Factory Process Control Schedule for the Quality Management of The Production of Asphalt Mixtures for Infrastructure Malta

GUIDANCE NOTE SERIES IM/900 NG 3

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1. IMPORTANT NOTES TO THIS EDITION

The scheme has now been aligned with the BS EN 13108 series of asphalt standards, which were implemented in UK from 1st January 2008. Most of the detailed requirements which were in earlier editions of this Schedule are now incorporated in BS EN 13108-21:2016 – Factory Production Control (FPC) which is called up by this FPC Scheme.

FPC is a regulatory element of Assessment and Verification of Constancy of Performance under the Construction Products Regulation, leading to CE marking.

The main points to note, including requirements additional to FPC, are:

- EN ISO 9001 is not a requirement of FPC but is called up as a separate requirement of this Schedule.

- The details of this Schedule will form part of the FPC system

2. DOCUMENT CONTROL

This FPC Schedule is subject to review at least annually by Infrastructure Malta and will be amended as appropriate in the light of experience with its operation. A summary of revisions or amendments made to this FPC Schedule since its initial publication are shown in the following schedule. Amendments introduced in this edition are listed and highlighted on each relevant page by side lining.

Version	Date Edited	Amendments Made:	
		Page	Details

3. Exclusion of liability

Infrastructure Malta

a. Have and accept no liability whatsoever for any failure of any system or systems assessed under the Schedule or for the quality, fitness for purpose or safety of any product or service which is the subject of such assessment.

b. Do not provide any representation or warranty as to any aspect of any such system, product, or service, and

c. Hereby expressly exclude all and any liability or responsibility (however alleged to arise) for or in connection with the provision of any service or product or any use of any product, all or any such liability or responsibility attaching exclusively to the Organisation (or customer as the case may be) thereof.

4. Copyright

Permission is granted to reproduce and distribute uncontrolled copies of this Schedule subject to the restriction that the complete Schedule must be copied without alteration or addition.

5. Selection of certification body

Asphalt producers are free to appoint a third-party Certification Body of their choice from a list approved by Infrastructure Malta to assess and certificate their production unit(s) against this scheme, but any such Certification Body shall be accredited to ISO 17021 by an IAF accredited body as being competent to assess and certificate such production units. Additionally, if the system is also being used for the purposes of CE Marking, the Certification Body will have Notified Body status with respect to EN 13108 standards.

6. Foreword

This schedule contains requirements for a quality management system for asphalt mixtures complying with BS EN ISO 9001:2015. It interprets, where necessary, the requirements of BS EN ISO 9001:2015 and BS EN 13108-21:2016 in specific relation to the production and supply of bituminous mixtures for roads and other paved areas and shall always be considered in conjunction with these two specifications.

NOTE 1: Clauses 1 to 10 have principally been prepared in accordance with BS EN ISO 9001:2015 and in general terms these clause numbers correlate with this specification

NOTE 2: With regard to the practical aspects of plant operation, process control, inspection and test the schedule calls up the requirements of BS EN 13108-21:2016, Bituminous mixtures - Material specifications, Factory Production Control. Appendices A to K have principally been prepared in accordance with this specification and although the numbering of each index may differ, in general the titles of each Appendix and table do correlate with similar tables in this specification.

NOTE 3: Users of this scheme Schedule shall ensure that they are working to the latest edition.

NOTE 4: This Schedule refers to operations involved in the production of asphalt. There are health and safety risks associated with such operations, not least the risk of burns from hot bitumen and hot asphalt. Health and safety issues are NOT covered by this Schedule, but all parties involved shall ensure that appropriate risk assessments are made, and requirements of current legislation complied with.

In particular, training of all personnel involved in the operations shall be commensurate with the tasks that they are required to undertake.

Contents

1 Scope and field of application of this schedule

This Schedule specifies requirements for quality management systems to be used by organisations producing asphalt mixtures.

Such quality management systems have the aim of giving adequate assurance that these products conform with the relevant technical specifications.

The scope of this Schedule excludes the requirements of Clause 8.3 of BS EN ISO 9001:2015 – Design and Development. Such exclusion does not affect the organisation's ability, or responsibility, to provide product that meets customer and applicable regulatory requirements.

