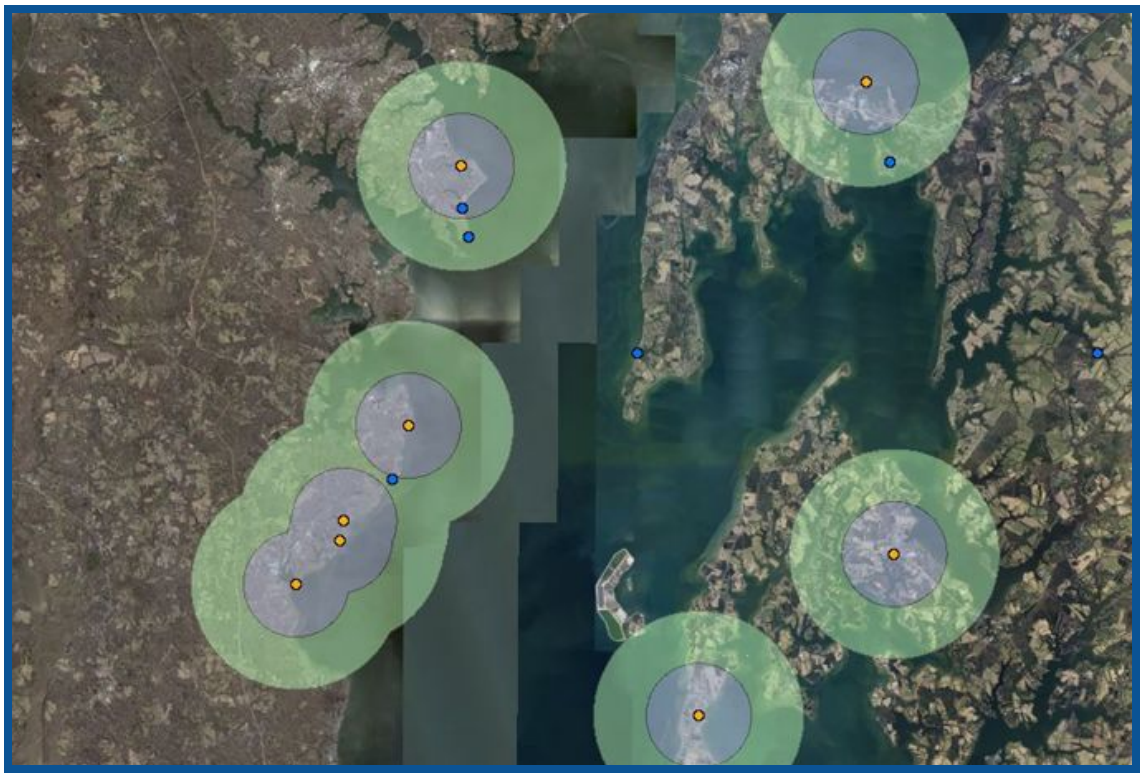
Maryland Department of Natural Resources



BUILD User Manual

Beneficial Use: Identifying Locations for Dredge

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Last updated: October 2019

MARYLAND DEPARTMENT OF NATURAL RESOURCES

Chesapeake & Coastal Service

NOAA NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION U.S. DEPARTMENT OF COMMERCE

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Funding and Acknowledgments

Financial assistance for the Coastal Atlas was provided by the Coastal Zone Management Act of 1972, as amended, administered by the Office of Ocean and Coastal Resource Management, National Oceanic and Atmospheric Administration (NOAA).

BUILD is a product of a 2-year National Oceanic and Atmospheric Administration (NOAA) Coastal Management Fellowship, administered by the Maryland Department of Natural Resources (MDNR) Chesapeake and Coastal Service from 2017-2019. This project was supported with funds from NOAA and MDNR. The statements, findings, conclusions and recommendations are those of the author(s) and do not necessarily reflect the views of NOAA or the U.S. Department of Commerce. Special thanks to the Maryland Department of the Environment, Maryland Environmental Service, and the Chesapeake Bay Trust for providing data and technical assistance.

Disclaimer

All of the data contained within the Coastal Atlas and derived from these applications are intended for informational use only. This tool should be used strictly as a planning reference or screening-level tool for management decisions and not for navigation, permitting, or other legal purposes. Users rely on information contained in the Coastal Atlas at their own risk, and any conclusions or decisions based on the use of these tools are the responsibility of the user. The data and maps in this tool are provided "as is," and all features should be verified with a site visit.

The Coastal Atlas brings together multiple data layers from different sources, and thus is challenged by spatial and temporal scales. In the coastal environment, this is most evident when comparing data originally referenced to different shoreline bases and mapped at different scales. While every effort has been made to provide useful coastal planning tools in the Coastal Atlas, the State of Maryland, its agencies, officers, employees, agents, and representatives cannot guarantee the accuracy, reliability or timeliness of any information contained in the Coastal Atlas. The entire risk associated with the results and performance of these data is assumed by the user.

Acronyms

BU	Beneficial Use
BUILD	Beneficial Use: Identifying Locations for Dredge
DMP	Dredged Material Placement Site
MDE	Maryland Department of the Environment
MDNR	Maryland Department of Natural Resources
NAV	Navigational
USACE	United States Army Corp of Engineers
WIF	Waterway Improvement Fund

Definitions

Beneficial use

Using dredged material to restore or enhance environmental resources. Beneficial uses include:

- Restoration of underwater grasses;
- Restoration of islands within their demonstrable, historic footprint;
- Stabilization of eroding shorelines;
- Construction of living shorelines;
- Nourishment of beaches; and
- Creation or restoration of wetlands;
- Creation, restoration, or enhancement of wildlife, fish or shellfish habitats.

