TECHNICAL NOTE

CG300 Structures Technical Approval Proforma

The purpose of this proforma is to record at project inception the Category of each structure in accordance with the criteria described in Chapters 3 to 6 of CG300.

These Categories are subject to the agreement of the Technical Approval Authority and shall be reviewed as the design is developed.

Upon request by the TAA, the proposed works are to be placed in Category 1. As such, the proposals for Category 1 shall provide the requirements of CG 300 Clause 2.27.

<table>
<tr><td>Scheme Name</td><td colspan="2">Westfield Pill Bridge Repairs</td></tr>
<tr><td>Scheme Ref</td><td colspan="2">Pembrokeshire County Council</td></tr>
<tr><td>Location of Works</td><td>Description of Works</td><td>Proposed Category</td></tr>
<tr><td>A477 Westfield Pill Bridge, Neyland, Pembrokeshire
E, N: (196746, 206051)</td><td>This CG300 screening form outlines the proposed expansion joint and bridge parapet replacement works which form the deck refurbishment scheme at Westfield Pill Bridge.
The Westfield Pill Bridge is a seven span simply supported concrete structure that carries the A477 over Westfield Pill inlet at OS Coordinates 196746, 206051. The structure carries a single carriageway with footpaths in each direction with an overall width of 11.6m. The overall length of the structure is 258m consisting of five central spans of 39.8m and two end spans of 29.9m.
In 2022 Pembrokeshire County Council (PCC) commissioned a Principal Inspection of the Westfield Pill Bridge near Neyland on the A477. The inspection identified several defects associated with the bridge parapets and expansion joints that would affect the durability of the structure in the long term.
In summary, the scheme comprises the following:
• Replacement of the bridge parapets
• Replacement of the expansion joints
Expansion joint replacement
The table below outlines the existing joint types at each joint location, in addition to the proposed joint for installation.
<table><tr><th>Joint Reference*</th><th>Current EJ</th><th>Proposed EJ</th></tr><tr><td>EJ1</td><td>Feba-type APJ</td><td>Feba-type APJ</td></tr><tr><td>EJ2</td><td>Comb Joint</td><td>Transflex TR230</td></tr><tr><td>EJ3</td><td>Feba-type APJ</td><td>Feba-type APJ</td></tr><tr><td>EJ4</td><td>Feba-type APJ</td><td>Feba-type APJ</td></tr></table>
* Note, drawings illustrating the proposed joint reference locations have been included in Appendix A of this submission.</td><td>Category 0</td></tr>
</table>

Scheme Name	Westfield Pill Bridge Repairs	
Scheme Ref	Pembrokeshire County Council	
Location of Works	Description of Works	Proposed Category
	AtkinsRéalis have proposed the FEBA-type asphaltic plug joint (or similar approved) for joint locations EJ1, EJ3, EJ4 of this structure due to the following: • Historic FEBA-type joints are already provided at asphaltic plug joint locations of this structure. • Consultation with BridgeCare has also allowed AtkinsRéalis to determine that the FEBA-type joint is the most suitable for this application. AtkinsRéalis have proposed the Transflex TR230 joint (or similar approved) for joint location EJ2 of this structure due to the following: • The most appropriate selection with regards to whole-life cost when compared to the existing comb joint and alternative BEJ joint type. • Replacement comb joint is cost prohibitive due to fabrication of new steel plates and installation cost. • BEJ joint type would require cantilever plates or deck end modifications to remove the chamfer at the top of the joint air gap. • Comb joints available on the market are more suited towards bridges with greater range of movement than that of this structure (+/- approx. 90mm). Transflex joint range of movement most appropriate for this structure. • Reduction in works required to modify existing joint detail to allow installation of Transflex when compared to other joint options (scabble down existing epoxy bed to suit joint height). • Consultation with BridgeCare has also allowed AtkinsRéalis to determine that the Transflex joint is the most suitable for this application. **Parapet Replacement** To determine the feasibility of the options being proposed for the scheme, work has been carried out in advance of preparing the CG300 document as outlined below. **Parapet Edge Beam Assessment** An assessment of the parapet edge beam was undertaken in accordance with *CS 461 – Assessment and upgrading of in-service parapets* Appendix D (Table D.1). This subjected the parapet to an applied load of 79kN at a height of 0.6m above the base of the parapet (i.e. carriageway level), corresponding to an N2 containment load based on a system with a dynamic deflection of 0.4m (conforming to N2/W2 as per the proposed SafeRoad SN2, or	

Scheme Name	Westfield Pill Bridge Repairs	
Scheme Ref	Pembrokeshire County Council	
Location of Works	Description of Works	Proposed Category

similar approved parapet). An impact wheel load was also applied (as stated by Appendix D.3).

The capacity of the parapet beam was determined in accordance with CS455 – The assessment of concrete highway bridges and structures. From this assessment (and the loads outlined above), it was determined that the parapet beam has sufficient capacity to carry the loads prescribed in Appendix D of CS461.

There are no as-built details of the parapet available for the existing parapet as of the writing of this document and therefore the containment class requirement of the existing parapet has been determined in accordance with BD 52/93 – The Design of Highway Bridge Parapets. Due to the speed limit being greater than 50mph and the bridge carrying an all-purpose road, the existing parapet would have a vehicle containment class of P2(113) which is equivalent to the proposed N2 parapet containment level. Based on the N2 containment class and parapet construction type utilising RHS posts and rails, it is assumed that the existing parapet is equivalent to a parapet system manufactured by HBP.

A comparative analysis of the working loads of the SafeRoad system and the existing HBP system determined that the new system has a lower failure load than the existing system as noted in the table below. It can be observed that the plastic moment of resistance is approximately 27% lower for the new system, and the co-existing shear approximately 20% less.

Table 1 – Proposed versus Existing Parapet Resistance Comparison.