2 Normative references

The following normative documents contain provisions that, through reference in this text, constitute provisions of this Schedule.

BS EN ISO 9001:2015, Quality management systems – Requirements

BS EN 13108 Bituminous mixtures — Material specifications — Part 21:2016 Factory Production Control

The main clause headings of this Schedule reflect those used in ISO 9001:2015. Where no reference is included in this Schedule, the requirements are as stated in BS EN ISO 9001:2015 without further qualification.

3 Terms and definitions

For the purposes of this Schedule, the terms and definitions given in BS EN ISO 9000:2015 apply.

3.1 General

The following terms are used in BS EN ISO 9001:2015 to describe the supply chain and are adopted in this Schedule:

Supplier ⟶ Organisation ⟶ Customer

The term "organisation" replaces the term "producer" used in the previous editions of the standard. Also, the term "customer" now replaces the term "purchaser".

Asphalt

A mixture of mineral aggregate and normally a bitumen or modified-bitumen binder, although in some cases the binder may be non-bituminous, e.g. a clear resin binder as used in coloured/pigmented asphalt. To accord with accepted European terminology, the term 'asphalt' is used in this document, unless accompanied by a descriptor such as 'hot rolled' or 'stone mastic', in its generic sense to refer to the range of asphalt and coated macadam mixes traditionally used in Malta.

Technical Specifications

The Technical Specifications for asphalt are the specifications for the materials to which the organisation has contracted to supply. These specifications may be Harmonised European Standards and European Technical Approvals for asphalt mixtures, customer-prepared specifications or, in the case of proprietary mixtures, organisation-prepared specifications.

Operating Procedures

These detail specific methods of carrying out an activity or process to ensure quality and conformance standards are complied with including who is responsible for the process and the records to be kept.

Quality Manual

This is a document which specifies the quality management system of an organisation.

Quality Plan

This is a document that specifies which procedures and associated resources shall be applied by whom and when to a project, product, process, or contract. They are generally associated with quality management and product realisation processes and often refer to parts of the quality manual or operating procedures.

"Shall"

The term "shall" is used in this document to indicate a requirement strictly to be followed in order to conform to the standard and from which no deviation is permitted. (See ISO Directives Part 3:1997, Annex E)" (reference "guidance on terminology used in ISO 9001 and ISO 9004".)

"Should"

The term "should" is used in this document to indicate recognised means of meeting the requirements of the standard (ISO 9001). An organisation can meet these in an equivalent way provided this can be demonstrated to a Certification Body (CB).

4 Context of the organisation

4.1 Understanding the organisation and its context

No specific interpretation in this Schedule. (Refer BS EN ISO 9001:2015, see Clause 2 of this Schedule.)

4.2 Understanding the needs and expectations of interested parties

No specific interpretation in this Schedule. (Refer BS EN ISO 9001:2015, see Clause 2 of this Schedule.)

4.3 Determining the scope of quality management system

No specific interpretation in this Schedule. (Refer BS EN ISO 9001:2015, see Clause 2 of this Schedule.)

4.4 Quality Management System & its processes

The organisation shall operate a quality management system complying with the requirements of BS EN ISO 9001:2015 as amplified by this Schedule. This shall include a Factory Production Control system complying with the requirements of BS EN 13108-21:2016.

The Certificated organisation shall register with Infrastructure Malta's Schedule of Suppliers database that it has received certification against the Scheme within 14 calendar days of confirmation of certification – for both newly certificated organisations and those who are renewing certification.

5 Leadership

5.1 Leadership and commitment

No specific interpretation in this Schedule. (Refer BS EN ISO 9001:2015, see Clause 2 of this Schedule.)

5.2 Policy

No specific interpretation in this Schedule. (Refer BS EN ISO 9001:2015, see Clause 2 of this Schedule.)

5.3 Organisational roles, responsibilities, and authorities

No specific interpretation in this Schedule. (Refer BS EN ISO 9001:2015, see Clause 2 of this Schedule.)

6 Planning

6.1 Actions to address risks and opportunities

No specific interpretation in this Schedule. (Refer BS EN ISO 9001:2015, see Clause 2 of this Schedule.)

6.2 Quality objectives & planning to achieve them

No specific interpretation in this Schedule. (Refer BS EN ISO 9001:2015, see Clause 2 of this Schedule.)

