2012 Dirt and Gravel Road Maintenance Workshop Draws 180 Attendees

The 2012 Dirt and Gravel Road Maintenance Workshop was held on September 25th and 26th at Treasure Lake in Dubois, PA. The 2012 Workshop saw 180 attendees from Conservation Districts, PA Forestry, Municipalities, DEP, PennDOT, private companies, and several federal agencies. Classroom topics presented include: Geosynthetically Reinforced Soil (GRS) bridges; a summary of common road aggregates; Aquatic Organism Passage at stream crossings; and use of metal stream pipes. The field trips included stops at: the only GRS bridge in PA; an 11-year old Dirt and Gravel Project with heaving hauling impacts; a pipe installation demo site; a mobile rock crusher demonstration; a discussion on box culvert usage and alignment; and topped off with a lunch stop at the Elk County Visitors Center, where the elk even showed up and were bugling. The 2013 workshop will be held next fall in a location TBD. Thank you to everyone who participated!

2012 Workshop Proceedings: all presentations, field trip info, documents, attendee list, and more: www.dirtandgravelroads.org (Look for “2012 Workshop Proceedings” shortcut at top right under “what’s new”).

Attendee Feedback: What was most useful about the workshop?
1) Field trips in general.
2) GRS-IBS bridge information.
3) General discussions and interactions with each other, Center, Program.
4) “Aggregates 101” presentation (see newsletter insert).

This bull elk not only showed up for the workshop, but he even obliged for pictures during the lunch stop at the Elk Country Visitor’s Center!
ESM Field Guide
Now Available!

For some time now, you have heard about the “Environmentally Sensitive Road Maintenance Field Guide” that the Center developed in conjunction with the US Forest Service. The guide made its debut in September where it was handed out to attendees at the 2012 Dirt and Gravel Road Maintenance Workshop. The guide is based largely on the ESM practices learned and collected throughout 15 years of the Dirt and Gravel Road Maintenance Program. These ESM practices are the same ones taught in the Center’s training and outlined in the Center’s Technical Bulletins. Practices such as French mattresses, shallow crosspipes, “reading the ditch”, underdrains, raising the road elevation, and more are outlined in this guide.

The US Forest Service and US Environmental Protection Agency were partners in creating this guide. The US Forest Service plans to distribute them to National Forests and LTAPs around the country. If you have not already received a copy and would like one, please let us know. If you would like “more than a few” additional copies, please contact the USFS directly as our supplies are limited.

The ESM Field Guide can be downloaded and printed free of charge at the Forest Service website below. If you wish to order additional hard copies, contact the USFS Technology and Development Center in San Dimas, California at (909) 599-1267 x239.

Website: http://www.fs.fed.us/eng/php/eng_search.php
Technology & Development Publication number (1177 1802P)

PA Road Aggregates 101

The insert in this newsletter is a new Technical Bulletin from the Center. The bulletin “PA Road Aggregates 101” attempts to explain many of the commonly used aggregates related to road work in Pennsylvania. With different specs from AASHTO, PennDOT, and other sources, there seems to be a lot of confusion and misinterpretation out there about aggregate sizes, gradations, and intended uses. This bulletin tries to clarify some of this by summarizing some of the more commonly used aggregates in Pennsylvania. It includes both graded aggregates and rip-rap. This is the same bulletin that was distributed at the 2012 Maintenance Workshop in September. Additional copies can be printed from the Center’s website under “Resources - DSA” (www.dirtandgravelroads.org).
Potential Program Funding Increase

You have been hearing about the potential for a Dirt and Gravel Road Program funding increase in an on-again off-again fashion over the past year. Well, the potential is “on-again”, so we thought we would take an opportunity to explain.

Existing Program Funding

Since 1997, the Dirt and Gravel Road Maintenance Program has received an annual allocation of $5 Million. The funding for the Program comes out of the PA Gas Tax and Motor Vehicle License Fund. It was enacted in 1997 through the addition of Section 9106 to the PA Motor Vehicle Code.

The Need for Additional Funding

The Dirt and Gravel Road Maintenance Program is one of the most efficient Programs in the State, but has unfortunately seen its buying power effectively reduced by 1/3 due to inflation over the past 15 years. The Program has completed over 2,200 road projects since 1997. Unfortunately, there still over 14,000 identified pollution sites yet to be funded statewide. Considering inflation, the Program’s current $5 Million allocation will NEVER be enough to address all these identified sites (let alone re-address old sites).

Keystone Transportation Funding Coalition (KTFC)

The KTFC is a diverse group united under one common goal: that a comprehensive solution to the transportation funding problem in Pennsylvania is critical for safety and quality of life of all Pennsylvanians. Such a comprehensive solution must address maintenance and capacity needs for PennDOT’s system, local highways, and public transit agencies. KTFC members range from the highway construction industry, to public transit agencies, to air and seaport organizations, to associations representing local governments, and many more. The total transportation funding shortfall in PA is estimated at over $3 Billion.

The Center has been participating in KTFC meetings over the past 18 months on behalf of the Dirt and Gravel Road Maintenance Program. Out goal is to be sure that if or when any comprehensive transportation funding legislation moves, that the Dirt and Gravel Road Program is included. It is our hope that an additional $10 Million could be added to the Program’s existing $5 Million annual allocation.

