Soil tests	Test description	Sample type	Field sample mass based on maximum grain size (D_{max})				Test specimen							
							Specimen type	Specimen mass	Nominal dimensions, or maximum grain size, or fraction					
			<2 mm	<20 mm	<63 mm	<125 mm			D	L	W	H	D_{max}	d/D
			kg	kg	kg	kg		kg	mm	mm	mm	mm	mm	min/max
Classification & Shrinkage	Split & describe	I, D	-				I, D	-						
	Water Content		1	10	20	60	I, D	0.5-15	-				-	-
	Atteberg limits (4 pt, 1 pt)		1	5	10	20		0.3					0.425	
	Methylene blue												2	0/2 0/0.125
	Linear shrinkage												0.425	-
	Particle size distribution by sieving and sedimentation		5	10	60	160		0.2-10					125	0/125
	Particle Density		1	5	10	20		1					37.5 4	0/37.5 0/4
	Bulk density (including SMC)	I	-				I	0.2-4	38-100	-		(1.0-2.0)D	-	-
	Filter paper	I, D	1	-			I, R, r	0.2	70 100			10	2	
Compaction & Stabilisation	2.5 kg compaction - 1 L mould	D	30	80	100	120	R, r	2	105	-		115	20	-
	2.5 kg compaction - CBR mould							5	152			127		
	4.5 kg compaction - 1 L mould							2	105			115		
	4.5 kg compaction - CBR mould							5	152			127		
	Compaction by vibrating hammer													
	Moisture condition value		10	20	40	80		1.5	100			200	20	
	Moisture content calibration		20	40	80	100								
	Chalk crushing value		-	20	-		Lumps	1						10/20
	California bearing ratio		20	40	80	100	R, r	5	152			127	20	-
	Maximum & minimum density							0.5 2 5	35 70 105 152			2D 2D 115 127	2 4 6.3 37.5	
	Degree of pulverisation		-					1	-			-	-	-
	Initial lime content							0.5					0.425	
	Compressive strength (stabilised material)							0.5-5	50-150			1D	D/5	
Consolidation & Swelling	Incremental loading consolidation (1D)	I, D	1	8	-		I, R, r	0.2	50 63.5 75	-		20	H/6	-
	Consolidation in a hydraulic (Rowe) cell (stress- or strain-controlled, 1D, pwp)		2	14				0.2	70			25		
	Constant-rate-of-strain (CRS) consolidation (strain-controlled, 1D, pwp)		2	14					70			25	H/10	

Soil tests	Test description	Sample type	Field sample mass based on maximum grain size (D_{max})				Test specimen							
							Specimen type	Specimen mass	Nominal dimensions, or maximum grain size, or fraction					
			<2 mm	<20 mm	<63 mm	<125 mm			D	L	W	H	D_{max}	d/D
			kg	kg	kg	kg		kg	mm	mm	mm	mm	mm	min/max
	Triaxial consolidation (isotropic, anisotropic, K_0, pwp)		2	14				0.2-3.5	38 50 70 100			2D	D/6	
	Swelling strain index		1	8										
	Swelling pressure		1	8				0.2	50 63.5 75			20	H/6	
	Collapse or swelling on wetting		1	8										
Undrained shear strength	Hand vane	I, D	-				I	-	-	-		-	-	-
	Torvane													
	Lab vane		2	14	-		I, R, r	2	70 100			1D	H/10	
	Fall cone		1	4				0.1-0.5	50			(0.5-1.0)D	H/10	
	Thixotropy (fall cone test)		2	14										
	Unconfined compression							0.2-5	38 50 70 100			(1.8-2.5)D	D/6	
	Consolidated undrained direct simple shear							0.2	63.5			0.4D	H/10	
Drained shear strength	Consolidated drained direct shear (small shear box)	I, D	1	4	-		I, R, r	0.2	60 100	60 100	60 100	20	H/6	-
	Residual shear strength using the small direct shear apparatus		1	4										
	Interface direct shear (small shear box)		1	4			R, r							
	Consolidated drained direct shear (large shear box)		-	120				≥30	300	300	300	≥150	20	
	Residual shear strength using the large direct shear apparatus													
	Residual shear strength using the ring shear apparatus	D	2	-				0.5	-			5	H/6	
	Interface ring shear test													
	ICP ring shear test													
Triaxial compression or extension	Unconsolidated undrained	I, D	2	14	-	-	I, R, r	0.2-5	38 50 70 100	-		2D	D/6	-
	Consolidated isotropic or anisotropic undrained or drained													
Permeability	Falling head permeability in an oedometer	I, D	-				I, R, r	0.2	50	-		20	H/6	-
	Constant head permeability in a Rowe (hydraulic) cell								70			25		
	Constant or falling head in a triaxial cell							0.2-4	100			1D		
	Falling or constant head in a permeameter								100			(1.0-2.0)D	D/6	
Dispersibility	Pinhole	I, D	1	-			-	0.15	-	-			2	-
	Crumb method	I	-				Crumbs of soil	0.5	6-10				-	
	Double hydrometer	I, D	1				-	0.2	-				2	

Soil tests	Test description	Sample type	Field sample mass based on maximum grain size (D_{max})				Test specimen							
							Specimen type	Specimen mass	Nominal dimensions, or maximum grain size, or fraction					
			<2 mm	<20 mm	<63 mm	<125 mm			D	L	W	H	D_{max}	d/D
			kg	kg	kg	kg		kg	mm	mm	mm	mm	mm	min/max
Shear modulus & cyclic stress	Bender elements	I, D	4	16	-		I, R, r	1-5	70 100	-			2D	D/6	-
	Resonant column-Torsional shear								70				140	D/6	
	Cyclic direct simple shear		2					0.5	63.5				0.4D	H/10	
	Cyclic triaxial (strain- & stress- controlled)		4	16				1-5	70 100				2D	D/6	

I: intact; D: disturbed; R: reconstituted; r: remoulded

The mass of the practical field sample, which is presumably a mixture of fine and coarse grains, depends on the nominal diameter of the coarsest grains.

