LBMA

GOOD DELIVERY LIST

RULES

Conditions for Listing for Good Delivery Refiners

Contents

Definitions

Approved Weigher	Refers to the list of weighers of gold and silver Bars whose weighing facilities, procedures and capability meet the standards required by LBMA.
Bars	Bullion bars of approximately 400 fine troy ounces for gold and approximately 1,000 troy ounces for silver.
Executive Committee	Responsible for reviewing work proposed/agreed by the Board and its Sub-Committees to ensure the efficient running of LBMA. The Executive Committee is responsible for the following concerning the Good Delivery List: • maintaining and developing the high standards of the Good Delivery List; • ensuring the Rulebook is kept up-to-date and fully implemented; • reviewing issues identified and determining next steps; • making final decisions regarding Good Delivery applications and status. Terms of Reference (TORs) for the Executive Committee, the Board and its Sub-Committees are available on the LBMA website.
Former Lists	Lists of all Refiners and/or their Bars that have been removed from the List. The Former Lists include: • Refiners who no longer produce Bars at the locations listed; • Refiners whose Bars are no longer accepted as Good Delivery by the London Bullion market; • Assayer-only companies that were previously granted Good Delivery status. Refiners are now required to have the ability to assay as well as refine to the required standard.
Good Delivery List or Lists	The list of acceptable Refiners of gold and silver Bars in the London bullion market.
Good Delivery or GD	Refers to the status of Refiners or Bars listed by LBMA on the Good Delivery List.
Physical Committee	Responsible for monitoring, developing and protecting the Good Delivery List. It also ensures that standards are maintained with emphasis on continuous improvement and transparency of the market.
Referees	Referees are Refiners appointed by LBMA to assist its maintenance of the Good Delivery System.

Responsible Sourcing Programme or RSP	Established for Good Delivery Refiners in order to combat abuses of human rights, to avoid contributing to conflict, and to comply with high standards of anti-money laundering and combating terrorist financing. This Programme formalises and consolidates existing high standards of due diligence amongst Good Delivery Refiners.
Supervisors	Supervisors in the Good Delivery system witness dip sampling and Bar casting operations for the Proactive Monitoring Programme and to report on these to LBMA.
Vaults	Refers to a Market Making Member of LBMA which also provides bullion vaulting and clearing services to third parties.

SECTION 1 – BACKGROUND AND HIGH-LEVEL PRINCIPLES

1.1 Background and Purpose

1.1.1 Background

The Good Delivery List ("GDL" or "List") has been developed and is maintained by the London Bullion Market Association ("LBMA"). All refiners on this List are referred to as Good Delivery Refiners ("Refiners"). This List facilitates the international distribution and acceptability of Bars produced by those Refiners.

An entry on the List represents a Refiner at a specific location. Separate applications are required if an applicant wishes to register Bars produced by the same Refiner at different locations.

1.1.2 Purpose

The purpose of this Rulebook is to clarify the requirements that all Refiners are expected to comply with, both when applying to become accredited by LBMA and on an ongoing basis. This Rulebook comprises of:

i. Principles that all Refiners must adhere to (Principles);

ii. Technical Specifications rules;

iii. Quality Assurance rules.

(ii) and (iii) collectively referred to as the Rules.

Each specific Rule (R), where appropriate, is followed by Guidance (G) to provide further clarification in support of the Rule. Failure to observe the Guidance can also potentially impact a Refiner's Good Delivery status.

Breaching a Rule or Rules can potentially lead to removal from the List, as highlighted in section 1.4 (*Enforcement*).

1.1.3 Changes to these Rules

LBMA reserves the right to amend this Rulebook at any point. Any amendments will be communicated in a timely way, and all Refiners will be provided with reasonable notice to implement and comply with the amendments.

1.2 Principles

The Principles represent the overarching spirit of the Rulebook. Breaching a Principle can potentially lead to removal from the List, as highlighted in section 1.4 (*Enforcement*).

Principle 1 - Integrity: A Refiner must act with integrity, which includes adopting best practice and responsible business practices.

Principle 2 - Skill, care and diligence: A Refiner must conduct its business with due skill, care and diligence.

Principle 3 - Management and control: A Refiner must take reasonable care to organise and control its affairs responsibly and effectively, with adequate risk management systems.

Principle 4 - Financial prudence: A Refiner must maintain adequate financial resources and records.

Principle 5 - Market conduct: A Refiner must observe proper standards of market conduct.

1.3 Legal and Compliance

1.3.1 Applicable Laws

Refiners must comply with the laws, rules and regulations applicable to them and the precious metals market in each jurisdiction in which they operate or transact ("Applicable Laws").

Refiners are responsible for adopting their own internal policies and procedures designed to comply with the Applicable Laws. In the event of a conflict between the Applicable Laws and these Rules, Applicable Laws will prevail.

LBMA recognises that Refiners may need to comply with national standards regarding the production of gold and silver Bars. To recognise such needs, LBMA attempts wherever possible not to be overly prescriptive in formulating these Rules. It is for this reason that some provisions in this Rulebook appear as guidance on best practice and should be adopted unless prohibited by national standards.

1.4 Enforcement

A Refiner may be suspended from the GDL or ultimately removed and transferred to the Former List if there is a persistent or serious breach of the Principles or Rules. The Executive Committee ultimately reserves the right to make this decision, at its discretion, following a review process.

Examples of such breaches include but are not limited to:

- A Refiner changes ownership and the new owners are unable to provide satisfactory evidence of their bona fides;
- A Refiner's tangible net worth falls consistently below the minimum threshold;
- A Refiner's production of refined metal falls consistently below the minimum threshold specified;
- A Refiner fails to maintain the technical standards outlined in this Rulebook;
- If a Refiner ceases production or asks to be transferred to the Former List at its own request;
- A Refiner does not respond adequately to justifiable customer complaints;
- A Refiner is subject to insolvency proceedings;
- A Refiner is subject to Criminal or Civil sanction(s) that LBMA believes could bring Refiner into disrepute or could cause reputational damage to LBMA;
- An event, circumstance, condition or change occurs, which materially and adversely affects, or could reasonably be expected to materially and adversely affect the Refiner's business.

If a Refiner is transferred to the Former List, the Bars that it produced while on the List will still be considered Good Delivery. LBMA reserves the right to de-list Bars after an appropriate period in cases where production has ceased.

A previously-listed Bar (as defined by its dimensions and marks) may be transferred to the Former List for one or more of the reasons listed below, while the Refiner continues to be listed but with a modified Bar:

- The form or dimensions of the Bar do not meet current requirements;
- The Bar's marks or dimensions have been modified. For instance, a Refiner may change the layout of the marks on its Bar from a portrait to a landscape format. Other reasons for such changes include rebranding by the Refiner (e.g. using a new logo) or a change of ownership (e.g. a new name).

Bars are listed at the discretion of the Executive Committee which reserves the right to make any investigations that it deems appropriate into an applicant for listing.

1.5 Escalation

Refiners are expected, at the earliest opportunity possible, to inform the Chief Technical Officer or Good Delivery List Officer (the GDL Team) if there has been a breach of any of the Rules or Principles of this Rulebook. Failure to communicate a breach may have an impact on the Refiner's Good Delivery status.

SECTION 2 – TECHNICAL SPECIFICATIONS

LBMA considers that the appearance of Bars is important, firstly because of the technical reasons described below and secondly because the maintenance of high standards of surface finish indicates a good level of quality control in general. A poor Bar appearance might, on the other hand, suggest that standards of refining or assaying are less than desired.

The decision on whether a Bar meets the physical standards of the London bullion market is the responsibility of each Vault's manager, who has complete discretion in relation to which Bars should be accepted. LBMA facilitates a consistent approach to such decision-making by arranging regular meetings of the Vault managers and by providing guidance to allow them to distinguish between, on the one hand, minor imperfections, and on the other, serious defects which require the Bar to be rejected.

2.1 General Description of Good Delivery Bars

2.1.1 Weighing

R Bars must be weighed as provided for in Annex F, and in accordance with the procedure set out Annex G.

2.1.2 Casting Method

R Bars must be produced in graphite or cast iron moulds, either by the:

- conventional method of pouring molten metal into them; or
- non-conventional method of melting grain in an induction tunnel system, or in the case of silver, by continuous casting.

Bars cast in open moulds should be produced at a single pouring.

G Any Refiners wishing to convert to the use of the above-mentioned non-conventional methods of Bar production must submit a proposal to LBMA for consideration prior to implementation. LBMA may then request that two Bars cast using the proposed alternative method must be sent to London for visual inspection. Once the Bar inspection is complete, the Bars may then be sent to the Referees for further analysis to ensure that the Bars meet the specifications in these Rules. The Refiner must pay for LBMA's costs in the examination and testing of the Bars.

2.1.3 Shape

R Bars must be ingot-shaped (i.e., having a trapezoidal cross-section, both along the length and across the width of the Bar) with sufficient undercut to facilitate handling but without resulting in the width of the bottom surface being so narrow that the Bar cannot be safely stacked.

G Bars must be easy and safe to handle. Refiners must ensure that their Bars will stack safely when considering the dimensions of their proposed Bars. Proper stacking and handling of a Bar will be taken into consideration during Bar inspections. It is important that the edges of the Bars must not be sharp, so to avoid the risk of injury during handling.

