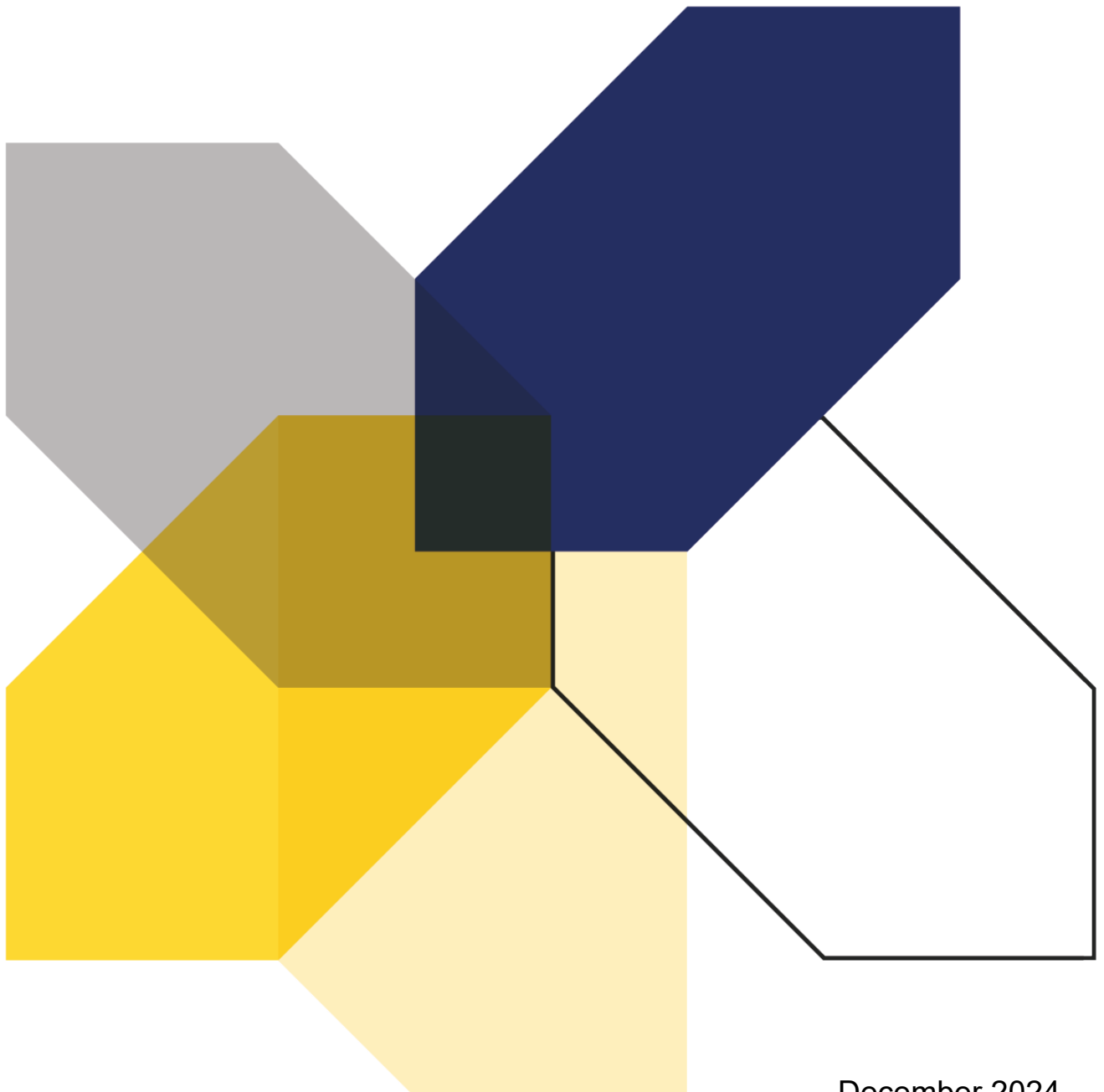




Department
for Transport

Specification for the Reinstatement of Openings in Highways- Electric Vehicle addendum



December 2024

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Introduction

This guidance sets out the specification for reinstating pavements following the installation of cable channels that cut through or across public footways.

It is an addendum to the [Specification](#) for the reinstatement of openings in highways (SROH), 4th edition.

