Test Report - Commercial in Confidence
Y0062 Bailey Inspira Protect 1500x1000

Test Laboratory	**HORIBA MIRA Ltd**
Date of Report	**06/10/2022**
Client	**Centre for the Protection of National Infrastructure (CPNI)**
Test Item	**Steel Planter Inspira Protect 1500x1000**
Date of Test	**14/11/2021**
Test Number	**Y0062**
Report Number	**1225361-004-016-02**
Test Type	**Vehicle Impact**
Product Rating	**IWA 14-1:2013 Planter V/2500[N1G]/48/90:0.0**
Number of Pages	**35**

Prepared By:

Dave Johnstone

Consultant - HSPI Test Centre

Approved By:

Rachael Kennedy

Head of HSPI Test Centre

Date:06/10/2022

UKAS TESTING 1105

HORIBA MIRA Ltd. Registered Office: Watling Street · Nuneaton · Warwickshire · CV10 0TU · England · http://www.horiba-mira.com
Tel: +44 (0)24 7635 5000 · Fax: +44 (0)24 7635 8000 Registered in England No 9626352 · VAT Registration GB 100 1464 84

Tests marked "Not UKAS Accredited" in this report are not included in the UKAS Accreditation Schedule for this laboratory. Opinions and interpretations expressed herein are outside the scope of UKAS Accreditation

Contents

1 Introduction

1.1 Test laboratory

Name	HORIBA MIRA Limited
Address	Watling Street, Nuneaton, Warwickshire, CV10 0TU. United Kingdom
Telephone number	+44 (0)24 7635 5000
Facsimile number	+44 (0)24 7635 8000
Internet address	http://www.horiba-mira.com
Test site location	At above address.
Accrediting body	United Kingdom Accreditation Service 21-47 High Street, Feltham, Middlesex. TW13 4UN
Accreditation details	HORIBA MIRA is designated as UKAS testing laboratory 1105, with approval dated 31 July 1992, subsequently renewed periodically, for details of the latest approval, and schedule of accreditation see: http://www.ukas.org/testing/lab_detail.asp?lab_id=826

1.2 Product Manufacturer

Name	Bailey Street Furniture
Address	London Rd, Adlington, Macclesfield SK10 4NL
Internet address / email	https://www.baileystreetscene.co.uk/ / Barrie.woodcock@bsfg.co.uk
Type	Planter
Model No	Inspira Protect 1500x1000

1.3 Client

Name	Centre for the Protection of National Infrastructure (CPNI)
Address	PPSD - HVM
Internet address / email	n/a
Additional information	Purchase order: 7092991
	Client Engineer: n/a

1.4 Test Area

The test was carried out on the Highway Safety & Protection of Infrastructure (HSPI) Test Area adjacent to the HORIBA MIRA Ltd Vehicle Proving Ground.
The test area was generally flat with a gradient not exceeding 2.5 %. It had a level hardened paved surface and was kept as clear of dust, debris, standing water, ice, and snow at the time of the test, as was practicably possible.
Vehicle propulsion was by use of a computer controlled electric drum winch with guidance to the impact point by means of a tensioned wire system attached to the front wheel of the test vehicle. Both towing and guidance systems were detached approximately 3m prior to contact with the test article.

1.5 Test Procedure

Item	Requirement
Test Specification	IWA 14-1:2013
Target Speed (km/h)	48.0 +3.0 /-1.0
Target Impact Angle (deg)	90.0 ±2.0
Target test vehicle mass (kg)	2500 ±75
Product Classification	Ap-Foundation/Passive/Planter
Target Impact Energy (kJ)	222.2

2 Test Set-up

2.1 Product Description

The tested item was a Inspira Protect 1500x1000 Planter manufactured by Bailey Street Furniture and installed by Trueline Midlands Ltd.

The planter consisted of 4mm wall steel box measuring 1500x1000x600mm with steel gussets on each internal corner and on the centreline. The sections of the planter were bolted together with M10 and M12 bolts. The top face was folded into a "U" section forming a channel around the sides. There were box section supports inside on the corner joints. Once fixed, the planter was filled with dry topsoil to the required level. The tested item conformed to supplied drawings included in Appendix 1.

2.2 Foundation/Installation Description

The foundation comprised of a 1700x1200x150mm excavation in the bottom of which a layer of compacted aggregate was laid to ensure a level base. Within this was placed 2 layers of A393 reinforcing bar mesh. A concrete mix of RC32/40 was poured to ground level. Once cured the planter was mounted using 30 off M16 x 150mm ground expansion bolts.

2.3 Concrete Crush Test Results

Item	Information / Measurement
Date Foundation Cast	11/11/2021 (33 days before test date)
Concrete compressive crush test results for 150mm sample (MPa). Compressive testing carried out at CTS at Doncaster UKAS Accredited Lab No. 4161 to EN12390-3: 2019 and EN12390-7: 2019.	
7 day	36.7
14 day	42.6
28 day	55.7
Test day – (28-day result)	55.7

2.4 Test Vehicle Description

Item	Information / Measurement
Vehicle Make and Model	Toyota Hilux
Registration Mark and VIN	LL62VSG / AHTFR22G106061119
Engine	Diesel
Gearbox	Manual
Body Type	Crew Cab Pick-up
Delivery Mass (kg)	1990
Test Mass (kg)	2521
Ballast (kg), Steel blocks, chains, and ratchets	481
Test Equipment (kg), GPS, DAS, Towing & guidance	54
Components removed (kg)	0

Test Vehicle condition	Test vehicle acquired with valid current MOT certificate. The roadworthiness of the following items was checked prior to test: Tyres and wheels, Suspension, Wheel Alignment, Bodywork, Brakes and Chassis. The engine was running for the test.

3 Test Results

3.1 General

Item	Information / Measurement
Test Number	Y0062
Test Date	14/12/2021
Impact Angle (deg)	90.5
Angle measurement method	V-Box GPS
Impact alignment (mm)	25.4 Right
Impacted height (mm)	500
Impact velocity (km/h)	47.3
Velocity measurement method	V-Box GPS
Impact energy (kJ)	217.2
Vehicle penetration - dynamic (m)	0.0
Vehicle penetration - static (m)	0.0
Clear gap >1200mm at 600mm above ground?	No
Debris ejected?	0.0
Vehicle immobilised?	No
Vehicle restrained or deflected?	Restrained

3.2 Test Sequence Description

The target impact point was the centre of vehicle aligned to the centreline of the product. The bumper cover of the vehicle impacted the front face of the planter causing the steel front panel to fold inwards. The bumper cover wrapped around the top edge of the planter, and soil was ejected from the planter. As the impact continued the front wheels contacted the sides of the planter causing the wheels to be pushed rearwards with both tyres deflating. As the vehicle decelerated it rose slightly from the ground then rebounded before coming back to into contact with the ground and coming to rest. The front bumper bar remained in contact with the damaged front edge of the planter. The vehicle remained running post-test.

3.3 Ambient Conditions*

Item	Measure
Rainfall (mm)[+]	0.0
Temperature (°C)	10.4

[+] From midnight to time of test
*Weather records are not UKAS accredited

3.4 System Damage Description

The front face of the product was bent forward with the corner flanges disconnected. There were signs of tearing in the internal upright corner braces on both sides. The foundation showed a static rotation of 2° in the direction of impact. The front ground fixings had been pulled from the concrete base and some lifting was noted on the side fixings. The rear of the planter had remained intact retaining most of the soil infill.

3.5 Vehicle Damage Description

Vehicle front trim components were damaged and both front tyres had deflated with damage to the rims from contact with the product. Both top and bottom suspension wishbones were bent rearwards. Damage was noted to the anti-roll bar and steering ball joints, bumper bar, and front towing eye. The vehicle was running post-test but was jammed in reverse gear. The vehicle was able to reverse away from the product with difficulty, but no further manoeuvring was possible and thus was deemed disabled.

3.5.1 Assessment of Vehicle

Item	
Vehicle engine stopped running during test	No
Vehicle engine stopped during test but able to re-start	n/a
Vehicle able to move forwards/backwards post-test	No
Vehicle able to disengage from test item	Yes
Vehicle able to manoeuvre	No

3.6 Assessment of Occupant Injury*

Occupant Injury Assessment was not required for this test.

4 Assessment of Performance Requirement

Item	
Vehicle prevented from advancing beyond VSB Datum	Yes
Vehicle redirected and kept on the non-protected side of the VSB	No
Vehicle brought to a halt beyond VSB Datum	No
Vehicle damaged, unable to progress under own power	Yes*
Vehicle entangled with test item and unable to progress	No
Vehicle trapped/lifted and unable to progress	No

* See Section 3.5, Vehicle Damage Description

5 Conclusions

The Bailey Street Furniture Inspira Protect 1500x1000 was assessed according to IWA 14-1:2013 and achieved the following classifications:

Product Classification	Ap-Foundation/Passive/Planter
Performance Rating	IWA 14-1:2013 Planter V/2500[N1G]/48/90:0.0

6 General Comments and Disclaimers

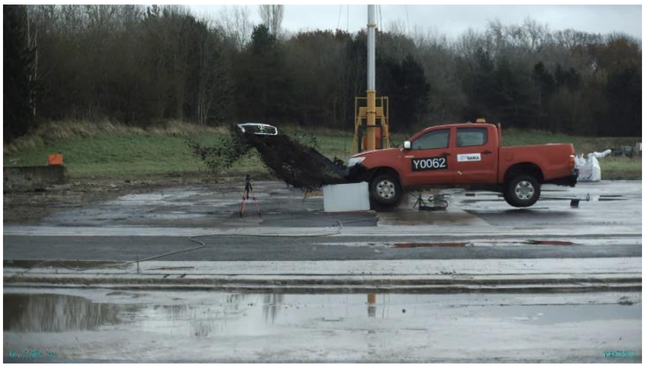
The installation of the product was the responsibility of the product manufacturer or their representative.

The test results in this report relate only to the product tested.

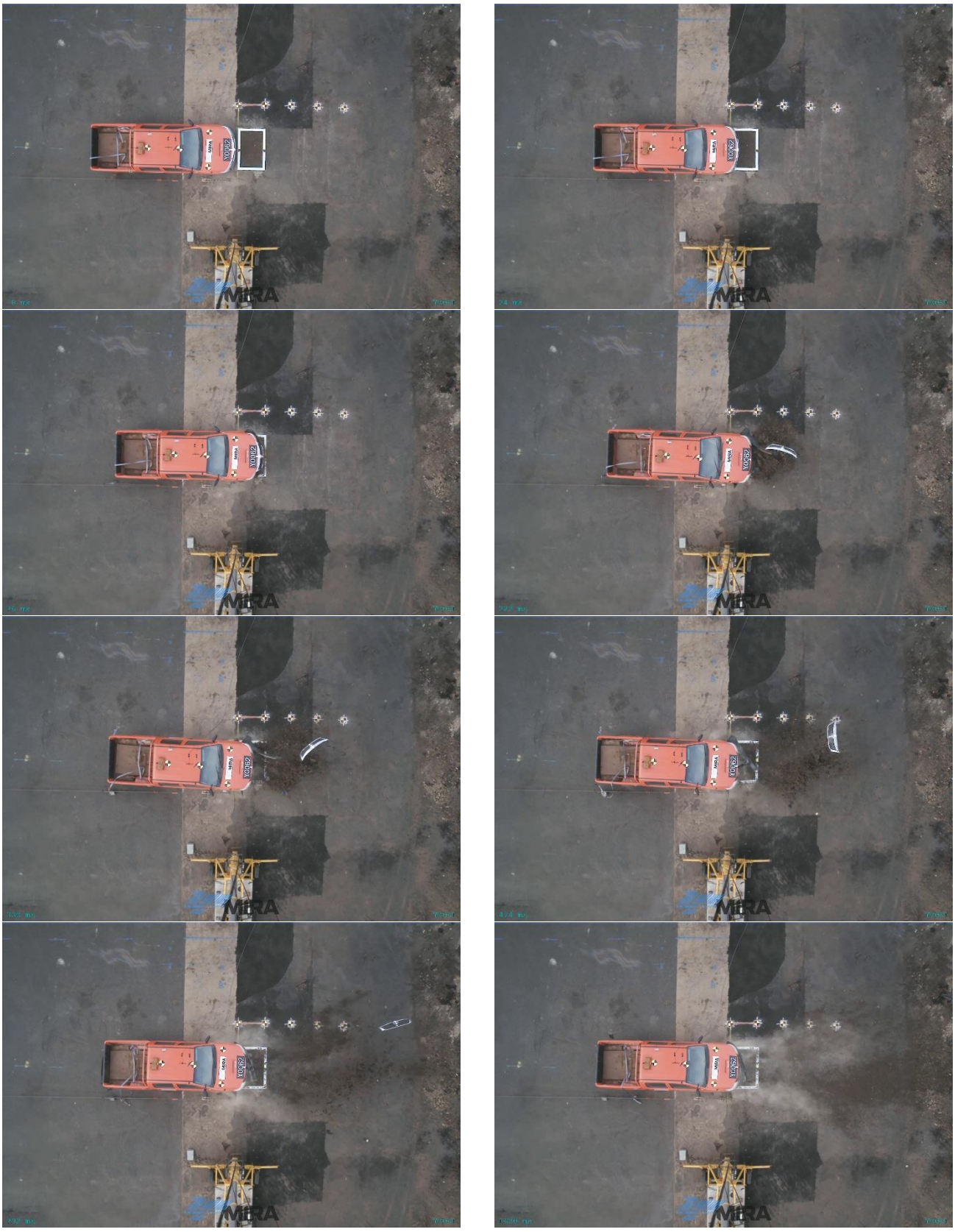
This report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

Opinions, interpretations, and meteorological information included in this report are not part of the UKAS accreditation and are marked thus *.

7 Side Views from High-Speed Videos



8 Overhead Views from High-Speed Videos



9 Post Impact Product and Vehicle Images

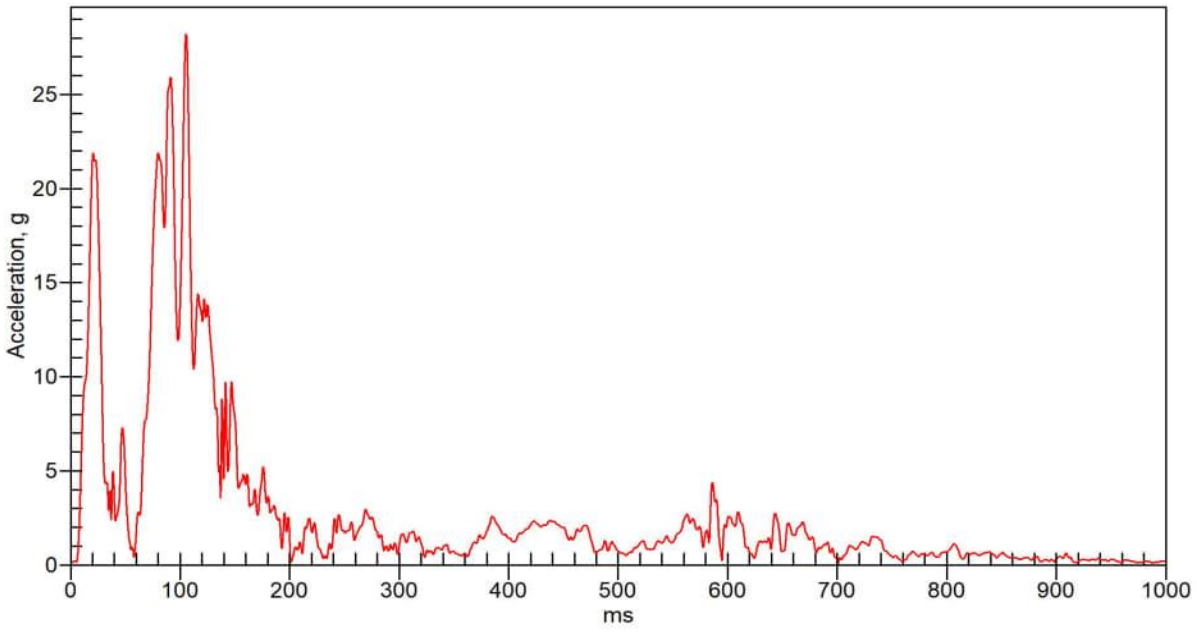
10 Data Plots from Vehicle Transducers

Test Number: Y0062
Project: 1225361-004-016

Legislation: IWA 14-1:2013
Test Type: HVM Barrier
Test Date: 2021-12-14

Vehicle 1: Vehicle CofG resultant

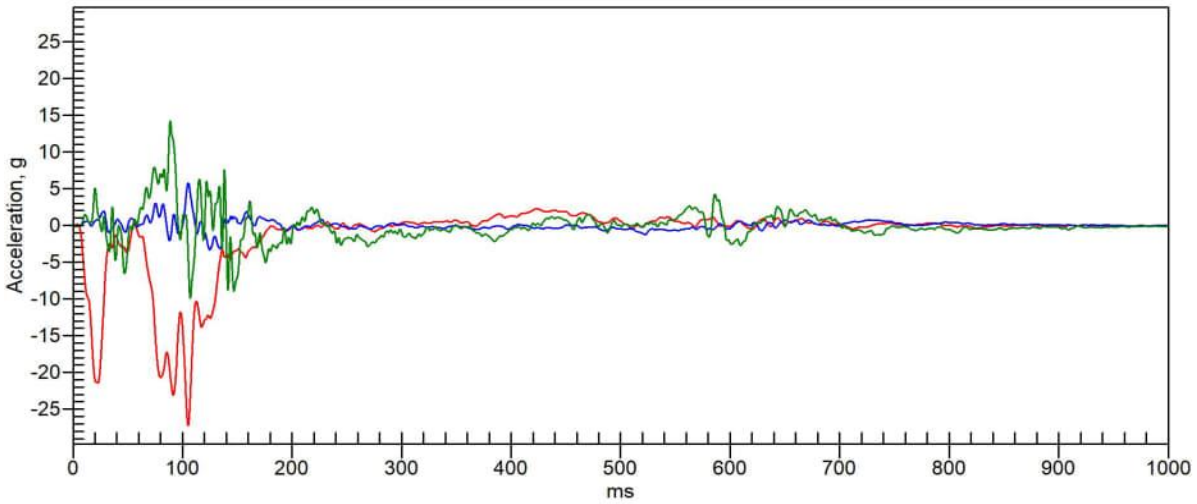
Resultant Acceleration



15VEHCCG0000ACRD
Max: 28g at 105.40ms

Component Accelerations

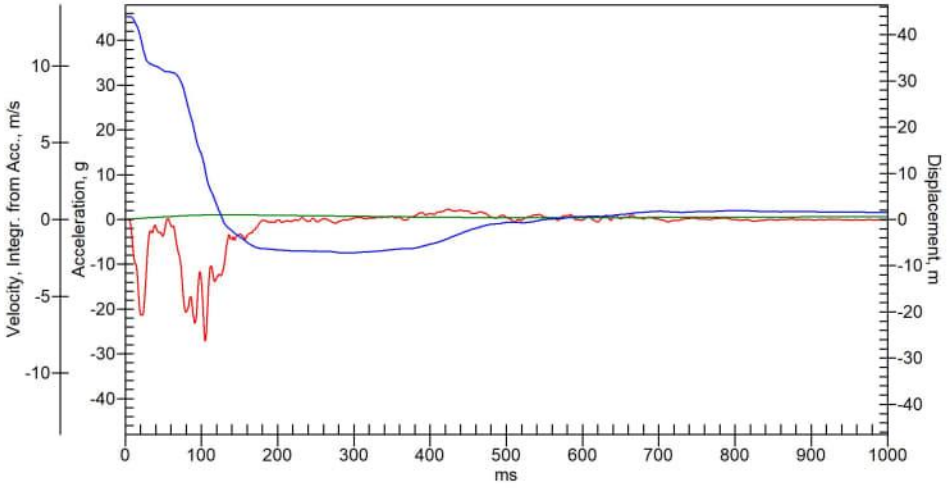
Max: 2.297g at 422.90ms, Min: -27g at 105.10ms 15VEHCCG0000ACXD
Max: 5.848g at 105.30ms, Min: -3.358g at 124.90ms 15VEHCCG0000ACYD
Max: 14g at 88.70ms, Min: -9.874g at 107.00ms 15VEHCCG0000ACZD



Test Number: Y0062
Project: 1225361-004-016

Legislation: IWA 14-1:2013
Test Type: HVM Barrier
Test Date: 2021-12-14

Vehicle 1: Vehicle CofG components



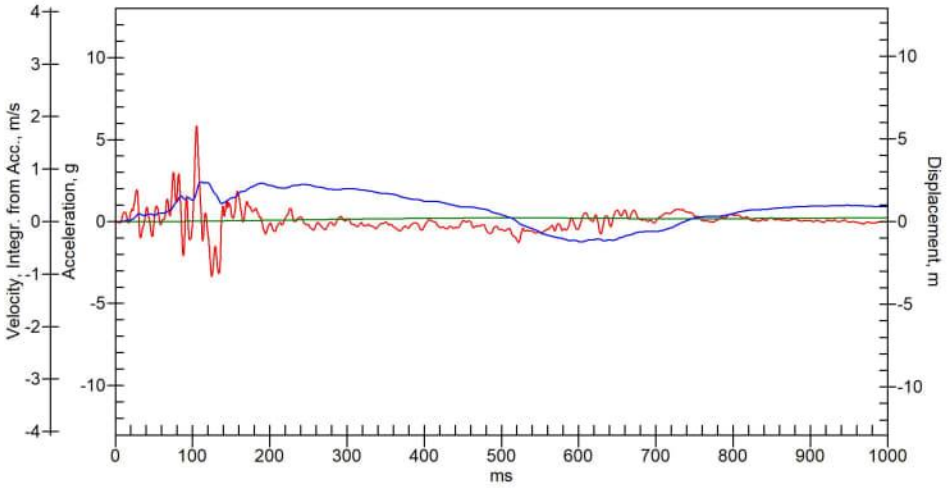
X-axis

QNo:
CAC: 2000

Acceleration
15VEHCCG0000ACXD
Max: 2.297g at 422.90ms
Min: -27g at 105.10ms

Velocity, Integr. from Acc.
15VEHCCG0000VAXD
Max: 13.20m/s at 10.00ms
Min: -2.17m/s at 290.00ms

Displacement
15VEHCCG0000DSXD
Max: 13.83m at 1E04ms
Min: -43.60m at -5000.00ms



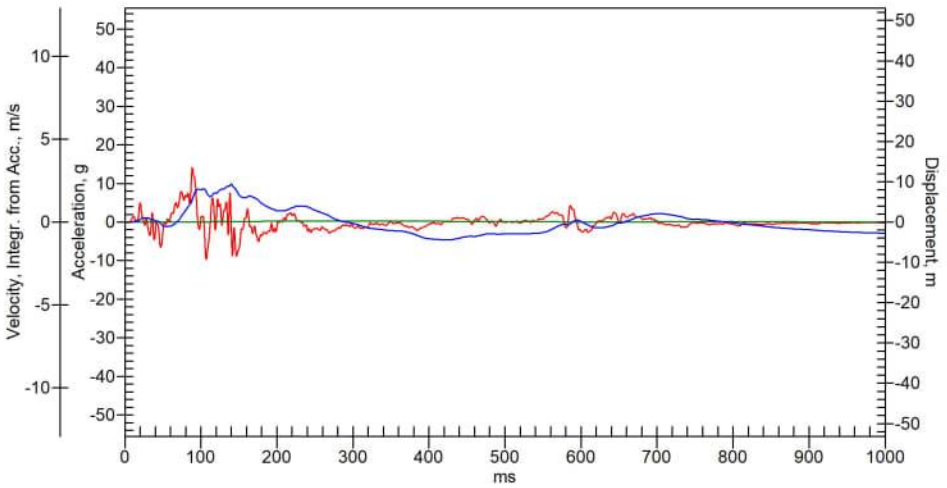
Y-axis

QNo:
CAC: 2000

Acceleration
15VEHCCG0000ACYD
Max: 5.848g at 105.30ms
Min: -3.358g at 124.90ms

Velocity, Integr. from Acc.
15VEHCCG0000VAYD
Max: 3.85m/s at -5000.00ms
Min: -0.39m/s at 600.00ms

Displacement
15VEHCCG0000DSYD
Max: 11.84m at 1E04ms
Min: -9.55m at -5000.00ms



Z-axis

QNo:
CAC: 2000

Acceleration
15VEHCCG0000ACZD
Max: 14g at 88.70ms
Min: -9.874g at 107.00ms

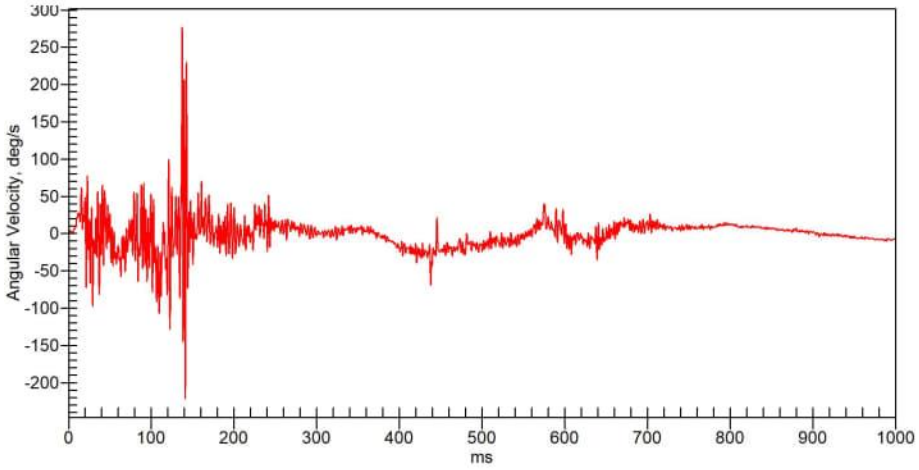
Velocity, Integr. from Acc.
15VEHCCG0000VAZD
Max: 2.28m/s at 140.00ms
Min: -12.19m/s at 1E04ms

Displacement
15VEHCCG0000DSZD
Max: 3.20m at -5000.00ms
Min: -50.44m at 1E04ms

Test Number: Y0062
Project: 1225361-004-016

Legislation: IWA 14-1:2013
Test Type: HVM Barrier
Test Date: 2021-12-14

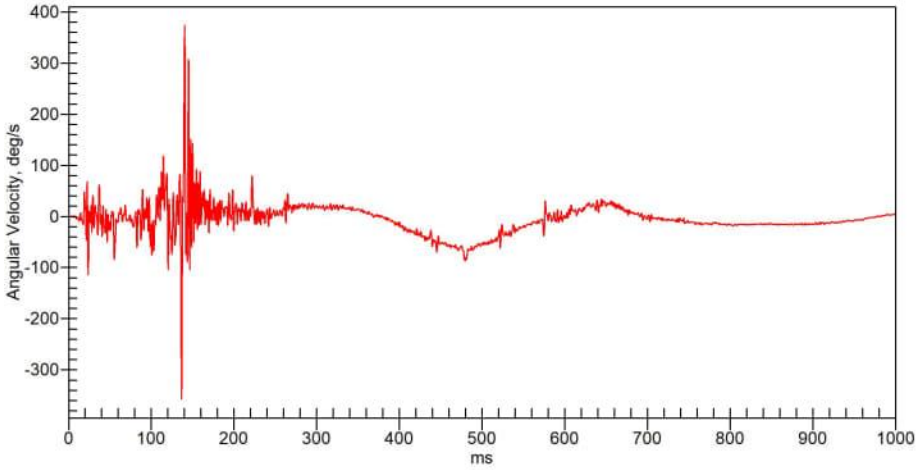
Vehicle 1: Vehicle CofG angular velocities



Vehicle CG Roll (CFC180)

QNo:
CAC: 600

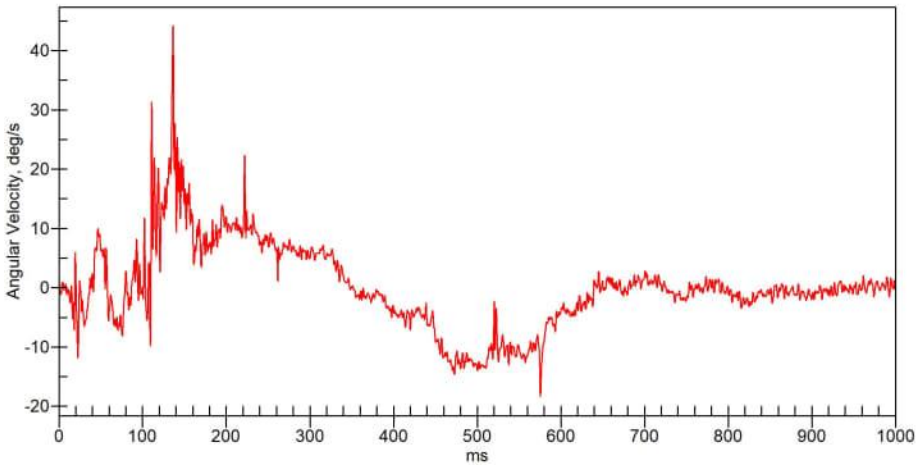
15VEHCCG0000AVXC
Max: 277deg/s at 140.00ms
Min: -221deg/s at 140.00ms



Vehicle CG Pitch (CFC180)

QNo:
CAC: 600

15VEHCCG0000AVYC
Max: 374deg/s at 140.00ms
Min: -357deg/s at 140.00ms



Vehicle CG Yaw (CFC180)

