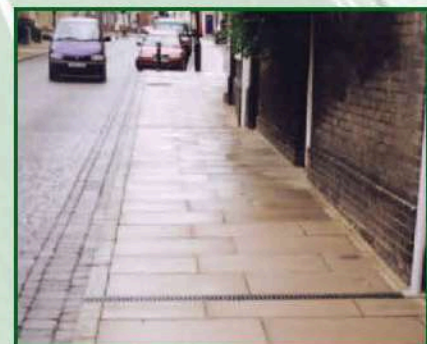
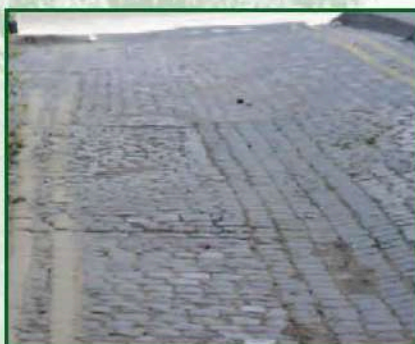
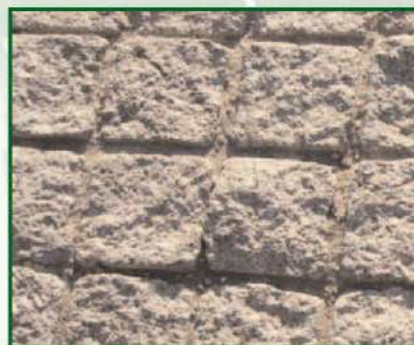
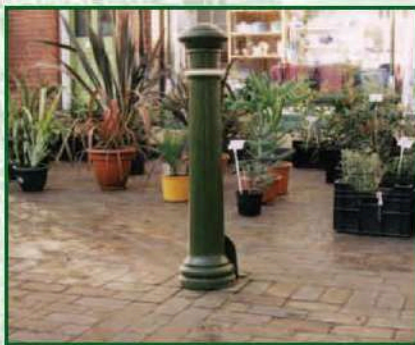
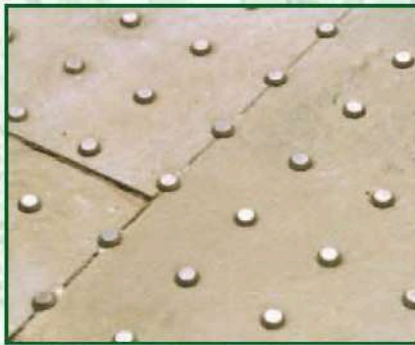


# The Suffolk Materials Manual

*Design Guidelines for the choice and use  
of surface materials*



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of surface materials*

## **The Suffolk Local Authorities**

- Suffolk County Council
- Babergh District Council
- Forest Heath District Council
- Ipswich Borough Council
- Mid Suffolk District Council
- St. Edmundsbury Borough Council
- Suffolk Coastal District Council
- Waveney District Council

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# *Introduction*

This document is one of a series of manuals produced by the Suffolk local authorities which give guidance for carrying out highway works in Suffolk. The Conservation and Countryside Manuals are designed to assist those involved in maintaining and improving the highway and making it safer in ways which respect and enhance the quality of the historic built environment and landscape of the County.

The choice of suitable materials is an intrinsic part of this process and it is vital that materials used in public spaces are safe, easy to maintain and environmentally appropriate. The Materials Manual aims to assist in this process by looking in more detail at surface materials, their qualities and recommended uses. It considers sources of materials, and the issues of sustainability, and goes on to give some technical specifications for laying them.

The document is primarily for use by those who are choosing or laying surfaces in historic or sensitive public places but should also be of value generally to anyone who has an interest in preserving or enhancing the Suffolk environment.

Included are materials widely accepted as being suitable in sensitive areas, such as Yorkstone, granite setts, cobbles and kerbs. Also covered are other materials which are traditionally found in Suffolk. For example, insitu concrete footways are common in some of the towns in the east of the County and this Manual details a specification for concrete which replicates the exposed aggregate characteristics of the old footways.



