

DATE: December 8, 2016

FILE REF: **DRAFT**

TO: NR 538 Technical Advisory Committee

FROM: Philip Fauble, Beneficial Use Coordinator  
Waste & Materials Management Program

SUBJECT: Draft Responses to Third Request for Proposed Revisions to ch. NR 538 Wis. Adm. Code

During the third meeting of the NR 538 Technical Advisory Committee (TAC) for rule revisions on September 13, 2016, the Department solicited comments from the committee members for suggested revisions to the listed beneficial uses section NR 538.10 of the existing administrative code requirements. Below is a summary of the comments submitted and the Department's draft responses.

At our scheduled December 8, 2016 meeting, the Department will discuss some of these draft responses with the TAC members to determine if we can come to a consensus on our approach. Our intent is to develop a series of memos documenting comments from the TAC members and responses where we could achieve consensus and to note areas where disagreements remained.

Beneficial Reuse Management's NR 538 Suggestions/Revisions, November 11, 2016

**Comment:** NR 538.10(5) Confined Geotechnical Fill – Beneficial Reuse Management LLC (BRM) proposes that the limit on confined fill geotechnical projects that do not require DNR concurrence be increased from the current 5000 cubic yard threshold to 10,000 cubic yards.

**Response:** DNR agrees with BRM that small projects beneath the current 5000 cy threshold do not take much time to compete and are covered relatively quickly. While we also appreciate BRM's assertion that raising the threshold for concurrence would lessen the burden on the DNR, a quick review of our records show that only a small number of concurrence letters are for confined fill projects between 5000 and 10,000 cubic yards, so the savings would be minimal. The 5000 cubic yard threshold seems to have been working well since the first promulgation of the rule and remains an appropriate threshold above which projects should be tracked in case they are disturbed in the future.

**Comment:** NR 538.10(5)(a)(b) – BRM references the portion of this code requirement for confined fills that restricts placement of existing Category 4 materials to no more than 4 feet beyond the outside edge of the concrete slab or frost walls of the building. BRM notes that the berms surrounding the confined material needs to be at a minimum 3:1 slope 8 to 10 feet beyond the confining element which often requires large additional volumes of clean fill. BRM does not suggest any revisions to code language.

**Response:** DNR acknowledges that additional fill material is typically required to build out adjacent to areas where byproduct fill material is placed within 4 feet of the outside of the frost walls or concrete slabs that confine the byproduct material. One solution would be to not allow any byproduct material beyond the confining slab or building footprint, but allowing for some placement beyond the confining system was a compromise to help facilitate projects. Byproduct material can be placed beyond the 4 foot limit to help with the fill requirements, but it would have to meet the unconfined fill specifications of s. NR 538.10(8) Wis. Adm. Code, which would exclude the use of existing Category 4 material.

**Comment:** BRM proposes adding a section to NR 538.10 to address the beneficial use of byproduct material in feed storage lots and manure storage pits. The uses would have to meet the NRCS 629 and NRCS 313 construction standards and would be included as a beneficial use that would have a 10-day review and concurrence by the DNR.

**Response:** DNR concurs with BRM's suggestion and has included a new section, NR 538.10(6) to cover this use. One goal of this rule revision process was to incorporate newer beneficial uses that are currently being approved by case-specific approvals, where appropriate.

**Comment:** NR 538.10(5)(b) Confined Geotechnical Fill - BRM proposes alternate cover requirements for impervious surfaces to include both 2-feet of compacted clay and, potentially, geomembrane that could be placed above Category 4 fill materials. They also propose placing up to 1.5 feet of gravel cover over equipment storage and materials storage pads in place of 2 feet of soil cover. BRM would like to include a code requirement for both options since the current approval of these alternatives is case-specific.

**Response:** While the DNR has approved use of a clay or geomembrane confining layer in a few select circumstances as a substitute for the use of an impervious surface, use of these designs is complex and should be reserved for case-specific approvals where appropriate conditions could be attached. Design specifications for compacted clay covers and geomembranes are specified in s. NR 504.07 Wis. Adm. Code, but they require both design and review by a qualified engineer. This would include construction inspections and as-built construction documentation reviewed by a DNR engineer, as well as extensive quality control testing of clay sources and geomembrane installation. Approval conditions would vary depending on the quality of the materials being used and the proposed design. In short, these applications, while protective, are too complex to include as a default design specification in the code. The definition of "impervious surface" in s. NR 538.03(6) Wis. Adm. Code has been modified to include the use of both clay caps and geomembranes constructed in accordance with s. NR 504.07 Wis. Adm. Code and language has been added to s. NR 538.10(5)(b) indicating that all approvals for either a clay cap or geomembrane must be a case specific approval. Language has been added to s. NR 538.10(8) Wis. Adm. Code to allow for the use of gravel in place of the surface soil cover requirement. We are willing to work with BRM to develop guidance documents for submitting projects using these design elements once the rule-making effort is completed.

**Comment:** NR 538.10(8) Unconfined geotechnical fill – BRM proposes including the use of Category 2 materials as unconfined fill to level out agricultural fields as long as they are covered with 3 feet of soil.