Load Criteria	Proposed Parapet (SafeRoad SN2)	Existing Parapet (HBP System)
Plastic Moment of Resistance (kNm)	21.1	29.1
Co-Existing Shear Force (kN)	38.6	48.1

Based on these values, AtkinsRéalis consider that the parapet edge beam is suitable for the loads applied via the SafeRoad SN2

Scheme Name	Westfield Pill Bridge Repairs	
Scheme Ref	Pembrokeshire County Council	
Location of Works	Description of Works	Proposed Category
	(N2/W2) Parapet System. In the event that an alternative product is proposed by the Contractor, AtkinsRéalis will verify the loads with this assessment to determine its suitability. **Parapet Replacement** The proposed design of the parapet replacement scheme for the bridge parapets and terminals (i.e., sections of terminal replaced with code compliant transitions) provides road restraint for users of the A477, while installing a solution that complies with the Design Manual for Roads and Bridges (DMRB) standards. This will be achieved by upgrading the existing defective HBP parapets on both sides of Westfield Pill Bridge, to a SafeRoad SN2 W2 parapet (or similar approved). The southern parapet will be 1.4m in height to comply with active travel requirements, while the northern parapet will be a standard height of 1.0m. It is also proposed that a new 14m SafeRoad Megaflex Transition (or similar approved BS EN 1317 compliant transition) is installed to provide the transition between the proposed bridge parapet and the remaining length of existing P1 terminal. The existing parapet post spacings of approximately 2.7m do not match the proposed parapet post spacings of 3.7m. Therefore, the parapet will be fixed into the parapet beam via new drill holes using SSR-120-VDI-CM25 resin anchors, which are to be designed and installed by the Contractor. The parapet manufacturer will provide any relevant loadings to the Contractor to inform the anchor design. They comprise of an SSR-VDI internally threaded chemical anchor socket, with an SSR-170 stainless steel holding down bolt. More information regarding the SSR-120 anchor system is provided in Appendix B. Due to the relatively narrow width of the parapet edge beam measuring 305mm, an approved and certified modified parapet post base plate will be required to enable fixing of the parapet to the edge beam. A general arrangement drawing of the modified base plate is provided in Appendix C. It should be noted that the modified base plate will be of the same design for both the 1.4m and 1.0m high parapets. There is a risk of damaging the existing reinforcement at the proposed post locations due to the drilling operations. In order to mitigate this risk as far as reasonably practicable, AtkinsRéalis propose that the Contractor will Ferroscan (or equivalent) the parapet edge beam at the post locations prior to drilling to ensure	

Scheme Name	Westfield Pill Bridge Repairs	
Scheme Ref	Pembrokeshire County Council	
Location of Works	**Description of Works**	**Proposed Category**

that the drilling operation can be completed without striking reinforcement. However, we do not envisage any clashes between the proposed anchors and existing steel reinforcement based on the information provided by available drawings and testing undertaken on site to date.

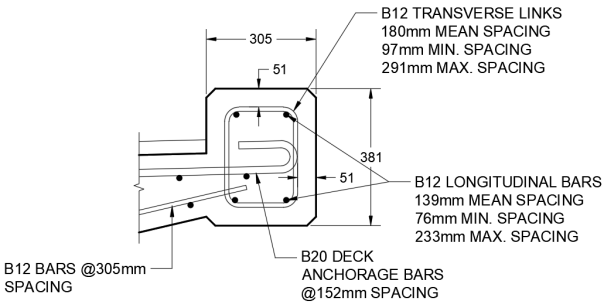


Figure 1 – Reinforcement arrangement in parapet edge beam.

Parapet Transition Construction

The transitions will be founded on concrete strip and pad footings, which are to be designed by the Contractor. A General Arrangement Drawing of the proposed parapet transition (SafeRoad Megaflex, or similar approved) is attached in Appendix D.

The new parapet and associated transition will be constructed within the tolerances set out in CS 461 Clause 6.6. whereby the new parapet will maintain the following:

- The traffic face of the approach safety barrier will be less than 30mm in front of the traffic face of the parapet;
- The traffic face of the departure safety barrier will be less than 30mm in front of the traffic face of the parapet;
- The longitudinal gap between parapet and safety barrier will be less than 300mm.

The proposed category for the works described above is Category 0. The CG300 process is applicable to these works as they are being carried out to a bridge structure (compliant with CG300 Cl. 3.3). In addition, the new parapet conforms in all aspects of design, assessment (as outlined above) and execution to the DMRB and MCHW standards (compliant with CG300 Cl. 3.5).

Revision	Date	Status	Author	Checked	Approved
P01	S4	S4	LJ Leighton Jones I am the author of this document AtkinsRéalis 2024.09.11 16:11:56 +01'00'	AT Digitally signed by Alex Thomas Reason: I have reviewed this document Location: AtkinsRéalis Date: 2024.09.11 16:18:08+01'00'	AT Digitally signed by Alex Thomas Reason: I am approving this document Location: AtkinsRéalis Date: 2024.09.11 16:18:29+01'00'

TECHNICAL NOTE

Scheme Name			Westfield Pill Bridge Repairs	
Scheme Ref			Pembrokeshire County Council	
Location of Works			Description of Works	Proposed Category

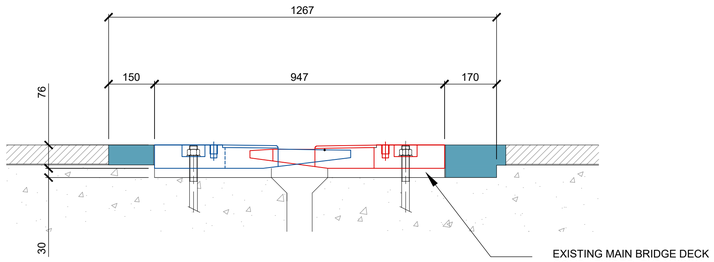
Agreement of the Technical Approval Authority/Overseeing Organisation to the proposed category

