



Qualification Specification

ProQual Level 5 Diploma in Engineering Survey

ProQual Level 5 Diploma in Engineering Survey



This qualification is part of ProQual's broad offer of qualifications in the Engineering and Construction Sector.

To find out more about other qualifications in this, or any other sector, or for our latest fees; check our Fees Schedule via the QR code below:



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Introduction

The ProQual Level 5 Diploma in Engineering Survey provides a nationally recognised qualification for professionals working in site and engineering surveying roles across construction, infrastructure, and geomatic sectors.

The aims of this qualification are:

- To develop skills in planning and managing surveying operations, including working collaboratively within project teams.
- To provide competence in the use of advanced surveying equipment, GNSS technologies, and the establishment of accurate control networks.
- To build expertise in applying technical information systems and managing spatial and geospatial data for effective mapping, analysis, and presentation.

The awarding body for this qualification is ProQual AB. This qualification has been approved for delivery in England. The regulatory body for this qualification is Ofqual, and this qualification has been accredited onto the Regulated Qualification Framework (RQF) and has been published in Ofqual's Register of Qualifications.

Qualification Profile

Qualification Title:	Level 5 Diploma in Engineering Survey
Qualification Number:	610/5739/3
Level:	5
Total Qualification Time (TQT):	760 76 Credits
Guided Learning Hours (GLH):	682
Assessment:	Pass or Fail
	Internally assessed and verified by centre staff
	Externally quality assured by ProQual verifiers
Qualification Start Date:	12/05/2025
Qualification Review Date:	12/05/2028

Learner Profile

Candidates who complete this qualification should hold:

- Level 3 Diploma in Engineering Surveying.

OR

- Have successfully completed a Class 2 ME Surveyor course or equivalent Survey qualification.

Centres should carry out an initial assessment of candidate skills and knowledge to identify any gaps and help plan the assessment.

Qualification Structure

This qualification consists of **6** mandatory units. Candidates must complete all mandatory units to complete this qualification.

Unit Number	Unit Title	Level	TQT	GLH
Mandatory Units – Candidates must complete all units in this group.				
D/651/6064	Agree Project Requirements	5	80	72
F/651/6065	Plan Methods, Resources and Systems to Meet Project Requirements	5	110	100
H/651/6066	Geometric Design and Site Surveying Principles for Construction	5	130	120
J/651/6067	Establish and Maintain the Control and Setting Out of Construction Projects in Engineering Surveying	5	150	135
K/651/6068	Establish and Operate Technical Information Systems in Geomatics and Site Surveying	5	150	130
L/651/6069	Identify, Assess and Present Spatial Data in Geomatics and Site Surveying Management	5	140	125

Centre Requirements

Centres must be approved to deliver this qualification. If your centre is not approved to deliver this qualification, please complete and submit the **ProQual Additional Qualification Approval Form**.

Materials produced by centres to support candidates should:

- Enable them to track their achievements as they progress through the learning outcomes and assessment criteria.
- Provide information on where ProQual's policies and procedures can be viewed.
- Provide a means of enabling Internal and External Quality Assurance staff to authenticate evidence.

Centres must have the appropriate equipment to enable candidates to carry out the practical requirements of this qualification.

Certification

Candidates who achieve the requirements for this qualification will be awarded:

- A certificate listing all units achieved, and
- A certificate giving the full qualification title:

ProQual Level 5 Diploma in Engineering Survey

Claiming certificates

Centres may claim certificates for candidates who have been registered with ProQual and who have successfully achieved the qualification. All certificates will be issued to the centre for successful candidates.

Unit certificates

If a candidate does not achieve all of the units required for a qualification, the centre may claim a unit certificate for the candidate which will list all the units achieved.

Replacement certificates

If a replacement certificate is required a request must be made to ProQual in writing. Replacement certificates are labelled as such and are only provided when the claim has been authenticated. Refer to the Fee Schedule for details of charges for replacement.

Assessment Requirements

Each candidate is required to produce a portfolio of evidence which demonstrates their achievement of all of the learning outcomes and assessment criteria for each unit.

