

EXECUTIVE SUMMARY**VOLUME 1: EIS PROCESS OVERVIEW****VOLUME 2: PROJECT DESCRIPTION****VOLUME 3: ENVIRONMENTAL ASSESSMENT OF GAS FIELD COMPONENT****VOLUME 4: ENVIRONMENTAL ASSESSMENT OF PIPELINE COMPONENT****VOLUME 5: ENVIRONMENTAL ASSESSMENT OF LNG COMPONENT****VOLUME 6: ENVIRONMENTAL ASSESSMENT OF SWING BASIN AND SHIPPING CHANNEL CONSTRUCTION**

1	<i>IMPACTS OF SWING BASIN AND CHANNEL CONSTRUCTION</i>	1
1.1	<i>PROJECT ENVIRONMENTAL OBJECTIVE</i>	1
1.2	<i>METHODOLOGY</i>	1
1.2.1	<i>Existing Environmental Values</i>	1
1.3	<i>EXISTING ENVIRONMENTAL VALUES</i>	2
1.3.1	<i>Physical Environmental Values</i>	2
1.3.2	<i>Biological Environment</i>	20
1.4	<i>EVALUATION OF IMPACTS, MITIGATION AND MANAGEMENT MEASURES</i>	28
1.4.1	<i>Changes to the Hydrodynamic Regime</i>	32
1.4.2	<i>Sediment Mobilisation and Settling</i>	37
1.4.3	<i>Habitat Loss</i>	60
1.4.4	<i>Release of Contaminants</i>	68
1.4.5	<i>Fauna Interactions</i>	76
1.4.6	<i>Noise, Vibration and Visual Amenity</i>	82
1.4.7	<i>Introduced Marine Species</i>	88
1.4.8	<i>Vessel (Collision) Management</i>	91
1.5	<i>SUMMARY OF MANAGEMENT AND MITIGATION MEASURES</i>	95
1.5.1	<i>Key Management and Mitigation Measures</i>	95
1.5.2	<i>Summary of Required Studies</i>	96
1.5.3	<i>Outline of Dredging EMP</i>	101
1.6	<i>SUMMARY</i>	105
1.6.1	<i>Findings</i>	105
1.6.2	<i>Mitigations and Offsets</i>	108
1.6.3	<i>Matters of National Environmental Significance</i>	108
1.6.4	<i>Commitments List</i>	110

