SUMMARY OF THE DREDGED MATERIAL MANAGEMENT PROGRAM INNOVATIVE REUSE COMMITTEE MEETING

March 25, 2014, 5:00 PM
Maryland Port Administration
2200 Broening Highway
Baltimore, Maryland 21224

Attendees:

Innovative Reuse Committee (IRC) Members:
Baltimore Dept. of Planning (BDP): Jill Lemke
Baltimore Port Alliance (BPA): Rupert Denney
Greater Dundalk Alliance: Carolyn Jones
Harbor Team: William Pribyl
Maryland Department of Business and Economic Development (DBED): Elaine McCubbin
Maryland Department of Natural Resources (MD DNR): Paul Petzrick
P. Flanigan & Sons: Pierce Flanigan
Stancills, Inc.: Terry D. Stancill
U.S. Environmental Protection Agency (EPA), Region 3: Renee Searfoss

IRC Support Staff and Observers:
Facilitator: Fran Flanigan
EcoLogix Group: Chris Correale
Gahagan & Bryant Associates (GBA): Dennis Urso
Maryland Environmental Service (MES): Dave Peters, Lauren Leese
Maryland Port Administration (MPA): Dave Bibo, Dave Blazer, Shawn Kiernan, Katrina Jones, Bill Lear, John Thornton
Northgate Environmental: Dara Donnelly, Nancy Leitner
OA Systems, Inc.: Blaine Leidy
Phoenix Engineering: George Harman

Welcome & Introductions **Fran Flanigan, Facilitator**

Ms. Flanigan welcomed the Committee (IRC) members, asking them to introduce themselves. After self-introductions, she referred the IRC to the January 7th meeting summary draft, asking for corrections or additions. The IRC approved the draft as-is and Ms. Flanigan informed Ms. Jones that it is ready to be posted to the MPA Safe Passage website.

Ms. Flanigan introduced Mr. Blazer who was going to be providing an update on recent activities and a presentation on Cox Creek Expansion.

Review of Recent Innovative Reuse Activity **Dave Blazer, MPA**

Public-Private Partnership (P3)

Mr. Blazer began by stating that the request for information (RFI) had been distributed to approximately

400 lightweight aggregate (LWA) production affiliates and nine responses were received – two from manufacturers/producers and seven from vendors/businesses. Due to this unexpected low response, the Maryland Department of Transportation (DOT) has decided to investigate LWA more. A strategy to gather more information on LWA producers includes interviews within the industry to gather more and better information with the goal of increased interest and bids, culminating in a public-private partnership. Details on the strategy are upcoming.

Ms. Jones asked those present if they received the March 27th HarborRock Information Release email in response to the RFI. Since it was not received by the majority, Ms. Flanigan will redistribute the email.

Sediment Quality Report

Mr. Blazer noted that the last IRC meeting resulted in questions about Harbor sediment quality (e.g. contaminants, etc.). Mr. Blazer offered the attendees several hard copies of the summary of the report "Sediment in Baltimore Harbor: Quality and Suitability for Innovative Reuse" published in 2009 and presented to the IRC in the past. Ms. Flanigan will distribute an electronic copy to the IRC. Mr. Blazer stated that the report is mainly comprised of an analysis of Harbor sediment by SeaGrant and the Chesapeake Research Consortium. Ms. Searfoss stated that the regional sediment management team in Delaware used the report as a comparative tool during Delaware sediment investigations to assess indicators for the Delaware watershed. They also used the report's evaluation method on how to look at all the older data to determine material placement location, based upon most conservative factors (residential, upland, marsh placement).

