

Recycle Materials Survey Responses

ALABAMA

- 1) Does your agency specify the use of recycled materials (e.g. recycled asphalt pavement)? If so, please list.
 - expand number 1 to separate bulk materials from 'other'. FHWA Washington Division has been reluctant to allow 'used' materials. Especially anything with steel. (Buy America) This spills over into our state funded projects as well.
 - Recycled Asphalt Pavement (RAP) and Reclaimed Asphalt Shingles (RAS) are the two most common materials. See 410.02(e) in 2a.
 - NCAT is studying the use of Ground Tire Rubber (GTR). There's no published spec that I know of.
 - Crushed concrete can be used in concrete pavement. See 450.02(b)4 in 2a.
 - Crushed concrete can be used for temporary coarse aggregate or rip rap. See 665.02(e) & (f) in 2a.

- 2) We are interested in policies, procedures, guidelines, specifications that your state may have developed in the areas listed below. Please provide weblinks or attachments so that we may share with our colleagues and to assist us with the further development of our sub-subcommittee work plans in regard to the following areas. :
 - a. Recycled material use.
 - RAP/RAS: http://csnts020/Bureaus/Construction/Specification%20Section/Specifications%20Library/2012_A_LDOT_Spec_Book.pdf (page 186/727)
 - Crushed Agg for Concrete Pavement: Same link (page 224/727)
 - Crushed Agg for Temp Rock: Same link (page 471/727)
 - b. Construction debris and litter management
 - Same link as above; Specification Article 107.22 (page 67/727)
 - c. Bridge hydrodemolition, lead paint removal, washwater.
 - expand to include 'slurry' and construction waste products in general if possible.
 - Hydro demo: We do not like hydro demolition. We recently redesigned a bridge instead of using hydro demolition list we had set up in the plans. Our Bridges are not designed to be hydro blasted.
 - Bridge painting removal: Same link. Section 521 with specifics in Articles 521.04-521.06 on pages 349-350.
 - Washwater: Article 107.22 (page 67/727)
 - Slurry: Subitem Final Finishing in 510.03(c)6. Look at Paragraph 4 on Page 331/727.
 - d. Construction over or adjacent to water.
 - Article 107.09 and others listed this article along with 107.13. (page 59, then 66-68, 471-480, and 62-63)

- 3) Please provide any other information that you believe would be useful to share with our colleagues and assist in future workplan development.

- 4) Please provide contact names, telephone numbers and email addresses of individuals in your organization that may provide further assistance.
 - Jeff Benefield, Road Construction Engineer: benefieldj@dot.state.al.us; 334-242-6213
 - Collin Sewell, Asst. Bridge Construction Engineer: sewellco@dot.state.al.us; 334-242-6211
 - Sid Little, Environmental Construction Manager: [littles@dot.state.al.us](mailto:little@dot.state.al.us); 334-353-6302
 - Skip Powe, P.E.
Asst. State Construction Engineer, Environment & Technology
(334) 242-6209 powes@dot.state.al.us

COLORADO

1) Does your agency specify the use of recycled materials (e.g. recycled asphalt pavement)? If so, please list

We specify when recycled materials can be used and when they cannot be used. See below for details:

Section 206.02 Excavation and Backfill for Structures

Recycled broken glass (glass cullet) is acceptable as part or all of the aggregate.

Section 208.02 Erosion Control

Recycled crushed concrete or asphalt shall not be used for vehicle tracking pads.

Section 312 Mulching

Fiber shall not be produced from recycled materials such as sawdust, paper, cardboard, or residue from pulp and paper plants.

The material used for mulch tackifier shall not contain any mineral filler, recycled cellulose fiber, clays, or other substances which may inhibit germination or growth of plants.

Section 250 ENVIRONMENTAL, HEALTH AND SAFETY MANAGEMENT

Section 205.04 Heavy Metal Based Paint Management.

All painted steel components which are not designated to be salvaged shall be recycled. Contractor possession of the steel for future use shall be considered a form of recycling.

The Contractor shall provide a copy of each letter to the Engineer.

If the painted steel components will be recycled by melting, this letter is not required.

SECTION 406 COLD ASPHALT PAVEMENT (RECYCLE)

406.01 This work consists of pulverizing the existing asphalt surfacing to the depth shown on the plans, mixing a recycling agent and water, if required, with the pulverized material, then spreading and compacting the mixed material.

Section 702 Bituminous Materials

(c) *Recycling Agent.* Recycling Agent for Item 406, Cold Bituminous Pavement (Recycle), shall be either a high float emulsified asphalt (polymerized) or an emulsified recycling agent as follows:

2. Emulsified Recycling Agent. Emulsified Recycling Agent for use in Cold Bituminous Pavement (Recycle) shall conform to the requirements in Table 702-5

REVISION OF SECTIONS 304 AND 703 AGGREGATE BASE COURSE (RAP)

Reclaimed asphalt pavement (RAP) used as aggregate base course shall meet the grading requirements of Table 703-3A.

2) We are interested in policies, procedures, guidelines, specifications that your state may have developed in the areas listed below. Please provide weblinks or attachments so that we may share with our colleagues and to assist us with the further development of our sub-subcommittee work plans in regard to the following areas.

a. Recycled material use.

As stated above in the references specifications.

b. Construction debris and litter management.