Evidence can include:

- Observation report by assessor.
- Assignments/projects/reports.
- Professional discussion.
- Witness testimony.
- Candidate product.
- Worksheets.
- Record of oral and written questioning.
- Recognition of Prior Learning.

Candidates must demonstrate the level of competence described in the units. Assessment is the process of measuring a candidate's skill, knowledge and understanding against the standards set in the qualification.

Centre staff assessing this qualification must be **occupationally competent** and qualified to make assessment decisions. Assessors who are suitably qualified may hold a qualification such as, but not limited to:

- ProQual Level 3 Certificate in Teaching, Training and Assessment.
- ProQual Level 3 Award in Education and Training.
- ProQual Level 3 Award in Assessing Competence in the Work Environment.
(Suitable for assessment taking place in a work environment only.)
- ProQual Level 3 Award in Assessing Vocational Achievement.
(Suitable for assessment taking place in a simulated training environment only.)
- ProQual AC Accredited Assessor Training.
(Subject to approval by ProQual AB)

Candidate portfolios must be internally verified by centre staff who are **occupationally knowledgeable** and qualified to make quality assurance decisions. Internal verifiers who are suitably qualified may hold a qualification such as:

- ProQual Level 4 Award in the Internal QA of Assessment Processes and Practice.
- ProQual Level 4 Certificate in Leading the Internal QA of Assessment Processes and Practice.
- ProQual AC Accredited IQA Training (*Subject to approval by ProQual AB*).

Occupationally competent means capable of carrying out the full requirements contained within a unit. **Occupationally knowledgeable** means possessing relevant knowledge and understanding.

Enquiries, Appeals and Adjustments

Adjustments to standard assessment arrangements are made on the individual needs of candidates. ProQual's Reasonable Adjustments Policy and Special Consideration Policy sets out the steps to follow when implementing reasonable adjustments and special considerations and the service that ProQual provides for some of these arrangements.

Centres should contact ProQual for further information or queries about the contents of the policy.

All enquiries relating to assessment or other decisions should be dealt with by centres, with reference to ProQual's Enquiries and Appeals Procedures.

Units – Learning Outcomes and Assessment Criteria

Title:		Agree Project Requirements		Level:	5
Unit Number:		D/651/6064	TQT:	80	GLH: 72
Learning Outcomes <i>The learner will be able to:</i>		Assessment Criteria <i>The learner can:</i>			
1	Be able to establish Health and Safety (H&S) requirements for project work.	1.1	Review safe systems of work in accordance with industry standards, legislative requirements and site-specific conditions.		
		1.2	Complete risk assessments to identify and mitigate potential hazards associated with project activities.		
		1.3	Determine health and safety requirements for tools, equipment, and trade materials, ensuring alignment with COSHH and PPE standards.		
		1.4	Review adherence to H&S legislation, standards, and emergency procedures.		
		1.5	Apply adjustments to site safety protocols in response to identified risks or constraints.		
2	Understand how to identify and assess project scope and management processes.	2.1	Identify key roles and responsibilities of project personnel.		
		2.2	Discuss the benefits and principles of project management in ensuring successful project delivery.		
		2.3	Identify the stages of a project, from definition through to closure.		
		2.4	Identify appropriate project management tools and their application in planning and monitoring.		
		2.5	Apply strategies to ensure alignment of project scope with client expectations and regulatory frameworks.		

3	Conduct project risk and quality assessments.	3.1	Identify potential hazards associated with project tasks, including personal and environmental hazards.
		3.2	Implement risk control measures and mitigation strategies to ensure compliance with contractual, regulatory and industry standards.
		3.3	Apply quality control (QC) measures to ensure compliance with contractual and regulatory standards.
		3.4	Identify the impact of concurrent allied trade tasks on project safety and efficiency.
		3.5	Complete a risk assessment, ensuring all relevant information is recorded.
4	Understand contractual and commercial requirements.	4.1	Identify common contractual terminology and its implications within a project context.
		4.2	Identify contractual and commercial impacts in both civilian and military environments.
		4.3	Identify documentation requirements for project contracts, including: • Material investigations reports. • Design drawings. • Site specifications.
		4.4	Identify commercial processes, including: • Procurement. • Compliance. • Financial considerations.
		4.5	Evaluate contract quality control and risk mitigation procedures to ensure compliance with regulatory, safety, and project standards.
		4.6	Apply contract quality control and risk mitigation procedures to ensure compliance with regulatory, safety, and project standards.
5	Be able to review data management and compliance requirements.	5.1	Identify data handling principles and their relevance to project documentation, security, and industry standards.
		5.2	Identify the controls framework for managing classified and sensitive information, ensuring compliance with GDPR and security protocols.

