- TOPOGRAPHIC LAND SURVEYS
- SITE ENGINEERING & SETTING OUT
- MEASURED BUILDING SURVEYS
- 3D LASER SCANNING
- MOBILE MAPPING SERVICES
- BUILDING INFORMATION MODELLING
- DIGITAL CONSTRUCTION DOCUMENTATION
- DIGITAL TWIN SURVEYS
- PAS 128 UTILITY & GROUND PENETRATING RADAR SURVEYS
- CCTV DRAINAGE SURVEYS & REPORTS
- DRONE SURVEYS & INSPECTION
- ACCURATE VERIFIED VIEW & CGI
- CONSTRUCTION VERIFICATION SURVEYS
- AREA MEASUREMENT & REFERENCING
- BOREHOLE CLEARANCE
- BOUNDARY SURVEYS & DISPUTES
- LAND REGISTRY COMPLIANT PLANS
- ABORICULTURAL SURVEYS
- HYDROGRAPHIC SURVEYS
- STRUCTURAL MONITORING SURVEYS

CASTLE SURVEYS LTD

EXPERTS IN GEOMATIC MEASUREMENT & MAPPING

www.castlesurveys.co.uk

About Castle Surveys

Based in the United Kingdom with five strategic regional offices, Castle Surveys Ltd is a geospatial survey company regulated by the TSA and follow the guidelines set out by The Royal Institution of Chartered Surveyors (RICS) & Chartered Institution of Civil Engineering Surveyors (ICES).

We are committed to working with our Clients to deliver an integrated service focussed on safety, quality and efficiency. As an experienced multi-disciplined team, we are able to draw on our collective knowledge base to design bespoke solutions tailored to our Client's requirements, ensuring that safety and quality are not compromised whilst cost efficiencies are explored.

With honesty as a core value, we work with our Clients to deliver a collaborative approach to the project ensuring that we remain your preferred geospatial survey partner for future projects.

MIDLANDS 01530 569338

LONDON 020 3728 2884

MANCHESTER 0161 549 0206

SOUTH WEST 01242 384677

SCOTLAND 0131 297 7961

Our Services

- Topographic Land Surveys
- Site Engineering & Setting Out
- Measured Building Surveys
- 3D Laser Scanning
- Mobile Mapping Services
- Building Information Modelling
- Digital Construction Documentation
- Digital Twin Surveys
- Pas 128 Utility & Ground Penetrating Radar Surveys
- CCTV Drainage Surveys & Reports
- Drone Surveys & Inspection
- Accurate Verified View & CGI
- Construction Verification Surveys
- Area Measurement & Referencing
- Borehole Clearance
- Boundary Surveys & Disputes
- Land Registry Compliant Plans
- Aboricultural Surveys
- Hydrographic Surveys
- Structural Monitoring Surveys

Service Sectors

RESIDENTIAL

COMMERCIAL

HERITAGE

EDUCATION

HEALTHCARE

LEISURE

RETAIL

ENERGY

TRANSPORT

DEFENCE

JUSTICE

FORESTRY

PUBLIC

AGRICULTURE

INDUSTRIAL

UTILITIES

Accreditation

THE SURVEY ASSOCIATION

Constructionline Gold Member

CYBER ESSENTIALS CERTIFIED

NAVVIS

EUROPEAN GPR ASSOCIATION

ISO 9001 CERTIFIED

CASTLE SURVEYS LTD

Acclaim Accreditation

Leica Geosystems

Social Value

BUILDER'S PROFILE

ELITE CHAS

Topographic Land Surveys

Our Topographical surveys are carried out in line with the standards set out by the Royal Institute of Chartered Surveyors (RICS). Castle Surveys Ltd pride ourselves on ensuring that our survey teams are trained to the highest standards and conduct their work in a professional & time efficient manner.