Innovative reuse

Using dredged material in the development or manufacturing of commercial, industrial, horticultural, agricultural, or other products. Innovative reuses include:

- Landfill capping
- Topsoil, if suitable
- Construction fill
- Park development
- Lightweight aggregate
- Bricks

Background

In 2001, Maryland passed the Dredged Material Management Act and defined Maryland's "Beneficial Uses" of dredged material, including habitat restoration, beach nourishment, and shoreline stabilization. The Act also establishes the value of dredged material as a resource for restoration and prioritizes the placement of dredged material for beneficial use and innovative reuse. This statewide initiative to use sediments has the potential to assist the state's TMDL goals, and also increase community resilience by reducing the financial costs of dredge disposal and coastal restoration projects.

To ensure that the environmental benefits uphold the financial benefits, the Maryland Department of the Environment (MDE) published the Innovative Reuse and Beneficial Use Guidance Document, which provides guidance on the implementation of and physical and chemical standards for using dredged material in innovative reuse or beneficial use projects. Similarly, the Maryland Department of Natural Resources (MDNR) is pursuing beneficial use through the development of:

1. A policy and guidance
2. On-the-ground implementation of beneficial use projects
3. Decision-support tools to aid project planning

One of the greatest impediments to the implementation of beneficial use projects is aligning dredging and restoration projects in space, time, and quality. For dredged sediment to be usable for restoration, it must fulfill three primary criteria:

1. *Spatial Alignment*: The channel being dredged must be within a reasonable distance from the restoration site (typically 2-4 miles maximum) to make the project financially feasible;
2. *Temporal Alignment*: Dredging and restoration projects must align in time so that the material from the dredging project can be placed directly onto the restoration site, providing transportation cost-savings;
3. *Qualitative Alignment*: The chemical (e.g. sulfide concentration) and physical (e.g. grain size) composition of the dredged material must be suitable for the restoration design.

All three of these criteria require advanced planning of 1-2 years to ensure that the project can be developed in time. To assist advanced project planning, MDNR has developed the planning tool, BUILD (Beneficial Use: Identifying Locations for Dredge).

BUILD Overview

BUILD is a set of online mapping layers in the Maryland Coastal Atlas that are intended to enable identification of beneficial use projects based on the alignment of restoration and dredging projects in space, time, and composition. BUILD can be used to proactively identify beneficial use opportunities to provide environmental and resiliency benefits, while simultaneously reducing material transportation and fill costs. To learn more about how BUILD is used to identify beneficial use projects, visit the BUILDing Resilience story map.

To provide feedback on BUILD, please contact George Edmonds, george.edmonds@maryland.gov.

Maryland Coastal Atlas Overview

In addition to coastal datasets, online tools for the Coastal Atlas have been developed to support better decision-making and address specific coastal issues. Users can use the measuring tool to measure shoreline fetch, the draw tool to draw a box around a specific area, or the identify tool to get more information about the data. Users can also work with MDNR to generate targeting queries that help you narrow your focus area. For more information on how to use the Maryland Coastal Atlas, visit “Step by Step Guides for using the Coastal Atlas Map”: http://dnr.maryland.gov/ccs/coastalatlas/Pages/guides.aspx

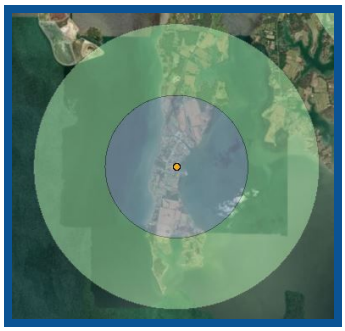
BUILD Data Layers

Upcoming Dredging

Orange points - Indicate the location of MDNR Waterway Improvement Fund (WIF) upcoming dredging projects, and provide information on sediment type, DMP access, and approximate dredging schedule. These points are updated annually when WIF projects are funded in April.

Dredging Project Buffers

Two mile (grey) and four mile (green) radii around WIF upcoming dredging projects. Indicate the distances that dredged material can be reasonably hydraulically dredged based on financial limitations.

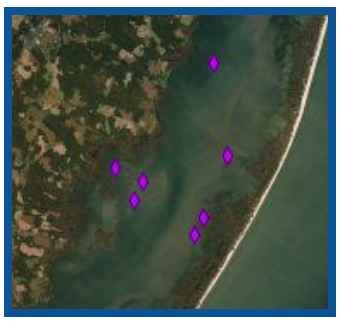


Potential Restoration Projects

Blue diamonds - Indicate potential restoration projects identified by the Center for Habitat Restoration and Conservation and the Chesapeake Bay Trust. Provide information on the project scope, sand needs, and estimated project cost. These are updated when new restoration projects are identified, and at a minimum, annually.

Lost Islands

Purple diamonds - Footprints of lost islands that have been identified by Wildlife and Heritage Service as potential island restoration projects that would benefit Maryland's endangered waterbirds. These are updated when new island restoration projects are identified.

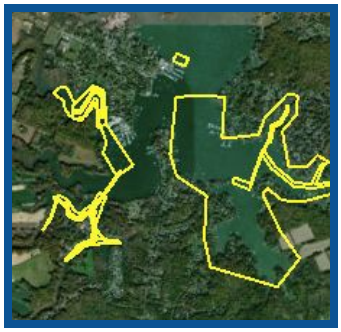


Dredged Material Placement Sites

Pink outline - Indicate the locations of DMPs owned or used by the county. These are updated upon request of DMP managers.