Appendix A. Proposed Expansion Joint Details Drawing

Low

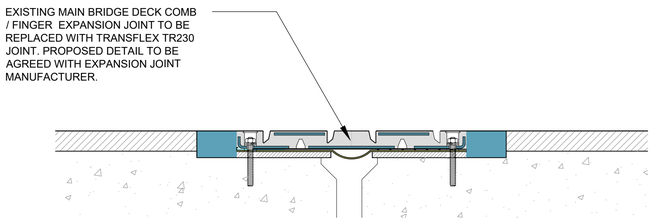
Millimetres 100 10 0

DO NOT SCALE



SECTION THROUGH EXISTING MAIN EXPANSION JOINT (EJ2)

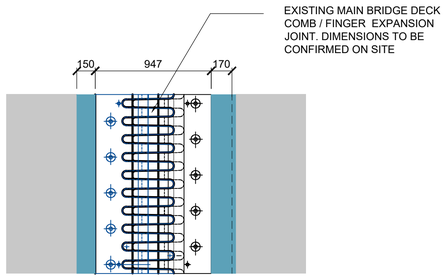
SCALE 1:2



SECTION THROUGH PROPOSED MAIN EXPANSION JOINT (EJ2)

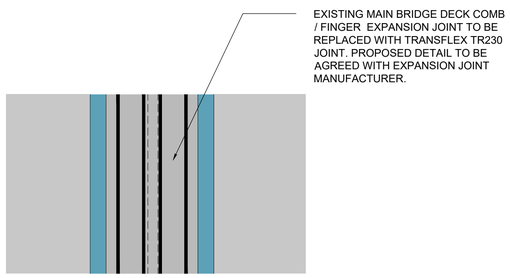
SCALE 1:2

EXPANSION JOINT REPLACEMENT			
EXPANSION JOINT REFERENCE	CURRENT EXPANSION JOINT	COPY EXPANSION JOINT	KEY
EJ1	FEBA-TYPE APJ	FEBA-TYPE APJ	
EJ2	COMB JOINT	TRANSFLEX TR230	
EJ3	FEBA-TYPE APJ	FEBA-TYPE APJ	
EJ4	FEBA-TYPE APJ	FEBA-TYPE APJ	



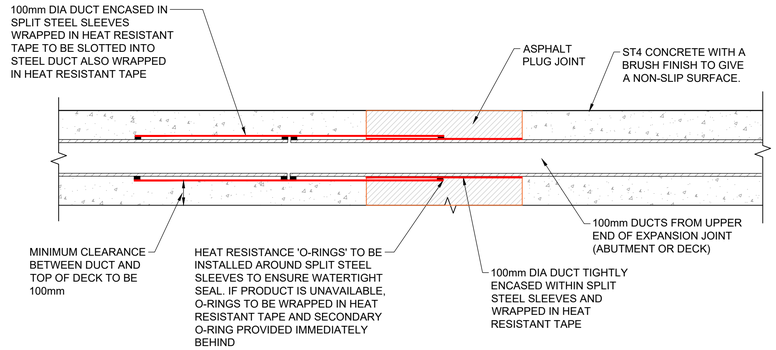
PLAN ON EXISTING MAIN EXPANSION JOINT (EJ2)

SCALE 1:2



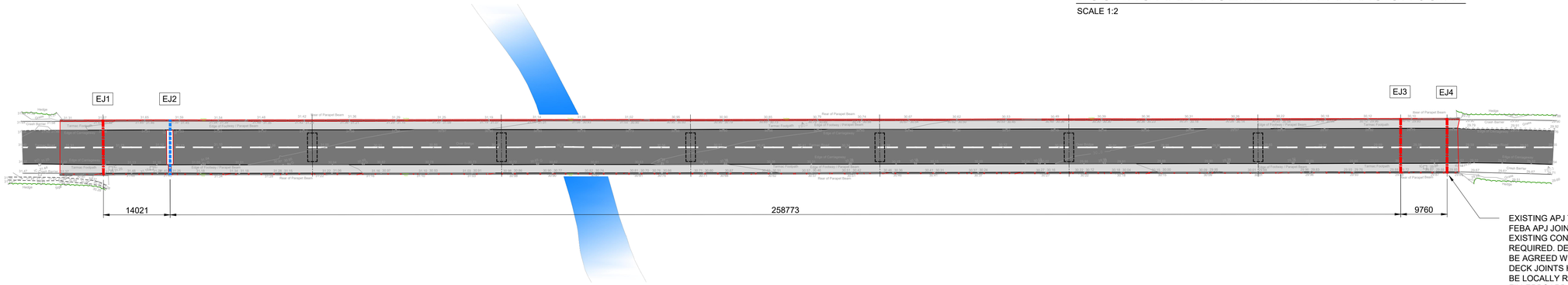
PLAN ON PROPOSED MAIN EXPANSION JOINT (EJ2)

SCALE 1:2



DUCTING ARRANGEMENT AT EXPANSION JOINT

SCALE 1:2



PLAN

SCALE 1:500

GENERAL NOTES:

1. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
2. ONLY WRITTEN DIMENSIONS SHALL BE USED, DO NOT SCALE.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).

Construction
PROXIMITY TO LIVE UTILITIES INCLUDING 11kv CABLE AND PROXIMITY TO LIVE TRAFFIC. PROXIMITY TO WATERCOURSE BELOW.

Maintenance / Cleaning
PROXIMITY TO LIVE UTILITIES INCLUDING 11KV CABLE AND PROXIMITY TO LIVE TRAFFIC. PROXIMITY WATERCOURSE BELOW.

Use
NONE.

Decommissioning / Demolition
PROXIMITY TO LIVE UTILITIES INCLUDING 11KV CABLE AND PROXIMITY TO LIVE TRAFFIC. PROXIMITY WATERCOURSE BELOW.