Castle Surveys Ltd undertake land surveys of all sizes, small and large, from a single plot to a large multi-acre development, across the whole of the UK and further afield. We utilise the most cost-effective solutions to ensure that all clients receive their products at the accuracy and detail they require with a quick turnaround time.

We utilise GNSS, Total Stations, Laser Scanning, LIDAR and Unmanned Aerial Vehicles (UAVS) are among the technologies that could be utilised to acquire geospatial data for your projects

Site Engineering & Setting Out

Our setting out engineers have a vast amount of knowledge and experience when it comes to setting out projects. Our clients range from 1 plot self builds to multi-unit sites on behalf of housing developers.

All our setting out engineers hold valid and up to date CSCS qualifications and cards to enable us onto sites to carry out the site engineering.

Our site engineering services consist of	
Foundation setting out	Face of brick/block
Pile locations and levels	Grid lines
Bolt box locations	Roads, channels and highways
Manhole locations	Finished floor levels
Site survey control	Boundaries
Floor & concrete slabs	Boundary Lines
All external works	Solar panel location setting out

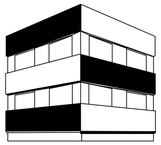
Measured Building Surveys

Castle Surveys Ltd are experts in the provision of accurate Measured Building Survey data.

Utilising high-definition 3D laser scanners we can deliver solutions for the rapid surveying of inaccessible surfaces or complex geometrical components. We can then create a registered 3D point-cloud which can be integrated and used with our 3D modelling software to produce high quality & detailed deliverables to our clients.

Each element of the property can be surveyed independently or as part of a fully connected co- ordinated survey which will reference the floor plans, elevations, topographical surveys and underground utility surveys.

Our measured building surveys include	
Floor Plans	Elevations
Sections	Roof Plans
Internal Elevations	Internal Area Surveys & Reports



Case Study: Mount Saint Bernard's Abbey

Castle Surveys was engaged by one of our blue-chip clients to undertake a topographical and measured building survey of Mount Saint Bernard's Abbey located in the heart of rural Leicestershire for planning, maintenance and conservation purposes. The abbey was founded in 1835 and flourishes today as a Cistercian monastic community, in 2017 it opened a brewery producing Britain's only Trappist beer.

The Equipment

We were asked to carry out a series of surveys to create a set of master plan drawings in AutoCAD of the entire site to ensure cost-effective building maintenance and conservation of the abbey and its buildings; while also supporting plans to extend its brewery in the future.

To carry out the work, cutting-edge technology was deployed by our Midlands-based surveying team including a Leica P40 Scan Station, three high-definition Leica RT 230 scanners and drones, providing the rapid capture of precise and accurate data of the Grade 11 listed abbey both internally and externally. The aim was to create dimensionally accurate, digital models to document and visualise the abbey.

Site Challenges

With the entire abbey, including 30 monks in residence, outbuildings and a state-of-the-art brewery to work around, they presented quite a challenge. Our team of surveyors completed the project in 25 days, scanning the entire site and then another month creating a 3D point cloud from which they were able to deliver 2D AutoCAD plans and a high-definition 3D 'digital-twin' Revit model.

Where 2D CAD plans reveal key structural features, a 3D 'digital twin' Revit model is dimensionally accurate, the model can be used to design and document the abbey, which together would provide a set of master plan drawings for future works.

Solution

The laser scanners can survey building features in incredible detail due to the density of measurements over a given area. Scans include accurate measurements of building features that were notoriously hard to survey using traditional equipment, for example, architraving, arches and other quirky features.

The laser scanners can capture a lot of data – providing helpful contextual information very quickly, while on-site which means there was less disruption to the daily routine of the abbey.

As complex roof plans were required, drone technology was deployed to rapidly capture photogrammetry data over the entire site, overcoming access and safety concerns. Using drones our surveyors were able to access hard to reach parapet walls and valleys without putting themselves at risk.

