S8 – Footways, footpaths & cycle tracks

Researched, compiled and produced by corehard and ENFIELD Council with support through TFL lane rental funding scheme

Introduction- SROH S8

This advisory document is designed to assist incoming and existing Inspectors as support and refresher material. It will be provided in simple language to aid in understanding and avoiding technical or descriptive explanation.

The current edition (Ed 4) of the Specification for Reinstatement of Openings in the Highway (SROH) has been updated to assist readers in understanding, and introduce new methods and developments within street-works.

Remember, the SROH applies to works undertaken on carriageway's, footway's and verge's maintained at public expense (not private roads or land).

You will now be taken through the key items within S8 which will enable you to have a better understanding of what to look for when monitoring the reinstatement of footways, footpaths and cycle tracks.

Please note:
This document is simply to aid in understanding of the Specification for the Reinstatement of Openings in the Highway (SROH) and should not be used for any other purpose.
The simplicity of language is to assist in explanation, but may detract from certain technical or descriptive specification requirements and, therefore, the SROH should be consulted for clarity.

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What it says in the SROH

S8.1.1 The undertaker must carry out reinstatement in accordance with one of the following methods and should endeavour to achieve the greatest degree of immediate permanent reinstatement.

Reinstatement methods are listed in Table A2.10.

What it means

As you can see, there are several methods of completing a reinstatement. However, you should always aim to complete the reinstatement as all permanent at the first visit. If you choose one of the other methods, you will usually be going back to site to complete the reinstatement, which is not usually ideal or desirable.

Table A2.10 will show you what constructions types you can apply these methods to. You will see that footways, footpaths and cycle tracks allow Method A as a first time permanent reinstatement.
Method B only applies to flexible and composite construction, and Method D if you are using the permanent sub-base option.

NOTE
Except for composite construction, there is no base layer in footways, footpaths or cycle tracks

Example: If you apply Method B, (interim with permanent binder) you will see that it only applies on flexible and composite footways, footpaths and cycle tracks. Options for rigid and modular construction are not applicable (N/A) as highlighted in Table A2.10 on the right.

Table A2.10 Key to reinstatement methods

Reinstatement method (at first visit)	Flexible & composite roads S6		Rigid & modular roads S7				Footways, footpaths & cycle tracks S8		
	Flexible (A3.0 - A3.4 incl.)	Composite (A4.0 - A4.3 incl.)	Rigid (A5.0 - A5.2 incl.)	Modular: Bituminous base (roadbase) (A6.1)	Modular: Composite base (roadbase) (A6.2)	Modular: Granular base (roadbase) (A6.3)	Flexible and composite (A7.1 and A7.2)	Rigid (A7.3)	Modular (A7.4)
All permanent	Method A (Types 0-4 incl.)	Method A (Types 0-4 incl.)	Method A (Types 0-4 incl.)	Method A (Types 3, 4 only)	Method A (Types 3, 4 only)	Method A (Types 3, 4 only)	Method A ✓	Method A ✓	Method A ✓
Interim with permanent binder course	Method B (Types 0-4 incl.)	Method B (Types 0-4 incl.)	N/A	N/A	N/A	N/A	Method B ✓	N/A ✗	N/A ✗
Interim with permanent base	Method C (Types 3, 4 incl.)	Method C (Types 0-4 incl.)	N/A	N/A	N/A	N/A	N/A ✗	N/A ✗	N/A ✗
Interim with permanent sub-base	Method D (Types 0-4 incl.)	Method D (Types 0-4 incl.)	Method D (Types 0-4 incl.)	Method D (Types 3, 4 only)	Method D (Types 3, 4 only)	Method D (Types 3, 4 only)	Method D ✓	Method D ✓	Method D ✓
Permanent incorporating interim surface overlay	N/A	N/A	Method E (Types 0-4 incl.)	N/A	N/A	N/A	N/A	N/A	N/A

Method B is where binder course layer and below is permanently reinstated.

Method D is where the Sub-base layer and below is permanently reinstated.

If these methods are selected you will have to re-visit the site to complete the other required layers.

This is why Method A – All permanent is the best option, as only one site visit is required

