



Request for quotation 19M03020Q0007

Manual Drop Arm Barrier

August 24, 2020

Dear perspective quoters:

The United States Consulate General is looking into the purchase and installation of a made-to-order Drop Arm Barrier with the following requirements:

- The manufacture of the Manual Drop Arm Barrier is in accordance with the drawings and material details specified, as shown in Appendix A of this document, except that the drop arm should be painted black instead of yellow.
- The contractor is responsible for the removal of old bollards and filling the holes with concrete.
- The contractor is responsible for removal of bushes in the way, and the removal of the small interior existing drop arm.
- The contractor is responsible for making sure they don't damage or hit any water/sewage line during the installation.

The below is the description of the manufacturing specs of the drop arm barrier requested.

Please submit your quotation no later than Thursday, September 10, 2020 at 17:00pm to the below address:

United States Consulate General – Casablanca
Att. Contracting Officer – GSO
Subject: RFQ 19M03020Q0007 – Drop Arm Barrier
8 Boulevard Moulay Youssef
Casablanca – Morocco

Or via email to BATTIA@state.gov.

Manual Drop Arm Barrier (MDA4500)



Manufacture, Installation & Operation Guide

1. Performance Ratings

This barrier system has been designed as the latest iteration of the R&D process into a manually operated drop arm barrier. This barrier continues to be tested in accordance with PAS 68:2004 (MDA4500 was impact tested, the report number is B3925). This barrier design has been developed in conjunction with the testing program, and to date three previous iterations of this barrier have been impact tested, with the results of each test described below:

- *Test 1 (3,500kg vehicle travelling at a speed of 80km/h):*
The barrier restrained the vehicle impacting at 90°, with a penetration beyond the rear face of 4m and there was no dispersion of the load. Post test the vehicle was not driveable. This barrier has an aperture (width between stanchions) of 3m.

PAS 68:2004 designation for this barrier is:
V Manual Drop Arm Barrier 3500 80/4.0/0/90

- *Test 2 (3,500kg vehicle travelling at a speed of 80km/h):*
The barrier restrained the vehicle impacting at 90°, with a penetration beyond the rear face of 2.23m and there was no dispersion of the load. Post test the vehicle was not driveable and no other vehicle would have been able to pass through the barrier. This barrier has an aperture of 3m.

PAS 68:2004 designation for this barrier is:
V Manual Drop Arm Barrier 3500 80/2.23/0/90

- *Test 3 (7,500kg vehicle travelling at a speed of 48km/h):*
The barrier restrained the vehicle impacting at 90°, with a penetration beyond the rear face of 0m and there was no dispersion of the load. Post test the vehicle was not driveable and no other vehicle would have been able to pass through the barrier. This barrier has an aperture of 3m.

PAS 68:2004 designation for this barrier is:
V Manual Drop Arm Barrier 7500 48/0/0/90

The most recent iteration of this barrier has undergone some notable changes from the earlier versions which are; a wider gate aperture (this has been increased from a three metre aperture to a four and a half metre aperture) and shallower embedment of the foundations (this has been decreased from a 1000mm depth to a 500mm depth).

- *Test 4 (7,500kg vehicle travelling at a speed of 48km/h):*
The barrier restrained the vehicle impacting at 90°, with a penetration beyond the rear face of 0m and there was no dispersion of the load. Post test the vehicle was not driveable. The gate was partially operable after the impact and could be operated in the normal way, however would not open fully. Due to the extent of the damage during impact it is likely that only a passenger car or 4x4 vehicle would have been able to pass under it, when opened as far as the deformation would allow.

PAS 68:2004 designation for this barrier is:
V Manual Drop Arm Barrier 7500 48/0/0/90

2. Manufacture

The manufacture of the Manual Drop Arm Barrier is in accordance with the drawings and material details specified, as shown in *Appendix A* of this document.

3. Installation

The following steps describe the recommended method of installation of the barrier.

- a. Excavate the foundations to the dimensions specified (*see Appendix A*).



Figure 1: Excavated foundations.

- b. Attach guide rails to stanchion "A" at 900mm from the top of the base plate.

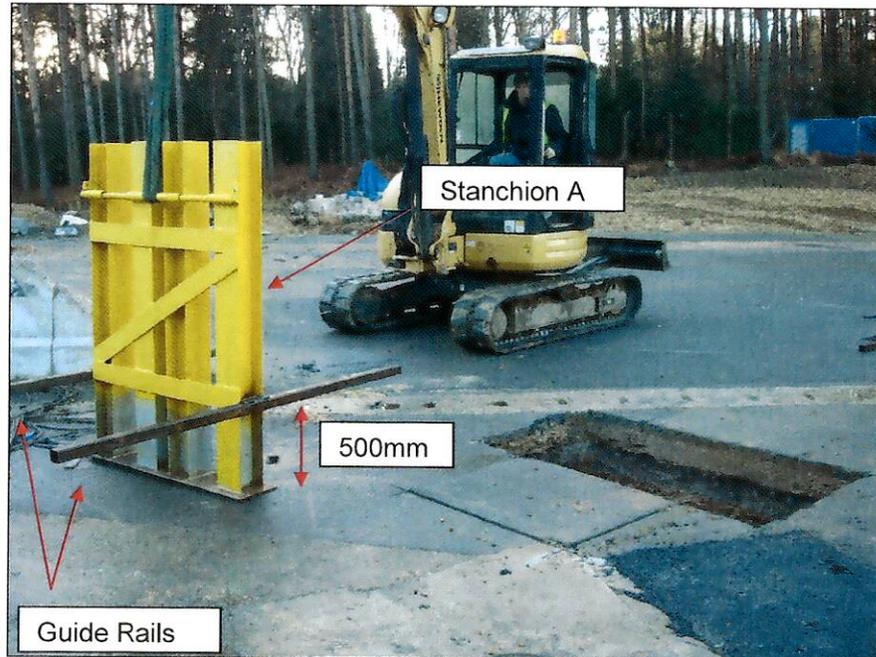


Figure 2: Guide rails are bolted to the foundation posts.

- c. Place stanchion "A" in to the corresponding foundation. The rails should act as an aid to sit the barrier square, level and at the correct height above ground.



Figure 3: The guide rails sit across the excavated foundation.

- d. Attach guide rails to stanchion "B" and place into the corresponding excavated foundation.