Cox Creek Expansion **Dave Blazer, MPA**

Mr. Blazer presented on the current MPA feasibility study for Cox Creek Expanded. He began by noting the locations of all past, present, and proposed dredged material containment facilities (DMCFs) on a map. He progressed to aerials of the current Cox Creek DMCF property, including the Conservation Easement (115 acres) and mitigated wetland (about 11 acres). Next, aerials of the 93-acre Cox Creek upland MPA property (formerly a copper refinery) and its neighbors (Cristal USA, Kemira, and the Constellation landfill) were reviewed. Since additional dredged material capacity is needed by 2018, the upland property, which is all in Anne Arundel County, is Phase I of the Expansion Project. Phase II is the possible acquisition of Cristal USA, about 117 acres located in both Anne Arundel County and Baltimore City, which is for sale (listed without price).

The permit application has been submitted for offshore (river bottom) geotechnical borings to assess dike raising feasibility. Any potential dike elevation would be within the footprint of the current facility.

More than 100 borings will be conducted in the uplands for chemical analysis to determine chemical presence and identify potential cleaning needs from the former site use. Permitting is not required for these borings, but communications with Maryland Department of the Environment (MDE) have occurred regarding them. In response to Mr. Denney's question regarding MPA vs. former owner cleanup responsibility, Mr. Blazer stated that MPA is documenting the chemical status of the land, acknowledges

the past use and the legal ability to pursue a responsible party but that ultimately, it would slow down the site expansion process. MPA is fairly confident that the site is relatively clean, but more chemical data is needed. Mr. Bibo added that MPA utilized MDE data prior to purchasing the property in order to confirm the environmental status of the site. Mr. Denney then asked if dredged material constituted a capping material, to which Mr. Blazer replied in the negative, adding that Harbor material is considered contaminated unless treated and tested.

A request for proposal (RFP) for removing asbestos from the buildings is on the street, since the buildings currently on the property will be demolished. The demolition RFP will be out in the next few months. The current tenant, Bronson (a soil operation) has been given one year to vacate.

There are wetlands on north and east portions of the pland property. About two years ago, Bronson filled in 0.8 acres of wetlands and MPA paid about $50,000 in fines as a result. To reduce time acquiring permits and as an environmentally friendly practice, the expansion dikes of Phase I have been planned around the wetlands and their 25-foot buffer zones on the uplands. Despite the expansion of the DMCF, there is still space for an innovative reuse facility.

Community outreach is underway. Various stakeholder groups are being informed (IRC, Harbor Team, and the newly staffed Cox Creek Citizens Oversight Committee) and an Open House will be held at Cox Creek DMCF April 26th. By January 2016, it is anticipated that the feasibility study, outreach, regulatory coordination and permitting process, design, and demolition will be completed. MPA anticipates accomplishing Phase I in five years.

Questions and comments from the attendees were responded to by Mr. Blazer. Mr. Denney noted that there is a prime opportunity for outreach at the Cristal and Masonville locations, which are exemplary 'before' and 'after' sites (respectively). Ms. Searfoss noted that there is an increased focus from EPA on dredged material management (reuse rather than containment) facilities, which may lead to changes in DMCF permitting in the future. Cox Creek DMCF, with innovative reuse, will become such a 'management' facility with a focus on stockpiling and capacity recovery with production on-site. The change to a management facility is good for business and good for public relations – the name change gives the accurate impression that dredged material is a commodity, not a toxic waste product. She added that silt for thin layer placement is being used in Delaware.

MPA noted that Cox Creek DMCF is in a great location for business – it is already zoned as industrial, there is rail access (which needs repair), a pier with immediate access to waterways, and I-695. Ms. Leitner inquired as to any need for additional permitting after expansion. Mr. Blazer replied that the discharge permit is in effect and conversations are ongoing with MDE about additional permitting. He noted that discharge will not change, although it may decrease due to the larger facility size.

