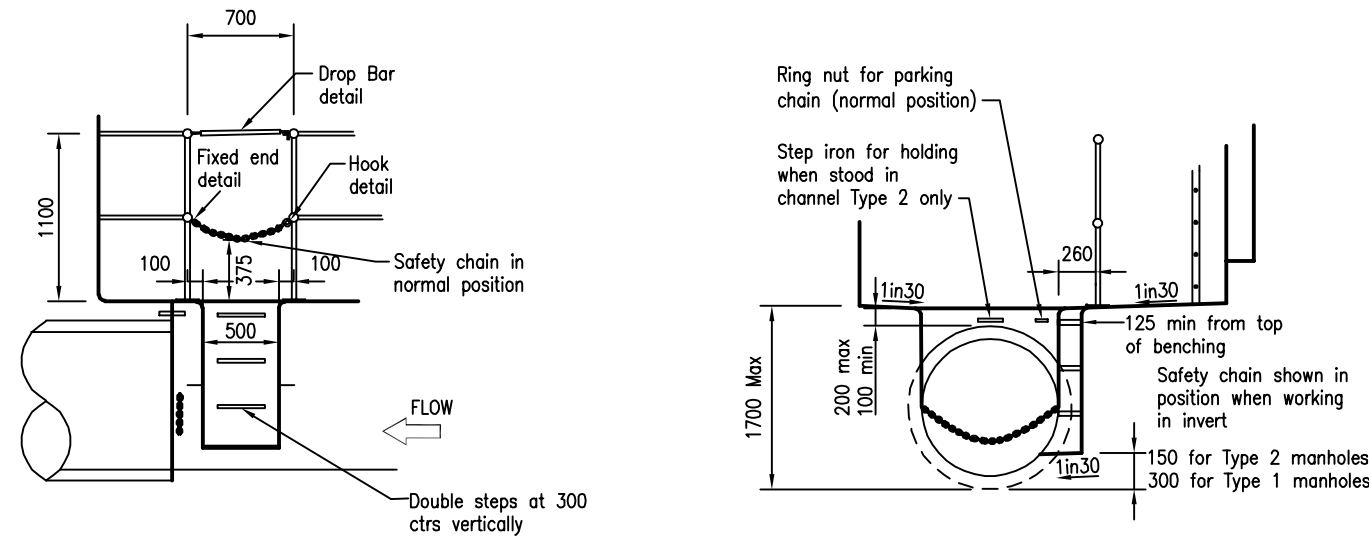
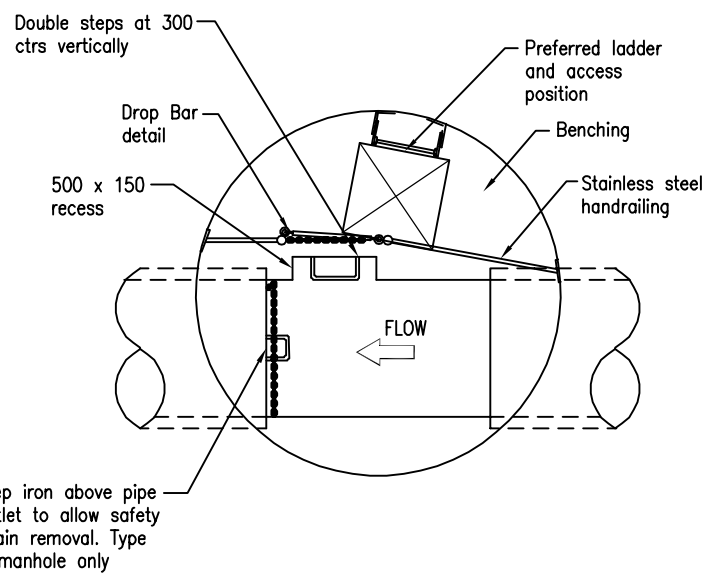