SECTION 107 LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

At the end of each day the Contractor shall collect all trash and dispose of it in appropriate containers.

c. Bridge

a. hydrodemolition,

We have nothing specific to hydrodemolition but by definition this product is considered a pollutant and therefore is addressed in Section 107.25.

b. paint removal,

We have a long specification for this:



Paint Removal.docx

- c. washwater
Section 107.25
During construction vehicle cleaning shall not occur on site unless in an approved area where wash water can be properly contained.
- d. Construction over or adjacent to water.
Not sure what you are looking for here. We have no specific guidance, policy, spec regarding being over water. All our specs apply when a project is over or adjacent to water.
- e. Slurry.
By definition in section 107.25 slurry is a pollutant.
Section 107.25
Pollutant by-products of highway construction, such as concrete, asphalt, solids, sludges, pollutants removed in the course of treatment of wastewater, excavation or excess fill material, and material from sediment traps shall be handled, stockpiled, and disposed of in a manner that prevents entry into state waters, including wetlands.
- f. Construction waste products in general.
See item e above.
SECTION 107 LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC
At the end of each day the Contractor shall collect all trash and dispose of it in appropriate containers

Below is a link to our website and the documents which hold the specifications listed above. Any "guidance" CDOT has regarding the topics above would be found only in our specifications and not through any policies, procedures, etc.

<http://www.coloradodot.info/business/designsupport/construction-specifications/2011-Specs>

FLORIDA

1) Does your agency specify the use of recycled materials (e.g. recycled asphalt pavement)? If so, please list.

Yes. Materials are:

Recycled Asphalt Pavement

Crushed concrete – allowed for some bases, allowed as local material for stabilizing subgrade,

Crushed glass – allowed in asphalt mixes

Recycled Plastics – allowed for concrete chairs/bolsters, guardrail offset blocks, fence posts, flexible delineators

2) We are interested in policies, procedures, guidelines, specifications that your state may have developed in the areas listed below. Please provide weblinks or attachments so that we may share with our colleagues and to assist us with the further development of our sub-subcommittee work plans in regard to the following areas.

Most of the FDOT requirements for recycling are within its construction specifications. Links provided below.

- a. Recycled material use. Standard specification addresses in several locations requirements for recycling. Attached link is to entire standard specification book:
<ftp://ftp.dot.state.fl.us/LTS/CO/Specifications/SpecBook/2010Book/2010Master.pdf>
- b. Construction debris and litter management.
For these responses, accessing to the standard specification book will provide more details:
Section 104 addresses litter pickup and disposal prior to mowing.
Section 110-9 addresses disposal of construction debris – required to meet local, state, and federal requirements.
- c. Bridge
 - a. hydrodemolition, Addressed in standard specification 110-6.3
 - b. paint removal, Addressed in the following (section 561-10 and 561-11):
<ftp://ftp.dot.state.fl.us/LTS/CO/Specifications/WorkBook/Jul2011/SS5610000.pdf>
 - c. washwater Addressed in standard specification 923
- d. Construction over or adjacent to water. Addressed in Standard Specification section 7.
- e. Slurry. Addressed in standard specification section 110-6 for hydrodemolition slurry, standard specification section 455-15 has requirements that slurry from drilled shaft installation be contained, addressed in standard specification section 555 for directional bore operations and in section 556 for jack and bore operations.
- f. Construction waste products in general. Hazardous and toxic waste disposal addressed in standard specifications sections 8 and 110. General requirements for disposal are addressed in standard specification section 7 – state contractor must comply with local, state, and federal requirements.

3) Please provide contact names, telephone numbers and email addresses of individuals in your organization that may provide further assistance.

David Sadler 850-414-5203 david.sadler@dot.state.fl.us

Rudy Powell 850-414-4280 rudy.powell@dot.state.fl.us

NEBRASKA

- 1) Does your agency specify the use of recycled materials (e.g. recycled asphalt pavement)? If so, please list
[Crushed Concrete for foundation course](#)
[Recycle asphalt](#)

- 2) We are interested in policies, procedures, guidelines, specifications that your state may have developed in the areas listed below. Please provide weblinks or attachments so that we may share with our colleagues and to assist us with the further development of our sub-subcommittee work plans in regard to the following areas.
 - g. Recycled material use. [A RAP incentive to encourage the use of recycle asphalt.](#)
 - h. Construction debris and litter management.
 - i. Bridge
 - a. hydrodemolition,
 - b. paint removal,
 - c. washwater
 - j. Construction over or adjacent to water.
 - k. Slurry.
 - l. Construction waste products in general.

- 3) Please provide contact names, telephone numbers and email addresses of individuals in your organization that may provide further assistance.
[Andy Dearmont Construction Division Nebraska Dept. of Roads 402-479-4532](#)

INCENTIVE PAYMENT FOR THE USE OF RECYCLED ASPHALTIC PAVEMENT (RAP) FOR ASPHALTIC MIXTURES (J-22-0312)

General

This specification establishes a standard method for paying an incentive to use Recycled Asphaltic Pavement (RAP) in asphalt mixture types: SP-1, SP-2, SP-3, SP-4 Special, SP-4, SP-5, SPH, SPS, SPL, SPR, HRB, CMM and FMM. The intent of this specification is to provide an incentive for incorporating as much RAP into the asphalt mixtures as allowed by the respective mixture's specification.

Method of Measurement

1. The RAP Incentive Payment shall be based on the actual total of asphalt production for the entire project. A RAP Incentive Payment shall be calculated for each eligible asphaltic concrete type.

2. The following formula will be used to calculate the "RAP Incentive Factor".

$$\text{RAP Incentive Factor} = [(A-B) \div 100] \times C \times D$$

Where:

A = State's Established Percent Binder – based on gradation band.

B = Actual Percentage of Binder – added to asphaltic mixture.

