

Specification For Toby Box Construction

Access Network Policy

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Version History

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16/10/2024	2	Reviewed Installation procedure, Introduced large toby installation, Diagram updates	Claytan Milligan	Frank Brankin



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1. Fibrus Build Policy

Fibrus Build Policy defines a set of requirements / standards for direct labour, Civils Contractors and their people (operatives) when building the Fibrus telecommunications network. This Policy has been benchmarked against Openreach and other CPs' build policies, to ensure uniformity of quality and safety standards across the telecoms industry.

All operatives must hold valid accreditations to carry out build work.

It is the operatives' responsibility to carry out Risk Assessments before starting, and during, any civils work.

At all times adherences must be paid to the guidelines as detailed in HSG47 - Avoiding Danger from Underground Services.

All operatives working in the Fibrus Network must adhere to the OFCOM Code of Practice relating to Electronic Communications Code and the Electronic Communications Code (Conditions and Restrictions) Regulations 2003 and Part 16 of Schedule 2 to the Town and Country (General Permitted Development) (England) Order 2015 (GPDO) and the guidelines and safe working practices referenced in Section 4 of this document.

These requirements ensure Fibrus achieves the required outcomes in terms of meeting the strategic direction, architectural design, financial targets and quality standards for the Fibrus network.

This document forms a part of the authorised portfolio of Fibrus' Network Policy documentation. Adherence to these standards and policy is mandatory. Any deviation presents a risk to the required outcomes and will be subject to future compliance audit / checking.

Toby installations which do not meet this policy, will fail any audit, and remedial action will be at the operative's expense. Delays will also ultimately jeopardise Fibrus' ability to provide service to our customers in a timely manner.

Caution: Policies are liable to change therefore you must ensure you are using the most recent copy from a controlled source i.e., the Fibrus Library

2.Introduction

This Document forms part of the Access Network Specification range of Technical Documents and is applicable to both Fibrus Direct Labour and External Contractors. The information below details the installation requirements to meet the policy for the provision of Tobies within the Fibrus network. Practices and items of plant are only detailed where necessary to ensure that the Fibrus Network and plant is not compromised.

This document forms a part of the authorised portfolio of Fibrus' Network Policy documentation. Adherence to these standards and policy is mandatory. Any deviation presents a risk to the required outcomes and will be subject to future compliance audit / checking.

Before undertaking excavation work the Health and Safety Executive guidance note HSG47 – 'Avoiding Danger from Underground Services' should be followed, and every effort must be made to obtain asset owner records to identify plant.

Before commencing work, an on-site risk assessment must be conducted to verify that all the standard control measures are in place and that any additional hazards that may be present on site are identified, e.g., natural gas leak, surface water, contaminated land etc., are controlled. Having exposed the plant, a further risk assessment should be conducted to determine whether plant can be accessed without interference with third party ducting.

Toby Box construction that does not meet this policy, will fail any audit, and remedial action will be at the operative's expense. Delays will also ultimately jeopardise Fibrus' ability to provide service to our customers in a timely manner.

Caution: Policies are liable to change. Therefore, you must ensure this copy/material is from a controlled course e.g. The Fibrus' Library.

3. Scope

This document details the Fibrus build policy for the fibre delivery from the Fibrus Cabin / Cabinet through the Fibrus network to the end user.

This document will cover: -

Brownfield installation policy

Positioning of Tobies

Installation on footway

Installation on carriageway

3.1 Brownfield Installation Policy

Fibre civils infrastructure will be installed to the edge of potential customers' curtilage (in line with positioning guidance in section 3.2) to facilitate the optimal installation operation (i.e., minimal cost and time, and minimal civils work) on receipt of a service order.

This entails a 'clear path' from the customer curtilage back to the Fibrus distribution point (typically a Multi-Port Terminal (MPT) or Optical Drop Point (ODP)). A drop cable to the customer premises will be installed on receipt of a confirmed order.

A Toby will be positioned on a one-per-premises basis on the customer curtilage line. An individual duct path will be installed via a Swept-Tee joint and duct from the main spine duct from the underground structure (footway or carriageway box) housing the distribution point.

During the customer installation an 18/14 sub-duct will be installed from the Toby to the customer premise – This installation cable will be inserted inside the 18/14 sub duct.

Figure: 1 below shows the installation of Toby and the 18/14 sub-duct that will be installed during the customer installation.

Figure: 2 below shows an example toby layout for a toby that has swept off a 110/100mm Flexible duct.

