

Worel, Benjamin (DOT)

From: Beaudry, Terrence (DOT)
Sent: Thursday, November 10, 2016 11:17 AM
To: Thomas Fennessey; Siekmeier, John (DOT); 'aaron.budge@mnsu.edu'; 'dans@midstatecompanies.com'; 'dsaftner@d.umn.edu'; 'Heather.Shoup@illinois.gov'; 'Jeffrey.horsfall@dot.wi.gov'; Kevin McLain; 'moman@braunintertec.com'; 'Robert.arndorfer@dot.wi.gov'; 'Sheila.Beshears@illinois.gov'; Worel, Benjamin (DOT); 'ken.darby@dot.ca.gov'; 'deepak.maskey@dot.ca.gov'; david.white@ingios.com; 'Kevin.Kliethermes@dot.gov'; Van Deusen, David (DOT); Garrity, John (DOT); Bormann, John (DOT); Van Deusen, David (DOT)
Subject: RE: MnROAD subgrade data

Sorry for the confusion.

For the recycled section, no glass, and composed of 100% recycled HMA and concrete of which 40-60% each is HMA and concrete.

I also agree on your fabric comments for the large rock sections, and will defer to WI on whether they think it is needed by taking into account the predicted CBR value.

Best Regards,

Terry Beaudry, Pavement Reclamation, Preservation (CIR), Recycling, Grading, Base & Aggregate Engineer, 651-366-5456

From: Thomas Fennessey [mailto:Thomas.Fennessey@modot.mo.gov]
Sent: Thursday, November 10, 2016 10:41 AM
To: Beaudry, Terrence (DOT) <terry.beaudry@state.mn.us>; Siekmeier, John (DOT) <john.siekmeier@state.mn.us>; 'aaron.budge@mnsu.edu' <aaron.budge@mnsu.edu>; 'dans@midstatecompanies.com' <dans@midstatecompanies.com>; 'dsaftner@d.umn.edu' <dsaftner@d.umn.edu>; 'Heather.Shoup@illinois.gov' <Heather.Shoup@illinois.gov>; 'Jeffrey.horsfall@dot.wi.gov' <Jeffrey.horsfall@dot.wi.gov>; Kevin McLain <Kevin.McLain@modot.mo.gov>; 'moman@braunintertec.com' <moman@braunintertec.com>; 'Robert.arndorfer@dot.wi.gov' <Robert.arndorfer@dot.wi.gov>; 'Sheila.Beshears@illinois.gov' <Sheila.Beshears@illinois.gov>; Worel, Benjamin (DOT) <Ben.Worel@state.mn.us>; 'ken.darby@dot.ca.gov' <ken.darby@dot.ca.gov>; 'deepak.maskey@dot.ca.gov' <deepak.maskey@dot.ca.gov>; david.white@ingios.com; 'Kevin.Kliethermes@dot.gov' <Kevin.Kliethermes@dot.gov>; Van Deusen, David (DOT) <Dave.VanDeusen@state.mn.us>; Garrity, John (DOT) <john.garrity@state.mn.us>; Bormann, John (DOT) <john.bormann@state.mn.us>; Van Deusen, David (DOT) <Dave.VanDeusen@state.mn.us>
Subject: RE: MnROAD subgrade data

Thursdays are my NRRA days and I am now reviewing your email from last week. The following are my only comments.

With regard to Large Sub-Base Sections, I would initially be opposed to the inclusion of separator geo-fabric unless the subgrade is to be "softened" to less than CBR=3 or equivalent. My experience is that most agencies do not routinely use separator geo-fabric unless conditions similar to that are anticipated/encountered.

With regard to Recycled Base Sections, the hi-lited section below struck me when I read it. Perhaps final wording should be revised to read "not less than 40% and not more than 60%" in both cases. I was also surprised about the inclusion of recycled glass in Table 3138-6. I would be opposed to inclusion of recycled glass in our test sections without first discussing it among the team members.

From: Beaudry, Terrence (DOT) [<mailto:terry.beaudry@state.mn.us>]

Sent: November 04, 2016 10:57 AM

To: Siekmeier, John (DOT); 'aaron.budge@mnsu.edu'; 'dans@midstatecompanies.com'; 'dsaftner@d.umn.edu'; 'Heather.Shoup@illinois.gov'; 'Jeffrey.horsfall@dot.wi.gov'; Kevin McLain; 'moman@braunintertec.com'; 'Robert.arndorfer@dot.wi.gov'; 'Sheila.Beshears@illinois.gov'; Thomas Fennessey; Worel, Benjamin (DOT); 'ken.darby@dot.ca.gov'; 'deepak.maskey@dot.ca.gov'; david.white@ingios.com; 'Kevin.Kliethermes@dot.gov'; Van Deusen, David (DOT); Garrity, John (DOT); Bormann, John (DOT); Van Deusen, David (DOT)

Subject: RE: MnROAD subgrade data

With regards to the three proposed test sections for our and the flexible subgroup, please see my comments below and the referenced design summaries that are attached:

- 1) Large sub-base sections, Cells 27 and 28:
 - a. Under the proposed section it states “Place Type V separator” It is my belief that a separator geo-fabric was never proposed by our group, and I am against it, however if the consensus of others is to have a separator fabric, I would go along – PLEASE ADVISE
 - b. I propose that the Class 6 (normal base) material meet class 6 specification and be composed of 100% crushed quarried limestone.