Navigational Channel Depth Surveys

Yellow outline - Indicate the locations of and reports from depth surveys performed in shallow-draft channels by MDNR. These are updated upon completion of new surveys.



Previous Dredge Projects

Orange outline - Indicate the locations of previous dredging projects funded by the MDNR WIF. These are updated upon completion of dredging.

Estimated Channel Conditions

Indicate the estimated conditions of shallow-draft, navigational channels.

Red - Highly Restricted
Yellow - Open Restricted
Green - Open
Black - Unknown

These are updated upon new information.

USACE NAV Channels

Red outline - Indicate the federal navigational channels.

BUILD MDE Wetlands and Waterways Permits

Green points - Indicate all MDE Wetlands and Waterways permits relating to dredging or restoration that were issued in the past three years. These are automatically updated with the issuance of new permits. If an expected project is unavailable through BUILD, it can be viewed using the Wetlands and Waterways Permits Interactive Search Portal.

Instructions

Below are step-by-step instructions on how to use BUILD to identify potential beneficial use opportunities. Instructions are provided for planners seeking assistance with placement of dredged material and/or seeking fill for a restoration site. If a beneficial use project is identified, review the Maryland Department of the Environment (MDE) document, Innovative Reuse and Beneficial Use Guidance Document, to assess dredged material chemical and physical appropriateness for the identified placement use.

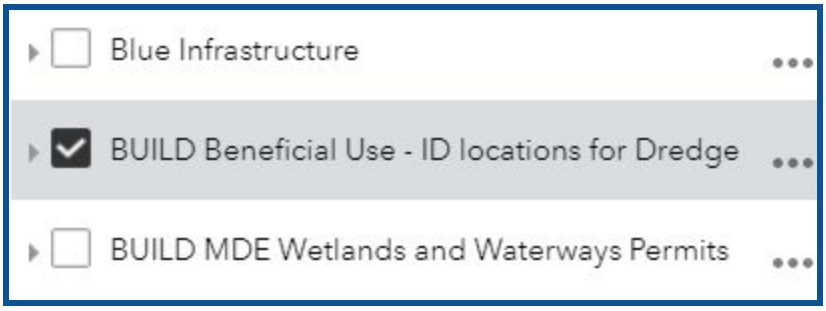
In addition to following the below instructions, utilize the other Maryland Coastal Atlas layers, such as *Bathymetry*, *Blue Infrastructure*, *Coastal Resiliency Assessment*, *Living Resources*, *Parcel Boundaries*, *Shoreline Rates of Change*, and *SAV* (submerged aquatic vegetation) *Last 5 Years*, to evaluate the feasibility and social and environmental impacts of a project.

Seeking Dredged Material Placement Opportunities

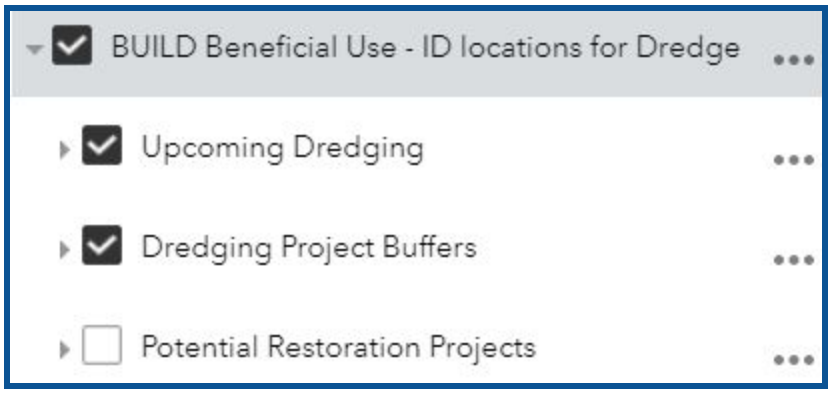
For Waterways Improvement Fund dredged material placement:

Follow the below guidelines if you are in the process of planning a WIF dredging project. This section lists steps that will provide specific information about past WIF dredging projects, WIF depth surveys, and expected timelines and sediment grain sizes for WIF projects. Further, WIF dredging projects are accompanied by distance buffers to assist with spatially aligning dredging with restoration projects.

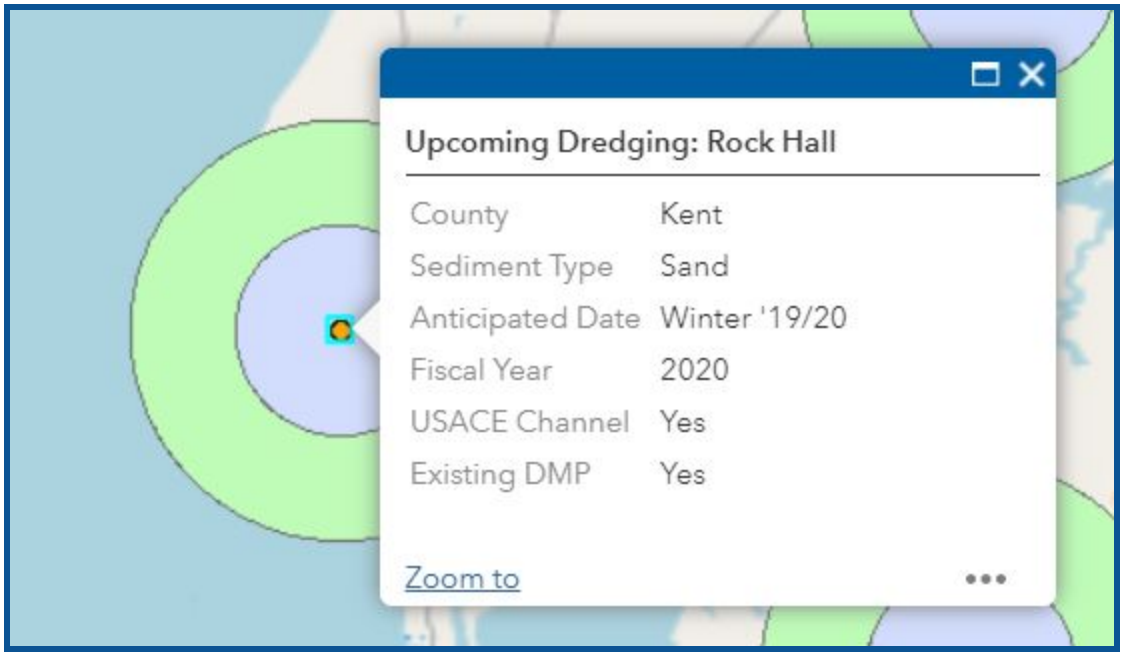
1. Click on the box next to *BUILD Beneficial Use - ID Locations for Dredge.*