**Note: This should be done without the barrier arm attached.*

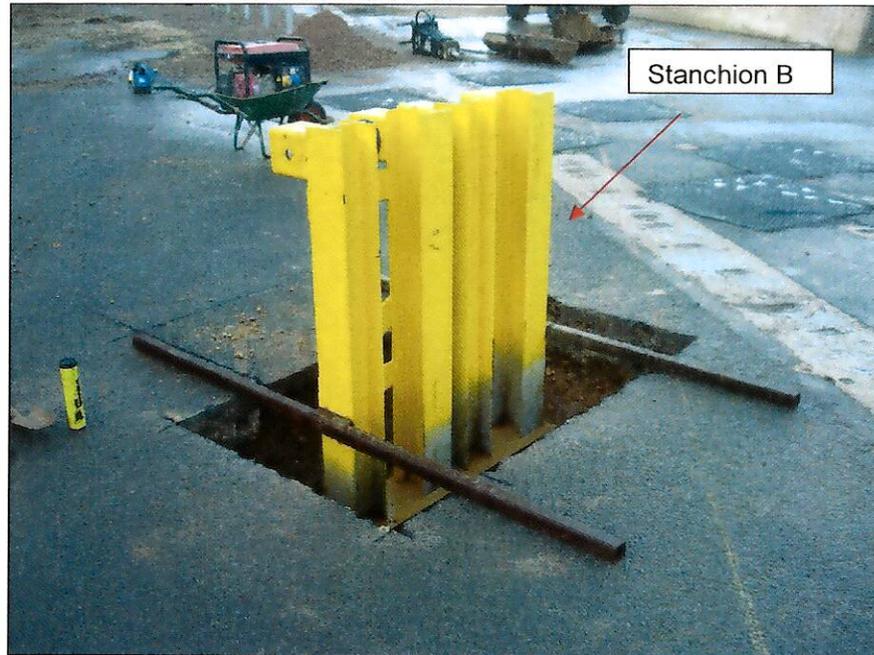


Figure 4: Repeat stage "b" and "c" for the second foundation post.

- e. Once both stanchions are positioned lower the arm into position, small adjustments can be made to provide the 4.5m aperture width and ensure that the barrier arm is parallel to the ground.

**Note: Check that the barrier arm does not foul against the posts of stanchion "A".*

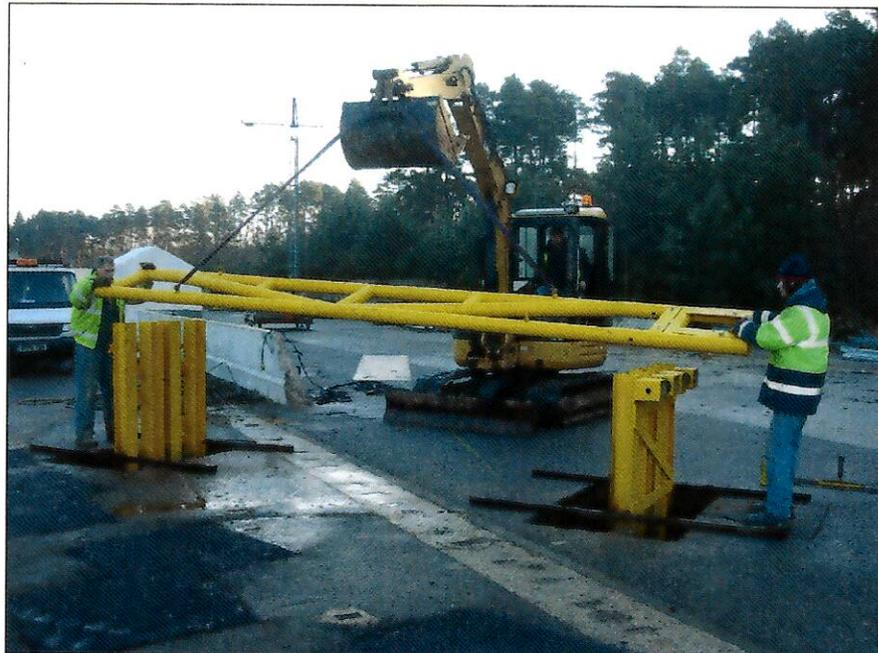


Figure 5: Once orientated, adjust the barrier position and levels.



Figure 6: Once orientated, adjust the position and levels and insert the pivot.

- f. Remove any groundwater from the excavated foundations and pour the concrete around each stanchion. The mixture should spread evenly using a vibrating device to ensure a consistent filling of each excavation.
- g. Level the concrete and wait for it to set before removing the guide rails. See local site guidance for concrete curing time.
- h. Fix the main ballast weight into position (after the concrete has cured), and secure with bolts from underneath.



Figure 6: Main ballast weight.

- i. Once the barrier is in position, ballast is added. See *Appendix A, "manual operation and ballasting criteria"* for a guide to ballasting. In the example, approx 20kg of additional steel ballast was added to assist in the 'fine tuning' of the barrier.

**Note: it is important that the ballast is arranged correctly to keep the center of gravity of the barrier arm in the correct place. See "manual operation and ballasting criteria".*

- j. A cord should then be attached to the barrier arm through the eye at the lock end, as an aid to controlling the opening and closing of the barrier.

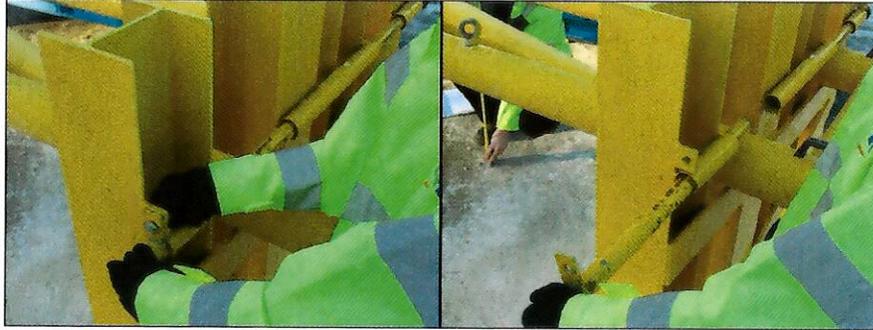


Figure 7: Cord used to control the opening & closing operation.

- k. Undertake post-installation inspection and commissioning before the barrier is operational.

4. Operational Instructions

- a. To open the barrier, unscrew lock bolts and hold down barrier while pulling out both locking bars. The barrier should fully open under the mass of the ballast.



- b. If needed, use the cord attached to the "lock-end" of the barrier arm to pull the barrier fully open or hold open while the vehicle passes through.



- c. To close, walk to the "lock-end" and use the cord to pull the barrier closed.



- d. To lock, return the barrier to the down position while pushing both locking bars back in place then re-tighten the lock bolts.



Appendix A

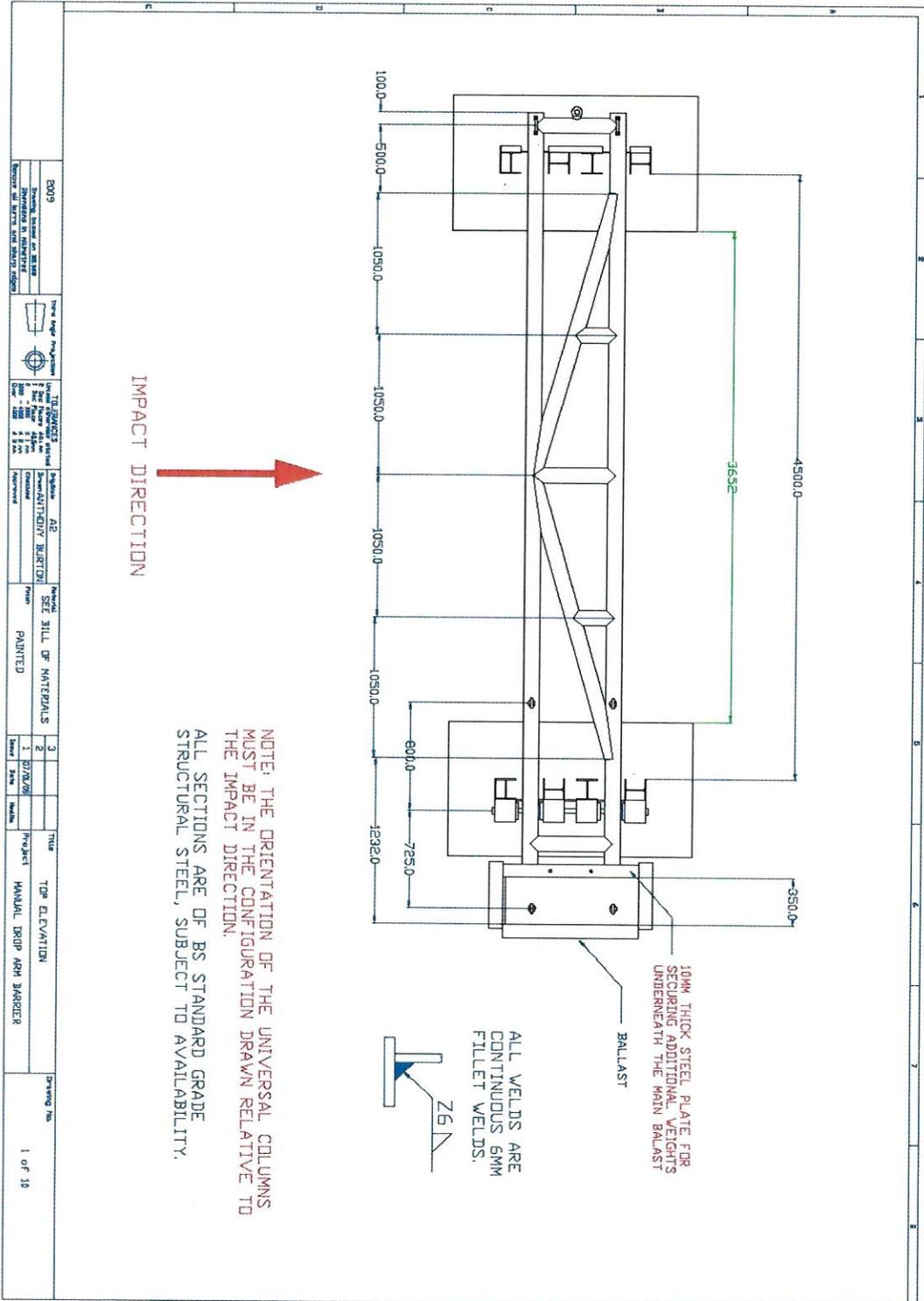
5. Parts List (see Figure 10 to relate parts numbers)

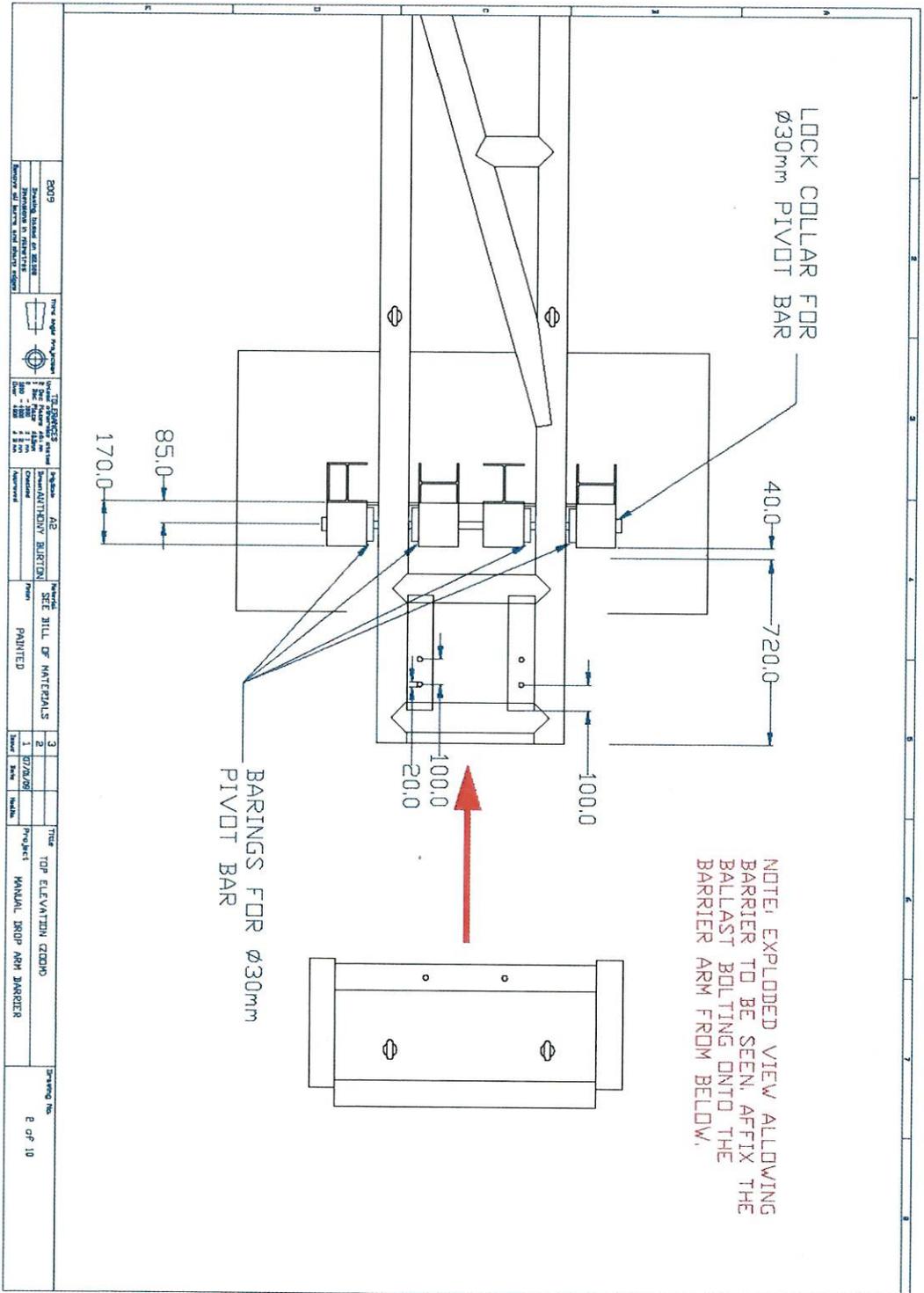
List of Parts & Materials					
No. Off	Description	Section (mm)	Length (mm)	Material Specification	Notes
4	Short stanchion post.	152 x 152 x 23	1,400.0	Steel: EN10025-2 : S275JR +AR, U-Column 152 x 152 x 23	Universal column.
4	Long stanchion post		1,650.0	As rolled.	
4	Cross flat	75 x 10	1,104.8		10mm flat.
2	Cross flat (diagonal)		1,304.0		
2	Brace flat	400 x 10	1,200.0	Steel: EN10025 S275JR +AR	
2	Barrier arm		6,132.4		Circular hollow section.
4	Cross beam	114.3 x 6.3	600.0	Cold formed welded strongbox 235 Circular hollow section to Corus specification TS 30 (Rev.1) Jan.02. Mill finish. Mill cut ends.	
2	Cross beam (short)		230.0		
2	Cross beam (diagonal)		2,184.0		
1	Ballast block	350 x 100	1,000.0		Solid steel blocks welded to form ballast, as per drawings
2	Ballast block	350 x 100	500.0		
4	Pivot supports	150 x 150 x 10	170.0	Steel: EN10025 S275JR +AR	Square hollow section.
2	Bearing cartridge (LCFCX-E)	Ø30 (internal)	195.0	Steel	See drawings for manufacturing detail.
2	Collar lock		20.0		BO PART
1	Bolt tube (Mid)		400.0		3mm thick tube. Advise allowing room for some movement for the lock bar as it can become very tight against the tube.
2	Bolt tube (End)		182.4	Steel	
1	Pivot bar	Ø30	1,145.0		Solid bar.
2	Lock bar		515.0	Steel	
2	Lock plate	45 x 5	55.0	Steel	5mm flat.
2	Angle	50 x 50 x 5	138.0	Steel	
1	Return cord		≈ 8500		BO PART
2	Handle (Lock bar)			Thermoset plastic	BO PART: appropriate size, durability.
4	Handle (Barrier)				
7	Lifting eye			Steel	BO PART: Minimum lifting capability of 2 tonne to carry fully ballasted barrier arm and ballast box. Otherwise use higher rated eyes for lifting more mass.
2	Foundations	1000 x 500	1,800.0	Concrete: EN206-1 C40/50 (GB) Cl. 0.40 Dmax20 Slump50.	Advise a minimum concrete strength of C25.

Total lengths (mm):
 Universal column (152x152x23): 12,200.0
 Cross flat (75x10): 7,027.2
 Circular hollow section (114.3x6.3): 19,612.6
 Square hollow section (150x150x10): 680.0
 Tube: 704.8
 Ø30mm bar: 2,175.0

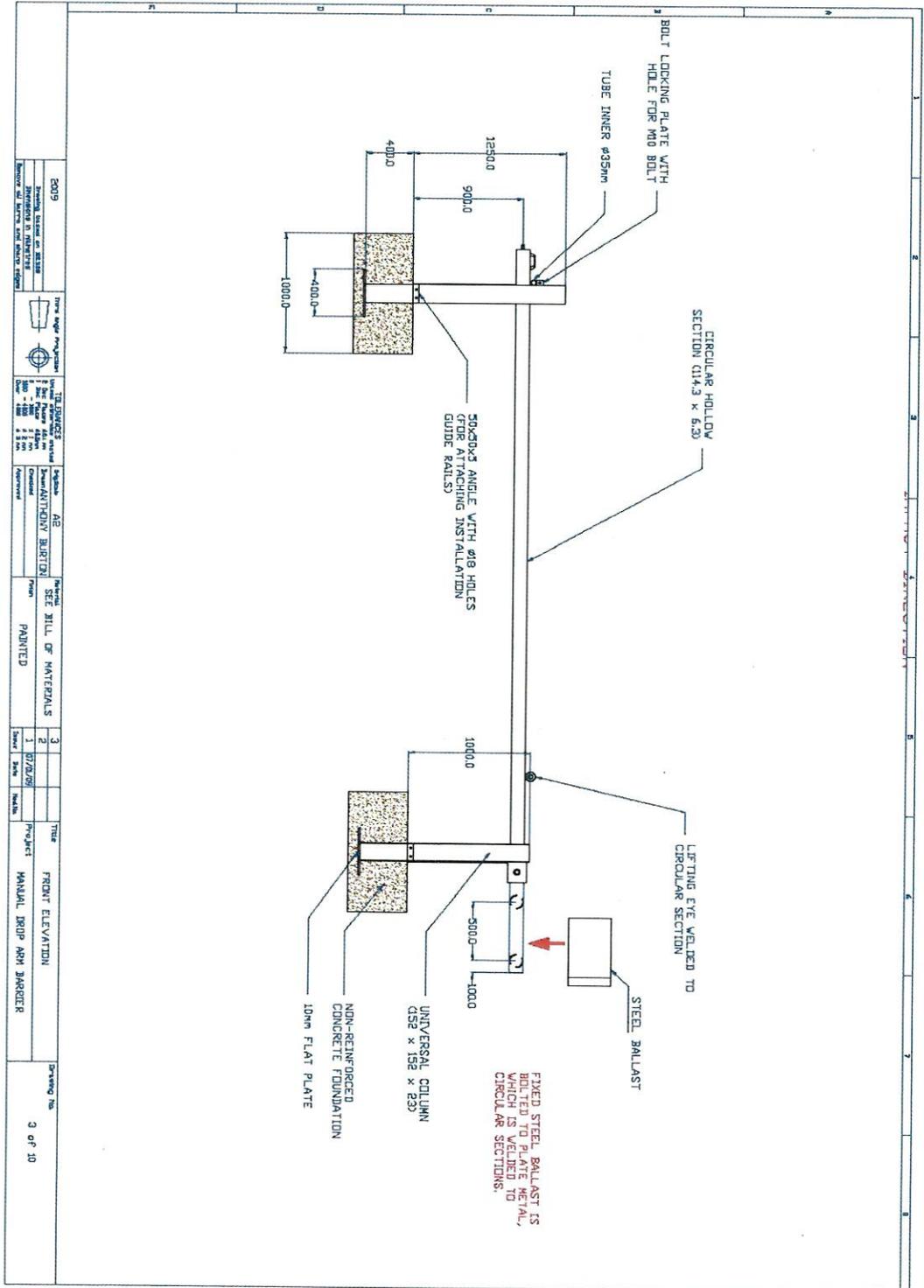
Welding Details:
 MIG Weld
 Rod: SG-Drainelektrode / wire electrode for GMAW. Bohler ENK 6/S. EN 440-C 42 2 C G3Si1/G 42 4 M G3Si1
 Gas: FERROMAXX7 (90.5% Argon, 7% Carbon dioxide, 2.5% Oxygen).

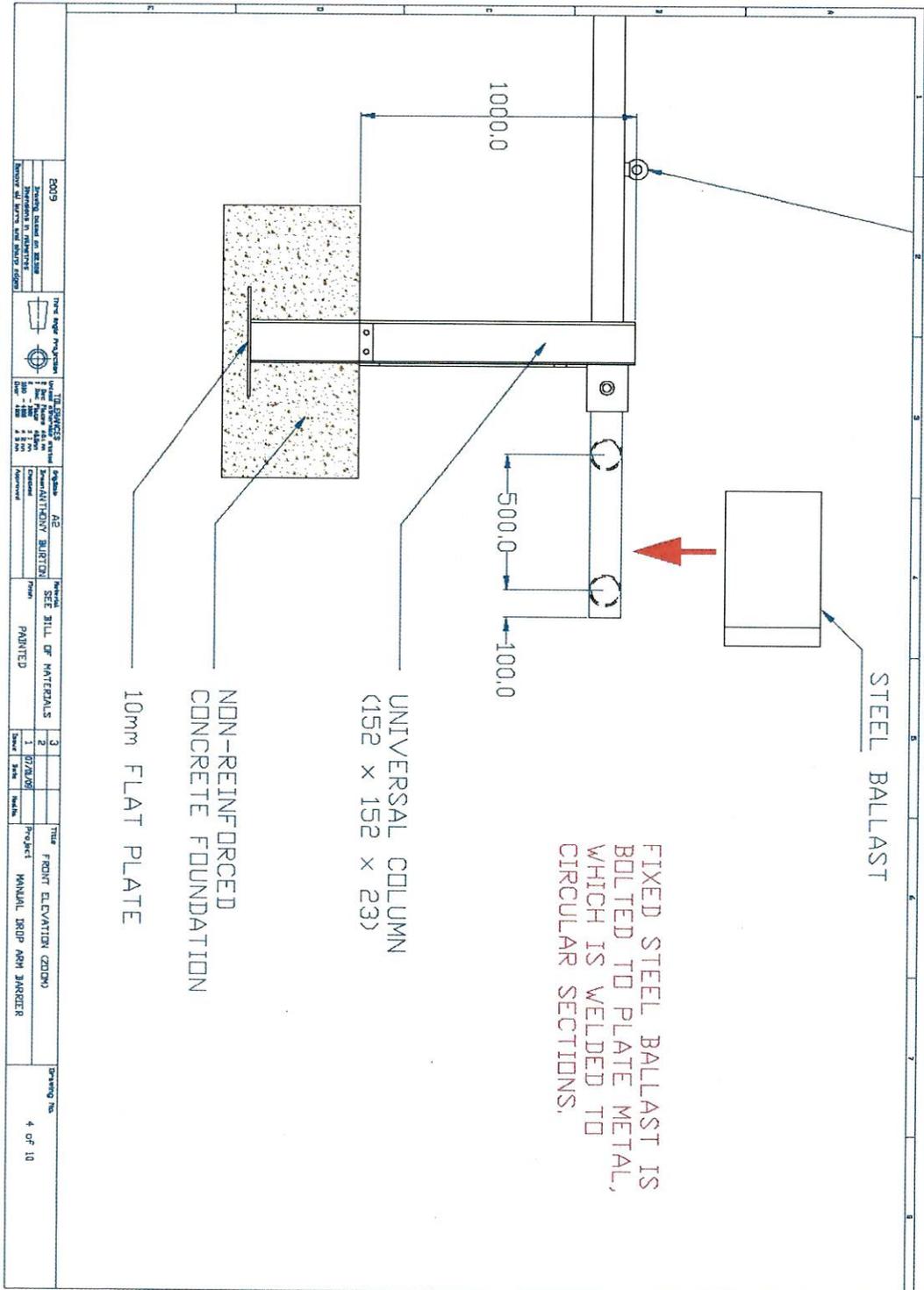
Engineering Drawings

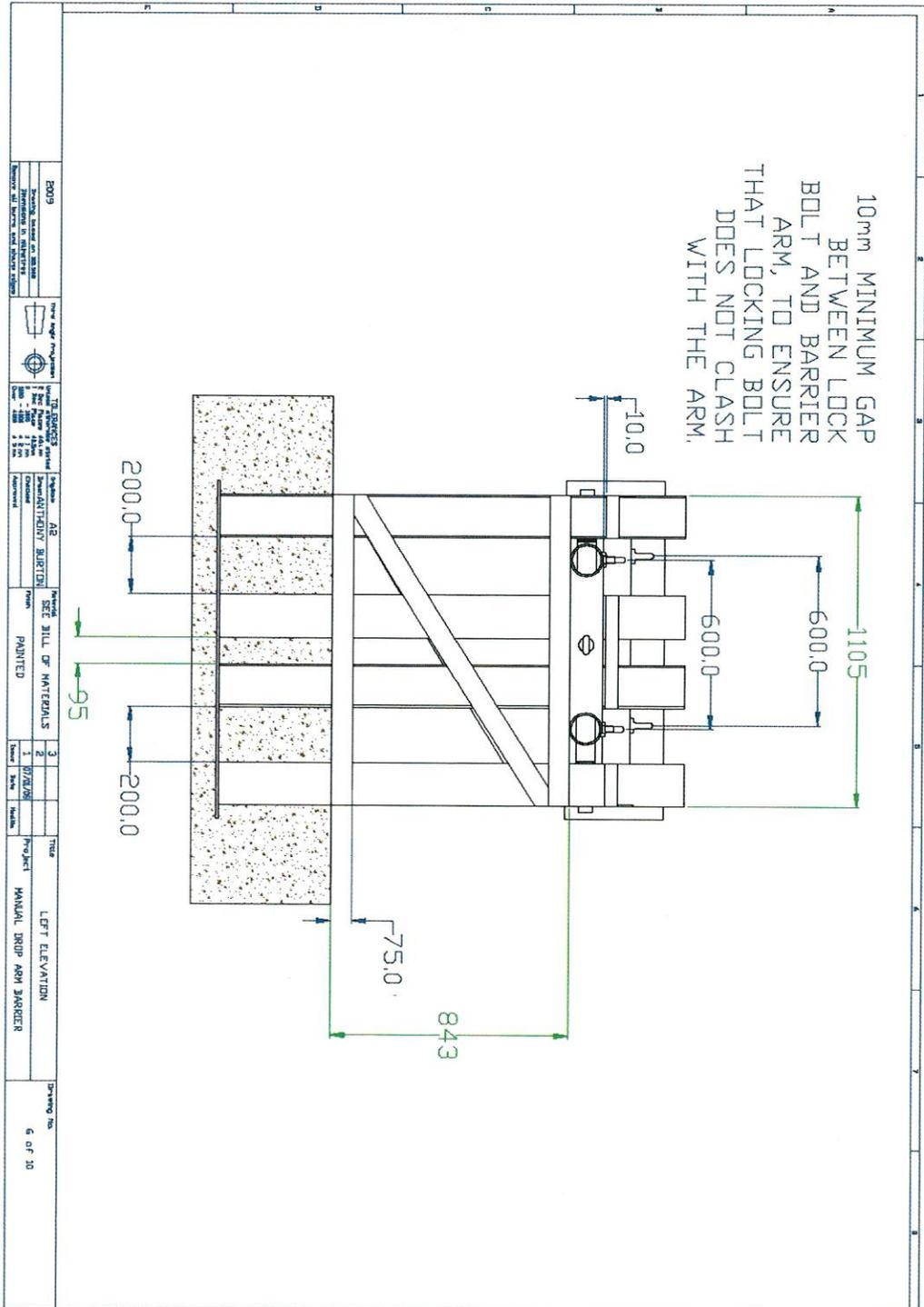


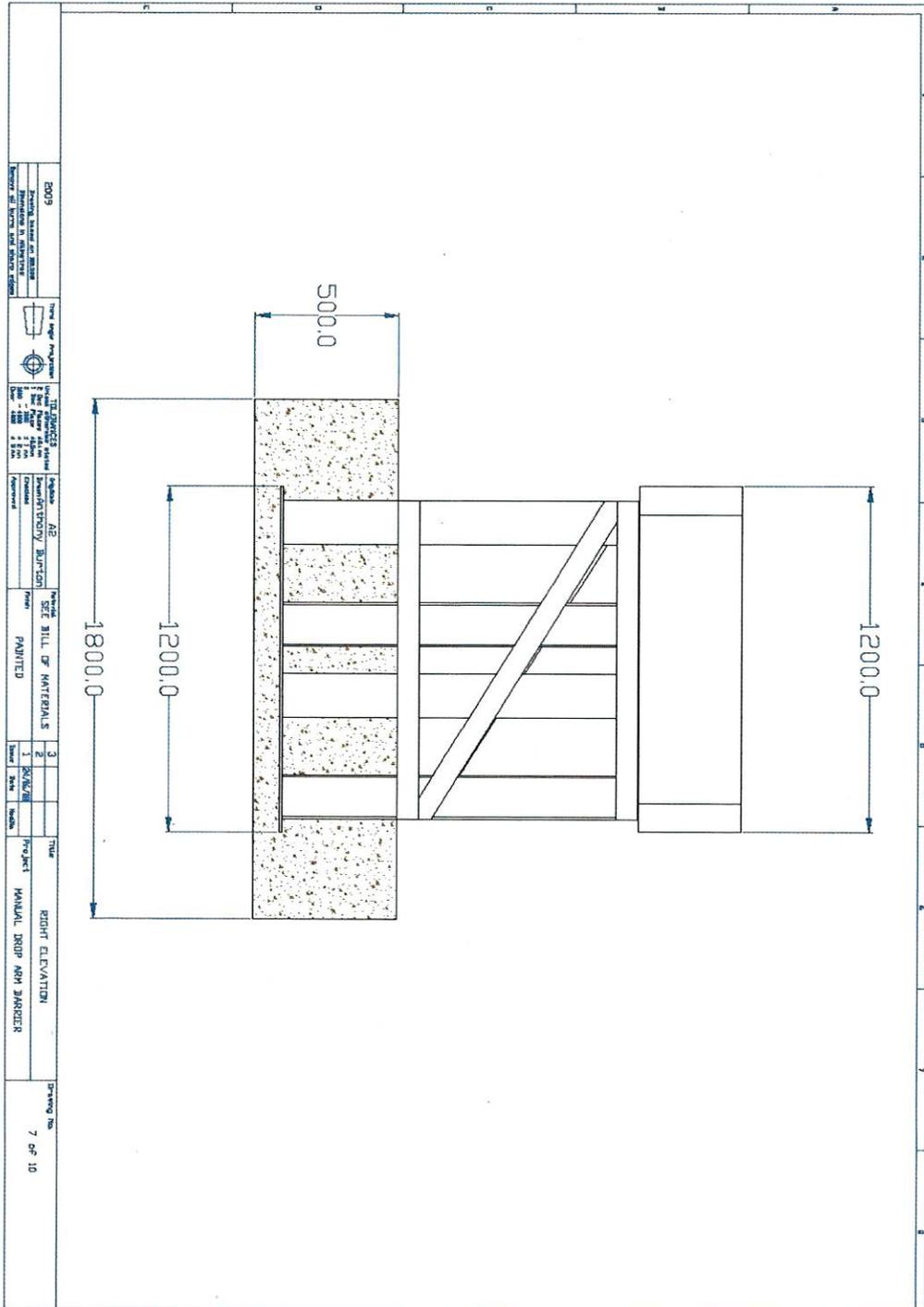


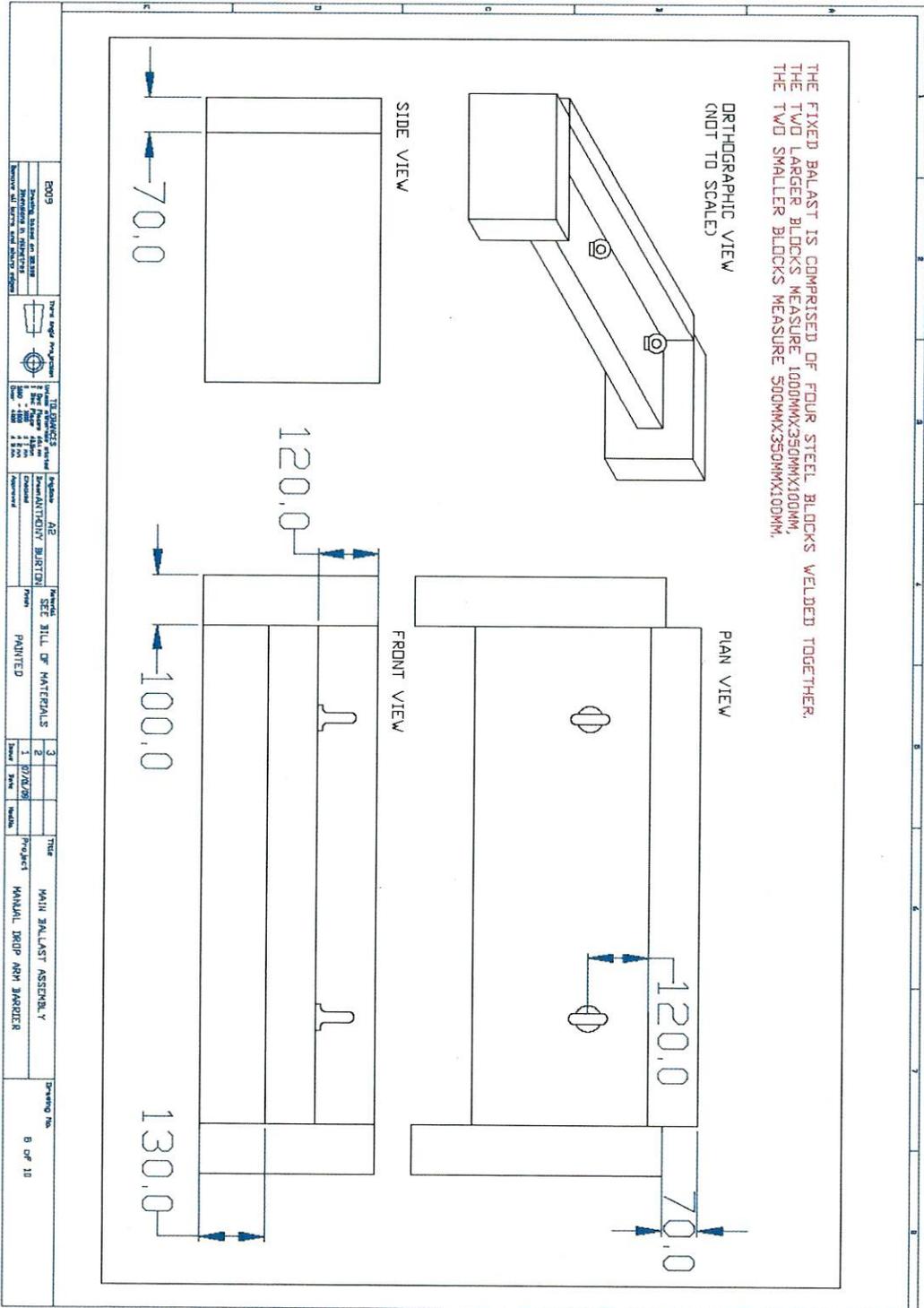
D009 DRAWING SYMBOL OF DESIGN DRAWING ALL DIMENSIONS AND DIMENSION LINES	THIS DRAWING