5	<i>Continued</i>	5.3	Discuss procedures for handling information assets, identifying risks associated with classified assets, in accordance with legislative and policy requirements.
		5.4	Review of data management processes to ensure compliance with legislative and organisational policies.
		5.5	Implement digital security protocols, including: • Encryption. • File access permissions. • Compliance with Common Data Environment (CDE) requirements.
6	Be able to determine project resources and implementation strategies.	6.1	Review resource requirements for tools, equipment, and personnel involved in projects.
		6.2	Assess factors affecting project implementation, including: • Logistics. • Workforce. • Coordination. • Safety considerations.
		6.3	Identify tools and techniques used in planning and reviewing project progress, including project management charts and documentation requirements.
		6.4	Discuss how project planning decisions affect task delivery and overall project outcomes.
		6.5	Apply project management principles to maintain the continuity of site surveying activities in response to emerging challenges.

Additional Assessment Information

The aim of this unit is to equip learners to manage key elements of surveying projects, including health and safety, risk assessment, and quality control. It covers project scope, data compliance, and contractual requirements, with a focus on secure information handling and regulatory alignment.

Learners will develop skills in resource planning and project management, while maintaining industry and legal standards.

Learning Outcomes 2, 3 and 4 are **knowledge** based. This means that candidate evidence is expected to take the form of candidate written work or records of appropriate professional discussion.

Learning Outcomes 1, 5 and 6 are **competency** based. This means that the candidate is expected to perform the tasks, and demonstrate the level of competence, outlined in the assessment criteria. It is expected that evidence will be a combination following:

- Photographic and/or video evidence of the candidate's practical work.
- Assessor's observation report.
- Expert witness testimony.
- Candidate reflection on own practical work.

An observation report and witness testimony are differentiated as follows:

- An **assessor's report** is completed by a qualified assessor who observes the candidate carrying out practical work. The assessor will make assessment decisions as they observe and record these in the report, alongside a commentary of what they observe.
- A **witness statement** is completed by a suitably qualified or experienced expert who observes the candidate carrying out practical work. The witness statement will contain **only** a commentary of what has been observed. An assessor must then use the witness statement, alongside any additional evidence to make assessment decisions.
- In all cases, an assessor's report is preferred as evidence over a witness statement; as it is always better for an assessor to observe a candidate live.

Assessors may wish use to use a checklist or evidence matrix to organise and track the assessment outcomes that have been achieved, but these **do not**, in themselves, constitute evidence of achievement.

An assessor's report or witness statement alone is unlikely to be sufficient evidence of achievement. Reports and statements should always be accompanied by photographic and/or video evidence.

Where a knowledge-based assessment criteria is included within an otherwise competence-based learning outcome, it is expected that it be assessed within the context of the required practical competency.

It is expected that competence of each assessment criteria will be observed **at least twice** before it is awarded. A single piece of evidence may be used to cover multiple assessment criteria.

Evidence of practical skills may be demonstrated in a simulated environment, where appropriate.

