

Section 401 Water Quality Certification

November 4, 2022

- (9) Contain the following statement: The project proponent hereby requests that the certifying authority review and take action on this CWA 401 certification request within the applicable reasonable period of time.

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Pursuant to 35 Illinois Administrative Code (IAC) Section 302.105, an antidegradation assessment must be completed for each new pollutant discharge to determine if the discharge will meet applicable water quality requirements. The applicant must provide, to the extent necessary, the following information in compliance with 35 IAC 302.105(f)(1):

- (1) Sufficient information to understand the scope of impacts to the environment in accordance with 35 IAC 302.105(f)(1)(E). Describe the purpose of the project and provide full descriptions of all work and activities that will impact the stream to include flow diversion, temporary work structures, planned vegetation removal, quantities and descriptions for all fill materials to include scour protection and cut and fill quantities for stream channel alterations. Provide plans, maps, diagrams or engineering drawings of appropriate details to show these activities.

Project Purpose:

The [REDACTED] project strives to develop and enhance habitat that will benefit benthic macroinvertebrates, fish and mussels that will move aquatic assemblage IBIs towards meeting the aquatic life designated use. The proposed restoration plan involves improvements along 1,700 feet of Klein Creek between Mitchell Lakes and Illini Drive and includes both banks through the entire reach. The proposed improvements will reduce channelization through remeandering portions of the reach to increase sinuosity, stabilize the streambanks, and create habitat for aquatic and terrestrial species.

Restoration Practices:

The additional proposed actions improvements include:

- Remeandering 906 linear feet of Klein Creek resulting in an increase of 105 linear feet. The total area of stream remeandering is 0.42 acre.
- 3,065 linear feet of streambank stabilization with vegetated rock toe (cobble placed along the toe of the bank planted with native plant plugs). 1,528 linear feet of the 3,065 linear feet (~50%) is within sections that are remeandered. 361 linear feet (~12%) of the vegetated rock toe will also have a gravity block retaining wall behind it (the area in front of the walls will still be stabilized with vegetated rock toe)
- 2 rock substrate areas (riffles) totaling 2,940 square feet
- 3 rock outlet protection areas at existing storm sewer outfalls with a total area of 339 square feet
- 1.64 acres of wetland creation including construction of a 0.46 acre wetland shelf along the western bank of Mitchell Lakes
- 1.88 acres of riparian and buffer restoration
- Realignment of the existing Mitchell Lake Outfall with new structure

Flow Diversion & Temporary Work Structures:

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The work area will be isolated by means of non-erodible coffer dams at the Mitchell Lakes outfall, the Library Bridge and Illini Drive. The bypass pumping and filtration system is detailed in the plan set. The coffer and bypass system is designed to bypass normal events.

A license agreement

allows for the Contractor to bypass flow in Klein Creek utilizing DPCSM's Armstrong Park Flood Control Reservoir ("Reservoir"). As shown on the Plans, the Contractor shall construct cofferdams, manually operate a flap gate, provide and operate "plugs", pumps, hoses, and appurtenances to pump water from Lake George to the Reservoir's upper basin. The Contractor will operate their bypass pumps only during working hours. Outside working hours the Contractor will utilize the existing storage in Lake George and Mitchell Lakes to temporarily store the flow when not operating the bypass pumps.

The Contractor shall "plug" the storm sewer that connects Lake George with the Reservoir's lower basin. This "plug" is intended to isolate the Reservoir's lower basin in order to avoid exposing the vegetation to prolonged periods of elevated water levels. The Contractor shall design said "plug" so it can be removed and reinstalled when submerged under low head conditions. In cooperation with the Village and DPCSM, the "plug" may be removed to maintain proper water levels in the Reservoir's lower basin for the existing vegetation. It may also be removed during and/or after significant storm events in order to drawdown the water levels in Lake George and Mitchell Lakes. The DPCSM will continue to operate the outflow gates in the Reservoir's upper basin per their normal operational procedures.

The trigger elevation for the Reservoir to begin pumping from the lower basin into the upper basin is 744.20. According to the Illini logger, one storm event exceeded this elevation between the months of March and November 2020. At this elevation, the Village estimates the flow rate in Klein Creek to be 120 cubic-feet-per-second (54,000 gallons-per-minute).

