



**CHRISTOPHER B. BURKE ENGINEERING, LTD.**

9575 W Higgins Road, Suite 600 Rosemont, Illinois 60018-4920 Tel (847) 823-0500 Fax (847) 823-0520

March 20, 2024

Lake County Stormwater Management Commission  
500 W Winchester Road,  
Suite 201,  
Libertyville, IL 60048

Attention: Mr. Kurt Woolford, PE – Executive Director

Subject: Stormwater Infrastructure Repair Fund (SIRF) Grant Application  
Indian Creek Stabilization at Indian Creek Road  
Village of Hawthorn Woods, IL  
(CBBEL Project 230536)

Dear Mr. Woolford

On behalf of the Village of Hawthorn Woods, Christopher B. Burke Engineering, Ltd. (CBBEL) is submitting an application for Stormwater Infrastructure Repair Funds (SIRF) for construction of streambank stabilization of Indian Creek adjacent to Indian Creek Road. The site location map is attached to this letter and photographs of the site are included in Attachment 1. There is a meander of Indian Creek at this location that has progressed to a point where it is threatening to undermine the roadway if it progresses further. The slope is approximately 1:1, which is unstable. This has created a safety hazard and threatens the integrity and long-term viability of the roadway. The Village is in the process of developing engineering plans for stabilization of 60 linear feet of the creek at this location.

The project is located within the Federal Emergency Management Agency (FEMA) regulatory floodplain and floodway of Indian Creek. It is also within Waters of the U.S. under the jurisdiction of the U.S. Army Corps of Engineers. Streambank stabilization is allowable under the Illinois Department of Natural Resources – Office of Water Resources (IDNR-OWR) Regional Permit #3 and the USACE Nationwide Permit program, and the Village intends to submit for and obtain all necessary permits.

The construction cost for the streambank stabilization is approximately \$98,000. It is estimated that if the roadway were to fail, the cost to reconstruct it would be \$196,000. Attached to this letter are the required attachments and application forms. If you've any questions, please call me at (847) 823-0500.

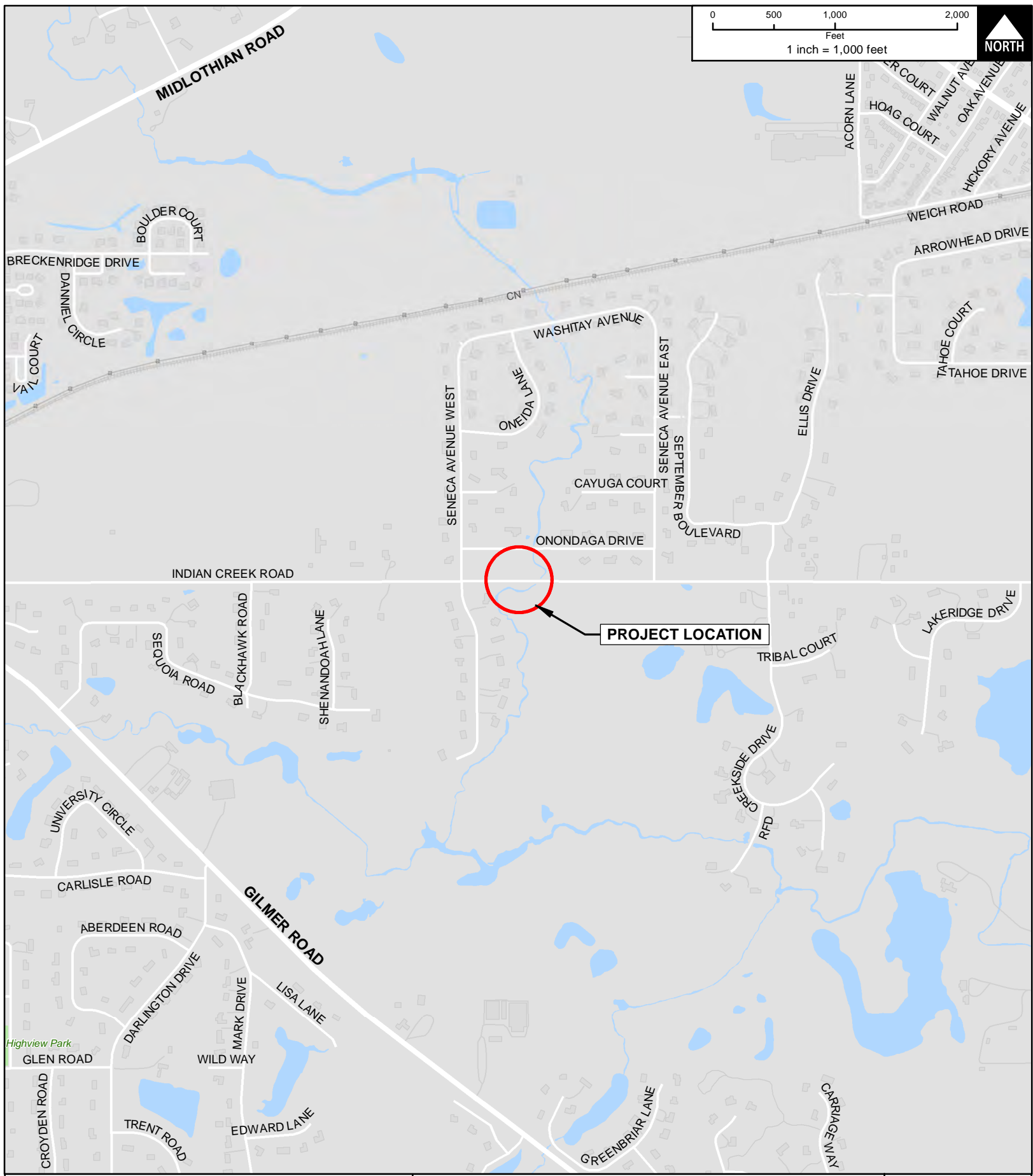
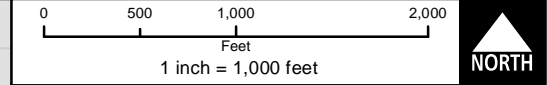
Sincerely,

A handwritten signature in dark ink that reads "Darren Olson".

Darren Olson, PE, D.WRE  
Vice President, Head Water Resources Department Head

Enclosures SIRF Funding Application Form and Attachments

cc: Pamela Newton – Chief Executive Officer – Hawthorn Woods  
Erika Frable, PE – Village Engineer/Public Works Director – Hawthorn Woods  
Lee Fell, PE - CBBEL



CLIENT:  **VILLAGE OF HAWTHORN WOODS**

TITLE: **PROJECT LOCATION MAP  
INDIAN CREEK STREAMBANK STABILIZATION**

PROJ. NO. 230536  
DATE: 02/19/2024  
SHEET 1 OF 1  
DRAWING NO.

 **CHRISTOPHER B. BURKE ENGINEERING, LTD.**  
9575 W. Higgins Road, Suite 600 · Rosemont, Illinois 60018 · (847) 823-0500

DSGN.		SCALE:	1:12,000
DWN.	DRW	AUTHOR:	DWALTERS
CHKD.		PLOT DATE:	3/20/2024
FILE:	Project Location Map for Streambank Stabilization		

**EXH 1**

**Attachment 1**  
**Site Photographs**



*Figure 1: Photographs of the Project Site*

**Attachment 2**  
**SIRF Application Form**

## 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 Hawthorn Woods	
Brief Project Title	Indian Creek Bank Stabilization	
General Location	Hairpin meander by the Indian Creek Road	
Contact Person	Erika Frable	
Address	35 Old McHenry Rd	
City, State Zip	Hawthorn Woods, IL, 60047	Phone (847) 540-5223

### Resource Request



SIRF Funds



SMC Staff Capacity



Combination Funds and Staff

Project Description (use additional sheets if necessary):

At approximately 250 feet west of the Indian Creek culvert is a hairpin meander that is severely eroding the roadway embankment and a portion of private property. This embankment is approximately 13 feet high, and the erosion extends +/-13 feet into the ROW. The erosion is +/-12 feet from the edge of pavement (EOP). The slope is approximately 1:1, which is unstable. To stabilize the streambank, the installation of gabion embankments is recommended. The project site falls within the regulatory floodplain and floodway of Indian Creek, as well as within Waters of the U.S. under the jurisdiction of the U.S. Army Corps of Engineers.

