FOAM CONCRETE THE VERSATILE LIGHTWEIGHT SOLUTION FOR HEAVY WEIGHT PROBLEMS

WHAT IS FOAM CONCRETE?
Foam Concrete is a cement-bounded material that is manufactured by blending a very fluid cement paste (the slurry) or a mortar with a separately manufactured foam (resembling shaving lather) in to a grey mousse with high fluidity.

The appearance of fresh Foam Concrete is similar to a thin grey mousse (as pictured below).
The volume between the slurry and the foam determines the density of the Foam Concrete. The presence of the cement causes the material to be cohesive (strength/stiffness) after hydration of the cement. The matrix of the material can be best described as with “Tiny air bubbles surrounded by cement slurry”

WHAT IS FOAM CONCRETE MADE OF?
The constituents of Foam Concrete are made up of water and specified varieties of cement. Other material such as pulverised fuel ash (PFa) Ground granulated blast furnace slag (GGBFS) and sands can be used together with our foam agents. (Provoton™ and Synvoton™)

Our exclusive Provoton foam concentrate produces a highly durable and uniform micro bubble structure within the Foam Concrete, providing a finished product with the exacting design characteristics.

ENVIRONMENTALLY FRIENDLY
Foam Concrete Limited is one of the leading companies in the UK in the use of recycled waste substances like pulverised fuel ash and lytag fines. In using these substances as raw material for Foam Concrete, they are processed in a responsible manner to ensure that they cannot pollute the environment.

HIGH STRENGTH WITH LOW DENSITY
Typical cast densities range from 300-1500 kgs/m³ with compressive strengths of 0.2-10+ N/mm², respectively.

With its low density Foam Concrete imposes little vertical stress on the substructure, a particular important issue in area sensitive to settlement. Due to its low density Foam Concrete is a viable solution for reducing loading on burdened soil.
ENERGY ABSORBING QUALITIES
Due to the dense cell structure of Foam Concrete as the material is compressed during an impact, the resistance of the Foam Concrete increases, thereby absorbing kinetic energy. Since hardened Foam Concrete is monolithic, the material is not vulnerable to liquefaction or settlement.

RIGID, WELL-BONDED BODY
Foam Concrete forms a rigid well-bonded body after gelling (hydrating); thus, it is effectively a free standing structure on its own and does not impose lateral loads on adjacent structures. The material can be constructed into various formations and profiles by forming and stepping of successive lifts.

NO COMPACATION REQUIRED
In some cases mechanical compaction can be difficult and unsafe due to limited or inaccessible areas. In excavations with poor soils that are not easily or incapable of being compacted, foam a 100% compacted foundation over soft soils. When compaction of conventional backfill against retaining structures or deep foundations, traditional methods can cause damage or movement to the adjacent structure or just be too time consuming. In these instances Foam Concrete is a great solution.

LIGHT WEIGHT ROAD FOUNDATIONS
The pictures shows shots of a road being in filled with Foam Concrete on a peat bog with the type 1 stone being laid on top together with the black topped.
The mix used was a 250 kg/m$^3$ and 500 kg/m$^3$ density with a 28 day strength of 0.2 and 1 N/mm$^2$ @ 28 days. The depth of the Foam Concrete was 1 metre with 50 cm of type 1 fill then 10 cm of blacktop.

The combination of lightweight ease of placement and self levelling properties requiring no vibration or compaction renders Foam Concrete an excellent foundation for roads.
GOOD FREEZE/THAW PROPERTIES
Primarily due to the low water absorption of the Foam Concrete, the capillary water absorption (actual saturation degree) into accessible pores of the material never reaches the point of critical saturation (critical saturation degree) at which point damage could occur.

SUSCEPTIBILITY TO BREAKDOWN
Unlike some synthetic lightweight foam, hardened Foam Concrete is not susceptible to breakdown due to hydrocarbons, bacteria or fungi. It is insect, rodent and fire proof.

ANNULAR FILLS
Due to the extreme fluidity of Foam Concrete, it is a very effective material for grouting pipelines underground or in tunnels.

LIGHTWEIGHT FOUNDATIONS
Construction foundations of Foam Concrete can be based on the principle of equilibrium. Heavy soil is excavated and replaced by lightweight Foam Concrete. The combined weight of the Foam Concrete and the structure built upon it equates to the weight of the original soil removed. The result is a construction with a minimum settlement.

Balanced foundation principle
Areas of soft soil (W1)
Foam Concrete (W2)
Combined weight of Foam Concrete and super structure equals excavated soil (W3)