grayslake Community High School District 127**
Project Title: **Grayslake Central High School Drainage Relief Project**

Statement of Compliance with SMC Policies, Local Plans, and Ordinance

This project will comply with all policies of the Lake County Stormwater Management Commission, local plans, applicable ordinances, and applicable state and federal regulations in the development and execution of this project.

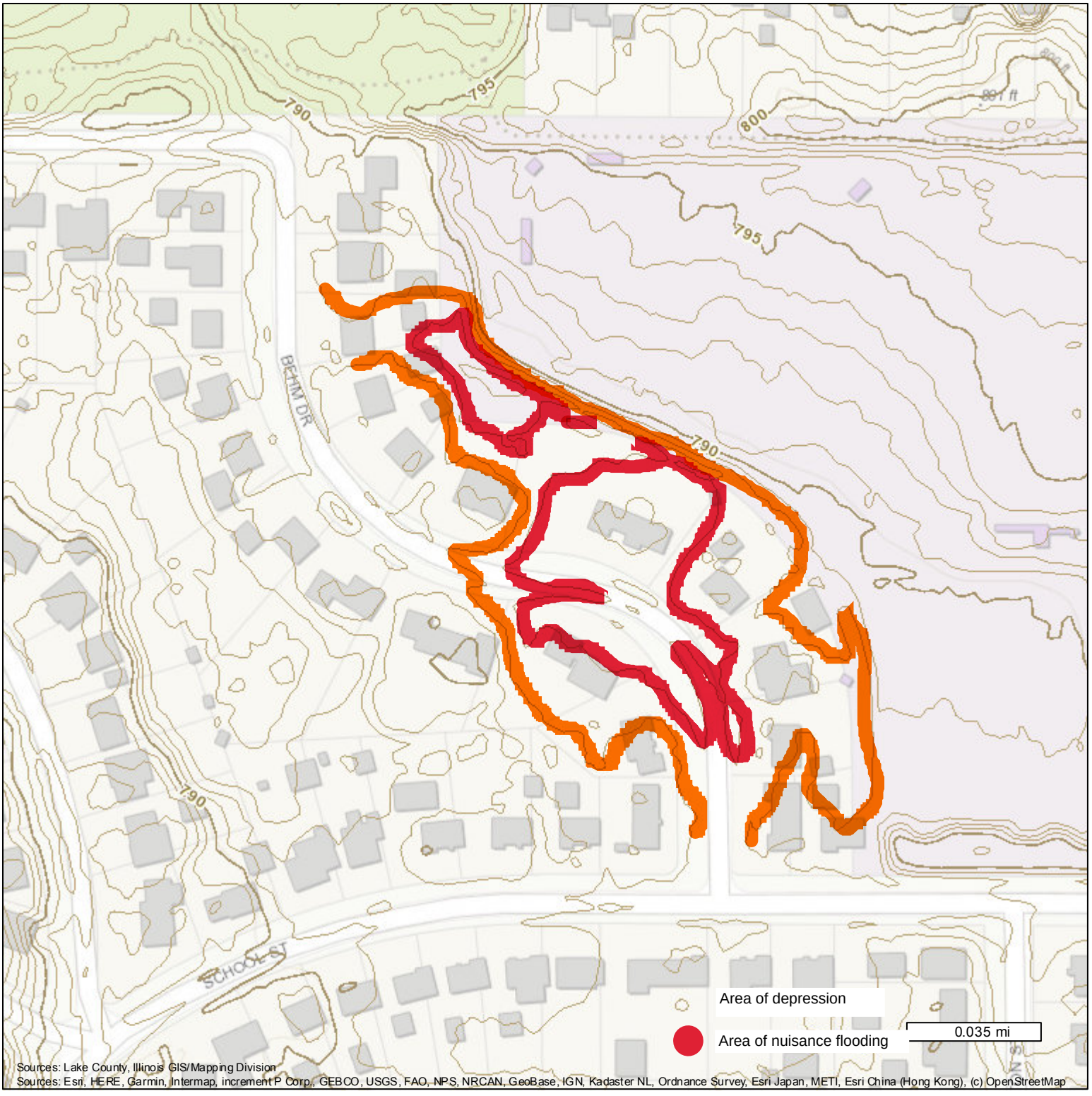
Applicant Signature: _____

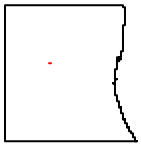
Printed Name: Michael G. Zelek

Position: Associated Superintendent/CSBO

Date: 12-18-19

Lake County, Illinois





Lake County, Illinois

LakeCounty

Map Printed on 10/22/2019

N

Tax Parcel Information

1ft Contours (2007)

- Minor
- Major
- MajorText

Disclaimer: The selected feature may not occur anywhere in the current map extent. A Registered Land Surveyor should be consulted to determine the precise location of property boundaries on the ground. This map does not constitute a regulatory determination and is not a base for engineering design. This map is intended to be viewed and printed in color.

Engineer's Opinion of Probable Costs - Preliminary

Grayslake Central High School

Grayslake, Illinois
October 4, 2019

ERIKSSON ENGINEERING ASSOCIATES, LTD.

Swale Grading And Storage Maximization					
	Earthwork - Cut and Haul-Off	CY	450	$40.00	$18,000.00
	Earthwork - Cut and Fill - On-site	CY	175	$17.00	$2,975.00
	Topsoil stripping and Re-spred	SY	2900	$7.00	$20,300.00
	Vegetation - Native - Plugs - With Initial Maintenance	SY	2100	$8.00	$16,800.00
	Sodding	SY	800	$5.00	$4,000.00
	Engineering	LS	1	$8,000.00	$8,000.00

	Total Costs from Above	$70,075.00
	Opinion of Total Construction Costs	**$70,075.00**

Ex 12" RCP @ 0.30%
Gravity Capacity 2.12 cfs
Inv 785.45

25' Wide x 1.58' Deep Swale @0.25%
Capacity = 14.47 cfs
Ex. Runoff Rate = 15.90 cfs
Upstream Elev = 785.72
Downstream Elev = 785.45

6' Wide x 2.83' Deep Swale @0.40%
Capacity = 19.36 cfs
Ex. Runoff Rate = 12.55 cfs

6' Wide x 2.17' Deep Swale @0.40%
Capacity = 11.07 cfs
Ex. Runoff Rate = 5.52 cfs

Overflow Elev ~787.60
12" RCP Capacity ~6.40 cfs
At HWL 787.60

Excavate To Increase Storage Potential.
Existing Storage ~ 0.06 Ac-Ft
Proposed Storage ~ 0.30 Acre-Feet.