Among several potential design/material alternatives considered, Gabion baskets are selected as the preferred choice due to their anticipated long lifespan, ability to vegetate, installation flexibility adapting to site conditions, minimal maintenance needs, and cost-effectiveness. Currently, engineering plans are underway for stabilizing 60 linear feet stretch of the creek at this meander location. The height of gabion baskets will range from 7.5 feet above water at the west side to 1.5 feet at the east side. They will effectively minimize erosion and facilitate vegetation growth over time, promoting environmental restoration. Additionally, native prairie vegetation will be installed above the gabion baskets, further contributing to erosion control and enhancing biodiversity.

Cost Estimate	\$ 98,000	Applicant Share	\$ 49,000	SIRF Share	\$ 49,000
In-Kind Service Person Hours	0	Applicant		SMC	
In-Kind Service Description					
Project Timing	Start Date	September 2024	Completion Date	December 2024	

**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		
3	Health and Safety		
4	Road Flooding	Ongoing erosion	Ongoing erosion
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 Indian Creek Road is under the threat of failure due to the progression of an Indian Creek meander that is significantly eroding northward towards the roadway. The slope is approximately 1:1, which is unstable. Thus, streambank stabilization is recommended at this meander location. The project will minimize the risk of future embankment failure and improve the road resilience. The construction cost for the streambank stabilization is approximately \$98,000. It is estimated that if the roadway were to fail, the cost to reconstruct it would be \$196,000.

**Statement of Local Commitment (assurance that applicant has sufficient matching funds and staff capacity)**

The Village of Hawthorn Woods has sufficient funds to cost share this project with Lake County SMC. The Village is in the process of negotiating access with the property owner for construction of the improvements.

Signature of Authorized Representative of the Cost Sharing Entity

Erika Frable, PE

Spell Name Above

Requested Attachments:

1. Location Map (Included as Exhibit 1)
2. Detailed Project Description (Included on Page 1 of this Form)
3. Detailed (per criteria) Statement on Benefits, including quantifiable benefits. (Included on Page 2 of this Form)
4. Statement of compliance with SMC policies, local plans and Ordinance (Included in Cover Letter)
5. Other comments or supporting documents. (Included in Attachment 4)



**Attachment 3**  
**Estimated Construction Cost**

Christopher B. Burke Engineering, Ltd.  
 9575 W. Higgins Road Suite 600  
 Rosemont, IL 60018

Cal'd By: JEH (3/18/24)  
 Checked By: WBL (3/20/24)

Village of Hawthorn Woods  
 Indian Creek RCBC/Streambank Project  
 CBBEL PROJECT No. 23-0536  
 ENGINEER'S ESTIMATE  
 DATE: March 21, 2024