C = Unit Bid price of Binder

D = RAP Pay Factor

3. The State's established percent binder values ('A' values) are as follows:

Asphaltic Concrete Types 'A' Value

SP-1, SP-2, SP-3, SP-4 Special, SP-4, SP-5, SPH and CMM having 0.500-inch grading band 5.2% Binder

SPS, SPL, SPR and SPR (Fine) 5.2% Binder HRB 5.8% Binder SP-1, SP-2, SP-3, SP-4 Special, SP-4, SP-5, SPH and FMM having 0.375-inch grading band 5.8% Binder

Incentive payments will be made for only the mix types list in this table.

4. The actual percentage of binder added to the particular asphaltic mixture ('B' value) shall be calculated as follows:

$B = (\text{Actual Pay Tons of Binder} \div \text{Actual Pay Tons of Asphaltic Concrete}) \times 100$

5. The Unit Bid Price of Binder ('C' value) is the established contract price for the performance graded binder type used to produce the mix for which the incentive is being calculated.

6. The RAP Pay Factor ('D' value) shall be as follows:

RAP Source 'D' Value

Contractor supplied RAP 0.50

State supplied RAP coming from an **OFF**-project source 0.35

* RAP coming from an **ON**-project source 0.15

* RAP coming from an **ON**-project source shall be completely utilized before allowing RAP from any other source to be used in the asphalt production.

7. Contractor supplied RAP and RAP supplied from either off-project or on-project sources shall be stored, handled and used separately. Incentive payments for RAP from these three source types shall be paid separately.

8. The Contractor has sole responsibility for determining the quality, quantity, and uniformity of the RAP material. The maintenance of any stockpiles and processing of the RAP material shall also be the sole responsibility of the Contractor.

Basis of Payment

1. Pay Item Pay Unit

RAP Incentive Payment Each (ea)

2. The overall RAP Incentive Payments shall be full compensation for all RAP materials and all hauling, handling and processing necessary to complete the work described in this section.

3. The overall RAP Incentive Payments – for each eligible mix type and/or RAP source – shall be the RAP Incentive Factor multiplied by the total accepted tons of asphaltic concrete in which the RAP was incorporated.

4. RAP Incentive Payment is paid for as an “established” contract unit price which is shown in the bid proposal “Schedule of Items”.

5. The actual quantity for RAP Incentive Payment will be calculated based on the Method of Measurement stated above in this provision.

RECYCLED ASPHALT SHINGLES FOR USE IN ASPHALTIC CONCRETE

(J-25-0411)

Description:

Recycled Asphalt Shingles (RAS) may be used in Asphaltic Concrete. The maximum allowable (by weight) will be 10% on shoulders and 5% on mainline.

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Materials:

All RAS shall consist of organic felt shingles or fiberglass shingles, obtained from a shingle manufacturing facility or tear offs. Scrap shingles shall not contain any objectionable materials (less than 1.5% by weight), including but not limited to: road tar, metal, glass, wood, plastic, brick, rubber, fabric, or any other material having similar characteristics. The RAS shall not contain harmful quantities of asbestos in accordance with guidelines provided by the Environmental Protection Agency and shall conform to all state and local regulations.

All RAS material shall be sized so that 100% (by weight) of the material passes through a 1/2-inch sieve, and at least 95 percent shall pass through a 3/8-inch sieve.

Before mix design approval, the following shall be submitted, along with materials and paper work for the mix design.

I. Certification by the processor of the shingle scrap, as to the shingle scraps content and source. Certification forms are available from DOR.

II. A 5-lb. sample of the shingle scrap material for review.

Construction Requirements:

RAS shall be stockpiled separate, from other salvaged material. Blending of scrap material in a stockpile with other salvage material is prohibited.

Scrap shingles shall be introduced into the hot mix asphalt, at the asphalt mixing plant, at the same point where Recycled Asphalt Pavement (RAP) is introduced.

Asphaltic Concrete containing RAS, regardless of RAP content, shall have a minimum of 55% virgin PG Binder.

Basis of Payment:

The RAS material will be eligible for the RAP Incentive at a rate of 50% as specified elsewhere in the specifications.

NORTH CAROLINA

1) Does your agency specify the use of recycled materials (e.g. recycled asphalt pavement)? If so, please list **NCDOT requires the use of fly ash in certain concrete mixes to reduce permeability and allows the use of fly ash in other mixes at the contractor's option. NCDOT requires the use of recycled plastic or composite guardrail offset blocks and the use of recycled glass beads in pavement markings. NCDOT allows recycled asphalt (RAP) and shingles (RAS) to be used in asphalt pavement at the contractor's option. NCDOT has also required the use of various products on a case by case or trial basis such as fly ash embankments, chipped tire embankments, clearing debris as mulch, etc.**

2) We are interested in policies, procedures, guidelines, specifications that your state may have developed in the areas listed below. Please provide weblinks or attachments so that we may share with our colleagues and to assist us with the further development of our sub-subcommittee work plans in regard to the following areas.

- a. Recycled material use. **For items listed under item 1 see applicable spec in below link**
<http://www.ncdot.gov/doh/preconstruct/ps/contracts/specifications.html>
- b. Construction debris and litter management. **For "Adopt a Highway" and other related litter programs see below link**
http://www.ncdot.gov/doh/operations/dp_chief_eng/roadside/Beautification/Litterbug/
- c. Bridge **See attached summary of spec and BMPs**
 - a. hydrodemolition,
 - b. paint removal,
 - c. washwater
- d. Construction over or adjacent to water. **See attached**
- e. Slurry. **See attached**
- f. Construction waste products in general.

3) Please provide contact names, telephone numbers and email addresses of individuals in your organization that may provide further assistance.