Title:		Plan Methods, Resources and Systems to Meet Project Requirements		Level:	5
Unit Number:	F/651/6065	TQT:	110	GLH:	100
Learning Outcomes <i>The learner will be able to:</i>		Assessment Criteria <i>The learner can:</i>			
1	Develop a plan based on task requirements.	1.1	Identify key requirements from task briefing and extract relevant budget, time and resourced data.		
		1.2	Identify financial elements, including cost factors affecting project planning.		
		1.3	Identify appropriate budget calculation methods.		
		1.4	Review resource requirements for technical task plans, including workforce, materials, equipment, and transportation.		
		1.5	Communicate project requirements to appropriate personnel/stakeholders.		
2	Plan site surveying activities and resources to meet project requirements.	2.1	Assess the procurement and availability of resources such as: • Workforce. • Equipment. • Materials.		
		2.2	Plan concurrent trade tasks, considering the integration of different work disciplines and dependencies.		
		2.3	Supervise and coordinate multiple tasks across different work environments.		
		2.4	Review task execution to ensure resource efficiency and alignment to project objectives.		
3	Apply surveying and geospatial data management techniques.	3.1	Conduct a review of survey requirements and quality control measures to ensure compliance.		
		3.2	Apply supervisory techniques to oversee trade personnel involved in surveying tasks.		

3	<i>Continued</i>	3.3	Apply structured digital strategies for effective project data management.
		3.4	Identify information management functions and requirements with a Common Data Environment.
4	Develop and manage project information systems.	4.1	Identify key information requirements and data exchange formats for project documentation.
		4.2	Manage project handover processes, ensuring data accuracy and compliance.
		4.3	Identify methods for managing access, collaboration, and coordination within digital project environments.
		4.4	Identify security protocols for handling sensitive project information.
		4.5	Identify project information management requirements, including use of digital tools and software-based workflows.
		4.6	Apply data security protocols, including file permissions, synchronisation and encryption methods.
		4.7	Identify access control requirements for sensitive project data and stakeholder permissions.
5	Be able to ensure project compliance with technical, safety and quality standards.	5.1	Apply quality control measures for appropriate tasks and survey operations.
		5.2	Monitor survey tasks to maintain operational accuracy and adherence to site tolerances.
		5.3	Apply safety and compliance checks in line with Health and Safety requirements.
		5.4	Review the effectiveness of supervisory techniques in ensuring project quality.
6	Be able to provide technical and specialist advice on tasks.	6.1	Advise stakeholders on trade capabilities, limitations, and potential risks relevant to project execution.
		6.2	Communicate specialist advice to project trades personnel and chain of command.
		6.3	Advise on the use of technical tools such as digital imagery, GNSS systems and specialist equipment.

6	Continued	6.4	Provide recommendations on safe working practices across survey and on-site operations.
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Additional Assessment Information

The aim of this unit is to equip learners with the knowledge and skills to effectively plan, manage and coordinate surveying tasks. It covers resource allocation, budgeting, technical planning, and the integration of surveying and geospatial data management techniques. Learners will learn about information systems, digital collaboration tools such as BIM and GIS, and data security protocols.

Learning Outcomes 2 and 3 are **knowledge** based. This means that candidate evidence is expected to take the form of candidate written work or records of appropriate professional discussion.

Learning Outcomes 1, 4, 5 and 6 are **competency** based. This means that the candidate is expected to perform the tasks, and demonstrate the level of competence, outlined in the assessment criteria. It is expected that evidence will be a combination following:

- Photographic and/or video evidence of the candidate's practical work.
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- Expert witness testimony.
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Evidence of practical skills may be demonstrated in a simulated environment, where appropriate.

Title:		Geometric Design and Site Surveying Principles for Construction		Level:	5
Unit Number:		H/651/6066	TQT:	130	GLH: 120
Learning Outcomes <i>The learner will be able to:</i>		Assessment Criteria <i>The learner can:</i>			
1	Be able to conduct geometric design for civil and infrastructure projects.	1.1	Identify design criteria to relevant alignments.		
		1.2	Apply geometric principles to horizontal, vertical and transitional curves in design.		
		1.3	Apply soil characteristics to the geometric design of alignments impacts on construction.		
		1.4	Determine material quantities required for construction through volume and area calculations.		
		1.5	Evaluate the implications of geometric design decisions on construction feasibility and project execution.		
2	Be able to apply surveying techniques to control line and level in construction.	2.1	Identify control line and level during construction works.		
		2.2	Identify methods for measuring tunnel deviations and maintaining acceptable tolerances.		
		2.3	Identify the relationship between tunnel alignment, pitch, roll, yaw and the effects of heading direction.		
		2.4	Adhere to technical standards and codes of practice in survey applications.		
		2.5	Determine how control of line and level supports construction accuracy and project alignment.		
3	Be able to design and assess infrastructure alignments.	3.1	Determine road alignment requirements including: • Super elevations. • Road widening. • Mass diagrams.		