SPECIALTY ITEM	SPECIAL PROVISION	ITEM NO.	ITEM	UNIT	UNIT PRICE	EAST END (BASE BID)		WEST END		TOTAL PROJECT (ALTERNATE 1)	
						QUANTITY	TOTAL COST	QUANTITY	TOTAL COST	QUANTITY	TOTAL COST
		1	TREE REMOVAL	ACRE	\$ 100,000.00	0.04	\$ 4,000.00	0.02	\$ 2,000.00	0.06	\$ 6,000.00
		2	TOPSOIL FURNISH AND PLACE, 6"	SQ YD	\$ 6.00	750	\$ 4,500.00	0	\$ -	750	\$ 4,500.00
		3	SEEDING, CLASS 1	ACRE	\$ 2,000.00	0.15	\$ 300.00	0	\$ -	0	\$ 300.00
		4	EROSION CONTROL BLANKET	SQ YD	\$ 2.50	750	\$ 1,875.00	0	\$ -	750	\$ 1,875.00
		5	TEMPORARY EROSION CONTROL SEEDING	POUND	\$ 6.00	25	\$ 150.00	0	\$ -	25	\$ 150.00
~		6	STONE RIPRAP, CLASS A3	CU YD	\$ 55.00	5	\$ 275.00	0	\$ -	5	\$ 275.00
~		7	STONE RIPRAP, CLASS A4	CU YD	\$ 65.00	20	\$ 1,300.00	0	\$ -	20	\$ 1,300.00
~		8	GABIONS	CU YD	\$ 1,000.00	0	\$ -	70	\$ 70,000.00	70	\$ 70,000.00
		9	AGGREGATE BASE COURSE, TYPE B 6"	SQ YD	\$ 7.00	240	\$ 1,680.00	0	\$ -	240	\$ 1,680.00
		10	PAVEMENT REMOVAL	SQ YD	\$ 30.00	240	\$ 7,200.00	0	\$ -	240	\$ 7,200.00
		11	BITUMINOUS MATERIALS (TACK COAT)	POUND	\$ 1.00	170	\$ 170.00	0	\$ -	170	\$ 170.00
		12	HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N70	TON	\$ 115.00	120	\$ 13,800.00	0	\$ -	120	\$ 13,800.00
		13	HOT-MIX ASPHALT SURFACE COURSE, IL-9.5, MIX "D", N50	TON	\$ 105.00	30	\$ 3,150.00	0	\$ -	30	\$ 3,150.00
		14	CONCRETE HEADWALL REMOVAL	EACH	\$ 15,000.00	2	\$ 30,000.00	0	\$ -	2	\$ 30,000.00
		15	PIPE CULVERT REMOVAL	FOOT	\$ 200.00	38	\$ 7,600.00	0	\$ -	38	\$ 7,600.00
		16	PRECAST CONCRETE BOX CULVERTS 12' X 6'	FOOT	\$ 2,100.00	48	\$ 100,800.00	0	\$ -	48	\$ 100,800.00
~		17	STEEL PLATE BEAM GUARDRAIL, TYPE A	FOOT	\$ 50.00	340	\$ 17,000.00	0	\$ -	340	\$ 17,000.00
		18	STRONG POST GUARDRAIL ATTACHED TO CULVERT	FOOT	\$ 150.00	32	\$ 4,800.00	0	\$ -	32	\$ 4,800.00
		19	GUARDRAIL REMOVAL	FOOT	\$ 7.50	340	\$ 2,550.00	0	\$ -	340	\$ 2,550.00
		20	MOBILIZATION	LSUM	\$ 20,000.00	1	\$ 20,000.00	0.2	\$ 4,000.00	1.20	\$ 24,000.00
~		21	CHANGEABLE MESSAGE SIGN	CAL DA	\$ 50.00	60	\$ 3,000.00	0	\$ -	60	\$ 3,000.00
~		22	THERMOPLASTIC PAVEMENT MARKING - 4"	FOOT	\$ 2.50	225	\$ 562.50	0	\$ -	225	\$ 562.50
~		23	RAISED REFLECTIVE PAVEMENT MARKER	EACH	\$ 400.00	2	\$ 800.00	0	\$ -	2	\$ 800.00
		24	CHANNEL BANK FILL (SLOPE REPAIR)	CU YD	\$ 65.00	5	\$ 325.00	10	\$ 650.00	15	\$ 975.00
		25	CHANNEL BANK EXCAVATION	CU YD	\$ 30.00	0	\$ -	200	\$ 6,000.00	200	\$ 6,000.00
		26	RIPRAP BANK PROTECTION	TON	\$ 150.00	0	\$ -	10	\$ 1,500.00	10	\$ 1,500.00
		27	FLOATING SILT CURTAIN	FOOT	\$ 30.00	0	\$ -	80	\$ 2,400.00	80	\$ 2,400.00
		27	BANK STABILIZATION WITH EROSION CONTROL BLANKET	SQ YD	\$ 10.00	0	\$ -	200	\$ 2,000.00	200	\$ 2,000.00
		28	RAISED REFLECTIVE PAVEMENT MARKER REMOVAL	EACH	\$ 150.00	2	\$ 300.00	0	\$ -	2	\$ 300.00
~		29	POROUS GRANULAR EMBANKMENT	CU YD	\$ 50.00	230	\$ 11,500.00	0	\$ -	230	\$ 11,500.00
		30	STRUCTURE EXCAVATION	CU YD	\$ 60.00	530	\$ 31,800.00	0	\$ -	530	\$ 31,800.00
~		31	BOX CULVERT END SECTIONS, CULVERT NO. 1	EACH	\$ 16,800.00	2	\$ 33,600.00	0	\$ -	2	\$ 33,600.00
~	*	32	PRAIRIE SEEDING (SPECIAL)	ACRE	\$ 6,000.00	0.10	\$ 600.00	0.05	\$ 300.00	0.15	\$ 900.00
~	*	33	CONCRETE RIBBON REMOVAL AND REPLACEMENT	FOOT	\$ 45.00	200	\$ 9,000.00	0	\$ -	200	\$ 9,000.00
~	*	34	TEMPORARY BYPASS PUMPING SYSTEM	L SUM	\$ 5,000.00	1	\$ 5,000.00	0	\$ -	1	\$ 5,000.00
	*	35	TRAFFIC CONTROL AND PROTECTION, (SPECIAL)	LSUM	\$ 10,000.00	1	\$ 10,000.00	0.2	\$ 2,000.00	1.20	\$ 12,000.00
	*	36	CONSTRUCTION LAYOUT	LSUM	\$ 20,000.00	1	\$ 20,000.00	0.3	\$ 6,000.00	1.30	\$ 26,000.00
~	*	37	TEMPORARY INFORMATION SIGNING	SQ FT	\$ 10.00	120	\$ 1,200.00	0	\$ -	120	\$ 1,200.00
~	*	38	COFFERDAMS, SEDIMENT FILTER BAG AND DEWATERING	L SUM	\$ 25,000.00	1	\$ 25,000.00	0	\$ -	1	\$ 25,000.00
~	*	39	SILT FENCE	FOOT	\$ 5.00	100	\$ 500.00	175	\$ 875.00	275	\$ 1,375.00