Ron Hancock
919-707-2400

rhancock@ncdot.gov



ENVIRONMENTAL
ISSUE SURVEY.doc



Hydrodemolition SP
Nov 2011.doc



WashWater.pdf

OKLAHOMA

) Does your agency specify the use of recycled materials (e.g. recycled asphalt pavement)? If so, please list

No. We typically do not "mandate" the use of recycled material, rather we establish the parameters to "allow" their use. Those materials include asphalt pavement, concrete pavement for base material, and structural steel beams for use by counties.

2) We are interested in policies, procedures, guidelines, specifications that your state may have developed in the areas listed below. Please provide weblinks or attachments so that we may share with our colleagues and to assist us with the further development of our sub-subcommittee work plans in regard to the following areas.

a. Recycled material use. Oklahoma DOT has some specifications/special provisions in use for asphalt pavement and aggregate base which address the use of recycled materials. Those can be made available upon request, but they are routinely used by most states.

b. Construction debris and litter management. N/A

c. Bridge

a. hydrodemolition, Oklahoma uses hydrodemolition for the surface preparation for bridge deck overlays. The requirements can be found in Section 505 of our specifications, at the following

link: http://www.okladot.state.ok.us/c_manuals/specbook/oe_ss_2009.pdf

b. paint removal, The specifications can be found in Section 512 at the link above, and we also have a policy in the form of a Construction Control Directive that provides additional guidance on the environmental requirements and documentation that can be accessed at the following

link: http://www.okladot.state.ok.us/c_manuals/ccdirectives/con_ccd_20060717.pdf

c. washwater N/A

d. Construction over or adjacent to water. N/A

e. Slurry. N/A

f. Construction waste products in general. N/A

3) Please provide contact names, telephone numbers and email addresses of individuals in your organization that may provide further assistance.

George T. Raymond, P.E.

State Construction Engineer

Oklahoma DOT - Construction Division

200 N.E. 21st Street

Oklahoma City, OK 73105-3204

(405)521-2561,

graymond@odot.org

OREGON

- 1) Does your agency specify the use of recycled materials (e.g. recycled asphalt pavement)? If so, please list [We do not typically specify recycled materials, but we allow them in most cases. Typical products allowed on our projects include recycled asphalt pavement, recycled asphalt shingles, recycled concrete,](#)

- 2) We are interested in policies, procedures, guidelines, specifications that your state may have developed in the areas listed below. Please provide weblinks or attachments so that we may share with our colleagues and to assist us with the further development of our sub-subcommittee work plans in regard to the following areas.
 - a. Recycled material use.
 - b. Construction debris and litter management.
 - c. Bridge
 - a. hydrodemolition,
 - b. paint removal,
 - c. washwater
 - d. Construction over or adjacent to water.
 - e. Slurry.
 - f. Construction waste products in general.

Our environmental specifications cover most of the above topics and are in Section 280 and 290 of our standard specifications which are available at the following [link. http://www.oregon.gov/ODOT/HWY/SPECS/docs/08book/08_00200.pdf](http://www.oregon.gov/ODOT/HWY/SPECS/docs/08book/08_00200.pdf)

- 3) Please provide contact names, telephone numbers and email addresses of individuals in your organization that may provide further assistance.

Jeff Gower, 503-986-3123 jeffrey.l.gower@odot.state.or.us

PENNSYLVANIA

1) Does your agency specify the use of recycled materials (e.g. recycled asphalt pavement)? If so, please list:

Permissible use of:

Scrap Tires (Crumb rubber, Fill)

Fly Ash

Bottom Ash

Steel Slag

Blast Furnace slag

Reclaimed Asphalt Pavement (RAP)

Recycled Asphalt Shingles (RAS)

Mushroom soil, biosolids, wood fibers, shredded bark (Soil amendments & mulch)

Demolition concrete (processed into aggregates)

Crushed glass

Plastic (fiberized asphalt products)

Slate (Fill)

2) We are interested in policies, procedures, guidelines, specifications that your state may have developed in the areas listed below. Please provide weblinks or attachments so that we may share with our colleagues and to assist us with the further development of our sub-subcommittee work plans in regard to the following areas.

Please find our list of publications at

[PennDOT Pubs and Policies](#)

See also:

www.dot.state.pa

Navigate to More Links...

Select Pollution Prevention Section

3) Please provide contact names, telephone numbers and email addresses of individuals in your organization that may provide further assistance.

Ken Thornton

kethornton@pa.gov

(717) 787-0459

TENNESSEE

- 1) Does your agency specify the use of recycled materials (e.g. recycled asphalt pavement)? If so, please list

Yes. We allow 20% maximum rap for the roadway and 35% for shoulders.

- 2) We are interested in policies, procedures, guidelines, specifications that your state may have developed in the areas listed below. Please provide weblinks or attachments so that we may share with our colleagues and to assist us with the further development of our sub-subcommittee work plans in regard to the following areas.

- m. Recycled material use.

<http://www.tdot.state.tn.us/construction/Supplemental%20Specs%202006/SS400.pdf>

- n. Construction debris and litter management.

<http://www.tdot.state.tn.us/construction/Supplemental%20Specs%202006/SS400.pdf>

- o. Bridge

- a. hydrodemolition,

http://www.tdot.state.tn.us/construction/specbook/2006_Spec600.pdf
<http://www.tdot.state.tn.us/construction/Special%20Provisions/604H.pdf>
<http://www.tdot.state.tn.us/construction/Special%20Provisions/604HA.pdf>

- b. paint removal,

http://www.tdot.state.tn.us/construction/specbook/2006_Spec600.pdf

- c. washwater

http://www.tdot.state.tn.us/construction/specbook/2006_Spec600.pdf

- p. Construction over or adjacent to water.

<http://www.tdot.state.tn.us/construction/Special%20Provisions/107FP.pdf>

- q. Slurry.

http://www.tdot.state.tn.us/construction/specbook/2006_Spec600.pdf

- r. Construction waste products in general.