The practical field sample mass should be sufficiently greater than the test specimen mass, e.g. four times (4X) the standard test specimen mass, to allow for quartering and preparation of test specimens according to the specific standard test method.

If uncertain, then collect a sample (kg) that is three times (3X) the diameter of the largest grain(s), e.g. for soil containing 20 mm grains then the recommended sample mass is 20 x 3 = 60 kg.

Individual sample bags should be kept below a manageable mass, e.g. 15 kg.

For disturbed specimens, the test specimen mass M = ρ x V, where ρ the bulk density (Mg/m^3, or kg/m^3, or g/cm^3) and V is the volume of the specimen (m^3 or cm^3).

Rock tests	Test description	Sample type	Field sample mass based on the maximum grain size (D_{max})					Test specimen							
										Nominal dimensions, or maximum grain size, or fraction					
			<2 mm	<20 mm	<63 mm	<125 mm	<125 mm	Specimen type	Specimen mass	D	L	W	H	D_{max}	d/D
			kg	kg	kg	kg	kg		kg	mm	mm	mm	mm	mm	min/max
Index properties	Geotechnical description	I, D	-					Core, irregular pieces	-	-				-	-
	Water Content								1						
	Porosity & density - saturation & callipers								1	35-100	-		(0.5-2.5)D		
	Porosity & density - saturation & buoyancy	I							1						
	P- and S-wave velocity							Core	-	≥50	≥50	≥50	≥50	D/10	
Strength & Deformability	Point load index (one or 10 specimens)	I	-					Core or rectangular block	-	30-100	>0.5D	(0.3-1.0)D	-	-	-
	Uniaxial compressive strength							Core		50-100	-		(2.5-3.0)D	D/10	
	Uniaxial compression with Young's modulus & Poisson's ratio									100					
	Triaxial compression									54			(2.0-3.0)D		
	Triaxial compression with Young's modulus & Poisson's ratio														
	Indirect tensile strength							Disk		54			(0.20-0.75)D		
	Shear strength under constant normal load or constant normal stiffness							Core with closed or open discontinuities		50-100			2D		
Hardness & Durability	CERCHAR abrasivity index	I	-					Core		≥50	≥50	≥50	≥50	-	-
	LCPC abrasivity & breakability	D						Cuttings	5	-	-	-	-	-	4/6.3
	Schmidt hammer	I						Core	-	50-100	-		2D	-	-
	Los Angeles	I, D	-	40	80	120	120	Crushed	10	-	-	-	-	-	10/14
	Swelling (pressure or axial strain)		-					Core or crushed	0.05-.02	35-75	-	-	2D	H/6	-
	Slaking							Chunks	0.2	-	-	-	-	-	
	Slake durability							Lumps (10)	0.5	-	-	-	-	-	
	Magnesium sulphate		5	10	40	80	80	Crushed	0.5	-	-	-	-	-	10/14

Core: right circular cylinder

Geochemical tests	Test descriptions	Sample type	Field sample mass based on maximum grain size (D_{max})					Test specimen							
										Nominal dimensions, or maximum grain size, or fraction					
			<2 mm	<20 mm	<63 mm	<125 mm	<125 mm	Specimen type	Specimen mass	D	L	W	H	D_{max}	d/D
			kg	kg	kg	kg	kg		kg	mm	mm	mm	mm	mm	min/max
Electrochemical	Electrical Resistivity (four- or two-electrode method)	I, D	5-10	10-20	20-40	-		Soil (I, R, r) Rock (core)	1-5	70-100	28 16	8 6	4 3 (1.0-2.0)D	-	-
	Thermal resistivity		10	20	40					38-100	-		(1.0-2.0)D		
	Redox potential		-					Core	0.5	-					
Chemical	pH value		1	5	10	20	20	-							
	Water-soluble sulphate in soil														
	Sulphate in groundwater														
	Acid-soluble sulphate in soil														
	Total sulphur														
	Total sulphide (reduced sulphur) in soil														
	Acid-soluble sulphide in soil														
	Organic content														
	Loss on ignition														
	Chloride in soil & groundwater														
	Magnesium in soil & groundwater														
	Total dissolved solids in groundwater														
	Non-pyritic BRE suite														
	Pyritic BRE suite														
	Non-pyritic BRE brownfield suite														
	Pyritic BRE brownfield suite														
Mineralogy	Petrography	I	-					Lumps	≤50 g	-	25	50	5	-	-
	SEM/EDS	I, D								-					
	Powder XRD							Powder							
	Clay-fraction content XRD														

Core: right circular cylinder