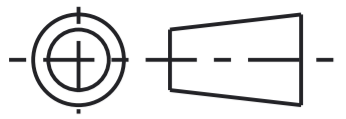
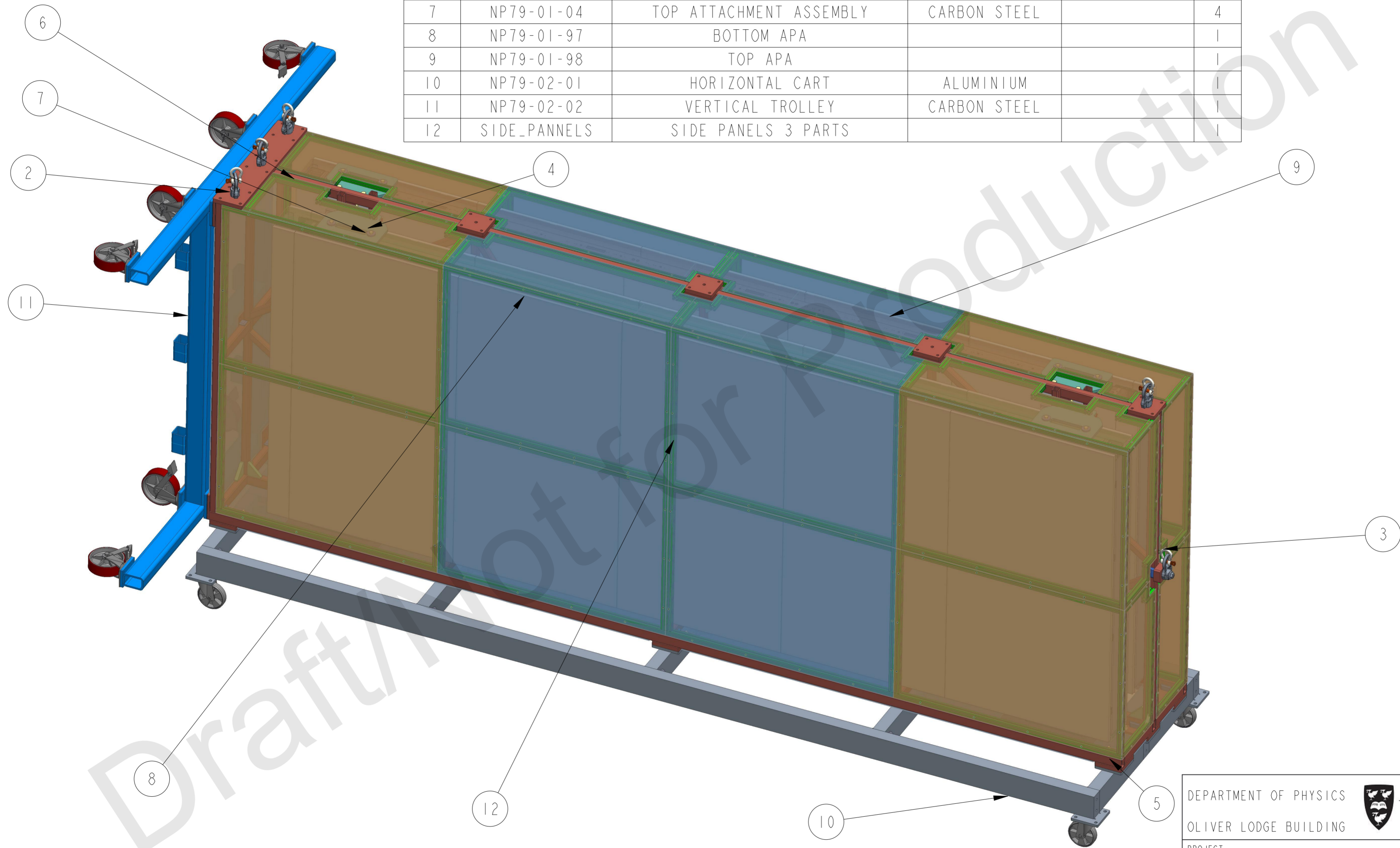


THIRD ANGLE PROJECTION



ITEM	PART/CAD No	DWG TITLE	MATERIAL	REMARK	QTY	MODIFICATIONS			
						ISSUE	DATE	NAME	DESCRIPTION
1	ACP_6_3T_M24-90	M24 SWIVEL HOIST RING	CARBON STEEL	ACP-TURNADO	1	A	Jan-15-20	G. STAVRAKIS	FIRST ISSUE
2	ACP_6_3T_M24-STP	M24 SWIVEL HOIST RING	CARBON STEEL	ACP-TURNADO	4				
3	G-209	G-209 / S-209, 3/4 INCH			5				
4	M16_SET	M16 BOLT AND WASHER	CARBON STEEL		4				
5	M20_SET	M20 BOLT AND WASHER	CARBON STEEL		10				
6	NP79-01-02	CENTRAL FRAME	CARBON STEEL		1				
7	NP79-01-04	TOP ATTACHMENT ASSEMBLY	CARBON STEEL		4				
8	NP79-01-97	BOTTOM APA			1				
9	NP79-01-98	TOP APA			1				
10	NP79-02-01	HORIZONTAL CART	ALUMINIUM		1				
11	NP79-02-02	VERTICAL TROLLEY	CARBON STEEL		1				
12	SIDE_PANNELS	SIDE PANNELS 3 PARTS			1				

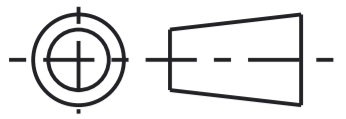


DEPARTMENT OF PHYSICS
 OLIVER LODGE BUILDING
 PROJECT
 DUNE
 UNIVERSITY OF LIVERPOOL

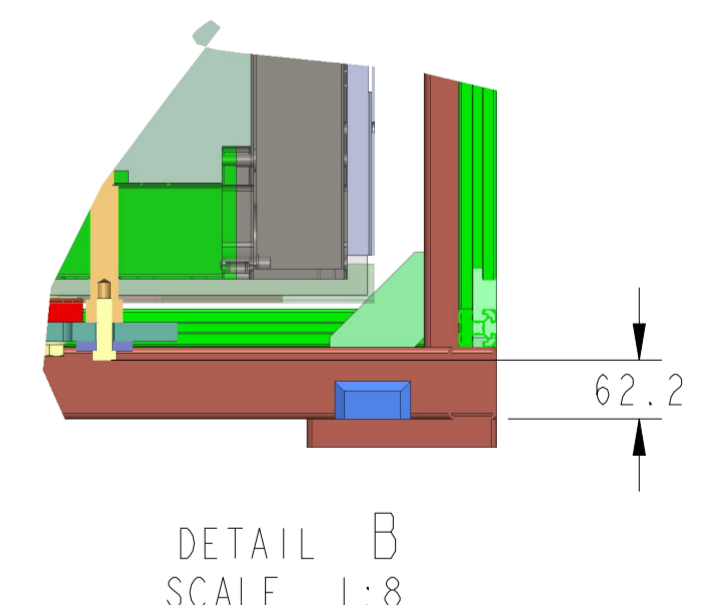
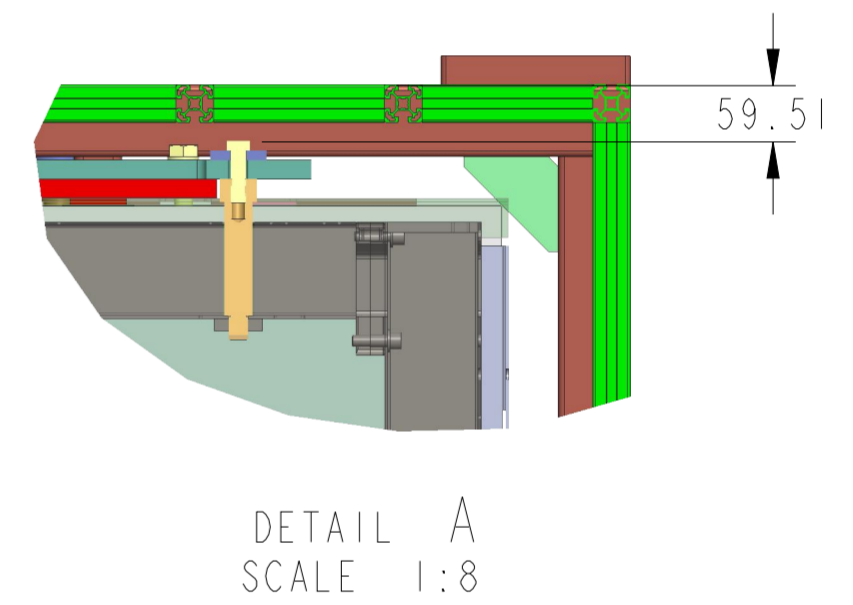
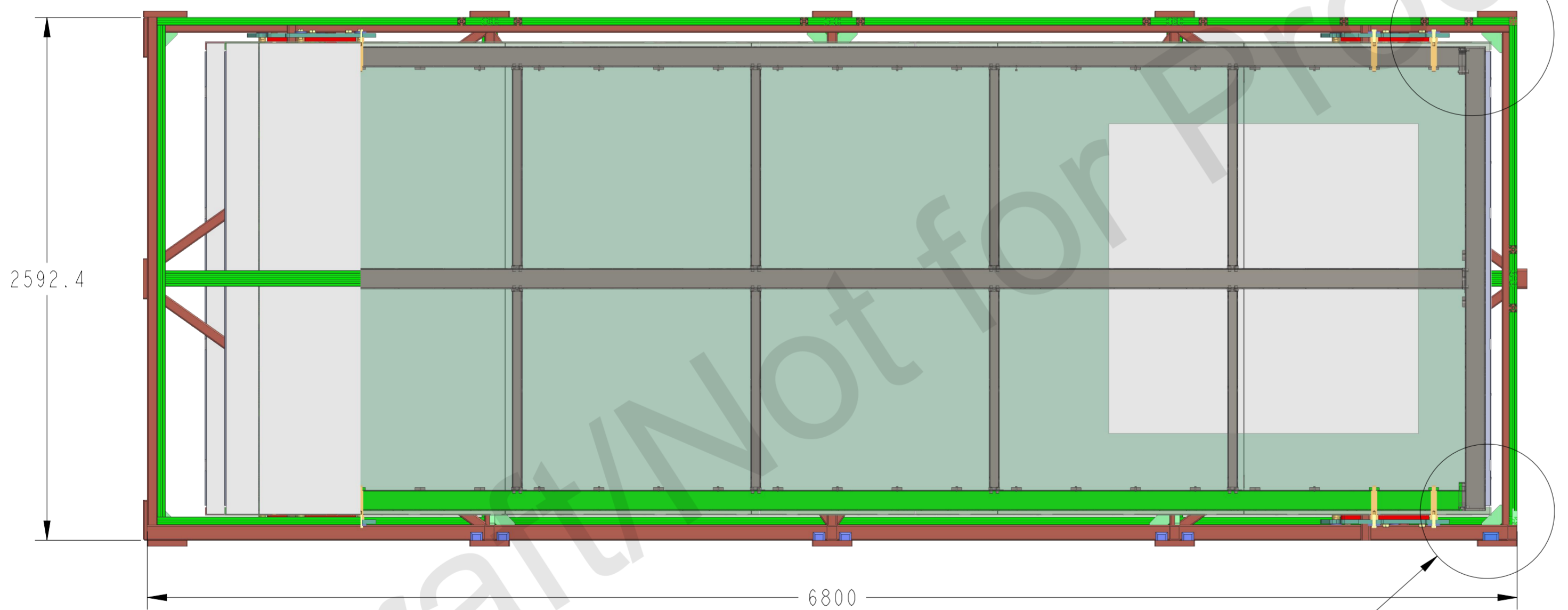
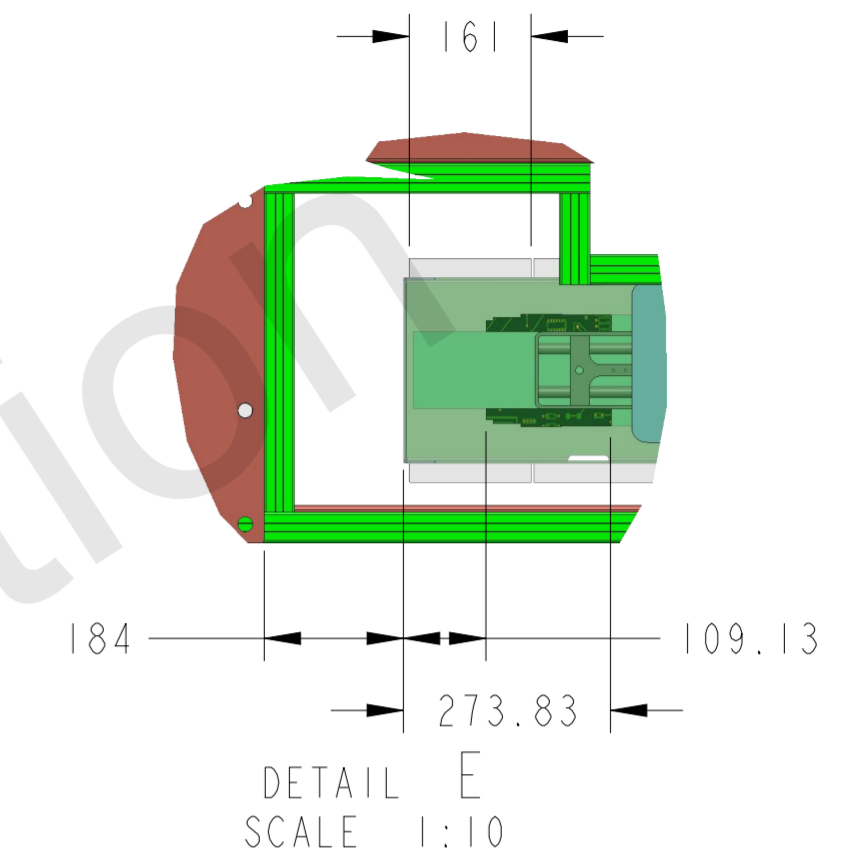
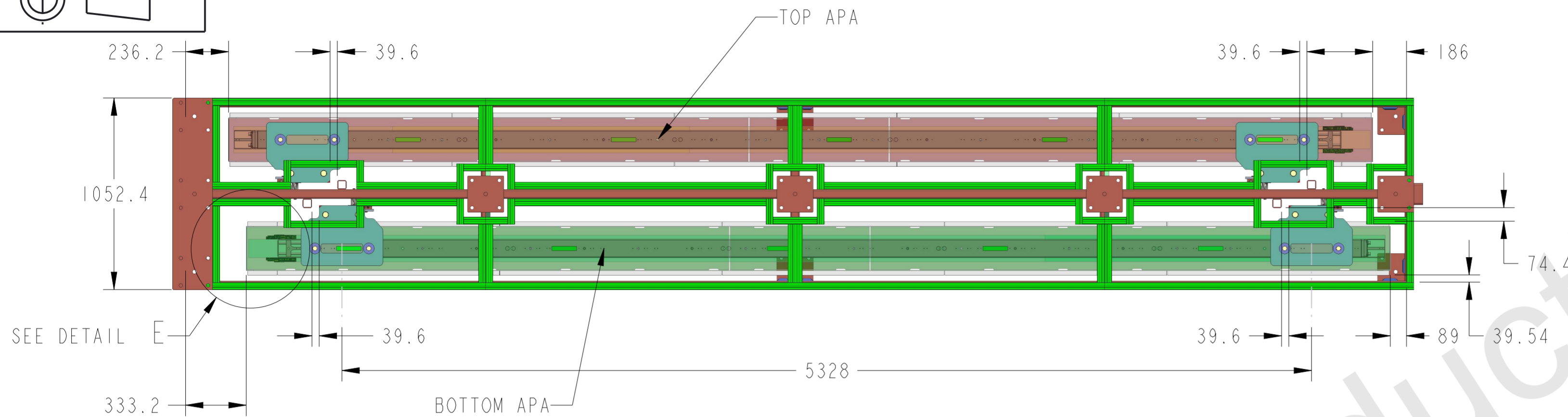
UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN MILLIMETERS SURFACE TEXTURE VALUES IN MICROMETERS SURFACE TEXT TO BE ✓ MACHINE ALL OVER OR WHERE MARKED ✓ REMOVE BURRS AND BREAK SHARP EDGES	METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRATION TO BS 8888	WELDING SYMBOLS TO BS 2553	
	TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL	DRAWN	G. STAVRAKIS
	MACHINED DIMS ±	SPEC	DATE	Jan-15-20
	ANGULAR ± °	TREATMENT	CHECKED	
	DO NOT SCALE	FINISH	APPROVED	

TITLE
 TRANSPORT FRAME - SIDE PANNELS 3 PARTS
 DRAWING NUMBER
NP79-01-01
 SHEET 1 OF 4
 SCALE 1:20
 ARRGR. DRAWING
 A2

THIRD ANGLE PROJECTION



MODIFICATIONS			
ISSUE	DATE	NAME	DESCRIPTION
A	Jan-15-20	G. STAVRAKIS	FIRST ISSUE



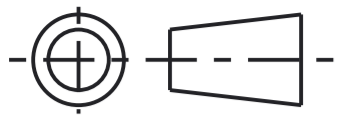
DEPARTMENT OF PHYSICS
OLIVER LODGE BUILDING
PROJECT
DUNE

UNIVERSITY OF LIVERPOOL

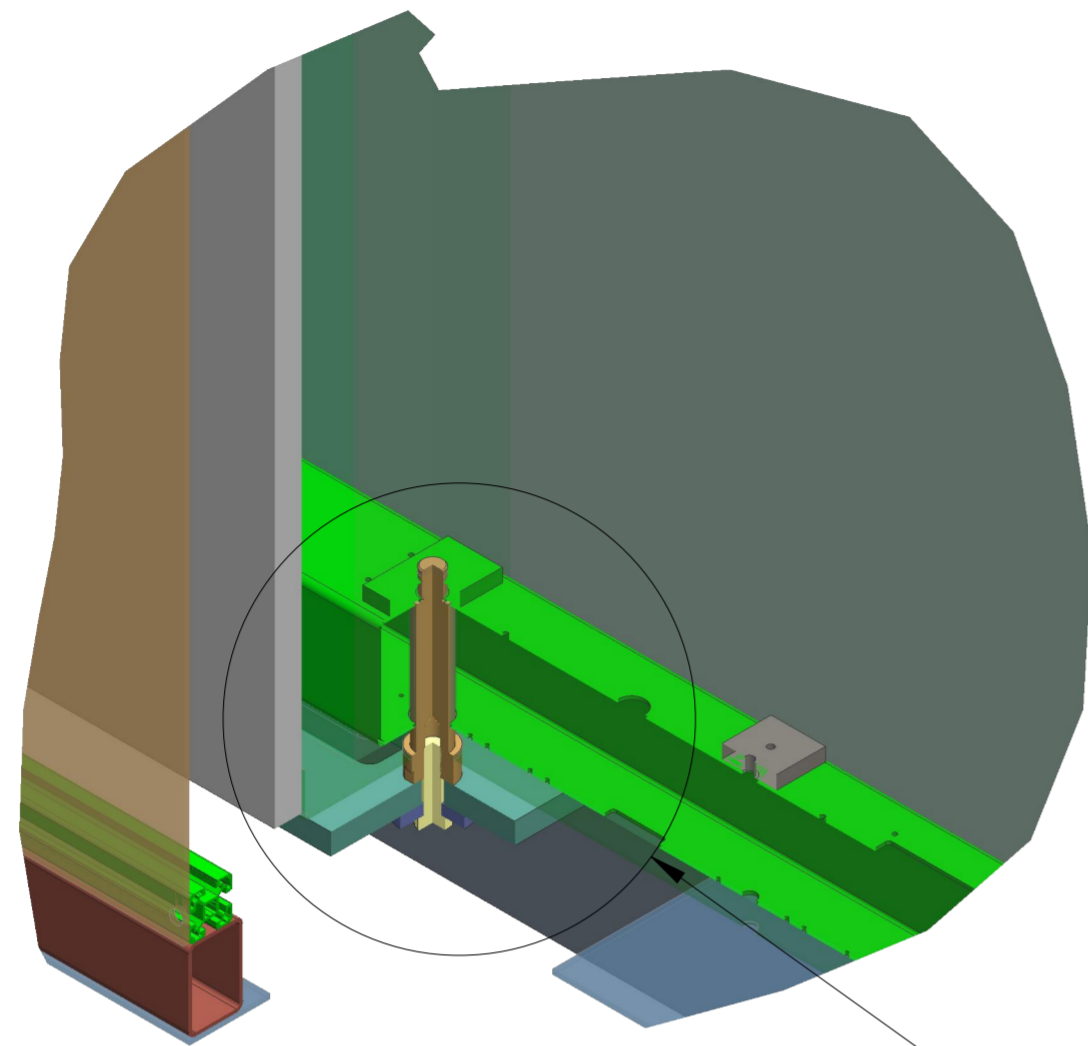
UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN MILLIMETERS SURFACE TEXTURE VALUES IN MICROMETERS SURFACE TEXT TO BE ✓ MACHINE ALL OVER OR WHERE MARKED ✓	METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRATION TO BS 8888		WELDING SYMBOLS TO BS 2553	
	TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL		DRAWN	G. STAVRAKIS
	MACHINED DIMS ±	SPEC		DATE	Jan-15-20
	ANGULAR ± °	TREATMENT		CHECKED	
REMOVE BURRS AND BREAK SHARP EDGES	DO NOT SCALE	FINISH		APPROVED	

TITLE TRANSPORT FRAME - SIDE PANELS 3 PARTS	
DRAWING NUMBER NP79-01-01	ARRGR. DRAWING
SHEET 2 OF 4	SCALE 1:20
A2	

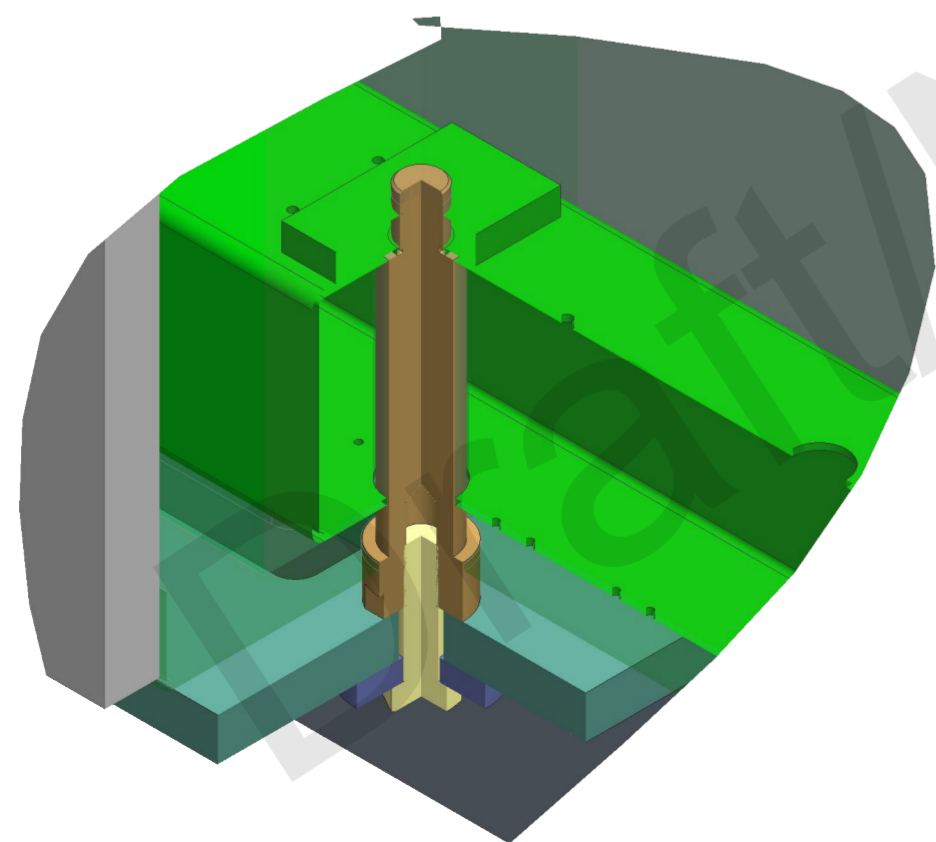
THIRD ANGLE PROJECTION



WIRE ISOLATORS
POSITIONED
HORIZONTALLY



DETAIL C
SCALE 1:5

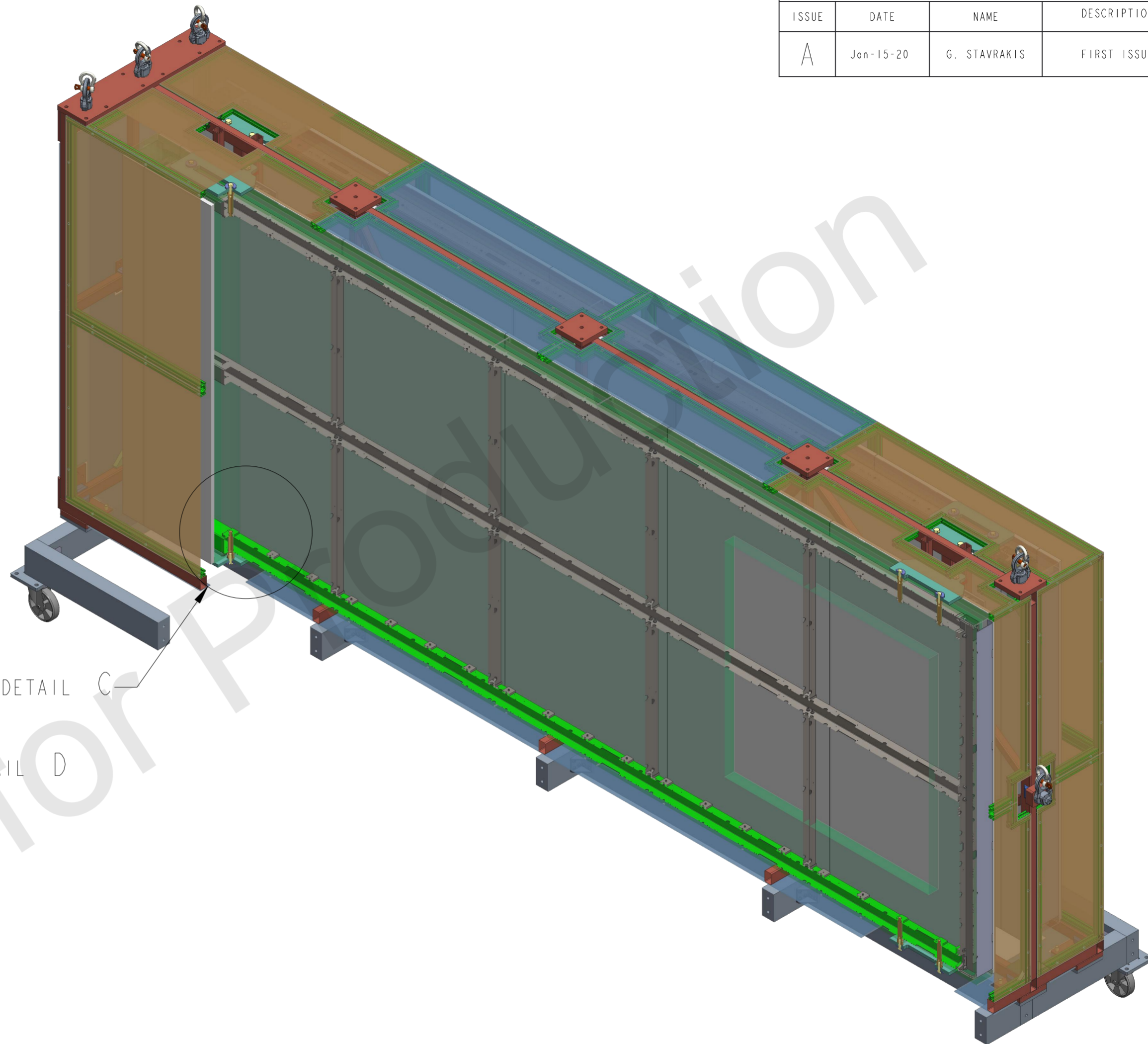


DETAIL D
SCALE 2:5

M16 TO M20 ADAPTOR
PREINSTALLED IN APA

SEE DETAIL C

SEE DETAIL D



MODIFICATIONS

ISSUE	DATE	NAME	DESCRIPTION
A	Jan-15-20	G. STAVRAKIS	FIRST ISSUE

DEPARTMENT OF PHYSICS
OLIVER LODGE BUILDING



UNIVERSITY OF
LIVERPOOL

PROJECT
DUNE

TITLE
TRANSPORT FRAME - SIDE PANELS 3 PARTS

DRAWING NUMBER
NP79-01-01

SHEET 3 OF 4

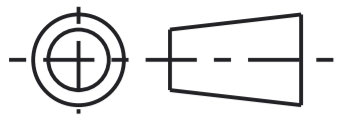
SCALE 1:20

A2

UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN MILLIMETERS SURFACE TEXTURE VALUES IN MICROMETERS SURFACE TEXT TO BE MACHINED ALL OVER OR WHERE MARKED ✓	METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRATION TO BS 8888		WELDING SYMBOLS TO BS 2553	
	TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL		DRAWN	G. STAVRAKIS
	MACHINED DIMS ±	SPEC		DATE	Jan-15-20
	ANGULAR ± °	TREATMENT		CHECKED	
REMOVE BURRS AND BREAK SHARP EDGES	DO NOT SCALE	FINISH		APPROVED	

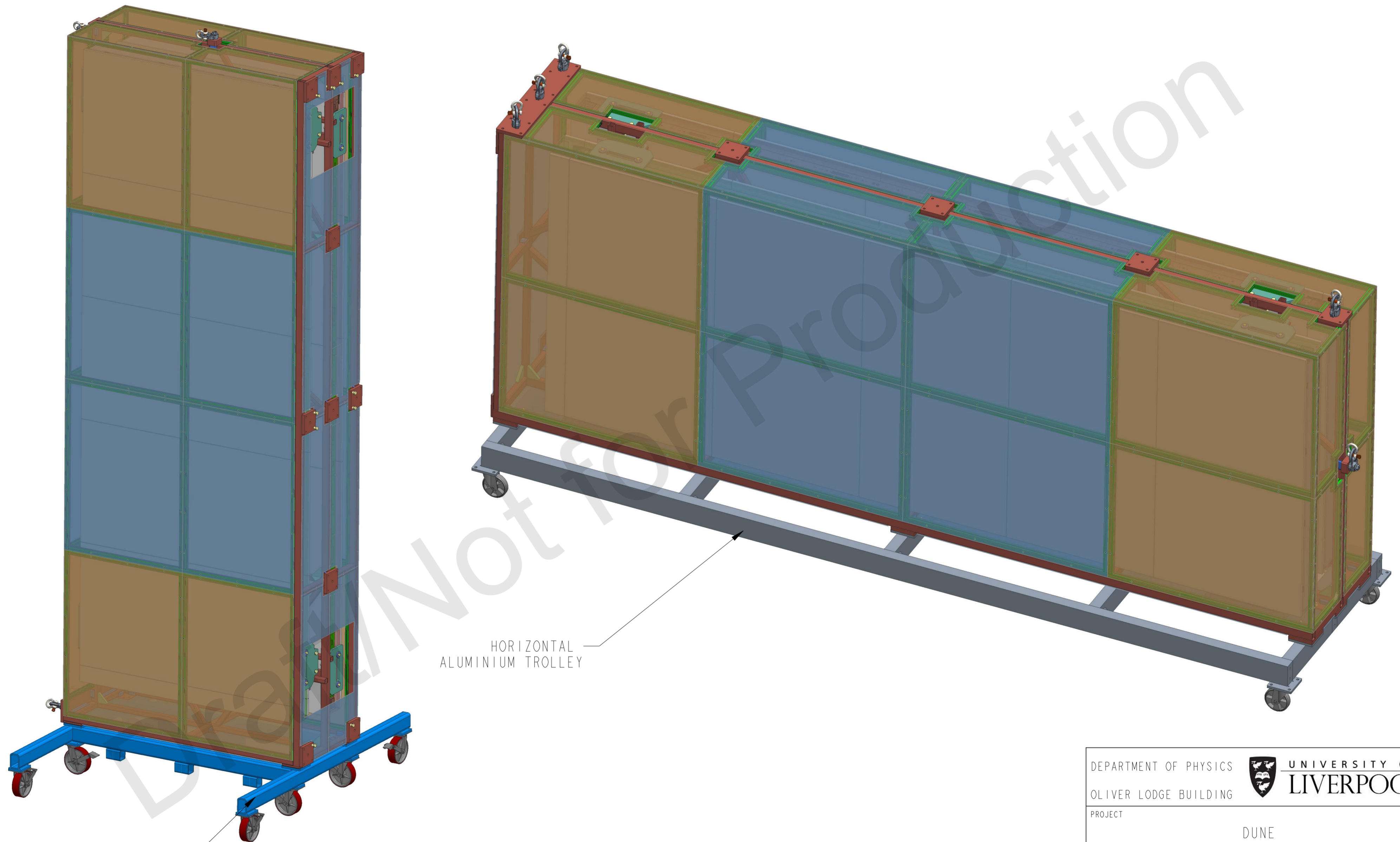
ARRGR. DRAWING

THIRD ANGLE PROJECTION



MODIFICATIONS

ISSUE	DATE	NAME	DESCRIPTION
A	Jan-15-20	G. STAVRAKIS	FIRST ISSUE



VERTICAL STEEL TROLLEY

HORIZONTAL ALUMINIUM TROLLEY

DEPARTMENT OF PHYSICS
OLIVER LODGE BUILDING



UNIVERSITY OF LIVERPOOL

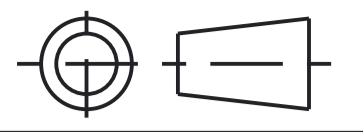
PROJECT
DUNE

TITLE
TRANSPORT FRAME - SIDE PANELS 3 PARTS

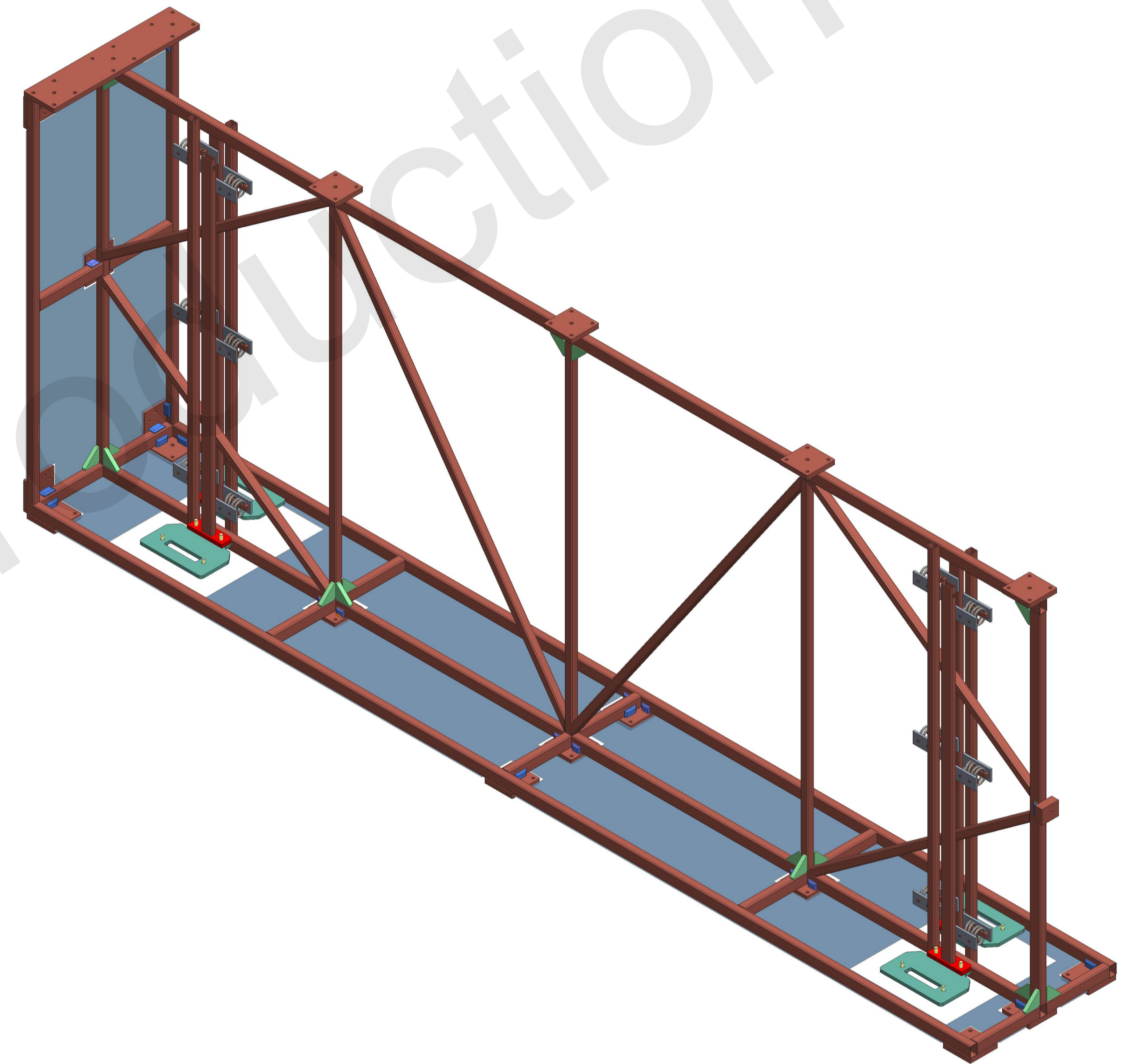
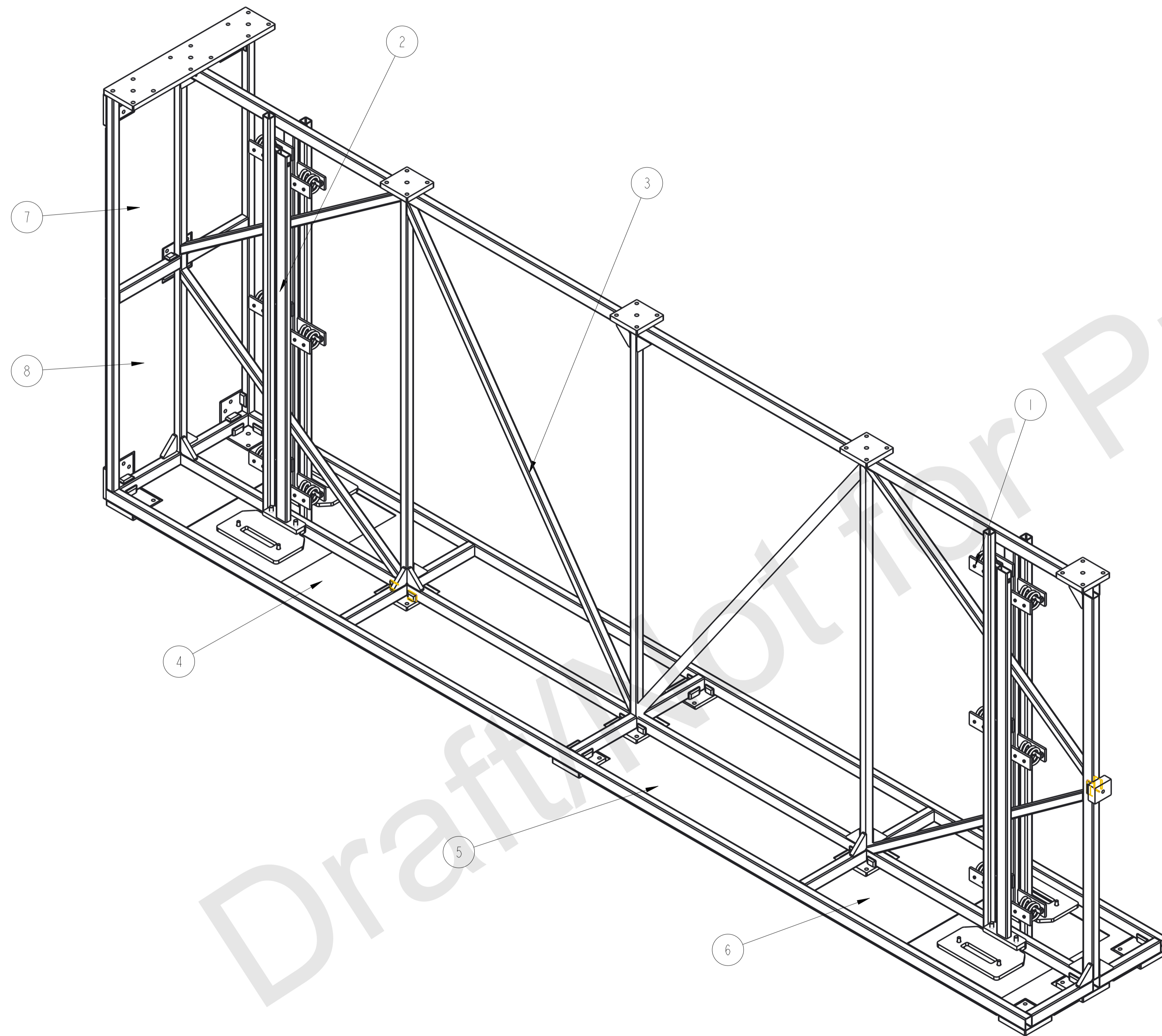
DRAWING NUMBER
NP79-01-01

SHEET 4 OF 4 SCALE 1:20 ARRGR. DRAWING A2

UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN MILLIMETERS SURFACE TEXTURE VALUES IN MICROMETERS SURFACE TEXT TO BE MACHINED ✓ MACHINE ALL OVER OR WHERE MARKED ✓	METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRATION TO BS 8888		WELDING SYMBOLS TO BS 2553	
	TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL		DRAWN	G. STAVRAKIS
	MACHINED DIMS ±	SPEC		DATE	Jan-15-20
	ANGULAR ± °	TREATMENT		CHECKED	
REMOVE BURRS AND BREAK SHARP EDGES	DO NOT SCALE	FINISH		APPROVED	



ITEM	PART/CAD No	DWG TITLE	MATERIAL	REMARK	QTY	MODIFICATIONS			
						ISSUE	DATE	NAME	DESCRIPTION
1	M8	M8 BOLT	CARBON STEEL		24	A	Jan-29-20	G. STAVRAKIS	FIRST ISSUE
2	NP79-01-03	ATTACHMENT ASSEMBLY	CARBON STEEL		4				
3	NP79-01-05	MAIN CENTRAL SKELETON	CARBON STEEL		1				
4	NP79-01-26	PANEL TYPE 1 5mm THICK	CLEAR PETG	5mm THICK	2				
5	NP79-01-27	PANEL TYPE 2 5mm THICK	CLEAR PETG	5mm THICK	4				
6	NP79-01-28	PANEL TYPE 3 5mm THICK	CLEAR PETG	5mm THICK	2				
7	NP79-01-29	PANEL TYPE 4 5mm THICK	CLEAR PETG	5mm THICK	2				
8	NP79-01-30	PANEL TYPE 5 5mm THICK	CLEAR PETG	5mm THICK	2				

