Buffalo River Area of Concern: Habitat Restoration Optimization and Adaptive Management

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Background/Objectives. Remediation and restoration within the Buffalo River Area of Concern was implemented through a Great Lakes Legacy Act Project Agreement between the U.S. Environmental Protection Agency Great Lakes National Program Office (GLNPO); the sole non-federal sponsor, Honeywell International Inc. (Honeywell); and Buffalo Niagara Waterkeeper. Construction contracting for remediation and restoration was initially released through the GLNPO Construction Services II contracting mechanism and split into three primary work scopes including dredging and disposal, capping, and habitat restoration. During bid review and cost negotiations with potential contractors, it was determined that construction costs for capping and habitat restoration scopes were materially above budgetary control estimates and limited the potential for implementation under the existing project agreement and reserved funding. In order to implement the work, Honeywell took the lead for contracting the capping and habitat restoration scopes and performed optimization and value engineering redesign of the work while keeping restoration goals within original targets.

Approach/Activities. Original project designs were evaluated for cost, complexity, risk, and value to determine where efficiencies in layout, restoration elements, or required construction methods could be implemented. Specifications were relaxed where feasible to allow for contractor flexibility in materials and tolerances while achieving desired project goals. Species selection was modified to allow for contractor option of selection to provide for better pricing while keeping target species mixes, with reduced warranty requirements shifting risk from the contractor to reduce project costs. Complex features were simplified or combined where possible to reduce equipment needs and increase production potential while keeping to necessary restoration acreage and feature counts following negotiation with the overseeing agencies. Following revision to the design, the project team was solicited for input to allow for added insight from local regulators and specialists prior to finalizing for rebid. During bidding, contractors were carefully screened for experience and abilities, as well as forward thinking to maximize the value provided through the flexibility incorporated into the design options.

Results/Lessons Learned. Optimizing implementation details including simplifying installation means and methods, reducing complexity of various design components, reducing restrictive warranty requirements, and including contractor-selected options allowed for reduced costs while maintaining target acreages of restoration without loss of habitat value. During construction, coordination with the installation contractor on feature installations, species selection, and field design modifications allowed for more robust features at reduced costs. Due to the complex nature of the Buffalo River and difficult in-water restoration conditions, plant loss during initial planting efforts allowed for adjustments to species selections, densities, and planting styles to best suit varying local conditions and allow for cost effective warranty replacement while upgrading survivability of installations and providing lessons learned for other

ongoing restoration activities within the Buffalo River system. Monitoring inspections are ongoing following warranty replanting efforts and periods of establishment.