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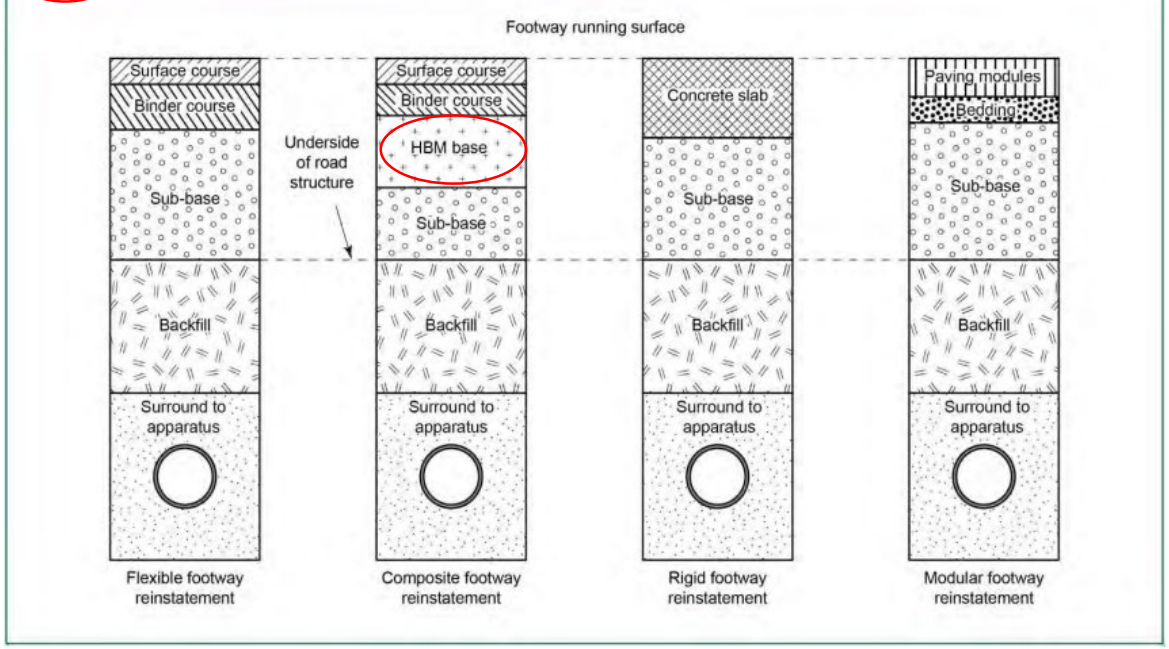
What it says in the SROH – S8.2 Sub-Base

S8.2.1 Flexible and composite footways, footpaths and cycle tracks must be reinstated with the permitted options shown in Figures A7.1 and A7.2 respectively, subject to the exceptions described in S8.2.3 to S8.2.6.
S8.2.2 Rigid footways, footpaths and cycle tracks must be reinstated with the permitted options shown in Figure A7.3, subject to the exceptions described in S8.2.3 to S8.2.6.

What it means

Sub-base layer is an important part of the construction. In a flexible footway or cycle track, it is located immediately below the binder layer (or concrete layer in rigid construction). However, if you have a composite construction, you will have a base layer between the binder and sub-base *(see below Fig A2.2)*. The sub-base is located above the backfill layer and some of the exceptions relating to sub-base mentioned on the left will be outlined below.

Figure A2.2 Typical reinstatement structure within recognised footway designs



There are some options relating to the granular sub-base as follows:

1) Instead of 100mm Type 1 material you can use minimum of 100mm HBM.
2) An additional 40mm of asphalt concrete or HRA binder material will substitute the sub-base layer on footways, footpaths and cycle tracks.
3) Three equal layers of HRA or asphalt concrete surface course to a total thickness no less than 100mm as a combined sub-base, binder course and surface course. *(Sub-base may remain below vehicle crossovers and layer thickness must match existing if in excess of SROH requirements).*

Alternative reinstatement materials may be laid at sub-base level in accordance with A9.

Any structure, foundation, kerb backing or support system for the adjacent road found below the footway, must be replaced to match existing construction.

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What it says in the SROH – S8.3 Surface reinstatement

S8.3.1 Surface reinstatement options for flexible, composite and rigid footways, footpaths and cycle tracks are shown in A7.

What it means

As stated, all the permitted options for surface course reinstatement are found in the SROH Appendix A7. However, there are some exceptions which will be described below.

High Duty or High Amenity Areas

- The authority must register all high duty/amenity areas and provide source of materials.
- Undertaker should reinstate with matching materials.
- If the material is not available, the authority must work with the undertaker to locate alternative.
- If the authority does not identify alternative, the undertaker should make every effort to match materials.
- Where a coloured surface is applied, it must be laid as outlined below.

What does high duty or high amenity mean?

High duty is simply where there is heavy use such as outside a major train station. High amenity is where it uses unusual or expensive materials for aesthetic reasons (looks nicer).


High amenity


High duty

Where a coloured surface has been applied, a matching coloured overlay must be laid to the same thickness.
Where a coloured surfacing material has been laid, it must be laid to specified thickness.
If this is not possible, agreed alternative with authority is required.


Must be laid to full thickness of SROH requirements unless agreed otherwise.


High duty


High amenity

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What it says in the SROH – S8.3 Surface reinstatement

S8.3.1 Surface reinstatement options for flexible, composite and rigid footways, footpaths and cycle tracks are shown in A7.

What it means - As stated, all the permitted options for surface course reinstatement are found in the SROH Appendix A7. However, there are some exceptions such as specialist materials or coatings and PMMA's.