Materials will be temporarily stored on site in the staging areas outlined in the plans. All disturbed areas will be planted with native deep-rooted vegetation and stabilized with erosion control blanket following completion of soil disturbing activity in that area.

Planned Vegetation Removal/Restoration:

Additional area enhancements include removal of non-native invasive species along the banks of the creek and creating both floodplain terraces and wetlands to allow the stream to access these areas more frequently. In some areas the banks will be lowered to just above the normal water elevation to create a floodplain terrace. Hummocks and hollows will be created within these areas to increase the residence time of stormwater runoff and create habitat through interspersed vegetation zones. These areas will be vegetated with native wetland/riparian vegetation as shown on the plans.

- (2) Stream assessment and/or wetland delineation in accordance with 302.105(f)(1)(A). A physical, biological, and chemical characterization of the impacted waterbody is required to provide an assessment of the waterbody's uses that would be impacted or removed by the proposed activity.
 - a. For streams, a full characterization will not be required if the stream has already been assessed in accordance with Illinois EPA stream assessment protocols and is present on the

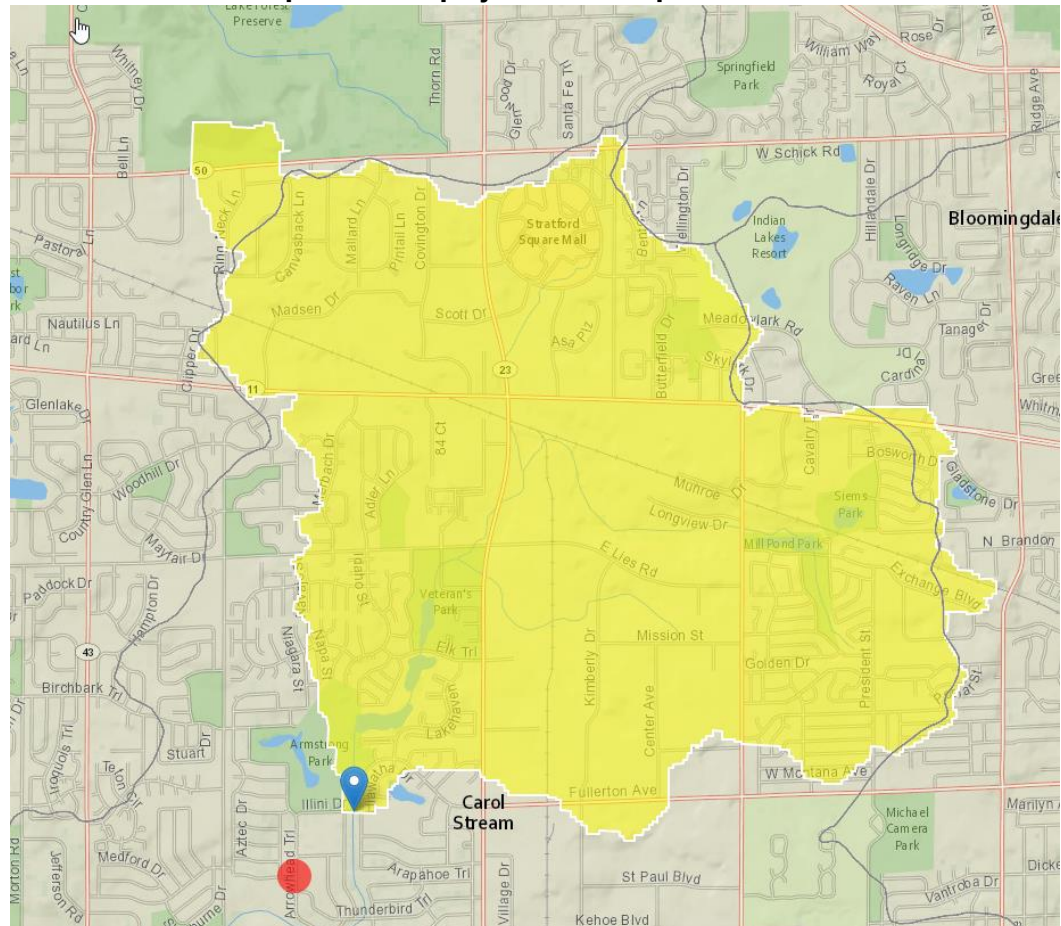
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Illinois EPA's 305(b) Integrated Water Quality Report or substantial evidence is available that demonstrates that the stream channel impacted by the activity is not capable of sustained aquatic life because of insufficient hydrology. Such demonstration must consist of the following:

- (i) a delineation of the watershed area in square miles that is tributary to the subject stream at the point of furthest downstream impacts to the stream channel. StreamStats [<https://streamstats.usgs.gov/ss/>] may be used for this requirement. **The watershed area at the furthest downstream point of the project is 5.35 square miles.**

- (ii) survey of the stream corridor to document the absence of persistent sources of hydrology such as springs, groundwater fed pools, field tiles, etc. which allow for sustained aquatic life. Note, at a minimum the application shall provide a physical characterization of the streambanks, substrate and watershed tributary to the downstream reach of the impact area. **The stream has been surveyed. The plans include the stream profile as well as cross sections every 50'. Storm sewer outfalls have been identified. The stream substrate consists of sand and gravel with little cobble. The banks are eroded and are typically 1-2' high and have overhanging roots. The watershed area at the furthest downstream point of the project is 5.35 square miles.**



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- b. For wetlands, a delineation conducted by a wetland biologist that includes a floristic quality index of vegetation is required.

A wetland delineation report has been attached. Impacts to wetlands are not proposed.

- (3) A detailed description and quantification of all proposed unavoidable impacts to the waterbody including lost aquatic habitat, lost function, and pollutant parameters for which there may be a new or increased pollutant loading (e.g. TSS, ammonia (as N)) in accordance with 302.105(f)(1)(B). Describe all potential effects on the water quality of downstream waters as a result of the project including short term and long term. Additionally, provide a discussion of how the proposed impacts will or may affect the waterbody in the long term.

The project will reduce channelization through re-meandering portions of the reach to increase sinuosity. The project strives to improve aquatic habitat and stream functions through developing and enhancing habitat that will benefit benthic macroinvertebrates, fish and mussels that will move aquatic assemblage IBIs towards meeting the aquatic life designated use while decreasing pollutant loading through bank stabilization and restoration with native deep-rooted vegetation.

The banks will be stabilized with cobble to reduce the current erosion occurring along the banks. This will reduce Total Suspended Solids from entering the stream and improve water quality downstream.

The two rock substrate areas will be constructed consisting of coarse gravel and cobble placed in the bed of the stream within constricted cross sections. The target is to accelerate water column velocity over these substrates to improve aeration and thus dissolved oxygen. In addition, these rock substrate areas will aggrade new sands and small gravel to the design matrix of gravel, cobble and boulders and create new stream habitat currently absent within the site. This new habitat shall serve to attract and sustain certain benthic macroinvertebrates, fish, and mussel species also scarce or absent within the reach.

Habitat wood will be placed within backwater habitat areas. These wood structures will further improve DO and markedly increase the niche food web of bacteria, zooplankton and phytoplankton associated with such "wood debris". The submerged woody material is designed to increase the habitat complexity within the stream reach. The woody material will also increase the capacity to capture and assimilate the "allochthonous carbon sources." These will then be processed along with TSS loads by metabolic pathways of the enhanced magnitude of the aquatic food web supporting greater diversity and abundance of aquatic life.

Additional area enhancements include removal of non-native invasive species along the banks of the creek and creating both floodplain terraces and wetlands to allow the river to access the floodplain areas more frequently. In some areas the banks will be lowered to just above the normal water elevation to create a floodplain terrace. Hummocks and hollows will be created within these areas to increase the residence time of stormwater runoff and create habitat through interspersed vegetation zones. These areas will be vegetated with native wetland/riparian vegetation.

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- (4) A discussion of the socio-economic benefits provided by the proposed project in accordance with 302.105(f)(1)(C) and 302.105(c)(2)(B)(iv).