2.1.4 Appearance

R Refiners must make sure the following faults, especially on top surface of a Bar, are avoided:

- Irregularities such as surface cavities, cracks, holes or blisters (debris and water can accumulate in such irregularities which can affect the weight of the Bar and accumulated water can cause an explosion when the Bars are melted);
- Excessive shrinkage (i.e. the concavity of the top face of the Bar and any concentric cooling rings) must not significantly affect the clarity of the Bar marks or the safe stacking of the Bars;
- The sides and bottom (smaller) surface should be flat and reasonably smooth (which does not imply the need for a mirror-like finish) and free from cavities and lumps;
- Excessive layering, if it can result in dust or dirt being trapped and thus affecting the recorded weight of a Bar.

G Bars must be of good appearance. In the case of new production of gold Bars, hammering is not acceptable, nor are any attempts to conceal defects, for example by burnishing. In some cases, the use of a ball pein hammer to flatten a sharp protrusion may be considered acceptable. In the case of silver Bars, it is recognised that a small degree of hammering or other surface treatment is sometimes required but such hammering should not affect the markings or shape of the Bar.

2.1.5 Marks

R All marks should include:

- stamp of the Refiner (which, if necessary for clear identification, should include its location);
- assay mark;
- fineness (Refiners must apply a consistent font to all digits);
- serial number (which must not comprise of more than 11 digits or characters);
- year and month of manufacture unless incorporated as the first digits in the Bar number.

All marks should be clear and the height of characters used for the fineness, the date and the serial number should be a minimum of 12 mm.

Gold Bars must be marked on the larger of the two main surfaces (the cast surface at the top of the mould) using conventional (pressure) stamping or dot matrix (pneumatic punching). If pneumatic punching is used, the marks must be no less clear and at least as durable as if conventional stamping had been used.

Silver Bars may alternatively be marked on the end of the Bar if marked using a dot matrix method so that the marks can be read from the top edge downwards (see Annex J).

G Any Refiners intending to change to dot matrix marking should notify the GDL Team and send a new drawing and photo in advance, together with the date from which the new marking method will be used. Failure to provide this material in advance may result in Bars being rejected on arrival at a Vault. For Refiners whose Bar dimensions are currently

not compliant with LBMA's recommended sizes, changing from pressure to dot-matrix marking will trigger a requirement for Bars to be brought within the recommended dimension range.

If Bar numbers are to be reused each year, it is strongly recommended that the year of production is shown as the first four digits of the Bar number although a separate four-digit year stamp may be used in addition. If Bar numbers are not to be recycled each year, the year of production must be shown as a separate four-digit number.

Since January 2019, Refiners must include the month of production in either two-digit form or a code (LBMA must be notified) the Bar serial number or year stamp (for example, January 2019 = "0119"). Alternatively, Refiners must submit the last Bar number used on the last day of each month to the GDL Team by email at gdl@lbma.org.uk.

All Refiners added to the List after January 2019 must include in their Bar markings, the two-digit month stamp as outlined above.

2.1.6 Weight Stamps

R It is strongly recommended that weights should not be stamped on Bars, however if Bars are stamped in such a way, the unit of weight must be shown.

G By way of background, when Bars are weighed by an Approved Weigher, their weights, which may be different from those determined by the original Refiner, will prevail. In addition, any change in the weight of a Bar caused by future handling or sampling would result in a divergence between the weight-list weight and the marked weight.

2.1.7 Specifications for a Good Delivery Bar

All Refiners must comply with the following specifications for Gold and Silver.

Gold Bars

R Physical settlement of a loco London gold trade is a Bar conforming to the following specifications:

Weight

- Minimum gold content: 350 fine troy ounces (approximately 10.9 kilograms).
- Maximum gold content: 430 fine troy ounces (approximately 13.4 kilograms).

The gross weight of a Bar should be expressed in troy ounces, in multiples of 0.025, rounded down to the nearest 0.025 of a troy ounce.

Dimensions

The permitted dimensional ranges for a gold Bar are as follows: -

- Length (Top): 250 mm +/- 40 mm Undercut: 5° to 25°.
- Width (Top): 70 mm +/- 15 mm Undercut: 5° to 25°.

  The undercut refers to the degree of slope on the side and ends of the Bar and is represented by the angle of deviation from the vertical of the side and end surfaces.

- Height: 35 mm +/- 10 mm.

Fineness: the minimum acceptable fineness is 995.0 parts per thousand fine gold.

Marks

- Serial number (see additional comments in Section 2.1.5 above).
- Stamp of the Refiner.
- Fineness (to four significant figures*).
- For Bars produced from January 2019 onwards, the year and month of manufacture (see additional comments in Section 2.1.5 above).

*Since January 2018, gold and silver Bars can be marked with up to five significant figures, if required by national standards. However, it must have a point or comma delimiter to avoid confusion and potential ambiguous additions. The weight list would only include four significant figures.

Silver Bars

R The physical settlement of a loco London silver trade is a Bar conforming to the following specifications:

Weight

- Minimum gross weight: 750 troy ounces (approximately 23 kilograms).
- Maximum gross weight: 1100 troy ounces (approximately 34 kilograms).

It is recommended that Refiners should aim to produce Bars within the following weight range:

- Minimum gross weight: 900 troy ounces (approximately 28 kilograms).
- Maximum gross weight: 1050 troy ounces (approximately 33 kilograms).

Bars produced prior to 1 January 2008 having a weight in the former wider range of 500 to 1250 troy ounces will continue to be acceptable, though it is expected that these will be phased out when the number of such Bars in the Vaults has declined to nearly zero.

The gross weight of a Bar should be expressed in troy ounces in multiples of 0.10, rounded down to the nearest 0.10 of a troy ounce.

Dimensions

The permitted dimensional ranges for a silver Bar are as follows:

- Length (Top): 300 mm +/- 50 mm Undercut: 5º to 15º.
- Width (Top): 130mm +/- 20 mm Undercut: 5º to 15º.
- Height: 80 mm +/- 20 mm.

Fineness: the minimum acceptable fineness is 999.0 parts per thousand silver.

Marks

- Serial number (see additional comments in Section 2.1.5 above).

- Stamp of the Refiner.
- Fineness, expressed to either three or four significant figures*.
- Year of manufacture (see additional comments in Section 2.1.5 above).

* Since January 2018, Bars can be marked with up to five significant figures, if required by national standards. However, it must have a point or comma delimiter to avoid confusion and potential ambiguous additions. The weight list for these instances would only include four significant figures.

2.2 Changes to Bar Dimensions or Marks

R If a Refiner wants to make changes to:

- The dimensions of its Bars; or
- The registered marks on its Bars,

it must provide the GDL Team with at least one month's notice of the change and provide a technical line drawing of the proposed new Bar and the date on which it is intended to be introduced. All changes must be approved by LBMA before the Refiner can implement these changes.

G Any change in a Refiner's Bars will trigger a requirement for the new Bars to comply fully with the specifications on markings and dimensions in of these Rules, and the Refiner must receive approval from LBMA before the changes are implemented. LBMA reserves the right in such circumstances to reject any changes.

Technical line drawings of the proposed new Bar should be submitted to LBMA for approval. Once the drawings are approved and the new Bar is in production, the Refiner must send electronic images of the new Bar in plan and perspective views to the GDL Team. See Annex I for a description of the required drawing and photographs.

Failure to meet the above requirements will result in the rejection of any unapproved modified Bars for delivery into the London market and may result in the suspension or removal of a Refiner from the List.

The Bar dimensions set out above are mandatory for new Refiners. For Refiners already listed whose Bars were first produced prior to January 2008 and are not within these dimensions, their Bars will continue to be acceptable. However, if a Refiner wishes to change either the dimensions or marks on the Bars, it must ensure that the new Bars have dimensions within the ranges specified. If a Refiner is only intending to change the marks without changing the dimensions, LBMA will allow it a grace period of six months to change the dimensions so that existing moulds can be used while new moulds are obtained.

2.3 Non-Good Delivery Bars

R If Bars do not meet the technical specifications set out in these Rules, the Refiner must stamp the Bars as NGD (meaning Non-Good Delivery) near the LBMA-approved manufacturer's mark.

G This rules addresses Bars that are produced in the general form of Bars, but due to their intended use (for example Bars produced for and delivered directly to an industrial customer for use as a raw material), they do not meet the Good Delivery technical specifications (for example, inferior appearance or sub-standard marks).

2.4 Independent Inspection

G If Bars are delivered into the London market and the recipient Vault believes that the Bars do not conform to any of technical specifications in these Rules, the Vault may ask LBMA to appoint independent inspectors to examine the Bars and express an opinion as to whether the Bars are acceptable for Good Delivery purposes.

For the avoidance of doubt, any proposed recipient of Bars has, irrespective of any view expressed by an inspector on the condition of a Bar, the absolute right to refuse to accept delivery of a Bar if the Vault manager considers that the Bar does not meet the Good Delivery standards as set out in these Rules.

SECTION 3 – QUALITY ASSURANCE

The long-term viability of a Refiner and its ability to meet Good Delivery standards, especially in responding to legitimate complaints about Bar quality, require it to have a minimum annual production volume and financial standing. In addition, Refiners should undergo continuous monitoring of their production to ensure compliance the technical specifications set out in these Rules.

Refiners must comply will all provisions set out in this section. Failure to do so may result in the suspension or removal of a Refiner from the List.

3.1 Throughput and Tangible Net Worth (TNW)

3.1.1 Minimum Requirement

R Refiners must comply with the following minimum Throughput and TNW requirements, or have a letter of guarantee from the parent company, who will fully support and resolve any production issue:

Tangible net worth (TNW):	The net financial value of a Refiner. All Refiners must have a minimum TNW of £15,000,000.
Throughput:	The annual refined production of a Refiner. The current minimum thresholds are 10 tonnes for gold and 50 tonnes for silver per annum.