6.3 Planning of changes

No specific interpretation in this Schedule. (Refer BS EN ISO 9001:2015, see Clause 2 of this Schedule.)

7 Support

7.1 Resources

No specific interpretation in this Schedule. (Refer BS EN ISO 9001:2015, see Clause 2 of this Schedule.)

7.2 Competence

No specific interpretation in this Schedule. (Refer BS EN ISO 9001:2015, see Clause 2 of this Schedule.)

7.3 Awareness

No specific interpretation in this Schedule. (Refer BS EN ISO 9001:2015, see Clause 2 of this Schedule.)

7.4 Communication

No specific interpretation in this Schedule. (Refer BS EN ISO 9001:2015, see Clause 2 of this Schedule.)

7.5 Documented information

No specific interpretation in this Schedule. (Refer BS EN ISO 9001:2015, see Clause 2 of this Schedule.)

8 Operation

8.1 Operation planning and control

In addition to the requirements of BS EN ISO 9001:2015 and BS EN 13108–21:2016 the specific requirements of this Schedule and its Appendices will be applied.

8.2 Customer communication

No specific interpretation in this Schedule. (Refer BS EN ISO 9001:2015, see Clause 2 of this Schedule.)

8.3 Design and development planning

No specific interpretation in this Schedule. (Refer BS EN ISO 9001:2015, see Clause 2 of this Schedule.)

8.4 Control of externally provided processes, products, and services

No specific interpretation in this Schedule. (Refer BS EN ISO 9001:2015, see Clause 2 of this Schedule.)

8.5 Production & Service Provision

In addition to the requirements of BS EN ISO 9001:2015 and BS EN 13108-21:2016 the specific requirements of this Schedule and its Appendices will be applied.

8.6 Release of products and services

In addition to the requirements of BS EN ISO 9001:2015 and BS EN 13108-21:2016 the specific requirements of this Schedule and its Appendices will be applied.

8.7 Control of non-conforming outputs

In addition to the requirements of BS EN ISO 9001:2015 and BS EN 13108-21:2016 the specific requirements of this Schedule and its Appendices will be applied.

With respect to clause 7.4 of BS EN 13108-21:2016 the quality plan shall identify the action to be taken when non-conforming product is identified from analysis.

This shall include the following:

a. Classification of all analyses as identified in Appendix D.

b. Consideration of adjustments to process control in response to each non-complying result but not necessarily following individual category B results.

c. Notification to the customer by the organisation in the event of a category C non-compliance.

9 Performance evaluation

9.1 Monitoring, measurement, analysis, and evaluation

In addition to the requirements of BS EN ISO 9001:2015 and BS EN 13108-21:2016 the specific requirements of this Schedule and its Appendices will be applied.

NOTE: As a regular audit check on the efficacy of the plant control laboratory, a proportion of samples analysed for mix composition in the plant control laboratory shall have a duplicate sample analysed in a laboratory accredited to ISO 17025 by an IAF accredited body for the relevant tests. This proportion will be one in ten, based on the minimum testing frequency specified for Level OCL A (i.e. the frequency of IAF testing shall be 1 sample every (6000 ± 500) tonnes surface course, and (10000 ± 1000) tonnes binder course and base). The duplicate results shall be regularly reviewed and any differences falling outside the reproducibility limits published in BS EN 12697-1 shall be investigated.

Only the results from the Plant Control Laboratory will be used for the assessment of the OCL.

9.2 Internal Audits

In addition to the requirements of BS EN ISO 9001:2015 and BS EN 13108-21:2016 the specific requirements of this Schedule and its Appendices will be applied.

The producer shall carry out internal audits to verify which activities comply with the planned arrangements and to determine the effectiveness of the Factory Production Control. Audits shall be scheduled based on the status and importance of the activity to ensure that the whole of the quality management system at each plant is audited at least annually.

9.3 Management review

No specific interpretation in this Schedule. (Refer BS EN ISO 9001:2015, see Clause 2 of this Schedule.)

10 Improvement

10.1 General

No specific interpretation in this Schedule. (Refer BS EN ISO 9001:2015, see Clause 2 of this Schedule.)

