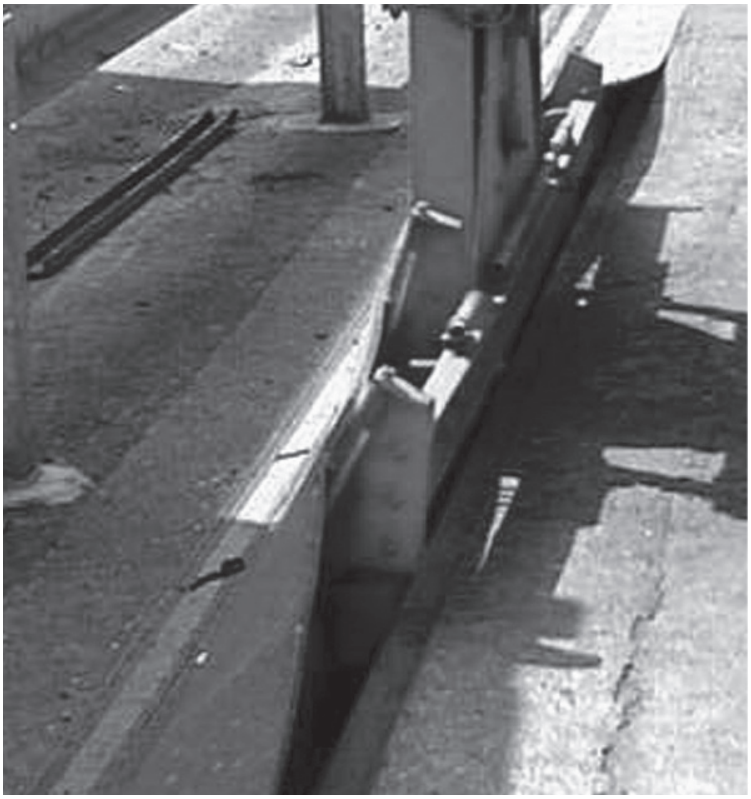
Trenchguard Manual



CONDUCTIX wampfler

Conductix Incorporated

The technical data and images which appear in this manual are for informational purposes only. **NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE CREATED BY THE DESCRIPTIONS AND DEPICTIONS OF THE PRODUCTS SHOWN IN THIS MANUAL**. Conductix makes no warranty (and assumes no liability) as to function of equipment or operation of systems built according to customer design or of the ability of any of its products to interface, operate or function with any portions of customer systems not provided by Conductix.

Seller agrees to repair or exchange the goods sold hereunder necessitated by reason of defective workmanship and material discovered and reported to Seller within one year after shipment of such goods to Buyer.

Except where the nature of the defect is such that it is appropriate, in Seller's judgment, to effect repairs on site, Seller's obligation hereunder to remedy defects shall be limited to repairing or replacing (at Seller's option) FOB point of original shipment by Seller, any part returned to Seller at the risk and cost of Buyer. Defective parts replaced by Seller shall become the property of Seller.

Seller shall only be obligated to make such repair or replacement if the goods have been used by Buyer only in service recommended by Seller and altered only as authorized by Seller. Seller is not responsible for defects which arise from improper installation, neglect, or improper use or from normal wear and tear.

Additionally, Seller's obligation shall be limited by the manufacturer's warranty (and is not further warranted by Seller) for all parts procured from others according to published data, specifications or performance information not designed by or for Seller.

Seller further agrees to replace or at Seller's option to provide a refund of the sales price of any goods that do not conform to applicable specifications or which differ from that agreed to be supplied which non-conformity is discovered and forthwith reported to Seller within thirty (30) days after shipment to the Buyer. Seller's obligation to replace or refund the purchase price for non-conforming goods shall arise once Buyer returns such goods FOB point of original shipment by Seller at the risk and cost of Buyer. Goods replaced by Seller shall become the property of Seller.

There is no guarantee or warranty as to anything made or sold by Seller, or any services performed, except as to title and freedom from encumbrances and, except as herein expressly stated and particularly, and without limiting the foregoing, **there is no guarantee or warranty, express or implied, of merchantability or of fitness for any particular purpose or against claim of infringement or the like.**

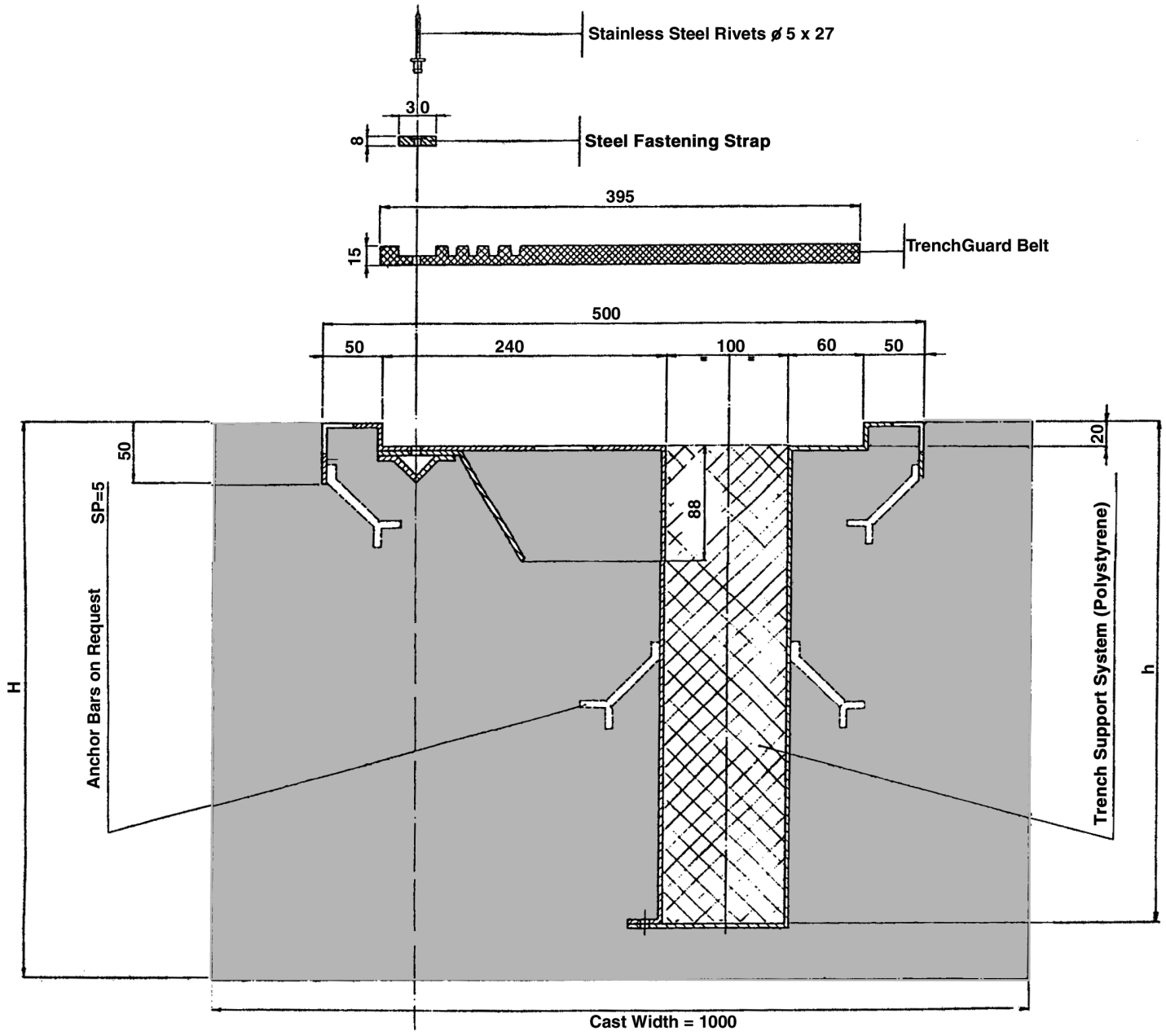
Seller makes no warranty (and assumes no liability) as to function of equipment or operation of systems built to Buyer's design or of the ability of any goods to interface, operate or function with any portions of Buyer's system not provided by Seller.