~ INDICATES SPECIALTY ITEM

\* INDICATES SPECIAL PROVISION

CONSTRUCTION = \$ 374,337.50 CONSTRUCTION = \$ 97,725.00 CONSTRUCTION = \$ 472,062.50

Christopher B. Burke Engineering, Ltd.  
 9575 W. Higgins Road Suite 600  
 Rosemont, IL 60018

Cal'd By: JEH (3/21/24)  
 Checked By: LMF (3/21/24)

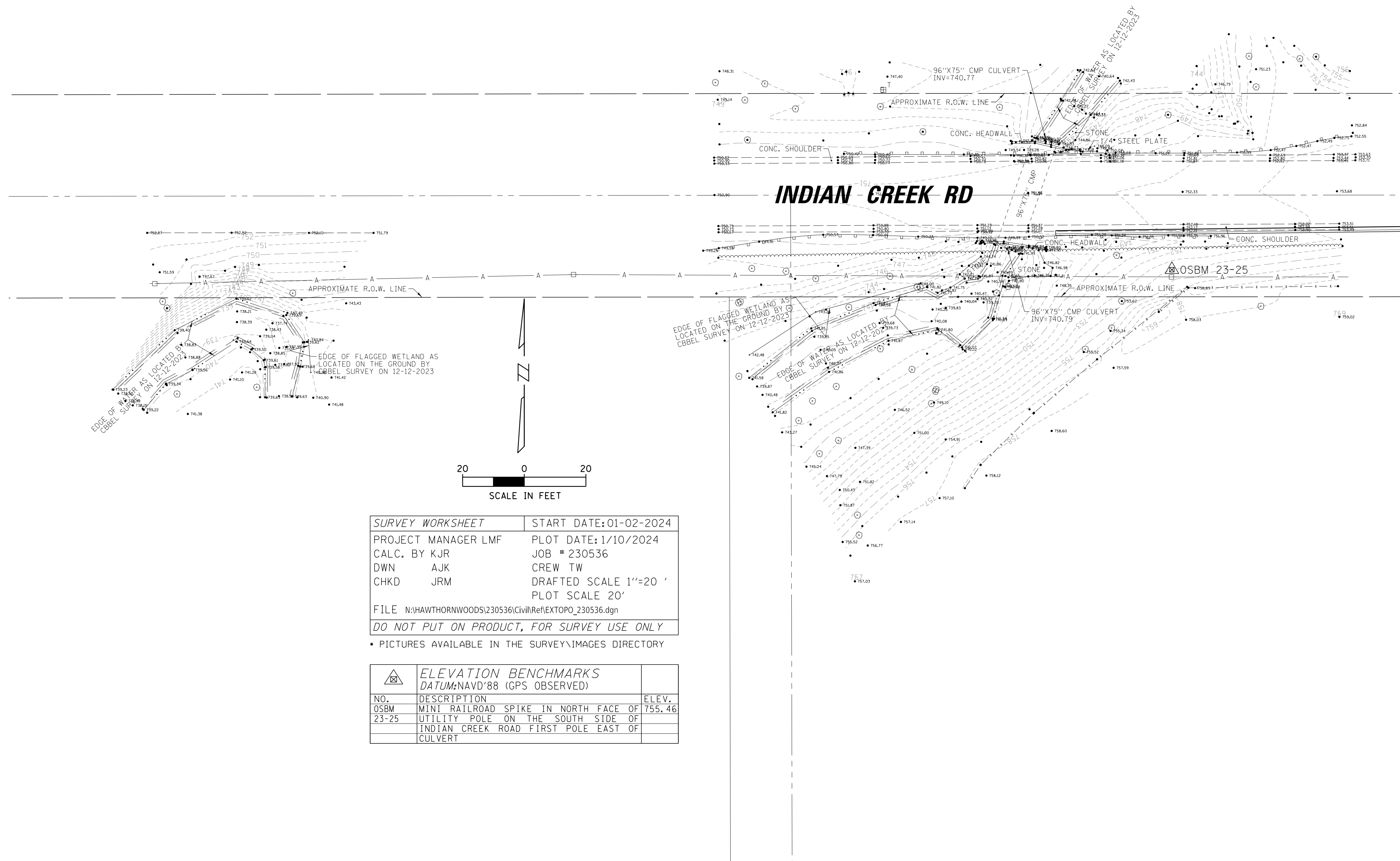
Village of Hawthorn Woods  
 Indian Creek Road Reconstruction - West Streambank Area  
 CBBEL PROJECT No. 23-0536  
 ENGINEER'S ESTIMATE  
 DATE: March 21, 2024

SPECIAL PROVISION	ITEM NO.	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL COST
	20201200	REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL	CU YD	\$ 200.00	18	\$ 3,600.00
	21001000	GEOTECHNICAL FABRIC FOR GROUND STABILIZATION	SQ YD	\$ 50.00	35	\$ 1,750.00
	21101615	TOPSOIL FURNISH AND PLACE, 4"	SQ YD	\$ 50.00	50	\$ 2,500.00
	25000110	SEEDING, CLASS 1A	ACRE	\$ 50,000.00	0.02	\$ 1,000.00
*	30300001	AGGREGATE SUBGRADE IMPROVEMENT	CU YD	\$ 250.00	18	\$ 4,500.00
	35101800	AGGREGATE BASE COURSE, TYPE B 6"	SQ YD	\$ 25.00	350	\$ 8,750.00
	35102400	AGGREGATE BASE COURSE, TYPE B 12"	SQ YD	\$ 25.00	175	\$ 4,375.00