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
FOR INFORMATION	S0	P01.1	---	---	---	---	---

Drawing Suitability: WORK IN PROGRESS
Status: S0

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Client: PEMBROKESHIRE COUNTY COUNCIL

Project Title: Westfield Pill Bridge Repairs

Drawing Title: WESTFIELD PILL BRIDGE REPAIRS PROPOSED EXPANSION JOINT DETAILS

Drawing Number: Project PE17_001 - Originator ATK - Volume SBR - Location SWMWRCES - Type DR - Role CB - Number 000011

Original Size: A1 | Scale: AS SHOWN | Project Ref. No: 5227258 | Sheet: 1 of 1 | Rev: P01.1

Appendix B. SSR-120 Technical Data Sheet

SSR-120 Vehicle Restraint Anchor

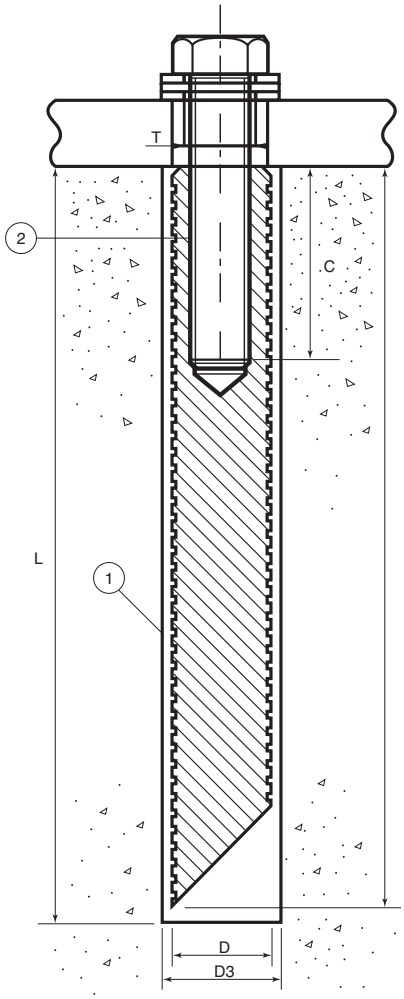
The **SSR 120** is a drilled in, bonded anchor system which uses the proven **SSR-VDI** internally threaded chemical anchor socket manufactured from high strength corrosion resistant stainless steel materials. The system can be installed using either **SSR-CM25** site mixed free flow resin grout or **SSR-VDP** glass capsule chemical anchors depending on the nature of the application and the level of performance required.

SSR-CM25 grout is suitable for installation into a vertical drill hole where a number of anchors can be installed at the same time using traditional site techniques. The alternative system where the pourable grout is replaced by **SSR-VDP** glass capsules can provide performance and installation advantages if needed. For example;

- Higher performance in drill holes of the same dimensions.
- Fixing into vertical surfaces where a poured grout is not practical.

The **SSR-120** anchor enables replacement of existing road restraint systems on concrete structures which no longer meet safety standards, to be carried out efficiently. Work to remove and replace damaged sections of parapet or safety fence can also be completed with much reduced lane closure times and expensive traffic flow delays.

The **SSR-120** anchor is designed and manufactured to conform to the latest British and European standards and codes. The system meets the stringent requirements stipulated in the following documents.



U.K. Highways Agency Publications

- 'Manual of Contract Documents for Highway Works'; Volumes 1 and 2; Series 400 – Road Restraint Systems.
- The 'Design Manual for Roads and Bridges: Volume 2: Highways Structures Design' includes the following specifications and guidelines.
  1. Section 2 – Special Structures: Part 8: TD 19/06 Requirement for Road Restraint Systems.
  2. Interim Advice Note IAN 104/07: The anchorage of reinforcement and fixings in hardened concrete.
  3. IAN 97/07: Assessment and upgrading of existing vehicle parapets.
- BS 5080-1: Structural fixings in concrete and masonry, Method of testing for tensile loading.
- National Highways Sector Schemes for Quality Management in Highway Works – Scheme 5B for the Installation of Parapets for Road restraint Systems.

European Standards and Approvals

- ETAG 001: Guideline for the European technical Approval of Metal Anchors for Use in Concrete – Part 1: Anchors in General and Part %: Bonded Anchors.
- BS EN 1317: Parts 1, 2, 4, and 5 – Road restraint systems.

ISO 9002 REGISTERED FIRM

BBA BRITISH BOARD OF AGREMENT CERTIFICATE NO. 00/H037

SSR-120 VEHICLE RESTRAINT ANCHOR

Stainless Steel Civil Engineering Solutions

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SSR-120 VEHICLE RESTRAINT ANCHOR

Anchorage Properties

The performance data is based on a series of in depth test programmes including procedures carried out by a leading NAMAS approved testing authority. The stated loads are designed to limit state principles detailed in ETAG 001 and included as a design concept in TD 19/06. It is recommended that the design resistance must be at least 1.8 times greater than the design action or nominal load transmitted at the collapse of a metal VRS post. This loading should be provided by the manufacturer or promoter of the system. It is the responsibility of the design organisation to ensure that the structure is capable of meeting all loads that the VRS may transmit without damage. Failure may occur in the attachment unit, e.g. holding down bolt but not to the anchorage component within the structure. The **SSR-120** anchor fulfils these criteria when correct design principles are used.

The anchor centres and centre to edge data quoted are the minimum dimensions required to achieve the full load resistance stated in the table. Where these dimensions are less than those in the table please contact our technical advice section for assistance.

Table 1 Performance Data

Type	Drill Hole Dimensions			Design Resistance (kN)				
	Diameter mm (D3)	Depth mm (L))	Characteristic resistance Rxx (kN)	Uncracked reinforced concrete Rd (1)	Cracked concrete Rd (2)	Minimum thread engagement (mm) (5)	Anchor centres (mm)	Centre to edge (mm)
CM25	35	225	250.5	167	119	21	380	190
VDP	35	225	289.6	185	132	21	380	190

(1) In un-cracked reinforced concrete having a characteristic strength of fCk = 30 N/mm"
(2) For cracked concrete a reduction factor of 1.4 has been applied.
(3) Proving tests were carried out in diamond cored drill holes which were thoroughly cleaned but received no additional roughening of the sides of the hole, The anchors were installed whilst the holes were still damp to assimilate actual site conditions. Anchors can be fitted into percussion drilled holes without loss of performance as long as the drill hole dimensions given in table 1 are strictly adhered to.
(4) Tolerance +5mm/-Omm.
(5) For class A4-80 holding down bolt.

