



Cable Protection Systems

Installation Guide
V.1 2018

CABLEprotect

RAILduct™

Introduction

This guide addresses the acceptable methods and details for the installation of CABLEprotect ducting & troughing systems.

The purpose is to serve as a guideline and the customer shall comply with all laws, regulations, codes and orders of any authority having jurisdiction over the customer and which relate to the customer's installation, maintenance and use of the products.

If the customer's installation or use of any products contravenes any such laws, regulations, codes or orders of such authorities, the customer shall be responsible for the violation thereof and shall bear costs, expense and damage attributable to its failure to comply with the provisions of such laws, ordinances, rules, regulations, codes and orders.

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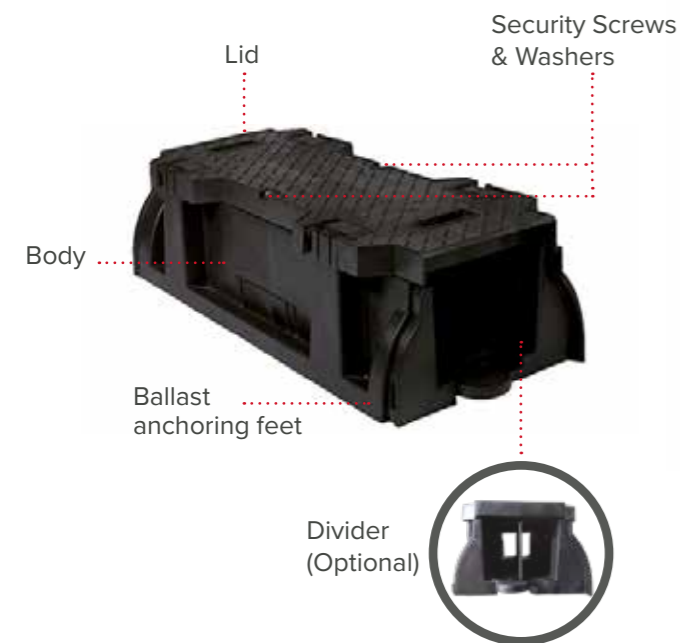
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Overview

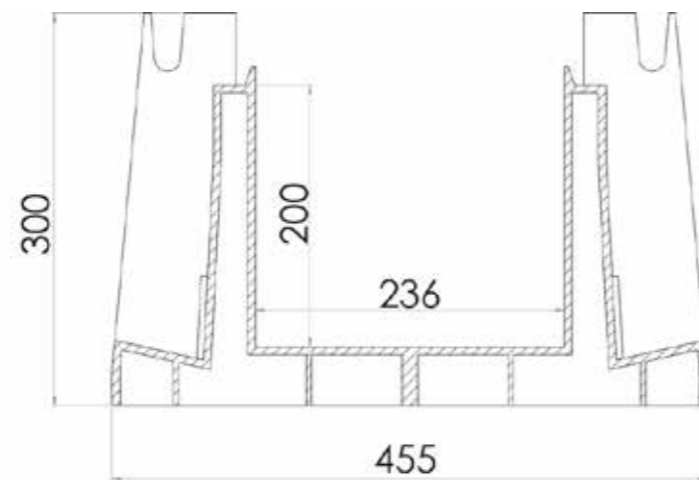
RAILduct™ has been designed to offer a number of cable routing solutions in varying locations and applications.

The following information provides guidance for the successful use of this versatile product.



Product Description

RAILduct™ is made from structural foam moulded high density polyethylene (HDPE).



Height to top of RAILduct™ cover is 280mm from base.

Notes on Application

RAILduct™ may be installed in ballast or soil, mounted on posts, fixed to horizontal or certain degree inclined surfaces.

- a. RAILduct™ may be buried in ballast up to the middle of the sidewall with a maximum up to the base of lid approximately 240mm from bottom of the RAILduct™.
- b. RAILduct™ can be installed track side in existing ballast. Alternatively, RAILduct™ may be installed outside the track in new ballast. In either location, material shall be removed as required providing sufficient depth for base preparation.
- c. Alternatively, after the duct entry has been formed, the ring can be cut vertically and reassembled around the existing duct.
- d. Failure to observe the following steps may yield less than acceptable performance.



Health & Safety Notice

In areas where the public have access, the site should be properly signed and guarded in accordance with the State and Territory Regulators, Laws and Codes on Health and Safety.

