



NEWSUBSTANCE

PROJECT: 2328 CWT – Citylink Walking Route

INSTALLATION REFERENCE CWT_001_TRAIL START SIGN

CLIENT: Oak View Group

DOCUMENT: Design Summary Planning

DATE: 14/03/24

Information compiled by

NEWSUBSTANCE LTD.

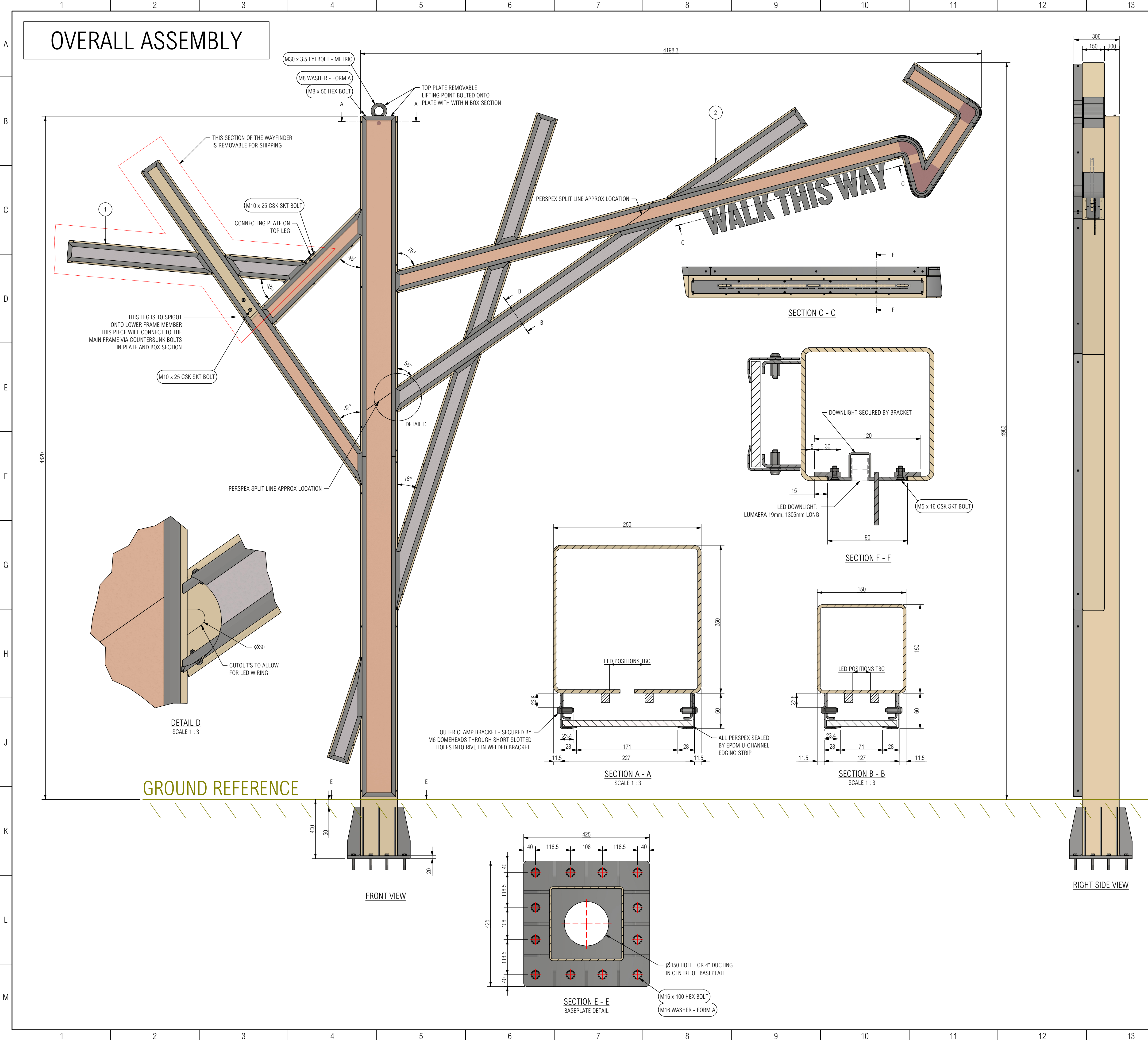
Greensand Foundry,

99 Water Lane,

Leeds

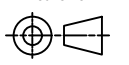
LS11 5QN, UK

Summary of Scheme



ITEM LIST			
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1	TRAO424-AA01-0004	LH FRAME ASSY	1
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N/A	M5 x 16 CSK SKT BOLT	M5 x 16 CSK SKT BOLT	22
N/A	M16 WASHER - FORM A	M16 WASHER - FORM A	12
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N/A	M6 x 25 - SKT BUTTON HEAD SCREW	M6 x 25 - SKT BUTTON HEAD SCREW	91
N/A	M30 x 3.5 EYEBOLT - METRIC	M30 x 3.5 EYEBOLT - METRIC	1
TBC	TRAO424-AA01-0236	LETTERING PLATE	1

- GENERAL NOTES**
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SHEET 1: OVERALL SHEET 2: TRAVEL CRADLE SHEET 3: PERSPEX POSITION SHEET 4: CAPPING POSITION			
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	CLIENT: NEWSUBSTANCE LTD		PROJECT: CO-OP LIVE TRAIL START
	GROUP: AA - MANUFACTURED ITEMS		
	SUBGROUP: 01 - TRAIL START WAY FINDER		
	DRAWING TYPE: GA	DRAWN BY: JGS	PROJECTION: 
DRAWING TITLE: TRAILFINDER GENERAL ASSEMBLY		DRAWING SIZE: A1	DRAWING SCALE: 1 : 12
DRAWING NUMBER: TRAO424-AA01-0001		SHEET No: 1 / 4	
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Summary of Reaction Loads at Foundation



COO0424 – Co-op Live Sculptures

Analysis Models – Base Reactions

Rev. 01

Date: 16/02/2024

INTRODUCTION

This document provides screenshots of each of the analysis models created by Stage One, showing the unfactored base reactions for each of the loadcases considered.

The base supports shown are as per Stage One's own modelling assumptions. They do not represent the final positions of the embedment bolts. The base support reactions provided in this summary report are purely for the use of the client structural engineer to carry out their own assessment of the foundations required.

The loadcases considered include the structure self-weight (SW), superimposed dead load (cladding, finishes etc.), Live loading (persons, maintenance), Live Snow loading and Wind Loading.

The wind loading has been considered for the most onerous plan directions upon the structures. Note that the reactions shown will be subjected to load reversal for opposing wind cases, and hence should be considered in the foundation designs.

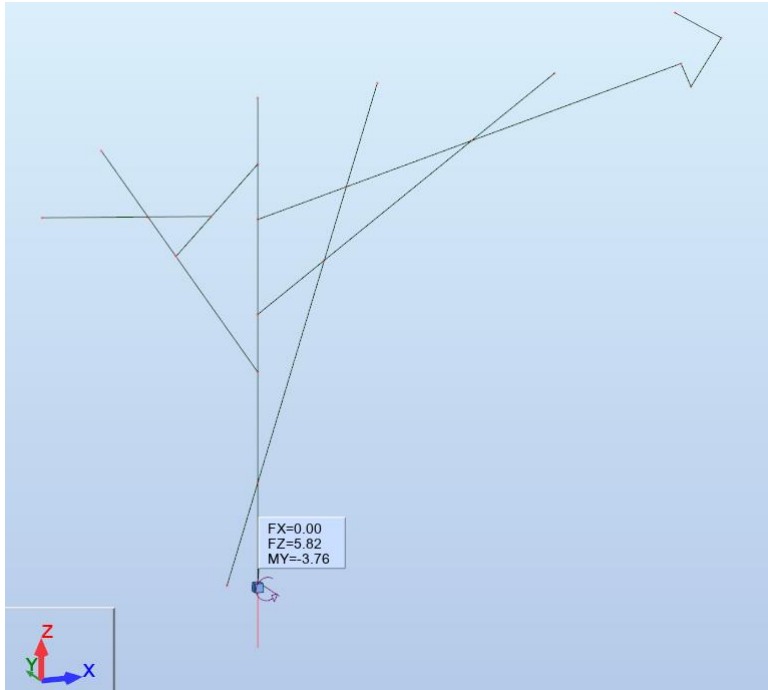
Forces shown are for FX, FY and FZ directions.

Moments shown are for MX, MY and MZ directions.

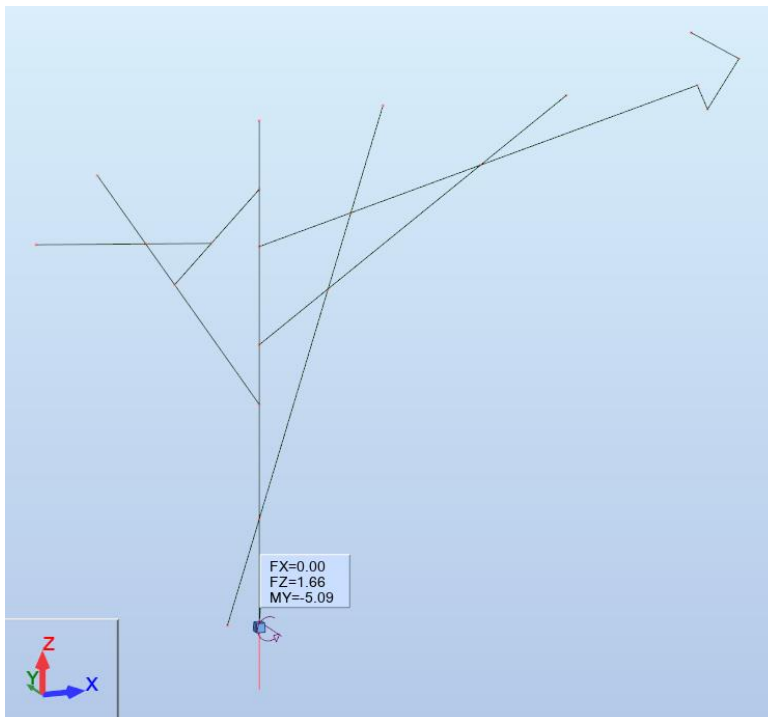


WAYFINDER

Self-Weight (SW)

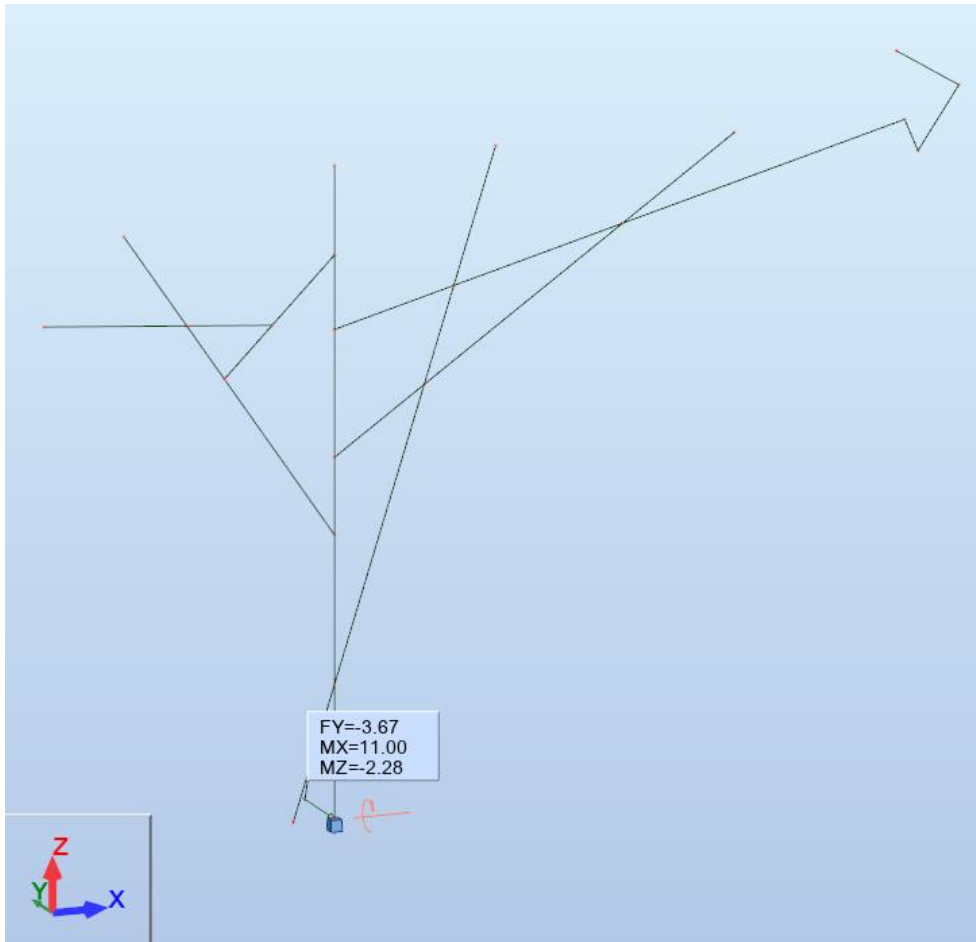


Live Load (LL)





Wind +Y Direction



Specifier's comments:

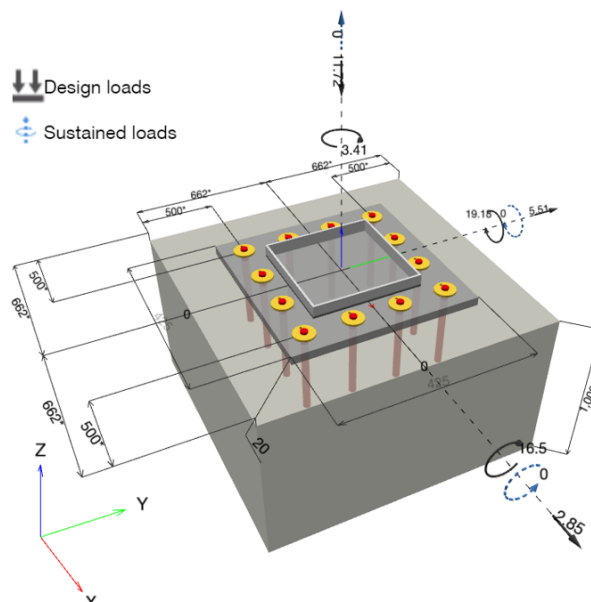
1 Input data

Anchor type and size:	HIT-HY 200-A V3 + HAS-U 5.8 M16
Return period (service life in years):	50
Item number:	2223869 HAS-U 5.8 M16x260 (insert) / 2378171 HIT-HY 200-A V3 (mortar)
Insert item # alternative:	2390209 HAS 5.8 M16x260
Hilti Filling Set or any suitable annular gap filling solution	
Effective embedment depth:	$h_{ef,act} = 175.0 \text{ mm}$ ($h_{ef,limit} = - \text{ mm}$)
Material:	5.8
Approval No.:	ETA 19/0601
Issued Valid:	02/06/2023 -
Proof:	SOFA based on EN 1992-4, Chemical
Stand-off installation:	$e_b = 0.0 \text{ mm}$ (no stand-off); $t = 20.0 \text{ mm}$
Baseplate ^{CBFEM} :	$l_x \times l_y \times t = 425.0 \text{ mm} \times 425.0 \text{ mm} \times 20.0 \text{ mm}$;
Profile:	Square hollow, $250 \times 250 \times 5$; ($L \times W \times T$) = $250.0 \text{ mm} \times 250.0 \text{ mm} \times 5.0 \text{ mm}$
Base material:	cracked concrete, C30/37, $f_{c,cyl} = 30.00 \text{ N/mm}^2$; $h = 1,000.0 \text{ mm}$, Temp. short/long: 0/0 °C, User-defined partial material safety factor $\gamma_c = 1.500$
Installation:	hammer drilled hole, Installation condition: Dry
Reinforcement:	No reinforcement or Reinforcement spacing $\geq 150 \text{ mm}$ (any $\emptyset$) or $\geq 100 \text{ mm}$ ($\emptyset \leq 10 \text{ mm}$) no longitudinal edge reinforcement



CBFEM - The anchor calculation is based on a component-based Finite Element Method (CBFEM)

Geometry [mm] & Loading [kN, kNm]





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Company:		Page:	2
Address:		Specifier:	
Phone I Fax:		E-Mail:	
Design:	WAYFINDER	Date:	29/02/2024
Fastening Point:			

1.1 Load combination

Case	Description	Forces [kN] / Moments [kNm]	Seismic	Fire	Max. Util. Anchor [%]
1	Combination 1	N = -11.720; V _x = 2.850; V _y = 5.510; M _x = -16.500; M _y = 19.180; M _z = -3.410; N _{sus} = 0.000; M _{x,sus} = 0.000; M _{y,sus} = 0.000;	no	no	80

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Design:

Fastening Point:

|

WAYFINDER

Page:

Specifier:

E-Mail:

Date:

3

29/02/2024

2 Proof I Utilisation (Governing Cases)

Loading	Proof	Design values [kN]		Utilization	Status
		Load	Capacity	β_N / β_V [%]	
Tension	Combined pullout-concrete cone failure	97.857	122.940	80 / -	OK
Shear	Concrete edge failure in direction y+	10.487	83.910	- / 13	OK

Loading	β_N	β_V	α	Utilization $\beta_{N,V}$ [%]	Status
Combined tension and shear loads	0.796	0.125	1.500	76	OK

3 Warnings

- Please consider all details and hints/warnings given in the detailed report!

Fastening meets the design criteria!



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WAYFINDER

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E-Mail:

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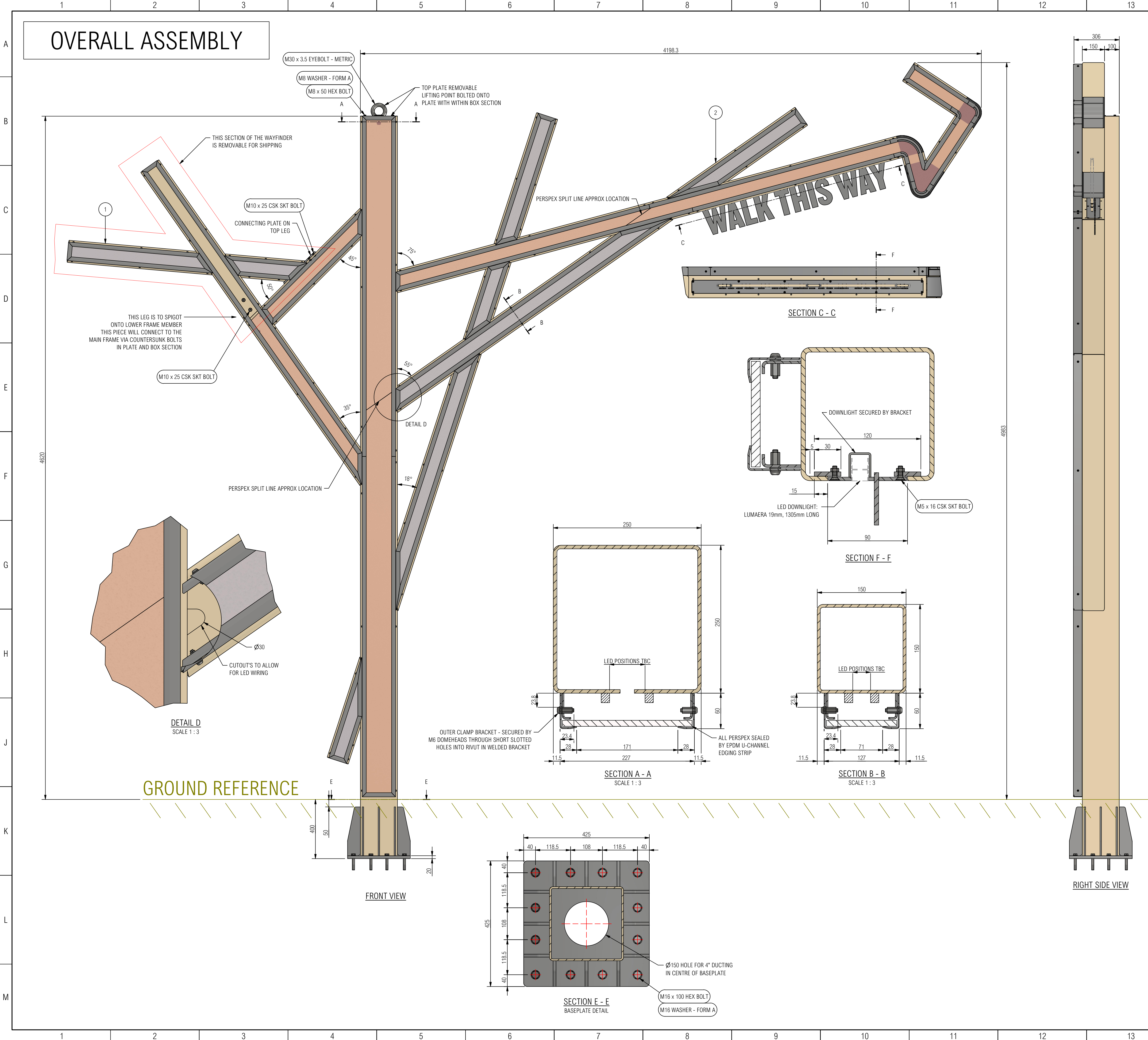
4

29/02/2024

4 Remarks; Your Cooperation Duties

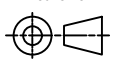
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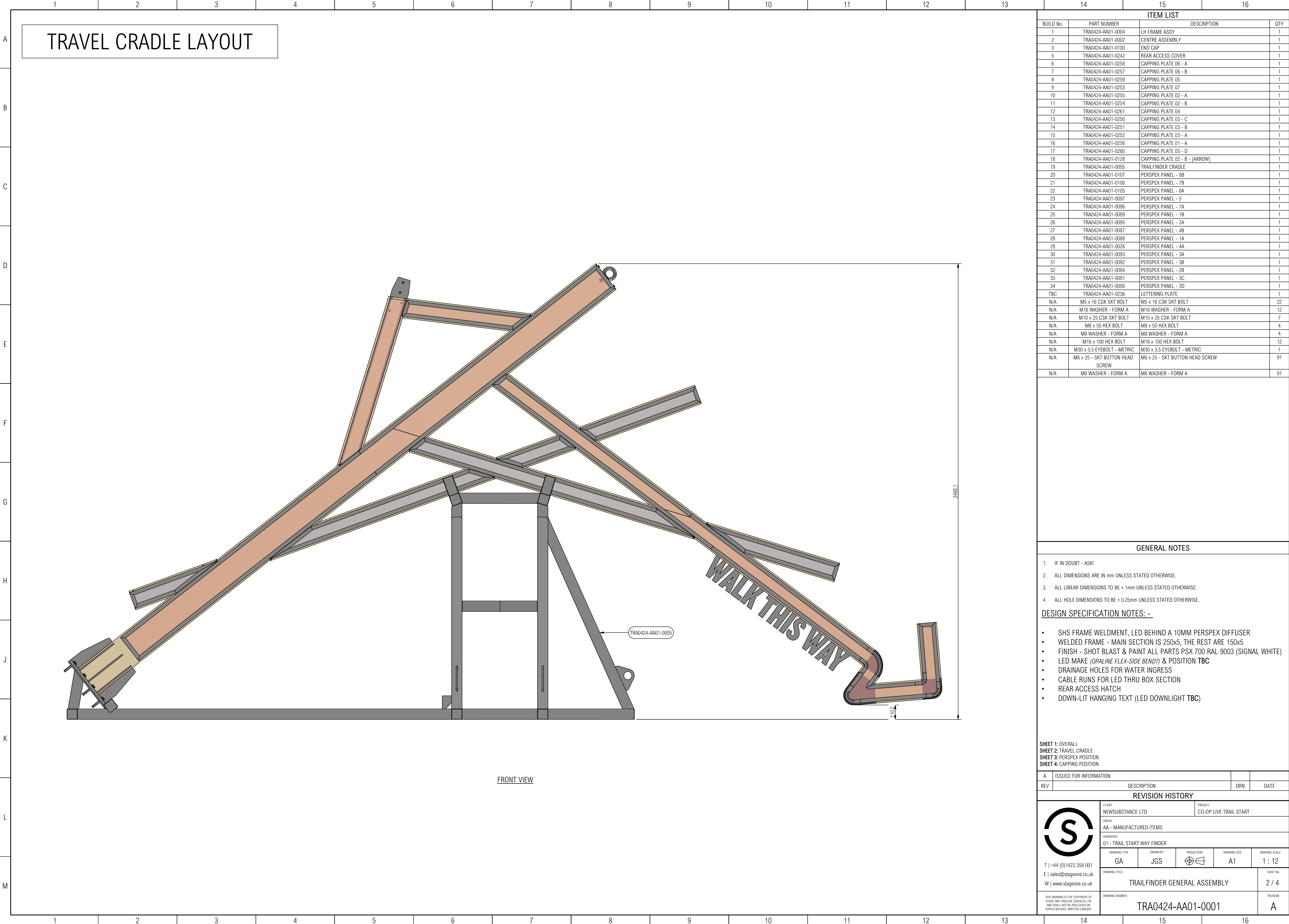
Fabrication Drawings



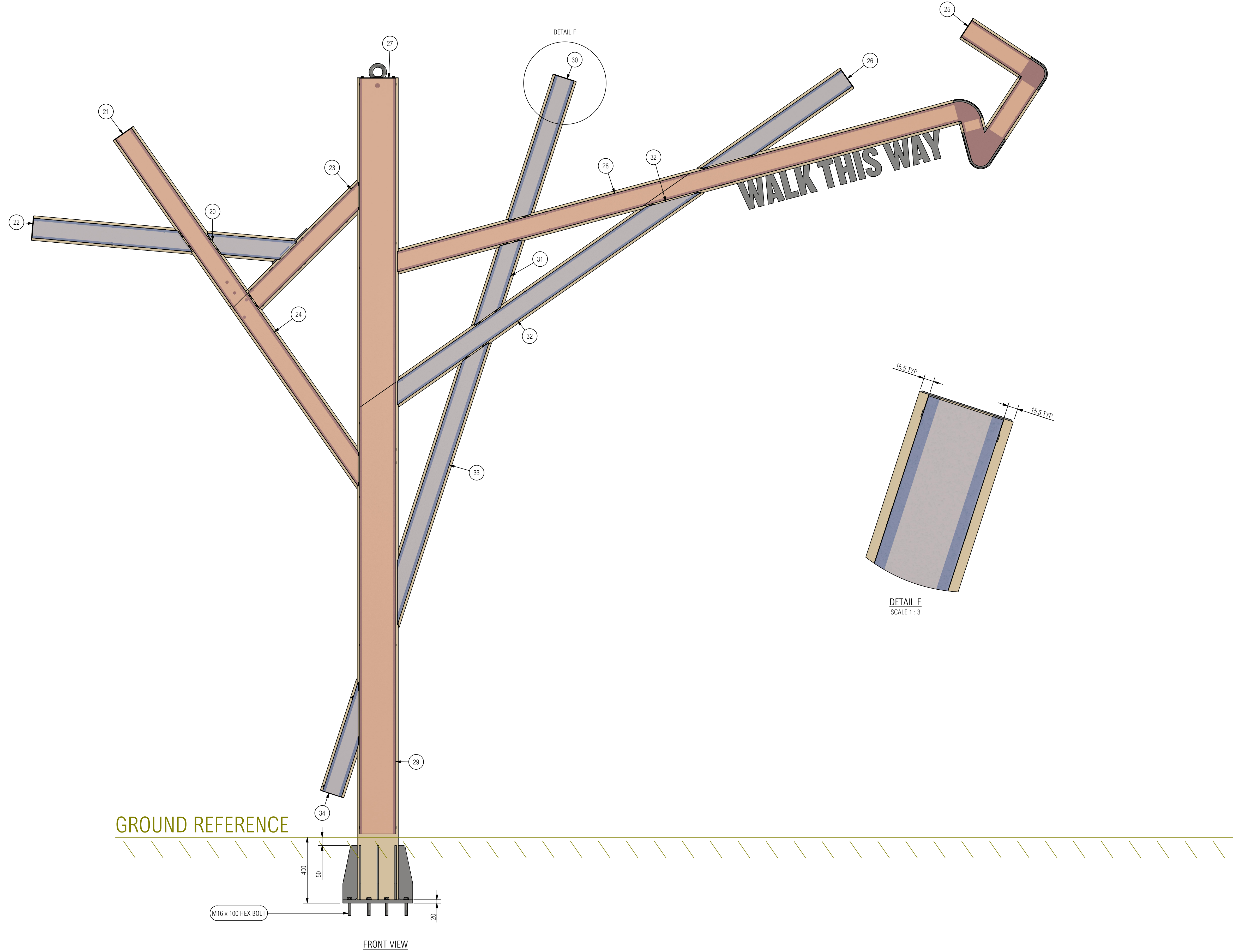
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PERSPEX LAYOUT