G LBMA recognises that in any one financial year there may be temporary circumstances which result in reduced Throughput or TNW data being submitted by a Refiner with the effect that the Refiner fails to meet the requisite thresholds.

As such, all annual data provided by a Refiner to LBMA will be reviewed on a three-year moving average basis which means that trends will be analysed over time. This will operate with the consequences as follows:

- 1 period (financial year) < threshold = Refiner placed on watch list;
- 2 consecutive periods < threshold = Refiner informed;
- 3 consecutive periods < threshold = Refiner must submit a remedial plan and failing to do so could result in the refiner being moved to the Former List.

3.1.2 Reporting

R Refiners must report their Throughput and audited TNW data to the GDL Team within three months of their financial year-end.

G Refiners are subject to annual review based on reported Throughput and TNW data. Any requests for extension of this deadline will be dealt with on a case-by-case basis at the discretion of LBMA.

If a Refiner suffers a substantial and sustained fall in refined production volumes or its TNW relative to the minimum thresholds, it must without delay inform LBMA of (i) the reasons for the fall and, if appropriate, the likely future figures; (ii) the steps being taken;

and (iii) the anticipated timeframe for production volumes to return to prior levels.

Failure to fully and promptly disclose the causes of any prolonged reduction in Throughput or TNW may result in the suspension or removal of a Refiner from the List.

LBMA will only use Throughput and TNW data for the purpose of monitoring the viability of a Refiner's business. Such data will be treated in the strictest confidence and will not be shared with any third parties.

3.2 Corporate Changes

R A Refiner must inform the GDL Team at least one month in advance, providing all appropriate details, if it wishes to change:

- Location of its Refiner;
- Ownership or control (including group restructuring);
- Changes in processes.

G LBMA reserves the right in such circumstances to ask the Refiner company to submit a new application.

3.3 Proactive Monitoring

R Refiners must comply with the Proactive Monitoring (PAM) Programme, as set out in Annex H. On request, Refiners must provide a dip sample from a normal production melt, which will be check-assayed by one of the Referees.

G A list of the Referees is provided in Annex B.

LBMA operates a programme of monitoring the quality of the production and assaying ability of Refiners. A Refiner's ability to cast GD Bars also needs to be demonstrated during the PAM process, which takes place once every three years. A Refiner will receive a letter from LBMA instructing it to participate in the PAM process on or around the third anniversary of its first inclusion on the List.

Evidence will need to be provided in either photographic or video form, which will be reviewed by the Supervisor and included in the Supervisor's report. The list of Supervisors is provided in Annex C.

Exceptions may apply to Refiners who regularly supply the London bullion market or other such recognised physical markets.

Special arrangements apply to gold Refiners which only produce and market "four-nines" gold (see Annex H).

3.4 Retesting of Bars

R On request from LBMA, Refiners, at their cost, must submit Bars for retesting.

G LBMA may request a Refiner to send Bars to a Vault for inspection and testing if:

- a Refiner is unable to demonstrate the required competence in assaying, as revealed under the PAM process; or
- if the appearance of a Refiner's Bars gives cause for concern.

Testing method

The methods of inspection and testing specified in the Application process will generally be followed.

A Refiner is required to pay for the cost of insurance and shipping the Bars to the Vault. If a subsequent inspection by a panel of Vaults or other specialists appointed by LBMA is satisfactory, LBMA will charge the Refiner accordingly. However, should the Vault's inspection indicate the need for further testing of the Bars by the Referees, an additional charge may be levied to cover the cost of shipping the Bars to the Referees and the testing of the Bars by the Referees. Current charges are available on the LBMA website.

Refusal to participate in PAM or refusal to submit Bars for retesting will result in the suspension or removal of a Refiner from the List.

3.5 Annual Maintenance Fees

R Refiners must pay a maintenance fee to LBMA within 30 days of the date of invoice.

G Fees for a single or dual metal listing can be found on the LBMA website. Refiners will be invoiced for their fee at the start of the calendar year.

In case of late payment, the fee will be subject to a 20% surcharge.

If a Refiner does not pay its fee within 90 days of the date of invoice, the Refiner will be immediately suspended from the List and may be removed.

SECTION 4 – COMPLIANCE AND RISK MANAGEMENT

Refiners must have an effective governance framework that ensures accountability and oversight of a Refiner's business. Refiners should also have a compliance and risk framework that provides for a robust control and compliance environment, which identifies and manages risks associated with their engagement in the market.

This section sets out the Rules that each Refiner must meet at a minimum to ensure they are managing their risks. Various elements of this section are also supported by detailed policies applicable to all Refiners, for example the Global Precious Metals Code ("the Code") and the Responsible Sourcing Programme ("RSP"). This section does not replace the detail provided under either the Code or the RSP.

Failure to meet the requirements of this section can potentially lead to either the suspension or removal of a Refiner from the List. If a Refiner is moved to the Former List under this section, that Refiner cannot re-apply for a minimum of five years.

4.1 Management Systems and Controls

R A Refiner must take reasonable care to establish and maintain systems and controls as are appropriate to its business. This includes, but is not limited to, having:

- a Compliance and Risk function;
- clear and appropriate apportionment of significant responsibilities among its directors and senior managers.

G The business and affairs of the Refiner should be adequately monitored and controlled by the directors, relevant senior managers and governing body of the company. LBMA records the contact details of a Senior Director and Compliance Officer. Any changes to these details should be notified to LBMA immediately.

4.2 Global Precious Metals Code

R All Refiners must attest to and comply with the Code in full at all times.

G Evidence of this should be provided with the application documentation. All Refiners are encouraged to apply the Code proportionally. This does not mean that different standards apply, merely that the systems and control environment applicable to a multi-metal large Refiner may not be appropriate for a smaller Refiner.

4.3 Responsible Sourcing

R Refiners must comply with the RSP.

G All Refiners must be audited annually by an approved service provider, as provided in the RSP, in order to remain on the List.

Audits demonstrating compliance with the RSP must be submitted prior to GD accreditation. Refiners must thereafter submit their latest audit reports to LBMA within three months of the end of their financial year. These will be published alongside the relevant Refiner's List entry on the LBMA website. Details of the RSP can be found on the LBMA website.

4.4 Economic and Trade Sanctions

R Bars must be capable of being delivered to, and held by, any person, including any person who falls within the definition of a US person identified in US sanctions, without violating any UN, EU, US, UK, or any other relevant, economic and/or trade sanction lists, or causing any person to violate any UN, EU, US, UK or any other relevant sanctions (collectively "Sanctions Rules").

G Refiners are to comply with all relevant economic/trade sanctions lists and are strongly advised to seek legal guidance where relevant.

Breach of any Sanctions Rules will lead to immediate removal from the List.

4.5 Incident Review Process

R Refiners must co-operate in any Incident Review Process invoked by LBMA.

G LBMA's 11-step Incident Review Process (as defined in Annex M) will be invoked in response to any stimulus of a reputational nature. Information can come from a variety of sources (trade associations, law enforcement agencies, market intelligence etc.) and LBMA will seek corroboration wherever possible as part of the process. Due to the sensitivities involved, LBMA may keep the process confidential until any issue has been resolved. The formal process is detailed in Annex M.

4.6 GDL Branding and Copyright

R Any use of LBMA GD branding by a Refiner must be approved by LBMA and in accordance with the Brand Guidelines (see Annex L).

R The List is the copyright of LBMA. Reproduction and dissemination of the List (in whole or in part, in any form) is strictly prohibited without the express prior written consent of LBMA and any such use of the List by a Refiner must acknowledge LBMA's copyright.

SECTION 5 – FURTHER INFORMATION AND COMPLAINTS

5.1 Resources

Further information and guidance is available from:

- LBMA website - http://www.lbma.org.uk/home
- Visual Guide website - http://www.vglbma.co.uk/
- GDL website - http://www.lbma.org.uk/good-delivery
- Global Precious Metals Code - http://www.lbma.org.uk/global-precious-metals-code

Any specific questions or requests for clarification about the List, technical specifications, application procedures or conditions of listing should be addressed to the GDL Team at GDL@lbma.org.uk.

5.2 Complaints Process

Refiners may raise concerns about the process directly with LBMA. Complaints must be made in writing to the Compliance Officer and must be accompanied by supporting evidence. The Compliance Officer will review the details of the complaint and the outcome will be formally communicated to all interested parties.

Annex A – LBMA Vaults

It should be noted that LBMA does not approve physical Vaults which may be used by the market.

Company	Address
HSBC Bank USA NA London Branch	8 Canada Square London E14 5HQ
ICBC Standard Bank plc	20 Gresham Street London EC2V 7JE
JP Morgan Chase Bank	25 Bank Street Canary Wharf London, E14 5JP
Scotiabank Europe plc	201 Bishopsgate, 6th Floor London EC2M 3NS
UBS AG	100 Liverpool Street London EC2M 2RH

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Annex B – LBMA Good Delivery Referees

The following companies have been appointed by LBMA to assist its maintenance of the Good Delivery System.

Company
Argor-Heraeus SA
Metalor Technologies SA
PAMP SA
Rand Refinery Pty Limited
Tanaka Kikinzoku Kogyo K.K.

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Annex C – Good Delivery Supervisors

The following companies have been appointed as Supervisors to the LBMA Good Delivery system.