The addendum:

- Sets standards for reinstatements following the installation of cable channels for electric vehicle charging on public footways. It does not cover the standards for the cable channel apparatus or its use in other scenarios.
- Lists some issues that need to be considered, such as skid resistance, strength, durability, trip hazards, usability, ownership, maintenance, liability, and access to underlying assets.
- Refers to a [guidance document](#) for local authorities on cross pavement solutions for charging electric vehicles, which provides more information on cable channels.

A cable channel is apparatus that cuts across or through a public footway for the sole purpose of housing an electric vehicle (EV) charging cable, for the supply of electricity to the EV. Cable channels are mainly intended to be used by residents without access to off-street parking, to connect a domestic chargepoint to an on-street parked EV.

This addendum to the SROH is intended to provide standards for cable channels that cut across footways and footpaths. It excludes cycle tracks, carriageways, verges and unmade ground as inserting EV charging cables into channels in these scenarios could be unsafe. This is because the user of the cable channel may not be aware of the potential danger to cycle or vehicular traffic from inserting a cable into the channel, and standing over the channel for a time.

Standards for the cable channel apparatus itself are not covered in this addendum.. We do advise, however, that those developing apparatus for insertion into public footways should consider the following (this list is not exhaustive):

- Skid resistance of the surface;
- Strength and durability (will it support vehicle loading without breaking or rocking and withstand repeated use and extreme weather);
- Trip hazards and gaps (see “[Inclusive mobility: making transport accessible for passengers and pedestrians](#)”)
- Usability (easy for vulnerable users)
- Ownership arrangements;
- Maintenance and ongoing liability, including use, misuse and vandalism;
- Access to underlying assets, which may require the removal and replacement of the cable channel.

More guidance on cable channels can be found in “[Guidance for local authorities on cross pavement solutions for charging electric vehicles](#)”.

This guidance includes the original text from the SROH for context, as well as amendments and additions to cover cable channels. Additional clauses are indicated by an 'a' in the section number, for example 'S1.8.2a'.

Amendments to the existing SROH

Requirements in the SROH are applicable with the following modifications:

Definitions

Cable channel Surface apparatus (see S11.2) located within the pavement structure that provides safe passage for electric vehicle (EV) charging cables through public footways or footpaths from the supply of electricity to the EV.

Small features Frames, cable channels and surface boxes smaller than 600 mm x 600 mm

S1 Operational Principles

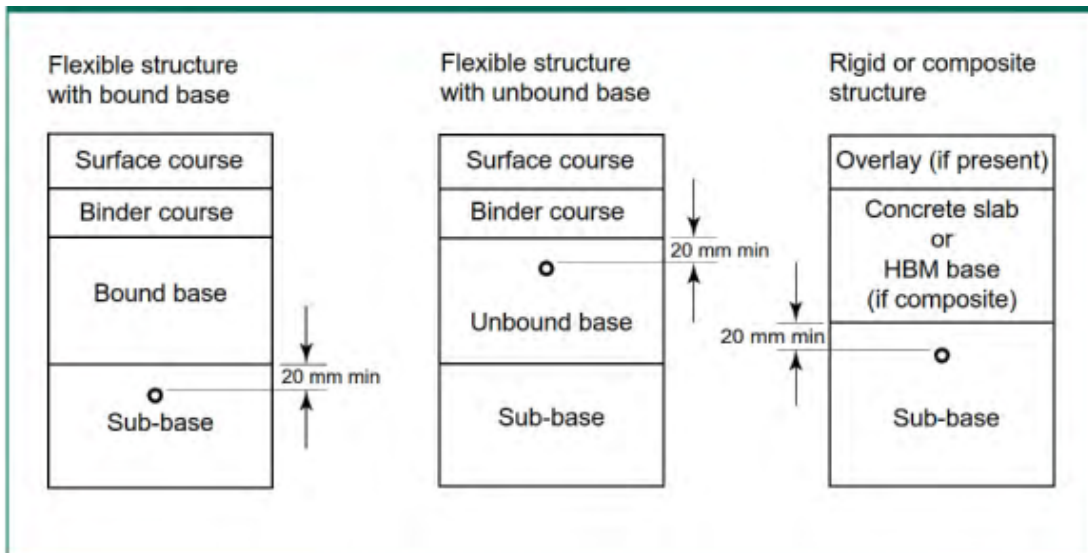
S1.8 Apparatus in roads, footways, footpaths and cycle tracks

S1.8.1 Apparatus, other than cable channels in footways or footpaths, over 20 mm external diameter is not permitted within road, footway or cycle track structures unless special circumstances exist (for example, shallow cover over culverted watercourses, utility apparatus). In these special circumstances, the utility must consult the authority whose approval must not be unreasonably withheld.