	35800100	PREPARATION OF BASE	SQ YD	\$ 10.00	350	\$ 3,500.00
	35800200	AGGREGATE BASE REPAIR	TON	\$ 60.00	265	\$ 15,900.00
	40600290	BITUMINOUS MATERIALS (TACK COAT)	POUND	\$ 5.00	240	\$ 1,200.00
	40600982	HOT-MIX ASPHALT SURFACE REMOVAL - BUTT JOINT	SQ YD	\$ 20.00	75	\$ 1,500.00
	40603085	HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N70	TON	\$ 130.00	160	\$ 20,800.00
	40604060	HOT-MIX ASPHALT SURFACE COURSE, IL-9.5, MIX "D", N50	TON	\$ 130.00	40	\$ 5,200.00
	44000100	PAVEMENT REMOVAL	SQ YD	\$ 50.00	350	\$ 17,500.00
	70107025	CHANGEABLE MESSAGE SIGN	CAL DA	\$ 50.00	30	\$ 1,500.00
	78000200	THERMOPLASTIC PAVEMENT MARKING - LINE 4"	FOOT	\$ 10.00	400	\$ 4,000.00
	78100100	RAISED REFLECTIVE PAVEMENT MARKER	EACH	\$ 200.00	4	\$ 800.00
	78300200	RAISED REFLECTIVE PAVEMENT MARKER REMOVAL	EACH	\$ 20.00	4	\$ 80.00
	*XX007979	CONCRETE RIBBON REMOVAL AND REPLACEMENT	FOOT	\$ 100.00	200	\$ 20,000.00
*	X4023000	TEMPORARY ACCESS (ROAD)	EACH	\$ 2,500.00	2	\$ 5,000.00
*	X7010216	TRAFFIC CONTROL AND PROTECTION, (SPECIAL)	L SUM	\$ 5,000.00	1	\$ 5,000.00
*	Z0013798	CONSTRUCTION LAYOUT	L SUM	\$ 10,000.00	1	\$ 10,000.00