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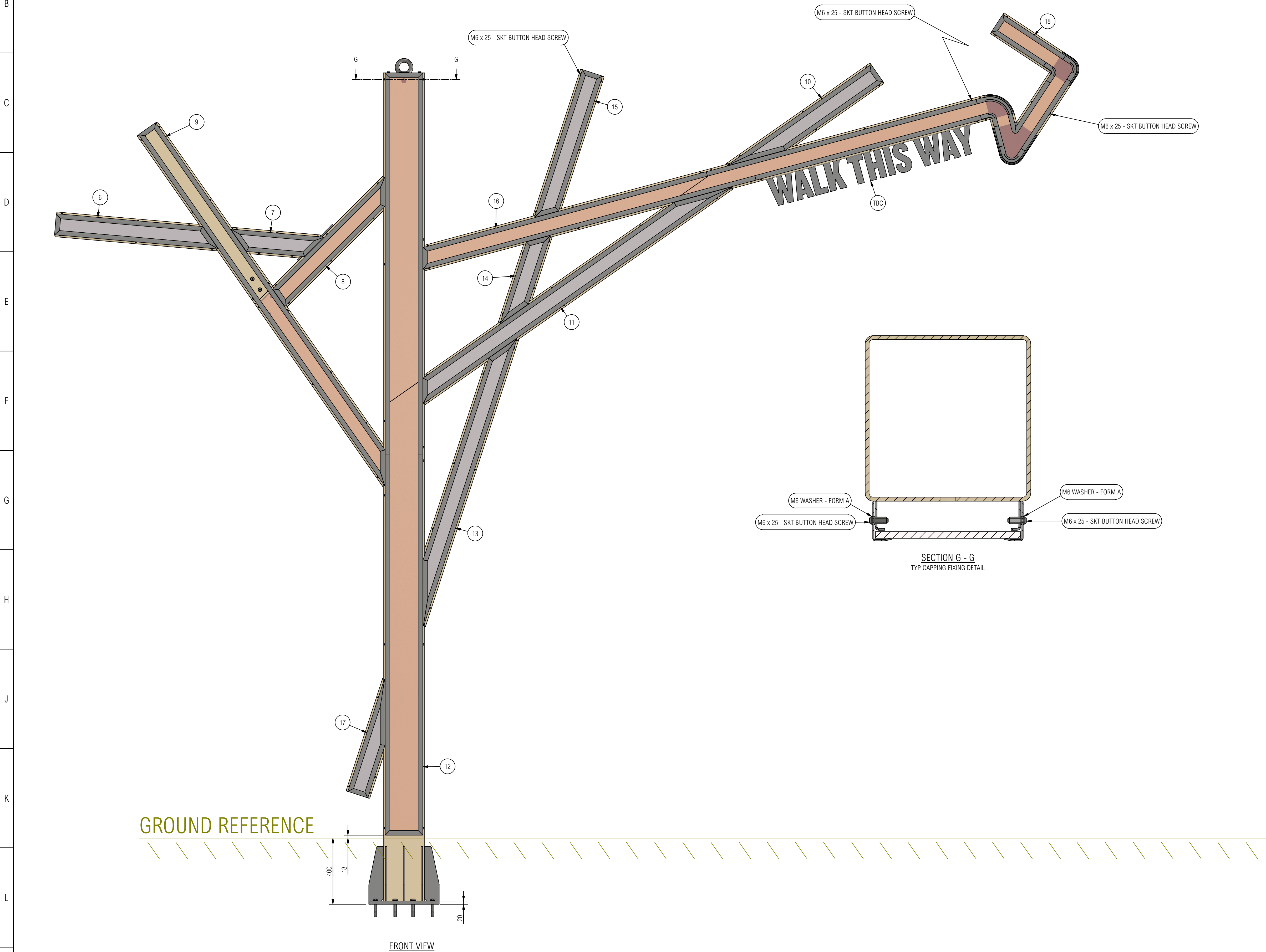


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DRAWING TITLE: TRAILFINDER GENERAL ASSEMBLY				SHEET NO: 3 / 4
DRAWING NUMBER: TRAO424-AA01-0001				REVISION: A

A PERSPEX CAPPING LAYOUT



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22	TRA0424-AA01-0105	PERSPEX PANEL - 6A	1
23	TRA0424-AA01-0097	PERSPEX PANEL - 5	1
24	TRA0424-AA01-0096	PERSPEX PANEL - 7A	1
25	TRA0424-AA01-0089	PERSPEX PANEL - 1B	1
26	TRA0424-AA01-0095	PERSPEX PANEL - 2A	1
27	TRA0424-AA01-0087	PERSPEX PANEL - 4B	1
28	TRA0424-AA01-0088	PERSPEX PANEL - 1A	1
29	TRA0424-AA01-0026	PERSPEX PANEL - 4A	1
30	TRA0424-AA01-0093	PERSPEX PANEL - 3A	1
31	TRA0424-AA01-0092	PERSPEX PANEL - 3B	1
32	TRA0424-AA01-0094	PERSPEX PANEL - 2B	1
33	TRA0424-AA01-0091	PERSPEX PANEL - 3C	1
34	TRA0424-AA01-0090	PERSPEX PANEL - 3D	1
N/A	M5 x 16 CSK SKT BOLT	M5 x 16 CSK SKT BOLT	22
N/A	M16 WASHER - FORM A	M16 WASHER - FORM A	12
N/A	M10 x 25 CSK SKT BOLT	M10 x 25 CSK SKT BOLT	7
N/A	M8 x 50 HEX BOLT	M8 x 50 HEX BOLT	4
N/A	M8 WASHER - FORM A	M8 WASHER - FORM A	12
N/A	M16 x 100 HEX BOLT	M16 x 100 HEX BOLT	4
N/A	M6 WASHER - FORM A	M6 WASHER - FORM A	91
N/A	M6 x 25 - SKT BUTTON HEAD SCREW	M6 x 25 - SKT BUTTON HEAD SCREW	91
N/A	M30 x 3.5 EYEBOLT - METRIC	M30 x 3.5 EYEBOLT - METRIC	1
TBC	TRA0424-AA01-0236	LETTERING PLATE	1

GENERAL NOTES

1. IF IN DOUBT - ASK!
2. ALL DIMENSIONS ARE IN mm UNLESS STATED OTHERWISE.
3. ALL LINEAR DIMENSIONS TO BE $\pm 1\text{mm}$ UNLESS STATED OTHERWISE.
4. ALL HOLE DIMENSIONS TO BE $\pm 0.25\text{mm}$ UNLESS STATED OTHERWISE.

DESIGN SPECIFICATION NOTES: -

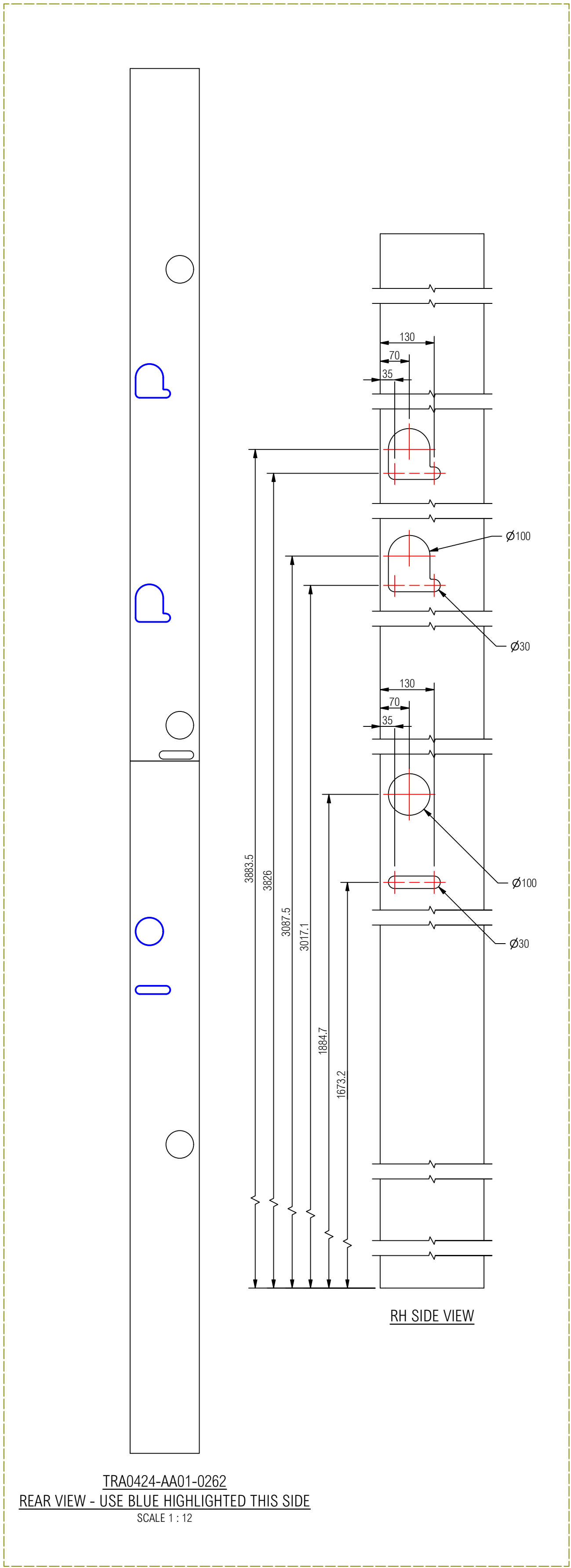
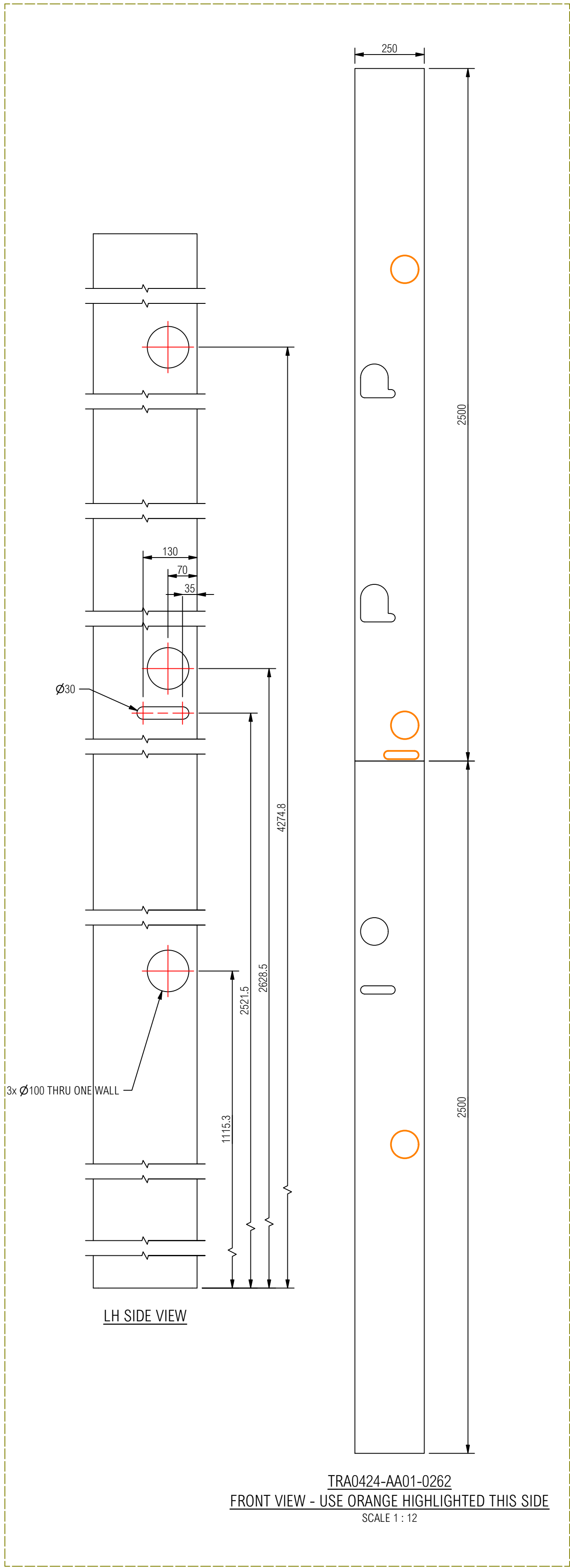
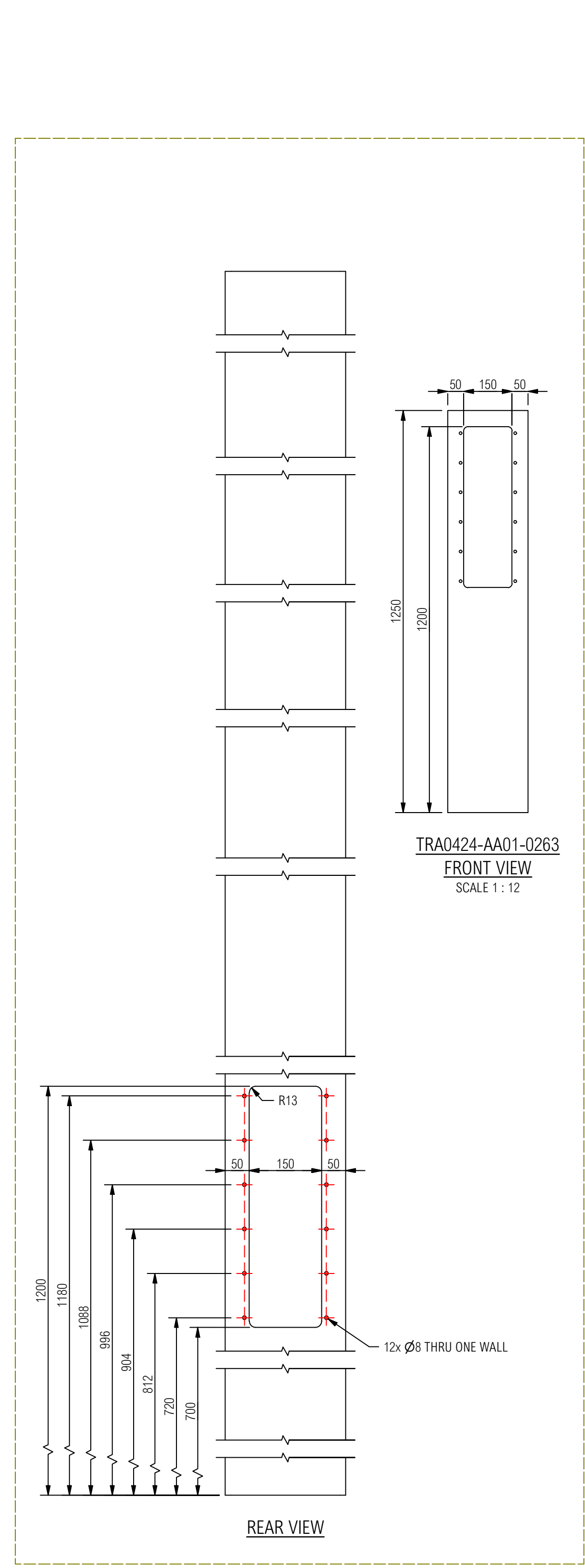
- SHS FRAME WELDMENT, LED BEHIND A 10MM PERSPEX DIFFUSER
- WELDED FRAME - MAIN SECTION IS 250x5, THE REST ARE 150x5
- FINISH - SHOT BLAST & PAINT ALL PARTS PSX 700 RAL 9003 (SIGNAL WHITE)
- LED MAKE (*OPALINE FLEX-SIDE BEND*) & POSITION **TBC**
- DRAINAGE HOLES FOR WATER INGRESS
- CABLE RUNS FOR LED THRU BOX SECTION
- REAR ACCESS HATCH
- DOWN-LIT HANGING TEXT (LED DOWNLIGHT **TBC**)

SHEET 1: OVERALL
SHEET 2: TRAVEL CRADLE
SHEET 3: PERSPEX POSITION
SHEET 4: CAPPING POSITION

A	ISSUED FOR INFORMATION		
REV	DESCRIPTION	DRN	DATE

</

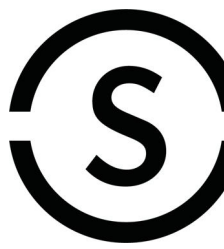
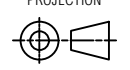
250 SHS CUTTING DETAILS - TO BE CUT BY METALSHOP

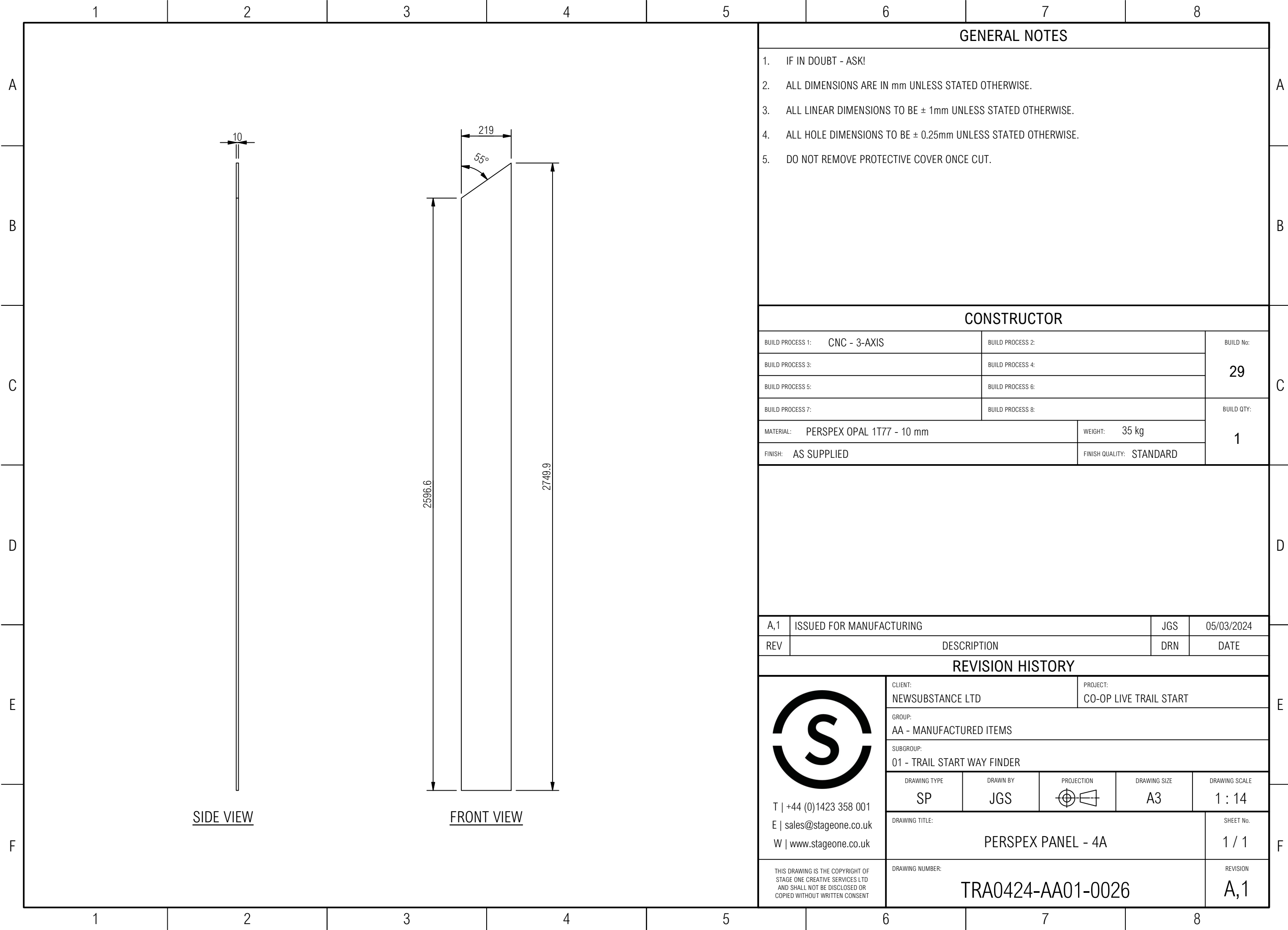


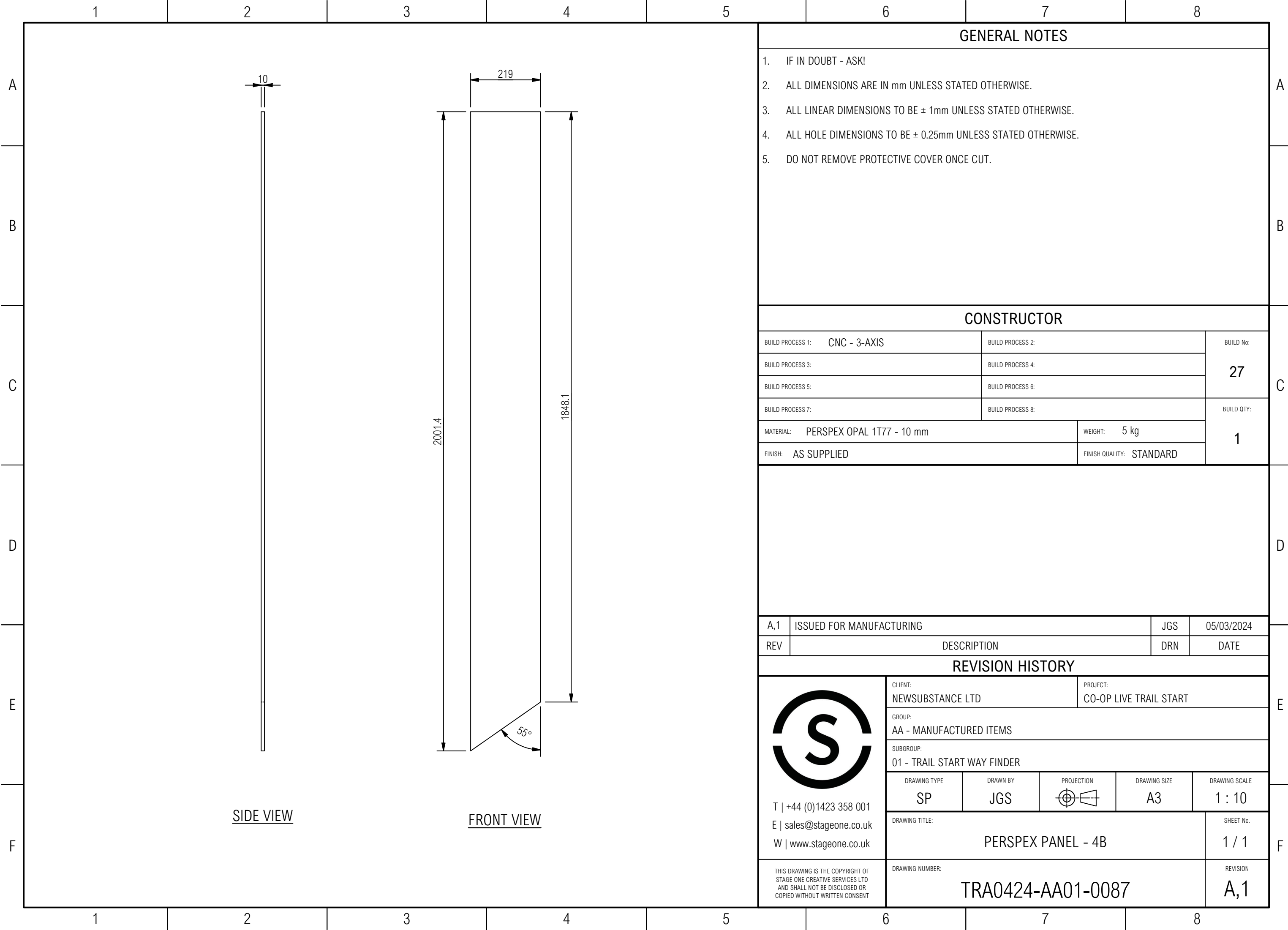
BILL OF MATERIALS						
ITEM	PART NUMBER	REV	DESCRIPTION	MATERIAL	CUT	QTY
1	TRA0424-AA01-0023	A	FRAME MEMBER	250 x 250 x 6 SHS - MS S235 (CF)	NO	1
2	TRA0424-AA01-0262	A	JIG PLATE	MS PLATE S275 - 3 mm	YES	2
3	TRA0424-AA01-0263	A	JIG PLATE	MS PLATE S275 - 3 mm	YES	1

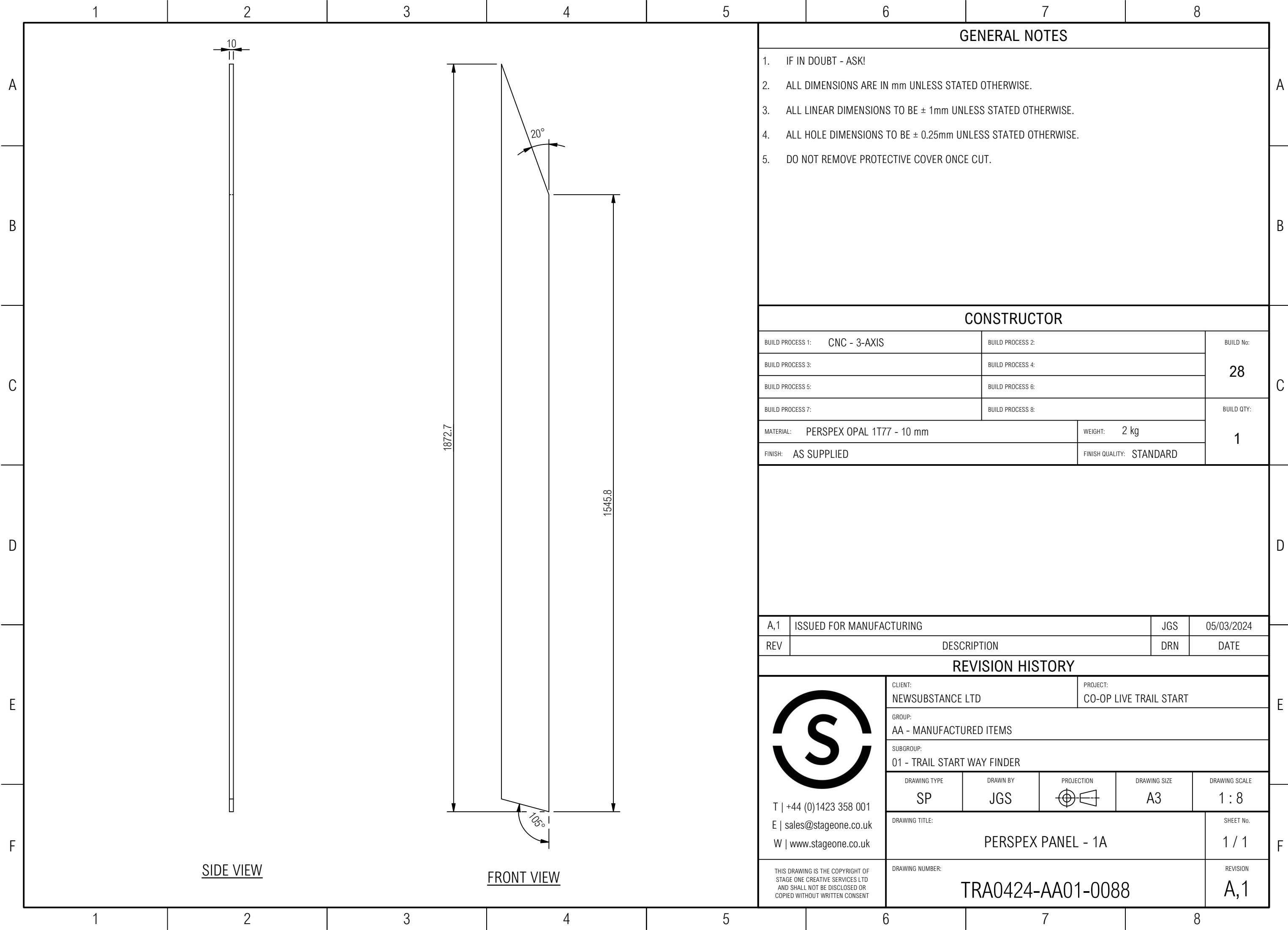
- GENERAL NOTES
- IF IN DOUBT - ASK!
 - ALL DIMENSIONS ARE IN mm UNLESS STATED OTHERWISE.
 - ALL LINEAR DIMENSIONS TO BE ± 1mm UNLESS STATED OTHERWISE.
 - ALL HOLE DIMENSIONS TO BE ± 0.25mm UNLESS STATED OTHERWISE.
 - CUTTING DETAILS FOR 250 SHS - FOR MAIN ASSEMBLY SEE DRAWING TRA0424-AA01-0002.
 - MAIN 250 SHS HAS BEEN ORDERED - FOR LASERED JIGS USE ANY MATERIAL LOWEST GRADE AVAILABLE.

