

November 27, 2024

Re: Proper Sizing of the SAFL Baffle

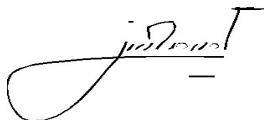
To Whom It May Concern,

The SAFL Baffle was developed at St. Anthony Falls Laboratory (SAFL) between 2009 and 2011 (Howard et al., 2011, McIntyre et al., 2012, Mohseni, 2011). This research quantified how much sediment could be captured with a SAFL Baffle when installed within a standard sump manhole. Testing and performance data on the SAFL Baffle and several other proprietary hydrodynamic separators were incorporated into a computer software program called SHSAM (Sizing Hydrodynamic Separators And Manholes). SHSAM was developed by Barr Engineering Co. (Barr) to predict the amount of suspended sediments removed from stormwater runoff by a given hydrodynamic separator/standard sump over a given period of time (e.g., 15 years) (Barr 2024). SHSAM comprises a simple continuous runoff model and a generic sediment removal response function. It is a powerful tool to determine the device type(s), among the tested devices, and device size(s) suitable for each specific site.

The research results indicate that the SAFL Baffle can remove 80% of suspended sediments with a particular particle size distribution from stormwater runoff, when the SAFL Baffle is properly sized using the SHSAM software. Local regulatory authorities may require additional or other sizing criteria.

Please feel free to contact me with any questions or concerns you may have.

Yours sincerely,



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References:

- Barr Engineering, Co. (2024) "SHSAM (Sizing Hydrodynamic Separators And Manholes)." Accessed 2024-11-19. <https://shsam.barr.com/>
- Howard, A., O. Mohseni, J.S. Gulliver and H.G. Stefan. (2011). "SAFL Baffle Retrofit for Suspended Sediment Removal in Storm Sewer Sumps." *Water Research*, 45(18), 5895–5904. <http://dx.doi.org/10.1016/j.watres.2011.08.043>
- McIntire, K.D., A. Howard, O. Mohseni, and J.S. Gulliver. (2012). *Assessment and Recommendations for Operation of Standard Sumps as Best Management Practices for Stormwater Treatment (Vol. 2). Final Report 2012-13*, Research Services and library, Office of Transportation System Management, Minnesota Department of Transportation. May 2012. <http://www.lrrb.org/pdf/201108.pdf>
- Mohseni, O. (2011). *Assessment and Recommendations for the Operation of Standard Sumps as Best Management Practice for Stormwater Treatment (Volume 1)*. SAFL Project Report 540. August 2011. Retrieved from the University of Minnesota Digital Conservancy, <http://purl.umn.edu/112919>.