Table 2 Specification

Item No.	Code No.	Description	Material Specification
1	?	SSR-120 VDI Socket only	30mm diameter SSR 550 grades 1.4401, 1.4436 or 1.4362 (duplex) stainless steel to BS EN 10088-1: 2005
2	?	SSR 120 VDI Socket assembled with bolts sets (table 3)	Ditto
3	?	SSR-CM25 pourable resin grout - 2.5 litre tubs	Free flow polyester resin grout
4	?	SSR-VDP 24 x 210 glass capsule chemical anchor	Polyester resin with graded quartz aggregate

SSR-550 stainless steel bar is a high strength material with excellent resistance to corrosion which was developed by us for critical anchoring applications.

SSR-550 Mechanical Properties: Minimum 0.2% proof stress = 550 N/mm2
Minimum ultimate tensile strength = 650 N/mm2

SSR-170 Holding Down Bolts

The holding down bolts for vehicle restraint system installations on concrete structures on trunk roads must be A4-80 classification to conform to series 400 of the Manual of Contract Documents for Highway Works. Fixing Centre supply prepacked bolt sets including all the required components to meet the specification (see table 3). **SSR-120** anchors can be supplied as a complete assembly, including the bolt sets or unassembled with the socket and **SSR-CM25** grout only.

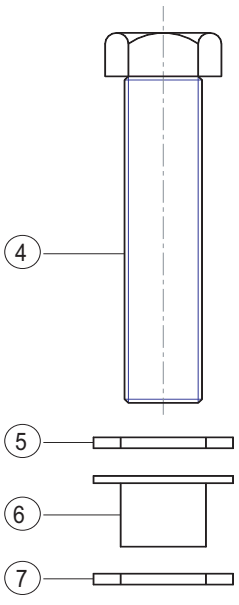

Table 3 - SSR-170 Bolt Sets

Item No.	Code No.	Description	Material Specification
4	Various	M20 x suitable length hexagon head set bolts	Stainless Steel Class A4-80 to BS EN ISO 3506-1:1998
5	8151-1668	M20 x 37mm x 3mm Washer to BS6320.	A4 Stainless Steel Form A to BS 4320: 1968
6	740-2260	M20 Nylon Top Hat Isolation washer	Nylon 66
7	497-1020	Galvanised Washer, M22 x 50mm x 4mm	Washers to BS 4320 Galvanised to BS EN ISO 1461

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SSR-120 Installation Procedures

Series 400 requires that installers of parapets must be able to provide a certificate of compliance with Sector Scheme 5B. This confirms that operatives have been properly trained to install the anchorage and ensures that the high performance required in critical safety applications is not negated by shoddy and unsupervised site practice. Fixing Centre can advise on training requirements or recommend approved and experienced installers. The **SSR-120** system must be installed strictly in accordance with the printed instruction supplied with each consignment. Drill holes should always be clean and free of drill spoil. **SSR-120** anchors can be fitted in damp holes as long as surplus water has been removed.

Testing of Anchors

It is the contractors' responsibility to ensure that site installed drilled in anchors are tested to verify that correct installation has been achieved. The tests must be carried out to BS 5080-1 standard by a competent organisation. The test load required is set at 10% above the serviceability limit state loading supplied by the system promoter and the frequency of testing should be agreed with the project engineer following the guidance in series 400. Fixing Centre approved installers are trained to carry out these tests and have the necessary fully calibrated equipment.

Where to use the SSR-120-VDI-CM25 Anchor

- Fitting of replacement vehicle restraint systems to existing structures
- Upgrading of existing anchorage systems which no longer meet specification
- Fitting of vehicle restraint systems to new concrete structures where post drilling is preferred
- Applications where it is not possible to fit more than four anchors in a restricted time period

The **SSR-120** is suitable for all types of metal vehicle restraint system where the assessed value of the design resistance (see table 1) is adequate for the application.

The high performance of the **SSR-120** anchor allows it to be used for many other applications where a reliable and durable system is essential. Examples of other uses of the anchor include, lighting columns, permanent signage and CCTV masts. Please contact our technical department to discuss any application.

SSR-100 Series Special Anchors and Technical Design Support

On occasion the design of an existing concrete plinth on which a replacement parapet fence has to be fixed is not suitable for installing the **SSR-120** anchorage. At Fixing Centre we have considerable experience in the design and manufacture of special anchors which comply with the Highways Agency specification.

SSR-100 Series Other Applications

- **Safety Fences**

  SSR-125 and **SSR-130A** Chemical Anchor Sockets

  SSR-170 Cast-in Cradle Anchors

  SSR-CA55 Chemical Anchor Studs

- **Pedestrian Parapets and Handrailing**

  SSR-VDI Chemical Anchor Sockets

  SSR-170 Cast-in Cradle Anchors, M16 thread size

  SSR-CA55 Chemical Anchor Studs

- **Lighting Columns, Sign Gantries, Environmental Barriers**

  SSR-170 Cast-in Cradle Anchors with independent Consultants Design Certificates

  SSR-VDI Chemical Anchor Sockets, M20 - M42 internal thread

  SSR-CA55 Chemical Anchor Studs, M12 - M56 thread

  SSR-800 - Class A4-80 Stainless Steel Stud Anchors, M12 - M56 thread.