Figure: 1:

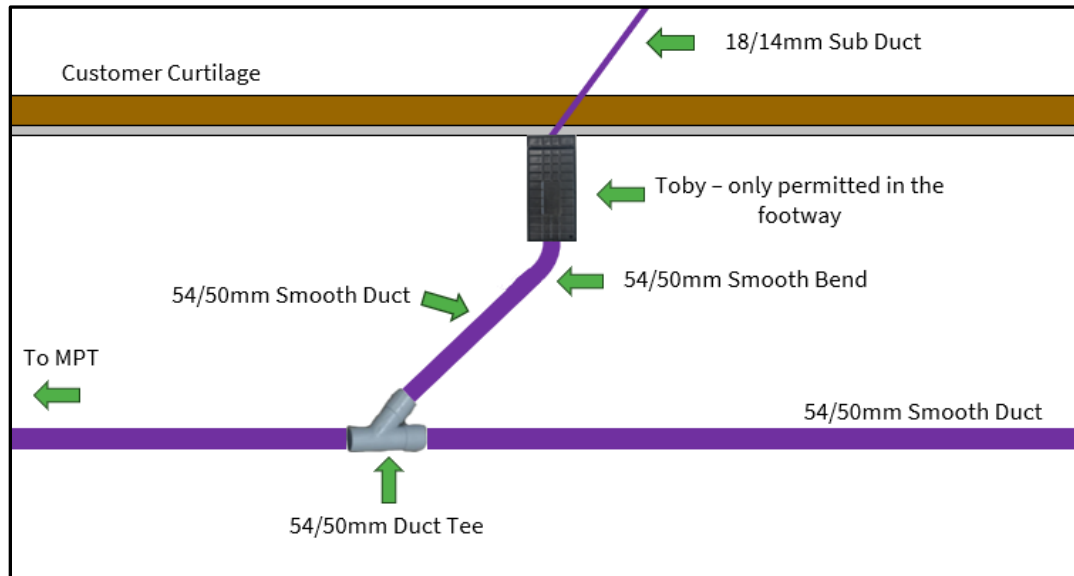


Figure: 2:



3.2 Positioning of Tobies

When selecting the position of the Toby consideration must be given to ensuring there are no other utilities or services in the immediate vicinity and also to facilitate ease of service provision at a later date, minimising time and cost.

The Toby must be placed on the curtilage of each property to ensure ease of installation. Special attention should be given to properties that meet the footpath as they will require a riser section to be placed at the back of the toby.

Considerations:

- Footway provision favoured over carriageway.
- Ease of provision to anticipated access point to premise.
- Soft dig terrain as a preference
- Avoidance of driveways, areas of high footfall or difficult terrain.
- Avoidance of physical obstructions (e.g., walls, fences, sheds, planters).
- Ease of access to the toby after installation.
- Minimal surface reinstatement.
- Avoid placing the Toby in a position in which it may become vulnerable (i.e., provide an increased safety or damage risk) due to development (e.g., provision of driveways, road realignment, additional access routes).
- Avoidance of Carriageway where possible – safety/ ease of access/ minimal roadworks.

3.3 Installation in Footway

Footway installation of Tobies is the preference to reduce costs, ensure safety, minimise risk of damage and to facilitate ease of installation to the customer when a provision or service order is received.

The area must be checked for existing utilities and services before excavation commences.

The Toby must be placed on the customer curtilage, ideally within a service strip if one exists, and in line with the positioning requirements outlined in section 3.2.

Figure: 3 below shows the shows the longer tobies dimensions and product supplier details.

Figure: 4 below shows the alignment of the Toby with the customer's curtilage.

Figure: 3:

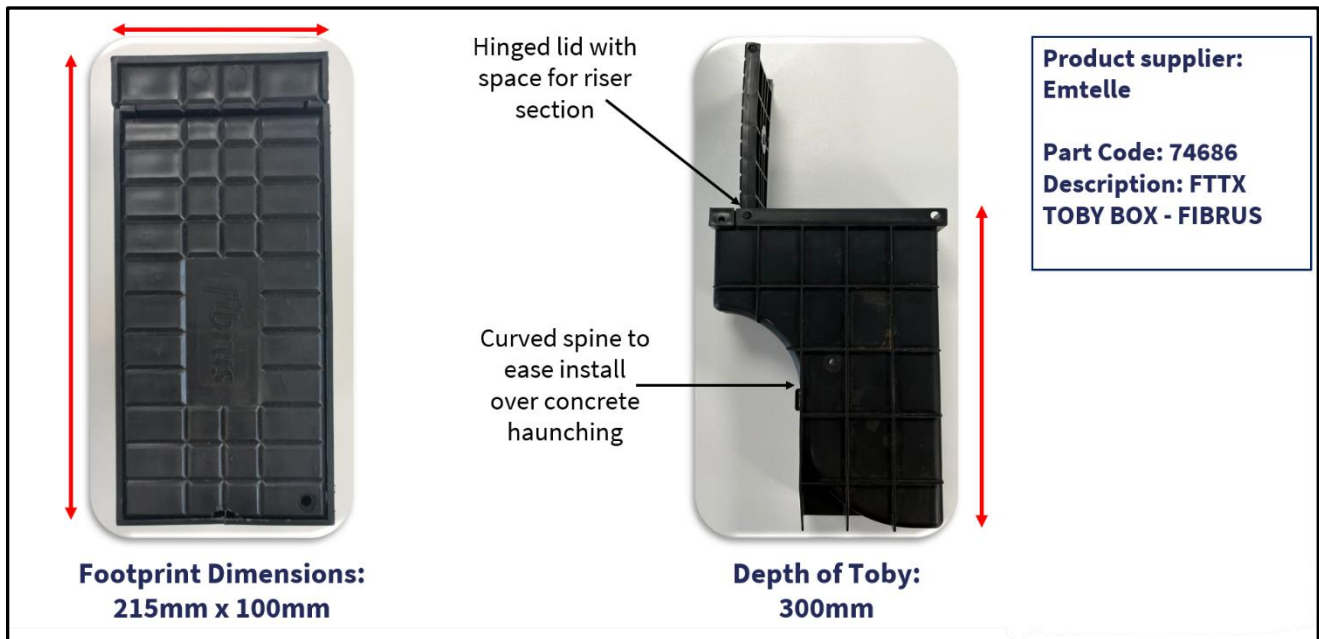
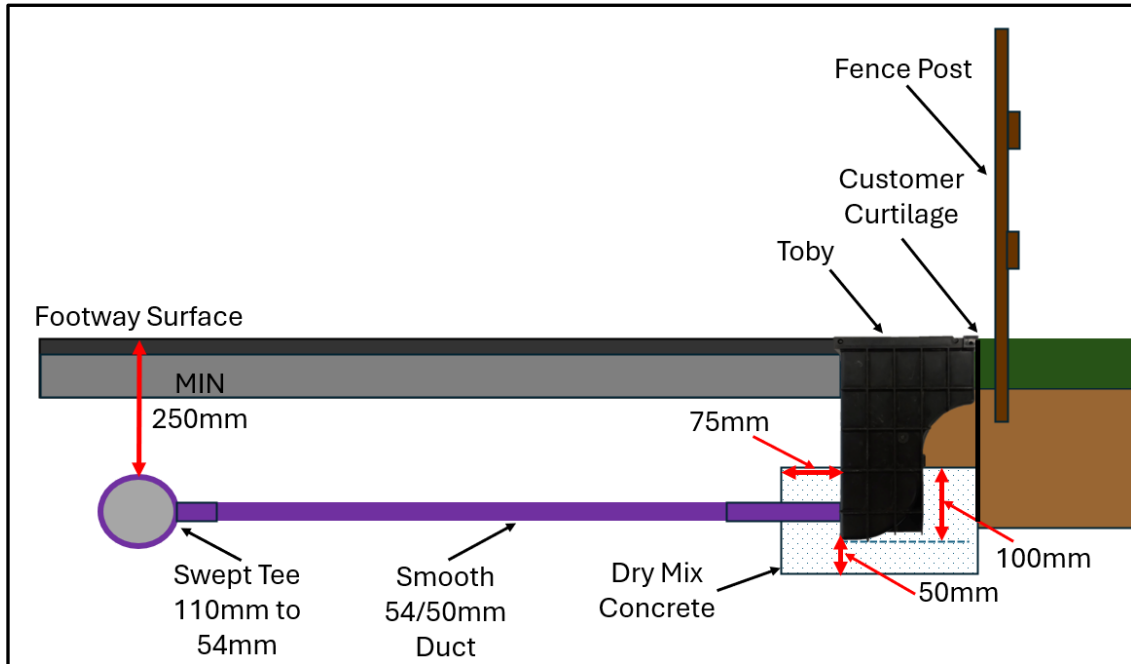


Figure: 4:



The rear of the toby must be placed with the back towards the customer premises to allow for installation of an 18/14 sub-duct through the pre-cut rear section when service is being provided.