Roundtable **Fran Flanigan, Facilitator and IRC Members**

Ms. Flanigan reminded the attendants of their work at the previous meeting capturing impediments to and opportunities for the work of the IRC. She noted that the January 2014 IRC meeting spurred revisiting

and investigating potentially viable technologies after rejecting the 500,000 cubic yard (cy) requirement which previously guided the IRC. The roundtable of this meeting is for brief presentations of possible viable technologies, regulatory mechanisms, and/or applications. Ms. Flanigan has communicated with Ms. McCubbin, Ms. Lemke, Mr. Flanigan, Mr. Stancill (quarry facility operation and green roof material), Ms. Searfoss (regulatory ideas), Mr. Petzrick, and Northgate Environmental since the previous meeting. She has yet to meet with Larysa Salamacha of the Baltimore Development Corporation; Ms. Salamacha knows City brownfield locations. Ms. Flanigan asked the attendees to consider the quantity of dredged material associated with, the potential applications, the likelihood of permission to execute, the cost-effectiveness of, and the demonstration time required of each idea. The Executive Committee of the Dredged Material Management Program (Secretaries of MDOT, DNR and MDE; U.S. Army Corps of Engineers [USACE] Colonels of the Baltimore and Philadelphia Districts; Executive Director of the Chesapeake Bay Foundation; a representative of the Management Committee and the chair of the Citizens Advisory Committee) has a June 4 meeting, at which there ought to be a 'new thinking on innovative reuse' presentation.

Capping

Ms. Flanigan began the discussion with the Harbor Point cap (for Chromium) which will be pierced for the Exelon Headquarters and other buildings. In order to construct, they must elevate the cap 11 ft. There might have been a possibility to involve dredged material in part of that cap. Mr. Stancill agreed, stating that, despite the use of Harbor dredged material, there might be potential for several (not all) feet to be dredged material.

Bulk Material

Mr. Stancill spoke on the opportunities available in bulk material. The Stancill facility has a 9–12 million cy capacity. Bulk material, such as sand and gravel, has a clay/silt waste product. Although it has low permeability, it is not landfill quality. Instead, there is an opportunity to incorporate it with dredged material, depending on the characterization, to create another product. He noted the knowledge of material blending already present in the sand and gravel industry. The biggest impediment is contamination – could the dredged material be cleaned? However, there is currently a local surplus of low grade fill; the marketplace is nearly saturated.

Mr. Pribyl stated that small project ideas are welcomed. A pilot project would determine costs and the ability to scale up the potential. He utilized the common analogy of taking small bites to eat an elephant to illustrate the larger scale potential of multiple smaller (than 500,000 cy) projects.

Beneficial Reuse

Ms. Lemke noted that states, cities, municipalities, and other organizations are preparing for storm surges and sea level rise (SLR) via hard- and soft- (or green-) scaping. These techniques use wetlands, buffers,

and bulkheads to rebuild and stabilize shoreline. The combination of this opportunity with the freeboard requirement for floodplain new construction could result in potential uses of aggregate composed of dredged material. Specifically, there are shoreline buffer and green recreation amenity opportunities associated with a pilot project in Middle Branch. Pilot studies for LWA, rip rap, fills, and surfaces such as terrace levels or bike trails could occur to raise the shoreline. Ms. Lemke also noted the role of the innovation economy: new materials and new applications. New York City, the country leader in climate planning, held a competition for landscape architects to design for storm surge. Ms. Lemke stated that the region has the intellectual capacity which might be stimulated through a design and/or business plan competition to innovate the materials and applications needed for beneficial use of dredged material.

Ms. Flanigan added that the Maryland Industrial Partnerships (MIPS) program jointly funds collaborative research into new technology between companies and University System of Maryland faculty. MIPS is interested in good test cases with MPA.

Ms. Lemke reported that, after speaking with the Baltimore Department of Planning floodplain program manager, there is a growing demand for capping brownfields.

Mr. Kiernan noted the need for faster responses to these opportunities and better sediment quality management – which will cause a shift in DMCF management. The material characteristics need to be known and ready for transport immediately. Ms. Searfoss added that the USACE Philadelphia District keeps material in cells divided into smaller cells by characterization with analytical data ready for the State. She suggested a similar policy in Maryland: an open door policy that allows interested parties to analyze the geotechnical specifications of the material and take it away. The DMCF benefits by gaining capacity and the 'buyer' gains by paying solely for the analysis. She added that USACE is embracing softscaping and encouraged issuing an invitation to USACE in order to begin aligning dredged material management practices with USACE project needs so as to provide a ready material for a ready client. Mr. Stancill stated that if a product is offered without conditions, is appropriately represented, the buyer may come and get it, and the buyer feels relatively safe about it, there will be more smaller buyers. He noted that testing is expensive – especially if the results are not favorable and thus the testing is not cost-effective. He suggested that the DMCF operators test the material beforehand to entice smaller buyers.

