SITE MANAGEMENT

		STANDARD DRAWING REFERENCE
1.1.1	OBTAIN ALL NECESSARY PERMITS AND PLAN APPROVALS, AND ASSESS ENVIRONMENTAL RISKS BEFORE COMMENCING WORKS.	
1.1.2	ENSURE AN APPROPRIATE EROSION AND SEDIMENT CONTROL PLAN (ESCP) IS PREPARED PRIOR TO INITIATING AND SITE DISTURBANCE.	
1.1.3	ENSURE THE DEGREE OF DETAIL PRESENTED WITHIN THE ESCP IS APPROPRIATE FOR THE COMPLEXITY OF THE PROPOSED WORKS, AND IN SUCH DETAIL TO ALLOW ALL CONTROL MEASURES TO BE CORRECTLY LOCATED AND CONSTRUCTED.	
	PRE-CONSTRUCTION CONFERENCE	
1.2.1	A PRE-CONSTRUCTION CONFERENCE IS AN OPPORTUNITY FOR ALL INTERESTED PARTIES TO DISCUSS CRITICAL ISSUES, SUCH AS: - KEY OBJECTIONS OF THE EROSION AND SEDIMENT CONTROL PLAN (ESCP); - REQUIRED WATER QUALITY OBJECTIVES; - MONITORING AND INSPECTION PROCEDURES; - IDENTIFICATION OF THE RESPONSIBLE SITE OFFICERS; - IDENTIFICATION OF CRITICAL ENVIRONMENTAL CONCERNS; - REPORTING PROCEDURES FOR NON-COMPLIANCE ACTIVITIES AND EVENTS.	
	SITE OFFICE	
1.3.1	LIMIT SITE ENTRY TO THE MINIMUM NUMBER OF LOCATIONS.	
1.3.2	STABILISE ALL SITE ENTRY AND EXIT POINTS.	
1.3.3	LOCATE THE SITE OFFICE AS CLOSE AS POSSIBLE TO THE SITE ENTRANCE TO MINIMISE THE DISTANCE VISITORS NEED TO TRAVEL THROUGH THE SITE.	
1.3.4	WHEREVER PRACTICAL, ENSURE ROOF WATER FROM BUILDINGS AND SHEDS WILL NOT CAUSE UNNECESSARY EROSION OR SOIL WETNESS, ESPECIALLY WITHIN COMMON TRAFFIC AREAS.	
	SITE SIGNAGE	
1.4.1	ASSESS THE NEED FOR SITE SIGNAGE TO HELP: - MINIMISE DAMAGE TO THE SITE'S EROSION AND SEDIMENT CONTROL MEASURES; - MINIMISE DAMAGE TO BUFFER ZONES AND RETAINED VEGETATION; AND - REMIND SITE PERSONNEL OF THE IMPORTANCE OF APPROPRIATE ENVIRONMENTAL MANAGEMENT WITHIN THE SITE.	
1.4.2	THE NEED FOR SIGNS WILL VARY FROM LOCATION TO LOCATION DEPENDING ON SITE CONDITIONS AND ENVIRONMENTAL RISKS.	
	STOCKPILE MANAGEMENT	
1.5.1	ESTABLISH ALL NECESSARY STOCKPILE AREAS.	
1.5.2	ASSESS THE NEED FOR: - DRAINAGE CONTROLS UP-SLOPE OF STOCKPILES (E.G. IF DRAINAGE AREA >1500 SQ. M); - EROSION CONTROLS ON STOCKPILES, SUCH AS MULCH, SOIL BINDERS, OR TARPS; - SEDIMENT CONTROLS DOWN-SLOPE OF STOCKPILES (E.G. SEDIMENT FENCE OR FILTER FENCE)	
1.5.3	WHERE APPROPRIATE, INSTALL BOUNDARY FENCING TO REDUCE UNAUTHORISED DUMPING OF EARTH AND RUBBISH ON THE SITE.	
	WASTE CONCRETE RECEPTOR	
1.6.1	IF SIGNIFICANT CONCRETING IS TO OCCUR ON THE SITE, THEN ESTABLISH A CONCRETE DISPOSAL AREA(S) ENCLOSED BY PERMEABLE, EARTH FILTER-BANKS, OR OTHER APPROPRIATE FILTER SYSTEMS.	
1.6.2	ENSURE THESE AREAS ARE WELL SIGNED SO THAT CONTRACTORS AND DELIVERY DRIVERS WILL BE ABLE TO IDENTIFY THEIR LOCATION	
	WASTE MANAGEMENT	
1.7.1	ESTABLISH WASTE COLLECTION AREAS.	
1.7.2	CONTROL POLLUTANT RUNOFF FROM THESE AREAS.	
1.7.3	ENSURE APPROPRIATE STORAGE OF CHEMICAL AND FUELS (E.G. AS1940: THE STORAGE AND HANDLING OF FLAMMABLE AND COMBUSTIBLE LIQUIDS).	
1.7.4	WHERE NECESSARY, ESTABLISH DRIP PANS, OR SIMILAR (E.G. FILTER CLOTH SHEETING) IN VEHICLE MAINTENANCE AREAS TO CONTROL POLLUTION RUNOFF FROM ROAD SURFACING EQUIPMENT AND THE LIKE.	
	LITTER CONTROL	
1.8.1	ENSURE RESPONSIBLE ENVIRONMENTAL MANAGEMENT PROCEDURES ARE FOLLOWED AT ALL TIMES, INCLUDING CONTROLLING THE HANDLING OF ALL POTENTIAL CONTAMINANTS, SUCH AS: - LITTER; - CONCRETE/CEMENT; - OIL AND FUEL; - SAND, SOIL AND SEDIMENT; - ORGANIC MULCHES, AND FERTILISERS.	
1.8.2	REMIND ALL WORKERS THAT POLLUTION CONTROL IS EVERY ONES RESPONSIBILITY.	
	STAFF TRAINING	
1.9.1	SITE INDUCTION COURSES NEED TO INCORPORATE INFORMATION ON ENVIRONMENTAL MANAGEMENT AND INCIDENT REPORTING.	
1.9.2	ENSURE EMPLOYEES RECEIVE ADEQUATE TRAINING ON: - WORK PLACE HEALTH AND SAFETY ISSUES; - ENVIRONMENTAL MANAGEMENT; - BEST PRACTICE EROSION AND SEDIMENT CONTROL PRACTICES; - INCIDENT REPORTING PROCEDURES; - SITE INSPECTION AND MAINTENANCE PROCEDURES (SELECTED STAFF ONLY).	
	SITE INSPECTIONS	
1.10.1	NOMINATE THE OFFICER(S) RESPONSIBLE FOR ON-SITE EROSION AND SEDIMENT CONTROL MEASURES.	
1.10.2	ESTABLISH AND APPROPRIATE SITE INSPECTION ROUTINE, AS WELL AS MAINTENANCE AND REPORTING PROCEDURES.	
1.10.3	IDENTIFICATION TAGS, SUCH AS A STRIP OF FILTER CLOTH STAPLED TO SEDIMENT FENCE FABRIC, CAN BE USED TO IDENTIFY THOSE MEASURES REQUIRING MAINTENANCE.	

SITE MANAGEMENT

		STANDARD DRAWING REFERENCE
	WATER QUALITY REQUIREMENTS	
1.11.1	IDENTIFY THE TARGET WATER QUALITY OBJECTIVES (WQOS) FOR THE SITE. WQOS ARE NORMALLY ASSIGNED BY THE STATE OR LOCAL GOVERNMENT.	
1.11.2	TYPICAL WATER QUALITY OBJECTIVES ARE: - 50MG/L OF TOTAL SUSPENDED SEDIMENT; - A TURBIDITY LEVEL NO GREATER THAN 10% ABOVE THAT OF THE RECEIVING WATER; - WATER PH IN THE RANGE OF 6.5 TO 8.5	
1.11.3	IDENTIFY AN APPROPRIATELY TRAINED PERSON TO COLLECT ALL WATER SAMPLES.	
	ENVIRONMENTAL HARM	
1.12.1	BEST PRACTICE SITE MANAGEMENT REQUIRES ESTABLISHMENT OF APPROPRIATE INCIDENT REPORTING PROCEDURES, INCLUDING: - IDENTIFYING THE CHAIN OF RESPONSIBILITY; - PROCEDURES FOR RECORDING AREAS OF NON-COMPLIANCE; - MONTHLY REPORTING PROCEDURES (IF REQUIRED); - PROCEDURES FOR RECORDING CORRECTIVE ACTIONS; - INTERNAL RECORDING AND FILING PROCEDURES.	
	ESSENTIAL ESC MATERIALS	
1.13.1	STOCKPILE ALL NECESSARY MATERIALS TO ESTABLISH AND MAINTAIN THE SITE'S EROSION AND SEDIMENT CONTROL (ESC) MEASURES.	
1.13.2	MAINTAIN ADEQUATE SUPPLIES OF EMERGENCY ESC MATERIALS SUCH AS: STRAW BALES, WIRE, STAKES, SEDIMENT FENCE FABRIC, FILTER CLOTH, WIRE MESH, AND CLEAN AGGREGATE.	
	SEDIMENT CONTROL NEEDING MAINTENANCE	
1.14.1	ENSURE ALL EROSION AND SEDIMENT CONTROL MEASURES ARE MAINTAINED IN PROPER WORKING ORDER AT ALL TIMES.	
1.14.2	ENSURE ALL MATERIALS, WHETHER SOLID OR LIQUID, REMOVED FROM ESC DEVICES DURING MAINTENANCE ARE DISPOSED OF IN A MANNER THAT DOES NOT CAUSE ONGOING SOIL EROSION OR ENVIRONMENTAL HARM.	
1.14.3	ENSURE APPROPRIATE WRITTEN RECORDS ARE KEPT ON THE SITE'S MONITORING AND MAINTENANCE ACTIVITIES.	
	CLEAN-UP EQUIPMENT	
1.15.1	ENSURE SUFFICIENT MATERIALS EXIST ON-SITE, OR WITHIN WORK VEHICLES, TO CLEAN-UP ACCIDENTAL SEDIMENT SPILLS AND THE LIKE.	
1.15.2	THE CLEAN-UP EQUIPMENT AND MATERIALS REQUIRED FOR A SITE WILL NEED TO BE ASSESSED ON A CASE-BY-CASE BASIS BASED ON THE ASSESSED ENVIRONMENTAL RISK.	
	PROPER CLEAN-UP PROCEDURES	
1.16.1	ENSURE THE SITE'S CLEAN-UP PROCEDURES ARE CONDUCTED IN A MANNER THAT DOES NOT CAUSE ENVIRONMENTAL HARM.	
1.16.2	SEALED ROADWAYS SHOULD ONLY BE WASHED/FLUSHED IN CIRCUMSTANCES WHERE SWEEPING HAS FAILED TO REMOVE SUFFICIENT SEDIMENT, AND THERE IS A COMPELLING NEED TO REMOVE THE REMAINING SEDIMENT (E.G. FOR SAFETY REASONS)	
1.16.3	IN ALL CASES, ALL REASONABLE AND PRACTICAL MEASURES MUST BE TAKEN TO MINIMISE ENVIRONMENTAL AND SAFETY RISKS.	
	PREPARING A SITE FOR THE EXPECTED WEATHER CONDITIONS	
1.17.1	A WELL-MANAGED SITE IS A SITE THAT IS APPROPRIATELY PREPARED FOR BOTH LIKELY AND UNLIKELY (BUT POSSIBLE) WEATHER CONDITIONS.	A4-00326
1.17.2	ONLY IN THOSE REGIONS WHERE EXTENDED PERIODS OF DRY WEATHER CAN BE ANTICIPATED WITH HIGH CERTAINTY CAN EROSION AND SEDIMENT CONTROL MEASURES BE REDUCED TO A MINIMUM.	A4-00326

SITE INSPECTION AND MONITORING

		STANDARD DRAWING REFERENCE
2.1.1	ALL EROSION AND SEDIMENT CONTROL MEASURES SHOULD BE INSPECTED: - AT LEAST DAILY WHEN RAIN IS OCCURING; - AT LEAST WEEKLY (EVEN IF WORK IS NOT OCCURING ON-SITE); - WITHIN 24 HOURS PRIOR TO EXPECTED RAINFALL; AND - WITHIN 18 HOURS OF A RAINFALL EVENT OF SUFFICIENT INTENSITY AND DURATION TO CAUSE ON-SITE RUNOFF.	
	WATER SAMPLES UPSTREAM AND DOWNSTREAM	
2.2.1	SITE INSPECTIONS NEED TO BE CONDUCTED DURING BOTH DRY AND WET WEATHER.	
2.2.2	SITE INSPECTIONS SHOULD BE CONDUCTED BY THE NOMINATED ESC OFFICERS, OR POSSIBLY ON LARGE OR HIGH-RISK SITES, A THIRD-PARTY INSPECTOR.	
2.2.3	ON LARGE OR HIGH-RISK SITES, MONITORING IS LIKELY TO INCLUDE SPECIFIC WATER QUALITY SAMPLING AND DETAILED LOGBOOK ENTRIES OF THE SITE'S MONITORING AND MAINTENANCE ACTIVITIES.	
	DIRTY WATER RUNOFF	
2.3.1	WHEN A SITE INSPECTION DETECTS A NOTABLE FAILURE IN THE ADOPTED ESC MEASURES, THE SOURCE OF THIS FAILURE MUST BE INVESTIGATED, AND APPROPRIATE AMENDMENTS MADE TO THE SITE AND THE ESC PLANS.	
2.3.2	ON SITES WITH A SOIL DISTURBANCE GREATER THAN 0.25HA, A FORMAL 'MONITORING AND MAINTENANCE PROGRAM' SHOULD BE PREPARED PRIOR TO SITE ESTABLISHMENT.	
	EROSION AND SEDIMENT CONTROL PLAN	
2.4.1	EROSION AND SEDIMENT CONTROL PLANS (ESCPS) ARE LIVING DOCUMENTS THAT CAN, AND SHOULD, BE MODIFIED IF: - SITE CONDITIONS CHANGE; OR - THE ADOPTED MEASURES FAIL TO ACHIEVE THE REQUIRED TREATMENT STANDARD (E.G. THE WATER QUALITY OBJECTIVES).	

SITE INSPECTION AND MONITORING

		STANDARD DRAWING REFERENCE
2.4.2	CONDUCTING REGULAR SITE INSPECTIONS AND ENSURING THAT PROFESSIONAL WATER QUALITY MONITORING OCCURS, ARE TWO WAYS OF ENSURING THE ESCP REMAINS RELEVANT TO THE SITE CONDITIONS.	

VEGETATION MANAGEMENT

		STANDARD DRAWING REFERENCE
3.1.1	ESTABLISH ANY NON-DISTURBANCE OR EXCLUSION AREAS IDENTIFIED WITHIN THE EROSION AND SEDIMENT CONTROL PLAN OR VEGETATION MANAGEMENT PLAN (VMP).	
3.1.2	WHERE APPROPRIATE, IDENTIFY, ISOLATE AND/OR PROTECT RETAINED VEGETATION.	
3.1.3	ENSURE ALL LOCAL AND STATE GOVERNMENT APPROVALS ARE OBTAINED BEFORE ANY DISTURBANCE OCCURS TO VEGETATION, AND THEN DISTURB ONLY THE MINIMUM NECESSARY TO COMPLETE THE WORKS.	
	VEGETATION PROTECTION	
3.2.1	WHERE APPROPRIATE, PREPARE A VEGETATION MANAGEMENT PLAN PRIOR TO COMMENCEMENT OF ANY ON-SITE WORKS.	
3.2.2	ESTABLISH TREE PROTECTION ZONES AROUND RETAINED VEGETATION. SUCH ZONES ARE USUALLY DETERMINED AS A MINIMUM OF 10 TIMES THE TRUNK DIAMETER (MEASURED AT AN ELEVATION OF 1M FROM THE GROUND), OR THE WIDTH OF THE TREE CANOPY AT ITS WIDEST POIN, WHICHEVER IS THE GREATER.	
3.2.3	CLEARLY IDENTIFY ANY VEGETATION PROTECTED BY GOVERNMENT VEGETATION PROTECTION ORDERS (VPOs).	
	UNDESIRABLE TREE TRUNK DAMAGE	
3.3.1	TRUNK DAMAGE IS TO BE AVOIDED, AS IT CAN RESULT IN LONG-TERM VEGETATION PROBLEMS.	
3.3.2	MINIMISE CHANGES IN GROUND ELEVATION (CUT OR FILL) ADJACENT TO RETAINED VEGETATION.	
3.3.3	IF LAND RESHAPING MUCH OCCUR ADJACENT TO RETAINED VEGETATION, THEN IT MUST BE PERFORMED IN A MANNER THAT WILL NOT ISOLATE PLANTS FROM ESSENTIAL SOIL MOISTURE (REFER PARKS & ENVIRONMENT - ARBORICULTURE DEPT.)	
	SOIL PREPARATION	
3.4.1	SUCCESSFUL SITE REVEGETATION STARTS WITH APPROPRIATE SOIL MANAGEMENT, INCLUDING THE REHABILITATION OF SOILS COMPACTED BY CONSTRUCTION ACTIVITIES.	
3.4.2	ENSURE REVEGETATION IS CARRIED OUT BY QUALIFIED CONTRACTORS.	
3.4.3	ENSURE ALL POTTED PLANTS ARE STORED IN APPROPRIATE CONDITIONS PRIOR TO THEIR PLANTING.	
3.4.4	ENSURE THE SOILS ARE TESTED, AND WHERE NECESSARY, ADJUSTED PRIOR TO PLANTING.	

LAND CLEARING

		STANDARD DRAWING REFERENCE
4.1.1	LAND CLEARING SHOULD NOT OCCUR UNLESS PRECEDED BY THE INSTALLATION OF ALL NECESSARY DRAINAGE AND SEDIMENT CONTROL MEASURES. THE EXCEPTION WOULD BE ANY LAND CLEARING NECESSARY TO ALLOW INSTALLATION OF THESE CONTROL MEASURES.	
4.1.2	SELECTIVE CLEARING SHOULD AIM TO RETAIN A VARIETY OF SPECIES AND PLANTS OF VARYING AGES, WITH AN EMPHASIS ON HEALTHY PLANTS, PLANTS WITH HABITAT VALUE, AND GROUPS OF TREES.	
4.1.3	LAND CLEARING SHOULD BE STAGED TO MINIMISE THE EXTENT AND DURATION OF SOIL EXPOSURE.	
4.1.4	SEQUENTIAL CLEARING PROVIDES MANY ADVANTAGES FOR EROSION AND SEDIMENT CONTROL, AND CAN ALSO IMPROVE THE 'NATURAL' RELOCATION OF LOCAL WILDLIFE.	
	TREE HOLLOWS	
4.2.1	PARTIALLY HOLLOW TREES (DEAD OR LIVING) OFTEN NEED TO BE SAVED FOR THE HABITAT VALUE THESE TREES PROVIDE TO LOCAL WILDLIFE.	
	LAND CLEARING WITHOUT ROOT GRUBBING	
4.3.1	IF VEGETATION CLEARING MUST BE CARRIED OUT WELL IN ADVANCE OF EARTHWORKS, THEN THIS CLEARING SHOULD BE LIMITED TO THE REMOVAL OF ABOVEGROUND WOODY MATERIAL ONLY.	
4.3.2	WHEREVER REASONABLE AND PRACTICAL, THE GRUBBING AND THE REMOVAL OF ANY GROUND COVER (MULCH OR VEGETATION) SHOULD NOT COMMENCE UNTIL IMMEDIATELY PRIOR TO EARTHWORKS OCCURRING WITHIN THAT STAGE OF WORKS.	
	MULCH BERM SEDIMENT CONTROL MEASURE	
4.4.1	WHEREVER REASONABLE AND PRACTICAL, CLEARED VEGETATION SHOULD BE MULCHED FOR USE ON THE SITE AS AN EROSION CONTROL AID, AND TO SATISFY LANDSCAPING REQUIREMENTS.	
4.4.2	TUB GRINDING OF CLEARED VEGETATION IS BE USED IN LIEU OF CHIPPING PROCESSES, WHEREVER POSSIBLE.	

NO.	DATE	DESCRIPTION	DRAWN	APPROVED

AMENDMENTS AND REVISIONS

SURVEY

SURVEY FILE No

LEVEL DATUM A.H.D.

MERIDIAN

FILE NAME \STANDARD DRAWINGS\A1-27001

SCALES (A1)

DRAWN	SIGNED	DATE
DESIGNED	SIGNED	DATE
CHECKED	SIGNED	DATE

MANAGER TECHNICAL SERVICES
ORIGINAL SIGNED BY
G. HAWES RPEQ 5693
13/1/14
DATE

DIRECTOR
ENGINEERING AND
COMMERCIAL INFRASTRUCTURE
ORIGINAL SIGNED BY
JASON DEVITT
DATE 17/1/14

Mackay REGIONAL COUNCIL

STANDARD

EROSION & SEDIMENT CONTROL NOTES
SHEET 1 OF 6

SHEET 1 OF 6
WORKS JOB No.
DRAWING No. A1-27001
AMEND. A