NOTE
You will see that the usual common materials applied in carriageway are also used in footways, footpaths and cycle tracks with some slight differences.

Stone Mastic Asphalt (SMA)

Asphalt Concrete (AC)

Hot Rolled Asphalt (HRA)

As with flexible and composite roads, reinstatement edges should be sawcut to 40mm depth.
A bond coat must be applied in all instances. Edge sealant must be applied to top 100mm if available (usual flexible footway will be 80mm of bituminous, so ensure edge sealant is applied to full depth of surface and binder courses.

Although the materials are similar, it is usual for the aggregate size to be smaller or finer within the footway specification. For example, when selecting an asphalt concrete material you will usually find a 6mm aggregate size in a footway, and a 10mm aggregate size in a carriageway.

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Hot Rolled Asphalt (HRA)

Remember: Only use HRA reinstatement in an existing HRA footway, footpath or cycle track.

Where pre-coated chippings are to be embedded into a HRA footway or cycle track surface, they must be spread to give a chipping density to reasonably match that of the existing surface.

HRA can be used for reinstatement where the existing footpath or cycle track is Asphalt Concrete.

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6mm Stone Mastic Asphalt (SMA)

Footways, footpaths or cycle tracks surfaced with SMA must be reinstated with either SMA surface course or, if agreed with the local authority, with HRA.

However, where the existing surface is asphalt concrete, it is not specified that you can use SMA as an alternative in a footway, footpath or cycle track.
This will apply to carriageway reinstatements only.

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6mm Asphalt Concrete (AC)

Where the existing surface course is asphalt concrete, it must be reinstated with asphalt concrete. However, it may be reinstated with HRA as an alternative option.

Where used in a footway, footpath or cycle track, asphalt concrete surface course must be “AC6 close surf” material.

Where a continuous asphalt concrete trench or patch located in the carriageway crosses onto the footway, footpath or cycle track, it may allow the 10mm AC material to be used. This is for a maximum of 10m in total length or 4m² as per SROH A2.3.6-2). This cannot be used in any other instance, such as works not connected to or joining the carriageway.

Note: This only applies to asphalt concrete

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Other bituminous materials

What it says in the SROH - S8.3	What it means
S8.3.11 Where the authority has a policy of using a specific type of asphalt surfacing on footways (i.e. the material specification is not wholly contained within the options given in A2), the undertaker must take all reasonable measures to reinstate excavations with that material unless otherwise agreed with the authority. S8.3.12 The authority, when requested, should provide any details they have on suitable suppliers and specifications. Where no practicable source of supply can be found, the reinstatement must be carried out in accordance with S8.3.7.	Where there are other types of materials found in the existing footway, footpath, or cycle track which are not covered by the SROH specification the undertaker is required to reinstate using the same material. If the material is not identified by the undertaker, they should ask the authority to assist with specification and suppliers. If this cannot be done, the undertaker can apply the best option available to him to match the existing using allowable materials specified within A2 of the SHOH. Some examples of these unusual materials can be seen in the images below. Remember, the undertaker should make all efforts to match existing or seek information from the authority

In high duty footways, footpaths and cycle tracks where custom and practice has been to complete surface materials with overbanding, or other coating of a certain minimum skid resistance. The undertaker must provide a similar minimum skid resistance value for the material used for coating or overbanding the new reinstatement (SROH-S8.3.20).

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Areas constructed in concrete

What it says in the SROH

S8.3.13 Concrete footways, footpaths or cycle tracks must be reinstated with C25/30 minimum strength concrete, as per S7.3.2 to S7.3.4, to match the existing thickness (see Figure A7.3). For small openings, site-batched concrete of equivalent strength may be used.
S8.3.14 Where the authority knows of any site where air-entrained concrete has been used, it should advise undertakers in advance of the works.

What it means

Where rigid (concrete) construction is found, the minimum allowable strength is C25/30 (this will be explained below). This has to be achieved as the specification says it "must" be reinstated in this way. It must match the existing concrete thickness, but should never be less than 100mm if the existing happens to be less than that.
Air entrained concrete contains microscopic air bubbles that help alleviate internal pressure on the concrete by providing small pockets for water to expand into when exposed to freeze-thaw conditions.

What does the value C25/30 mean?

The 25 is the compressive strength requirement of **25 N/mm²** of a crushed concrete cylinder *(core)* after 28 days.
The 30 is a compressive strength requirement of **30 N/mm²** for a crushed concrete cube after 28 days. If using a core sample as a method of test, the compressive strength should be compared to the first number (25).

So you have to test to get C value?

