Appendix C. Calculations of Total Sediment Loss

Summary of Sediment Loss Rates for Worst Case Scenarios

Summary Calculations from Approved 3RS EIA Report

Worst Case Scenario	Scenario Date	Work Type	Plant Type	Number of Plant	Production Rate/unit (m^3/s)	Cycle Time (s)	Production Rate/unit (kg/s)[1]	Material Fines Content (%)	Sediment Loss Rate/unit (%)	Sediment Loss Rate (kg/s)	Cycles/Day	Total Daily Productivity (m^3/d)	Total Daily Sediment Losses (kg/d)
Scenario B	Q4 2016 - Q3 2017	Sand Blanket	TSHD	1	0.278	32400	510.1	10%	5%	2.55	1	9,007	82,641
		Ground Improvement	DCM Rig	32	0.115	120	211.0	10%	5%	1.06	30 to 60	17,940	164,600
		Ground Improvement (LHR)	DCM Rig	10	0.056	120	102.8	10%	5%	0.51	60	4,032	36,994
		Sand Filling	TSHD	31	0.833	4440 to 10800	1528.6	20%	5%	15.29	1 to 3	221,511	4,064,733
													4,348,968

Note:
1. Density of wet sand wet is assumed to be 1,835kg/m3
LHR - low head room
For the full calculations, please refer to Appendix 8.6 of the approved 3RS EIA Report

Updated Calculations based on Latest Detailed Design (July 2016)

Worst Case Scenario	Scenario Date	Work Type	Plant Type	Number of Plant	Production Rate/unit (m^3/s)	Cycle Time (s)	Production Rate/unit (kg/s)[1]	Material Fines Content (%)	Sediment Loss Rate/unit (%)	Sediment Loss Rate (kg/s)	Cycles/Day	Total Daily Productivity (m^3/d)	Total Daily Sediment Losses (kg/d)
Updated Worst Case (for DCM)	Q2 2017	Sand Blanket	TSHD	9	0.278	32400	510.1	10%	5%	2.55	1	81,065	743,770
		Ground Improvement	DCM Rig^	82	0.115	120	211.0	10%	5%	1.06	60	67,896	622,946
		Ground Improvement (LHR)	DCM Rig	33	0.115	120	211.0	10%	5%	1.06	60	27,324	250,698
		Sand Filling	TSHD	5	0.833	10800	1528.6	20%	5%	15.29	1	44,982	825,420
													2,442,833

^62 out of 82 nos. of DCM Rigs are working within CMP.

Worst Case Scenario	Scenario Date	Work Type	Plant Type	Number of Plant	Production Rate/unit (m^3/s)	Cycle Time (s)	Production Rate/unit (kg/s)[1]	Material Fines Content (%)	Sediment Loss Rate/unit (%)	Sediment Loss Rate (kg/s)	Cycles/Day	Total Daily Productivity (m^3/d)	Total Daily Sediment Losses (kg/d)
Updated Worst Case (for Total Sediment Loss)	Q1 2018	Sand Blanket	TSHD	5	0.278	32400	510.1	10%	5%	2.55	1	45,036	413,205
		Ground Improvement	DCM Rig^	8	0.115	120	211.0	10%	5%	1.06	60	6,624	60,775
		Ground Improvement (LHR)	DCM Rig	6	0.115	120	211.0	10%	5%	1.06	60	4,968	45,581
		Sand Filling	TSHD	23	0.833	10800	1528.6	20%	5%	15.29	1	206,917	3,796,931
													4,316,493

^8 out of 8 nos. of DCM Rigs are working within CMP