S1.8.2 Apparatus of 20 mm external diameter or less is not permitted above or within 20 mm of the following levels within a road structure (see Figure S1.1):

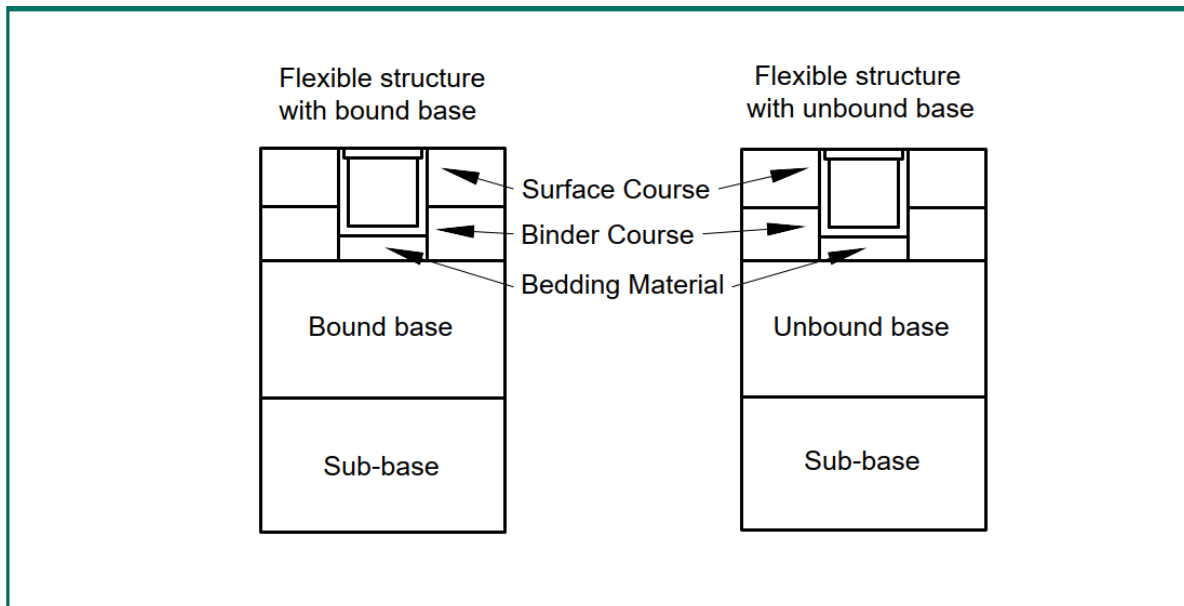
- 1) The base/binder course interface in a flexible structure.
- 2) The underside of the base in a composite structure.
- 3) The underside of the concrete slab in a rigid structure.
- 4) The underside of the complete construction (formation layer) in a modular structure (refer to Figures A6.1 to A6.3).

Figure S1.1 Location of apparatus of 20 mm diameter or less



S1.8.2a Cable channels are allowed within the footway and footpath structure (see Figure S1.2) when excavation and reinstatement are carried out following this addendum.

Figure S1.2 Location of cable channels in footways and footpaths



S1.8.3 Where other existing apparatus or surrounds occur within the road structure, the method of reinstatement must be determined by agreement.

