

Protect 365[®] N1 Parapet

5 rail 1.8 m

Approved by UK Highways Agency and National Roads Authority (Ireland).

Designed and verified by computer modelling to meet the requirements of BS EN 1317.

Improved safety performance together with reduced bridge deck loadings than older steel systems or current accredited steel or aluminium systems.

Containment level	N1
Height	1.8 m
Post centres	
• Proven range	2.5 m to 3.75 m
• End bay maximum	3.0 m
Minimum length of parapet	12.5 m end post centres (5 bays, 6 posts)
Plinth height	50 to 100 mm
Grout bedding (plus any falls)	10 to 30 mm
Plinth width minimum	450 mm

For all non standard designs contact us at the details below

Key features

- Reduced structure loading
- Reduced anchorage requirements
- Increased proven range of post centres
- Increased tolerance for installation to accommodate out of position foundations

Availability

Supply and installation is by licensed companies having third party verified UK Highways Agency Sector Scheme 5A and 5B approval and a quality management scheme in accordance with ISO 9001 or 9002.

Performance

Post centres	2.5 m	3.75 m
Impact severity level (estimated)	A	A
Working Width class (estimated)	W1	W2
Wheel penetration (estimated)	0.3 m	0.3 m
Dynamic deflection (estimated)	0.3 m	0.4 m

Anchorage load requirements

Bolt tensile load 1.5 x nominal	49.5 kN
Test load 1.1 x nominal	36.3 kN
Ultimate limit state 1.8 x nominal	59.3 kN

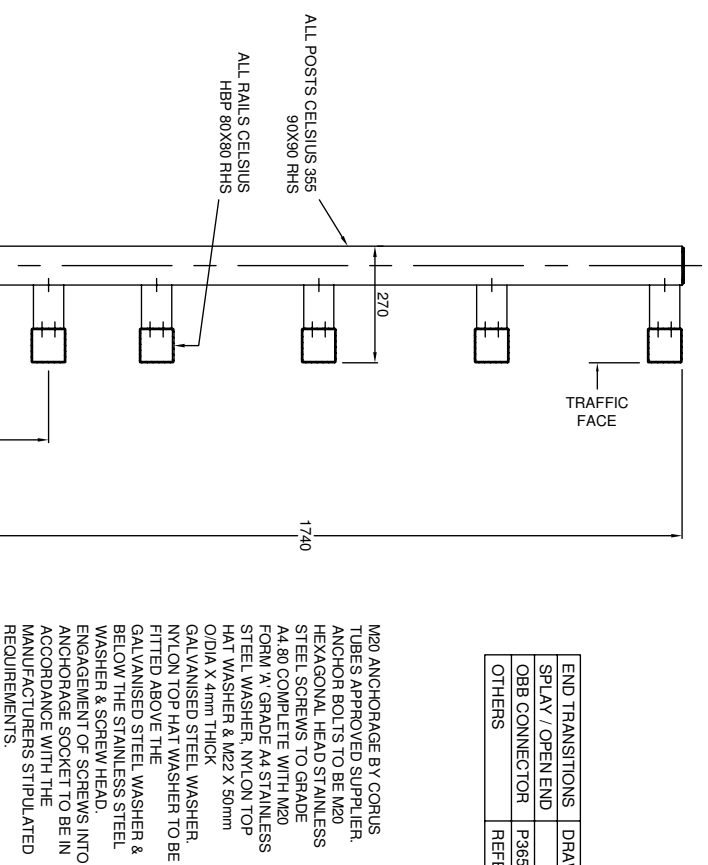
Structure loads

Post size	90 x 90 mm
Post ultimate moment capacity	14.1 kNm
Coexisting shear force	26.0 kN
Post ultimate shear capacity	131.0 kN

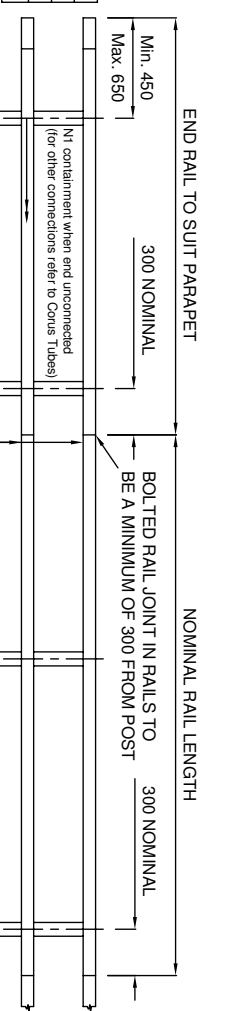
Finishing

Final finish	• Hot dip galvanised to BS EN ISO 1461
Service life	• 30+ years (dependent upon conditions in accordance with specifications for Highways Works Series 400) (Nov 2007)
Options	• Infill: Mesh or solid sheet • Available in various heights from 1.0 m up to 1.8 m • Paint finish available if required

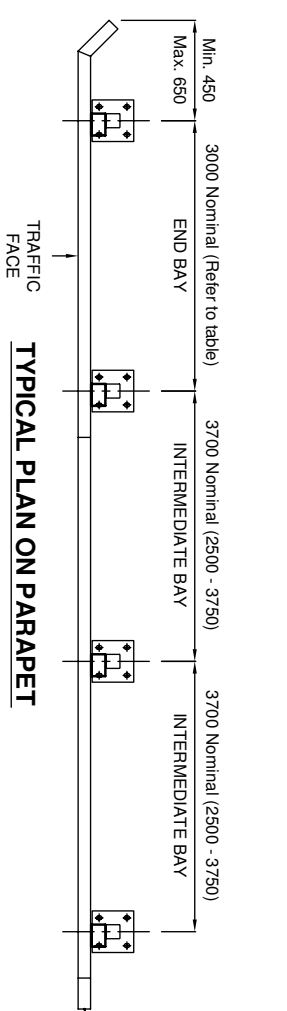
END TRANSITIONS	DRAWING No.	END BAY
SPLAY / OPEN END	-	2500 - 3000
ORB CONNECTOR	P365/P/123	2500 - 3000
OTHERS	REFER TO CORUS TUBES	



