Geotech
Cutting-Edge Geotechnical

Specialist Soil Stabilisation & Earthworks Testing Services

UKAS
TESTING
21581

Mix Design Studies to give your soil stabilisation project the Cutting-Edge!

CE Geotech
Cutting-Edge Geotechnical

Introduction

Innovative and robust services for your projects.

CE Geotech is a UKAS accredited laboratory providing mix design studies and site testing services specifically tailored to soil stabilisation for ground engineering applications.

At CE Geotech we don't just test samples, we deliver projects! This approach ensures our clients receive the highest level of continuity and project management, all the way through a stabilisation project lifecycle; from initial site characterisation, laboratory mix design study phases, and project sign-off through on-site control and validation testing.

Working closely with our clients, CE Geotech pride ourselves on the delivery of innovative and robust ground engineering solutions for the soil stabilisation industry. Our expertise with mix design optimisation studies and site-specific verification strategies is why CE Geotech remain at the cutting edge of soil stabilisation technology.

Key Capabilities

- Specialist Laboratory Facilities for Soil Stabilisation Trials
- Project Focussed Geotechnical Test Work Programmes
- On Site Laboratories for Control & Validation Testing
- Experience in over 200 Successful Stabilisation Projects

Initial site assessments play a critical role in developing robust ground models for soil stabilisation design. Understanding existing ground conditions provides the fundamental information for developing cost effective mix designs tailored to your site.

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Site Investigations Services

Understand and control your risks.

Any ground engineering project starts with a robust understanding of site conditions and site abnormals. Soil stabilisation relies on the ability of hydraulic binders to improve the mechanical performance of soils. The success of soil stabilisation as a ground improvement technique is governed by the interaction of the binder phase with the soil matrix. Identifying representative soil samples at the site investigation stage is critical to the delivery of any soil stabilisation design.

Our site investigation package includes an assessment of sub-grade strength, crucial for identifying suitable layer design.

Our site services include:

- Site Sampling and Trial Pit Logging - BS EN 5930: 2015
- Dynamic Cone Penetrometer Probe Holing Survey – CS 229
- Light Weight Deflectometer (LWD) - Prima 100 – IAN 73/06
- Plate Load Testing (PLT) BS 1377 1990: Part 9
- Rapid On-site Sulphur Survey by Portable XRF – USEPA 6200

Independent mix design studies you can rely on.

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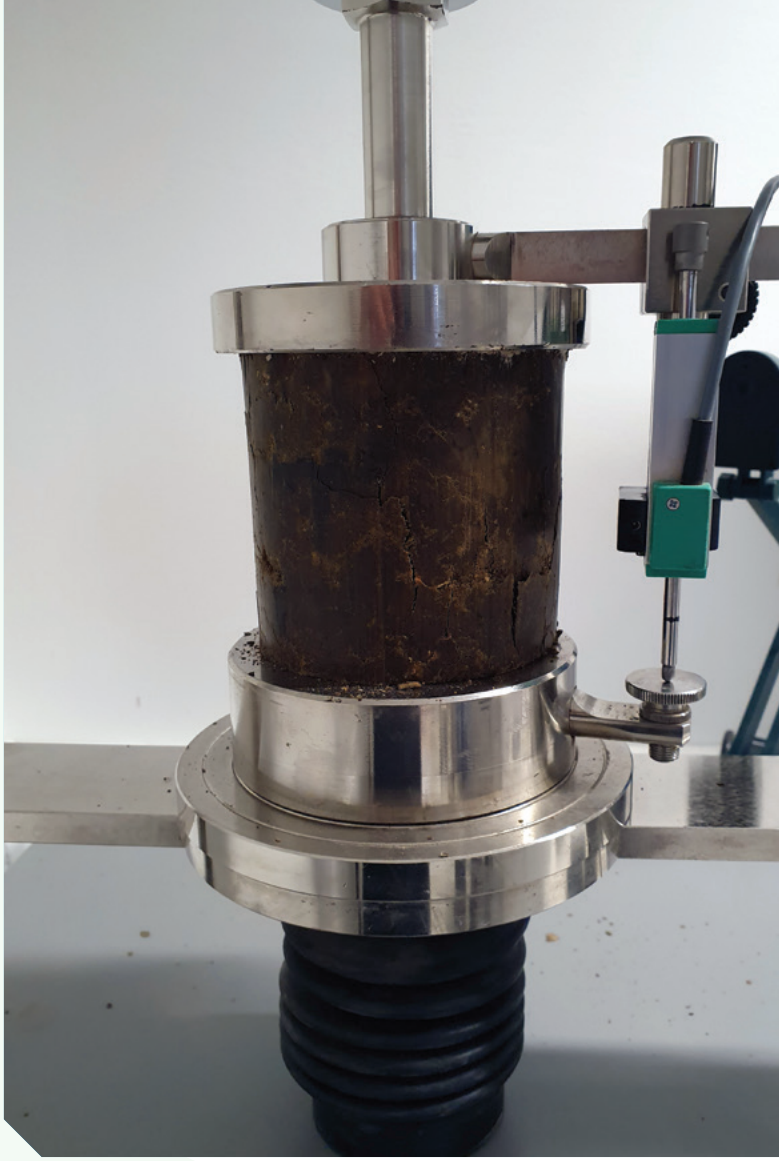
Laboratory Mix Design Studies