Exactly, you cannot get the value by any other means and that is why you have cylinder *(core)* and cube crush testing. *(testing after being laid [core], and testing the mix quality by taking a sample from the wet concrete [cube]).*

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What it says in the SROH

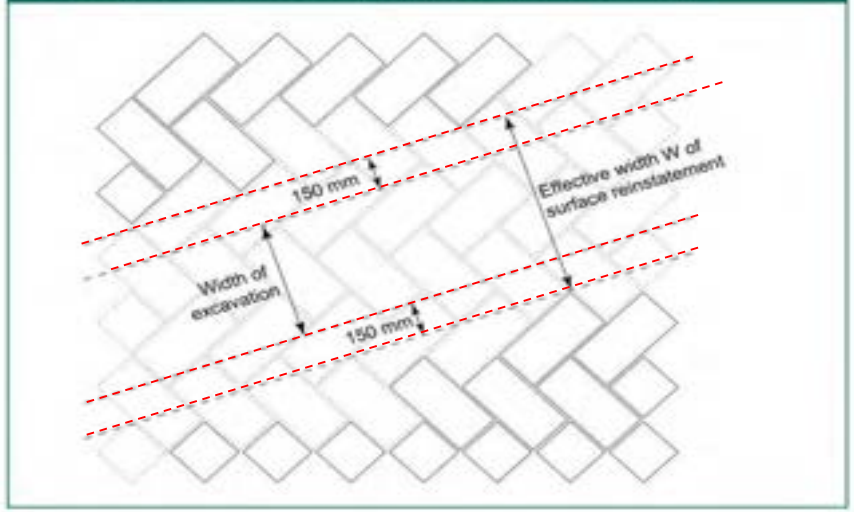
S8.3.16 Modular footways, footpaths and cycle tracks must be reinstated in accordance with the permitted materials and layer thickness specified in Figure A7.4.
S8.3.17 The modular surface layer must be reinstated in accordance with A12. The requirements and recommendations for the provision of replacement modules are shown in A12.

What it means

This provides layer values for sub-base along with permanent or interim methods for reinstatement *(as we have already discussed on page 3 of this document)*.
A12 of the SROH will provide further information with regard to laying of artificial stone paving modules, and how they should be considered in terms of trench width and use. We will outline some of these below.

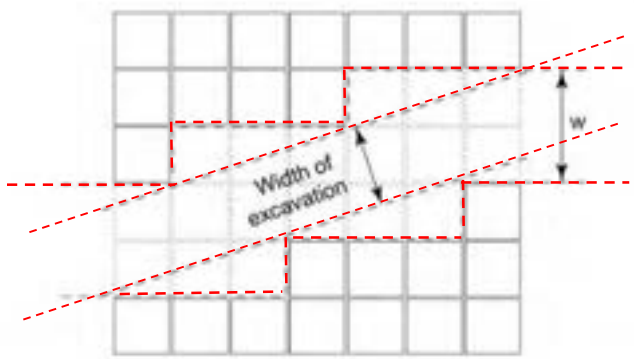
For modular surfaces where all sides of the module are 305 mm or less, the effective width of the reinstatement (W) is the distance between two parallel lines drawn 150 mm outside the edges of the excavation (see Figure S2.1a).

Figure S2.1a Surface area of reinstatement – modules ≤ 305 mm



For modular surfaces where any side of the module is greater than 305 mm, the effective width of the reinstatement (W) is the distance between the outer extremities of any modules that overlap the edge of the excavation (see Figure S2.1b).

Figure S2.1b Surface area of reinstatement – modules > 305 mm



For reference, these highlighted tables are available in SROH S2

Artificial Stone Paving (ASP), which are concrete slabs or blocks must be renewed where broken. Unbroken modules must be cleaned and re-used.

Where natural material damaged modules are to be re-used in the reinstatement, a joint inspection must be arranged before starting excavation to agree the extent of usage of damage modules and the minimum size acceptable for re-use.

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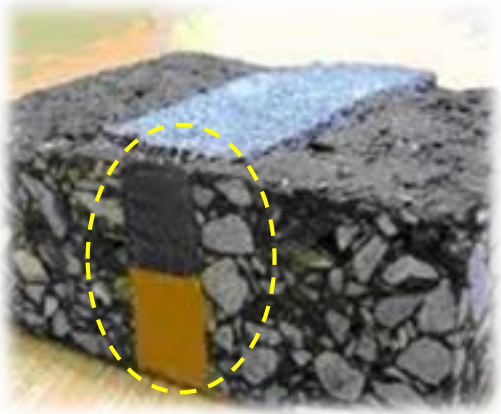
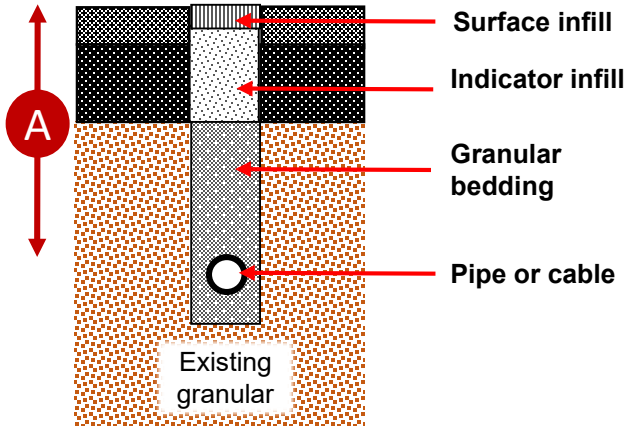
What it says in the SROH – S8.4 Micro Trenching

S8.4.1 Micro trenching in flexible footways, footpaths and cycle tracks is covered in S6.6. Micro trenching in rigid and modular footways, footpaths and cycle tracks requires approval via A9 (materials and technology).
NB. S6.6 relates to flexible and composite roads and the method is the same.

