



**Center for Environmental Systems
Stevens Institute of Technology
Castle Point on Hudson
Hoboken, NJ 07030-0000**

December 10, 2015

Titus Magnanao
NJDEP
Division of Water Quality
Bureau of Non-Point Pollution Control
401-02B
PO Box 420
Trenton, NJ 08625-0420

Dear Mr. Magnanao,

Based on my review, evaluation and assessment of the testing conducted on the Kraken® Membrane Filtration System by Good Harbour Laboratories, an independent technology testing laboratory, at their site in Mississauga, Ontario, Canada, the test protocol requirements contained in the “New Jersey Department of Environmental Protection Laboratory Protocol to Assess Total Suspended Solids Removal by a Filtration Manufactured Treatment Device” (NJDEP Filter Protocol, January 2013) were met or exceeded. Specifically:

Test Sediment Feed

Good Harbour used test sediment that was a blend of two commercially available silica sediments. The blended test sediment was found to meet the NJDEP particle size specification and was acceptable for use. With a d_{50} of 52 μm , the test sediment was slightly finer than the sediment required by the NJDEP test protocol.

Removal Efficiency Testing

A total of 16 test runs were conducted during removal efficiency testing. All of these test runs met the requirements of the Filter Protocol. The 16 test runs had an overall average removal efficiency of 83%.

Sediment Mass Loading Capacity

A total of 33 test runs were conducted at the MTRF during the Sediment Mass Loading Capacity (SMLC) testing. The SMLC study was a continuation of the removal efficiency study (an

additional 17 test runs). The SMLC test was terminated once the mass of the captured sediment exceeded 1.5X the recommended minimum amount for filter maintenance (one year). By the end of run #33, filter bypass had not yet occurred. The total mass of sediment captured was 434 lbs. and the overall removal efficiency was 89%.

Scour Testing

At this time the Kraken® filter System is being submitted for approval for off-line testing; therefore no scour test data was provided.

Sincerely,



Richard S. Magee, Sc.D., P.E., BCEE