Seller's liability on any claim, whether in contract, tort (including negligence), or otherwise, for any loss or damage arising out of, connected with, or resulting from the manufacture, sale, delivery, resale, repair, replacement or use of any products or services shall in no case exceed the price paid for the product or services or any part thereof which give rise to the claim. In no event shall Seller be liable for consequential, special, incidental or other damages, nor shall Seller be liable in respect of personal injury or damage to property not the subject matter hereof unless attributable to gross misconduct of Seller, which shall mean an act or omission by Seller demonstrating reckless disregard of the foreseeable consequences thereof.

Seller is not responsible for incorrect choice of models or where products are used in excess of their rated and recommended capacities and design functions or under abnormal conditions. Seller assumes no liability for loss of time, damage or injuries to property or persons resulting from the use of Seller's products. Buyer shall hold Seller harmless from all liability, claims, suits and expenses in connection with loss or damage resulting from operation of products or utilization of services, respectively, of Seller and shall defend any suit or action which might arise there from in Buyer's name - provided that Seller shall have the right to elect to defend any such suit or action for the account of Buyer. The foregoing shall be the exclusive remedies of the Buyer and all persons and entitles claiming through the Buyer.

INDEX

1.0 Composition and Dimensional Information



Channel Type	Dimensions	
	h	H
XL 400-TrenchGuard / 220	220	260
XL 400-TrenchGuard / 320	320	360
XL 400-TrenchGuard / 420	420	460
XL 400-TrenchGuard / 520	520	560

2.0 Preparation of Channel System Components

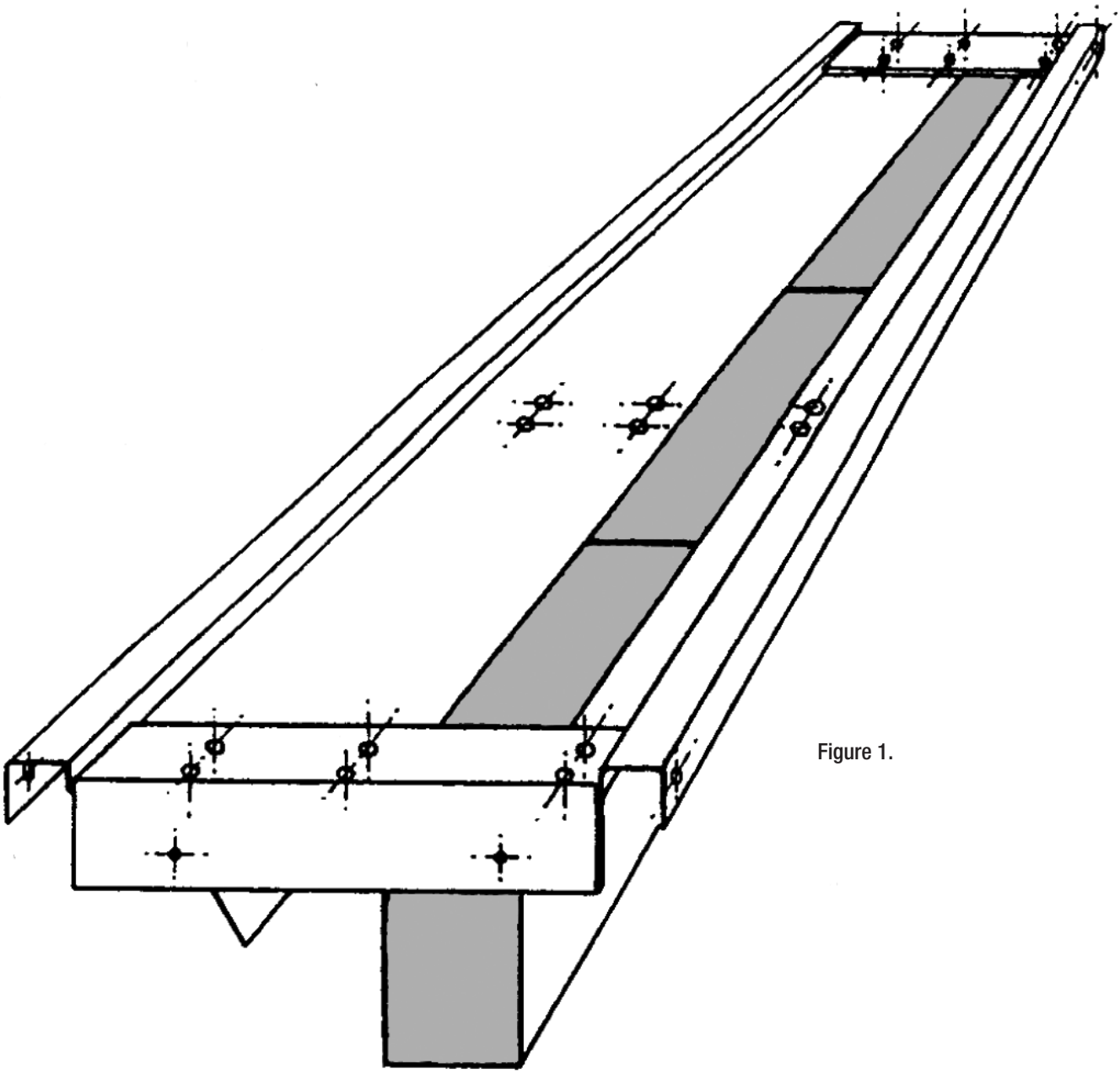


Figure 1.

2.1 The component parts of the channel system can be pre-assembled (left side, right side, polystyrene) with positioning brackets supporting the tube (see figure 1 above). Rivets, clamp plates and rolls of belt are supplied separately.

2.2 As an option the component parts of the channel can be supplied in kit form on separate pallets in order to reduce transportation costs.