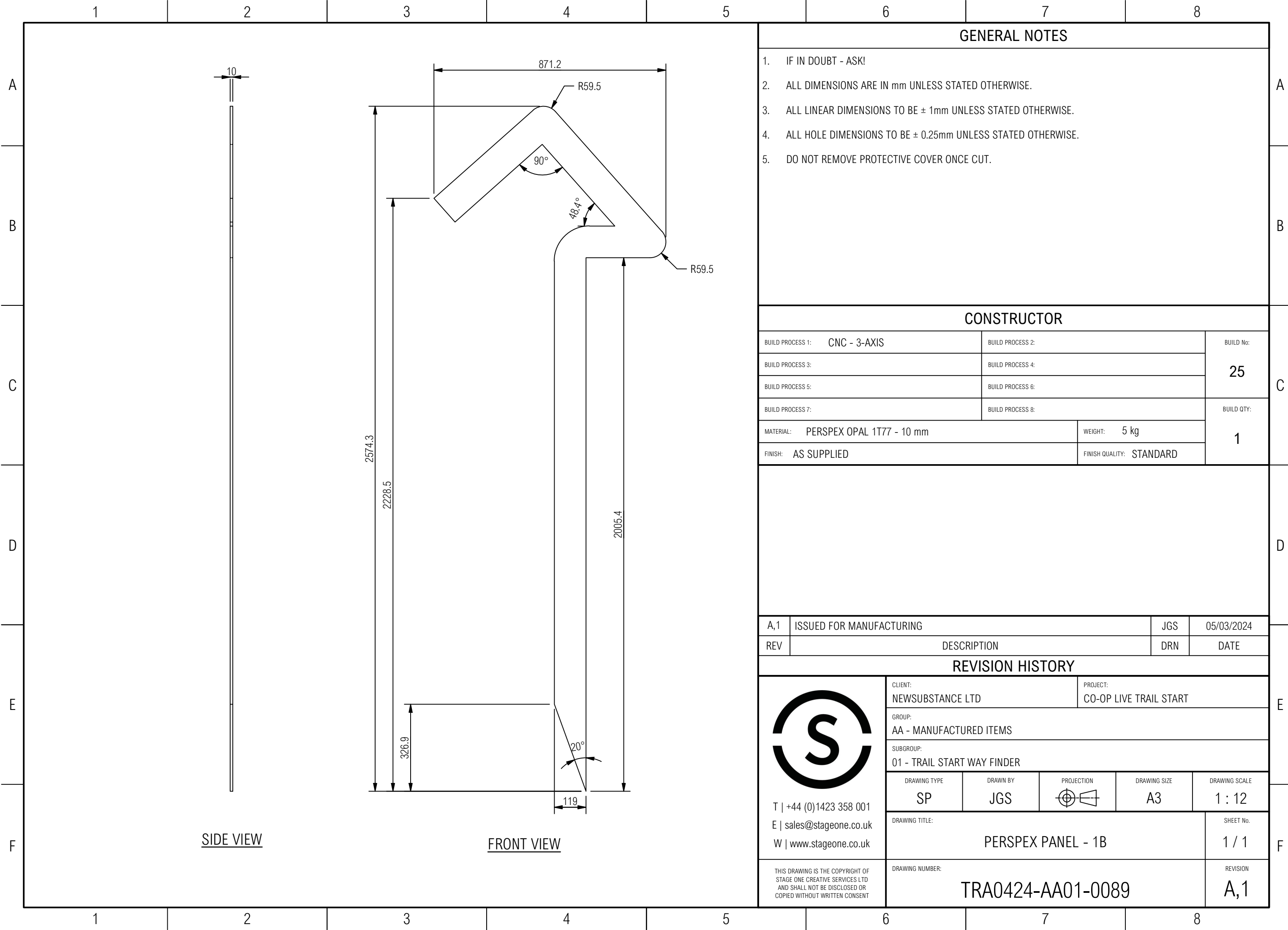
CONSTRUCTOR			
BUILD PROCESS 1:	LASER PLATE	BUILD PROCESS 2:	METALWORK
BUILD PROCESS 3:		BUILD PROCESS 4:	
BUILD PROCESS 5:		BUILD PROCESS 6:	
BUILD PROCESS 7:		BUILD PROCESS 8:	
MATERIAL:	250 x 250 x 6 SHS - MS S235 (CF)	WEIGHT:	220 kg
FINISH:	MILD STEEL - NO FINISH	FINISH QUALITY:	STANDARD

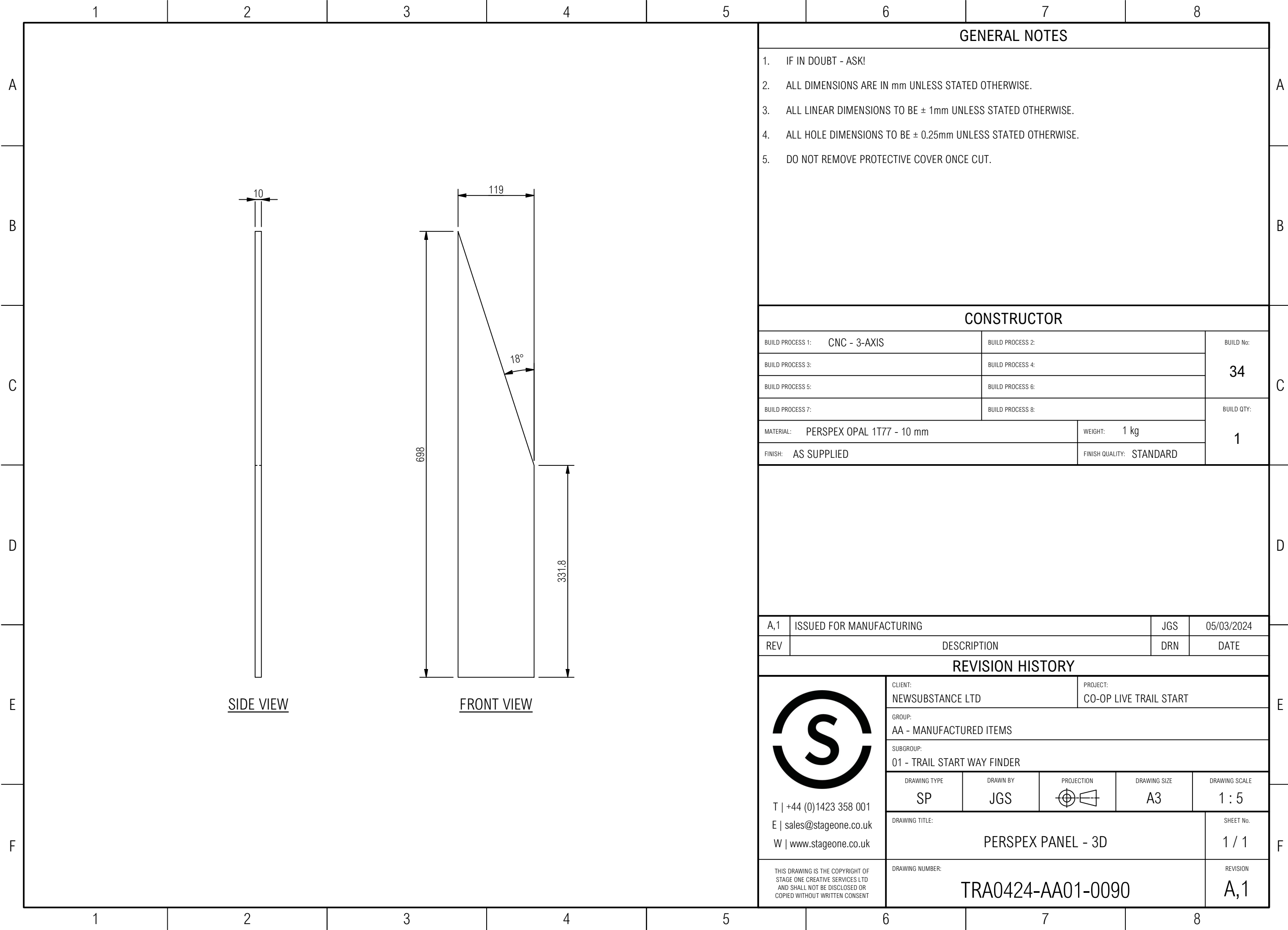
A.1	ISSUED FOR MANUFACTURING			JGS	27/02/2024
REV	DESCRIPTION			DRN	DATE
REVISION HISTORY					
	CLIENT: NEWSUBSTANCE LTD		PROJECT: CO-OP LIVE TRAIL START		
	GROUP: AA - MANUFACTURED ITEMS				
	SUBGROUP: 01 - TRAIL START WAY FINDER				
	DRAWING TYPE SP	DRAWN BY JGS	PROJECTION 	DRAWING SIZE A1	DRAWING SCALE 1 : 8
	DRAWING TITLE: FRAME MEMBER				SHEET NO: 1 / 1
	DRAWING NUMBER: TRA0424-AA01-0023				REVISION: A,1
	THIS DRAWING IS THE COPYRIGHT OF STAGE ONE CREATIVE SERVICES LTD AND SHALL NOT BE DISCLOSED OR COPIED WITHOUT WRITTEN CONSENT				

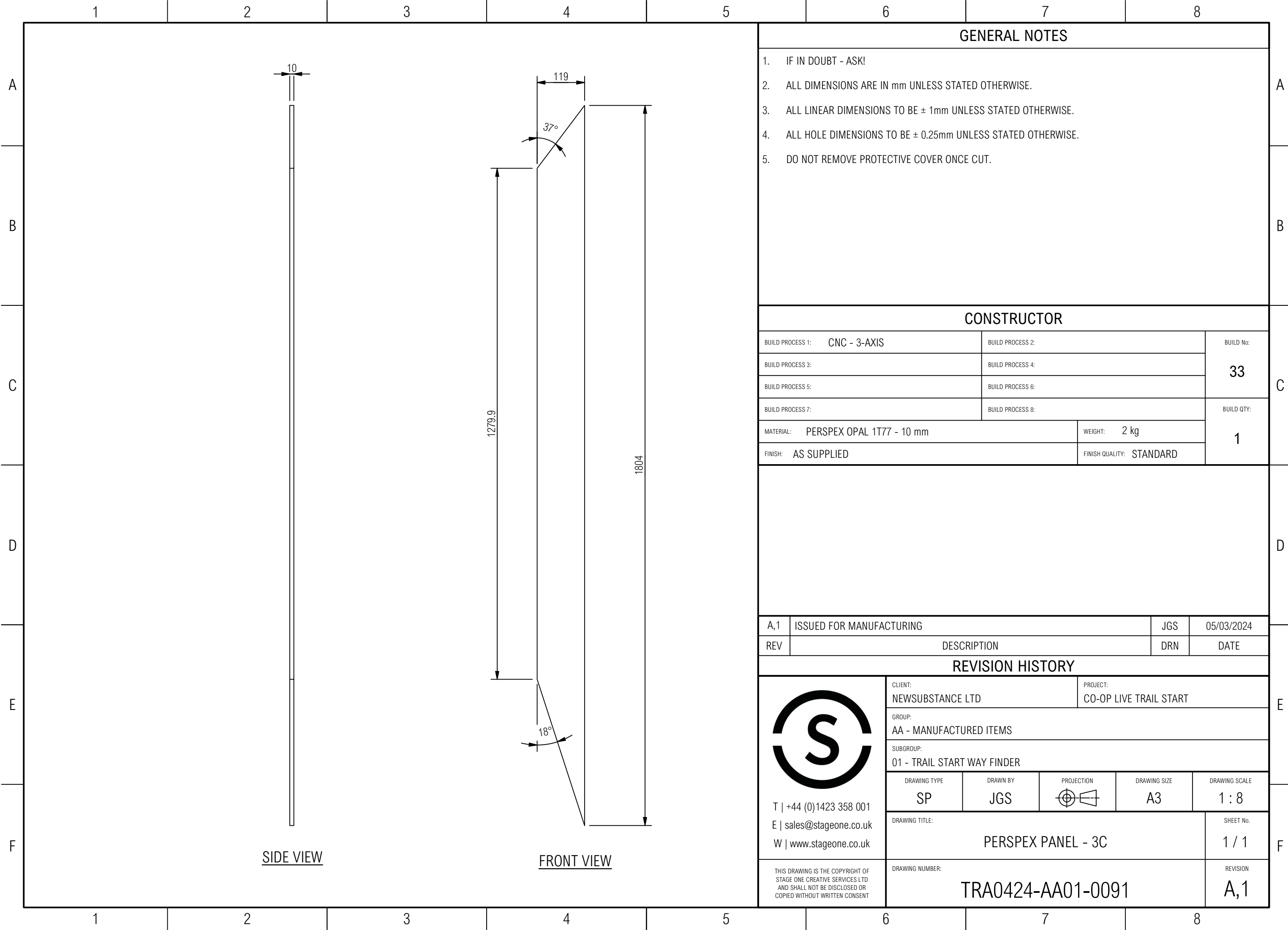


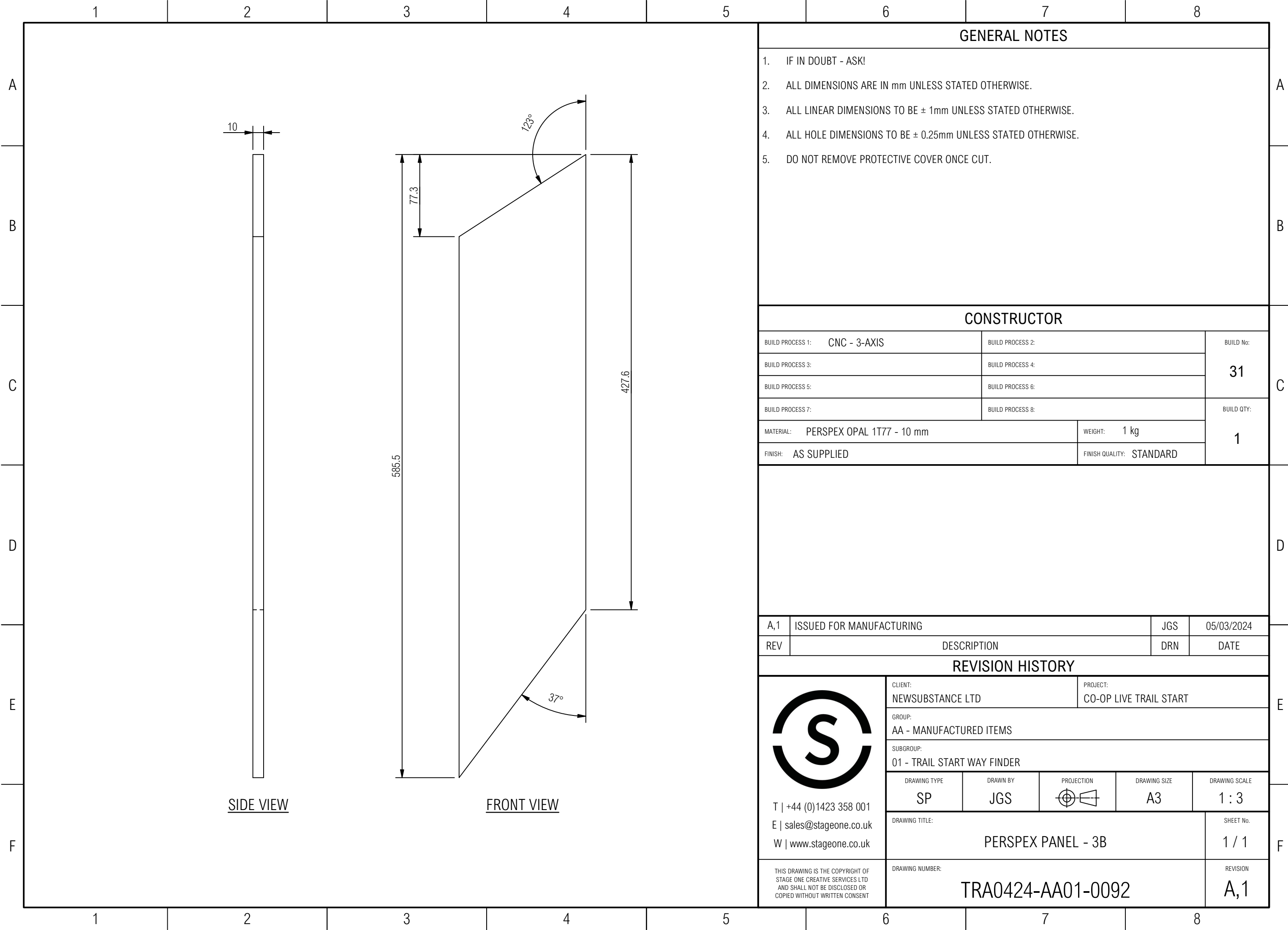












GENERAL NOTES

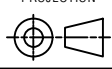
- 1. IF IN DOUBT - ASK!
- 2. ALL DIMENSIONS ARE IN mm UNLESS STATED OTHERWISE.
- 3. ALL LINEAR DIMENSIONS TO BE ± 1mm UNLESS STATED OTHERWISE.
- 4. ALL HOLE DIMENSIONS TO BE ± 0.25mm UNLESS STATED OTHERWISE.
- 5. DO NOT REMOVE PROTECTIVE COVER ONCE CUT.

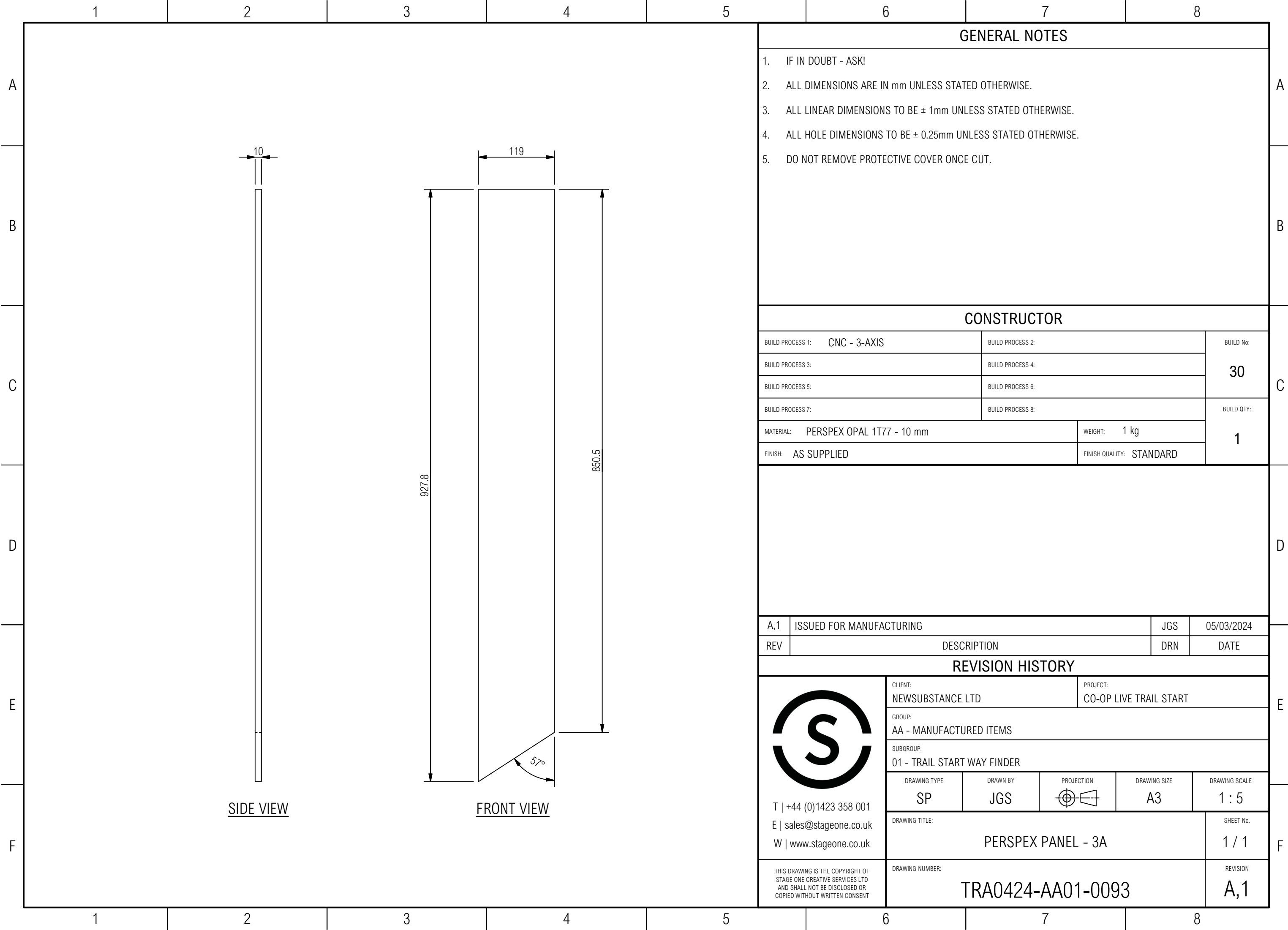
CONSTRUCTOR

BUILD PROCESS 1:	CNC - 3-AXIS	BUILD PROCESS 2:		BUILD No:
BUILD PROCESS 3:		BUILD PROCESS 4:		31
BUILD PROCESS 5:		BUILD PROCESS 6:		
BUILD PROCESS 7:		BUILD PROCESS 8:		BUILD QTY:
MATERIAL:	PERSPEX OPAL 1T77 - 10 mm	WEIGHT:	1 kg	1
FINISH:	AS SUPPLIED	FINISH QUALITY:	STANDARD	

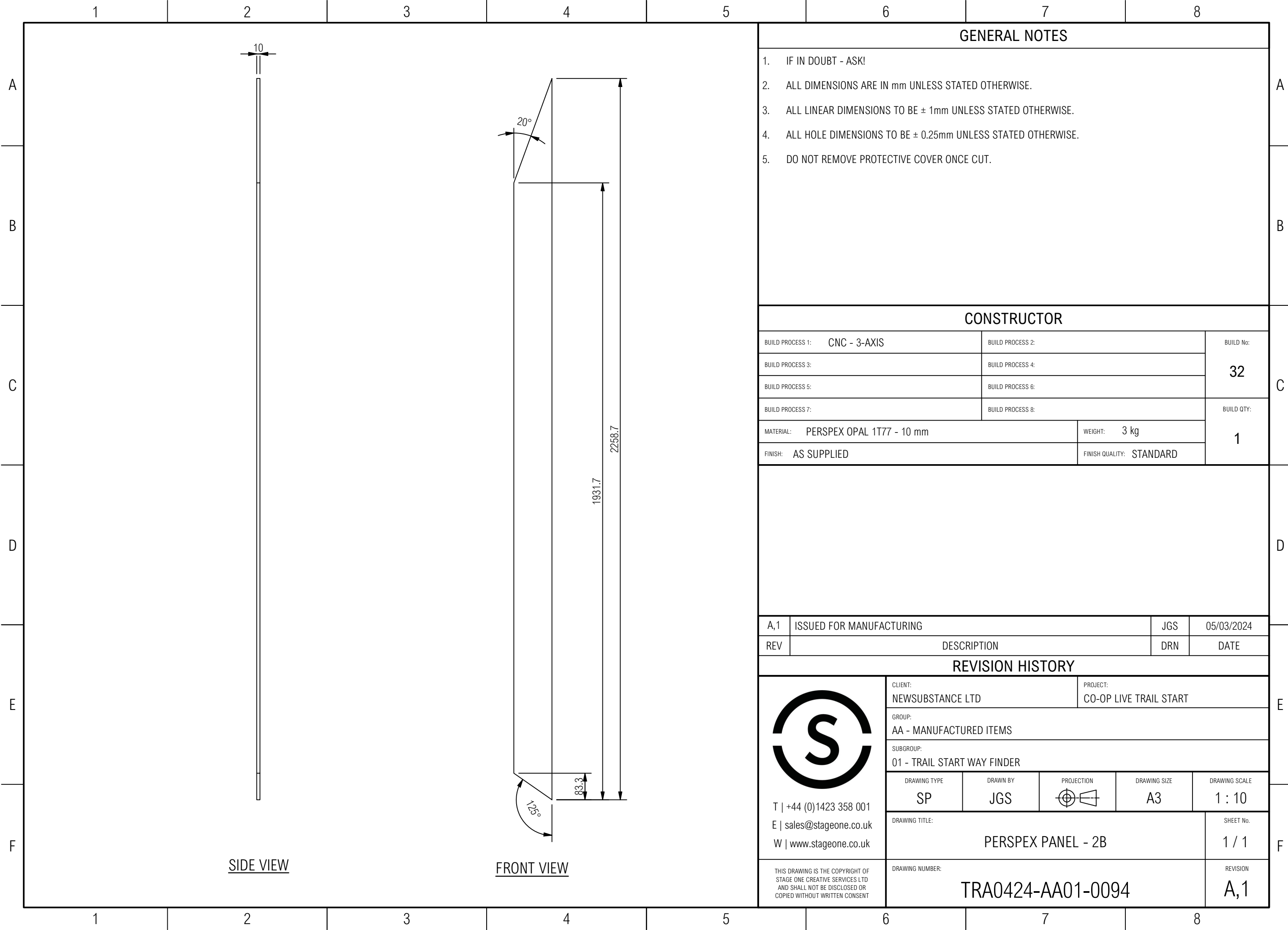
A,1	ISSUED FOR MANUFACTURING	JGS	05/03/2024
REV	DESCRIPTION	DRN	DATE

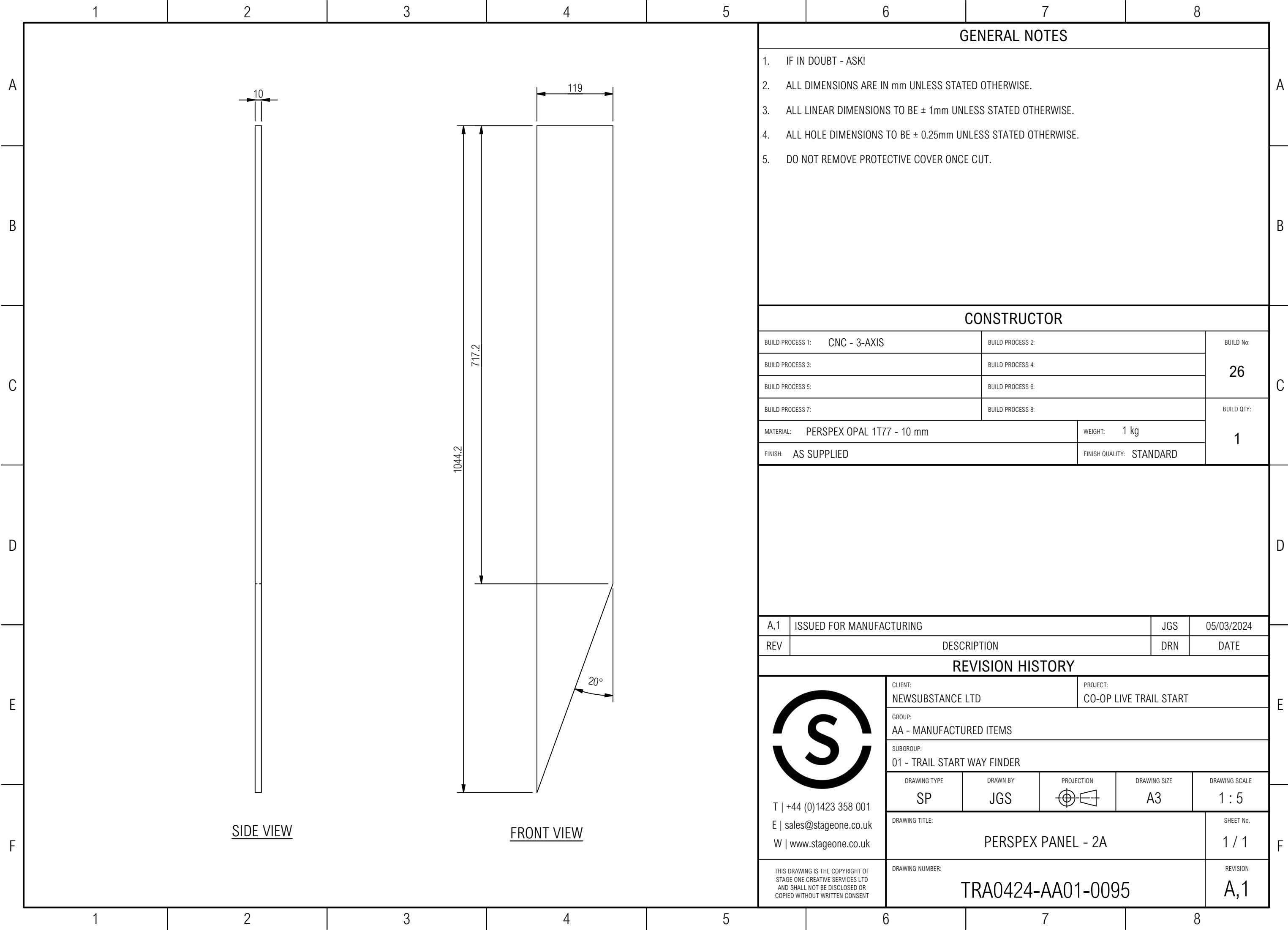
REVISION HISTORY

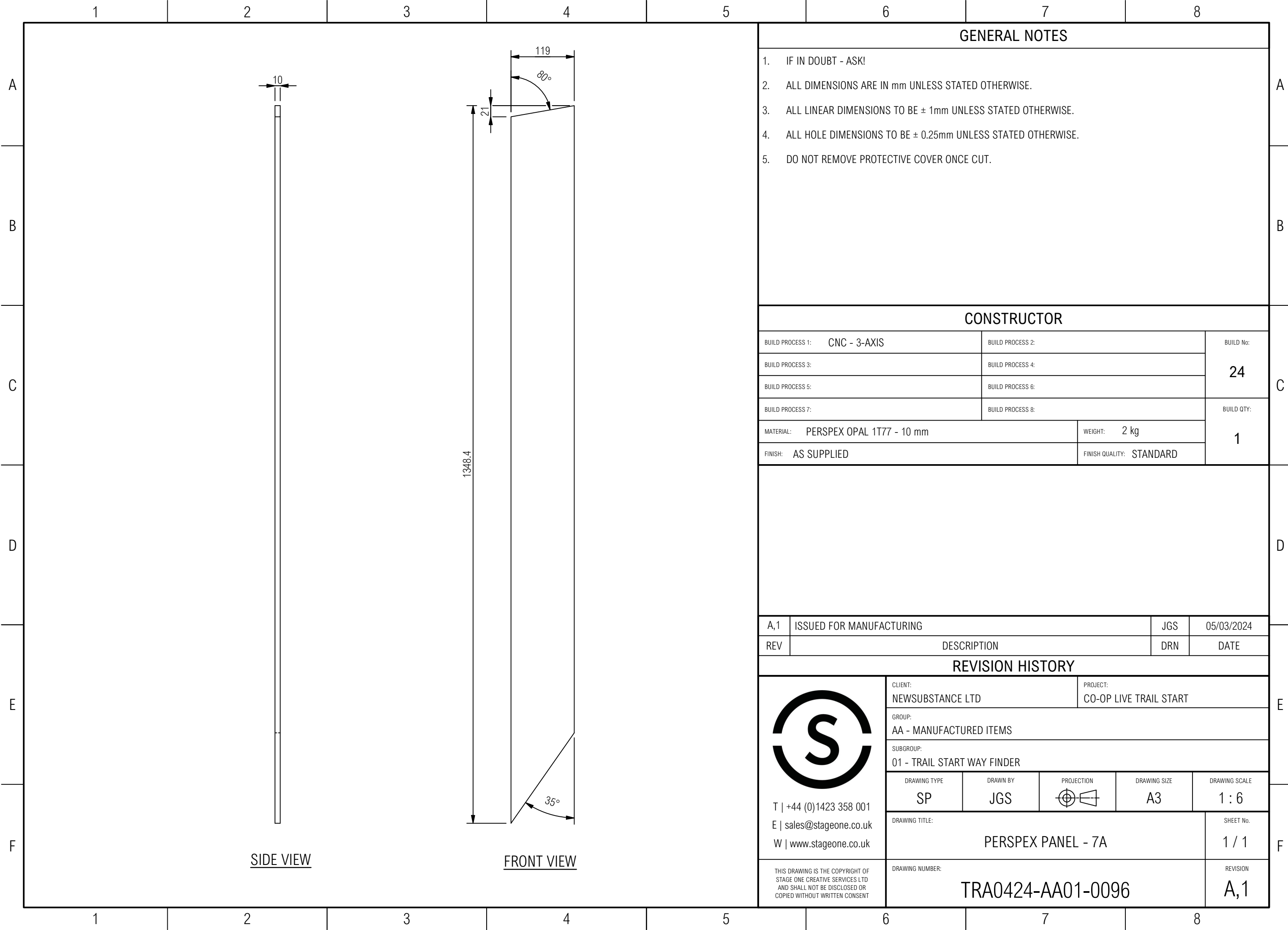
 T +44 (0)1423 358 001 E sales@stageone.co.uk W www.stageone.co.uk THIS DRAWING IS THE COPYRIGHT OF STAGE ONE CREATIVE SERVICES LTD AND SHALL NOT BE DISCLOSED OR COPIED WITHOUT WRITTEN CONSENT	CLIENT:	NEWSUBSTANCE LTD	PROJECT:	CO-OP LIVE TRAIL START
	GROUP:	AA - MANUFACTURED ITEMS		
	SUBGROUP:	01 - TRAIL START WAY FINDER		
	DRAWING TYPE	DRAWN BY	PROJECTION	DRAWING SIZE
	SP	JGS		A3
DRAWING TITLE:				SHEET No.
PERSPEX PANEL - 3B				1 / 1
DRAWING NUMBER:				REVISION
TRA0424-AA01-0092				A,1