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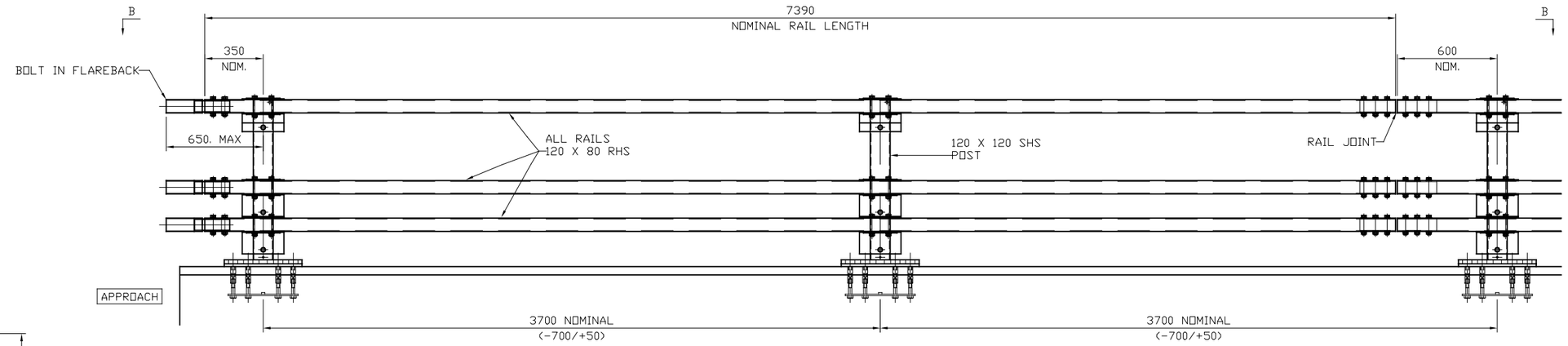
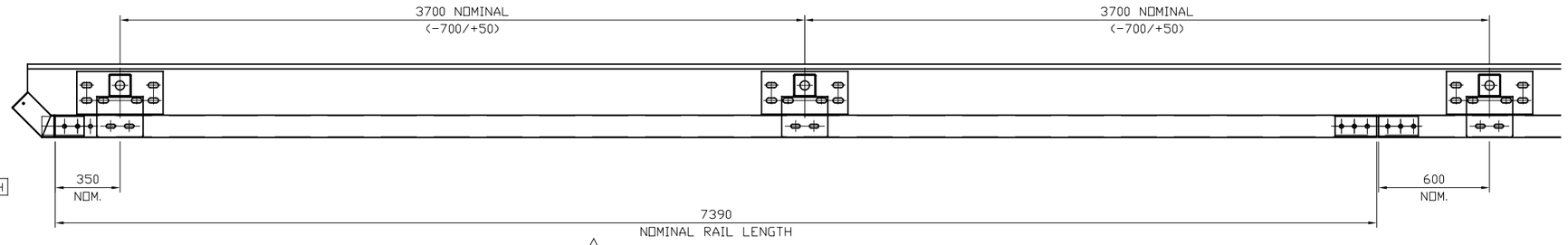
SSR-120 VEHICLE RESTRAINT ANCHOR

Appendix C. SafeRoad SN2 W2 Vehicle Parapet Drawing



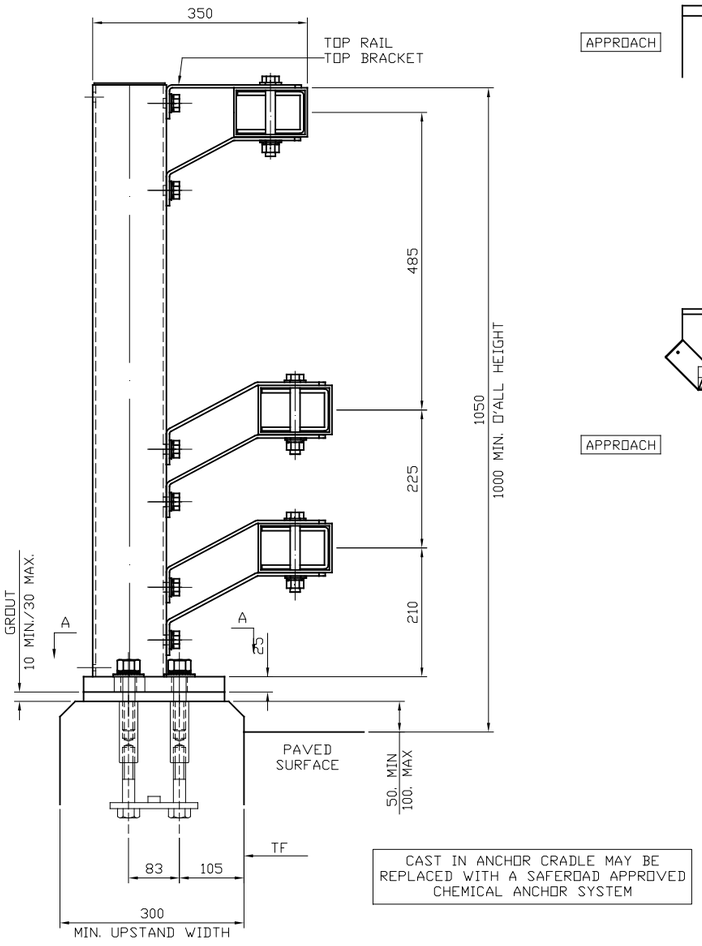
ENDS SHOWN WITH BOLT IN FLAREBACKS. CONNECTION INTO SAFETY ALSO AVAILABLE UPON DESIGN CONFIRMATION

ELEVATION ON TRAFFIC FACE OF PARAPET
SCALE: 1:30



* DIMENSIONS MAY BE ADJUSTED TO SUIT SITE CONDITIONS & BY AGREEMENT WITH SAFEROAD

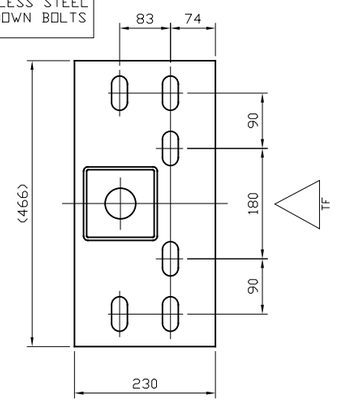
SECTION B-B
(PLAN VIEW ON PARAPET)
SCALE: 1:30