Scale: 1"=30'

ERIKSSON ENGINEERING ASSOCIATES, LTD.
145 COMMERCE DRIVE, SUITE A
GRAYSLAKE, ILLINOIS 60030
PHONE (847) 223-4804
FAX (847) 223-4864
EMAIL INFO@EEA-LTD.COM
PROFESSIONAL DESIGN FIRM
LICENSE NO. 184-003220
EXPIRES: 04-30-2021

GRAYSLAKE CENTRAL HIGH SCHOOL DRAINAGE RELIEF PROJECT

400 N Lake St
Grayslake, IL 60030

Design By:	Date:
CM	06/20/19
Checked By:	Project No.
PD	

Sheet Title:
SCHEMATIC PLAN

Sheet No:
CX-1

SMC Use Only

Received_____

Stormwater Infrastructure Repair Fund
Eligibility Authorization Form

Disclaimer: Approval of the project described herein is an acknowledgement of potential program eligibility only and in no way authorizes payment of funds, reimbursement of expenses incurred for the project and does not guarantee any future funding for the project. Funding may be available once the project has met all the eligibility requirements and a project agreement has been approved and executed by the Commission.

Applicant Jurisdiction (s) (Community, Township, HOA)	Ela Township Highway Department	
Brief Project Title	Starry Lane Drainage Improvement Forest Lake Subdivision Drainage Improvements – Phase 1	
General Location	Forest Lake Subdivision (SE of Quentin Road/Old McHenry Road intersection)	
Contact Person	Andrew Forster, Highway Commissioner	
Address	23605 N. Echo Lake Road	
City, State Zip	Lake Zurich, IL 60047	Phone 847-438-2371

Resource Request

☒ SIRF Funds ☐ SMC Staff Capacity ☐ Combination Funds and Staff

Project Description (use additional sheets if necessary):

The topography within the rear yard areas of homes along Ridge Road and Starry Lane forms a depressional area with a low point elevation of approximately 792. Surface water would need to pond to approximately 798 before discharging to the east via overland flow. There is an existing private pump system between 21360 and 21328 Starry Lane with a 6" discharge into the Township storm sewer along Starry Lane. However, this private system is not able to keep up with increasingly large rainfall events, and the existing storm sewer system along Starry Lane is too high to drain the depressional area by gravity, resulting in frequent flooding. A 10" gravity storm sewer is proposed within existing Township right-of-way from Starry Lane to Highland Drive, connecting to an existing 24" storm sewer.

Cost Estimate	$321,631.50	Applicant Share	$161,631.50	SIRF Share	$160,000.00
In-Kind Service Person Hours	Applicant		SMC		
In-Kind Service Description					
Project Timing	Start Date	May 1, 2020	Completion Date	June 30, 2020	

Summary of Project Area Damages (Quantify Below # and type of damages incurred or threatened to occur)

Damage Priority	Flood Damage Type	Number of Occurrences	Frequency of Occurrences (e.g. Every Year, every two years)
1	Structural Damage	3	Every Year
2	Flooded Building	3	2-3 Times per Year
3	Health and Safety	7	Monthly
4	Road Flooding	0	0
5	Disruption of Revenue	0	0
6	Parking Lot Flooding	0	0
7	Nuisance Flooding	7	Multiple times per year after every significant rainfall event.

Summary of Project Benefits (how much of the quantified damage is to be relieved and to what extent)
During regular seasonal rainfall events, water ponds in depressional area impacting rear yards of 9 properties and approaching the decks of three properties. During larger storm events (2-3 times per year) water ponds to such a depth to flood residences at 21360, 21348, and 21336 Starry Lane and reaching the rear yards of two additional properties. The proposed storm sewer will be sized to eliminate nuisance flooding during the 10-year event and eliminate structural flooding up to the 100-year event.

Statement of Local Commitment (assurance that applicant has sufficient matching funds and staff capacity)
The proposed scope of improvements exceeds what can typically be budgeted by the Township Highway Department for a drainage project. The Township has divided the project into two phases and is requesting 50% funding for the first phase to provide relief to the residents in this area. The Township has sufficient funds to cover the remaining 50% construction cost and design engineering.

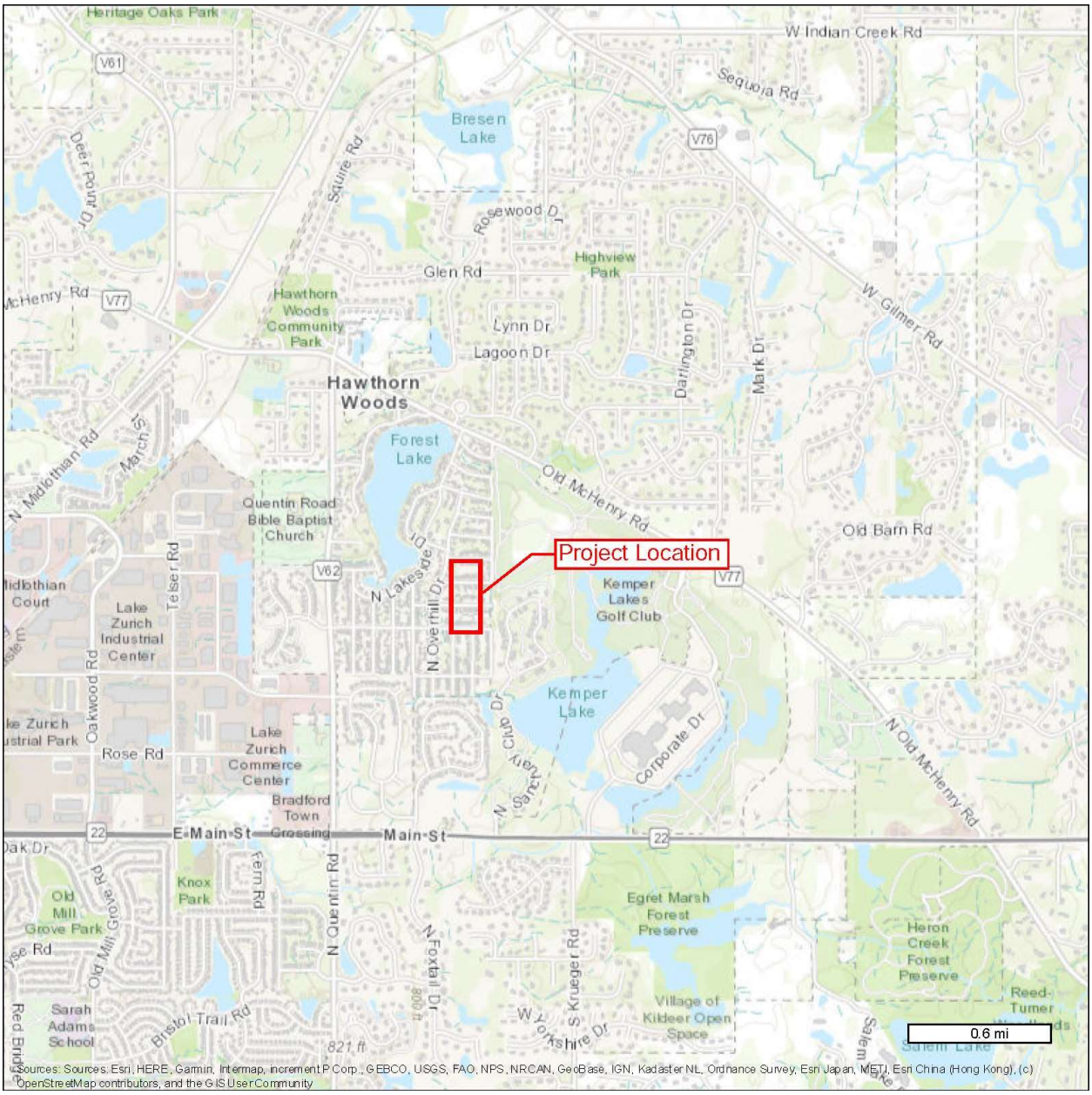
Signature of Authorized Representative of the Cost Sharing Entity

ANDREW FORSTER

Spell Name Above

Requested Attachments:

1. Location Map
2. Detailed project Description
3. Detailed (per criteria) Statement on Benefits, including quantifiable benefits.
4. Statement of compliance with SMC policies, local plans and Ordinance
5. Other comments or supporting documents.