3.0 Site Excavation and Preparation for the Civilian

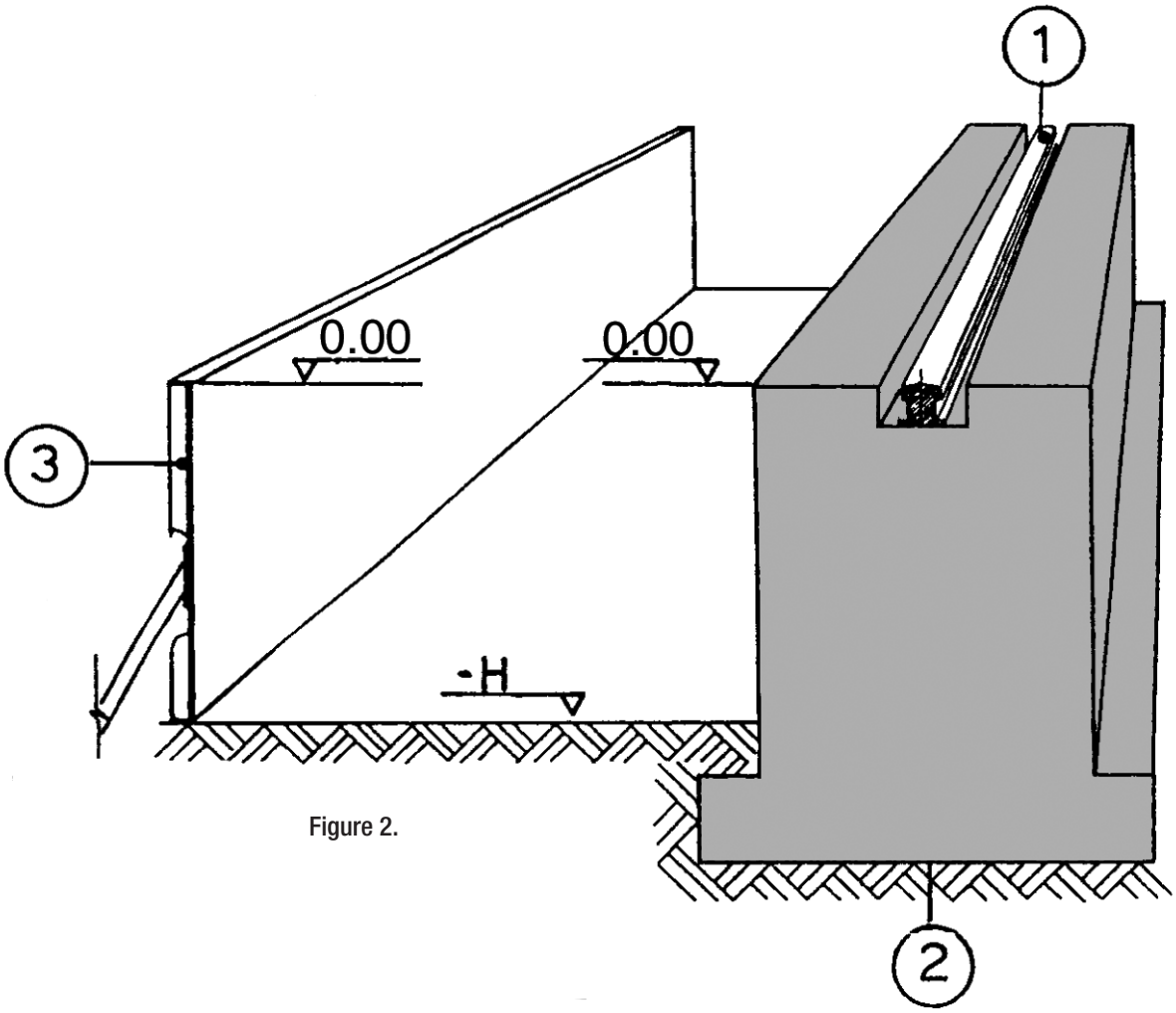


Figure 2.

3.1 Figure 2 (above) shows a typical section of a dock side with rail **(1)** placed on concrete support **(2)**. The excavation of the surrounding area must be executed (if the are no other requirements of the civil engineer) to a depth **(-H)** as indicated in the dimensional listing on page 1. Supports are to be formed **(3)** to contain the pour.

4.0 Reinforcement of Channel

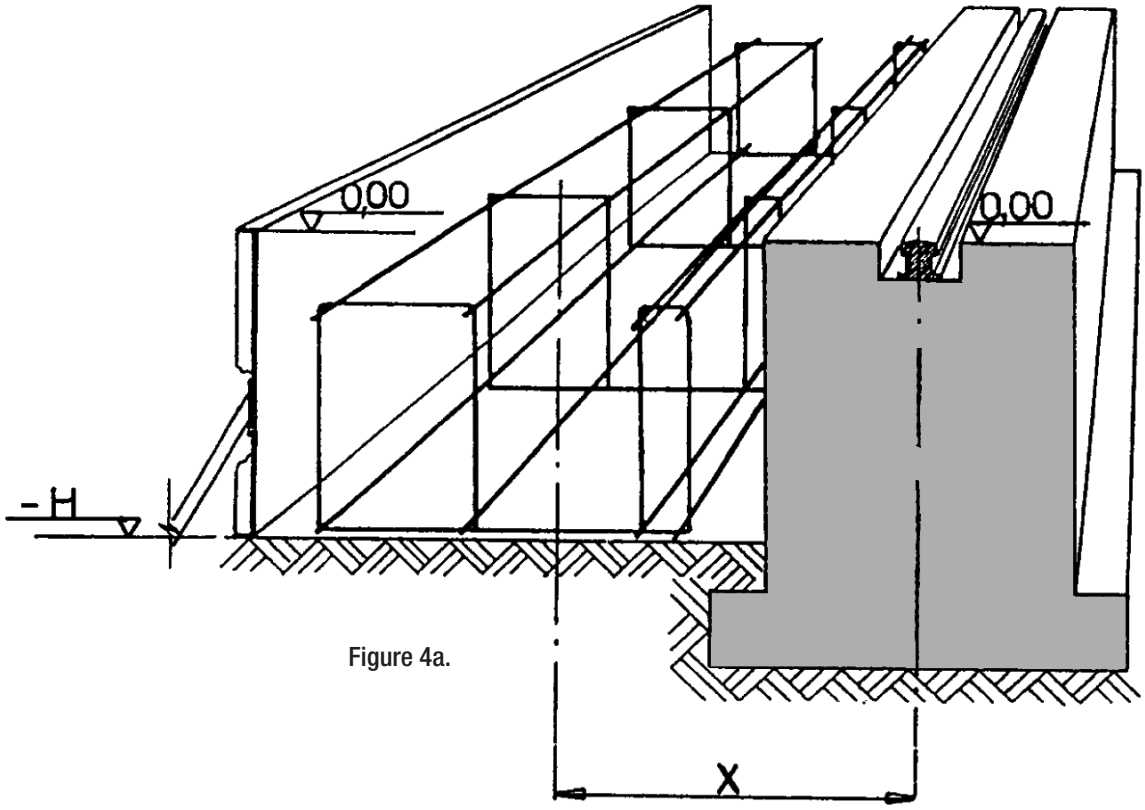


Figure 4a.

4.1 The reinforcements (calculated by engineer) are placed in the right position surrounding the area of the concrete pour. It is important to maintain the distance between centers **(X)** of the channel positioning, as in figures **(4a & 4b)**.

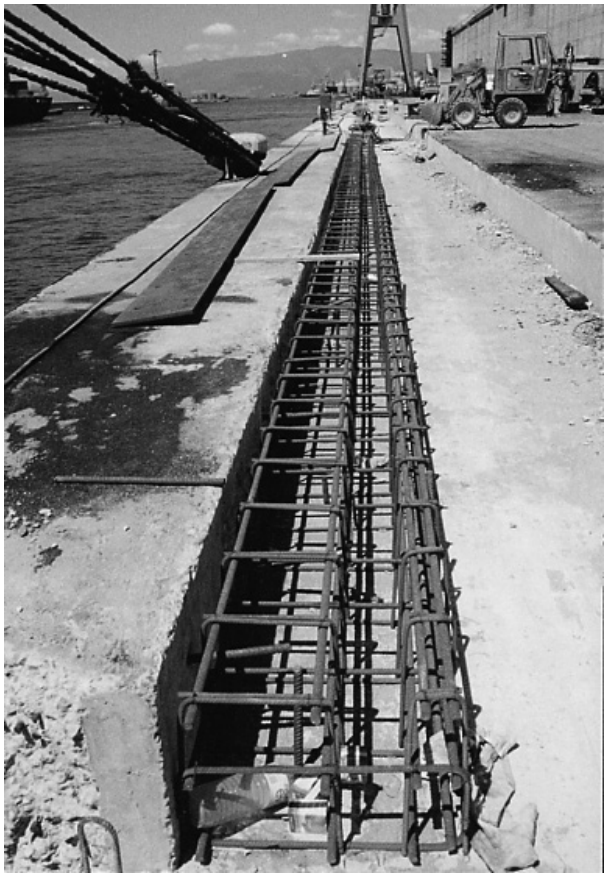


Figure 4b.