Project specific mix design studies tailored to your sites specification.



Materials Characterisation

- Optimum Moisture Content Maximum Dry Density (OMC-MDD)
  – BS EN 13286-4:2003, BS 1377-4:1990
- Moisture Condition Value (MCV Range)
  – BS EN 13286-46:2003
- BRE-SD1 Sulphate Suite
  – TRL 447
- Particle Size Distribution (PSD)
  – Wet/Dry BS 1377-2:1990
- Plasticity Index
  – BS 1377-2: 1990
- Lime Demand
  – BS 1924-2 Clause 5.4:2018

Assessment of Strength/Stiffness

- California Bearing Ratio (CBR) and Immediate Bearing Index (IBI)
  – BS EN 13286-47:2012, BS 1377-4:1990
- CBR Swell
  – BS EN 13286-47:2012, BS 1377-4:1990
- Accelerated Swell Testing
  – BS EN 13286-49:2004
- Loss of Strength on Immersion
  – SHW Series 800
- Unconfined Compressive Strength
  – BS EN 13286-41:2004
- Elastic Modulus
  – BS EN 13286-43: 2003
- Quick Undrained Triaxial
  – BS EN 1377-7:1990
- Permeability (Falling Head)
  – K H Head:2011

Quality Assured

Don’t let unpredictable ground conditions affect your soil stabilisation project.

CE Geotech’s Control & Validation testing services provide site managers with real time data for materials compliance to enable construction activities to proceed with confidence and without delay.

Through years of experience, our site engineers not only provide timely and robust data for stabilisation control, but can also assist with the interpretation of challenging site conditions.

Earthworks & Stabilisation

Control & Validation Testing Services

CONTROL TESTING

Parameter	Standard	Requirement
Moisture Content	BS 1377 (microwave method)	Controlling moisture content plays a critical role in achieving target compaction densities
Degree of Pulverisation	BS EN 13286-48	Degree of Pulverisation (DOP) DOP provides a rapid method to check binder contact efficiency and the adequacy of mixing
Depth Check		To ensure layer depth has been achieved
Spread Check		To ensure binder application rates are correct
Moisture Condition Value	BS 13286-46	Used to ensure the soil-binder mixture is suitable for compaction
Specimen Manufacture for Laboratory Validation	BS EN 13286-50 BS EN 13286-51	Depending on specifications, can include specimens for; UCS (BS EN 13286-41), CBR (BS 1377-4 / BS EN 13286-47) or Undrained Shear Strength (BS1377-7 SHW Cl. 633)
Dynamic Cone Penetrometry	CS229	Can be used to profile sub-grade soft spots or monitor stiffness from deeper layers for multi-layer stabilisation designs
In Situ Density	BS 1377-9	By Sand Replacement or Core Cutter methods, used to determine in situ bulk and dry density for determination of % compaction and air void ratio
Chemical Analysis	TRL 477 BS 1377-9	Speciated Sulphate analysis to assess Total Potential Sulphate (TPS) and Organic Matter Content

