

5110 –Works and Site Information for the Restoration of the North Burial Ground at Glasgow Cathedral

Section One - Introduction/ Preamble - Land and Environmental Services (the Client) intends to restore the Glasgow Cathedral North Burial Ground in Townhead. This restoration of an A listed garden cemetery will involve greening, tree planting and extensive repairs to cemetery walls. This project is driven by the Conservation Management Plan for the Glasgow Necropolis and its Environs, which was approved by Historic Environment Scotland in September 2010.

In its current form the North Burial garden cemetery dates from 1800 and is therefore, extremely important by reason of its age, its proximity to the cathedral, its function as a green space in an area of dense development next to a busy motorway interchange, and the credentials of the Glasgow men, women and children buried there. Lair registers and gravestones record the number of merchants, writers (lawyers), medical professionals, architects and builders, sculptors, servicemen, bankers and manufacturers interred in the New Burial Ground, for which reason it is important that it be retained in good condition so that it can be safely visited. It is a haven of peace for visitors to the infirmary, and unlike the Necropolis, is relatively level and wheelchair accessible. It is open (and overlooked), and so feels safer to visit than many graveyards.



Glasgow Cathedral North Burial Ground - May 2016

Section Two - Benefits of this Restoration Project

- To provide an attractive garden cemetery for the Cathedral and restore significant Victorian retaining walls with the Royal Infirmary.
- To align with the City Council's greening objectives.
- To conserve the cemetery walls at the Cathedral North Burial Ground and prevent their potential failure.
- To restore one of Cathedral's principal heritage assets to its previous splendour.
- To complement other recent works currently on-going in the environs, e.g. extensive stone repairs to the medieval Cathedral, restoration works at the Glasgow Necropolis and restoration works at the East Barony Church.
- To preserve and improve the fabric, infrastructure and appearance of the Glasgow Cathedral and its environs, thereby helping to maintain a quality visitor experience.
- To engender a positive image of the City of Glasgow through heritage regeneration

Section Three – Strategic Overview

This initiative complies with the intentions of the following;

- The City Plan.
- LES Parks and Open Spaces Strategic Best Value Review.
- The DRS Central Conservation Area Appraisal.
- The LES Conservation Management Plan for the Glasgow Necropolis and it's Environs.
- The LES Conservation Mangement Plan for the Glasgow Cathedral North Burial Ground

Section Four - Location - The precise location of the North Burial Ground is in Townhead, G4. It stands North of the Cathedral directly behind the Royal Infirmary. The nearest main roads are the High Street, Castle Street and John Knox Street. The garden cemetery serves the communities of Townhead, Calton, Gallowgate, Bellgrove, Dennistoun and Royston.



Glasgow Cathedral North Burial Ground - 1845

Section Five – An introduction to the Cathedral North Burial Ground

5.1 Brief History - The North Burial Ground at Glasgow Cathedral (aka The New Burial Ground) is an A listed Graveyard, enclosed by three walls made up from the Royal Infirmary and its ancillary buildings (all 'B' listed). This site has been a cemetery for centuries. It is inextricably linked with the Glasgow Cathedral. The existing layout dates from the late 18th century, with an intervention in the 1970s to create the car parks at the West of the site. This exquisite graveyard has a formal layout, being divided into bays by freestanding stone walls. Straight west-east pathways at both north and south give views into parallel bays, which appear on plan to have once had through north south paths in each. There is an exquisite mausoleum, (currently laid flat pending this restoration) and several hundred significant stones laid flat throughout the cemetery, although in the main these are covered by an inch of soil. There are three no. eighty metre long freestanding gravestone walls, perhaps weakened by the removal of cast iron mort safes - which were formerly an integral part of the original propping system. Two of these walls- the most Easterly and the most Westerly - are in reasonable condition considering their age, but the middle of the three walls (Wall B) remains in a perilous condition.