4.0 Reinforcement of Channel

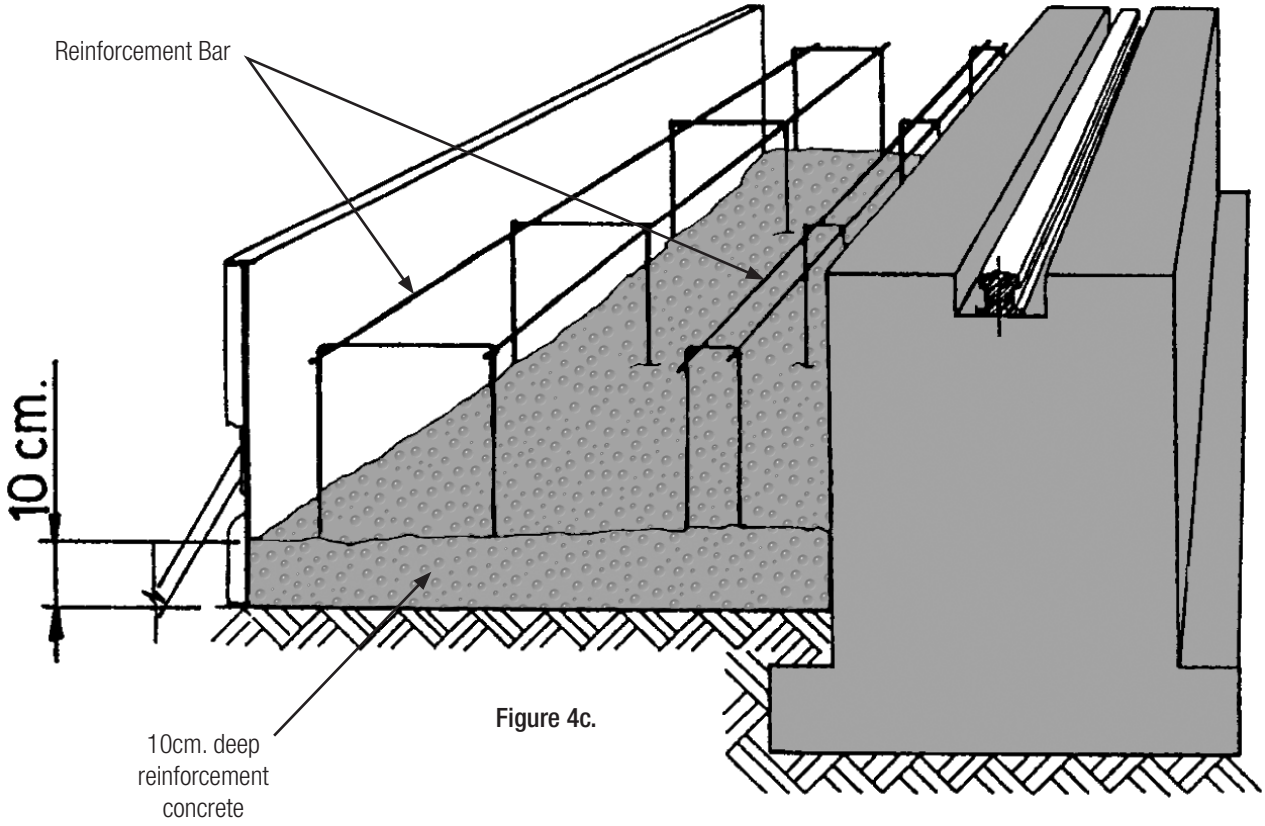


Figure 4c.

4.2 After placing the reinforcements in their right position pour the reinforcement concrete (which should be about 10cm. in depth), in order to create a solid foundation for the pour, and to ensure the reinforcements are stabilized **(figure 4c)**.

5.0 Preparation of the Channel System

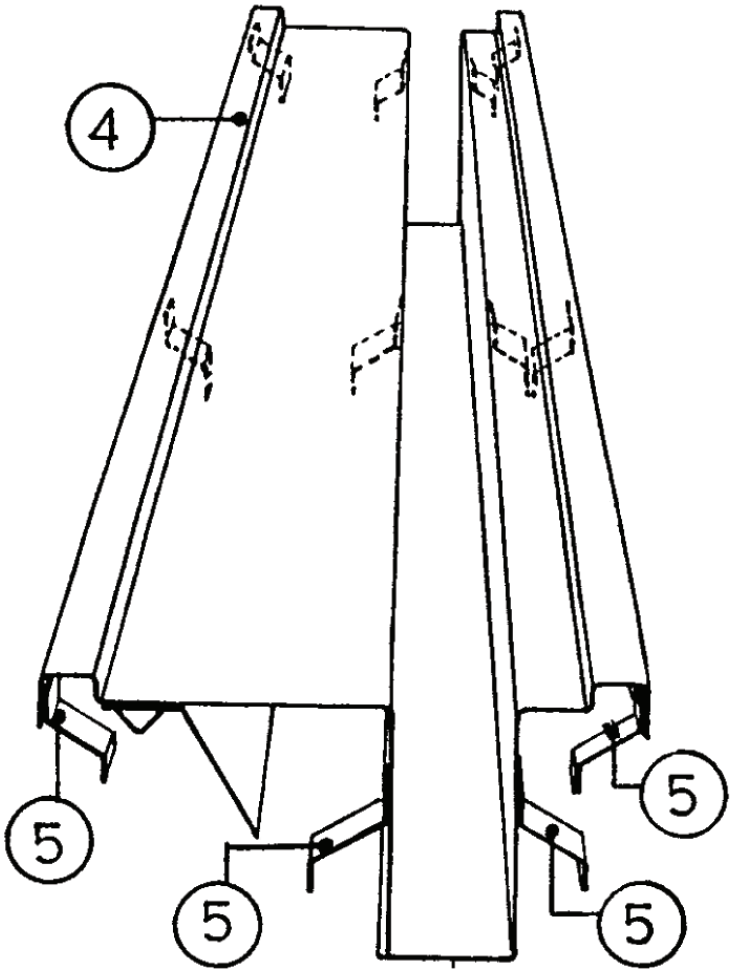


Figure 5a.

5.1 Any part of channel system that does not have anchor holes must have hooks tack welded in the position indicated in **(figure 5a)**. A total of 12 hooks per section are required. It is necessary to pay attention in placing the hooks so as not to interfere with the reinforcement.