The project will enhance access to the Public Library through improvements to the trail system surrounding Mitchell Lakes. Currently there is a sidewalk on private property that the public uses to access the library from the north. This sidewalk ends at the library property and then turns into a gravel path which is not ADA compliant. The project will improve the safety of the path over the Mitchell Lakes outfall and connect the area north of the library to the path within Armstrong Park on Public Property. The public will then be able to access the library from the existing bridge over Klein Creek to the front of the library. Additionally, the public will have safer access to the water for recreational fishing through an outcropping along the Mitchell Lake shoreline. Finally, an overlook will be created near the library where the Village and Library will coordinate on the installation of educational signage.

- (5) An assessment of the alternatives to the proposed project that result in a reduced pollutant load to the water body, no load increase or minimal environmental degradation in accordance with 302.105(f)(1)(D). The alternatives assessment must consider alternative project locations, minimized or avoided impacts, and a no action alternative.

The proposed project will reduce pollutant loading within Klein Creek. The material being discharged consists of clean cobble, sand and gravel for the purpose of restoring the creek to a more natural system and stabilizing the banks reducing sediment from entering the creek. Alternate project locations and a no action alternative are not possible as this type of restoration must occur within the stream.

- (6) A discussion of how the proposed plan incorporates all technically and economically reasonable measures to avoid or minimize the extent of the proposed increase in pollutant loading in accordance with 302.105(c)(2)(B)(iii).

The proposed project will reduce pollutant loading within Klein Creek. An extensive stream bypass plan has been prepared to avoid pollutant loading during construction. Following construction, the habitat and stream functions will be improved, and pollutant loading will be decreased.

- (7) A compensatory mitigation plan that demonstrates that existing uses are protected in accordance with 302.105(a), 302.105(c)(2)(B)(ii) and 302.105(f)(1)(E). For all unavoidable impact to aquatic impacts, describe the plan that will be implemented to compensate for lost aquatic habitat.

The project will not result in the deterioration of the existing aquatic community, such as a shift from a community of predominantly pollutant-sensitive species to pollutant-tolerant species or a loss of species diversity. The project seeks to improve the aquatic community through enhancement of habitat and restoration of the currently degraded plant community.

The project will not result in a loss of a resident or indigenous species whose presence is necessary to sustain commercial or recreational activities.

The project will not preclude continued use of a surface water body or water body segment for a public water supply or for recreational or commercial fishing, swimming, paddling or boating. The stream is not used for boating or swimming as the water depths are not too

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shallow to paddle or swim. The stream is not used for commercial fishing. Recreation fishing will be enhanced by the project through improved habitat and access along Mitchell Lakes.

- 1) Soil erosion and sediment control plan in accordance with 302.105(f)(1)(E). Please indicate the temporary and permanent vegetation or stabilization measures that will be used to minimize erosion of the work site and the finished project. Please specify the amount and types of seeding or plantings that will be used.

A Stormwater Pollution Prevention Plan and Planting Plan has been included in the Plan Set. All disturbed areas will be permanent seeded with Native Deep-Rooted Vegetation and stabilized with 100% Biodegradable Erosion Control Blanket. The acreage of each seed mix and quantity of plugs, trees & shrubs are as follows:

SEED & BLANKET - UPLAND PRAIRIE / MEADOW MIX	ACRE	1.5
SEED & BLANKET - OPEN RIPARIAN MIX	ACRE	0.32
SEED & BLANKET - SEDGE MEADOW MIX	ACRE	0.80
SEED & BLANKET - SHALLOW EMERGENT MIX	ACRE	0.84
SEED & BLANKET - ECONOMY PRAIRIE SEED MIX	ACRE	1.22
PLUGS - SEDGE MEADOW	EACH	8750
PLUGS - SEDGE MEADOW (SUPPLEMENTAL)	EACH	900
PLUGS - SHALLOW EMERGENT	EACH	1000
PLUGS - RIVER	EACH	3050
PLUGS - RIVER (SUPPLEMENTAL)	EACH	350
NATIVE TREES	EACH	30
NATIVE SHRUBS	EACH	90

- 2) Provide all correspondence submitted and received as part of a threatened and endangered species consultation with the Illinois Department of Natural Resources in accordance with 302.105(f)(1)(F). Consultation may be initiated using the EcoCAT web tool found at [<https://dnr2.illinois.gov/EcoPublic/>]. When using this tool, please indicate the Illinois Environmental Protection Agency as the government unit (state agency).

Consultation applied for on September 19, 2022 and received on September 20, 2022. Please see attached.