Paul Jackson, Managing Director, Castle Surveys, explains:

"By combining 3D laser scanners, GPS and drone technology we are ensuring the accuracy of data collection, measurement and mapping. The Revit model provides visual walk-throughs giving complete confidence for our client at just the click of a button. The data we are collecting will assist in preserving this historic building and will support plans to extend the brewery, ensuring the future sustainability of the abbey."

"Carrying out a measured building survey in a building like Mount Saint Bernard's Abbey is not an easy task. We worked in difficult, hard-to-reach areas of the building and around all sorts of interruptions from church services, meetings and of course a working brewery on-site to get the project completed on time and within budget."

3D Laser Scanning

Castle Surveys Ltd have a large amount of experience in carrying out and managing laser scanning projects. This type of surveying offers a rapid, accurate and safe method of collecting comprehensive 3D information about any structure or building. Collection of site data can be recorded to an accuracy of +/- 3mm.

Whether acquiring 3D geometry of civil infrastructure, generating an as-built survey of an industry development or producing 3D data for Building Information Modelling (BIM), Castle Surveys has the knowledge & experience to deliver your project on time and within budget.

Another huge benefit to 3D laser scanning is that the survey data can be recorded from ground level, eliminating health and safety concerns such as working at height and working in dangerous environments.

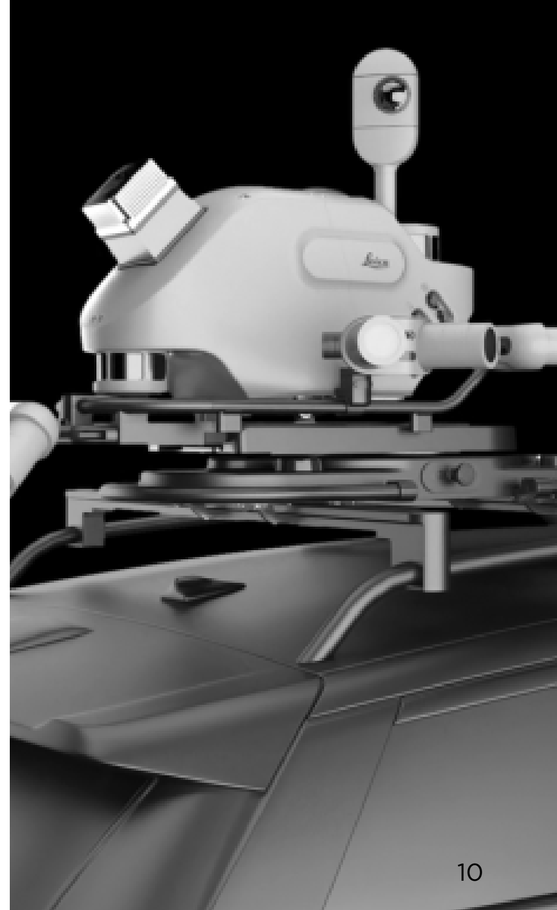
Mobile Mapping Surveys

In surveying terms, mobile mapping refers to the technique of collecting geospatial data for surveying and mapping applications using a mobile platform that moves through an area, typically a vehicle, and is equipped with specialised surveying and mapping equipment. Mobile mapping systems are used to efficiently and accurately capture data about the Earth's surface and its features, including terrain, infrastructure, and objects.

Equipment commonly used in mobile mapping:

- GPS/GNSS Receivers
- LiDAR (Light Detection and Ranging)
- Cameras
- Odometry Sensors
- Data Storage and Processing Unit
- Control and Navigation Software
- Mobile Mapping Vehicle

Mobile mapping is commonly used in applications such as road and highway surveying, city planning, infrastructure management, forestry, utility mapping, and environmental monitoring. It allows our surveyors and mapping professionals to efficiently gather highly accurate geospatial data, making it an essential tool in modern surveying and mapping practices.



Building Information Modelling

At Castle Surveys Ltd, we know how important the use of BIM (Building Information Modelling) can be to design, surveying, and construction industries.