10.2 Nonconformity and corrective action

No specific interpretation in this Schedule. (Refer BS EN ISO 9001:2015, see Clause 2 of this Schedule.)

10.3 Continual Improvement

No specific interpretation in this Schedule. (Refer BS EN ISO 9001:2015, see Clause 2 of this Schedule.)

11 Appendices

Appendix A Plant calibration

Table A1 — Minimum plant calibration and inspection requirements

Item of plant	Inspection/test	Purpose	Minimum frequency
Cold feed bins	Feed rate	To ensure correct feeding of plant	a) On installation b) Every 6 months
Weighing equipment	Visual inspection as described in procedures	To ascertain that weighing equipment is functioning correctly	Each day of production
	Testing of weighing accuracy	To ensure accuracy within quality plan requirements	a) On installation [A] b) Every year [B] c) In case of doubt
Flow meters	Organoleptic inspection	To ascertain that dispenser is functioning correctly	First batch of the day containing additives
	Test for accuracy as described in procedures.	To ensure accuracy within quality plan requirements	a) On installation [A] b) Every year [B] c) In case of doubt
Batching system (on batch plants)	Comparison of actual mass of constituents in the batch with the intended mass using the method prescribed in the quality plan	To ascertain the batching accuracy in accordance with the quality plan	a) On installation [A] b) Monthly c) In case of doubt
Temperature monitoring equipment	Visual as described in procedures	To ascertain the equipment is functioning correctly	Each day of production
	Test of accuracy as described in procedures.	To ensure correct temperatures are recorded	a) On installation [A] b) Every year [B] c) Each day against laboratory calibrated temperature measuring device
Binder tanks	Tank temperature	To check storage temperature of binder	Each day when bitumen is kept above 100°C
	Test for accuracy as described in procedures.	To ensure accuracy within quality plan requirements	a) On installation [A] b) Every year [B] c) In case of doubt
NOTE "In case of doubt" refers to the reasonable judgement of an experienced plant operator.			
[A] Or after comprehensive repair [B] By Certified Body against Nationally Approved weights and measures			

Appendix B Inspection and test frequencies

Table B1 — Minimum inspection and test frequencies for aggregates [A]

Inspection/Test	Purpose	Frequency
Intrinsic properties of aggregate (physical properties)	To check suitability for intended use	a) Before initial use in accordance with EN 13043 b) Annually
Inspection of delivery ticket [B]	To check consignment is as ordered and from correct source	Each delivery
Organoleptic check of stockpile	For comparison with normal appearance with respect to source, grading, shape, and impurities	Each day of production
Sieve analysis	To assess compliance with standard or other agreed grading	a) First delivery from new source b) In case of doubt following organoleptic check c) Per ship per product/size, minimum of 1 per 1000t per product per size
Shape Index	To assess compliance with standard or other agreed specification	a) First delivery from new source, b) In case of doubt c) Per ship per product/size, minimum of 1 per 1000t per product per size
Water content	To check suitability for intended use	a) First delivery from new source, b) In case of doubt following organoleptic check c) Per ship per product/size, minimum of 1 per 1000t per product per size

[A] This table may include the results of tests and inspections by the supplier as part of his Factory Production Control (see 6.2).

[B] These requirements may not apply in the case of direct supplies from an aggregate production unit to an asphalt plant on the same site which essentially prevents stockpiling for inspection.

Table B2 — Minimum inspection and test frequencies for filler

Inspection/test	Purpose	Frequency
Intrinsic properties of filler (bulk density, stiffening properties, etc.)	To check suitability for intended use	a) Before initial use in accordance with EN 13043 b) In case of doubt c) Annually
Sieve analysis and bulk density	To check compliance with standard	Every 5 days of production

Table B3 — Minimum inspection and test frequencies for binders [A]

Inspection/test	Purpose	Frequency
Intrinsic properties of binder	To confirm characteristics of product and compliance with appropriate requirements	Before initial use in accordance with the relevant binder standards.
Inspection of delivery ticket	To check consignment is as ordered and from the correct source	Each delivery
Temperature	To check that binder is within permitted temperature limits	Each delivery
Grade properties e.g. penetration, softening point, or viscosity	To assess compliance with requirements	1 per 300 t per grade
Penetration and/or softening point	To check for binder hardening or degradation	a) For binder stored at ≥ 100°C for more than 14 days b) In case of doubt
[A] This table may include the results of tests and inspections by the supplier as part of his Factory Production Control.		