*Riven Yorkstone*



*Insitu concrete*



*Cobbles and granite setts*

Similarly, asphalt footways in Lowestoft have traditionally been laid with a limestone aggregate which with wear, creates a light grey surface which is entirely appropriate for this environment. The use of other aggregates in flexible surfacing is also explored in order to give simple, inexpensive but attractive surfaces, which complement the small towns, villages and countryside of the County.

The use of surface dressing is documented separately in The Surface Dressing Manual, where a number of case studies have been critically analysed.

The technical information contained in the document is intended as examples for information only. It is the responsibility of those using the guidance to satisfy themselves of the suitability of the design and specification to the particular circumstances of each site.

Suffolk County Council makes use of standard drawings to ensure that materials are laid appropriately. However, these mostly relate to the most common materials and not ones sometimes used in sensitive areas and covered in this document. In many cases additional design and laying information will need to be prepared.

*Opposite: Examples of some materials that have been successfully used in historic areas in Suffolk.*

*Below: A more modern approach to the choice of materials was adopted for the "Shared Space" works in Cullingham Road, Ipswich.*





**KEY**

- |  |                                 |                                 |                          |
|--|---------------------------------|---------------------------------|--------------------------|
| <b>A</b> Tactile paving in Yorkstone     | <b>D</b> Precast concrete slabs | <b>H</b> New grey granite setts | <b>L</b> Flint and brick |
| <b>B</b> Tactile paving with brass studs | <b>E</b> Precast concrete setts | <b>I</b> Surface dressing       | <b>M</b> Red brick       |
| <b>C</b> Riven Yorkstone                 | <b>F</b> Yorkstone setts        | <b>J</b> Insitu concrete        | <b>N</b> White brick     |
|  | <b>G</b> Old pink granite setts | <b>K</b> Cobbles                |                          |

Enhancing the quality of the built environment in Suffolk



*St Peters Street, Ipswich before work commenced*



*Completed scheme*



*London Road, Lowestoft before work commenced*



*Completed scheme*



*Main Street, Leiston before work commenced*



*Completed scheme*



# DESIGN PRINCIPLES FOR THE USE OF SURFACE MATERIALS

- 1 Ensure that people with the relevant technical and design skills are involved at an early stage.
- 2 Proposals should be the result of a proper appraisal of the context and should build on existing positive characteristics.
- 3 In historic locations the traditional character of the area should dictate the design solution.
- 4 Keep the design simple and ensure that users will understand the spaces and their purpose.
- 5 Ensure public spaces are safe and accessible to all.
- 6 Ensure the management of risk and liability does not undermine the quality of public spaces.
- 7 Retain existing historic materials, relaying them if necessary.
- 8 Choose materials with care and make sure that they are appropriate to their context. Look to existing historic materials as a guide for this. Do not use materials with an urban quality in village or rural settings.
- 9 Build on the local traditions, for example because of their cost, materials such as Yorkstone or Portland Stone were only used sparingly in Suffolk, often around important buildings such as churches, town halls and war memorials.
- 10 Consider the use of surfacing to obviate the need for street furniture – for example, cobbles can deter pedestrian use rather than using bollards and contrasting materials can be used to identify pedestrian routes without the use of barriers.



*Sudbury*



*Framlingham*



*Bury St Edmunds*

- 11 Ensure that sustainability issues are properly addressed. This includes the whole life cost of the materials, the source, the distance they have to be transported and the method of delivery. Potential for re-use on site, recycling and methods of disposal all have to be considered.
- 12 Use contractors having proven skills at laying such materials and undertaking similar work in sensitive areas. Health and Safety legislation restricts the handling of some materials and in such cases mechanical lifting will be necessary.
- 13 Traditional laying patterns are usually preferable in historic areas.
- 14 Ensure that materials are properly laid to the appropriate specification for their use. If not, then wear and tear will detract from the quality of the scheme and will have aesthetic as well as technical implications.
- 15 Ensure that financial and maintenance issues are properly considered from the outset.
- 16 Adequate consideration should be given to the availability of stock for future reinstatement.