The extent of the burying ground (and the formal use of the land adjacent as a washing green) is shown on Peter Fleming's 1807 map of the city and its "suburbs", the Necropolis still a glimmer in mercantile Glasgow's eye, but the new burial ground substantial in size when compared to the footprint of the cathedral and infirmary. By the publication of the 1857 Ordnance Survey, the sub-division of the ground into "sections" was completed; as was the St. Mungo's Burial Ground of 1832 (it separated the Blind Asylum on Castle Street from the Fever Wards of the hospital). Plots, paths, trees, a small building (apparently a greenhouse), and a formal entrance off Vicar's Alley (and another from the south) were shown on the plan of the New Burial Ground, and as is evidenced by the dates on the earliest gravestones, the purchase of lairs had been well subscribed from the outset, leading to a high number of iron mort safes that were faithfully recorded as part of the survey.

The New Burial Ground was formed as a large quadrilateral, the north-east corner built as an (approximate) right-angle, and the west wall and north-west corner following the line of Vicar's Alley (long called a "Publick Foot Path"). The lairs around the perimeter were numbered from 1 to 121 (the first lair retained by Peter Jardine of Buck's Head), with a number of plots subsequently created on the outer face of the south wall and just at the south-west corner (including one in memory of Glasgow merchant Robert Leckie, whose huge wall tablet has fine barley sugar (or Solomonic) columns).

Three (roughly) 22-inches thick stone walls were erected in the eastern half of the graveyard - two erected by 1821 (A and B) , then C - the most Westerly by 1842). These were perpendicular to the north wall (although some distance from it) and subdivided into twenty-eight or twenty-nine lairs on either side. Set out in front of the perimeter (and Walls A and B) were further (less expensive) burial plots on which horizontal grave slabs could be laid. The lairs on the east and west walls were 9-feet by 9-feet square, those on the north and south walls 12-feet wide by 9-feet deep, and those lined up along Walls A and B were 9-feet wide by 12-feet deep. There was a network of simple continuous paths and occasional tree planting. The western half of the graveyard was left clear in more traditional format for free-standing monuments, and provision was made for a small building that is said to have been a greenhouse, but probably also contained a grave-diggers' bothy (and which by 1952 was a garden hut). The first sale of a plot was registered on 03 March 1801, with the lairs sold in a clockwise direction from the south-west corner, and then south to north (and back again) beginning from the south-east corner of Wall A at 1 and finishing at the south-west corner of Wall C at 170. The plots that were sold with wall space for a memorial tablet were delineated by numerals beautifully carved into the lintel courses.

Walls A, B and C followed a simple format. The walls were built free-standing and without buttresses, the two skins of finished stonework on average as little as 6-inches thick. The two skins were built independently (although undoubtedly there will be some through-stones) with the core filled with broken rubble and mortar. Coping stones linked the two sides of finished ashlar together and (theoretically) prevented water from penetrating the core. Individual plots corresponded to a panel of droved ashlar each, the panels separated from one another by a slightly protruding polished ashlar margin (or pilaster) 10-inches wide. There was a base course, approximately 12-inches high, a continuous lintel course 10-inches high, and an overhanging cope 5-inches high – square-cut on Wall A and saddle-backed on Walls B and C. The average height of the wall was 9-feet above ground level. The yellow/grey

