

Hot Rolled Asphalt

By John Thorp

What is Hot Rolled Asphalt?

- Essentially a gap graded material
- Sand, Bitumen, Pen 50 filler and stone floating
- On which 20mm Bitumen coated chippings are applied to the surface – before rolling



What does it produce

- A surface that is:
 - Dense impervious layer
 - Weather resistant durable surface
 - Resistant to cracking
 - And with the correct chipping a safe skid resistant surface

Brief history

- First used in the late 1890's in America
- First used in London in 1895
- In the 1930's move to more cars and pneumatic tyres led to slipping issues
- Solution was to roll in broken stone
- In the 1940's – aggregate added to the mix to increase load spreading ability
- Until the early 1970's produced as a recipe mix

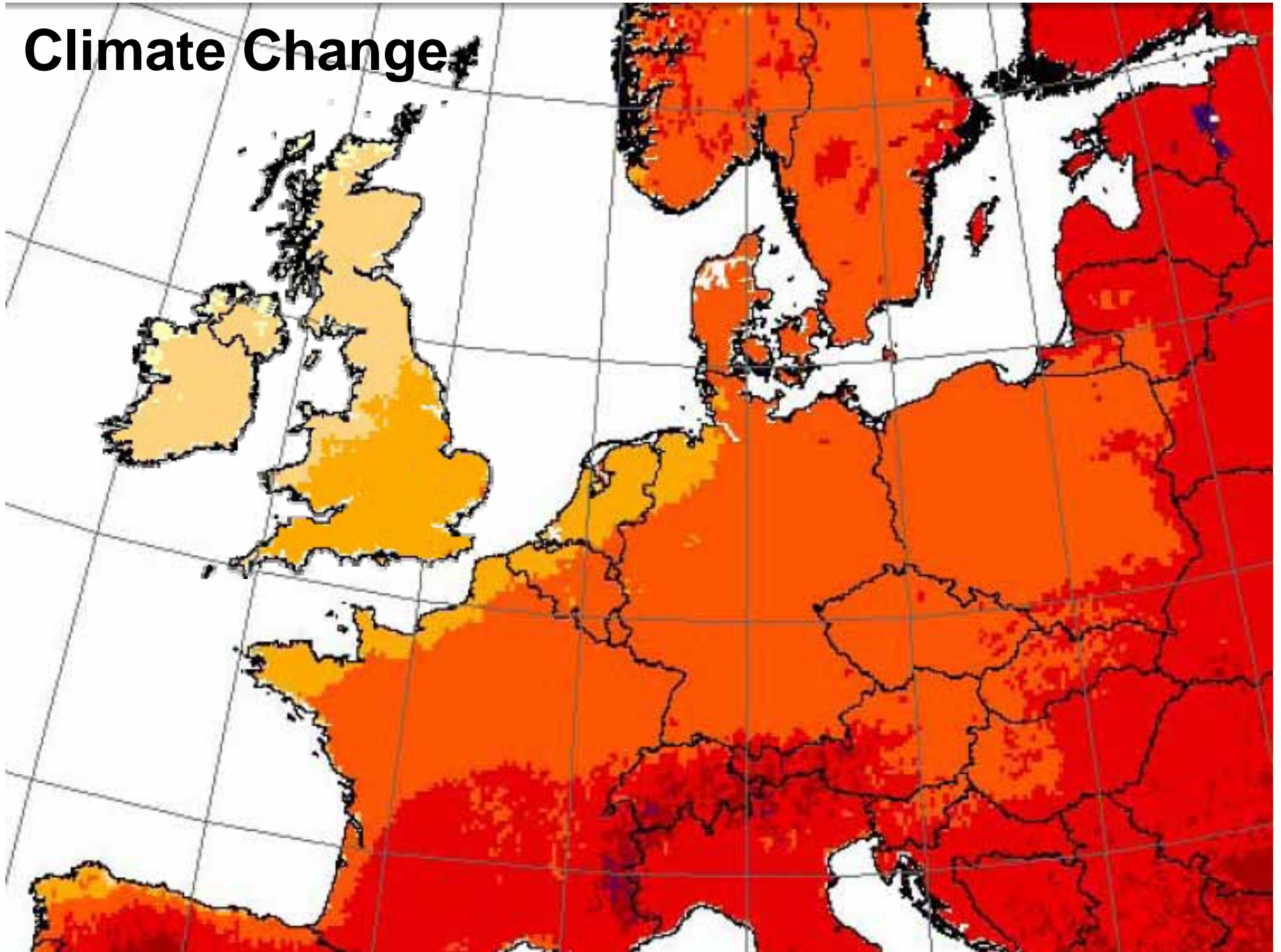
Modern History

- The material of choice for motorways and trunk roads
- In 1973 Marshall test introduced – move to design mixes
- Mid 1970's introduction of texture depth
- But from the mid 1980's problems started to develop.

Problems

- Embedment of chippings
- Diminishing supplies of good sand
- Deformation under load
- Workmanship

Climate Change





- Health and Safety Legislation - 1996

Playing

- Added more aggregate – 30% - 35%
- Moved from sand to rock fines
- Changed the binder
- Attempted high stone content
- Introduced the wheel tracker
- But in effect we have been one step behind what the country demands
- Finally.....

In the mid 1990's

- Trials took place on both the HA and the Local Authority network of 'thin surfacing' and stone mastic asphalts
- Finally in 1999 the highway pulled the plug on HRA preferring thin surfacings.

Conclusions - Good

- Waterproof – protects underlying layers
- Flexible under foundation movement
- Lasts a long time under low stress
- Resistant to erosion

Bad

- Deforms under load and temperature
- Needs extra width to lay
- Needs skill to lay
- Can go wrong
- Noisy

The Future

- A long life, low maintenance urban surface which is not subject to load and temperature

Finally

- The County Surveyors Society has produced Guidance on specifying HRA to comply with European Standards

Thank You

