



BRIGHT PLAN CIVILS

Project No: D1956
Project Name: Bilsham Road, Yapton
Sheet No: 1 (Basin 1)

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

Level Data:

Ground Level = 5.901 m
Depth to Groundwater = 1.03 m
Invert of Basin = 4.201 m
Level of Liner = 3.301 m

Thickness of surfacing layers above Liner:

Topsoil = 150 mm
Clay = 650 mm
Sand = 100 mm
TOTAL = 900 mm

Depth between
groundwater & Liner = 1.57 m

Hydrostatic Uplift = 15.65 kN/m²

Factor of Safety = 1.05

Min' downward force required = 16.44 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 = 14.30 kN/m²
Weight of Sand = 1.40 kN/m²

Downward force of layers over liner = 18.06 kN/m²

Make-up over Liner OK

Anchor Trench:

Dimension =
Pond area = 0 m²
(Base exl sides)

Width	Height	Total Length
0	0	0

Weight of Clay = 0.00 kN

Total min downward force required over pond area = 0 kN

Total downwards force over pond area from layers over liner 0 kN

Total downward force from anchor trenches 0.00 kN

Total resisting force = 0.00 kN

Design Sufficient



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Project No: D1956
Project Name: Bilsham Road, Yapton
Sheet No: 1 (Basin 2)

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

Level Data:

Thickness of surfacing layers above Liner:

Ground Level = 6.015 m
Depth to Groundwater = 1.01 m
Invert of Basin = 4.795 m
Level of Liner = 4.495 m

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

Depth between
groundwater & Liner = 0.51 m

Hydrostatic Uplift = 5.08 kN/m²

Factor of Safety = 1.05

Min' downward force required = 5.34 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 = 3.30 kN/m²
Weight of Sand = 0.00 kN/m²

Downward force of layers over liner = 5.66 kN/m²

Make-up over Liner OK

Anchor Trench:

	Width	Height	Total Length	
Dimension =	0	0	0	Weight of Clay = 0.00 kN
Pond area = 0 m ²				
(Base exl sides)	Total min downward force required over pond area = 0 kN			

Total downwards force over pond area from layers over liner 0 kN

Total downward force from anchor trenches 0.00 kN

Total resisting force = 0.00 kN

Design Sufficient



BRIGHT PLAN CIVILS

Project No: D1956
Project Name: Bilsham Road, Yapton
Sheet No: 1 (Basin 3)

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

Level Data:

Ground Level = 5.644 m
Depth to Groundwater = 1.01 m
Invert of Basin = 4.164 m
Level of Liner = 3.564 m

Thickness of surfacing layers above Liner:

Topsoil = 150 mm
Clay = 350 mm
Sand = 100 mm
TOTAL = 600 mm

Depth between
groundwater & Liner = 1.07 m

Hydrostatic Uplift = 10.67 kN/m²

Factor of Safety = 1.05

Min' downward force required = 11.20 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 = 7.70 kN/m²
Weight of Sand = 1.40 kN/m²

Downward force of layers over liner = 11.46 kN/m²

Make-up over Liner OK

Anchor Trench:

Dimension =
Pond area = 0 m²
(Base exl sides)

Width	Height	Total Length
0	0	0

Weight of Clay = 0.00 kN

Total min downward force required over pond area = 0 kN

Total downwards force over pond area from layers over liner 0 kN

Total downward force from anchor trenches 0.00 kN

Total resisting force = 0.00 kN

Design Sufficient



BRIGHT PLAN CIVILS

Project No: D1956
Project Name: Bilsham Road, Yapton
Sheet No: 1 (Basin 4)

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

Level Data:

Ground Level = 5.07 m
Depth to Groundwater = 1.22 m
Invert of Basin = 3.249 m
Level of Liner = 2.549 m

Thickness of surfacing layers above Liner:

Topsoil = 150 mm
Clay = 450 mm
Sand = 100 mm
TOTAL = 700 mm

Depth between
groundwater & Liner = 1.30 m

Hydrostatic Uplift = 12.97 kN/m²

Factor of Safety = 1.05

Min' downward force required = 13.62 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 = 9.90 kN/m²
Weight of Sand = 1.40 kN/m²

Downward force of layers over liner = 13.66 kN/m²

Make-up over Liner OK

Anchor Trench:

Dimension =
Pond area = 0 m²
(Base exl sides)

Width	Height	Total Length
0	0	0

Weight of Clay = 0.00 kN

Total min downward force required over pond area = 0 kN

Total downwards force over pond area from layers over liner 0 kN

Total downward force from anchor trenches 0.00 kN

Total resisting force = 0.00 kN

Design Sufficient



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Project No: D1956
Project Name: Bilsham Road, Yapton
Sheet No: 1 (Basin 5)

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

Level Data:

Thickness of surfacing layers above Liner:

Ground Level = 4.948 m
Depth to Groundwater = 1.22 m
Invert of Basin = 2.948 m
Level of Liner = 2.048 m

Topsoil = 150 mm
Clay = 650 mm
Sand = 100 mm
TOTAL = 900 mm

Depth between
groundwater & Liner = 1.68 m

Hydrostatic Uplift = 16.75 kN/m²

Factor of Safety = 1.05

Min' downward force required = 17.59 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 = 14.30 kN/m²
Weight of Sand = 1.40 kN/m²

Downward force of layers over liner = 18.06 kN/m²

Make-up over Liner OK

Anchor Trench:

Dimension = 0 m²
Pond area = 0 m²
(Base exl sides)

Width	Height	Total Length
0	0	0

Weight of Clay = 0.00 kN

Total min downward force required over pond area = 0 kN

Total downwards force over pond area from layers over liner = 0 kN

Total downward force from anchor trenches = 0.00 kN

Total resisting force = 0.00 kN

Design Sufficient