CAST IN ANCHOR CRADLE MAY BE REPLACED WITH A SAFEROAD APPROVED CHEMICAL ANCHOR SYSTEM

SECTION THROUGH ON PARAPET
SCALE: 1:10

M20 STAINLESS STEEL HOLDING DOWN BOLTS



SECTION A-A
(BASEPLATE DETAIL)
SCALE: 1:10

PERFORMANCE VALUES:

- PLASTIC MOMENT OF RESISTANCE:- 21.1kNm
- CO-EXISTANT SHEAR FORCE CAPACITY:- 38.6kN
- ULTIMATE SHEAR CAPACITY:- 218.2 kN

GENERAL NOTES/SPECIFICATIONS:

1. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. ALL STEEL SECTIONS TO BE IN ACCORDANCE WITH BS.EN. 10025-2, BS EN 10219-1 & BS EN 10219-2.
3. ALL MATERIAL TO BE GALVANISED TO BS EN ISO 1461:2022.
4. HOLDING DOWN SETSCREWS TO BE TO BS 3692 & BE ST. STEEL TO BS EN ISO 3506-1 GRADE A4 CLASS 80. ALL OTHER BOLTS/SETSCREWS TO BE GALVANISED STEEL TO CONFORM TO BS 3692 & BS EN ISO 4014 GRADE 8.8.
5. ALL NUTS TO BE GALVANISED STEEL TO CONFORM TO BS 3692 & BS EN ISO 4032 GRADE 8.
6. GALVANISED PLAIN WASHERS TO CONFORM TO BS 4320.
7. SPRING WASHERS TO CONFORM TO BS 4464.
8. STAINLESS STEEL WASHERS TO BE GRADE A4.
9. PARAPET PERFORMANCE IS TO BS EN 1317-1 & BS EN 1317-2.
   - 9.1. IMPACT TEST CRITERIA:- TB11/TB32.
   - 9.2. CONTAINMENT LEVEL:- N2
   - 9.3. NORMALISED WORKING WIDTH:- W2 (0.7m)
   - 9.4. IMPACT SEVERITY LEVEL:- B
   - 9.5. NORMALISED DYNAMIC DEFLECTION VALUE:- 0.4m
10. POSTS TO BE VERTICAL TO WITHIN ±15mm OVER 1000mm
11. RAILS TO BE SET IN A FLOWING LINE MINIMUM HEIGHT OF 1000mm ABOVE AJOINING ROAD/PAVED SURFACE.
12. FOR MATERIAL WEIGHTS, REFER TO COMPONENT DRAWINGS.

REVN.	DATE	REMARKS	SIG.

TITLE:-

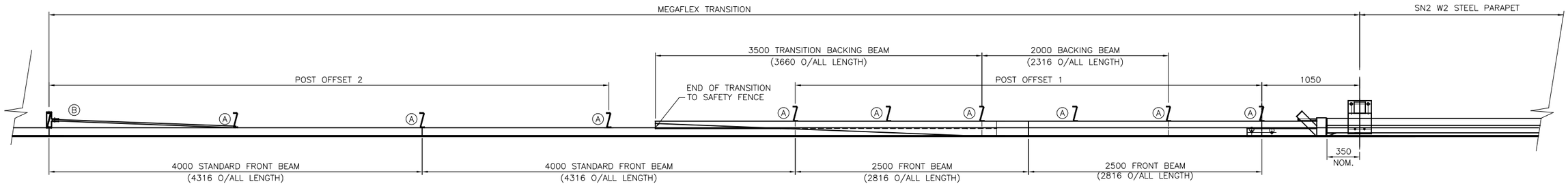
GENERAL ARRANGEMENT
SAFEROAD SN2 W2
VEHICLE PARAPET
1.00M NOM. HEIGHT - 3 RAIL
110km/h TRAFFIC SPEED
ALTERNATIVE BASEPLATE

SAFEROAD®
VRS LTD
Concord House
Bessemer Way
Scunthorpe
North Lincolnshire, DN15 8XE
Tel: 01724 289119 Fax: 01724 281478

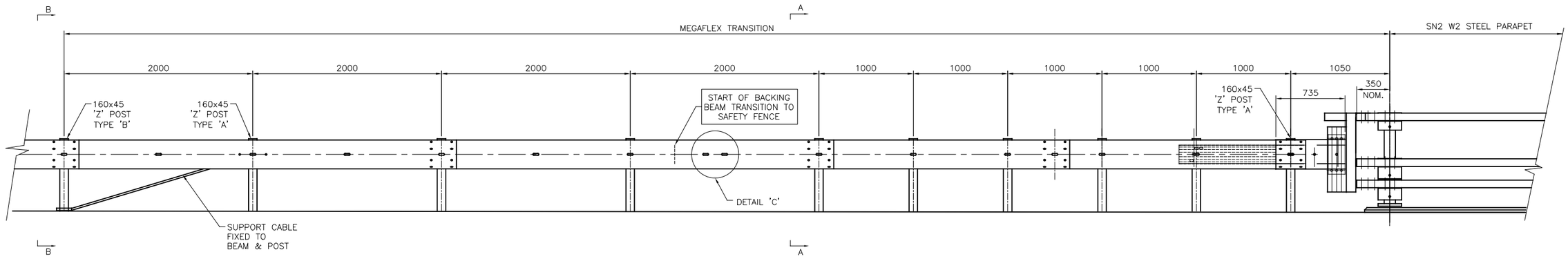
DRAWN:-	CHECKED:-	DRAWING SIZE:-
H.BRYDON	R.B	A3
DATE:-	SCALE:-	APPROVED:-
17/03/23	AS SHOWN	
DRG NO:- SN2W2-GA-001A		REV:- 00