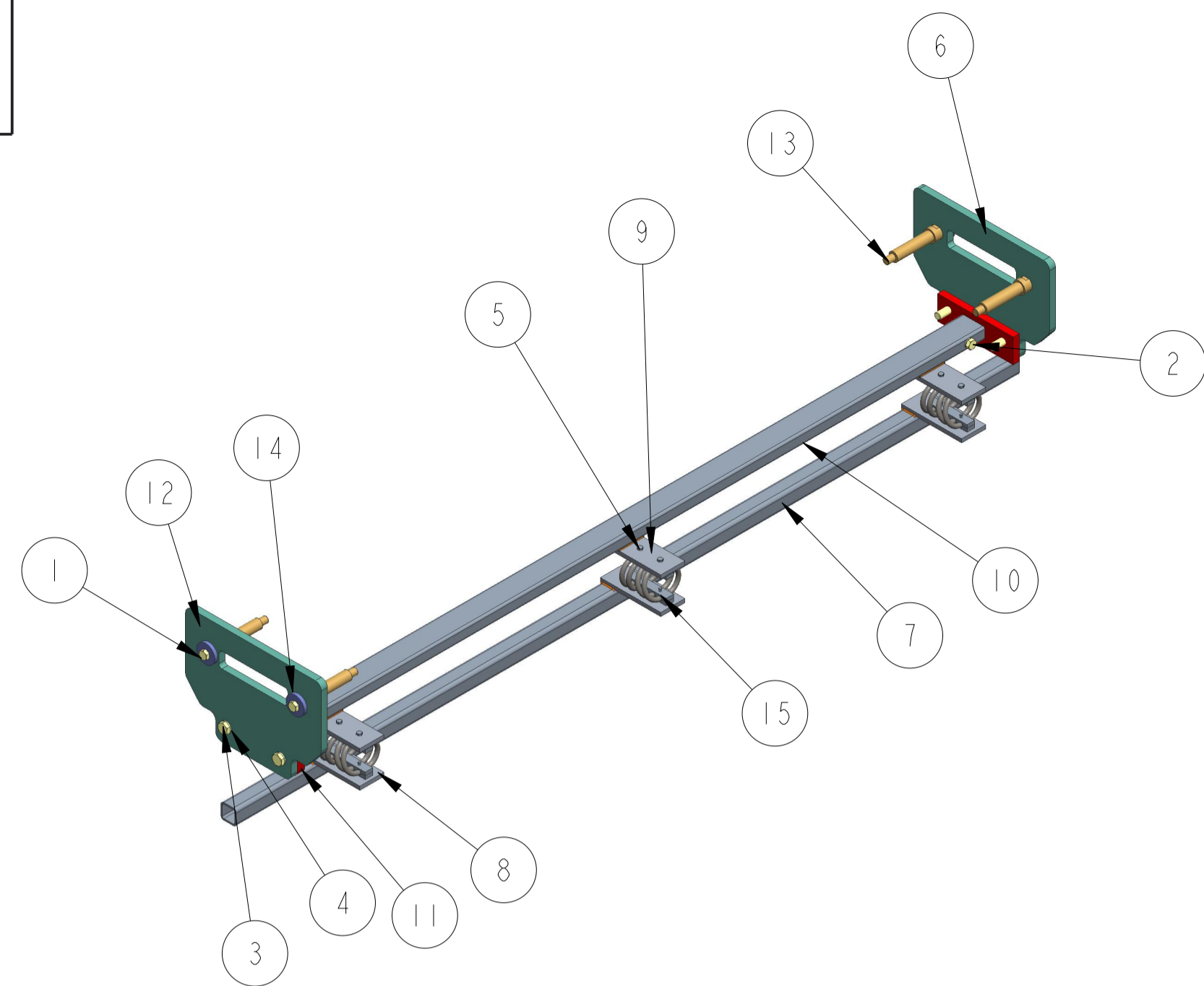
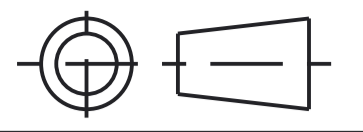


THE PROTECTIVE PANELS WILL BE INSTALLED AFTER THE ASSEMBLY OF THE SKELETON

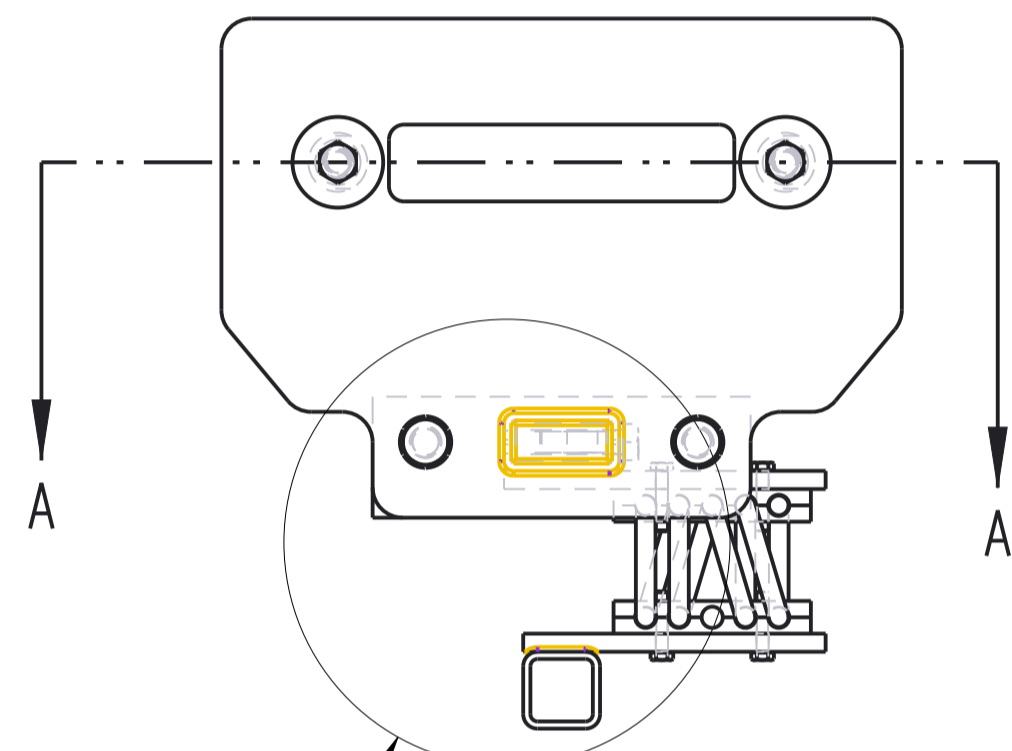
UNLESS OTHERWISE SPECIFIED: -		METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRATION TO BS 8888	WELDING SYMBOLS TO BS 2553	
ALL DIMENSIONS IN MILLIMETERS	SURFACE TEXTURE VALUES IN MICROMETERS	UNLESS OTHERWISE SPECIFIED	MATERIAL	CARBON STEEL	DRAWN
		MACHINED DIMS ±	SPEC		G. STAVRAKIS
		ANGULAR ±	TREATMENT		DATE
					Jan-29-20
				CHECKED	
REMOVE BURRS AND BREAK SHARP EDGES	DO NOT SCALE	FINISH		APPROVED	

DEPARTMENT OF PHYSICS		UNIVERSITY OF LIVERPOOL	
OLIVER LODGE BUILDING			
PROJECT			
DUNE			
TITLE			
CENTRAL FRAME			
DRAWING NUMBER		ARRGR. DRAWING	
NP79-01-02		NP79-01-01	
SHEET 1 OF 1		SCALE 1:48	

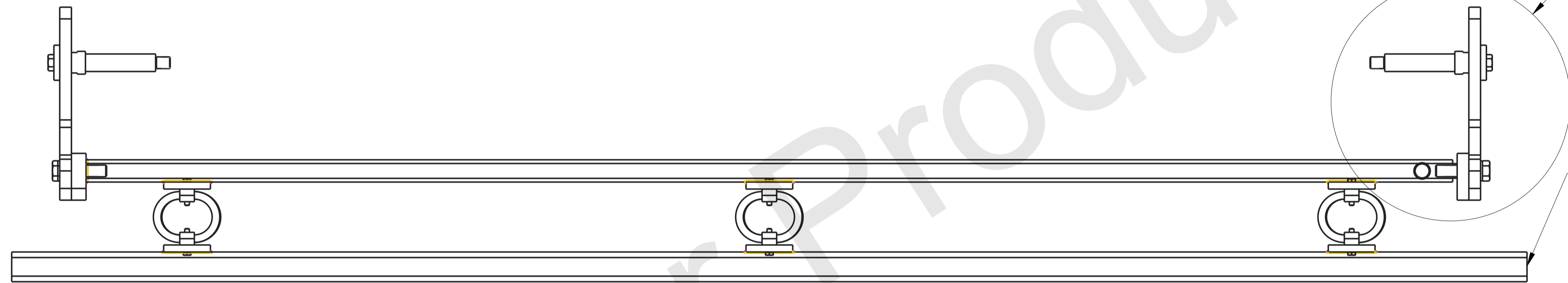
THIRD ANGLE PROJECTION



ITEM	PART/CAD No	DWG TITLE	MATERIAL	MAT SPEC	QTY	MODIFICATIONS			
						ISSUE	DATE	NAME	DESCRIPTION
1	M16	M16 BOLT	CARBON STEEL		3	A	Jan-10-20	G. STAVRAKIS	FIRST ISSUE
2	M16_WASHER	M16 WASHER	CARBON STEEL		1				
3	M20	M20 BOLT	CARBON STEEL		2				
4	M20_WASHER	M20 WASHER	CARBON STEEL		2				
5	M8	M8 BOLT	CARBON STEEL		12				
6	NP79-01-04	TOP ATTACHMENT ASSEMBLY	CARBON STEEL		1				
7	NP79-01-05-20	SHS 2x2x3/16	CARBON STEEL	EN10210 S355J2H	1				
8	NP79-01-09	MOUNTING PLATE FRAME SIDE	CARBON STEEL	EN10025-2:2004 S355J2H	3				
9	NP79-01-10	MOUNTING PLATE APA SIDE	CARBON STEEL	EN10025-2:2004 S355J2H	3				
10	NP79-01-32	TUBE 3 x 1/2 INCH	CARBON STEEL	EN10210 S355J2H	1				
11	NP79-01-33	BOTTOM WIELDED PLATE	CARBON STEEL	EN10210 S355J2H	1				
12	NP79-01-34	ATTACHMENT PLATE	CARBON STEEL	EN10210 S355J2H	1				
13	NP79-01-35	M16 ADAPTOR TO M20	ST. ST. 304		4				
14	NP79-01-36	M16 WASHER	CARBON STEEL	EN10025-2: 2004 S355J2H	2				
15	NP79-01-90	CAVOFLEX VIBROSTOP	ALU / SS	H 130-131-95-121-4S	3				

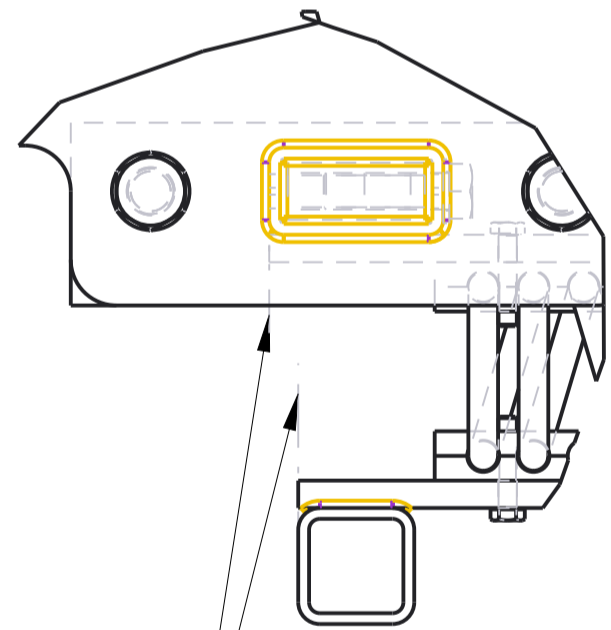


SEE DETAIL B



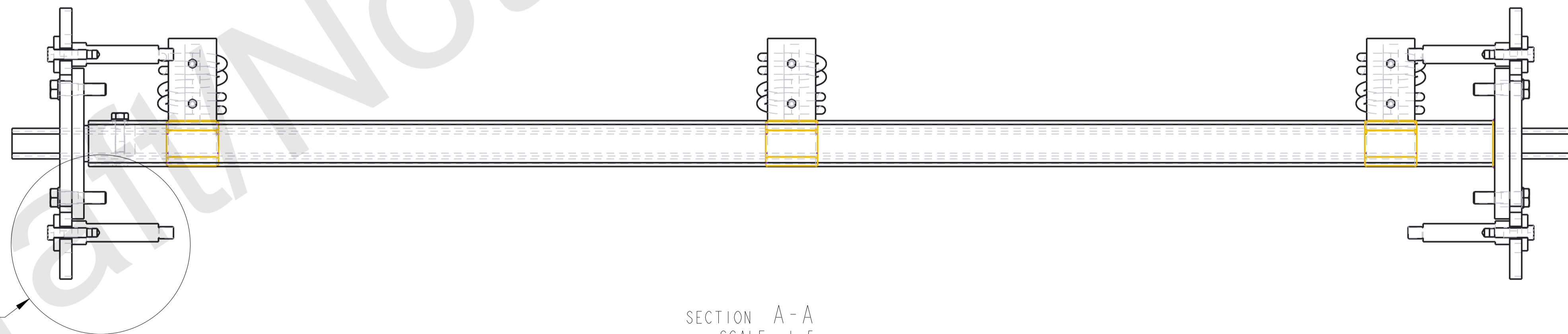
SEE DETAIL C

TUBE 2 INCH PRE-WELDED IN MAIN STAINLESS STEEL FRAME REF NP79-01-05



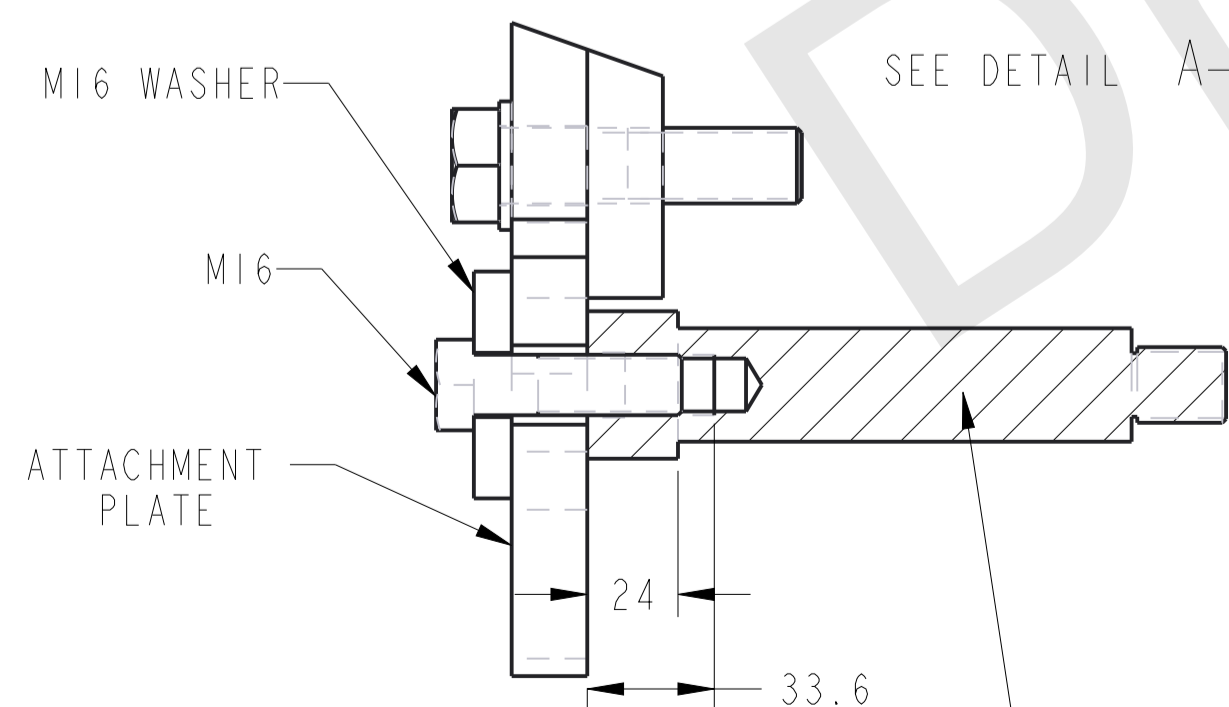
DETAIL B
SCALE 3:10

THE WIRE ISOLATOR PLATES ARE ALIGNED TO THE BEAMS



SECTION A-A
SCALE 1:5

DETAIL C
SCALE 3:10
THE TOP ATTACHMENT PART WILL BE SECURED TO THE ATTACHMENT WITH AN M16 BOLT



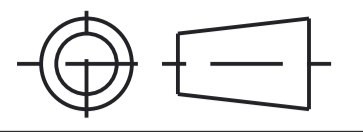
DETAIL A
SCALE 1:2

M16 ADAPTOR PRE-INSTALLED IN APA

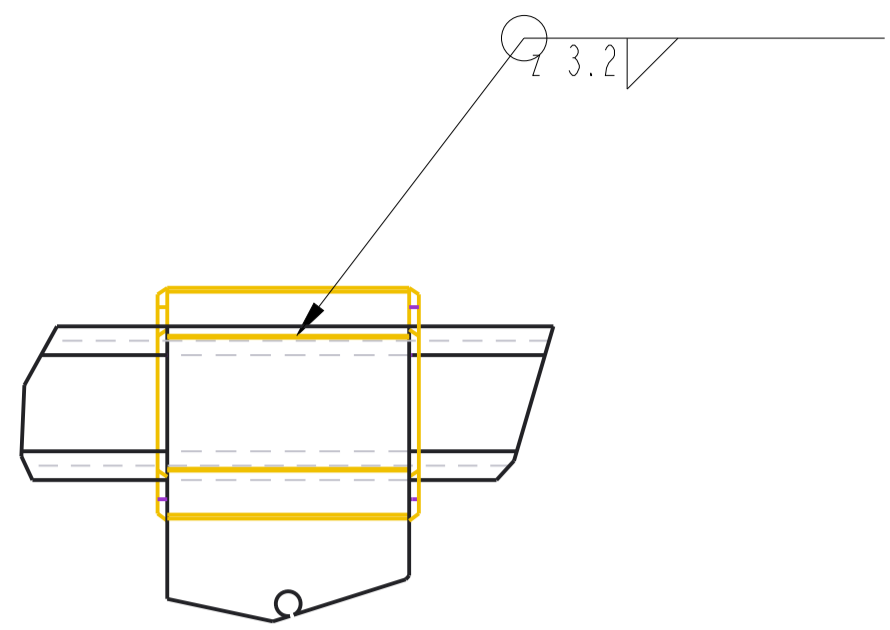
THERE WILL BE MADE 2 ATTACHMENT ASSEMBLIES PER APA, TOTAL 4 ATTACHMENT ASSEMBLIES PER TRANSPORT FRAME

UNLESS OTHERWISE SPECIFIED: .	METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRATION TO BS 8888	WELDING SYMBOLS TO BS 2553
ALL DIMENSIONS IN MILLIMETERS SURFACE TEXTURE VALUES IN MICROMETERS SURFACE TEXT TO BE MACHINED DIMS ± MACHINE ALL OVER OR WHERE MARKED ✓	TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL	DRAWN G. STAVRAKIS
	MACHINED DIMS ±	SPEC	DATE Jan-10-20
	ANGULAR ± °	TREATMENT	CHECKED
REMOVE BURRS AND BREAK SHARP EDGES	DO NOT SCALE	FINISH	APPROVED

DEPARTMENT OF PHYSICS OLIVER LODGE BUILDING	UNIVERSITY OF LIVERPOOL
PROJECT DUNE	
TITLE REF FOR ATTACHMENT ASSEMBLY	
DRAWING NUMBER NP79-01-03	ARRGR. DRAWING NP79-01-01
SHEET 1 OF 2	SCALE 1:5

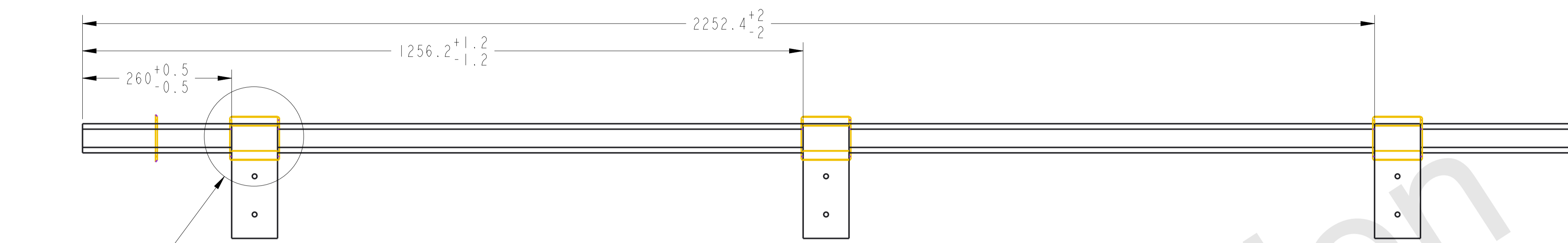


MODIFICATIONS			
ISSUE	DATE	NAME	DESCRIPTION
A	Jan-10-20	G. STAVRAKIS	FIRST ISSUE

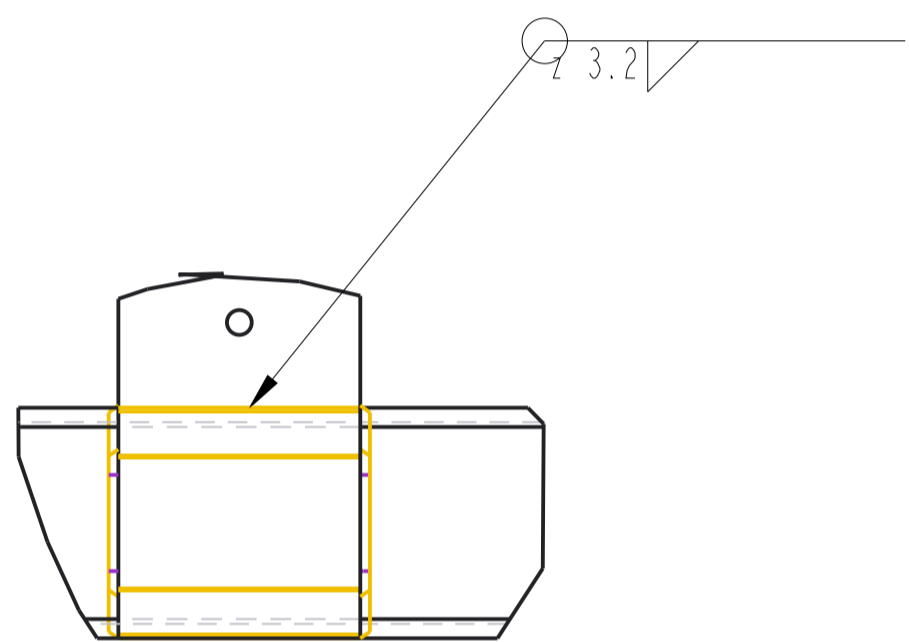


DETAIL D
SCALE 2:5

WELDING OF MOUNTING
PLATE FRAME SIDE

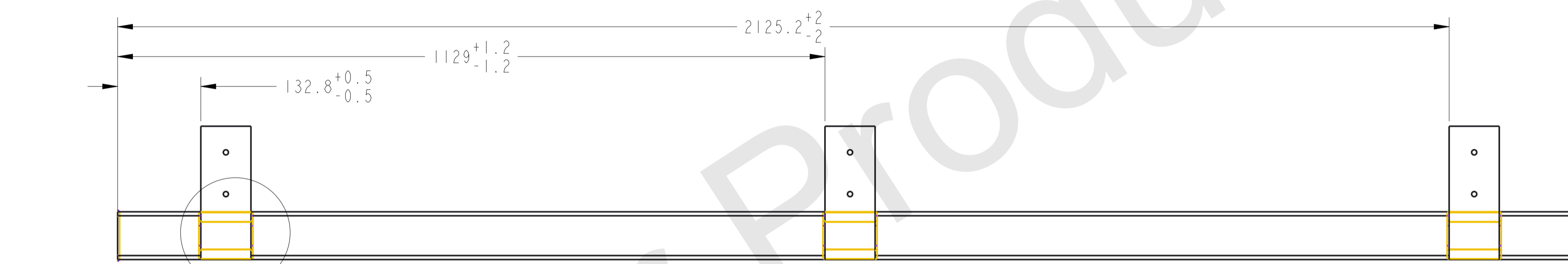


PREPARATION OF BEAM NP79-01-05-20 AND WIRE ISOLATOR PLATES FRAME SIDE (CENTRAL FRAME PART)

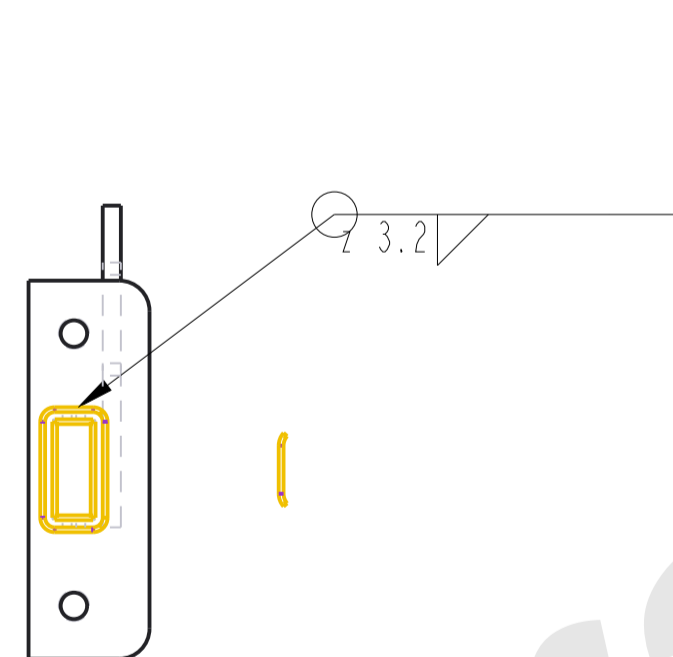


DETAIL E
SCALE 2:5

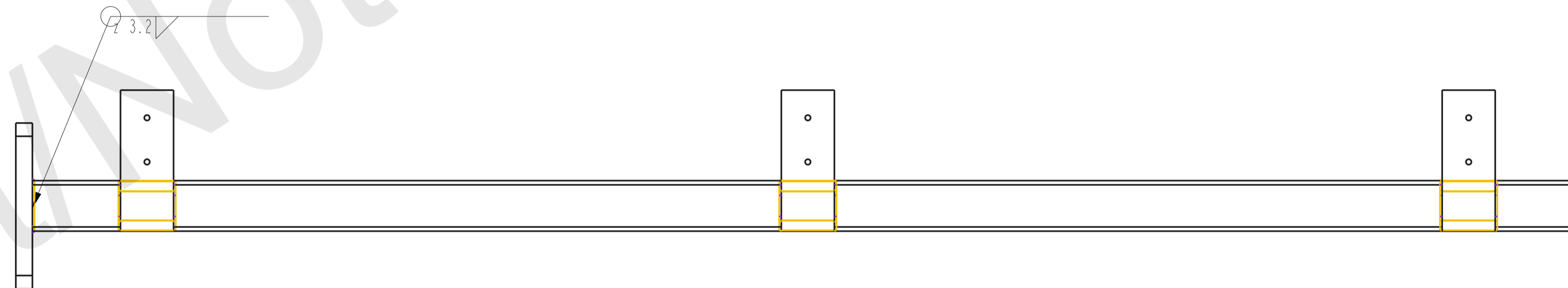
WELDING OF MOUNTING
PLATE OTHER SIDE



WELDINGS OF BEAM NP79-01-32 PART



WELDING OF BOTTOM
PLATE NP79-01-33



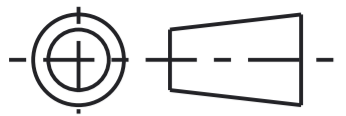
DEPARTMENT OF PHYSICS
OLIVER LODGE BUILDING
PROJECT
DUNE



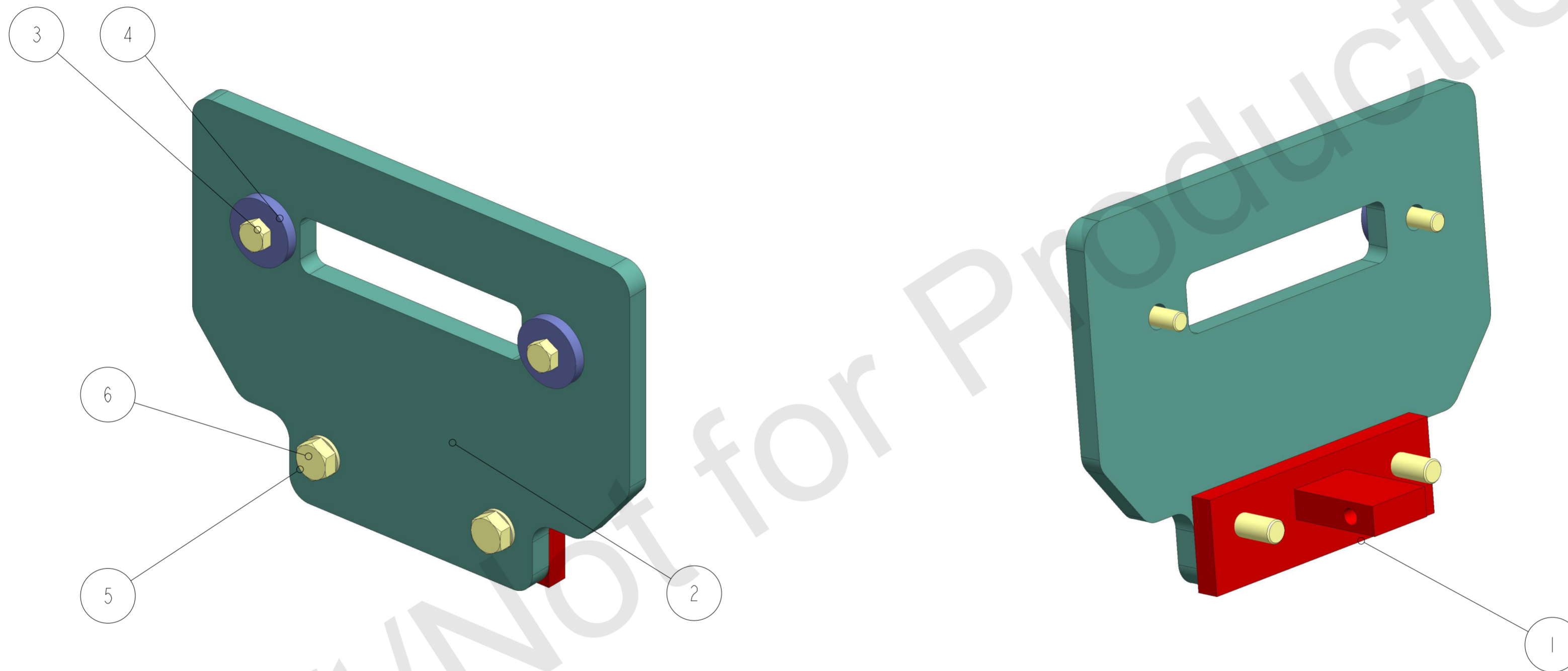
UNLESS OTHERWISE SPECIFIED: -	METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRETATION TO BS 8888	WELDING SYMBOLS TO BS 2553
ALL DIMENSIONS IN MILLIMETERS	TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL	DRAWN G. STAVRAKIS
SURFACE TEXTURE VALUES IN MICROMETERS	MACHINED DIMS ±	SPEC	DATE Jan-10-20
SURFACE TEXT TO BE MACHINE ALL OVER OR WHERE MARKED ✓	ANGULAR ± °	TREATMENT	CHECKED
REMOVE BURRS AND BREAK SHARP EDGES	DO NOT SCALE	FINISH	APPROVED

TITLE REF FOR ATTACHMENT ASSEMBLY	ARRGR. DRAWING NP79-01-01
DRAWING NUMBER NP79-01-03	
SHEET 2 OF 2	SCALE 1:5

THIRD ANGLE PROJECTION



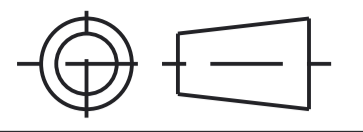
ITEM	PART/CAD No	DWG TITLE	MATERIAL	REMARK	QTY	MODIFICATIONS			
						ISSUE	DATE	NAME	DESCRIPTION
1	NP79-01-37	LARGE SLOT BEAM	CARBON STEEL		1				
2	NP79-01-34	ATTACHMENT PLATE	CARBON STEEL	EN10210 S355J2H	1	A	30-Apr-20	G. STAVRAKIS	FIRST ISSUE
3	M16	M16 BOLT	CARBON STEEL		2				
4	NP79-01-36	M16 WASHER	CARBON STEEL		2				
5	M20	M20 BOLT	CARBON STEEL		2				
6	M20_WASHER	M20 WASHER	CARBON STEEL		2				



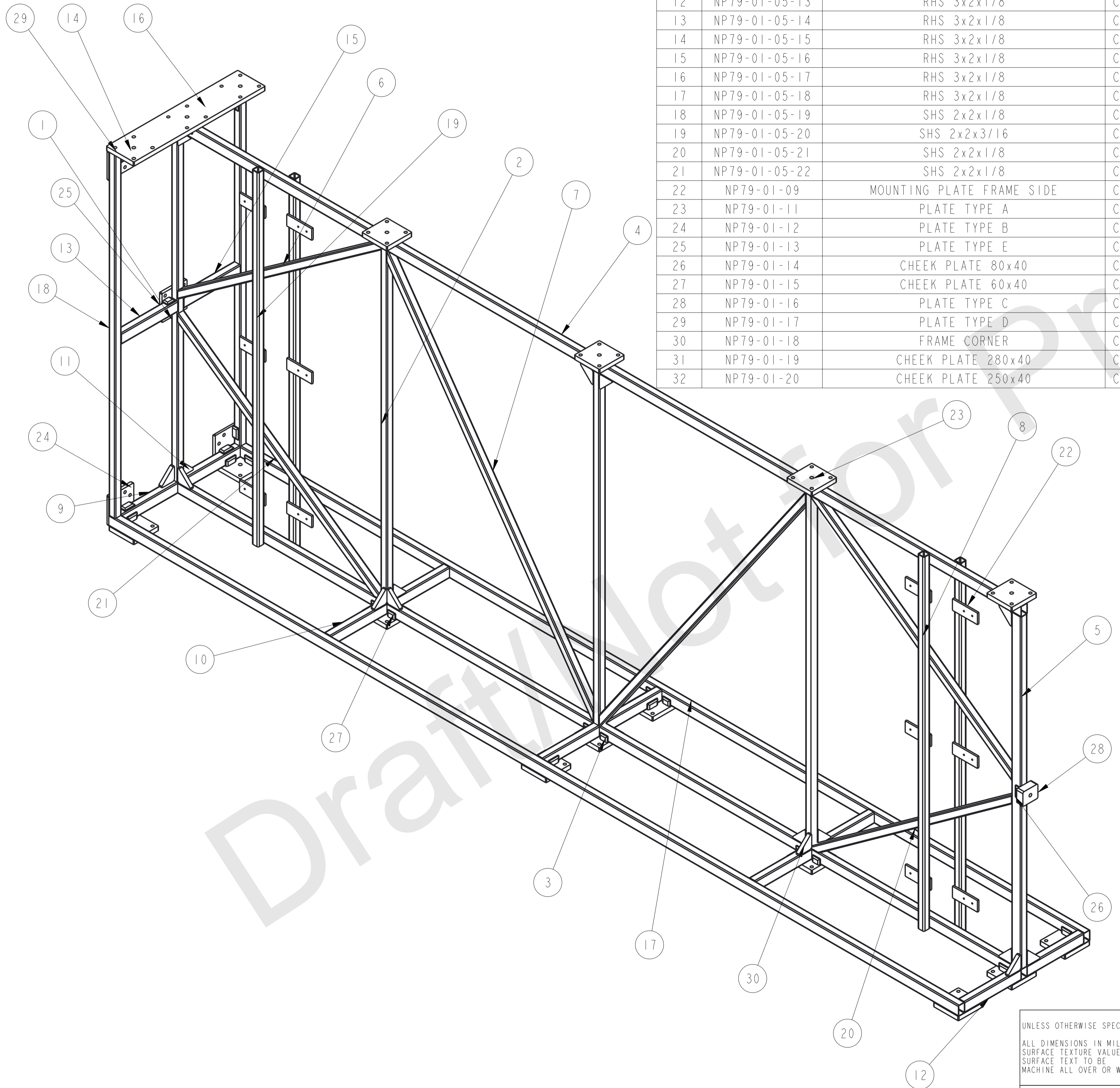
Draft/Not for Production

DEPARTMENT OF PHYSICS		UNIVERSITY OF LIVERPOOL	
OLIVER LODGE BUILDING		LIVERPOOL	
PROJECT			
DUNE			
TITLE			
TOP ATTACHMENT ASSEMBLY			
DRAWING NUMBER		ARRGR. DRAWING	
NP79-01-04		NP79-01-01	
SHEET 1 OF 1		SCALE 1:3	
		A2	

UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN MILLIMETERS SURFACE TEXTURE VALUES IN MICROMETERS SURFACE TEXT TO BE ✓ MACHINE ALL OVER OR WHERE MARKED ✓	METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRATION TO BS 8888		WELDING SYMBOLS TO BS 2553	
	TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL	CARBON STEEL	DRAWN	G. STAVRAKIS
	MACHINED DIMS ±	SPEC		DATE	30-Apr-20
	ANGULAR ± °	TREATMENT		CHECKED	
REMOVE BURRS AND BREAK SHARP EDGES	DO NOT SCALE	FINISH		APPROVED	

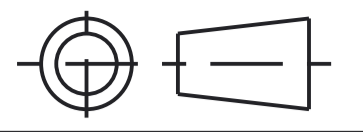


ITEM	PART/CAD No	DWG TITLE	MATERIAL	MAT SPEC	REMARK	QTY	MODIFICATIONS			
							ISSUE	DATE	NAME	DESCRIPTION
1	NP79-01-05-01	SHS 2x2x1/8	CARBON STEEL	EN10210 S355J2H		1	A	12-Jan-20	G. STAVRAKIS	FIRST ISSUE
2	NP79-01-05-03	SHS 2x2x1/8	CARBON STEEL	EN10210 S355J2H		3				
3	NP79-01-05-04	RHS 3x2x1/8	CARBON STEEL	EN10219 S355J2H		1				
4	NP79-01-05-05	RHS 3x2x1/8	CARBON STEEL	EN10219 S355J2H		1				
5	NP79-01-05-06	RHS 3x2x1/8	CARBON STEEL	EN10219 S355J2H		1				
6	NP79-01-05-07	SHS 2x2x1/8	CARBON STEEL	EN10210 S355J2H		1				
7	NP79-01-05-08	SHS 2x2x1/8	CARBON STEEL	EN10210 S355J2H		2				
8	NP79-01-05-09	SHS 2x2x1/8	CARBON STEEL	EN10210 S355J2H		1				
9	NP79-01-05-10	RHS 3x2x1/8	CARBON STEEL	EN10219 S355J2H		1				
10	NP79-01-05-11	RHS 3x2x1/8	CARBON STEEL	EN10219 S355J2H		6				
11	NP79-01-05-12	RHS 3x2x1/8	CARBON STEEL	EN10219 S355J2H		1				
12	NP79-01-05-13	RHS 3x2x1/8	CARBON STEEL	EN10219 S355J2H		2				
13	NP79-01-05-14	RHS 3x2x1/8	CARBON STEEL	EN10219 S355J2H		1				
14	NP79-01-05-15	RHS 3x2x1/8	CARBON STEEL	EN10219 S355J2H		1				
15	NP79-01-05-16	RHS 3x2x1/8	CARBON STEEL	EN10219 S355J2H		1				
16	NP79-01-05-17	RHS 3x2x1/8	CARBON STEEL	EN10219 S355J2H		1				
17	NP79-01-05-18	RHS 3x2x1/8	CARBON STEEL	EN10219 S355J2H		2				
18	NP79-01-05-19	SHS 2x2x1/8	CARBON STEEL	EN10210 S355J2H		2				
19	NP79-01-05-20	SHS 2x2x3/16	CARBON STEEL	EN10210 S355J2H		4				
20	NP79-01-05-21	SHS 2x2x1/8	CARBON STEEL	EN10210 S355J2H		1				
21	NP79-01-05-22	SHS 2x2x1/8	CARBON STEEL	EN10210 S355J2H		1				
22	NP79-01-09	MOUNTING PLATE FRAME SIDE	CARBON STEEL	EN10025-2:2004 S355J2H	12 mm THICK	12				
23	NP79-01-11	PLATE TYPE A	CARBON STEEL	EN10025-2:2004 S355J2H	30mm THICK	14				
24	NP79-01-12	PLATE TYPE B	CARBON STEEL	EN10025-2:2004 S355J2H	20mm THICK	4				
25	NP79-01-13	PLATE TYPE E	CARBON STEEL	EN10025-2:2004 S355J2H	20mm THICK	1				
26	NP79-01-14	CHEEK PLATE 80x40	CARBON STEEL	EN10219 S355J2H		36				
27	NP79-01-15	CHEEK PLATE 60x40	CARBON STEEL	EN10219 S355J2H		20				
28	NP79-01-16	PLATE TYPE C	CARBON STEEL	EN10025-2:2004 S355J2H	30mm THICK	1				
29	NP79-01-17	PLATE TYPE D	CARBON STEEL	EN10025-2:2004 S355J2H	30mm THICK	1				
30	NP79-01-18	FRAME CORNER	CARBON STEEL	EN10210 S355J2H		16				
31	NP79-01-19	CHEEK PLATE 280x40	CARBON STEEL	EN10219 S355J2H		2				
32	NP79-01-20	CHEEK PLATE 250x40	CARBON STEEL	EN10219 S355J2H		2				