What it means

Micro trenching is a cutting technique where narrow, trenches are cut through the pavement structure up to 60mm wide. Once the particular process has had required approvals, the authority should not unreasonably stop it from being used, unless in high duty/amenity areas for engineering reasons.





A = Depth to apparatus

Absolute minimum of 175mm in carriageway and **100mm in footway**.

If pipe or cable is laid in bituminous material layers, only indicator infill and surface infill should be used. Granular bedding material can only be used where existing material is unbound.

Indicator infill must be coloured to help stop future works damaging the pipe or cable if found.

Surface and indicator infill materials will usually be resin based, and must be compatible with each other.

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What it says in the SROH – S8.5 Large Diameter Cores

S8.5.1 Large diameter coring is permitted in footways, footpath and cycles tracks. This must be in accordance with S6.7 except that in footways, footpaths and cycle tracks, the minimum bound layer/slab depth is 60 mm *(not 100 mm for flexible and composite roads as per S6.7).*

What it means

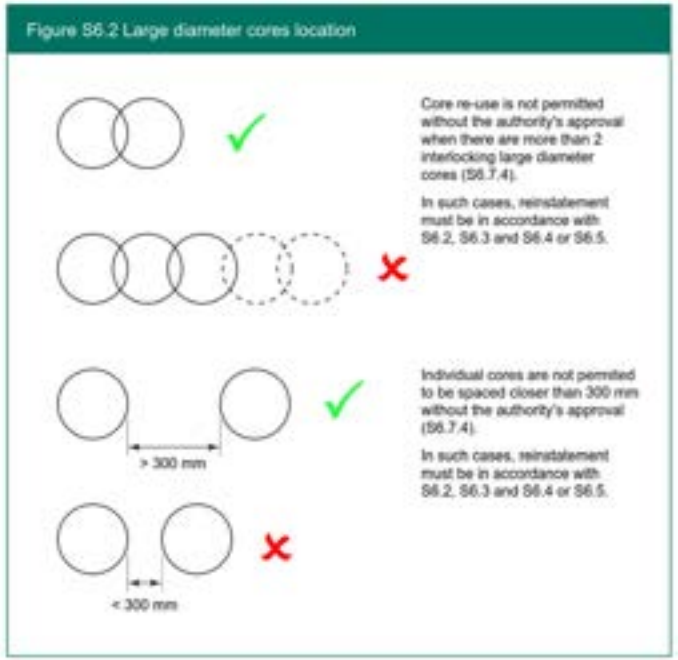
New and innovative methods of excavation and reinstatement have been developed such as large diameter coring. The extracted core needs to be in excess of 60mm of bound materials before it may be used to reinstate The area it was extracted from.

Regardless of the method of excavation, care must be taken to avoid undermining the adjoining structure.

If undermining does occur, re-using the core is not permitted and reinstatement must be carried out to the available options under SROH S6 for the relevant construction and surface materials.

Reinstatement by core is only permitted for single cores, two overlapping cores, or multiple cores with a minimum clear separation between core perimeters of 300 mm

Where there are three or more overlapping cores or where the separation between multiple cores is less than 300 mm, core re-use is not permitted unless agreed to by the authority



If the depth of the existing bound layers/concrete slab is less than 60 mm, reinstatement by core re-use is not permitted in footway or cycle track.

The core must be reinstated with a tolerance of plus or minus 5mm and this remains for the two year guarantee period. Intervention is required if this tolerance is exceeded. You will notice this is not the usual intervention requirement for edge depression (10mm) under SROH S2.2.2

When the core is removed, it must be checked that the bound layers are at least 60 mm around the total circumference. If less than 60 mm at any point, re-using the core for footway or cycle track reinstatement is not permitted