\* INDICATES SPECIAL PROVISION

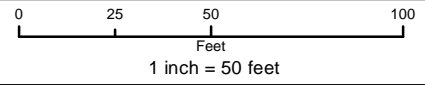
**CONSTRUCTION TOTAL = \$ 138,455.00**  
**CONTINGENCY (20%) = \$ 27,691.00**  
  
**DESIGN ENGINEERING = \$ 15,000.00**  
**CONSTRUCTION ENGINEERING = \$ 15,000.00**  
  
**PROJECT TOTAL = \$ 196,146.00**

**Attachment 4**  
**Supporting Documentation**



<i>SURVEY WORKSHEET</i>	START DATE: 01-02-2024
PROJECT MANAGER LMF	PLOT DATE: 1/10/2024
CALC. BY KJR	JOB # 230536
DWN AJK	CREW TW
CHKD JRM	DRAFTED SCALE 1"=20'
	PLOT SCALE 20'
FILE N:\HAWTHORNWOODS\230536\Civil\Ref\EXT\PO_230536.dgn	
<i>DO NOT PUT ON PRODUCT, FOR SURVEY USE ONLY</i>	
• PICTURES AVAILABLE IN THE SURVEY\IMAGES DIRECTORY	

<i>ELEVATION BENCHMARKS</i> DATUM: NAVD'88 (GPS OBSERVED)		
NO.	DESCRIPTION	ELEV.
OSBM 23-25	MINI RAILROAD SPIKE IN NORTH FACE OF UTILITY POLE ON THE SOUTH SIDE OF INDIAN CREEK ROAD FIRST POLE EAST OF CULVERT	755.46



ONONDAGA DRIVE

INDIAN CREEK ROAD

PROJECT SITE

**Legend**

HECRAS Cross-Sections

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



VILLAGE OF  
HAWTHORN WOODS

TITLE:  
**HEC-RAS CROSS SECTIONS  
INDIAN CREEK STREAMBANK STABILIZATION**

PROJ. NO. 230536  
DATE: 03/21/2024  
SHEET 1 OF 1  
DRAWING NO.

**CHRISTOPHER B. BURKE ENGINEERING, LTD.**  
9575 W. Higgins Road, Suite 600 · Rosemont, Illinois 60018 · (847) 823-0500

DSGN.		SCALE:	1:600
DWN.	RP	AUTHOR:	RP
CHKD.		PLOT DATE:	3/21/2024
FILE:	Workmap		

**EXH 2**

Profile Output Table 1

HEC-RAS Plan: EC River: Indian Creek Reach 0:

# Rivers = 1  
 # Hydraulic Reaches = 1  
 # River Stations = 8  
 # Plans = 1  
 # Profiles = 5

Reach	River Station	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Cr
Reach01	6	10-Yr	60	741.19	744.23		744.24	0.000774	0.65	91.83	44.86	0.08
Reach01	6	50-yr	102	741.19	745.01		745.02	0.000812	0.8	127.39	47.15	0.09
Reach01	6	100-Yr	121	741.19	745.33		745.34	0.000808	0.85	142.65	48.09	0.09
Reach01	6	500-Yr	165	741.19	746.01		746.03	0.000789	0.94	176.37	50.12	0.09
Reach01	6	100-yr SS	514	741.19	751.22		751.24	0.000328	1	573.98	127.57	0.06
Reach01	5	10-Yr	60	741.27	743.8		743.84	0.008136	1.53	39.15	30.37	0.24
Reach01	5	50-yr	102	741.27	744.58		744.62	0.004801	1.58	66.58	40.8	0.2
Reach01	5	100-Yr	121	741.27	744.92		744.96	0.003882	1.57	81.18	45.89	0.18
Reach01	5	500-Yr	165	741.27	745.65		745.68	0.002565	1.53	117.14	52.07	0.15
Reach01	5	100-yr SS	514	741.27	751.16		751.17	0.000173	0.79	889.13	245.06	0.05
Reach01	4	10-Yr	60	740.77	743.32	742.74	743.59	0.052579	4.18	14.36	8.63	0.57
Reach01	4	50-yr	102	740.77	744.09	743.28	744.45	0.046796	4.82	21.16	9.29	0.55
Reach01	4	100-Yr	121	740.77	744.41	743.49	744.81	0.04475	5.04	24.02	9.54	0.54
Reach01	4	500-Yr	165	740.77	745.11	743.9	745.56	0.044441	5.42	30.44	13.18	0.55
Reach01	4	100-yr SS	514	740.77	751.08	746.41	751.16	0.002892	2.55	313.33	246.32	0.16
Reach01	3.5	Culvert										
Reach01	3	10-Yr	60	740.88	742.88	742.7	743.3	0.043283	5.26	12.19	10.42	0.79
Reach01	3	50-yr	102	740.88	743.19	743.18	743.99	0.062194	7.23	15.32	11.26	0.98
Reach01	3	100-Yr	121	740.88	743.38	743.38	744.28	0.060471	7.66	17.26	11.79	0.98
Reach01	3	500-Yr	165	740.88	743.8	743.8	744.9	0.057256	8.51	21.38	12.91	0.99
Reach01	3	100-yr SS	514	740.88	746.29	746.29	748.63	0.046304	12.48	46.25	18.29	1
Reach01	2	10-Yr	60	739.9	742.26		742.31	0.005198	1.8	33.7	28.21	0.28
Reach01	2	50-yr	102	739.9	742.76		742.83	0.004902	2.17	49.45	34.17	0.28
Reach01	2	100-Yr	121	739.9	742.93		743.01	0.005039	2.33	55.36	36.15	0.29
Reach01	2	500-Yr	165	739.9	743.31		743.41	0.004897	2.58	69.7	39.04	0.29
Reach01	2	100-yr SS	514	739.9	745.4		745.57	0.004094	3.59	165.29	52.52	0.3
Reach01	1	10-Yr	60	739.79	741.6		741.72	0.016044	2.79	21.47	19.4	0.47
Reach01	1	50-yr	102	739.79	742.15		742.3	0.013564	3.12	32.71	21.93	0.45
Reach01	1	100-Yr	121	739.79	742.27		742.45	0.015096	3.41	35.49	22.52	0.48
Reach01	1	500-Yr	165	739.79	742.64		742.86	0.015182	3.75	44	24.22	0.49
Reach01	1	100-yr SS	514	739.79	744.73	743.27	745.11	0.011556	4.97	104.72	33.77	0.47
Reach01	0	10-Yr	60	738.32	740.74	739.67	740.79	0.004388	1.72	34.96	24.74	0.25
Reach01	0	50-yr	102	738.32	741.19	740	741.26	0.005297	2.18	47.33	33.69	0.29
Reach01	0	100-Yr	121	738.32	741.69	740.12	741.75	0.003017	1.95	68.94	52.76	0.23
Reach01	0	500-Yr	165	738.32	742.19	740.38	742.25	0.002445	2	99.49	65.47	0.21
Reach01	0	100-yr SS	514	738.32	741.89	741.89	742.69	0.039169	7.41	80.06	60.27	0.83

IndianCreek Plan: Existing Condition 3/8/2024  
 River = Indian Creek Reach = Reach01 RS = 0 Cross Section at the bend