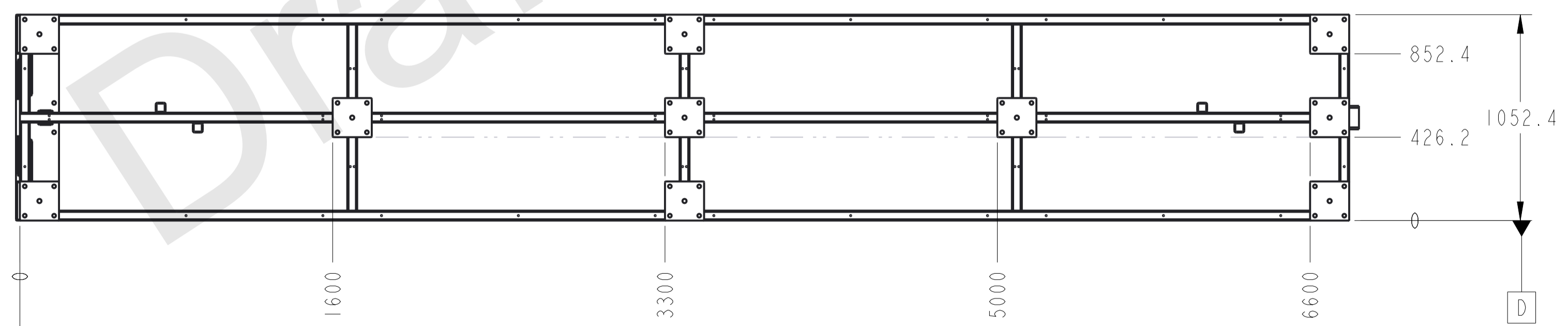
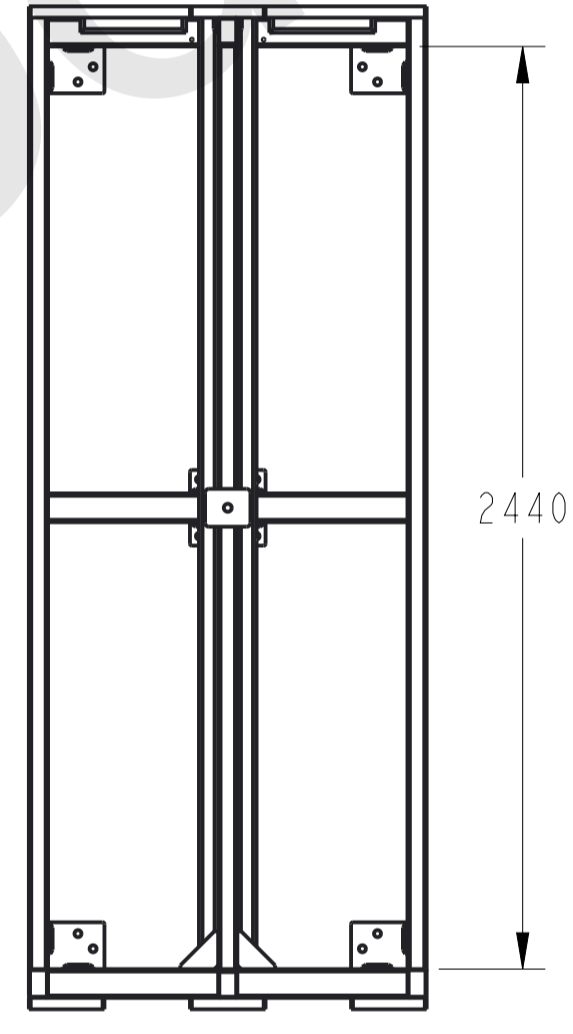
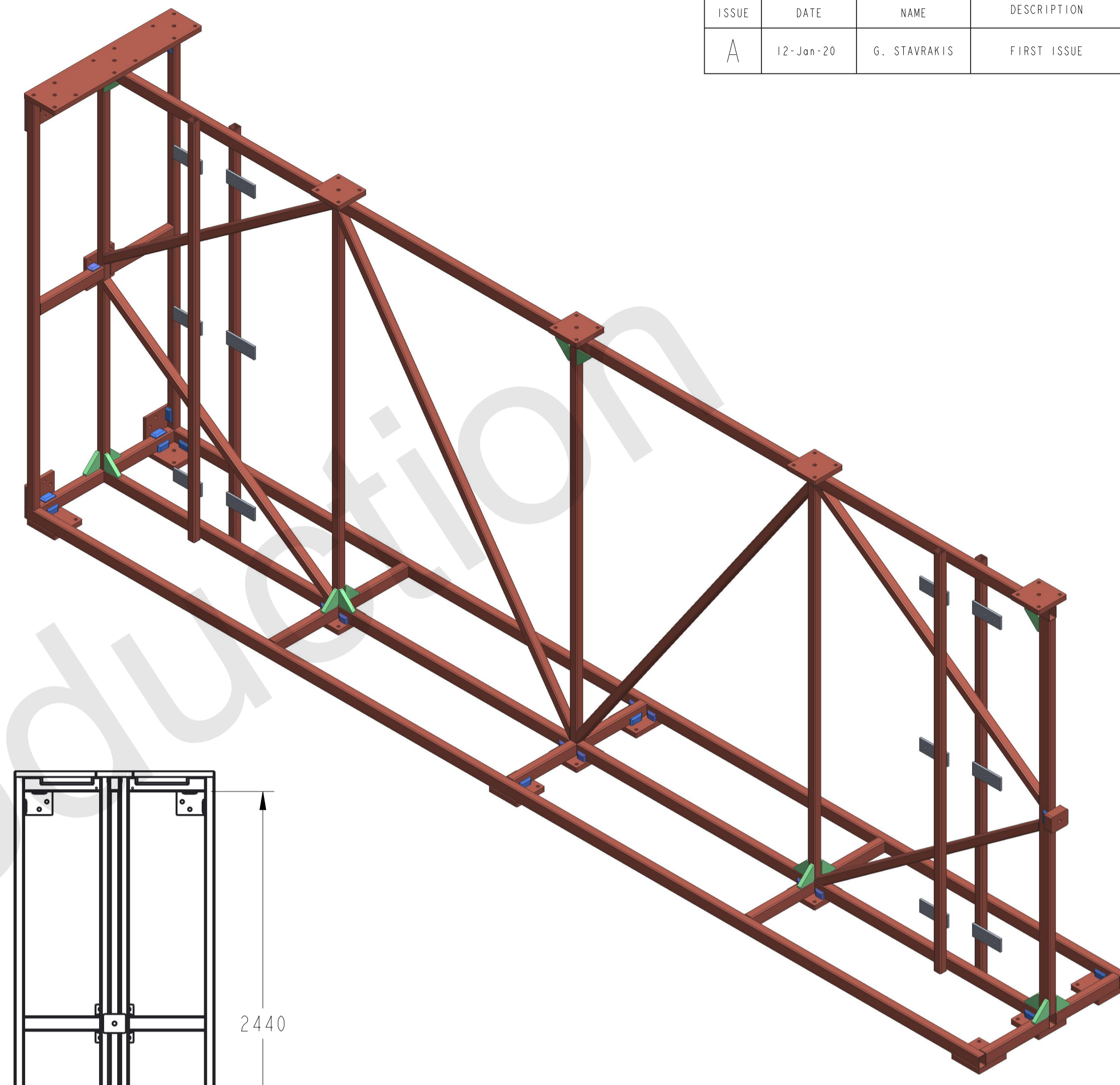
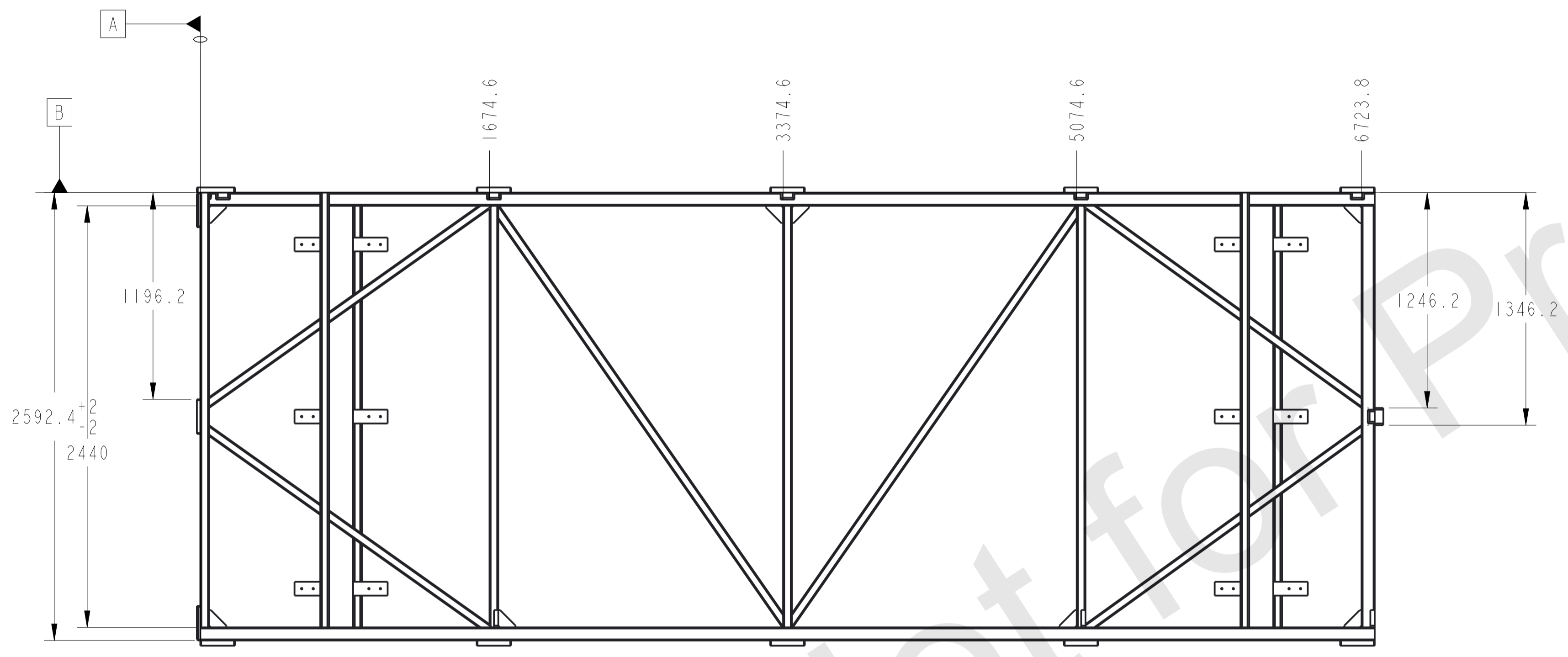
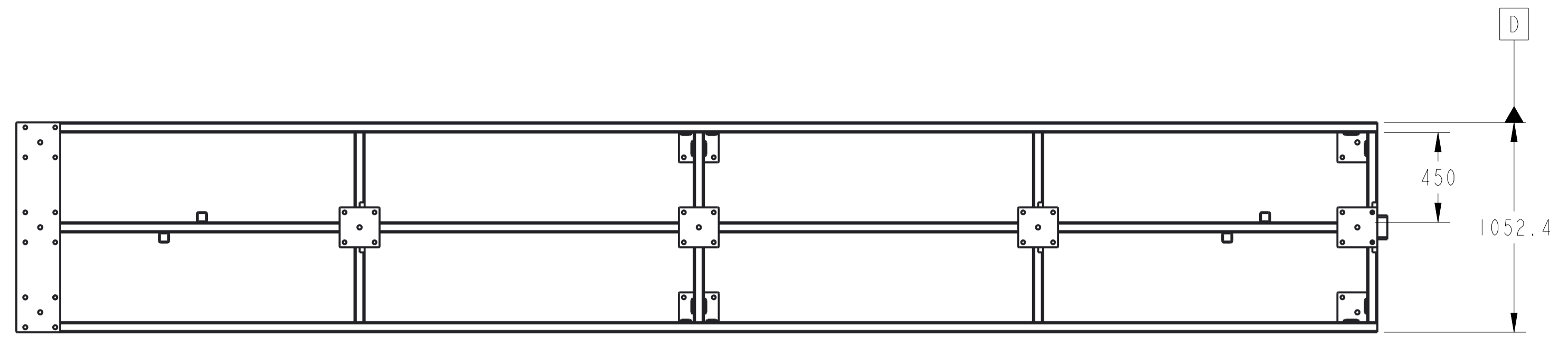


UNLESS OTHERWISE SPECIFIED: .	METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRETATION TO BS 8888		WELDING SYMBOLS TO BS 2553	
ALL DIMENSIONS IN MILLIMETERS	TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL	CARBON STEEL	DRAWN	G. STAVRAKIS
SURFACE TEXTURE VALUES IN MICROMETERS	MACHINED DIMS ±	SPEC		DATE	12-Jan-20
SURFACE TEXT TO BE MACHINE ALL OVER OR WHERE MARKED ✓	ANGULAR ±	TREATMENT		CHECKED	
REMOVE BURRS AND BREAK SHARP EDGES	DO NOT SCALE	FINISH		APPROVED	

DEPARTMENT OF PHYSICS		UNIVERSITY OF LIVERPOOL	
OLIVER LODGE BUILDING			
PROJECT			
DUNE			
TITLE			
MAIN CENTRAL SKELETON			
DRAWING NUMBER		ARRGR. DRAWING	
NP79-01-05		NP79	
SHEET 1 OF 4		SCALE 3:40	

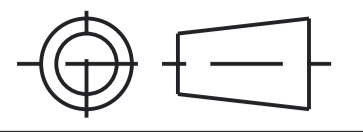


MODIFICATIONS			
ISSUE	DATE	NAME	DESCRIPTION
A	12-Jan-20	G. STAVRAKIS	FIRST ISSUE

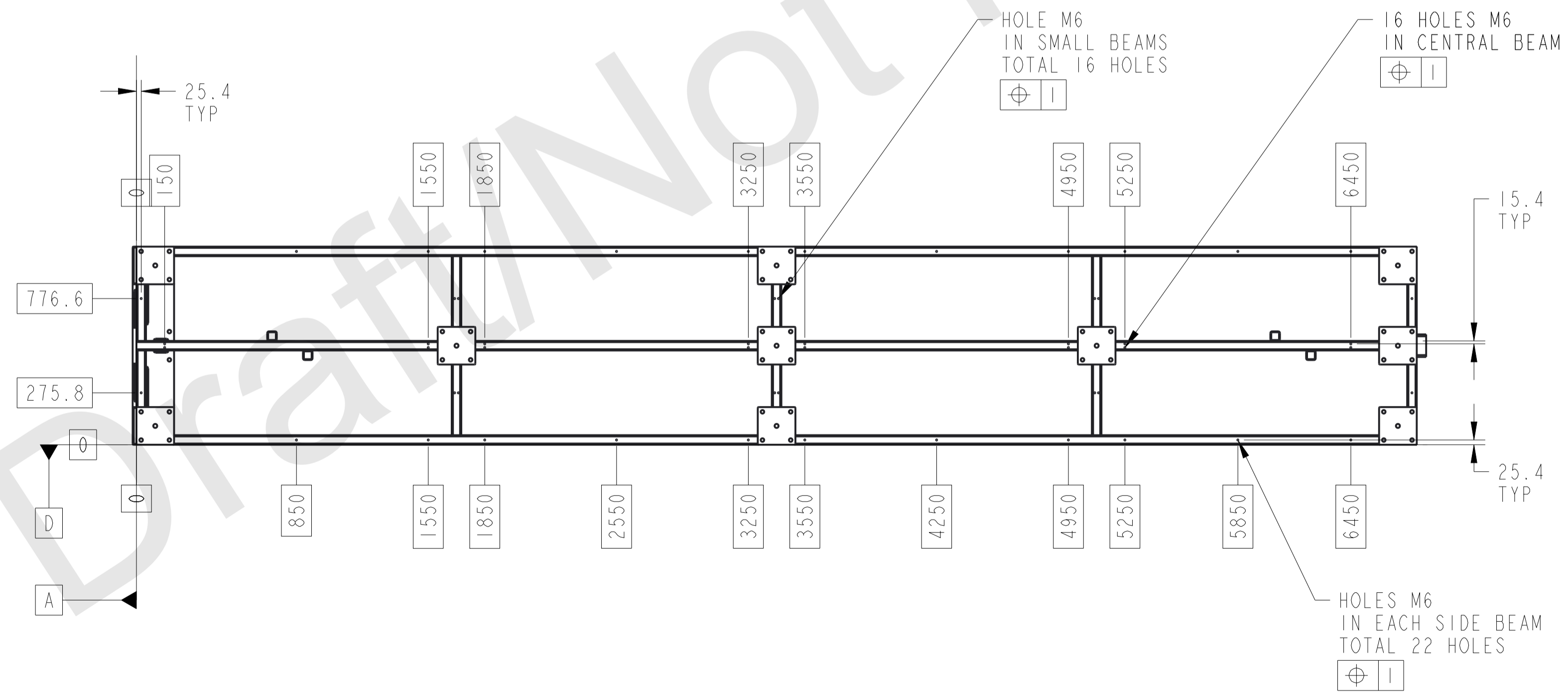
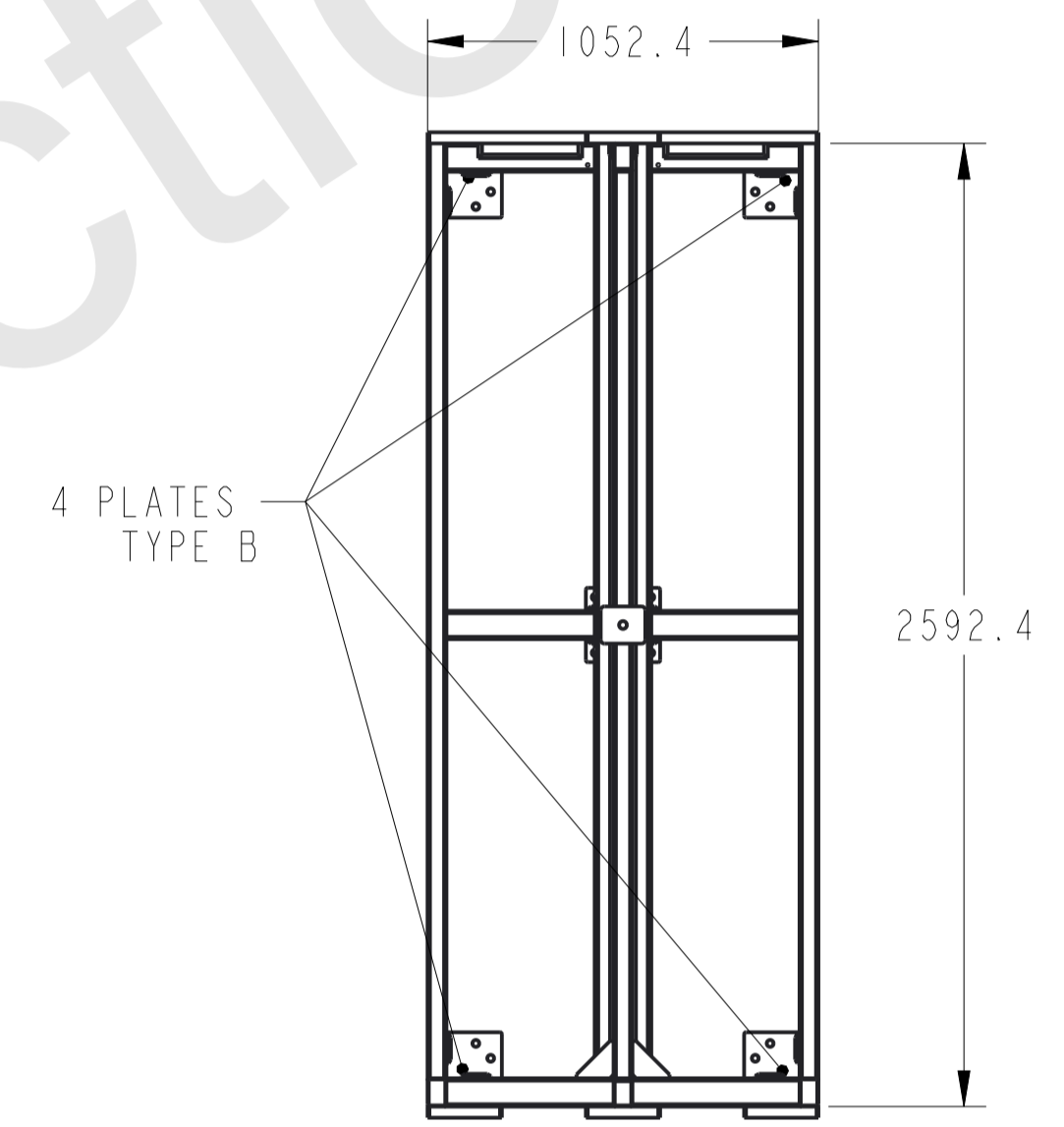
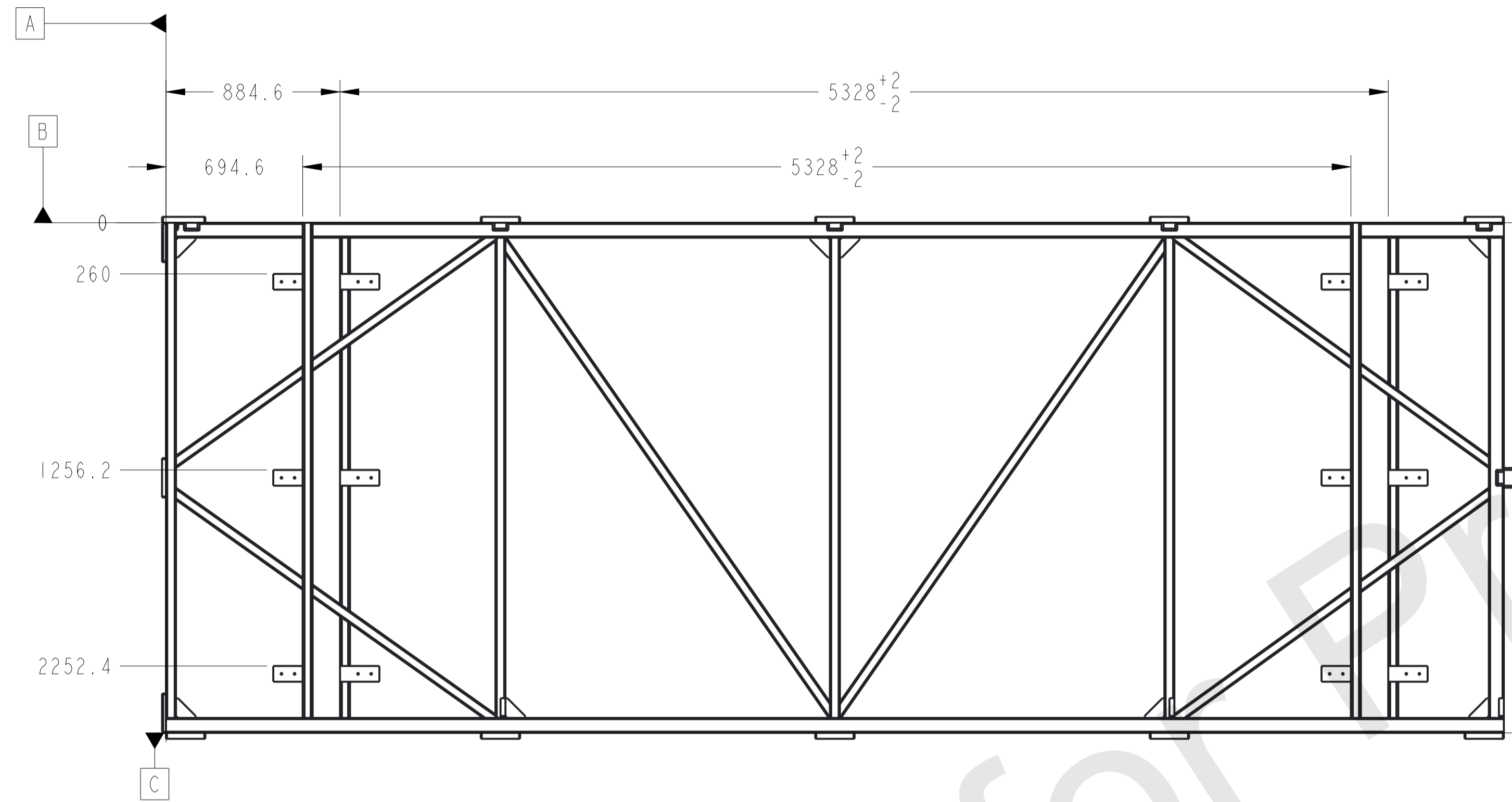
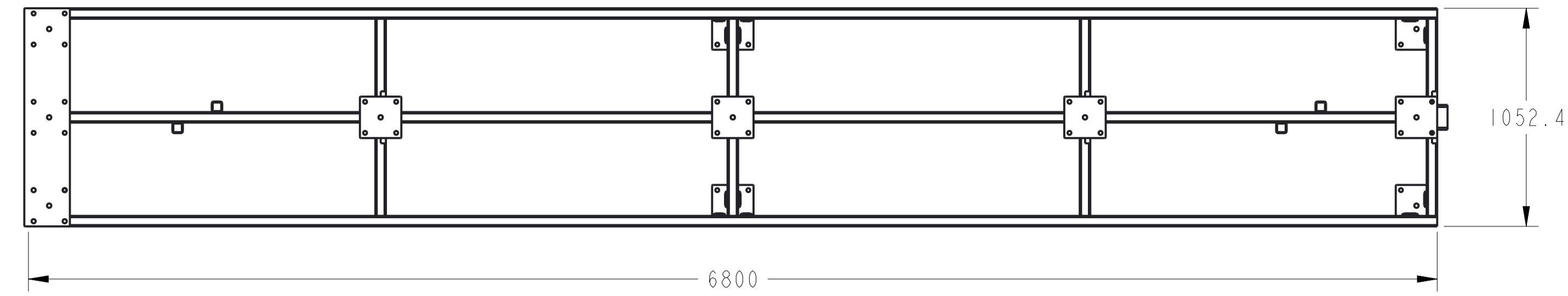


UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN MILLIMETERS SURFACE TEXTURE VALUES IN MICROMETERS SURFACE TEXT TO BE MACHINED ALL OVER OR WHERE MARKED ✓	METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRETATION TO BS 8888	WELDING SYMBOLS TO BS 2553
	TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL CARBON STEEL	DRAWN G. STAVRAKIS
	MACHINED DIMS ± 1.2	SPEC	DATE 12-Jan-20
	ANGULAR ± °	TREATMENT	CHECKED
REMOVE BURRS AND BREAK SHARP EDGES	DO NOT SCALE	FINISH	APPROVED

DEPARTMENT OF PHYSICS	UNIVERSITY OF LIVERPOOL
OLIVER LODGE BUILDING	
PROJECT	DUNE
TITLE	MAIN CENTRAL SKELETON
DRAWING NUMBER	NP79-01-05
SHEET 2 OF 4	SCALE 1:20

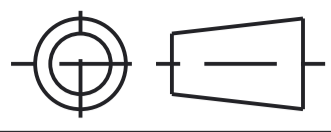


MODIFICATIONS			
ISSUE	DATE	NAME	DESCRIPTION
A	12-Jan-20	G. STAVRAKIS	FIRST ISSUE

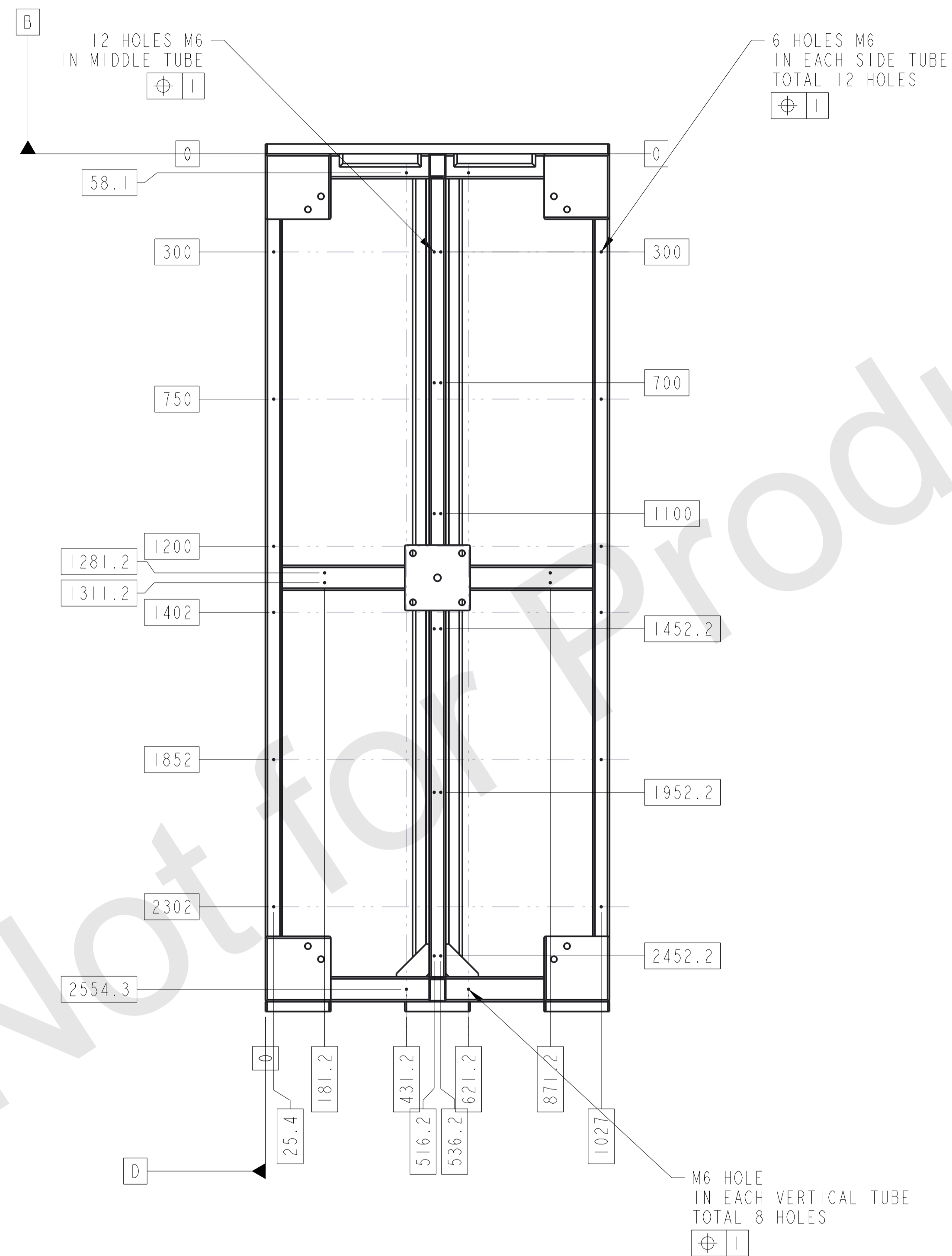


UNLESS OTHERWISE SPECIFIED:- ALL DIMENSIONS IN MILLIMETERS SURFACE TEXTURE VALUES IN MICROMETERS SURFACE TEXT TO BE MACHINED MACHINE ALL OVER OR WHERE MARKED ✓	METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRETATION TO BS 8888	WELDING SYMBOLS TO BS 2553		
	TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL	CARBON STEEL	DRAWN	G. STAVRAKIS
	MACHINED DIMS ± 1.2	SPEC		DATE	12-Jan-20
	ANGULAR ± °	TREATMENT		CHECKED	
REMOVE BURRS AND BREAK SHARP EDGES	DO NOT SCALE	FINISH		APPROVED	

DEPARTMENT OF PHYSICS		UNIVERSITY OF LIVERPOOL	
OLIVER LODGE BUILDING			
PROJECT			
DUNE			
TITLE			
MAIN CENTRAL SKELETON			
DRAWING NUMBER		ARRGR. DRAWING	
NP79-01-05		NP79	
SHEET 3 OF 4		SCALE 1:20	



MODIFICATIONS			
ISSUE	DATE	NAME	DESCRIPTION
A	12-Jan-20	G. STAVRAKIS	FIRST ISSUE

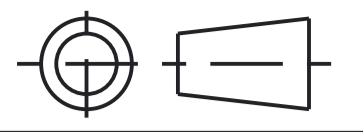


SCALE 1:10

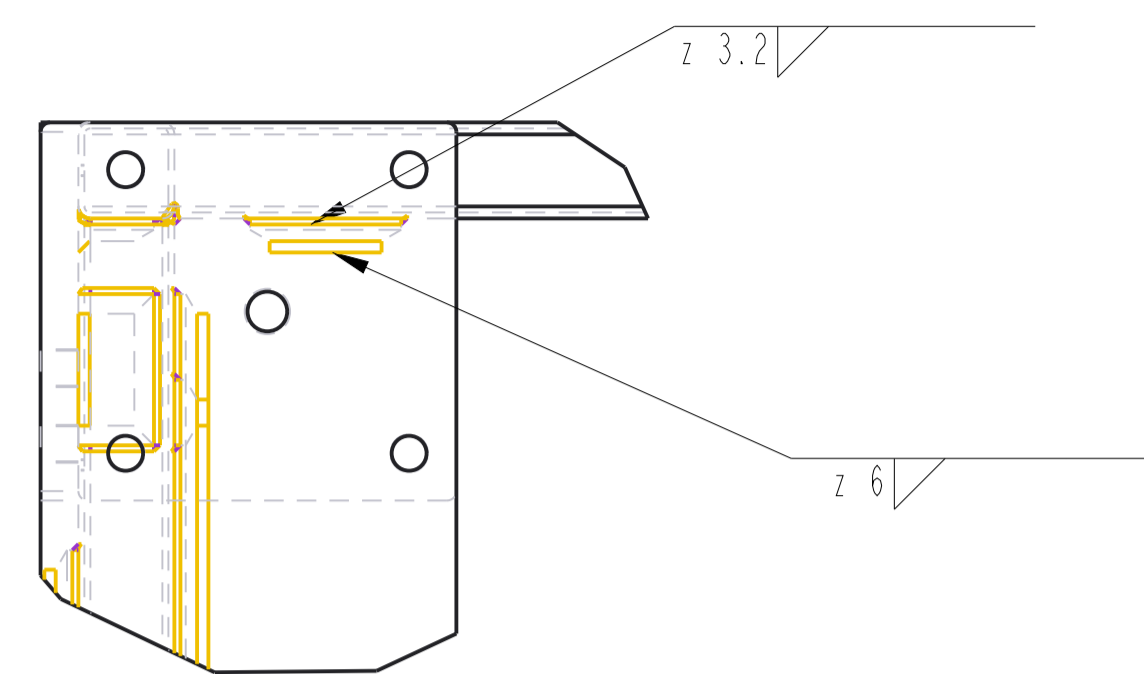
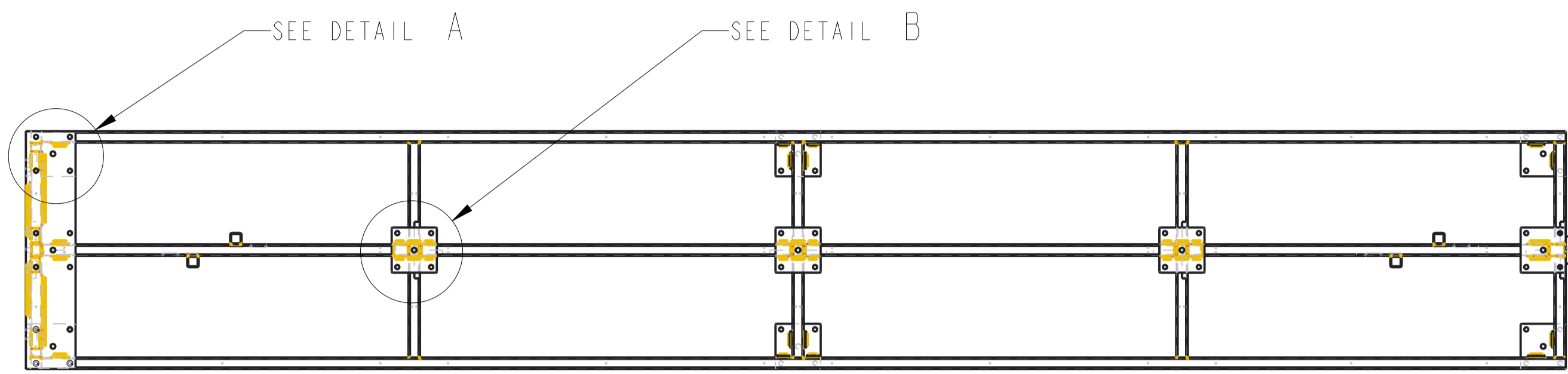
Draft/Not for Production

DEPARTMENT OF PHYSICS		UNIVERSITY OF LIVERPOOL	
OLIVER LODGE BUILDING			
PROJECT			
DUNE			
TITLE			
MAIN CENTRAL SKELETON			
DRAWING NUMBER		ARRGR. DRAWING	
NP79-01-05		NP79	
SHEET 4 OF 4		SCALE 1:10	

UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN MILLIMETERS SURFACE TEXTURE VALUES IN MICROMETERS SURFACE TEXT TO BE MACHINED MACHINE ALL OVER OR WHERE MARKED ✓	METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRATION TO BS 8888	WELDING SYMBOLS TO BS 2553	
	TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL	CARBON STEEL	DRAWN
	MACHINED DIMS ± 1.2	SPEC		DATE
	ANGULAR ± °	TREATMENT		CHECKED
REMOVE BURRS AND BREAK SHARP EDGES	DO NOT SCALE	FINISH	APPROVED	

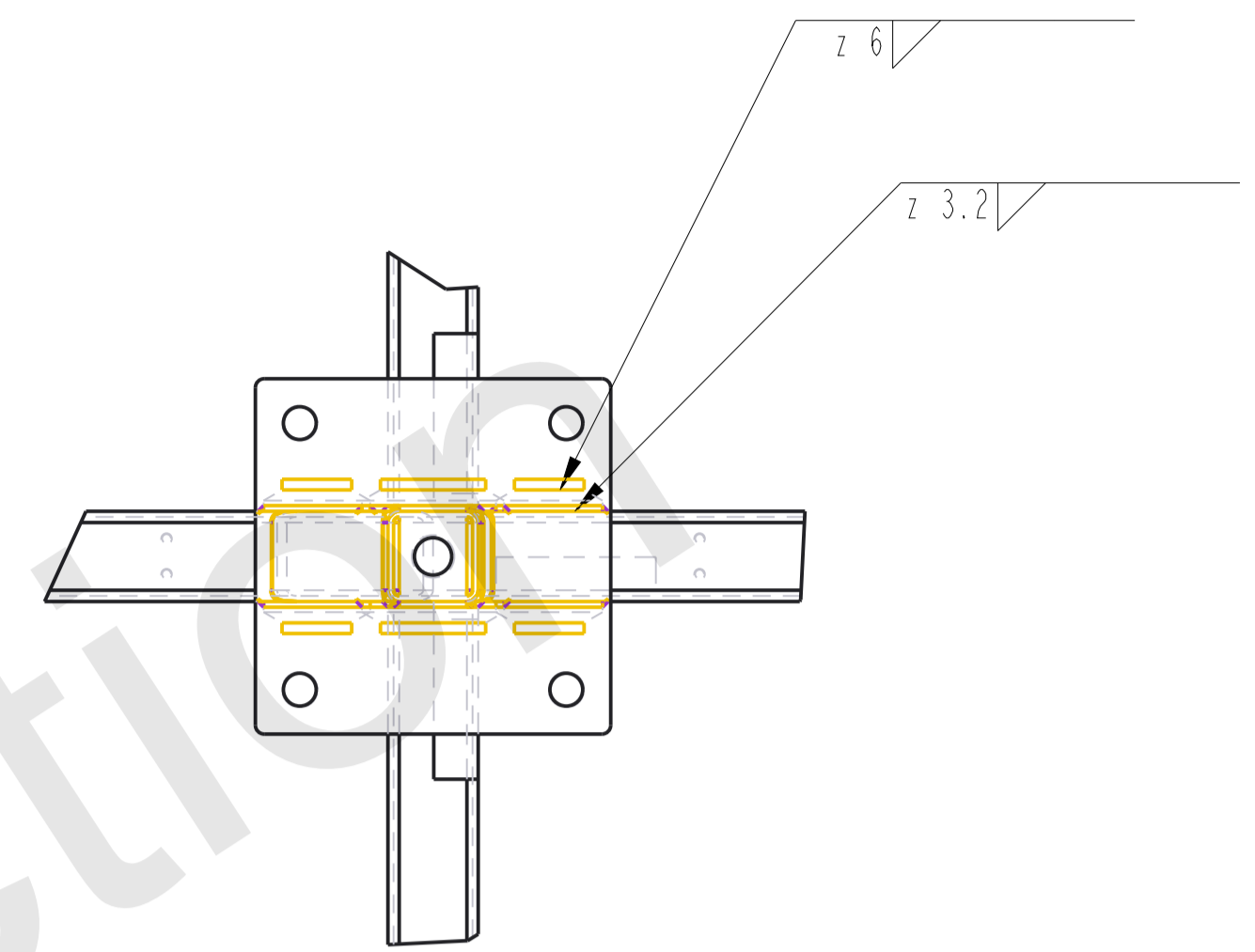


MODIFICATIONS			
ISSUE	DATE	NAME	DESCRIPTION
A	12-Jan-20	G. STAVRAKIS	FIRST ISSUE



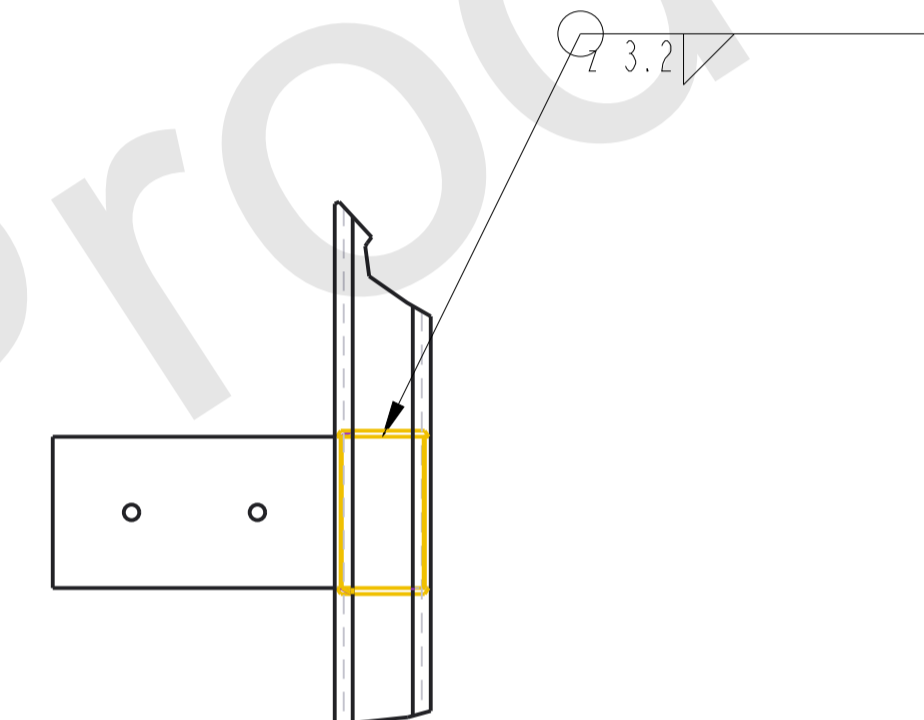
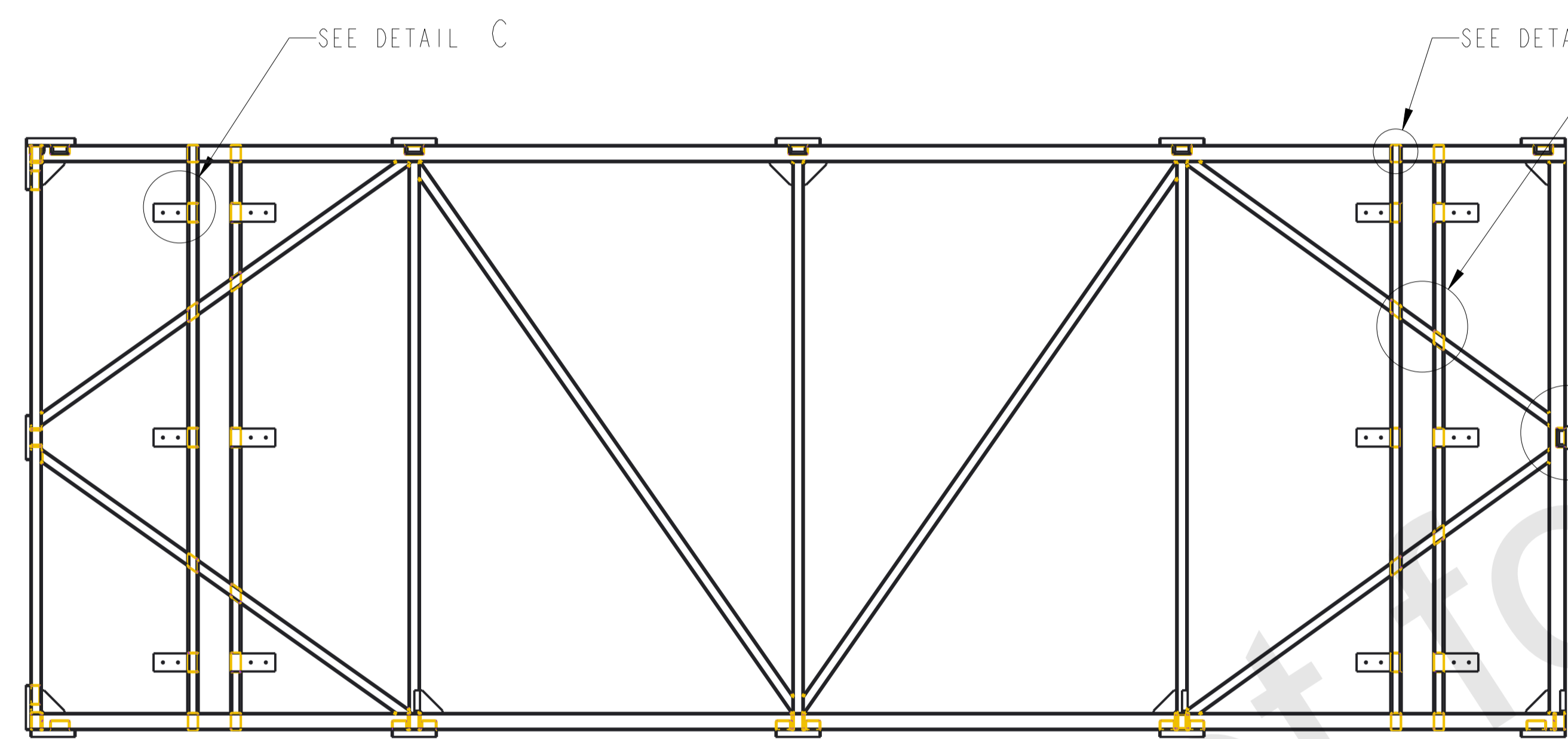
DETAIL A
SCALE 1:4