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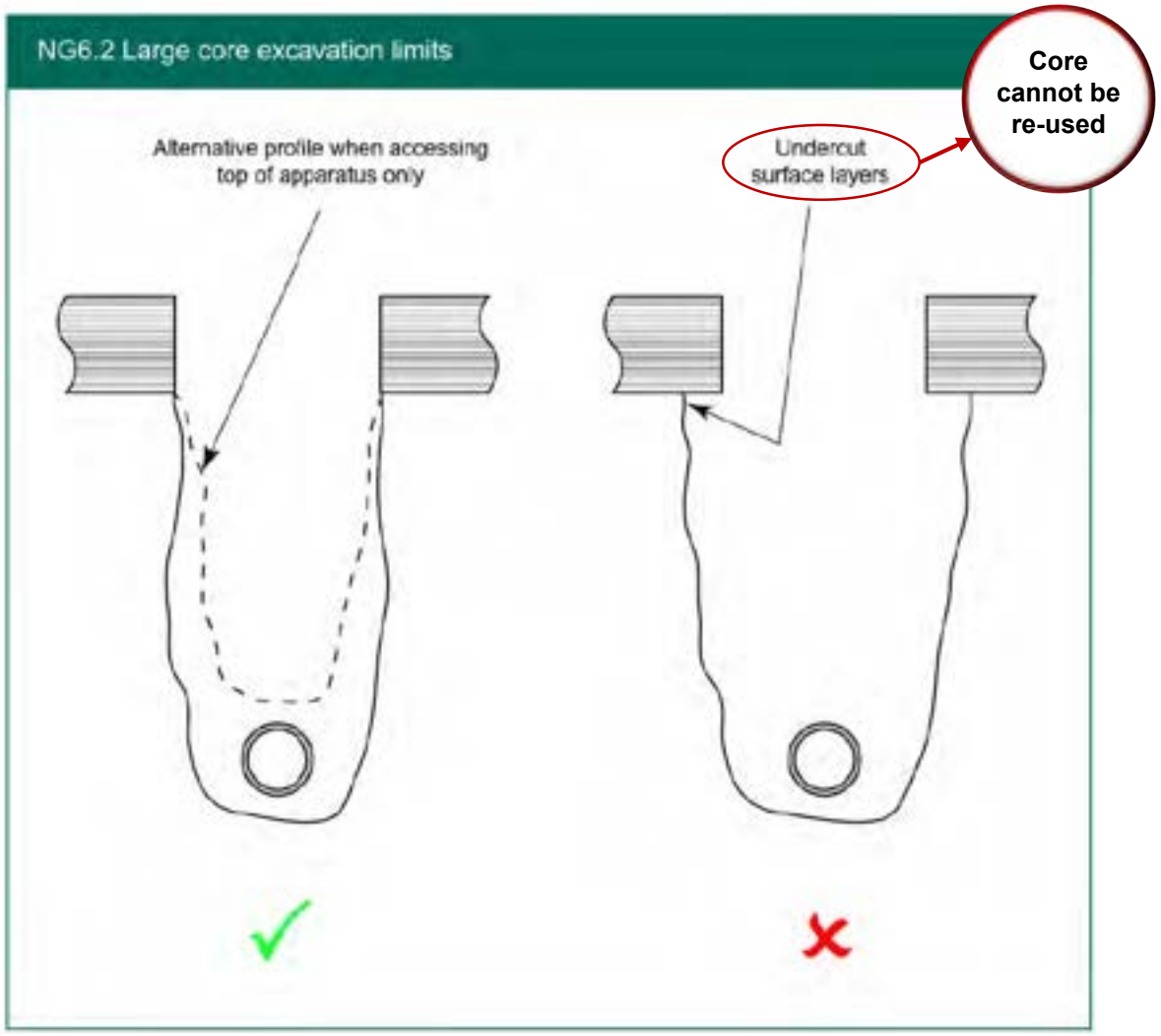
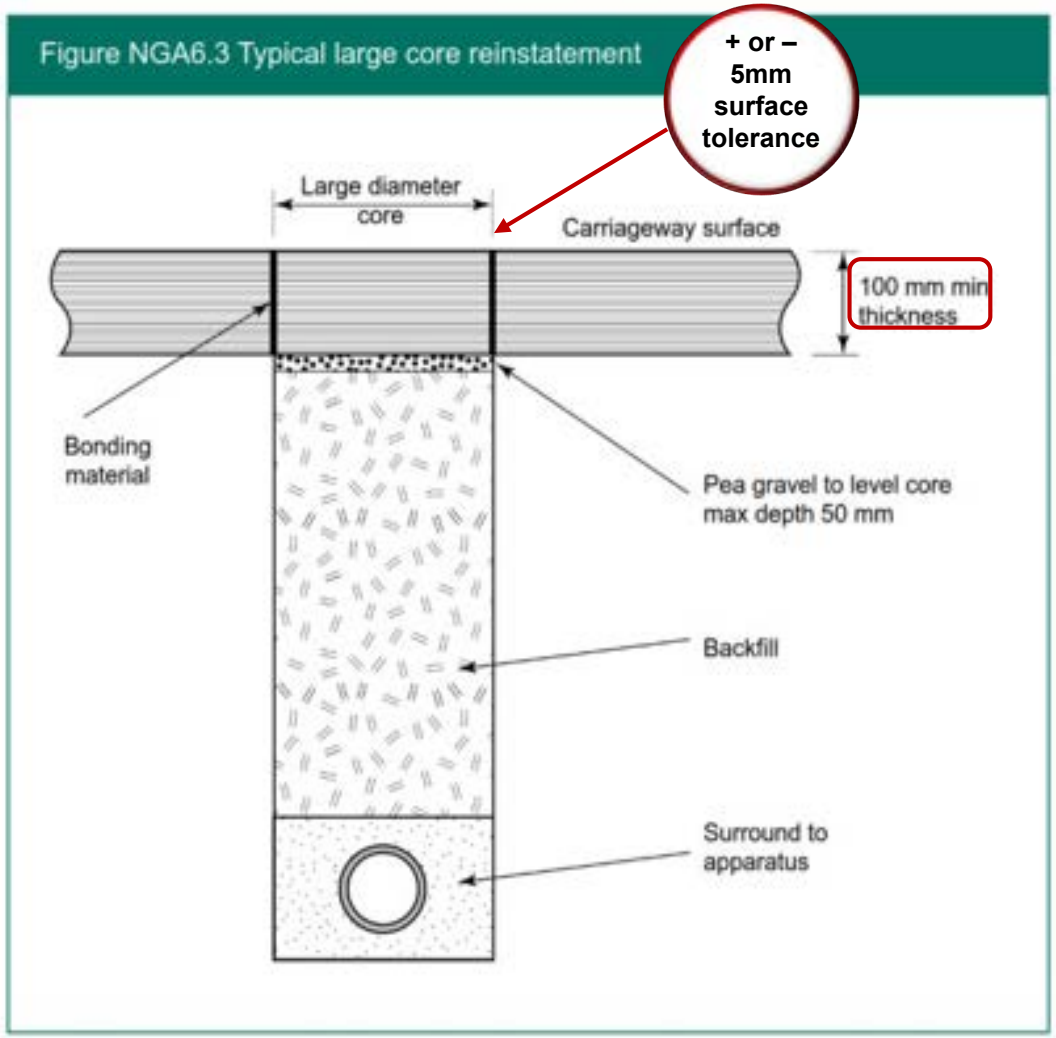
Large diameter cores – Excavation limits and reinstatement