Location Map for Ela Township Highway Department's Starry Lane Drainage Improvement Project, Forest Lake Subdivision, Lake Zurich, Illinois.

October 29, 2019

GHA GEWALT HAMILTON ASSOCIATES, INC.
CONSULTING ENGINEERS
625 Forest Edge Drive, Vernon Hills, IL 60061
TEL 847.478.9700 ■ FAX 847.478.9701
www.gha-engineers.com

Ms. Sharon Osterby
Lake County Stormwater Management Commission
500 W. Winchester Road, Suite 201
Ela, IL 60048

Re: Stormwater Infrastructure Repair Fund
Ela Township Project Proposal

Dear Ms. Osterby:

Pursuant to the attached Stormwater Infrastructure Repair Fund Eligibility Authorization Form, this document shall serve as the detailed project description, Statement of Benefits, and Statement of Compliance for the Forest Lake Subdivision Drainage Improvements – Phase 1 project.

Detailed Project Description
Forest Lake Subdivision is located south of Old McHenry Road and east of Quentin Road in unincorporated Ela Township. The community was originally founded in 1935 as a vacation community for Chicago residents, and over time has developed into mostly year-round single-family residences. A general location map of the area is shown below.

Figure 1- Location Map

As the subdivision is unincorporated, roadway maintenance is the responsibility of the Ela Township Highway Department. As the subdivision was constructed prior to modern stormwater management practices, the Township has had to make various drainage improvements over time to improve drainage not only within the right-of-way, but also to assist private properties with drainage improvements to provide facilities that typically are required during the subdivision process.

Recently subdivision residents have requested the Township address depressional area flooding in the Starry Lane area (see Figure 2). As shown below, the topography within the rear yard areas of homes along Ridge Road and Starry Lane forms a depressional area with a low point elevation of approximately 792. Surface water would need to pond to approximately 798 before discharging to the east via overland flow. There is an existing private pump system between 21360 and 21328 Starry Lane with a 6" discharge into the Township storm sewer along Starry Lane. However, this private system is not able to keep up with increasingly large rainfall events, and the existing storm sewer system along Starry Lane is too high to drain the depressional are by gravity.

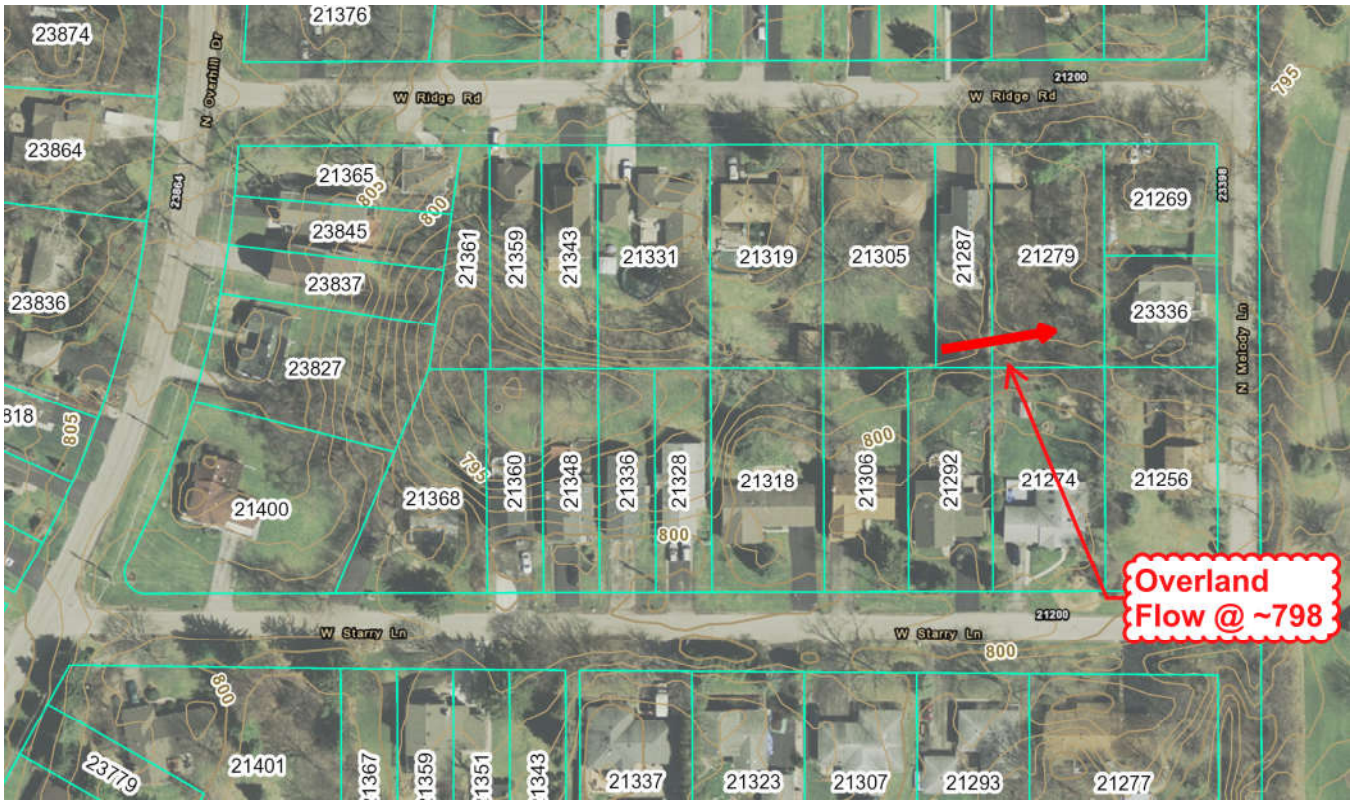


Figure 2- Existing Topography

The Ela Township Highway Department investigated several different options to provide drainage to this area. After review of these options, the Township found it would be feasible to run a storm sewer through existing Township right-of-way south two blocks to Highland Road. The existing storm sewer on Highland Road is low enough to provide a gravity drain for the depressional area north of Starry Lane. A conceptual storm sewer exhibit is enclosed with this submittal. It is noted that a future phase is proposed to relocate this downstream storm sewer into the Garden Lane right-of-way.

