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Scope Of Works Removal of Lime Wash and Timber Treatment.

Applicant:- Mr M. Jarrett.

Address:- Seas End Hall. Moulton Seas End. Spalding. PE12 6LB

Our Ref:- SA/MLJ/001/2025

Date:- 21st Feb 2025

Proposal:- Restoration of Historical Building Internal and External (Grade II)

Principal Contractor: Hardy and Hughes Ltd

Revisions: -

1. Objective

- To carefully remove existing lime wash from basement and Cellar timber beams.
- To treat all beams for active woodworm infestation using heritage-approved treatments.
- To reapply lime wash in accordance with traditional methods, ensuring compatibility with the historic fabric.

2. Pre-Works Requirements

2.1 Permissions and Compliance

- **Listed Building Consent:** Obtain consent from the local planning authority.
- **Heritage Consultant Engagement:** Engage a qualified conservation specialist to advise on all processes and materials.

2.2 Site Preparation

- Protect adjacent finishes and floors with breathable dust sheets.
- Ensure effective ventilation in the basement.
- Conduct full **RAMS** (Risk Assessment and Method Statement) for all processes.

3. Lime Wash Removal Process

3.1 Testing and Sampling

- Perform a **small trial removal** area to confirm appropriate methods.
- Review outcomes with the heritage consultant before full removal.

3.2 Removal Methods

To Be confirmed with SHDC Conservation Officer

- **Dry Brushing:** Use soft-bristled brushes to remove flaking lime wash.
- **Low-Pressure Steam Cleaning:**
 - Use a **DOFF steam system** at low pressure and temperature.
 - Allow beams to dry naturally between treatments.
- **Manual Scraping:**
 - Gently remove softened lime wash using wooden or plastic scrapers.
- **Chemical Poultices (If required):**
 - Apply a heritage-approved chemical poultice for stubborn residues, ensuring thorough removal after the specified dwell time.

4. Woodworm Treatment Process

4.1 Inspection and Preparation

- Inspect all beams for active woodworm signs (e.g., frass, boreholes).
- Identify any areas requiring structural assessment by a conservation engineer.

4.2 Application of Woodworm Treatment

- Select a **heritage-approved, low-toxicity, boron-based woodworm treatment**.
- Apply treatment via brush, spray, or injection, following manufacturer's recommendations.
- Maintain proper ventilation during treatment application and drying.
- Monitor beams post-treatment for at least 48 hours before proceeding.

4.3 Recommended Products

1. Boron-Based Treatments (*Preferred in heritage settings*)

Boron compounds are widely accepted by conservation specialists due to their **low environmental impact**, **non-corrosive** nature, and **deep penetration** without affecting timber breathability.

- **Boron Ultra 12** (by Safeguard Europe)
- **Type:** Gel-based woodworm treatment for deep penetration.

- **Usage:** Brush, spray, or injection application. Suitable for treatment of all types of wood-boring beetles.
- **Advantages:** Low odour, solvent-free, and safe once dry.
- **SoluBor DF**
 - **Type:** Concentrated boron powder for dilution.
 - **Usage:** Applied as a liquid solution to bare timber or injected into boreholes.
 - **Advantages:** Penetrates deeply into timber and offers long-term protection without affecting the timber's breathability.

2. Ethylene Glycol-Based Treatments *(For severe infestations, with caution)*

- **Permethrin-based microemulsions** can be used, but only with **heritage officer approval**, as they introduce solvents.

Recommended Product:

- **Cuprinol 5 Star Complete Wood Treatment**
 - **Type:** Insecticidal treatment for active infestations, also offering rot protection.
 - **Usage:** Brush or spray application.
 - **Considerations:** Check breathability impact and compatibility with future lime wash finishes.

5. Re-Lime Washing Process

5.1 Surface Preparation

- Lightly sand or brush beams to ensure the wood surface is ready to accept lime wash.
- Dampen timber slightly to improve lime wash adhesion.

5.2 Lime Wash Application

- Use **traditional lime wash**, matched to existing finishes in colour and texture.
- Apply lime wash in **thin, even coats** (2–3 coats recommended).
- Allow each coat to **dry naturally**, maintaining adequate airflow.
- Avoid rapid drying (no forced heat) to prevent cracking.