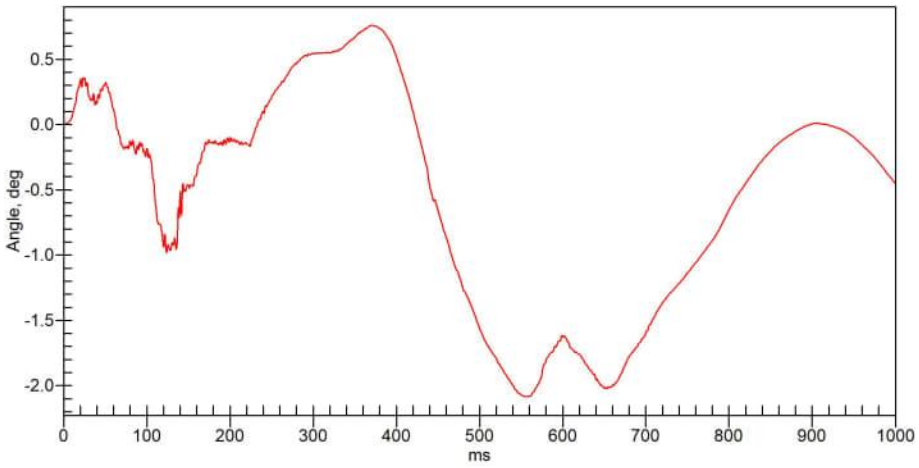
QNo:
CAC: 600

15VEHCCG0000AVZC
Max: 44deg/s at 140.00ms
Min: -18deg/s at 580.00ms

Test Number: Y0062
Project: 1225361-004-016

Legislation: IWA 14-1:2013
Test Type: HVM Barrier
Test Date: 2021-12-14

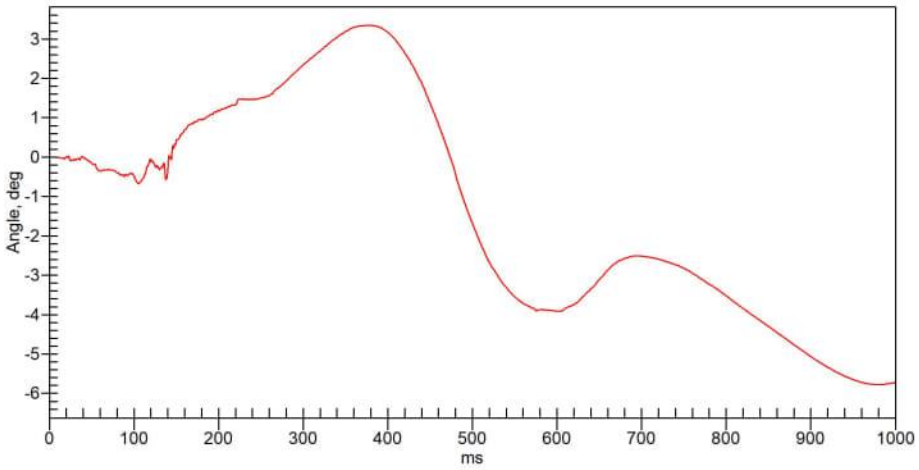
Vehicle 1: Vehicle CofG angles



Vehicle CG Roll Angle

QNo:
CAC: 600

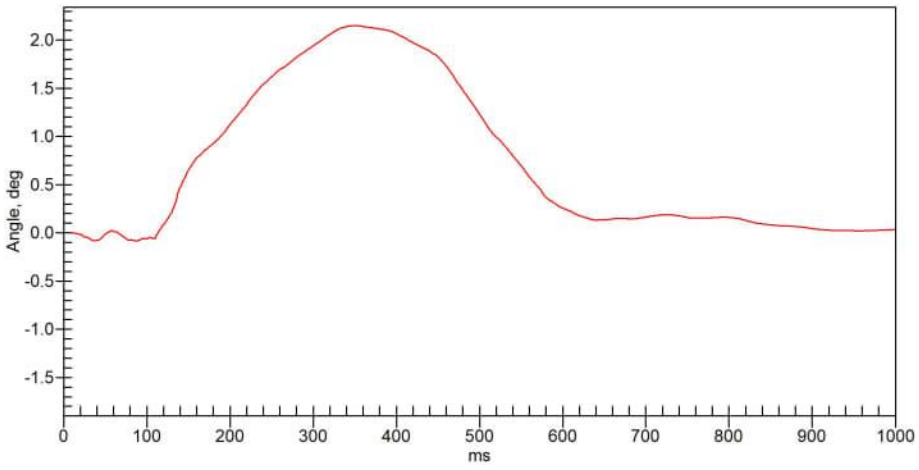
15VEHCCG0000ANXC
Max: 0.76deg at 370.00ms
Min: -2.08deg at 550.00ms



Vehicle CG Pitch Angle

QNo:
CAC: 600

15VEHCCG0000ANYC
Max: 3.35deg at 380.00ms
Min: -6.15deg at 9980.00ms



Vehicle CG Yaw Angle

QNo:
CAC: 600

15VEHCCG0000ANZC
Max: 2.15deg at 350.00ms
Min: -1.70deg at 1E04ms

Executive Summary

Manufacturer Details

Company Name	Bailey Street Furniture
Company Address	London Rd, Adlington, Macclesfield SK10 4NL
Contact Name	Barrie Woodcock
Contact Email	Barrie.woodcock@bsfg.co.uk

Test Item Details

Item Reference	Inspira Protect 1500x1000
Item Description	Steel Planter
Length (mm) "X"	1000
Width (mm) "Y"	1500
Height (mm) "Z"	600
Foundation type	Depth <0.5m
Foundation depth (mm)	150
Installation Date	10/12/2021
Concrete strength (MPa)	55.7

Test Parameters

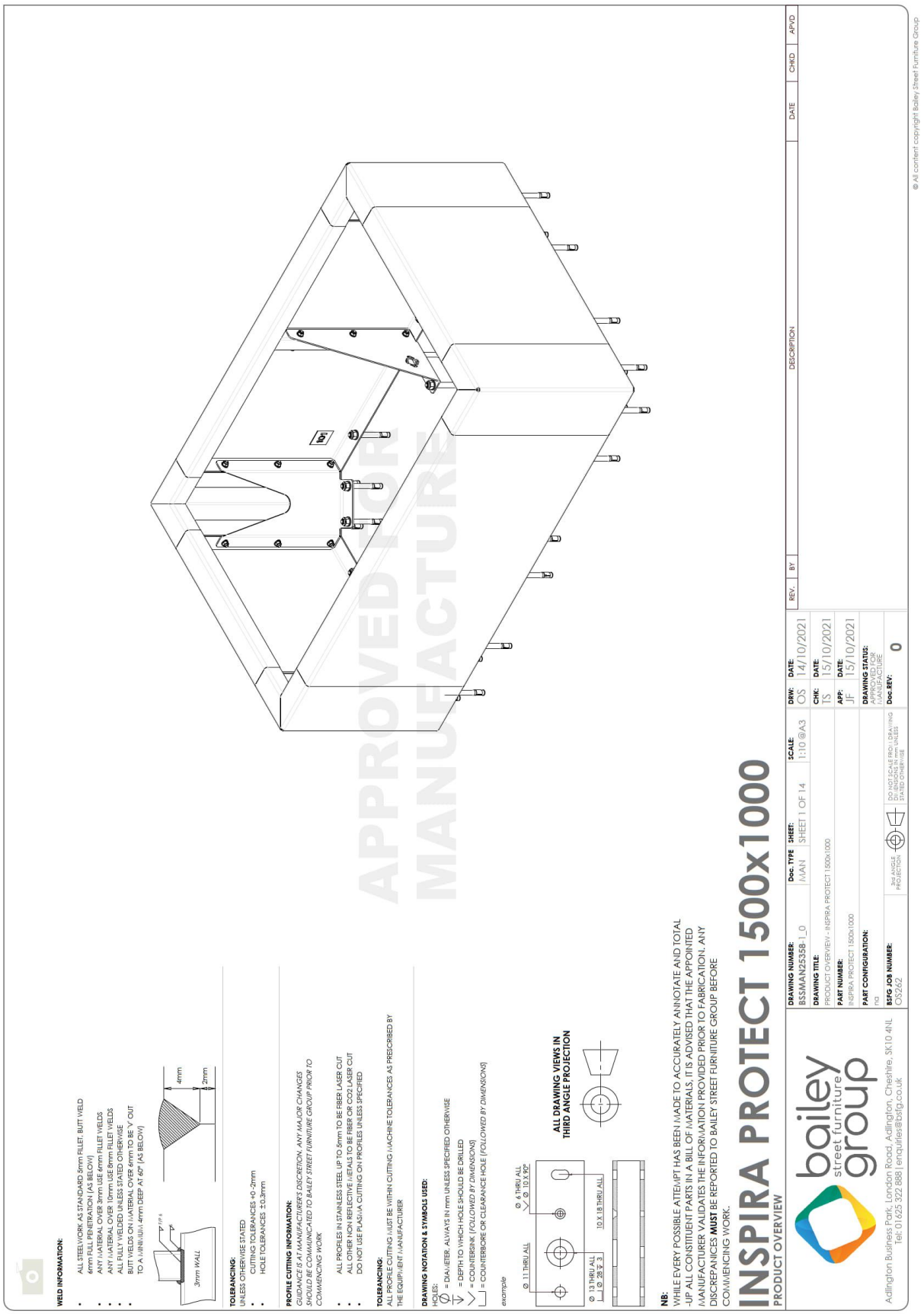
	Requirement	Measured Value
Test Vehicle category	N1G	N1G
Test Mass (kg)	2500 ±75	2521
Impact Speed (km/h)	48 +3/-1	47.3
Impact Angle (deg)	90 ±2	90.5
Alignment (mm)	0 ±300	25 Right
Vehicle penetration – dynamic (m)	-	0.0
Vehicle penetration – static (m)	-	0.0
Major Debris ejection distance (m)	-	0.0
Vehicle disabled?	-	Yes*
Follow-on vehicle encroachment possible?	-	No
Follow-on pedestrian encroachment possible?	-	Not assessed

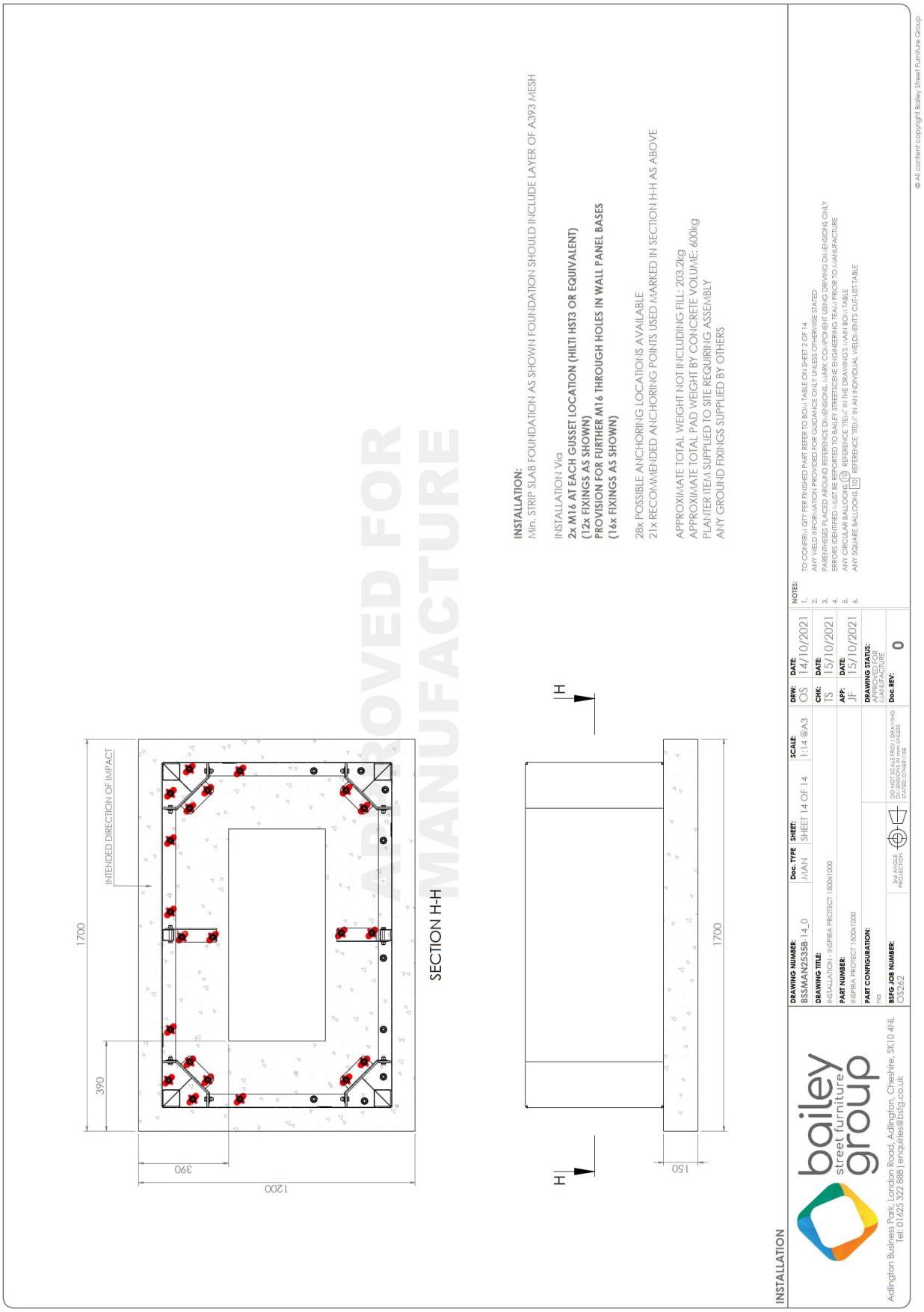
* See Section 3.5, Vehicle Damage Description