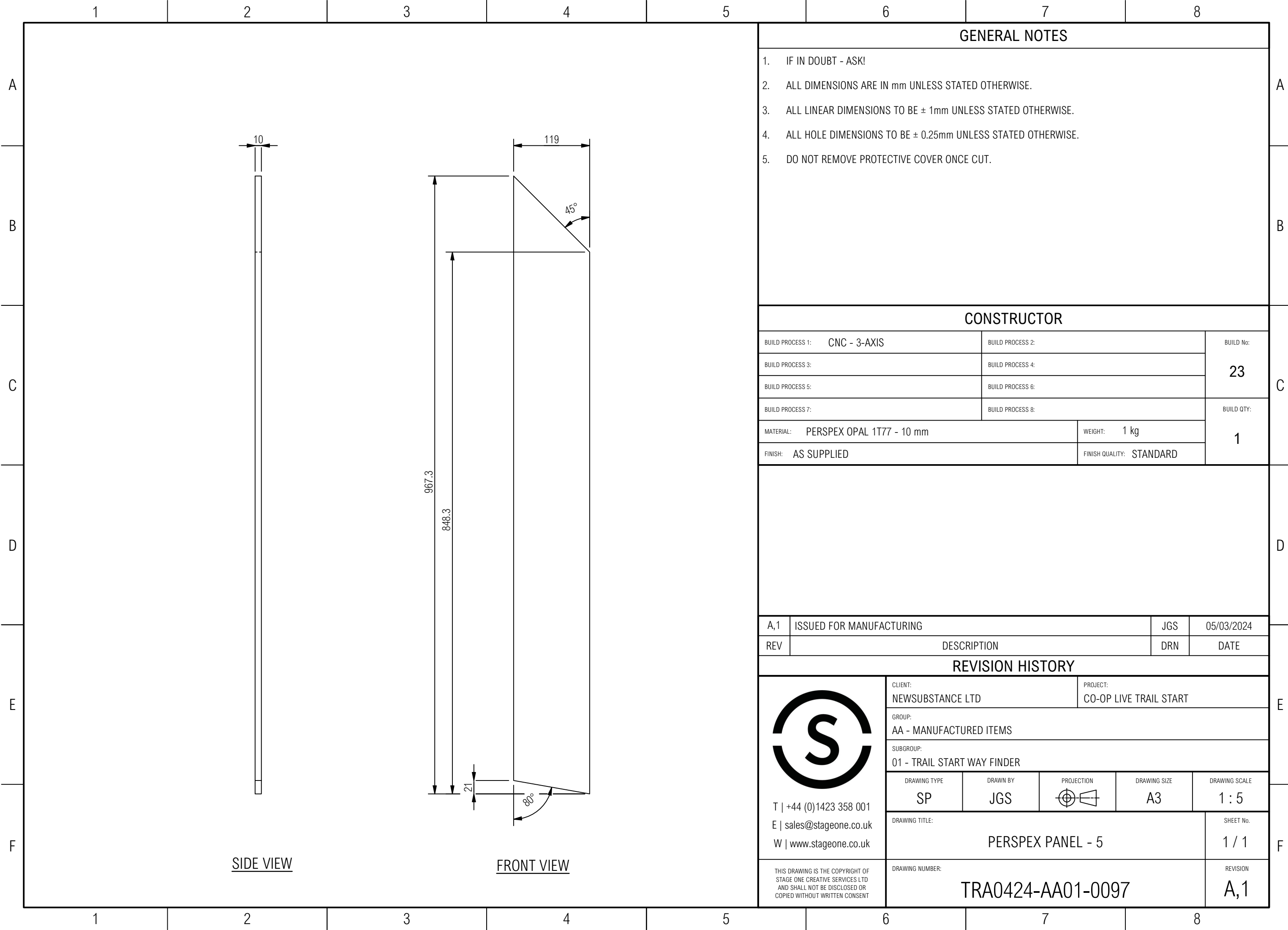


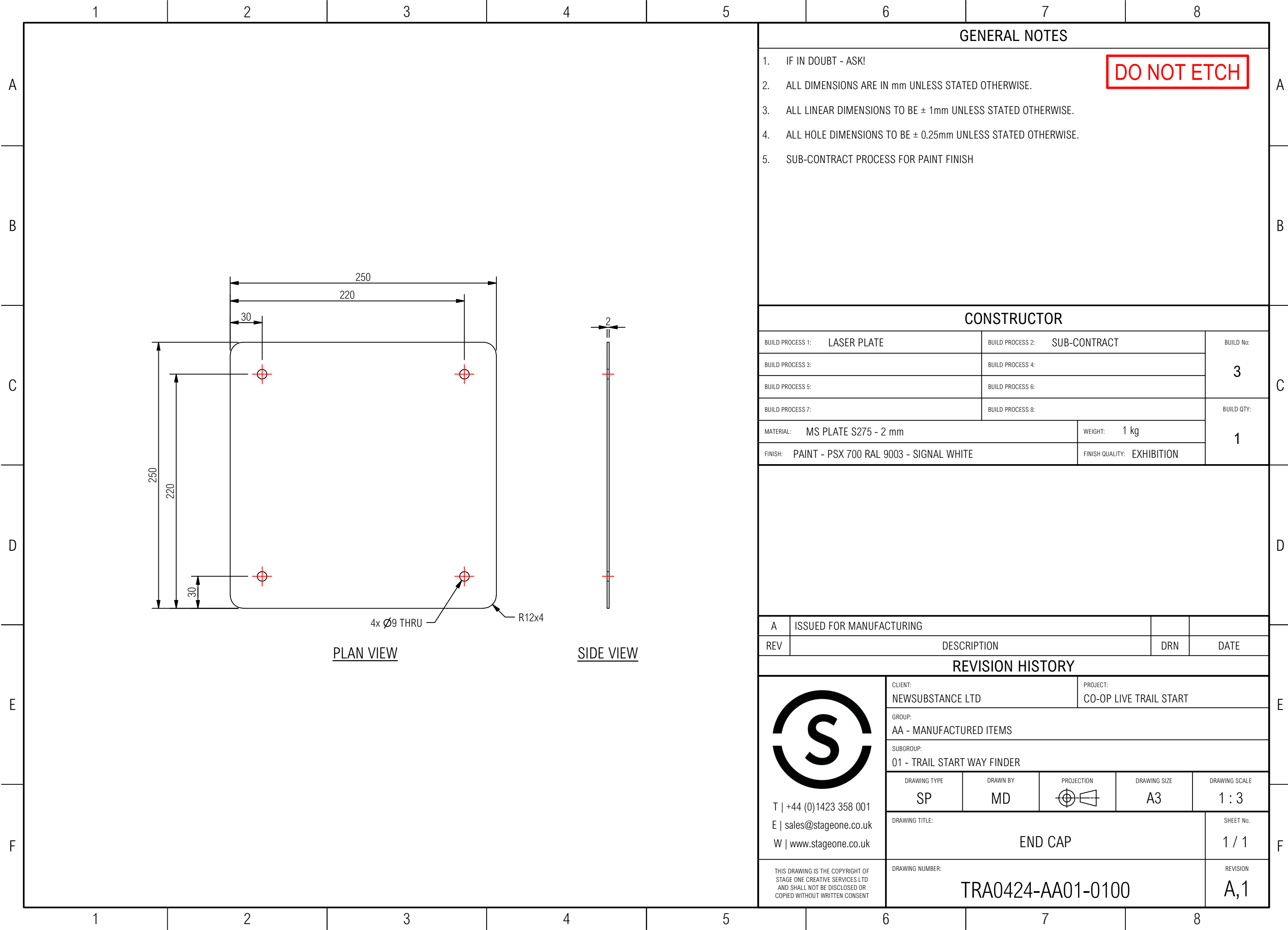
GENERAL NOTES				
1. IF IN DOUBT - ASK!				
2. ALL DIMENSIONS ARE IN mm UNLESS STATED OTHERWISE.				
3. ALL LINEAR DIMENSIONS TO BE ± 1mm UNLESS STATED OTHERWISE.				
4. ALL HOLE DIMENSIONS TO BE ± 0.25mm UNLESS STATED OTHERWISE.				
5. DO NOT REMOVE PROTECTIVE COVER ONCE CUT.				

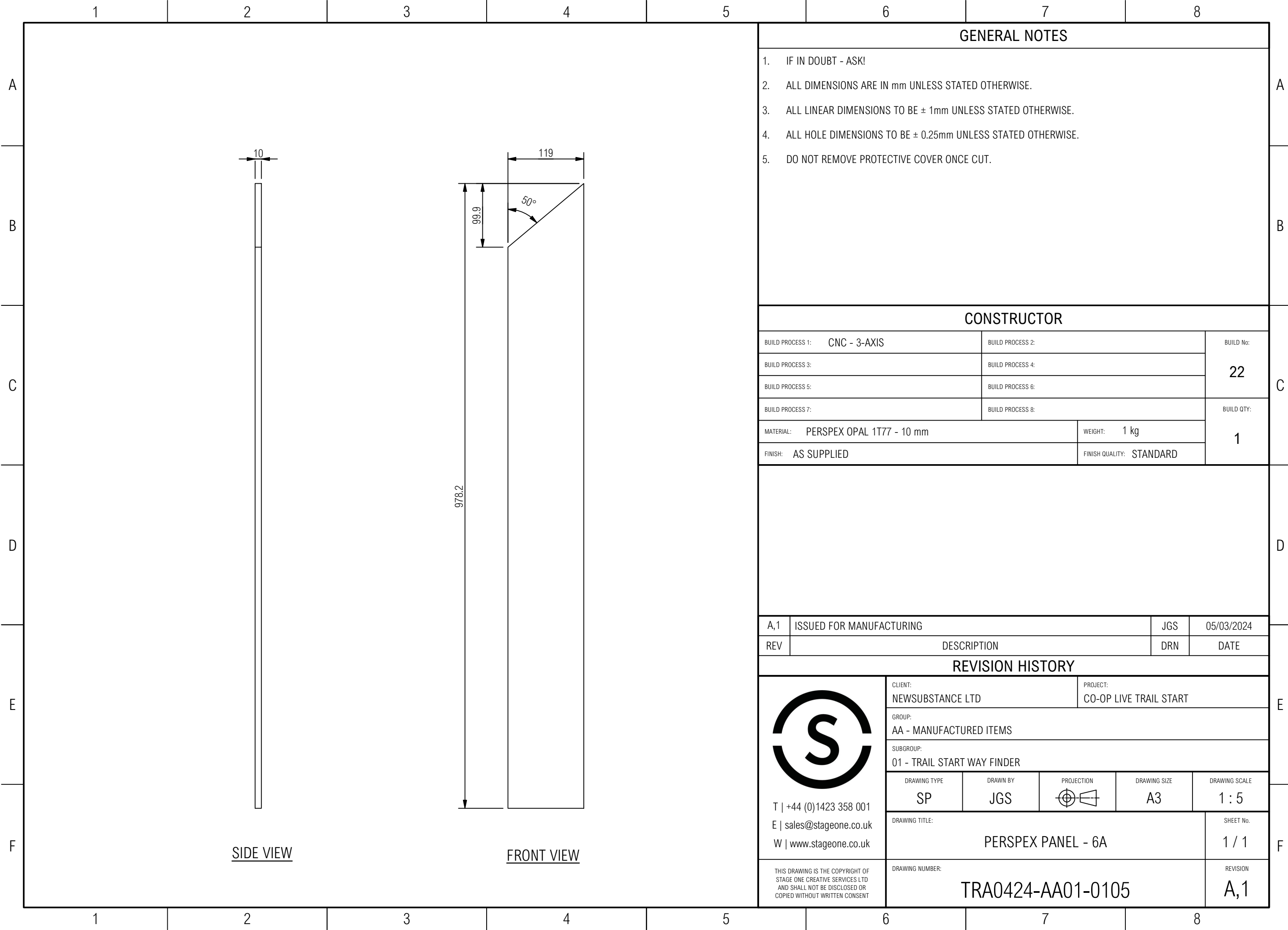


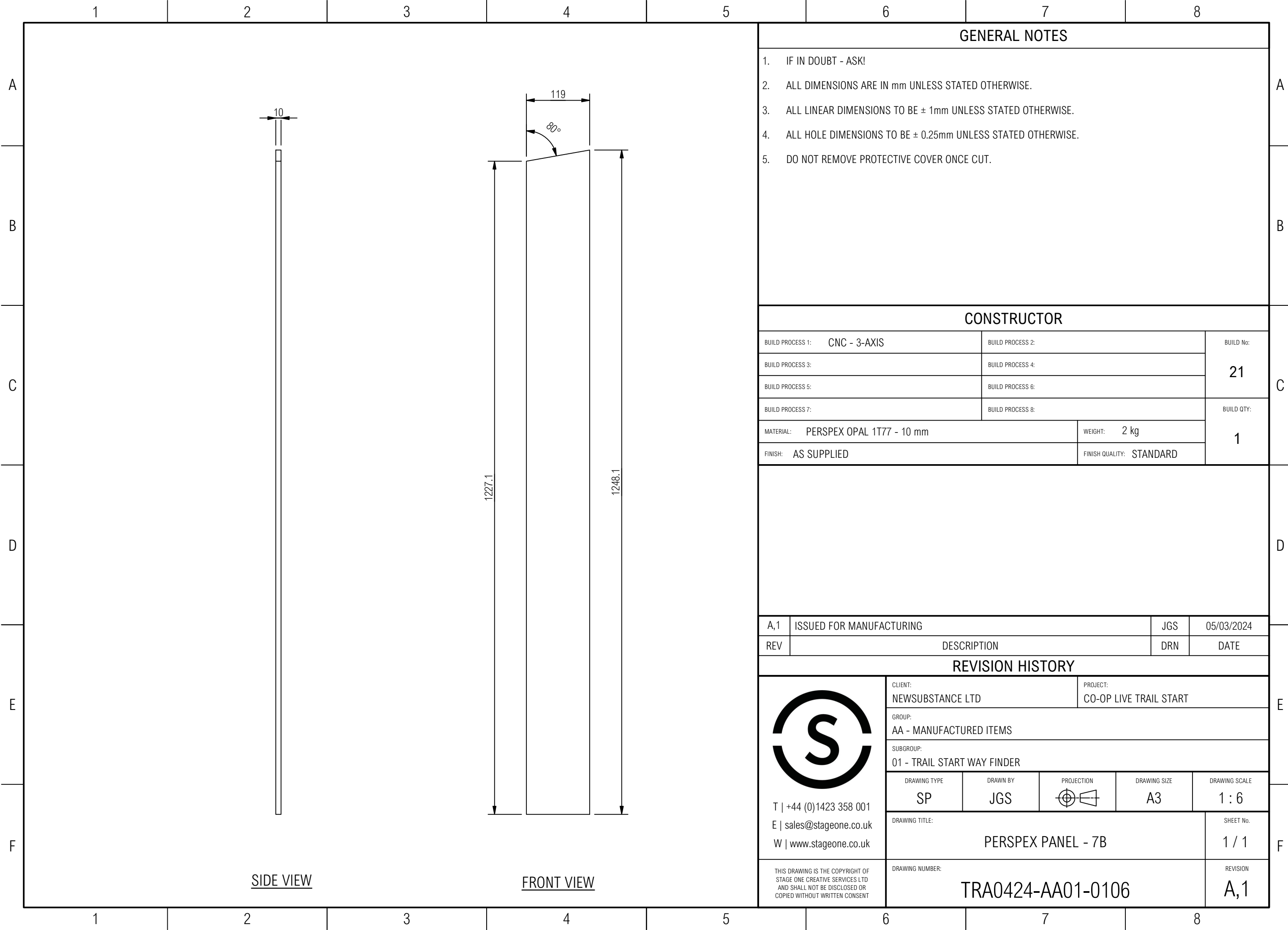


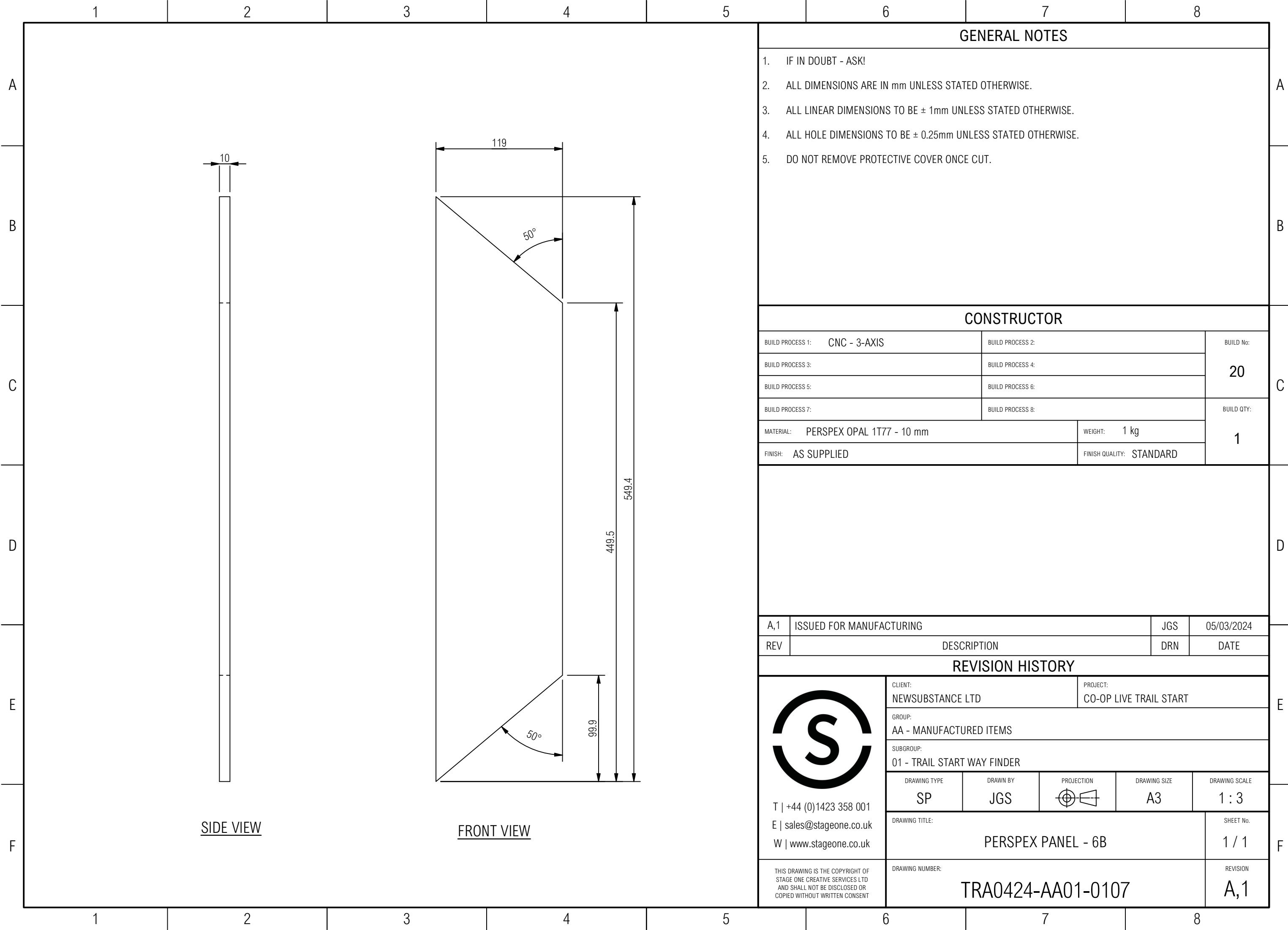




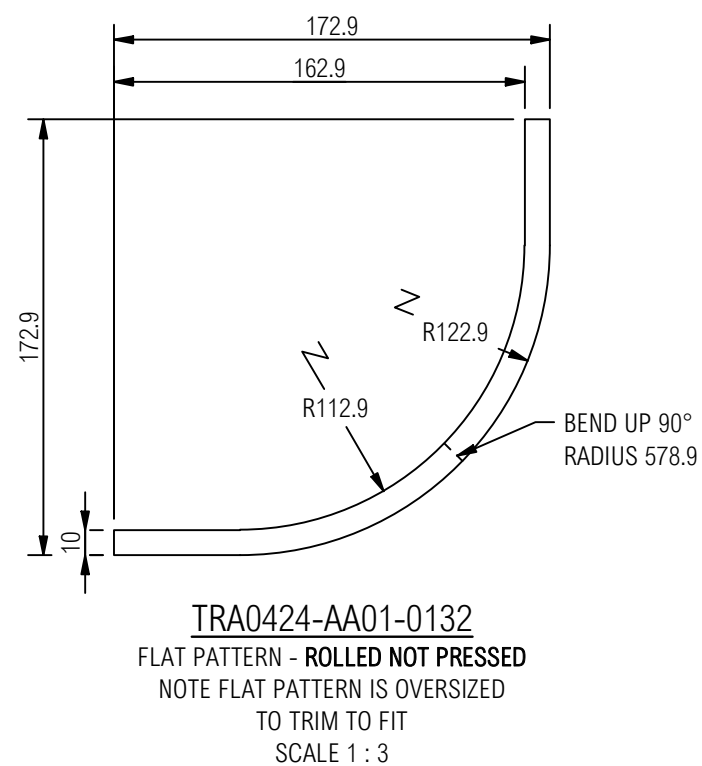
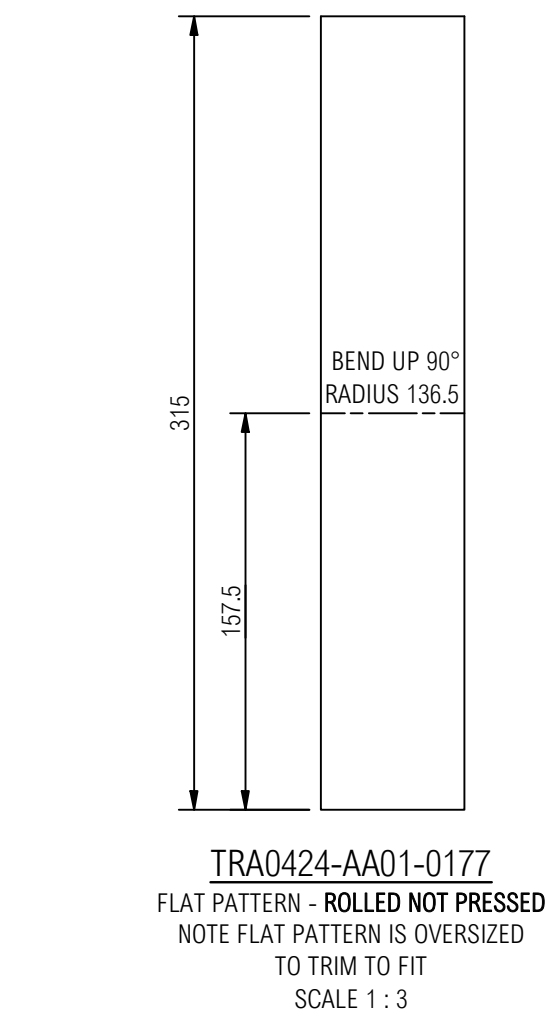
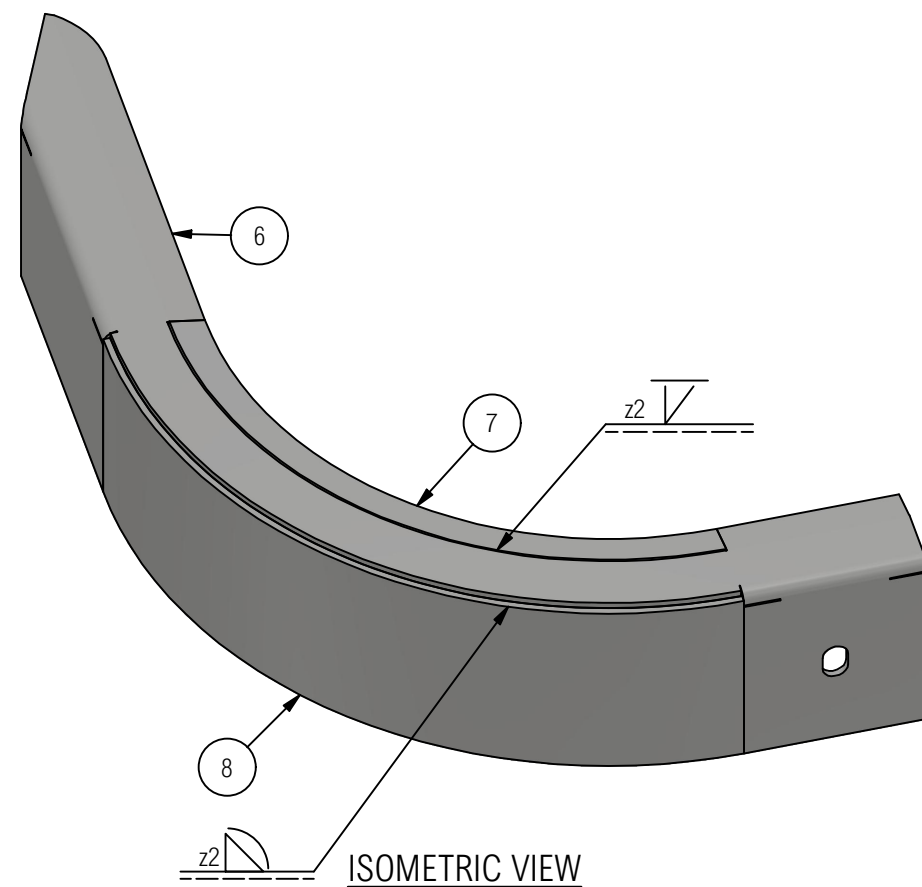
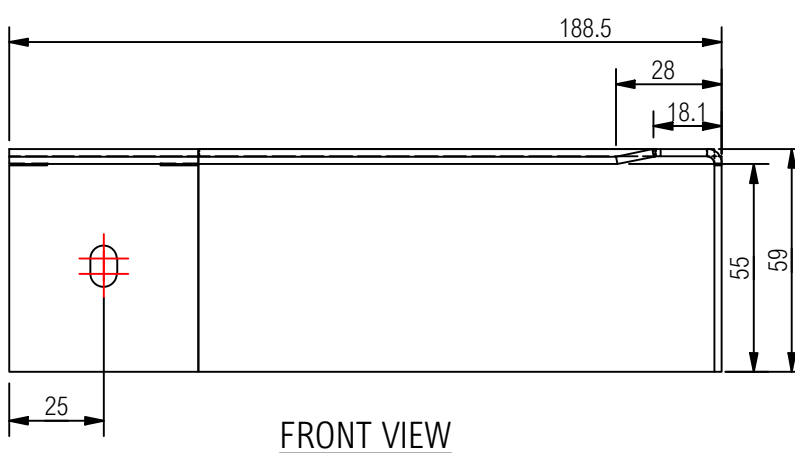
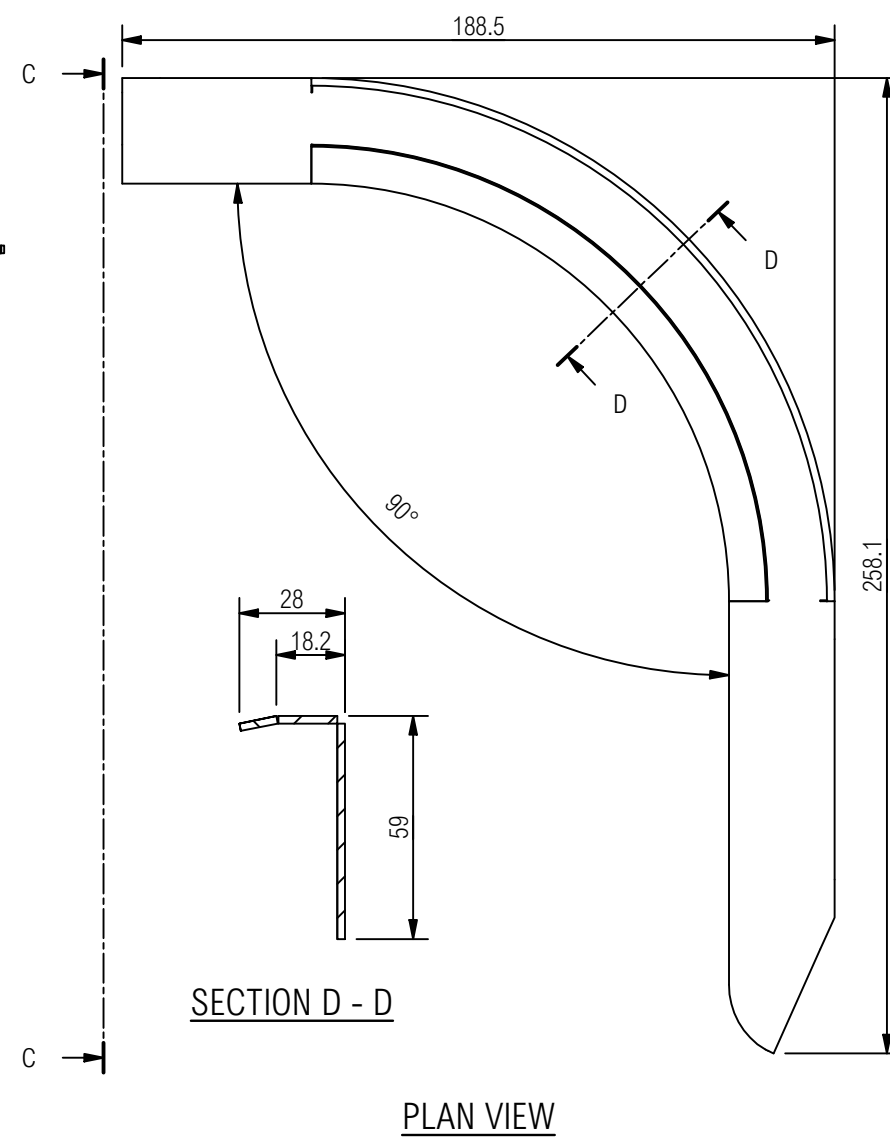
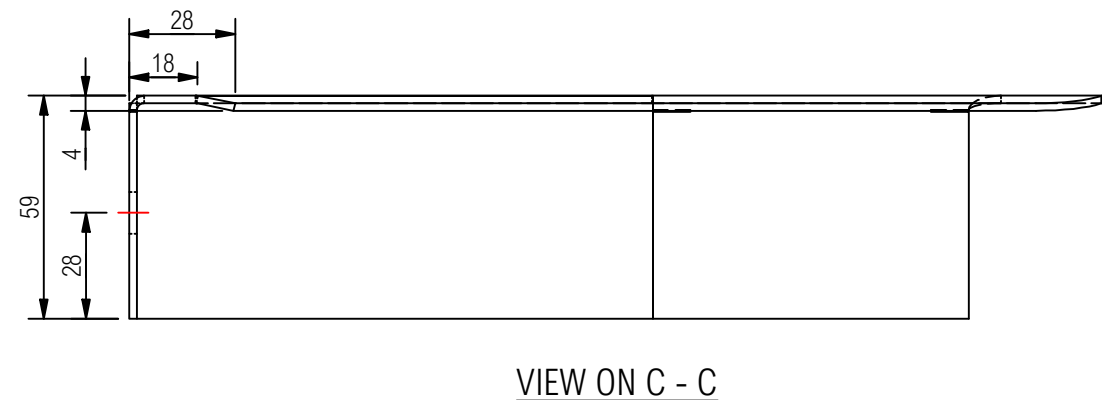
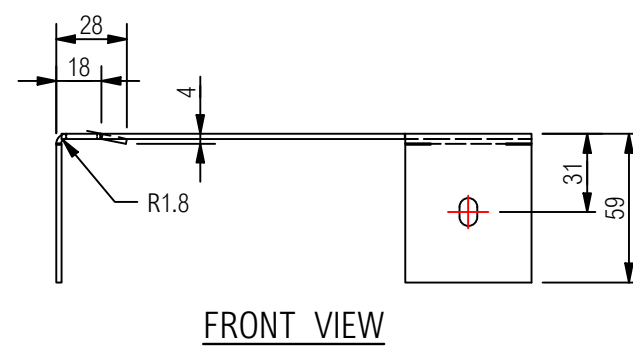
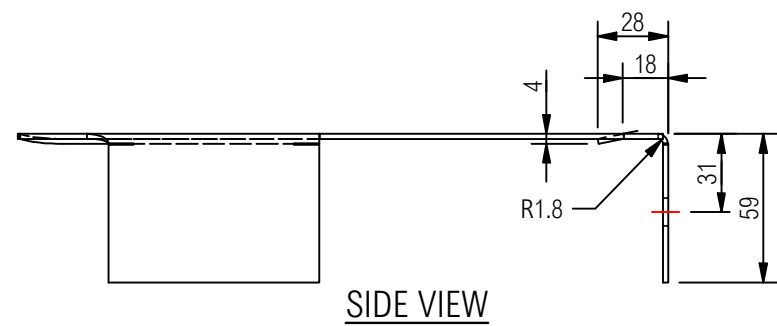