6. Post-Completion Actions

- Conduct a final inspection with the heritage consultant and local conservation officer.
- Provide photographic documentation before, during, and after works.
- Submit a final report detailing:

Relevant Standards & Guidelines

- Historic England Guidance:
 - Follow best practices as outlined in “Conservation Principles, Policies and Guidance” (2008).
- BS 7913:2013:
 - Adhere to the Guide to the Conservation of Historic Buildings for all intervention methods.
- Minimal Intervention Principle:

- Ensure only necessary materials and techniques are used to preserve the historic character.
- Methods used.
- Materials applied.
- Recommendations for future maintenance.

7. Health, Safety & Compliance

- PPE: FFP3 masks, gloves, goggles, and protective clothing for all operatives.
- Manage dust and fumes effectively, with air quality monitoring where needed.
- Dispose of waste materials following environmental regulations, especially if lead-based materials are encountered.

8. Waste Management

- Collect all debris in sealed containers.
- Ensure disposal follows hazardous waste guidelines where applicable.
- Recycle removed lime wash and timber debris where possible.

Lime Wash Mixture Specifications

1.1 Core Ingredients

- **Lime Putty:**
 - Use **matured lime putty** (aged at least 3 months) for superior plasticity and workability.
 - Conforms to **BS EN 459-1 CL90-S** standards.
- **Water:**
 - **Clean, potable water** (pH neutral), free from impurities to prevent staining or weakening the mix.

1.2 Standard Lime Wash Ratio

- **Base Ratio:**
 - **1 part lime putty to 3 parts waters** (by volume).
 - Adjust water content slightly to achieve a consistency similar to full-fat milk.

1.3 Optional Additives (if heritage consultant approves)

- **Casein (Milk Protein):**
 - **3–5% by weight** of lime putty to improve adhesion and durability.
- **Tallow (Animal Fat):**
 - Historically used (up to 5% by weight) for enhanced water resistance but consult a conservation specialist due to potential impact on breathability.
- **Linseed Oil:**
 - Up to **2% by volume** for extra durability, especially in damp environments.

2. Pigment Options for Lime Wash

All pigments must be **alkali-resistant** and historically appropriate.

2.1 Natural Earth Pigments (*Best for listed buildings*)

- **Ochres (Yellow, Red, Brown):** Long-lasting and stable in alkaline lime.
- **Umbers (Dark Brown):** Provides warm, earthy tones.
- **Sienna's (Burnt or Raw):** For rich reddish-brown hues.

2.2 Mineral Pigments

- **Iron Oxides:** Strong reds, oranges, and browns.
- **Carbon Black:** For grey tones but use sparingly to avoid overpowering historical aesthetics.
- **Green Earth (Terre Verte):** Subtle green tones used historically in heritage contexts.

2.3 Pigment Mixing Ratios

- **Maximum pigment load: 10% by weight** of lime solids (lime putty plus dried pigment).
- **Mixing process:**
 - Pre-soak pigments in water before adding to lime wash.
 - Use a mechanical paddle mixer for uniform colour dispersion.

3. Application Guidelines

3.1 Surface Preparation

- Ensure timber is **dampened** before application (but not saturated) to aid adhesion.
- Surfaces must be **free from dust**, oils, or woodworm treatment residues.

3.2 Application Method

- **Brush Application Only:**
 - Use **broad, soft-bristled block brushes** (natural fibres) for best results.
 - Apply using **cross-brushing techniques** to ensure even coverage and traditional texture.
- **Number of Coats:**
 - Typically, **3–4 thin coats**, allowing **24–48 hours** of drying between coats.

3.3 Drying and Curing

- Protect from **direct sunlight, wind, and frost** during drying.
- Ideal drying conditions:
 - **Temperature:** 10–18°C
 - **Humidity:** 50–70%
- Do **not** force drying with artificial heat sources.

4. Compatibility and Testing

- Conduct **test panels** on small, inconspicuous areas to confirm:
 - Colour accuracy after drying.
 - Adhesion and surface compatibility.
 - Interaction with previous treatments and timber species.