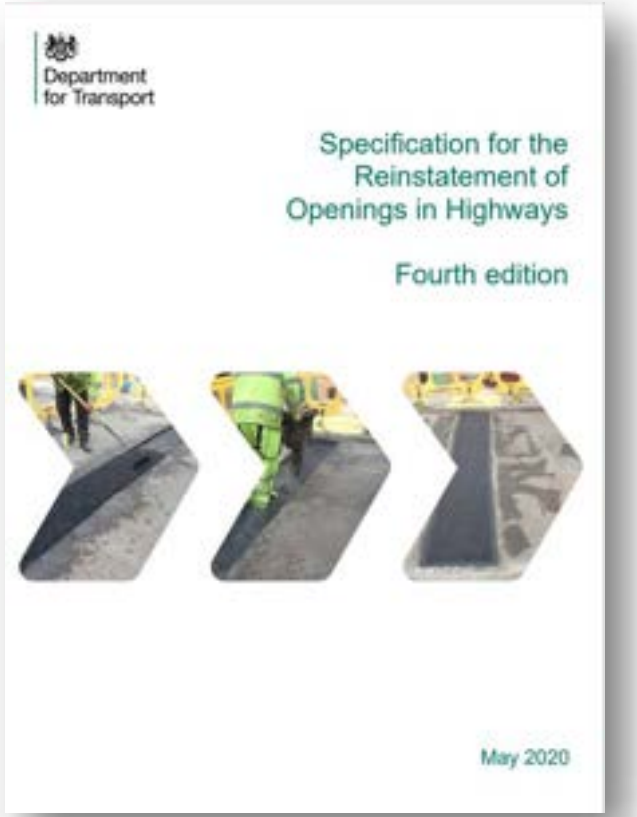
Appendix A10 – Additional standard materials



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

Introduction- SROH Appendix 10

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 Appendix A10 which will enable you to have a better understanding of what to look for when monitoring use of Additional Standard Materials.

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.

Appendix A10 – Additional standard materials

What it says in the SROH

A10.0.1 This appendix includes specifications for hydraulically bound and unbound materials that are options for use in reinstatements drawn from BS EN standards. These materials may be used where listed as an option in this standard. Many of them have technical advantages compared with conventional alternatives, including a modified Type 1F Unbound Mixture (0/20) to mitigate technical risks associated with potential segregation and non-uniform compaction within reinstatements.

What it means

The SROH now has a wider range of alternative materials as discussed in A9.
In Appendix 10, we are looking at additional standard materials which include modified Type 1F unbound mixture (0/20) and HBM's (hydraulically bound materials) which can be used as an option in certain constructions. These materials are required to be manufactured, tested, and laid to specific requirements based on relevant British Standards (BS) which prescribe how they are to be verified, tested, or produced. These materials are additional materials to standard and care should be taken as to where they can be used in terms of layers or combined layers.

Modified Type 1F (0/20)

What is a modified Type 1F material and where should I use it?

It is essentially a finer graded material than Type 1, and can have smaller and different aggregates to make it up.

Where would I use this material in a site situation?

The SROH at NG5.1 shows it as the preferred option in narrow trenches and small openings.

Small opening recap

An excavation with a reinstatement surface area, excluding the apparatus surface area, up to 2 m² in road types 0, 1 and 2 and up to 4 m² in road types 3 and 4 and in footways, footpaths and cycle tracks, that is not a large diameter core, a micro trench or a narrow trench

Narrow trench recap

An opening over 60 mm and up to 300 mm wide and over 1 m long.

SROH – A10.1.1
Modified Type 1F Unbound Mixtures must be made from natural aggregate (excluding uncrushed flint based or quartz based gravels), recycled aggregates, manufactured aggregates or well burnt non-plastic shale, or a combination of these, and may contain up to 10% by mass of natural sand passing a 4 mm test sieve.

Appendix A10 – Additional standard materials
Modified Type 1F (0/20)

Its helpful that the SROH shows us what a Modified Type 1F (0/20) is made up from.

Yes it is, these tables describe the materials and the grading.

SROH – A10.1.3
Aggregates used in the mixture must be in accordance with BS EN 13242 and Table A10.2.

Table A10.1 Grading for Modified Type 1F Unbound Mixture (0/20)

Sieve size, mm	Percentage by mass passing		
	Overall grading range	Supplier declared value grading range	Tolerance on the supplier declared value
40	100	---	---
20	75 - 99	---	---
10	43 - 81	54 – 72	± 15
4	23 - 66	33 – 52	± 15
2	12 - 53	21 – 38	± 15
1	6 - 42	14 – 27	± 13
0.5	3 - 32	9 – 20	± 10
0.063	0 - 12	---	---
Grading of individual batches – differences passing selected sieves			
Retained sieve size, mm	Passing sieve size, mm	Percentage by mass passing	
		Not less than	Not more than
4	10	7	30
2	4	7	30

Table A10.2 Requirements for aggregates used in Modified Type 1F Unbound Mixture

Crushed, or broken and totally rounded particles crushed rock, crushed manufactured and crushed recycled aggregates (see NOTE)	$C_{90/3}$
Resistance to fragmentation – Los Angeles test	LA_{50}
Resistance to wear – micro-Deval test	MDE NR (no requirement). The supplier must state the value for the aggregate used
Resistance to freezing and thawing – magnesium sulphate soundness	MS_{35}
Water absorption	WA24NR (no requirement). The supplier must state the value for the aggregate used.
Volume stability of blast furnace slags	Free from dicalcium silicate and iron disintegration
Volume stability of steel (BOF and EAF) slags	V_5
All other BS EN 13242 aggregate requirements	Category NR (no requirement).
Note: BS EN 13242 assumes that crushed rock aggregates comply with category C90/3 without further testing.	

Appendix A10 – Additional standard materials
Modified Type 1F (0/20)

A10.1.4 The size fraction of the unbound mixture passing a 0.425 mm size test sieve must be non-plastic, as defined by BS EN 17892-12:2018, and tested in compliance therewith.

Essentially, this means that the very fine elements within the Modified Type 1F (0/20) should not form a clay like (plastic) material. In other words, it should be fine granular which will not bind together

Ahh! So this material is essentially like a finer version of a Type 1 but with differing types of aggregates?

Exactly, but along with ensuring the very fine materials are not clay like, the coarser materials must meet the requirements of Table A10.3 for the maximum amount of each type of aggregate allowed within the Type 1F (0/20) mix.

A10.1.5 Where the mixture contains recycled coarse aggregate or recycled concrete aggregate, it must be classified by hand sorting the coarse aggregate particles in accordance with BS EN 933-11. The test must be carried out by a suitably trained laboratory technician competent in classifying the constituent classes in accordance with the test method. Recycled coarse aggregate and recycled concrete aggregate must also comply with the requirements of Table A10.3.

Table A10.3. Recycled coarse aggregate and recycled concrete aggregate used in Modified Type 1F Unbound Mixtures

Component	Maximum permitted content (% by mass)
Asphalt (Class Ra)	50
Glass (Class Rg)	25
Other materials (Class X), including wood, plastic and metal	1

As you can see, when testing a Type 1F (0/20) material it must be undertaken by a person who is suitably trained and fully understands the technical requirements of the BS EN 933-11 test method. This is where it is important to ensure that the material is properly verified and certified as suitable for use.

Does this mean that the material should be tested by a UKAS accredited laboratory?

It doesn't specifically state that a UKAS laboratory is required as the parties may agree on a sufficient alternative, However, it would be prudent to use an accredited laboratory, as in all cases of testing outlined within the SROH code of practice.

Appendix A10.2 – Hydraulically bound materials (HBMs)

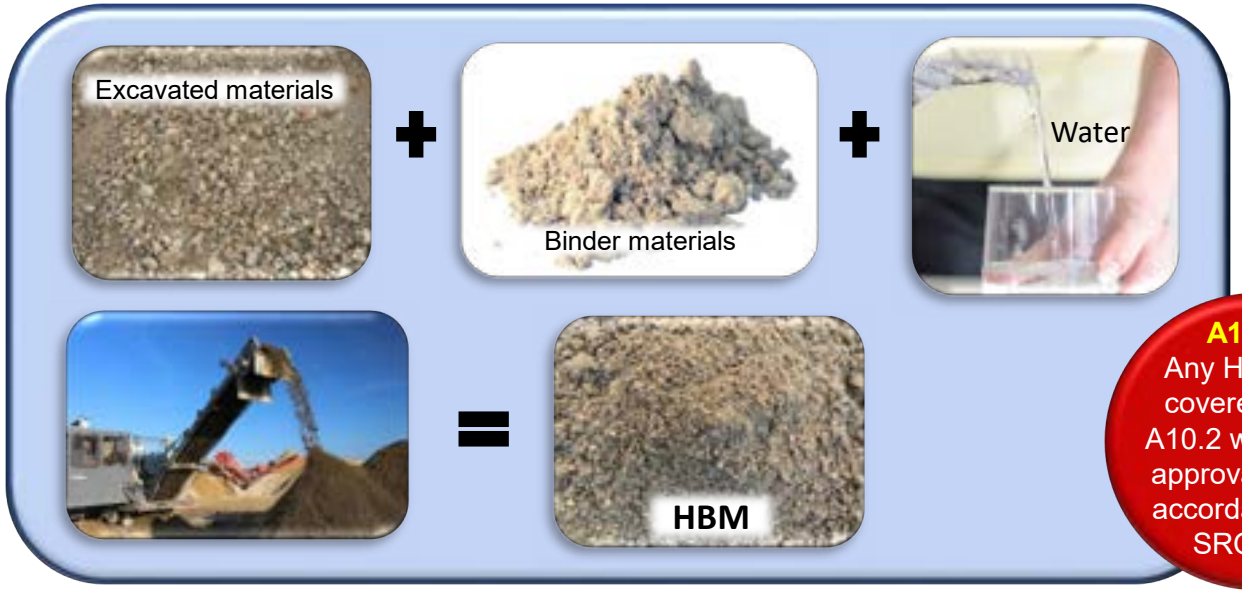
What it says in the SROH

A10.2.1 HBMs must be in accordance with one of the following standards, depending on the binder used:
1) BS EN 14227-1: Cement bound granular mixtures
2) BS EN 14227-2: Slag bound granular mixtures
3) BS EN 14227-3: Fly ash bound granular mixtures
4) BS EN 14227-5: Hydraulic road binder bound granular mixtures
5) BS EN 14227-15: Hydraulically stabilized soils

What it means

Only Hydraulically Bound Materials that are manufactured in the correct manner and with the specific materials prescribed for each type of HBM materal. All of the allowable HBM materials are manufactured to a British and European standard as can be seen to the left.
If you choose to use a HBM material, it must be manufactured to the relevant applicable standard depending on material content and binder used. The applicable testing regime for each HBM will also be referred to within the Standard

You may recall from the refresher aid from SROH-S5, we introduced the image below to show how Hydraulically Bound Materials (HBM's) are manufactured. This is through a controlled process where excavated materials are recycled with special additives and water to provide a semi-dry material that can be compacted.



Can you explain what a BS EN Standard is?

It is defined as "something that is generally accepted" within a relevant industry

Are they mandatory or legal requirements?

Not necessarily in their own right, but if quoted in a legal specification or statutory instrument, they are likely to become legal requirements.

A10.2.2 Any HBMs not covered within A10.2 will require approval trials in accordance with SROH-A9

HBM materials will be subject to specific test regimes as outlined within relevant British Standards. You may recall form the refresher document for SROH Appendix 9 mentions various methods are available to a laboratory for individual types of factory and performance testing.

Appendix A10.2 – Hydraulically bound materials (HBMs)

What it says in the SROH

A10.2.4 Aggregates and binders for HBM must comply with BS EN 14227, the respective BS EN specified in Table A10.4 and the requirements of this clause.

Table A10.4 Standards

Constituent	BS EN
Aggregates	BS EN 13242
Water	BS EN 1008
Cement	BS EN 197-1
GBS (granulated blast furnace slag)	BS EN 14227-2
GGBS (ground granulated blast furnace slag)	BS EN 15167-1
Lime	BS EN 459-1
Gypsum	BS EN 14227-2 or BS EN 14227-3
FA (Fly ash)	BS EN 14227-4
ASS (Air-cooled steel slag)	BS EN 14227-2
HRB (Hydraulic road binder)	BS EN 13282

So if I use a HBM it must conform to all the relevant Standards and mix designs?

Absolutely, if any material proposed as a HBM material cannot meet all of these requirements, it must be treated as an alternative material and subject to validation and testing as outlined in SROH – A9.5

What it says in the SROH

A10.2.5 The binder constituent proportions must comply with Table A10.5 and must be based on a laboratory mixture design procedure in accordance with A10.2.11 to A10.2.16.

Table A10.5 Minimum binder or binder constituent additions

Binder or binder constituent	Mode of use (mode of use not listed below must be subject to approval by the authority)	Minimum addition by dry mass of mixture
Lime / cement / HRB / GGBS	when used with another binder constituent	2%
	when used as sole treating agent	3%
ASS & GBS	when used together	2.5% each
Dry fly ash	when used with cement	4%
	when used with lime	5%
Conditioned (i.e. wet) fly ash	All applications	6%

So how will I know if the HBM material complies with these requirements?

The HBM producer must conform to the requirements of SROH A10.2.3 where evidence of target proportions, mixture design, mixture performance requirements, and method statement of production is made available.

Appendix A10.2 – Hydraulically bound materials (HBMs)

Storage of constituents at the central mixing hub

1. Aggregates must be stored on a firm and clean substrate for at least 24 hours before mixture production. Contamination with other constituents must be avoided.
2. Lime, cement, GGBS, HRB and dry fly ash must be stored sealed in, for example, a silo or suitable bags.
3. Conditioned (wet) fly ash must have no agglomerations greater than 10 mm size, measured by sieving samples through a 10 mm sieve with no more than 10 seconds gentle agitation. It must be stored under cover for at least 72 hours at a minimum water content of 10%, before mixture production.
4. GBS and ASS must be stored as aggregates and used within 3 months of delivery.
5. All constituents must be protected from freezing to ensure suitability for use.

Can you explain what GBS means?

Granulated Blast Furnace slag

What about GGBS?

Ground Granulated Blast Furnace slag

I don't mean to be rude, but what about ASS?

Air cooled steel slag

FA?

Fly Ash

HRB?

Hydraulic Road Binder

Appendix A10.2 – Hydraulically bound materials (HBMs)

Laboratory mixture design procedure for HBM

1. The producer must design the mixture in accordance with the procedure described here to meet the compressive strength of A10.2.17.

2. The composition of HBM must be based on mixture design testing carried out using a minimum of 3 binder contents and a minimum of two water contents at each binder content.

3. The immediate stability at the design water and binder content must be determined using the IBI* test in accordance with BS EN 13286-47. The IBI value must be taken as the average of a set of 3 test specimen results. *(IBI = Immediate Bearing Index) Will demonstrate the bearing capacity of the material before curing.*

4. The effect of immersion in water on compressive strength must be assessed in accordance with BS 1924-2 as follows:
1) y1 and y2 = 20°C for mixtures containing cement or 40°C for mixtures not containing cement
2) RRc must be ≥80
3) On completion of the immersion stage (y2) the test specimens must show no signs of cracking or swelling

5. Strength is taken as the average of at least 3 specimens. The mean of the test results must be greater than the specified strength (C1.5/2 or C3/4) and no individual result can fall below 67% of the strength requirement class. In addition, the mean of the test results must not exceed C9/12.

6. HBM must be non-frost susceptible. Material is classed as non-frost-susceptible if:
1) the compressive strength class is C3/4 minimum, or
2) the mean heave is 15 mm or less, when tested in accordance with BS 812-124, with the sample preparation in accordance with BS 1924-2.

Do I need all this information when I see a HBM being used?

It is useful to know how a HBM is made, but especially the criteria it has to meet to be compliant.

So I can ask for evidence of all these criteria?

For a HBM to be allowed under the SROH, it has to conform to all the requirements of Appendix 10.

Appendix A10.2 – Hydraulically bound materials (HBMs)

Mixture Performance Requirements

What it says in the SROH

A10.2.17 Layer thickness and compressive strength at an age of 28 days requirements must be in accordance with Table A10.6.

What is meant by mixture performance requirements?

You may recall from other sections and appendices that there are two types of testing. The first is for factory or manufacturing of product testing. The second is how it performs on site where it is used or applied, which is also known as performance testing.

So if I want to verify it is performing I need to take heed of where it is allowed to be used, the layer depths and the expected compressive strength after 28 days of curing?