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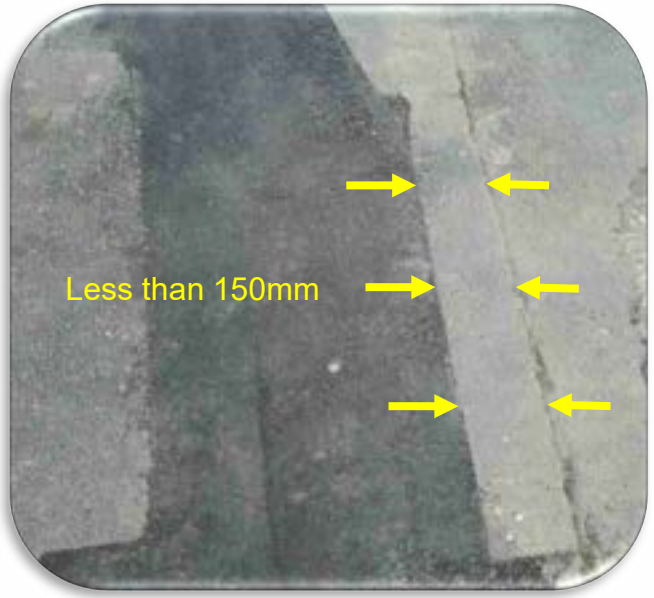
What it says in the SROH – S8.6 Edge requirements

S8.6.1 For all footways, footpaths and cycle tracks, the base and edge preparation must comply with S6.8.
S8.6.2 For all concrete footways, footpaths and cycle tracks, the treatment of any cracking must comply with the requirements of S7.5.12 (3).

What it means

As you will see from Figure S8.1 on the right, anything closer than 150mm from the new reinstatement will require the existing surface to be replaced. This does not include fixed features less than 250 mm parallel to the reinstatement. It does not apply to other trenches, joints, kerbs or edgings. However, if the fixed feature is longer than 250 mm the 150 mm rule will apply.



You can see from the image on the left, that the strip of existing material highlighted should have been removed for being less than 150mm wide. This could introduce a weakness to the footway.

