

Providing Quality Engineering For Our Water Resources Since 2002

#### Client

Milwaukee Metropolitan Sewerage District (MMSD), Milwaukee, WI  
 (SSE was a subconsultant to Hey and Associates, Inc.)  
 Contact: Tom Chapman, Watercourse Manager (MMSD)  
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#### Project

Kinnickinnic River Channel Rehabilitation Project

#### Overview/Description

MMSD contracted with Stormwater Solutions Engineering, LLC as a subconsultant to Hey and Associates for the hydraulic analysis of the KK River. The goal of the study was to evaluate various stream cross-sections to determine if any changes could be made to improve safety of the currently concrete lined channel, improve water quality and create a more multi-use stream while not increasing the 100-year flood elevation. Stormwater Solutions Engineering, LLC also prepared design studies on rerouting a combined sewer crossing the channel, so that the stream could be lowered.

#### Concerns/Challenges

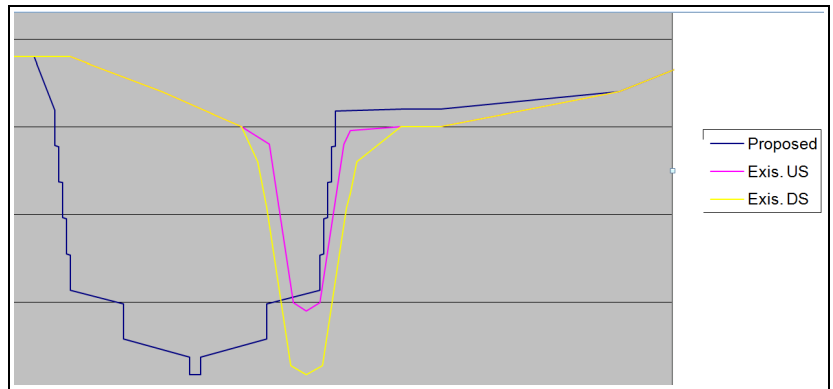
- Streams in the City were typically lined with concrete in the 1950's to move water through the system faster to lower flood elevations and "improve" maintenance concerns within the streams
- High flow and velocity in the stream made it dangerous and contributed to drowning deaths
- Stream was placed on list of most endangered in US
- MMSD desired to create a more natural stream setting for safety, habitat improvement, water quality, and

#### Actions Addressing Challenges

- SSE performed hydraulic analysis of the stream using HEC-RAS software to evaluate various stream cross-sections with a goal of not increasing floodplain
- SSE designed a new route for the combined sewer so that it may be relocated to accommodate a lowered stream bottom
- Project resulted in neighborhood changes and demolition of 50+ homes to return stream to a more natural state and provide a multi-use amenity to the neighborhood



Existing Concrete Lined Channel



Various Stream Cross-sections to be Analyzed



Location of Combined Sewer Crossing and Overflow Point



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