



GREEN INFRASTRUCTURE PROGRAM
REQUEST FOR PROPOSAL

BENTONVILLE NEIGHBORHOODS DRAINAGE STUDY
&
GI DEMONSTRATION RETROFITS

BACKGROUND

Overview

Little Osage Creek, a tributary to the Illinois River, receives stormwater runoff from Bentonville, Centerton, Highfill, and Healing Springs, and flows through one of the most rapidly urbanizing sub-basins in the watershed. It is also on ADEQ's 2018 303(d) list—impaired for pathogens. Rapid suburban development and increased intense rain events are driving more frequent flash flooding and causing significant erosion throughout the system. Improving water quality in Little Osage Creek is a priority for the Illinois River Watershed Partnership (IRWP). Working with the City of Bentonville, IRWP identified neighborhoods with city-owned detention basins as candidates for retrofits that could be used as demonstration sites for low impact development (LID) or green infrastructure (GI) retrofits. IRWP selected these projects from a neighborhood that participated in the “Blue Neighborhoods” stormwater education program. Projects were selected that would address nonpoint source pollution and potentially downstream flooding concerns.

Eden's Brooke is a highly impervious neighborhood in Bentonville. The only green space in this neighborhood is this city-owned detention pond next to a pavilion that will need to be rebuilt soon. This detention pond has been an eyesore for neighbors and is a host for mosquitoes due to an error in the grade of the pond bottom. Currently, the detention pond is vegetated with cattails and collects neighborhood trash. The neighborhoods are connected by a network of city-owned, city-maintained detention basins, ditches, trapezoidal concrete channels, ponds, and natural stream channels (Figure 1). The Oxford Ridge detention basin is designed to pass most small storms through without treatment, and could likely provide more water quality improvement and capture volume with changes to its outlet structure. Residents on SW Spruce and SW Pine experience worrisome flooding in their backyards during heavy rain events.



Figure 1. Example of existing stormwater infrastructure at Eden's Brooke and Oxford Ridge. Eden's Brooke and Oxford Ridge stormwater system (City of Bentonville Master Map).

Prioritization

In 2021, IRWP developed an index for ranking the relative stormwater impact of 442 subdivisions in Bentonville through our Blue Cities Blue Neighborhoods Program to guide our outreach to residents and to prioritize implementation of LID strategies. Factors in the index include the total area, slope, number of residences, and flow accumulation. The number 1 ranked subdivision would be considered the highest priority for improved stormwater control measures, and the 442nd ranked would be the lowest. Employing the Blue Neighborhoods index, Eden's Brooke is ranked 129th and Oxford Ridge is ranked 13th out of 442 neighborhoods for improved stormwater management.

In 2022, IRWP developed an index to prioritize areas across the watershed in greatest need of improvement through green infrastructure (Figure 2). Variables included average slope, average percent imperviousness, presence within municipal boundaries, condition of parcel ownership, and presence within the catchment area of a category 5 or 5a stream or waterbody included in the Arkansas 303(d) Impaired Waterbodies List (2020 draft). If land intersected with an impaired catchment area, it was further prioritized based on the percent imperviousness of the catchment and the proximity to the listed stream. Rankings were weighted by parameter and separated by quantile into highest, high, medium, low, and lowest priority groups. Both Oxford Ridge and Eden's Brooke are of highest priority for green infrastructure implementation through the GI priority index.