Company	Address	Contact Details
ALS Inspection	Caddick Road Knowsley Business Park Prescot L34 9HP United Kingdom	T: +44 (0) 151 632 9248 F: +44 (0) 151 548 0714 Email: david.pownall@alsglobal.com Email: paul.scales@alsglobal.com
Alex Stewart International	20 Sefton Business Park, Aintree, Liverpool, Merseyside, L30 1RD United Kingdom	T: +44 (0) 151 525 1499 F: +44 (0) 1708 472 914 Email: andy.smith@alexstewartinternational.com aemans@alexstewartinternational.com (Audrey Emans)
Bureau Veritas Commodities	2 Perry Road Witham Essex CM8 3TU United Kingdom	T: +44 (0) 1376 536 800 F: +44 (0) 1376 520 819 Email: gary.potter@uk.bureauveritas.com

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Annex D – List of Security Transport Companies that are LBMA Members

Company	Contact Details
Brink's Ltd	Tel: +44 (0) 20 8818 0659 Fax: +44 (0) 20 8818 0692 Contact name: Mr. Mark Woolley Email: mark.woolley@brinksglobal.com
G4S International	T: +44 (0) 20 7933 9220 F: +44 (0) 20 7283 9258 Contact name: Mr. Paul Holt Email: paul.holt@g4si.com
Malca-Amit Commodities Ltd	T: +44 (0) 20 8814 9850 F: +44 (0) 20 8814 9855 Contact name: Mr. Allan Finn Email: allan.finn@malca-amit.com
Loomis International (UK) Ltd	Tel: +44 (0) 1932 230130 Fax: +44 (0) 1932 230231 Contact name: Mr. Brian Hayward Email: brian.hayward@int.loomis.com

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Annex E – Approved Weighers of Gold and Silver Bars

It should be noted that LBMA does not approve Vaults and that inclusion in the Approved Weighers List relates solely to the weighing by the entities listed of gold and silver Bars according to the standards laid down by LBMA.

Company	Address
Bank of England (Gold only)	Threadneedle Street London EC2R 8AH
Brink's Ltd	*Available on request*
G4S Cash Solutions (UK) Ltd	*Available on request*
HSBC Bank USA London Branch	Level 4 8 Canada Square London E14 5HQ
Malca-Amit Commodities Ltd	*Available on request*
JP Morgan Chase	25 Bank Street Canary Wharf London E14 5JP
Loomis International Ltd	*Available on request*

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Annex F – Weighing, Packing and Delivery Procedures

1. Weighing procedures

Gold

Bars are weighed on either a beam balance or an electronic balance.

Beam balance

Bars are weighed on a beam balance using brass or stainless steel weights of various sizes that are regularly inspected by the Inspector of Trading Standards. It is also acceptable to use an equal-arm magnetically damped precision balance or a modification unit to add magnetic damping to an existing beam balance.

If brass weights are used it is expected as a minimum requirement that a 400 troy ounce stainless steel weight is regularly used to cross-verify the accuracy of the 400 troy ounce brass weight. It is increasingly being recognised in the market that brass weights are susceptible to wear and tear and are not as accurate on an ongoing basis as stainless steel weights. LBMA therefore recommends that, for the weighing of gold, all weights up to 50 ounces and the 400 ounce weight should be of stainless steel in preference to brass.

It is the practice of LBMA and the market to weigh gold Bars in multiples of 0.025 of a troy ounce and therefore this is the smallest weight used.

For a gold Bar to 'turn the scale', it is necessary for the Bar to cause the indicator needle on the beam balance to move a minimum of two divisions in favour of the Bar when the correct weight is placed on the scales.

A division on a gold beam balance corresponds to 0.001 of a troy ounce. A gold Bar must therefore weigh at least 0.002 of a troy ounce over the stated multiple of 0.025 for a Bar to be said to 'turn the scale'.

If a Bar does not 'turn the scale' then the weight is reduced by 0.025 of a troy ounce.

While it is recognised that other procedures for weighing exist, the above procedure will be used in determining the weight of gold Bars delivered into the London market.

Electronic balance

Electronic balances used for weighing gold Bars should comply with the following criteria:

- Capable of weighing Good Delivery gold Bars, as defined by LBMA, in the weight range 350 oz tr* (10.886 kg) to 430 oz tr (13.375 kg). The weighing range shall not be reduced by the weight of the impact protection boss mentioned below; i.e. tare range shall be 100% of the weighing range.
- Capable of being CE marked in accordance with all applicable European Council Directives.
- Verification scale interval (e) ≤ 0.1 g.
- Readability (d) ≤ 0.01 g.
- Uncertainty of calibration measurement less than 0.05 g.
- The readability division (d) values must be capable of being presented on a digital electronic output device (e.g., RS232C, USB) after legal verification of the scales.
- Capable of displaying the converted metric weight into oz. troy in digital intervals no larger than 0.0005 oz tr.
- The conversion factor shall be 1 oz tr = 31.1034768 g which is the accepted legal metrology factor.
- The Accuracy Class (according to European Council Directive 2009/23/EC) shall be Class I.

- Capable of being adjusted and calibrated by users by the application of a 400 oz tr stainless steel Class F1 weight. The weight's value shall be able to be input digitally in kg.
- The scales shall have internal calibration masses to enable automatic or semi-automatic adjustments/calibrations.
- It shall be possible to adjust the notional value of the internal masses by input of the measured value in kg from a calibration certificate of stainless steel weight. The nominal value of the weight will be 400 oz tr.
- It shall be possible to switch off/on the automated function of the internal masses.
- The scales shall have a flat-topped impact protection boss, approximately 80mm in diameter, onto which gold Bars can be placed for weighing.
- The impact protection boss shall be the only part of the scales exposed to the live weighing activity.
- The scales' weighing parts shall be protected against the influences of drafts.
- Capable of verification at least within the range 15 to 25 degrees Centigrade.
- It shall be possible to separate the scale indicator/keyboard from the weighing platform so that vibrations are not transmitted to the platform when the keyboard is used.
- The scales shall be provided with an internal, legal-for-trade alibi memory for saving the weight (kg), date, time, serial or batch number and transaction number.
- Scales to be compliant with European standard EN 45501 and OIML International Recommendation R76.
- The scales' weighing mechanism shall be rugged and capable of withstanding weighing of multiple tons of Bars every working day.
- Average stabilisation time for each weighing 1.0 seconds.
- Average response time 1.5 seconds.
- Electrical power requirement shall be 230VAC or 115VAC +15%, -20%.
- Ingress Protection to IP20.
- Warm-up time after connection to power ≤ 2 hours.

* oz tr is the legal metrology abbreviation for troy ounce.

<u>Silver</u>

Bars are weighed on an electronic balance.

Electronic balance

Electronic balances used for weighing silver Bars should comply with the following criteria:

- Capable of weighing silver from 500 ounces to 1,250 troy ounces.
- European Union Verification interval no greater than 0.1 troy ounce.
- Readability less than 0.1 troy ounce.
- Internal calibration weight which can be activated automatically or via keyboard – calibration should be undertaken on a daily basis.
- Maximum eccentricity error not greater than 0.02 troy ounce.
- Maximum linearity deviation not greater than 0.02 troy ounce.
- Repeatability not greater than 0.02 troy ounce.
- Uncertainty of calibration measurement less than 0.05 troy ounce.
- capable of Weights and Measures Verification for weighing silver (i.e. a Class I or II balance/scale having a National or EU Type approval certificate).

An electronic balance should remain powered continuously. If for any reason the balance

has been disconnected from the mains or switched off, it should not be used until it has been powered for at least one hour.

Electronic balances used for weighing silver generally show the weight in troy ounces to two decimal places. Due to uncertainty in the second decimal digit, the recorded weight will be reduced to the next lower 0.1 troy ounce division if the second decimal is less than 5. On that basis, a Bar showing a weight of 1000.95 on the scale would be recorded as 1000.9 troy ounces) whereas a Bar showing as 1000.94 would be recorded as 1000.8. See Annex G for examples of how the London weight is determined.

2. Delivery and Packing

Refiners must adhere to the following requirements for delivery and packing of standard gold and silver Bars destined for the London market:

A buyer or other party taking delivery of metal may not, in the absence of express contrary agreement with the party making the delivery, stipulate any particular brand when taking delivery.

If a tendered brand meets the specifications for Good Delivery but does not suit the requirements of the party looking to take delivery, then, in the absence of express contrary agreement with the party making delivery, the party looking to take delivery will be responsible for meeting the cost of melting and/or refining or swapping.

Bars not conforming to the technical specifications set out in these Rules may be sold or delivered on the market, but the party delivering such Bars will be responsible for meeting the cost of making them Good Delivery, if required.

All physical metal delivered into, or within, the London market should be packed in a safe manner on a suitable pallet, normally constructed of sturdy wood that is in a good, safe condition.

Such pallets should have the following dimensions, length 700mm, width 600mm, height 150mm and the wood should be at least 25mm ±3mm thick.

A gap of at least 100 mm is also required to allow standard forklift equipment to move the loaded pallet.

Each pallet should be capable of carrying one tonne (the recommended maximum per pallet) and the pallets should be capable of being stacked six pallets high when loaded.

All pallets should be heat treated, fumigated and carry a mark to prove this without which the pallets could be rejected by customs. Plastic pallets and pallets constructed from dry, brittle or poor-quality timber are not considered suitable.

Bars should be adequately strapped so that if being moved and brought to a sudden halt or subjected to a sudden change of direction the Bars will not topple with the forward or sideways generated momentum. It is preferable that the Bars are protected with bubble wrap, corrugated cardboard or similar material, to prevent Bars rubbing together when in transit. It is not necessary to wrap Bars individually.

Silver Bars should be stacked one tonne per pallet on either a London size pallet (dimensions noted above) or an official euro pallet. If the source needs the silver sealed for security reasons then the foldable sleeve over a pallet should be used, which is widely available. The advantages of this are that the euro pallets can be passed on to other sources saving disposal costs, the London sized pallets could potentially be re-used, and the foldable boxes would reduce disposal space/cost.