*Kersey*



*Clare*



*Lavenham*

## STONE PAVING SLABS

As it is a natural material, stone weathers particularly well compared to man made products. It has the major advantages of not only being very long lasting but also its appearance does not deteriorate over time.



*Chequer Square, Bury St Edmunds*

Traditionally, stone for surfacing had to be imported from elsewhere in Britain and Europe. As a result its use was often restricted to the most prestigious locations in towns and villages.

Both new and reclaimed Yorkstone are widely available. New slabs come in a variety of thicknesses and can be cut to suit the design of individual schemes. They are sold by area. They can have a variety of finishes: sawn, riven, rustic, hammered. Setts are available to match – either tumbled or sawn. If choosing more than one product, ensure that they are all from the same quarry as colours and textures vary.

Pennant Stone can also be found as a paving material in the region. This is a soft sandstone quarried in the area around Bristol. It is generally grey with a blue or green hue and has less variety of colour than Yorkstone.



*Part of New Market, Beccles*

Reclaimed slabs can be riven or sawn. Their patina of age often has great character. They do however have a very different appearance to new Yorkstone.

Care should be taken to ensure that salvaged materials are from a reputable source as theft of stone is common due to its high value.

Second-hand slabs can vary in thickness and quality, for example, those from mills and factories are often impregnated with oil, lanolin, paint and chemicals which continue to seep long after being relaid.

It is important to inspect a sample of the material before purchase.

Riven slabs that are particularly uneven may retain water which can freeze in severe conditions. They may also require trip hazards to be removed by scabblers, angle grinders or hand held stone planes. This again may increase the cost.

Damaged slabs can be redressed or cut down but this is a skilled job and will also add further expense.

The irregular nature of riven Yorkstone normally requires the joints to be pointed and this can visually accentuate them and the laying pattern.



*A good example of reclaimed Yorkstone laid in Sudbury*



*Uneven riven Yorkstone*

Some new stone slabs are imported often necessitating long journey by ship from countries where environmental and health and safety concerns may not be as rigorous. Although such products are competitively priced, they should only be used after weighing up cost savings with environmental and sustainability issues.

Natural stone is comparatively expensive to purchase and lay. It is most appropriate for sensitive urban areas and should be used sparingly in rural locations to highlight important buildings or spaces.

Sawn slabs have good slip resistant properties and are suitable for areas used heavily by pedestrians and are easier to negotiate with a wheelchair or pram.

Riven slabs can be particularly attractive as they have a less regular appearance. They can however sometimes create problems to the less able and should only be laid where there is light pedestrian use. Careful quality control can minimise unacceptable variations and reduce problems for vulnerable users.



*New riven Yorkstone*



*New sawn Yorkstone*



*Sawn stone paving is suited to well used public spaces*

## Technical Information

1. Sawn or riven natural stone slabs should be selected to be free from structural flaws. The top and bottom surfaces should be evenly riven or fine sawn and the vertical edges of riven slabs should be as regular as possible to BS 7263 (see Appendix A).
2. Riven stone shall normally be supplied in a 50mm or 75mm thickness. No part of the stone should be less than the specified thickness.
3. The area of each slab should be greater than 0.27m<sup>2</sup> and usually less than 0.5m<sup>2</sup> to avoid use of small slivers of slab that will rock in use.
4. The width of each slab should not be less than 450mm or greater than 750mm. The length can be random to a maximum of 1.2m although length can be specified if specific laying patterns are required.
5. The courses of stone should be regular in width, and the joints will normally run perpendicular to the predominant line of travel.
6. Yorkstone should not abut limestone because of the potential for a chemical reaction.