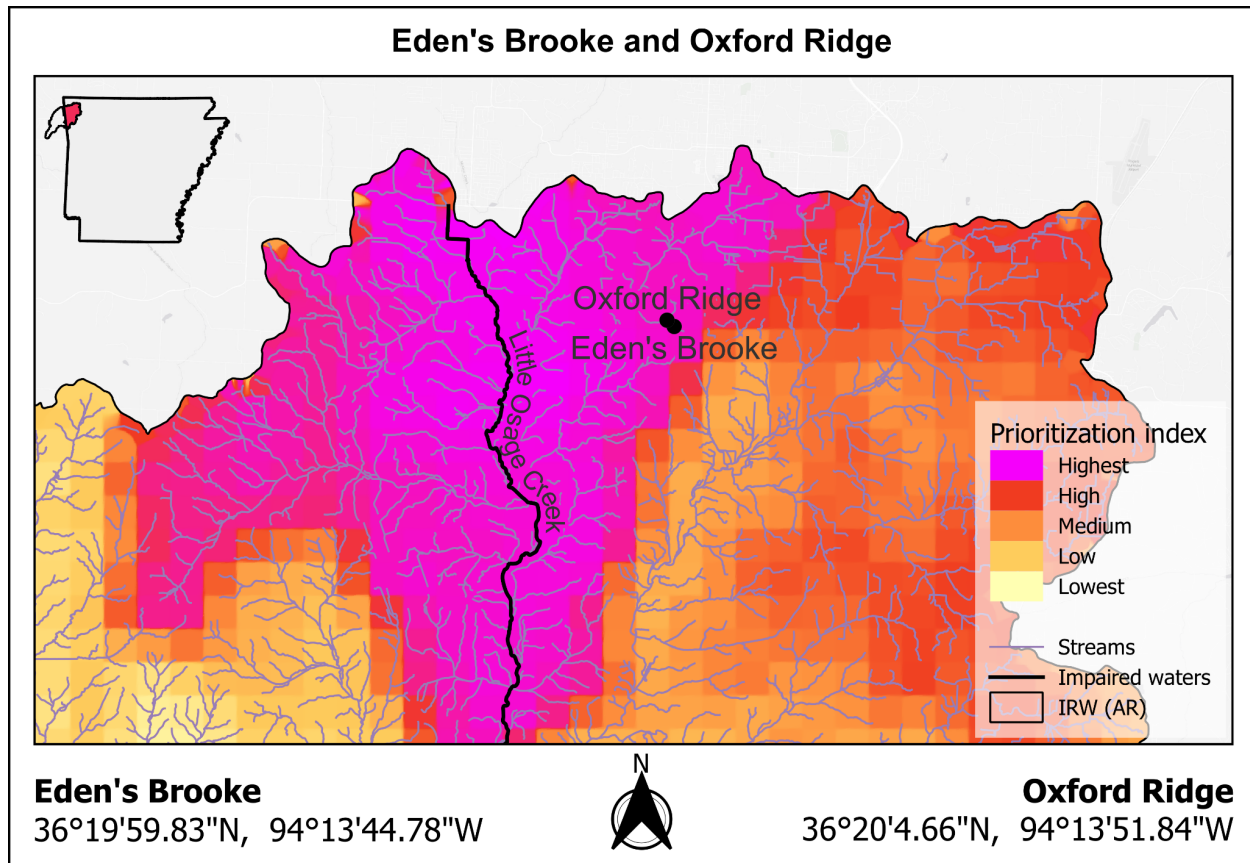


Figure 2. Location of Eden's Brooke and Oxford Ridge within highest priority areas.

PROPOSALS

IRWP is requesting two proposals for the design of these described detention ponds.

Proposal 1

Part I. Drainage Study

It is our opinion that a drainage study will need to be conducted due to consistent trickling flow entering the Eden's Brooke detention pond that flows downstream into the Oxford Ridge detention basin. However, IRWP will rely on your expertise to determine the necessity of a drainage study.

Part II. Eden's Brooke Pond Retrofit

Depending upon the results of the drainage study, IRWP would like to re-design the pond at Eden's Brooke to remediate pollutants through the addition of native plants, wetland species, or bioretention media. Ideally, designs will include elements such as a sediment forebay, replacing the concrete-lined trickle channel with a more natural and sinuous flow path, and a modified outlet structure that will retain water from smaller rain events (Figure 3). However, IRWP is open to creative proposals that explore other green infrastructure or low impact development practices.

