

CASE HISTORY: SEWAGE LAGOON LINER WITH A SCRIM-REINFORCED GEOSYNTHETIC CLAY LINER (GCL), BENTOFIX NW SERIES.

Photo courtesy of Scott Costain, Arrow Construction Moncton office.

BACKGROUND: Local deposits of clay in St. Peters, PEI, lacked the permeability to be approved as an acceptable compacted clay liner for the new construction of a sewage lagoon. The local clay, known as brick clay, had a permeability of approximately 1×10^{-5} cm/sec. ADI Engineering selected to use a Geosynthetic Clay Liner (GCL), to reinforce the existing silty clay. The GCL, Bentofix NW Series, provided a low permeability of 1×10^{-9} cm/sec but also provided the local contractor to install the liner without the help of outside labour forces. The GCL, 10,000 sq.m., was deployed and covered in three days. Bentofix NW Series, is the industries only scrim-reinforced GCL which provides the presence of woven fabric between two non-woven textiles to ensure the bentonite is capable to withstand high hydraulic heads as high as 100m. The Geosynthetic Research Institute also recommends that all double non-woven GCLs be scrim reinforced to avoid shrinkage which occur in non-scrim reinforced GCLs. Not only is the Bentofix NW Series a scrim reinforced GCL, it is Thermal Locked to provide the highest peel strength for steep slope applications.

Each truckload of Bentofix provided 6,474 sq.m. of material compared to over 160 truckloads of clay to cover this same area (based on a 50cm thick clay / 40 sq.m. per truckload). Arrow Construction with the help of their supplier, Terrafix Geosynthetics, provided initial assistance to satisfy both the owner and the contractor, with a proper quality control and assurance (QA/QC) procedure, but also provided a spreader bar for the unloading and deployment of the GCL.

Since the late 1980s, GCLs have been specified and used by design engineers, agencies and owners as an alternative to soil barriers in various applications. For further information on GCLs in the use of sewage lagoons and/or other lining applications such as ponds please contact your local Arrow representative in Atlantic Canada or visit www.bentofix.com or www.terrafixgeo.com