 Figures

6.1.1	ARSENIC CONCENTRATIONS IN PORT CURTIS SEDIMENTS (MG/KG)	7
6.1.2	NICKEL CONCENTRATIONS IN PORT CURTIS SEDIMENTS (MG/KG)	7
6.1.3	CHROMIUM CONCENTRATIONS IN PORT CURTIS SEDIMENTS (MG/KG)	8
6.1.4	PEAK CURRENT VELOCITIES DURING A TYPICAL SPRING TIDE PEAK EBB FLOW, WBM 2008	11
6.1.5	QGC MARINE SEDIMENTS STUDY – GENERAL LOCATIONS FOR INVESTIGATIONS	13
6.1.6	QGC MARINE SEDIMENTS STUDY – SAMPLING LOCATIONS FOR QCLNG PROJECT DREDGING ASSESSMENT	15
6.1.7	QGC MARINE SEDIMENTS STUDY – SAMPLING LOCATIONS FOR FISHERMAN’S LANDING ACID SULFATE ASSESSMENT (ALSO SHOWS GHD FL 153 SAMPLING LOCATIONS)	16
6.1.8	EXAMPLE DIGITAL BORE LOG – QGC MARINE SEDIMENTS STUDY	17
6.1.9	EXAMPLE 2D STRATIGRAPHIC MODEL – QGC MARINE SEDIMENTS STUDY	18
6.1.10	LOCATIONS, EXTENT AND STRUCTURE OF MONITORED SEAGRASS BEDS IN THE PORT OF GLADSTONE, NORTH OF SOUTH TREES POINT (DPI, 2007)	23
6.1.11	AVERAGE TOTAL SUSPENDED SOLIDS INCREASES, DUE TO CAPITAL DREDGING WORKS – NEAP TIDE	42
6.1.12	INITIAL DILUTION STUDY - TIDAL LEVELS DURING MODELLED PERIOD	46
6.1.13	INITIAL DILUTION MODELLING OF THE EFFECT OF TRANSPORT AND DISPERSION ON CSD TAILWATER	46
6.1.14	DILUTION OF BACKHOE PLUMES AT THE RELEASE SITE, AND IN A FOUR-HOUR ‘INITIAL DILUTION’ PERIOD	47
6.1.15	DILUTION OF CUTTER SUCTION DREDGE CUTTERHEAD PLUMES AT THE RELEASE SITE AND IN A FOUR-HOUR ‘INITIAL DILUTION’ PERIOD	48
6.1.16	DILUTION OF CUTTER SUCTION DREDGE TAILWATER PLUMES AT THE RELEASE SITE AND IN A FOUR-HOUR ‘INITIAL DILUTION’ PERIOD	49
6.1.17	DILUTION OF TRAILER SUCTION HOPPER DREDGE DISCHARGE PLUMES AT THE RELEASE SITE AND IN A FOUR-HOUR ‘INITIAL DILUTION’ PERIOD	50
6.1.18	RELATIONSHIP BETWEEN TIDAL HEIGHT AND PLUME CONCENTRATIONS FOR BACKHOE DREDGE OPERATING IN MOF AREA AND TSHD DUMPING AT FISHERMAN’S LANDING	52
6.1.19	ACOUSTIC DOPPLER CURRENT PROFILER BACKSCATTER IMAGING OF DREDGING PLUMES FROM CSD WOMBAT	53
6.1.20	RELATIONSHIP BETWEEN SUSPENDED SEDIMENTS (TSS MG/L) AND TURBIDITY (NEPHELOMETRIC TURBIDITY UNITS) FOR NATURAL AND DREDGED WATERS OF PORT CURTIS	54
6.1.21	MULTISPECTRAL SCANNER HABITAT MAPPING FOR MARINE VEGETATION – STUDY AREA	56
6.1.22	HABITAT CLASSIFICATION BASED ON MULTISPECTRAL SCANNER METHODS	57

Tables

6.1.1	<i>DISTRIBUTION OF SAMPLING SITES WITHIN IDENTIFIED RECLAMATION AREAS</i>	12
6.1.2	<i>HAZARD IDENTIFICATION</i>	30
6.1.3	<i>RISK MATRIX FOR DREDGING AND RECLAMATION ACTIVITIES</i>	31
6.1.4	<i>OUTLINE OF IMPACT EVALUATIONS</i>	32
6.1.5	<i>TYPICAL SEDIMENT COMPOSITION, WESTERN BASIN AREA</i>	38
6.1.6	<i>PLUME INITIAL DILUTION CALCULATIONS, PORT CURTIS DREDGING OPERATIONS</i>	45
6.1.7	<i>SEAGRASS HABITAT LOSSES ASSOCIATED WITH DREDGING AND RECLAMATION</i>	62
6.1.8	<i>MANGROVE HABITAT LOSSES ASSOCIATED WITH QCLNG PROJECT DREDGING</i>	63
6.1.9	<i>DEEP WATER BENTHIC COMMUNITIES LOSSES ASSOCIATED WITH DREDGING</i>	64
6.1.10	<i>TYPICAL SOUND LEVELS PRODUCED BY DREDGES</i>	83
6.1.11	<i>KEY MANAGEMENT AND MITIGATION MEASURES</i>	95
6.1.12	<i>CCIMPE TRIGGER LIST SPECIES</i>	105
6.1.13	<i>SUMMARY OF IMPACTS FOR QCLNG PROJECT-RELATED DREDGING</i>	108

VOLUME 7: GREENHOUSE GAS MANAGEMENT**VOLUME 8: SOCIAL, CULTURAL AND ECONOMIC IMPACT ASSESSMENT****VOLUME 9: GAS FIELD COMPONENT ENVIRONMENTAL MANAGEMENT PLAN****VOLUME 10: PIPELINE COMPONENT ENVIRONMENTAL MANAGEMENT PLAN****VOLUME 11: LNG COMPONENT ENVIRONMENTAL MANAGEMENT PLAN****VOLUME 12: STAKEHOLDER CONSULTATION****VOLUME 13: EPBC ASSESSMENT REPORT****APPENDICES**