<http://www.tdot.state.tn.us/sswmp/pdfs/WasteBorrowMan.pdf>

- 3) Please provide contact names, telephone numbers and email addresses of individuals in your organization that may provide further assistance.

Darrell Bost
Phone: 615-741-0908
Darrell.bost@tn.gov

VIRGINIA

1) Does your agency allow the use of recycled materials (e.g. recycled asphalt pavement)? If so, please list

SECTION 221—GUARDRAIL

221.02—Detail Requirements

(h) 2. **Offset blocks shall be made from a minimum of 40 percent recycled plastic waste.**

Such plastic shall be accumulated from post-consumer and post-industry waste. The material for these blocks shall have a minimum specific gravity of 0.950. The minimum compressive strength of these blocks in the lateral dimension shall be 1,600 pounds per square inch. The maximum water absorption allowed over the theoretical lifetime of the block shall not exceed 5 percent by weight when tested in accordance with ASTM D1037. Block attachment shall be in accordance with the standard drawings for wooden posts, standard GR-2, 2A W-Beam guardrail. The size tolerance in the direction of the bolt hole shall not be more than 1/4 inch. The blocks shall present a neat appearance and have plane surfaces. The blocks shall conform to the dimensions and tolerances listed on the standard drawings.

The manufacturer of the recycled plastic blocks shall provide independent test results showing that the material complies with the velocity, acceleration, and post-impact trajectory requirements of National Cooperative Highway Research Program (NCHRP) Report 350.

The manufacturer shall also certify that the material components of the completed blocks are resistant to the subterranean termites during its theoretical lifetime when tested in accordance with ASTM D3345. The theoretical lifetime is considered to be at least 20 years.

<http://www.virginia.gov/business/resources/const/2007SpecBook.pdf>

235.02—Detail Requirements

(a) **Steel castings for snowplowable pavement markers** shall conform to the requirements of ASTM A536, hardened to 52-54 RC, and shall weigh approximately 5 1/2 pounds. Keels shall be parallel, approximately 0.70 inch thick by 1.90 inches deep, and shall have notched edges. The forward and rear noses of the casting shall be shaped to deflect snowplow blades. Castings shall retain their hardness after removal of adhesives and other foreign residues or shall be capable of conforming to the specified hardness with additional heat treating **to ensure the castings can be recycled.**

<http://www.virginia.gov/business/resources/const/2007SpecBook.pdf>

(j) Reclaimed Asphalt Pavement (RAP) material may be used as a component material of asphalt mixtures in conformance with the following:

1. Asphalt surface, intermediate, and base mixtures containing RAP shall use the PG grade of asphalt cement as indicated in Table II-14A.
2. The final asphalt mixture shall conform to the requirements for the type specified.
3. During the production process, RAP material shall not be allowed to contact open flame.
4. RAP material shall be handled, hauled, and stored in a manner that will minimize contamination. Further, the material shall be stockpiled and used in such manner that variable asphalt contents and asphalt penetration values will not adversely affect the consistency of the mixture.
5. RAP shall be processed in such a manner as to ensure that the maximum top size introduced into the mix shall be 2 inches. The Engineer may require smaller sized particles to be introduced into the mix if the reclaimed particles are not broken down or uniformly distributed throughout the mixture during heating and mixing.

<http://www.virginia.gov/business/resources/const/2007SpecBook.pdf>

203.02—Materials

(a) **Crushed hydraulic cement concrete** will be permitted for use as a coarse aggregate provided it conforms to the physical requirements specified herein and shows no adverse chemical reaction. Crushed hydraulic cement concrete will not be permitted in the following: (1) reinforced cement concrete, (2) in combination with other materials in contact with geotextile fabric when such fabric is used as a drainage item, and (3) in backfill or bedding for perforated pipe.

<http://www.virginiadot.org/business/resources/const/2007SpecBook.pdf>

205.02—Materials

(a) **Crushed hydraulic cement concrete will be permitted for use as crusher run aggregate** provided it conforms to the physical requirements of Section 203 and shows no adverse chemical reaction. It shall not be used in a subsurface drainage application in combination with perforated pipe or as a base material where geotextile fabric is to be used.

<http://www.virginiadot.org/business/resources/const/2007SpecBook.pdf>

2) We are interested in policies, procedures, guidelines, specifications that your state may have developed in the areas listed below. Please provide weblinks or attachments so that we may share with our colleagues and to assist us with the further development of our sub-subcommittee work plans in regard to the following areas. :

- a. Recycled material use- **See Above**
- b. Construction debris and litter management- **Nothing at this time**
- c. Bridge hydrodemolition, lead paint removal, washwater.

SECTION 411—PROTECTIVE COATING OF METAL IN STRUCTURES

411.08—Environmental Protection

In accordance with the requirements of Section 107, the Contractor shall protect the public and the environment from leaded paint or hazardous material resulting from coating preparation, cleaning, removal operations, blast abrasives, rust, and overspray.

Depositing or dropping waste materials into water, onto the ground, onto roadways, or outside the containment system will not be permitted. Waterways and travel-ways shall be protected against coating drift and overspray. Equipment and containment devices shall arrive at the site in a decontaminated condition and shall be decontaminated prior to relocating or moving unless otherwise properly disposed. Residues from decontamination and any disposable items shall be properly disposed of in accordance with all applicable federal, state, and local regulations.

The Contractor shall at all times be in compliance with these specifications and the regulations of, but not exclusive to, the following agencies: U.S. Environmental Protection Agency, U.S. Department of Transportation, Virginia Department of Environmental Quality, Virginia Department of Labor and Industry, and the U.S. Coast Guard.

