

Geospatial Engineering Competencies

Specialist Engineering Surveying

Specialist Remote Sensing Competencies - 2026

The Geospatial competencies are split into core and specialist competencies.

OPTIMUM STANDARDS

Each of the activities under the competencies must be signed off to a specific standard, indicated by one of the letters A, K, E or B. The definitions of these are given below.

A	Appreciation	A general awareness of the activity is required. This could be acquired by reading a magazine article or attending a CPD event.
K	Knowledge	This standard requires a more detailed level of knowledge understanding of the activity. This could be acquired by undertaking a training course or other type of study but not necessarily put into practice e.g. a subject area on a degree course.
E	Experience	To reach this standard the activity must have been performed independently or under supervision. This may be achieved by undertaking the activity in a work context over a period of time. Experience of the activity or subject should follow on and be additional to appreciation and knowledge in that subject area.
B	Ability	To be able, without supervision, to perform relevant functions and be able to supervise other less experienced staff. This may be evidenced by the undertaking of management roles or experience gained over time.



GERS01	Competency		Remote Sensing and Geospatial Techniques							
Item	Optimum		Activity Detail	Date of Assessment						
	Technical	Member		A	K	E	B			
A	E	B	Understanding of project requirements, data requirements and safe working practices.							
B	K	E	Assessment of georeferencing methods.							
C	K	E	Use of GNSS or optical surveying techniques for ground verification.							
D	E	B	Understand the role of metadata, spatial resolution, temporal resolution, accuracy and precision of remotely sensed data, and the implications within a project.							
E	E	B	Communication of remotely sensed data considering the accuracies and suitability of results. Using verbal, digital and written presentation of information.							
F	K	E	Understand the role of coordinate systems, transformations and scale factors when applied to multiple datasets.							

Name of Supervisor:	Name of Applicant:
Supervisor's Signature:	Date:



GERS02	Competency		Use and understanding of remote sensing data capture				
Item	Optimum		Activity Detail	Date of Assessment			
	Technical	Member		A	K	E	B
A	Two at E, Two at K, Three at A	Two at B, Two at E, Three at K	GNSS, Total Station and Terrestrial Laser Scanning observations.				
B	Two at E, Two at K, Three at A	Two at B, Two at E, Three at K	Ground Control Points and ground verification methods.				
C	Two at E, Two at K, Three at A	Two at B, Two at E, Three at K	Crewed Aerial Vehicles.				
D	Two at E, Two at K, Three at A	Two at B, Two at E, Three at K	Uncrewed Aerial Vehicles (UAVs).				
E	Two at E, Two at K, Three at A	Two at B, Two at E, Three at K	Satellite data.				
F	Two at E, Two at K, Three at A	Two at B, Two at E, Three at K	Sensors and payloads (e.g. LiDAR, Photogrammetry etc).				
G	Two at E, Two at K, Three at A	Two at B, Two at E, Three at K	Other ground verification methods (e.g. spectrometers).				

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GER303	Competency		Data processing methodologies and verification.				
Item	Optimum		Activity Detail	Date of Assessment			
	Technical	Member		A	K	E	B
A	Two at E, Two at K, Three at A	Two at B, Two at E, Three at K	Photogrammetry.				
B	Two at E, Two at K, Three at A	Two at B, Two at E, Three at K	LiDAR.				
C	Two at E, Two at K, Three at A	Two at B, Two at E, Three at K	Thermal.				
D	Two at E, Two at K, Three at A	Two at B, Two at E, Three at K	Multi-spectral and hyper-spectral.				
E	Two at E, Two at K, Three at A	Two at B, Two at E, Three at K	Integration of positional information (e.g. GNSS, IMU, and telemetry datasets).				
F	Two at E, Two at K, Three at A	Two at B, Two at E, Three at K	Ground measurements validation.				
G	Two at E, Two at K, Three at A	Two at B, Two at E, Three at K	Other remote sensing sensors.				

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GERS04	Competency		Data creation, management and deliverables				
Item	Optimum		Activity Detail	Date of Assessment			
	Technical	Member		A	K	E	B
C	E	B	Undertaking quality assurance and data verification of resulting datasets.				
D	K	B	Production of survey deliverables such as orthomosaics, DTMs and point clouds.				
E	K	E	Creation of survey reports and supporting data.				
F	E	B	Robust data storage, backup, and version control, including Common Data Environments.				
G	K	E	Verifying the suitability of deliverables for the application.				

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Supervisor's Signature:	Date: