CALCULATION SHEET

CONSULTING ENGINEERS AUSTRALIA

Job No	10262
Calc No	10262-2-3002

Client/Project:	QMAG New Sump Support			
Title	Kunwarara Tailings Sump		Sheet:	
Prepared By: C Rohde		Checked By:	of:	
Date: 27-Jul-10		Date:	Rev: 0	

Check existing walkway for additional cable loads

Cable & Ladder load=	20 kg/m	load supplied by Jason Sievers
	0.2 kN/m	

Floor grating

not identified, allow	0.5 kPa
	0.75 m wide
	0.188 kN/m/stringer
Handrailing	0.08 kN/m/stringer
Kickboard	0.048 kN/m/stringer
	0.316 kN/m/stringer

AS1657

Live load	2.5 kPa
	0.75 m wide
	0.938 kN/m/stringer

AS1170.2

Wind load

The Nebo Road Water Treatment Plant is located approximately 3 km to the south-west
of the Mackay CBD on land adjoining the Lagoons Reserve

Region	C
Terrain Cat	2 assumed
H=	10 m say
$M_{z,cat}$=	1

Tab 3.1

V=	$F_C (122 - 104R^{-0.1})$		F_c=	1.05 ULS
V(500)=	69.4 m/s			1.0 SLS
V(25)=	46.6 m/s			

3.3.2

$K_d=M_d^2$=	0.9			
q_{zu}=	2.60 kPa	K_d=	0.9 included	
q_{zs}=	1.17 kPa			
q_s/q_u=	0.45			

Tab D2

D1.4

Coeff of drag, $C_{pn}\sim$=	1.3 for solid fence
net porosity factor, K_p=	$1 - (1 - \delta)^2$

allow for railing with chainwaire sides

δ=	10%
K_p=	0.19

for fence 1m high

W_u=	0.64 kN/m	leading face
	0.58 kN/m	say for downwind face
	1.22	

Load on channels, b=	0.2 m		

Tab E5

C_d=	2.05+1.8/2=		]____[shape
	2.95		
W_u=	1.54 kN/m		

for toeboard, b=	0.1 m
W_u=	0.77 kN/m allow

Neglect addit wind load on cable ladder assuming well shielded by walkway