May 20, 2025

To: Urban Stormwater Workgroup

Re: Summary of External Review Committee Comments on Draft Biochar White Paper

Background:

In November 2024, the Urban Stormwater Workgroup voted to pursue a BMP Interpretation of Biochar-Amended Bioretention practices for additional nutrient and sediment reduction credit under the Chesapeake Bay TMDL. As part of that process, the USWG solicited feedback from a small team of external practitioners and experts who have familiarity with the proposed BMP to ensure that the pollutant load reductions and accompanying implementation and maintenance guidelines are appropriate and scientifically defensible. A summary of the substantive comments are outlined below. These are paraphrased by the USWG Coordinator to ease USWG review, the full comments are available for review on the May 2025 USWG Meeting calendar page.

Doug Howie, Washington State Department of Ecology:

- Increase precision with language around materials and design specifications for both the citations/references on biochar performance, as well as typical Chesapeake Bay bioretention.
- Better explanation needed for the range of SWMM modeling results.
- Crediting in-situ retrofits proportionally, based on the percent of media replaced, may not be scientifically justifiable (i.e. replacing ½ the media may not equate to ½ the runoff reduction benefit).
- Based on the range of potential outcomes from the modeling work, the resulting 2-4% increase in pollutant removal performance seems to be within the margin of error and may make the additional analysis more work than it is worth.

Sara Esposito, Delaware Department of Transportation:

- The white paper may be overly downplaying the risk associated with pesticide/herbicide application in bioretention. If invasives are present, it is likely that maintenance staff will apply herbicides to get them under control.
- Better explanation is needed for the large range in runoff reduction performance seen from the SWMM modeling. Are there specific causes for the high and low ends of that range?
- More consideration of the compaction concerns with the in-situ amendments.

Byron Madigan, Carroll County Bureau of Resource Management:

- There needs to be a more thorough explanation of the mechanism by which biochar improves runoff reduction. Implication with this method is that it is based on increased storage volume, when it seems that storage is only really being shifted from aboveground to belowground.
- Explanation of biochar's benefits on page 1 are much broader than the application being proposed in the rest of the white paper. May need to be better qualified to avoid confusion.