Gold Bars should, if packed individually or two Bars to a box, be packed in sealed wooden boxes and larger quantities of gold should be packed in larger wooden boxes or place a wooden sleeve over pallet. Again, the advantages would be that wood is easier to recycle and the wooden sleeve could be re-used or folded down reducing disposal costs.

Gold moving within the London market should be moved on one tonne pallets, or as close to as possible.

NB: If packing arrangements have been agreed that differ to the above, with the receiving Vault then the Refiner should liaise with that Vault and continue with the arrangement in wooden, plastic or fibre boxes and strapped to a pallet whilst in transit.

Each box should have a unique reference number. Alternatively, gold Bars may be packed, maximum 40 Bars (approximately 500 kilos) on a pallet having been placed in a wooden plastic box (sometimes referred to as a "tote"). The box should be nailed to the base of the pallet with the lid having holes to accommodate metal pull-tight seals at each corner to seal the box. Suitable metal or nylon banding should be used to band the box itself.

With silver, no more than 20 tonnes should be loaded in any single container.

In all cases, the packing of Bars should be kept to a sensible minimum in order to prevent time-consuming unpacking of deliveries.

Bars should be packed in the order in which they appear on the relevant weight list. Weight lists (in the approved format described in Annex G) must be machine readable (e.g. in the form of an Excel or a .csv file). Weight lists should be dated and indicate whether the metal has been weighed by an Approved Weigher. A copy of the weight list should be attached to the Bars. The inclusion of such a list should be taken as confirmation that the Bars have been weighed in accordance with the London Weighing Procedures.

If the Bars have not been weighed by an Approved Weigher, the party taking delivery may charge the party delivering the Bars for weighing at a rate to be mutually agreed.

A Vault manager shall have the absolute right to decide who is permitted access to its premises to collect or deliver bullion Bars. A party arranging to deliver or collect Bars from a Vault should advise the Vault manager of the vehicle registration and driver's identity. The party giving up control of the Bars shall be entitled to a receipt in respect thereof in the absence of express written agreement to the contrary. If the above criteria are not met, the Vault manager shall be entitled to reject or refuse delivery, any costs associated therewith being for the other party's account.

3. LBMA Approved Weighers

If a weighing dispute should arise, LBMA will appoint an Approved Weigher not associated with the dispute to act as an umpire and express a non-binding view as to who is responsible for any weight difference.

4. Further Information

Any questions or requests for further information about the weighing, packing and delivery procedures for gold and silver Bars should be addressed to the GDL Team.

Annex G – Weight lists

This Annex shows the form of weight lists that should accompany shipments of Bars to Vaults. The form of listing used for Bars which are being submitted as part of an application for GD accreditation differs from that used for commercial shipments as shown below. Weight lists accompanying Bars (whether for commercial shipments or for Bars submitted by applicants) must be provided in a machine-readable electronic form, such as an Excel or .csv file.

It is important that weight lists show the correct number of decimal places for the weights and assays.

1. Commercial weight lists

Gold

Serial number	*Brand code*	*Gross weight (troy ounces)*	*Assay*	*Fine weight (troy ounces)*
123456	XYZ	401.125	995.8	399.440

Silver

Serial number	*Brand code*	*Gross weight (troy ounces)*	*Assay*
234567	XYZ	1164.9	999.0

Notes applying to both gold and silver:

- In cases where the Refiner weighs in kilograms, the weight list must show how the troy ounce equivalents are calculated using the method of conversion to gross and fine troy ounces shown overleaf. This uses the standard LBMA conversion factor of:

  1 troy ounce = 0.0311034768 kg.

- In the case of commercial shipments of silver Bars, the fineness marked on the Bar and shown on the weight list should be in the same format (for example, whether 999.0, 999 or 999.9).

If the weight is measured in troy ounces, it is not necessary to show the kilogram equivalent. The spreadsheet for making these conversions can be found in the GD Section of the LBMA website.

2. Vault Weights versus Refiner Weights

The algorithms shown on the following pages show how to convert metric to troy ounce weights and also how a troy ounce dead-weight should be converted to a final London weight. However, in cases where the Refiner's weight differs from that determined by the Vault, the latter will be used for recording the troy ounce weight of the Bar.

Annex G (continued) – Sample Weight Lists and Conversions to Troy Ounces

The following tables show how to calculate the gross troy ounce (GTO) weight based on a metric weight and in the case of gold, also the rounded fine troy ounce (FTO).

The table below also shows how to convert an electronic troy ounce deadweight (e.g. in column (3)) to London GTO and FTO weights.

Gold

Brand	Bar No.	Col(1)	Col(2)	Col(3)	Col(4)	Col(5)	Col(6)	GTO Col(7)	Col(8)	Col(9)	Col(10)	Col(11)	FTO Col(12)	
		Metric Weight	Initial Conversion	Col (2) truncated to 0.001	Col (3)-0.002 for turning the scale	Col (4)/ 0.025	Col (5) truncated	Col(4) truncated to 0.025	Assay	Col(7)*Col(8) Unrounded fine weight	Col (9) Truncated to 3 decimals	Col(9)-col(10) *1,000,000 Rounding factor	Rounded Fine Weight	Notes
		kg	tr oz	tr oz	tr oz	0.025 tr oz	0.025 tr oz	tr oz		tr oz	tr oz		tr oz	
XYZ	1	12.4360	399.8267	399.826	399.824	15992.96	15992	399.800	0.9958	398.120840	398.120	840	398.120	The initial conversion is truncated to 399.826 so deducting 0.002 gives a value of 399.824 in col (4) so the Bar is marked down to 399.800.
XYZ	2	12.4423	400.0292	400.029	400.027	16001.08	16001	400.025	0.9958	398.344895	398.344	895	398.344	The figure in col(9) is not rounded up to 398.345 as the rounding factor <900
XYZ	3	12.4345	399.7786	399.778	399.776	15991.04	15991	399.775	0.9958	398.095945	398.095	945	398.096	The figure in col(9) is rounded up to 398.096 because the rounding factor is >900

Notes:

- If the weight is initially measured in troy ounces, it is not necessary to show columns (1) and (2). A deadweight in troy ounces to three decimal places could be placed in column (3).
- When the original weight is measured in kilograms, the figure in column (2) is calculated by dividing the kilogram weight in column (1) by the conversion factor 1 troy ounce = 0.0311034768 kg.
- The figure in column (3) is derived from column (2) by truncating to the nearest 0.001 troy ounce.
- The figure in column (4) is derived by subtracting 0.002 troy ounces from the figure in column (3). See Annex G on weighing procedures.
- The figure in column (6) is derived by truncating the figure in column (5) down to the nearest 0.025 troy ounces.
- The figure in column (7) is derived by multiplying the figure in column (6) by 0.025. It is thus gives the London gross troy ounce (GTO) weight of the Bar.
- The unrounded fine weight in column (9) is calculated as the product of columns (7) and (8). The assay in column (8) must be shown to 4 decimal places.
- If the rounding factor shown in column (11) is 900 or more, the truncated fine weight – shown in column (10) - is increased by 0.001 to give the rounded fine troy ounce (FTO) weight in column (12). The factor in column (11) is derived from the 4th, 5th and 6th decimal digits of the figure in column (9).

Silver

		Col(1)	Col(2)	Col(3)	Col(4)	Col(5)	Col(6)	
Brand	Bar No.	Metric	Initial Conversion	Col(2) rounded to nearest 0.01	Col (3) truncated to nearest 0.1	(Col(3)-Col(4))*100 (Rounding factor)	Gross troy ounce (GTO) weight	Notes
		kg	troy ounce	troy ounce	troy ounce	0.01 tr oz	troy ounce	
XYZ	1	33.1159	1064.70091	1064.70	1064.7	0	1064.6	Gross Weight is truncated down to 1064.6
XYZ	2	33.1161	1064.70734	1064.71	1064.7	1	1064.6	Although the initial rounding up gives 1064.71, the Gross Weight is reduced by 0.1 to 1064.6 because the rounding factor<5
XYZ	3	33.1172	1064.74270	1064.74	1064.7	4	1064.6	The initial rounding gives 1064.74, and the Gross Weight is reduced by 0.1 because the rounding factor<5
XYZ	4	33.1173	1064.74592	1064.75	1064.7	5	1064.7	The initial conversion to 1064.74592 is rounded up to 1064.75 and the Bar is not marked down to 1064.6 as the rounding factor >=5.

The table above shows how to convert an exact weight of a silver Bar in kilograms to gross troy ounces. It also shows how an electronic balance deadweight in troy ounces (in column 3) would be converted to a London GTO weight.

Notes:

- If the weight is measured in troy ounces, it is not necessary to show the kilogram equivalent.
- When the original weight is measured in kilograms, the figure in column (2) is calculated by dividing the kilogram weight by the conversion factor 1 troy ounce = 0.0311034768 kilograms.
- The figure in column (3) is derived from column (2) by rounding it to the nearest 0.01 troy ounce using the normal rule of rounding up if the third decimal before any rounding is 5 or greater.
- The figure in column (4) is derived by truncating the figure in column (3) to the nearest 0.01 troy ounce.
- The figure in column (5) is the difference between the figures in columns (3) and (4) multiplied by 100.
- The rounding factor shown in column (5) is used to determine if the figure in column (4) should be reduced by 0.1, namely if the rounding factor is less than 5.

Annex H – Proactive Monitoring – Procedures and Criteria

The system of monitoring is designed mainly to provide reassurance to purchasers about the quality they can expect from GD Bars.