TYP WELD FOR LARGE PLATE WITH CHEEK PLATES



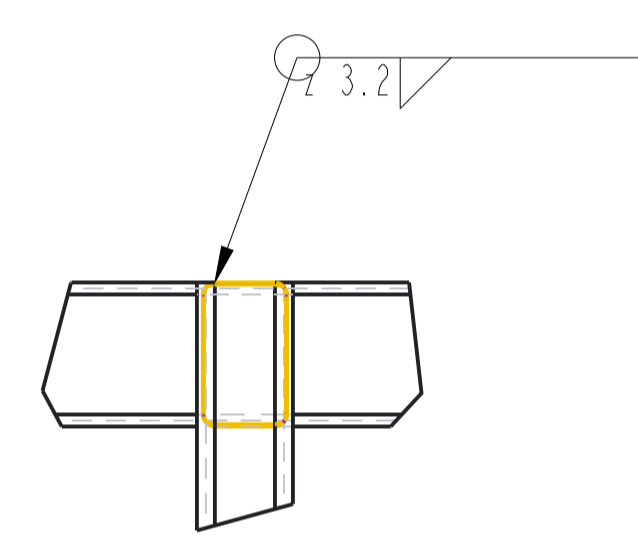
DETAIL B
SCALE 1:4

TYP WELD CENTRAL PLATES



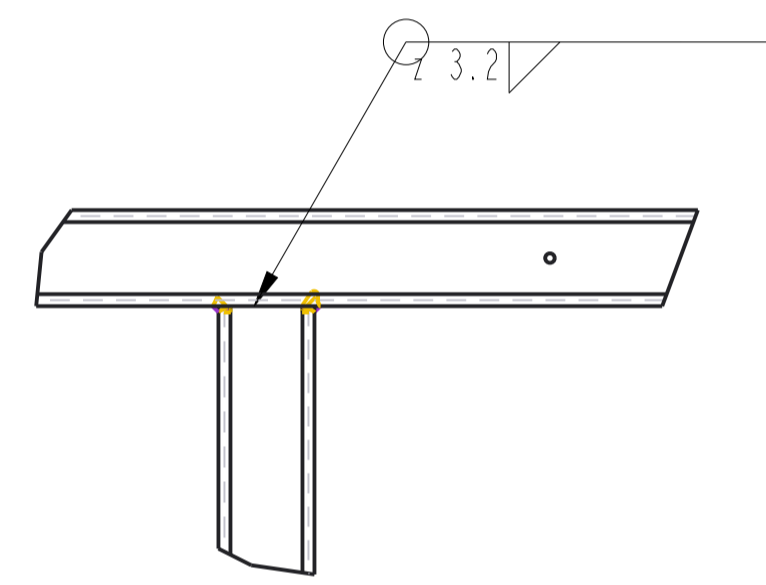
DETAIL C
SCALE 1:4

TYP WELD FOR WIRE PLATES



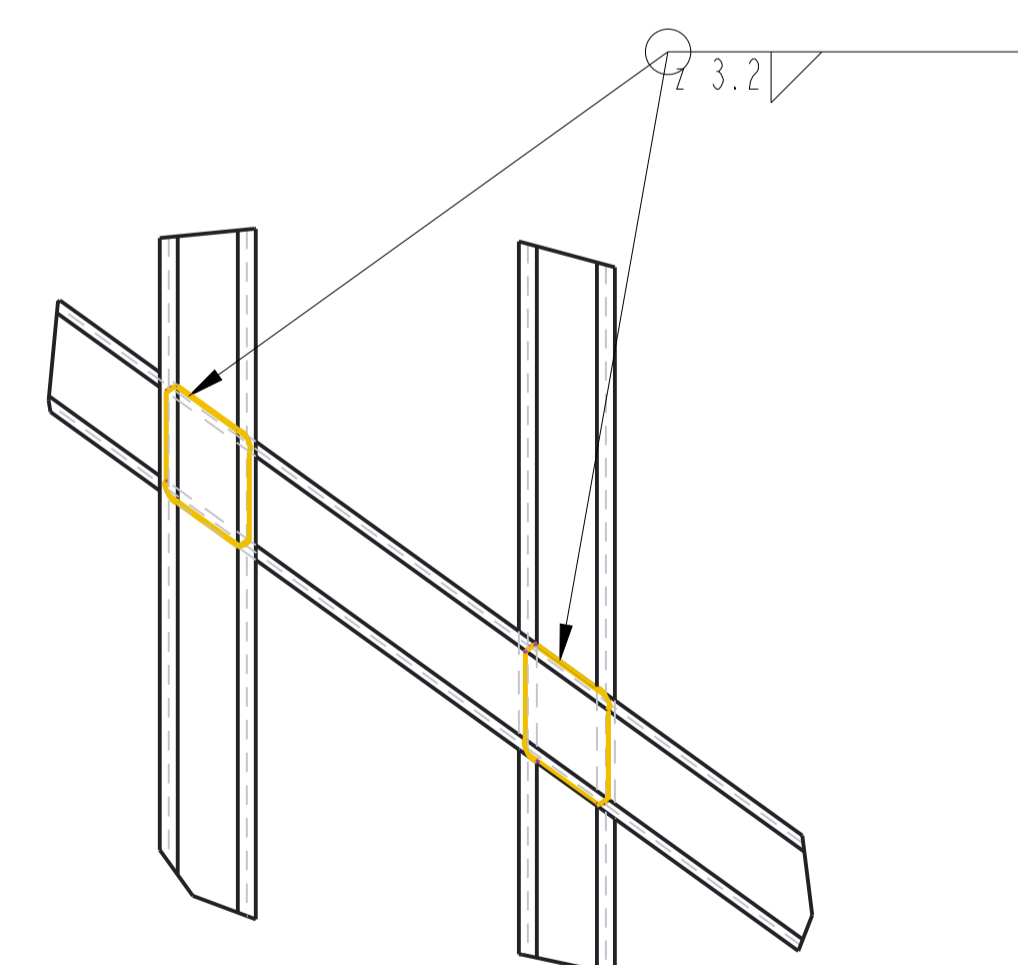
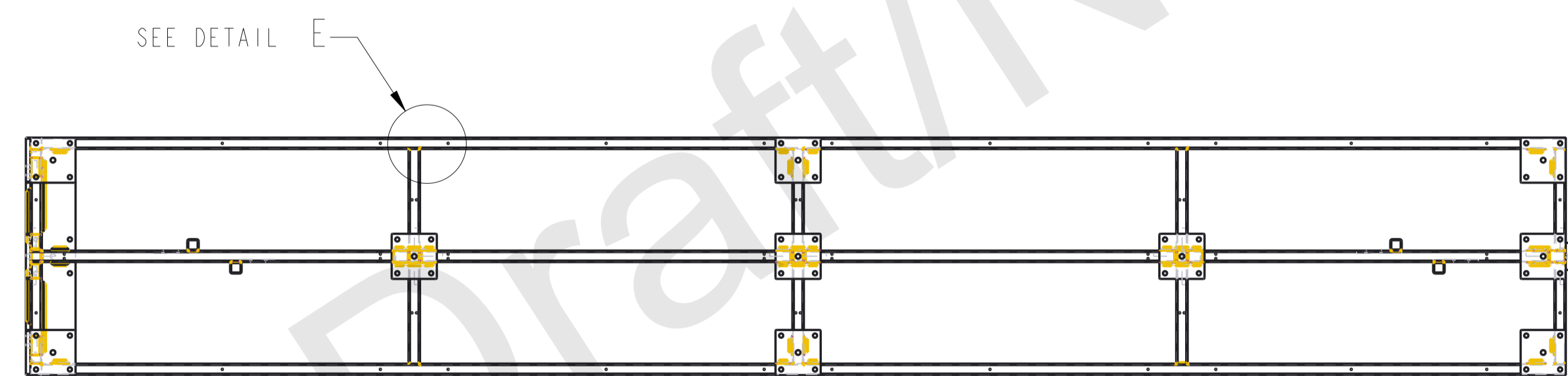
DETAIL D
SCALE 1:4

TYP WELD FOR JOINTS



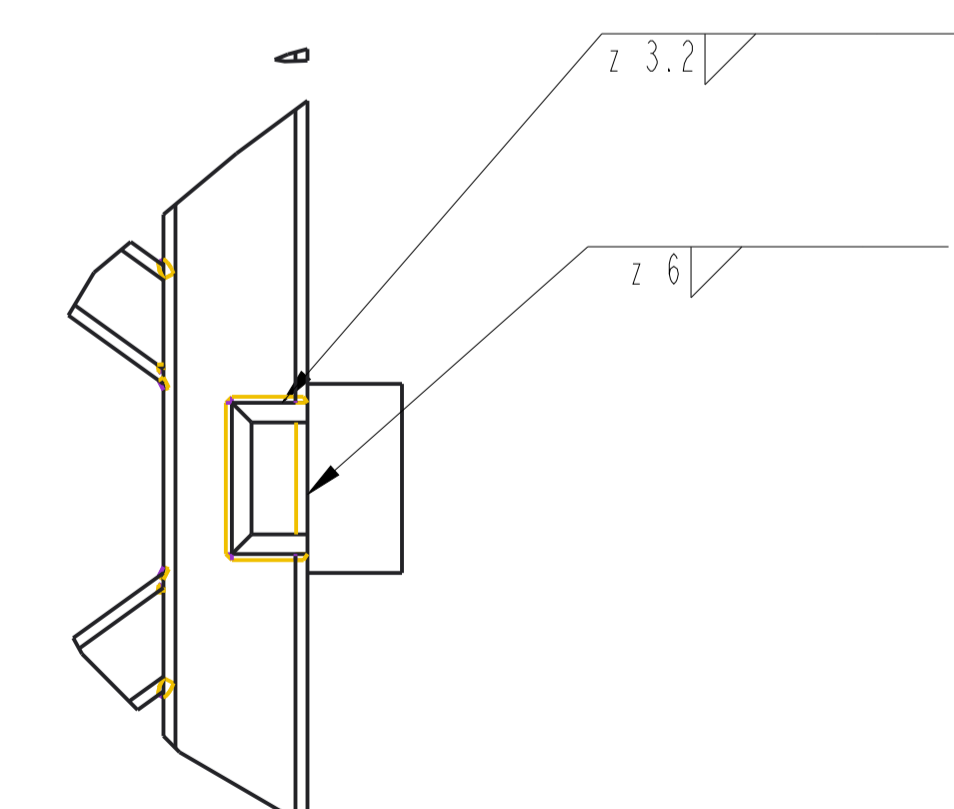
DETAIL E
SCALE 1:4

TYP WELD FOR BEAMS



DETAIL F
SCALE 1:4

TYP WELD FOR CROSSING BEAMS



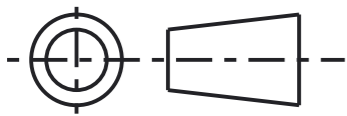
DETAIL G
SCALE 1:4

TYP WELD FOR CHEEK PLATE

UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN MILLIMETERS SURFACE TEXTURE VALUES IN MICROMETERS SURFACE TEXT TO BE MACHINED ALL OVER OR WHERE MARKED ✓ REMOVE BURRS AND BREAK SHARP EDGES	METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRATION TO BS 8888		WELDING SYMBOLS TO BS 2553	
	TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL	CARBON STEEL	DRAWN	G. STAVRAKIS
	MACHINED DIMS ±	SPEC		DATE	12-Jan-20
	ANGULAR ± °	TREATMENT		CHECKED	
	DO NOT SCALE	FINISH		APPROVED	

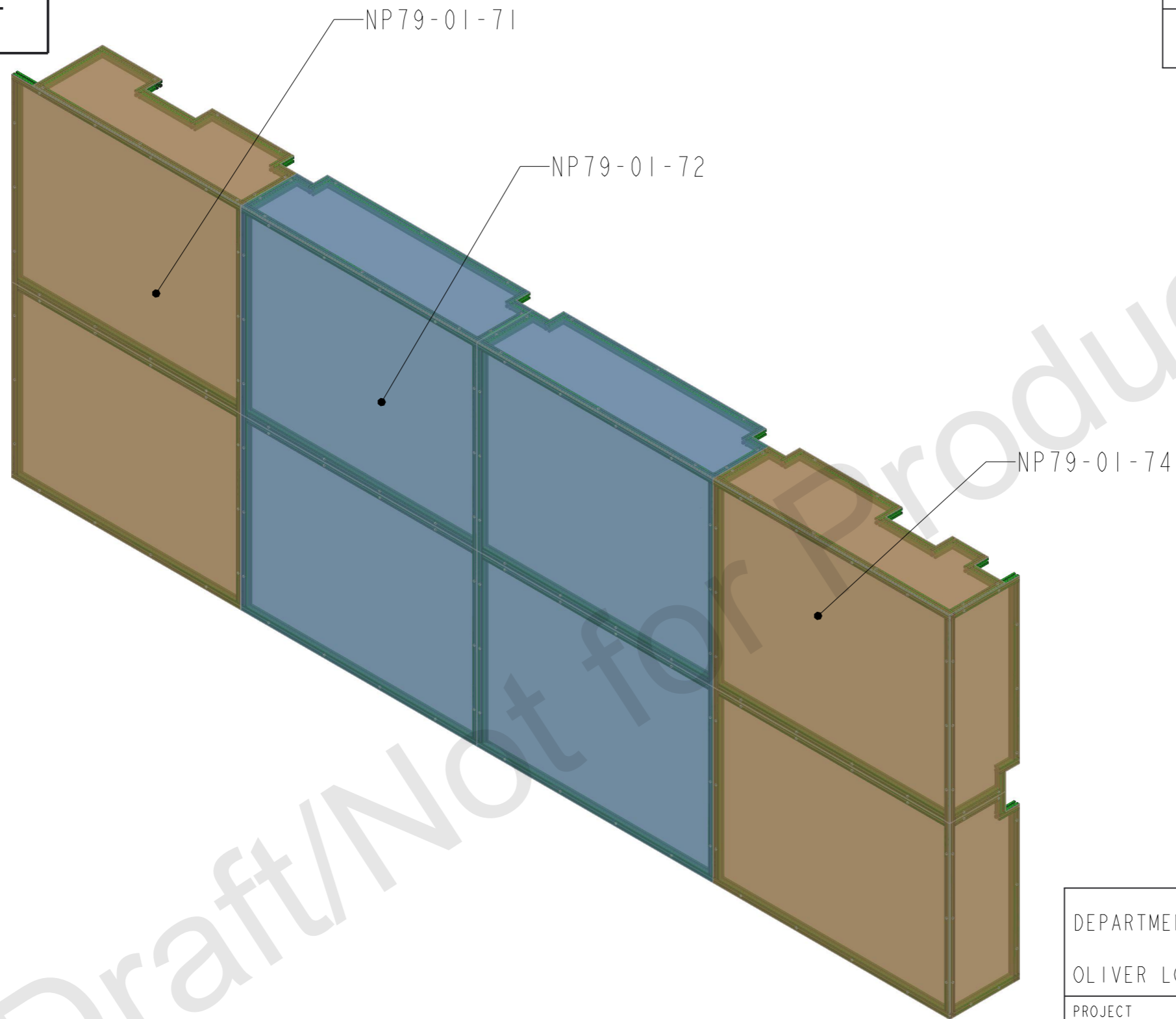
DEPARTMENT OF PHYSICS		UNIVERSITY OF LIVERPOOL	
OLIVER LODGE BUILDING			
PROJECT DUNE			
TITLE WELDINGS			
DRAWING NUMBER NP79-01-05A		ARRGR. DRAWING NP79	
SHEET 1 OF 1		SCALE 1:20	

THIRD ANGLE PROJECTION



MODIFICATIONS

ISSUE	DATE	NAME	DESCRIPTION
A	Feb-26-20	G. STAVRAKIS	FIRST ISSUE

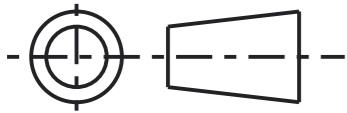


DEPARTMENT OF PHYSICS  UNIVERSITY OF LIVERPOOL
OLIVER LODGE BUILDING

PROJECT
DUNE

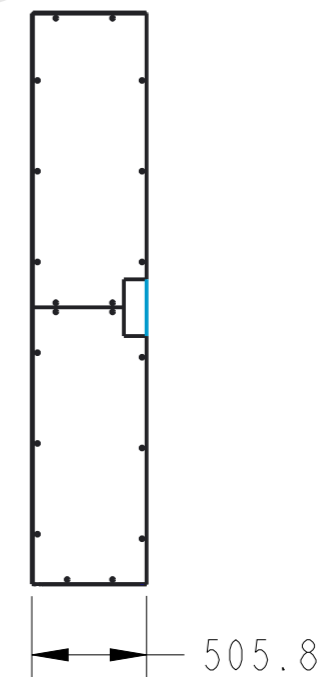
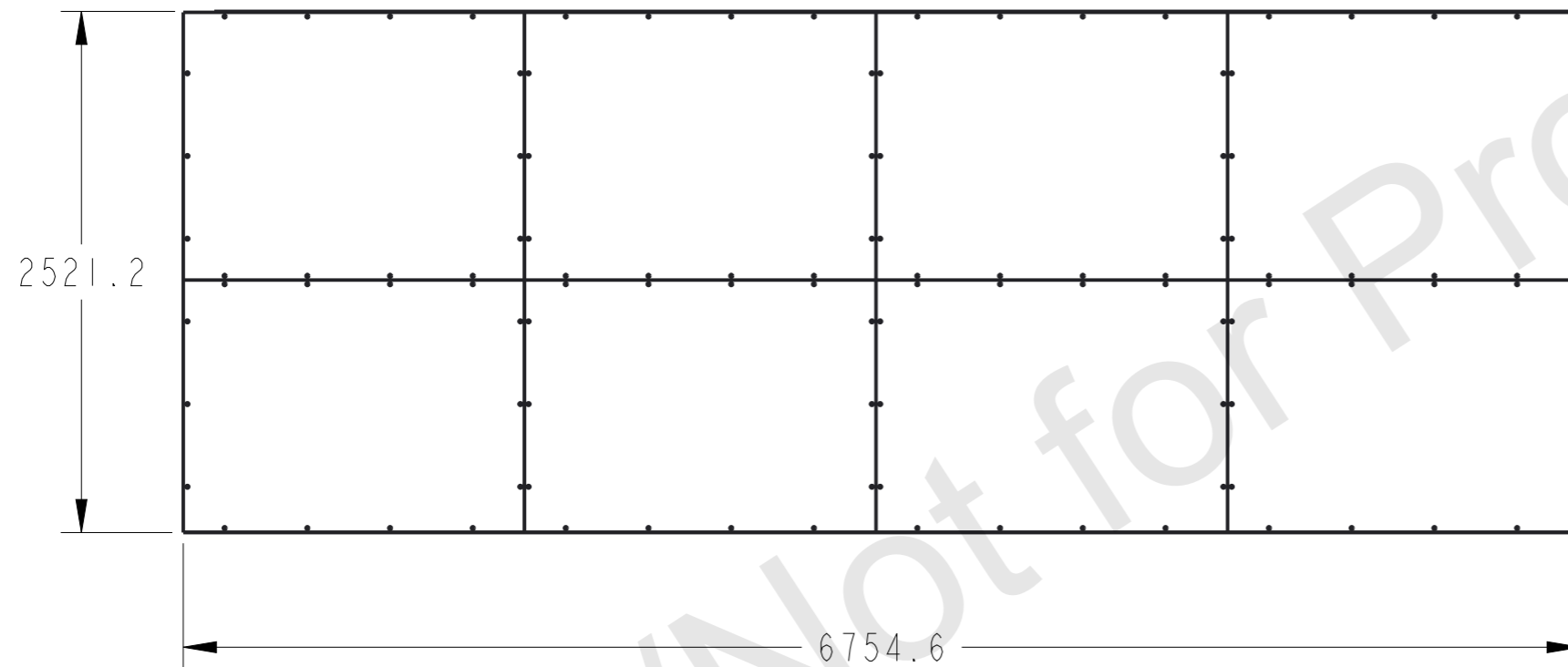
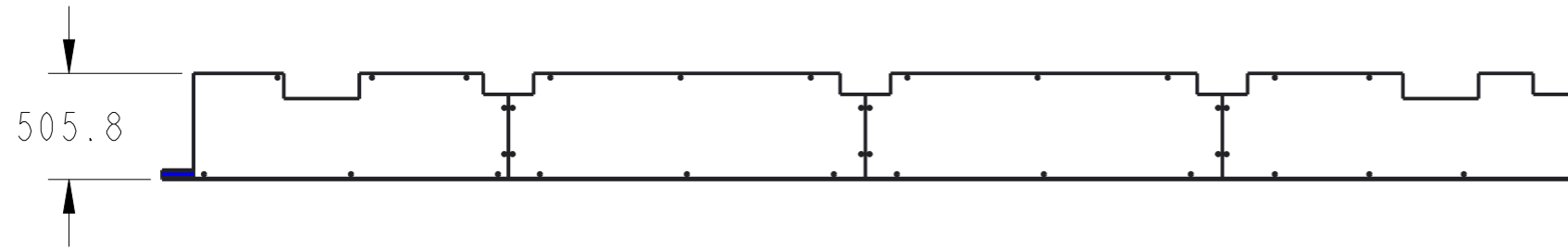
UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN MILLIMETERS SURFACE TEXTURE VALUES IN MICROMETERS SURFACE TEXT TO BE MACHINED ALL OVER OR WHERE MARKED ✓	METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRATION TO BS 8888		WELDING SYMBOLS TO BS 2553		TITLE SIDE FRAME		
	TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL	ALU - PERSPEX	DRAWN	G. STAVRAKIS	DRAWING NUMBER NP79-01-07	ARRGR. DRAWING NP79-01	
	MACHINED DIMS ±	SPEC		DATE	Feb-26-20			
	ANGULAR ± °	TREATMENT		CHECKED				
REMOVE BURRS AND BREAK SHARP EDGES	DO NOT SCALE	FINISH		APPROVED		SHEET 1 OF 2	SCALE 1:25	A3

THIRD ANGLE PROJECTION



MODIFICATIONS

ISSUE	DATE	NAME	DESCRIPTION
A	Feb-26-20	G. STAVRAKIS	FIRST ISSUE



DEPARTMENT OF PHYSICS
OLIVER LODGE BUILDING



UNIVERSITY OF
LIVERPOOL

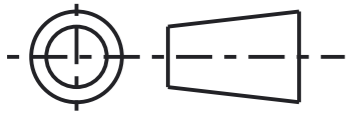
PROJECT

DUNE

UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN MILLIMETERS SURFACE TEXTURE VALUES IN MICROMETERS SURFACE TEXT TO BE MACHINE ALL OVER OR WHERE MARKED ✓	METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRATION TO BS 8888		WELDING SYMBOLS TO BS 2553	
	TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL	ALU - PERSPEX	DRAWN	G. STAVRAKIS
	MACHINED DIMS ±	SPEC		DATE	Feb-26-20
	ANGULAR ± °	TREATMENT		CHECKED	
REMOVE BURRS AND BREAK SHARP EDGES	DO NOT SCALE	FINISH		APPROVED	

TITLE SIDE FRAME		
DRAWING NUMBER NP79-01-07	ARRGR. DRAWING NP79-01	
SHEET 2 OF 2	SCALE 3:100	A3

THIRD ANGLE PROJECTION



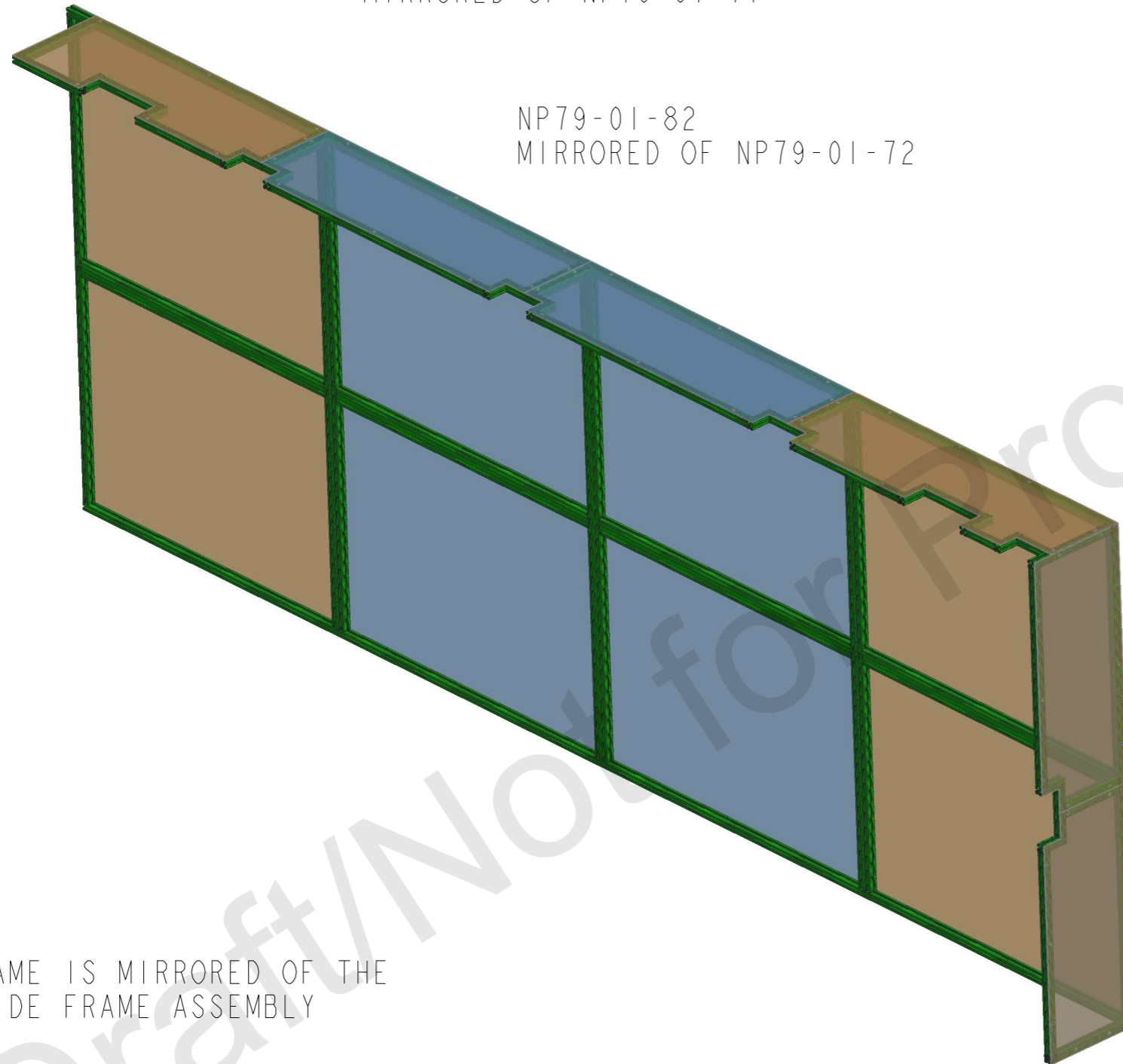
MODIFICATIONS

ISSUE	DATE	NAME	DESCRIPTION
A	Feb-26-20	G. STAVRAKIS	FIRST ISSUE

NP79-01-81
MIRRORED OF NP79-01-71

NP79-01-82
MIRRORED OF NP79-01-72

NP79-01-84
MIRRORED OF NP79-01-74



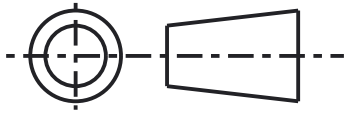
THIS SIDE FRAME IS MIRRORED OF THE
NP79-01-07 SIDE FRAME ASSEMBLY

DEPARTMENT OF PHYSICS  UNIVERSITY OF LIVERPOOL
OLIVER LODGE BUILDING

PROJECT
DUNE

UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN MILLIMETERS SURFACE TEXTURE VALUES IN MICROMETERS SURFACE TEXT TO BE <input checked="" type="checkbox"/> MACHINE ALL OVER OR WHERE MARKED <input checked="" type="checkbox"/>	METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRATION TO BS 8888		WELDING SYMBOLS TO BS 2553		TITLE SIDE FRAME		
	TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL	ALU - PERSPEX	DRAWN	G. STAVRAKIS	DRAWING NUMBER NP79-01-08		
	MACHINED DIMS ±	SPEC		DATE	Feb-26-20			
	ANGULAR ± °	TREATMENT		CHECKED				
REMOVE BURRS AND BREAK SHARP EDGES	DO NOT SCALE	FINISH		APPROVED		SHEET 1 OF 1	SCALE 1:25	A3

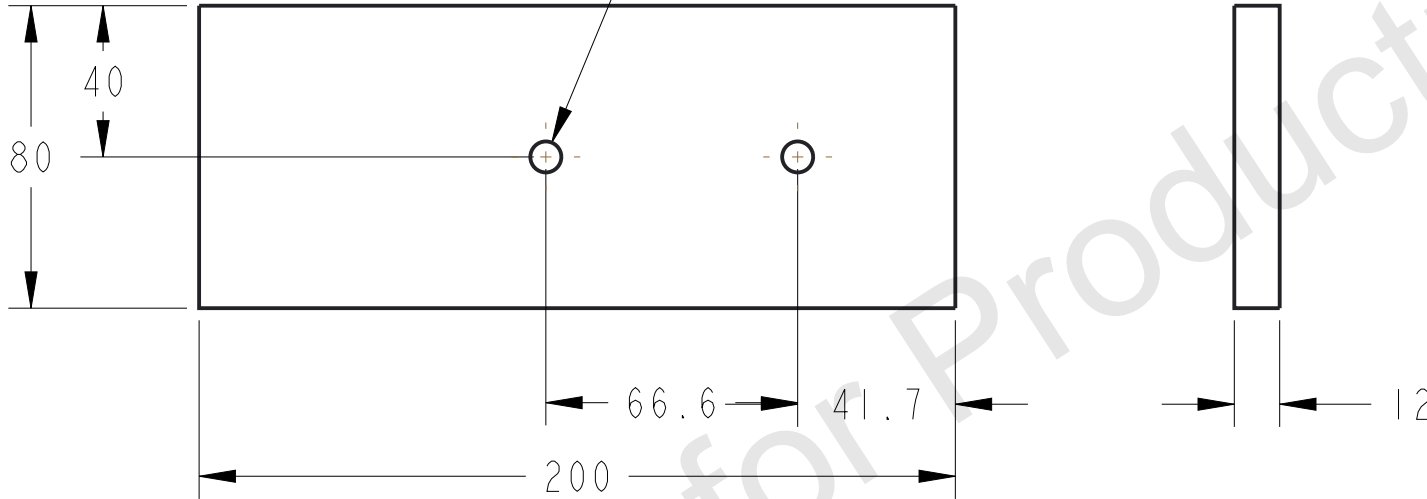
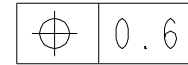
THIRD ANGLE PROJECTION



MODIFICATIONS

ISSUE	DATE	NAME	DESCRIPTION
A	Feb-14-20	G. STAVRAKIS	FIRST ISSUE

2 HOLES $\varnothing 8.2$
THRU



12 OFF

UNLESS OTHERWISE SPECIFIED: -

ALL DIMENSIONS IN MILLIMETERS
SURFACE TEXTURE VALUES IN MICROMETERS
SURFACE TEXT TO BE ✓
MACHINE ALL OVER OR WHERE MARKED ✓

DEPARTMENT OF PHYSICS



UNIVERSITY OF
LIVERPOOL

OLIVER LODGE BUILDING

PROJECT

DUNE

REMOVE BURRS AND BREAK SHARP EDGES

METRIC SCREW THREADS
TO BS3643 CLASS 6H/6g

DRAWING PRACTICE AND TOLERANCE
INTERPRATION TO BS 8888

WELDING SYMBOLS TO BS 2553

TITLE

MOUNTING PLATE FRAME SIDE

TOLERANCES
UNLESS OTHERWISE SPECIFIED

MATERIAL

CARBON STEEL

DRAWN

G. STAVRAKIS

MACHINED DIMS \pm 1.2

SPEC

EN10025-2:2004 S355J2H

DATE

Feb-14-20

DRAWING NUMBER

NP79-01-09

ARRGR. DRAWING

NP79-01-02

ANGULAR \pm °

TREATMENT

HOT ROLLED

CHECKED

DO NOT SCALE

FINISH

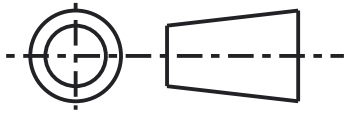
APPROVED

SHEET 1 OF 1

SCALE 1:2

A4

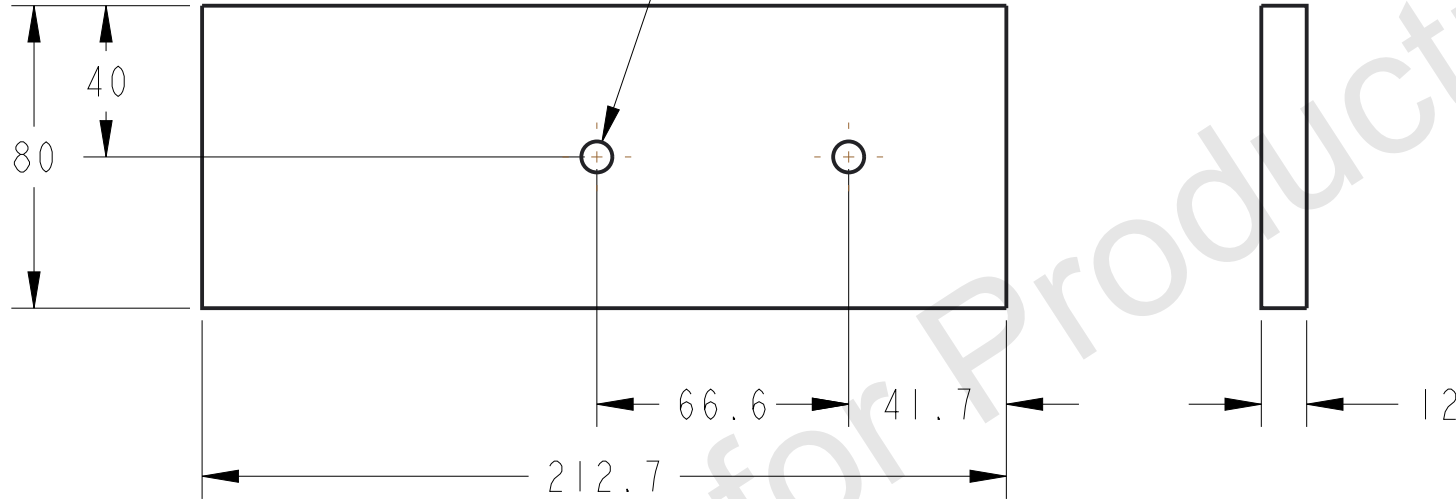
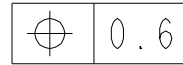
THIRD ANGLE PROJECTION



MODIFICATIONS

ISSUE	DATE	NAME	DESCRIPTION
A	Feb-14-20	G. STAVRAKIS	FIRST ISSUE

2 HOLES $\varnothing 8.2$
THRU



12 OFF

UNLESS OTHERWISE SPECIFIED: -

ALL DIMENSIONS IN MILLIMETERS
SURFACE TEXTURE VALUES IN MICROMETERS
SURFACE TEXT TO BE ✓
MACHINE ALL OVER OR WHERE MARKED ✓

DEPARTMENT OF PHYSICS



UNIVERSITY OF
LIVERPOOL

OLIVER LODGE BUILDING

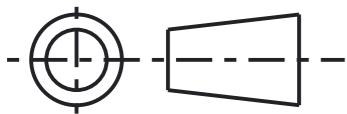
PROJECT

DUNE

REMOVE BURRS AND BREAK SHARP EDGES

METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRATION TO BS 8888		WELDING SYMBOLS TO BS 2553		TITLE	
TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL	CARBON STEEL	DRAWN	G. STAVRAKIS	MOUNTING PLATE APA SIDE	
MACHINED DIMS \pm 1.2	SPEC	EN100252-2:2004 S355J2H	DATE	Feb-14-20	DRAWING NUMBER	ARRGR. DRAWING
ANGULAR \pm °	TREATMENT		CHECKED		NP79-01-10	NP79-01-02
DO NOT SCALE	FINISH		APPROVED		SHEET 1 OF 1	SCALE 1:2
						A4

THIRD ANGLE PROJECTION



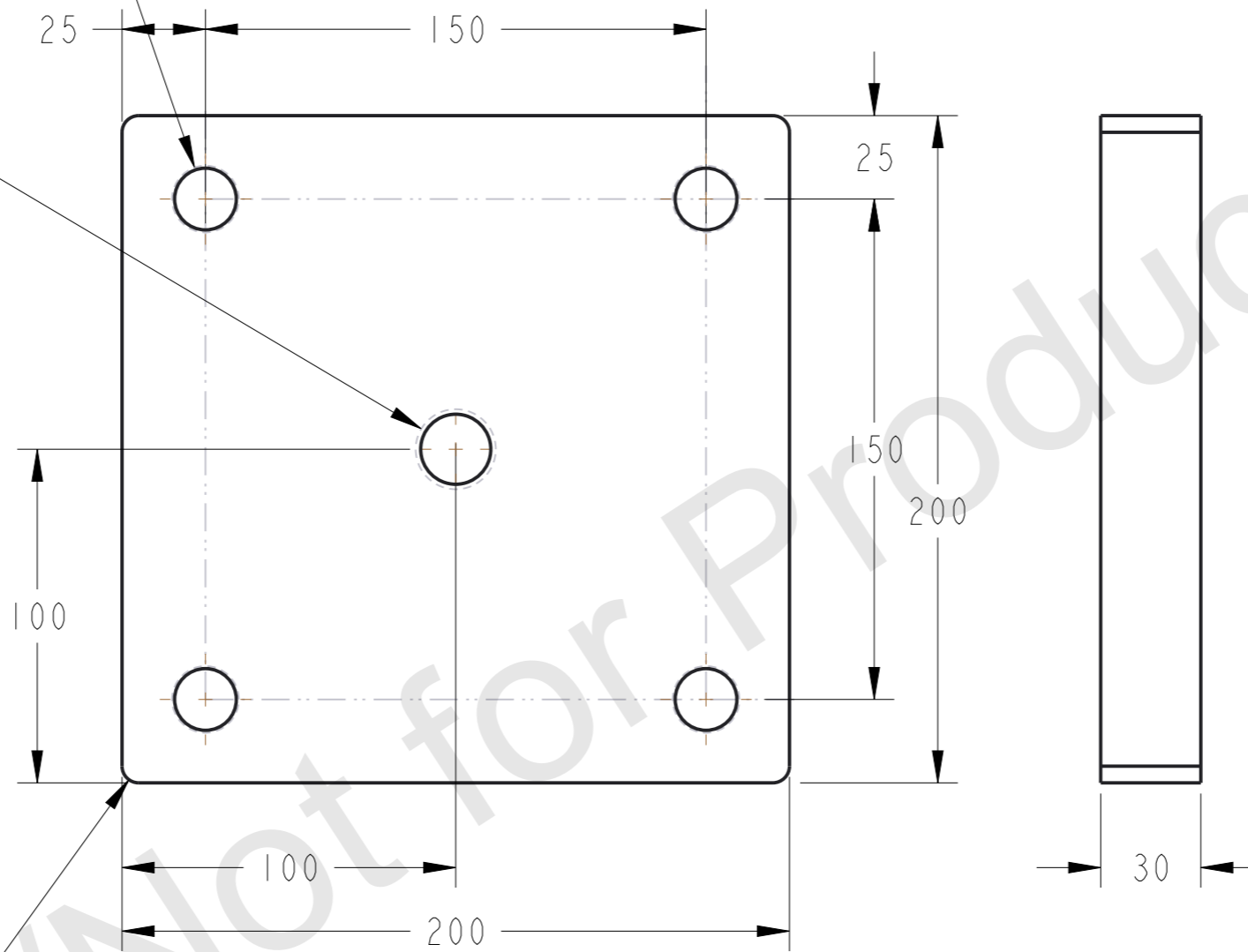
4 HOLES M20x2.5 THRU

\varnothing 0.6

HOLE M24x3 THRU

\varnothing 0.6

R5 TYP



MODIFICATIONS

ISSUE	DATE	NAME	DESCRIPTION
A	Feb-12-20	G. STAVRAKIS	FIRST ISSUE

14 OFF

DEPARTMENT OF PHYSICS
OLIVER LODGE BUILDING



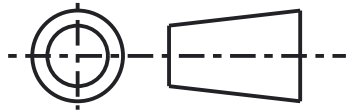
UNIVERSITY OF
LIVERPOOL

PROJECT

DUNE

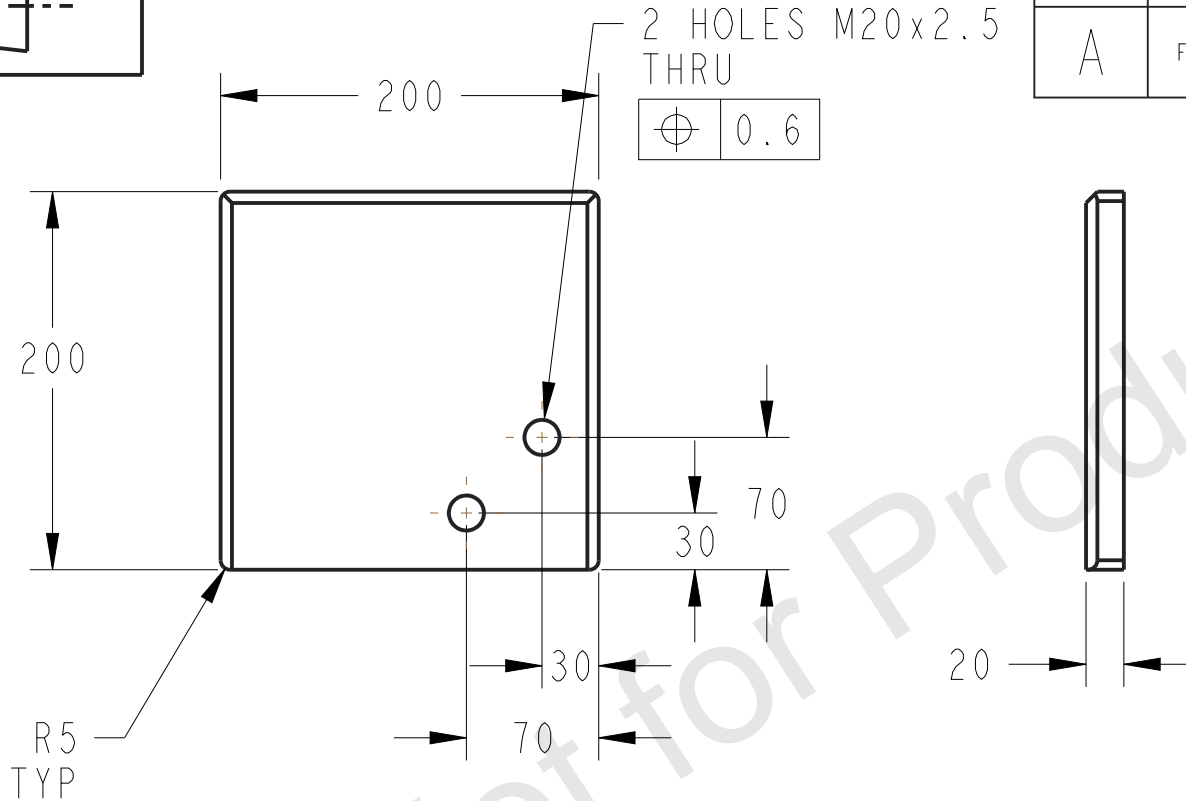
UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN MILLIMETERS SURFACE TEXTURE VALUES IN MICROMETERS SURFACE TEXT TO BE MACHINED MACHINE ALL OVER OR WHERE MARKED ✓	METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRATION TO BS 8888		WELDING SYMBOLS TO BS 2553		TITLE PLATE TYPE A		
	TOLERANCES UNLESS OTHERWISE SPECIFIED MACHINED DIMS ± 2	MATERIAL SPEC	CARBON STEEL EN10025-2:2004 S355J2H	DRAWN G. STAVRAKIS	DATE Feb-12-20	DRAWING NUMBER NP79-01-11		ARRGR. DRAWING NP79-01-02
	ANGULAR ± °	TREATMENT HOT ROLLED	FINISH	CHECKED	APPROVED	SHEET 1 OF 1		SCALE 1:4
	REMOVE BURRS AND BREAK SHARP EDGES	DO NOT SCALE	FINISH	APPROVED	APPROVED	SCALE 1:4		A3