IS THE PROPERTY OF THE COMPANY AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, WITHOUT THE WRITTEN PERMISSION OF THE COMPANY.	17. DIMENSIONS UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN MILLIMETERS DIMENSIONS IN PARENTHESES ARE FOR INFORMATION ONLY	Material: A3 Finish: POLISHED Surface Treatment: NONE	Reference: SEE BILL OF MATERIALS Finish: PAINTED	Title: TOP ELEVATION CDD00 Project: MANUAL TRIP ARM BARRIER	Drawing No. 2 OF 10
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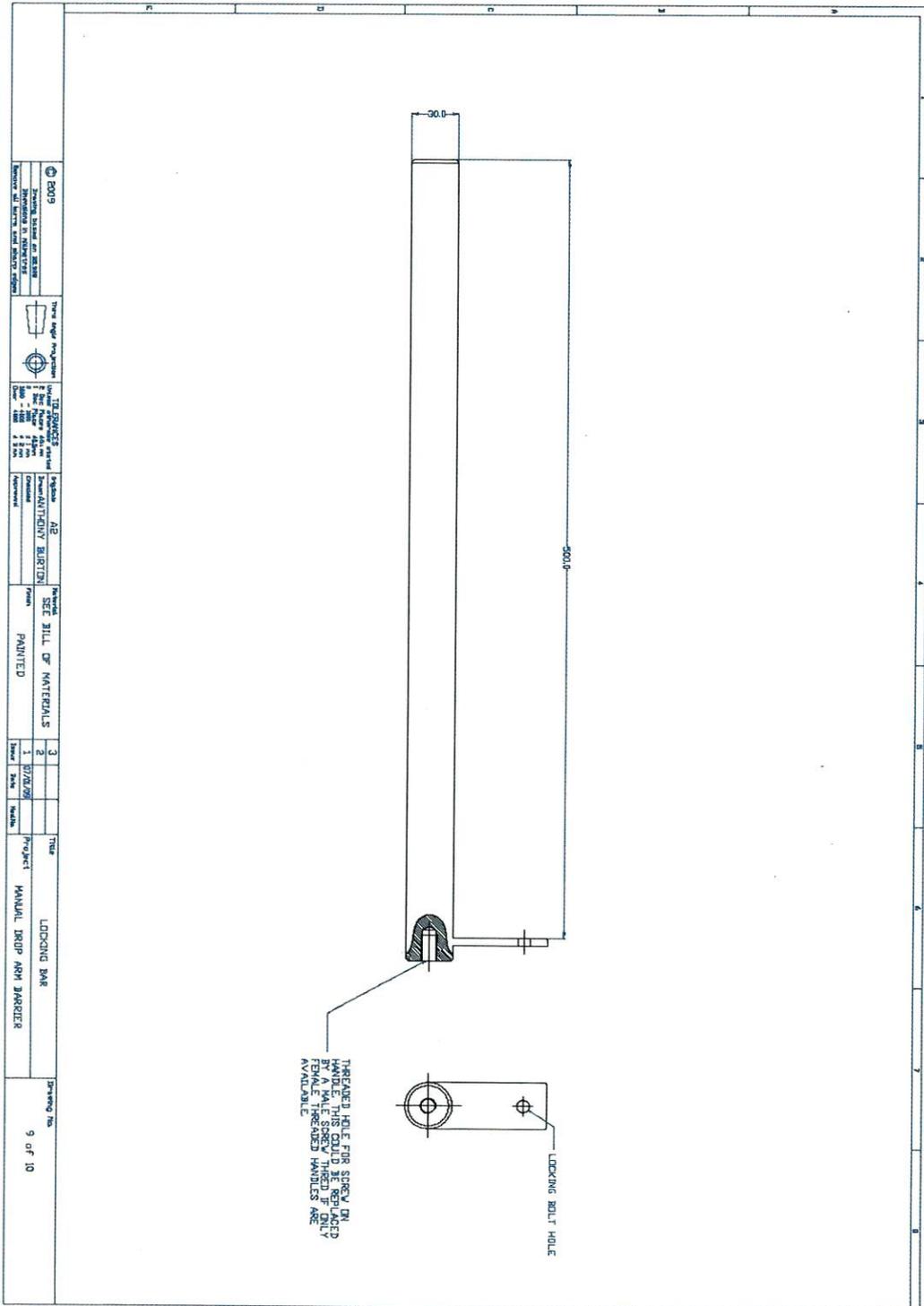