FRONT ELEVATION

SIDE ELEVATION
(Looking downstream)

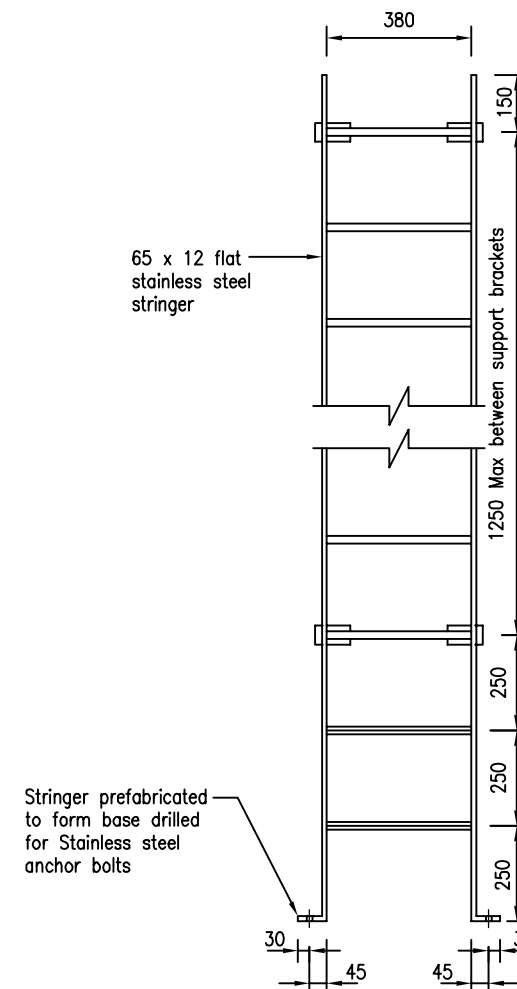


PLAN

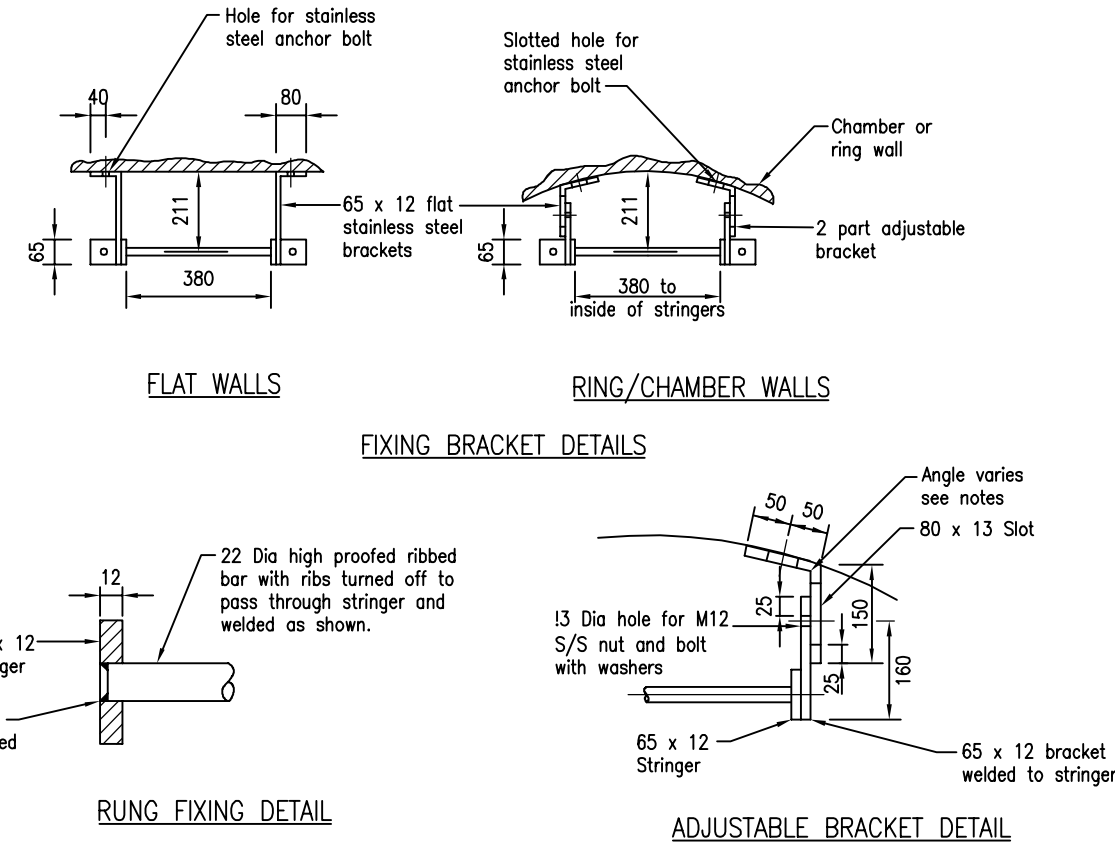
STANDARD DETAIL No.7 STANDARD INVERT ACCESS DETAILS FOR TYPE 2 MANHOLES AND TYPE 1 WHERE THE SEWER IS 600mm DIAMETER OR GREATER