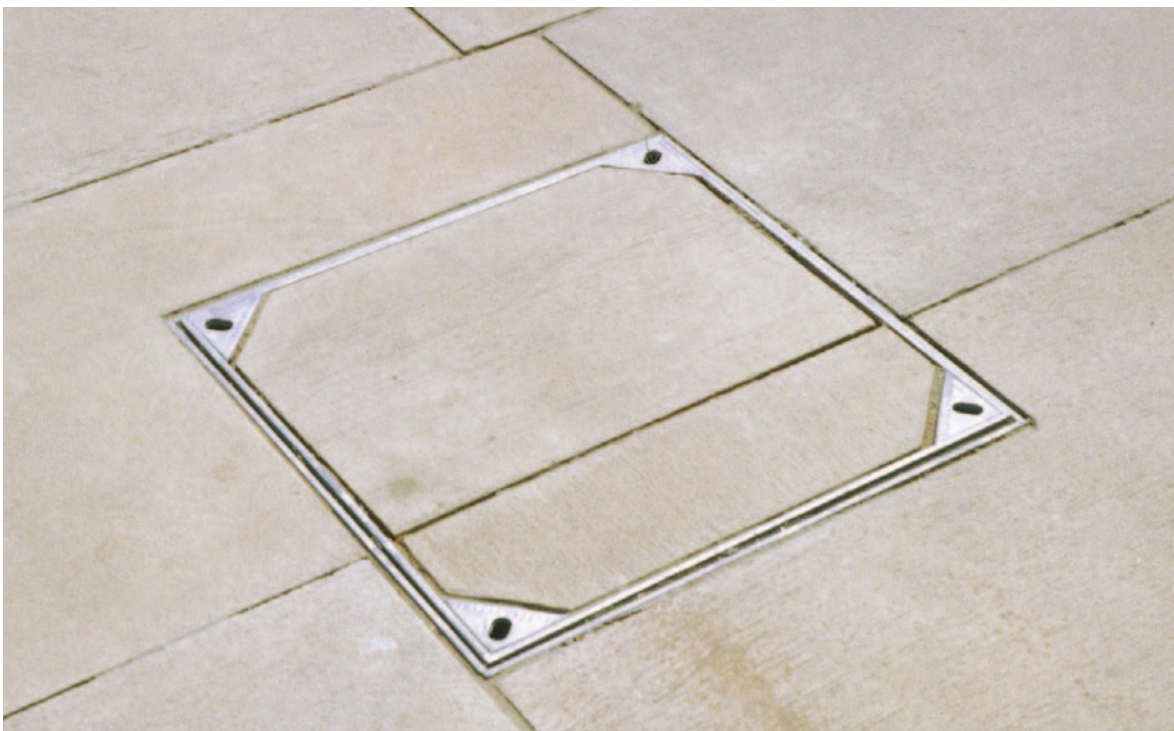
## Slabs larger than 450mm x 450mm

7. If slabs larger than 450 x 450 are used in areas that can be accessed by vehicles, there will be specifications for unit thickness and bedding which will need to be agreed.

8. 75mm thick Yorkstone paving should be laid on a 50mm bed of 1:3 lime/sand mortar. The mortar bed shall provide even support to the slabs. A method of working and inspection should be agreed with SCC.
9. The slabs shall be provided with wide joints and if the length exceeds 12m in any direction, provision shall be made for thermal expansion. If work is carried out between June and September the length may be extended to 20m.
10. Pointing should not use mixtures greater than 1:5 lime/sand mortar and should not be in areas that will have vehicular traffic.
11. Butt joints should not be carried out on widths and lengths greater than three slabs wide.

## Slabs 450mm x 450mm or smaller

12. These slabs should be laid on a sand laying course.
13. If all the slabs are 450 x 450 or less narrow sand filled joints should be used. Where the slabs are to bond in with units larger than 450 x 450 the joint requirements of the larger units are to be used.
14. Pointing should not use mixtures stronger than 1:5 lime/sand mortar and should not be in areas that will have vehicular traffic.



*Careful detailing makes all the difference*