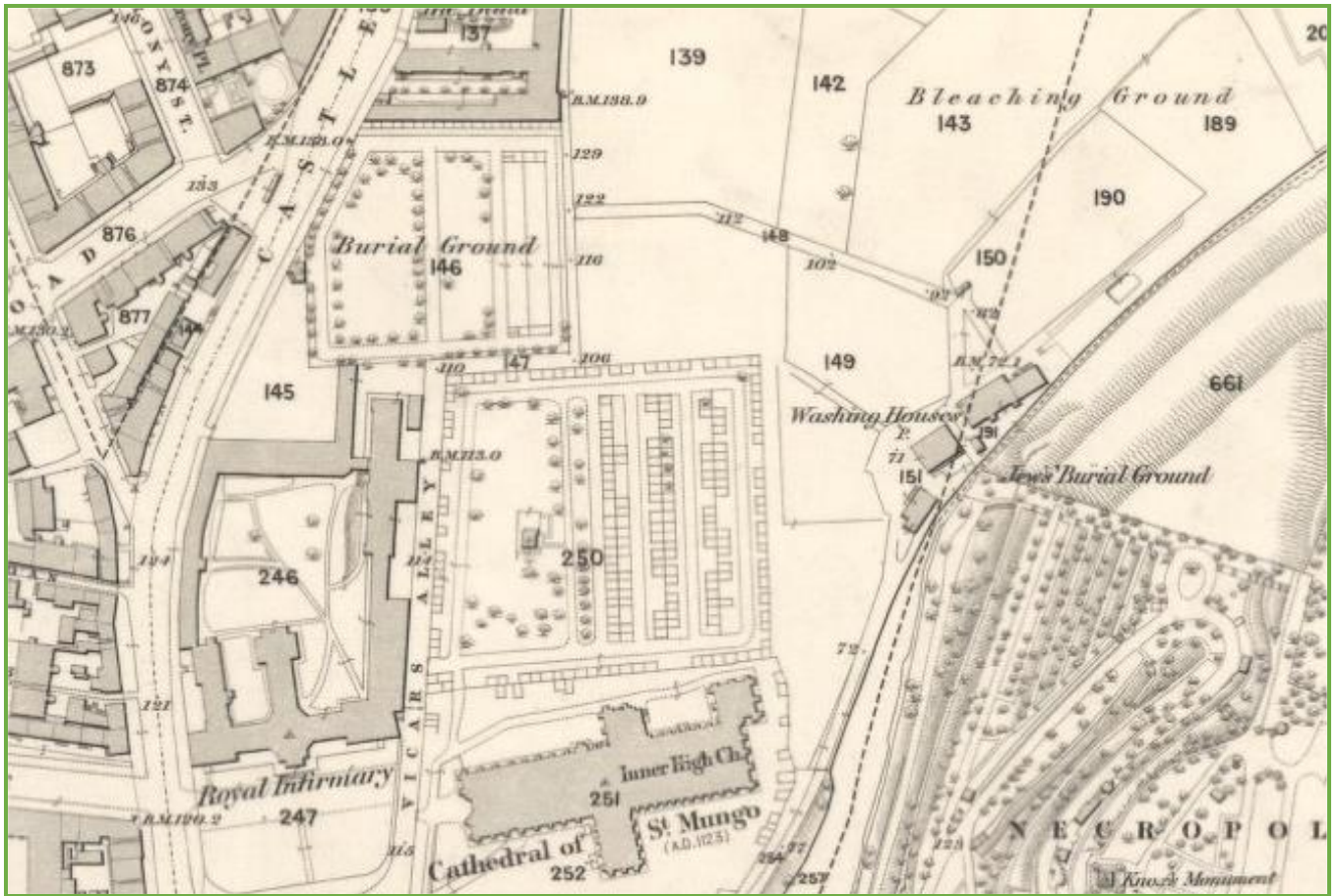
droved ashlar blocks varied slightly in height (but were on average 12-inches high), with the exception of a thinner levelling course of 6½ -inches in height above which 26-inch square sandstone plaques were installed for the purposes of recording ownership. In many cases these were rejected in favour of more elaborate headstones. Of interest is the manner in which the masons followed the contours of the ground by building the stonework parallel to ground level (and so, in wavy format as seen from one end to the other), but inserted the plaques upright, often adjusting the stone courses at the conjoined margins. This creates quite disturbing optical illusions at certain points along the three walls.



