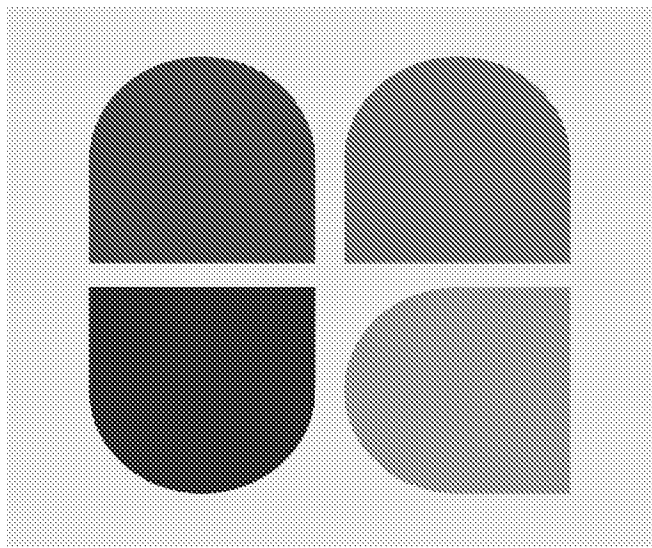




BRIGHT PLAN CIVILS

Project No: D1886
Project Name: Climping - Pond 8 (Ultimate Outfall)
Sheet No: 1

BASIN LINER HYDROSTATIC UPLIFT ANALYSIS FOR SOFT CONSTRUCTION (@BED LEVEL)

Level Data:

Ground Level = 4.5 m
Depth to Groundwater = 1 m
Invert of Basin = 2.5 m
Level of Liner = 1.95 m

Thickness of surfacing layers above Liner:

Topsoil = 150 mm
Clay = 300 mm
Sand = 100 mm
TOTAL = 550 mm

Depth between
groundwater & Liner = 1.55 m

Hydrostatic Uplift = 15.45 kN/m²

Factor of Safety = 1.2

Min' downward force required = 18.54 kN/m²

DMRB, CD 350 (Highway Structures, for Dead loads = 1.32)

Densities:

Top Soil = 15.7 kN/m³
Clay = 22 kN/m³
Sand = 14 kN/m³

Weight of Topsoil = 2.36 kN/m²
Weight of Clay = 6.60 kN/m²
Weight of Sand = 1.40 kN/m²

Downward force of layers over liner = 10.36 kN/m²

Insufficient weight above liner, Consider anchor trench

Anchor Trench:

Dimension = Width 1.25 Height 1.25 Total Length 97 Weight of Clay = 3334.38 kN
Pond area = 376 m²
(Base exl sides) Total min downward force required over pond area 6972.619 kN

Total downwards force over pond area from layers over liner 3893.48 kN

Total downward force from anchor trenches 3334.38 kN

Total resisting force 7227.86 kN

Design Sufficient