S2.3 Fixed features

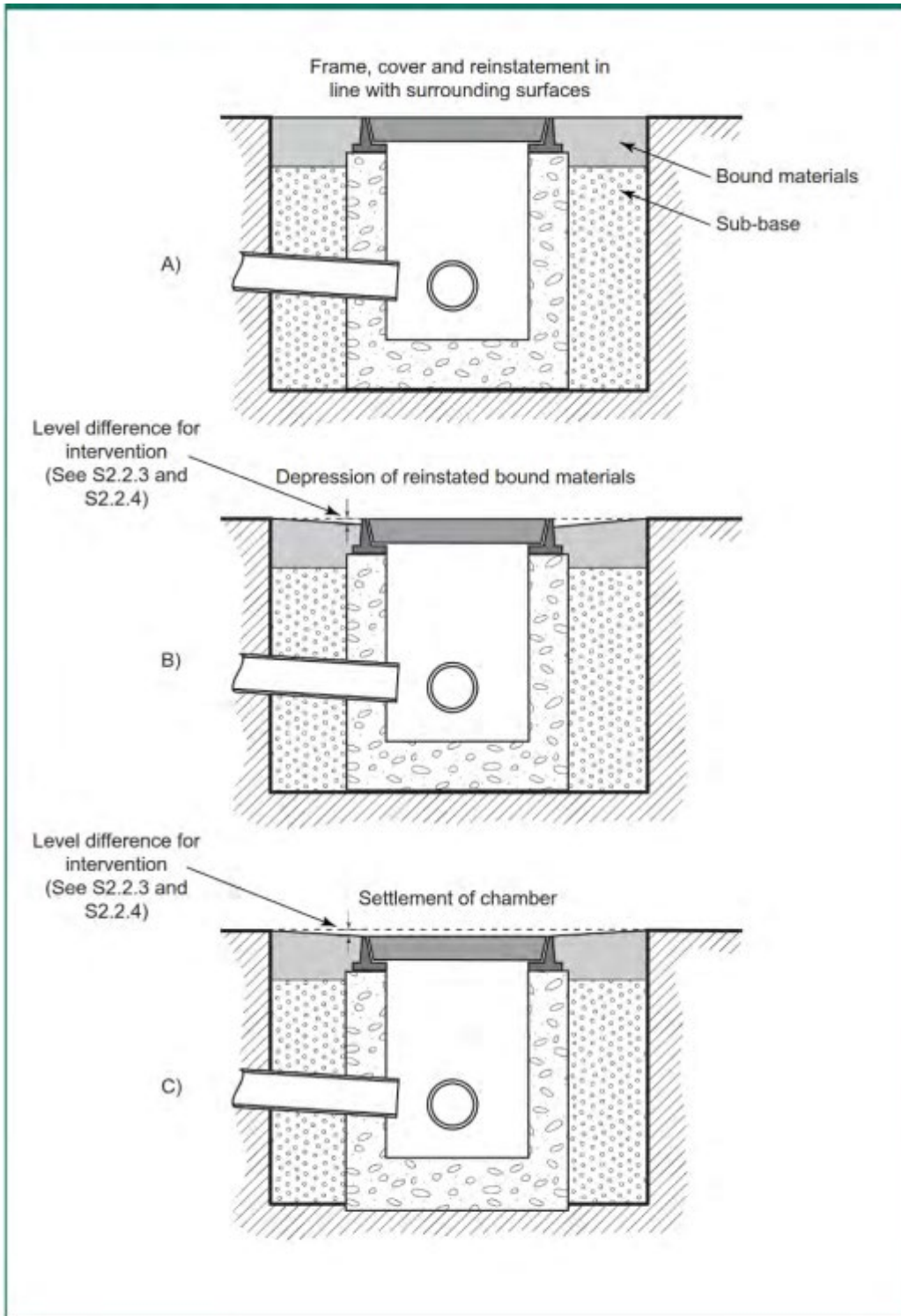
As-laid profile

S2.3.1 All fixed features, such as edgings, channel blocks, drainage fixtures, surface boxes, cable channels (including moving parts and cables while in operation), ironware, etc., should be as level and flush as possible with the adjacent surfaces and must be installed to the following level criteria:

- 1) Fixed features must be laid to coincide with the mean level of immediately adjacent surfaces.
- 2) The construction tolerance between the level of the fixed feature (excluding drainage features) and immediately adjacent surfaces is ± 6 mm.
- 3) Drainage features must be installed flush with or up to 6 mm below the level of the adjacent surface.
- 4) At pedestrian crossing points where the kerb is flush with the carriageway, the kerb must be re-laid flush with, or not more than 6 mm above, the carriageway.

