

## **BENEFICIAL REUSE OF MISSISSIPPI RIVER DREDGE SAND BY JULIE PLUMMER – AREA 5**

Seven counties of Iowa Waste Exchange Area 5 in eastern Iowa border the Mississippi River. These counties are part of the Rock Island District of the U.S Army Corps of Engineers (USACE). Bre Popkin, Dredge Material Management Program Manager of the Operations Technical Support Branch USACE and Iowa Waste Exchange Area 5 Resource Specialist Julie Plummer have been working together for over three years to facilitate beneficial reuse of sand from river dredging operations. Their collaboration proved successful when dredge sand was used by the Waste Commission of Scott County during construction of a new landfill cell during the summer of 2024.

“One of the U.S. Army Corps of Engineers primary missions is to ensure safe, reliable navigation channels. The Rock Island District is responsible for operations and maintenance of the Upper Mississippi River and Illinois Waterway 9-foot Navigation Channel Project, which includes 314 miles of the Mississippi River from Guttenberg, Iowa to Saverton, Missouri” says Bre.” The navigation channel is maintained through dredging of sediment and sand which accumulates by the normal cycle of material movement, erosion from high water or heavy rains, and changes in river currents. Dredging ensures an adequate channel depth for vessels to navigate safely. Approximately, 500,000 cubic yards of sediment/sand are dredged annually. The District’s work on the Mississippi River allows for safe and efficient transport of a wide variety of commodities. Barge traffic traveling through the District’s lock and dam system accounts for hundreds of millions of dollars in interstate commerce each year.”

Typically, the dredge material is placed on river islands or at on-shore storage sites on USACE-owned land. The Corps re-uses some of the sand in projects for habitat development, wetland creation, levee repair, and recreational enhancement, but much of the sand sits in stockpiles. The sand can also be taken for free by the public, but stockpile site locations, loading logistics, and lack of awareness of this resource have limited its beneficial re-use in the past.



*Photo 1 – USACE dredge sand from the Buffalo IA storage site being loaded for use in Waste Commission of Scott County’s new landfill cell construction project.*

A newly developed dredge material storage site near Buffalo, IA however provided a great opportunity for IWE’s Julie Plummer to suggest use of the dredge sand to Waste Commission of Scott County’s (WCSC) Deputy Director and Landfill Manager Brian Seals. The Waste Commission would be constructing a new landfill cell during the spring/summer of 2024 and needed sand for use in the cell’s underdrain and leachate collection systems. Not only would the

sand itself be free, the storage site location only four miles from the landfill would make transportation costs minimal. Analysis of the sand determined it to be non-hazardous and suitable for the project, but logistics of heavy equipment and trucks reaching the storage site to load was still an issue. The Corps stepped up to quickly construct an access road and loading pad based on Brian's assessment of need, just in time for the cell construction project to begin.

The Waste Commission of Scott County's new landfill cell construction project made use of 1,750 tons of dredge sand. Instead of paying \$20,125 to obtain the sand from their usual supplier, the sand was free.

Transportation from the usual supplier located 20 miles from the landfill would have cost \$38,250. Instead, transportation from the Buffalo storage site cost \$7,650. The landfill used their own equipment to load the sand. The Waste Commission of Scott County saved over \$50,000 by utilizing the dredge sand in the project. "Working with IWE is such a great opportunity to get your creative juices flowing and enable beneficial collaboration" says Brian. This was not only beneficial for our cell construction project, but will be a benefit in all future cell construction projects. It will also assist nearby cities with flood preparation /prevention."



*Photo 2 – Waste Commission of Scott County's new landfill cell construction showing placement of USACE dredge sand for the underdrain and leachate collection systems.*

USACE Project Engineer Kyle Nerad, P.E. was also instrumental in working to make the project happen. Says Kyle: "We are really appreciative that the Iowa Waste Exchange and the Waste Commission of Scott County reached out to us on this opportunity. We collaborated with Brian Seals during design of the access road to ensure it would meet the landfill's immediate needs, as well as future beneficial use needs of the site. It was exciting to see the road built under a short schedule to get it ready in time for the landfill's use. And it was even more exciting seeing the plan come to fruition as trucks were being loaded and hauling the sand out of the site. Every truckload that leaves the site allows the Corps to keep using the site for dredged material placement. That's a big win for us, as well as a win for the local community who can beneficially use the sand."

For more information about the [Iowa Waste Exchange \(IWE\)](#)