IRWP's goal with this neighborhood project is to demonstrate how detention/retention ponds can be aesthetically pleasing while also mitigating nonpoint source pollutants and urban runoff. These recommendations that came out of IRWP's neighborhood meeting with Eden's Brooke would give the neighborhood a much needed green space and be a hub for learning about urban stormwater practices that we hope more neighbors become accustomed to seeing. Community partners and the HOA are willing to support aspects of this project.

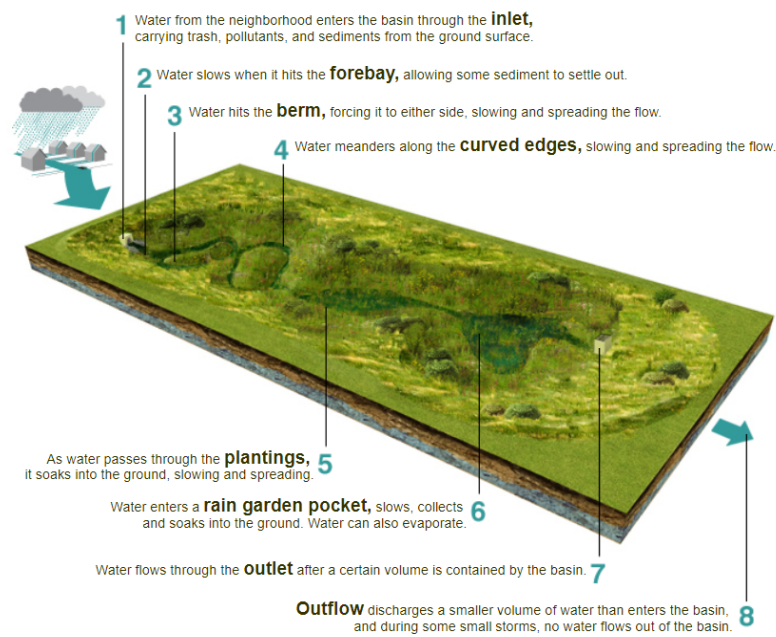


Figure 3. Example of desired components of detention pond retrofit (Stormwater PA).

Proposal 2

Part III. Oxford Ridge Outlet & Channel Retrofit

Working with the city, this pond retrofit would demonstrate practices that do not employ revegetation to provide stormwater benefits. IRWP is seeking proposals that include a new outlet structure and a sinuous trickle channel that will allow for sediment to drop out before reaching the natural channel downstream of the pond.

DELIVERABLES

1. QUOTATION for cost of performing the work described. Proposals will demonstrate the special qualifications and technical skill of the firm. IRWP will be provided with the project milestones and costs associated with the conceptual design, 30%, 60%, and 90% design plans.
2. PROPOSED METHOD OF DOING WORK. A proposed work plan (description of how the project would be conducted as well as other factors concerning approach to scope you wish to present) indicating methods and schedules for tasks outlined in the proposals. Conceptual sketches are encouraged but not required.
3. QUALIFICATIONS in relation to the project. Indicate specialized experience and technical competence of your firm in connection with civil engineering, stormwater management, ecologically vibrant landscapes, and low impact development. Include experience, competence, capacity for performance, and information reflecting the names, titles, and qualifications of the major personnel assigned to this specific project.
4. FIRM SELECTION. The firm will be selected based on the proposed method of work. Past performance or design on previous projects will also be considered, including quality of work, timely performance, diligence, ability to meet past budgets, and any other pertinent information. The firm will provide a list of similar jobs performed and client contacts from whom IRWP can obtain information.

DEADLINES

1. Questions regarding the proposals must be submitted by Friday, July 14, 2023. Please submit your questions by email to Holly Wren (holly@irwp.org). All questions and answers will be posted online/distributed to those engaged in proposals by July 21, 2023.
2. Quotations should be submitted to IRWP Project Manager, Holly Wren, by email (holly@irwp.org) no later than Friday, August 4, 2023.

CONTACT

Please direct all questions to Holly Wren.

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