Additionally, all other safety precautions required by legislation, the customer and as specified by the contract, the Local Authorities, other Landowners and the Police should be observed at all times.

Before excavation takes place, all necessary precautions to locate and protect existing buried services in the location of the ducting & troughing system should be taken.



Scan QR Code for the RAILduct™ Product Safety Data Sheet (MSDS).

Installation Guidelines

Bed Preparation

- 1 Ensure the final bed is even, firm, and stable providing a level surface on which to assemble the RAILduct™ units

It is recommended that a crushed rock base be used if the existing soil is not suitable.

- 2 Erecting a grade line set to finish level of RAILduct™ will aid in facilitating a straight and level installation. Establishing the RAILduct™ location (distance below and from) relative to track is generally practical

Position “grade line” approximately above and outside the desired lid hinge post height. Hinge post height is same as cover height.

Assembly of Railduct™

3 Elevate the ends while joining RAILduct™ sections

RAILduct™ is joined correctly when the horizontal hook shaped coupling device and the vertical tabs are “interlocked” together.

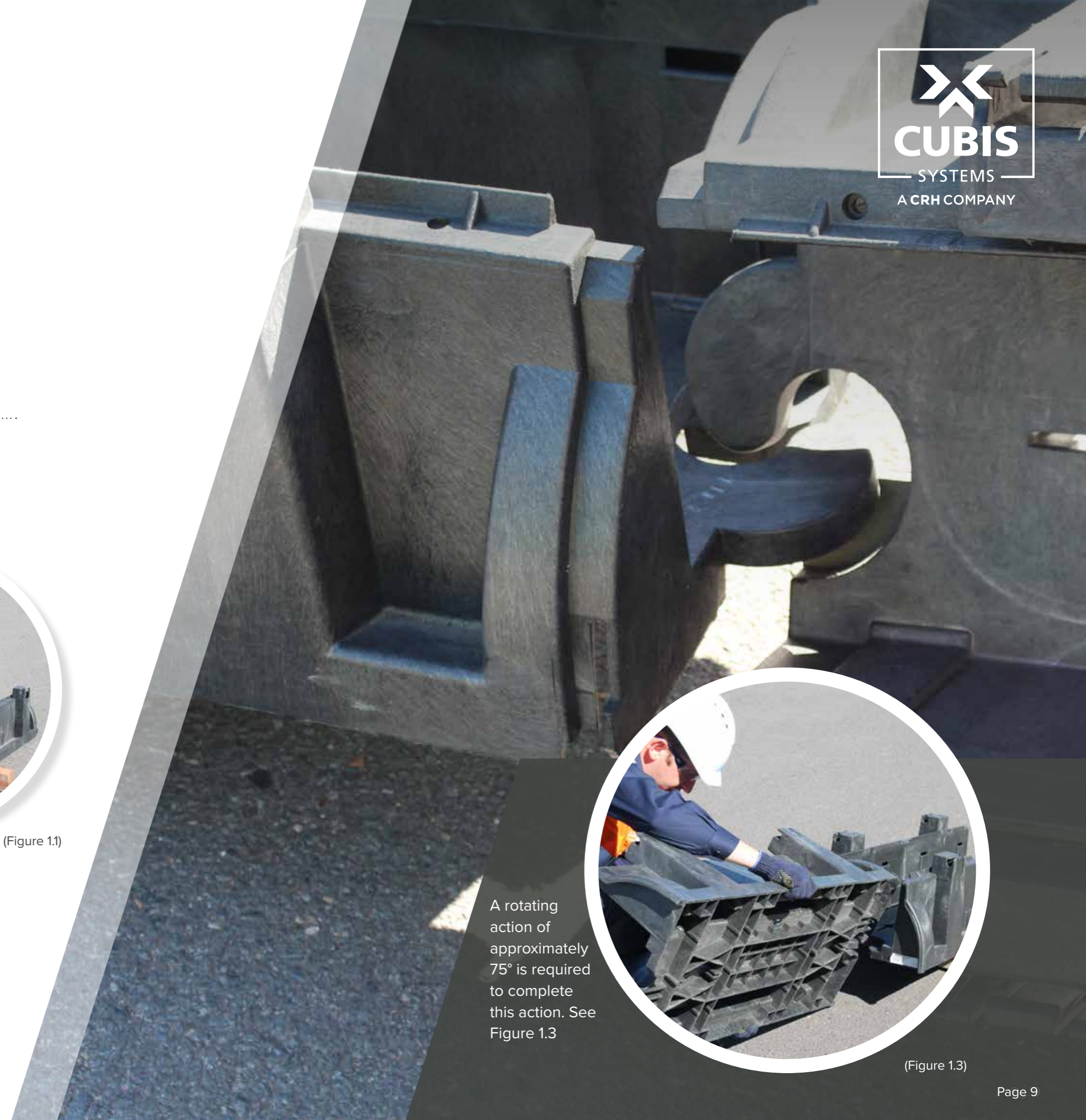
4 A block of wood such as a ‘2 by 4’ or a RAILduct™ lid may be placed across the trench to hold two or three sections elevated during assembly see figure 1.1 and 1.2