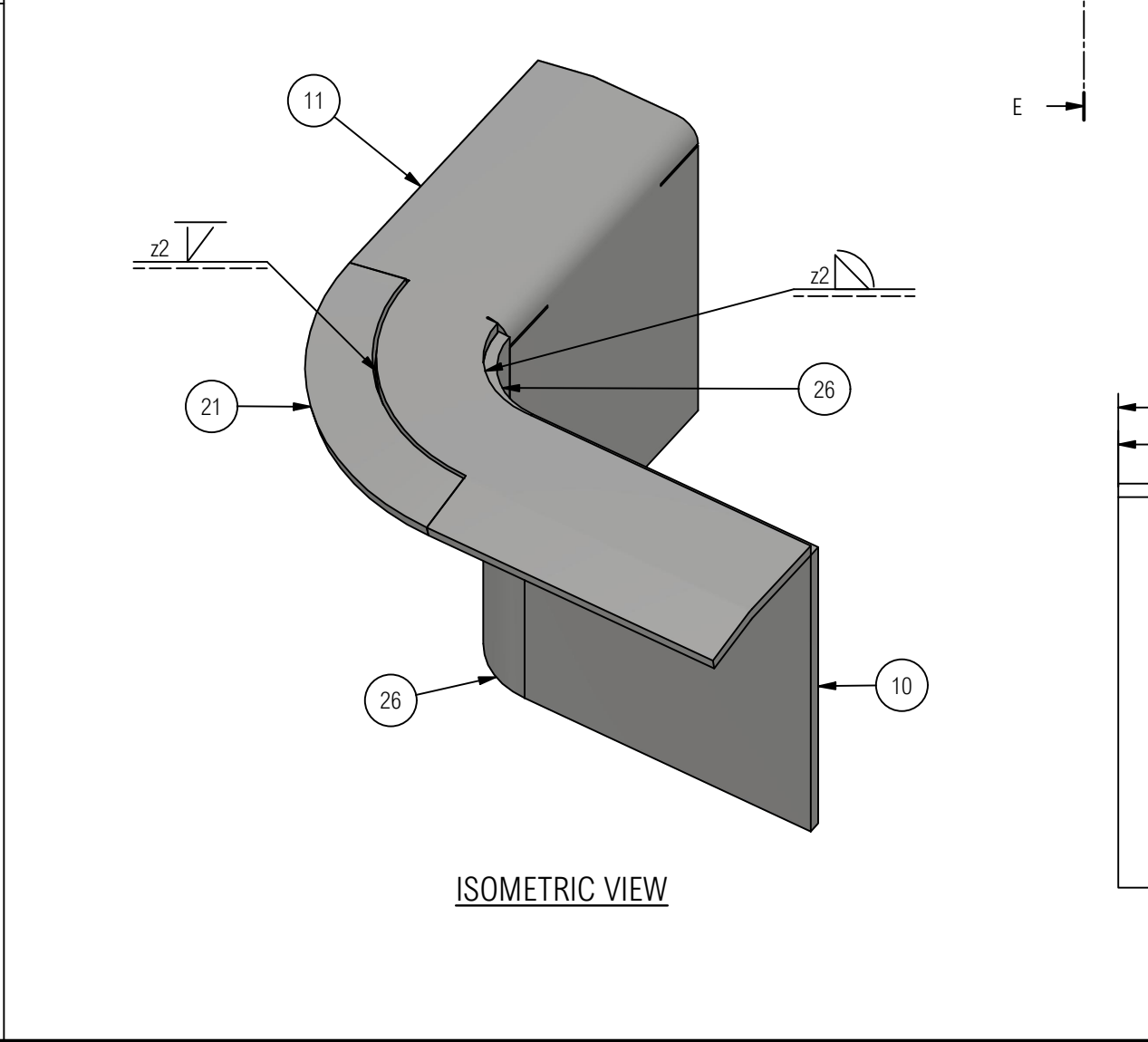
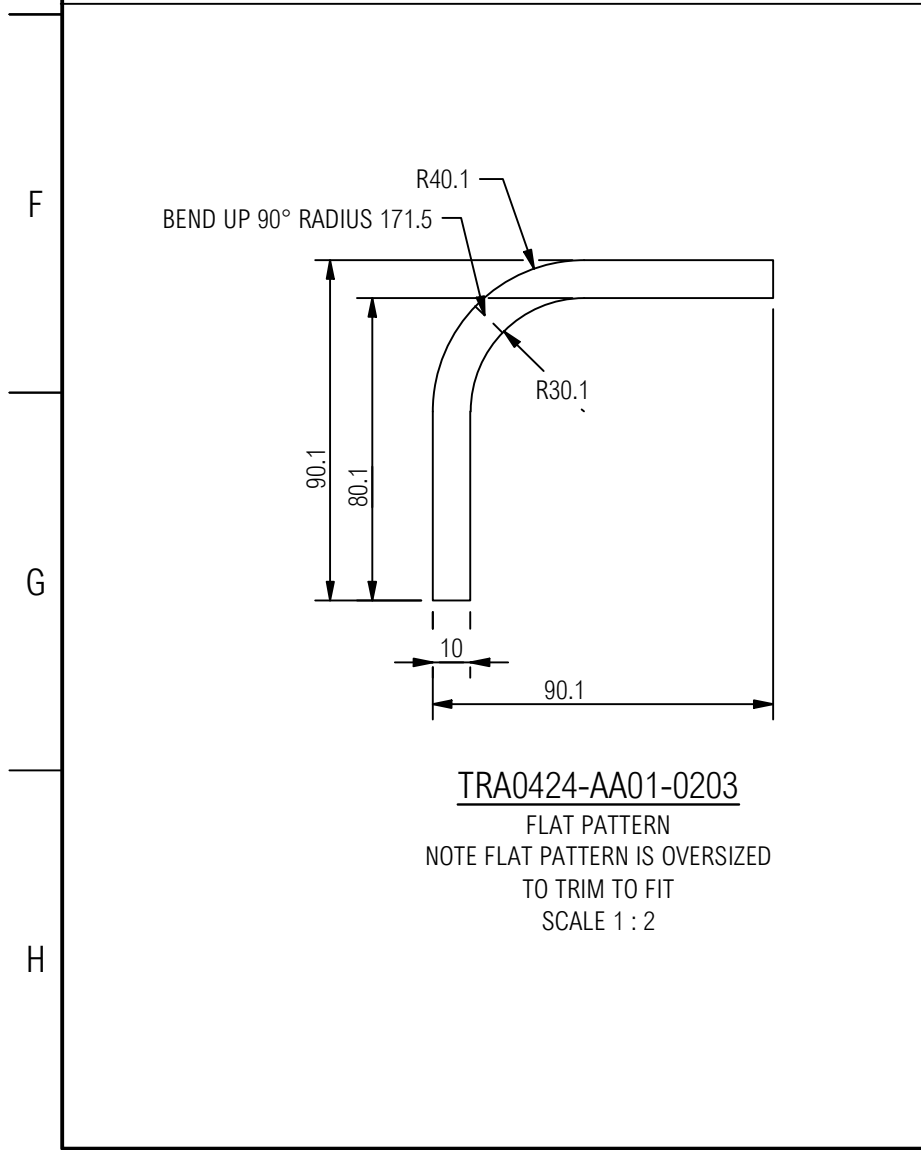
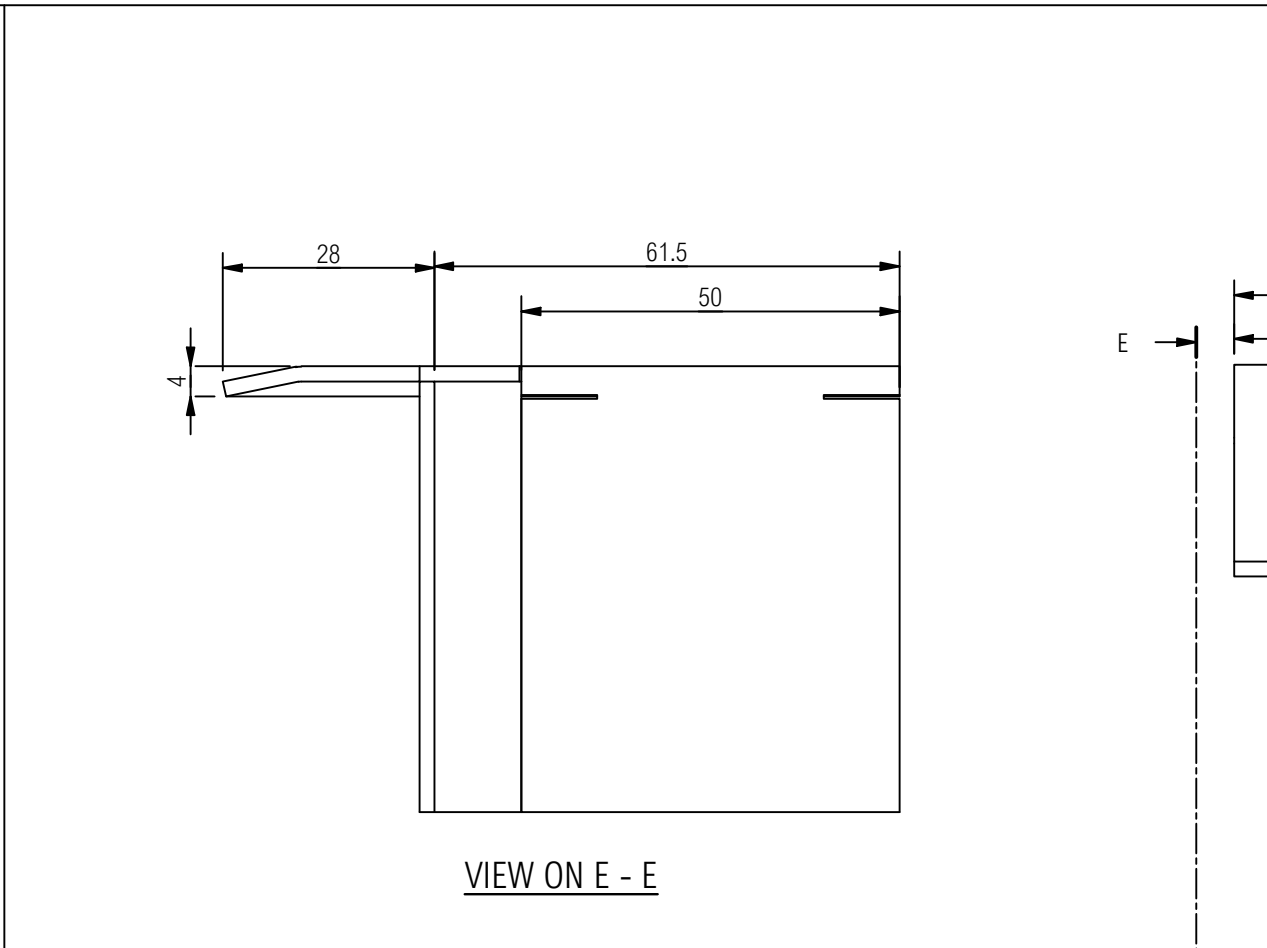
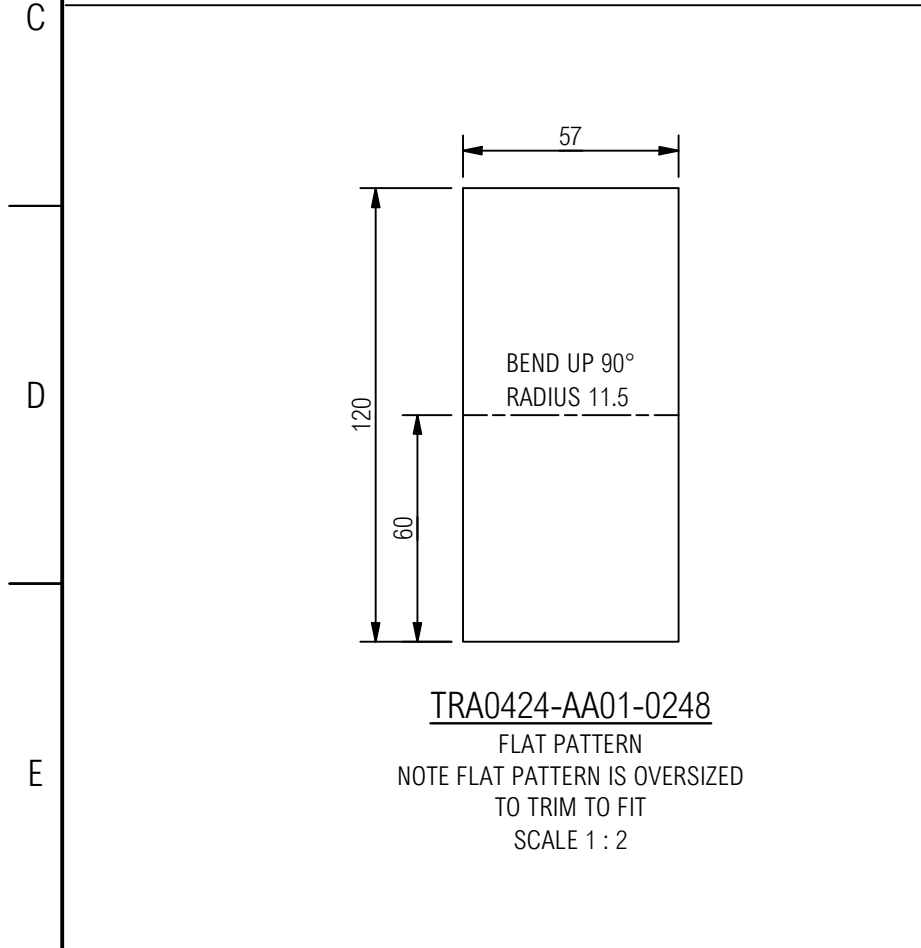
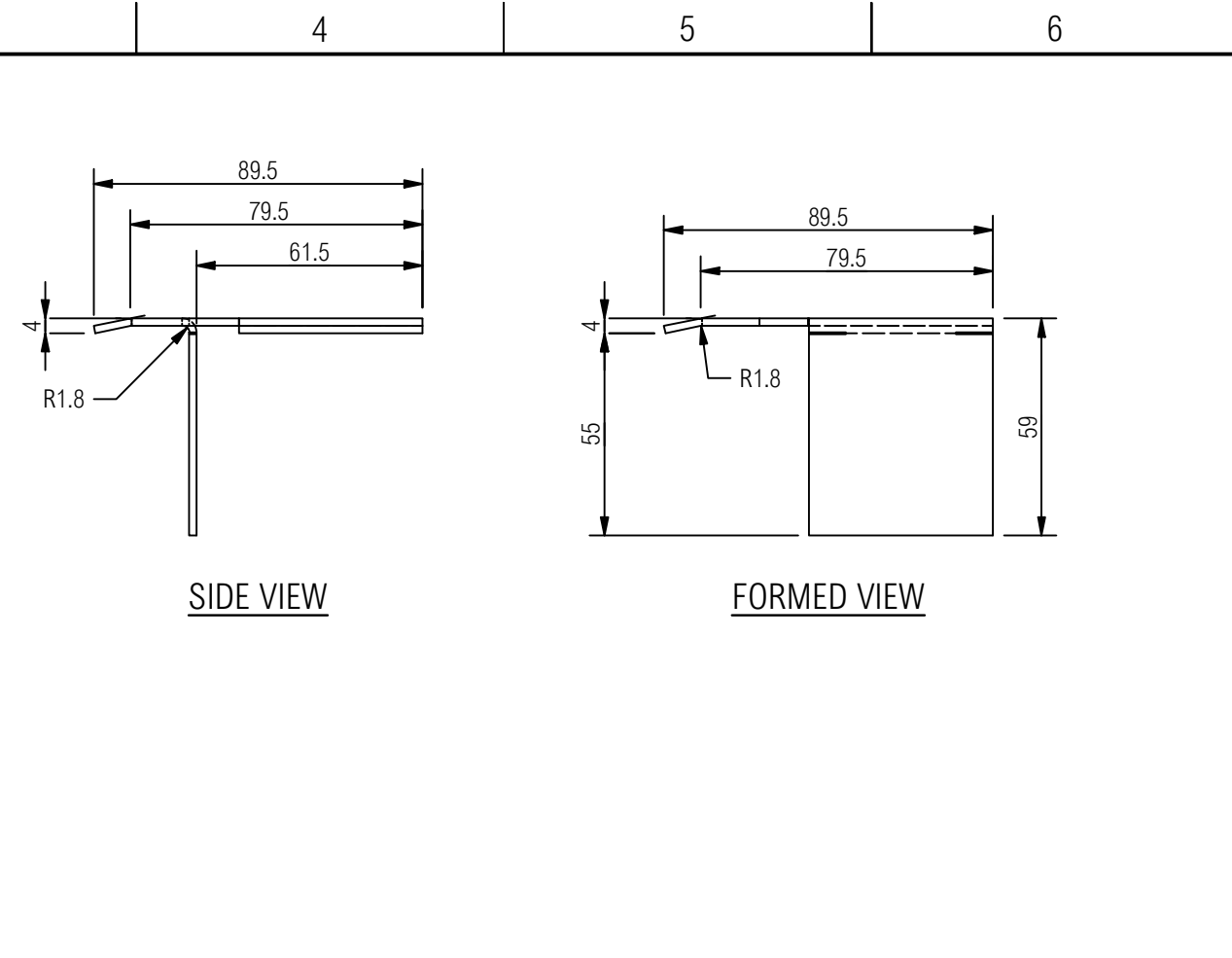
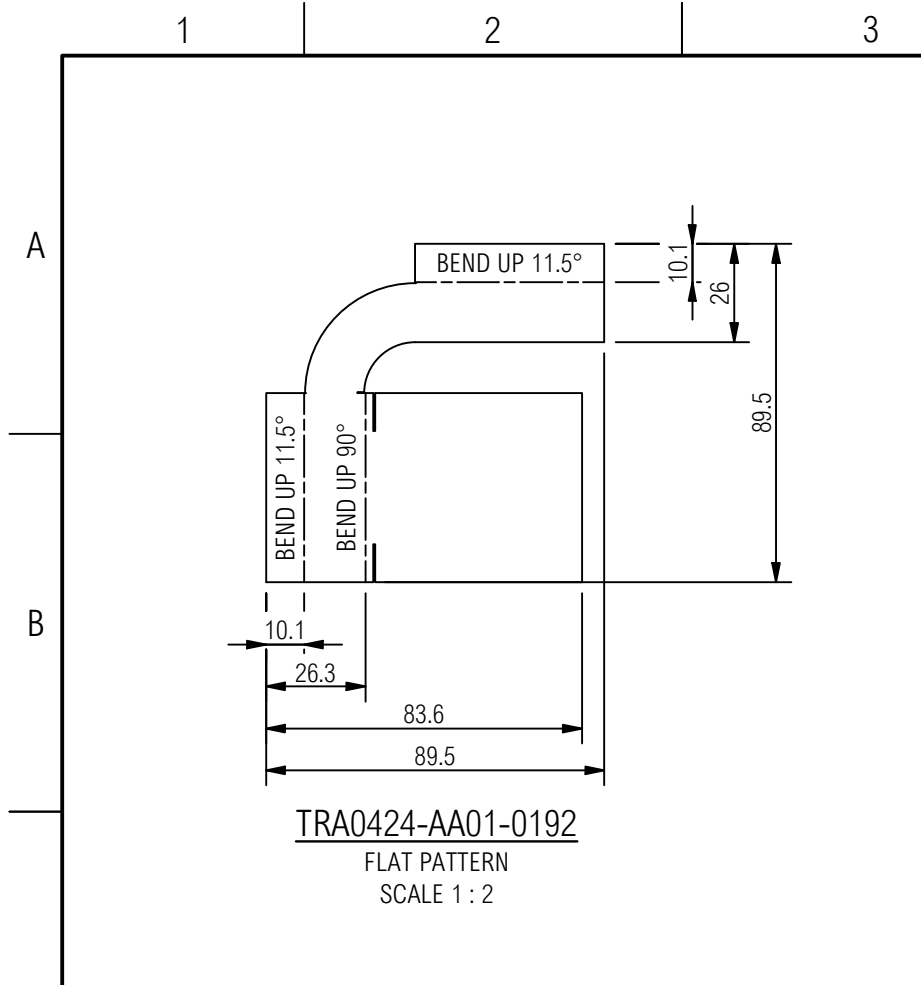






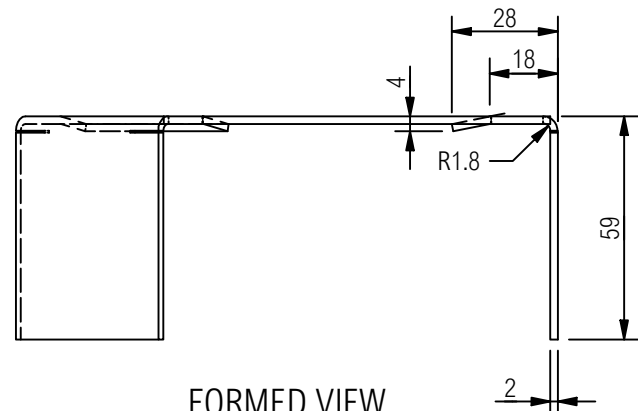
CORNER 01



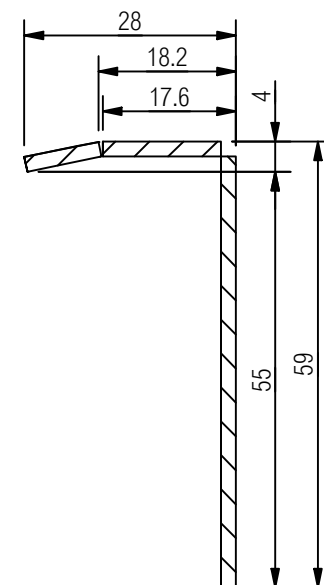


CORNER 02

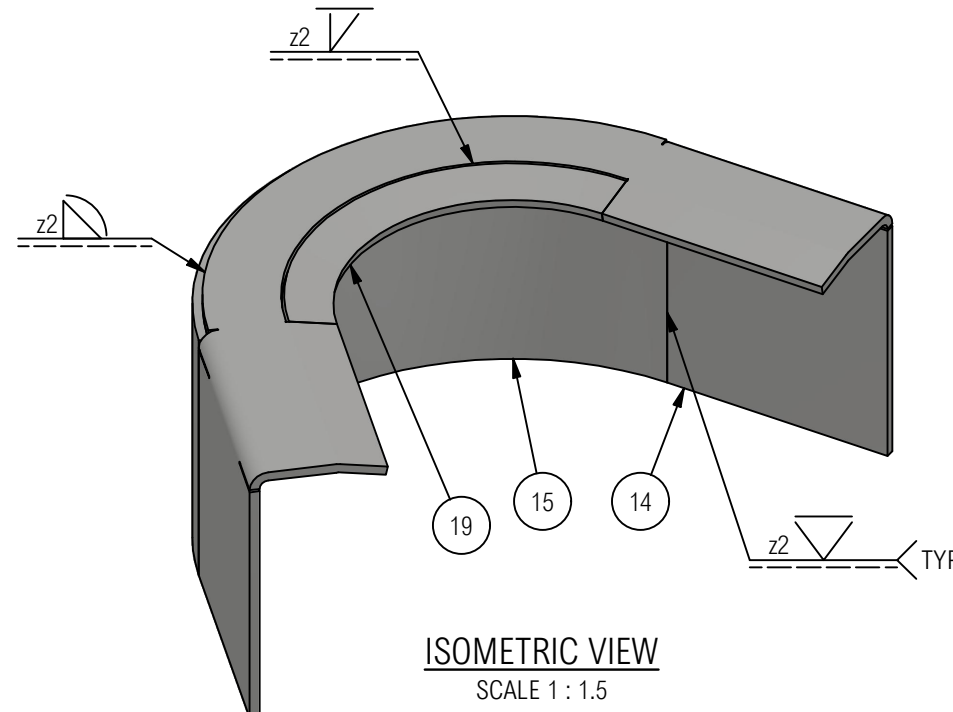
BILL OF MATERIALS						
ITEM	PART NUMBER	REV	DESCRIPTION	MATERIAL	CUT	QTY
10	TRA0424-AA01-0191	A	PLATE	MS PLATE S275 - 2 mm	YES	1
11	TRA0424-AA01-0192	A	PLATE	MS PLATE S275 - 2 mm	YES	1
21	TRA0424-AA01-0203	A	PLATE	MS PLATE S275 - 2 mm	YES	1
26	TRA0424-AA01-0248	A	PLATE	MS PLATE S275 - 2 mm	YES	1
GENERAL NOTES						
1. IF IN DOUBT - ASK! 2. ALL DIMENSIONS ARE IN mm UNLESS STATED OTHERWISE. 3. ALL LINEAR DIMENSIONS TO BE ± 1mm UNLESS STATED OTHERWISE. 4. ALL HOLE DIMENSIONS TO BE ± 0.25mm UNLESS STATED OTHERWISE. 5. USE WELD PROCEDURES WP01 TO WP18 WHERE APPLICABLE. 6. 2mm FOLDING DETAIL INNER RADIUS, USING 12mm 'v' WITH 1.8mm INNER RADIUS. 7. ONLY WELD EXTERNALLY - WHERE REQUIRED APPLY PREP TO PLATES. 8. DRESS ALL WELDS FOR EXHIBITION FINISH 9. SUBCONTRACT - PAINT SHEET 1: OVERALL SHEET 2: CORNER 01 SHEET 3: CORNER 02 SHEET 4: CORNER 03 SHEET 5: CORNER 04 SHEET 6: CORNER 05 SHEET 7: PRESS BRAKE SHEET 8: PRESS BRAKE SHEET 9: PRESS BRAKE SHEET 10: PRESS BRAKE SHEET 11: PRESS BRAKE SHEET 12: PRESS BRAKE SHEET 13: JIG DO NOT ETCH						
CONSTRUCTOR						
BUILD PROCESS 1: LASER PLATE			BUILD PROCESS 2: PRESS BRAKE		BUILD No:	
BUILD PROCESS 3: METALWORK			BUILD PROCESS 4: CNC - 3-AXIS		18	
BUILD PROCESS 5: WOODWORK			BUILD PROCESS 6: SUB-CONTRACT			
BUILD PROCESS 7:			BUILD PROCESS 8:		BUILD QTY:	
MATERIAL: 2MM MS PLATE WELD ASSEMBLY				WEIGHT: 8 kg		1
FINISH: PAINT - PSX 700 RAL 9003 - SIGNAL WHITE				FINISH QUALITY: EXHIBITION		
</						