(a) **Environmental Plan:** Where surface preparation operations are required, the Contractor shall submit a detailed site-specific Environmental Plan to the Engineer for Department records and review for completeness only, not approval. The Contractor shall provide one comprehensive plan that covers all facets of operation. No work shall proceed until the Engineer has notified the Contractor that the plan contains all the necessary elements. The Environmental Plan shall include controls for capture, containment, collection, storage, and transportation of waste material generated by the work. The Contractor shall use the most effective method possible for capture, collection, containment, and transportation operations.

Plans shall include measures for accidental spill cleanup. The Environmental Plan shall be certified by an SSPC QP-2 Supervisor/Competent Person or a CIH currently certified by the American Board of Industrial Hygiene. If the project design involves the erection of a supported containment system with a total weight-bearing capacity of greater than 1,000 pounds, the plan shall also be reviewed and certified by a Professional Engineer registered in the Commonwealth of Virginia as to the design acceptability for the structural load of the containment system on the bridge.

After project award but not less than 3 weeks prior to commencing operations covered by this plan, the environmental plan shall be submitted to the Engineer. Within 2 weeks of receipt, the Engineer will review the submitted plan for completeness. Should deficiencies in the plan exist, the plan will be returned to the Contractor for incorporation of revisions as noted by the Engineer. The Contractor shall make such revisions and submit completed plans for the Engineer's record prior to commencing operations. In no case shall the Contractor begin work prior to the Engineer's receipt and review of a satisfactorily complete plan.

(b) **Monitoring:** Visual inspections of the containment structures and the dust collector and abrasive recycling equipment shall be continuously performed to detect and control any emissions into the unconfined air space. Emissions will not be permitted outside the containment system. Visual emissions outside the containment system shall immediately be corrected to comply with emission standards. Minimal visible air emissions will be allowed for properly operating vacuum-assisted power tools provided that a secondary means for collecting large particles is employed and the technology is applied using usual and customary industry practices. Excessive emissions caused by improperly operated or functioning equipment shall be immediately corrected. Adequate lighting shall be provided as necessary to aid visual inspections.

Perimeter air monitoring shall be performed, as directed by the Engineer through review comments on the environmental plan submission, using high-volume air samplers equipped for the collection of total suspended particulate (TSP) samples. The filters shall be analyzed for lead in accordance with EPA 40 CFR Part 50, Appendix G, for a minimum of 8 hours per day of operation. Samples shall be collected within 500 feet downwind of paint abatement, dust collection, and abrasive recycling equipment. Perimeter monitoring results shall be maintained below the National Ambient Air Quality Standard for lead (40 CFR Part 50) using the Adjusted Daily Allowance (ADA) procedure outlined in SSPC-Guide 6, Method D. The results of all sample analyses shall be submitted to the Engineer as soon as they are available. Should emissions exceed the limits set herein or material begins to reach the ground or enter State waters, the Contractor shall notify the Engineer and operations shall be halted until such time that corrective actions are implemented.

(c) **Waste Characterization and Disposal:** Material removed from a Type A structure shall be disposed of as a non-hazardous waste in accordance with the requirements of (d)1 herein.

Material removed from a Type B structure shall be contained, collected, and stored in closed 55-gallon USDOT approved steel drums or portable metal roll-off containment refuse disposal bins. For small quantities of waste, approved 5-gallon containers may be used. The Contractor shall, with the oversight of the Engineer; collect and provide to the Department samples for analysis at the following frequency:

Containers Samples

Over 6 1 for every 3 containers

Samples shall be randomly collected and shall be representative of the contained waste.

Waste shall not accumulate for more than 30 days before samples are collected. A laboratory certified by the American Industrial Hygiene Association to perform lead analysis and approved by the Department shall perform the testing. Testing will be performed in accordance with the requirements of Section 411.04(a). The Department shall pay the cost of all tests performed by the laboratory. Waste generated from abrasive blasting with recycled steel abrasive shall be classified as hazardous if the total lead level exceeds 0.01 percent. If the material is declared to be a hazardous waste by the Department, the Contractor shall dispose of the material in accordance with the requirements of Section 411.08(d)3. The Contractor is not relieved from performing waste testing in accordance with the aforementioned procedures by using test results from samples of coatings collected while adhered to the structural steel.

Each structure shall have a separate lockable storage area for waste material located immediately adjacent to the structure. The Contractor shall collect the material at the end of each workday and shall transport the waste material

to the storage area in a closed container that will not permit leakage. Each container shall be marked indicating the origin of the material; the date the material was placed in the storage area; and a 24-hour telephone number of the Contractor and Department representative. Prominent warning signs shall be displayed around the perimeter of the storage. The signs shall be located at a distance from the storage area that will allow personnel to read the sign and take the necessary protective actions required before entering the storage area. Warning signs and notices shall be posted in accordance with CFR 29 Part 1926, Section 62.

One centralized storage site may be used to store waste materials from structures at adjacent projects provided that transport of waste over roads open to the public is not required and that the materials shall be labeled and stored separately. If a centralized storage location is used, suitable security fencing shall be installed around the perimeter of the centralized storage area to prevent unauthorized access. The Contractor shall establish this site, with Department approval, prior to beginning any coating removal.

The site for the temporary storage of the waste material shall be approved by the Engineer and shall not be located within a flood plain or drainage area or where water will pond.

Containers of waste material shall have tops secured and be covered with waterproof coverings, and the site shall be secured. If such a site is not available immediately adjacent to the structure, an alternate location on state property shall be used as approved by the Engineer and shall be submitted as a requested amendment to the Environmental Protection Plan. The Contractor shall be responsible to ensure that any over-the-road transport of hazardous waste complies with all local, state, or federal permitting, licensing, manifesting, and/or fee requirements.

