

US Route 1

LOCATION:	Madawaska, Maine
PRODUCT:	Roadrain™
APPLICATION:	Geocomposite Drainage Layer
DATE:	October, 2001
OWNER:	Maine Department of Transportation
ENGINEER:	Maine Department of Transportation

CHALLENGE

The Madawaska highway reconstruction project is a one-mile portion of urban roadway which is located in extreme northern Maine along the US and Canadian border. The existing pavement failed and had severe cracking, rutting, and potholes. Premature pavement failure on US Route 1 has long been attributed to poor subgrade soil drainage, breakdown of the aggregate base, and the migration of fines. The original design called for 6 inches of asphalt and 24 inches of base gravel. However, a good quality low cost aggregate was unavailable.

SOLUTION

RoaDrain™ was incorporated into the new design. The RoaDrain™ layer between the aggregate base and the silty subgrade soils provided an excellent drainage path. RoaDrain™ also dramatically shortened the drainage path, reducing time to drain from months, to less than a day. In addition, the RoaDrain™ also provided separation and strength to the pavement section. After reviewing their design using RoaDrain™, Maine DOT determined that the base aggregate thickness of 24 inches could be reduced to 12 inches, while still maintaining the same roadway service life.

Benefits of Placing RoaDrain™ under the base course:

- With the void maintaining area of the tri-planar structure, RoaDrain™ is a true capillary break that limits groundwater capillary action into the base course.
- The two 8 oz non-woven geotextiles heat bonded to the drainage core provides separation of the structural base course from the subgrade conditions.
- Excellent drainage as defined by AASHTO, 1993 Guide for Design of Pavement Structures.