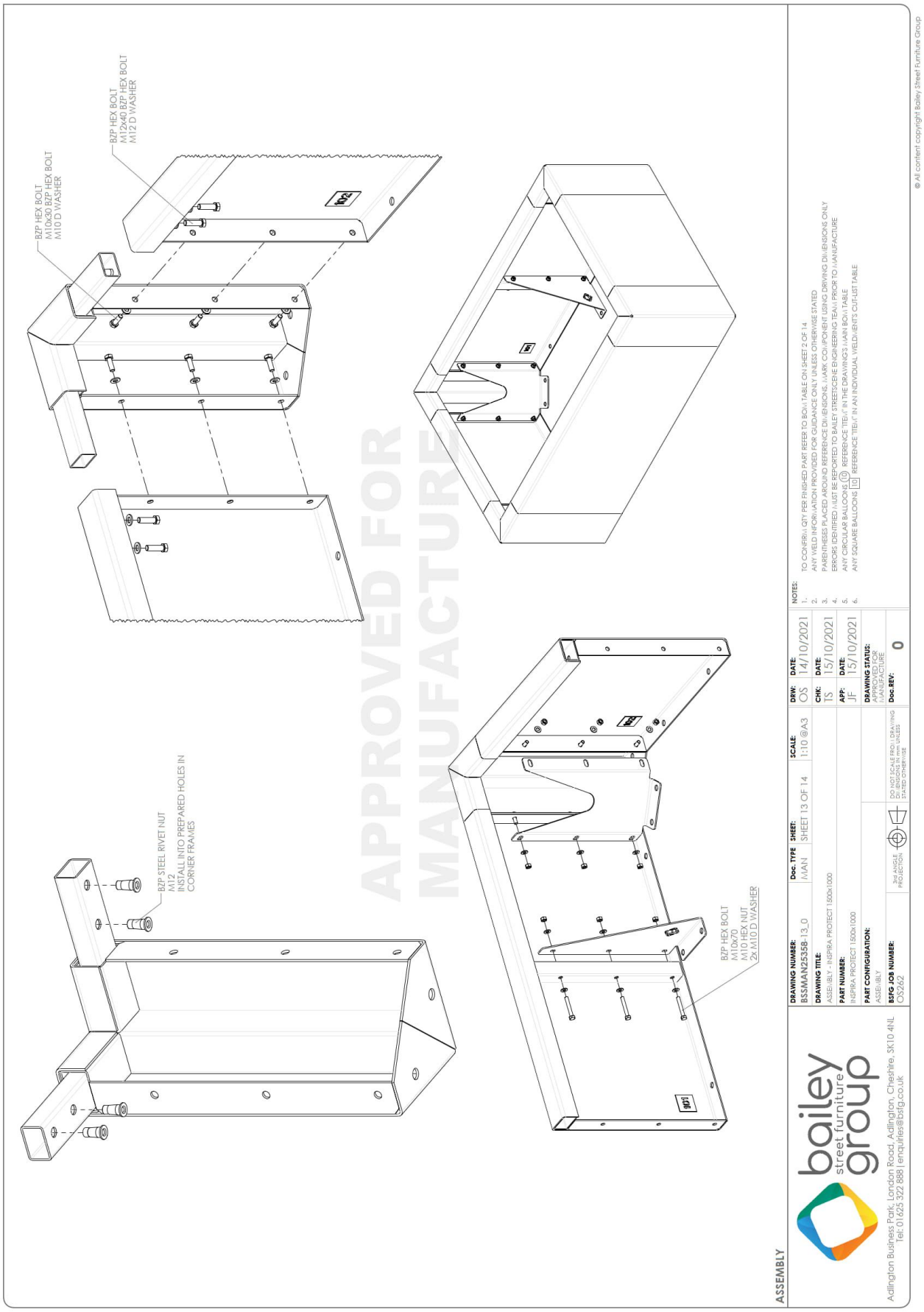
Performance Classification – Vehicle Impact

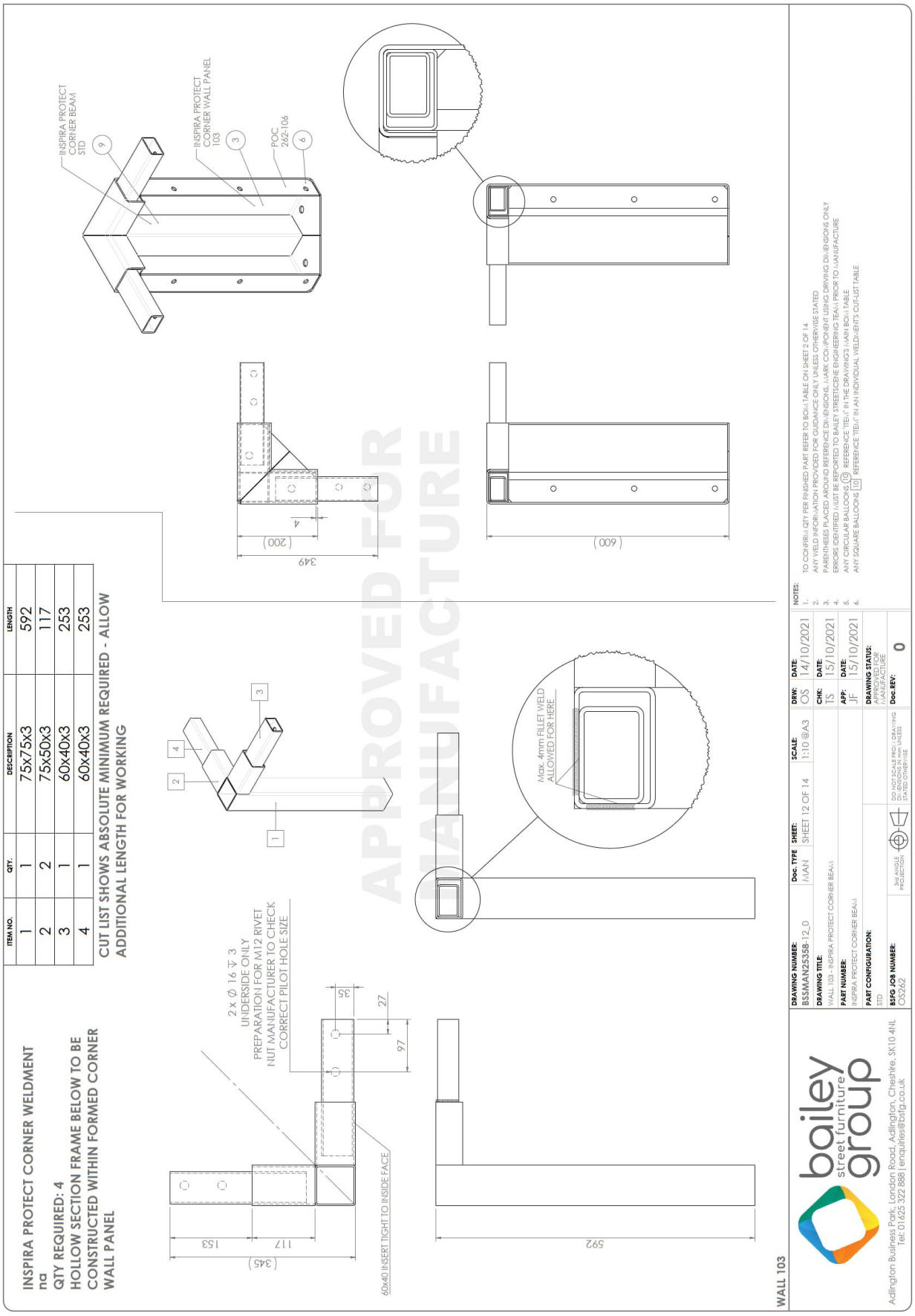
Performance classification	IWA 14-1:2013 Planter V/2500[N1G]/48/90:0.0
Product Classification	Ap-Foundation/Passive/Planter