THIRD ANGLE PROJECTION



MODIFICATIONS

ISSUE	DATE	NAME	DESCRIPTION
A	Feb-26-20	G. STAVRAKIS	FIRST ISSUE



4 OFF

UNLESS OTHERWISE SPECIFIED: -
 ALL DIMENSIONS IN MILLIMETERS
 SURFACE TEXTURE VALUES IN MICROMETERS
 SURFACE TEXT TO BE ✓
 MACHINE ALL OVER OR WHERE MARKED ✓

REMOVE BURRS AND BREAK SHARP EDGES

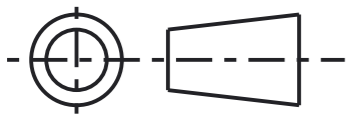
DEPARTMENT OF PHYSICS  UNIVERSITY OF LIVERPOOL
 OLIVER LODGE BUILDING

PROJECT
 DUNE

METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRATION TO BS 8888		WELDING SYMBOLS TO BS 2553	
TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL	CARBON STEEL	DRAWN	G. STAVRAKIS
MACHINED DIMS ± 2	SPEC	EN10025-2:2004 S355J2H	DATE	Feb-26-20
ANGULAR ± °	TREATMENT	HOT ROLLED	CHECKED	
DO NOT SCALE	FINISH		APPROVED	

TITLE PLATE TYPE B	
DRAWING NUMBER NP79-01-12	ARRGR. DRAWING NP79-01-02
SHEET 1 OF 1	SCALE 1:4
	A4

THIRD ANGLE PROJECTION



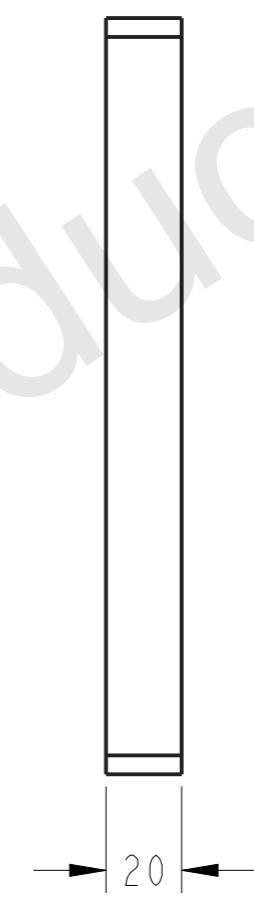
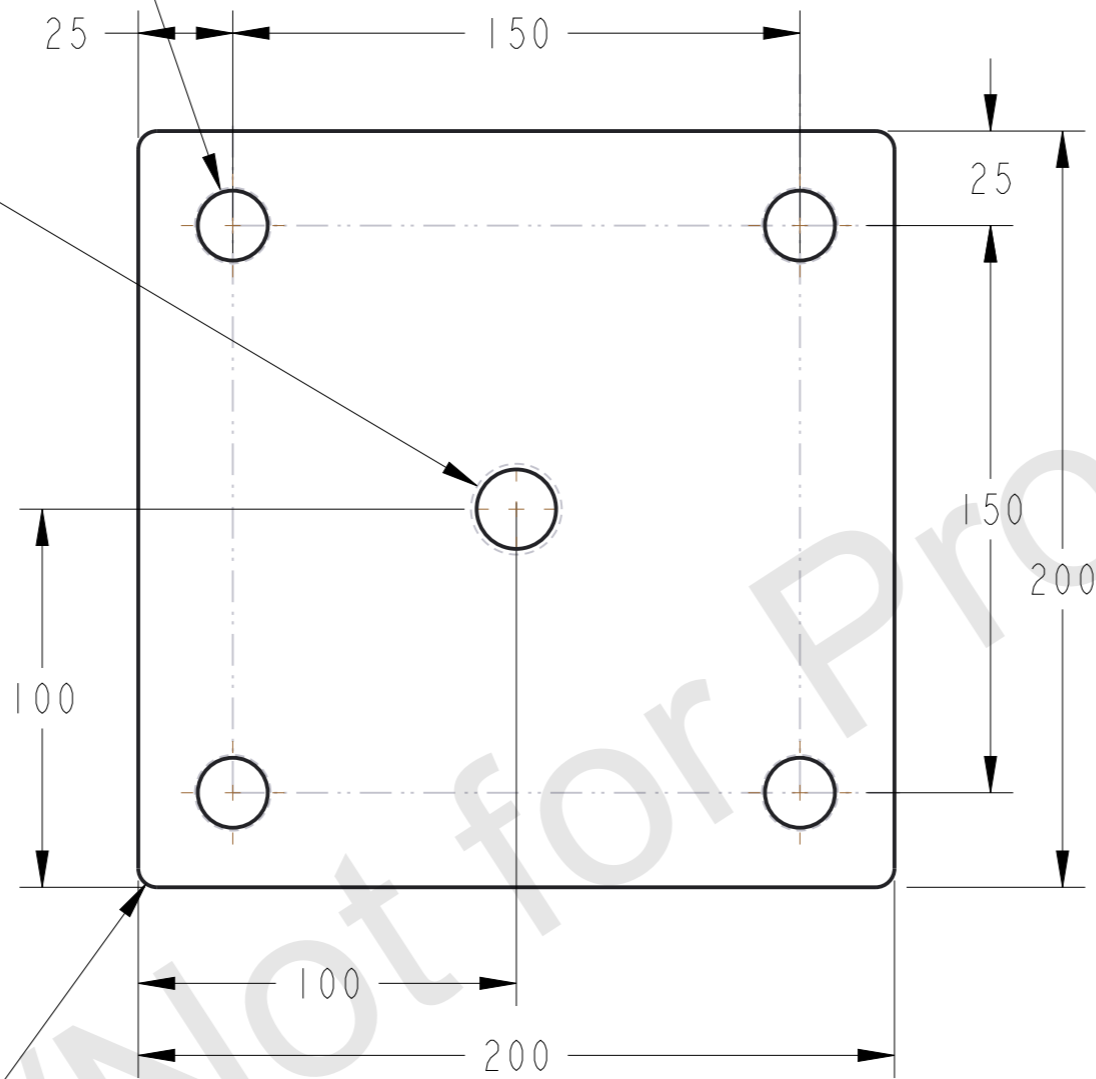
4 HOLES M20x2.5 THRU

\varnothing 0.6

HOLE M24x3 THRU

\varnothing 0.6

R5 TYP



MODIFICATIONS

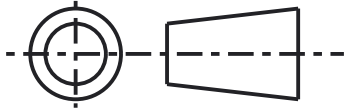
ISSUE	DATE	NAME	DESCRIPTION
A	Feb-12-20	G. STAVRAKIS	FIRST ISSUE

DEPARTMENT OF PHYSICS  UNIVERSITY OF LIVERPOOL
OLIVER LODGE BUILDING

PROJECT
DUNE

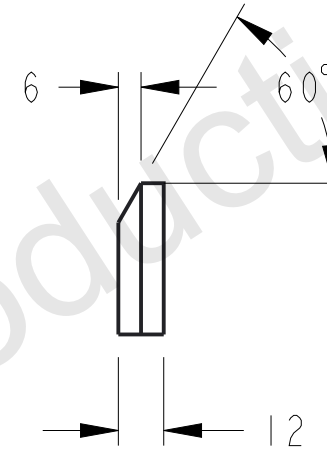
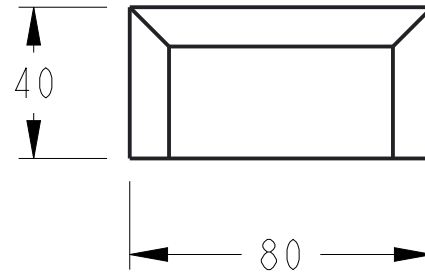
UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN MILLIMETERS SURFACE TEXTURE VALUES IN MICROMETERS SURFACE TEXT TO BE MACHINED MACHINE ALL OVER OR WHERE MARKED ✓	METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRATION TO BS 8888		WELDING SYMBOLS TO BS 2553		TITLE PLATE TYPE E	
	TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL	CARBON STEEL	DRAWN	G. STAVRAKIS	DRAWING NUMBER NP79-01-13	
	MACHINED DIMS ± 2	SPEC	EN10025-2:2004 S355J2H	DATE	Feb-12-20	ARRGR. DRAWING NP79-01-02	
	ANGULAR ± °	TREATMENT	HOT ROLLED	CHECKED			
REMOVE BURRS AND BREAK SHARP EDGES	DO NOT SCALE	FINISH		APPROVED		SHEET 1 OF 1	SCALE 1:4

THIRD ANGLE PROJECTION



MODIFICATIONS

ISSUE	DATE	NAME	DESCRIPTION
A	Mar-11-20	G. STAVRAKIS	FIRST ISSUE



36 OFF

UNLESS OTHERWISE SPECIFIED: -

ALL DIMENSIONS IN MILLIMETERS
 SURFACE TEXTURE VALUES IN MICROMETERS
 SURFACE TEXT TO BE ✓
 MACHINE ALL OVER OR WHERE MARKED ✓

REMOVE BURRS AND BREAK SHARP EDGES

DEPARTMENT OF PHYSICS



UNIVERSITY OF
LIVERPOOL

OLIVER LODGE BUILDING

PROJECT

DUNE

TITLE

CHEEK PLATE 80x40

DRAWING NUMBER

NP79-01-14

ARRGR. DRAWING

NP79-01-05

DO NOT SCALE

FINISH

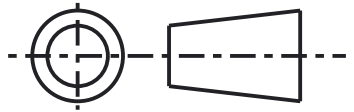
APPROVED

SHEET 1 OF 1

SCALE 1:2

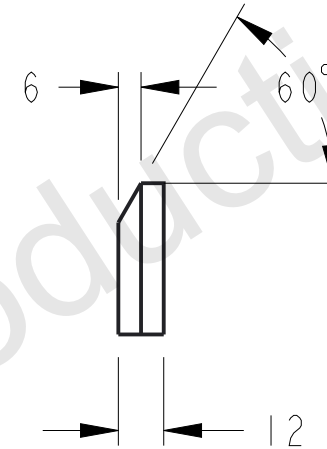
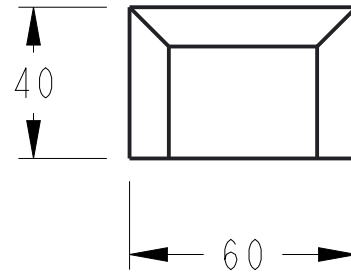
A4

THIRD ANGLE PROJECTION



MODIFICATIONS

ISSUE	DATE	NAME	DESCRIPTION
A	Mar-11-20	G. STAVRAKIS	FIRST ISSUE



20 OFF

UNLESS OTHERWISE SPECIFIED: -

ALL DIMENSIONS IN MILLIMETERS
 SURFACE TEXTURE VALUES IN MICROMETERS
 SURFACE TEXT TO BE ✓
 MACHINE ALL OVER OR WHERE MARKED ✓

REMOVE BURRS AND BREAK SHARP EDGES

DEPARTMENT OF PHYSICS



UNIVERSITY OF
LIVERPOOL

OLIVER LODGE BUILDING

PROJECT

DUNE

TITLE

CHEEK PLATE 60x40

METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRATION TO BS 8888		WELDING SYMBOLS TO BS 2553	
TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL	CARBON STEEL	DRAWN	G. STAVRAKIS
MACHINED DIMS ± 2	SPEC	EN10219 S355J2H	DATE	Mar-11-20
ANGULAR ± °	TREATMENT		CHECKED	
DO NOT SCALE	FINISH		APPROVED	

DRAWING NUMBER

NP79-01-15

ARRGR. DRAWING

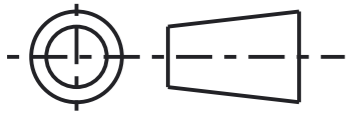
NP79-01-05

SHEET 1 OF 1

SCALE 1:2

A4

THIRD ANGLE PROJECTION

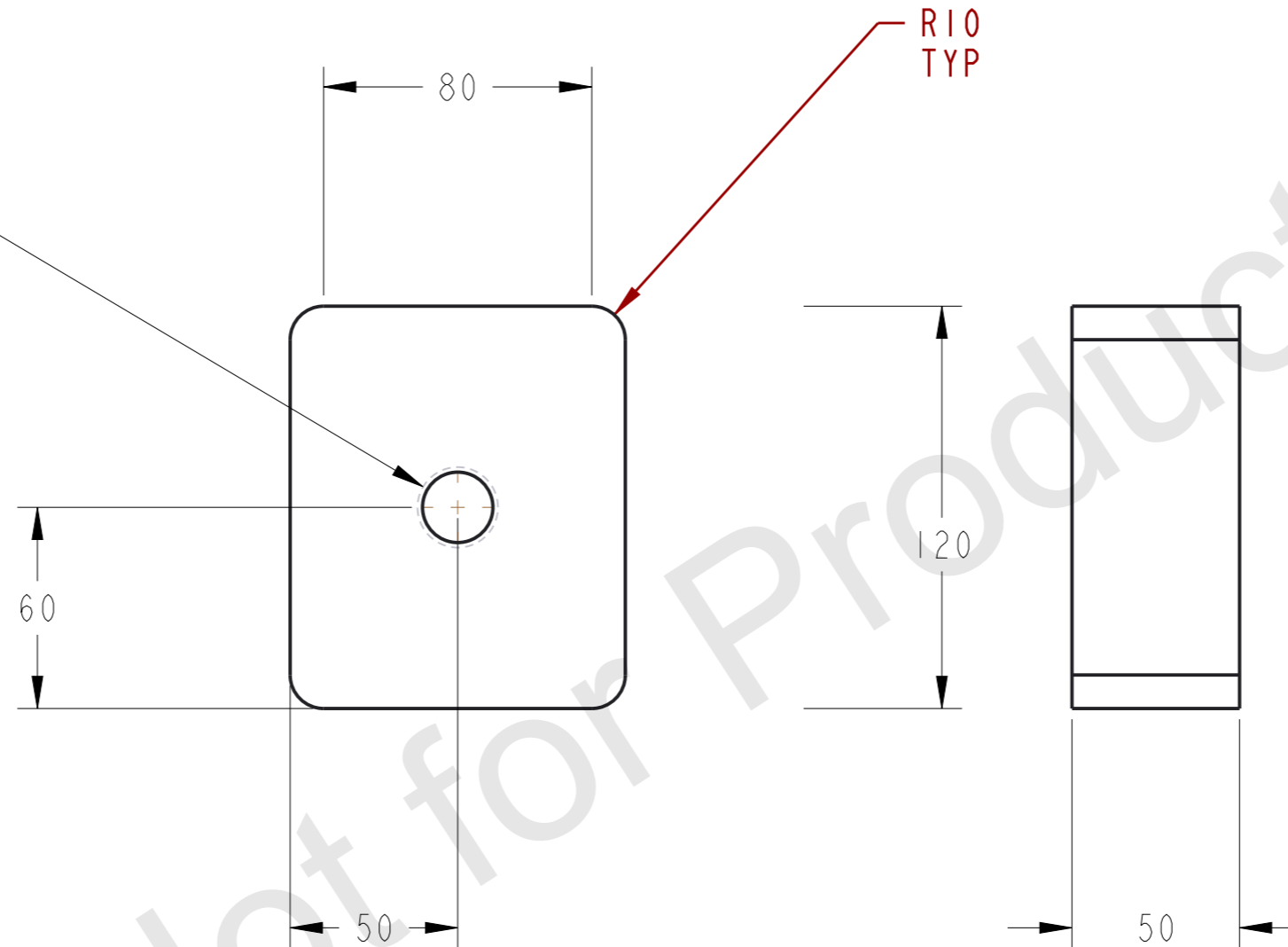


MODIFICATIONS

ISSUE	DATE	NAME	DESCRIPTION
A	Feb-12-20	G. STAVRAKIS	FIRST ISSUE

HOLE M24x3 THRU

\varnothing 0.6



DEPARTMENT OF PHYSICS
OLIVER LODGE BUILDING



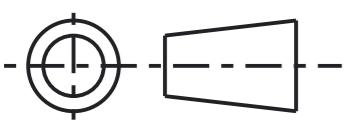
UNIVERSITY OF
LIVERPOOL

PROJECT

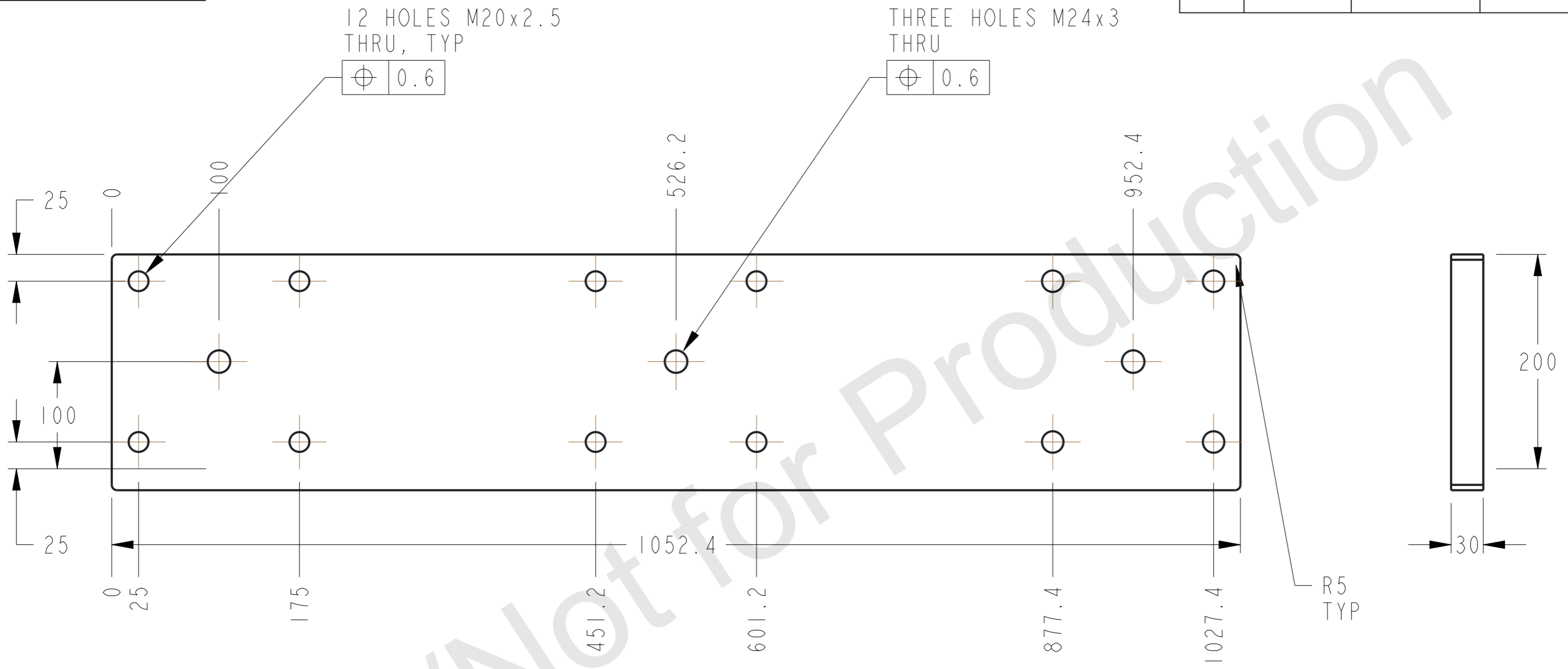
DUNE

UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN MILLIMETERS SURFACE TEXTURE VALUES IN MICROMETERS SURFACE TEXT TO BE MACHINE ALL OVER OR WHERE MARKED ✓	METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRATION TO BS 8888		WELDING SYMBOLS TO BS 2553		TITLE	
	TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL	CARBON STEEL	DRAWN	G. STAVRAKIS	PLATE TYPE C	
	MACHINED DIMS ± 2	SPEC	EN10025-2:2004 S355J2H	DATE	Feb-12-20	DRAWING NUMBER	ARRGR. DRAWING
	ANGULAR ± °	TREATMENT	HOT ROLLED	CHECKED		NP79-01-16	NP79-01-02
REMOVE BURRS AND BREAK SHARP EDGES	DO NOT SCALE	FINISH		APPROVED		SHEET 1 OF 1	SCALE 1:4

THIRD ANGLE PROJECTION



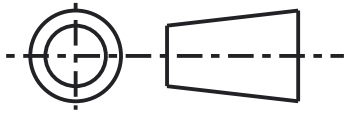
MODIFICATIONS			
ISSUE	DATE	NAME	DESCRIPTION
A	Feb-26-20	G. STAVRAKIS	FIRST ISSUE



DEPARTMENT OF PHYSICS		UNIVERSITY OF
OLIVER LODGE BUILDING		LIVERPOOL
PROJECT		
DUNE		

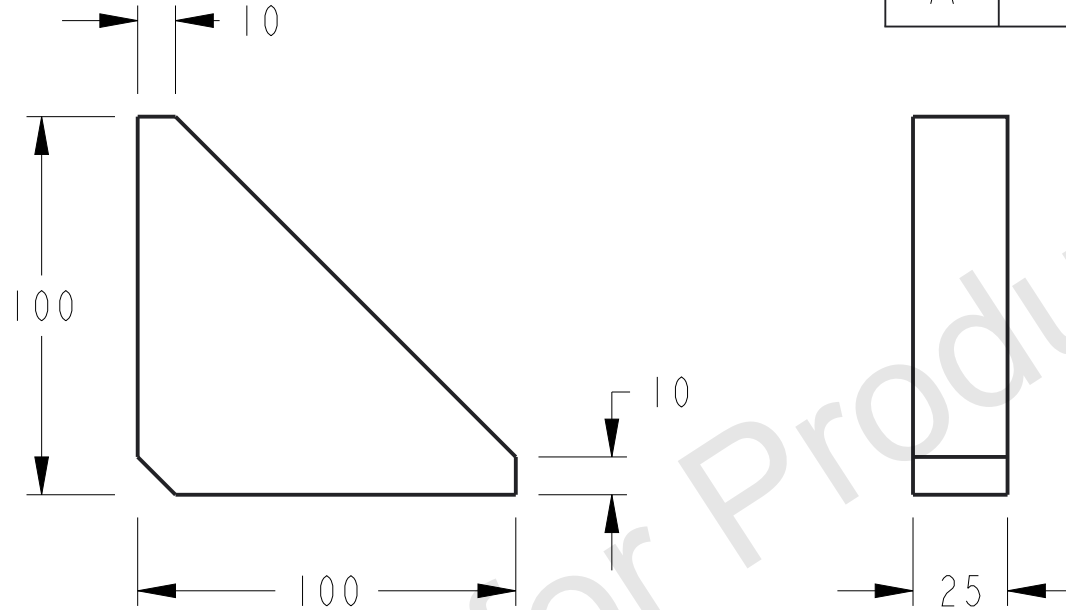
UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN MILLIMETERS SURFACE TEXTURE VALUES IN MICROMETERS SURFACE TEXT TO BE MACHINED MACHINE ALL OVER OR WHERE MARKED ✓	METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRATION TO BS 8888		WELDING SYMBOLS TO BS 2553		TITLE	
	TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL	CARBON STEEL	DRAWN	G. STAVRAKIS	PLATE TYPE D	
	MACHINED DIMS ± 1.2	SPEC	EN10025-2:2004 S355J2H	DATE	Feb-26-20	DRAWING NUMBER	ARRGR. DRAWING
	ANGULAR ± °	TREATMENT		CHECKED		NP79-01-17	NP79-01-05
REMOVE BURRS AND BREAK SHARP EDGES	DO NOT SCALE	FINISH		APPROVED		SHEET 1 OF 1	SCALE 1:4

THIRD ANGLE PROJECTION



MODIFICATIONS

ISSUE	DATE	NAME	DESCRIPTION
A	Feb-27-20	G. STAVRAKIS	FIRST ISSUE



16 OFF

UNLESS OTHERWISE SPECIFIED: -

ALL DIMENSIONS IN MILLIMETERS
 SURFACE TEXTURE VALUES IN MICROMETERS
 SURFACE TEXT TO BE ✓
 MACHINE ALL OVER OR WHERE MARKED ✓

REMOVE BURRS AND BREAK SHARP EDGES

DEPARTMENT OF PHYSICS



UNIVERSITY OF LIVERPOOL

OLIVER LODGE BUILDING

PROJECT

DUNE

TITLE

FRAME CORNER

DRAWING NUMBER

NP79-01-18

ARRGR. DRAWING

NP79-01-05

METRIC SCREW THREADS TO BS3643 CLASS 6H/6g

DRAWING PRACTICE AND TOLERANCE INTERPRATION TO BS 8888

WELDING SYMBOLS TO BS 2553

TOLERANCES UNLESS OTHERWISE SPECIFIED

MATERIAL

CARBON STEEL

DRAWN

G. STAVRAKIS

MACHINED DIMS ± 2

SPEC

EN10210 S355J2H

DATE

Feb-27-20

ANGULAR ± °

TREATMENT

CHECKED

DO NOT SCALE

FINISH

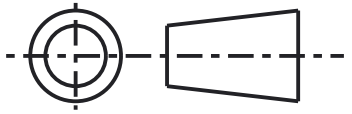
APPROVED

SHEET 1 OF 1

SCALE 1:2

A4

THIRD ANGLE PROJECTION



MODIFICATIONS

ISSUE	DATE	NAME	DESCRIPTION
A	Mar-11-20	G. STAVRAKIS	FIRST ISSUE



2 OFF

UNLESS OTHERWISE SPECIFIED: _

ALL DIMENSIONS IN MILLIMETERS
 SURFACE TEXTURE VALUES IN MICROMETERS
 SURFACE TEXT TO BE ✓
 MACHINE ALL OVER OR WHERE MARKED ✓

REMOVE BURRS AND BREAK SHARP EDGES

DEPARTMENT OF PHYSICS



UNIVERSITY OF
LIVERPOOL

OLIVER LODGE BUILDING

PROJECT

DUNE

TITLE

CHEEK PLATE 280x40

DRAWING NUMBER

NP79-01-19

ARRGR. DRAWING

NP79-01-05

DO NOT SCALE

FINISH

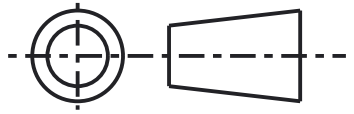
APPROVED

SHEET 1 OF 1

SCALE 1:2

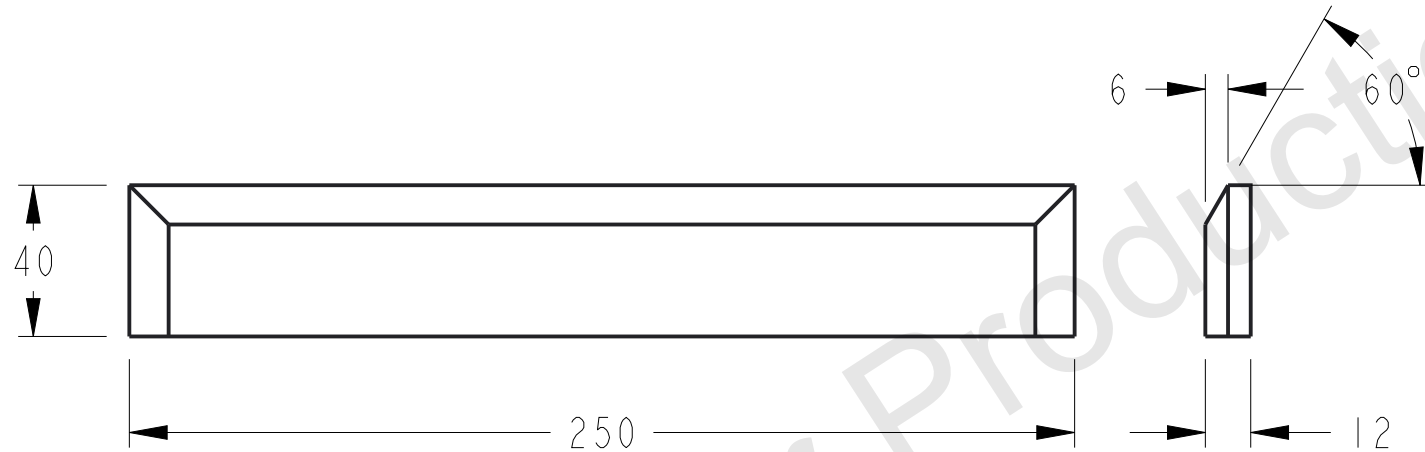
A4

THIRD ANGLE PROJECTION



MODIFICATIONS

ISSUE	DATE	NAME	DESCRIPTION
A	Mar-11-20	G. STAVRAKIS	FIRST ISSUE



2 OFF

UNLESS OTHERWISE SPECIFIED: -

ALL DIMENSIONS IN MILLIMETERS
 SURFACE TEXTURE VALUES IN MICROMETERS
 SURFACE TEXT TO BE ✓
 MACHINE ALL OVER OR WHERE MARKED ✓

REMOVE BURRS AND BREAK SHARP EDGES

DEPARTMENT OF PHYSICS



UNIVERSITY OF
LIVERPOOL

OLIVER LODGE BUILDING

PROJECT

DUNE

TITLE

CHEEK PLATE 250x40

DRAWING NUMBER

NP79-01-20

ARRGR. DRAWING

NP79-01-05

DO NOT SCALE

FINISH

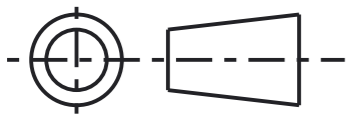
APPROVED

SHEET 1 OF 1

SCALE 1:2

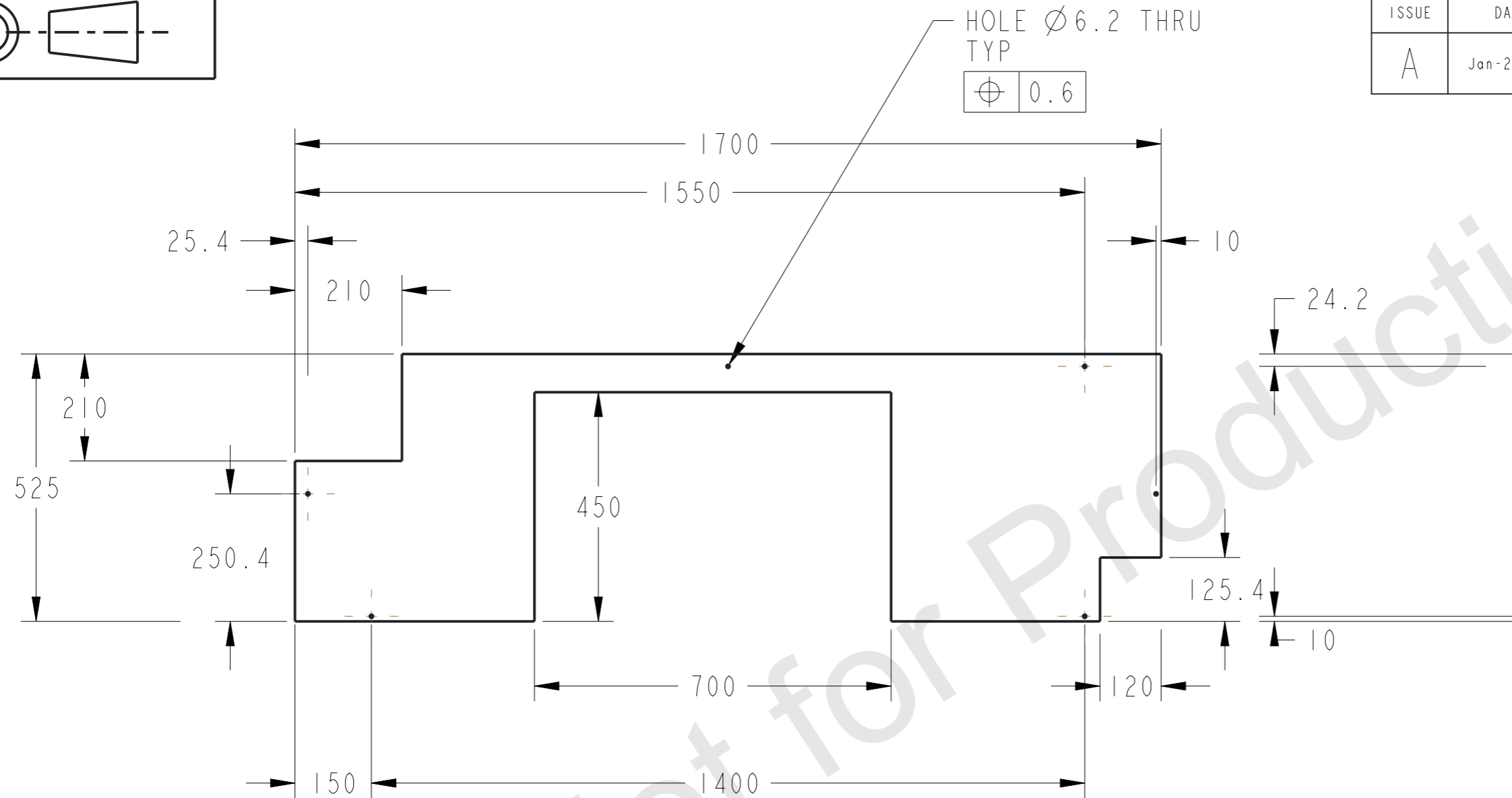
A4

THIRD ANGLE PROJECTION



MODIFICATIONS

ISSUE	DATE	NAME	DESCRIPTION
A	Jan-20-20	G. STAVRAKIS	FIRST ISSUE



2 OFF

DEPARTMENT OF PHYSICS
 OLIVER LODGE BUILDING



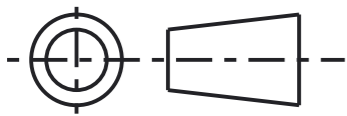
UNIVERSITY OF
LIVERPOOL

PROJECT

DUNE

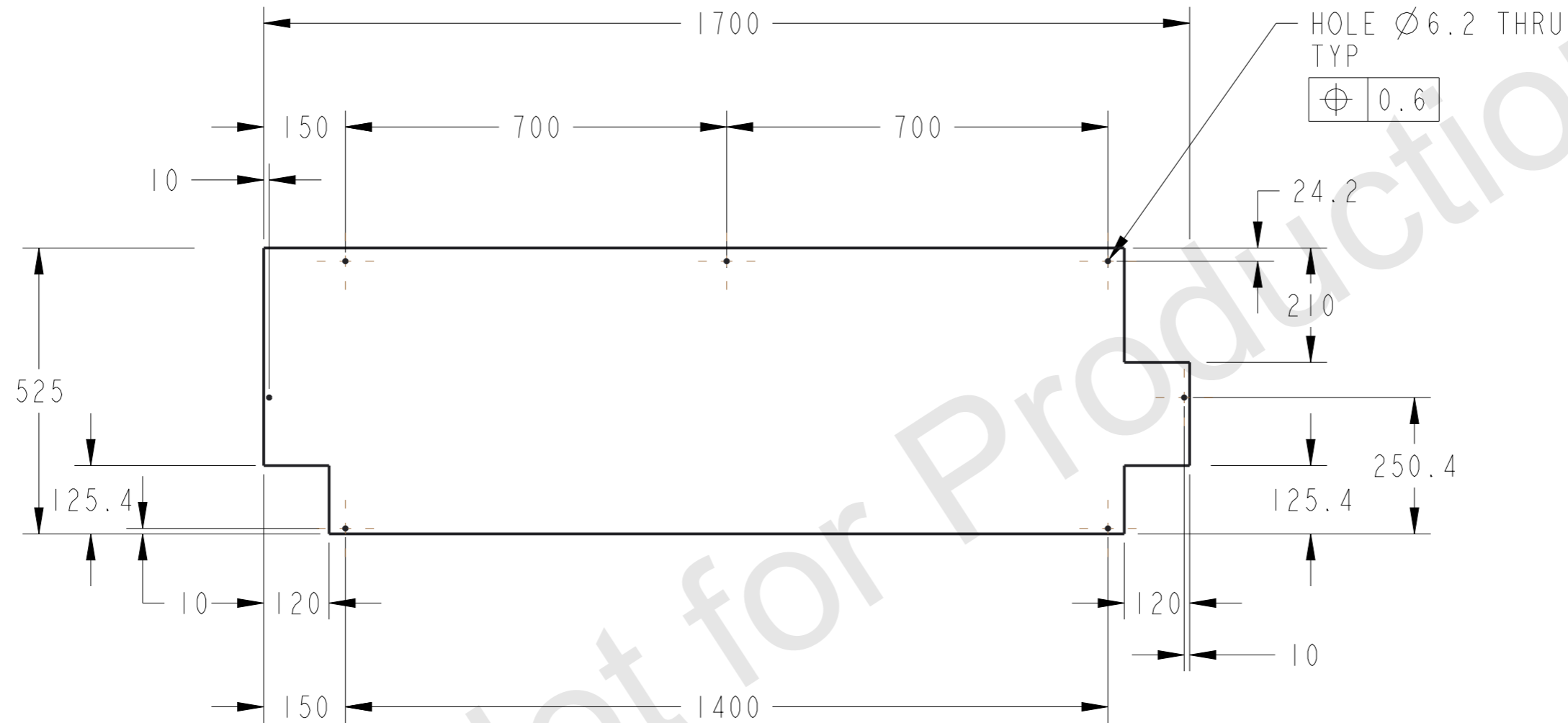
UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN MILLIMETERS SURFACE TEXTURE VALUES IN MICROMETERS SURFACE TEXT TO BE \checkmark MACHINE ALL OVER OR WHERE MARKED \checkmark	METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRATION TO BS 8888		WELDING SYMBOLS TO BS 2553		TITLE	
	TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL	CLEAR PETG	DRAWN	G. STAVRAKIS	PANEL TYPE I 5mm THICK	
	MACHINED DIMS ± 1.2	SPEC		DATE	Jan-20-20	DRAWING NUMBER	ARRGR. DRAWING
	ANGULAR \pm °	TREATMENT		CHECKED		NP79-01-26	NP79-01-02
REMOVE BURRS AND BREAK SHARP EDGES	DO NOT SCALE	FINISH		APPROVED		SHEET 1 OF 1	SCALE 1:10
							A3

THIRD ANGLE PROJECTION



MODIFICATIONS

ISSUE	DATE	NAME	DESCRIPTION
A	Jan-20-20	G. STAVRAKIS	FIRST ISSUE



4 OFF

DEPARTMENT OF PHYSICS
 OLIVER LODGE BUILDING

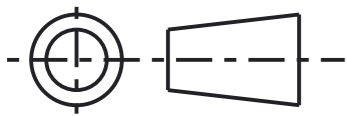


UNIVERSITY OF
LIVERPOOL

PROJECT
 DUNE

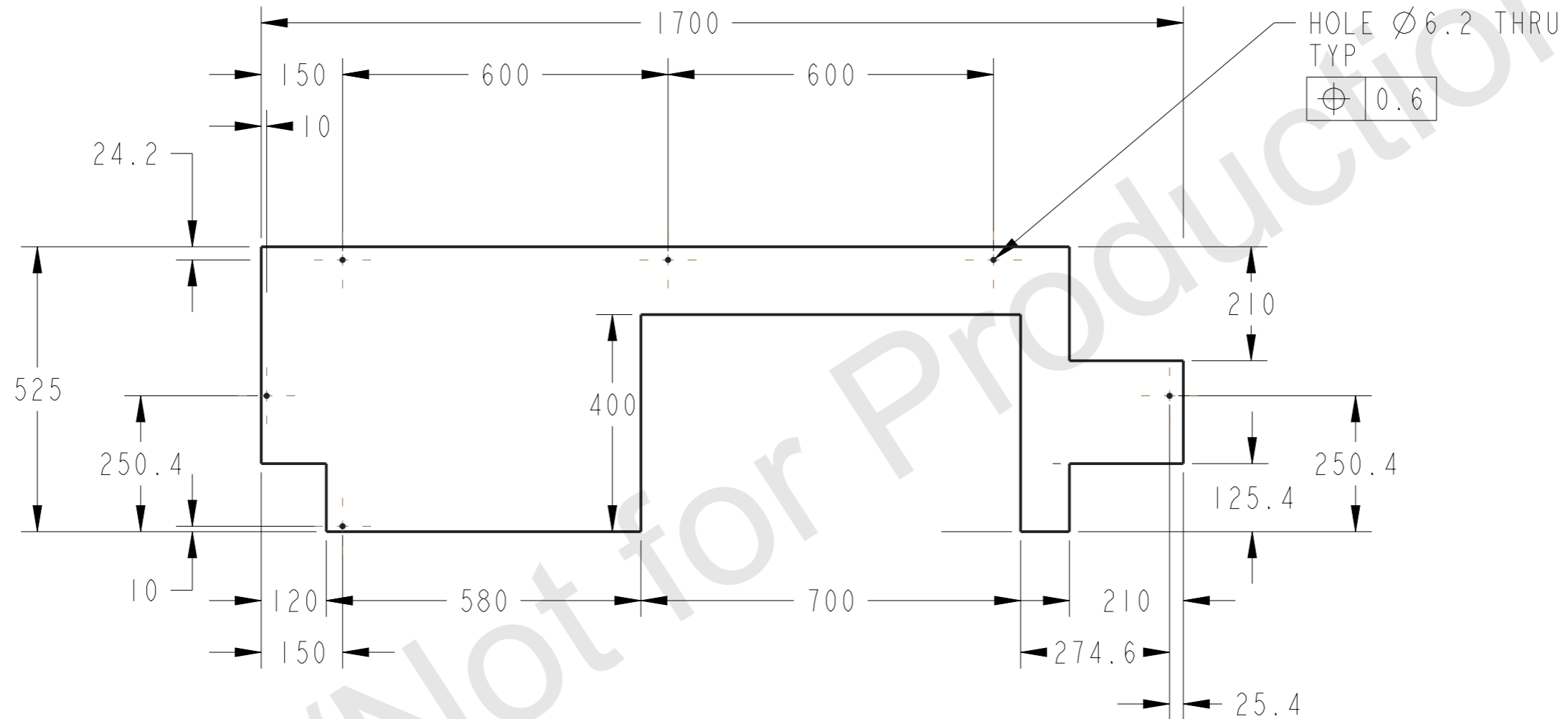
UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN MILLIMETERS SURFACE TEXTURE VALUES IN MICROMETERS SURFACE TEXT TO BE MACHINE ALL OVER OR WHERE MARKED ✓	METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRATION TO BS 8888		WELDING SYMBOLS TO BS 2553		TITLE	
	TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL	CLEAR PETG	DRAWN	G. STAVRAKIS	PANEL TYPE 2 5mm THICK	
	MACHINED DIMS ± 1.2	SPEC		DATE	Jan-20-20	DRAWING NUMBER	ARRGR. DRAWING
	ANGULAR \pm	TREATMENT		CHECKED		NP79-01-27	NP79-01-02
REMOVE BURRS AND BREAK SHARP EDGES	DO NOT SCALE	FINISH		APPROVED		SHEET 1 OF 1	SCALE 1:10
							A3