Smooth 54/50mm duct will be provided from a swept-T installed on the main duct route from the distribution point, this duct must be at a minimum 250mm coverage. A smooth duct path should be created from the ODP/MPT to the base of the large toby.

All reinstatement will be set to match that of which has been excavated and/ or to match the surrounding materials. This will be completed to the current SROH standards.

An area of a minimum of 75mm is required to be excavated around the remaining three sides of the Toby to accommodate the requisite backfill.

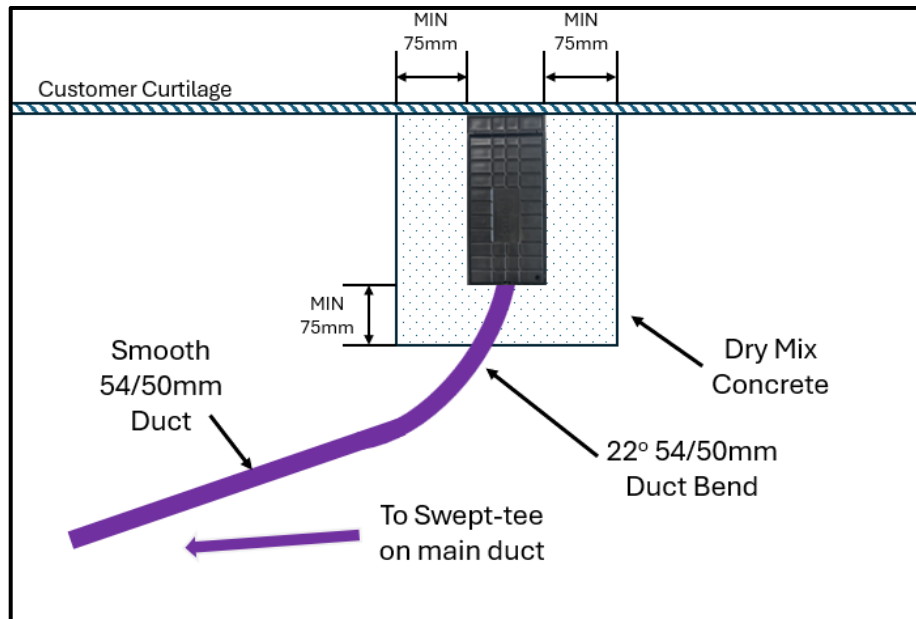
Excavation will be to a minimum depth of 350mm to accommodate the toby box.

Backfill is of a lean-mix dry mix concrete (20:1 ratio, Post-Fix or equivalent).

When a provision order is activated, installation of the 18/14 micro-duct feed to the premises will be via the pre-cut slot in the rear wall of the Toby. This will require removal (chisel or similar) of a section of the surrounding backfill.

Figure 5 below the reinstatement around the Toby.

Figure: 5:



3.4 Duct Installation Method

For the large toby there are two methods of duct installation available.

Method 1

The smooth 54/50mm duct should meet the toby perpendicular to the front of the toby, ensuring a smooth path back towards the MPT/ODP.

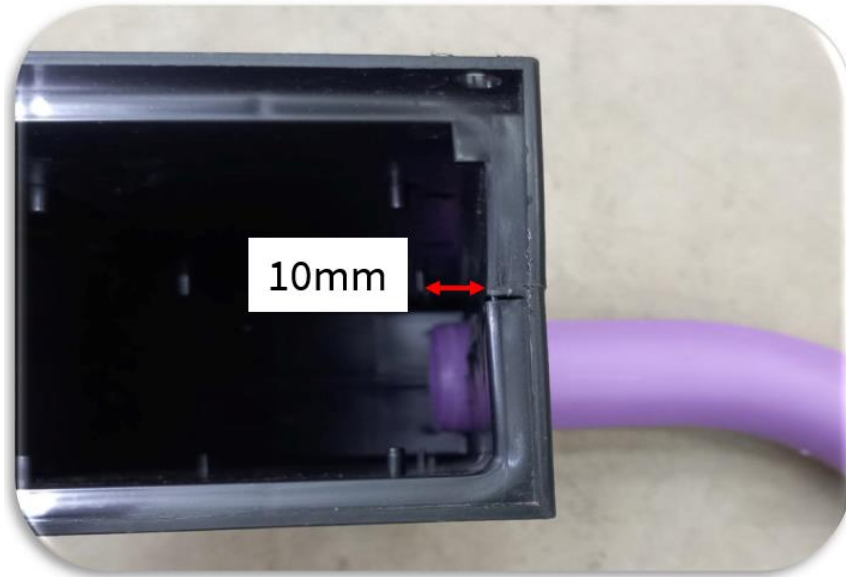
Figure: 6 shows a 22° bend providing a smooth connection with the toby

Figure: 6:



The duct that is inserted into the toby must only be inserted a maximum of 10mm (Figure: 7). This is to ensure the ease of cabling for all installation crews that follow after. If this cannot be completed for any reason Duct Install Method 2 must be followed.