**Response:** DNR has historically not approved (with a few exceptions) of the use of industrial byproducts in agricultural settings since the cover material would be subject to repeated periodic disturbances that could compromise the cover and expose byproduct. The assumption is that, once covered, the cover will be maintained and the byproduct will remain undisturbed. BRM provided no documentation that an extra foot of cover soil would be adequate to protect the byproduct from disturbance. There is also no way to determine why there is a depression in the farmer's field; it could be the result of a sinkhole or mine shaft that empties directly into the water table. Again, this use should be left to case-specific approvals under s. NR 538.07(8) Wis. Adm. Code, unless the landowner proposes

using the byproduct directly on the fields, in which case they could make an application under s. NR 518 Wis. Adm. Code for land application.

**Comment:** NR 538.10(8) Unconfined geotechnical fill – BRM proposes unifying the requirement for both confined and unconfined fill uses so that concurrence is only required for projects in excess of 5000 cubic yards. Currently, all unconfined fill projects require a concurrence.

**Response:** As a practical matter, this proposal makes sense. Confined fill projects that could use the proposed Category 2 byproducts (old Category 4) do not need concurrence if the fill project is under 5000 cubic yards, but unconfined fill projects utilizing proposed Category 1 (old Category 2) byproducts that have been demonstrated not to leach contaminants above the NR 140 ground water standards must receive concurrence even if only minimal amounts are used. It also simplifies the code requirements while still providing for protection of the environment and allowing for tracking of larger projects. Language providing for concurrence for unconfined fill projects in excess of 5000 cubic yards has been added to s. NR 538.10(8) Wis. Adm. Code.

**Comment:** NR 538.10 Potential New Sections – BRM proposes adding a new section to NR 538.10 allowing use of foundry sand in soil-related applications.

**Response:** Regulation of the application of foundry sand byproduct on agricultural fields falls under the s. NR 518 Wis. Adm. Code for landspreading.

**Comment:** NR 538.10 Potential New Sections – BRM proposes creating a new section of NR 538.10 to allow the use of FGD gypsum and paper mill sludge for agricultural soil amendments.

**Response:** Application of paper mill sludge on agricultural fields is regulated through the WPDES discharge permits. A new section for the use of FGD gypsum and lime kiln dust for soil or plant additives used in accordance with DATCP licensing requirements has been added to the revised NR 538.10(15) Wis. Adm. Code.

#### Department of Transportation's Comments, November 28, 2016

##### **Comments on 538, Section 10:**

**Comment:** 538.10: Several areas reference “residential areas”. This should be further defined. Does this include all residential zoning categories (single family, mixed use, etc.)?

- Maybe refer to urban or residential in nature?

**Response:** There is a definition of “residential areas” in s. NR 538.03(6) Wis. Adm. Code in which residential areas are generally defined as any property that is zoned residential or within 100 feet of any residence.

**Comment:** 538.10(5) (5): Current language is >5000 CY **per project**. Is this the desire, or is it 5000 CY per site/location? i.e. a 10-mile long DOT project may have 2 or 3 separate locations of smaller 3000 CY fills, and would fall into 538. Is this the intent?

**Response:** Under the existing language of the code and our interpretation of that language, each one of the fill locations in your example would constitute a project. Each fill project would likely be constructed at different times and may have different fill materials even though they are part of a larger defined DOT project that covered many aspects of road construction along a stretch of roadway.

**Comment:** 538.10.5.c:

- “Base course” is really a DOT slang term. The material is officially called ‘Aggregate Base’.
- **Response:** Agreed. We have revised our language to better reflect DOT terminology by adding a section for aggregate base and removing references to “base course” and “subbase fill”.
- **Comment:** There appears to be confusion over the referenced 4 feet. This section indicates no subgrade fills can be greater than 4 feet, but the following paragraphs discuss fills greater than 4 feet without any indication of how or when they are allowed. There appears to be confusion over fill embankment heights and fill layer thicknesses, or fills under pavement vs general embankment fills? This should be clarified.
- **Response:** Agreed. We removed the reference to fills greater than 4 feet in depth using Category 4 materials abiding by the design standards of sub. 6. If an applicant wished to use revised Category 3 material in excess of 4 feet in depth, they would be required to apply for a case-specific approval under s. NR 538.08(7) Wis. Adm. Code. Revised Category 1 materials used in excess of 4 feet in depth could be used if they meet the design criteria in sub. (7) for highway embankments.

**Comment:** 538.10 Section 5d: Remove from consideration for use as ‘Utility trench backfill’.

**Response:** Agreed.

**Comment:** 538.10 Section 5e: Remove from consideration for use as ‘Bridge abutment backfill’. DOT does not want these materials within 20 feet of any substructure infrastructure elements including bridge piers and abutments, retaining walls, etc.

**Response:** Agreed.

- Please note, special consideration and review is also needed in wall backfill situations, especially MSE Walls.