(d) Disposal:

1. Solid waste material from a Type A structure or waste from a Type B structure that is determined by the Department not to be a hazardous waste shall be disposed of in a sanitary landfill Resource Conservation and Recovery Act (RCRA) Subtitle D or licensed industrial landfill that has a permit from the Virginia Department of Environmental Quality or an equivalent state or federal agency for out-of-state disposal facilities.

The Contractor shall identify the landfill used by name, address, and permit number and shall certify that the waste material was properly disposed.

2. Liquid waste from Type A and Type B structures that is determined by the Department not to be a hazardous waste shall be legally disposed of in a publicly owned treatment works facility (POTW). The Contractor shall identify the POTW used by name, address, and permit number and shall certify that the waste material was properly disposed.

3. If waste material from a Type B structure is classified as hazardous, the Contractor shall obtain a provisional hazardous waste generator number from the Virginia Department of Environmental Quality in accordance with applicable federal and state regulations and shall legally store, pack, label, and ship such material by a transporter with an RCRA Hazardous Waste Transporter permit to a RCRA, Subtitle C, Treatment Storage and Disposal Facility (TSDF) for treatment and disposal. The Contractor shall prepare a hazardous waste shipping manifest(s) and provide it to the Engineer for signature.

The Engineer's signature on the waste shipping manifest does not relieve the Contractor of his obligations as co-generator of the waste.

(e) Certifications: The Environmental Plan shall be implemented in accordance with the provisions contained therein; any deviations from the plan shall be separately approved by the Engineer. The individual providing the plan certification shall at a minimum be present during startup and removal operations to ensure that the plan is fully implemented. Within 1 week following completion of the lead-based paint activities, the Contractor shall submit for the Engineer's record a written certification by the SSPC QP-2 Supervisor/Competent Person or CIH, including notations of any areas of non-compliance and corrective actions taken, that all work has been completed in full compliance with all applicable regulations and requirements as set forth in these specifications and that the plans on record were fully implemented.

The Contractor shall forward for the Engineer's record one copy of the Environmental Plan complete with all revisions and results from the air monitoring activities, including notations of any areas of non-compliance and corrective actions taken.

<http://www.virginiadot.org/business/resources/const/2007SpecBook.pdf>

d. Construction over or adjacent to water.

107.20—Construction Over or Adjacent to Navigable Waters

The Department will obtain a permit from the U.S. Coast Guard for the anticipated construction and/or demolition activities of structures on Department projects that cross a waterway(s) under the jurisdiction of the U.S. Coast Guard. As the permit holder, the Department must apply to the U.S. Coast Guard for approval of permit modifications to the original Department permit that the Contractor requests.

Prior to starting demolition or construction operations the Contractor shall meet with the Engineer and the U.S. Coast Guard (U.S. Coast Guard Coordination Meeting) to present its planned operations and the potential impacts those operations may pose to water traffic. As part of this meeting, the parties shall establish in writing the proper protocol for emergency closures and be governed accordingly.

(a) **Activities subject to Coast Guard regulation under the Permit.** Following the U.S. Coast Guard Coordination meeting, the Contractor shall submit its proposed schedule of operations in writing to the Engineer. The Engineer shall review and provide written comments, if applicable, to the Contractor within 7 calendar days following receipt of the Contractor's schedule of operations. The Contractor shall incorporate the Engineer's comments and submit its notice of scheduled operations to the Engineer and to the U.S. Coast Guard at least 30 days prior to commencement of any permitted construction or demolition operations. U.S. Coast Guard acceptance of the Contractor's written schedule of operations is a condition precedent to the Contractor's commencement of those operations.

(b) **Activities that require channel closures or restrictions.** In addition to the submittal of its proposed schedule of operations as described in (a) above, Contractor shall submit plans that comply with the Permit for falsework, cofferdams, floating equipment and other obstructions to the channel or channels to the Engineer. The Contractor's attention is directed to the possibility that advance notification for consideration of approval may vary depending on the type and duration of proposed closures, the time of year for requested closure(s), and location of existing bridge(s) and waterway(s) involved, and the impact to entities served along or through the waterway(s). The Engineer shall review and provide written comments, if applicable, to the Contractor within thirty (30) calendar days following receipt of the Contractor's plans. The Contractor shall incorporate the Engineer's comments and submit its plans to the Engineer and to the U.S. Coast Guard at least 30 days prior to commencement of any permitted construction or demolition operations. The Contractor may not commence activities that require channel closures or restrictions without the prior written approval of the Department and the U.S. Coast Guard. The Contractor shall be responsible for complying with all operational requirements that the U.S. Coast Guard may place on the Contractor as conditions of approval.

In addition, the Contractor shall request and obtain Department and U.S. Coast Guard approval in writing before commencing any operations that deviate from the Contractor's schedule of operations when these operations interfere or have the potential to interfere with navigation of water traffic outside of timeframes previously approved by the Department and the U.S. Coast Guard.

Notices shall be sent to the U.S. Coast Guard, Fifth District Bridge Office (OBR), 431 Crawford Street, Portsmouth, VA 23704-5004. Payment of any penalty or fine that may be levied by the U.S. Coast Guard for Contractor violations of bridge regulations found in 33 CFR Parts 115, 116, 117 and 118 shall be the responsibility of the Contractor. Further, any delay to the contract as a result of actions or inaction by the Contractor relative to the requirements herein that are determined by the Department to be the fault of the Contractor will not be compensable.

The cost to comply with the requirements of this provision and to provide and maintain temporary navigation lights, signals and other temporary work associated with the structure(s) under this contract required by the U.S. Coast Guard for the protection of navigation during construction or demolition operations shall be included in price bid for other appropriate items.