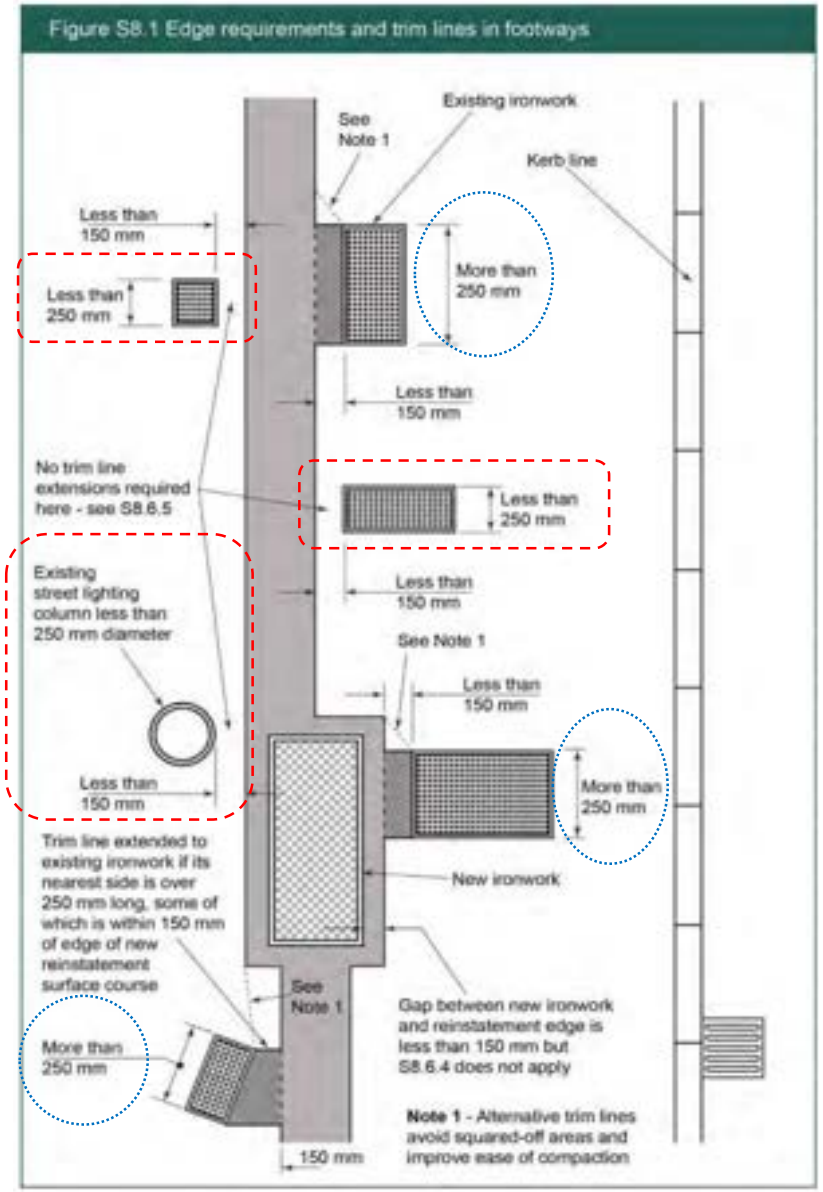


Figure S8.1 of the SROH will demonstrate where trim lines should be extended to in terms of the 150mm rule

This may only apply to the surface course layer, as long as lower layers have not been damaged. If they have, they must be replaced.

Remember, fixed features closer than 150mm but less than 250mm in parallel length do not require existing material to be removed.

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8.7 Vehicular Trafficking

Commercial access
Where a recognised route for commercial vehicles crosses a footway, footpath or cycle track, the relevant area of the crossing is deemed to be a Type 4 road. It must be reinstated to the requirements of S6 (flexible or composite) or S7 (rigid) construction.
If the traffic is likely to be beyond the capacity of a Type 4 construction, the undertaker should consult the authority.

Domestic access
Where a recognised domestic vehicle route or occasional emergency service vehicle access route crosses a footway, footpath or cycle track, the existing structure may include thicker layers, higher quality materials or other strengthening measures. The reinstatement should match the existing layer thickness when they are over the minimum specified requirements of the SROH.

Other trafficking
Where a footway, footpath, cycle track or specified pedestrian area is subjected to regular vehicle overrunning or parking, the existing structure may include thicker layers, higher quality materials or other strengthening measures. Again, the reinstatement should match the existing layer thickness when they are over the minimum specified requirements of the SROH.

S8 - Summary

What is the difference between a high duty and high amenity footway?

High duty is located where heavy pedestrian use is found (e.g. entry to train station).

High amenity is where it is pleasing to the eye (town square, promenade, etc)

Can SMA be used in an asphalt concrete footway?

There is no specific allowance within the SROH to allow SMA as replacement for AC.

What is the absolute minimum depth for micro trench apparatus in footway?

The absolute minimum depth for micro trench apparatus is 100 mm in footway and should not be confused with carriageway, which is minimum 175 mm..

What is trim line requirement for footway when passing street furniture?

If the reinstatement is within 150 mm of any other trench, kerb or street furniture the existing must be cut out. Will not apply to street furniture less than 250 mm parallel.

What happens if I do not meet minimum layer tolerances?

As you have not complied with the specification, the reinstatement is compromised. Remedial action to bring into compliance must be carried out as minimum required values have not been achieved. Failure to comply with the SROH could be deemed as evidence of an offence under the New Roads and Street Works Act 1991.
It is also likely that the two year guarantee will not have started.