



# New Work Sediment Bulking Analysis for CESWG

## ERDC Dredging Operations Technical Support Program (DOTS)

U.S. ARMY CORPS OF ENGINEERS

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### Response Summary:

Performed an analysis of the bulking factor for new work hydraulically dredged material based on disposal durations of 50 and 90 days. Based on sediment classification, the grain size distribution and dry bulk density of the sediment were estimated to filter a database of dredged material settling properties for compression settling properties of sediment with similar characteristics. Bulking factors for both 50- and 90-day disposal periods were formulated for 31 sediments from the database, along with their probability distributions. The bulking factors were compiled for the 10<sup>th</sup>, 30<sup>th</sup>, 50<sup>th</sup>, 70<sup>th</sup>, and 90<sup>th</sup> percentiles, as well as the average bulking factors. The probability distribution provided the ability to understand the uncertainty in the disposal site capacity and provided the desired level of confidence in the target dike elevation for the disposal facilities.

### Period of Performance:

Start date: 21 March 2023

Completion Date: 31 March 2023

### Benefits of the Response to the USACE Dredging/Navigation Program:

The analysis provided an empirical basis for the design of dike heights with the desired level of confidence despite limited sediment data.

### Deliverable:

The technical response to the Galveston District was a probability distribution table of bulking factors for two disposal periods based on a limited description of new work sediment properties.



Providing environmental and engineering technical support to the U.S. Army Corps of Engineers  
Operations and Maintenance navigation and dredging missions

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