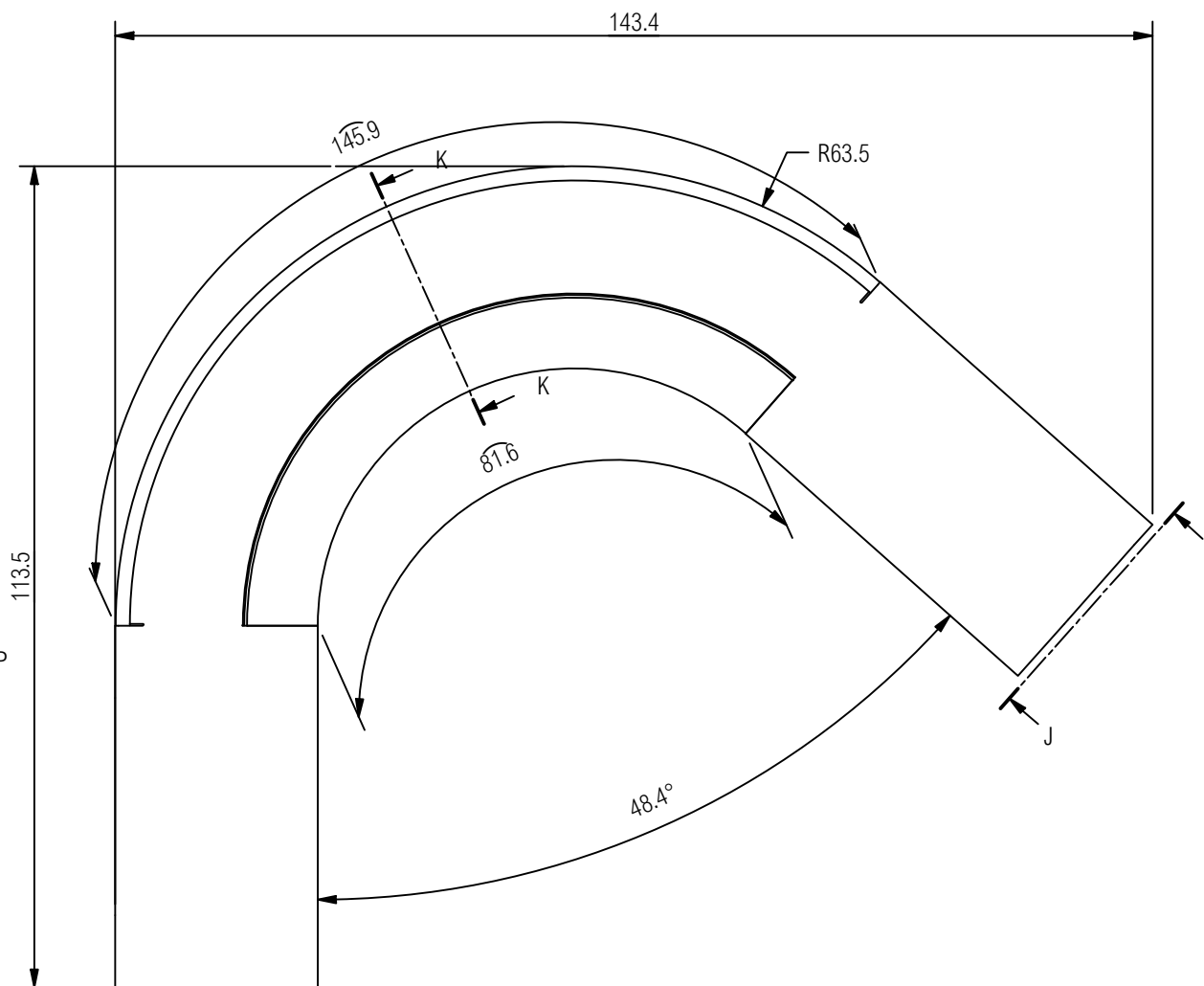
FORMED VIEW



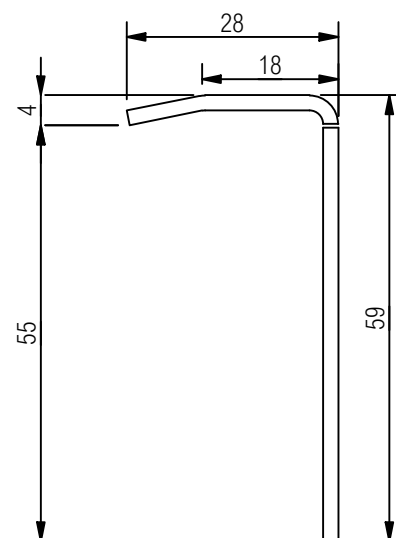
SECTION K - K



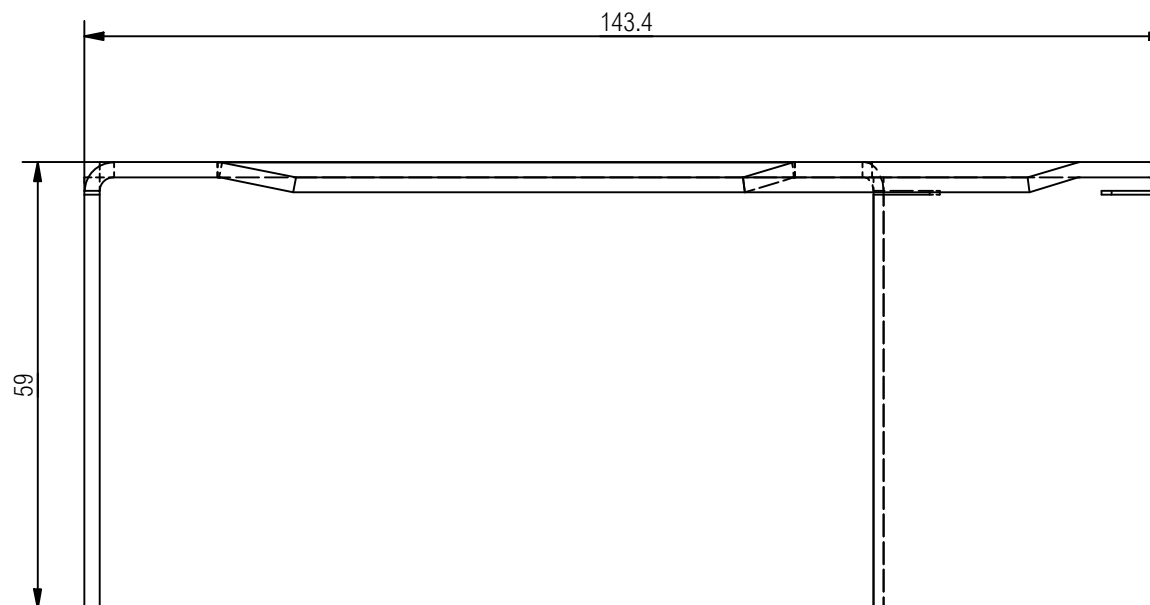
ISOMETRIC VIEW
SCALE 1 : 1.5



PLAN VIEW



SECTION J - J



FRONT VIEW

BILL OF MATERIALS

ITEM	PART NUMBER	REV	DESCRIPTION	MATERIAL	CUT	QTY
14	TRA0424-AA01-0196	A	PLATE	MS PLATE S275 - 2 mm	YES	1
15	TRA0424-AA01-0197	A	PLATE	MS PLATE S275 - 2 mm	YES	1
19	TRA0424-AA01-0201	A	PLATE	MS PLATE S275 - 2 mm	YES	1

GENERAL NOTES

1. IF IN DOUBT - ASK!
2. ALL DIMENSIONS ARE IN mm UNLESS STATED OTHERWISE.
3. ALL LINEAR DIMENSIONS TO BE $\pm 1\text{mm}$ UNLESS STATED OTHERWISE.
4. ALL HOLE DIMENSIONS TO BE $\pm 0.25\text{mm}$ UNLESS STATED OTHERWISE.
5. USE WELD PROCEDURES WP01 TO WP18 WHERE APPLICABLE.
6. 2mm FOLDING DETAIL INNER RADIUS, USING 12mm 'v' WITH 1.8mm INNER RADIUS.
7. ONLY WELD EXTERNALLY - WHERE REQUIRED APPLY PREP TO PLATES.
8. DRESS ALL WELDS FOR EXHIBITION FINISH
9. SUBCONTRACT - PAINT

DO NOT ETCH

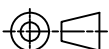
SHEET 1: OVERALL
SHEET 2: CORNER 01
SHEET 3: CORNER 02
SHEET 4: CORNER 03
SHEET 5: CORNER 04
SHEET 6: CORNER 05
SHEET 7: PRESS BRAKE
SHEET 8: PRESS BRAKE
SHEET 9: PRESS BRAKE
SHEET 10: PRESS BRAKE
SHEET 11: PRESS BRAKE
SHEET 12: PRESS BRAKE
SHEET 13: JIG

CONSTRUCTOR

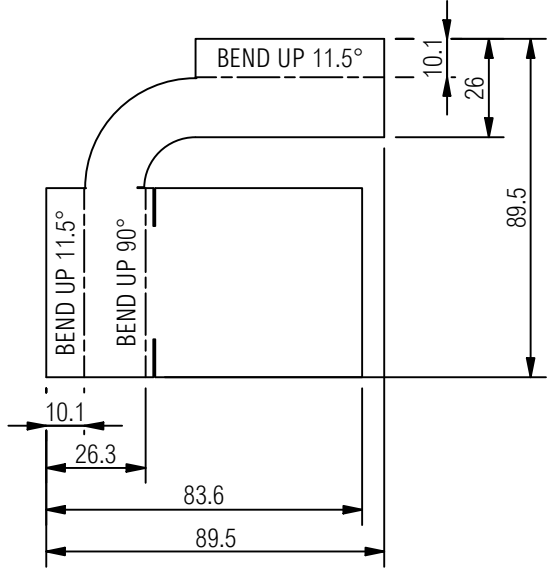
BUILD PROCESS 1:	LASER PLATE	BUILD PROCESS 2:	PRESS BRAKE	BUILD NO: 18	
BUILD PROCESS 3:	METALWORK	BUILD PROCESS 4:	CNC - 3-AXIS		
BUILD PROCESS 5:	WOODWORK	BUILD PROCESS 6:	SUB-CONTRACT		
BUILD PROCESS 7:		BUILD PROCESS 8:		BUILD QTY:	
MATERIAL:	2MM MS PLATE WELD ASSEMBLY		WEIGHT:	8 kg	1
FINISH:	PAINT - PSX 700 RAL 9003 - SIGNAL WHITE		FINISH QUALITY:	EXHIBITION	

B,1	BOLT HOLE REMOVED FROM PART 0206	AH	04/03/2024
A,1	ISSUED FOR MANUFACTURING	AH	04/03/2024
REV	DESCRIPTION	DRN	DATE

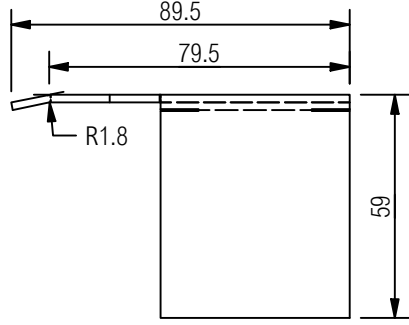
REVISION HISTORY

	CLIENT: NEWSUBSTANCE LTD		PROJECT: CO-OP LIVE TRAIL START		
	GROUP: AA - MANUFACTURED ITEMS				
	SUBGROUP: 01 - TRAIL START WAY FINDER				
	DRAWING TYPE MF	DRAWN BY AH	PROJECTION 	DRAWING SIZE A2	DRAWING SCALE 1 : 1
T +44 (0)1423 358 001 E sales@stageone.co.uk W www.stageone.co.uk	DRAWING TITLE: CAPPING PLATE 02 - B - [ARROW]				SHEET No. 5 / 13
THIS DRAWING IS THE COPYRIGHT OF STAGE ONE CREATIVE SERVICES LTD AND SHALL NOT BE DISCLOSED OR COPIED WITHOUT WRITTEN CONSENT	DRAWING NUMBER: TRA0424-AA01-0128				REVISION B,1

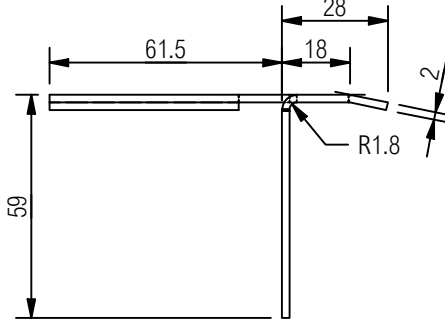
CORNER 05



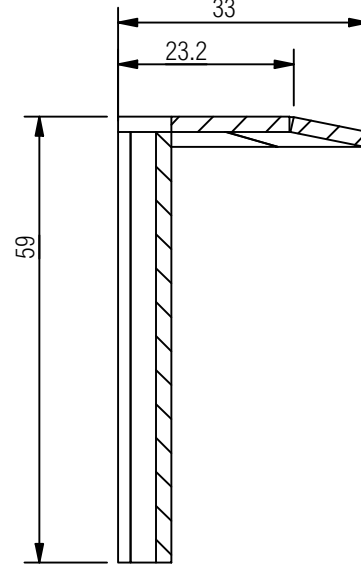
TRA0424-AA01-0194
FLAT PATTERN
SCALE 1 : 2



SIDE VIEW



FORMED VIEW



SECTION M - M

BILL OF MATERIALS						
ITEM	PART NUMBER	REV	DESCRIPTION	MATERIAL	CUT	QTY
12	TRA0424-AA01-0194	A	PLATE	MS PLATE S275 - 2 mm	YES	1
13	TRA0424-AA01-0195	A	PLATE	MS PLATE S275 - 2 mm	YES	1
18	TRA0424-AA01-0200	A	PLATE	MS PLATE S275 - 2 mm	YES	1
27	TRA0424-AA01-0249	A	PLATE	MS PLATE S275 - 2 mm	YES	1

GENERAL NOTES

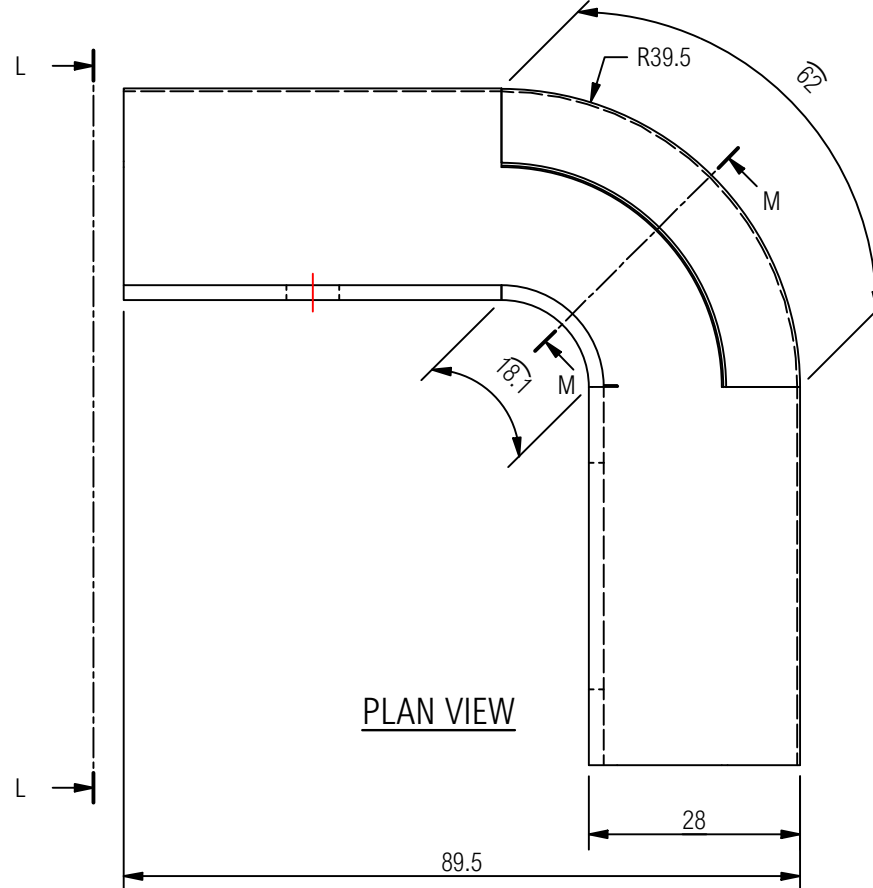
1. IF IN DOUBT - ASK!
2. ALL DIMENSIONS ARE IN mm UNLESS STATED OTHERWISE.
3. ALL LINEAR DIMENSIONS TO BE $\pm 1\text{mm}$ UNLESS STATED OTHERWISE.
4. ALL HOLE DIMENSIONS TO BE $\pm 0.25\text{mm}$ UNLESS STATED OTHERWISE.
5. USE WELD PROCEDURES WP01 TO WP18 WHERE APPLICABLE.
6. 2mm FOLDING DETAIL INNER RADIUS, USING 12mm 'v' WITH 1.8mm INNER RADIUS.
7. ONLY WELD EXTERNALLY - WHERE REQUIRED APPLY PREP TO PLATES.
8. DRESS ALL WELDS FOR EXHIBITION FINISH
9. SUBCONTRACT - PAINT

DO NOT ETCH

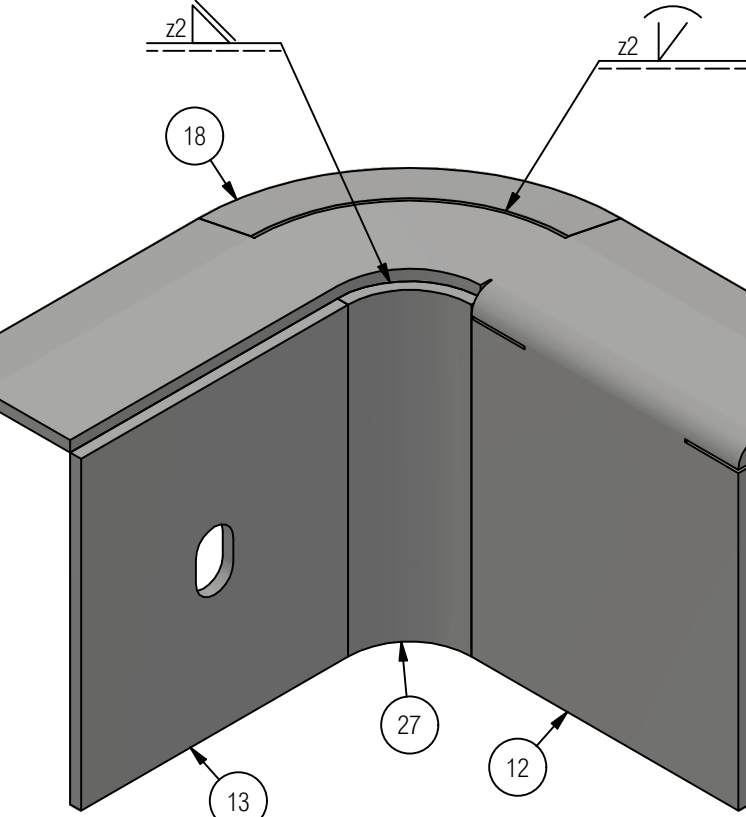
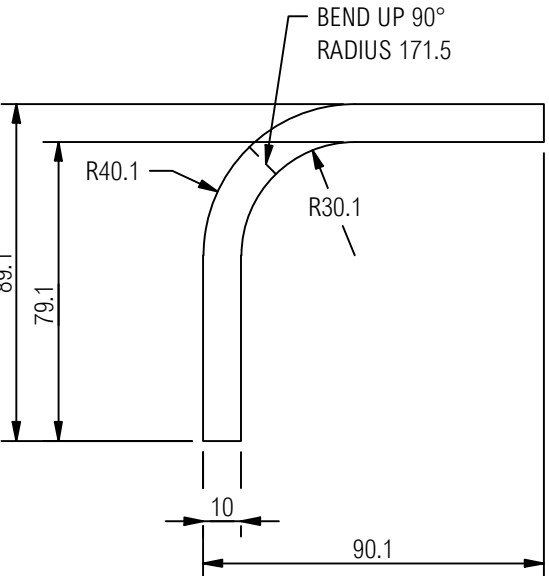
SHEET 1: OVERALL
SHEET 2: CORNER 01
SHEET 3: CORNER 02
SHEET 4: CORNER 03
SHEET 5: CORNER 04
SHEET 6: CORNER 05
SHEET 7: PRESS BRAKE
SHEET 8: PRESS BRAKE
SHEET 9: PRESS BRAKE
SHEET 10: PRESS BRAKE
SHEET 11: PRESS BRAKE
SHEET 12: PRESS BRAKE
SHEET 13: JIG

CONSTRUCTOR

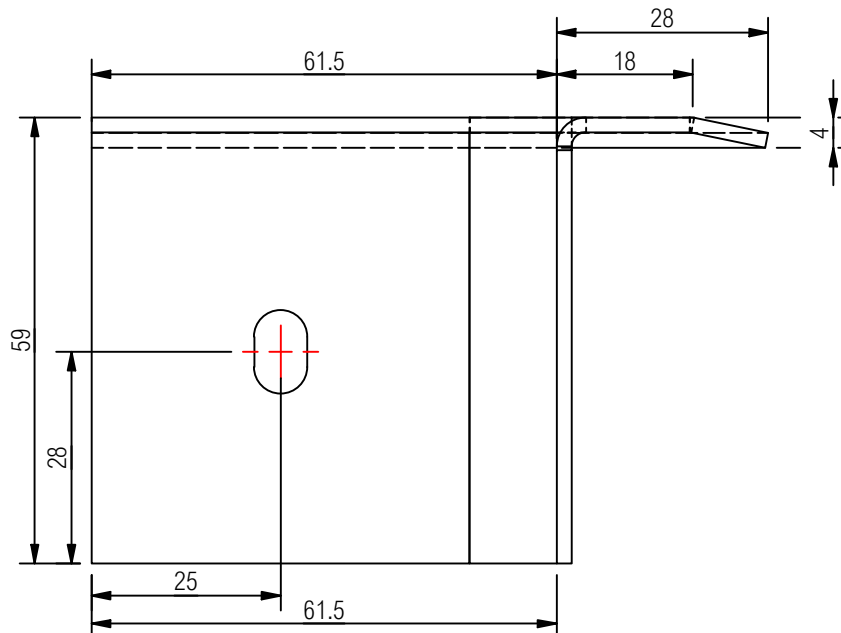
BUILD PROCESS 1:	LASER PLATE	BUILD PROCESS 2:	PRESS BRAKE	BUILD No: 18
BUILD PROCESS 3:	METALWORK	BUILD PROCESS 4:	CNC - 3-AXIS	
BUILD PROCESS 5:	WOODWORK	BUILD PROCESS 6:	SUB-CONTRACT	
BUILD PROCESS 7:	BUILD PROCESS 8:			BUILD QTY:
MATERIAL:	2MM MS PLATE WELD ASSEMBLY		WEIGHT:	1
FINISH:	PAINT - PSX 700 RAL 9003 - SIGNAL WHITE		FINISH QUALITY:	
		EXHIBITION		



PLAN VIEW

ISOMETRIC VIEW

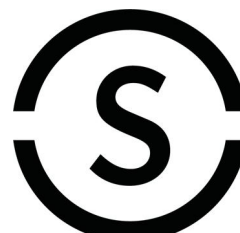
TRA0424-AA01-0200
FLAT PATTERN - **ROLLED NOT PRESSED**
NOTE FLAT PATTERN IS OVERSIZED
TO TRIM TO FIT
SCALE 1 : 2

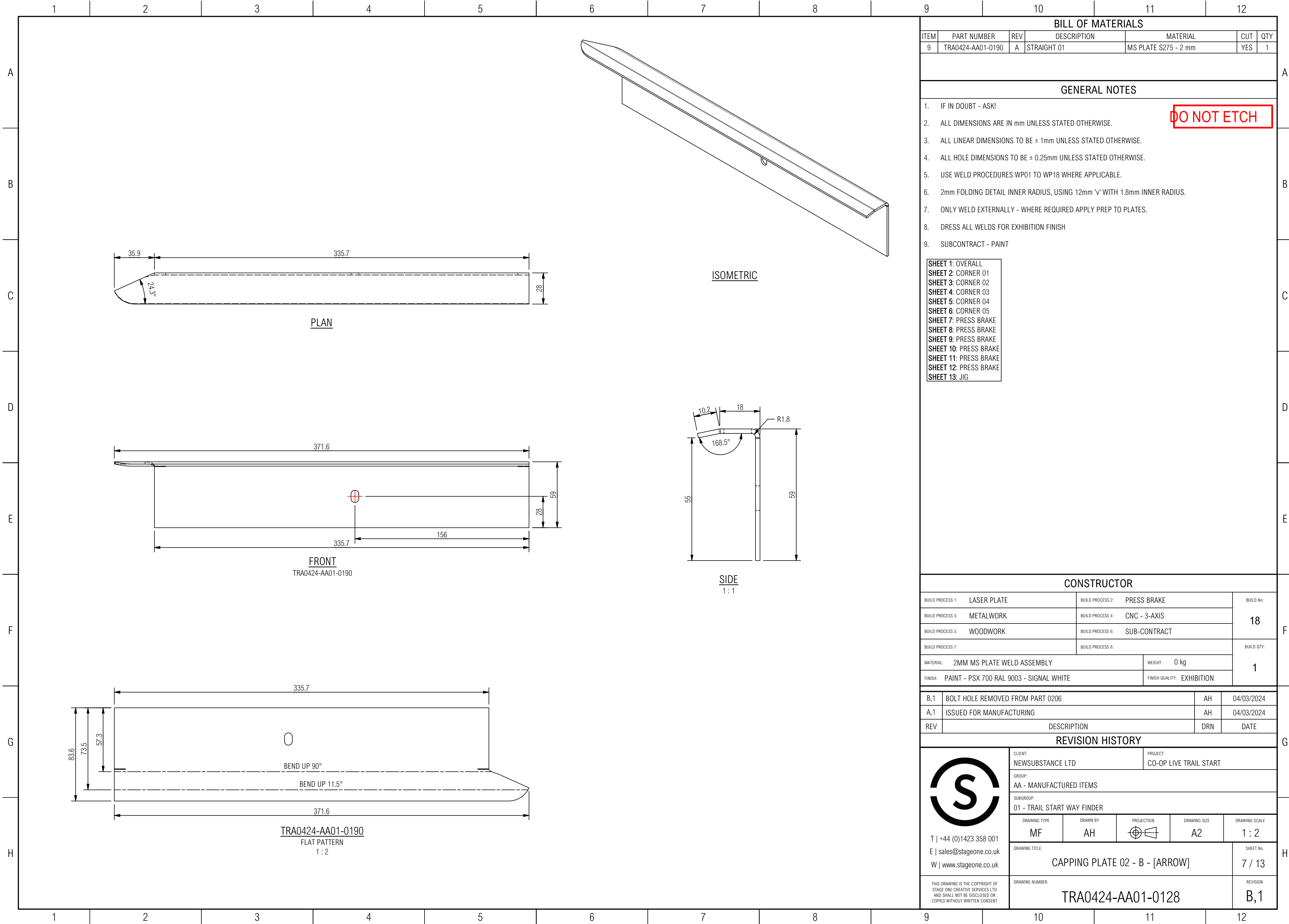


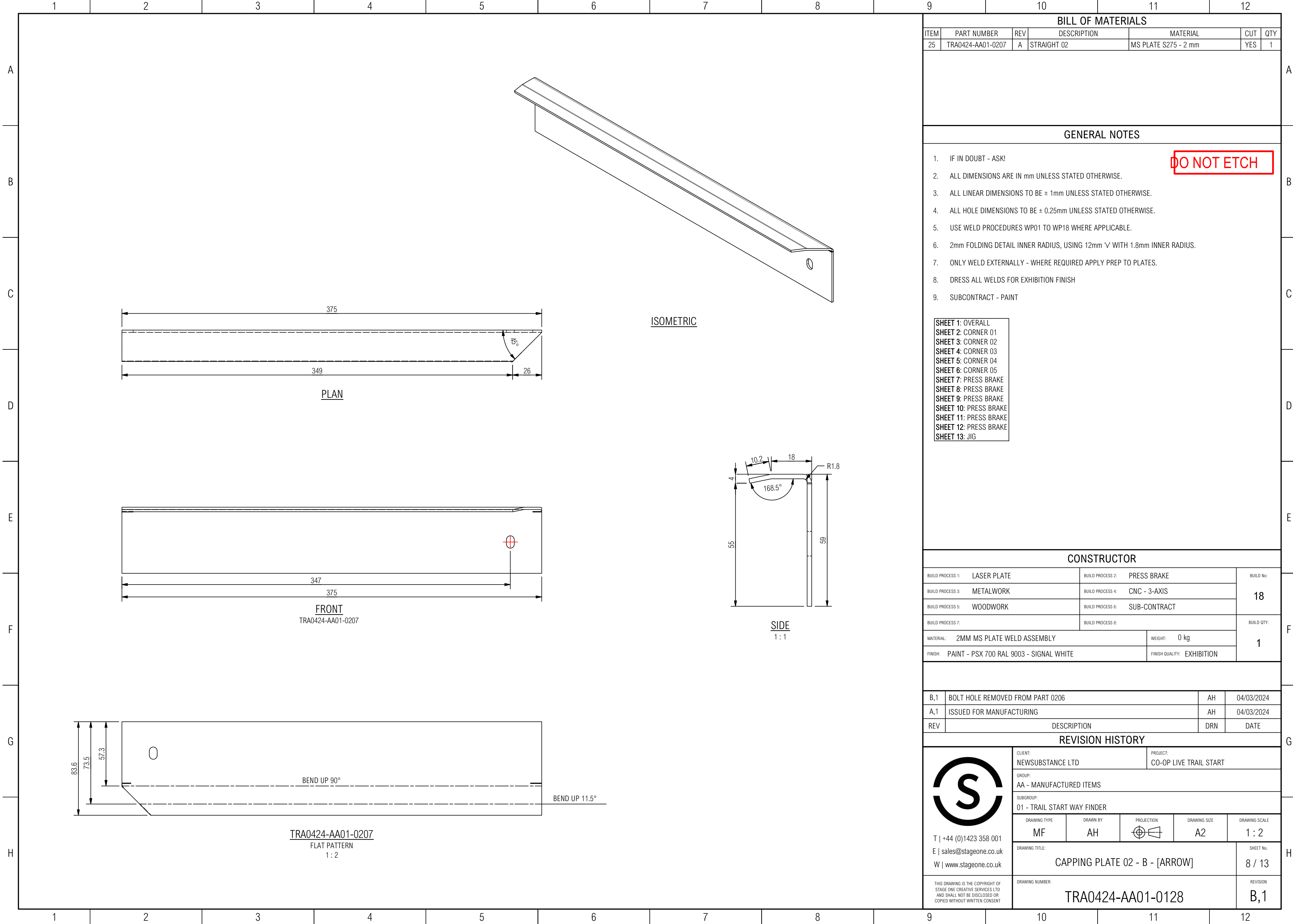
FRONT VIEW

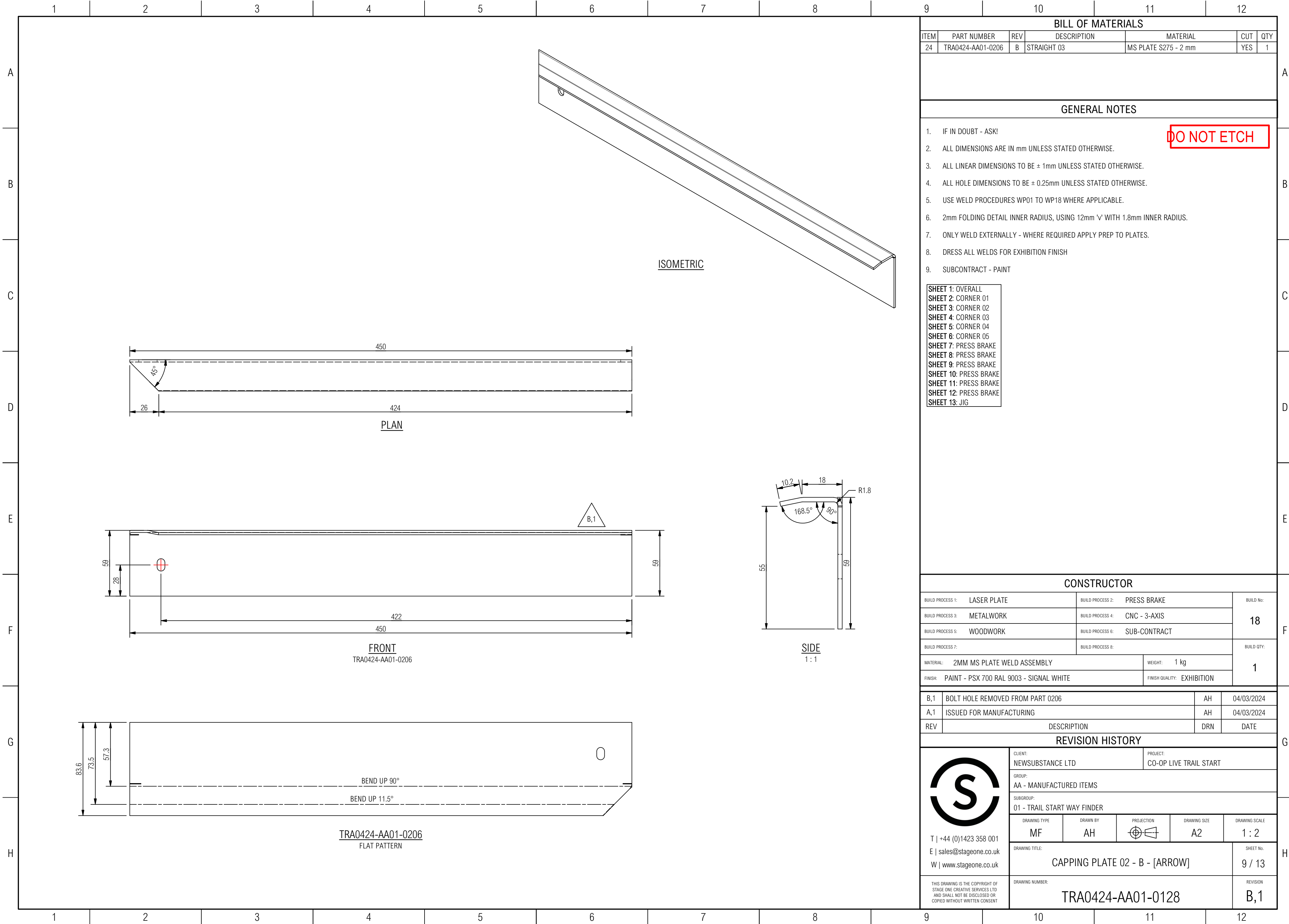
B,1	BOLT HOLE REMOVED FROM PART 0206	AH	04/03/2024
A,1	ISSUED FOR MANUFACTURING	AH	04/03/2024
REV	DESCRIPTION	DRN	DATE