5.2 Existing Structures - Three sides of the garden cemetery consist of walls made up from the Royal Infirmary and its ancillary buildings. The cemetery is overlooked by windows in the hospital buildings. The entrance adjacent to the cathedral has been developed for hospital car parking for some 30 cars with apparent disregard for the graves and A listed status of the graveyard. Groups of parking spaces are accessed by two 'roads' heading northwards and eastward into the space. Both are of poorly laid setts and accompanied with various barriers and notices. This is a physical and visual intrusion and desecrates part of the historic graveyard. Despite the overlooking, the intrusion of the cars and the poor state of the fabric, the North Burial ground still feels special. It is a quiet green space with considerable historic significance for many. The fourth side of the cemetery is closed off by long term steel cabins and workshops owned by Historic Environment Scotland (HES) stonemasons who are working on the cathedral. These workshops have their own traffic access.

A stretch of some 25 metres of the 65 metre cemetery wall to the North has collapsed; the condition of the remaining 40 metres has yet to be established. The debris from the fallen section includes red firebrick from the hospital laundry walls and a section of collapsed concrete walkway. There is a working car park in the West of the cemetery. This is a busy site and seems to have been leased to the Royal Infirmary. The entrance to the site is complicated by large bay entrances to the Royal Infirmary which allows hospital supply deliveries from lorries and articulated vehicles.

5.3 Ground Conditions - 70 % of the ground consists of grass lawns, which is likely to have graves, vaults and tombs underneath. The remaining 30% surface consists of hardstanding - being 15% free standing walls and 15% poorly laid out setts which make up a car park for the hospital.



Map of Cathedral North Burial ground circa 1865



Glasgow Cathedral North Burial Ground - Aerial View from 1950's

Section Six - Recommended Conservation Approach to Restoration Works

6.1 Conservation Principles / Aim - The aim of this document and work directed by it is to ensure the conservation and restoration works to the retaining walls in the North Burial Ground are carried out to the highest standard while restoring or replicating damaged, failed or lost elements is accomplished using correct materials and by the original method. The general approach in conservation must be to retain as much of the original historic fabric and method as possible and to create a conservation record for future reference. All of the elements of this project shall be seen as having the same degree of importance and therefore the same requirement for good workmanship.

Section Seven - Schedule of Requirements

7.1 Aims The principal aim of this restoration is to conserve the North Burial Ground retaining walls in order to preserve the graveyard for posterity. There are significant opportunities for interpretation, tree planting and greening of this lovely city centre site which has obvious links with the medieval cathedral. The walls are in fairly poor condition and evidence previous poor quality repairs.

7.2 Stone Repairs - These is a category A listed structure in a cemetery of international import, to this end only time served stone masons and brick layers can be employed on these stone repairs. Priority should be given to addressing structural and accelerated weathering issues, and a 'treat as found' approach should generally be adopted elsewhere unless otherwise indicated. The contractor will clear debris from past wall collapses and sort retaining following for reuse: copes, wall stone and lintels. Bricks and rubble have been used in earlier, poor quality, repairs; these should be removed and replaced with a stone which matches the original. Fallen memorial tablets must be lifted and reset in their original positions. Damaged pieces may be pinned and repaired by skilled stonemasons. Any fallen memorial tablets too badly damaged to be repaired shall be identified, left in situ and the Client notified.

The original 26"-inch square sandstone wall tablets are secure, but those which are fallen or require to be inserted after wall reconstruction should be checked and carefully pinned back in place using stainless steel surface fixings (as small as possible) and pointed all round. There will be some natural stone indents required, but mostly careful lime pointing to joints. Damage is worst to the coping stones, and this is where replacement of sections in matching sandstone will be required. A strategy will be required where the two skins of sandstone on either side of the wall appear to be separating, and where the "through stones" are inadequate. This may involve simple stitching to prevent deterioration progressing, and the occasional steel "mort safe" (or the suggestion of one) might be considered for propping purposes. The walls are Category 'A' listed due to their proximity to Glasgow Cathedral, and provided further deterioration is arrested and leaning sections are propped, there is no need to attempt to replace every damaged stone, or to tidy up the holes left through the removal of the old mort safe roofs: this is part of the history of the graveyard. Critically, however, all plant growth must be killed and its re-emergence prevented through regular maintenance.