5.0 Preparation of the Channel System

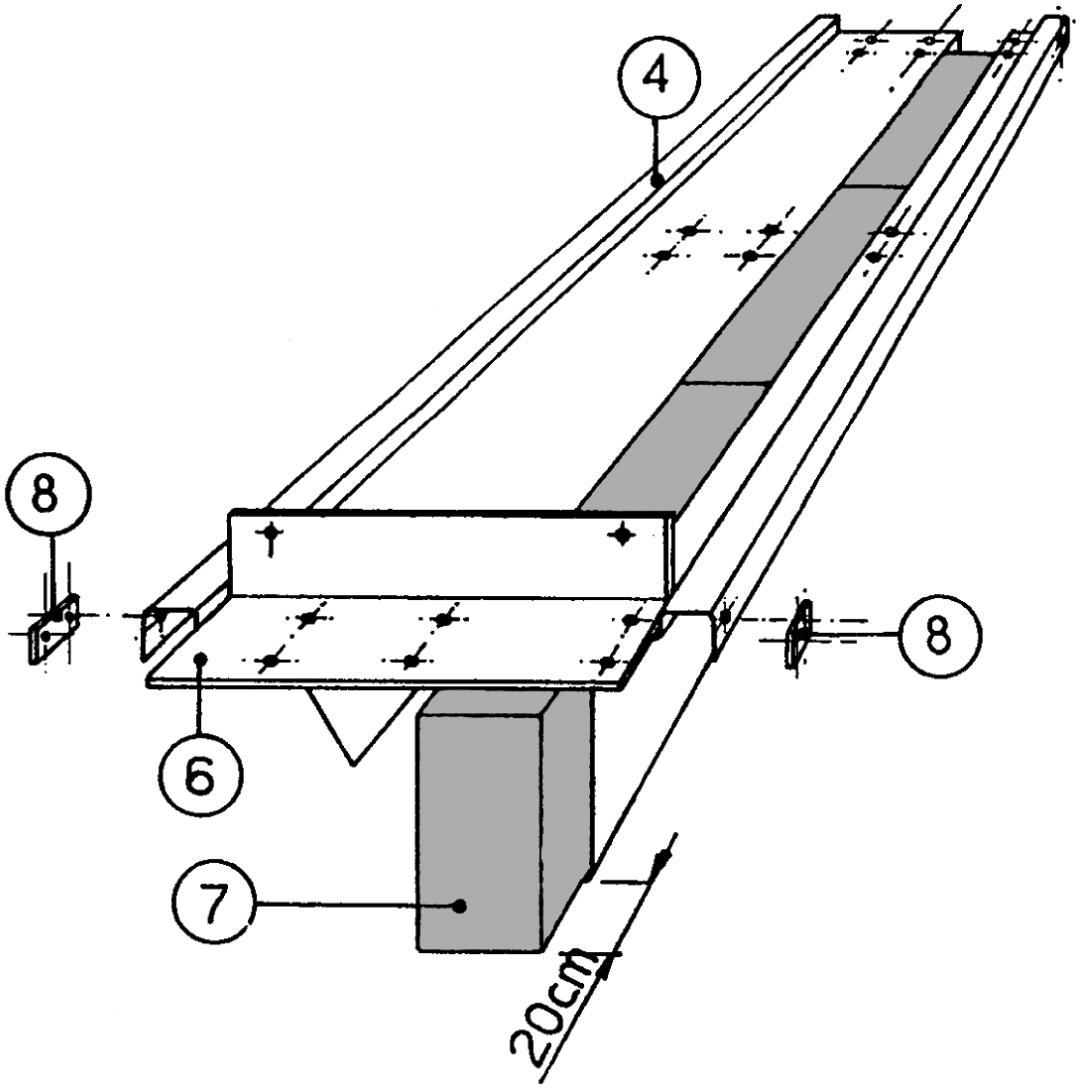


Figure 5b.

5.2 The positioning of each component part of the channel system **(4)** for the connection between them is indicated in **(figure 5b)**. The junction angle plates **(6)** provided hold in position and join together the component parts.

- The continuity and the alignment between two component parts is obtained by making the polystyrene filler protrude by approx. 20cm. **(7)**, and this one will fit into the next part of the channel.
- The copper fish plates **(8)** for the earthing of the channel will be bolted between the parts to bridge them.
- Tightening the bolts will help to align the different parts of the channel system.
- As an option the trench channel system may be supplied with an end-to-end interlock system to further align the sections.

5.0 Preparation of the Channel System

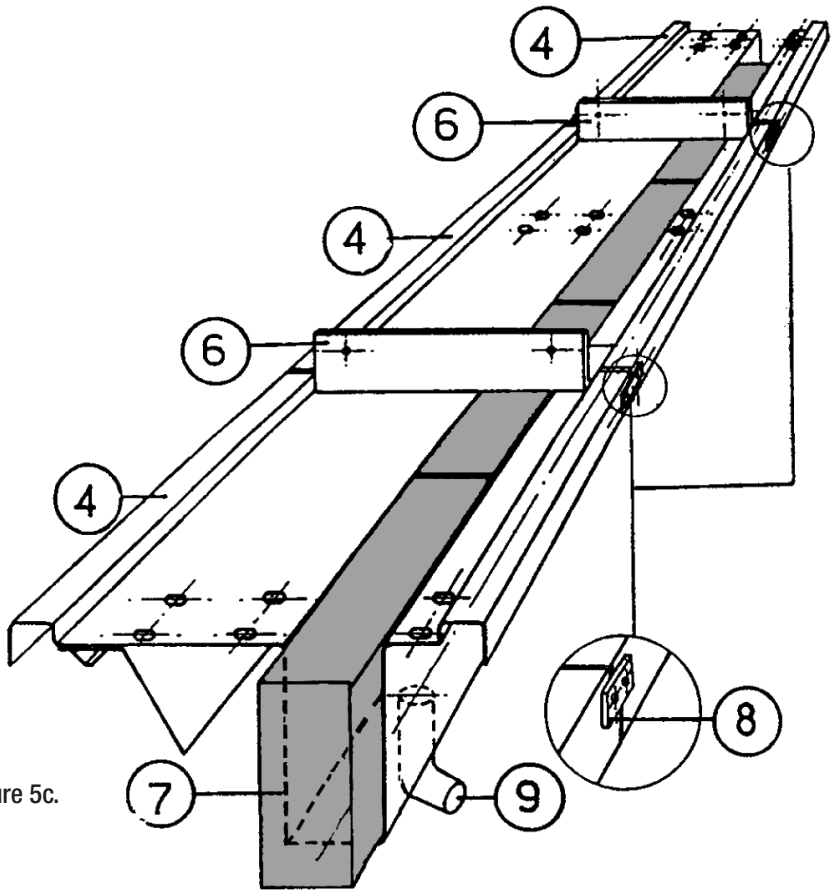


Figure 5c.

5.3 The channel system parts are shown in their assembled form in **(figure 5c)** where it is possible to see the parts of the channel **(4)**, the angles **(6)**, the fish plates for electrical continuity **(8)**, the polystyrene parts **(7)**. In this picture it is also possible to see the scheme of the drainage system **(9)**, which must be in place before the concrete is poured. The channel has holes in the base measuring 60-100mm. (to be executed during the installation) at pitches varying from 6 to 12 meters (the distance between the pitches depends on local rainfall). These holes will be jointed to the drainage system by PVC pipes **(9)**.

Figure 5d (above) shows site and channel system being prepared for installation.

6.0 Installation of the Channel System

After the channel system has been prepared, and the various assembly phases have been completed by use of the angles, bolts and copper fish plates, it is now ready to be placed into the prepared, reinforced base.