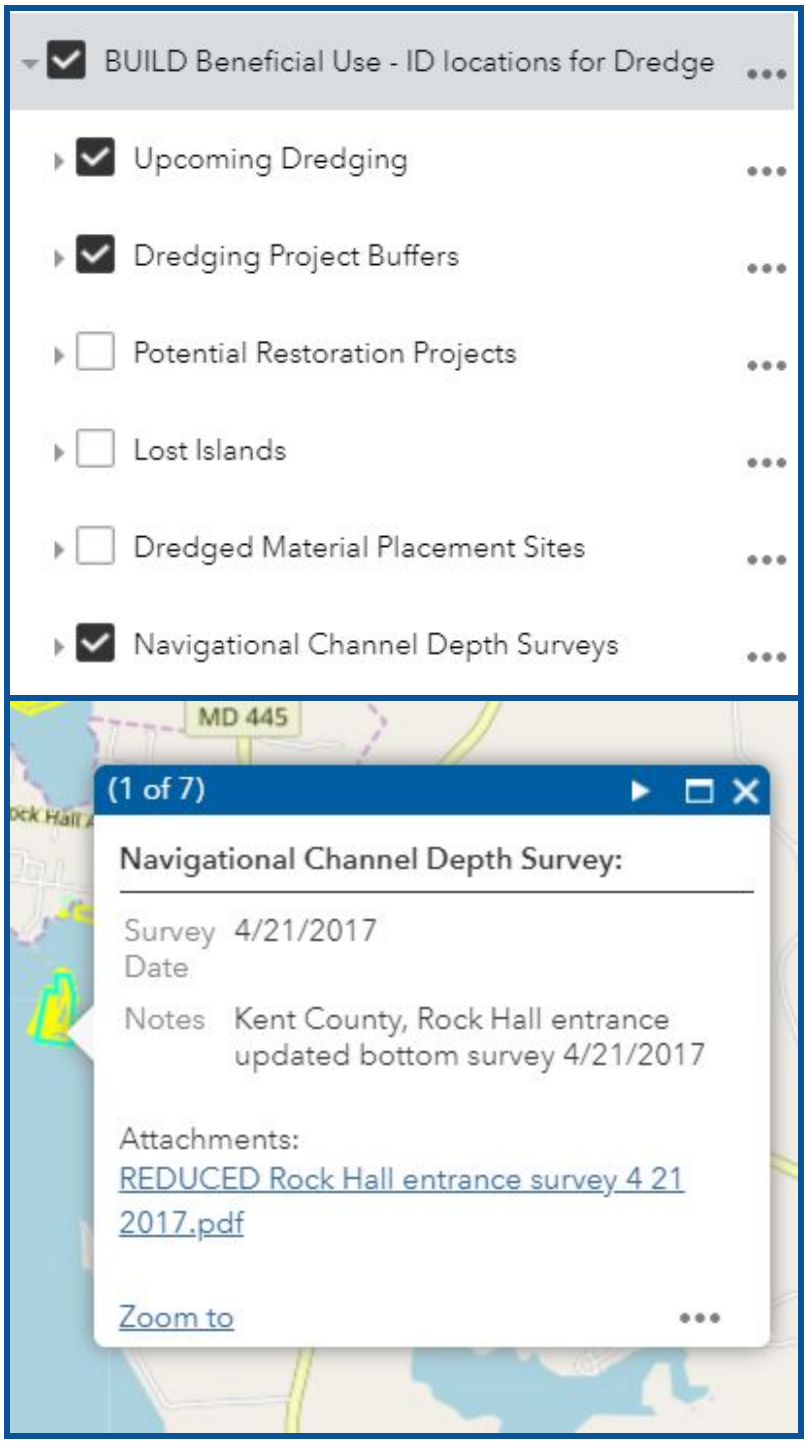
2. In the drop-down list, click on the box next to *Upcoming Dredging* and *Dredging Project Buffers* to turn on these layers and assess the spatial range.