Sieve Size	Class 6
2 in	—
1½ in	100
1 in	—
¾ in	70 – 100
⅝ in	45 – 85
No. 4	35 – 70
No. 10	20 – 55
No. 40	10 – 30
No. 200	3.0–7.0

- c. I propose that that compaction compliance be per the DCP and proof roll with a tandem truck the top of the base; also measure per the specified density method with a nuke gauge and a proctor during construction.
- 2) Recycled Base Sections, Cells 85, 86, 88, and 88: I propose that that compaction compliance be per the DCP and proof roll with a tandem truck the top of the base; also measure per the specified density method with a nuke gauge and a proctor during construction.
 - a. For cell 85, I propose the following gradation and composition. Be composed of 100% recycled concrete and meet the gradation below in Table 3138-6
 - b. For Cell 86, I propose the following gradation and composition. Be composed of 100% recycled concrete and meet the gradation below in Table 3138-6.
 - c. For Cell 88, I propose the following gradation and composition. Be composed of 100% crushed quarried limestone and meet the gradation above in Table 3138-3 for class 6.
 - d. For Cell 89, I propose the following gradation and composition. Be composed of 100% recycled materials composed of not more than 40% and not less than 60% recycled concrete and not more than 40% and not less than 60% recycled bituminous and meet the gradation below in Table 3138-6.

Table 3138-6 Base and Surfacing Aggregate			
Sieve Size	Class 5Q Cell 85	Class 5 Cell 86	Class 6 Cell 89
2 in	100	—	—
1½ in	—	—	100
1 in	65 – 95	100	—
¾ in	45 – 85	90 – 100	70 – 100
⅝ in	35 – 70	70 – 90	45 – 85
No. 4	15 – 45	50 – 80	35 – 70
No. 10	10 – 30	35 – 65	20 – 55
No. 40	5 – 20	20 – 35	10 – 30
No. 200	0 – 6.0	6.0–10.0	0 – 7.0

* If product contains recycled aggregate, add letters in parentheses for each aggregate blend designating the type of recycled products included in the mixture.
(B) = Bituminous, (C) = Concrete, (G) = Glass
(BC) = Bituminous and Concrete, (BG) = Bituminous and Glass
(CG) = Concrete and Glass, (BCG) = Bituminous, Concrete, and Glass

- 3) Cold Central Plant or Cold In-place Recycled Sections particularly for cells 33, 34, and 35.
- a. I recommend that cores be taken immediately and a mix design be performed, because a mix design is required within the proposal if using MnDOT’s current specifications. The sections should have Ground Penetrating Radar for thickness be performed.

Best Regards,

Terry Beaudry, Pavement Reclamation, Preservation (CIR), Recycling, Grading, Base & Aggregate Engineer, 651-366-5456

From: Siekmeier, John (DOT)
Sent: Friday, November 04, 2016 8:26 AM
To: 'aaron.budge@mnsu.edu' <aaron.budge@mnsu.edu>; Beaudry, Terrence (DOT) <terry.beaudry@state.mn.us>; 'dans@midstatecompanies.com' <dans@midstatecompanies.com>; 'dsaftner@d.umn.edu' <dsaftner@d.umn.edu>; 'Heather.Shoup@illinois.gov' <Heather.Shoup@illinois.gov>; 'Jeffrey.horsfall@dot.wi.gov' <Jeffrey.horsfall@dot.wi.gov>; 'Kevin.McLain@modot.mo.gov' <Kevin.McLain@modot.mo.gov>; 'moman@braunintertec.com' <moman@braunintertec.com>; 'Robert.arndorfer@dot.wi.gov' <Robert.arndorfer@dot.wi.gov>; 'Sheila.Beshears@illinois.gov' <Sheila.Beshears@illinois.gov>; 'Thomas.Fennessey@modot.mo.gov' <Thomas.Fennessey@modot.mo.gov>; Worel, Benjamin (DOT) <Ben.Worel@state.mn.us>; 'ken.darby@dot.ca.gov' <ken.darby@dot.ca.gov>; 'deepak.maskey@dot.ca.gov' <deepak.maskey@dot.ca.gov>; david.white@ingios.com; 'Kevin.Kliethermes@dot.gov' <Kevin.Kliethermes@dot.gov>; Van Deusen, David (DOT) <Dave.VanDeusen@state.mn.us>
Subject: MnROAD subgrade data

Good Morning,

During our NRRRA Geotech Team conference call yesterday I was asked to provide some information about the clayey sand to sandy lean clay subgrade at MnROAD. Please see attached spreadsheet.

The data is filtered to currently show only MnROAD and only the subgrade. Please ask if you have questions. Thanks for your interest.

Best,

John

The Minnesota Department of Transportation invites you to take our two-minute survey to help us improve our services. [MnDOT Internal Customer Survey](#)
Thank you for telling us about your experience.