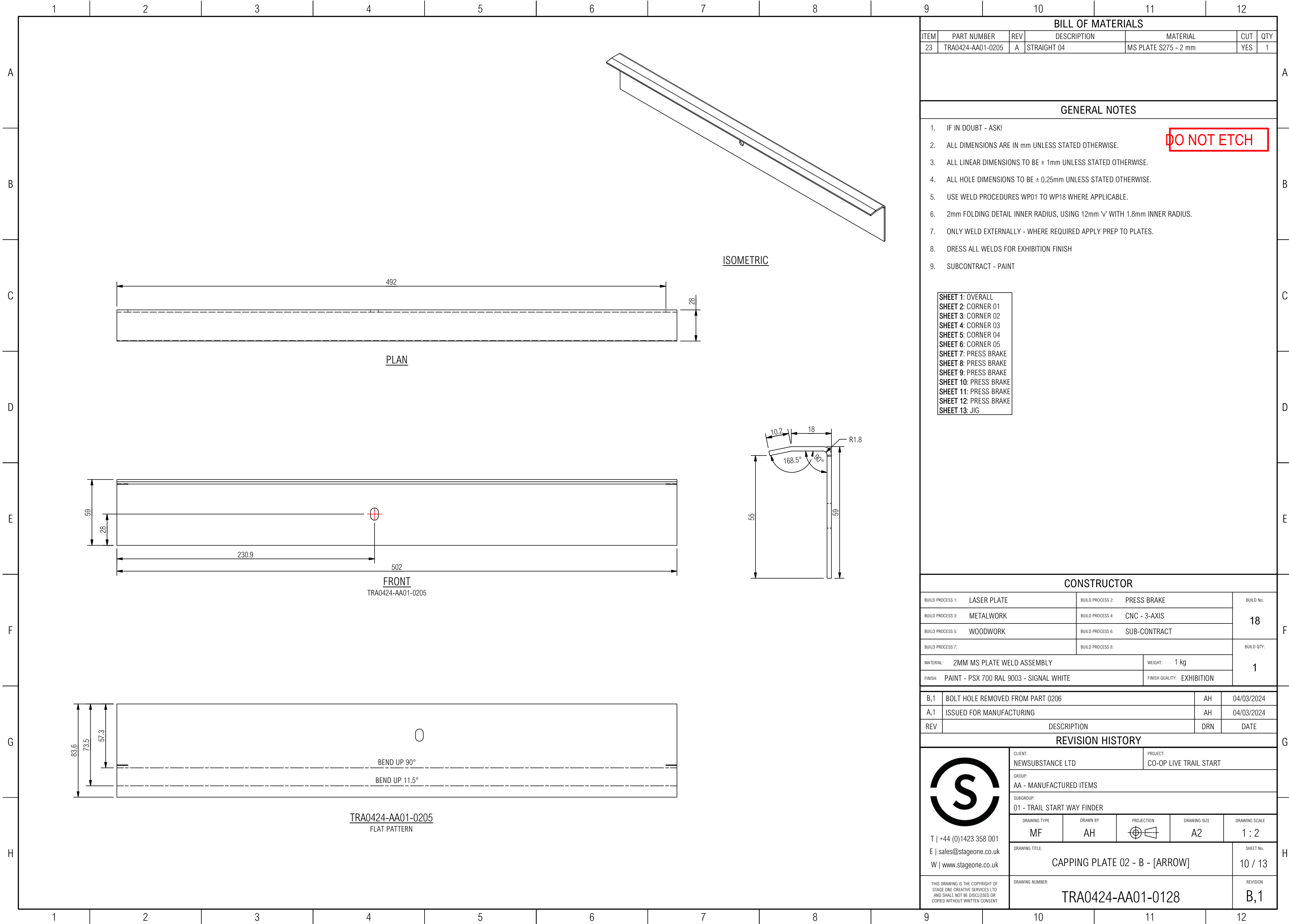
REVISION HISTORY

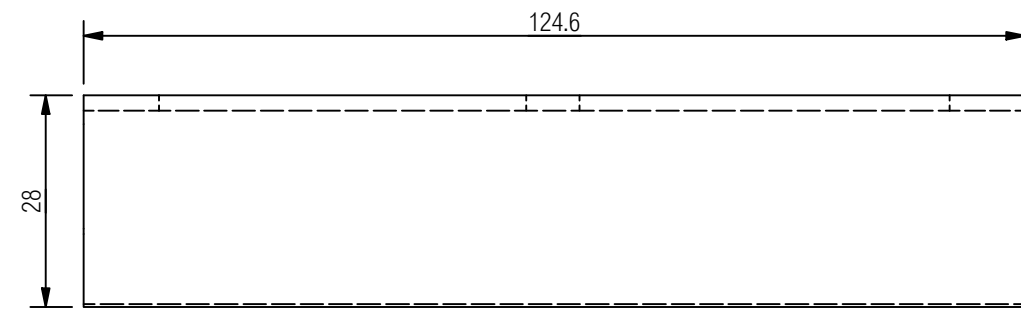
 T +44 (0)1423 358 001 E sales@stageone.co.uk W www.stageone.co.uk	CLIENT: NEWSUBSTANCE LTD		PROJECT: CO-OP LIVE TRAIL START		
	GROUP: AA - MANUFACTURED ITEMS				
	SUBGROUP: O1 - TRAIL START WAY FINDER				
	DRAWING TYPE MF	DRAWN BY AH	PROJECTION 	DRAWING SIZE A2	DRAWING SCALE 1 : 1
	DRAWING TITLE: CAPPING PLATE 02 - B - [ARROW]				SHEET No. 6 / 13
THIS DRAWING IS THE COPYRIGHT OF STAGE ONE CREATIVE SERVICES LTD AND SHALL NOT BE DISCLOSED OR COPIED WITHOUT WRITTEN CONSENT	DRAWING NUMBER: TRA0424-AA01-0128			REVISION B,1	



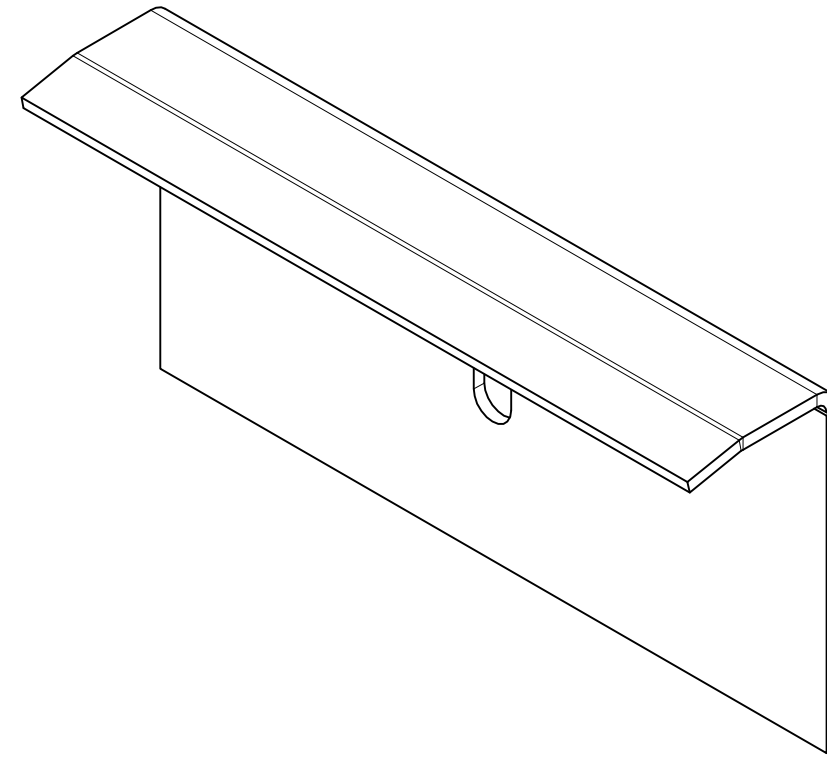
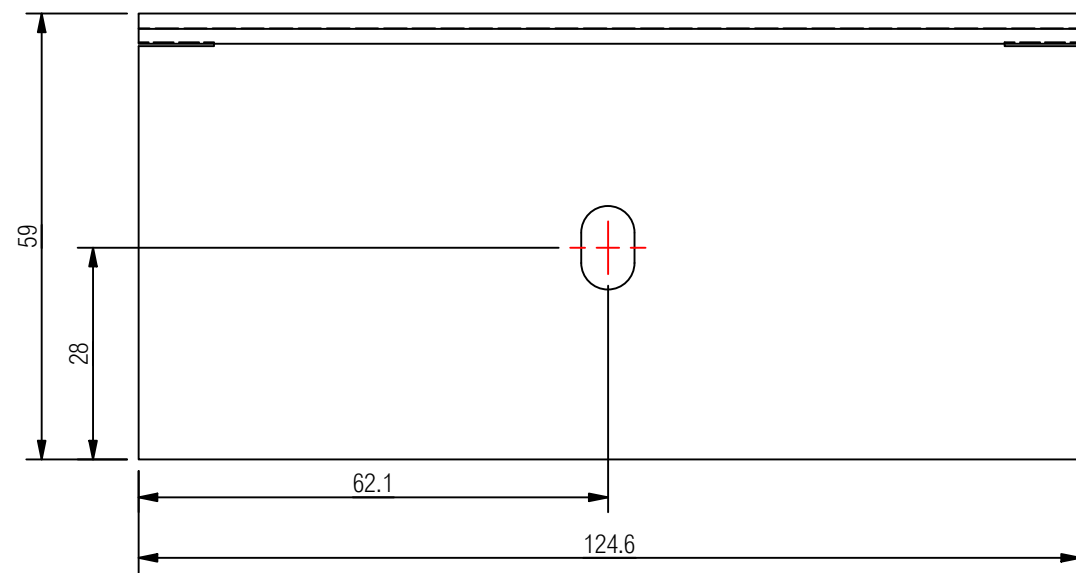






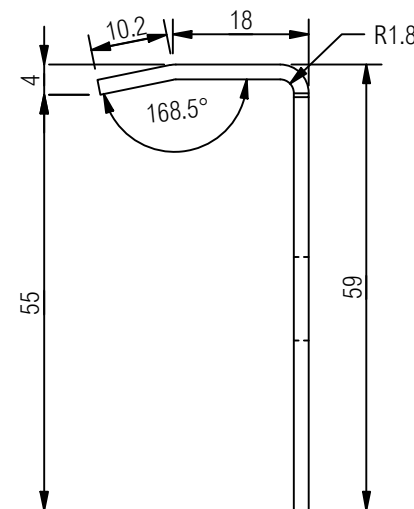


PLAN

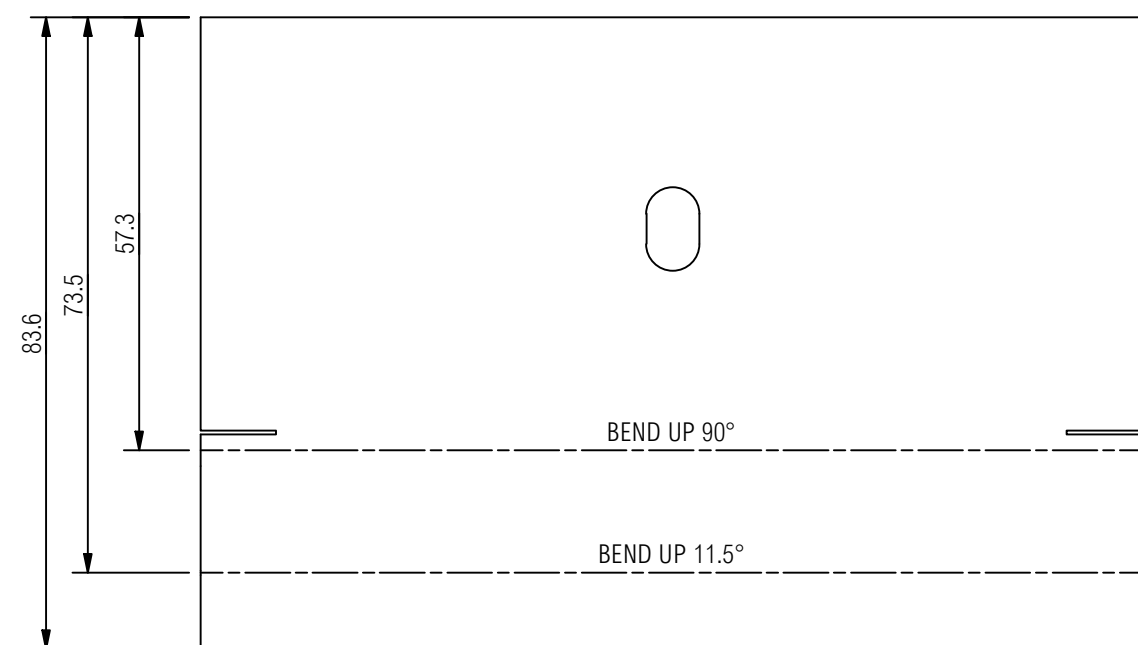
ISOMETRIC

FRONT

TRA0424-AA01-0204



SIDE



TRA0424-AA01-0204

FLAT PATTERN

1:1

BILL OF MATERIALS						
ITEM	PART NUMBER	REV	DESCRIPTION	MATERIAL	CUT	QTY
22	TRA0424-AA01-0204	A	STRAIGHT 05	MS PLATE S275 - 2 mm	YES	1

GENERAL NOTES

1. IF IN DOUBT - ASK!
2. ALL DIMENSIONS ARE IN mm UNLESS STATED OTHERWISE.
3. ALL LINEAR DIMENSIONS TO BE $\pm 1\text{mm}$ UNLESS STATED OTHERWISE.
4. ALL HOLE DIMENSIONS TO BE $\pm 0.25\text{mm}$ UNLESS STATED OTHERWISE.
5. USE WELD PROCEDURES WP01 TO WP18 WHERE APPLICABLE.
6. 2mm FOLDING DETAIL INNER RADIUS, USING 12mm 'v' WITH 1.8mm INNER RADIUS.
7. ONLY WELD EXTERNALLY - WHERE REQUIRED APPLY PREP TO PLATES.
8. DRESS ALL WELDS FOR EXHIBITION FINISH
9. SUBCONTRACT - PAINT

DO NOT ETCH

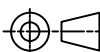
SHEET 1: OVERALL
SHEET 2: CORNER 01
SHEET 3: CORNER 02
SHEET 4: CORNER 03
SHEET 5: CORNER 04
SHEET 6: CORNER 05
SHEET 7: PRESS BRAKE
SHEET 8: PRESS BRAKE
SHEET 9: PRESS BRAKE
SHEET 10: PRESS BRAKE
SHEET 11: PRESS BRAKE
SHEET 12: PRESS BRAKE
SHEET 13: JIG

CONSTRUCTOR

BUILD PROCESS 1:	LASER PLATE	BUILD PROCESS 2:	PRESS BRAKE	BUILD No: 18
BUILD PROCESS 3:	METALWORK	BUILD PROCESS 4:	CNC - 3-AXIS	
BUILD PROCESS 5:	WOODWORK	BUILD PROCESS 6:	SUB-CONTRACT	
BUILD PROCESS 7:		BUILD PROCESS 8:		BUILD QTY:
MATERIAL: 2MM MS PLATE WELD ASSEMBLY			WEIGHT: 0 kg	1
FINISH: PAINT - PSX 700 RAL 9003 - SIGNAL WHITE			FINISH QUALITY: EXHIBITION	

B,1	BOLT HOLE REMOVED FROM PART 0206	AH	04/03/2024
A,1	ISSUED FOR MANUFACTURING	AH	04/03/2024
REV	DESCRIPTION	DRN	DATE

REVISION HISTORY

	CLIENT: NEWSUBSTANCE LTD		PROJECT: CO-OP LIVE TRAIL START		
	GROUP: AA - MANUFACTURED ITEMS				
	SUBGROUP: 01 - TRAIL START WAY FINDER				
	DRAWING TYPE MF	DRAWN BY AH	PROJECTION 	DRAWING SIZE A2	DRAWING SCALE 1 : 1
	DRAWING TITLE: CAPPING PLATE 02 - B - [ARROW]				SHEET No. 11 / 13
THIS DRAWING IS THE COPYRIGHT OF STAGE ONE CREATIVE SERVICES LTD AND SHALL NOT BE DISCLOSED OR COPIED WITHOUT WRITTEN CONSENT	DRAWING NUMBER: TRA0424-AA01-0128			REVISION B,1	



TRA0424-AA01-0265



TRA0424-AA01-0265



GENERAL NOTES

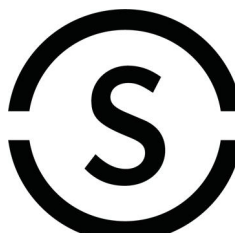
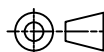
1. IF IN DOUBT - ASK!
2. ALL DIMENSIONS ARE IN mm UNLESS STATED OTHERWISE.
3. ALL LINEAR DIMENSIONS TO BE $\pm 1\text{mm}$ UNLESS STATED OTHERWISE.
4. ALL HOLE DIMENSIONS TO BE $\pm 0.25\text{mm}$ UNLESS STATED OTHERWISE.
5. USE WELD PROCEDURES WP01 TO WP18 WHERE APPLICABLE.
6. 2mm FOLDING DETAIL INNER RADIUS, USING 12mm 'v' WITH 1.8mm INNER RADIUS.
7. ONLY WELD EXTERNALLY - WHERE REQUIRED APPLY PREP TO PLATES.
8. DRESS ALL WELDS FOR EXHIBITION FINISH
9. SUBCONTRACT - PAINT

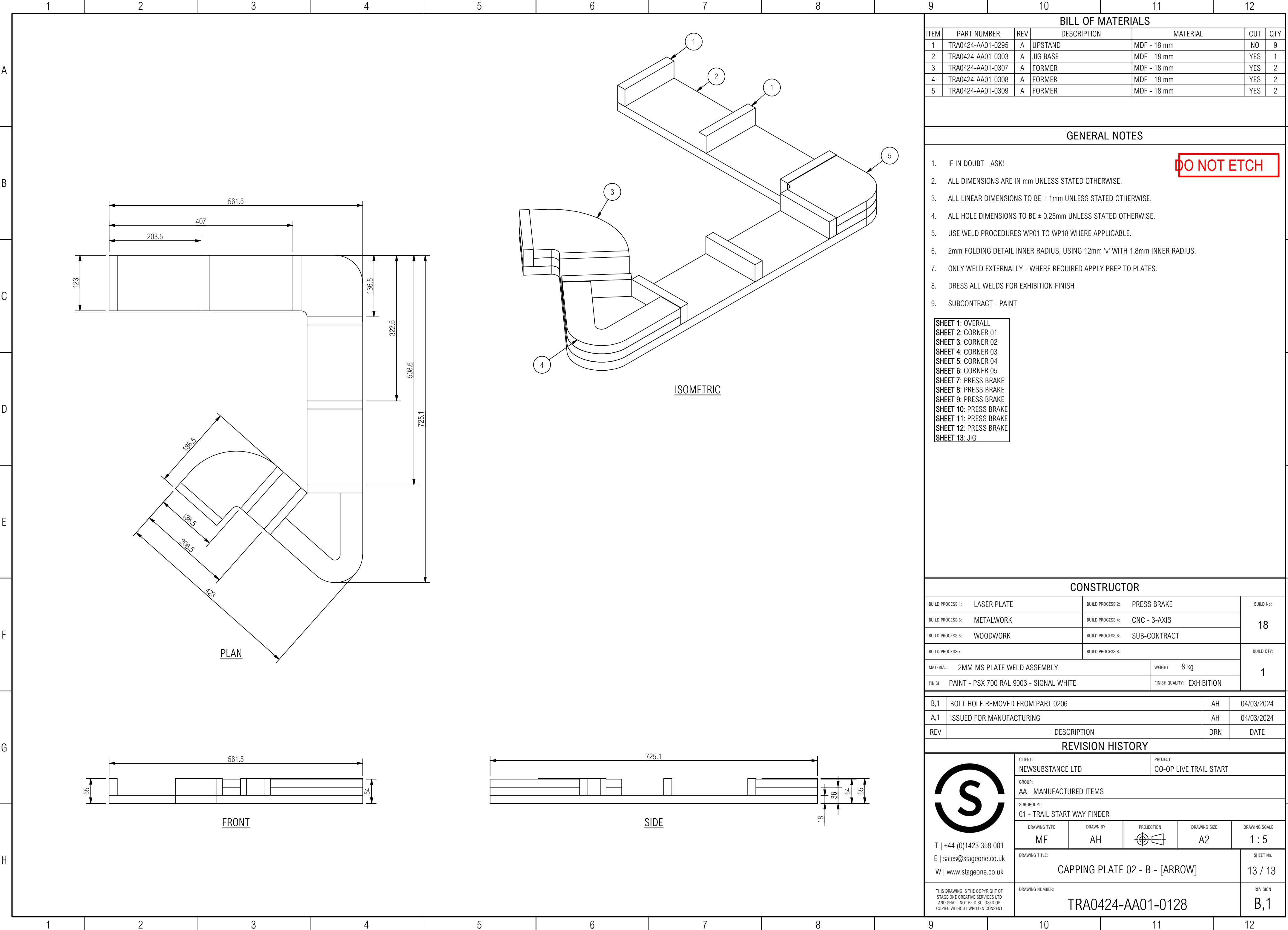
DO NOT ETCH

SHEET 1: OVERALL
SHEET 2: CORNER 01
SHEET 3: CORNER 02
SHEET 4: CORNER 03
SHEET 5: CORNER 04
SHEET 6: CORNER 05
SHEET 7: PRESS BRAKE
SHEET 8: PRESS BRAKE
SHEET 9: PRESS BRAKE
SHEET 10: PRESS BRAKE
SHEET 11: PRESS BRAKE
SHEET 12: PRESS BRAKE
SHEET 13: JIG

CONSTRUCTOR					
BUILD PROCESS 1:	LASER PLATE	BUILD PROCESS 2:	PRESS BRAKE	BUILD No: 18	
BUILD PROCESS 3:	METALWORK	BUILD PROCESS 4:	CNC - 3-AXIS		
BUILD PROCESS 5:	WOODWORK	BUILD PROCESS 6:	SUB-CONTRACT		
BUILD PROCESS 7:			BUILD PROCESS 8:	BUILD QTY: 1	
MATERIAL:	2MM MS PLATE WELD ASSEMBLY		WEIGHT:		0 kg
FINISH:	PAINT - PSX 700 RAL 9003 - SIGNAL WHITE		FINISH QUALITY:		EXHIBITION

B,1	BOLT HOLE REMOVED FROM PART 0206	AH	04/03/2024
A,1	ISSUED FOR MANUFACTURING	AH	04/03/2024
REV	DESCRIPTION	DRN	DATE

REVISION HISTORY					
 T +44 (0)1423 358 001 E sales@stageone.co.uk W www.stageone.co.uk	CLIENT: NEWSUBSTANCE LTD		PROJECT: CO-OP LIVE TRAIL START		
	GROUP: AA - MANUFACTURED ITEMS				
	SUBGROUP: 01 - TRAIL START WAY FINDER				
	DRAWING TYPE MF	DRAWN BY AH	PROJECTION 	DRAWING SIZE A2	DRAWING SCALE 1 : 1
	DRAWING TITLE: CAPPING PLATE 02 - B - [ARROW]				SHEET No. 12 / 13
THIS DRAWING IS THE COPYRIGHT OF STAGE ONE CREATIVE SERVICES LTD AND SHALL NOT BE DISCLOSED OR COPIED WITHOUT WRITTEN CONSENT		DRAWING NUMBER: TRA0424-AA01-0128		REVISION B,1	



BILL OF MATERIALS						
ITEM	PART NUMBER	REV	DESCRIPTION	MATERIAL	CUT	QTY
1	TRA0424-AA01-0295	A	UPSTAND	MDF - 18 mm	NO	9
2	TRA0424-AA01-0303	A	JIG BASE	MDF - 18 mm	YES	1
3	TRA0424-AA01-0307	A	FORMER	MDF - 18 mm	YES	2
4	TRA0424-AA01-0308	A	FORMER	MDF - 18 mm	YES	2
5	TRA0424-AA01-0309	A	FORMER	MDF - 18 mm	YES	2

GENERAL NOTES

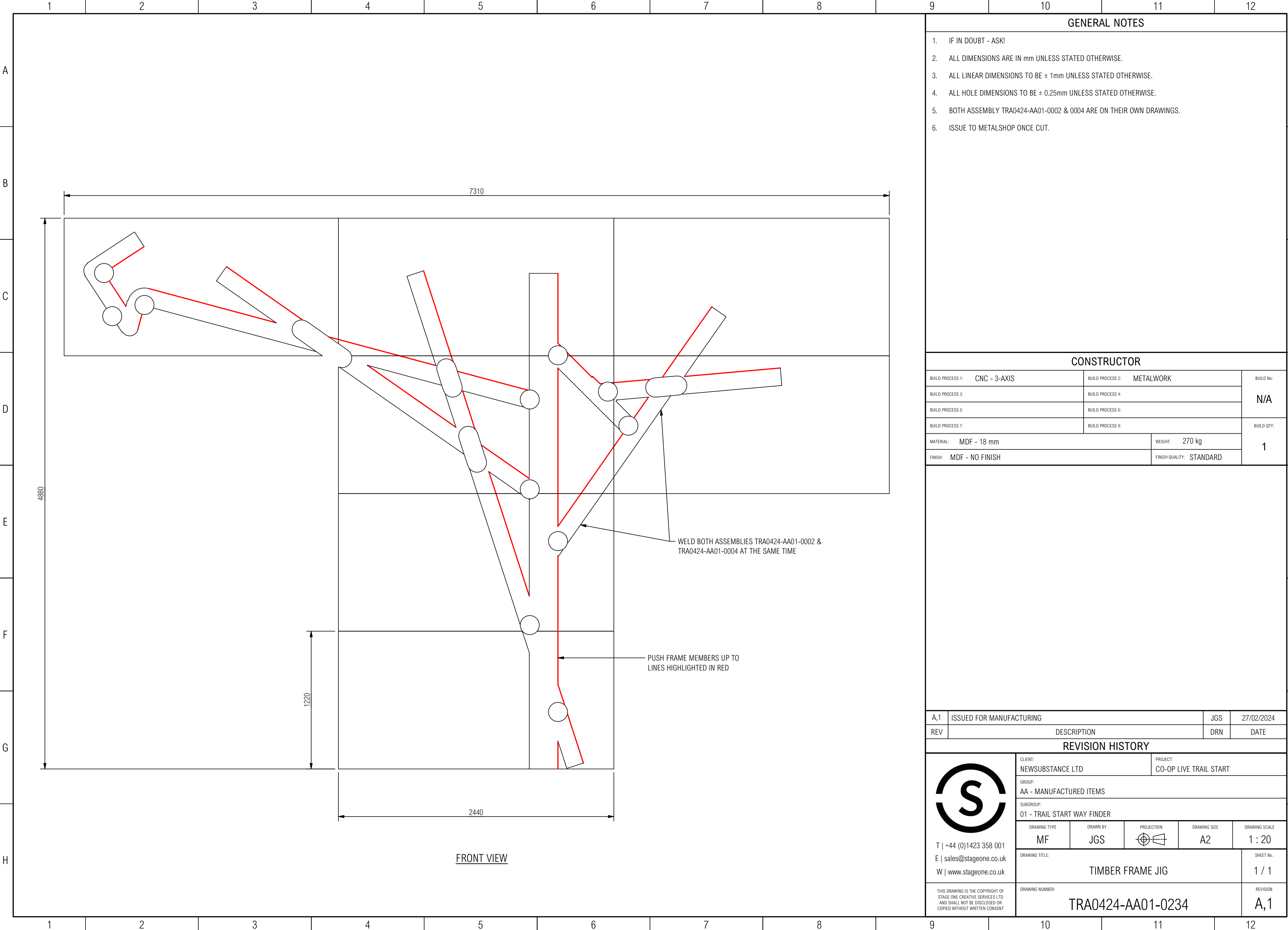
- IF IN DOUBT - ASK!
- ALL DIMENSIONS ARE IN mm UNLESS STATED OTHERWISE.
- ALL LINEAR DIMENSIONS TO BE ± 1 mm UNLESS STATED OTHERWISE.
- ALL HOLE DIMENSIONS TO BE ± 0.25 mm UNLESS STATED OTHERWISE.
- USE WELD PROCEDURES WP01 TO WP18 WHERE APPLICABLE.
- 2mm FOLDING DETAIL INNER RADIUS, USING 12mm 'V' WITH 1.8mm INNER RADIUS.
- ONLY WELD EXTERNALLY - WHERE REQUIRED APPLY PREP TO PLATES.
- DRESS ALL WELDS FOR EXHIBITION FINISH
- SUBCONTRACT - PAINT

SHEET 1: OVERALL
SHEET 2: CORNER 01
SHEET 3: CORNER 02
SHEET 4: CORNER 03
SHEET 5: CORNER 04
SHEET 6: CORNER 05
SHEET 7: PRESS BRAKE
SHEET 8: PRESS BRAKE
SHEET 9: PRESS BRAKE
SHEET 10: PRESS BRAKE
SHEET 11: PRESS BRAKE
SHEET 12: PRESS BRAKE
SHEET 13: JIG

CONSTRUCTOR				
BUILD PROCESS 1:	LASER PLATE	BUILD PROCESS 2:	PRESS BRAKE	BUILD No: 18
BUILD PROCESS 3:	METALWORK	BUILD PROCESS 4:	CNC - 3-AXIS	
BUILD PROCESS 5:	WOODWORK	BUILD PROCESS 6:	SUB-CONTRACT	BUILD QTY: 1
BUILD PROCESS 7:		BUILD PROCESS 8:		
MATERIAL:	2MM MS PLATE WELD ASSEMBLY	WEIGHT:	8 kg	
FINISH:	PAINT - PSX 700 RAL 9003 - SIGNAL WHITE	FINISH QUALITY:	EXHIBITION	

B,1	BOLT HOLE REMOVED FROM PART 0206	AH	04/03/2024
A,1	ISSUED FOR MANUFACTURING	AH	04/03/2024
REV	DESCRIPTION	DRN	DATE

REVISION HISTORY				
 T +44 (0)1423 358 001 E sales@stageone.co.uk W www.stageone.co.uk THIS DRAWING IS THE COPYRIGHT OF STAGE ONE CREATIVE SERVICES LTD AND SHALL NOT BE DISCLOSED OR COPIED WITHOUT WRITTEN CONSENT	CLIENT: NEWSUBSTANCE LTD	PROJECT: CO-OP LIVE TRAIL START		
	GROUP: AA - MANUFACTURED ITEMS			
	SUBGROUP: 01 - TRAIL START WAY FINDER			
	DRAWING TYPE MF	DRAWN BY AH	PROJECTION 	DRAWING SCALE 1 : 5
	DRAWING TITLE: CAPPING PLATE 02 - B - [ARROW]			SHEET No. 13 / 13
DRAWING NUMBER: TRA0424-AA01-0128			REVISION B,1	



GENERAL NOTES

- 1. IF IN DOUBT - ASK!
- 2. ALL DIMENSIONS ARE IN mm UNLESS STATED OTHERWISE.
- 3. ALL LINEAR DIMENSIONS TO BE $\pm 1\text{mm}$ UNLESS STATED OTHERWISE.
- 4. ALL HOLE DIMENSIONS TO BE $\pm 0.25\text{mm}$ UNLESS STATED OTHERWISE.
- 5. BOTH ASSEMBLY TRA0424-AA01-0002 & 0004 ARE ON THEIR OWN DRAWINGS.
- 6. ISSUE TO METALSHOP ONCE CUT.