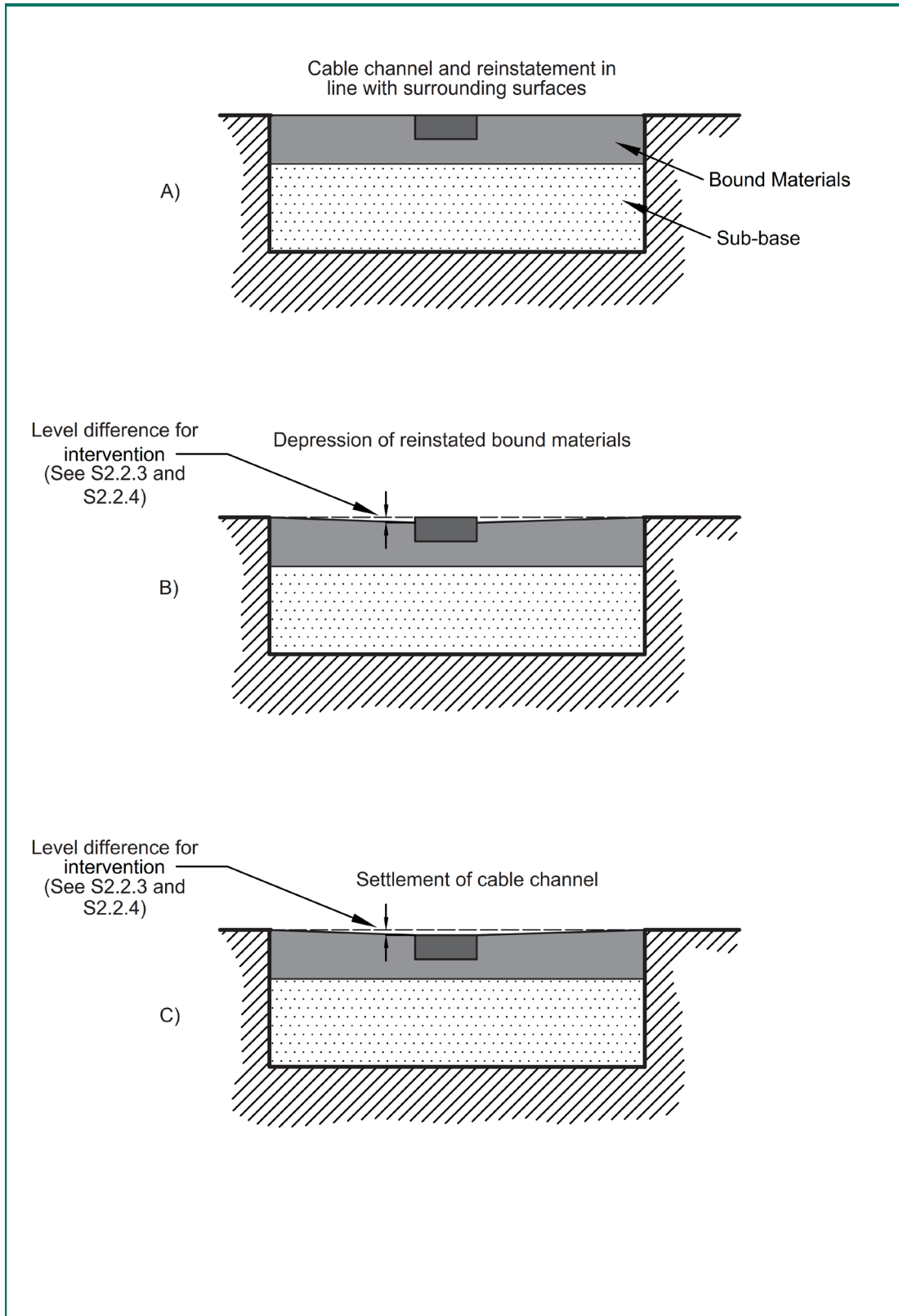
S2.3.2 Figure S2.5 illustrates the relationship between immediately adjacent surfaces and the surround reinstatement when setting the level of access covers and frames.

Figure S2.5 Fixed features relative to adjacent surfaces



S2.3.2a Figure S2.6 illustrates the relationship between immediately adjacent surfaces and the surround reinstatement when setting the level of cable channels.

Figure S2.6 Cable channels relative to adjacent surfaces



Intervention

S2.3.3 Intervention is required where the mean level of edgings, channel blocks, surface boxes, cable channels, ironware, etc., do not coincide with the mean level of the adjacent surfaces, within ± 10 mm.

S2.3.4 For drainage fixtures, intervention is required where the feature differs from the mean level of the adjacent surfaces, within a tolerance of +0 mm to -15 mm.

S2.3.5 For pedestrian crossing points, intervention is required where the edge depression at the interface between the paving (including tactile paving) and the dropped kerb exceeds 6 mm over a continuous length of more than 100 mm in any direction.

S8 Footways, footpaths and cycle tracks

S8.1.5 **S6.5** must be followed for small openings and narrow trenches. For micro trenching, large diameter cores, cable channels and work around ironwork, **S6.6**, **S6.7**, **S11.2** and **S11.5** must be followed, respectively.

S8.9 Cable channels

Installation of cable channels in flexible footways and footpaths are covered in **S11.2** and **S11.5**. Cable channels in rigid and modular footways and footpaths require approval via **A9** (materials and technology).