Formerly Drg No. 0000/256/W007

- This detail to be read in conjunction with the following Standard Details:-
Standard Detail No. 4 - Type 1 Manholes
Standard Detail No. 5 - Type 2 Manholes
Standard Detail No. 8 - Stainless Steel Ladders
Standard Detail No. 9 - Stainless Steel Handrailing
Standard Detail No. 10 - Stainless Steel Safety Chain
- Double steps shall be plastic encapsulated carbon steel manhole steps to BS 1247-2. Step irons at 250/300 centres horizontally and vertically may be used as an alternative to double steps.



STAINLESS STEEL LADDER DETAIL



RUNG FIXING DETAIL

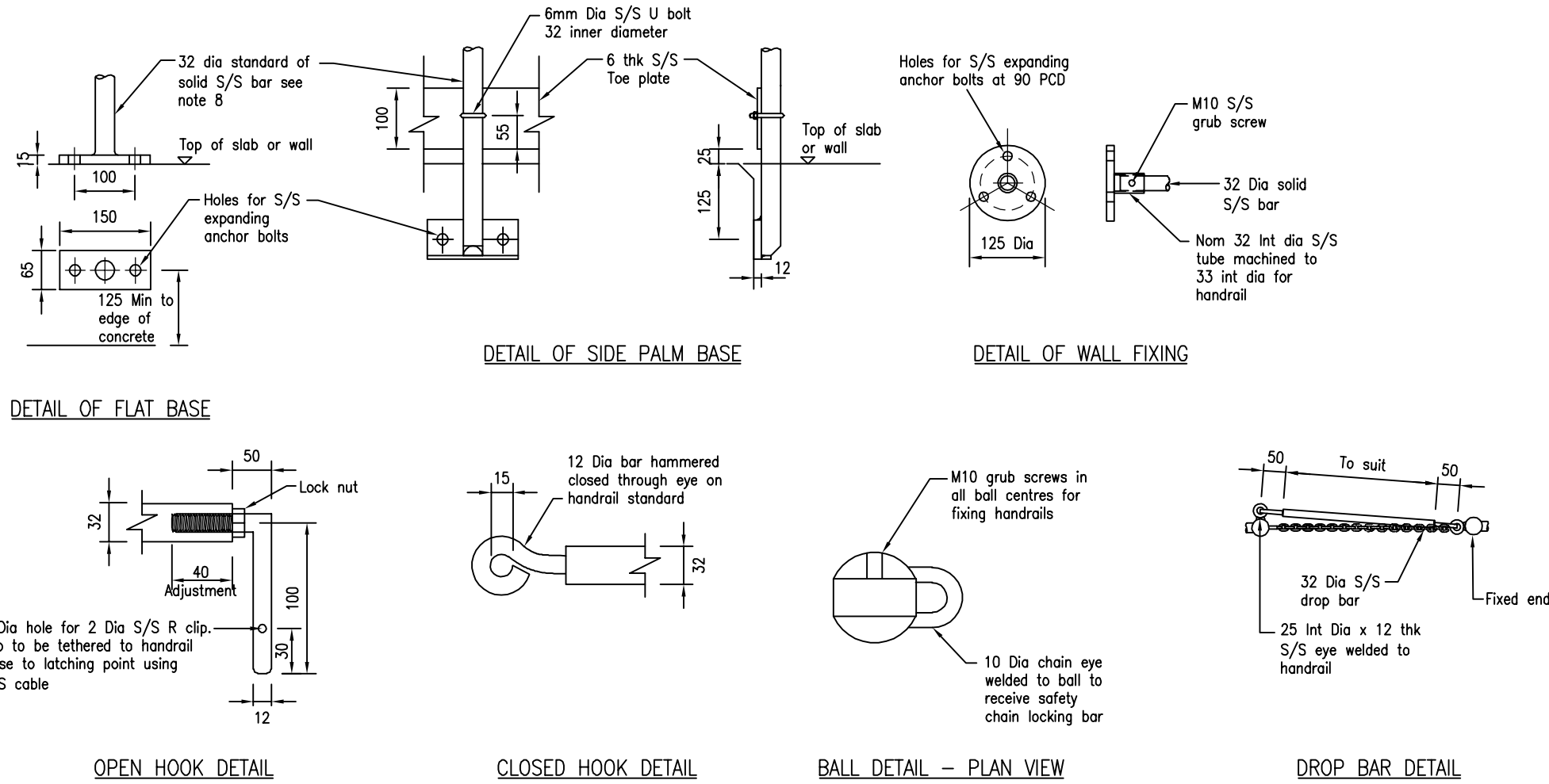
ADJUSTABLE BRACKET DETAIL

- All dimensions in millimetres.
- All components to be fabricated in Stainless steel Grade X5 Cr Ni Mo 17-12-2 to BS EN 10088: Part 1.
- The two piece adjustable bracket has been detailed to ensure that the distance between the shaft wall and the centre line of the rung is 211, at the mid span of the rung for all shaft diameters.
- The angle of the proportion the bracket fixed to the manhole wall varies with chamber diameter. The angles required are as follows:-

CHAMBER DIA	ANGLE OF BRACKET
900	112.7
1050	109.1
1200	106.5
1350	104.5
1500	103.0
1800	100.7
2100	99.1
2400	98.0
2700	97.0
3000	96.2
- Ladder stringers to be one of continuous length with no joints.
- All welds shall be 6mm Fillet welds unless shown otherwise.
- All bolts into concrete to be Stainless steel expanding anchor type.
- Where access is via intermediate slabs/platforms the top of the ladder shall terminate 1250 above slab/platform level.