(Figure 1.1)



(Figure 1.2)



A rotating action of approximately 75° is required to complete this action. See Figure 1.3

(Figure 1.3)

Over Existing Services

- 5** Once assembled, lower multiple sections on to the prepared bedding material or assemble in place if possible
- 7** RAILduct™ may be cut to length with a crosscut saw. Remove an end or change the length of RAILduct™ as required when joining to existing trough or to another structure

- 6** Position RAILduct™ hinge post relative to grade line. The hinge post may be tapped lightly using a rubber mallet to lower RAILduct™ into bedding material

If the height is too low or not level, add fine fill material as required to elevate RAILduct™ to grade line (levelling on ballast may require this).

- 8** Use a hole saw to provide a fast and neat method for routing cable or conduit transitions to and from RAILduct™

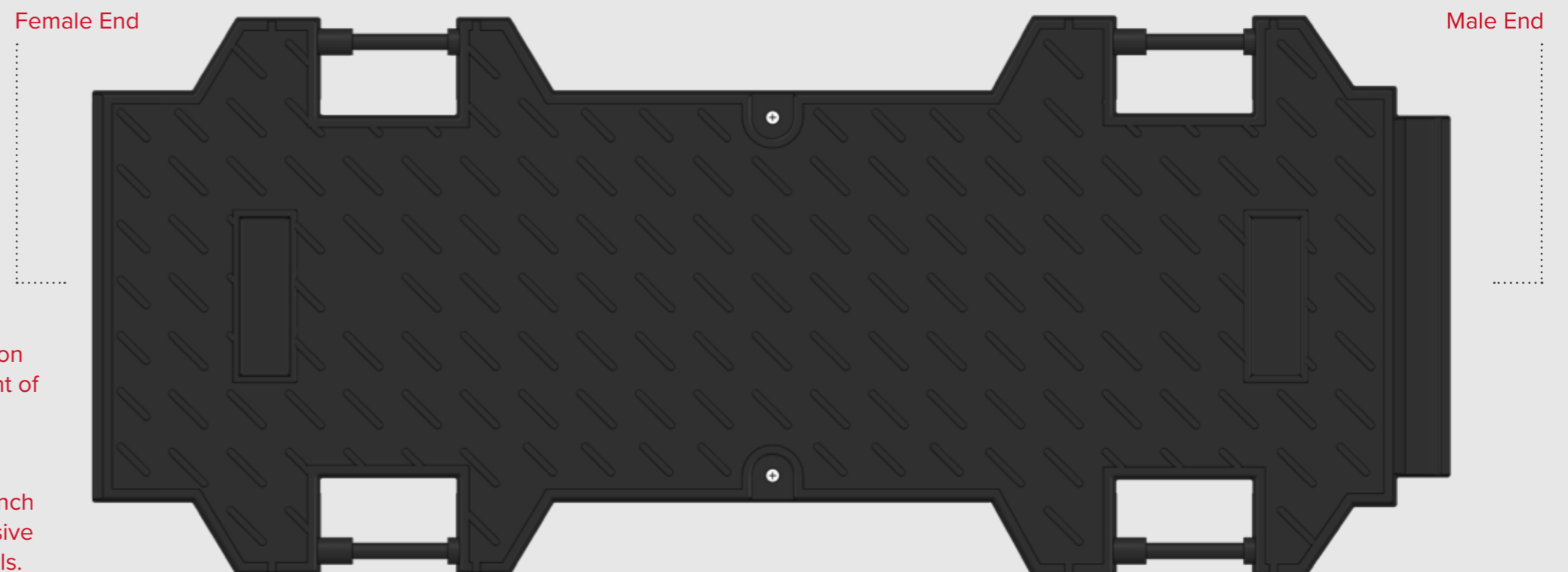
If installing duct entries through the sidewall or base, a maximum of two entries (maximum diameter 100mm) are allowed per RAILduct™ section. Entries shall be 300mm from either end and 75mm below the top of the RAILduct™. If any further additions are required, please contact Cubis Systems.

