Balmerino Abbey

Masonry Consolidation and Repointing Specification

General

Standards of Workmanship

BS 8000:Part 3, 'Code of Practice for Masonry', is applicable to this work but only in terms of standards of workmanship and site practice. Refer to clauses in this specification for information on materials, mortar mixes, working practices and requirements for protection. Where requirements of this specification are at variance with BS 8000 this specification is to take precedence.

Ensure that work matches the standards and details of agreed control samples.

Protection of Works

Prevent damage to stonework and keep all stonework clean during construction and until practical completion.

Protect new lime work from inclement weather until adequately cured by the use of hessian and polythene panels placed over the new work where necessary.

Samples

Provide samples of pointing at locations agreed with for approval and retain for reference and comparison for the duration of the works.

Materials

Mortar mixes as listed below.

Hydraulic lime natural hydraulic lime, as specified, in accordance with ENV 459 Pt 2 or with other approved European standards applicable in the country of origin. Hydraulic lime is to be delivered to the site in sealed paper sacks, stored in dry conditions, and used within 24 weeks of manufacture.

Aggregates are to be type as specified in mortar description and comply with BS 882.

Cement. Do not use Portland or other modern cements for stone masonry work.

Water for mortars is to be clean and free from impurities which would adversely affect the mortar.

Production of Mortars

Batch and mix materials accurately and strictly in accordance with specified quantities and methods recommended by SLCT (see attached report).

PREPARATION WORK

Removing Decayed Lime Mortar & Cementitious Material

Only rake out defective joints that can be removed using hand tools to a minimum depth of at least a twice that of the joint width

Retain all pinnings for replacement as pointing proceeds.

Thoroughly clean out all beds and wash out joists to remove loose debris.

If necessary re-dampen the joint before placing new mortar. For repointing the stonework should be damp but without surface water.

Vegetation Removal

Remove all traces of vegetation and organic matter from the depth of the joint and from adjacent stonework. Refer to Historic Scotland's Technical Advice Note No10 for further information or for use of surface biocides.

STONEWORK

Repointing

Use mortar type B as specified.

Clean out and dampen joints thoroughly before placing mortar.

Where necessary wedge and pin up loose stones.

Insert pinning stones into wide and deep joints to reduce the volume of mortar present in one place.

Build in pinnings as the work proceeds, including where appropriate stone pinnings exposed on the face of the masonry, all to match the original detail or other approved sample.

Bring the mortar well forward slightly beyond the finished pointing surface and allow to stiffen up before finishing the surface.

Keep the mortar slightly damp and work back any initial shrinkage cracking as necessary.

When mortar has stiffened up firmly compact and compress the material back into the joints eliminating any shrinkage cracking, and finish surfaces of the joints by lightly scraping with the edge of a plasterer's small tool or similar until a flush finish has been achieved.

WALLHEAD CONSOLIDATION

Carefully lift individual loose stones recording the positions of the stonework and retaining all pinning stones.

Prepare the exposed bed by filling in voids with lime mortar type A and pinnings

Relay individual stones in their recorded locations in mortar type A re-using.

CURING OF LIME BASED MATERIALS

Protect all new lime mortar work as described below to provide the correct curing conditions for at least two weeks from the time of placement. Where ambient temperatures on site are at or below 8°C during and after placing lime mortar effective protection is to remain in place beyond this 2 week period until the mortar has cured. Protection is likely to involve measures such as hessian sheets (kept damp if required to prevent rapid drying), and polythene sheeting or haps laid over the work.

Control the rate of drying and curing of new lime mortar in order to ensure the material dries slowly from the depth outwards. Avoid premature surface drying and rapid or uneven drying. Where necessary carry out regular mist spraying to maintain this moist condition. Work back initial cracking in the days following repointing. Cracking found after this time, or once the pointing has set/dried should be cut out and replaced.

Protect new lime mortar work from rain and from damage by discharge from rainwater goods.

Protect new lime mortar from frost until cured (i.e. for a minimum of 2 weeks, and for longer as necessary when the speed of curing is reduced by ambient temperatures below about 8 or 10°C) and protect lime mortar from freezing whilst saturated.

MORTAR MIXES

Mortar Type A

Location	Wallhead consolidation mortar
Nature	Eminently/Moderately hydraulic lime mortar
Quantities	2 parts St Astier NHL 5 hydraulic lime: 5 parts Lomond Quarry concrete sand. Gauged accurately by volume.

Mortar Type B

Location	Repointing mortar to wall faces.
Nature	Moderately hydraulic lime mortar
Quantities	2 parts St Astier NHL 3.5 hydraulic lime: 5 parts Lomond Quarry concrete sand. Gauged accurately by volume.