STANDARD DETAIL No.8 STANDARD SOLID STAINLESS STEEL LADDER AND FIXINGS

Formerly Drg No. 0000/254/W008



DETAIL OF SIDE PALM BASE

DETAIL OF WALL FIXING

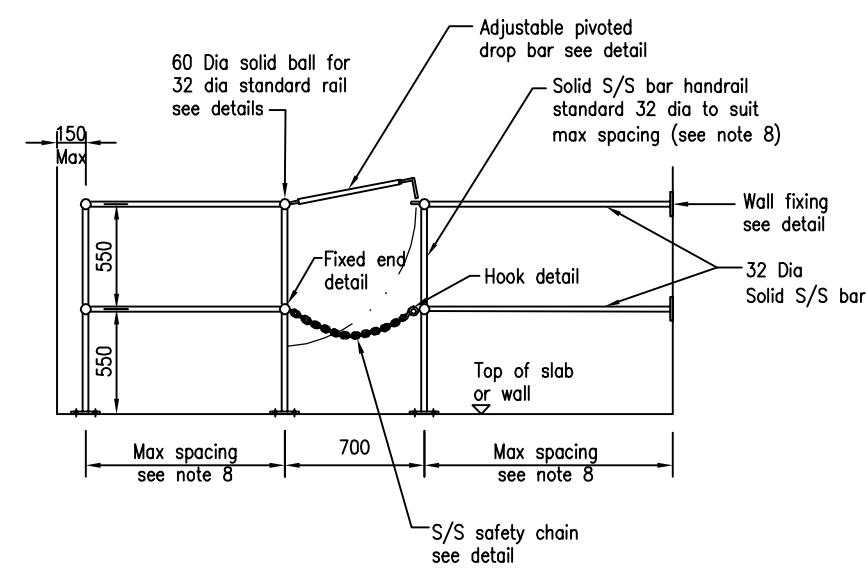
DETAIL OF FLAT BASE

OPEN HOOK DETAIL

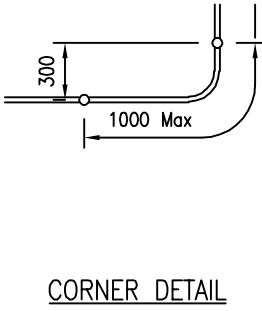
CLOSED HOOK DETAIL

BALL DETAIL - PLAN VIEW

DROP BAR DETAIL



ELEVATION

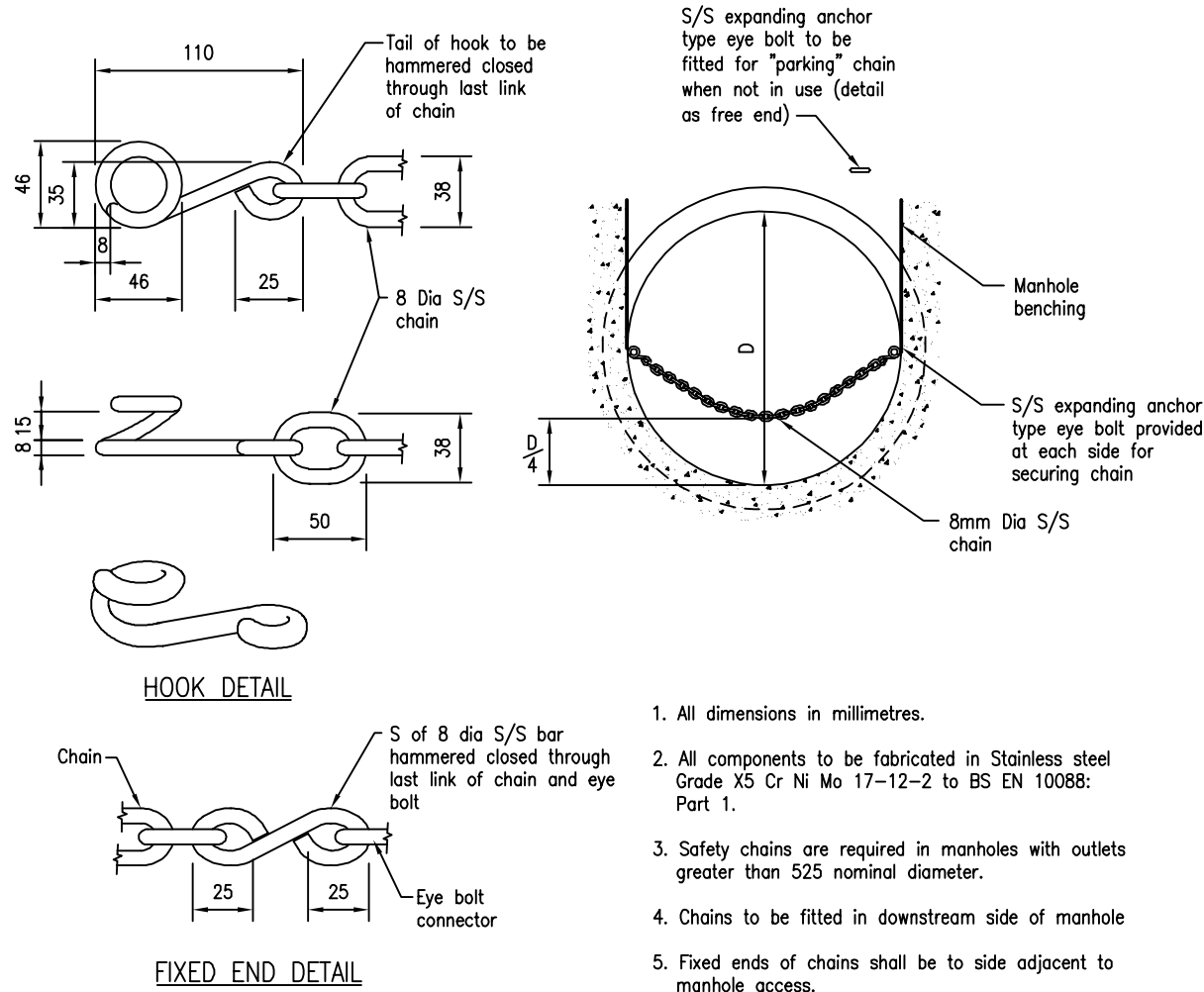


CORNER DETAIL

STANDARD DETAIL No.9 STANDARD SOLID STAINLESS STEEL HANDRAILING

Formerly Drg No. 0000/254/W009

- All dimensions in millimetres.
- All components to be fabricated in Stainless steel Grade X5 Cr Ni Mo 17-12-2 to BS EN 10088: Part 1.
- All fixing bolts to be a minimum of 125mm from edges of concrete.
- All handrailing joints to be formed within the balls.
- Handrails to be fixed within balls by the use of an M10 stainless steel grub screw.
- All bends in handrailing must be machine formed.
- All welds shall be 6mm Fillet Welds.
- Max spacing of 32mm dia handrail standards to be 1240mm.
- Side palm base for handrail standards not to be used at manhole benching level.
- 100 min height stainless steel toe plate required if side palm handrail standards used.