S11.2 Street furniture and special features

S11.2.1. Street furniture and features such as tactile paving or cable channels that have been removed to facilitate street works must be carefully stored during the works. They must be replaced in their original locations before opening the highway to traffic and pedestrians. Advice on replacement may be provided by the authority.

S11.5 Ironwork in roads, footways, footpaths and cycle tracks and cable channels in footways and footpaths

S11.5.1 The installation, construction and maintenance of apparatus such as access covers, cable channels and frames form an integral part of street works. Works undertaken to apparatus must be to the standard and specification of the owner of the apparatus.

S11.5.2 The sub-structure of an underground chamber supporting an access cover and frame or cable channel is constructed in such a way that it is not usually possible to achieve a full depth reinstatement in the area defined as the 'access surround'. The access surround is the area between the fixed feature (access frame / cable channel) and the point at which a full depth reinstatement can be achieved with a full load transfer. In the area of the access surround, it may not be possible to reinstate surface or binder

courses to the required thickness, e.g. where the distance between the frame and the surface is less than 100 mm. In this case, a surfacing material may be used as binder course.

Reinstatement materials

S11.5.3 Reinstatements around ironwork and cable channels must comply with S4, S5, S6 for flexible roads, S7 for rigid and modular roads, S8 for footpaths, footways and cycle tracks. In addition, clauses S11.5.4 to S11.5.6 include alternative options specific to reinstatement around ironwork and apparatus, including cable channels.

S11.5.4 Bedding materials that require curing for strength gain must be allowed to cure before constructing the next layer.

S11.5.5 Bedding materials used in reinstatements

1) Bedding material, including C32/40 strength concrete may be used to fill the excavation to within 100 mm of the road surface and within 350 mm of the edge of the access chamber frame cover.

2) To provide a long service life in high stress areas such as braking and turning areas, consideration should be given to the use of PMMA (see S6.5.6 to S6.5.10).

S11.5.6 Backfill and sub-base

Backfill and sub-base may be:

1) concrete with a Product Acceptance Scheme certificate. Installation and curing must be carried out as per the requirements in the certification. The substrate must be pre-wetted, and any standing water removed.

2) PMMA (see S6.5.6 to S6.5.10)

3) substituted by bedding materials (see S11.5.4.).

S11.5.7 Surfacing

Surfacing materials may be:

1) PCSM: must comply with A2.4. and must be suitable for reinstatements around ironwork / cable channels. Compaction must be in accordance with A8. Before application, the outside of the frame and all exposed edges and joints must be primed with an edge sealant (see S6.8).

2) Asphalt: complying with CD 534. In accordance with S6. Also refer to A2 to A4.

3) PMMA (S6.5.6 to S6.5.10)

4) Surface infill material allowed in micro trenches (see S6.6.21)

Compaction

S11.5.8 Compaction in accordance with S10.3. around ironwork and apparatus is the preferred method and it must be used, with the following restrictions:

- 1) Mechanical pole tampers may be used as an alternative in footways, footpaths and cycle tracks.
- 2) Flowable materials may be used as per S11.5.16 to avoid the requirement for compaction
- 3) In footways, footpaths and cycle tracks, hand compaction may be used if there are restrictions, such as kerbs, other ironwork or street furniture, that do not allow compaction in accordance with S10.3 or the use of mechanical pole tampers. In this case, hand compaction may be used only:
 - a) where it can be shown to be the undertaker's custom and practice for the works before this edition of this Code; or
 - b) via A9, using the track record of compliance with S2 requirement as evidence; or
 - c) by agreement.
- 4) In roads, hand compaction may be used if there are restrictions, such as kerbs, other ironwork or street furniture, that do not allow compaction in accordance with S10.3 or the use of mechanical pole tampers. In this case, hand compaction may be used only:
 - a) via A9, using the track record of compliance with S2 requirement as evidence; or
 - b) by agreement.

Excavation

S11.5.9 Before applying any bedding, backfill or surfacing material, the receiving surface must be free from loose excavation material and loose supporting materials, and the area must be clear of debris and free from oil, grease, dust or any other visible contaminant.

S11.5.9a For cable channel installation, the surface and binder course layers in footways and footpaths must be excavated prior to the installation of the cable channel.

S11.5.10 Edge preparation of the excavation must comply with S6.8 for flexible roads, S7.5 for rigid and modular roads and S8.6 for footpaths, footways and cycle tracks.