With today's technology, we can assist industries with intelligent 3D plans that provide an accurate depiction of a building, site plan, or plot of land using BIM technology.

Moreover, 2D plans can be extracted from the 3D design to ensure consistency and reliability in data throughout a project's lifecycle. We know that if all phases of the BIM are constructed correctly, those plans can save you precious money and time on a building project.

Case Study: Canary Wharf Office-To-Lab Conversion

17 Columbus Courtyard, Canary Wharf is a 10-storey office building developed in 1999 totalling 247,602 sq ft. It was recently purchased by Oaktree Capital Management to transform the building into a new 'state-of-the-art' life science and technology hub. This scheme is the latest in an emerging life sciences cluster in Canary Wharf, London.

Castle Surveys was commissioned by Arcadis Consulting (UK) in February 2023 to undertake a measured building survey of its architectural, structural and MEP services to produce an information-rich, LOD 300, 3D Revit model of the building that includes two basements, ground and nine upper floors.

This provided a comprehensive master plan for the project's various contractors, including the main architect Scott Brownrigg, engineers and consultants to assist in delivering the high-spec design for this ambitious scheme.

The Equipment

To carry out the work, cutting-edge technology was deployed by an experienced two-person team from Castle Surveys, which ensured that the time required to scan the entire site including an electrical substation was completed in just eight working days.

We used the very latest technology including a Leica P40 Scan Station to get the levels around the building and a high-definition RT 360 scanner, a Leica TS-16 robotic total station and GPS to capture everything in 3D including its complex mechanical, electrical and plumbing (MEP) systems.

Site Challenges

This £200m refurbishment scheme demanded the very highest level of scan detail from Castle Surveys. Our brief was to provide a full overview of the entire site, by capturing every component of the building's interior including floor plans, precise elevations, stairways, its MEP systems and exterior facade to ensure precise and accurate data collection.

The building had been stripped back to the steel frames before the work began, however, the electrical substation in the basement together with its MEP systems presented a challenging working environment for our surveyors where safety was paramount.

Solution

To ensure accuracy and to capture the minute details of this building, we deployed advanced laser technology capable of completing 350 scans in a single day, facilitating the creation of a point cloud from which we delivered a precise 3D, LOD 300 Revit model featuring over 24,000 individual components

Our expert in-house team completed the project in just under three months, providing a cost-effective and rapid turnaround for a project of this scale to the satisfaction of our client. The refurbishment scheme is scheduled to be completed by 2025, repositioning the building for the fast-growing life sciences market.

Paul Jackson, Managing Director, Castle Surveys, explains:

"It was hard work capturing the scan data, sometimes in awkward places for all the individual duct vents, sprinkler systems, rainwater, soil vents and main water pipes and there were electrical cables everywhere."

"As we progressed through the building, we found that the main electrical substation for Canary Wharf itself was located within the basement. We had to follow strict health and safety protocol to ensure the safety of our surveyors; the equipment they used had to be intrinsically safe and the right clothing worn before we could safely capture, measure and map these essential MEP services."

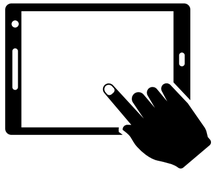
Digital Construction Documentation

Castle Surveys offers comprehensive **Digital Construction Documentation** services utilising advanced technologies to streamline project management and enhance accessibility for clients, developers, managers, and stakeholders.

By leveraging a combination of 360-degree images, walkthroughs, point cloud hosting, and centralised project file storage, Castle Surveys provides a seamless solution for accessing and managing construction project data.

By offering integrated digital construction documentation services, Castle Surveys empowers clients, developers, managers, and stakeholders to effectively monitor, analyse, and manage construction projects remotely.

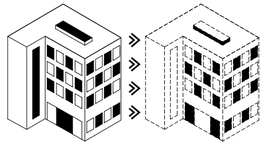
Whether it's conducting virtual site inspections, performing clash detection, or accessing critical project data on-demand, Castle Surveys provides the tools and technologies needed to optimise construction project management and ensure project success.