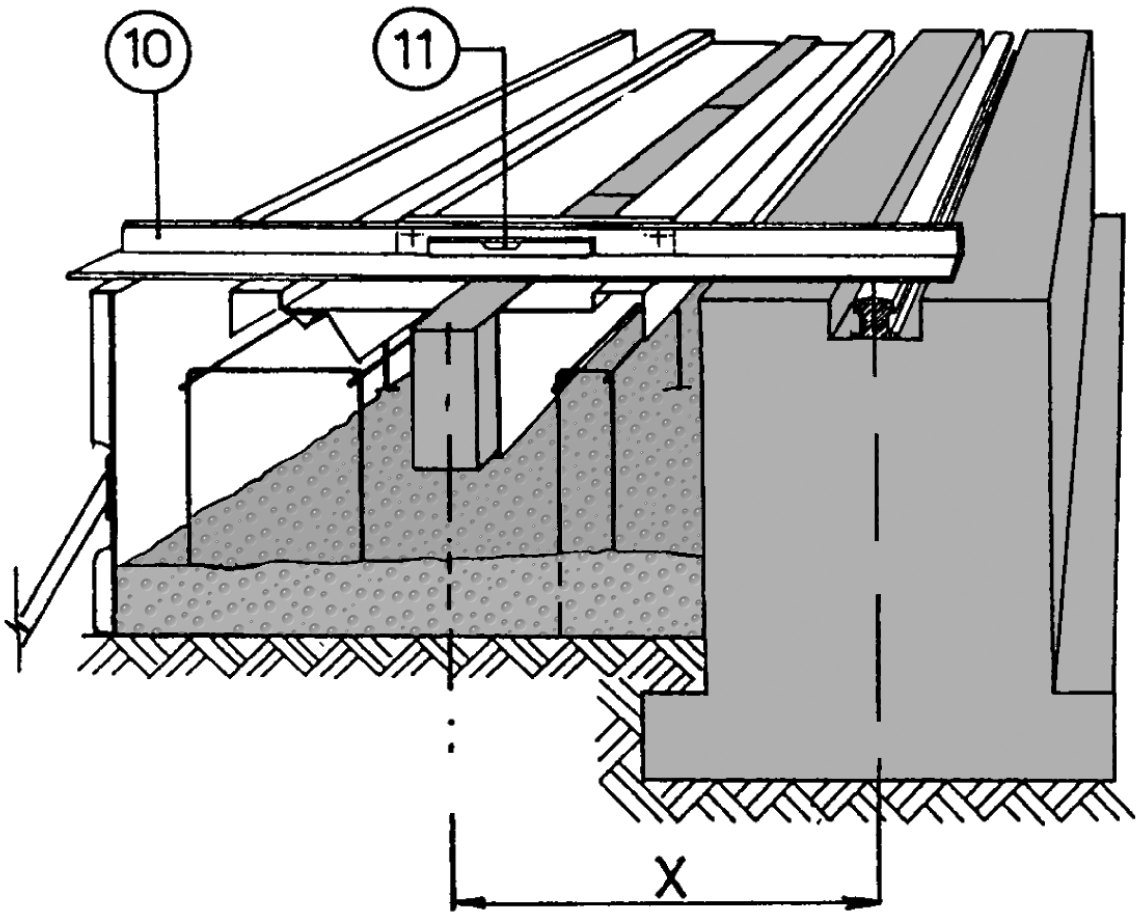


Figure 6a.

6.1 **Figure 6a** shows the positioning of the channel system with the rail (with a maximum tolerance of about 10mm.), using transoms **(10)**. It is important to verify the critical dimension **(X)** of the project and the exact alignment and level between the channel and the crane rail.

The transoms **(10)** support the channel system during the concrete pouring phase, so they have to be fixed to the junction angles as described in **section 4.2**.

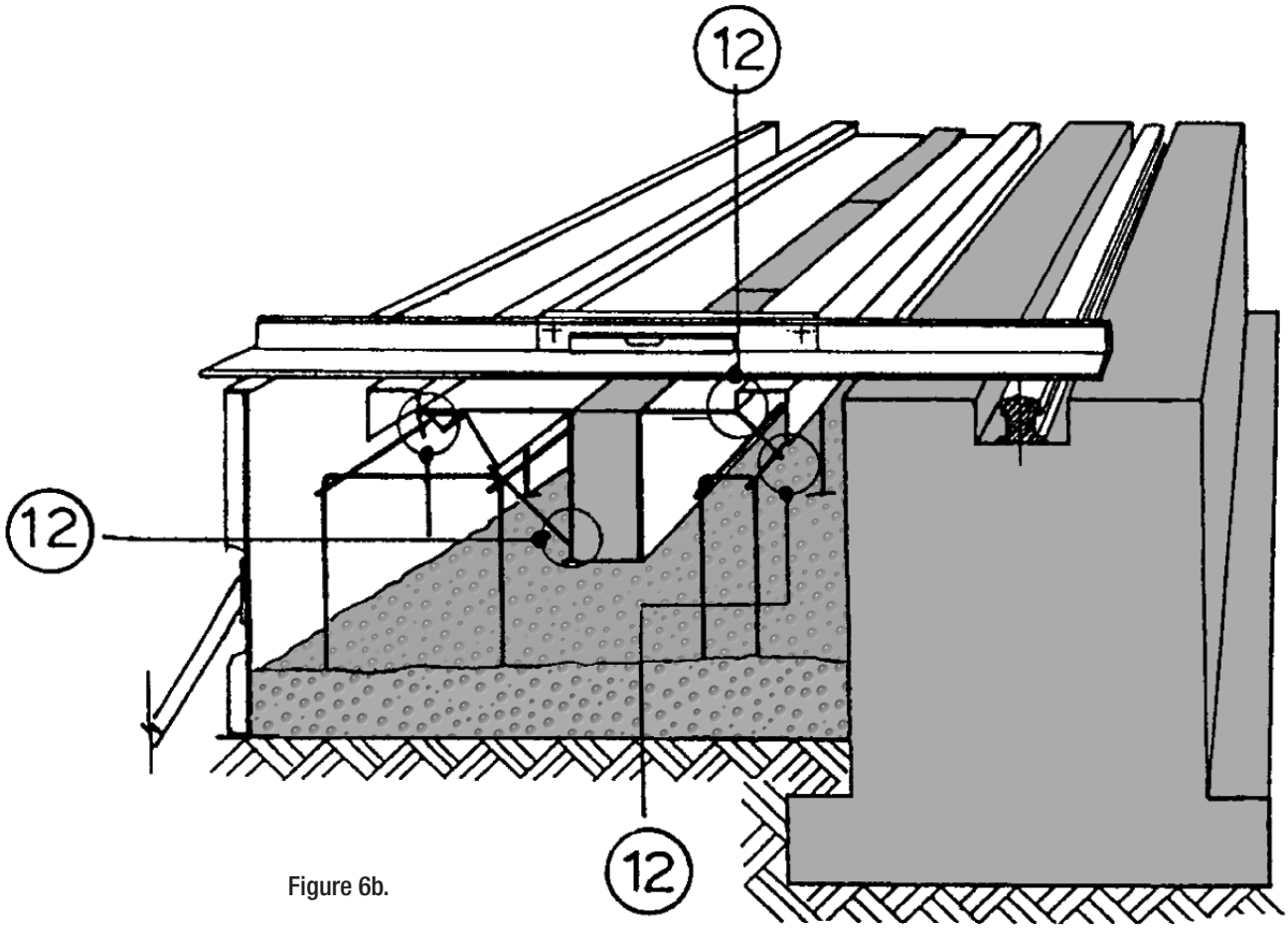


Figure 6b.

6.2 After aligning and leveling the channel with the crane rail, the channel must be fixed to the reinforcement to keep the channels from moving during the second pour phase. This is achieved by welding pieces of iron reinforcing rods to the channel system **(12)**, as shown in **(figure 6b)**.

Figure 6a.

6.3 **Figure 6c** is a photo of a channel already set in place and ready for the final pour. It is important to double-check these items:

1. The tolerance with continuous reference to the rail (10mm.) by the positioning of the transoms **(10)** related to the rail.
2. That dimension **(X)** is constantly maintained (10mm.) and channel is level with the crane rail.
3. Alignment between the parts of the channel (by use of polystyrene forms during installation; refer to **(7)** in section 5.2) must be precise.
4. Channel fixing must be executed before proceeding to the second pour. This is achieved by use of the iron rods **(12)** as described in **section 6.2**.

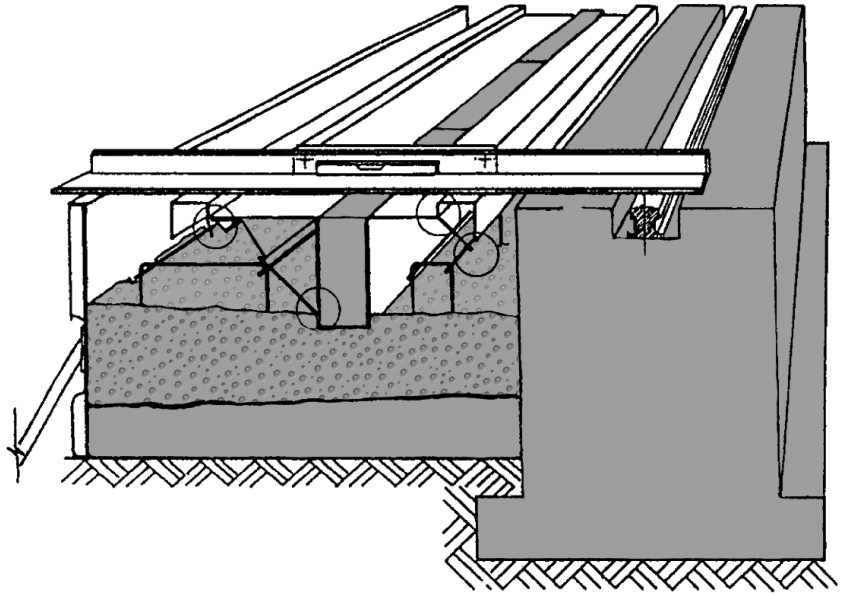


Figure 6d.