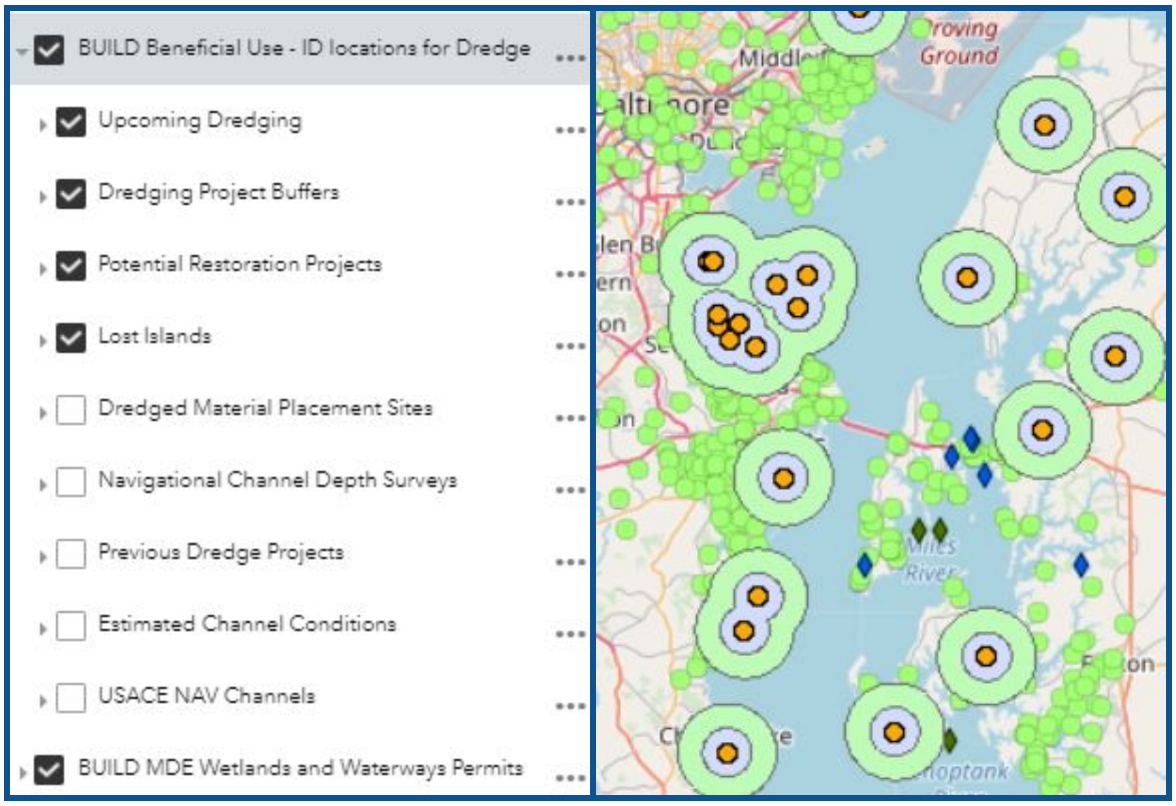
3. Click the *Upcoming Dredging* point (orange) to learn about dredged material quality and expected dredging timeline.



4. Click on the box next to *Navigational Channel Depth Surveys* and access past depth surveys by clicking on the yellow outlines.



5. Click on the boxes next to *Potential Restoration Projects, Lost Islands* and *BUILD MDE Wetlands and Waterways Permits* to assess potential placement sites.



6. Determine if a restoration project falls within the two mile or four mile distance buffers, and therefore, it qualifies as a potential beneficial use opportunity.

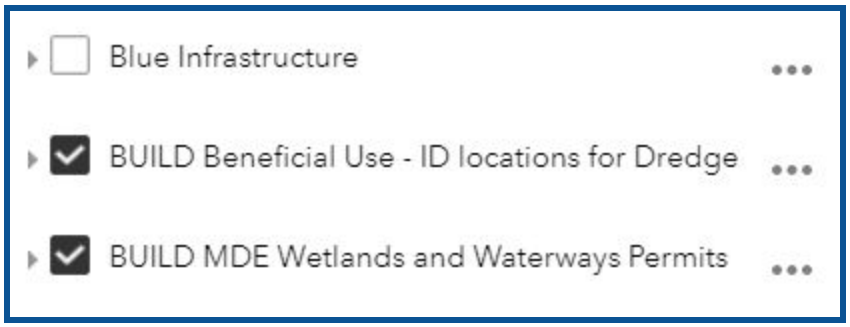
7. Examine the dredged material pop-up box (step 3) to assess if dredged material quality would be appropriate for the restoration project, or if additional information needs to be obtained.

8. To pursue a beneficial use opportunity identified using the *BUILD MDE Wetlands and Waterways Permits* layer, inform your Waterways Improvement Fund representative, and contact your representative at the MDE Wetlands and Waterways program. For all other opportunities, contact Isaac Wilding, isaac.wilding@maryland.gov.

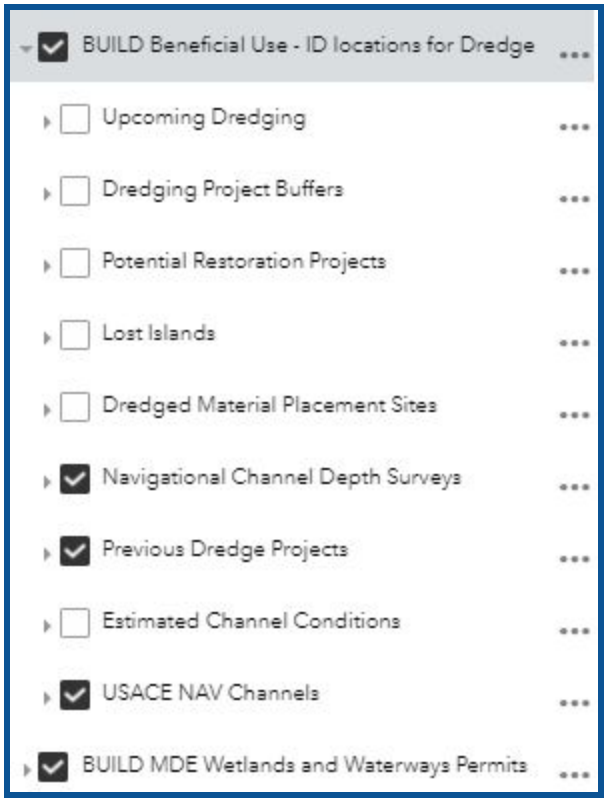
For all other dredged material placement:

Follow the below instructions if you are planning a dredging project that is not associated with a WIF grant. Non-WIF dredging projects are stored in different layers and lack distance buffers. This section provides information on how to find the alternate dredging data and how to use the *Measure Tool* to establish spatial alignment with restoration projects.

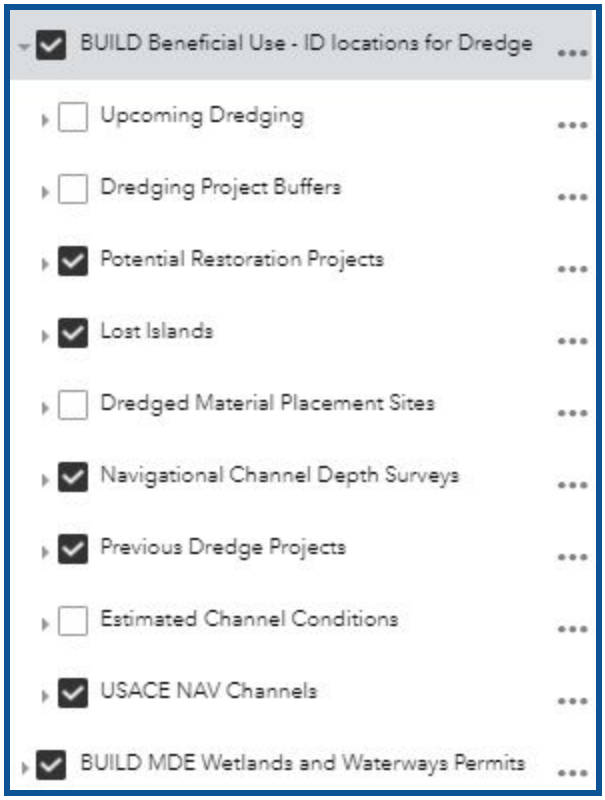
1. Click on the box next to *BUILD Beneficial Use - ID Locations for Dredge* and *BUILD MDE Wetlands and Waterways Permits.*



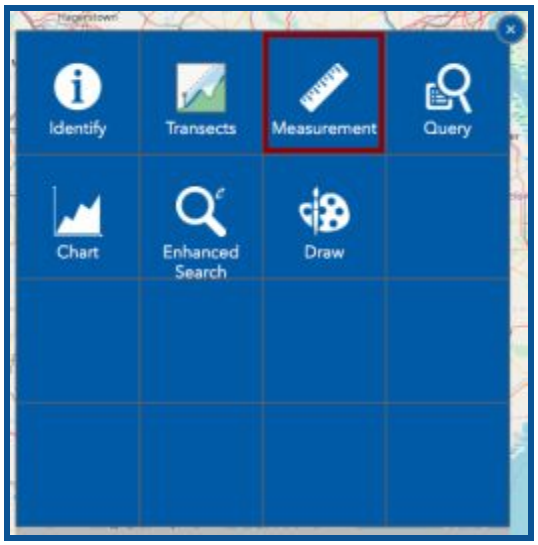
2. Locate the dredging project visually, or by using the *Previous Dredge Projects, Navigational Channel Depth Surveys, BUILD MDE Wetland and Waterways Permits*, or *USACE NAV Channels* layers.

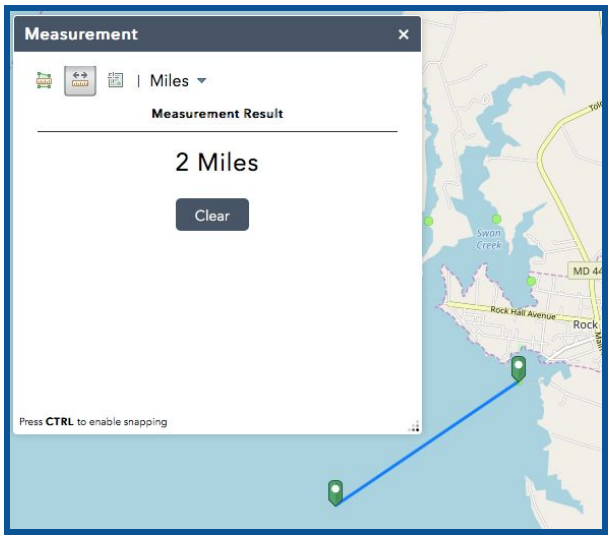


3. Click on *Potential Restoration Projects*, *Lost Islands*, and *BUILD MDE Wetlands and Waterways Permits* layers to assess potential placement sites.



4. Click on the More tab to access the Measure Tool to draw a 2-4 mile line to establish hydraulic transport ability, or other feasible distance.





5. Determine if a restoration project point falls within the distance buffer, and therefore, it qualifies as a potential beneficial use opportunity.

6. Based on existing knowledge, assess if dredged material quantity and quality would be appropriate for the restoration project, or if additional information needs to be obtained.