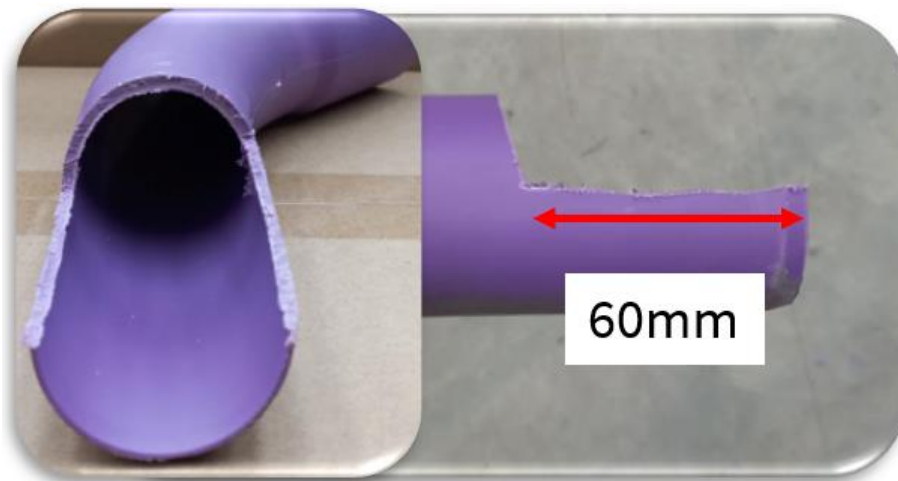
Figure: 7:



Method 2

This method of installation requires the duct that enters the toby box to have a 60mm long section cut from the top half of the duct, Figure: 8. The duct should be cut with appropriate tooling (e.g. hacksaw, mini-grinder, multi-tool etc.) as to not generate excessive heat. *When cutting eye protection, face masks and gloves should be worn.

Figure: 8:



The cut section of duct should be placed onto the end of the 54/50mm smooth duct leading towards

the toby. Once completed the duct can be placed inside the toby.

Figure: 9 Final image of altered duct bend inserted 60mm into toby chamber.



3.5 Existing Toby Installation

The existing small toby should be positioned as stated in **section 3.2**, they **must not** be placed in front of pin kerbs and should only be used to **deplete existing stock**. These tobies must not be built on the Fibrus network in GB.

These tobies can only be installed on the footway to ensure safety, minimise risk of damage and to facilitate ease of installation to the customer when a provision of service order is received.

The area must be checked for existing utilities and services before excavation commences.

The Toby must be placed as close to the customer curtilage as possible, ideally within a service strip if one exists, and in line with the positioning requirements outlined in section 3.2.