THIRD ANGLE PROJECTION



MODIFICATIONS

ISSUE	DATE	NAME	DESCRIPTION
A	Jan-20-20	G. STAVRAKIS	FIRST ISSUE



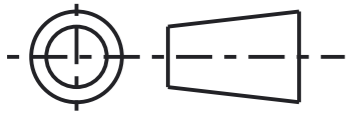
2 OFF

DEPARTMENT OF PHYSICS  UNIVERSITY OF LIVERPOOL
OLIVER LODGE BUILDING

PROJECT
DUNE

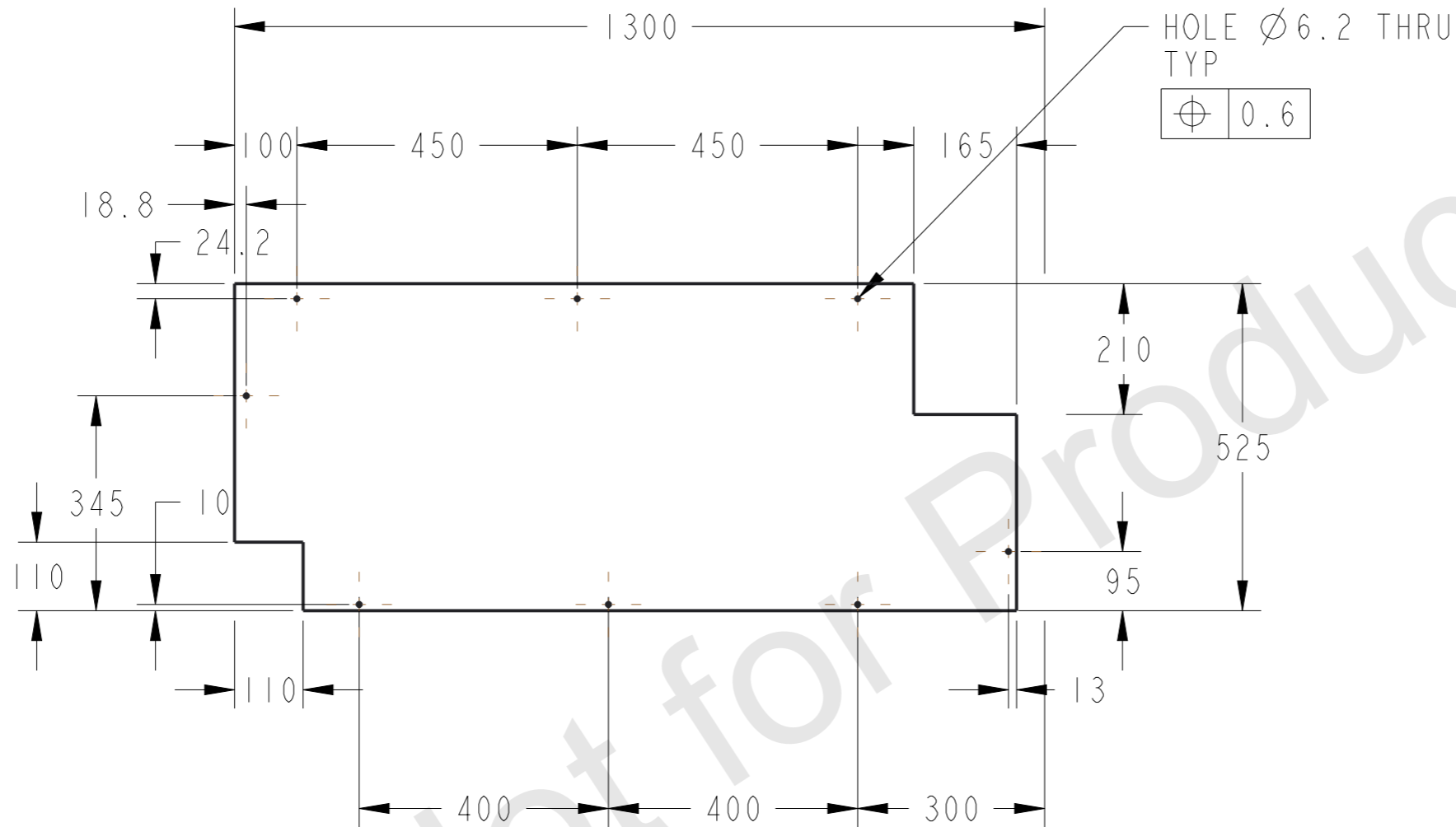
UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN MILLIMETERS SURFACE TEXTURE VALUES IN MICROMETERS SURFACE TEXT TO BE MACHINED \checkmark MACHINE ALL OVER OR WHERE MARKED \checkmark	METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRATION TO BS 8888		WELDING SYMBOLS TO BS 2553		TITLE PANEL TYPE 3 5mm THICK	
	TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL	CLEAR PETG	DRAWN	G. STAVRAKIS	DRAWING NUMBER NP79-01-28	
	MACHINED DIMS ± 1.2	SPEC		DATE	Jan-20-20	ARRGR. DRAWING NP79-01-02	
	ANGULAR \pm	TREATMENT		CHECKED			
REMOVE BURRS AND BREAK SHARP EDGES	DO NOT SCALE	FINISH		APPROVED		SHEET 1 OF 1	SCALE 1:10 A3

THIRD ANGLE PROJECTION



MODIFICATIONS

ISSUE	DATE	NAME	DESCRIPTION
A	Jan-20-20	G. STAVRAKIS	FIRST ISSUE



2 OFF

DEPARTMENT OF PHYSICS
OLIVER LODGE BUILDING



UNIVERSITY OF
LIVERPOOL

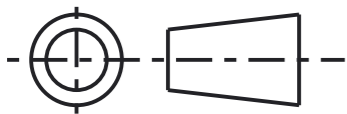
PROJECT

DUNE

UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN MILLIMETERS SURFACE TEXTURE VALUES IN MICROMETERS SURFACE TEXT TO BE MACHINED \checkmark MACHINE ALL OVER OR WHERE MARKED \checkmark	METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRATION TO BS 8888		WELDING SYMBOLS TO BS 2553		TITLE	
	TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL	CLEAR PETG	DRAWN	G. STAVRAKIS	PANEL TYPE 4 5mm THICK	
	MACHINED DIMS ± 1.2	SPEC		DATE	Jan-20-20	DRAWING NUMBER	ARRGR. DRAWING
	ANGULAR \pm	TREATMENT		CHECKED		NP79-01-29	NP79-01-02
REMOVE BURRS AND BREAK SHARP EDGES	DO NOT SCALE	FINISH		APPROVED		SHEET 1 OF 1	SCALE 1:10

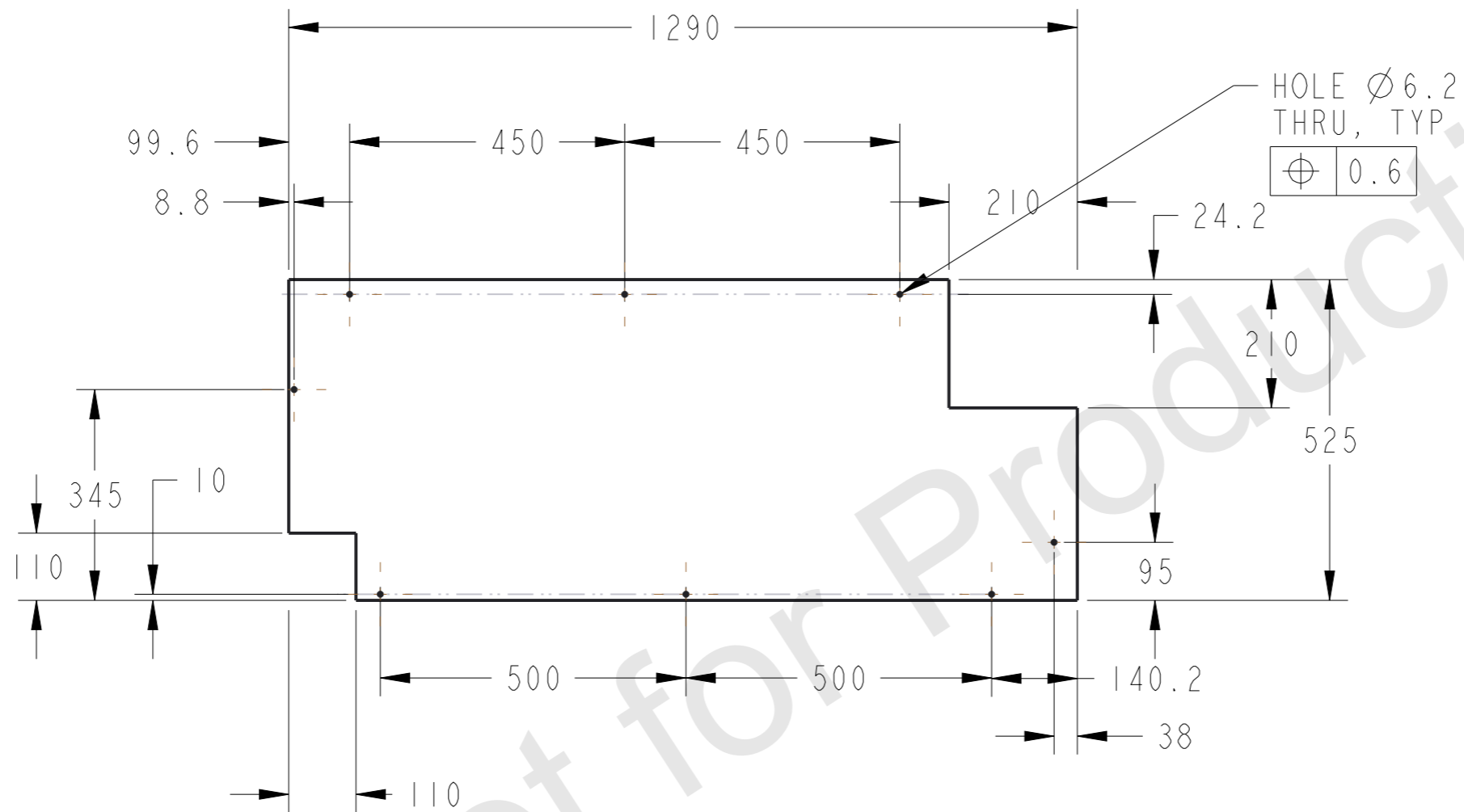
A3

THIRD ANGLE PROJECTION



MODIFICATIONS

ISSUE	DATE	NAME	DESCRIPTION
A	Jan-20-20	G. STAVRAKIS	FIRST ISSUE



2 OFF

DEPARTMENT OF PHYSICS
 OLIVER LODGE BUILDING



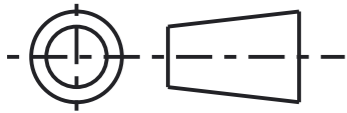
UNIVERSITY OF
LIVERPOOL

PROJECT
 DUNE

UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN MILLIMETERS SURFACE TEXTURE VALUES IN MICROMETERS SURFACE TEXT TO BE MACHINE ALL OVER OR WHERE MARKED ✓	METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRATION TO BS 8888		WELDING SYMBOLS TO BS 2553		TITLE	
	TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL	CLEAR PETG	DRAWN	G. STAVRAKIS	PANEL TYPE 5 5mm THICK	
	MACHINED DIMS ± 1.2	SPEC		DATE	Jan-20-20	DRAWING NUMBER	ARRGR. DRAWING
	ANGULAR \pm °	TREATMENT		CHECKED		NP79-01-30	NP79-01-02
REMOVE BURRS AND BREAK SHARP EDGES	DO NOT SCALE	FINISH		APPROVED		SHEET 1 OF 1	SCALE 1:10

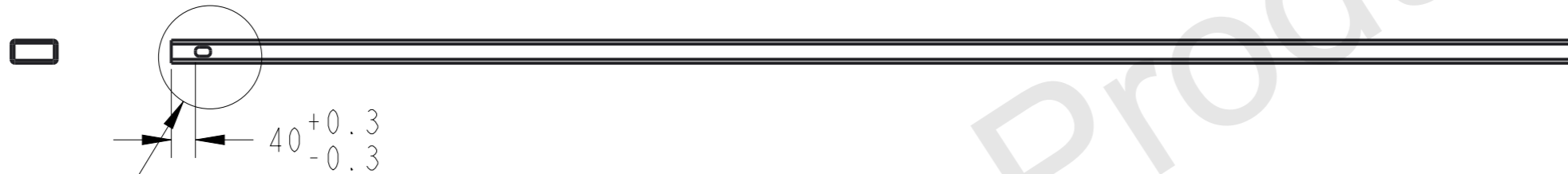
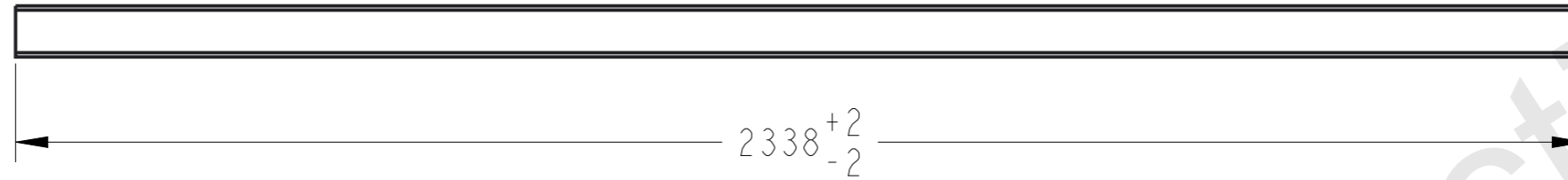
A3

THIRD ANGLE PROJECTION

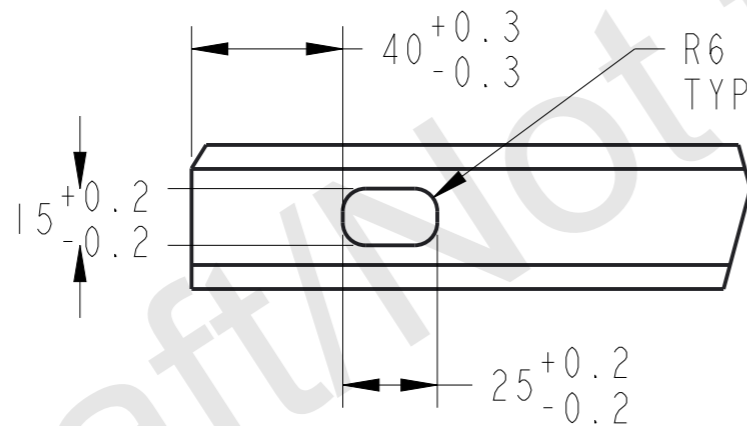


MODIFICATIONS

ISSUE	DATE	NAME	DESCRIPTION
A	Jan-10-20	G. STAVRAKIS	FIRST ISSUE



SEE DETAIL A



DETAIL A
SCALE 1:2

4 OFF

DEPARTMENT OF PHYSICS
OLIVER LODGE BUILDING



UNIVERSITY OF
LIVERPOOL

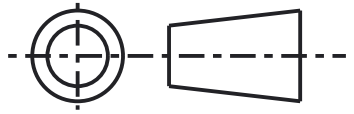
PROJECT

DUNE

UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN MILLIMETERS SURFACE TEXTURE VALUES IN MICROMETERS SURFACE TEXT TO BE MACHINED MACHINE ALL OVER OR WHERE MARKED ✓	METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRATION TO BS 8888		WELDING SYMBOLS TO BS 2553		TITLE	
	TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL	CARBON STEEL	DRAWN	G. STAVRAKIS	TUBE 3 x 1/2 INCH	
	MACHINED DIMS ± 2	SPEC	EN10210 S355J2H	DATE	Jan-10-20	DRAWING NUMBER	ARRGR. DRAWING
	ANGULAR ± °	TREATMENT		CHECKED		NP79-01-32	NP79-01-03
REMOVE BURRS AND BREAK SHARP EDGES	DO NOT SCALE	FINISH		APPROVED		SHEET 1 OF 1	SCALE 1:10

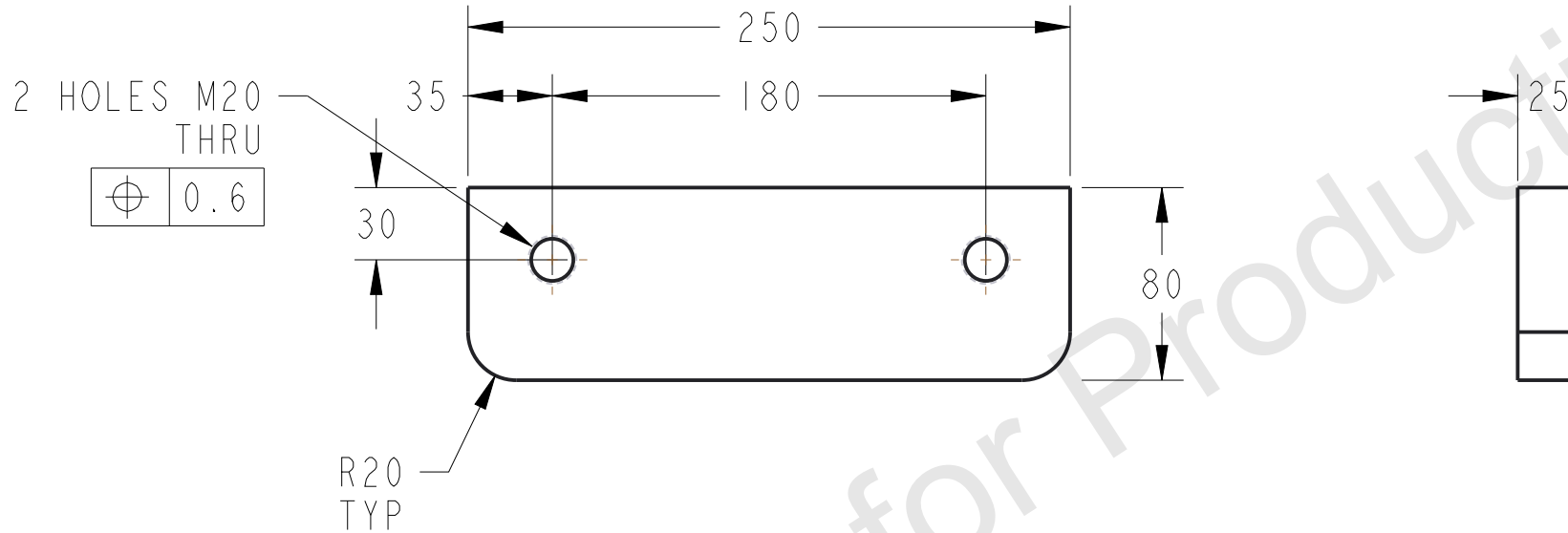
A3

THIRD ANGLE PROJECTION



MODIFICATIONS

ISSUE	DATE	NAME	DESCRIPTION
A	Feb-26-20	G. STAVRAKIS	FIRST ISSUE



4 OFF

UNLESS OTHERWISE SPECIFIED: -

ALL DIMENSIONS IN MILLIMETERS
 SURFACE TEXTURE VALUES IN MICROMETERS
 SURFACE TEXT TO BE ✓
 MACHINE ALL OVER OR WHERE MARKED ✓

REMOVE BURRS AND BREAK SHARP EDGES

DEPARTMENT OF PHYSICS



UNIVERSITY OF
 LIVERPOOL

OLIVER LODGE BUILDING

PROJECT

DUNE

METRIC SCREW THREADS
 TO BS3643 CLASS 6H/6g

DRAWING PRACTICE AND TOLERANCE
 INTERPRATION TO BS 8888

WELDING SYMBOLS TO BS 2553

TITLE

BOTTOM WIELDED PLATE

TOLERANCES
 UNLESS OTHERWISE SPECIFIED

MATERIAL

CARBON STEEL

DRAWN

G. STAVRAKIS

MACHINED DIMS ± 2

SPEC

EN10210 S355J2H

DATE

Feb-26-20

DRAWING NUMBER

NP79-01-33

ARRGR. DRAWING

NP79-01-02

ANGULAR ± °

TREATMENT

CHECKED

DO NOT SCALE

FINISH

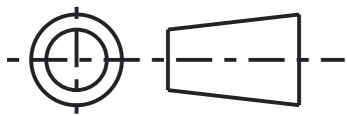
APPROVED

SHEET 1 OF 1

SCALE 1:3

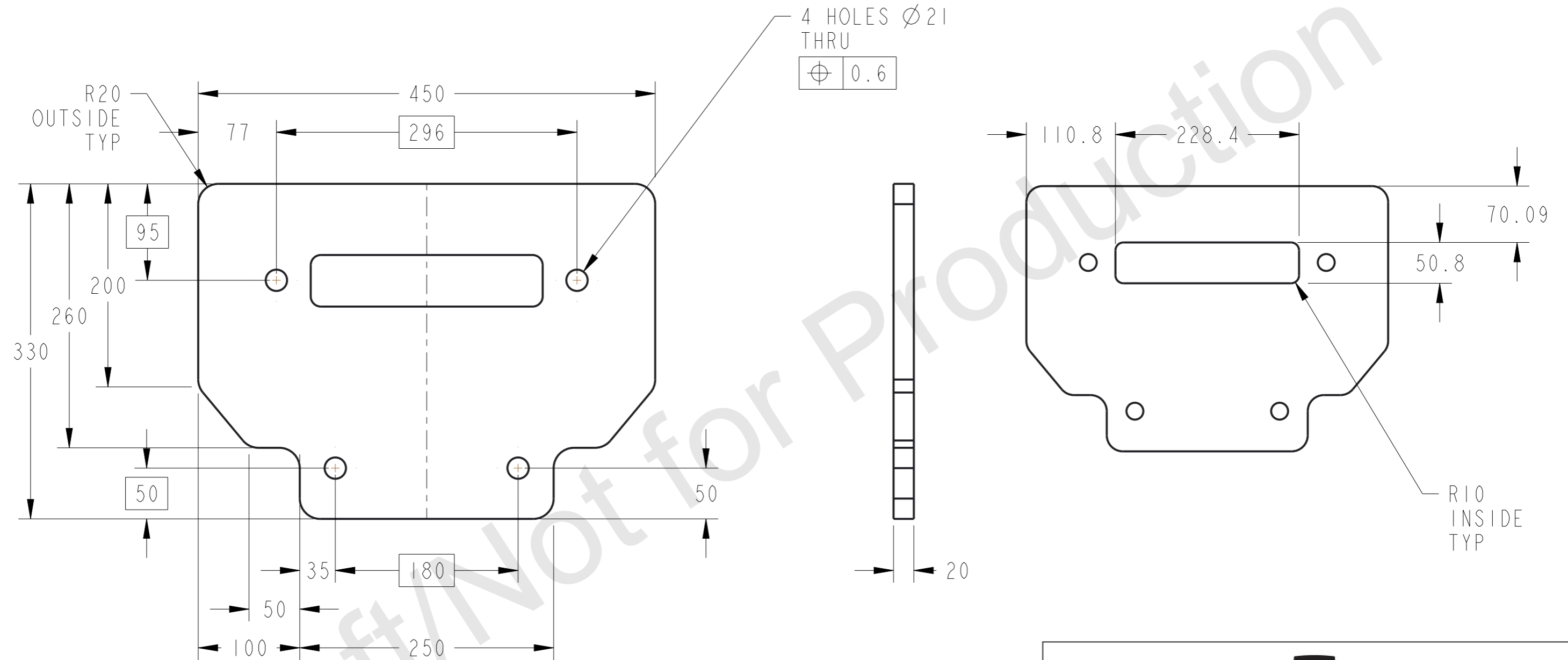
A4

THIRD ANGLE PROJECTION



MODIFICATIONS

ISSUE	DATE	NAME	DESCRIPTION
A	Jan-15-20	G. STAVRAKIS	FIRST ISSUE



8 OFF

DEPARTMENT OF PHYSICS
 OLIVER LODGE BUILDING



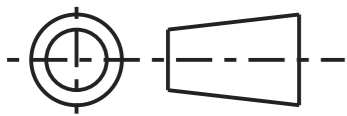
UNIVERSITY OF
LIVERPOOL

PROJECT
 DUNE

UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN MILLIMETERS SURFACE TEXTURE VALUES IN MICROMETERS SURFACE TEXT TO BE MACHINE ALL OVER OR WHERE MARKED ✓	METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRATION TO BS 8888		WELDING SYMBOLS TO BS 2553		TITLE	
	TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL	CARBON STEEL	DRAWN	G. STAVRAKIS	ATTACHMENT PLATE	
	MACHINED DIMS ± 1.2	SPEC	EN10210 S355J2H	DATE	Jan-15-20	DRAWING NUMBER	ARRGR. DRAWING
	ANGULAR \pm	TREATMENT		CHECKED		NP79-01-34	NP79-01-01
REMOVE BURRS AND BREAK SHARP EDGES	DO NOT SCALE	FINISH		APPROVED		SHEET 1 OF 1	SCALE 1:6

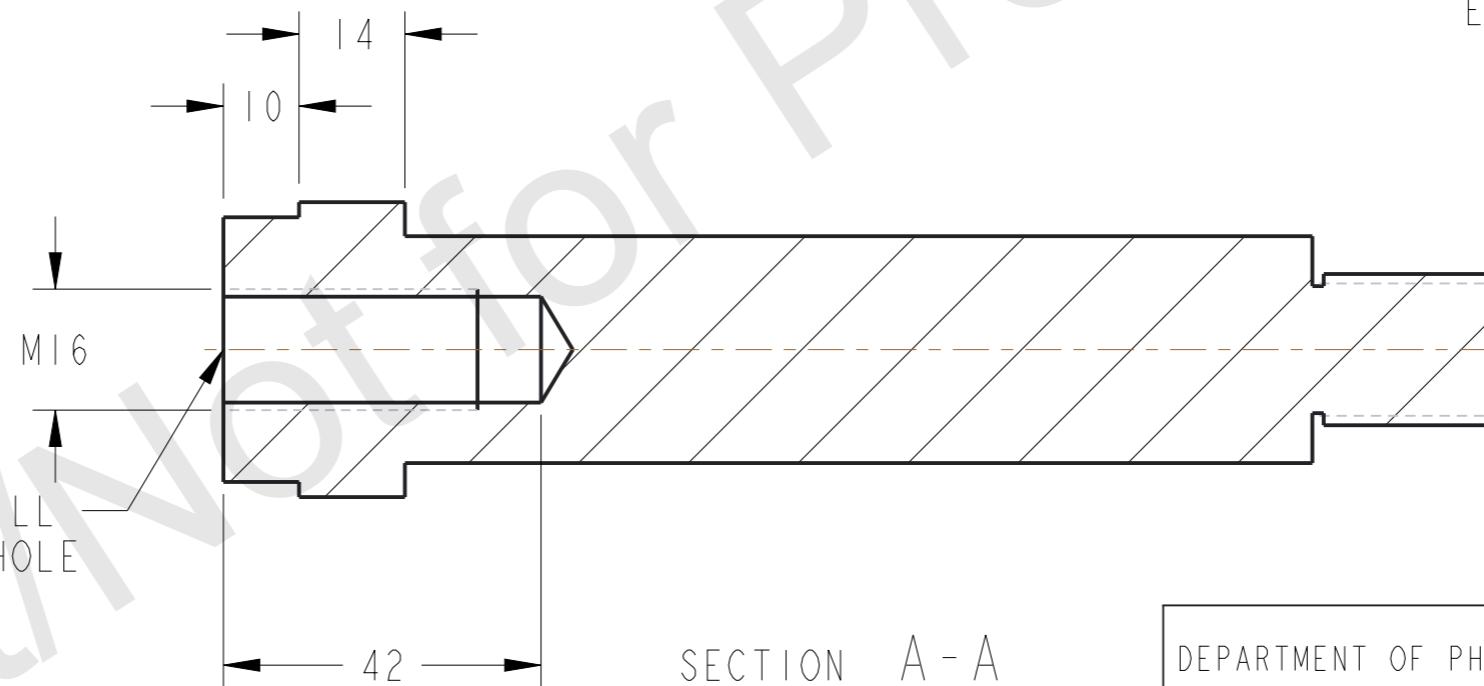
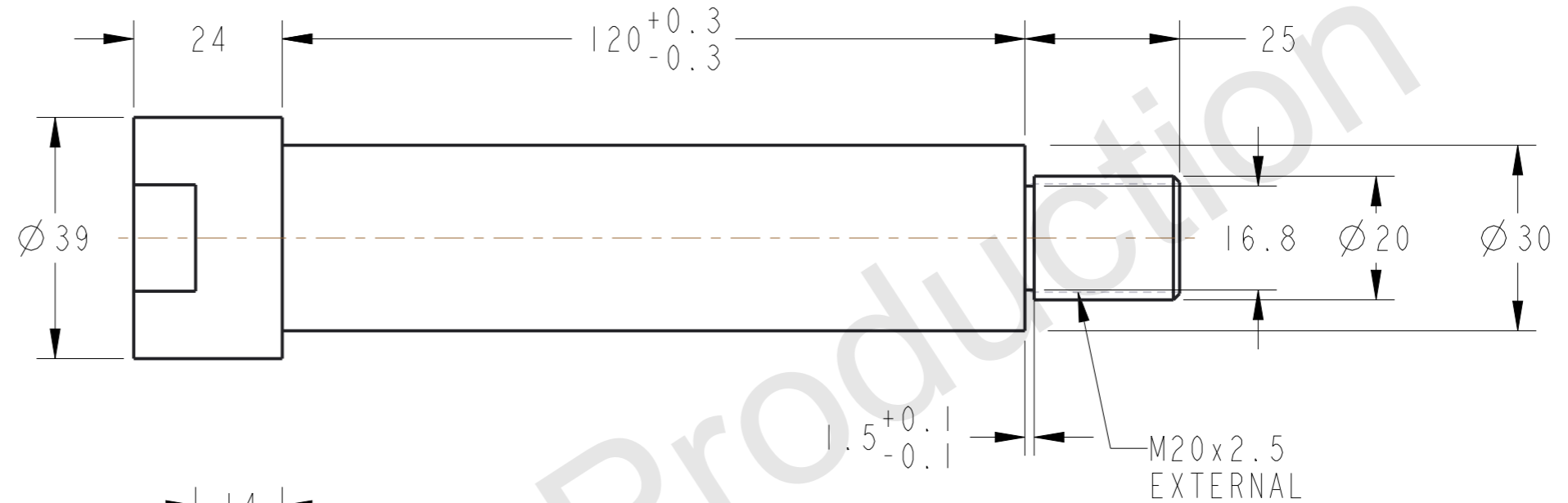
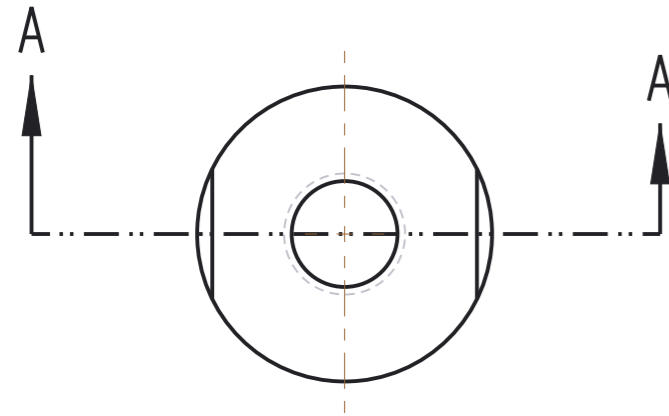
A3

THIRD ANGLE PROJECTION



MODIFICATIONS

ISSUE	DATE	NAME	DESCRIPTION
A	Jan-10-20	G. STAVRAKIS	FIRST ISSUE



M16x2 ISO - H TAP ∇ 33.600 14 DRILL
(14.000) ∇ 42.000 - (1) HOLE

16 OFF

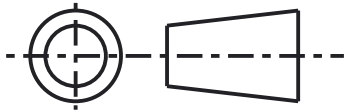
SECTION A - A

DEPARTMENT OF PHYSICS  UNIVERSITY OF LIVERPOOL
OLIVER LODGE BUILDING

PROJECT
DUNE

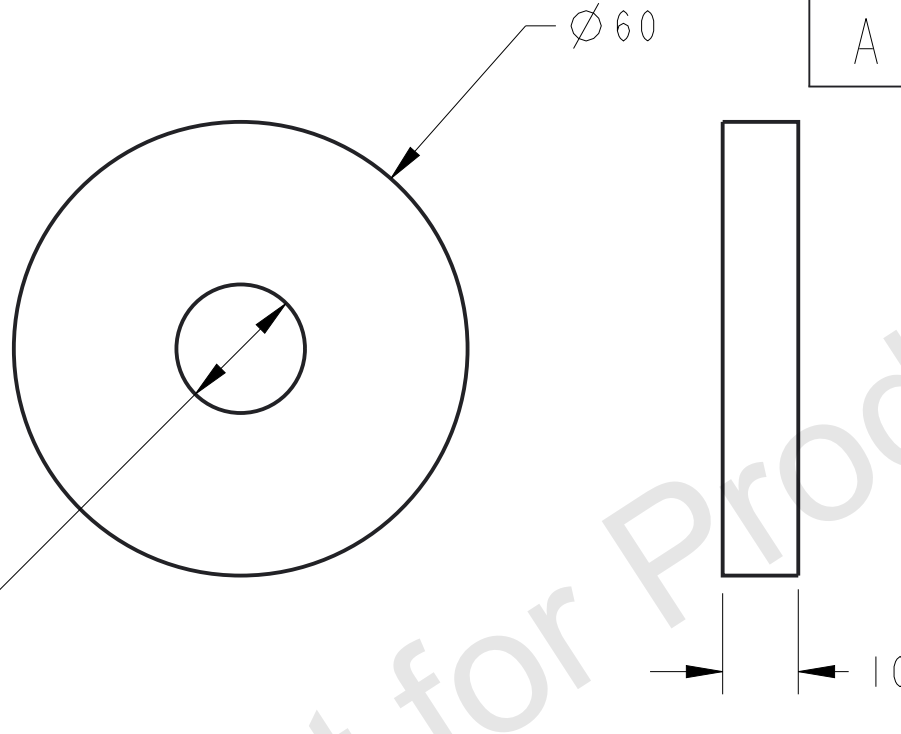
UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN MILLIMETERS SURFACE TEXTURE VALUES IN MICROMETERS SURFACE TEXT TO BE \checkmark MACHINE ALL OVER OR WHERE MARKED \checkmark	METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRATION TO BS 8888		WELDING SYMBOLS TO BS 2553		TITLE M16 ADAPTOR TO M20		
	TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL	ST. ST. 304	DRAWN	G. STAVRAKIS	DRAWING NUMBER NP79-01-35	ARRGR. DRAWING NP79-01	
	MACHINED DIMS \pm	SPEC		DATE	Jan-10-20			
	ANGULAR \pm °	TREATMENT	SILVER PLATED	CHECKED				
REMOVE BURRS AND BREAK SHARP EDGES	DO NOT SCALE	FINISH		APPROVED		SHEET 1 OF 1	SCALE 1:1	A3

THIRD ANGLE PROJECTION



MODIFICATIONS

ISSUE	DATE	NAME	DESCRIPTION
A	Feb-26-20	G. STAVRAKIS	FIRST ISSUE



16 OFF

UNLESS OTHERWISE SPECIFIED: -
 ALL DIMENSIONS IN MILLIMETERS
 SURFACE TEXTURE VALUES IN MICROMETERS
 SURFACE TEXT TO BE ✓
 MACHINE ALL OVER OR WHERE MARKED ✓

DEPARTMENT OF PHYSICS  UNIVERSITY OF LIVERPOOL
 OLIVER LODGE BUILDING

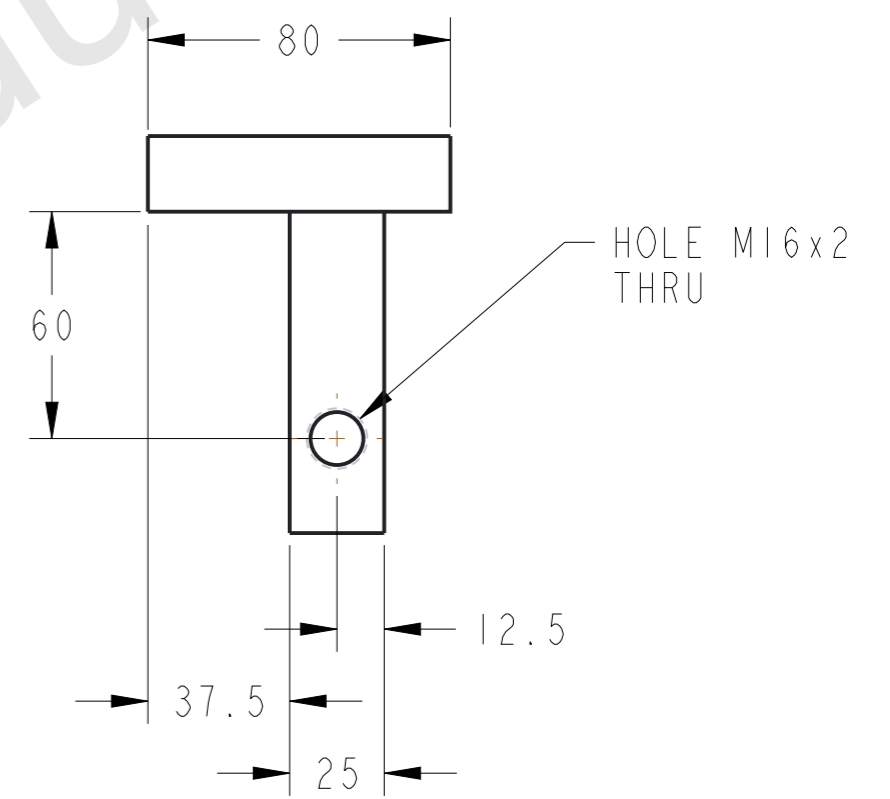
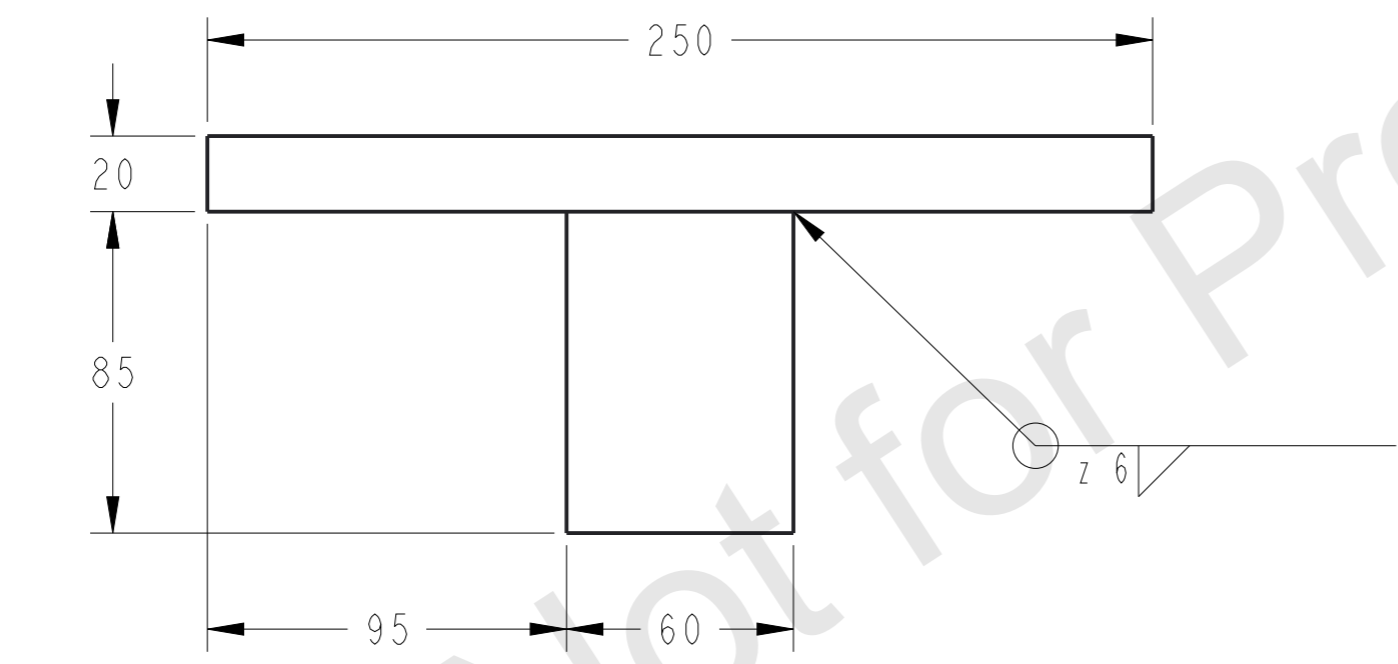
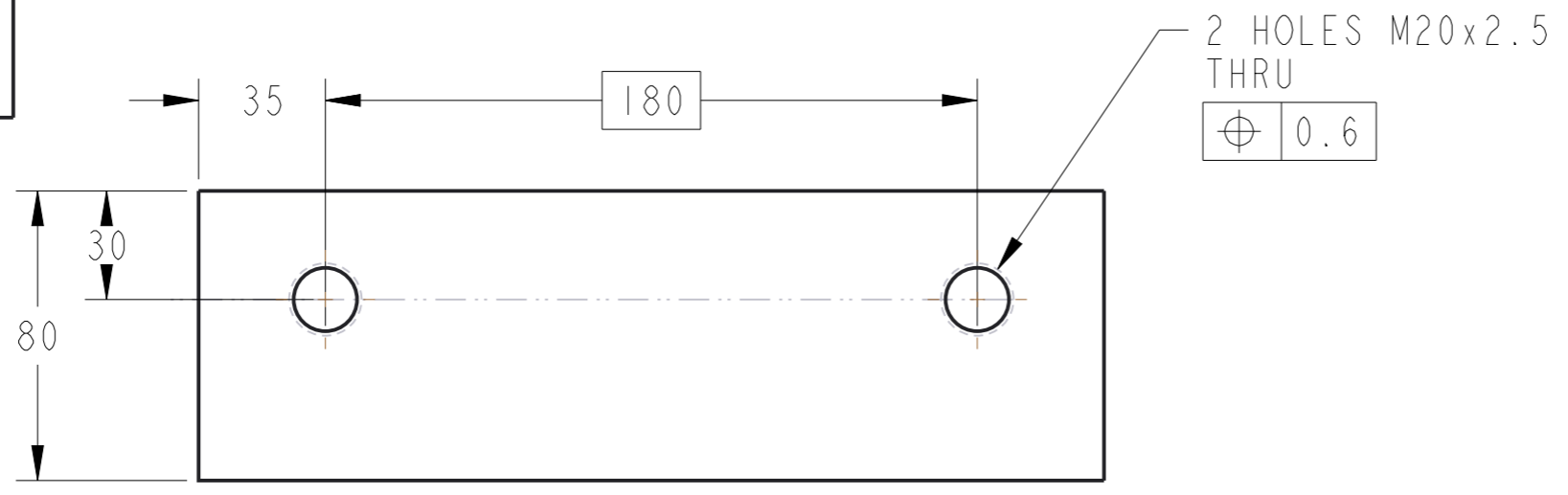
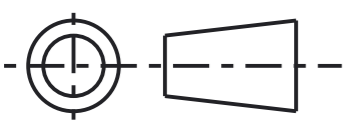
PROJECT
 DUNE