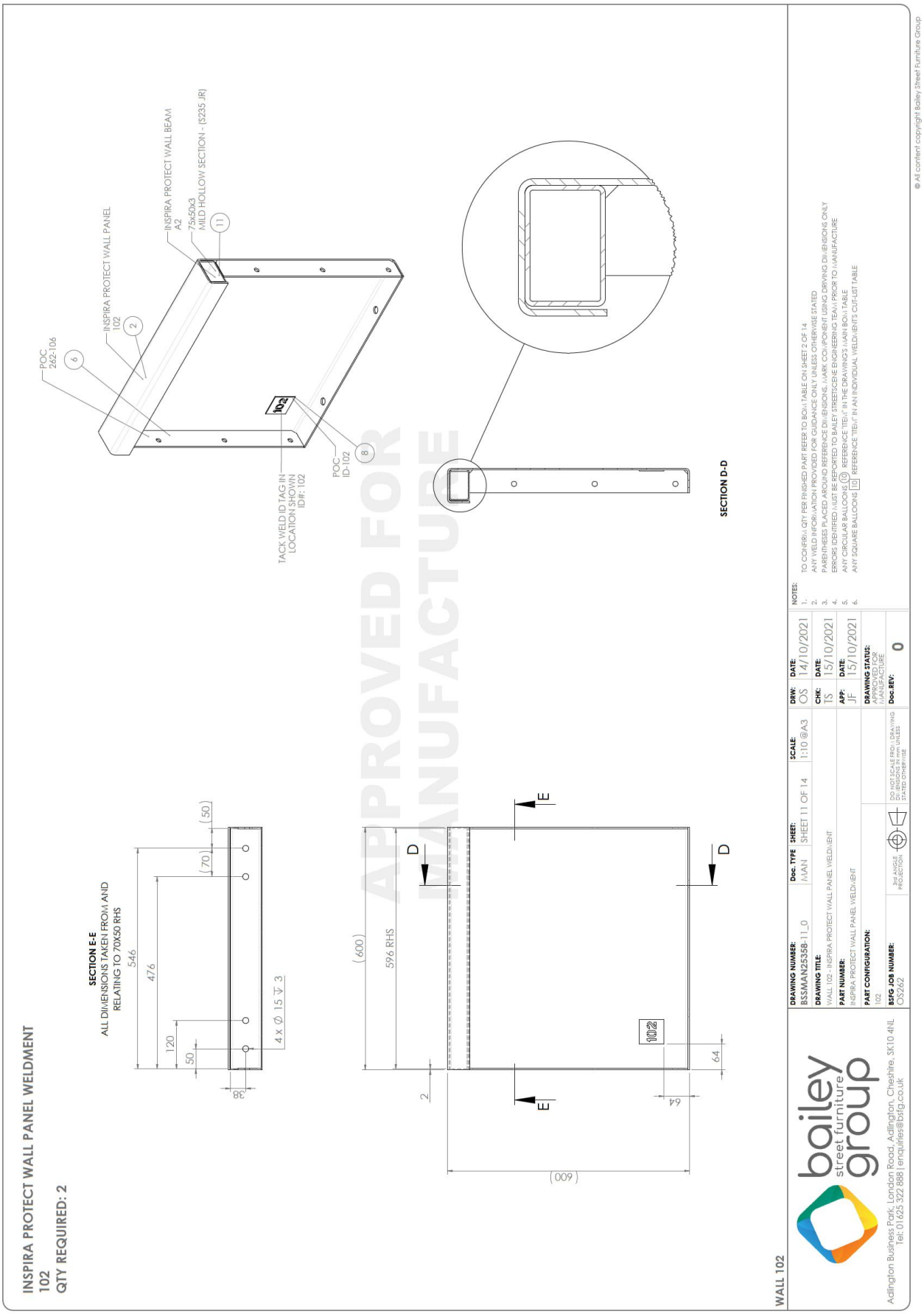
Appendix 1 Product Drawings and Details

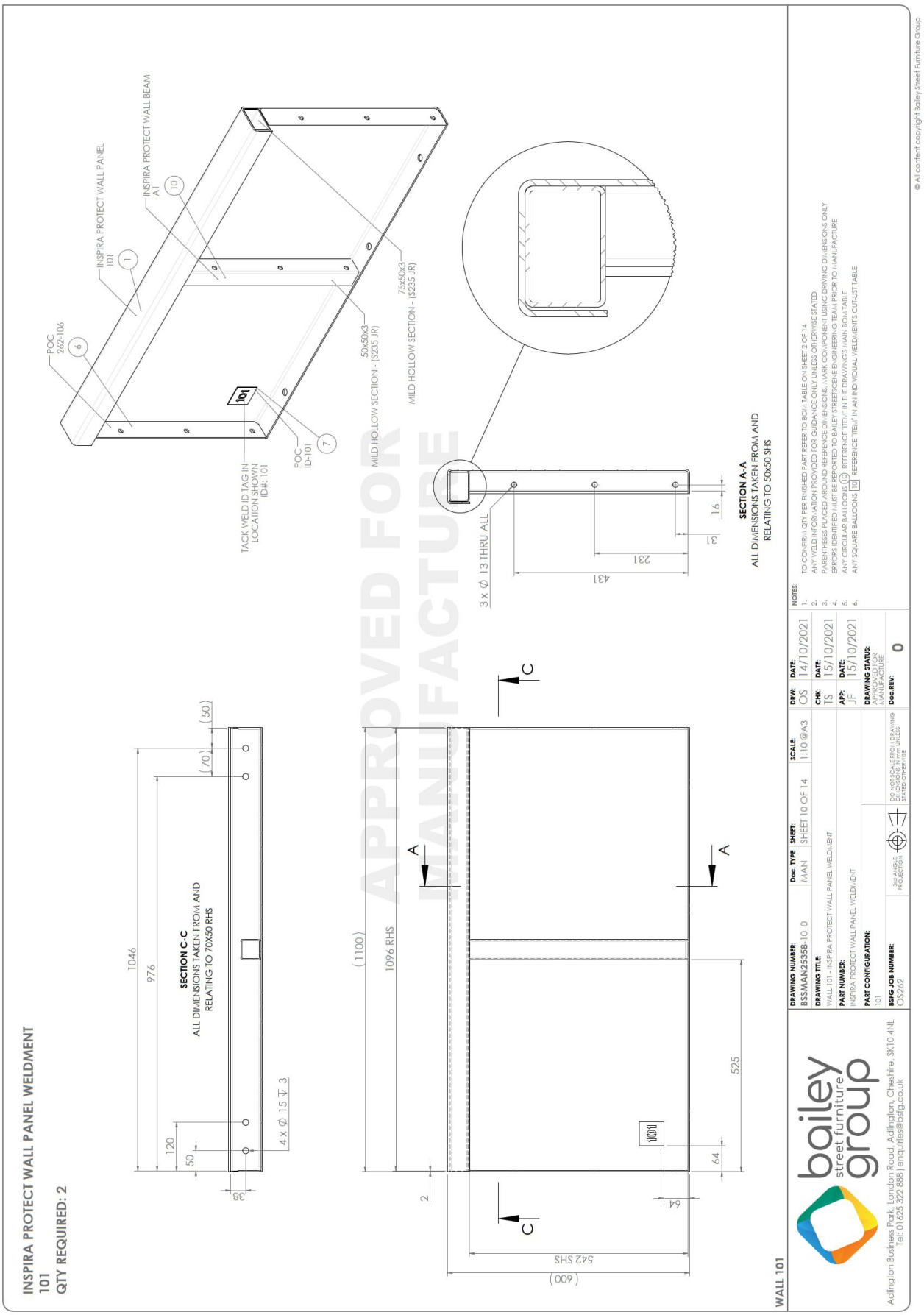


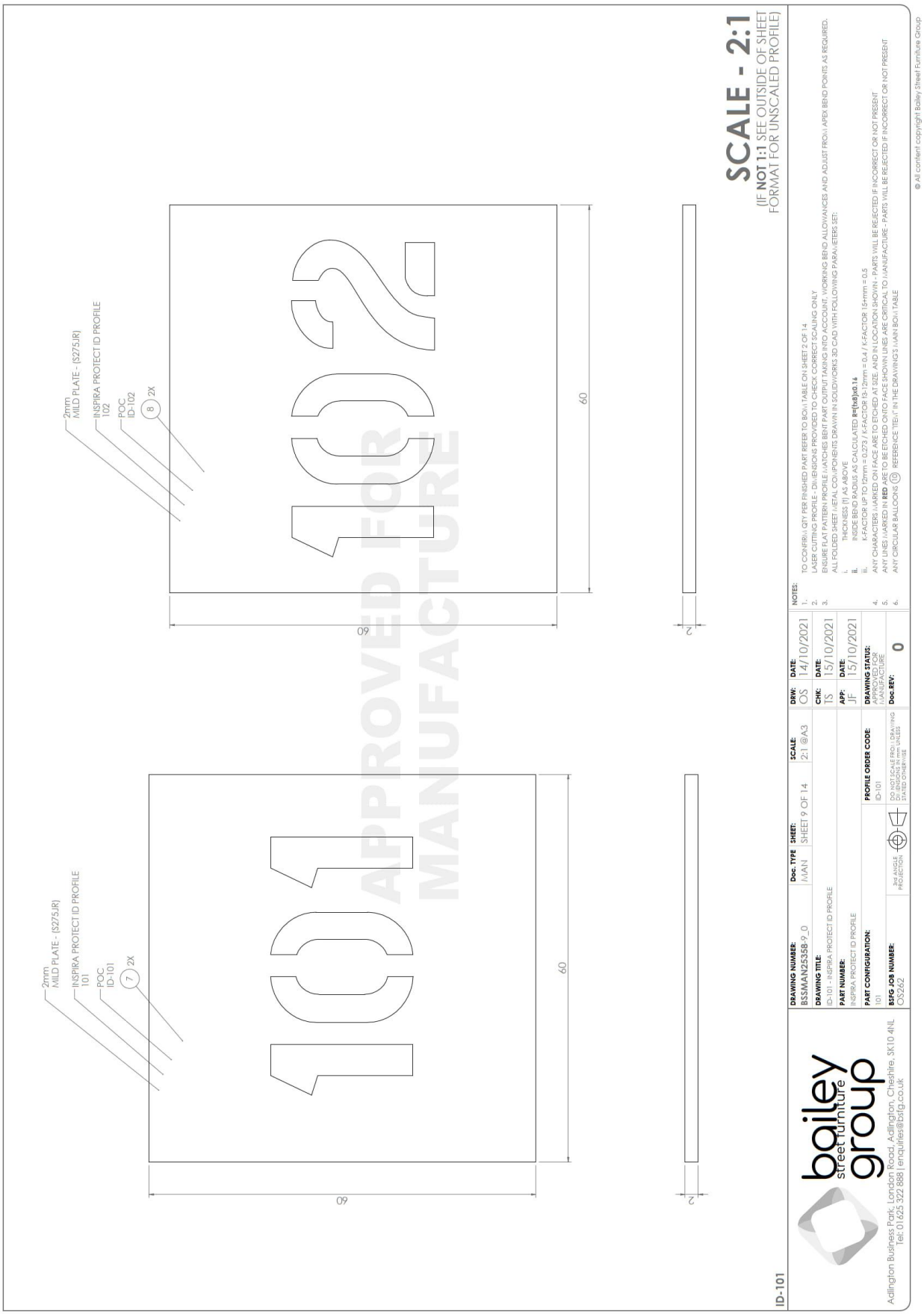

INSTALLATION
bailey street furniture group
Adlington Business Park, London Road, Adlington, Cheshire, SK10 4NL
Tel: 01625 322 888 | enquiries@bsfg.co.uk
DRAWING NUMBER: BSSMAN25358 14_0
Doc. TYPE: MAN
SHEET: SHEET 14 OF 14
SCALE: 1:14 @A3
DRAWING TITLE: INSTALLATION - INSPIRA PROTECT 1500x1000
PART NUMBER: INSPIRA PROTECT 1500x1000
PART CONFIGURATION: na
BSFG JOB NUMBER: OS2262
3RD ANGLE PROJECTION
DO NOT SCALE FROM DRAWING DIMENSIONS IN mm UNLESS STATED OTHERWISE
DRW: OS DATE: 14/10/2021
CHK: TS DATE: 15/10/2021
APP: JF DATE: 15/10/2021
DRAWING STATUS: APPROVED FOR MANUFACTURE
Doc REV: 0
NOTES:
1. TO CONFIRM QTY PER FINISHED PART REFER TO BOM TABLE ON SHEET 2 OF 14
2. ANY WELD INFORMATION PROVIDED FOR GUIDANCE ONLY UNLESS OTHERWISE STATED
3. PARENTHESES PLACED AROUND REFERENCE DIMENSIONS, MARK COMPONENT USING DRIVING DIMENSIONS ONLY
4. ERRORS IDENTIFIED MUST BE REPORTED TO BAILEY STREETSCENE ENGINEERING TEAM PRIOR TO MANUFACTURE
5. ANY CIRCULAR BALLOONS (19) REFERENCE ITEM IN THE DRAWINGS MAIN BOM TABLE
6. ANY SQUARE BALLOONS [10] REFERENCE ITEM IN AN INDIVIDUAL WELDMENTS CUT-LIST TABLE
INSTALLATION:
Min. STRIP SLAB FOUNDATION AS SHOWN FOUNDATION SHOULD INCLUDE LAYER OF A393 MESH
INSTALLATION Via
2x M16 AT EACH GUSSET LOCATION (HILTI HST3 OR EQUIVALENT)
(12x FIXINGS AS SHOWN)
PROVISION FOR FURTHER M16 THROUGH HOLES IN WALL PANEL BASES
(16x FIXINGS AS SHOWN)
28x POSSIBLE ANCHORING LOCATIONS AVAILABLE
21x RECOMMENDED ANCHORING POINTS USED MARKED IN SECTION H-H AS ABOVE
APPROXIMATE TOTAL WEIGHT NOT INCLUDING FILL: 203.2kg
APPROXIMATE TOTAL PAD WEIGHT BY CONCRETE VOLUME: 600kg
PLANTER ITEM SUPPLIED TO SITE REQUIRING ASSEMBLY
ANY GROUND FIXINGS SUPPLIED BY OTHERS
APPROVED FOR MANUFACTURE
INTENDED DIRECTION OF IMPACT
1700
390
390
1200
SECTION H-H
H
H
1700
150
© All content copyright Bailey Street Furniture Group



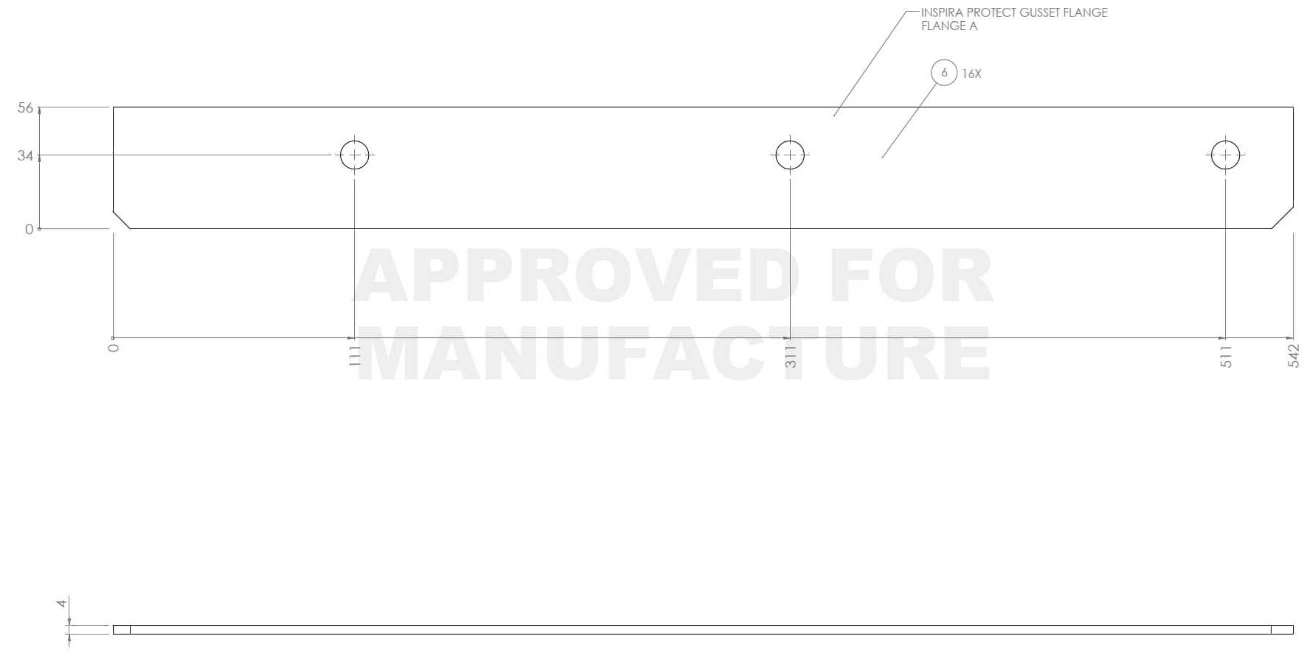

INSPIRA PROTECT CORNER WELDMENT
na
QTY REQUIRED: 4
HOLLOW SECTION FRAME BELOW TO BE CONSTRUCTED WITHIN FORMED CORNER WALL PANEL
CUT LIST SHOWS ABSOLUTE MINIMUM REQUIRED - ALLOW ADDITIONAL LENGTH FOR WORKING
ITEM NO. | QTY. | DESCRIPTION | LENGTH
1 | 1 | 75x75x3 | 592
2 | 2 | 75x50x3 | 117
3 | 1 | 60x40x3 | 253
4 | 1 | 60x40x3 | 253
INSPIRA PROTECT CORNER BEAM STD
INSPIRA PROTECT CORNER WALL PANEL 103
POS. 262-106
2 x Ø 16 ⌴ 3 UNDERSIDE ONLY PREPARATION FOR M12 RIVET NUT MANUFACTURER TO CHECK CORRECT PILOT HOLE SIZE
60x40 INSERT TIGHT TO INSIDE FACE
Max. 4mm FILLET WELD ALLOWED FOR HERE
APPROVED FOR MANUFACTURE
WALL 103
DRAWING NUMBER: BSSMAN25338-12_0
DRAWING TITLE: WALL 103 - INSPIRA PROTECT CORNER BEAM
PART NUMBER: INSPIRA PROTECT CORNER BEAM
PART CONFIGURATION: STD
BSFG JOB NUMBER: OS262
Doc. TYPE: MAN
SHEET: SHEET 12 OF 14
SCALE: 1:10 @A3
3rd ANGLE PROJECTION
DRW: OS 14/10/2021
CHK: TS 15/10/2021
APP: JF 15/10/2021
DRAWING STATUS: APPROVED FOR MANUFACTURE
Doc.REV: 0
DO NOT SCALE FROM THIS DRAWING UNLESS STATED OTHERWISE
NOTES:
1. TO CONFIRM QTY PER FINISHED PART REFER TO BOM TABLE ON SHEET 2 OF 14
2. ANY WELD INFORMATION PROVIDED FOR GUIDANCE ONLY UNLESS OTHERWISE STATED
3. PARENTHESES PLACED AROUND REFERENCE DIMENSIONS. (I.e.MK COMPONENT USING DRIVING DIMENSIONS ONLY
4. ERRORS IDENTIFIED, HAVE BEEN SORTED TO BAILEY STREETSCENE ENGINEERING TEAM PRIOR TO MANUFACTURE
5. ANY CIRCULAR BALLOONS (15) REFERENCE ITEM IN THE DRAWING'S PART BOM TABLE
6. ANY SQUARE BALLOONS [15] REFERENCE ITEM IN AN INDIVIDUAL WELDMENTS CUT-LIST TABLE
bailey street furniture group
Adlington Business Park, London Road, Adlington, Cheshire, SK10 4NL
Tel: 01625 322 888 | enquiries@bsfg.co.uk
© All content copyright Bailey Street Furniture Group


INSPIRA PROTECT WALL PANEL WELDMENT
102
QTY REQUIRED: 2
POC 262-106
INSPIRA PROTECT WALL PANEL 102
INSPIRA PROTECT WALL BEAM A2
75x50x3 MILD HOLLOW SECTION - (S235 JR)
TACK WELD ID TAG IN LOCATION SHOWN ID#: 102
POC ID-102
SECTION D-D
SECTION E-E
ALL DIMENSIONS TAKEN FROM AND RELATING TO 70X50 RHS
546
476
120
50
(70)
(50)
4 x Ø 15 ↧ 3
38
(600)
596 RHS
D
E
102
64
2
(600)
APPROVED FOR MANUFACTURE
WALL 102
bailey street furniture group
Adlington Business Park, London Road, Adlington, Cheshire, SK10 4NL
Tel: 01625 322 888 | enquiries@bsfg.co.uk
DRAWING NUMBER: BSSMAN25358-11_0
Doc. TYPE: MAN
SHEET: SHEET 11 OF 14
SCALE: 1:10 @A3
DRW: OS DATE: 14/10/2021
CHK: TS DATE: 15/10/2021
APP: JF DATE: 15/10/2021
DRAWING TITLE: WALL 102 - INSPIRA PROTECT WALL PANEL WELDMENT
PART NUMBER: INSPIRA PROTECT WALL PANEL WELDMENT
PART CONFIGURATION: 102
BSFG JOB NUMBER: OS262
3rd ANGLE PROJECTION
DO NOT SCALE FROM DRAWING DIMENSIONS IN INCHES UNLESS STATED OTHERWISE
DRAWING STATUS: APPROVED FOR MANUFACTURE
Doc.REV: 0
NOTES:
1. TO CONFIRM QTY PER FINISHED PART REFER TO BOM TABLE ON SHEET 2 OF 14
2. ANY WELD INFORMATION PROVIDED FOR GUIDANCE ONLY UNLESS OTHERWISE STATED
3. PARENTHESES PLACED AROUND REFERENCE DIMENSIONS. MARK COMPONENT USING DRIVING DIMENSIONS ONLY
4. ERRORS IDENTIFIED MUST BE REPORTED TO BAILEY STREET SCENE ENGINEERING TEAM PRIOR TO MANUFACTURE
5. ANY CIRCULAR BALLOONS (9) REFERENCE ITEM IN THE DRAWING'S MAIN BOM TABLE
6. ANY SQUARE BALLOONS [10] REFERENCE ITEM IN AN INDIVIDUAL WELDMENTS CUT-LIST TABLE
© All content copyright Bailey Street Furniture Group