Exactly, the material will have cured at 28 days unless a cube sample is taken at time of laying and accelerated curing is applied. Otherwise a sample should be extracted and subjected to compressive strength testing after 28 days has passed.

Table A10.6 HBMs minimum layer thickness and compressive strength

Layer	Road type					Footway/ footpath/ cycle track
	0	1	2	3	4	
Combined Binder course & Sub-base	NP	NP	NP	NP	NP	150 mm C1.5/2
Base	NP	NP	NP	300 mm C1.5/2	200 mm C1.5/2	---
Base & sub-base	NP	450 mm C3/4	450 mm C3/4	450 mm C1.5/2	350 mm C1.5/2	---
Sub-base or below	150 mm C1.5/2	150 mm C1.5/2	150 mm C1.5/2	150 mm C1.5/2	150 mm C1.5/2	150 mm C1.5/2
Maximum strength class at 28 days	C9/12					C8/10

Notes:
NP = Not permitted
Minimum asphalt overlay thickness as per A3 to A7
HBMs are not permitted as CBGM base replacement

Appendix A10.2 – Hydraulically bound materials (HBMs)

Requirements for production, storage and transport of HBMs

1. The HBM must be produced at a central hub facility using a plant that batches by mass and mixes in a forced-action mixer allowing sufficient time in the mixer to produce a homogenous mixture.

2. The producer's quality manual should describe the characteristics of any constituent or mixture storage system and define their mode of operation. The producer must ensure through checks, inspections and records, that such systems are used correctly, and that constituents and mixtures maintain their suitability for use during storage.

3. The minimum temperature at the time of production of HBM is 3°C and rising.

4. At production, the constituents, and on leaving the production facility, the HBM must be free from ice and frozen agglomerations.

5. On leaving the production facility, HBM must have a water content suitable for compaction as determined during the design stage and monitored in accordance with the production quality control plan.

6. HBM must be transported directly to the point of placement and protected from the weather during transit and unloading.

So HBM materials have to be handled carefully?

Yes they do, otherwise they may not perform as required upon curing?

Appendix A10.2 – Hydraulically bound materials (HBMs)

Production control testing and checks

What it says in the SROH

A10.2.24 The HBM producer must have an established and maintained quality manual describing policy and procedures for production control in accordance with the production control annex of BS EN 14227 and as follows.

Tests & checks before and during production

1) Constituents sourced off-site require monthly certification (or by delivery for cement etc); aggregates to BS EN 13242, cement to BS EN 197, fly ash to BS EN 14227-4 and GBS and GGBS to BS EN14227-2 Annex A.

2) In accordance with BS EN 14277, and using the mixing plant's automated surveillance and data collection system where appropriate, characteristics that require control during production include:

- a) pre-production properties of the constituents including plasticity, water content, and freedom from frozen agglomerations.
- b) proportioning of the constituents including added water.
- c) grading of the fresh mixture
- d) water content of the fresh mixture
- e) time of production
- f) temperature at production

3) The proportioning must comply with the requirements of the target composition of the mixture.

4) The above tests and checks must be carried out daily and recorded.

Laboratory mechanical performance tests

1) Each day of production, or as detailed in the Quality Manual/Method Statement, the producer must sample the HBM for compliance with the compressive strength of Table A10.7 Sampling must be in accordance with BS 1924-1.

2) Cubic or cylindrical specimen manufacture, curing and testing for compressive strength must be in accordance with Table A10.7. Cubes for compression testing must be 150 mm nominal size.

3) A representative sub-sample must be taken from each sample for the determination of water content in accordance with BS 1924-2. Sampling must be in accordance with BS 1924-1.

So the quality/verification tests should be taken very regularly?