The main method of monitoring requires the Refiner to submit a dip sample from a commercial melt for check-assaying by two of the Referees. The dip sampling and Bar casting operation must be witnessed by a Supervisor. An alternative way of monitoring the assaying ability of "four-nines" gold Refiners is described in Section 4 of this annex. All Refiners (including Referees) will be monitored once every three years.

Evidence of GD Bar casting must be witnessed by the Supervisor. Exceptions to this requirement will include Refiners regularly supplying GD Bars to the London Bullion Market or other such recognised physical market, evidence of which must be submitted.

1. Notice to Refiners about monitoring

The LBMA Good Delivery List Officer will send a letter to the LBMA contact at the Refiner concerned (with a copy via email) informing them that proactive monitoring of its gold and/or silver production is to take place within a period of one month. LBMA is willing to be flexible on the time allowed for arranging the monitoring operation, if for example this is affected by holiday periods or other enforced shutdowns.

2. Dip sampling

2.1 Appointment of Supervisor

A Refiner being monitored by the dip sampling method should, in the first place, appoint a Supervisor to witness and report to LBMA about the sampling operation. The list includes the internationally recognised assaying and inspection companies which are within LBMA membership. These companies have local representatives or laboratories around the world.

The costs and expenses of the Supervisor must be paid by the Refiner. The Supervisor will charge a fixed fee (see LBMA website for all fees) for each dip sampling operation witnessed, unless specifically agreed otherwise, plus travelling and subsistence expenses incurred by the Supervisor's representative. Thus, the expenses chargeable by the Supervisor will depend on the locations of their representative offices relative to that of the Refiner.

2.2 Witnessing of dip sample

The melt from which the dip sample is taken should have a fineness in the range of 999 or above for silver and between 995.0 and a maximum of 999.0 for gold.

The sample should be taken from a normal production melt and the operations leading up to the taking of the sample must be witnessed by the Supervisor. The Refiner should be confident about what the melt contains and that it is homogeneous before taking the dip sample. The dip sample should be taken at the final stage of production, that is, just before casting.

The purpose of taking the dip sample is to provide sufficient homogeneous material to provide the samples to be assayed by the Refiner and the Referees, together with enough spare samples in case of various eventualities (such as a sample being lost in the post).

The actual method of taking and casting the dip sample can be either of the following.

(1) The Refiner may use a standard LBMA mould (which will be brought to the Refiner by the Supervisor). This consists of a two-part cast iron mould which produces a casting with dimensions of

- for silver: 60 mm in width, 6 mm in thickness and 100 mm in height;
- for gold: 60 mm in width, 6 mm in thickness and 50 mm in height.

The Refiner should have a guillotine or shear available which can be used to crop 5 mm from each edge. In the case of silver, the cropped casting should then be cut into 8 pieces of approximately 25 x 22.5 mm each (giving a sample weight of around 35 grams). In the case of gold, the guillotine should be used to cut off eight samples of approximately 10 grams each.

(2) The Refiner can use its normal method of dip sampling, provided that this will produce the necessary samples for fire assay (in the case of gold) and, in the case of silver, for spectrographic analysis, including by spark OES which requires a plate type sample of dimensions approximately 25 x 25 mm).

The Supervisor will report to LBMA using a standardised format including information on:

- the use to which the refined metal will be put,
- the raw materials used,
- the processes leading up to the sample being taken,
- the method of dip sampling employed and,
- in the case of Bars which are to be numbered, the numbers of the Bars produced.

2.3 Treatment of the dip samples

Two of the eight samples will be sealed and sent by the Supervisor to LBMA. One will be left with the Refiner for assaying and five will be sealed by the Supervisor and left with the Refiner as reserves.

Refiner assay

The sample left with the Refiner by the Supervisor should be assayed by corrected fire assay or appropriate spectrographic technique in the case of gold and by an appropriate spectrographic method of analysis in the case of silver. The number of individual fire assay trials to be carried out is not specified by LBMA but is instead left to the Refiner, according to its normal practice. For gold fire assays, the report should include the individual trial results expressed to five significant figures of fineness and the mean of the trial results, also to five figures. The assay results should be presented in an Excel or .csv file and submitted by email to the GDL Team within four working days after the dip sampling.

The method of assaying must be stated in the report (including the type of spectrographic testing used for silver). In the case of the assaying of silver by spectrographic methods, oxygen and nitrogen should be ignored when deducting the sum of the impurities from 1000 (in other words, these gases should be treated as silver).

When determining the assay of dip samples using spectrographic methods, the applicant is responsible for identifying all impurity elements contained therein which will determine the final assay. LBMA does not prescribe detailed procedures or criteria for assaying by means of spectrographic methods but Annex M lists the elements that Referees will typically determine.

The report on a silver dip sample should include the elemental analysis using the LBMA template which will be provided, as well as the silver assay obtained by difference for all trials.

The LBMA Executive Committee will treat the information provided by the Refiner in strict confidence. In particular, no information which could be used to identify the Refiner will be provided to the Referee(s) that will assay the dip sample. However, at the conclusion of the Proactive Monitoring the assays of the Refiner and Referee will be sent (anonymously via the Executive) to each other.

Referee assay

On receipt of the two samples by LBMA, both samples will be sent, according to a rota, to two of Referees who will be asked to assay the sample they receive to five significant figures. It should be noted that the Referees will not be aware of the identity of the Refiner that provided the samples. For gold, the Referee will carry out at least 6 trials by means of corrected fire assay and will include the results in the report sent to LBMA. In the case of silver, the Referee will normally use one or other spectrographic analysis method and determine the silver assay by difference (with dissolved gases such as oxygen counting as silver). The Referee will provide to LBMA the elemental analysis of the dip sample as well as the silver assay obtained by difference.

If the assays of the Refiner and Referees fail to agree within the tolerances described below, the Refiner will also be asked to unseal one of the spare samples, carry out an assay on it and submit a new assay report to LBMA within five working days.

The Referees are all Refiners of both gold and silver, who have previously demonstrated to LBMA's satisfaction a very high level of accuracy in the assaying of gold and silver. They also manufactured sets of reference samples which are free from detectable inhomogeneity and whose assay values were established to high levels of accuracy by means of an extensive programme of cross-checking.

2.4 "Four-nines" gold Refiners

LBMA considers that all Refiners on the Good Delivery Gold List must be able to assay across the full range of Good Delivery alloys (namely a fineness range from 995.0 to 999.9) most of which can only be accurately assayed using the method of corrected fire assay. At the top end of this range, on the other hand, spectrographic methods can provide assays of the necessary precision and accuracy. In that these high-gold alloys can be thus assayed without requiring the use of fire assaying, they cannot be used to demonstrate that the Refiner is able to assay over the full range of Good Delivery alloys. For Refiners where the production technology (as well as the products marketed) only involve gold of fineness 999.9 and above, it is recognised that it would be disruptive and onerous for them to have to produce a special low gold content alloy for the purposes of LBMA monitoring. A Refiner which, for the reasons described above, is unable to provide a gold dip sample with a fineness of less than 999.0, may instead opt to have an alternative form of monitoring, whereby LBMA will send it a set of six approximately 5-gram reference samples for the Refiner to assay using the corrected fire assay method. On receipt of the samples, the Refiner must submit to LBMA within six working days a report showing the mean assay of each sample to five significant figures.

2.5 Assessment criteria and further testing

The Refiner's mean assay value (in the case of dip samples) and detailed trial results (in the case of the four-nines gold procedure) will be assessed by the LBMA Executive Committee as described below. In cases where the Refiner is deemed to have failed, the mean assays and the standard deviations of the assay results may be viewed, anonymously, by the Referees and/or a technical consultant engaged by LBMA.

The criteria are shown below. The tolerances on assaying shown here are expressed in terms of fineness (parts per thousand). Thus, for instance, ±0.10 for an assay of, say, 998.55 means a range of fineness from 998.45 to 998.65.

Consideration of assays from first dip samples

The Refiner's and Referee's assay results on the two dip samples provided by the Refiner will be assessed as follows:

Full pass – In the case of gold, agreement between the Referee's and Refiner's assays within ±0.15 will be regarded as a full pass with no further testing being required. In the case of silver, different criteria apply depending on whether the sample's fineness (as assayed by the Referee) is above or below 999.5.

Above 999.5 agreement within ±0.05 will be regarded as a full pass, while below 999.5 agreement within ±0.15 will be regarded as a full pass.

Borderline failure – i.e., agreement in the range ±0.16-0.25 (or for silver samples of fineness of 999.5 and above, agreement in the range ±0.06-0.15). This will require that the Refiner be asked to assay one of the spare samples which have been sealed and left at the Refiner by the Supervisor. On receiving the assay results from the Refiner, the LBMA Executive Committee will compare all of the results once again and, if necessary, taking technical advice, decide on whether the results are acceptable. If they are not, the Refiner will be asked to arrange for a new dip sample to be witnessed within one month and provide a further two samples for testing by the Referees.

Fail – i.e. a divergence of >0.25 (or for silver samples of fineness of 999.5 and over, a divergence of >0.15). In this case, the Refiner would be required to provide a further two samples from a new witnessed dip sample within one month.

Cases where a second dip sampling operation is required

In general, two different Referees will assay the second pair of samples compared to those that assayed the first samples. LBMA will assess the results based on the criteria described above but taking into account all the assay results provided by the Refiner and the Referees. If necessary, after taking advice from a technical consultant, LBMA will then decide on one of the following courses of action.