REMOVE BURRS AND BREAK SHARP EDGES

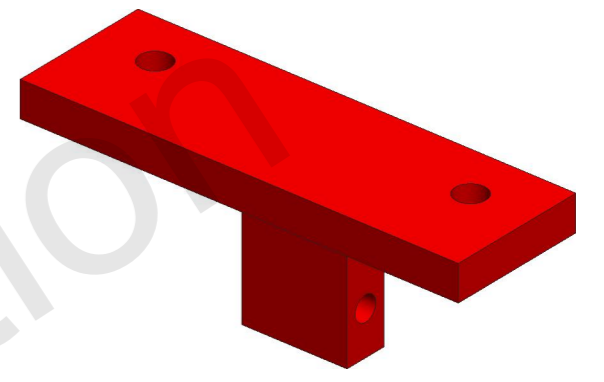
METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRATION TO BS 8888		WELDING SYMBOLS TO BS 2553	
TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL	CARBON STEEL	DRAWN	G. STAVRAKIS
MACHINED DIMS ± 2	SPEC	EN10025-2: 2004 S355J2H	DATE	Feb-26-20
ANGULAR ± °	TREATMENT		CHECKED	
DO NOT SCALE	FINISH		APPROVED	

TITLE	
MI6 WASHER	
DRAWING NUMBER	ARRGR. DRAWING
NP79-01-36	NP79-01-02
SHEET 1 OF 1	SCALE 1:1
	A4

THIRD ANGLE PROJECTION



MODIFICATIONS			
ISSUE	DATE	NAME	DESCRIPTION
A	Jan-10-20	G. STAVRAKIS	FIRST ISSUE



4 OFF

DEPARTMENT OF PHYSICS
OLIVER LODGE BUILDING



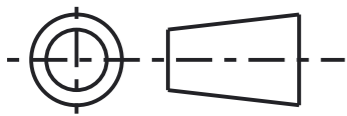
UNIVERSITY OF
LIVERPOOL

PROJECT
DUNE

UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN MILLIMETERS SURFACE TEXTURE VALUES IN MICROMETERS SURFACE TEXT TO BE MACHINED MACHINE ALL OVER OR WHERE MARKED ✓	METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRATION TO BS 8888		WELDING SYMBOLS TO BS 2553	
	TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL	CARBON STEEL	DRAWN	G. STAVRAKIS
	MACHINED DIMS ± 2	SPEC	EN10025-2: 2004 S355J2H	DATE	Jan-10-20
	ANGULAR ± °	TREATMENT		CHECKED	
REMOVE BURRS AND BREAK SHARP EDGES	DO NOT SCALE	FINISH		APPROVED	

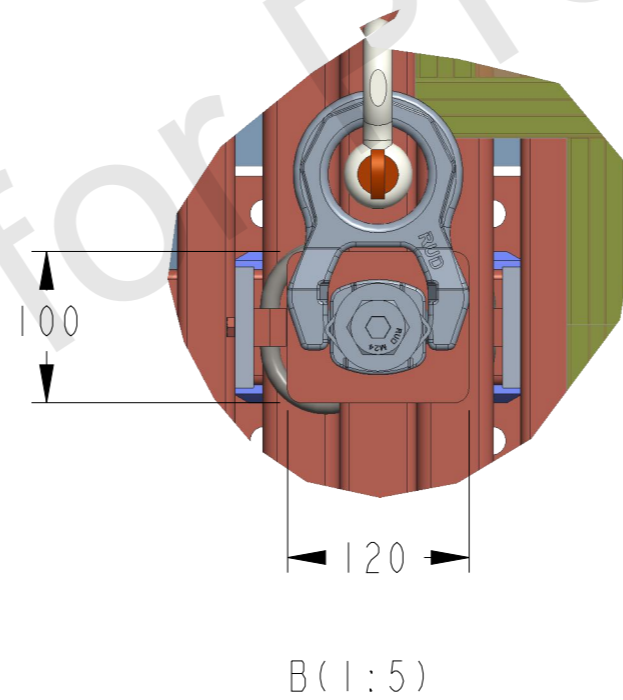
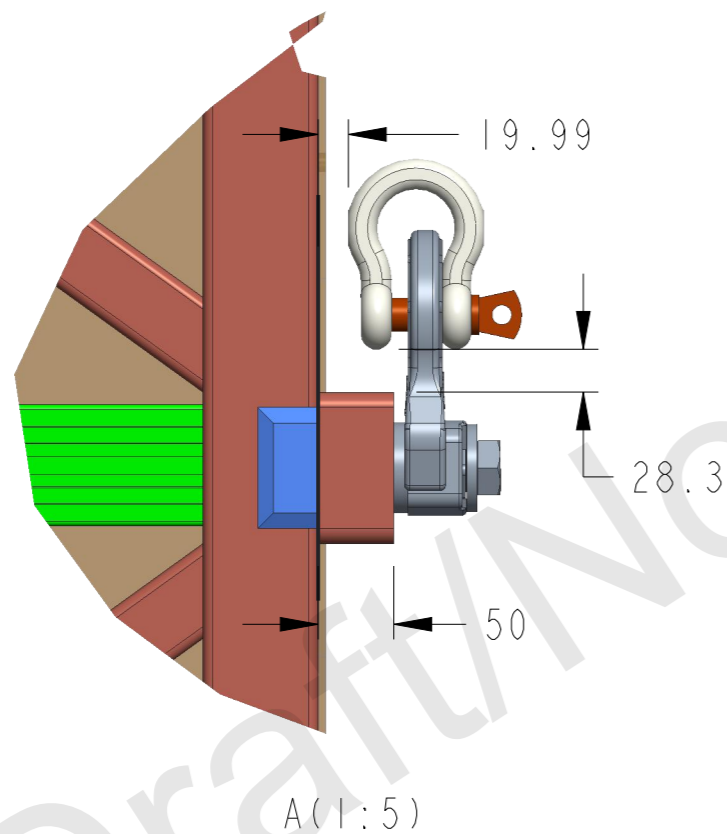
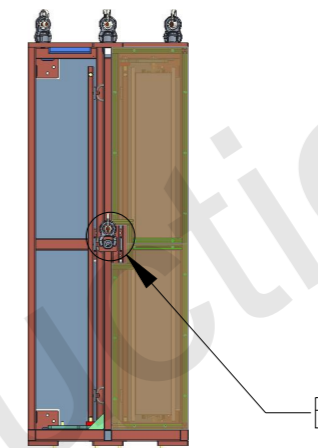
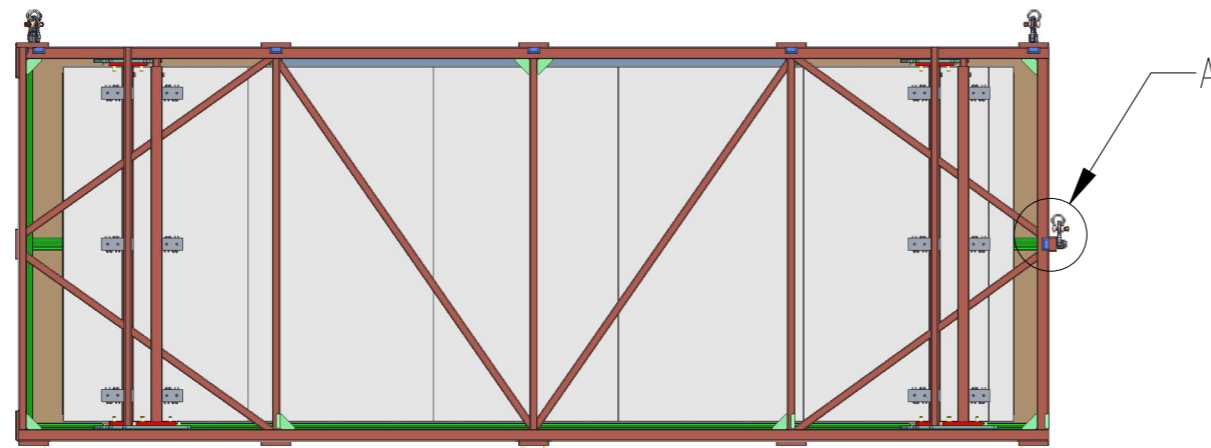
TITLE LARGE SLOT BEAM	
DRAWING NUMBER NP79-01-37	ARRGR. DRAWING NP79-01-03
SHEET 1 OF 1	SCALE 1:2
	A3

THIRD ANGLE PROJECTION



MODIFICATIONS

ISSUE	DATE	NAME	DESCRIPTION
A	26-Mar-20	G. STAVRAKIS	FIRST ISSUE



DEPARTMENT OF PHYSICS
OLIVER LODGE BUILDING



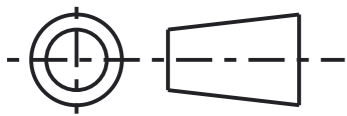
UNIVERSITY OF
LIVERPOOL

PROJECT

DUNE

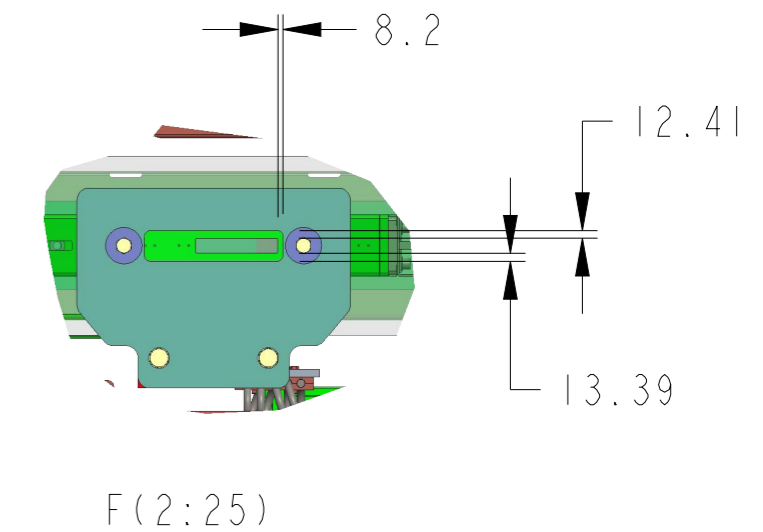
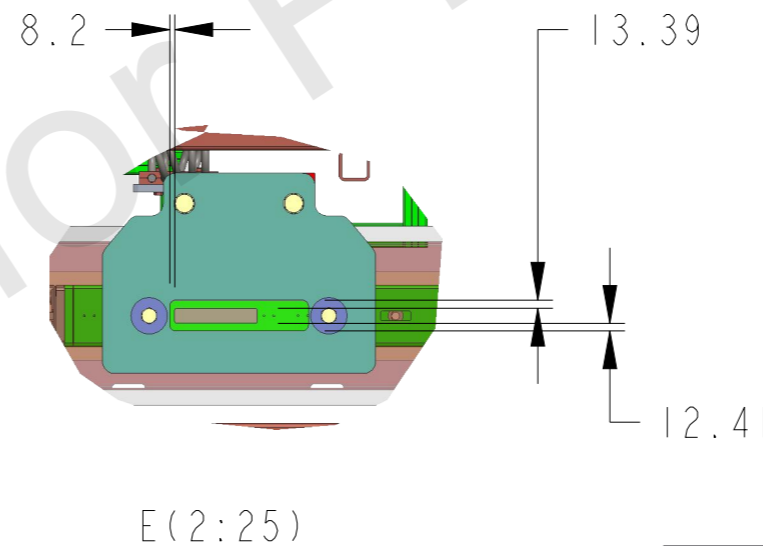
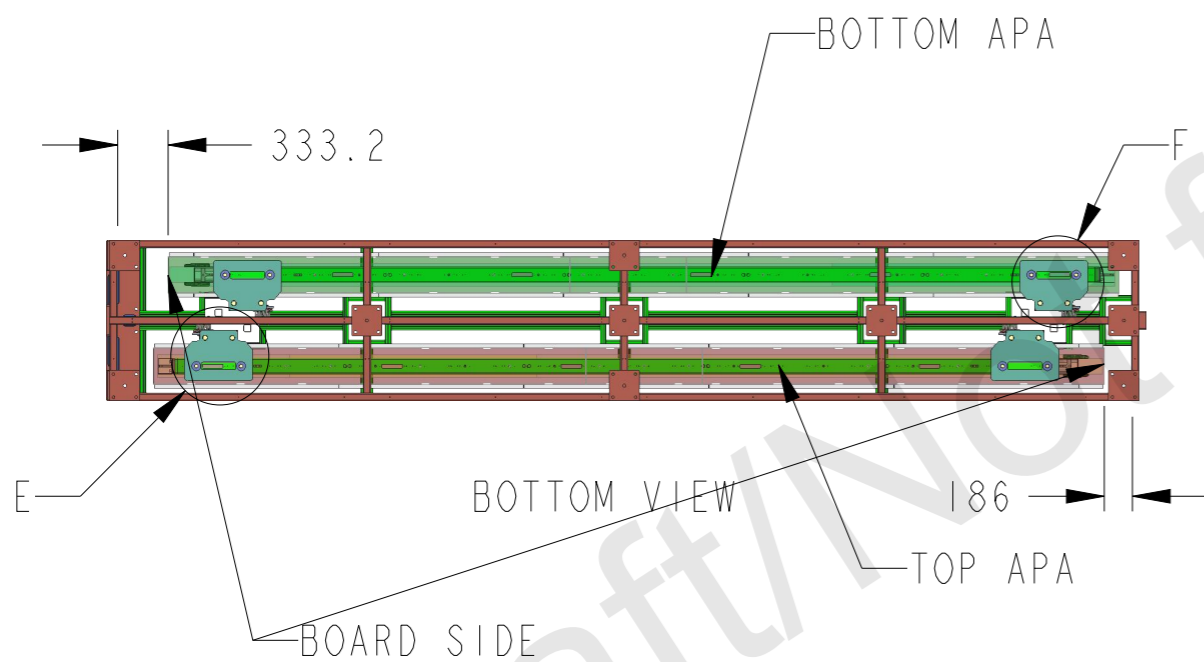
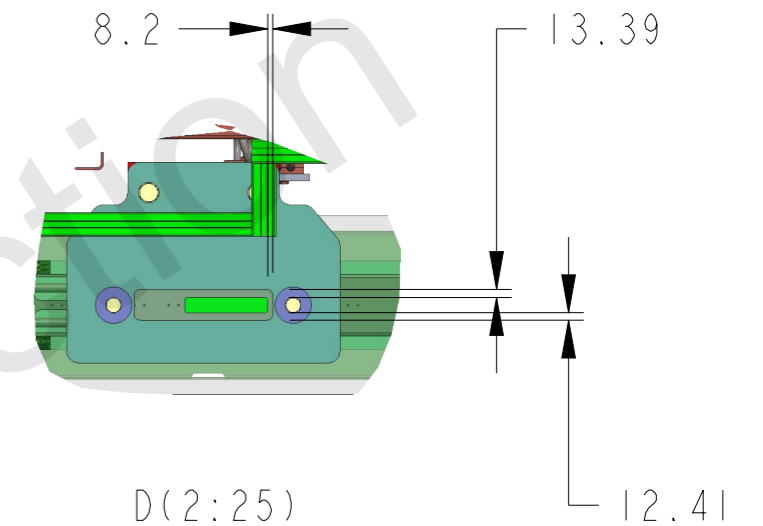
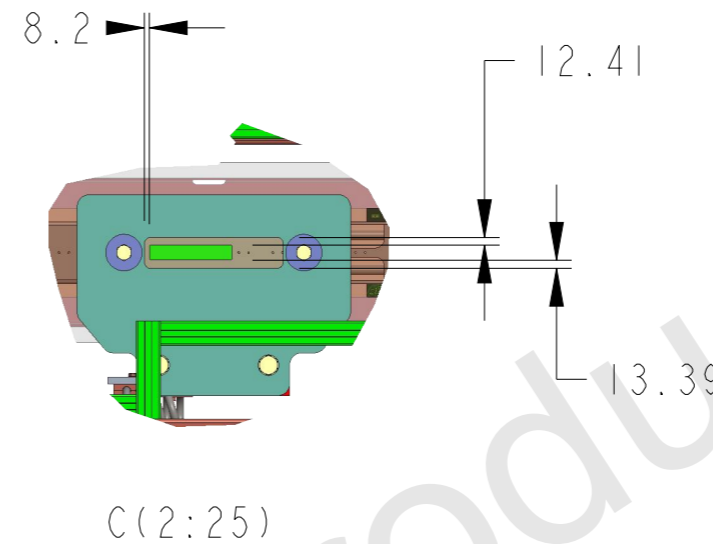
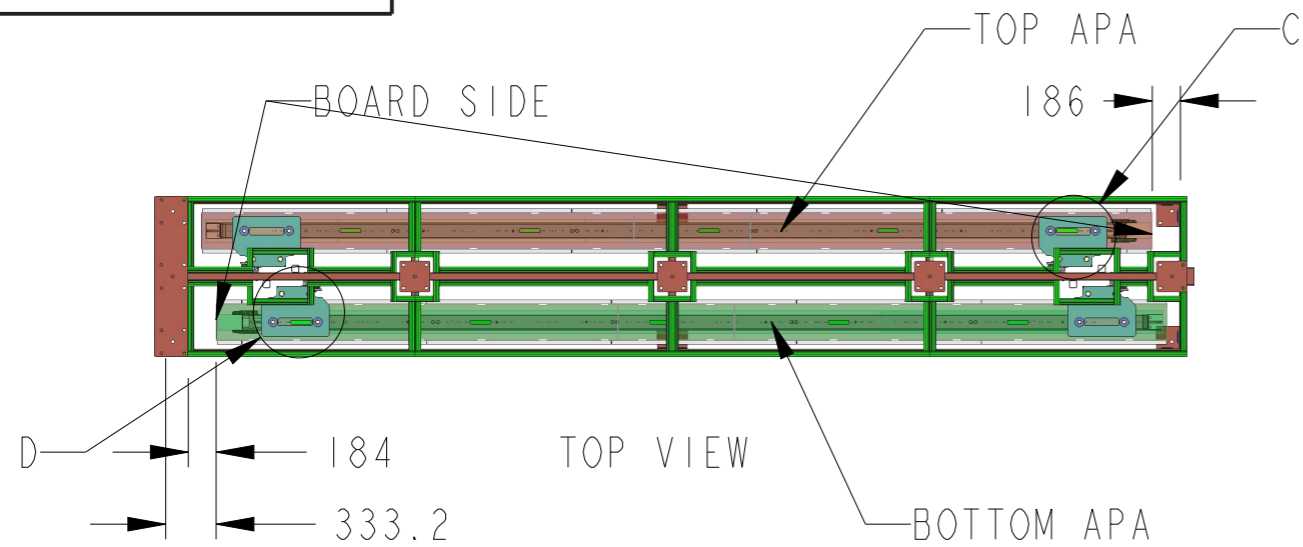
UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN MILLIMETERS SURFACE TEXTURE VALUES IN MICROMETERS SURFACE TEXT TO BE MACHINED MACHINE ALL OVER OR WHERE MARKED ✓	METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRATION TO BS 8888		WELDING SYMBOLS TO BS 2553		TITLE	
	TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL		DRAWN	G. STAVRAKIS	CREARANCES FOR SIDE LIFTING EYE	
	MACHINED DIMS ±	SPEC		DATE	26-Mar-20	DRAWING NUMBER	ARRGR. DRAWING
	ANGULAR ± °	TREATMENT		CHECKED		NP79-01-38	NP79-01-01
REMOVE BURRS AND BREAK SHARP EDGES	DO NOT SCALE	FINISH		APPROVED		SHEET 1 OF 3	SCALE 1:50
							A3

THIRD ANGLE PROJECTION



MODIFICATIONS

ISSUE	DATE	NAME	DESCRIPTION
A	27-Apr-20	G. STAVRAKIS	FIRST ISSUE



DEPARTMENT OF PHYSICS
OLIVER LODGE BUILDING



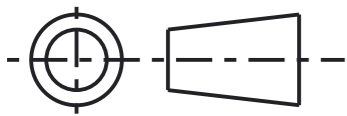
UNIVERSITY OF
LIVERPOOL

PROJECT
DUNE

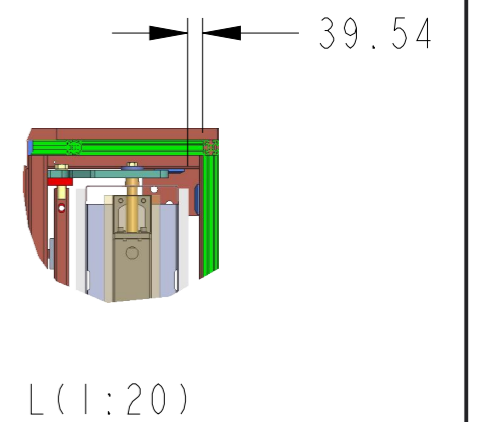
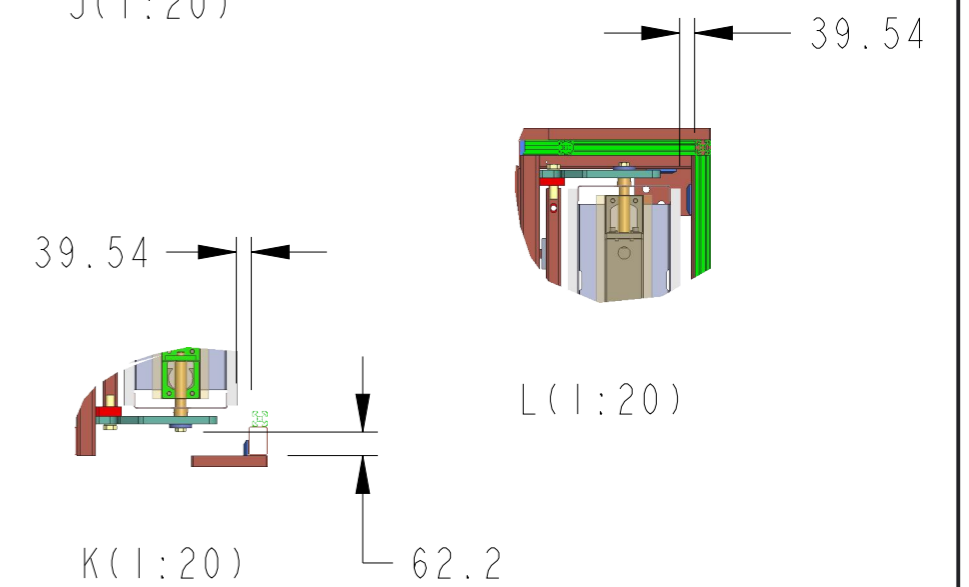
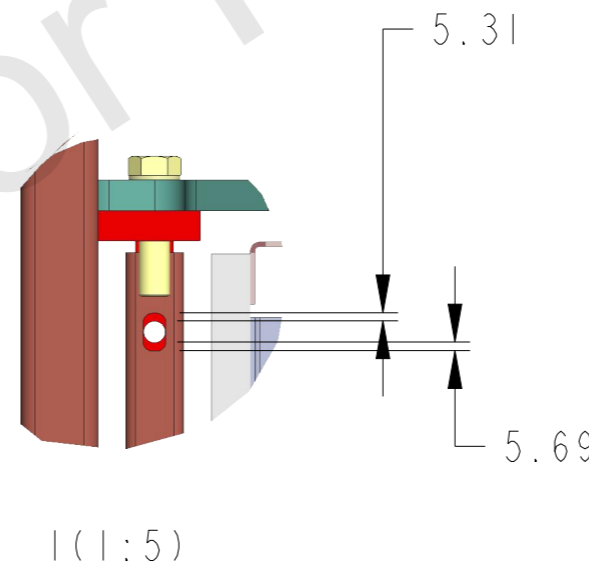
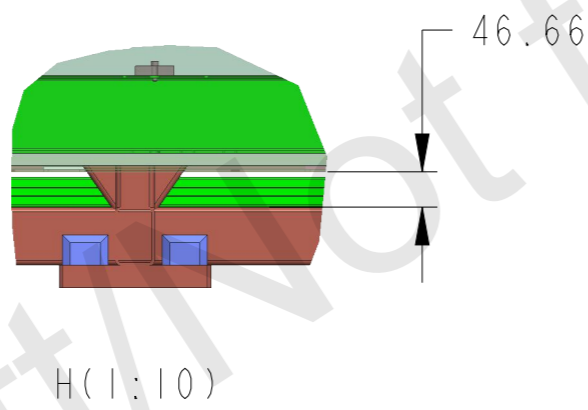
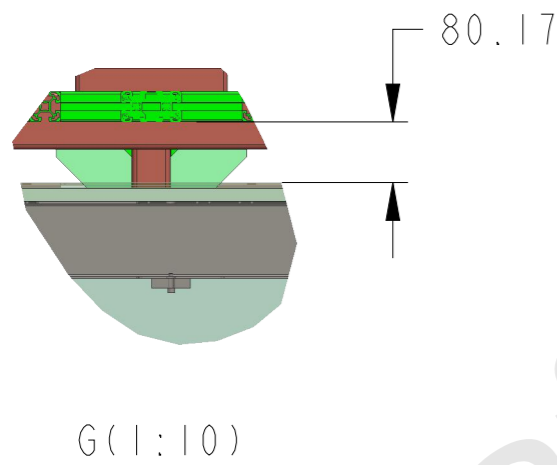
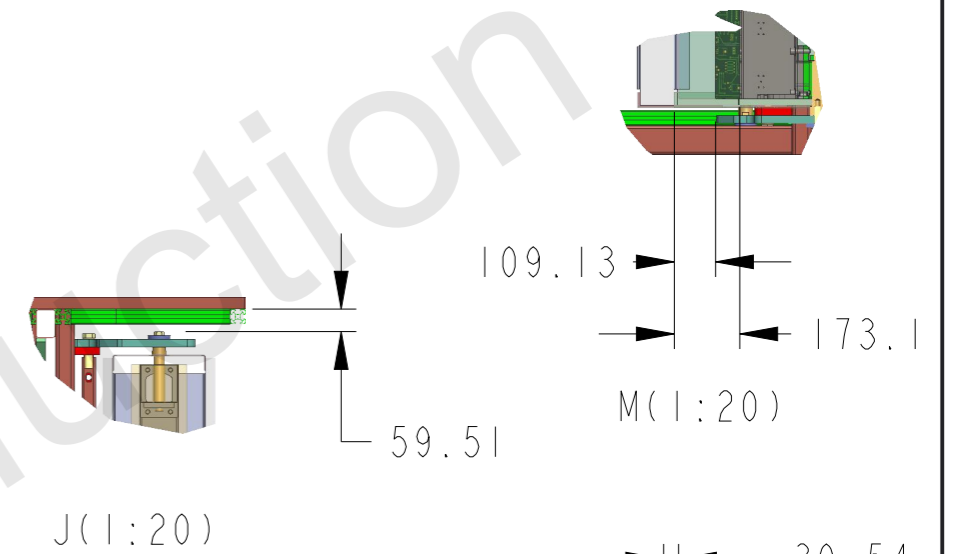
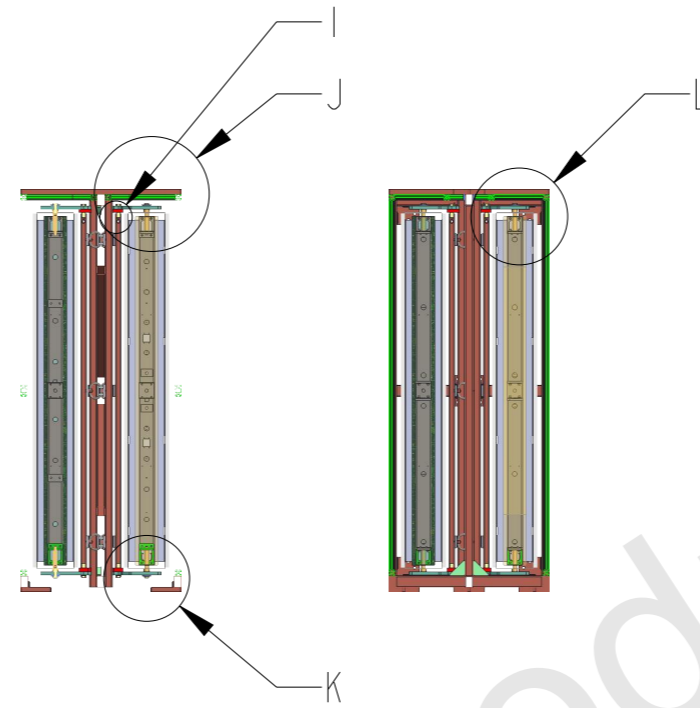
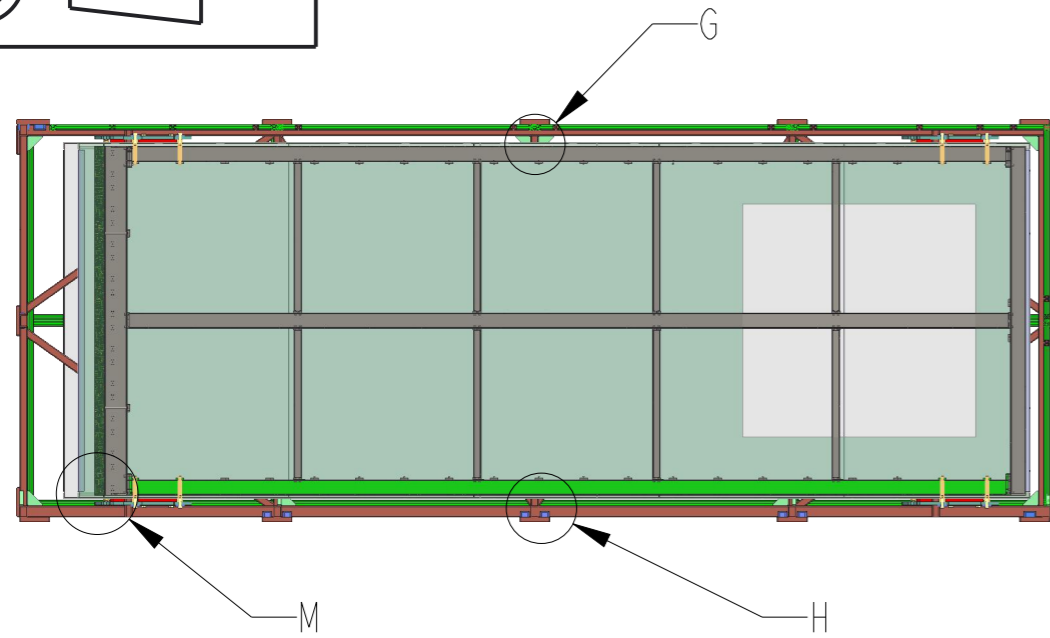
UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN MILLIMETERS SURFACE TEXTURE VALUES IN MICROMETERS SURFACE TEXT TO BE MACHINED MACHINE ALL OVER OR WHERE MARKED ✓	METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRATION TO BS 8888		WELDING SYMBOLS TO BS 2553	
	TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL		DRAWN	G. STAVRAKIS
	MACHINED DIMS ±	SPEC		DATE	27-Apr-20
	ANGULAR ± °	TREATMENT		CHECKED	
REMOVE BURRS AND BREAK SHARP EDGES	DO NOT SCALE	FINISH		APPROVED	

TITLE CLEARANCES FOR SIDE AND PHOTON SLOTS	
DRAWING NUMBER NP79-01-38	ARRGR. DRAWING NP79-01-01
SHEET 2 OF 3	SCALE 1:50
	A3

THIRD ANGLE PROJECTION



MODIFICATIONS			
ISSUE	DATE	NAME	DESCRIPTION
A	24-Apr-20	G. STAVRAKIS	FIRST ISSUE



DEPARTMENT OF PHYSICS
OLIVER LODGE BUILDING



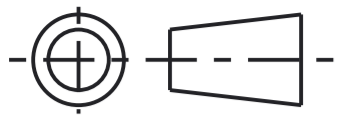
UNIVERSITY OF
LIVERPOOL

PROJECT
DUNE

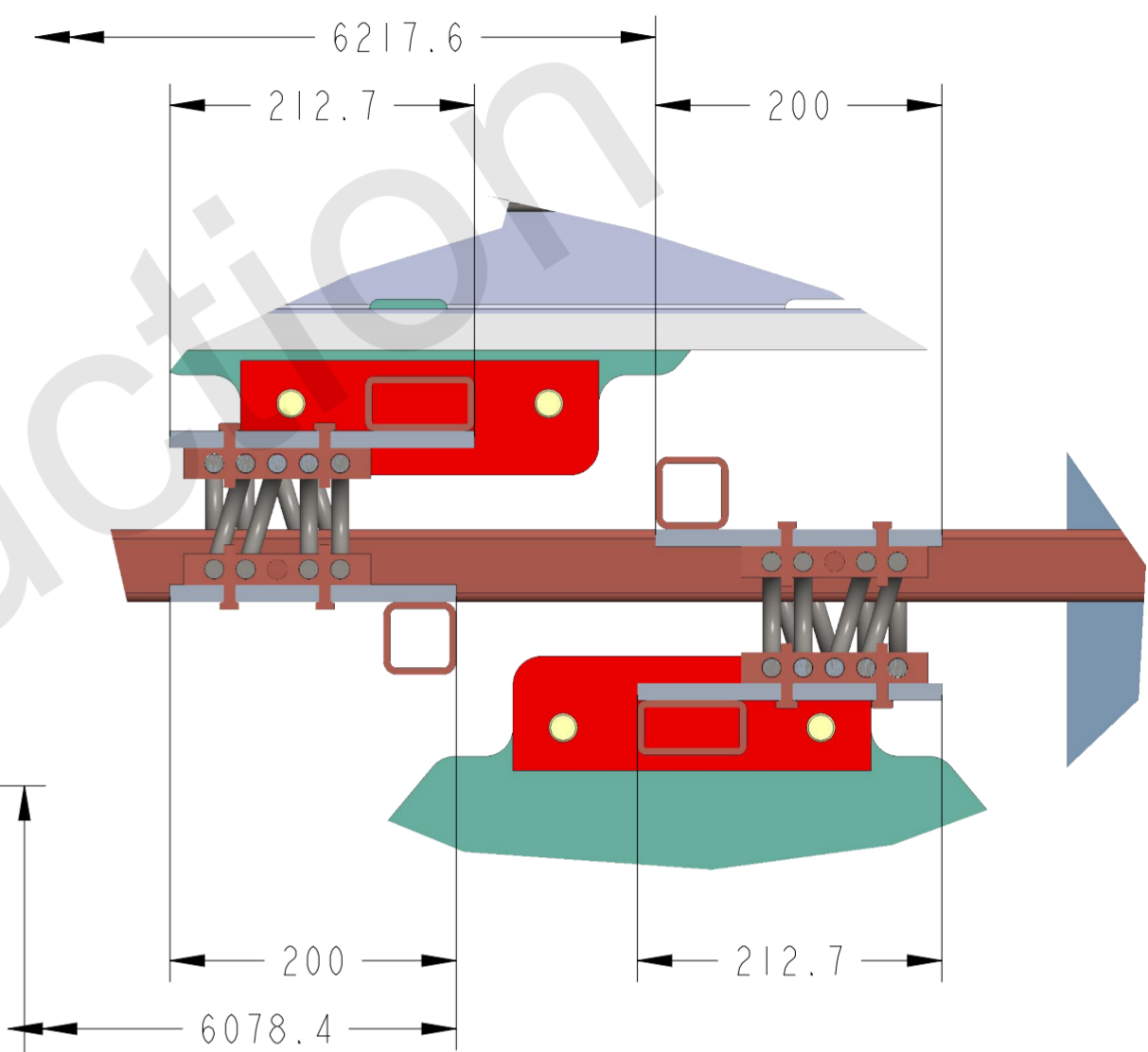
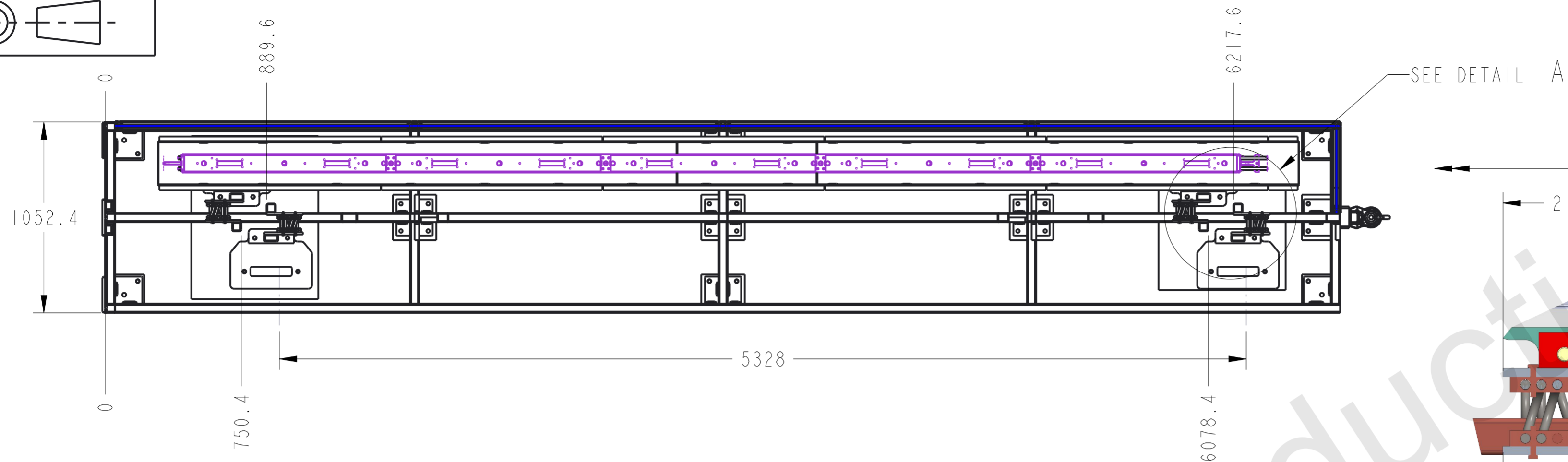
UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN MILLIMETERS SURFACE TEXTURE VALUES IN MICROMETERS SURFACE TEXT TO BE MACHINE ALL OVER OR WHERE MARKED ✓	METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRATION TO BS 8888		WELDING SYMBOLS TO BS 2553	
	TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL		DRAWN	G. STAVRAKIS
	MACHINED DIMS ±	SPEC		DATE	24-Apr-20
	ANGULAR ± °	TREATMENT		CHECKED	
REMOVE BURRS AND BREAK SHARP EDGES	DO NOT SCALE	FINISH		APPROVED	

TITLE CLEARANCES FOR APA - VERTICAL	
DRAWING NUMBER NP79-01-38	ARRGR. DRAWING NP79-01-01
SHEET 3 OF 3	SCALE 1:50
	A3

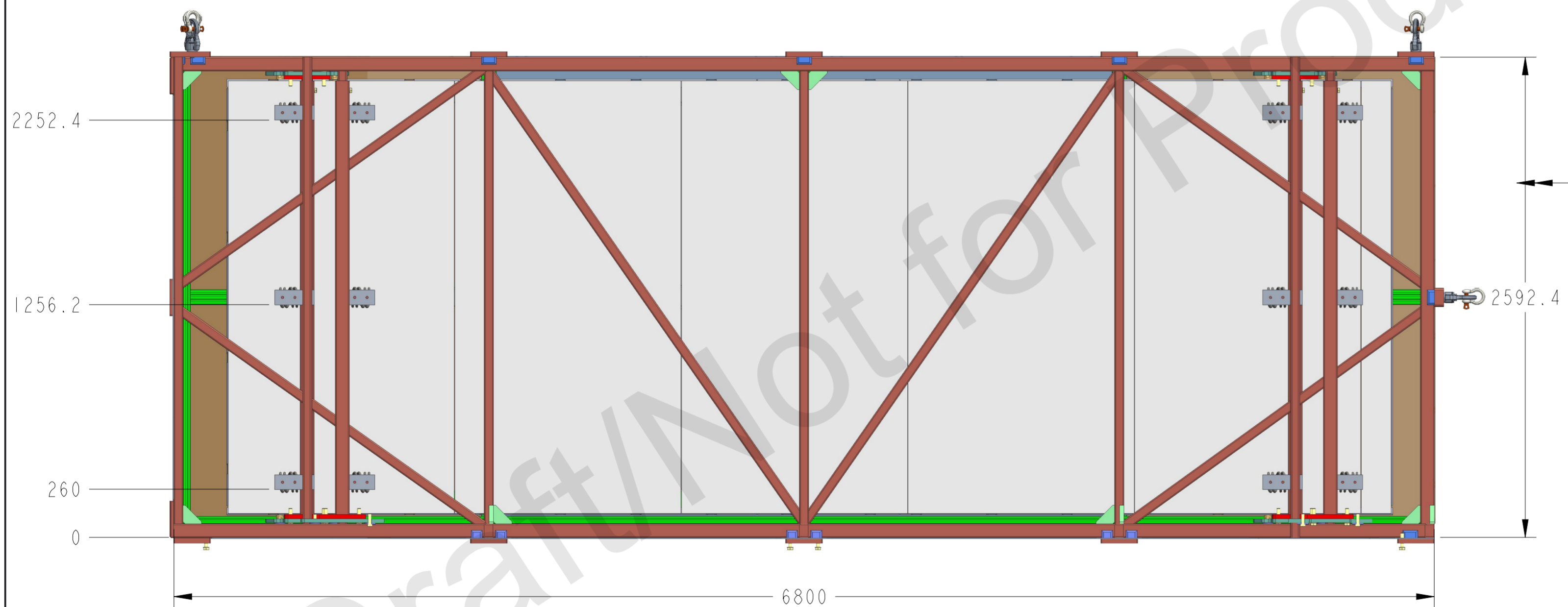
THIRD ANGLE PROJECTION



MODIFICATIONS			
ISSUE	DATE	NAME	DESCRIPTION
A	Jan-15-20	G. STAVRAKIS	FIRST ISSUE



DETAIL A
SCALE 1:5



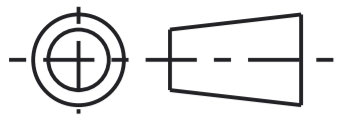
DEPARTMENT OF PHYSICS
OLIVER LODGE BUILDING
PROJECT
DUNE



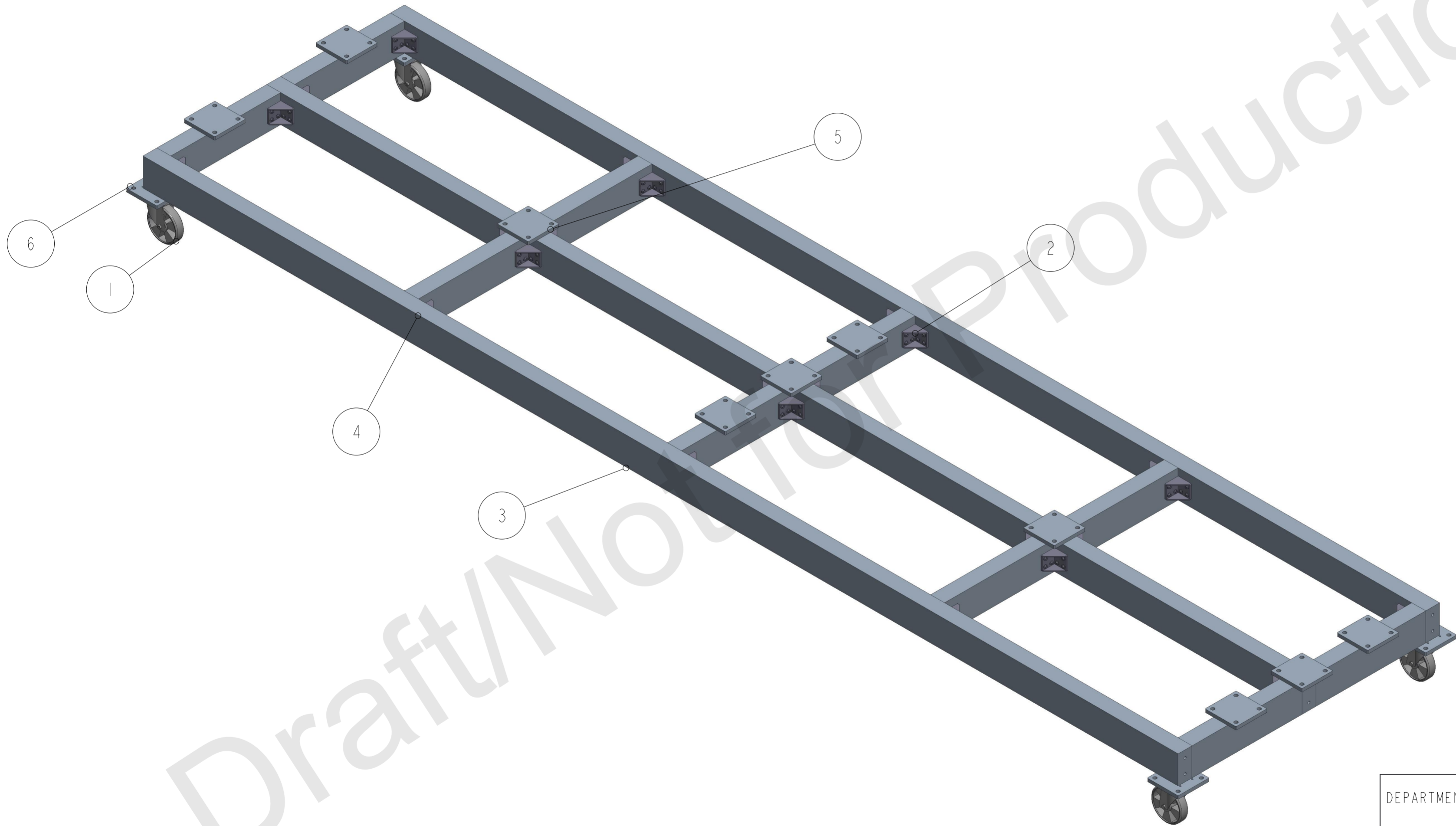
UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN MILLIMETERS SURFACE TEXTURE VALUES IN MICROMETERS SURFACE TEXT TO BE ✓ MACHINE ALL OVER OR WHERE MARKED ✓	METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRATION TO BS 8888		WELDING SYMBOLS TO BS 2553	
	TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL		DRAWN	G. STAVRAKIS
	MACHINED DIMS ±	SPEC		DATE	Jan-15-20
	ANGULAR ± °	TREATMENT		CHECKED	
REMOVE BURRS AND BREAK SHARP EDGES	DO NOT SCALE	FINISH		APPROVED	