INSPIRA PROTECT WALL PANEL WELDMENT
101
QTY REQUIRED: 2
INSPIRA PROTECT WALL PANEL 101
INSPIRA PROTECT WALL BEAM A1
POC 242-106
POC ID-101
TACK WELD ID TAG IN LOCATION SHOWN ID#: 101
MILD HOLLOW SECTION - (S235 JR)
50x50x3
75x50x3
MILD HOLLOW SECTION - (S235 JR)
3 x Ø 13 THRU ALL
SECTION A-A
ALL DIMENSIONS TAKEN FROM AND RELATING TO 50x50 SHS
SECTION C-C
ALL DIMENSIONS TAKEN FROM AND RELATING TO 70X50 RHS
4 x Ø 15 ↧ 3
1096 RHS
542 SHS
APPROVED FOR MANUFACTURE
WALL 101
DRAWING NUMBER: BSSMAN25358-10_0
Doc. TYPE: MAN
SHEET: SHEET 10 OF 14
SCALE: 1:10 @A3
DRW: OS 14/10/2021
CHK: TS 15/10/2021
APP: JF 15/10/2021
DRAWING STATUS: APPROVED FOR MANUFACTURE
Doc.REV: 0
DRAWING TITLE: WALL 101 - INSPIRA PROTECT WALL PANEL WELDMENT
PART NUMBER: INSPIRA PROTECT WALL PANEL WELDMENT
PART CONFIGURATION: 101
BSFG JOB NUMBER: OS262
3rd ANGLE PROJECTION
DO NOT SCALE FROM DRAWING UNLESS STATED OTHERWISE
NOTES:
1. TO CONFIRM QTY PER FINISHED PART REFER TO BOM TABLE ON SHEET 2 OF 14
2. ANY WELD INFORMATION PROVIDED FOR GUIDANCE ONLY UNLESS OTHERWISE STATED
3. PARENTHESES PLACED AROUND REFERENCE DIMENSIONS. MARK COMPONENT USING DRIVING DIMENSIONS ONLY
4. ERRORS IDENTIFIED MUST BE REPORTED TO BAILEY STREETSCENE ENGINEERING TEAM PRIOR TO MANUFACTURE
5. ANY CIRCULAR BALLOONS (10) REFERENCE ITEM IN THE DRAWINGS MAIN BOM TABLE
6. ANY SQUARE BALLOONS [10] REFERENCE ITEM IN AN INDIVIDUAL WELDMENTS CUT-LIST TABLE
bailey street furniture group
Adlington Business Park, London Road, Adlington, Cheshire, SK10 4NL
tel: 01625 522 888 | enquiries@bsfg.co.uk
© All content copyright Bailey Street Furniture Group



PROFILE NAME	MATERIAL SPEC.	THICKNESS (mm)	RELATES TO JOB	PROFILE ORDER CODE
600 MILD PLATE - 1.0044 (S275JR) INSPIRA PROTECT GUSSET FLANGE	MILD PLATE - 1.0044 (S275JR)	4	OS262	262-106



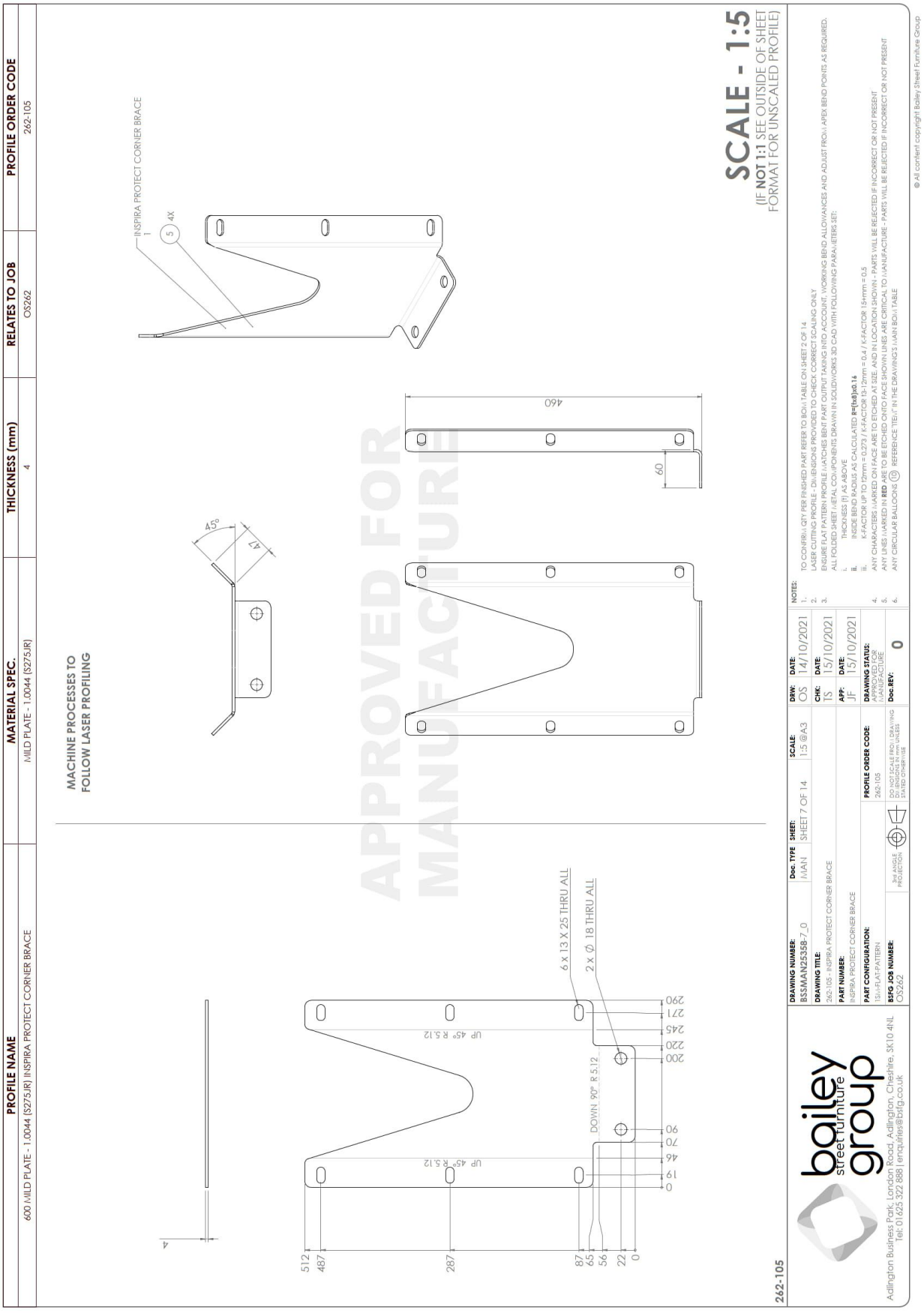
SCALE - 1:2
(IF **NOT 1:1** SEE OUTSIDE OF SHEET FORMAT FOR UNSCALED PROFILE)

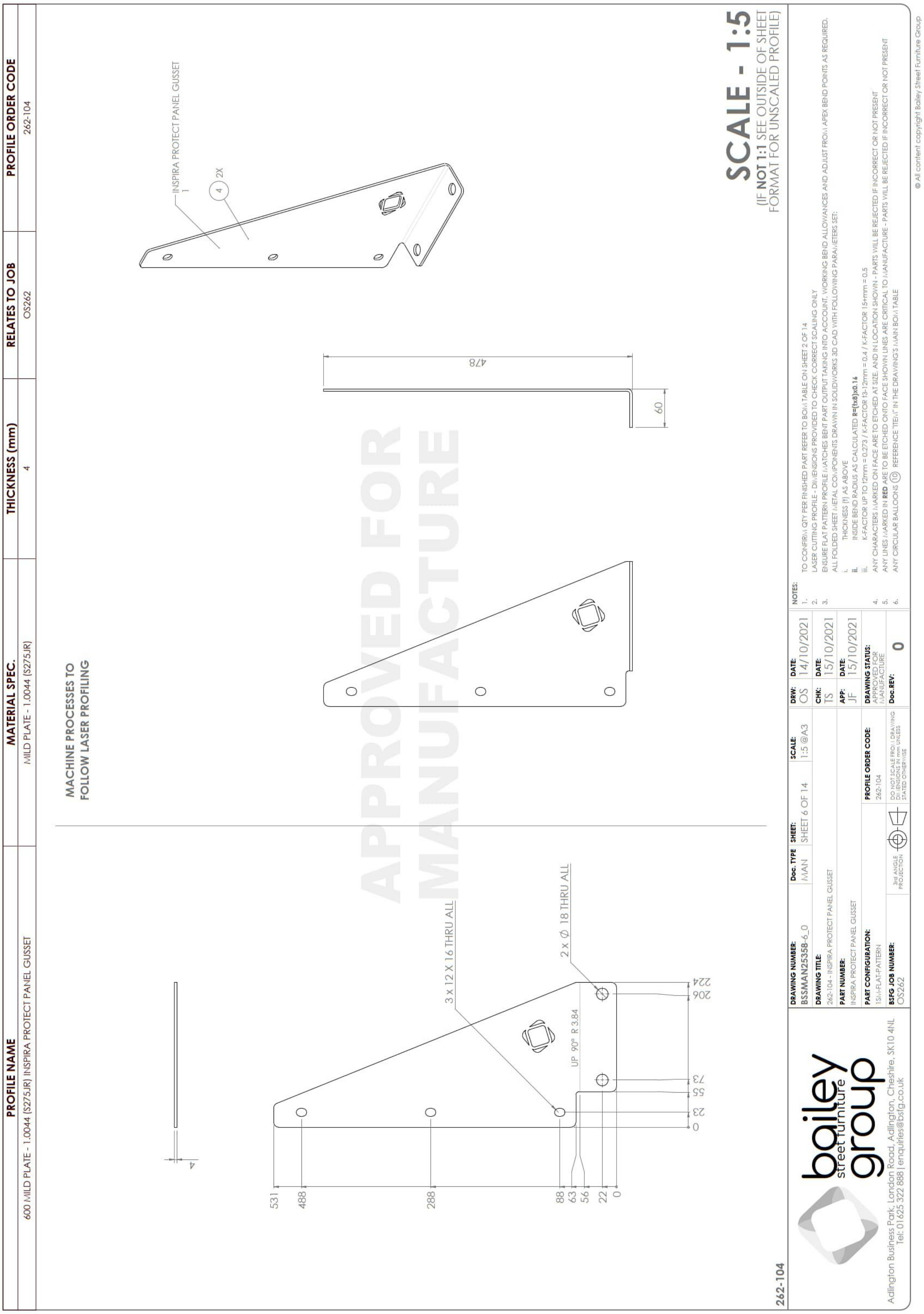
262-106

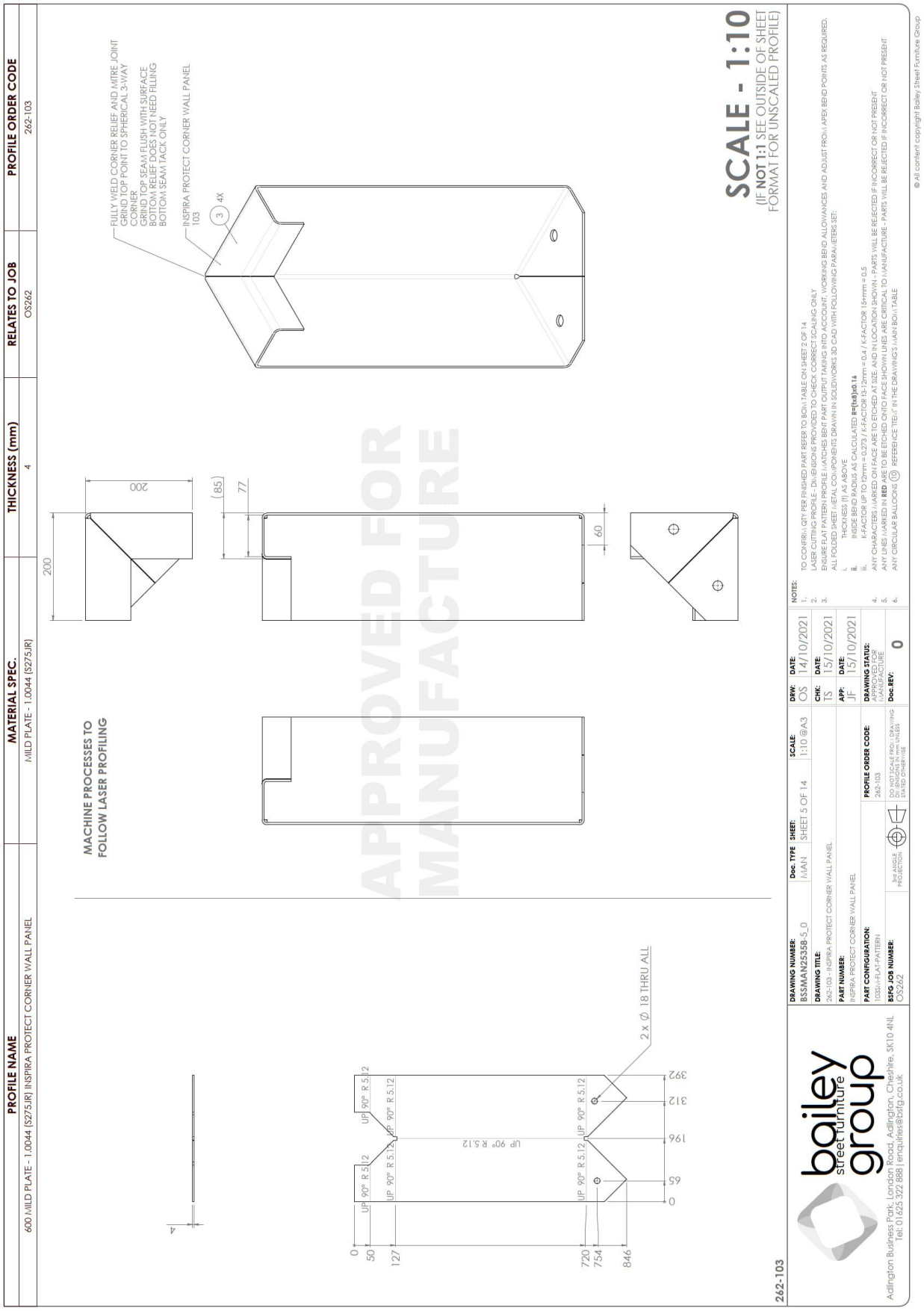
bailey street furniture group
Adlington Business Park, London Road, Adlington, Cheshire, SK10 4NL
Tel: 01625 322 888 | enquiries@bsfg.co.uk

