



GEOSPATIAL ENGINEERING COMPETENCIES

Hydrographic Surveying Competencies

GEHS01		Competency	Hydrography				
			Date of assessment				
Optimum Standard			Activity Details	A	K	E	B
ITEM	TECHNICAL MEMBER	MEMBER					
A.	K	B	Basic oceanography including tidal theory, currents and water column parameters, including sound velocity				
B.	A	K	Composition of the seafloor and seabed sampling techniques				
C.	E	B	Bathymetric surveys and systems				
D.	E	B	Calibration of sensors including some of the following; bathymetric sensors, motion referencing units and gyros, underwater acoustic systems				
E.	K	E	Shallow geophysical surveys / systems				
F.	K	E	Surveys of estuaries and inland waters				
G.	E	B	Survey planning and conduct, including logistics				

		Competency	Hydrography continued				
				Date of assessment			
	Optimum Standard		Activity Details	A	K	E	B
ITEM	TECHNICAL MEMBER	MEMBER					
H.	A	K	Seismic acquisition				
I.	A	K	Airborne hydrography and remote sensing				

Competency: Hydrography

Name of Supervisor	Name of Applicant
Supervisor's signature	Date

GEHS02		Competency	Engineering operations			
			Date of assessment			
Optimum Standard			Activity Details			
ITEM	TECHNICAL MEMBER	MEMBER	A	K	E	B
A.	E	B				
	E	B				
	E	B				

Competency: Engineering operations

Name of Supervisor	Name of Applicant
Supervisor's signature	Date

GEHS03		Competency	Hydrographic Operations			
			Date of assessment			
Optimum Standard			Activity Details			
ITEM	TECHNICAL MEMBER	MEMBER	A	K	E	B
A.	A	K/E				
B.	K	E				
C.	E	B				
D.	A	K				
E.	E	B				
F.	E	B				
G.	E	B				
H.	K	E				

		Competency	Hydrographic Operations continued					
					Date of assessment			
		Optimum Standard		Activity Details	A	K	E	B
ITEM	TECHNICAL MEMBER	MEMBER						
I.	E	B	Error budgets					
J.	A	K	Basic field astronomy for azimuth					
K.	K	E	Vessel coordinate reference systems and 3D location of sensors					

Competency: Hydrographic Operations

Name of Supervisor	Name of Applicant
Supervisor's signature	Date

GEHS04		Competency	Geodesy				
			Date of assessment				
Optimum Standard			Activity Details	A	K	E	B
ITEM	TECHNICAL MEMBER	MEMBER					
A.	E	B	Geodetic datums, parameters and transformations				
B.	K	E	National / international reference systems and projection theory				
C.	E	B	Error theory, Total Propagation Error				
D.	K	E	Calculation and adjustment of control				
E.	E	B	Vertical Control – different methods of establishing Referencing survey datums – data acquisition				
F.	E	B	On-line acquisition systems				
G.	E	B	Quality control / use of acquisition filters Survey statistics				
H.	E	B	Data acquisition / performance criteria				

Competency: Geodesy

Name of Supervisor	Name of Applicant
Supervisor's signature	Date

GEHS05		Competency	Safety and emergency procedures				
			Date of assessment				
Optimum Standard			Activity Details	A	K	E	B
ITEM	TECHNICAL MEMBER	MEMBER					
A.	E	B	Health, safety and environmental issues specific to the hydrographic survey environment				
B.	K	B	HSE risk assessments				
C.	K	E	Safe vessel operations				

Competency: safety and emergency procedures

Name of Supervisor	Name of Applicant
Supervisor's signature	Date

GEHS06		Competency	Data presentation					
					Date of assessment			
	Optimum Standard		Activity Details		A	K	E	B
ITEM	TECHNICAL MEMBER	MEMBER						
A.	K	E	Chart preparation and production					
B.	K	E	Presentation, visualisation and manipulation of 2D and 3D hydrographic data					

Competency: data presentation

Name of Supervisor	Name of Applicant
Supervisor's signature	Date

GEHS07		Competency	Software			
					Date of assessment	
	Optimum Standard		Activity Details			
ITEM	TECHNICAL MEMBER	MEMBER	A	K	E	B
A.	K	B	IT /ICT for surveying acquisition, operations and management			

Competency: software

Name of Supervisor	Name of Applicant
Supervisor's signature	Date

GEHS08		Competency	Law				
					Date of assessment		
	Optimum Standard		Activity Details				
ITEM	TECHNICAL MEMBER	MEMBER		A	K	E	B
A.	A	K	UN Convention on the law of the sea				
			AND / OR				
	A	K	Territorial sea law / regulations				
			AND / OR				
	A	K	Docks and harbour legislation / regulations				

Competency: Law

Name of Supervisor	Name of Applicant
Supervisor's signature	Date

GEHS09		Competency	Seamanship				
			Date of assessment				
Optimum Standard			Activity Details	A	K	E	B
ITEM	TECHNICAL MEMBER	MEMBER					
A.	E	B	Safety				
B.	K	B	Safety leadership skills / conducting briefings and drills				
C.	K	E	The marine crew and liaison				
D.	K	E	Weather factors, forecasts and planning				

Competency: seamanship

Name of Supervisor	Name of Applicant
Supervisor's signature	Date

GEHS10		Competency	The environment				
			Date of assessment				
Optimum Standard			Activity Details	A	K	E	B
ITEM	TECHNICAL MEMBER	MEMBER					
A.	A	K	Awareness of the marine environment and factors that impact e.g. pollution, vessel operations etc.				
B.	A	K	Current legislation				

Competency: The environment

Name of Supervisor	Name of Applicant
Supervisor's signature	Date