Digital Twin Surveys

Digital Twin Surveys leverage advanced technologies like 3D laser scanning and Building Information Modeling (BIM) to create highly accurate virtual representations of physical assets or spaces. In this process, 3D laser scanning captures detailed point cloud data of the site, collecting precise measurements and geometry. This data is then used to generate a comprehensive BIM model, which includes information about the structure, materials, systems, and spatial relationships within the space.

The digital twin thus created provides an interactive and dynamic platform for visualizing, analysing, and simulating real-world scenarios.



Case Study: Paddington Station

Background

Paddington Train Station was designed by Isambard Kingdom Brunel and opened in 1854, making it one of London's most iconic and vital transport hubs. As part of this ongoing maintenance and modernisation, the Network Rail offices required detailed surveys to facilitate their renovation.

Castle Surveys Ltd was commissioned to undertake a comprehensive range of surveys, including: topographic land, measured building, PAS128 underground utility, CCTV drainage, and Revit modelling. Works were undertaken on night shifts only, to minimise disruption to passengers and station operations.

Scope of Works

Topographic Land Survey
This is a very accurate measurement of the site's topography using the Leica TS16 Total Station. With 1" angular accuracy at AutoHeight on the TS16, this gives the key land features, site levels, and boundaries in vital information for the planning of renovation around existing topographical conditions.

Measured Building Survey
Internal and external features of the Network Rail offices were surveyed using a Leica RTC360 Laser Scanner, able to capture 2 million points per second. After processing the data, the resultant point cloud was used to create an accurate and detailed 3D model to millimeter accuracy of all architectural and structural elements. This survey provided the design team with the data required to prepare accurate renovation plans.

PAS128 Underground Utility Survey
Our utility survey was done according to PAS128 standard, using Prosec GPR and Vivax Locators in order to map utilities buried underground, including water, gas, and electrical lines. It has been very important to minimise the risk of damage to key services during construction and provide substantial information in the planning and execution of renovation works.

CCTV Drainage Survey
A CCTV drainage survey was undertaken to ascertain the condition of the existing drainage. Hydraulic manhole lifters safely gained access to manholes, while CCTV cameras inspected the internal conditions of the pipes, highlighting blockages and damage. This information allowed Network Rail to plan repairs and modifications to the drainage system in conjunction with the renovation.

Revit Modelling
Individual survey data was combined into a single 3D Revit model. This Building Information Model provided a richly detailed and highly accurate digital version of the site to Network Rail design and construction teams, enabling them to effectively plan and visualise what the renovation would look and feel like

Nighttime Operations to Minimise Disruption
All survey work was completed over night shifts to prevent interference with station operations. A team of 10 surveyors worked within the short time frames over each night to coordinate topographic, building and utility surveys effectively. Despite the challenges of working in a live rail environment, this project remained on schedule with no safety incidents.

Features and Challenges Overcome

Live Rail Station Operations
The works within the active rail station had to be well-planned and coordinated. Operations at night reduced disruptions, and strict safety protocols for the public and our staff were adhered to.

Historic Infrastructure
Network Rail's offices are part of the historic infrastructure at Paddington Station, which poses its unique challenges in building and utility surveys. Extra precision and care were applied, especially in the tracing out of utilities and structural features, since the structure itself was so old.

Co-ordination Across Survey Types
A range of surveys was undertaken concurrently, and the need for strong coordination between our land surveyors, building surveyors, and utility specialists was paramount. The seamless integration of GPR, CCTV, and building survey data ensured the job was completed to a high degree of accuracy.

3D BIM & Visualisation

Point Cloud Survey

Results and Outcomes

Castle Surveys Ltd was able to provide Network Rail with a comprehensive package of survey data in support of the renovation of the Paddington Station offices. Deliverables of note included:

- A thorough topographical map for the surrounding area
- A very accurate measured building survey of the Network Rail offices
- Full PAS128 compliance in the underground utility survey
- A complete CCTV drainage survey to enable Network Rail to review the condition of the drainage infrastructure
- A 3D Revit model acting as a central reference for the design and refurbishment process

Conclusion

Castle Surveys Ltd proved it could successfully take on the task of comprehensive land, building, and utility surveys throughout challenging site environments. Equipped with the most up-to-date equipment, such as the Leica TS16, Leica RTC360, Prosec GPR, and Vivax locators, we provided Network Rail with accurate, actionable data that enabled them to move forward confidently in renovation plans.

Our expertise in minimising disruption in a live rail environment and managing multiple survey types simultaneously ensured the success of this project. The case at Paddington Train Station portrays quite well the capability of Castle Surveys Ltd to undertake high-quality geomatic surveying services in challenging infrastructure projects.

PAS 128 Utility & Ground Penetrating Radar Surveys

Castle Surveys Ltd offer Ground Penetrating Radar (GPR) Surveys on projects ranging in size and complexity. We take pride in our thorough approach to mapping utilities and appreciate the need for a diligent, contentious approach. Our utility surveys are undertaken in line with the TSA & BSI specification **PAS 128:2014** standard and is covered by either a Desktop Utility Record Search Report, Site Reconnaissance Survey, Detection Survey or a Verification Survey. Our utility surveys are processed by our dedicated CAD operators and drawings are produced in a timely fashion.

Survey Type

A: Verification

This survey can improve the confidence level of service location and types by actual visual inspection via access points such as manholes or by excavation ad exposure.

B: Detection

Accompanied by a desktop utility report (type D). This survey is a non-penetrative survey conducted using geophysical techniques such as electromagnetic detection and Ground Penetrating Radar (GPR). Deliverables will be in the form of an AutoCAD file accompanied by a written report and photographic record.

C: Site Reconnaissance

Accompanied by a desktop report (type D) – it will involve a site reconnaissance visit to identify features that may indicate the presence of a service such as manholes, valves, utility markers, street furniture and excavation scars.

D: Desktop utility records search

A report identifying all known utility owners and their assets within an area including a list of affected and non-affected providers, along with plans, maps and diagrams provided.

CCTV Drain Surveys & Reports

CCTV camera surveys enable inspections to be carried out in drains, sewers, ducting, culverts and tanks without the need for human access. Our highly qualified CCTV operators use state-of-the-art equipment to deliver high-resolution, full-colour surveys.

Benefits of a CCTV survey

- Accurate assessment. With our CCTV survey you can clearly and accurately view the condition of inaccessible assets. Our surveys form part of initial assessments and regular maintenance programmes
- Fast results. CCTV identifies damage and blockages quickly, so that the right maintenance can be carried out without delay.
- Safer, cheaper surveying. Using CCTV can reduce or remove the need for human access to confined spaces – making it a safer and cheaper option. See also Laser Scanning
- Integration with topographic survey for 3D analysis

CCTV can be used to survey numerous inaccessible areas

Sewers, Drain, Tanks, Chambers, Ducting, Culverts and Tunnels

Drone Surveys & Inspection

UAV or drone surveys are an ideal way to rapidly capture data over a large site; the resultant dataset can be used for detailed design, analysis and visualization.

A UAV survey can provide a wide range of 2D/3D deliverables dependant on the scope of the project; these may include an ultra-high resolution Ortho-rectified mosaic image of the site, 3D mesh, point cloud or video fly-through.

Benefits of a drone survey

- Faster data acquisition. A UAV survey can capture high level of detail over large areas quicker than more traditional survey methods making it cost effective leading to fast project turn around for the client.
- Safer and cheaper surveying. UAV surveys have the ability to capture data without putting the surveyor in dangerous or inaccessible locations – making it a safe and cost effective option for your next project.
- Full 3D site model. A 3D model can be used for site visualisation along with providing a comprehensive dataset which can be returned to for future reference.