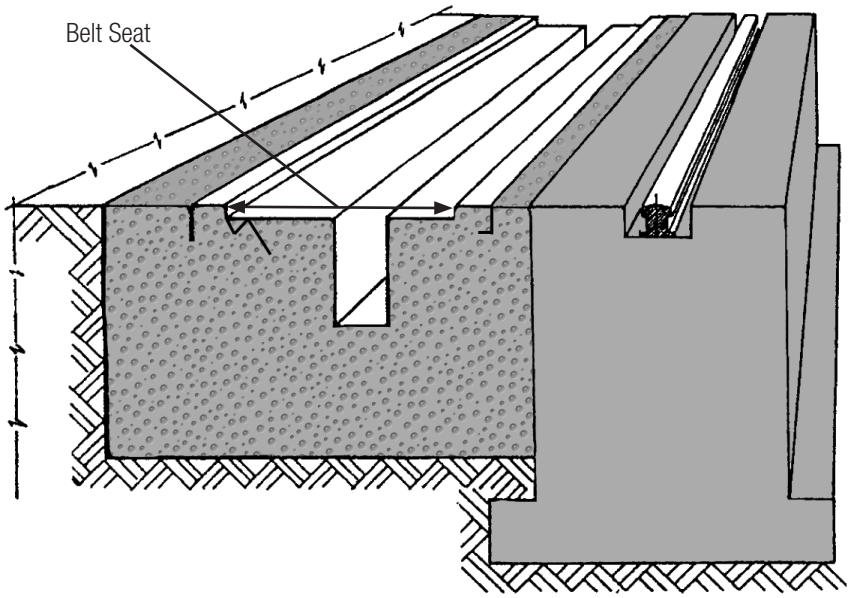


Figure 6e.

6.4 **Figure 6d**, shows the final pour of the concrete. This pour must be executed in two phases: the first one uses enough concrete to fill the area around the channel by approx. one third of the total depth to fix it better; the second one up to complete filling. This operation executed at a different time helps to prevent the possibility that the channel system might "float" out of position. This effect shall be prevented by the transoms properly secured to the ground. During the final phase of the pour it is important that concrete vibration equipment be employed, to ensure correct compaction, particularly on the external sides of the channel system. Therefore it is necessary to ensure that the upper level of the concrete before it sets up is the same as the upper level of the channel system. After setting the concrete it is necessary to remove the angles and polystyrene filler, and to clean the belt seat in **(figure 6e)**, and that the channel system is completely clear after the final cleaning operations.

7.0 Installation of Belting

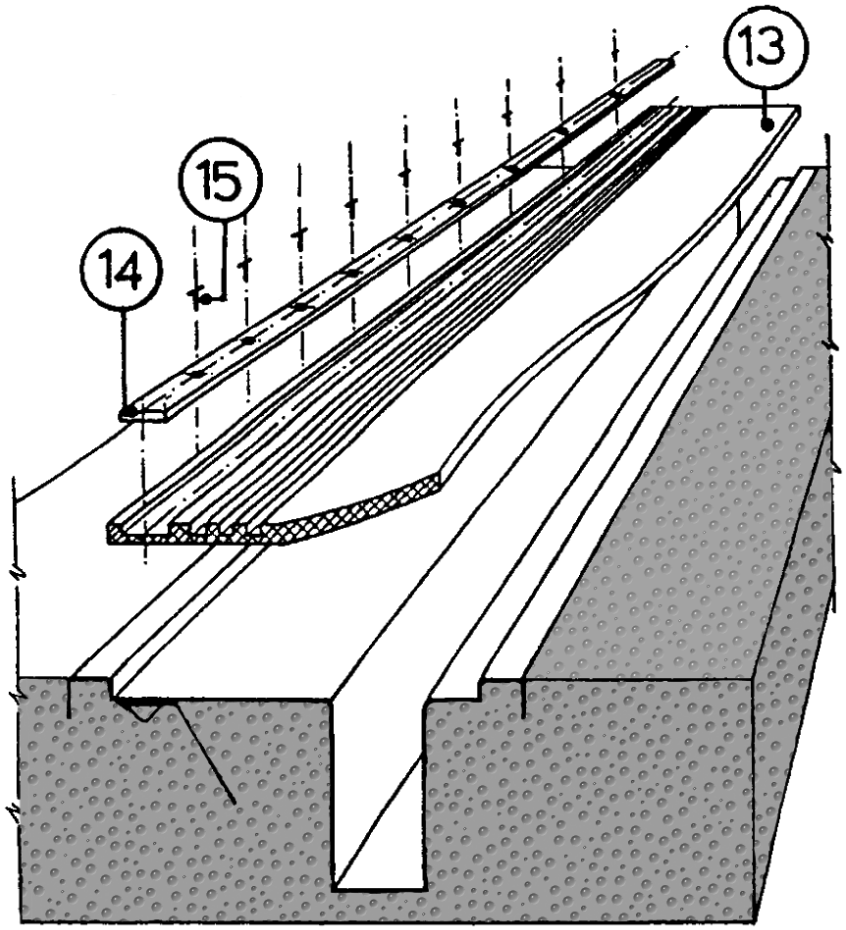


Figure 7a.

7.1 Before proceeding with this step of the installation, check the following details:

1. The Drainage of the water must be sure and without any obstacle.

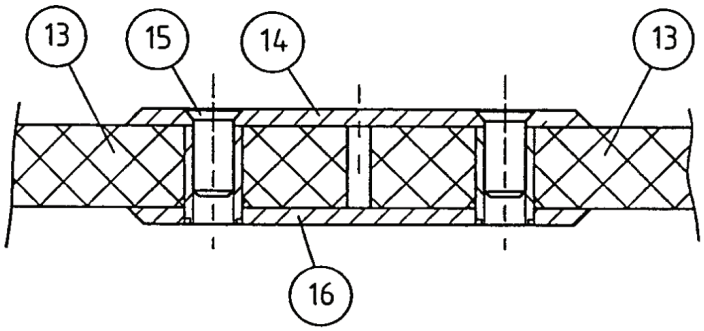
2. The belt seat area & cable channel are perfectly clean. In **(Figure 7a)** the assembly of the belt **(13)** on the channel is shown and executed as follows:

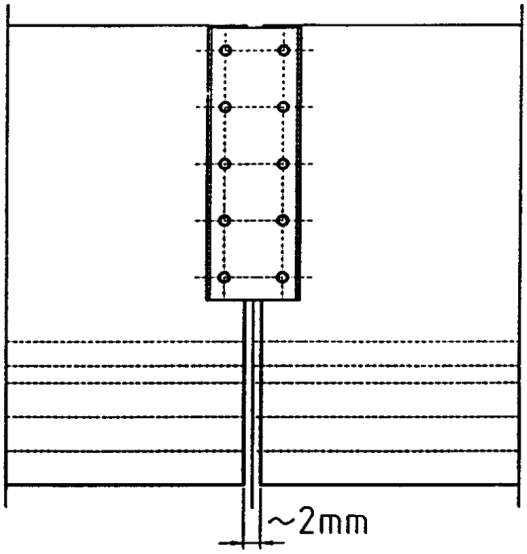
7.1.1 The belt roll must be fixed at one end and subjected to a stretch pull of 2500 N. (about 2% of it's length). Then reduce the pull to 500 N. and attach the other end.