Statement on Benefits, including Quantifiable Benefits
Below is a summary of the project benefits based on the project prioritization criteria included in the WMB Project Proposal packet.

1-3. Structural Damage/Flooded Buildings/Health & Safety- The hazards posed by flooding within the depressional gets progressively worse as rainfall volume increases. During significant storm events, ponding water reaches an elevation of 795 even with the pumping system functional, resulting in structural flooding at 21360, 21348, and 21366 Starry Lane. Damage varies depending upon the duration of flooding and ability of the pumping system to drain down the standing water. Photos of one such event are included below for reference.

Figure 3- Post-Flood Photos

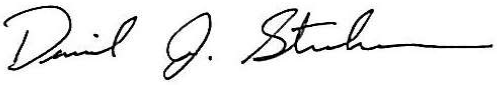
During most routine storm events (1 or more times per month), water ponds to an elevation of 793, causing rear yard flooding impacting 7 properties.
Potential for more significant flooding is very high as the overland flow route for this area begins at an elevation of 798 as shown in Figure 2.

4. Road Flooding- The affected depressional area is located entirely within the rear yards of residential properties; no roadways are affected by the flooding.
5. Disruption of Revenue- The affected depressional area is located entirely within the rear yards of residential properties, no commercial areas are affected.
6. Parking Lot Flooding- No parking lot areas are within the affected depressional area.
7. Nuisance Flooding- As noted above, on a regular basis depending on the frequency of storm events, ponding occurs in the rear yards, affecting 7 properties.

Statement of Compliance with SMC Policies, Local Plans & Ordinance
A conceptual plan has been prepared outlining provision of a gravity outlet for the proposed depressional area. During the engineering design phase, detailed plans will be prepared in accordance with the Lake County Watershed Development Ordinance and submitted for review. Analysis will be completed to finalize pipe sizing and verify that the existing Township storm sewer has adequate downstream capacity to accept the proposed flows.

Please review the attached photos and information and call if you have any questions.

Sincerely,
Gewalt Hamilton Associates, Inc.



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

cc: Gloria Palmblad, Ela Township Supervisor
Andy Forster, Ela Township Highway Commissioner
Julie Crain, Lake County SMC

Applicant: **Ela Township Highway Department**
Project Title: **Starry Lane Drainage Improvement Project**
(aka Forest Lake Subdivision Drainage Improvements – Phase 1)

Statement of Compliance with SMC Policies, Local Plans, and Ordinance

This project will comply with all policies of the Lake County Stormwater Management Commission, local plans, applicable ordinances, and applicable state and federal regulations in the development and execution of this project.

Applicant Signature: _____

Printed Name: Andrew Forster

Position: Highway Commissioner

Date: 12-16-19

GRAPHIC SCALE

100 0 50 100

(IN FEET)

1 inch =100 ft.

N

RIM: 791.90
INV: 789.80

RIM: 791.34
INV: 790.54

168 LF 10" C900 W/ CERTA-LOK JOINTS @ 0.50%

797

RIM: 799.40
INV: 788.96

RIM: 799.68
INV: 792.11

STARRY LANE

38 LF 10" PVC SDR-26 @ 0.5%

RIM: 800.80
INV: 788.77

72 LF 10" PVC SDR-26 @ 0.5%

RIM: 800.80
INV: 788.41

380 LF 10" C900 W/ CERTA-LOK JOINTS @ 0.62%

792

INV: 791.50

WILLOW ROAD

INV: 791.36

OVERHILL DRIVE

RIM: 796.60
INV: 786.05

167 LF 10" C900 W/ CERTA-LOK JOINTS @ 0.62%

INV: 790.68

INV: 790.15

INV: 790.08

INV: 790.66

EXISTING STREAM

RIM: 793.20
INV: 785.02

208 LF 10" C900 W/ CERTA-LOK JOINTS @ 0.62%

54 LF 12" PVC SDR-26 @ 0.40%

HIGHLAND DRIVE

INV: 783.00

GARDEN LANE

RIM: 792.95
INV: 783.74

133 LF 12" PVC SDR-26 @ 0.40%

RIM: 790.20
INV: 783.20

EAST ROAD

GHA GEWALT HAMILTON ASSOCIATES, INC.
625 Forest Edge Drive ■ Vernon Hills, IL. 60061
Tel.: 847.478.9700 ■ Fax.: 847.478.9701

STARRY LANE PROPOSED STORM SEWER EXHIBIT

FOREST LAKE S/D DRAINAGE IMPROVEMENTS
PHASE 1
ELA TOWNSHIP, ILLINOIS

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DRAWN BY:	CAS	GHA PROJECT #	3847.049
DATE:	9-16-19		
CHECKED BY:	DJS	SCALE:	1"=100'

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Fores Lake Subdivision Drainage Improvements
Ela Township, Lake County, Illinois
Conceptual Design EOPC
9/16/2019

CONCEPTUAL ENGINEER'S OPINION OF PROBABLE COST - PHASE 1

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL
1.	BRUSH CLEARING (SPECIAL)	LS	1	$4,500.00	$4,500.00
2.	TRENCH BACKFILL	CY	100	$45.00	$4,500.00
3.	GRADING & SHAPING DITCHES	FT	100	$12.00	$1,200.00
4.	INLET FILTER BASKETS	EA	8	$250.00	$2,000.00
5.	CLASS D PATCHES, 6" (SPECIAL)	SY	40	$100.00	$4,000.00
6.	PIPE CULVERT REMOVAL	FT	100	$15.00	$1,500.00
7.	STORM STRUCTURE REMOVAL	EA	3	$400.00	$1,200.00
8.	STORM SEWER REMOVAL	FT	200	$12.00	$2,400.00
9.	STORM SEWER TO BE ABANDONED	FT	200	$20.00	$4,000.00
10.	STORM SEWERS, DIRECTIONALLY DRILLED, 10" C900 W/ CERTA-LOK	FT	755	$200.00	$151,000.00
11.	STORM SEWERS, 10" PVC SDR 26	FT	110	$75.00	$8,250.00
12.	STORM SEWERS, 12" PVC SDR 26	FT	187	$80.00	$14,960.00
13.	INLET, TYPE A, 2'-DIAMETER	EA	1	$1,800.00	$1,800.00
14.	MANHOLE, TYPE A, 4'-DIAMETER	EA	6	$3,500.00	$21,000.00
15.	CATCH BASIN, TYPE A, 4'-DIAMETER	EA	1	$4,500.00	$4,500.00
16.	LANDSCAPE RESTORATION (SPECIAL)	LS	1	$20,000.00	$20,000.00
17.	TRAFFIC CONTROL & PROTECTION (SPECIAL)	LS	1	$12,000.00	$12,000.00
				Base Bid SubTotal:	**$258,810.00**
				15% Contingency:	**$38,821.50**
				Design Engineering Budget (8%):	**$24,000.00**
				Phase 1 Total:	**$321,631.50**

*Since Gewalt-Hamilton Associates Inc. has no control over the cost of labor, materials, or equipment, or over the Contractor's methods of determining prices, or over competitive bidding of market conditions. Opinions of probable costs, as provided for herein, are to be made on the basis of experience and qualifications and represent the best judgement as a design professional familiar with the construction industry. Gewalt-Hamilton Associates, Inc., cannot and does not guarantee that proposals, bids, or construction costs will not vary from opinions of probable cost prepared for the Owner.