Where sections of Wall B have collapsed, re-construction should follow the techniques used in the original wall construction as far as possible, although through-stones could be substituted by invisible stainless steel ties. It will be important that the memorial tablets are returned to their original location. Lengths of walling on either side of the collapsed sections will require to be dismantled and re-erected as part of the reconstruction process. Trial digs will provide information on foundation depths and dimensions which will inform the extent of reconstruction. As much of the original sandstone should be salvaged as possible since it is dimensionally correct and appropriately weathered, although there may be some stones that are damaged beyond re-use. New copes or lintel courses should be re-lettered by a monumental mason (possibly one of the masons working on Glasgow Cathedral) if the originals are lost. It is important that the ground levels are corrected if either too high or too low. A gravel bed against the free-standing walls would ease maintenance.

The south wall is in reasonable condition, but the west and east hospital walls are in need of repair. A similar strategy will require to be developed to stabilise the walls and effect a waterproof flashing or fillet at cope level: most of the damage to the east wall has been caused by the large gap left when the Laundry was erected alongside,

a situation that is not helped by leaking gutters on the building (whose stone walls are themselves exhibiting cracks). Since the graveyard wall was once free-standing, it should be possible to tie the front face of stonework to the back face without disturbing hospital property: much can be learned by removing the fallen stonework from one of the existing collapses and studying the construction. It is worth noting that archive drawings for the Laundry show the floor level at around 6-feet higher than the burial ground level.

In conclusion this contract will include for any conservation work required to the individual pieces, and for the identification, procurement and supply of any pieces which will require replacement. The contractor will check condition of all stone in the wall, submitting repair proposals including replacement of missing sections and damaged stone to match.

7.3 Requirement for Additional Stonework - Much of stonework is in reasonable condition but several sections – equivalent to 10-15% of the total wall area have deteriorated to the point of collapse. To rectify this, the contractor supply additional 'dressed' sandstone or droved ashlar blocks equivalent to rebuild those missing and damaged sections where the original stone is gone.

The characterisation of the original material should be carried out in consultation with a stone specialist who will determine the exact mineral and textural characteristics of the original sandstone. The contractor will quantify the precise amount of whinstone which requires repair. This amount will then be reported to the Client for permission to proceed. The contractor must identify the precise whinstone involved in the original construction, and hopefully source new samples from the original quarry– if not; the contractor must identify an alternative matching sandstone suitable to the Client and to Historic Scotland.

This additional stone can be reclaimed material if it matches the original in-situ sandstone. This reconstruction will also involve the removal of missing, defective mortar, or cement where cement pointing exists and repoint with an appropriate lime mortar mix (St Astier). The contractor will then ensure the removal of organic growth, rebuilding on a sound base.

7.4 Mortar Repairs – The contractor should use St Astier lime mortar. The contractor must remove and restore earlier cementitious repairs as well as old repairs that are loose or evidently causing distress to surrounding original fabric. Where possible, the contractor must remove stone or cementitious repairs to enable assessment of stone condition and appropriate repairs to be carried out. If removal work is found to be too damaging to otherwise satisfactory stone, stop. The contractor must repair localised weathered defect pockets with lime mortar / stone dust mix, and brush back isolated eroded and blistering ashlar blocks to a stable surface if decay is superficial and adequate depth remains; otherwise indent.

Where sound original lime pointing mortar survives the contractor should leave the mortar undisturbed. Where missing, defective, or where cement pointing exists, the contractor should cut out and repoint using hydraulic lime putty with fine sand aggregate to narrower joints and hydraulic lime mortar mix to wide joints. The contractor must pay particular attention to weathering surfaces. The use of lime mortars and resins is only advised when the ambient temperature is above twelve degrees.