- The Refiner will be informed that it has passed the monitoring test.
- The Refiner will be asked to assay a set of LBMA reference samples (under similar conditions as for a new applicant for Good Delivery accreditation).

In the latter case, LBMA will assess the assay report subsequently provided by the Refiner and decide whether:

- The Refiner has satisfied the criteria and will therefore be informed that it has succeeded in passing the monitoring test; or
- The Refiner will be required to undergo a full re-application for Good Delivery accreditation.

In the latter case, except in cases of gross failure, the Refiner will normally continue to be listed until the results of the re-application are available.

Criteria for assays provided by "four-nines" gold Refiners

In the case of the "four-Nines" gold Refiners which opt to be monitored by means of assaying a set of six LBMA reference samples, the criteria for passing the test are the same as those applicable in the case of new applicants for listing, except for the allowed divergences.

- Assays of 999.5 and above should agree to ±0.05; for example, the Refiner's assay on a sample assaying 999.84 according to the Referee would have to fall within the range 999.79 to 999.89;

- Assays below 999.5 should agree within ±0.15 provided that no significant bias is apparent; for example, the Refiner's assay on a sample assaying 996.73 according to the Referee would have to fall within the range 996.58 to 996.88.

However, it will be deemed acceptable if there is not more than one divergence provided that this is not greater than ±0.25.

2.6 Conclusion of monitoring

The GDL Team will inform the Refiner of the outcome of the assay comparisons as soon as they have been reviewed by the Chief Technical Officer. A table showing the comparison of the anonymised mean assay values will be provided to the Refiner and the Referees which participated. LBMA will provide the Refiner with a certificate confirming the success of the PAM process.

2.7 Provision of comparisons of assay results

For silver dip samples, the LBMA Executive Committee will provide guidance to the Refiner about the differences between its analysis and that of the Referee by highlighting any elements which are found in significantly different concentrations.

2.8 Charges for reference samples and re-testing

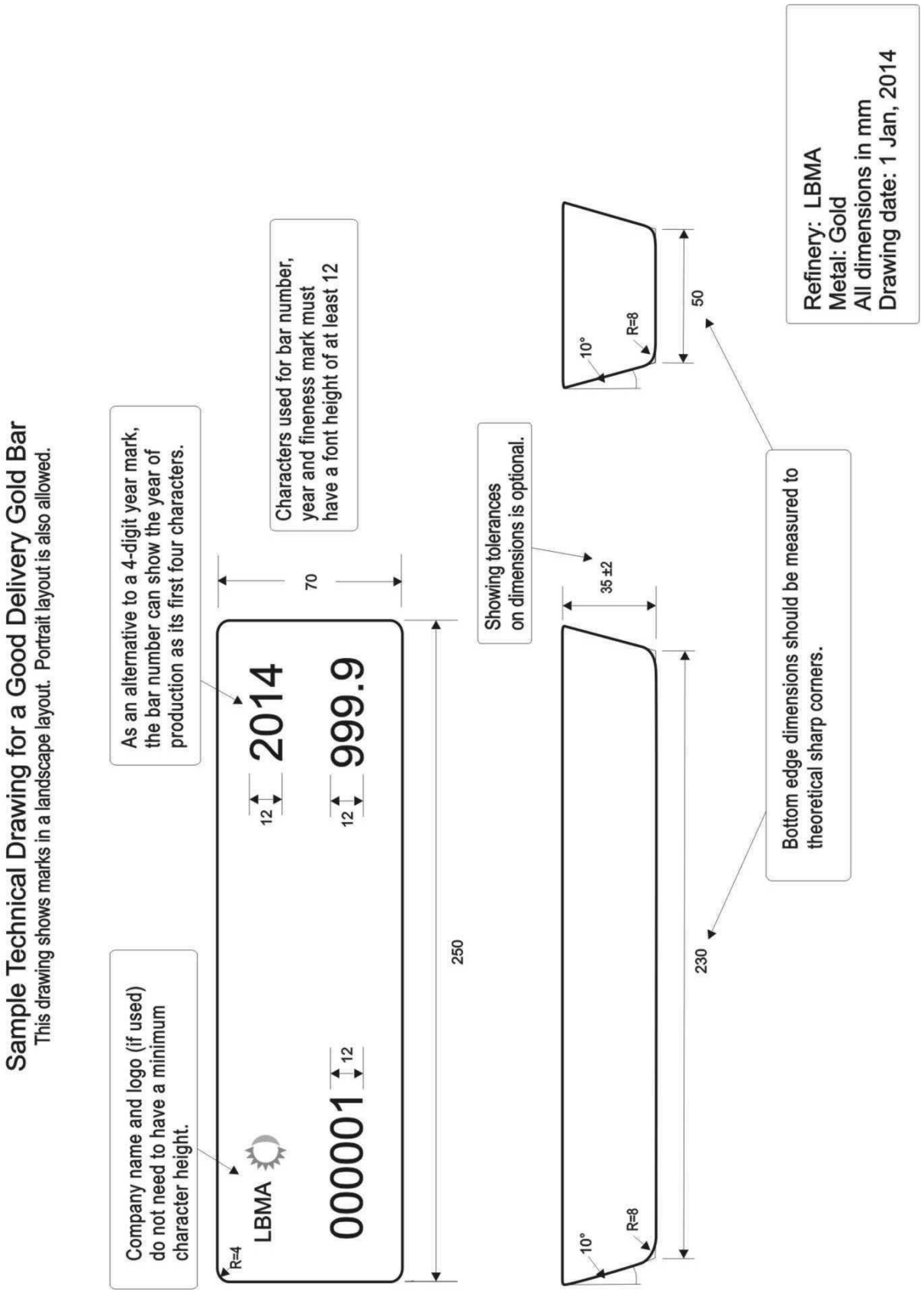
In cases where the comparison of the Refiner's and Referees' dip sample assay results suggests the need for the Refiner's assaying ability to be more thoroughly checked by means of it assaying a small set of reference samples, as described above, there will be an additional charge as outlined on the LBMA website, under the section *Provision of Self-Testing Samples to Bona Fide Applicants.*

The cost of shipment of these samples to the Refiner will be payable in addition.

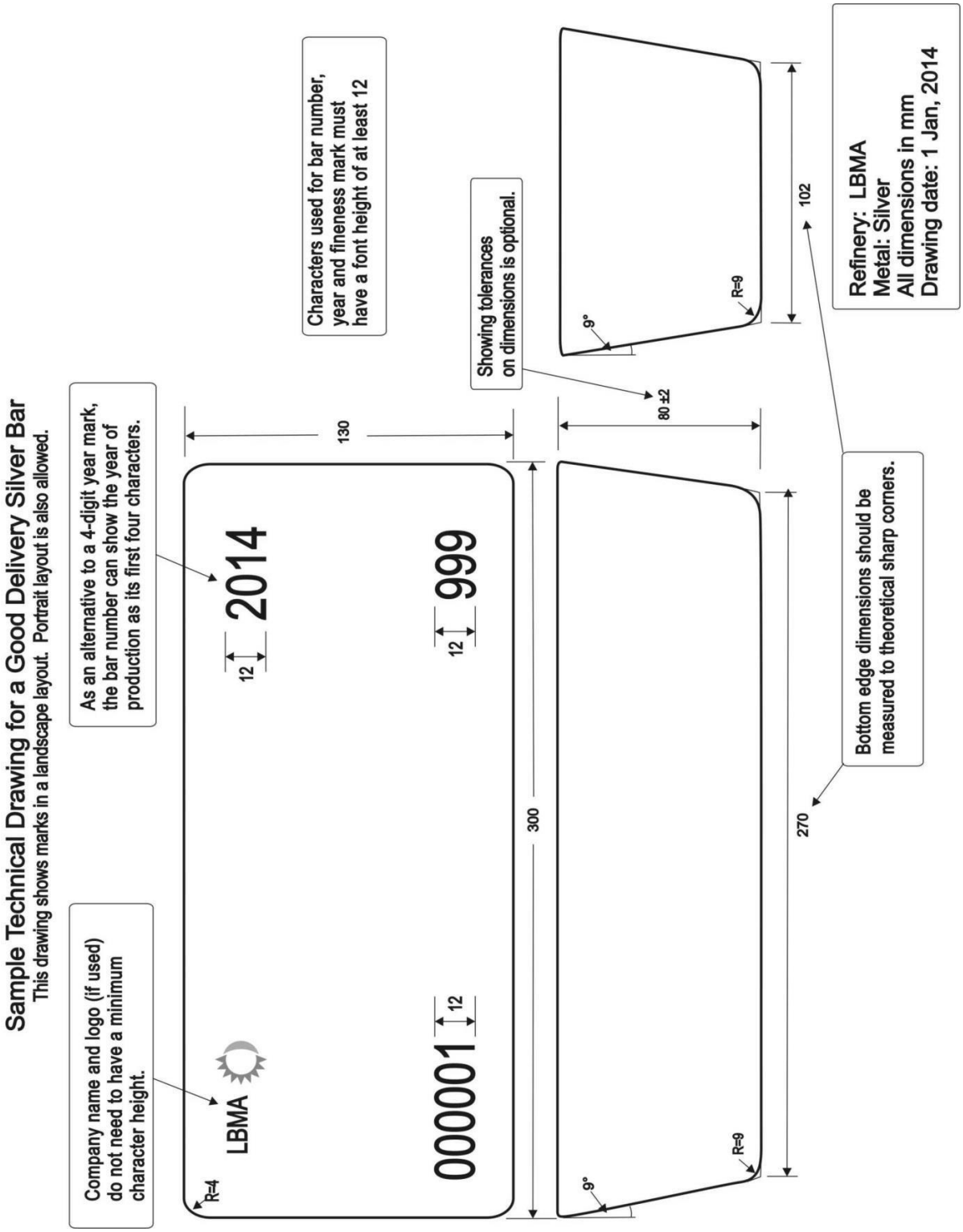
The additional charge for a complete reapplication and re-test of the Refiner's assaying ability and Bars would be the same as for new GD applicants.