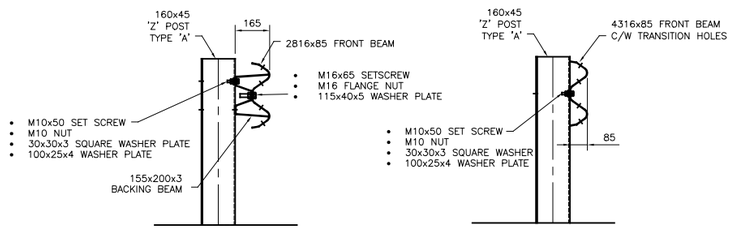
Appendix D. SafeRoad Megaflex Drawing

WELDING SYMBOLS	MACHINING NOTES	FABRICATION NOTES	WELDING SPECIFICATION		
FILLET, BEVEL BUTT, SQUARE BUTT, SEAL, DOUBLE VEE BUTT, SINGLE VEE BUTT SEAL ON REVERSE; SHOP WELD, SITE WELD, WELD ALL ROUND IN SHOP, WELD ALL ROUND ON SITE, WELD FAR SIDE, WELD NEAR SIDE, WELD 2" MISS 4" 2" (+)	MACHINE WHERE MARKED BY REMOVE SHARP EDGES TOLERANCES UNLESS STATED OTHERWISE DIMENSIONAL ± 0.015"(0.4mm)	TOLERANCES UNLESS STATED OTHERWISE ± 0.062"(1.5mm)		IF IN DOUBT,ASK.	DRAWING NOT TO BE SCALED.



PLAN VIEW OF TRANSITION





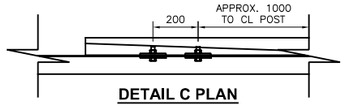
SECTION A - A

SECTION B - B

NOTE:

POSTS MAY BE GROUND DRIVEN, IN POCKETS OR IN CONTINUOUS STRIP FOUNDATION DEPENDING ON GROUND CONDITIONS

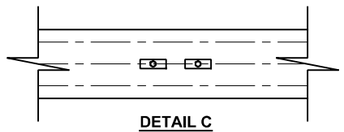
ELEVATION ON TRAFFIC FACE OF TRANSITION



DETAIL C PLAN

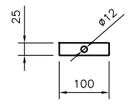
DETAIL 'C' FIXING SCHEDULE:

- M16x65 SET SCREW
- M16 NUT
- 115x40x8 PLATE WASHER (REAR FACE)
- 115x40x5 WASHER PLATE (TRAFFIC FACE)

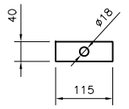


DETAIL C ELEVATION

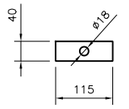
POST FACE OFFSETS FROM FACE OF BEAM	
OFFSET TYPE	OFFSET (mm)
1	165
2	85



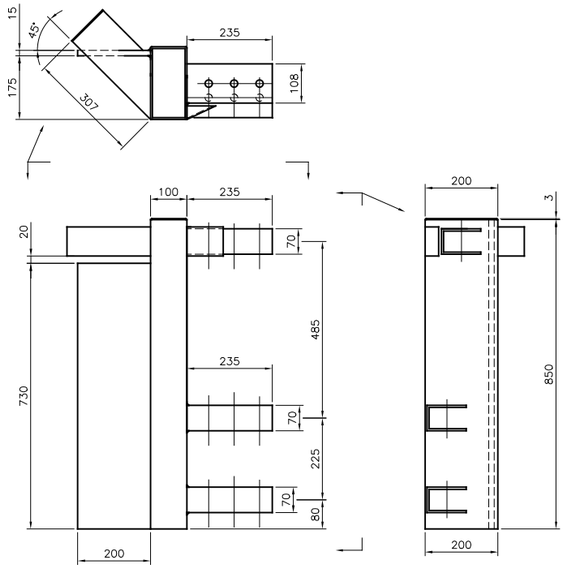
100x25x4 WASHER PLATE DETAIL



115x40x8 WASHER DETAIL



115x40x5 WASHER DETAIL



SAFETY FENCE CONNECTOR TYPCIAL DETAIL

GENERAL NOTES:

1. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. FOR GENERAL ARRANGEMENT & DETAILS OF SN2 W2 1.00m HIGH STEEL PARAPET SEE DRG. No SN2W2/GA–001.
3. THE OVERALL LENGTH OF MEGAFLEX POSTS & SLOPE OF BEAM TO SUIT SITE GROUND GRADIENT.
4. MEGAFLEX POSTS TO BE DRIVEN OR SET IN SOCKETS, CAST INTO INDIVIDUAL FOUNDATIONS OR STRIP FOUNDATION.
5. STEEL COMPONENTS TO BS 10025, AND GALVANISED TO BS EN 1461:2022. FOR COMPONENT GRADES, SEE INDIVIDUAL COMPONENT DRAWINGS
6. ALL FASTENERS TO LAP JOINTS TO BE TO M16x35 LG STEEL GRADE 8.8 GALVANISED SCREW UNLESS NOTED OTHERWISE.
7. CONNECTIONS TO ANY APPROACH OR DEPARTURE END OF THIS TRANSITION MUST ONLY BE MADE WITH THE EXPRESS PERMISSION OF SAFEROAD UK.

REVN.	DATE	REMARKS	SIG.
01	30/05/23	GENERAL DRAWING UPDATE	H.B

SAFEROAD®
VRS LTD
Concord House
Bessemer Way
Scunthorpe
North Lincolnshire, DN15 8XE
Tel: 01724 289119 Fax: 01724 281478

TITLE:–
LAYOUT & GENERAL DETAILS
SN2 W2 STEEL PARAPET TO MEGAFLEX TRANSITION
APPROACH/LEFT HAND

ORDER No:–	MATL:–	DRAWN:– M.TEAL	CHECKED:– R.B
ISSUE DATE:–	PROJECTION:–	DATE:– 21/05/19	SCALE:– N.T.S
CHECKED QA:–	APPROVED:–	DRG NO:– UK 22314	REV:– 01