Figure: 10 below shows the alignment of the Toby with the customer's curtilage

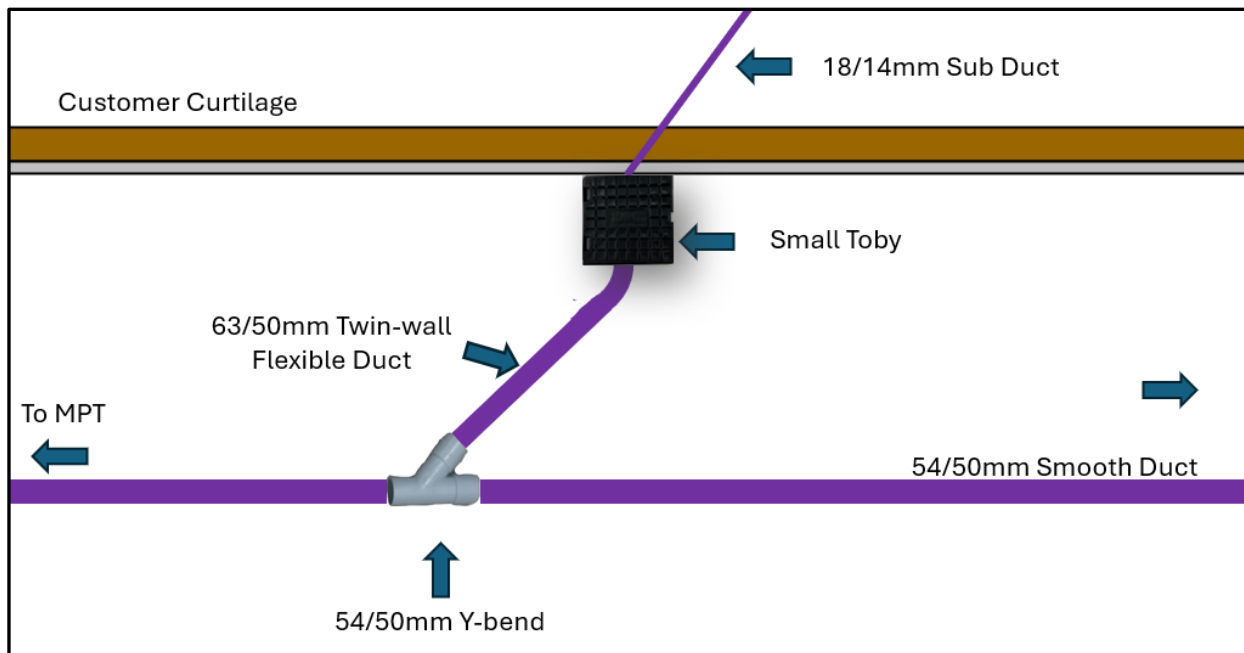


Figure: 10

The Toby must be placed with the back towards the customer premises to allow for installation of an 18/14 sub-duct through the pre-cut rear section when service is being provided.

Twin-wall Flexible 63/50 duct will be provided from a swept-T installed on the main duct route from the distribution point. Care must be taken to ensure there are no sharp bends on this duct and that it will be suitable for rodding. The 63/50 duct will enter via the base of the SID Toby and will be capped to prevent debris ingress into the duct.

The rear of the Toby will be tight to the customer curtilage line.

An area of a minimum of 75mm is required to be excavated around the remaining three sides of the Toby to accommodate the requisite backfill. **Figure:11**

Excavation will be to a minimum depth of 150mm to accommodate the Toby (d = 75mm) and backfill (d = 75mm). **Figure:12**

Backfill is of a lean-mix dry mix concrete (20:1 ratio, Post-Fix or equivalent).

Surface reinstatement will be to match that which has been excavated and/ or to match the surrounding materials and will be done to current NRSWA reinstatement standards.

When a provision order is activated, installation of the 18/14 micro-duct feed to the premises will be via the pre-cut slot in the rear wall of the Toby. This will require removal (chisel or similar) of a section of the surrounding backfill.