Absolutely, as the HBM material is only certified as correct subject to the most recent test regime. Otherwise, it will may not provide suitable evidence of compliance. Daily checks and tests are recommended. See the next page for compressive strength requirements Table A10.7

Appendix A10.2 – Hydraulically bound materials (HBMs)

Production control testing and checks

Table A10.7 Compressive strength testing requirements for HBMs				
Cement used	**Specimen manufacture, nominal wet density & curing regime**	**Curing temperature**	**Test method for determination of R_C**	**Age at test**
Yes	BS 1924-2 and BS EN 13286-41	20ºC	BS EN 13286-41	28 days (See note)
No		40ºC		
Note: For control purposes, HBM may be assessed on the basis of 7-day or other early age strength, provided that a correlation is established between the early age and 28-day strength				

Appendix A10.2 – Hydraulically bound materials (HBMs)

Requirements for placement, compaction, protection and overlay

A10.2.27 Laying and compaction of HBM layers, including any reworking and re-use, whether constructed in one or more lifts, must be carried out without segregation, drying out or before setting.

A10.2.28 The construction period, in degree hours, is the summation of the products of the average air temperature above 3 °C (temperature T in °C) and time for each period (time t in hours): i.e. construction period limit = Σ(T.t). The air temperature during the interval, t, must not fluctuate by more than 4 °C. The construction periods are summarized in Table A10.8 and Table A10.9.

Table A10.8 Construction period for HBM when one binder constituent only or binder constituents added at the same time

Binder	Construction period (°C·h)
Other constituents, combinations, possibilities not listed below in this table	Producer to determine and evidence during the mixture design procedure
CEMI used as part of the mix	35
Lime with GGBS	200
Lime with SiFA (SiFA both as a binder constituent and as aggregate)	850
Lime alone	1700
GBS alone, ASS alone, GBS + ASS	3000

Table A10.9 Construction period for HBM when one binder constituent only or binder constituents added at the same time

Binder	Construction period (°C·h)
Other constituents, combinations, possibilities not listed below in this table	Producer to determine and evidence during the mixture design procedure
SiFA followed by CEMI	35 after cement addition
GGBS followed by CEMI	35 after cement addition but within 850 of GGBS addition
Lime followed by CEMI	35 after cement addition but within 1700 of GGBS addition
Lime followed by GGBS	200 after GGBS addition but within 1700 of lime addition
Lime followed by SiFA	850 after SiFA addition but within 1700 of lime addition
GBS + ASS	3 000 after final addition

Remember, HBM materials have to comply to all the requirements of SROH A10 in terms of checks, testing, and methods of manufacture to relevant Standard. This information should be readily available to ensure compliance is maintained through continuous monitoring and testing.

PLEASE NOTE

Appendix A10.2 – Hydraulically bound materials (HBMs)

Requirements for placement, compaction, protection and overlay (Cont'd)

1. The minimum layer thickness or lift thickness for layers constructed in two or more lifts is 100 mm. Where the total thickness laid exceeds 1000 mm, the minimum strength class requirement of C3/4 applies to the top 1000 mm only, with a minimum of C1.5/2 below this depth.

2. Making-up the surface level of the layer after initial compaction is not permitted for single lift working or for the uppermost lift in multiple lift working.

3. For multiple lift working, fresh HBM must not be laid on HBM that has been allowed to dry. The temporary intermediate surfaces of lifts must be kept moist.

4. The face of previously compacted HBM or other material must be vertical and straight before butting fresh material against it.

5. Compaction to refusal of the HBM must be carried out in accordance with the method for granular and cement bound materials in Table A8.1. *(remember granular, cohesive and cement bound materials)*

6. After compaction, the surface must be closed and free from cracks, loose or segregated material, visible voids and other defects. All defective areas must be rectified within the construction period for the binder stated in Table A10.8. If rectification is not completed within the construction period, the defective area must be removed to the full thickness of the layer, and new mixture laid and compacted.

Table A8.1 Compaction requirements for granular, cohesive and cement bound materials

Compaction plant and weight category	Cohesive material (less than 20% granular content)			Granular material (20% or more granular content including cement bound material)		
	Minimum passes/lift for compacted lift thickness up to			Minimum passes/lift for compacted lift thickness up to		
	100 mm	150 mm	200 mm	100 mm	150 mm	200 mm
Vibrotamper 50 kg minimum	4	8#	NP	4	8	NP
Single drum Vibrating roller						
600-1000 kg/m	NP	NP	NP	12	NP	NP
1000-2000 kg/m	6	NP	NP	6	NP	NP
2000-3500 kg/m	3	6	NP	3	5	7
Over 3500 kg/m	3	4	6#	3	4	6
Twin drum Vibrating roller						
600-1000 kg/m	NP	NP	NP	6	NP	NP
1000-2000 kg/m	4	8	NP	3	6	NP
Over 2000 kg/m	2	3	5#	2	3	4
Vibrating plate						
1400-1800 kg/m²	NP	NP	NP	5	NP	NP
Over 1800 kg/m²	3	6	NP	3	5	7
All above plant	For maximum and minimum compacted lift thickness see Table A2.6					
Compaction of small openings and narrow trenches must comply with S6.5.						
Vibrotamper 25 kg minimum	Minimum 6 compaction passes Maximum 100 mm compacted lift thickness					
Percussive rammer 10 kg minimum						