Prepared by: DJS 16-Sep-19
Revised by:

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Stormwater Infrastructure Repair Fund
Eligibility Authorization Form

Disclaimer: Approval of the project described herein is an acknowledgement of potential program eligibility only and in no way authorizes payment of funds, reimbursement of expenses incurred for the project and does not guarantee any future funding for the project. Funding may be available once the project has met all the eligibility requirements and a project agreement has been approved and executed by the Commission.

Applicant Jurisdiction (s) (Community, Township, HOA)	Village of Green Oaks	
Brief Project Title	Meadow Haven Drainage Improvement	
General Location	Shannondale Drive and Heathercliff Drive, Green Oaks, IL 60048	
Contact Person	Ms. Denise Kafkis, Village Administrator	
Address	2020 O'Plaine Road	
City, State Zip	Green Oaks, IL 60048	Phone 847-362-5959

Resource Request

☒ SIRF Funds ☐ SMC Staff Capacity ☐ Combination Funds and Staff

Project Description (use additional sheets if necessary):

The proposed project scope involves replacing failing culverts at three locations (Shannondale Road, Heathercliff Drive, and Guerin Road), clearing invasive species and regrading 275 l.f. of creek channel to a trapezoidal shape, installing two riffle checks, and revegetating disturbed areas with native plants.

Cost Estimate	$315,000	Applicant Share	$300,000	SIRF Share	$15,000

In-Kind Service Person Hours: Applicant: n/a SMC: n/a

In-Kind Service Description: n/a

Project Timing Start Date: Summer 2020 Completion Date: Fall 2020

Summary of Project Area Damages (Quantify Below # and type of damages incurred or threatened to occur)

Damage Priority	Flood Damage Type	Number of Occurrences	Frequency of Occurrences (e.g. Every Year, every two years)
1	Structural Damage	1 residence, 3 road crossings	One known flooding event
2	Flooded Building	1 residence	One known event
3	Health and Safety	12 locations (9 residences, 3 roads)	One known event
4	Road Flooding	3 roads	Unknown
5	Disruption of Revenue	0	N/A
6	Parking Lot Flooding	0	N/A
7	Nuisance Flooding	9 lots	At least yearly

Summary of Project Benefits (how much of the quantified damage is to be relieved and to what extent)
The project will help ensure three roads are not closed due to culvert failures by proactively and preventatively address issues with culverts at Shannondale Drive and Guerin Road crossings, where the road shows a significant dip and the invert of the culverts have are rusting away, as well as the crossing on Shannondale, which has been partially repaired once due to a sinkhole. The project also proactively addresses flooding concerns by providing incremental protection along a section of channel where properties are close in elevation to the channel. In addition to these benefits, the project will improve general conveyance, which has potential to benefit an Environmental Justice area to the east and upstream of the project site. Slope stabilization along the channel will reduce erosion potential and downstream sediment deposition. The primary concern at this location is structural flooding; should there be a failure at the Guerin Road crossing, upstream properties will be at significant risk of flooding.

Statement of Local Commitment (assurance that applicant has enough matching funds and staff capacity)
The Village of Green Oaks has funding sufficient to cover the indicated project costs.

Signature of Authorized Representative of the Cost Sharing Entity

Denise Kafkis

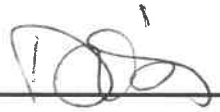
Spell Name Above

Requested Attachments:
1. Location Map
2. Detailed project Description
3. Detailed (per criteria) Statement on Benefits, including quantifiable benefits.
4. Statement of compliance with SMC policies, local plans and Ordinance
5. Other comments or supporting documents.

Applicant: **Village of Green Oaks**
Project Title: **Meadow Haven Creek Drainage Improvements**

Statement of Compliance with SMC Policies, Local Plans, and Ordinance

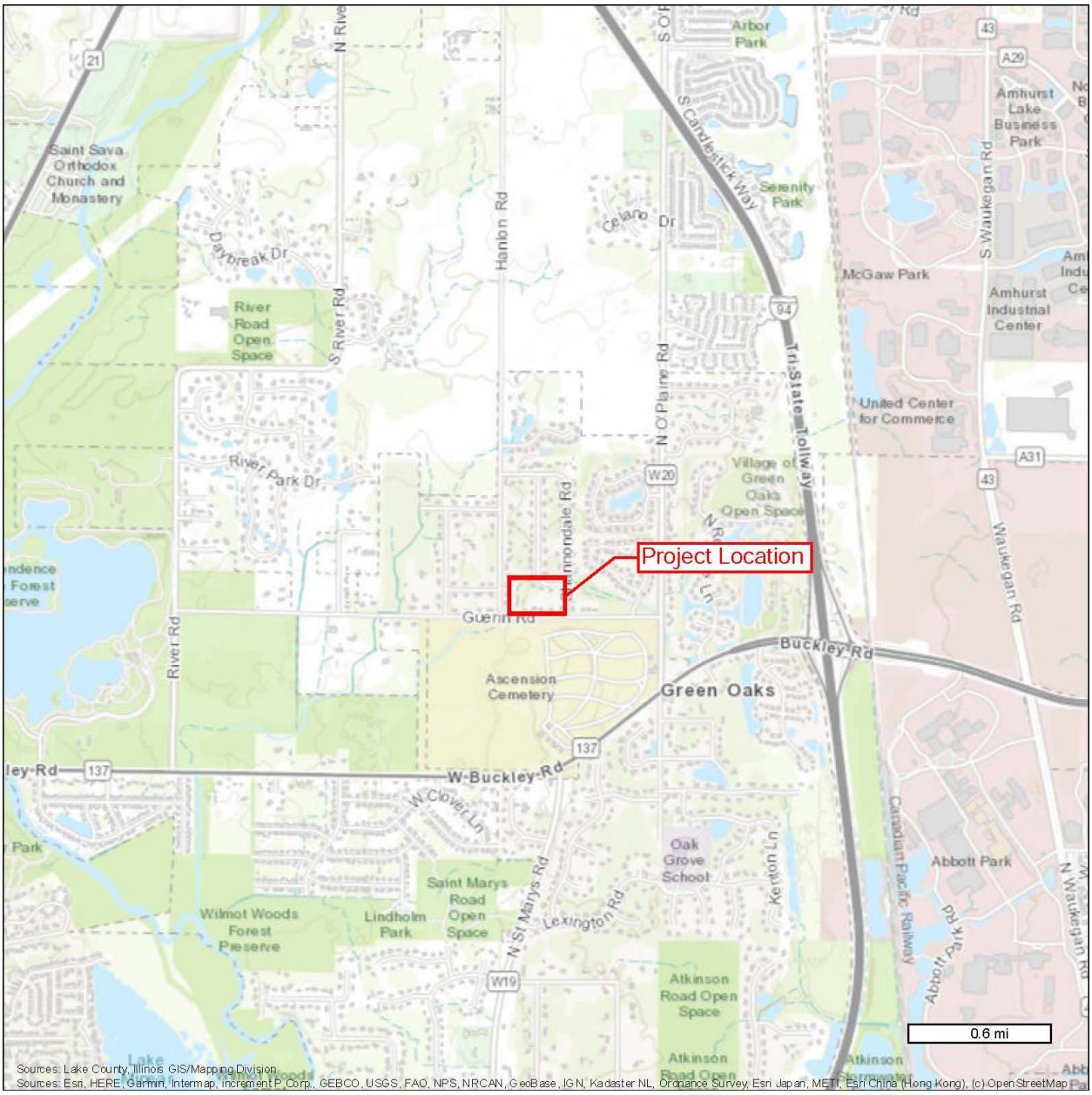
This project will comply with all policies of the Lake County Stormwater Management Commission, local plans, applicable ordinances, and applicable state and federal regulations in the development and execution of this project.