Table B4 — Minimum inspection and test frequencies for additives [A]

Inspection/test	Purpose	Frequency
Intrinsic properties	To confirm characteristics of product or check compliance with requirements	a) Before initial use and b) As stated in the quality plan
Inspection of delivery ticket	To check that consignment is as ordered and from the correct source	Each delivery
Organoleptic check	For comparison with normal appearance	a) Each delivery b) Each production day prior to use
[A] This table may include the results of tests and inspections by the supplier as part of his Factory Production Control.		

Table B5 — Minimum inspection and test frequencies of reclaimed asphalt feedstock

Inspection/test	Purpose	Frequency
Organoleptic check of feedstock	For comparison with normal appearance with respect to grading, and shape. To check that feedstock is free from excess foreign matter.	Each day of asphalt production when using RA.
Grading and binder content	To check suitability for intended use	1 per 1000 t
Water content	To check suitability for intended use	1 per 1000 t
Recovered Penetration and Softening Point	To check suitability for intended use	1 per 1000 t if using >10% in the mix

Table B6 — Minimum inspection/test frequencies for finished product

Inspection/test	Purpose	Frequency
Organoleptic check on bituminous mixture	For comparison with normal appearance with respect to grading, evenness of mixing and adequacy of coating	Every load
Temperature	To ensure material conforms with Declaration of Performance and/ or other requirements	Every load
Grading and binder content	To ensure material conforms to Declaration of Performance and/ or other requirements	See Appendix D
Marshall test criteria	To ensure material conforms to Declaration of Performance and/ or other requirements	a) Every production day per product b) Minimum of 1 per 500 t per product
Other characteristics included in technical specifications	To ensure material conforms to Declaration of Performance and/ or other requirements	As detailed in quality plan
Suitability of delivery vehicles by visual assessment	To check adequacy of insulation	Prior to first use and in case of doubt [A]
Cleanliness of delivery vehicles by visual assessment	To avoid contamination	Every load prior to loading [A]
Recovered Penetration and Softening Point	To check suitability for intended use	1 per 1000 t if using >10% RA in the mix
[A] See 5.4. of BS EN 13108-21:2016		

Appendix C Operating compliance level (OCL)

The Operating Compliance Level of the plant shall be determined on an ongoing basis by reference to Table C.2. The results of analysis shall be classified as conforming or non-conforming using the appropriate tolerances from Table C.1 applied to the target grading and binder content declared. The number of non-conforming results in the previous 32 analyses shall be used to determine OCL in accordance with Table C.2.

A running record of operating compliance level shall be maintained at the plant, considering the requirements of Clause 5 of BS13108-21:2016

In the event of more than 8 of the previous 32 results being non-conforming, the plant shall cease to produce and be subject to an immediate and comprehensive review of equipment and procedures.

Table C.1 — Tolerances in absolute percentage for individual samples

Percentage Passing	Tolerance about target composition	
	Mixtures ≤20mm	Mixtures >20mm
D	-8 / +5	-9 / +5
Any Characteristic sieve(s) < D and > 2mm	±7	±9
2 mm	±6	±7
Any Characteristic sieve(s) < 2mm and > 0,063mm	±4	±5
0,063 mm	±2	±3
Soluble binder content	±0,5	±0,6

Characteristic sieves are those set out in the product standards and/or documents relating to the application of the product in relation to Declaration of Performance. Other optional sieves also exist for the producer to use in additional mixture control, which do not need to be included in the DoP or OCL. Optional sieves used in this way shall have the same maximum tolerance as the characteristic sieves.

Calculation of result category for composition of asphalt

Category A:

Material shall be categorised “A” (conforming to the specification) provided the analysis result complies fully with the supply specification and there are no defects reported from the visual inspection.

Category B:

Material shall be categorised “B” when it fails to fully comply with the supply specification, but the analysis is within the following:

a. An additional +/- 0.2% tolerance on binder content.