3) Please provide any other information that you believe would be useful to share with our colleagues and assist in future work plan development.

4) Please provide contact names, telephone numbers and email addresses of individuals in your organization that may provide further assistance.

Mark E. Cacamis

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WISCONSIN

Does your agency specify the use of recycled materials (e.g. recycled asphalt pavement)? If so, please list.

- *Recycled asphaltic and concrete pavements*
- *Industrial by-products*
 - *Crushed glass*
 - *Foundry slag*
 - *Steel mill slag*
 - *Bottom ash*
 - *Pottery cull*
- *Reprocessed materials*
 - *Crushed concrete block*
 - *Crushed brick*
 - *Cinder or slag particles*
- *Recycled asphalt shingles in HMA pavement*
- *Recycled plastic*
- *Special waste*

<http://roadwaystandards.dot.wi.gov/standards/stndspec/hidden/archive/designspec/ss-01-06.pdf#ss106.2.1>

<http://dnr.wi.gov/topic/Waste/PublicWorks.html>

2) We are interested in policies, procedures, guidelines, specifications that your state may have developed in the areas listed below.

Please provide weblinks or attachments so that we may share with our colleagues and to assist us with the further development of our sub-subcommittee work plans in regard to the following areas.

a. Recycled material use

Base Course:

- *Recycled asphaltic and concrete pavements in base course*
<http://roadwaystandards.dot.wi.gov/standards/stndspec/hidden/archive/designspec/ss-03-01.pdf#ss301.2.4>
- *Industrial by-products in base course*
<http://roadwaystandards.dot.wi.gov/standards/stndspec/hidden/archive/designspec/ss-03-01.pdf#ss301.2.4.4>
 - *Crushed glass*
 - *Foundry slag*
 - *Steel mill slag*
 - *Bottom ash*
 - *Pottery cull*
- *Reprocessed materials in base course*
<http://roadwaystandards.dot.wi.gov/standards/stndspec/hidden/archive/designspec/ss-03-01.pdf#wiReprocessed-material>
 - *Crushed concrete block*
 - *Crushed brick*
 - *Cinder or slag particles*

Breaker Run and Select Crushed Material:

<http://roadwaystandards.dot.wi.gov/standards/stndspec/hidden/archive/designspec/ss-03-11.pdf#ss311.2>

<http://roadwaystandards.dot.wi.gov/standards/stndspec/hidden/archive/designspec/ss-03-12.pdf#ss312.2>

HMA Pavement:

<http://roadwaystandards.dot.wi.gov/standards/stndspec/hidden/archive/designspec/ss-04-60.pdf#ss460.2.5>

- *Reclaimed asphaltic pavement in HMA pavement*
- *Recycled asphalt shingles in HMA pavement*

Concrete:

<http://roadwaystandards.dot.wi.gov/standards/stndspec/hidden/archive/designspec/ss-05-01.pdf#ss501.2.5.4>

- Crushed concrete pavement in concrete pavement

Recycled plastic in rebar chairs:

<http://roadwaystandards.dot.wi.gov/standards/stndspec/hidden/archive/designspec/ss-05-05.pdf#ss505.3.4>

b. Construction debris and litter management.

- Debris containment special provision:



Debris containment
special.pdf

c. Bridge

a. paint removal

1. Paint removal special provisions:



Paint removal
specials.pdf

d. Construction over or adjacent to water.

- Standard spec 107.19 Construction Over or Adjacent to Navigable Waters.

<http://roadwaystandards.dot.wi.gov/standards/stndspec/hidden/archive/designspec/ss-01-07.pdf#ss107.19>

- Bridge removal special provisions:



Bridge removal
specials.pdf

e. Slurry

- Continuous diamond grinding slurry:

C.4 Residue Disposal

(1) Remove solid and liquid grinding residues from the roadway by vacuuming. Leave the roadway in a clean, damp condition immediately behind the grinding machine. Remove residue immediately in areas of cross traffic. Do not allow residue and water to flow or blow across lanes used by public traffic or to enter any storm sewer, stream, lake, reservoir, marsh, or wetland. Dispose of residue and water at an acceptable material disposal site located off the project limits and as shown in the Erosion Control Implementation Plan (ECIP).

f. Construction waste products in general.

- Asbestos abatement special provision:



Asbestos abatement
special.pdf

- 3) Please provide contact names, telephone numbers and email addresses of individuals in your organization that may provide further assistance.

Shar TeBeest

Sharlene.TeBeest@dot.wi.gov

(608)266-1476

For hazardous waste:

For removals over water:

Dan Scudder

Dan.Scudder@dot.wi.gov

(608)267-3615

For base course:

Bob Arndorfer

Robert.Arndorfer@dot.wi.gov

(608)246-7940

For concrete:

Jim Parry

James.Parry@dot.wi.gov

(608)246-7939

For asphalt pavement:

Tom Brokaw

Thomas.Brokaw@dot.wi.gov

(608)246-7934

For standard specifications:

Mike Hall

Michael1.Hall@dot.wi.gov

(608)266-8461

For special provisions:

Angie Clary

Angela.Clary@dot.wi.gov

(608)266-3811

For bridges:

Bill Dreher

William.Dreher@dot.wi.gov

(608)266-8489

Other useful links:

Design Manual: <http://roadwaystandards.dot.wi.gov/standards/fdm/index.htm>

Standard Specs: <http://roadwaystandards.dot.wi.gov/standards/stndspec/index.htm>

Construction Manual: <http://roadwaystandards.dot.wi.gov/standards/cmm/index.htm>

Search standards: <http://roadwaystandards.dot.wi.gov/standards/search/index.htm>