Ms. McCubbin noted American ingenuity as an untapped resource. She suggested funding new innovations (like with MIPS) or team competitions/challenges (like the American Solar Challenge that University of Maryland participates in). She also mentioned the Department of Business and Economic Development's InvestMaryland business resource, which targets specific fields such as biosciences, life sciences, cybersecurity, and gives grants to competitive corporate teams; and Wallenius Wilhelmsen Logistics, a green company involved with a Danish Maritime Cluster partnership known as the Green Ship of the Future. Each year ideas are submitted and the best ideas are bought, with the goal of a net zero ship met through the competitions. She also reported on a new research foundation forming on health care costs with the goal of streamlining and networking all the Intensive Care Unit health monitors

and machines utilized by one person, which are currently read and collated manually. There are 24 business incubators in the State of Maryland where people are given access to resources that can support them as they research and develop the commercialization of their products. She suggested donating resources to incubators to develop dredged material products and applications.

Upland Landfill Placement

Northgate Environmental representatives stated that they are working locally with a waste management company to form opportunities for upland placement utilizing underused permitted landfill facilities. The permitting process is often long to determine met criteria, which is not cost-effective. Northgate is trying to network with a number of locales to improve the cost-effectiveness. Ms. Flanigan noted that the IRC has an April field trip to see a potential landfill for capping and beneficial end use (e.g. solar projects).

Connection with Recycled Material Taskforce

Mr. Pierce Flanigan noted that there is waste from road repair. Due to decreasing landfill capacity (and increasing landfill costs) and the fact that concrete and asphalt are recyclable, the need to recycle those materials is increasing. Recycled concrete and asphalt are also very competitive with newly mined materials. The main impediments were perception and technical specifications. Industry and the State Highway Administration (SHA) formed the Recycled Materials Taskforce to resolve this impediment, with the goal of increasing the use of recycled materials in the State of Maryland. He noted the reach of this approach, stating that many municipalities use SHA specifications. The Taskforce reviewed multiple materials with SHA engineers, MDE, and the University of Maryland, and industrial producers to identify concerns and properties of the materials. Pilot projects have resulted in increasing the use of crushed concrete and specifications for foamed asphalt stabilized base. This is a similar situation to dredged material. He suggested working with the Taskforce.

Ms. Flanigan referred the IRC to a past demonstration project with Schnabel Engineering, which involved steel slag fines and dredged material and was meant to be a road product; with which there was a leaching issue. She asked if there was potential for dredged material to become a part of the recycling stream under consideration by the Taskforce. Mr. Flanigan responded that if the dredged material were more bound, such as part of concrete or asphalt – it might have less potential for leaching. Ms. Searfoss noted her New Jersey DOT contact, who may be able to speak about the New Jersey DOT use of dredged material and may have some ideas for the IRC. She stated that they are mixing and binding the dredged material to alleviate the leaching issue.

Concrete Geoforms

Mr. Petzrick introduced the concept of mixing Class C fly ash, which is a by-product of electricity production and has self-cementing properties (which could stabilize dredged material), with dredged material to create specific concrete products. (Class C is different from Class F. Class F has been sold to