Annex I – Specimen Technical Line Drawings

1. 400 Ounce Gold Bar *(Please refer to* General Description of Good Delivery Bars - Marks – *for Inclusion of Two-Digit Month Requirement)*



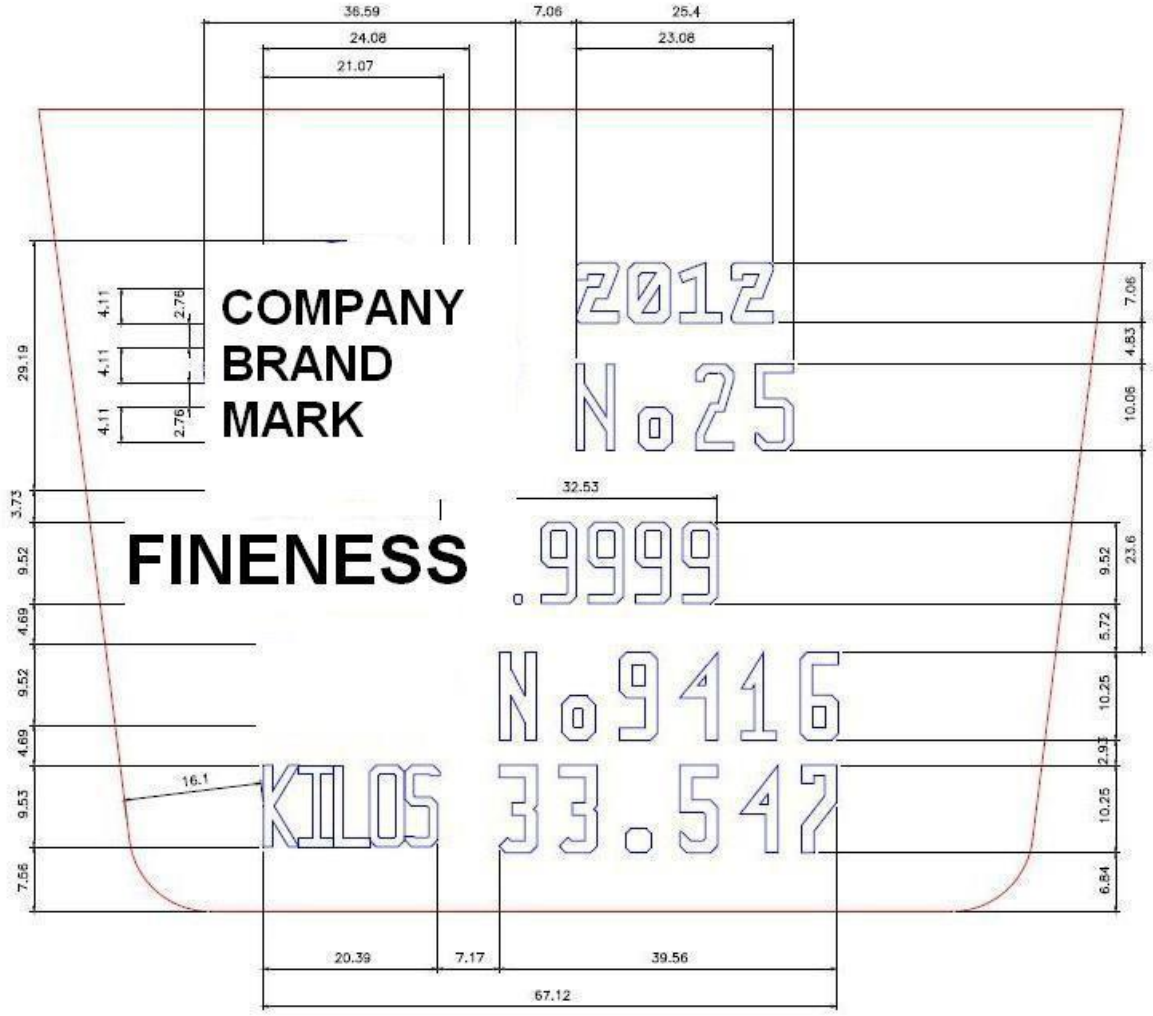
2. 1,000 Ounce Silver Bar *(Please refer to* General Description of Good Delivery Bars - Marks - *for Inclusion of Two-Digit Month Requirement)*



Annex J – Sample of End Stamping of Silver Bars

The layout shown below is not prescriptive but the height of the characters used for the Bar number, year and assay mark should be approximately 10 mm.

(Please refer to General Description of Good Delivery Bars - Marks - for Inclusion of Two-Digit Month Requirement).



Annex K – Residual Elements

Determination of residual elements by spectrographic analysis

GD applicants and Refiners undergoing PAM which use spectrographic analysis for determining the assays of their materials are responsible for identifying and analysing all residual elements present in their Bars or dip samples.

The list shown below is not intended to be prescriptive as far as Refiners are concerned. It merely indicates the elements that the Referees will typically look for when analysing gold and silver samples by spectrographic methods.

Residual Elements

	Gold	Silver
Gold – Au		x
Silver – Ag	x	
Platinum - Pt	x	x
Palladium - Pd	x	x
Rhodium – Rh	x	
Iridium – Ir	x	
Ruthenium – Ru	x	
Aluminum - Al	x	x
As - Arsenic	x	x
Bi - Bismuth	x	x
Ca - Calcium	x	x
Cd - Cadmium	x	x
Co - Cobalt	x	x
Cr - Chromium	x	x
Cu - Copper	x	x
Fe - Iron	x	x
In - Indium		x
Mg – Magnesium	x	x
Mn - Manganese	x	x
Pb - Lead	x	x
Ni - Nickel	x	x
Sb - Antimony	x	x
Se - Selenium	x	x
Si - Silicon	x	x
Sn - Tin	x	x
Te – Tellurium	x	x
Ti – Titanium	x	
Zn – Zinc	x	x

Annex L – LBMA and Good Delivery Brand Guidelines

The guidelines in this document seek to ensure Refiners maintain a consistent and accurate visual representation of the *LBMA Good Delivery Refiner* logo. Correct application of these guidelines will support LBMA in building a clear and consistent recognition of its brand and will serve to reinforce the brand values.

If a Refiner requires guidance with the application of the *LBMA Good Delivery Refiner* logo, LBMA's PR Officer should be contacted.

LBMA requests Refiners to use the 2018 version of the *LBMA Good Delivery Refiner* logo provided upon request with these guidelines.

1. Guidance on Logo use

LBMA prefers Refiners to use the stacked version of the logo wherever possible.

The logo should only be reproduced in two colours - gold and silver, with the name in black or white. Never reproduce it in any other colours.

Maintain a clear and uncluttered space around the logo to maximize the visual impact of the brand.

Always position the logo away from other text, graphic and other design elements.

Always maintain a minimum clear space between the logo and the edge of the page, package or colour field.

Minimum size - setting the logo no smaller than 24mm wide for printed materials will ensure that the logo is always easy to read.

Always ensure that there is a significant contrast between the logo and the background. The preference would be to set the logo on a solid white or black background where possible.

Never use the logo without the word "Good Delivery Refiner" or any of LBMA logos.

2. Where can the Good Delivery Refiner logo be used?

Refiners may use the logo according to the guidelines given above in the following instances:

- Website i.e. homepage footer, specific pages within the site, e.g. products and services, Responsible Sourcing and pages relating to certifications.
- Any promotional, marketing or advertising material or literature, including newsletters, brochures and Annual Reviews.
- Company stationery e.g. letterheads and business cards.
- Specifications for gold and silver products and accompanying documentation relating to large 400 oz gold products and 1,000 oz silver Bars. However, logos should **not** be used on certificates for any other gold and silver products in such a way that implies approval, acceptance or endorsement of such products and/or services by LBMA.
- Alongside the LBMA RSP certificate on the Refiner's website.

3. Logo Use

LBMA's brand mark is elegant and precise. It reflects LBMA's core values of leadership, integrity and trust.

LBMA Good Delivery Refiner logo is a visual representation of LBMA brand and the basis of its identity. Correct use of the logo is therefore of great importance to LBMA.

There are stacked and horizontal versions of the logo. Different versions have been developed for different output requirements e.g. CMYK for print and RGB for online.

Annex M – Incident Review Process

Any incidents or issues that may put the credibility of the GDL and the London Bullion Market in doubt are treated very seriously. LBMA has a standard procedure that enables it to handle such incidents and issues in a systematic way to maintain the credibility of the List generally but the RSP in particular.

This procedure would be invoked in response to a particular stimulus of a reputational nature. It must be viewed as an iterative process, particularly in situations where new information is produced or a situation escalates or deteriorates.

In summary, the procedure is as follows:

1. Receipt/Logging of Complaint/Issue
2. Media and Market Review
3. RGG Audit (or equivalent) Review
4. Auditor Review and Interaction
5. Legal Review
6. Refiner Contact
7. Physical Committee Reporting and Escalation and/or Legal Consultation
8. Action/Sanction
9. Public Disclosure
10. Lessons Learnt
11. LBMA Communication

Sanctions could include suspension subject to resolution or being moved to the Former List with immediate effect. The latter sanction would result in the Refiner being unable to supply Bars with the commensurate severe business implications.