

DUNSBURY HILL FARM
FORM C: HIGHWAY STRUCTURE DESIGN SUMMARY

STRUCTURE NAME: River Bridge		CHAINAGE:		Reference/ comments			
STRUCTURE TYPE: Single span integral bridge		APPROXIMATE LEVEL OF CARRIAGEWAY: 18.0m OD					
MAX-MIN RETAINED HEIGHT: N/A		AIP Ref. No. 5099849/Dunsbury Bridge Structure AIP					
RELEVANT DRAWING NUMBER: 5099849/TP/BR/101A		DESIGN LIFE: 120 years					
SOILS/GEOLOGY		RELEVANT TRIAL HOLES:					
		BH102					
Strata		Typical levels at the top of layers (thickness)					
Firm slightly sandy CLAY (Head Deposits)		19.05 (2.10m)					
Medium dense slightly clayey SAND (Bognor Sand)		16.95 (3.20m)					
Stiff slightly fine sandy, locally silty CLAY (London Clay)		13.75 (Not proven, >9.70m)					
PREVIOUS GROUND HISTORY: Agricultural							
CONTAMINATED GROUND RISK ASSESSMENT REQUIRED: No							
GROUNDWATER: Struck at 5.00m depth (14.05m OD), rose to 3.15m depth (15.90m OD) in 20 minutes. Adjacent to Hermitage Stream (River Bed Level: 16.14m OD).							
DESIGN SOIL PARAMETERS	Stratum	γ (kN/m ³)	Φ' (deg)	c' (kPa)	v	E' (MPa)	K_o
	Head Deposits	19.5	23	0		7.3	0.61
	Bognor Sand	19.1	33	0		20	0.45
	London Clay	19.5	23	0		18	0.61
Wall Friction ($\delta/\Phi' = 0.67$)							

BEARING CAPACITY						
Structure Element	Founding Stratum	Founding Level (m AOD)	Footing Size		Allowable Bearing Pressure (kN/m ²)	
North Abutment	Bognor Sand	~15.75	13.0 x 5.0 approx		~250	
South Abutment	Bognor Sand	~15.75	13.0 x 5.0 approx		~250	
PILE DESIGN						
Chainage	Founding Stratum	Toe Level (m AOD) Approx.	Pile type (mm)	Pile Length (m)	Intermediate Pile Length (m)	Pile Working Load (kN)
Pile type: None Unplanned Excavation: N/A Criteria for selecting pile toe level: N/A Maximum Deflections: N/A Allowance for negative skin friction within design: N/A						
SETTLEMENT						
Structural Element	Founding Level (mAOD)	Immediate Settlement (mm)	Total Settlement (mm)	Time for 90%	Settlement Remaining at Completion (mm)	
North Abutment	~15.75		<25			
South Abutment	~15.75		<25			
GROUND MOVEMENTS						
Associated Earthworks						
Cause of Movement	Settlement due to Embankment Loading	Heave due to Cutting Excavation	Subsidence Due to Mineral Extraction	Flowing Water	Other	
Maximum Movement (mm)	N/A	N/A	N/A	N/A	N/A	
Measures to Deal with Movement	N/A	N/A	N/A	N/A	N/A	
CHEMICAL ANALYSIS						
type of test/sample	soil	soil:water (2:1 ex)	water	other		
Sulphate (as SO ₄)	0.15g/l	0.07g/l	--	0.03% (Acid)		(Bognor Sand)
Chloride	0.01%	--	--	--		
pH	6.7	8.0	--	--		

redox	--	--	--	--	
other	--	--	--	0.07% (Elemental sulphur)	
Buried Concrete classification... Class DS-1/AC-1s/DC-1					BRE SD1
Corrugated Steel Culvert ground/water classification: N/A					
OTHER DESIGN FEATURES:					
Fully integral single span road over river bridge					
NOTES					
Foundation design yet to be carried out. Information provided is of a preliminary nature for planning purposes.					