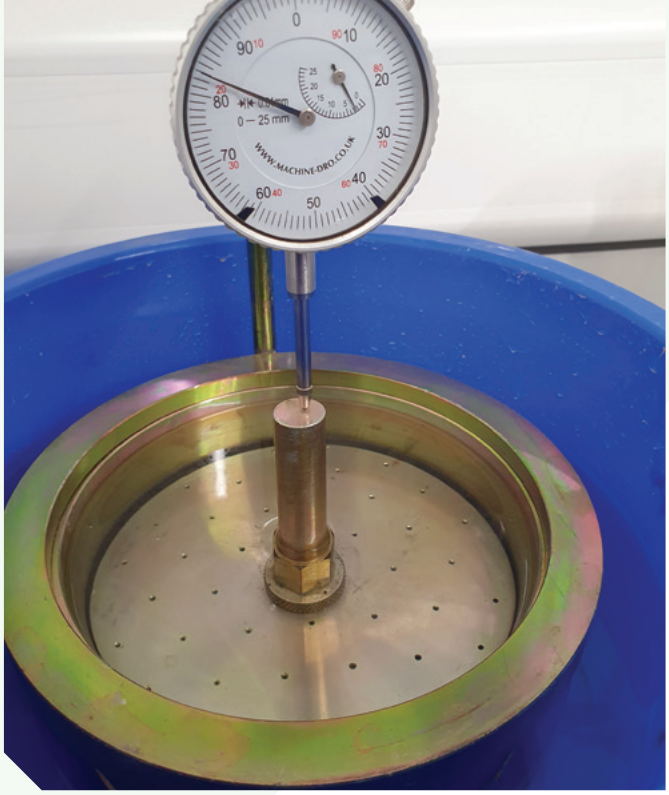
VALIDATION TESTING

Parameter	Standard	Requirement
CBR by Incremental Plate Loading	BS 1377-9	For determination of estimated in situ CBR value from incremental plate loading
Maximum Applied Stress by Incremental Plate Loading	BS1377-9	For determination of maximum applied stress at target deflection
Light Weight Deflectometer	IAN 73/06	Determination of Surface Modulus or stiffness

Laboratory Testing

Classification, Compaction & Stiffness

Item	Standard
Optimum Moisture Maximum Dry Density (OMC-MDD)	BS EN 13286-4
Optimum Moisture Maximum Dry Density (OMC-MDD)	BS 1377-4
Moisture Condition Value (MCV) @ NMC	BS EN 13286-46
Moisture Condition Value (MCV) Range	BS EN 13286-46
Manufacture 50mm specimen	BS EN 13286-51
Manufacture 100mm specimen	BS EN 13286-51
Manufacture 150mm specimen	BS EN 13286-51
California Bearing Ratio Analysis (CBR)	BS EN 13286-47
Soaked California Bearing Ratio (CBR Swell)	BS EN 13286-47
Unconfined compressive Strength (UCS)	BS EN 13286-41
Instant Bearing Analysis (IBI-CBR)	BS EN 13286-47
Elastic Modulus	BS EN 13286-43
Accelerated Swell	BS EN 13286-49
Loss of Strength on Immersion	Series 800,Clause 880
Los Angeles Coefficient (LA)	BS EN 1097-2
Frost Heave Analysis	BS 812-124
X-ray Florescence (XRF)	BS ISO 13196
Particle Size Distribution Dry (PSD)	BS 1377-2
Particle Size Distribution Wet (PSD)	BS 1377-2
Falling Head Permeability	K.H.Head
Quick Undrained Triaxial	BS 1377-7
Plasticity Index	BS 1377-2



Laboratory Testing

Chemical Testing

Item	Standard
BRE-SD1	BS 1377
Organic Matter	TRL 447
pH	BS 1377-3
Moisture Content	BS 1377-2
Lime Demand	BS 1924
Nutrient Status	RB 209
Top Soil Specification	BSI PAS 100 BS 3882
Total Metals	CLEA Metals. Additional contaminated land analysis available on request
10:1 or 2:1 Leachate*	BS EN 12457
Semi Dynamic Tank Test	EA NEN 7375, BS EN 15863 or USEPA 1315

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Sulphate Induced Heave

Advanced Laboratory Studies.

CE Geotech's continual innovation in the area of soil stabilisation means we are the only company in the UK to provide real-time results on site for assessing the potential for sulphate heave in stabilised soils.

Our Sulphate analysis services include:

- Rapid on site characterisation of Total Potential Sulphate (TPS) by portable X-Ray Fluorescence (pXRF)
- 3D modeling of sub-surface TPS distribution
- BRE-SD1 - Building Research Establishment Special Digest 1
- Positive identification of Ettringite formation by X-Ray Diffraction
- 28 day soaked California Bearing Ratio (CBR Swell). BS EN 13286-47
- 7 day Accelerated Swell Testing BS EN 13286-49

Working closely with our clients, CE Geotech pride ourselves on the delivery of innovative and robust ground engineering solutions for the soil stabilisation industry.

Laboratory Studies | Modelling | Geochemical Consultancy

CE Geochem
Cutting-Edge Geochemistry

Experts in Treatability Studies for Contaminated Land

Our sister company CE Geochem is an applied geochemical solution provider for contaminated land and groundwater remediation. Their unique approach to solving environmental problems combines laboratory and modelling studies to assist their clients in delivering robust, cost-effective solutions.

If you are looking for cost-effective, cutting-edge solutions for developing contaminated land, please get in touch.

- Stabilisation Trials
- Soil Washing Trials
- Chemical Oxidation Studies
- PRB Design
- Risk Model Parameterisation Studies
- Biodegradation Studies
- Onsite Analytics
- Research & Development

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