7.5 Vegetation and self seeders Vegetation, self seeders and small trees have taken root. These must be carefully removed by hand weeding and the roots poisoned to prevent future damage. Sections of the wall will require to be disassembled in order to remove the significant tree roots. The contractor must repair ivy damage to stone facing work of walls; remove remnant vegetative material and pick away any failing mortar. The contractor will then repoint area of stone damage and jointing mortar damage, use hydraulic lime mortar

Section Eight – Detailed Work Content

These works will be marked out on the map of the Glasgow Cathedral Burial Ground provided with this contract documentation - (5110_Design Layout for Cathedral North Burial Ground) The contractor must visit the site to assess the full extent of these works. LES officers can make themselves available if and when required.

8.1 Item One - At the Southwest entrance to the gardens. The contractor has to break out the granite sett / cubes for an area of some 30 metres x an average of 8 metres - being 240 square metres of hardstanding and remove the cubes to the safety of a LES store in the Necropolis. The contractor will lift 80 metres of kerbing and move this to the Necropolis. The contractor will then soil and seed the area with grass. The contractor will then remove the existing boom gate and install two ornate hanging posts and a heritage gate supplied FOC by the Client.

8.2 Item Two - At the North West corner of the gardens. The contractor has to break out the granite sett / cubes for an area of some 20 metres an average of 8 metres - being 160 square metres and remove the cubes to the safety of a LES store in the Necropolis. The contractor will then lift 60 metres of kerbing and move this to the Necropolis. The contractor will then soil and seed the area with grass. The contractor will then install two ornate heritage bollards supplied FOC by the Client.

8.3 Item Three – The North Retaining Wall (being 99 metres long x an average 4metres high) will be considered in five discrete elements of work.

8.3.1 First 45 metres – (0-45 metres) being the section from East corner at hospital chapel. This section of the retaining wall is in sound condition – requires a light pick and point with St Astier mortar. Two fallen tablets require pinning with non ferrous fixings..

8.3.2 Next 15 metres – (45-50metres) being the next section of retaining wall, which exhibits an alarming bulge. This complete section requires to be dismantled and the stone sorted, then rebuilt after construction of a concrete foundation (15 metres long x 1 metre wide and 0.5 metre deep) This 7.5 cubic metre found to be strengthened by reinforced mesh. The contractor will then rebuild 15 metre x 4 metres of new or recovered redbrick (being 60 square meters of red brick) and then face the wall with 15 metres x 4 metres of recovered sandstone (being 60 square metres of sandstone). This section will be pinned to the hospital with non-ferrous fixings. Lime mortars must be used on both red brick and sandstone cladding. Memorial tablets should be returned to their original location. It is assumed that 90% of the stone can be recovered and re-used and a provision of 10% allowed for new brick and sandstone.

8.3.3 Next 20 metres – (50-70 metres) being the completely collapsed section of the retaining wall.

8.3.3.1 The contractor will lift and sort approximately 64 cubic metres of fallen stone - being 20 metres in length x 4 metres high x 0.8 metres in width. Some 21 metres x 2 metres wide x 0.75 thick granolithic concrete (approximately 31 cubic metres) must be broken up and removed from site.

8.3.3.2 The contractor will construct a concrete foundation (20 metres long x 1 metre wide and 0.5 metre deep) This ten cubic metre found to be strengthened by reinforced mesh.

8.3.3.3 The contractor will rebuild 20 metres x 4 metre new or recovered redbrick being 80 square metres. Lime mortars must be used. It is assumed that 90% of the stone can be recovered and re-used and a provision of 10% allowed for new sandstone.

8.3.3.4 The contractor will rebuild 20 metres x 4 metre new or recovered rubble wall with sandstone facing (being 80 square metres). Lime mortars must be used. Memorial tablets should be returned to their original location. It is assumed that 90% of the stone can be recovered and re-used and a provision of 10% allowed for new sandstone.

8.3.3.5 The contractor will restore the concrete walkway on the hospital side. This will involve a complete rebuild / replacement of 21 metre stretch x 2 metres wide runway. The contractor will then establish the safety of the surviving stretch of runway and if acceptable then a granolithic concrete skin spread over the surviving 25 metre stretch x 2 metre wide stretch of runway. The contractor will ensure that the existing drain system works and water runs away safely.

