Appendix B
General Pavement Design Guidelines

PAVEMENT DESIGN NOTES

Slag Note: For Boyd, Greenup, Lawrence, Lewis or Carter Counties in Eastern Kentucky, use the following reference note for Asphalt Concrete Surface, Base or Binder:

"Blast furnace slag may be utilized in an aggregate blend in these items in accordance with approved mix designs and current specifications. Estimate at 110 pounds per square yard per inch of depth for asphalt base or binder, and estimate at 102 pounds per square yard per inch of depth for asphalt surface."

Estimate Asphalt Surface – Slag at 102 pounds per square yard per inch of depth

Estimate Asphalt Base or Binder – Slag at 110 pounds per square yard per inch of depth

Material Transfer Vehicle (MTV) Note: Use an MTV on ALL Interstates and Parkways, and Other routes with >7,500 tons of mainline asphalt base, binder and surface, 11-foot lanes and minimum 6-foot paved shoulders.

Note in plans:

"Use a Material Transfer Vehicle according to Section 403.03.05A of the Standard Specifications."

Rock Roadbed Note: For Rock Roadbed include the following Note with the quantities: ***"Includes an additional 10% material in the bottom 4" of the pavement design as a construction tolerance on rock subgrade."*** *(Do not use for one foot of quarry rock wrapped in fabric.)*

Note for Full-Depth DGA Shoulders:

Asphalt Seal required from outside edge of paved shoulder to a point two feet down the ditch or fill slope. Two applications of the following:

103 Asphalt Seal Coat	2.40 LB/SQYD
100 Asphalt Seal Aggregate	20 LB/SQYD (size no. 8 or 9m)

Note for Bridge Replacements

See Standard Drawing No. RBB-001 for shoulder paving at bridge ends. Apply the 1:25 paved shoulder taper to both shoulders at both ends of the bridge. If the structures are to be paved throughout the project, then contrary to the standard drawing, the shoulders within the taper area may be paved the same as the remaining shoulder.

Application Rates

Sand for Blotter	5.0 LB/SQYD
Asphalt Curing Seal:	
Chemically Stabilized Roadbed (Section 208.03.06)	2.0 LB/SQYD
DGA Filter Layer for Drainage Blankets	1.6 LB/SQYD

Curb and Gutter

Carry lower courses of pavement 12 inches past curb and gutter. (Asphalt or DGA)

California Bearing Ratio (CBR)

CBR and Resilient Modulus information should be obtained from the Geotechnical Branch. If a geotech report is not available, a CBR of 3 can be assumed for most conditions in Kentucky unless the particular area has a history of poor load bearing soils. In areas with a history of poor load bearing soils, use a CBR of 1. A CBR of 5-7 can be used for soils with a large amount of sand and gravel. Subgrade stabilization is recommended for any CBR less than 7.

AASHTO Structural Coefficients:

Asphalt Surface – 0.44
Asphalt Binder – 0.42
Asphalt Base – 0.40 (approx. 0.3 for existing asphalt)
PCCP (for overlay of) – 0.3-0.5 (0.67 for new concrete)
DGA/CSB – 0.14 (0.11 for existing DGA)
Treated Drainage Blanket – 0.21
Chemically Modified roadbed – 0.15
Rock Roadbed (<2') – 0.08 (>2' adjust CBR to that of rock roadbed)

Geogrid

Place Geogrid at bottom of DGA layer if <10" depth.

Place Geogrid at midpoint of layer if >=10".

Use a minimum of 10 inches of aggregate with a geogrid.

Drainage Blankets and Pavement Edge Drains

1. Daylighting of the CSB or the rock roadbed is the preferred method of pavement drainage.

2. Treated drainage blanket and edge drains may be used for pavement drainage at the designer's discretion.

The following note should be listed on pavement designs that contain pavement edge drains:

"All longitudinal pipe drainage systems for the pavement drainage blanket shall be outletted to a Headwall, Median Box Inlet, Ditch Box, or Curb Box Inlet. Outlets shall be in a fill section whenever possible. Outlet spacing shall not exceed 500 feet except for grades 1% or less. On these grades, the spacing of outlets shall not exceed 250 feet. All sags shall have an outlet. The Design Engineer shall spot these on the plans or in the proposal."

The spacing listed above is for 4-inch perforated pipe edge drains. The spacing can be doubled when 6-inch perforated pipe is used.

3. Transverse perforated pipe for subgrade drainage, in accordance with standard drawing RDP-005, should be used when daylighted aggregate or an edge drain system is not being used.

Aggregate Selection

Use a minimum of 4” DGA or CSB with all new pavement designs.

6” DGA or CSB is recommended under asphalt pavement.

Use CSB when it can be daylighted or when draining into a rock roadbed.

Use asphalt sealed DGA under a treated drainage blanket.