Accurate Verified Views & CGI

What are Verified Views?

Verified views are highly accurate photomontages that have been created using a methodology that is compliant with the Guidelines for Landscape and Visual Impact Assessment, third edition.

A verified view is a photograph captured at a specific recorded location and merged with a highly accurate 3D model of the proposed scheme and existing survey data of fixed structures within the photograph.

The result is a verified photomontage showing the proposal in context with the existing environment, which can then be used to assess the visual impact of a proposed scheme or development. They have become central to the Irish & UK planning system.

Construction Verification Surveys

Castle Surveys have expert knowledge and experience in providing Construction Verification As-Built Surveys.

By recording critical information to the Design process allowing Project Managers & Design Teams to document, track & verify positional accuracy/design tolerances across a Project life cycle

How we do it

Accurate Survey Data can provide vital information relating to the true position/accuracy of constructed elements when compared against the design information. We produce detailed As-Built Surveys to accurately determine and verify that the Actual or “True Position” meets the Design Specification.

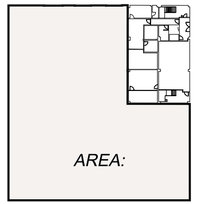
Robotic Total Stations & HD Laser Scanning Technology are deployed to efficiently capture highly accurate & reliable data, ensuring we provide a solution to all your Construction Verification Survey requirements.

Area Referencing & Survey Reports

We can tailor our services to suit your individual needs.
We have a wide range of experience in this area, ranging From city offices and mixed-use portfolios to industrial parks, shopping centres and high street retail schemes, we provide complete area measurement and referencing solutions.

This means that we’re best placed to face any challenge. Some of the area measurement services we provide include:

- Net Internal Area Surveys (N.I.A)
- Gross Internal Area Surveys (G.I.A.)
- Gross External Surveys (G.E.A.)
- Retail Zoning Surveys (ITZA)
- IMPS reports for offices, residential and industrial properties



Borehole Clearance

What is a Borehole Clearance?

Borehole Clearance is an essential step in underground utility surveying, which is carried out before any works commence to ensure that your boreholes - either drilled or pitted - are a safe distance from underground utilities, and that no disused services are in the area.

Different surveys performed to clear all types of boreholes

- Commercial borehole clearance
- Water well borehole clearance
- Domestic borehole clearances
- Piling clearances
- Agricultural clearances
- Ground structure clearance
- Environmental window sampling

Boundary Surveys & Disputes

What is a Boundary Survey?

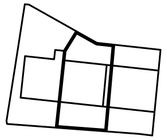
A boundary survey, also known as a cadastral survey, is a type of survey conducted to determine the exact location of, dimensions, a legal boundary of a parcel of land.

The primary purpose of a boundary survey is to establish and document the boundaries of a property, ensuring that they are accurately depicted on maps and legal documents.

Land Registry Compliant Plans

A Land Registry compliant plan refers to a survey plan or map that meets the requirements and standards set by the Land Registry or land registration authority of a particular jurisdiction. The Land Registry is an official government agency responsible for maintaining and recording land ownership and property rights.

Typical characteristics of a Land Registry Compliant Plan
Accurate Boundary Representation: The plan should accurately reflect depict the boundaries of the land or property. It should clearly indicate the extent and dimensions of the property, including its boundaries in relation to neighbouring properties, roads, and other landmarks.
Scale and Measurements: The plan should be drawn to an appropriate scale that allows for accurate measurements. The scale used may vary depending on the size and nature of the property, but it should be clearly stated on the plan. The measurements of the property's boundaries, dimensions and area should be provided accurately.
Identification and Labels: The plan should clearly identify the property and provide relevant information, such as the property's address unique identification number, lot number, or other identifying details required by Land Registry. Labels and annotations may be included to indicate any significant features, easements, rights of way, or restrictions affecting the property.
Compliance with Regulations: The plan should adhere to any specific regulations or guidelines set by the Land Registry or land registration authority. These regulations may vary by jurisdiction but typically cover aspects such as format, symbols, colours, and other requirements for the plan's presentation.