7. To pursue a beneficial use opportunity identified using the *MDE Wetland and Waterways Permits* layer, contact your representative at the MDE Wetlands and Waterways program. For all other opportunities, contact Isaac Wilding, isaac.wilding@maryland.gov.

To provide feedback on BUILD, please contact George Edmonds, george.edmonds@maryland.gov.

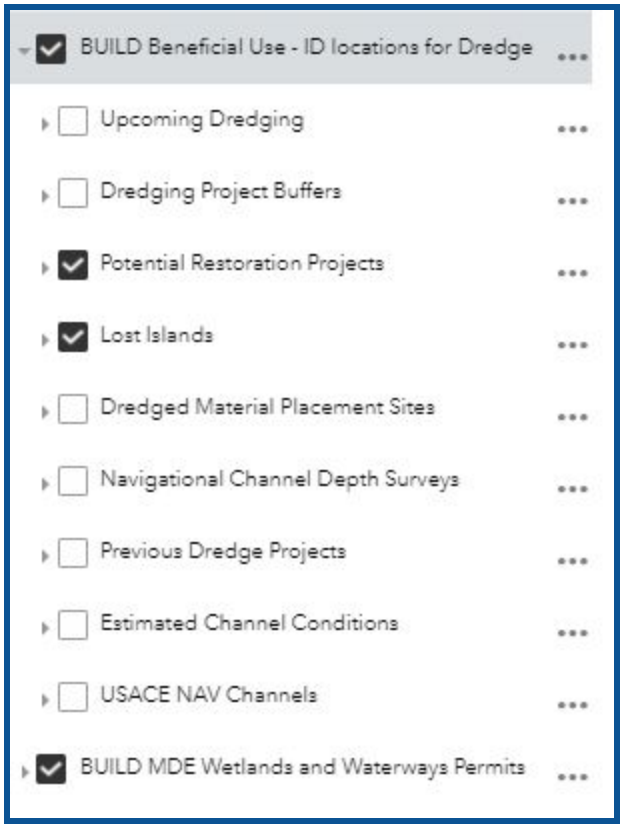
Seeking Fill Material for Restoration Opportunities

For all projects seeking fill material for restoration:

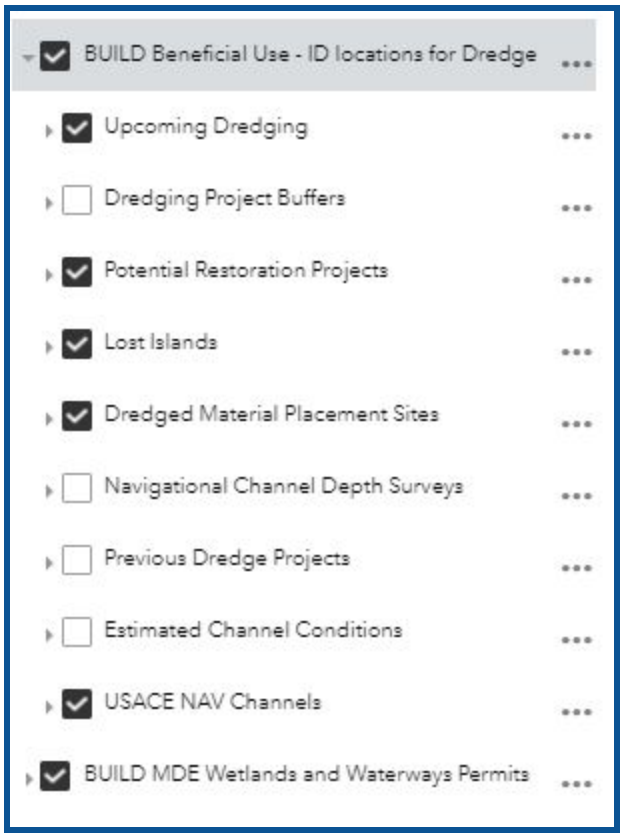
Follow the below instructions to identify dredging projects nearby that can supply sediment for a restoration site.

1. Click on the box next to *BUILD Beneficial Use - ID Locations for Dredge* and *BUILD MDE Wetlands and Waterways Permits.*

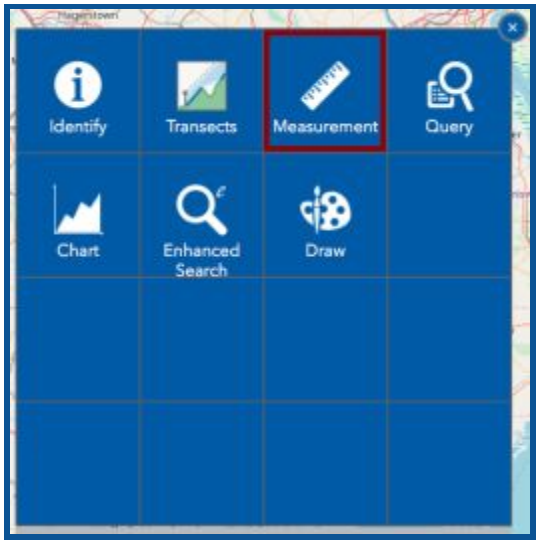
2. Locate the restoration project visually, or by using the *Potential Restoration Projects*, *Lost Islands*, or *BUILD MDE Wetland and Waterways Permits* layers.