Applicant Signature: 

Printed Name: Denise Kafkis

Position: Village Administrator

Date: 12-18-19



Location Map for the Village of Green Oaks' Meadow Haven Creek Drainage Improvement Project, Green Oaks, Illinois.

Meadow Haven Creek Drainage Improvements
Statement on Benefits, including Quantifiable Benefits

Below is a summary of the project benefits based on the project prioritization criteria included in the SIRF Project Proposal packet. Note that the detailed design of this is currently underway, and the proposed improvements are limited by the floodplain/floodway regulations. As such, we are limited with what we can replace, and the proposed replacements are addressing culverts showing signs of failure in the near future.

1-3. Structural Damage/Flooded Buildings/Health & Safety- Two residences reported damage during the July 2017 flood event related to basement flooding, one of which was a property immediately adjacent to the project area where water came in near their window well. Improving conveyance of drainage and reliability of storm water facilities will reduce the potential for flooding within and upstream of the project area and is anticipated to provide additional incremental protection against structural damages (up to at least the approximate 10-year storm).

4. Road Flooding- Project will proactively prevent structural failure at three roads (Shannondale Drive, Heathercliff Drive, and Guerin Road) by replacing existing, failing culverts. Guerin Road is a local road, but it spans three jurisdictions: Waukegan, Libertyville Township, and the Village of Green Oaks. Culvert replacements will ensure proper conveyance up to at least the 10-year storm flow and in accordance with the current adopted FEMA study and will address/prevent/reduce closures during storm events.

5. Disruption of Revenue- Potential road failure would result in the need to reroute traffic, creating potential delays.

6. Parking Lot Flooding- No parking lot areas are within the affected project area.

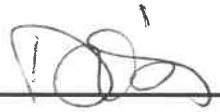
7. Nuisance Flooding- Improving conveyance will alleviate/reduce the frequency and duration of nuisance flooding along side and rear yards for 9 properties to beyond the 20-year storm event).

8. Environmental Justice- While the project is not located in an Environmental Justice area, there is a HUD Low-Moderate Income/IEPA EJ Buffer area upstream to the east, and road culvert failure or blockage of drainage could potentially create back water conditions that could affect a part of the EJ area.

Applicant: **Village of Green Oaks**
Project Title: **Meadow Haven Creek Drainage Improvements**

Statement of Compliance with SMC Policies, Local Plans, and Ordinance

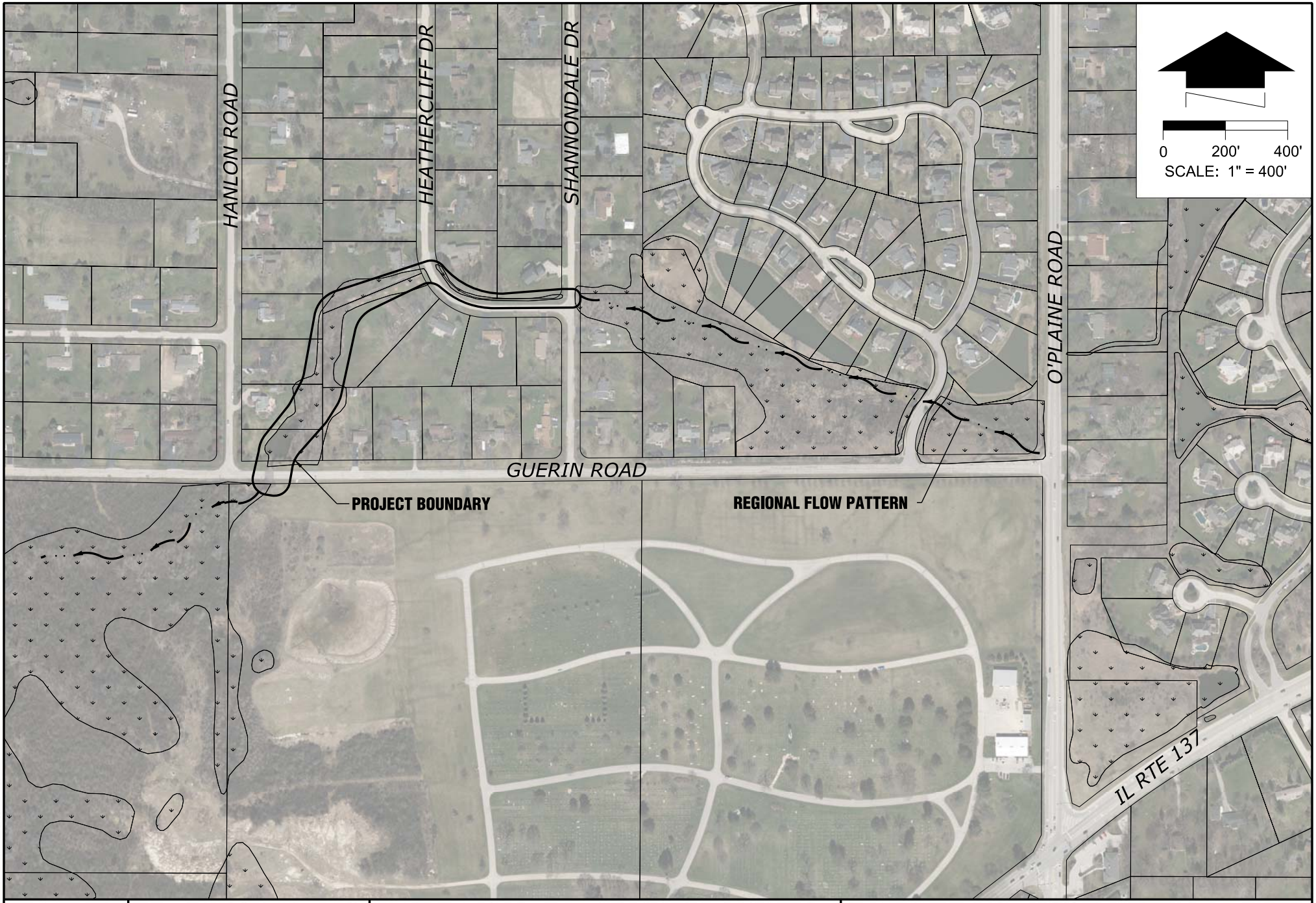
This project will comply with all policies of the Lake County Stormwater Management Commission, local plans, applicable ordinances, and applicable state and federal regulations in the development and execution of this project.