Notes:
1) NP = Not Permitted
2) # = Not Permitted on wholly cohesive material i.e. clay or silt with no particles > 0.063 mm
3) Single drum vibrating rollers are vibrating rollers providing vibration on only one drum
4) Twin drum vibrating rollers are vibrating rollers providing vibration on two separate drums
5) HBMs must be compacted in accordance with A10.2
6) Mechanical pole tampers may be considered for compaction around iron work.

So compaction of a HBM material is the same as materials shown in Table A8.1?

Exactly, but you must ensure it complies with the requirements on the left.

What happens if I don't compact HBM properly?

Even though the material has been manufactured correctly, the lack of compaction is likely to affect the performance of the compressive strength criteria.

Appendix A10.2 – Hydraulically bound materials (HBMs)

1 Cold and wet weather working

HBM must not be laid on a frozen surface. In the case of heavy or persistent rain, works must cease and laid material must be compacted immediately.

2 Curing, protection and overlay

1) Unless overlain immediately, the upper surface of the HBM must be cured to prevent loss of moisture by applying a bituminous emulsion spray complying with BS 434-1 at a minimum rate of 0.5 l/m2 to produce an even and continuous coverage of bitumen. The surface must be free of loose material and standing water before spraying. The curing membrane must be protected from any damage until placement of the overlaying layer.
2) Overlaying of the HBM is permitted at any time for HBM with IBI category IPI25. Alternatively, overlay is only permitted once the material has gained sufficient strength to enable compaction of the overlying layer.

3 Method Statement

1) The producer must provide a method statement for the HBM detailing best practice for placement, compaction, curing and protection of the reinstatement, including procedures for cold joints, inclement weather, plant breakdown and record keeping.
2) The statement must include the intended mixture constituents and proportions, with supporting data from the mixture design results from A10.2.11 to A10.2.16 and/or historic records to justify the constituents and proportions including water content.
3) The statement must include a sample record sheet for submitting the data required in A10.2.17.
4) The undertaker must not change construction procedures without the agreement of the producer.

So the manufacturer or producer has to provide a Method Statement relating to the HBM used?

Yes they do, and the undertaker has to abide by the requirements of the Method Statement to ensure the HBM product is applied correctly.

Can you tell me what the IBI relates to, and what it means?

Remember, HBM stands for Hydraulically Bound Mixtures, which will usually set or strengthen through time, similar to a lean mix concrete. The IBI value is simply the Immediate Bearing Index which tells you how strong the material has to be to support traffic loading above it, when it is freshly laid and opened for use.

A10 - Summary

What does IBI mean?

Immediate Bearing Index – The strength of the material required when freshly laid.

Can anyone produce HBM mixtures?

There is no restriction on who can produce or manufacture HBM products. However, they will have to abide by the relevant BS EN standards which relate to the specific binder materials they use, and to provide a comprehensive method statement on use.

Can you lay HBM mixtures in cold or wet weather?

Generally, you should protect HBM's from cold and wet weather as they can be affected by exposure to both. You may have to seal the material to prevent water ingress.

What checks are required when using these methods or materials?

There are specific requirements for testing of Hydraulically Bound Mixtures which may relate to the specific binder materials used within the product. CBR% (California Bearing Ratio) testing is one way to determine in-situ IBI after being newly laid. Along with compressive strength testing after material has cured, by crushing of cubes or cylinders.

What if there is a HBM material that is not covered by a BS EN Standard?

Then they will have to undergo an approved trial process as outlined in Appendix 9 of the current edition of Specification for the Reinstatement of Openings in the Highway (SROH). This will be as provided for in SROH A9.5