On gradings:

b. an additional +/-5% tolerance on sieves above 2mm.

c. an additional +/-3% tolerance on sieves 2mm or below.

d. an additional +/-1% tolerance on passing 0.063 mm.

e. a maximum of 3 sieves outside specification but are within the above additional tolerances.

Category C:

Material shall be categorised “C” when the analysis fails to meet Category “B” tolerances or is found to be substandard in any other way as identified by organoleptic inspection as laid down in the organisation’s quality management system documentation.

When a category C result is found the customer must be informed and a course of action agreed with them.

Table C.2 — Determination of Operating Compliance Level (OCL) of plant

Number of tests in previous 32 not conforming	Operating Compliance Level (OCL)
0 to 2	A
3 to 6	B
> 6	C

Appendix D Test frequency compositional analysis

Test frequency shall be determined on a weekly basis and shall be maintained at the frequency derived from Table D.1 corresponding to the lowest instantaneous operating compliance level achieved in the previous calendar week.

EN 13108-21:2016 gives three levels of testing frequency, designated X, Y and Z. Level Z is the minimum regulatory level required for CE Marking with levels X and Y as higher 'voluntary' levels.

Infrastructure Malta have included an extra level of testing frequency, designated W, which is the minimum level currently acceptable for supplies to their sites. When the improvement in quality expected to be seen by the adoption of this FPC scheme has been quantified then this level may be removed.

For each analysis result the deviation from target of each of the parameters: passing: D, characteristic sieves, 2 mm, 0,063 mm; and soluble binder content shall be calculated. For each of the product groups defined in Table D.1, a separate running mean of the deviations of each of these parameters shall be maintained for the last 32 analyses.

If these mean deviations exceed the appropriate values in Table C.1, appropriate corrective action shall be taken. Operating compliance level shall be marked down by one level for as long as the mean deviation stays outside tolerance.

The following minimum frequencies, derived from BS EN 13108-21:2016 and Infrastructure Malta, for undertaking compositional analysis (binder content and aggregate grading determination) of the asphalt shall be adopted:

Table D.1 — Minimum frequency for analysis of finished product (tonnes/test)

Level	OCL A	OCL B	OCL C
W	200	100	50
X	600	300	150
Y	1000	500	250
Z	2000	1000	500
Additionally, for operational plants, there shall be at least one test per operating day. Level Z shall be the minimum test frequency applicable for all purposes. Levels X and Y may be used in documents related to the application of the product. Level W is the current requirement for testing for supplies to Infrastructure Malta sites. Different levels may be used for different product types: e.g. small aggregate/large aggregate.			

For samples used in the determination of Operating Compliance Level (OCL), results of:

The minimum number of samples dictated by the (weekly) OCL, as defined by the table in BS EN 13108-21:2016 Annex A, shall be available by the end of the working day following the date of sampling.

Any additional samples taken at a rate above that dictated by the (weekly) OCL shall be available in order to calculate the final OCL for the 7-day period during which they were sampled. (This does not include other samples taken for resolution of the plant process problems, mix design etc.

NOTE: When considering weekend working, results of testing on samples taken over the weekend shall be reported by the end of the first working day following the weekend (normally a Monday, except when this is a Public Holiday) and in time to enable calculation of the OCL as in (b) above.

BS EN 13108-21: 2016 FPC also requires the monitoring of the mean deviation from target of certain key analysis parameters, including binder content. This is to ensure that mixtures are produced as close as possible in composition to the mixture which was evaluated in Type Testing. If any of these mean deviations exceeds prescribed tolerances the OCL is marked down by one level thereby requiring an increased test frequency i.e. if testing is carried out at OCL A it shall be carried out at the minimum frequency for OCL B until compliance with the mean deviation requirement is restored

All analysis results produced by the laboratory, except those taken specifically for the resolution of sudden problems arising from process control (such as a screen mat failure) or for mix design purposes identified in advance and kept separately in accordance with Clause 8.1, shall be used in the calculation of OCL.

Results of analysis of proprietary materials shall be included in the determination of OCL where the proprietary materials in question are subject to a certification scheme that calls up this quality assurance scheme.

In the unlikely event of 8 nonconforming results in the last 32 the plant shall be subject to immediate closure and comprehensive review of equipment and procedures.

On start-up of a new plant or following relocation the test frequency shall be maintained at the frequency for OCL-C until 32 analyses have been completed. The test frequency can then revert to that indicated from the conformity of those 32 results.