3	<i>Continued</i>	3.2	Identify design requirements for the alignment of: • Railways. • Ranges. • Drainage systems.
		3.3	Identify vehicle parking, fuel tanker park and airfield layout design parameters.
		3.4	Identify the integration of horizontal and vertical alignment principles in infrastructure design.
		3.5	Calculate horizontal and vertical alignments.
		3.6	Apply sustainable and cost-effective design principles to infrastructure alignments.
4	Be able to conduct and manage surveying procedures for infrastructure development.	4.1	Identify surveying methodologies for geometric design, including manual and computer-aided techniques.
		4.2	Conduct surveys to synchronise the positioning of horizontal and vertical curves.
		4.3	Identify the requirements and processes for setting out transitional curves in site surveys.
		4.4	Apply phasing strategies for aligning horizontal and vertical construction works.
		4.5	Evaluate the use of digital surveying techniques to improve accuracy and efficiency in infrastructure projects.
5	Be able to evaluate and apply material quantity calculations for construction.	5.1	Calculate quantities for earthworks volumes, construction materials, and extraction quantities.
		5.2	Apply different methods for calculating construction volumes and areas.
		5.3	Use of industry-standard software for volume calculations and design template matching.
		5.4	Identify material calculation challenges and their impact on project resource planning.
		5.5	Compare manual and automated methods of material quantity calculations for accuracy and efficiency.

6	Be able to evaluate and apply technical and regulatory standards in surveying procedures.	6.1	Identify relevant industry standards and regulations for construction surveying.
		6.2	Comply with tolerance specifications outlined in working drawings and technical diagrams.
		6.3	Apply regulatory codes of practice for site surveying activities.
		6.4	Apply regulatory compliance requirements to infrastructure, construction, and performance.
		6.5	Confirm the consequences of non-compliance with industry standards on project quality and safety.

Additional Assessment Information

This unit develops advanced knowledge of geometric design and site surveying. Learners will apply surveying techniques to control line and level, manage material quantity calculations, and use digital tools for accuracy. This unit also covers regulatory compliance and sustainable infrastructure alignment design.

This unit is **competency** based. This means that the candidate is expected to perform the tasks, and demonstrate the level of competence, outlined in the assessment criteria. It is expected that evidence will be a combination following:

- Photographic and/or video evidence of the candidate's practical work.
- Assessor's observation report.
- Expert witness testimony.
- Candidate reflection on own practical work.

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Evidence of practical skills may be demonstrated in a simulated environment, where appropriate.

Title:		Establish and Maintain the Control and Setting Out of Construction Projects in Engineering Surveying		Level:	5
Unit Number:	J/651/6067	TQT:	150	GLH:	135
Learning Outcomes <i>The learner will be able to:</i>		Assessment Criteria <i>The learner can:</i>			
1	Understand the principles of planning complex survey control networks.	1.1	Identify the requirements for planning survey control networks for different types of work.		
		1.2	Discuss key considerations in selecting appropriate survey control techniques for various environments.		
		1.3	Assess the impact of environmental and operational constraints on survey control networks.		
2	Be able to establish survey control networks for various construction projects.	2.1	Plan survey control networks for underground works.		
		2.2	Produce survey control networks for aerial photography and digital imagery to support geomatics applications.		
		2.3	Apply survey control methodologies for marine works.		
		2.4	Establish survey control frameworks for infrastructure projects.		
		2.5	Develop and justify survey control plans to support monitoring and deformation tasks.		
3	Understand the principles and processes involved in setting out survey control networks.	3.1	Describe the procedures and techniques used to set out survey control networks for various tasks.		
		3.2	Identify the requirements for setting out survey control networks for digital imagery.		
		3.3	Analyse the accuracy and precision requirements for setting out survey control networks in different construction scenarios.		

4	Be able to set out survey control networks for tunnelling and underground works.	4.1	Discuss the significance of accurate survey control in tunnelling and underground construction.
		4.2	Identify the control requirements for classical tunnelling methods.
		4.3	Apply setting out techniques for different tunnelling methods.
5	Be able to set out survey control networks for marine and infrastructure projects.	5.1	Discuss survey control strategies for infrastructure, such as pile foundations.
		5.2	Identify the key challenges and solutions for setting out survey control in marine environment.
		5.3	Apply setting out procedures for marine projects.
6	Be able to establish and maintain survey control networks for monitoring and quality assurance.	6.1	Carry out survey control frameworks for monitoring construction projects.
		6.2	Analyse the importance of continuous verification and maintenance of control networks.
		6.3	Apply quality assurance techniques to ensure the accuracy and reliability of survey control networks.

Additional Assessment Information

This unit focuses on establishing and maintaining survey control networks for complex construction projects. Learners will plan and apply setting out techniques across varied environments. The unit also covers quality assurance, monitoring strategies, and the integration of digital imagery in control network design.

Learning Outcomes 1 and 3 are **knowledge** based. This means that candidate evidence is expected to take the form of candidate written work or records of appropriate professional discussion.

Learning Outcomes 2, 4, 5 and 6 are **competency** based. This means that the candidate is expected to perform the tasks, and demonstrate the level of competence, outlined in the assessment criteria. It is expected that evidence will be a combination following:

- Photographic and/or video evidence of the candidate's practical work.
- Assessor's observation report.
- Expert witness testimony.
- Candidate reflection on own practical work.

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- In all cases, an assessor's report is preferred as evidence over a witness statement as it is always better for an assessor to observe a candidate live.

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Where a knowledge-based assessment criteria is included within an otherwise competence-based learning outcome, it is expected that it be assessed within the context of the required practical competency.

It is expected that competence of each assessment criteria will be observed **at least twice** before it is awarded. A single piece of evidence may be used to cover multiple assessment criteria.

Evidence of practical skills may be demonstrated in a simulated environment, where appropriate.

Title:		Establish and Operate Technical Information Systems in Geomatics and Site Surveying		Level:	5
Unit Number:		K/651/6068	TQT:	150	GLH: 130
Learning Outcomes <i>The learner will be able to:</i>		Assessment Criteria <i>The learner can:</i>			
1	Understand and utilise digital imagery for geomatics and site surveying.	1.1	Identify sources and applications of digital imagery in geomatics and site surveying.		
		1.2	Apply digital imagery to assess possible construction materials and select suitable routes for engineering projects.		
		1.3	Interpret digital imagery to extract and apply information for engineering tasks.		
		1.4	Identify the limitations and challenges of using digital imagery in site surveying applications.		
2	Be able to process, analyse, and apply digital images for survey control and data extraction.	2.1	Calculate the scale of digital imagery using measurement, ground comparison, and map comparison techniques.		
		2.2	Produce detailed site plans using digital imagery and scale assessments.		
		2.3	Transfer data between digital imagery, maps, and ground-based observations.		
		2.4	Insert features to maps and digital imagery based on scale or object comparison.		
		2.5	Discuss the role of digital imagery in construction planning and engineering analysis.		
3	Be able to integrate, manipulate, and apply 3D data sources for geomatics and site surveying.	3.1	Import and process 3D data from external sources.		
		3.2	Apply digital imagery to create and manipulate horizontally dimensioned sketches for site surveys.		
		3.3	Assess the accuracy and reliability of 3D data integration in geomatics applications.		