M20 ANCHORAGE BY CORUS TUBES APPROVED SUPPLIER. ANCHOR BOLTS TO BE M20 HEXAGONAL HEAD STAINLESS STEEL SCREWS TO GRADE A4.80 COMPLETE WITH M20 FORM A1 GRADE A4 STAINLESS STEEL WASHER, NYLON TOP HAT WASHER & M22 X 50mm O/DIA X 4mm THICK GALVANISED STEEL WASHER, NYLON TOP HAT WASHER TO BE FITTED ABOVE THE GALVANISED STEEL WASHER & BELOW THE STAINLESS STEEL WASHER & SCREW HEAD. ENGAGEMENT OF SCREWS INTO ANCHORAGE SOCKET TO BE IN ACCORDANCE WITH THE MANUFACTURERS STIPULATED REQUIREMENTS.

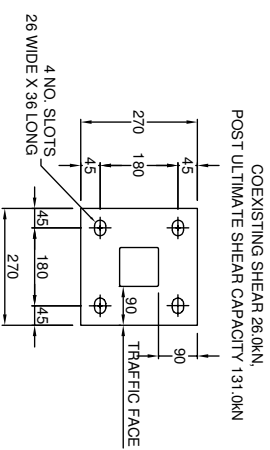


TYPICAL ELEVATION ON TRAFFIC FACE OF PARAPET

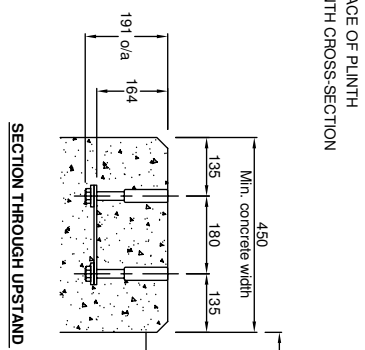


TYPICAL PLAN ON PARAPET

NOTE:-
Cast-in anchor cradle may be substituted for HAPAS approved chemical anchors of appropriate size & load capacity where required by site conditions.

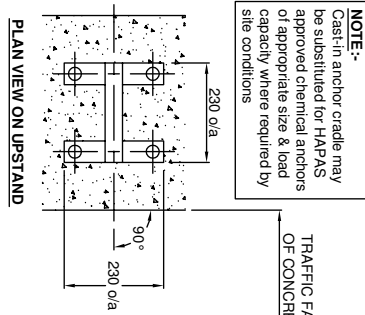


BASEPLATE DETAIL



ANCHOR CRADLE DETAIL

Anchor cradle shown: M20 SSH170 as manufactured by Fixing Centre Ltd.
(Alternative HAPAS approved anchor cradle of appropriate size & load capacity may also be used. Dimensions for alternative anchor to be checked with Fabricator)



ADDITIONAL REFERENCE DRAWINGS	
P365/P/133	MESH AND SHEETING DETAILS

GENERAL NOTES

- RAILS TO BE CELSIUS HBP 80 x 80 RHS AS MANUFACTURED BY CORUS TUBES.
- ALL OTHER HOLLOW SECTIONS TO BE CELSIUS 355 STRUCTURAL HOLLOW SECTIONS AS MANUFACTURED BY CORUS TUBES.
- OTHER STEEL SECTIONS TO BE TO GRADES AS NOTED.
- STAINLESS STEEL HEXAGONAL HEAD SCREWS TO BE GRADE A4 CLASS 80 TO BS EN ISO 3506-1 & BS EN ISO 4017.
- PLAIN WASHERS TO BE TO BS EN ISO 7089.
- SPRING WASHERS TO BE TO BS 4464.
- STEEL WASHERS TO BE GALVANISED TO BS EN ISO 1461.
- STAINLESS STEEL WASHERS TO BE GRADE A4.
- POSTS SHALL BE SET TO GIVE A SMOOTH FLOWING LINE WITH A MINIMUM HEIGHT OF 1800mm FROM ADJOINING PAVED SURFACE TO TOP OF TOP RAIL.
- POST/RAIL CONNECTION BRACKETS SET TO FOLLOW SLOPE OF RAILS.
- PARAPET MANUFACTURE & INSTALLATION SHALL ONLY BE CARRIED OUT BY COMPANIES APPROVED & LICENSED BY CORUS TUBES.
- ALL CARBON STEEL MATERIALS TO BE HOT DIPPED GALVANISED AFTER MANUFACTURE TO BS EN ISO 1461.
- ALL PLATES TO BE GRADES NOTED TO BS EN 10 025.



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Rev	Revision Date	Description
03		Main regarding containment added
02		Vertical location of rails amended in line with tested system
01		Material list added for post removed

Date	Sign
04/10/07	AM
02/07/07	JLL
01/07/07	JLL

GENERAL ARRANGEMENT OF PROTECT 365™ N1 VEHICLE PARAPET (80 km/h TRAFFIC SPEED) - P365/P/012
5 Rail system - 1,800m Nominal height (Equestrian)

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Title	Drawn	Checked	Approved	Date	Rev
STANDARD DETAILS OF N1 VEHICLE PARAPET TO BS EN 1317-1, -2 & -5 (General details) P365/P/012	JLL	T.R.M	T.R.M	Sept' 2006	03
	Sept' 2006	Sept' 2006	Sept' 2006		