7.1.2 After this the stretched belt and the channel below are now ready for drilling by using the fixing plate (14) as a template. A gap of 3 to 5mm. is required between the end of each fixing plate.

7.1.3 Attach the plate and belt to the channel with the rivets **(15)** supplied (5mm.), spaced at 80mm. intervals. For this operation it is necessary to use a pneumatic riveting machine.

7.0 Installation of Belting





7.2 When joining 2 lengths of belting together, do the following:

7.2.1 Bring the ends of belting **(13)** together.

7.2.2 Align the end of belting with the splice plate **(14)**.

7.2.3 Drill the belt with the splice plate **(14)** "used as a drilling template".

7.2.4 Widen the hole diameter to 10.5mm.

7.2.5 Position the end of the other length of belt between the two plates **(14 & 16)** and connect both with the flat head screws provided.

8.0 Final Testing

Figure 7a.

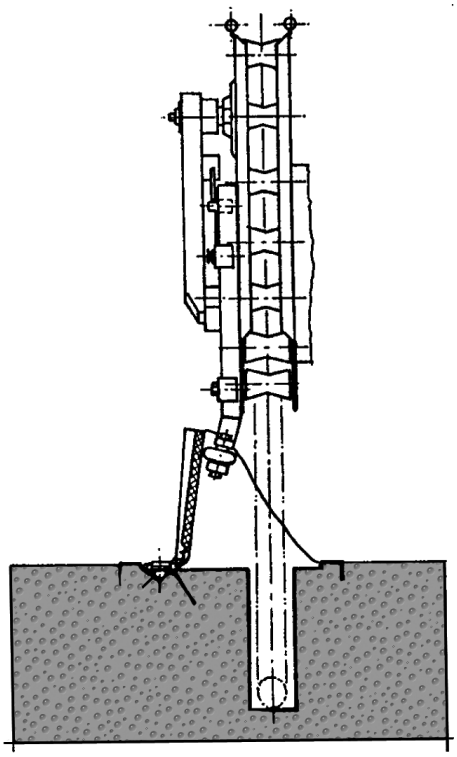


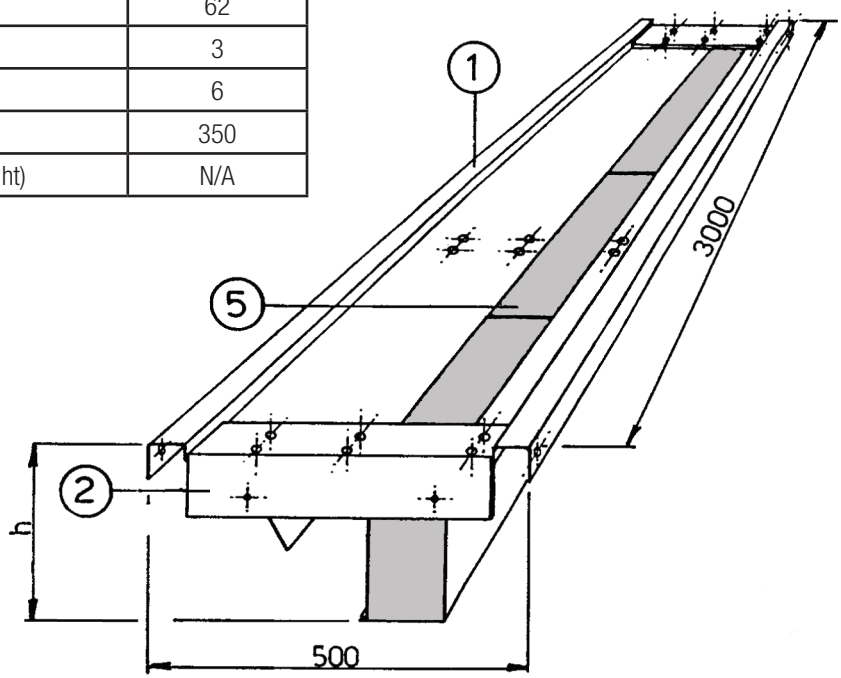
Figure 7b.

7.1 After the installation of the belt it is important to test the system with functional / traveling tests. To lift up the belt it is necessary to use the Conductix-Wampfler Lifting Device (shown in **Figure 7b**). The roller belt lifter is an integral part of the cable roller guide system fitted to the mobile machine and can be adjusted to suit the height required.

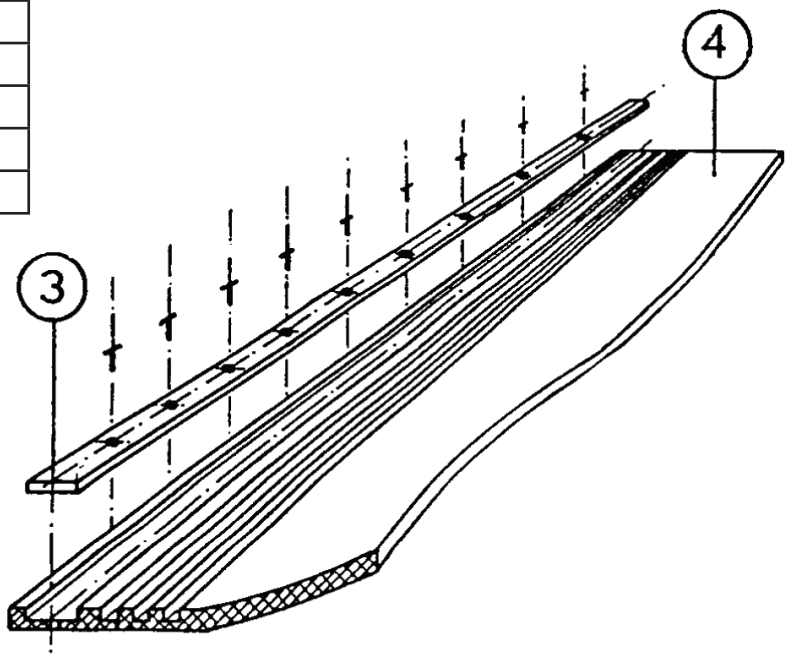
Photo **7a** shows a typical application of the channel system with belt lifter.

9.0 Dimensional Reference Information

Item No.	Quantity	Description	Weight in Kg.
1	1	Premounted Channel	62
2	2	Positioning Angle	3
3	6	Fixing Plate	6
4	*1	50 Meter Roll of Belt	350
5	3	Polystyrene (Insignificant Weight)	N/A



Item No.	Deminsions (in mm.)
1	See Page 3 (h=220, 320, 420, 520)
2	N/A
3	8 x 30 x 500
4	15 x 295, 395 or 595
5	100 x height



www.conductix.us

USA / LATIN AMERICA
10102 F Street
Omaha, NE 68127

Customer Support
Phone +1-800-521-4888

Phone +1-402-339-9300
Fax +1-402-339-9627

info.us@conductix.com
latinamerica@conductix.com

CANADA
1435 Norjohn Court
Unit 5
Burlington, ON L7L 0E6

Customer Support
Phone +1-800-667-2487

Phone +1-450-565-9900
Fax +1-450-851-8591

info.ca@conductix.com

MÉXICO
Calle Treviño 983-C
Zona Centro
Apodaca, NL México 66600

Customer Support
Phone (+52 81) 1090 9519
(+52 81) 1090 9025
(+52 81) 1090 9013

Fax (+52 81) 1090 9014

info.mx@conductix.com

BRAZIL
Rua Luiz Pionti, 110
Vila Progresso
Itu, São Paulo, Brasil
CEP: 13313-534

Customer Support
Phone (+55 11) 4813 7330

Fax (+55 11) 4813 7357

info.br@conductix.com

Contact us for our Global Sales Offices