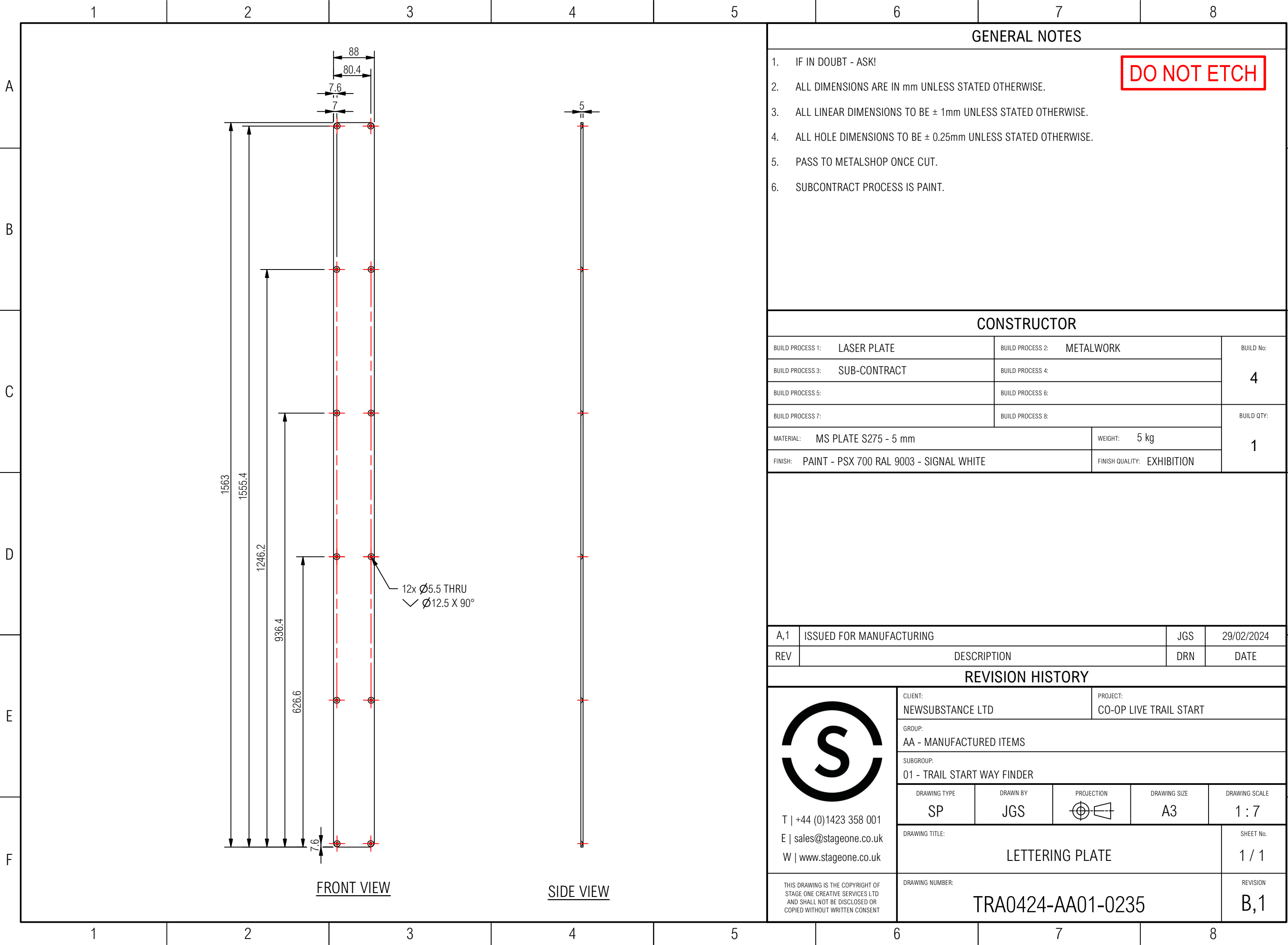
CONSTRUCTOR

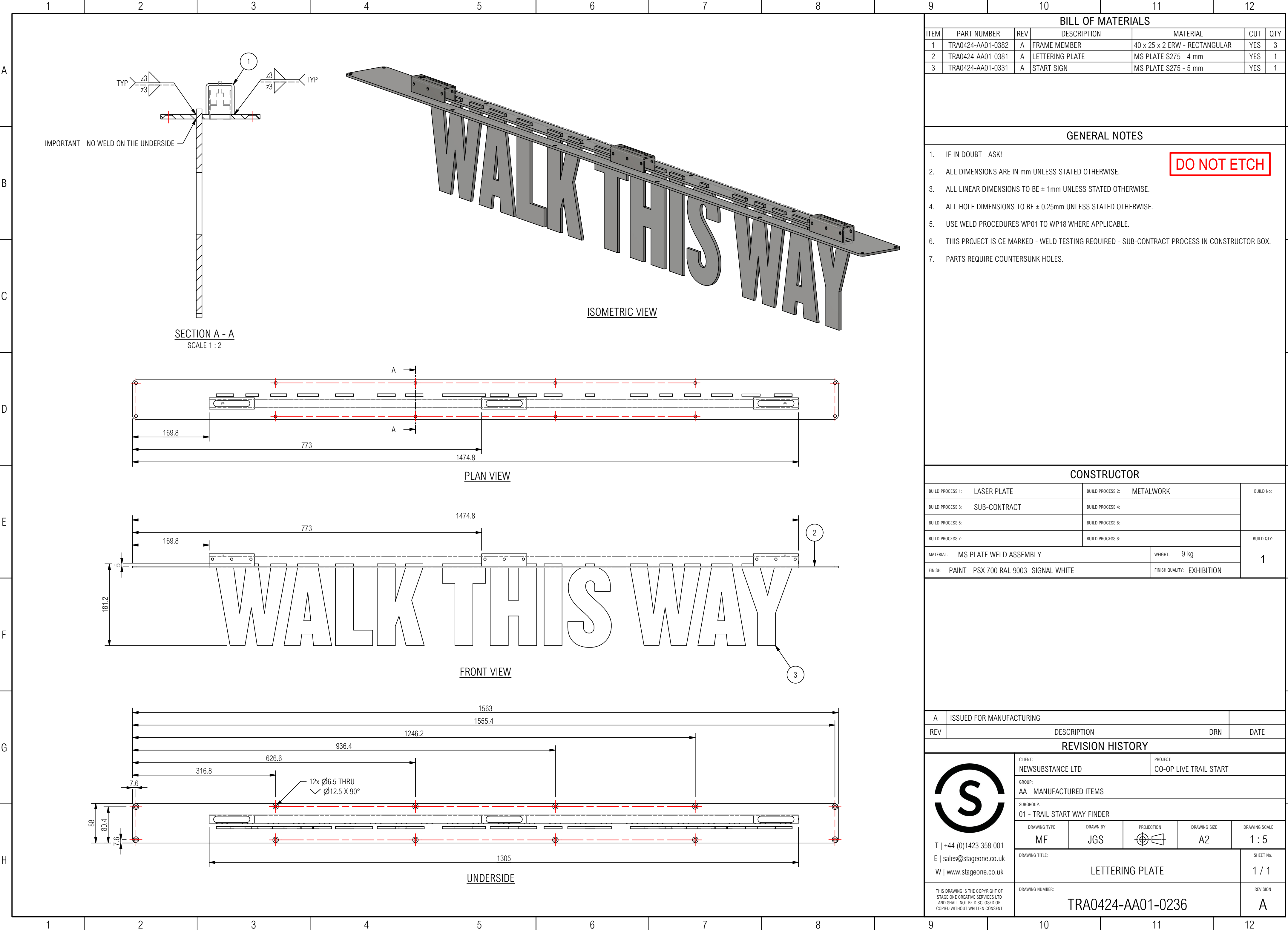
BUILD PROCESS 1:	CNC - 3-AXIS	BUILD PROCESS 2:	METALWORK	BUILD No:
BUILD PROCESS 3:		BUILD PROCESS 4:		N/A
BUILD PROCESS 5:		BUILD PROCESS 6:		
BUILD PROCESS 7:		BUILD PROCESS 8:		BUILD QTY:
MATERIAL:	MDF - 18 mm	WEIGHT:	270 kg	1
FINISH:	MDF - NO FINISH	FINISH QUALITY:	STANDARD	

A,1	ISSUED FOR MANUFACTURING	JGS	27/02/2024
REV	DESCRIPTION	DRN	DATE

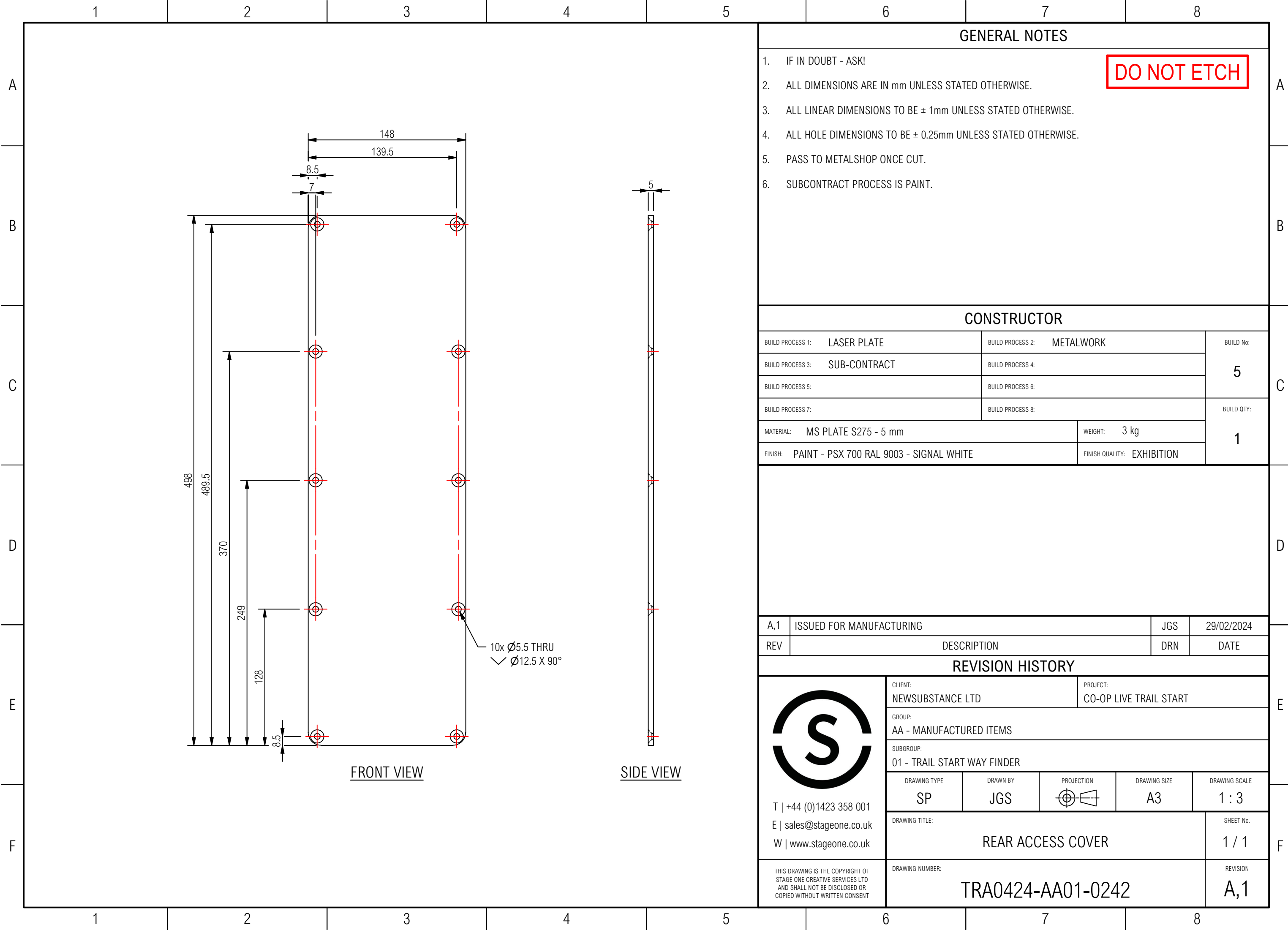
REVISION HISTORY

 T +44 (0)1423 358 001 E sales@stageone.co.uk W www.stageone.co.uk	CLIENT: NEWSUBSTANCE LTD		PROJECT: CO-OP LIVE TRAIL START		
	GROUP: AA - MANUFACTURED ITEMS				
	SUBGROUP: 01 - TRAIL START WAY FINDER				
	DRAWING TYPE MF	DRAWN BY JGS	PROJECTION 	DRAWING SIZE A2	DRAWING SCALE 1 : 20
	DRAWING TITLE: TIMBER FRAME JIG				SHEET No. 1 / 1
THIS DRAWING IS THE COPYRIGHT OF STAGE ONE CREATIVE SERVICES LTD AND SHALL NOT BE DISCLOSED OR COPIED WITHOUT WRITTEN CONSENT		DRAWING NUMBER: TRA0424-AA01-0234			REVISION A,1





BILL OF MATERIALS						
ITEM	PART NUMBER	REV	DESCRIPTION	MATERIAL	CUT	QTY
1	TRA0424-AA01-0382	A	FRAME MEMBER	40 x 25 x 2 ERW - RECTANGULAR	YES	3
2	TRA0424-AA01-0381	A	LETTERING PLATE	MS PLATE S275 - 4 mm	YES	1
3	TRA0424-AA01-0331	A	START SIGN	MS PLATE S275 - 5 mm	YES	1
GENERAL NOTES						
1. IF IN DOUBT - ASK!				DO NOT ETCH		
2. ALL DIMENSIONS ARE IN mm UNLESS STATED OTHERWISE.						
3. ALL LINEAR DIMENSIONS TO BE ± 1mm UNLESS STATED OTHERWISE.						
4. ALL HOLE DIMENSIONS TO BE ± 0.25mm UNLESS STATED OTHERWISE.						
5. USE WELD PROCEDURES WP01 TO WP18 WHERE APPLICABLE.						
6. THIS PROJECT IS CE MARKED - WELD TESTING REQUIRED - SUB-CONTRACT PROCESS IN CONSTRUCTOR BOX.						
7. PARTS REQUIRE COUNTERSUNK HOLES.						
CONSTRUCTOR						
BUILD PROCESS 1: LASER PLATE			BUILD PROCESS 2: METALWORK		BUILD No:	
BUILD PROCESS 3: SUB-CONTRACT			BUILD PROCESS 4:			
BUILD PROCESS 5:			BUILD PROCESS 6:			
BUILD PROCESS 7:			BUILD PROCESS 8:		BUILD QTY:	
MATERIAL: MS PLATE WELD ASSEMBLY			WEIGHT: 9 kg			
FINISH: PAINT - PSX 700 RAL 9003- SIGNAL WHITE			FINISH QUALITY: EXHIBITION			
1						



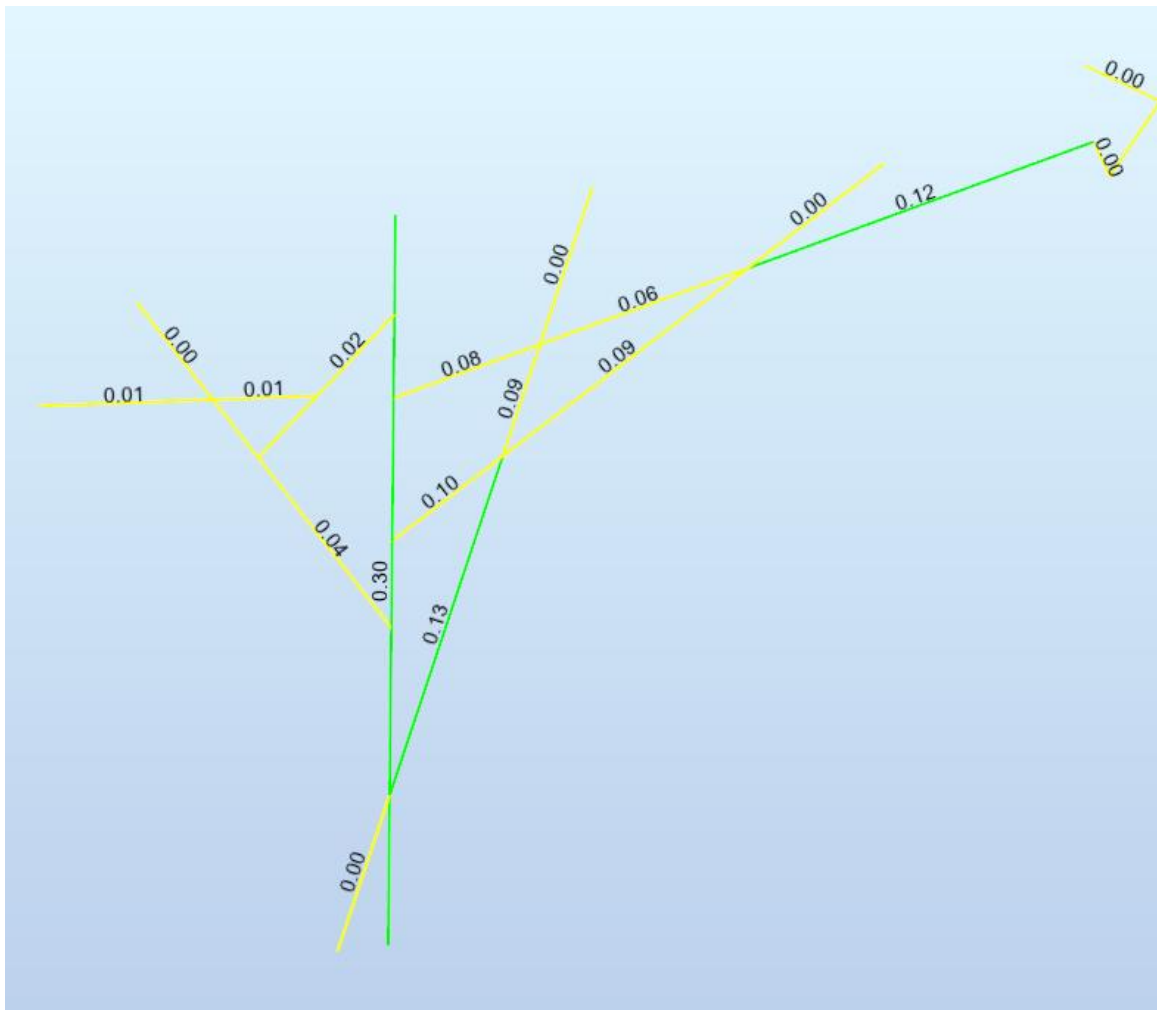
Structural Member Utilisation



WAYFINDER

Steel member strength verification checks carried out in Autodesk Robot steel design module to BS EN 1993-1:2005/NA:2008. The figure below shows the utilisation ratios of each member of the frame.

All members pass, with the maximum utilisation ratio being 0.3.



Calculation output for the most utilised (i.e. stressed) member follows.

CODE: *BS-EN 1993-1:2005/NA:2008/A1:2014, Eurocode 3: Design of steel structures.*

ANALYSIS TYPE: Member Verification

CODE GROUP:

MEMBER: 23

POINT: 1

COORDINATE: x = 0.86 L = 3.88 m

LOADS:

Governing Load Case: 27 ULS15 (1+2)*1.35+7*1.50+3*1.05+4*0.30

MATERIAL:

S235 $f_y = 235.00$ MPa



SECTION PARAMETERS: SHSH 250x250x5

h=250 mm	gM0=1.00	gM1=1.00	
b=250 mm	Ay=2435 mm ²	Az=2435 mm ²	Ax=4870 mm ²
tw=5 mm	Iy=48610000 mm ⁴	Iz=48610000 mm ⁴	Ix=74300000 mm ⁴
tf=5 mm	Wely=388880 mm ³	Welz=388880 mm ³	

INTERNAL FORCES AND CAPACITIES:

N _{Ed} = 0.31 kN		M _{z,Ed} = -0.07 kN*m	V _{y,Ed} = -0.21 kN
N _{c,Rd} = 1144.45 kN	My _{Ed,max} = -11.00 kN*m	M _{z,Ed,max} = -16.50 kN*m	V _{y,c,Rd} = 330.37 kN
N _{b,Rd} = 784.98 kN	My _{c,Rd} = 91.39 kN*m	M _{z,c,Rd} = 91.39 kN*m	
			Class of section = 3



LATERAL BUCKLING PARAMETERS:

BUCKLING PARAMETERS:



About y axis:

Ly = 4.50 m	Lam_y = 0.97
Lcr,y = 9.00 m	Xy = 0.69
Lamy = 90.08	kzy = 1.00



About z axis:

Lz = 4.50 m	Lam_z = 0.97
Lcr,z = 9.00 m	Xz = 0.69
Lamz = 90.08	kzz = 1.00

VERIFICATION FORMULAS:

Section strength check:

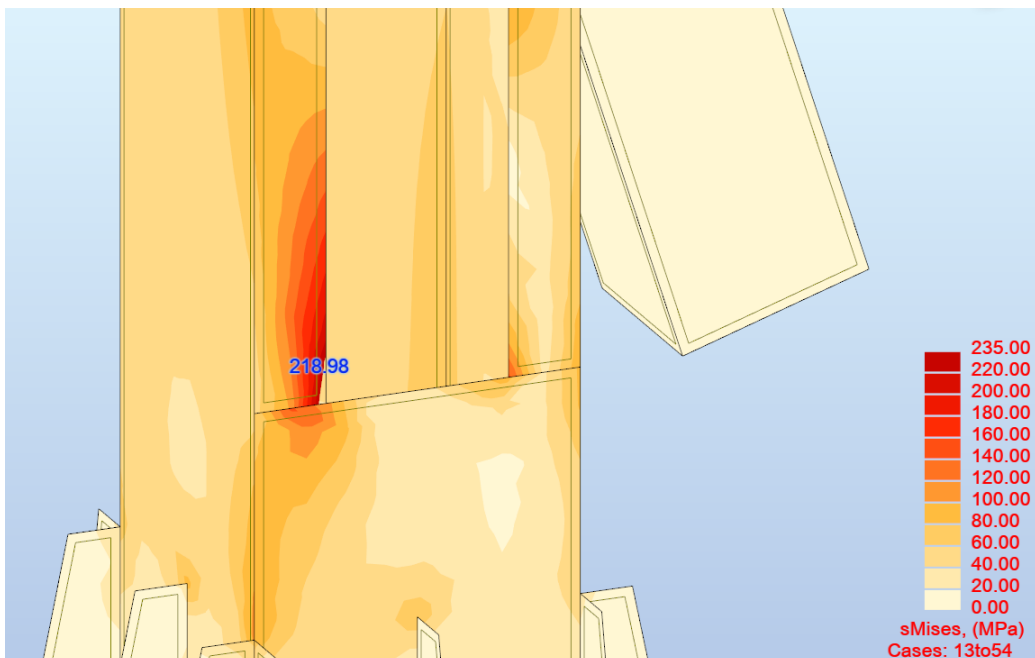
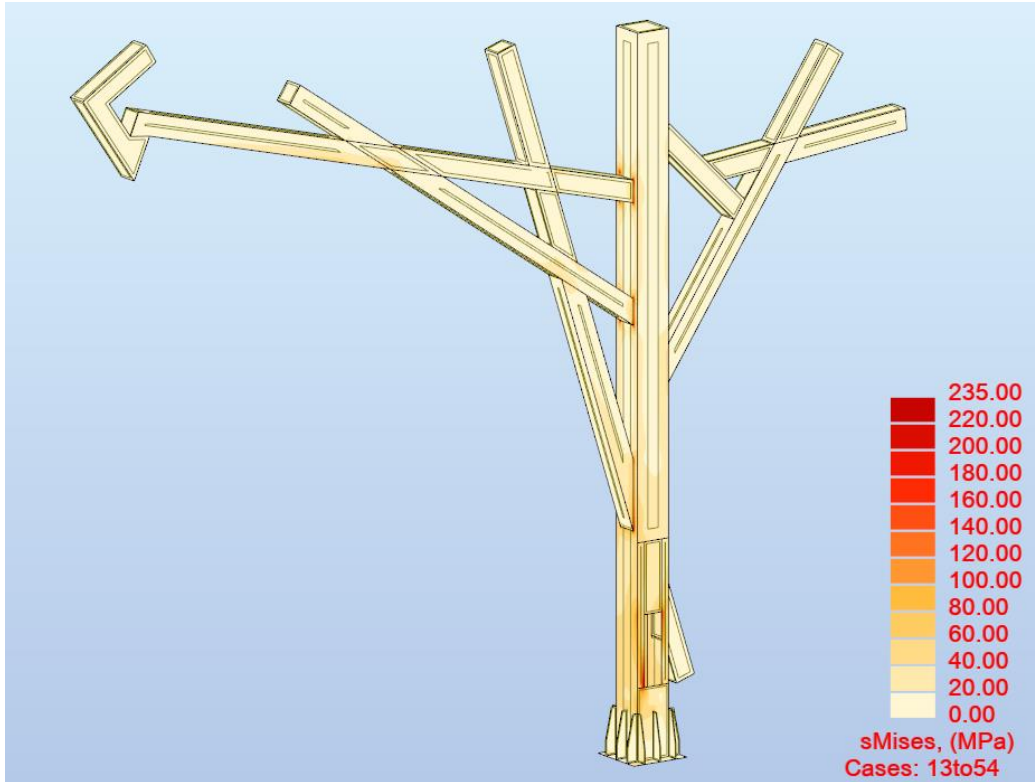
$M_{z,Ed}/M_{z,c,Rd} = 0.00 < 1.00$ (6.2.5.(1))
 $N_{Ed}/N_{c,Rd} + M_{z,Ed}/M_{z,c,Rd} = 0.00 < 1.00$ (6.2.1(7))
 $\sqrt{(\sigma_{x,Ed})^2 + 3(\tau_{xy,Ed})^2}/(f_y/gM0) = 0.00 < 1.00$ (6.2.1.(5))
 $V_{y,Ed}/V_{y,c,Rd} = 0.00 < 1.00$ (6.2.6.(1))

Global stability check of member:

$\lambda_{y,Ed} = 90.08 < \lambda_{y,max} = 210.00$ $\lambda_{z,Ed} = 90.08 < \lambda_{z,max} = 210.00$ STABLE
 $N_{Ed}/(X_y \cdot N_{Rk}/gM1) + k_{yy} \cdot M_{y,Ed,max}/(X_{LT} \cdot M_{y,Rk}/gM1) + k_{yz} \cdot M_{z,Ed,max}/(M_{z,Rk}/gM1) = 0.30 < 1.00$ (6.3.3.(4))
 $N_{Ed}/(X_z \cdot N_{Rk}/gM1) + k_{zy} \cdot M_{y,Ed,max}/(X_{LT} \cdot M_{y,Rk}/gM1) + k_{zz} \cdot M_{z,Ed,max}/(M_{z,Rk}/gM1) = 0.30 < 1.00$ (6.3.3.(4))

Section OK !!!

Using Autodesk Robot FEA, the model has been run for the worst-case loading combination to obtain visual stress maps. These indicate how stressed the materials are.



Max. peak stress recorded is 218.98 N/mm². This is below the yield strength of the material (235 N/mm²), therefore frame is OK.

Foundation Design Schematic