Where Does it Stand Today?

It is important to remember that the Dirt and Gravel Road Program’s potential $10 Million is a very small sliver of a potential $2.5 Billion package. Current thoughts are that the next time the Legislature could address Transportation Funding would be early 2013. If it happens though, it could happen fast, so it is important to keep up the constant effort and be prepared to shift into high gear.

How Can YOU Help?

Make sure that your local Legislators know how important the Dirt and Gravel Road Program is in your area. Make them aware of the need for more Program funding. Make the case to them that any comprehensive funding legislation needs to include rural roads. An increase in funding to the Dirt and Gravel Road Program would benefit rural Municipalities, Conservation Districts, the State Forests, rural road users, Pennsylvania’s streams, and the general public.

More Info: www.reconnectpa.org/KFC.html or www.bettersaferroads.com/
The two-day ESM training covers many aspects of road maintenance and focuses on practices to reduce maintenance costs and environmental impact from unpaved roads. Certification within 5 years is required to apply for Program funds.

Have questions or want to schedule an ESM training? Contact Kathy Moir at: (1-866-668-6683) dirtandgravel@psu.edu

Two-Day ESM Training Schedule

Wayne: Nov 14-15

2013 training requests currently being accepted. Scheduling being finalized.

Contact the Center to register for a training, or to discuss hosting one (814-865-5355). Registration is also available online at www.dirtandgravelroads.org under “edu/training”. Trainings are set up on request in conjunction with County Conservation Districts.

Other Events

SCC meetings: Nov 14 (Hbg.), Jan 24 (w/ PACD, St College)
Aggregate – A mixture of crushed rock or gravel separable by mechanical means. Focus on road applications.

Source (Geologic Origin) – Most PA aggregates are mined from sedimentary rock such as limestone and sandstone. In the glaciated regions of NW and NE PA, aggregate is often mined glacial till, or pit-run gravel. In general, limestone is the hardest of the rocks, with shale being the softest, while pit-run varies widely in its usefulness as a road aggregate.

Gradation – The distribution by percent of weight of different sized stones comprising an aggregate. Determined by sieve separation and the loss by washing of material finer than the No. 200 sieve (~0.003 inches).

Aggregate specifications have an allowable range of different stone sizes, expressed as a percentage of the total weight of sample. This gradation specification is reported on a table or chart (see example above). The nominal maximum size of an aggregate specification is defined as the smallest sieve opening through which 100% of the aggregate can pass.

Open graded aggregates are “porous” with notable air voids between individual stones, and little to no “fines”. These mixtures drain effectively, but do not compact well to form a dense conglomerate. Road applications include use as base material and for subsurface drainage.

Well graded aggregates are “dense” with few air voids between individual stones. These mixtures are not suitable for drainage, but are preferred for use as surface aggregates as they tend to compact well to maintain desired road shape, lengthening grading cycles. This is also a key component in extending the road life cycle for traffic support.

Aggregate Quality or Type is primarily based on the resistance to weathering (soundness), the resistance to traffic (abrasion) and the absence of extraneous undesirable material. For both soundness and abrasion the maximum allowable amount is expressed as a percentage (by weight) of material changed by specific tests. For undesirable material the maximum allowable amount is expressed as a percentage (by weight) of the total weight of the mixture. For these parameters a maximum allowable percentage is set for each aggregate Type (A, B & C). Lower numbers represent higher quality. Lower quality aggregates should be reserved for fill and sub-base applications only.

The publishers of this publication gratefully acknowledge the financial support of the PA State Conservation Commission and PA Bureau of Forestry. For additional information or assistance, contact: Center for Dirt & Gravel Roads Studies, Penn State University, 207 Research Unit D, University Park, PA 16802. (Toll-Free Phone: 1-866-668-6683, Fax: 814-863-6787, Email: dirtandgravel@psu.edu). Additional copies available on our website at: www.dirtandgravelroads.org.

PI, or Plasticity Index is a measure of the plasticity of a soil. Soils with a high PI tend to be clay. Ideally, surface aggregates should be non-plastic to slightly plastic with a PI of 6 or lower.
Common Rip-Rap Specifications in PA

<table>
<thead>
<tr>
<th>Name</th>
<th>Size Range</th>
<th>Average Size</th>
<th>General Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>R-8</td>
<td>15-30&quot;</td>
<td>0.083&quot;</td>
<td>Abutments</td>
</tr>
<tr>
<td>R-7</td>
<td>10-20&quot;</td>
<td>0.070&quot;</td>
<td>Streambanks</td>
</tr>
<tr>
<td>R-6</td>
<td>5-10&quot;</td>
<td>0.035&quot;</td>
<td>Ditches</td>
</tr>
</tbody>
</table>

The AASHTO specifications listed above are recommended by the Pennsylvania Department of Transportation (PennDOT) for use in road projects. The specifications are designed to ensure that the rip-rap will perform its intended function and meet the project requirements.

For more information, please refer to the PennDOT specifications and the AASHTO Specifications for Roads and Bridges.