Following a shutdown of three months or more or following a major repair or overhaul the Operating Compliance Level shall be reduced by one level and not changed until 32 results are available from the new operating sequence.

NOTE: This variable test frequency is intended to limit the risk of non-conforming product going undetected and to ensure a quick reaction to any increase in non-conforming product.

For each plant, all samples taken for the purposes of plant control shall be tested, reported and the results made available to those responsible for action in a timely fashion.

Appendix E Reference documents

The following documents are either referred to in this Schedule or will provide useful additional background information in relation to the products covered by this Schedule.

Amendments are made to these documents on a regular basis. Users shall check that they are consulting the appropriate or most recent version of the documents in relation to the contract specification.

British and European standards

BS EN 13043 - Aggregates for bituminous mixtures and surfaces treatments for roads, airfields, and other trafficked areas

BS EN 932 - Tests for general properties of aggregates

BS EN 933 - Tests for geometrical properties of aggregates

BS EN 12591 - Bitumen and bituminous binders – specifications for paving grade bitumen

BS EN 13924 - Bitumen and bituminous binders. Specifications for hard paving grade bitumen

BS EN 14023 - Bitumen and bituminous binders. Specification framework for polymer modified bitumen BS 2000 - Methods of test for petroleum and its products – bitumen

BS EN 1426 - Bitumen and bituminous binders — Determination of needle penetration

BS EN 1427 - Bitumen and bituminous binders — Determination of softening point — Ring and ball method

BS EN 13108-1, Bituminous mixtures — Material specifications — Part 1: Asphalt Concrete

BS EN 13108-2, Bituminous mixtures — Material specifications — Part 2: Asphalt Concrete for very thin layers

BS EN 13108-5, Bituminous mixtures — Material specifications — Part 5: Stone Mastic Asphalt

BS EN 13108-8, Bituminous mixtures — Material specifications — Part 8: Reclaimed asphalt

BS EN 13108-20, Bituminous mixtures — Material specifications — Part 20: Type Testing

BS EN 13108-21, Bituminous mixtures — Material specifications — Part 21: Factory production control

BS 594987 - Asphalt for Roads and other Paved Areas - Specification for transport, laying and compaction and design protocols

BS EN ISO 9000:2015 – Quality management systems – Fundamentals and vocabulary.

BS EN IS0 9001:2015 - Quality management systems – Requirements

Other reference standards

Infrastructure Malta Specification for Road Works Series 900

Appendix F Competency guidelines

Sector specific Competency Guidelines and targets are currently under development.

Any programme of training, development, and assessment appropriate to the job function(s) and levels of supervision shall be shown to meet the relevant National Occupational Standard(s) and any relevant legal requirements.

To demonstrate continuing competence, a record of relevant Continuing Professional Development (CPD) to be kept, preferably in accordance with a professional scheme.

Personnel in positions of authority shall be members of a Professional Organisation relevant to their experience or area of responsibility

Appendix G Accredited certification bodies

The certification body shall be chosen from the Approved List compiled by Infrastructure Malta. The certification body should clearly show on the certificate they issue to the supplier that the audit was conducted against the additional requirements of this schedule.

Appendix H The role of the certification body and auditor skill requirements

Role of the certification body

a. The Certification Body shall ensure that facilities being assessed satisfy the requirements of ISO 9001: 2008 and Part 1 of this Schedule.

b. The Certification Body shall visit each facility at least annually and carry out system audits. Every aspect of the quality management system shall be assessed over a 3-year period.

c. The annual audit shall pay attention to the management review, internal audits, corrective and preventive actions, and the speed of such actions. Significant non-compliances will require re-audit to confirm satisfactory discharge.

d. In the case of a mobile plant that has been relocated or a static plant that has been re-commissioned after an extended period of "mothballing", an initial assessment visit shall be made by the Certification Body, as in the case of a new plant, if any significant changes have been made to the process or to the control procedures of the plant.

e. Surveillance visits by the Certification Body shall include the witnessing of sampling procedures.

f. The Certification Body shall refer to this Schedule in any Certificate of Registration issued to an asphalt-producing organisation against the Schedule.