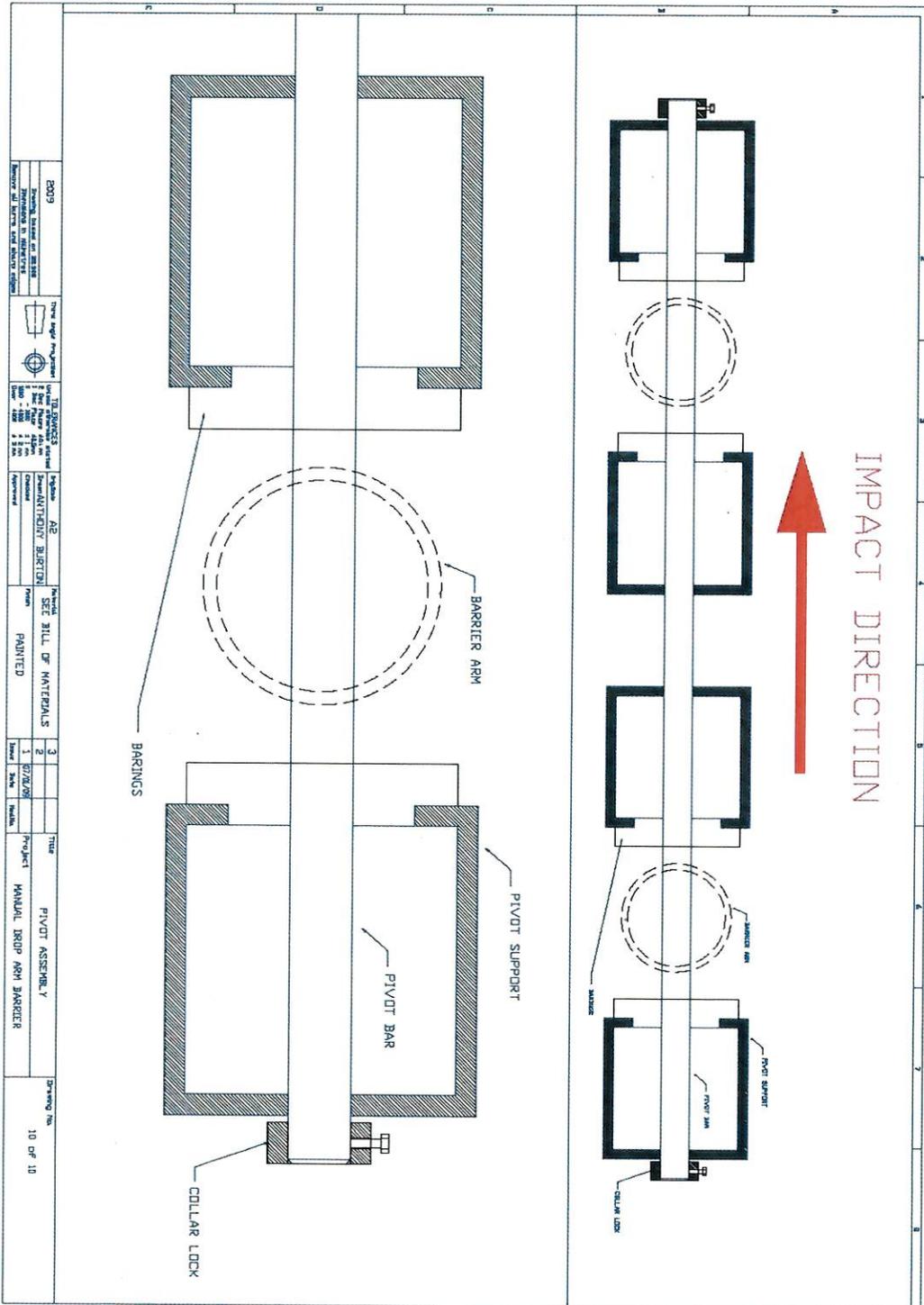






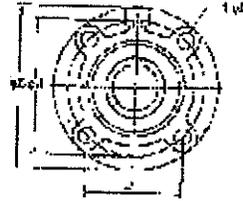
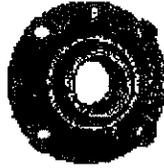


REV REVISIONS TO DRAWING NUMBER OF REV. REV. DATE		THESE DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED		THE FOLLOWING DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED		SYSTEMS IDENTIFICATION BURDEN APPROVAL		FINISH SEE BILL OF MATERIALS PAINTED		TIME LOCKING BAR		DRAWING NO. 9 OF 10	
1	07/2005	2		3		1		2		3		4	



Round flange cartridge type units

UCFCX-E
Cylindrical bore (with set screws)
d 25 - 100 mm



Bore dia. mm	Stroke mm	Dimensions mm											Dad Size mm	Unit No.	Housing No.	Bearing No.			
		L	R ₁	R ₂	R ₃	N	A ₁	A ₂	A ₃	A ₄	S	S							
25	10	44	36.0	0.4	1.0	0.6	0.4	0.4	0.4	0.4	0.4	0.4	0.4	1.500	1.352	M6	UCFCX-E-25	FCX05E	UCR05
25	15	44	36.2	0.4	1.0	0.6	0.4	0.4	0.4	0.4	0.4	0.4	1.500	1.352	M6	UCFCX-E-25-15	FCX05E	UCR05	
25	20	44	36.2	0.4	1.0	0.6	0.4	0.4	0.4	0.4	0.4	0.4	1.500	1.352	M6	UCFCX-E-25-20	FCX05E	UCR05	
25	25	44	36.2	0.4	1.0	0.6	0.4	0.4	0.4	0.4	0.4	0.4	1.500	1.352	M6	UCFCX-E-25-25	FCX05E	UCR05	
25	30	44	36.2	0.4	1.0	0.6	0.4	0.4	0.4	0.4	0.4	0.4	1.500	1.352	M6	UCFCX-E-25-30	FCX05E	UCR05	
25	35	44	36.2	0.4	1.0	0.6	0.4	0.4	0.4	0.4	0.4	0.4	1.500	1.352	M6	UCFCX-E-25-35	FCX05E	UCR05	
25	40	44	36.2	0.4	1.0	0.6	0.4	0.4	0.4	0.4	0.4	0.4	1.500	1.352	M6	UCFCX-E-25-40	FCX05E	UCR05	
25	45	44	36.2	0.4	1.0	0.6	0.4	0.4	0.4	0.4	0.4	0.4	1.500	1.352	M6	UCFCX-E-25-45	FCX05E	UCR05	
25	50	44	36.2	0.4	1.0	0.6	0.4	0.4	0.4	0.4	0.4	0.4	1.500	1.352	M6	UCFCX-E-25-50	FCX05E	UCR05	
25	55	44	36.2	0.4	1.0	0.6	0.4	0.4	0.4	0.4	0.4	0.4	1.500	1.352	M6	UCFCX-E-25-55	FCX05E	UCR05	
25	60	44	36.2	0.4	1.0	0.6	0.4	0.4	0.4	0.4	0.4	0.4	1.500	1.352	M6	UCFCX-E-25-60	FCX05E	UCR05	
25	65	44	36.2	0.4	1.0	0.6	0.4	0.4	0.4	0.4	0.4	0.4	1.500	1.352	M6	UCFCX-E-25-65	FCX05E	UCR05	
25	70	44	36.2	0.4	1.0	0.6	0.4	0.4	0.4	0.4	0.4	0.4	1.500	1.352	M6	UCFCX-E-25-70	FCX05E	UCR05	
25	75	44	36.2	0.4	1.0	0.6	0.4	0.4	0.4	0.4	0.4	0.4	1.500	1.352	M6	UCFCX-E-25-75	FCX05E	UCR05	
25	80	44	36.2	0.4	1.0	0.6	0.4	0.4	0.4	0.4	0.4	0.4	1.500	1.352	M6	UCFCX-E-25-80	FCX05E	UCR05	
25	85	44	36.2	0.4	1.0	0.6	0.4	0.4	0.4	0.4	0.4	0.4	1.500	1.352	M6	UCFCX-E-25-85	FCX05E	UCR05	
25	90	44	36.2	0.4	1.0	0.6	0.4	0.4	0.4	0.4	0.4	0.4	1.500	1.352	M6	UCFCX-E-25-90	FCX05E	UCR05	
25	95	44	36.2	0.4	1.0	0.6	0.4	0.4	0.4	0.4	0.4	0.4	1.500	1.352	M6	UCFCX-E-25-95	FCX05E	UCR05	
25	100	44	36.2	0.4	1.0	0.6	0.4	0.4	0.4	0.4	0.4	0.4	1.500	1.352	M6	UCFCX-E-25-100	FCX05E	UCR05	

Remarks 1. In Part No. of unit, flange bore to bore diameter number. (See Table 10.5 in R42.)
 2. Part No. of optional grease applicator shown below.
 A-14-2004 305-X04
 A-PT16 310-X20