4	Conduct complex survey engineering tasks using digital and geospatial techniques.	4.1	Carry out site investigation task using digital surveying techniques.
		4.2	Perform deformation and monitoring tasks using digital survey techniques.
		4.3	Identify digital survey methods in railway reconnaissance and engineering inspections.
		4.4	Conduct surveys of rock faces for engineering analysis.
		4.5	Conduct underground surveys and assess requirements for conducting directional heading surveys.
		4.6	Conduct marine surveys for coastal and inland waters using digital survey methods.
5	Be able to plan, establish and maintain survey control networks using Global Navigation Satellite Systems (GNSS).	5.1	Carry out complex engineering surveys using GNSS equipment.
		5.2	Measure and reduce survey observations to align with projections of the Earth's surface.
		5.3	Plan survey control networks for integration with national geodetic systems using GNSS.
		5.4	Identify the effects of different 3D projections and their influence on GNSS survey measurements.
		5.5	Carry out GNSS survey control frameworks for complex site engineering tasks.
6	Be able to evaluate and verify the accuracy of GNSS and geospatial data.	6.1	Collate and process GNSS survey data for engineering applications.
		6.2	Carry out quality control checks on GNSS survey data to determine accuracy and reliability.
		6.3	Identify and mitigate errors in GNSS measurements related to projection distortions and scale factors.
		6.4	Evaluate the effectiveness of GNSS survey methods in different engineering and construction applications.

Additional Assessment Information

This unit focuses on the use of technical information systems in geomatics and site surveying. Learners will process and analyse digital imagery, integrate 3D data, and conduct complex surveys using geospatial and GNSS techniques.

Learning Outcome 1 is **knowledge** based. This means that candidate evidence is expected to take the form of candidate written work or records of appropriate professional discussion.

Learning Outcomes 2, 3, 4, 5 and **6** are **competency** based. This means that the candidate is expected to perform the tasks, and demonstrate the level of competence, outlined in the assessment criteria. It is expected that evidence will be a combination following:

- Photographic and/or video evidence of the candidate's practical work.
- Assessor's observation report.
- Expert witness testimony.
- Candidate reflection on own practical work.

An observation report and witness testimony are differentiated as follows:

- An **assessor's report** is completed by a qualified assessor who observes the candidate carrying out practical work. The assessor will make assessment decisions as they observe and record these in the report, alongside a commentary of what they observe.
- A **witness statement** is completed by a suitably qualified or experienced expert who observes the candidate carrying out practical work. The witness statement will contain **only** a commentary of what has been observed. An assessor must then use the witness statement, alongside any additional evidence to make assessment decisions.
- In all cases, an assessor's report is preferred as evidence over a witness statement as it is always better for an assessor to observe a candidate live.

Assessors may wish to use a checklist or evidence matrix to organise and track the assessment outcomes that have been achieved, but these **do not**, in themselves, constitute evidence of achievement.

An assessor's report or witness statement alone is unlikely to be sufficient evidence of achievement. Reports and statements should always be accompanied by photographic and/or video evidence.

Where a knowledge-based assessment criteria is included within an otherwise competence-based learning outcome, it is expected that it be assessed within the context of the required practical competency.

It is expected that competence of each assessment criteria will be observed **at least twice** before it is awarded. A single piece of evidence may be used to cover multiple assessment criteria.

Evidence of practical skills may be demonstrated in a simulated environment, where appropriate.

Title:		Identify, Assess and Present Spatial Data in Geomatics and Site Surveying		Level:	5
Unit Number:	L/651/6069	TQT:	140	GLH:	125
Learning Outcomes <i>The learner will be able to:</i>		Assessment Criteria <i>The learner can:</i>			
1	Be able to produce graphical outputs for survey and engineering applications.	1.1	Identify the requirements for producing location plans of railways.		
		1.2	Produce location plans of railways using survey data.		
		1.3	Identify the requirements for reviewing survey drawings across different survey environments.		
		1.4	Review survey drawings for engineering applications.		
		1.5	Identify the requirements for producing road cross-sections and graphical representations.		
		1.6	Produce road cross-sections using survey data.		
2	Be able to produce and interpret construction design drawings for site development.	2.1	Identify the requirements for producing complex site plans for engineering projects.		
		2.2	Produce construction design drawings, including overlays, drainage, earthwork and geometric designs.		
		2.3	Produce overlays for existing plans, maps and digital imagery.		
		2.4	Plot geometric designs on existing site plans based on survey data.		
3	Be able to determine and apply spatial data for underground and marine survey projects.	3.1	Identify the requirements for orientating plans in underground surveying.		
		3.2	Orientate and adjust plans for underground survey projects.		