S11.5.11 All loose excavation material and the existing frame must be removed and the structure prepared to receive the new frame.

S11.5.12 All loose supporting materials e.g. proprietary packing materials, engineering bricks etc., must be removed.

S11.5.13 A suitable edge sealant and, where necessary, a primer must be applied to the frame / cable channel and on the bedding material where concrete is used as the bedding material.

Trimback

S11.5.14 The width of trimback is dependent on the reinstatement materials used.

Reinstatement materials that require compaction

If reinstatement materials are used that require compaction e.g. granular sub-base, HRA, etc., the width of trimback required will be the width of the frame base plus the width of the compaction tool sole plate plus 30 mm.

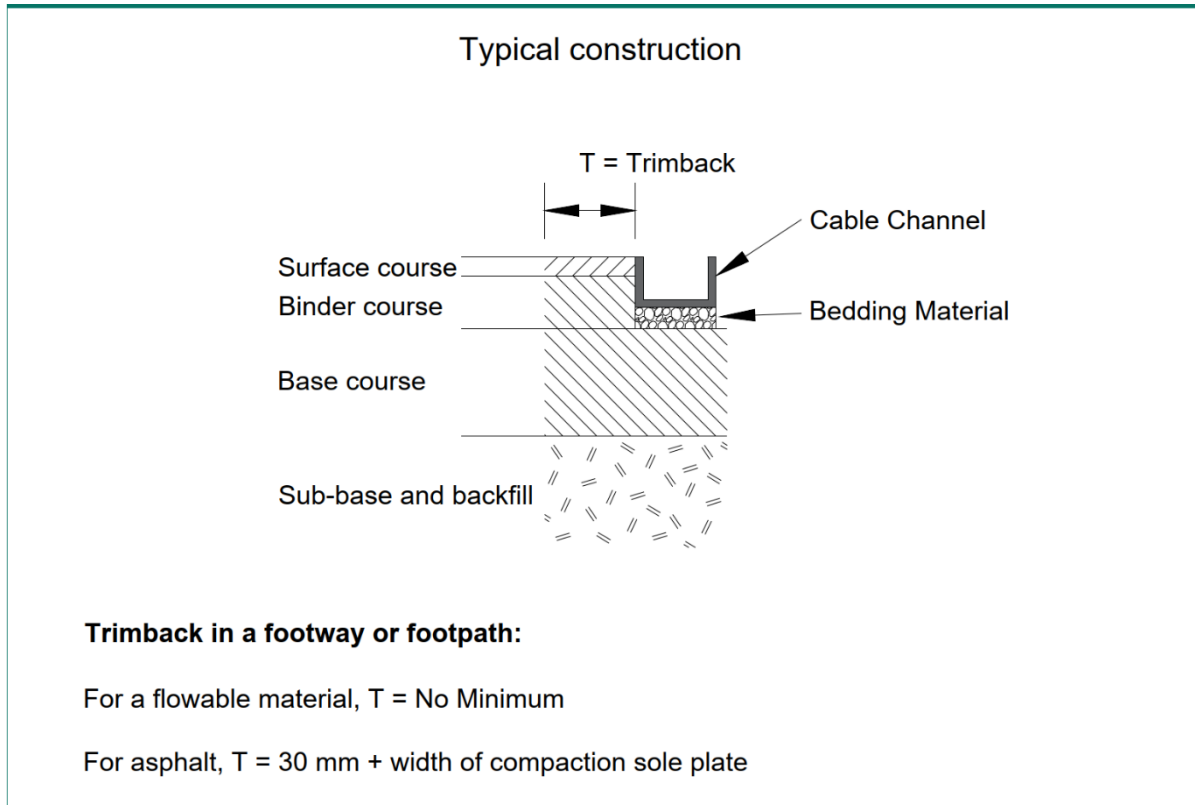
Reinstatement materials that do not require compaction

If reinstatement materials are used that do not require compaction e.g. concrete or PMMA, then a minimum width of trimback will be required to install the apparatus and ensure depth of penetration of the reinstatement material. For roads this will be a minimum of 50 mm in excess of the flange width. For footways, footpaths and cycle tracks the minimum width of trimback is the width of the frame.