- Kicker plates to be installed on all intermediate landings and on benching where invert to benching is greater than 2m.



HOOK DETAIL

FIXED END DETAIL

- All dimensions in millimetres.
- All components to be fabricated in Stainless steel Grade X5 Cr Ni Mo 17-12-2 to BS EN 10088: Part 1.
- Safety chains are required in manholes with outlets greater than 525 nominal diameter.
- Chains to be fitted in downstream side of manhole.
- Fixed ends of chains shall be to side adjacent to manhole access.
- Normal operational position for safety chains is in the parked position (parking eye bolt).
- Attention is drawn to the fact that the bolt fixings for the safety chain are the safety bolt type fixing.

STANDARD DETAIL No.10 STANDARD SOLID STAINLESS STEEL SAFETY CHAINS AND FIXINGS

Formerly Drg No. 0000/254/W010

CURRENT ISSUE INFORMATION

C. Standard Detail No. 7 Amended for use in 600 instead of 750 Diameter Sewers.

18.02.03	JL	DHA	MJR	C	FOR INFORMATION
30.05.02	JL	DHA	MR	B	FOR INFORMATION
15.03.01	PH	DHA	MJR	A	APPROVED
DATE	DRWN	CHKD	REVD	ISSUE	



UNITED UTILITIES PLC
STANDARD DETAILS

NETWORKS
STANDARD DETAILS 7, 8, 9 AND 10
LADDER, HANDRAILING AND SAFETY CHAINS

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