



Florida Department of Transportation

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This Memo Has Expired

MATERIALS BULLETIN NO. 08-05
DCE MEMORANDUM NO. 18-05
(FHWA Approved: 8/24/05)

**TO: DISTRICT MATERIALS ENGINEERS
DISTRICT CONSTRUCTION ENGINEERS**

FROM: Thomas O. Malerk, P.E., Director, Office of Materials
David Sadler, Construction Engineer

COPIES: Don Davis (FHWA), Bob Burleson (FTBA)

**SUBJECT: USE OF RAP MATERIAL IN ROADWAY EMBANKMENT
CONSTRUCTION**
(Supersedes Materials Bulletin 04-05 / DCE Memorandum 09-05)

REQUIREMENTS FOR RAP MATERIAL:

1. RAP may be used for Subgrade stabilization (per Section 914-3.2), Base (Section 283) and Embankment (these provisions) based on the following. RAP may not be used in Mechanically Stabilized Earth Walls.
2. The Contractor may use RAP materials from:
 - an identifiable Department project, certifying the source,
 - or RAP materials stored at a facility with an approved Florida Department of Environmental Protection Stormwater permit.
3. RAP material shall only be placed above the water table. Contractor should submit a letter stating the proposed location of the RAP material.

REQUIREMENTS FOR RAP CONSTRUCTION IN EMBANKMENTS:

There are two methods of incorporating RAP into the embankment:

- A. Use a mixture of soil and RAP
- B. Use alternative layers of soil and RAP

a. Soil and RAP Mixture

The contractor may dump the RAP material at the location of placement and spread uniformly by approved methods to a maximum layer thickness of 4". This 4" maximum layer of RAP can be mixed with loose soil about 8" to 10" thick layer. The total RAP and other embankment material shall not exceed 12" per lift after mixing and compaction if the contractor can demonstrate that the density of the mixture can be achieved. Mixing shall be performed using rotary tillers or other equipment meeting the approval of the engineer. The Engineer will determine the order in which to spread the two materials. Both materials shall have to be mixed to the full depth. The contractor should continuously check the thickness to ensure that the finished layer will have the thickness and shape required by the typical section. Successful completion of a test section of 300'– 400' long should demonstrate the feasibility of this construction method.

Embankment construction shall be performed according to specifications 120-8. Compaction Requirements of the soil and RAP mixture shall meet specifications 120-9.

b. Alternate Soil and RAP Layer Construction

Soil with minimum LBR value of 40 is recommended to prevent failure during compaction of the overlying firm RAP layer in such a way that no undue distortion will occur.

Alternate lifts of RAP layer and Soil layer shall be constructed as follows. The maximum compacted layer thickness of RAP is 6". The maximum compacted soil layer thickness is also 6". Successful completion of a test section of 300'-400' long should demonstrate the feasibility of this construction method and should demonstrate that the density can be achieved. Compaction requirements of both soils and RAP shall meet specifications 120-9.

If you have any questions on this, please contact Sastry Putcha at 850-414-4148 or David Horhota at 352- 955-2924

MP/ph/dw