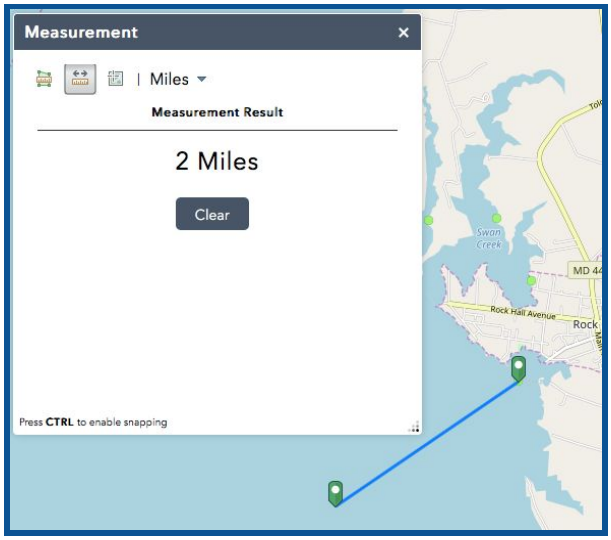


3. Click on the box next to *Upcoming Dredging*, *Dredging Project Buffers*, *Dredged Material Placement Sites*, *BUILD MDE Wetland and Waterways Permits*, or *USACE NAV Channels* to assess potential dredged material sources.



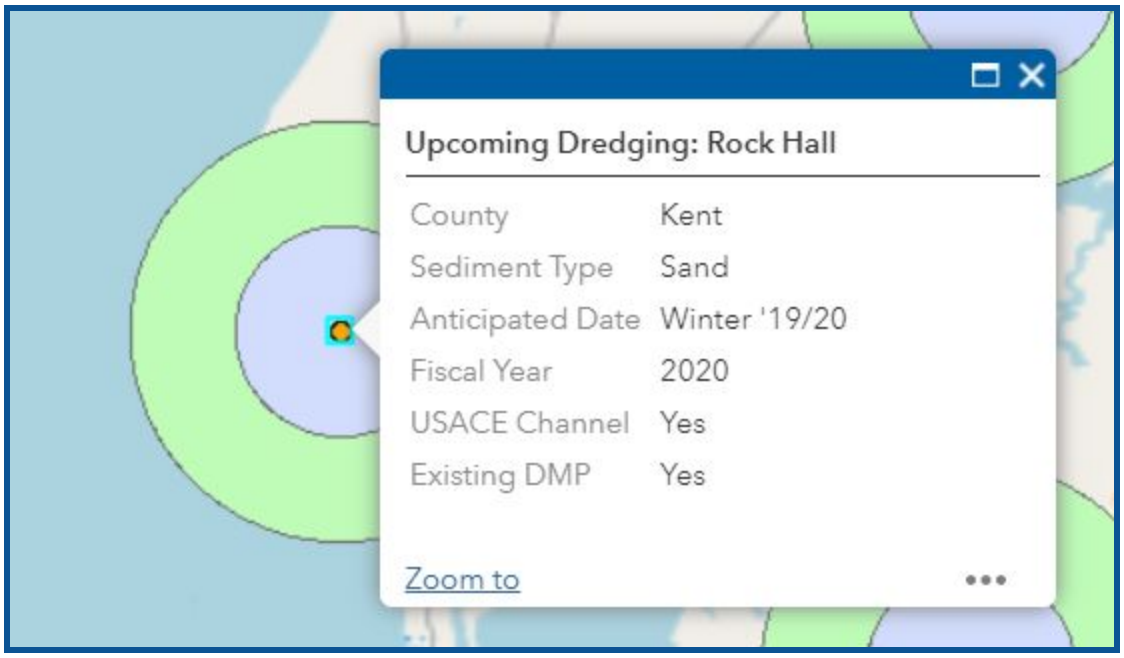
4. Click on the More tab to access the Measure Tool to draw a 2-4 mile line to establish hydraulic transport ability, or other feasible distance.





5. Determine if a dredging project point falls within the distance buffer, and therefore, it qualifies as a potential beneficial use opportunity.

6. Based on existing knowledge, assess if dredged material quantity and quality would be appropriate for the restoration project, or if additional information needs to be obtained. If the dredging project identified is an *Upcoming Dredging* point (orange), click on the data point to learn more about sediment quality and expected timelines.



7. To pursue a beneficial use opportunity identified using the *MDE Wetland and Waterways Permits* layer, contact your representative at the MDE Wetlands and Waterways program. For all other opportunities, contact Isaac Wilding, isaac.wilding@maryland.gov.

To provide feedback on BUILD, please contact George Edmonds, george.edmonds@maryland.gov.

Helpful Resources

- Maryland Department of Natural Resources Beneficial Use of Dredged Material: https://dnr.maryland.gov/ccs/Pages/Beneficial-Use.aspx
- Maryland Coastal Atlas: http://dnr.maryland.gov/ccs/coastalatlas/Pages/default.aspx
- Step by Step Guides for using the Coastal Atlas Map: http://dnr.maryland.gov/ccs/coastalatlas/Pages/guides.aspx
- Maryland Department of the Environment Dredging and Dredged Material Management: https://mde.maryland.gov/programs/marylander/pages/dredging.aspx
- Maryland Department of the Environment Wetlands and Waterways Permits Interactive Search Portal: http://mdewin64.mde.state.md.us/ECollaboration/SearchPortal.aspx
- United States Army Corp of Engineers Thin-Layer Placement of Dredged Material: https://tlp.el.erdc.dren.mil/
- United States Army Corp of Engineers Regional Sediment Management: http://rsm.usace.army.mil/index.php
- United States Army Corp of Engineers Dredging and Dredged Material Management Engineer Manual (Chapter 5 - Beneficial Uses of Dredged Material): https://www.publications.usace.army.mil/portals/76/publications/engineermanuals/em_1110-2-5025.pdf