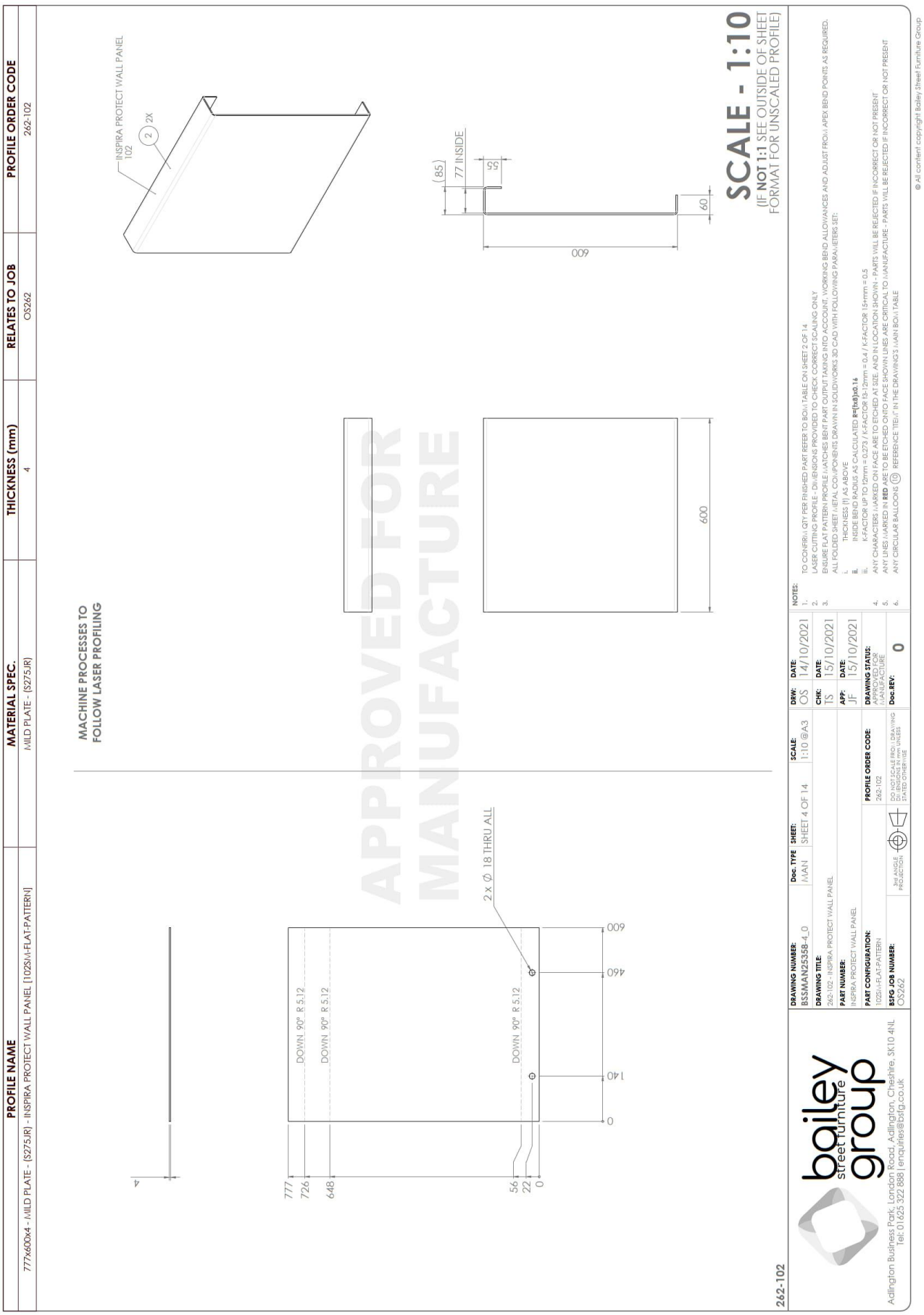
DRAWING NUMBER: BSSMAN25358-8_0	Doc. TYPE: MAN	SHEET: SHEET 8 OF 14	SCALE: 1:2 @A3	DRW: OS	DATE: 14/10/2021
DRAWING TITLE: 262-106 - INSPIRA PROTECT GUSSET FLANGE				CHK: TS	DATE: 15/10/2021
PART NUMBER: INSPIRA PROTECT GUSSET FLANGE				APP: JF	DATE: 15/10/2021
PART CONFIGURATION: FLANGE A		PROFILE ORDER CODE: 262-106		DRAWING STATUS: APPROVED FOR MANUFACTURE	
BSFG JOB NUMBER: OS262	3rd ANGLE PROJECTION	DO NOT SCALE FROM DRAWING DIMENSIONS IN mm UNLESS STATED OTHERWISE		Doc.REV: 0	

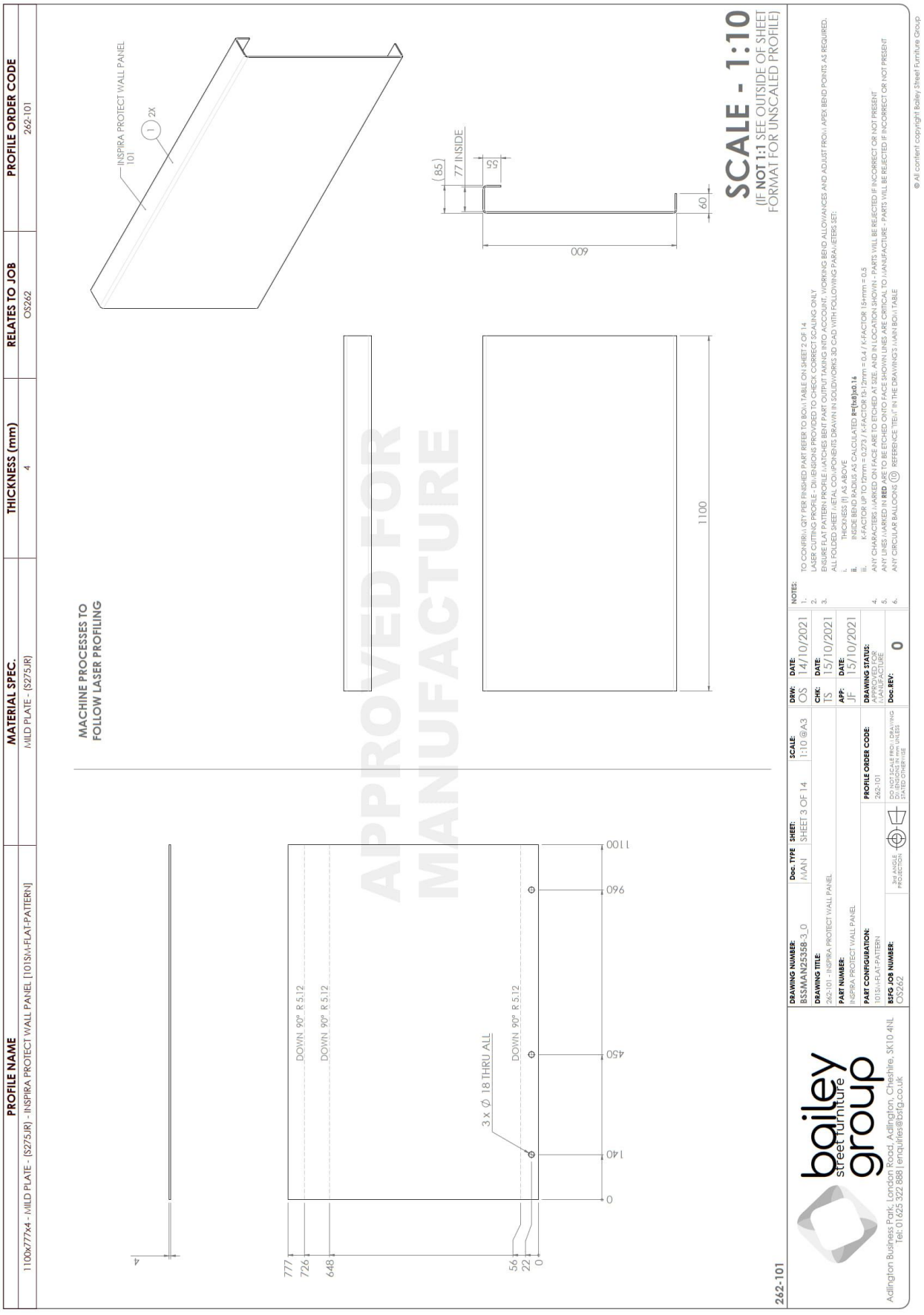
NOTES:
1. TO CONFIRM QTY PER FINISHED PART REFER TO BOM TABLE ON SHEET 2 OF 14
2. LASER CUTTING PROFILE - DIMENSIONS PROVIDED TO CHECK CORRECT SCALING ONLY
3. ENSURE FLAT PATTERN PROFILE MATCHES BENT PART OUTPUT TAKING INTO ACCOUNT, WORKING BEND ALLOWANCES AND ADJUST FROM APEX BEND POINTS AS REQUIRED. ALL FOLDED SHEET METAL COMPONENTS DRAWN IN SOLIDWORKS 3D CAD WITH FOLLOWING PARAMETERS SET:
   i. THICKNESS (t) AS ABOVE
   ii. INSIDE BEND RADIUS AS CALCULATED **R=(tx8)x0.16**
   iii. K-FACTOR UP TO t2mm = 0.273 / K-FACTOR t3-12mm = 0.4 / K-FACTOR 15+mm = 0.5
4. ANY CHARACTERS MARKED ON FACE ARE TO ETCHED AT SIZE, AND IN LOCATION SHOWN - PARTS WILL BE REJECTED IF INCORRECT OR NOT PRESENT
5. ANY LINES MARKED IN **RED** ARE TO BE ETCHED ONTO FACE SHOWN LINES ARE CRITICAL TO MANUFACTURE - PARTS WILL BE REJECTED IF INCORRECT OR NOT PRESENT
6. ANY CIRCULAR BALLOONS (10) REFERENCE "ITEM" IN THE DRAWING'S MAIN BOM TABLE

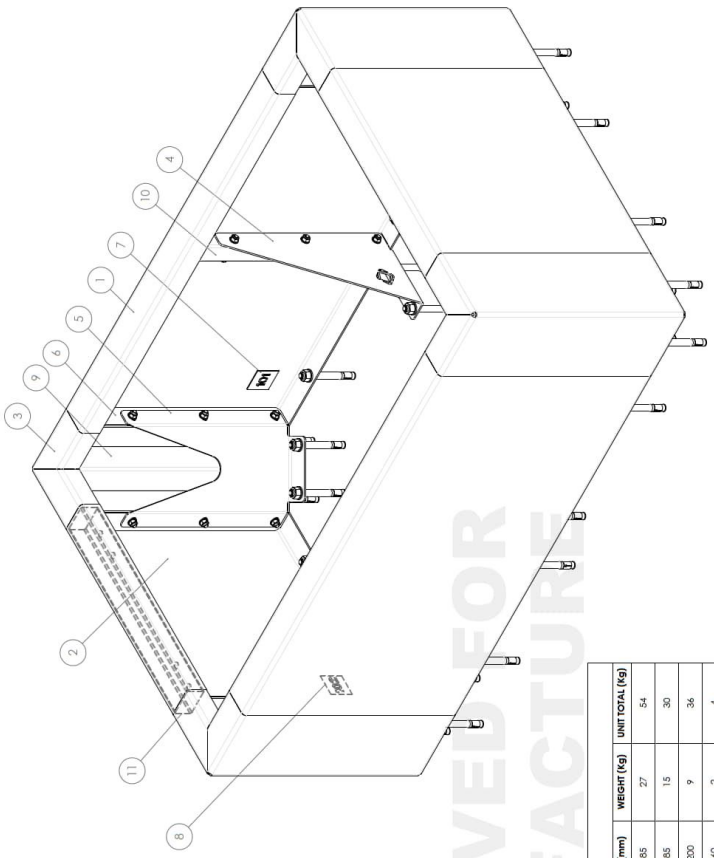



PROFILE NAME
600 MILD PLATE - 1.0044 (S275JR) INSPIRA PROTECT PANEL GUSSET
MATERIAL SPEC.
MILD PLATE - 1.0044 (S275JR)
THICKNESS (mm)
4
RELATES TO JOB
OS262
PROFILE ORDER CODE
262-104
MACHINE PROCESSES TO FOLLOW LASER PROFILING
3 x 12 X 16 THRU ALL
2 x Ø 18 THRU ALL
UP 90° R 3.84
INSPIRA PROTECT PANEL GUSSET
APPROVED FOR MANUFACTURE
SCALE - 1:5
(IF NOT 1:1 SEE OUTSIDE OF SHEET FORMAT FOR UNSCALED PROFILE)
262-104
bailey street furniture group
Adlington Business Park, London Road, Adlington, Cheshire, SK10 4NL
Tel: 01625 322 888 | enquiries@bsfg.co.uk
DRAWING NUMBER: BSSMAN25358-6_0
Doc. TYPE: MAN
SHEET: SHEET 6 OF 14
SCALE: 1:5 @A3
DRAWING TITLE: 262-104 - INSPIRA PROTECT PANEL GUSSET
PART NUMBER: INSPIRA PROTECT PANEL GUSSET
PART CONFIGURATION: 1SM-FLAT-PATTERN
PROFILE ORDER CODE: 262-104
BSFG JOB NUMBER: OS262
3rd ANGLE PROJECTION
DO NOT SCALE FROM DRAWING DIMENSIONS IN mm UNLESS STATED OTHERWISE
DRW: OS DATE: 14/10/2021
CHK: TS DATE: 15/10/2021
APP: JF DATE: 15/10/2021
DRAWING STATUS: APPROVED FOR MANUFACTURE
Doc.REV: 0
NOTES:
1. TO CONFIRM QTY PER FINISHED PART REFER TO BOM TABLE ON SHEET 2 OF 14
2. LASER CUTTING PROFILE - DIMENSIONS PROVIDED TO CHECK CORRECT SCALING ONLY
3. ENSURE FLAT PATTERN PROFILE MATCHES BENT PART OUTPUT TAKING INTO ACCOUNT, WORKING BEND ALLOWANCES AND ADJUST FROM APEX BEND POINTS AS REQUIRED.
ALL FOLDED SHEET METAL COMPONENTS DRAWN IN SOLIDWORKS 3D CAD WITH FOLLOWING PARAMETERS SET:
i. THICKNESS (t) AS ABOVE
ii. INSIDE BEND RADIUS AS CALCULATED R=(tx8)x0.16
iii. K-FACTOR UP TO t2mm = 0.273 / K-FACTOR t3-12mm = 0.4 / K-FACTOR 15+mm = 0.5
4. ANY CHARACTERS MARKED ON FACE ARE TO ETCHED AT SIZE, AND IN LOCATION SHOWN - PARTS WILL BE REJECTED IF INCORRECT OR NOT PRESENT
5. ANY LINES MARKED IN RED ARE TO BE ETCHED ONTO FACE SHOWN LINES ARE CRITICAL TO MANUFACTURE - PARTS WILL BE REJECTED IF INCORRECT OR NOT PRESENT
6. ANY CIRCULAR BALLOONS (10) REFERENCE 'ITEM' IN THE DRAWING'S MAIN BOM TABLE
© All content copyright Bailey Street Furniture Group