Arboricultural Surveys

Working in conjunction with our topographic land surveys, Castle Surveys can provide tree surveys and reports for any project. We have a team of charted arboriculturists that can guide you through the process.

Types of surveys are:

- **Preliminary Feasibility Survey**
- **BS5837:2012 Tree Survey & Tree Constraints**
- **Arboricultural Impact Assessment (AIA)**
- **Arboricultural Method Statement (AMS) & Tree Protection Plans (TPP)**

If you would like a more in depth overview of the surveys listed above, discuss a project, or free impartial advice please get in touch.

Hydrographic Surveys

Hydrographic surveys - also known as bathymetric surveys - focuses on measuring and mapping the depths and contours of underwater terrain, such as the seafloor, lakebed, riverbed, or any submerged areas of interest. Bathymetric Surveys are essential for various purposes, including navigation, charting, resource management, environmental assessment and scientific research.

Overview of Bathymetric Survey Methods
Multibeam Sonar Surveys: Multibeam sonar is one of the most common methods for conducting bathymetric surveys.
Single-Beam Sonar Surveys: Single-beam sonar is another method used in bathymetry, primarily in shallower water bodies. It works similarly to multibeam sonar but emits a single sonar beam.
Side-Scan Sonar Surveys: Side-scan sonar is used to create detailed images of the seafloor or lakebed. It operates by emitting sonar signals horizontally to the side of the survey vessel.
Laser-Based Bathymetry: Some bathymetric surveys use laser-based systems that measure the distance between the survey vessel and the seafloor. These systems can provide high-resolution depth data in clear water conditions.

In summary, hydrographic surveys are vital for ensuring safe navigation, managing water resources, protecting the environment, and supporting infrastructure development in the geomatics industry.

Structural Monitoring Surveys

Structural monitoring in construction refers to the process of continuously or periodically assessing the behaviour and performance of a building or structure during and after its construction. The goal is to ensure that the structure remains safe, stable, and within design specifications. Structural monitoring is critical for large, complex, or high-risk construction projects.

Equipment commonly used in structural monitoring:

- Vibration Sensors
- Displacement Sensors
- Tiltmeters
- Strain Monitoring Systems
- Geodetic Surveying Instruments
- Wireless Sensor Networks
- Data Loggers and Data Acquisition Systems
- Remote Monitoring Software

Structural monitoring in construction is essential for ensuring the safety and integrity of buildings and infrastructure. It allows engineers and project managers to detect early signs of structural issues, assess the impact of environmental conditions, and make informed decisions to prevent accidents or costly repairs.

Core Values

We are a team
We have a collaborative all-inclusive approach to technical innovative problem solving, working in partnership with our clients to understand, consider, then deliver a quality product.

We are principled
We believe our reputation is the core of our business and our positive actions, are fundamental to who we are.

We are open and honest
We share information to improve ourselves, our colleagues and present clear and unbiased information to our clients based on our collective knowledge and experience.

We are cost-conscious
We strive to make smart and sustainable choices to improve cost effectiveness for our clients

We are committed
Committed to each other, our clients, the community, and the environment.

Why Choose Castle Surveys

Our Clients
Long standing partnerships and client advocacy is achieved through the delivery of great results and great relationships. We're not just a survey company. We provide the data that helps inform and underpin our client's plans.

Confidence
Because data reliability is paramount, you can trust our robust and reliable workflows. The utmost care in data management and the delivery of the highest possible quality products is not just a job for our team – it is a passion; giving you complete confidence in our results.

Innovation
As a company we are always investing in the latest technology within the geospatial industry enabling us to provide the best possible survey result to our clients. This helps us rapidly deploy survey teams nationally for your project.

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