Applicant Signature: 

Printed Name: Denise Kafkis

Position: Village Administrator

Date: 12-18-19



RHMG

RHMG ENGINEERS, INC.

975 CAMPUS DR
MUNDELEIN, ILLINOIS 60060
847.362.5959

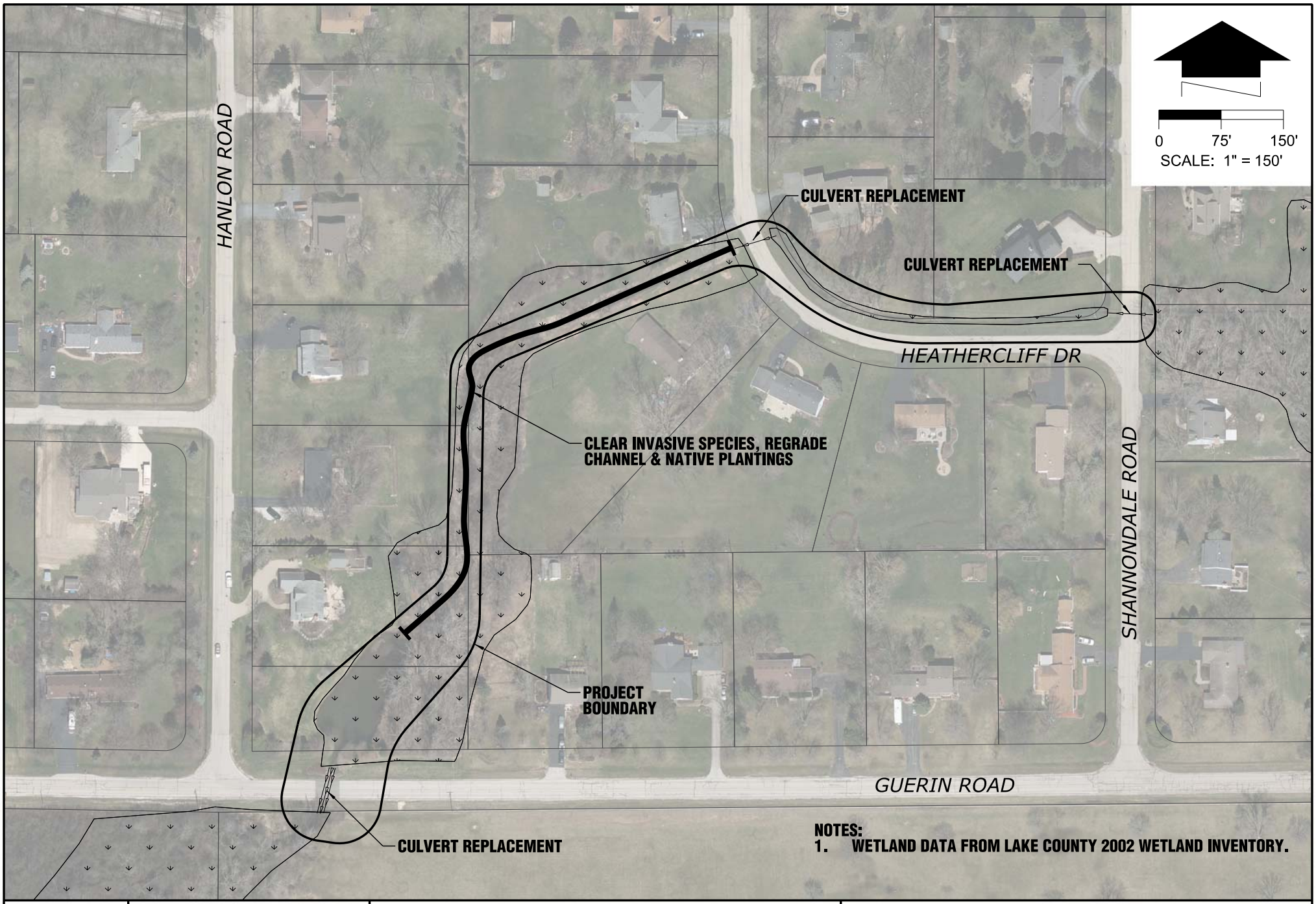
535 TOLLWAY ROAD. SUITE F
ELGIN, ILLINOIS 60123
847.742.5959

VILLAGE OF GREEN OAKS
MEADOWHAVEN CREEK DRAINAGE IMPROVEMENTS

AERIAL LOCATION MAP

PROJECT NO. 22005000

DATE: 10/4/19



NOTES:

1. WETLAND DATA FROM LAKE COUNTY 2002 WETLAND INVENTORY.

RHMG

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847.362.5959

535 TOLLWAY ROAD. SUITE F
ELGIN, ILLINOIS 60123
847.742.5959

VILLAGE OF GREEN OAKS
MEADOWHAVEN CREEK DRAINAGE IMPROVEMENTS

PROPOSED IMPROVEMENTS
AERIAL MAP

PROJECT NO. 22005000

DATE: 10/4/19

RHMG ENGINEERS, INC.