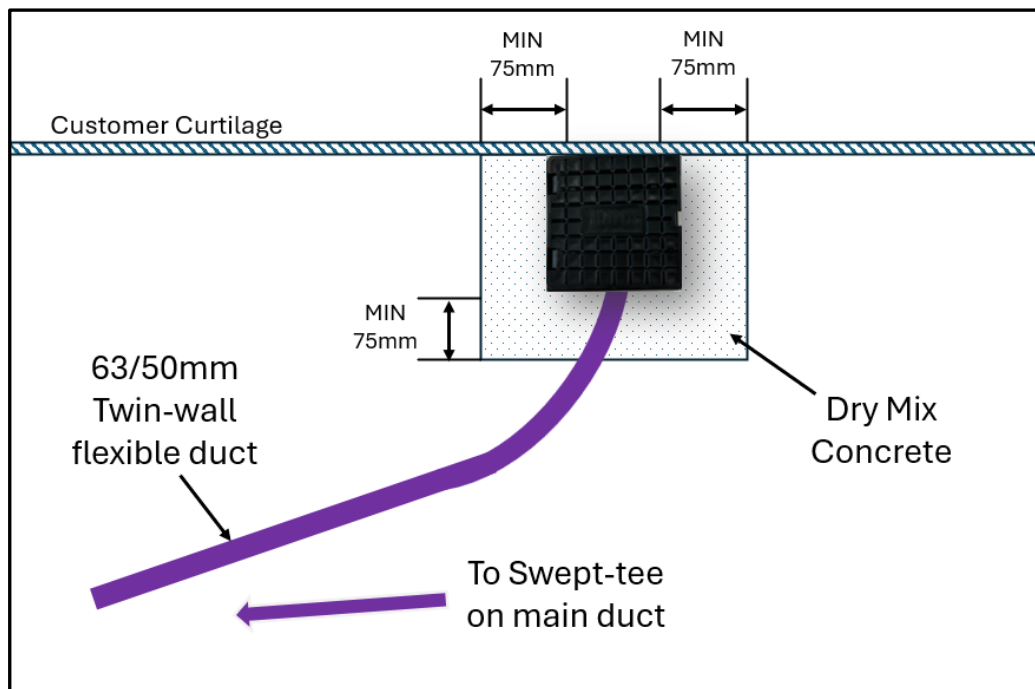


Figure: 11

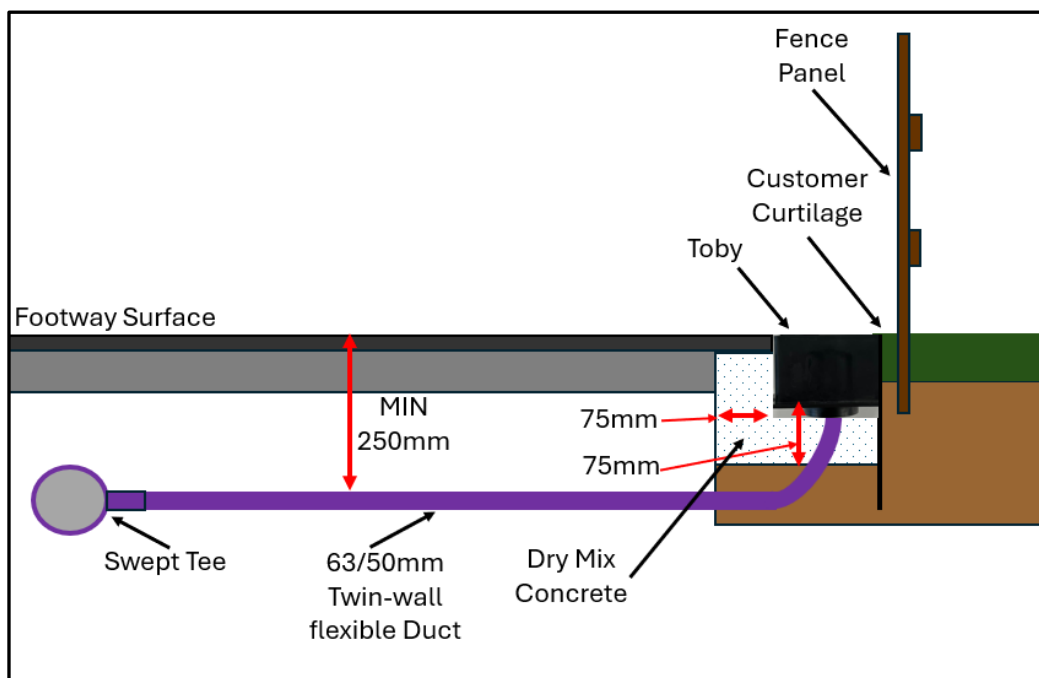


Figure: 12

3.6 Installation in Carriageway

If carriageway installation is unavoidable (e.g., no footway or service strip, proposed duct route to customer premises inaccessible due to physical barriers) the considerations in 3.2 continue to apply but also consideration must be given to locating the Toby in areas of lightest traffic, to ensure the safety of operators during installation and in-life and also to minimise the amount of interference with road users during associated works.