PROFILE NAME
777x600x4 - MILD PLATE - [S275JR] - INSPIRA PROTECT WALL PANEL [1025M-FLAT-PATTERN]
MATERIAL SPEC.
MILD PLATE - (S275JR)
THICKNESS (mm)
4
RELATES TO JOB
OS262
PROFILE ORDER CODE
262-102
INSPIRA PROTECT WALL PANEL 102
2 2X
77 INSIDE
55
(85)
60
600
SCALE - 1:10
(IF NOT 1:1 SEE OUTSIDE OF SHEET FORMAT FOR UNSCALED PROFILE)
MACHINE PROCESSES TO FOLLOW LASER PROFILING
APPROVED FOR MANUFACTURE
2 x Ø 18 THRU ALL
DOWN 90° R 5.12
DOWN 90° R 5.12
DOWN 90° R 5.12
777
726
648
56
22
0
600
460
140
0
4
262-102
NOTES:
1. TO CONFIRM: 1 QTY PER FINISHED PART REFER TO BOM TABLE ON SHEET 2 OF 14
2. LASER CUTTING PROFILE - DIMENSIONS PROVIDED TO CHECK CORRECT SCALING ONLY
3. ENSURE FLAT PATTERN PROFILE MATCHES BEST PART OUTPUT TAKING INTO ACCOUNT: WORKING BEND ALLOWANCES AND ADJUST FROM APEX BEND POINTS AS REQUIRED.
ALL FOLDED SHEET METAL COMPONENTS DRAWN IN SOLIDWORKS 3D CAD WITH FOLLOWING PARAMETERS SET:
i. THICKNESS (t) AS ABOVE
ii. INSIDE BEND RADIUS AS CALCULATED Rt(=t)=0.14
iii. K-FACTOR UP TO 45 AS 0.273 / K-FACTOR 45-135 = 0.4 / K-FACTOR 154mm = 0.5
4. ANY CHARACTERS MARKED ON FACE ARE TO ENGRAVED AT SIZE AND IN LOCATION SHOWN - PARTS WILL BE REJECTED IF INCORRECT OR NOT PRESENT
5. ANY LINES MARKED IN RED ARE TO BE ETCHED ONTO FACE SHOWN LINES ARE CRITICAL TO MANUFACTURE - PARTS WILL BE REJECTED IF INCORRECT OR NOT PRESENT
6. ANY CIRCULAR BALLOONS (1) REFERENCE TITEM IN THE DRAWINGS MAIN BOM TABLE
DRAWING NUMBER: BSSMAN25358-4_0
DRAWING TITLE: 262-102 - INSPIRA PROTECT WALL PANEL
PART NUMBER: INSPIRA PROTECT WALL PANEL
PART CONFIGURATION: 1025M-FLAT-PATTERN
BSFG JOB NUMBER: OS262
Doc. TYPE: MAIN
SHEET: SHEET 4 OF 14
SCALE: 1:10 @A3
PROFILE ORDER CODE: 262-102
3rd ANGLE PROJECTION
DO NOT SCALE FROM DRAWING DIMENSIONS IN mm UNLESS STATED OTHERWISE
DRW: OS 14/10/2021
CHK: TS 15/10/2021
APP: JF 15/10/2021
DRAWING STATUS: APPROVED FOR MANUFACTURE
Doc.REV: 0
bailey street furniture group
Adlington Business Park, London Road, Adlington, Cheshire, SK10 4NL
Tel: 01625 322 888 | enquiries@bsfg.co.uk
© All content copyright Bailey Street Furniture Group





APPROVED FOR MANUFACTURE

FULL ASSEMBLY BILL OF MATERIALS - LxWxH GIVE OVERALL AS-BUILT DIMS ONLY, SEE DETAIL SHEETS FOR ORDER SPECIFICATION

ITEM	PART NAME	CONFIRGURATION	QTY.	POC/MPN	L (mm)	W (mm)	H (mm)	WEIGHT (kg)	UNIT TOTAL (kg)
1	INSPIRA PROTECT WALL PANEL	101	2	262-101	1100	600	85	27	54
2	INSPIRA PROTECT WALL PANEL	102	2	262-102	600	600	85	15	30
3	INSPIRA PROTECT CORNER WALL PANEL	103	4	262-103	600	200	200	9	36
4	INSPIRA PROTECT PANEL GUSSET	1	2	262-104	478	224	60	2	4
5	INSPIRA PROTECT CORNER BRACE	1	4	262-105	460	267	92	3	12
6	INSPIRA PROTECT GUSSET FLANGE	FLANGE A	16	262-106	542	56	4	1	16
7	INSPIRA PROTECT ID PROFILE	101	2	ID-101	60	60	2	0	0
8	INSPIRA PROTECT ID PROFILE	102	2	ID-102	60	60	2	0	0
9	INSPIRA PROTECT CORNER BEAM	STD	4		592	345	345	7	28
10	INSPIRA PROTECT WALL BEAM	A1	2		1096	592	75	8	16
11	INSPIRA PROTECT WALL BEAM	A2	2		596	75	50	3	6
12	B2P HEX BOLT	M10x30 B2P HEX BOLT	24					0.0301	0.7224
13	B2P HEX BOLT	M10x70 B2P HEX BOLT	6					0.0546	0.3276
14	B2P HEX BOLT	M12x40 B2P HEX BOLT	16					0.0525	0.84
15	B2P HEX NUT	M10	30					0.011	0.33
16	B2P STEEL RIVET NUT	M12	16					0.0	0
17	B2P PLAIN WASHER	M10	60					0	0
18	B2P PLAIN WASHER	M12	16					0	0
19	B2P THROUGHBOLT	M16x150 B2P THROUGHBOLT	30					0	0

BILL OF MATERIALS

bailey street furniture group

Adlington Business Park, London Road, Adlington, Cheshire, SK10 4NL
Tel: 01625 322 888 | enquiries@bsfg.co.uk

DRAWING NUMBER: BSSMAN25358-2_0
DRAWING TITLE: BILL OF MATERIALS - INSPIRA PROTECT 1500x1000
PART NUMBER: INSPIRA PROTECT 1500x1000
PART CONFIGURATION: na
BSFG JOB NUMBER: OS262

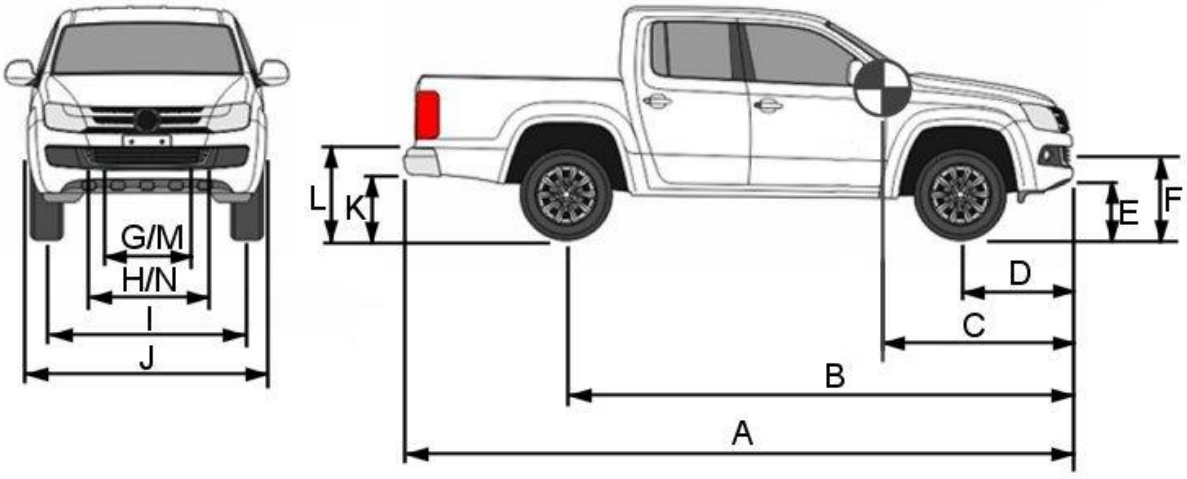
Doc. TYPE: MAN SHEET: SHEET 2 OF 14
3rd ANGLE PROJECTION

SCALE: 1:10 @A3
DO NOT SCALE FROM DRAWING DIMENSIONS IN mm UNLESS STATED OTHERWISE

DRW: OS DATE: 14/10/2021
CHK: TS DATE: 15/10/2021
APP: JF DATE: 15/10/2021
DRAWING STATUS: APPROVED FOR MANUFACTURE
Doc. REV: 0

NOTES:
1. WHILE EVERY POSSIBLE ATTEMPT HAS BEEN MADE TO ACCURATELY ANNOTATE AND TOTAL-UP ALL CONSTITUENT PARTS IN A BILL OF MATERIALS, IT IS ADVISED THAT THE APPOINTED MANUFACTURER VALIDATES THE INFORMATION PROVIDED PRIOR TO FABRICATION; ANY DISCREPANCIES **MUST** BE REPORTED TO BAILEY STREETSCENE BEFORE COMMENCING WORK.
2. BOM TABLE MAY NOT INCLUDE AUXILIARY ITEMS incl. FIXINGS, GUTTERING, PLASTIC SHEETING Etc
3. ALL QTYS SHOWN IN BOM TABLE ARE PER COMPLETE PRODUCT ONLY - SEE SALES ORDER FOR TOTAL QTYs REQUIRED
4. ANY CIRCULAR BALLOONS (10) REFERENCE ITEMS IN THE DRAWINGS MAIN BOM TABLE
5. ANY SQUARE BALLOONS [10] REFERENCE ITEMS IN AN INDIVIDUAL WELDMENTS CUT-LIST TABLE

Appendix 2 Test Vehicle Details



Test Vehicle Details	
Vehicle classification	N1G
Vehicle Registration No.	LL62VSG
Vehicle Identity No (VIN)	AHTFR22G106061119
Unladen Mass (kg)	1990
Test Inertial Mass (kg)	2521
Net Ballast Mass (kg)	531
Number of axles x driven axle	1S+1
Tyre Size	205/16C

Test Vehicle Measurements (mm)					
A	Vehicle overall length	5220	H	Distance between outside edges of chassis rail at front	1150
B	Vehicle front to rearmost axle	3958	I	Front track width (tyre centres)	1530
C	Vehicle front to datum point	1415	J	Vehicle width (excluding mirrors)	1752
D	Vehicle front to front axle	928	K	Height from ground to bottom of chassis at rear	538
E	Height from ground to bottom of chassis at front	415	L	Height from ground to top of chassis at rear	727
F	Height from ground to top of chassis at front	490	M	Distance between inside edges of chassis rails at rear	995
G	Distance between inside edges of chassis rails at front	958	N	Distance between outside edges of chassis rails at rear	1150

Appendix 3 Calibration Information

Instrumentation

Location	QA No	CAC	Cal Due Date
Vehicle CG Acc X	50081	2000g	24/12/2021
Vehicle CG Acc Y	50085	2000g	24/12/2021
Vehicle CG Acc Z	42724	2000g	30/07/2022
Vehicle CG Gyro X	45216	600deg/sec	03/11/2022
Vehicle CG Gyro Y	45217	600deg/sec	03/11/2022
Vehicle CG Gyro Z	45218	600deg/sec	03/11/2022
Vehicle CG Acc X Backup	48301	2000g	25/03/2022
Vehicle CG Acc Y Backup	48392	2000g	26/01/2022
Vehicle CG Acc Z Backup	50083	2000g	24/12/2021
DTS Slice SPS00319	40612	n/a	09/03/2022

Other Tools

Item	QA No	Used for	Cal Due Date
Scales (LHF)	43053	Vehicle mass measuring	02/08/2022
Scales (RHF)	43054	Vehicle mass measuring	02/08/2022
Scales (LHR)	43055	Vehicle mass measuring	02/08/2022
Scales (RHR)	43056	Vehicle mass measuring	02/08/2022
Tape Measure	50126	Vehicle dimensions	22/03/2022
Tyre Pressure Gauge	47583	Tyre pressure measurement	04/02/2022
Inclinometer	50521	Vehicle centre of gravity	17/05/2022
C of G Loadcell	44810	Vehicle centre of gravity	27/01/2022
Inclinometer	44613	Product and foundation angles	15/09/2022
Tape Measure	41047	Product dimensions/penetration	02/11/2022
VBox GPS	44647	Impact speed and angle	09/02/2022

High Speed Cameras

Position	Camera QA No	Cal Due Date	Lens Type	Image Rate (pps)	X (m) to impact	Y (m) to impact	Z (m) to impact
OH Standard	41525	03/08/2022	12	500	0	0	-12.4
OH Close	41527	25/05/2022	16	500	0	0	-12.4
Side on	41526	25/05/2022	25	500	0	-27	-1.2
Downstream	41523	25/05/2022	Zoom	500	28	0	-1.2
Oblique	41528	25/05/2022	35	500	10	12	-1.2

Appendix 4 Test Sign-off Sheet

Test No:	Y0062

Product Information & Documentation

In line with legislative requirements please ensure the following information is provided by completing and returning this form and supplying the requested accompanying documentation.

Client Details	
Company name:	Centre for the Protection of National Infrastructure (CPNI)
Company address:	CPNI Business Support, London, P O Box 60628, London,
Contact name:	Dean B
Contact tel:	N/a
Contact email:	N/a
Product Details	
Manufacturer:	Bailey Street Furniture
Unique Product Name/Designation:-	Inspira Protect 1500x1000
Prototype or Production sample:	Production
What orientation is required:	90 deg
Test Details	
Legislation to be tested against:	IWA14-1:2013
Test Designation/speed class within	N1G - 4x4 Pick-up
Required Impact Speed(s):	48 +3 -1 km/h
Required Impact Angle(s):	90 +2 -2°
Required Test Vehicle:	N1G @ 2500 ±75kg

Please accompany this form with the following documentation. Please indicate below whether the documentation has been supplied, please also indicate if any information is not available or not applicable.

Product Documentation Supplied	
General Arrangement drawings (including tolerences and installation instructions):	X
Component drawings (including dimensions, tolerences and material specifications):	X
Factory Sub-assembly drawings:	X
Parts List:	X
Material specification certificates:	no
Operating Manual	no
Other relevant information (disposal/recycling, safety instructions)	no

Funding						
	Product	Install	Removal	Vehicle	Test	Report
Manufacturer	X	X	X			
3rd Party: n/a				X	X	X
MIRA						

Test Sign-Off			
Please sign below Confirm that:-			
• The product and installation are to design intent and correct for test.			
• The target test parameters are correct.			
Comments/Agreed Deviations			
	Sign	Print	Date
On Behalf of Client:	[redacted]	[redacted]	13/12/21
On Behalf of Manufacturer: (If applicable)		Barrie Woodcock	13/12/21
On behalf of HORIBA MIRA Ltd		DJohnstone	13/12/21

Appendix 5 Revision History

Report Number	Date	Comments	Sections Affected
1225361-004-016-01	19/02/2022	First Issue	n/a
1225361-004-016-02	06/10/2022	Update product name	Front Page