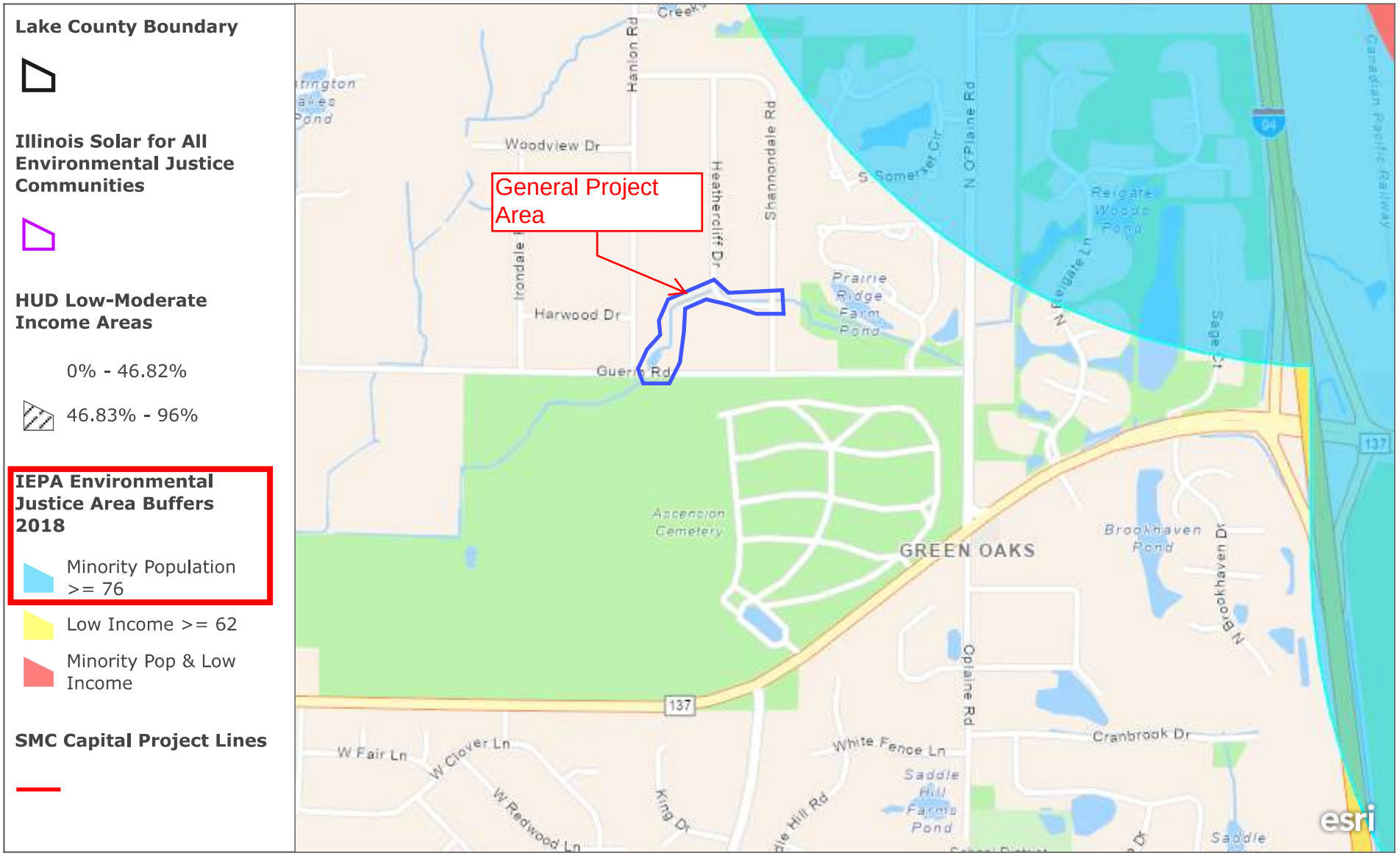
ATTACHMENT C

Engineer's Opinion of Probable Construction Cost
Village of Green Oaks
Meadow Haven Drainage Improvments

Project No. 22005000 October 4, 2019

Item	Item Description	Unit	Qty	Unit Price	Extension
Meadow Haven Creek Work - Clearing and re-grading of 725 LF east of Heathercliff and 500 feet West of Heathercliff					
1.	Tree removal (50' width)	AC	0.83	$35,000.00	$ 29,126.49
2.	Creek Grading and Shaping	CY	270	$100.00	$ 27,000.00
3.	Restoration (30' width)	SY	2,417	$15.00	$ 36,255.00
4.	Wetland Plugs (300 plants/acre)	ACRE	0	$5,000.00	$ 1,700.00
5.	Riffle Checks	EA	2	$3,500.00	$ 7,000.00
6.	Erosion Control	LS	1	$12,000.00	$ 12,000.00
7.	Bypass Pumping	LS	1	$15,000.00	$ 15,000.00
Culvert Replacement					
8.	36-Inch RCP, Class IV	LF	175	$175.00	$ 30,625.00
9.	6' x 3.5' Arch Span	LF	110	$250.00	$ 27,500.00
10.	Trench Backfill	CY	268	$40.00	$ 10,720.00
11.	Pavement Restoration	LS	135	$60.00	$ 8,100.00
12.	Traffic Control and Protection	LS	1	$12,000.00	$ 12,000.00
13.	Bypass Pumping	LS	1	$12,000.00	$ 12,000.00
14.	Soil Erosion and Sediment Control	LS	1	$12,000.00	$ 12,000.00
				Subtotal	$241,026.49
				Construction Contingency (15%)	$36,153.97
				Engineering (15%)	$36,153.97
				Engineer's Opinion of Probable Construction Cost	$313,334.43

Lake County Enhanced Environmental Justice Mapping Resource



Environmental Justice Areas and HUD Low-Mod Areas in Lake County, IL

Lake County, Illinois GIS Division | Esri Community Maps Contributors, County of Lake, IL, Esri, HERE, Garmin, INCREMENT P, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA

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Stormwater Infrastructure Repair Fund
Eligibility Authorization Form

Disclaimer: Approval of the project described herein is an acknowledgement of potential program eligibility only and in no way authorizes payment of funds, reimbursement of expenses incurred for the project and does not guarantee any future funding for the project. Funding may be available once the project has met all the eligibility requirements and a project agreement has been approved and executed by the Commission.

Applicant Jurisdiction (s) (Community, Township, HOA)	City of Waukegan	
Brief Project Title	Existing Residential Flooding Problem	
General Location	1515 McArthur St. and Adjacent Areas	
Contact Person	Michael Hewitt	
Address	1700 N. McAree Rd	
City, State Zip	Waukegan	Phone 847-625-6832

Resource Request

☐ SIRF Funds ☐ SMC Staff Capacity ☐ Combination Funds and Staff

Project Description (use additional sheets if necessary):

Existing residence floods every rainstorm. Project will create a drainage swale along lot line to provide a path to allow for upstream rain water flow to exit street and residence flooding to be relived.

Cost Estimate	$30,000	Applicant Share	$10,000	SIRF Share	$20,000
In-Kind Service Person Hours	Applicant	16 hours – 3 man crew	SMC		
In-Kind Service Description	Digging Swale				
Project Timing	Start Date	Spring 2020	Completion Date	Spring 2020	

Summary of Project Area Damages (Quantify Below # and type of damages incurred or threatened to occur)

Damage Priority	Flood Damage Type	Number of Occurrences	Frequency of Occurrences (e.g. Every Year, every two years)
1	Structural Damage		
2	Flooded Building	10 times/year (app)	Every heavy rainfall
3	Health and Safety		
4	Road Flooding	10 times/year (app)	Every heavy rainfall
5	Disruption of Revenue		
6	Parking Lot Flooding		
7	Nuisance Flooding		

Summary of Project Benefits (how much of the quantified damage is to be relieved and to what extent)
The house at 1515 McArthur and the adjacent street will have a sufficiently large swale and 2nd culvert under road to carry floodwaters.

Statement of Local Commitment (assurance that applicant has sufficient matching funds and staff capacity)
The city does have sufficient matching funds and staff capacity to accomplish the task.

Signature of Authorized Representative of the Cost Sharing Entity

Michael Hewitt

Spell Name Above

Requested Attachments:

1. Location Map
2. Detailed project Description
3. Detailed (per criteria) Statement on Benefits, including quantifiable benefits.
4. Statement of compliance with SMC policies, local plans and Ordinance
5. Other comments or supporting documents.

Applicant:
Project Title:

Statement of Compliance
This project will comply with all Lake County Stormwater Management Commission policies, local plans and ordinances, and applicable state and federal regulations.

Signature: _____

Printed Name: Michael Hewitt

Position: Director of Public Works

Date: 12/23/19

1515 MacArthur Drive Drainage Swale Location Map