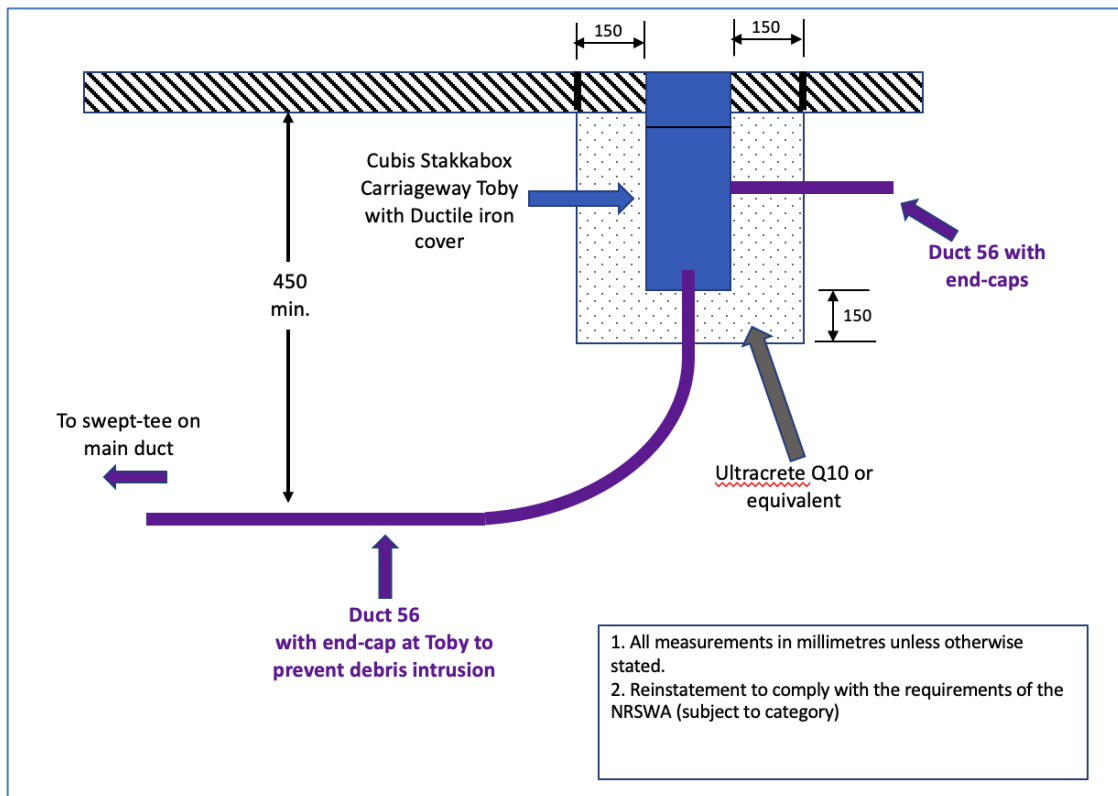
The area must be checked for existing utilities and services before excavation commences.

The installation will follow the same design as that for footway Tobies (i.e., swept-tee from main duct route, duct to Toby) however, instead of Twin-wall flexible duct, duct 56 and associated bends will be used and a Cubis Stakkabox Carriageway Toby with a ductile cover will be used in place of the footway Toby.

Additionally, to minimise the need for re-excavation when a provision of service order is received, a section of capped duct 56 will be installed through the side of the Toby to the edge of the customer curtilage to facilitate the customer-side feed – a hole is required to be drilled in the side of the riser and a short horizontal length of duct 56 inserted during the build phase.

Figure: 4 below shows the construction of the Toby, reinstatement material and duct connections.

Figure: 4



Installation.**Area of excavation:**

Width of excavation should be either a minimum of 150mm wider than the chamber or the width of the compaction equipment. Depth of the excavation to include allowance for base material, the preformed chamber, the frame and bedding mortar.

Floor/Base Construction:

The bottom of the excavation should be level and free from large stones or rocks. If ground conditions are loose compacted Type 1 MOT is to be used to level and stabilise the area. The base should then be made up of the proposed dry mix concrete set out in this specification.

Toby Box cover:

Place the frame over the chamber to gauge to amount of mortar required for bedding. There should be a minimum of 10mm and a maximum of 50mm under the flange. A HA104/09 compliant resin-based mortar should be used. Pay particular attention to the manufacturer's guidance on handling and mixing.

Place the bed of mortar around the top of the chamber walls and tap the frame gently into this using a piece of wood. Check the level of the frame to ensure it is level with the road surface on all planes. Ensure the frame is situated centrally and in line with the chamber walls. (Bricks, tiles, or Shim-pack should not be used to level the frame)

Smooth the mortar between the frame and chamber internally using a trowel or rubber gloved hand to ensure a smooth finish.



Stakkabox carriageway toby cover



In-situ Stakkabox toby cover

4: REFERENCES

This reference list is not exhaustive and is issued here for guidance only.

- New Roads and Street Work Act 1991 (NRSWA)
- Health and Safety at Work Act 1974
- Safety at Street Works – a Code of Practice
- Road Traffic Regulation (Northern Ireland) Order 1997
- Management of Health and Safety at Work Regulations 1999
- HSG47 – Avoiding danger from Underground Services
- Personal Protective Equipment at Work Regulations 1992 - (Amendment - from 6th April 2022)
- Specification for the Reinstatement of Openings in Highways – 4th Edition May 2020
- Manual Handling Operations Regulations 1992
- The Electronic Communications Code, Schedule 2 to the Telecommunications Act 1984 as amended by the Schedule 3 to the Communications Act 2003, (“the Telecoms Code”)
- Northern Ireland Road Authority & Utility Committees – Code of Practice

End Of Document