Typical construction details

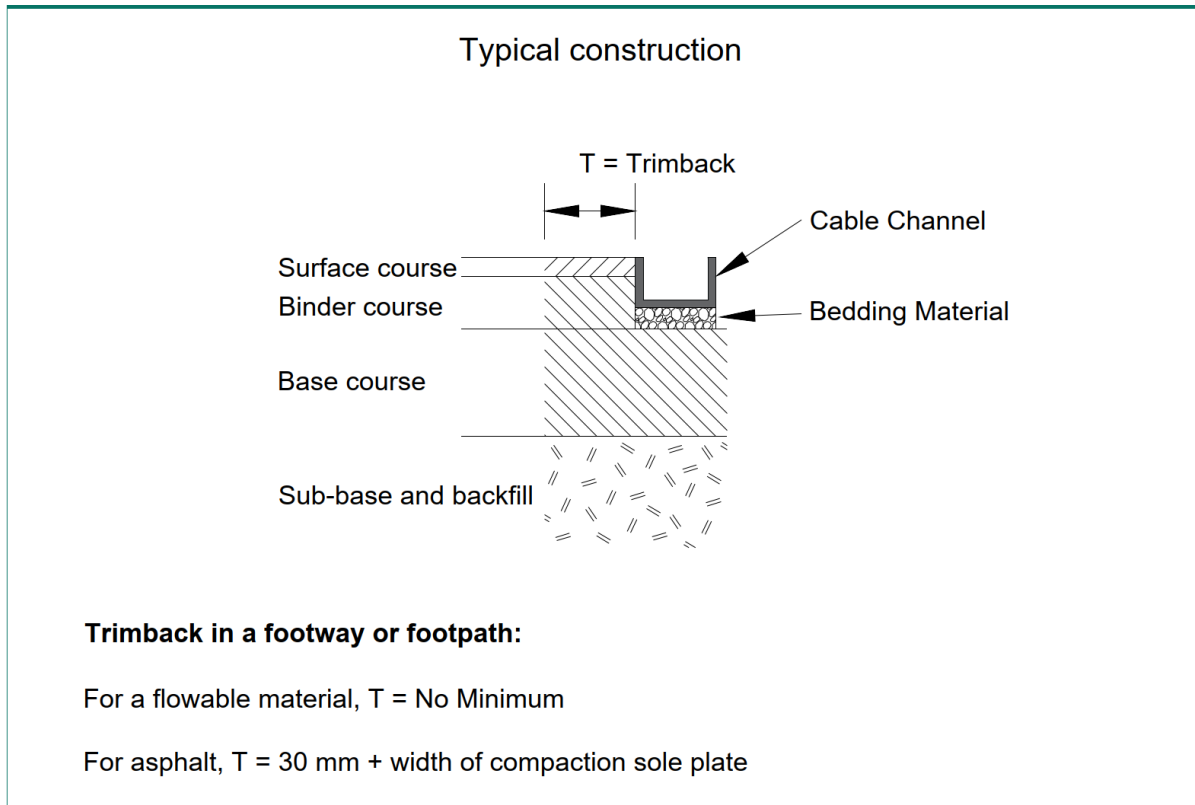
S11.5.17 Figure S11.1 shows typical construction for a reinstatement next to a chamber.

Figure S11.2 Reinstatement around a cable channel



S11.5.17a Figure S11.2 shows typical reinstatement around a cable channel.

Figure S11.2 Reinstatement around a cable channel



Reinstatements around and between small features

S11.5.18 When a reinstatement is needed around or between small features, PMMA complying with A2.5.1 and A2.5.2 may be applied as backfill, sub-base, base and surfacing material. Other materials permitted in Section S11.5 may be used if appropriate compaction can be achieved.

NG2 Performance requirements

NG2.3 Fixed features

Fixed features, e.g. kerbstones and related precast concrete products, channel blocks and drainage fixtures, surface boxes and ironware should be bedded on a sound foundation in accordance with the owner's requirements to provide adequate support and mitigate rocking. In order to prevent excessive areas of standing water, it is necessary to set separate intervention limits for channel blocks, drainage fixtures, surface boxes and ironware.

For cable channels, the channel must be of sufficient dimension and design that any installed cable remains inside the channel at all times whilst in use and it is as level and

flush as possible with the adjacent surfaces, i.e. the cable should not protrude outside the channel.

NG11 Ancillary activities

NG11.5 Ironwork and apparatus

Cable channels

When installing a cable channel, the full depth of the surface and binder course layers has to be excavated to avoid leaving a thin layer of material in place, as this could cause early deterioration and settlement of the cable channel.

When the existing footpath or footway is uneven, the excavation to install a cable channel may need to be extended to avoid trip hazards and to comply with the performance requirements in S2.