3	<i>Continued</i>	3.3	Identify the requirements for producing underwater profiles for marine engineering projects.
		3.4	Produce underwater profiles using hydrographic survey data.
4	Be able to generate, evaluate, and adjust hydrographic survey drawings to a reference datum.	4.1	Identify the requirements for producing hydrographical survey drawings.
		4.2	Assess the accuracy and suitability of hydrographic survey data for engineering applications.
		4.3	Produce hydrographic survey drawings with reference to Chart Datum.
5	Be able to apply advanced techniques for the publication and presentation of complex survey data.	5.1	Identify the requirements for publishing survey data and graphical outputs.
		5.2	Evaluate the role of different presentation formats for spatial data in engineering.
		5.3	Produce complex survey data suitable for publication and presentation.
		5.4	Evaluate the effectiveness of different data visualisation techniques in conveying survey information.
6	Be able to critically assess and validate graphical outputs in geomatics and site surveying.	6.1	Evaluate the accuracy and reliability of location plans, survey drawings, and cross-sections.
		6.2	Identify and correct errors in survey graphical outputs.
		6.3	Validate the integration of survey data into engineering and construction planning.
7	Be able to present and communicate spatial data effectively.	7.1	Evaluate methods of digital collaboration, including shared workflows and coordinated file management.
		7.2	Analyse the effectiveness of file management strategies.
		7.3	Identify best practices for integrating survey data into shared project platforms environments for improved project coordination.

7	<i>Continued</i>	7.4	Identify and mitigate risks associated with data breaches, information loss, and unauthorised access.
		7.5	Implement risk mitigation strategies for data security, integrity, and controlled access in surveying workflows.
		7.6	Assess the impact of regulatory compliance on data security, including industry standards for spatial data protection.

Additional Assessment Information

This unit focuses on the interpretation, production, and presentation of spatial data in geomatics and site surveying, including graphical outputs, design drawings, hydrographic profiles, and data security practices within digital and collaborative environments.

This unit is **competency** based. This means that the candidate is expected to perform the tasks, and demonstrate the level of competence, outlined in the assessment criteria. It is expected that evidence will be a combination following:

- Photographic and/or video evidence of the candidate's practical work.
- Assessor's observation report.
- Expert witness testimony.
- Candidate reflection on own practical work.

An observation report and witness testimony are differentiated as follows:

- An **assessor's report** is completed by a qualified assessor who observes the candidate carrying out practical work. The assessor will make assessment decisions as they observe and record these in the report, alongside a commentary of what they observe.
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Where a knowledge-based assessment criteria is included within an otherwise competence-based learning outcome, it is expected that it be assessed within the context of the required practical competency.

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Appendix One – Command Verb Definitions

The table below explains what is expected from each **command verb** used in an assessment objective. Not all verbs are used in this specification

Apply	Use existing knowledge or skills in a new or different context.
Analyse	Break a larger subject into smaller parts, examine them in detail and show how these parts are related to each other. This may be supported by reference to current research or theories.
Classify	Organise information according to specific criteria.
Compare	Examine subjects in detail, giving the similarities and differences.
Critically Compare	As with compare but extended to include pros and cons of the subject. There may or may not be a conclusion or recommendation as appropriate.
Describe	Provide detailed, factual information about a subject.
Discuss	Give a detailed account of a subject, including a range of contrasting views and opinions.
Explain	As with describe, but extended to include causation and reasoning.
Identify	Select or ascertain appropriate information and details from a broader range of information or data.
Interpret	Use information or data to clarify or explain something.
Produce	Make or create something.
State	Give short, factual information about something.
Specify	State a fact or requirement clearly and in precise detail.
Review	Revisit and judge the merit of something.



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