TITLE TRANSPORT FRAME - SPRING MOUNTING POINTS	
DRAWING NUMBER NP79-01-50	ARRGR. DRAWING
SHEET 1 OF 2	SCALE 1:20
A2	

THIRD ANGLE PROJECTION



ITEM	PART/CAD No	DWG TITLE	MATERIAL	MAT SPEC	QTY	MODIFICATIONS			
						ISSUE	DATE	NAME	DESCRIPTION
1	3640ITP200P63	SWIVEL CASTOR WITH LOCK	CARBON STEEL / ALU	3642ITP200P63 FLAT	4	A	Feb-06-20	G. STAVRAKIS	FIRST ISSUE
2	BRACKET_90X90	GUSSET 90x90	ALUMINIUM	3 842 523 578	32				
3	NP79-02-10	STRUT PROFILE 90x180L	ALUMINIUM	3 842 992 857	3				
4	NP79-02-11	STRUT PROFILE 90x180L	ALUMINIUM	3 842 992 857	10				
5	NP79-02-21	PLATE FOR TRANSPORT FRAME	CARBON STEEL	EN10210 S355J2H	10				
6	NP79-02-22	PLATE FOR CASTOR	CARBON STEEL	EN10210 S355J2H	4				

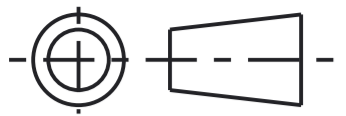


Draft/Not for Production

DEPARTMENT OF PHYSICS		UNIVERSITY OF LIVERPOOL	
OLIVER LODGE BUILDING			
PROJECT			
DUNE			
TITLE			
HORIZONTAL CART			
DRAWING NUMBER		ARRGR. DRAWING	
NP79-02-01			
SHEET 1 OF 2		SCALE 1:15	A2

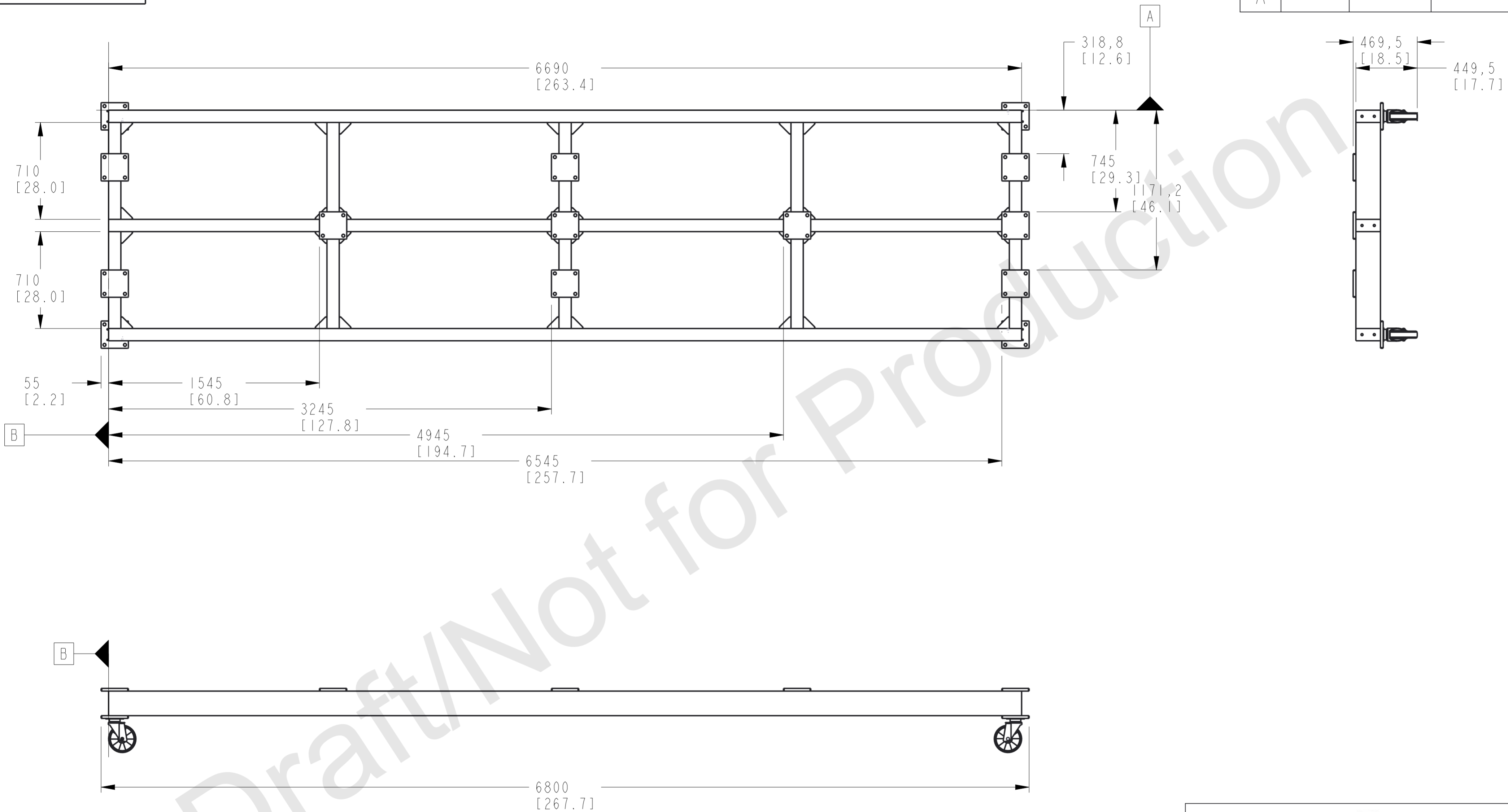
UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN MILLIMETERS SURFACE TEXTURE VALUES IN MICROMETERS SURFACE TEXT TO BE <input checked="" type="checkbox"/> MACHINE ALL OVER OR WHERE MARKED <input checked="" type="checkbox"/>	METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRATION TO BS 8888		WELDING SYMBOLS TO BS 2553	
	TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL	ALUMINIUM	DRAWN	G. STAVRAKIS
	MACHINED DIMS ±	SPEC		DATE	Feb-06-20
	ANGULAR ± °	TREATMENT		CHECKED	
REMOVE BURRS AND BREAK SHARP EDGES	DO NOT SCALE	FINISH		APPROVED	

THIRD ANGLE PROJECTION



MODIFICATIONS

ISSUE	DATE	NAME	DESCRIPTION
A	Feb-06-20	G. STAVRAKIS	FIRST ISSUE



DEPARTMENT OF PHYSICS
OLIVER LODGE BUILDING



UNIVERSITY OF
LIVERPOOL

PROJECT
DUNE

TITLE
HORIZONTAL CART

DRAWING NUMBER
NP79-02-01

ARRGR. DRAWING
NP79-02-01

SHEET 2 OF 2

SCALE 1:20

A2

UNLESS OTHERWISE SPECIFIED:
ALL DIMENSIONS IN MILLIMETERS
SURFACE TEXTURE VALUES IN MICROMETERS
SURFACE TEXT TO BE ✓
MACHINE ALL OVER OR WHERE MARKED ✓

REMOVE BURRS AND BREAK SHARP EDGES

METRIC SCREW THREADS
TO BS3643 CLASS 6H/6g

TOLERANCES
UNLESS OTHERWISE SPECIFIED

MACHINED DIMS ±

ANGULAR ± °

DO NOT SCALE

DRAWING PRACTICE AND TOLERANCE
INTERPRATION TO BS 8888

MATERIAL

SPEC

TREATMENT

FINISH

ALUMINIUM

WELDING SYMBOLS TO BS 2553

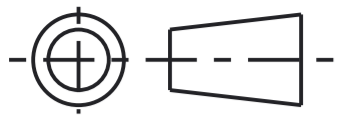
DRAWN G. STAVRAKIS

DATE Feb-06-20

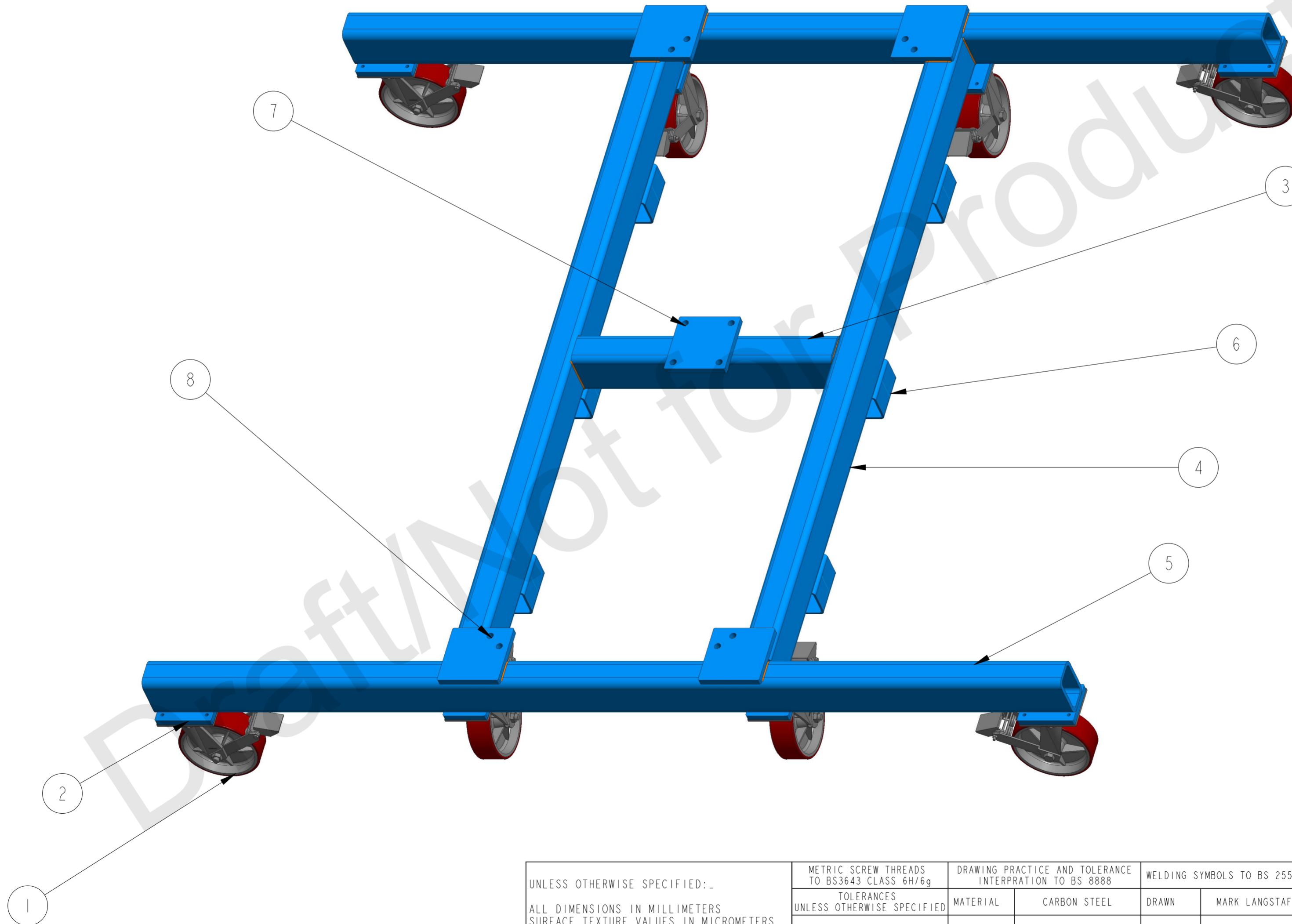
CHECKED

APPROVED

THIRD ANGLE PROJECTION

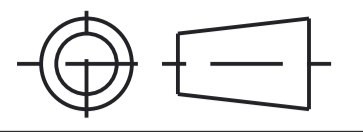


ITEM	PART/CAD No	DWG TITLE	MATERIAL	REMARK	QTY	MODIFICATIONS			
						ISSUE	DATE	NAME	DESCRIPTION
1	HEAVY_DUTY_CASTOR	ENFORCER 7 SERIES 10 INCH WHEEL		COLSON	8	A	05-Feb-20	G. STAVRAKIS	FIRST ISSUE
2	NP79-02-33	CASTOR PLATE	CARBON STEEL		8				
3	NP79-02-37	RHS 6x4 INCH	CARBON STEEL		1				
4	NP79-02-38	RHS 6x4 INCH	CARBON STEEL		2				
5	NP79-02-39	RHS 6x4 INCH	CARBON STEEL		2				
6	NP79-02-40	SIDE SUPPORT BEAM	CARBON STEEL		6				
7	NP79-02-31	TOP CENTRE PLATE	CARBON STEEL		1				
8	NP79-02-32	TOP CORNER PLATE	CARBON STEEL		4				

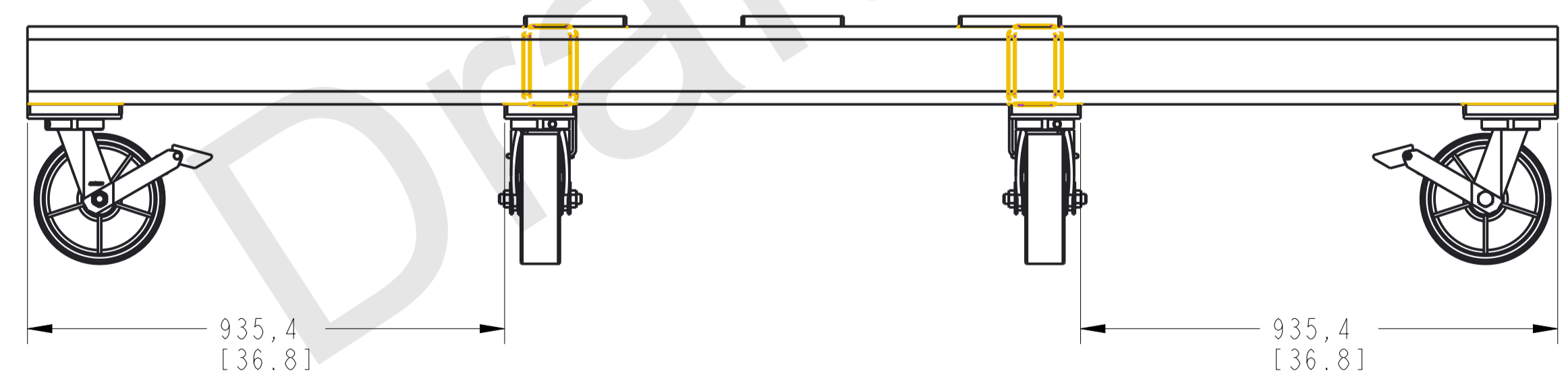
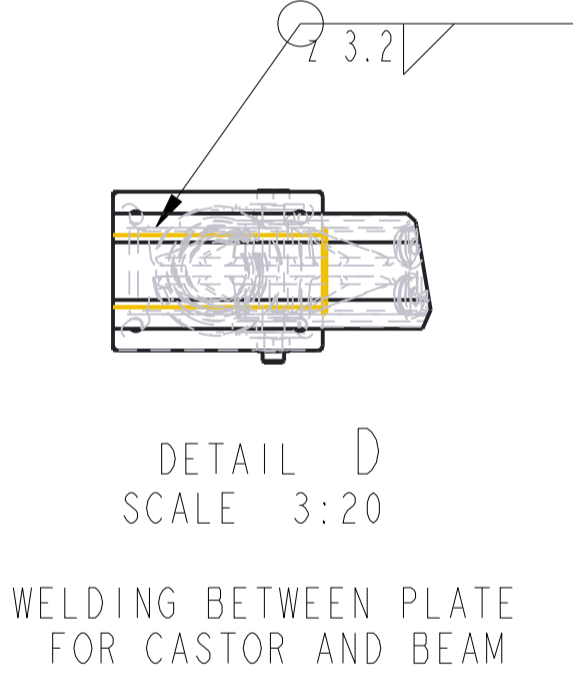
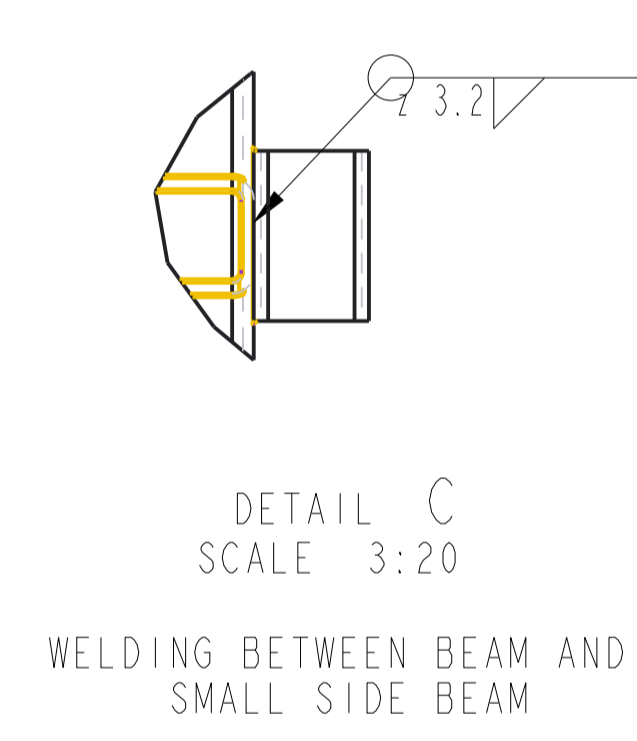
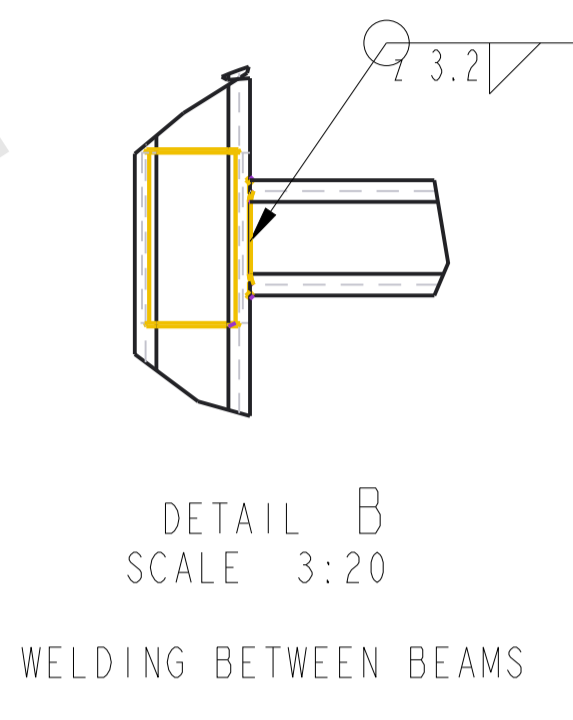
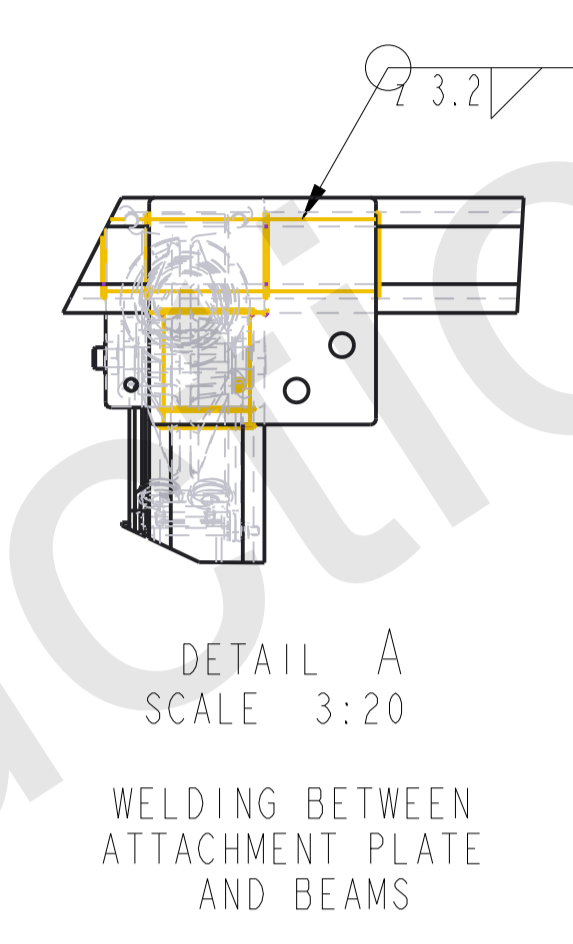
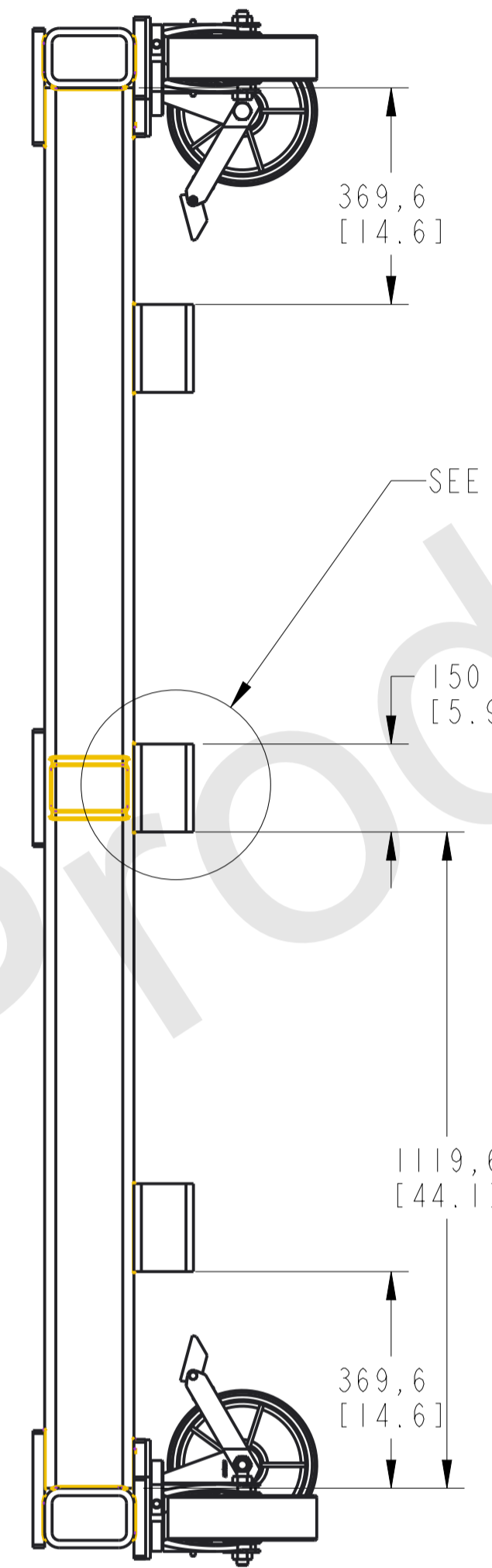
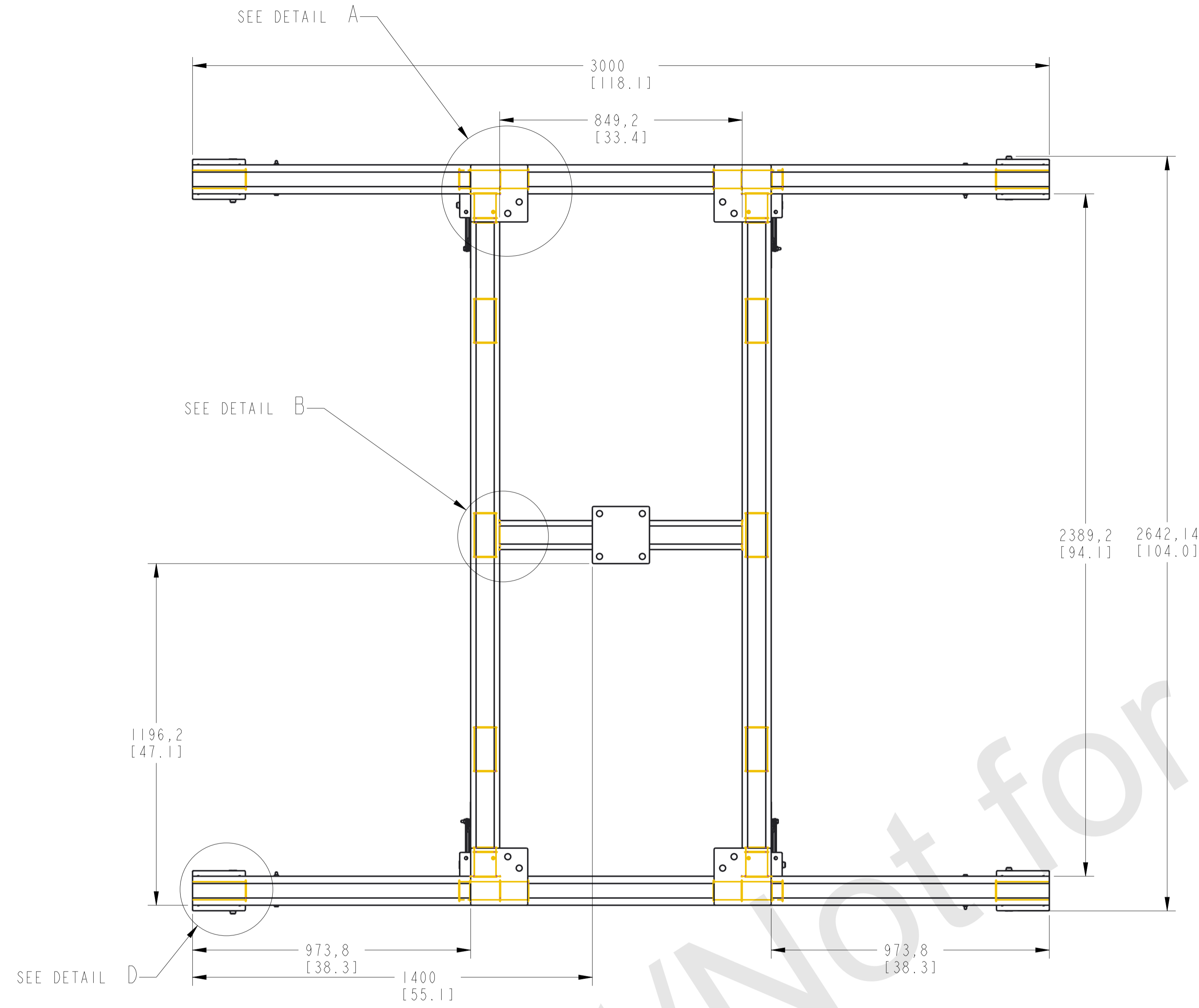


DEPARTMENT OF PHYSICS		UNIVERSITY OF LIVERPOOL	
OLIVER LODGE BUILDING			
PROJECT			
DUNE			
TITLE			
VERTICAL TROLLEY			
DRAWING NUMBER		ARRGR. DRAWING	
NP79-02-02		NP79-01-01	
SHEET 1 OF 2		SCALE 1:10	
		A2	

UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN MILLIMETERS SURFACE TEXTURE VALUES IN MICROMETERS SURFACE TEXT TO BE <input checked="" type="checkbox"/> MACHINE ALL OVER OR WHERE MARKED <input checked="" type="checkbox"/> REMOVE BURRS AND BREAK SHARP EDGES	METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRATION TO BS 8888		WELDING SYMBOLS TO BS 2553	
	TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL	CARBON STEEL	DRAWN	MARK LANGSTAFF
	MACHINED DIMS ±	SPEC		DATE	05-Feb-20
	ANGULAR ± °	TREATMENT		CHECKED	
	DO NOT SCALE	FINISH		APPROVED	



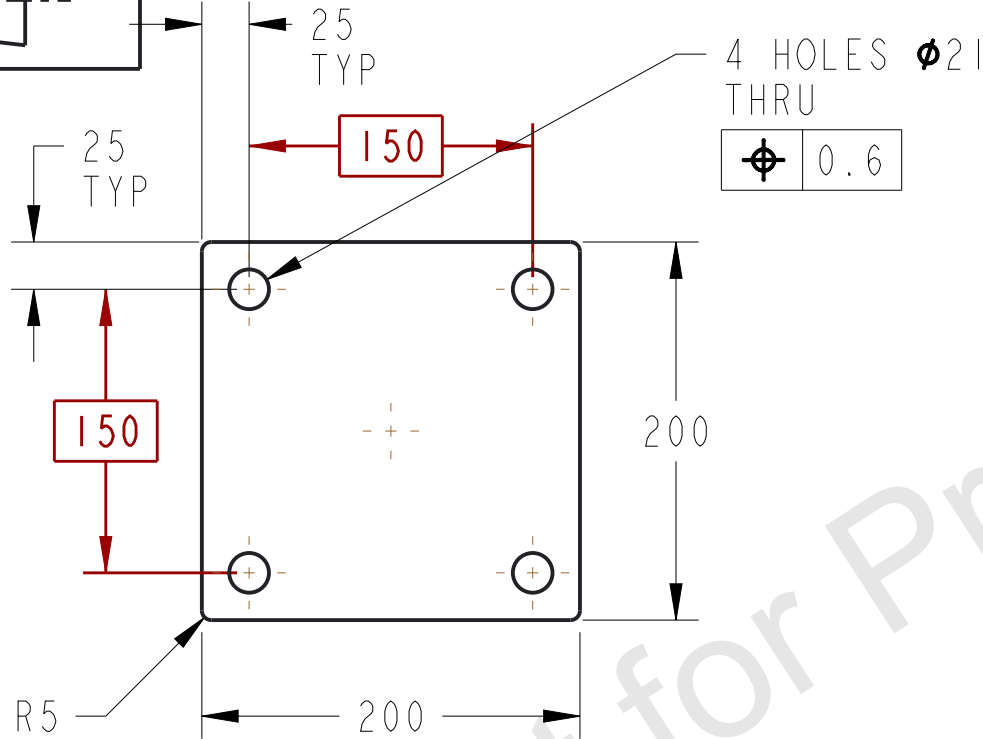
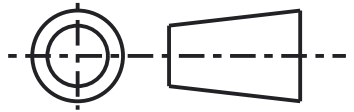
MODIFICATIONS			
ISSUE	DATE	NAME	DESCRIPTION
A	Feb-06-20	G. STAVRAKIS	FIRST ISSUE



UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN MILLIMETERS SURFACE TEXTURE VALUES IN MICROMETERS SURFACE TEXT TO BE MACHINED ALL OVER OR WHERE MARKED ✓	METRIC SCREW THREADS TO BS3643 CLASS 6H/6g	DRAWING PRACTICE AND TOLERANCE INTERPRATION TO BS 8888		WELDING SYMBOLS TO BS 2553	
	TOLERANCES UNLESS OTHERWISE SPECIFIED	MATERIAL	CARBON STEEL	DRAWN	MARK LANGSTAFF
	MACHINED DIMS ±	SPEC		DATE	Feb-06-20
	ANGULAR ±	TREATMENT		CHECKED	
REMOVE BURRS AND BREAK SHARP EDGES	DO NOT SCALE	FINISH		APPROVED	

DEPARTMENT OF PHYSICS		UNIVERSITY OF LIVERPOOL	
OLIVER LODGE BUILDING			
PROJECT DUNE			
TITLE VERTICAL TROLLEY			
DRAWING NUMBER NP79-02-02		ARRGR. DRAWING NOT9-01-01	
SHEET 2 OF 2		SCALE 1:10	

THIRD ANGLE PROJECTION



MODIFICATIONS			
ISSUE	DATE	NAME	DESCRIPTION
A	21-Apr-20	G. STAVRAKIS	FIRST ISSUE

UNLESS OTHERWISE SPECIFIED: -

ALL DIMENSIONS IN MILLIMETERS
 SURFACE TEXTURE VALUES IN MICROMETERS
 SURFACE TEXT TO BE ✓
 MACHINE ALL OVER OR WHERE MARKED ✓

REMOVE BURRS AND BREAK SHARP EDGES

DEPARTMENT OF PHYSICS



UNIVERSITY OF
 LIVERPOOL

OLIVER LODGE BUILDING

PROJECT

DUNE

TITLE

TOP CENTRE PLATE

DRAWING NUMBER

NP79-02-31

ARRGR. DRAWING

NP79-02-01

METRIC SCREW THREADS
 TO BS3643 CLASS 6H/6g

DRAWING PRACTICE AND TOLERANCE
 INTERPRATION TO BS 8888

WELDING SYMBOLS TO BS 2553

TOLERANCES
 UNLESS OTHERWISE SPECIFIED

MATERIAL

CARBON STEEL

DRAWN

MARK LANGSTAFF

MACHINED DIMS ± 2

SPEC

DATE

21-Apr-20

DRAWING NUMBER

ANGULAR ± °

TREATMENT

CHECKED

DO NOT SCALE

FINISH

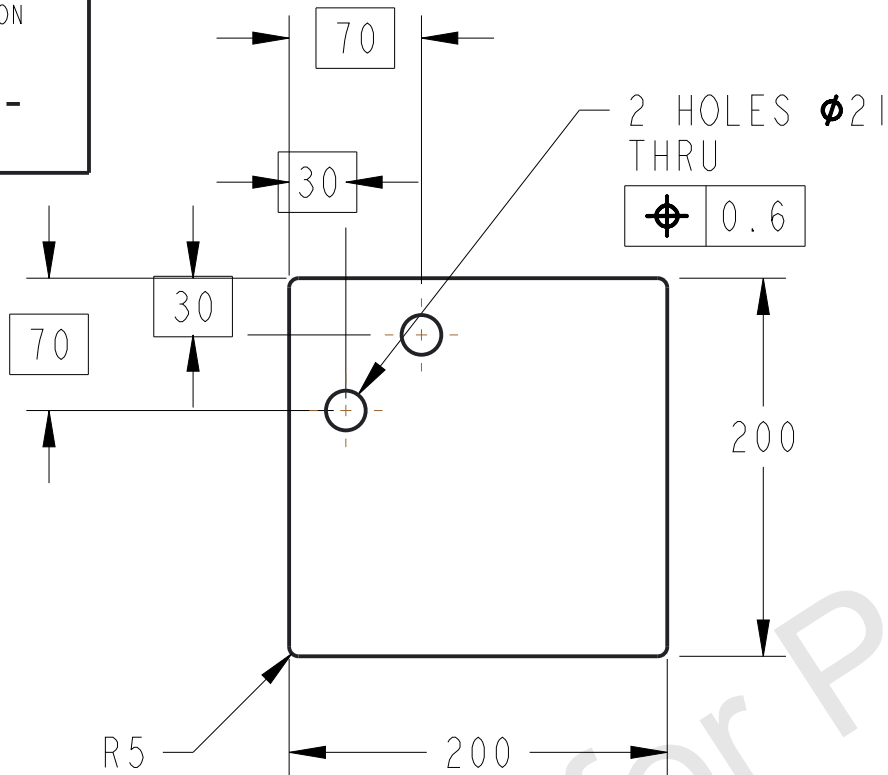
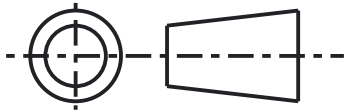
APPROVED

SHEET 1 OF 1

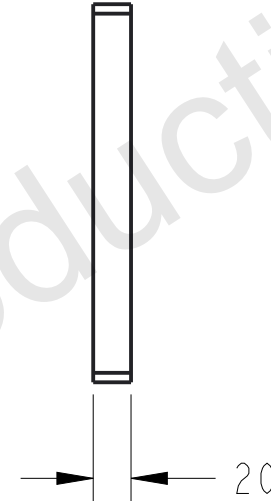
SCALE 1:4

A4

THIRD ANGLE PROJECTION



MODIFICATIONS			
ISSUE	DATE	NAME	DESCRIPTION
A	21-Apr-20	G. STAVRAKIS	FIRST ISSUE



4 OFF

UNLESS OTHERWISE SPECIFIED: _

ALL DIMENSIONS IN MILLIMETERS
 SURFACE TEXTURE VALUES IN MICROMETERS
 SURFACE TEXT TO BE ✓
 MACHINE ALL OVER OR WHERE MARKED ✓

REMOVE BURRS AND BREAK SHARP EDGES

DEPARTMENT OF PHYSICS  UNIVERSITY OF LIVERPOOL
 OLIVER LODGE BUILDING

PROJECT

DUNE

TITLE

TOP CORNER PLATE

DRAWING NUMBER

NP79-02-32

ARRGR. DRAWING

NP79-02-01

DO NOT SCALE

FINISH

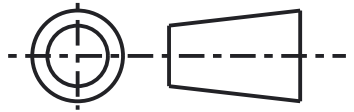
APPROVED

SHEET 1 OF 1

SCALE 1:4

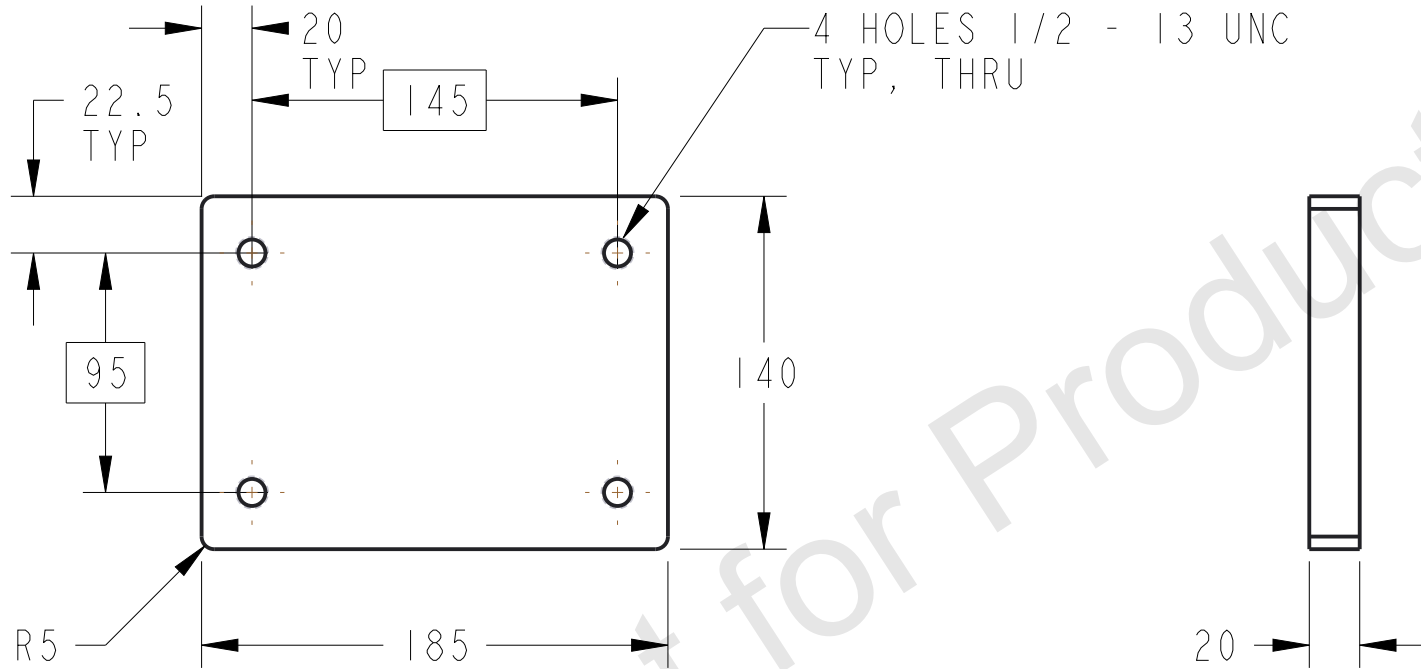
A4

THIRD ANGLE PROJECTION



MODIFICATIONS

ISSUE	DATE	NAME	DESCRIPTION
A	21-Apr-20	G. STAVRAKIS	FIRST ISSUE



8 OFF

UNLESS OTHERWISE SPECIFIED: -

ALL DIMENSIONS IN MILLIMETERS
 SURFACE TEXTURE VALUES IN MICROMETERS
 SURFACE TEXT TO BE ✓
 MACHINE ALL OVER OR WHERE MARKED ✓

REMOVE BURRS AND BREAK SHARP EDGES

DEPARTMENT OF PHYSICS



UNIVERSITY OF
LIVERPOOL

OLIVER LODGE BUILDING

PROJECT

DUNE

TITLE

CASTOR PLATE

DRAWING NUMBER

NP79-02-33

ARRGR. DRAWING

NP79-02-01

DO NOT SCALE

FINISH

APPROVED

SHEET 1 OF 1

SCALE 1:3

A4