- 9** Once RAILduct™ is in place, complete assembly by installing RAILduct™ lids (see figure 1.4 below)

Notes

Lids must be securely in place on RAILduct™ prior to reinstatement of crushed rock.

Failure to install lids prior to trench restoration may result in excessive deflection of RAILduct™ sidewalls.



(Figure 1.4)



- 10 RAILduct™ is fitted with interlocking lids which clip into the base

- 11 Once the hinge latch is activated, the security bolts (optional) may be engaged if locking is required. Security bolts shall then be installed in the lid restricting unauthorized entry into the channel

Max torque for the security bolts is 10Nm. Refer to figure 1.5 on left.

Railduct™ Transitions

- 12 RAILduct™ is designed to accommodate a 3° bend between two (2) joined sections

This is typically sufficient to permit RAILduct™ to parallel the natural curve of the track without modification.

The larger STAKKAbOX™ (ULTIMA) and Cubis Precast Concrete Rail Pit range is useful in accommodating slack loop storage for fibre optic cable or splice closures.

Cubis Systems, provides a full range of width, length, and depth combinations.



Asset Security

Provisions have been made in the RAILduct™ interlocking lids for deterring vandalism or unauthorised access

A latching mechanism built into the lid hinge deters accidental lid opening.

Bolt holes are positioned along the outer edge of the lid top for securing to the channel.

(Figure 1.5)

Trench Restoration

- 13** Once the lids are installed begin backfill on the total span length between vaults or cabinets

- 14** Return or add ballast in layers of approximately 100mm, compacting between layers. It is desirable to work on both sides of RAILduct™ simultaneously

Ballast shall be clean, free of frozen material or organic matter.

- 15** Compact backfill material as described in this document

Failure to compact described backfill material in layers may result in subsidence and unwanted movement of RAILduct™.

- 16** During construction or periods when heavy vehicular traffic is anticipated, provision must be made to protect RAILduct™ sidewalls from vehicular traffic and should be installed no less than 1.5m from vehicular traffic area



Caution

Backfill material must be free of rocks unable to pass through a 63mm sieve as well as broken concrete, brick and metal objects that could damage the RAILduct™ product.

Use of “river rock”, “washed stone/ aggregate”, or “pea gravel” as a backfill material will result in unacceptable performance. Avoid the use of such rounded material.

Cable Installation

17 RAILduct™ is fitted with interlocking lids

To gain access to the cable trough, first disengage the security bolts.

Slide the lid, moving the aligned arrow on top of the lid away from the arrow on the hinge.

This action deactivates the latching action. The lid may be opened from either side. It will be necessary to disengage the security bolts and slide the interlocking lid adjacent to the area to be opened.

18 When access is required for changing or adding cables, open as many as four lids at a time

Close covers once cable placing activity is complete and prior to opening additional covers.

This procedure will ensure lid – hinge alignment is maintained.

19 The trough, if required, has slots in the floor to provide mounting locations for a partition to subdividing the trough

RAILduct™ can easily be drilled with a hole saw for cable transition to conduits.

Similarly a jab saw or keyhole saw is useful for opening rounded or slotted holes through the sidewall or bottom for cable exit/entrance. See Figure 1.6.



(Figure 1.6)

Notes

The inside surface of RAILduct™ is smooth and free of any protrusions reducing the potential for cable damage during installation.

Additionally, the floor has holes preventing water and frost build-up.

Elevated Mounting

This option is currently available, please contact the Cubis Specialist Team for more information

Wall & Floor Mounting

- 20** RAILduct™ may be mounted to a horizontal or certain degree inclined surface

Assembly of the RAILduct™ would proceed in a similar manner to that previously described.

- 21** If required, bends and “T” pieces can be supplied as shown in figure 1.7 to right

Please contact Cubis Systems for more information.

(Figure 1.7)

Caution

Cubis Systems, cannot assume responsibility for failure to observe reasonable engineering and construction practices and precautionary measures in the application of the information presented herein.

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Any alterations or unforeseen issues please consult the Cubis Specialist Team before proceeding.

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GR-WI-601