g. Auditors from the Certification Body shall have qualifications and experience in line with the following requirements:

Auditor Qualifications

a. Degree, HND or HNC in civil, construction engineering discipline or other appropriate qualification (i.e. Technological or Science based qualification).

b. Member of the IAT, IHT, ICE or another similar organisation. (May be met by experience)

c. Registered lead auditors.

d. Item 1 and 2 may be replaced if a Lead Auditor has been part of an assessment team, led by another meeting criteria 1 and 2 above,

e. Preferred

f. Preferred Essential

g. Experience/Skills

Understanding and knowledge of asphalt production and testing processes

This may include:

a. Quarrying/transportation of aggregates

b. Binder properties/effects of storage

c. Plant maintenance/operation

d. Obtaining samples and testing

NOTE: The auditor, or a member of the auditing team, shall be able to show evidence that he/she has received training in the sampling of asphalt mixes, preferably in an IAF accredited laboratory.

Appendix I Guidance for assessor and internal auditor competence

A Certified Body (CB) assessor or internal auditor shall be aware of the following when completing an audit:

The reasons for development of this scheme, and for CB assessors, examples of where its absence has caused concern/problems. This is contained in the introduction to the scheme.

a. The field of application.

b. Contact details of those that can offer scheme specific assistance.

c. An overview of the end uses of asphalt.

d. Definitions and terminology that are particular to the scheme.

e. Overview of important reference documentation applicable to the scheme. Knowledge of relevant European and British Standards for asphalt in particular those relating to product conformity, type testing and laying i.e. BS EN 13108, BS EN 12697, BS EN 13043, BS EN 12591, and SHW 900 Series.

f. Knowledge of processes and their applicability involved in the manufacture, sampling and testing of asphalt mixtures.

g. Routes to competency of management, supervisors, and operatives etc delivering the scheme services.

h. Overview of asphalt production assessment.

    a. Safe working practices.

    b. Operative/supervisor training and qualifications.

    c. Maintain equipment.

    d. Safe Working Practices

Auditors shall be sufficiently competent to make general observations on the effectiveness of the organisation's safety provisions and shall be aware of the current Health and Safety Legislation and related legislation, as it applies to this sector scheme.

Training and Qualifications

Auditors shall be aware that the people in the organisation will need to:

a. Be aware of and understand the system processes and documentation for processes in which they are involved.

b. Hold relevant skills card and authorisations

c. Be inducted on specific equipment (by the organisation) or if appropriate (i.e. under training) is supervised by a qualified person

d. Be aware of the importance of testing and inspection of the product.

e. Public Protection

Auditors shall be sufficiently competent to make general observations on the effectiveness of the organisation's provisions for protection of the public.

(**NOTE:** Public in this instance includes personnel employed by the customer / client)

Environment

Auditors shall be sufficiently competent to make general observations on the effectiveness of the Organisation's provisions in respect of the environment and management of waste and its reduction.

Maintain Plant and Equipment

Auditors shall be aware of the importance of keeping plant and equipment properly maintained.

Appendix J Organisation acceptance and guidelines for new applicants

Organisation acceptance

For work carried out on roads managed by Infrastructure Malta or its designated agent, only those organisations holding a valid Certificate of Registration for work within the scope of this Schedule are accepted.

Guidelines for new applicants

Compliance with the scheme can only be fully assessed by Certification Bodies through an evaluation when work is in progress. Applicants shall therefore consider any seasonality they may experience in the scope of their works before beginning the certification process.

To enable new entrants to the scheme to prove compliance, both documentary evidence and site procedures must be the subject of assessment. The following guidelines are provided:

Organisations must have enough appropriately experienced and qualified keyoperatives, supervisors, and staff.

Organisations must have registration with a Certification Body accredited to ISO 17021 by an IAF equivalent body to audit against this Scheme

Documented procedures must be in place (to the satisfaction of the Certification Body) to demonstrate that the organisation can comply with the requirements of the Scheme. A temporary certificate, based on those procedures, may be granted and will be valid for a maximum period of 12 months.

Site audits must be carried out to provide full compliance with the Scheme. Wherever possible, these audits shall be carried out concurrently with the system audit, and at least within 6 months.

Full certification can then be granted verifying that the Scheme criteria have been met.