the cement plants, but Class C has too high a Magnesium content.) Cox Creek DMCF is a prime location for the convergence of multiple local resources to make products: the ash from Raven Power, the sand and gravel leftover from Harbor Rock's operation, and the cement facility at Union Bridge. Transport – especially by water – is readily available, as was mentioned by MPA during the Expansion presentation. In terms of marketability, first there is an opportunity to enter the shoreline bulkhead/SLR planning market. Hard rock is increasing in price – providing an opening for this material. There are also opportunities in tetrapods (a.k.a. big jacks) – large anchors, jersey barriers, and beach prisms – which convert wave energy and trap sand and are placed as storm surge protection. Beach prisms are made by the patent owner, a company entitled Smith-Midland located in Virginia. Smith-Midland also makes jersey barriers. Mr. Petzrick made inquiries with Smith-Midland, who was not interested in the Harbor material and objected to another company utilizing the material to produce similar products. Mr. Petzrick advised a cautious investigation: Smith-Midland's negative response is not the only consideration for this use; sand and gravel availability, market size, and Smith-Midland's actual share of the market (claim of 80%) are also important considerations. MDE objects to the use of concrete as a shoreline stabilization technique, preferring softscaping. Mr. Petzrick stated that the size of Maryland's demand within the shoreline stabilization/stormsurge and SLR planning market should be investigated to ensure that there is a significant market for a hardscaping product before producing it.

Brainstorming: New Goals for Innovative Reuse **Fran Flanigan, Facilitator and IRC Members**

After encouraging the attendees to keep the project ideas coming, Ms. Flanigan stated that the IRC will determine feasibility and pilot projects to demonstrate to policymakers that the opportunities for dredged material exist under certain conditions. Conversations with consultants have been held to value the space saved by dredged material extraction, especially in comparison to building new containment facilities.

Ms. Flanigan asked the attendees for a reasonable approach and timeframe for moving forward with Phase II of the innovative reuse study. She also called for advice on improving cost valuations per cy of reuse versus containment. She asked if anyone present had a short-term goal for the use of dredged material? Mr. Kiernan expressed the opinion that identifying project opportunities should be the goal before the number cy used. He also noted that New Jersey has modified dredged material regulations as a resource for the last twenty years and Maryland does not have a set of regulations for dredged material that could create the opportunities the IRC is seeking. Mr. Blazer agreed that a number was not yet necessary. Acknowledging the impressive ideas already shared, he asked how much each would take (cy) and are the products/applications repeatable? Each project/application needs to be evaluated to determine if the investment is worthwhile. He emphasized long-term sustainability over one-time projects, using the crushed concrete pilot project as an example of a repeatable and sustainable application. The initial cy size or cy per iteration is not as important as the repeatability. Ms. Flanigan summarized the IRC's approach as mix and match, rather than choosing one project with a large cy use. Mr. Blazer agreed that a different style of DMCF management which allows for quick multiple uses should be investigated. Ms. Searfoss spoke on terminology. She stated that 'innovative reuse' may be self-limiting and that EPA encourages beneficial use – innovation or simple reuse does not matter. USACE also encourages

beneficial reuse (capping, beach nourishment, etc). If the IRC is interested in using a metric, Ms. Searfoss suggested using an annual percentage used or recovered from the facilities. Mr. Petzrick encouraged the IRC, relating that the concrete product with Class F fly ash, a half million tons of fly ash per year production, started as a few truckloads as a sample to Union Bridge. Within two years, the limited supply of the Class F ash pile will be exhausted – and Union Bridge is actively looking for a replacement product. Don't be wary of trying small projects, even if there is a small outlay (as was the case with the initial ash transport).

Closing the Meeting **Fran Flanigan, Facilitator**

After Ms. Flanigan noted that June 4th is the Executive Committee meeting and May 14th is the Management Committee meeting, Mr. Blazer expressed the preference to meet before June, preferably in mid-May. Ms. Flanigan will send out potential meeting dates to the committee in the near future. She also agreed to distribute the Cox Creek Expansion PowerPoint presentation and the HarborRock email. She offered to forward the 2009 sediment quality report to anyone interested. Mr. Pribyl noted the need for the IRC's timeliness and transparency. Ms. Flanigan thanked the participants for their fruitful discussion and closed the meeting.

Meeting was adjourned at 7:00 pm