**Comment:** 538.10 Section 5h: Update ASTM C618-03 to C618-15 (current version).

**Response:** Agreed.

**Comment:** 538.10 Section 6: No guidance is provided for this application?

**Response:** There are published NRCS standards (Code 313 and Code 629) for these applications which we will reference directly in a “Note” below this section. The draft version you reviewed was not complete for this section.

**Comments:** 538.10 **Existing** Section 6: It appears that DNR will remove the ‘landfill-type’ potential applications on DOT projects. To date, many of our uses fall into this category. If this removal does **not** occur:

- Will DNR allow other encapsulation materials [Geosynthetic clay Liner (GCL)] in place of clay liners? If so, there needs to be guidance on this.
- Is encapsulation needed for all products, or are there some low level foundry sands that could be used without encapsulation?
- Is monitoring still needed?

**Response:** As noted, we are proposing removing this section in its entirety. Our experience with these types of encapsulated embankments has not been positive. There have been construction problems, lysimeter placement and operation issues, infiltration of water that results in potential instability of the embankment structure and open-ended commitments to groundwater monitoring in hazardous locations. There are also issues with increased costs incurred on DOT and the generators for construction and long-term care as well as questions regarding the ability to reuse the byproducts once the embankments have outlived their useful life or the roadway is redesigned. Our proposed solution is to have a very simplified embankment design specification under sub (7) while only allowing revised Category 1 byproduct materials. In this way, we can eliminate long-term monitoring while ensuring environmental protection and substantially reduce costs to DOT.

**Comment:** 538.10 **New** Section 9(c): It appears that this paragraph has nothing to do with the materials under discussion in 538. Can it be deleted?

**Response:** Agreed. We were trying to better define “mine reclamation”, but this is better suited for guidance or Code language under s. NR 135 Wis. Adm. Code.

**Comment:** 538.10 **Existing** Section 9 and Section 11: Why do these bonded/unbonded surface course materials need to conform to WisDOT Standard Specifications if they are not used on a DOT project?

**Response:** The uses listed here are approved for use without specific approval by the DNR. The concept is that, if the byproduct can meet accepted, published standards for a specific use, then additional approval from the DNR is not necessary and the use is legitimate. If the byproduct material cannot meet the established standards for that use, it may still be acceptable for that use, but it will require a case-specific approval from the DNR under s. NR 538.08(7) Wis. Adm. Code. One goal of this revision is to better define what standards are applicable and when a case-specific approval is necessary.

**Comment:** 538.10 Section 13:

- Suggest replacing the added “and salt” wording with ‘and de-icing materials’.
- **Response:** Agreed.
- **Comment:** WisDOT does not measure application rates. Is 1000 lbs/lane mile per application, or per year or other? WisDOT to check.
- **Response:** Thank you for checking. My understanding, from the DOT guidance, was that the application rate was per application.

**Comment:** 538.10 Section 15(b): Wording on applied rates is vague and appears to potentially be non-enforceable.

**Response:** This section is written a bit differently since it applies to byproducts that would be used as a soil or plant additive. The application rates would be calculated by the generator or broker and included in a written application for DNR approval. It was not the intent to include numeric standards for these types of uses as a code requirement since the rates would vary depending on a variety of factors.

**Comment:** Does DNR want to address the potential mixing of these materials with virgin materials? At our recent meeting, it was stated that a 'mix' is always subject to 538 requirements. Is this true?

**Response:** It would be acceptable to use a mixture of material, but the regulation that applied would depend on the amount of byproduct used. If, for instance, 1000 cubic yards (cy) of foundry sand were mixed with 10,000 cy of native materials, the project would be regulated according to the amount of byproduct material used (i.e. 1000 cy), not the volume of the mixture (i.e. 10,000 cy).

**Comment:** DOT usage/regulation only comprises a portion of use of these materials. The question came up of, Do we want lab testing with our DOT-desired properties on all materials, even though they may not be used on our projects? It appears that the lab tests attached to the end of this memo are **not** appropriate for all materials, only those being considered for DOT projects. Are references to specific WisDOT Standard Specification Sections needed?

**Response:** It is important to clarify the intent of the uses listed in s. NR 538.10 Wis. Adm. Code in regards to this question. If the byproduct material is used in the manner specified in this section of the code, the assumption is that the use is legitimate and more stringent oversight is not needed. For instance, if a byproduct material can meet an established specification, say WDOT Section 301 for a base aggregate, then there is no doubt the material can be used as a base aggregate in any situation, and an in-depth review of the material is not necessary. If the byproduct material does not meet an established specification for a given application, it may still be suitable for use, but a more detailed analysis and a specific approval under s. NR 538.08(7) Wis. Adm. Code will be required.

**Comment:** GIS tracking and logging. Who will do this? If DOT does this, we will only have the materials we use, not all the sites in the state.

**Response:** We have not detailed this requirement, but it is our intent to propose submission of detailed coordinates of certain reuse projects, especially projects that use large volumes of byproduct fill. We can discuss the retention of this data when that section of the code is addressed.

**Comment:** Disturbance and moving at a later date, where and how do we want to handle this?

**Response:** Again, that is an issue we intend to address, but in a later section of the code.