8.3.3.6 The contractor will clean and paint the cast iron railings. Some 25 metres are missing of which 10 metres are in a Council store. The contractor will recover these and re-instate them. The contractor will cast

15 metres of identical railings and re-instate these in position. The contractor will then paint some 60 metres of railings - brushed back to bare metal then primed with two coat red oxide primer and then one coat undercoat and two top coats oil based black paint.

8.3.4 Next 25 metres – (70-99 metres) being the final section of retaining wall - where the laundry meets the corner with the nurses quarter. The first five metres have missing cope and require light repairs, the condition of the next 24 metres is stretch is fine; the contractor will carry out a light pick and point and also check / secure some 24 metres of coping. The contractor will then remove barbed wire and stanchions/ post arrangements for securing barbed wire.

8.3.5 Reconstruction of the Maxwell Graham Mausoleum. This small mausoleum was disassembled on health and safety grounds in late 2015. The stones for the mausoleum are laid out and numbered in front of the Maxwell Graham wall tablets - as are the cast iron bars from the roof. Once the 22 metre long collapsed section of the retaining wall (8.3.3) is repaired, the contractor will reassemble the stones for the Mausoleum with lime mortar, insert the cast iron roof bars and then provide a mock heritage mild steel gate built to the clients specification. All tree stumps shall be ground out from base.

8.4 Item Four - being the most Westerly free standing wall – This wall is in relatively good condition. It stands 2.10 metres high and is 78 metres long. The contractor will replace 20 linear meters of coping to match the existing sandstone, then copy any numbering - to be carved into replacement coping by a stone mason. The following is a brief condition assessment;

8.4.1 Western face - proceeding South to North

- 0-33 metres - Acceptable condition.
- 33-39 metres – two fallen tablets require pinning.
- 39-50 metres -Acceptable condition.
- 50-52 metres - one fallen tablet requires pinning.
- 52-71 metres – Acceptable condition.
- 71-72 metres - one fallen tablet requires pinning plus grave re-instatement.
- 72-82 metres – Acceptable condition.

8.4.2 Eastern face - proceeding North to South

- 0-39 metres - Acceptable condition.
- 39-40 metres - One fallen tablet requires vertical pinning.
- 40-45 metres - Acceptable condition.
- 45-47 metres - one fallen tablet requires pinning. Bulge at top, 6 stones require resetting.
- 47-63 metres – Acceptable condition.
- 63-68 metres – Three fallen tablets require pinning.
- 66-78 metres – Acceptable condition.

8.5 Item Five – being the middle of the three free standing walls. This wall is in poor condition. It stands 2.10 metres high and is 78 metres long. .36% of the wall requires urgent attention. Approximately 22% has already collapsed and needs foundations then to be completely rebuilt. Another 14% is listing;

The two listing sections require to be secured / propped by the introduction of two mock heritage mort cages - made up of 3 mild steel panels 2 metres wide x 1.8 metres high. The contractor will then install the aforementioned mort safes as props / support systems for the two listing stretches of this walling. - Each panel to be supported by three augured holes 600x150mm in-situ C25 concrete. The contractor will replace 20 linear metres of coping with new stone to match the existing sandstone and copy any existing numbering - to be carved into replacement coping by a stone mason.

The following is a brief condition assessment of the middle wall;

8.5.1 Western face - proceeding South to North

- 0-3 metres requires dismantling, foundations and rebuilt, fallen tablets require pinning.
- 3- 11 metres – Section collapsed – needs foundations and rebuilt, fallen tablets require pinning.
- 11-28 metres - Acceptable condition.
- 28-37 metres – Section collapsed – needs foundations and rebuilt, fallen tablets require pinning.
- 37-39 metres – Listing badly to East.
- 39-68 metres – Acceptable condition.
- 68-73 metres – Listing badly to East.
- 73-78 metres – Acceptable condition

8.5.2 Eastern face - proceeding North to South

- 0-5 metres - Acceptable condition.
- 5-11 metres – Listing badly to East
- 11-37 metres - Acceptable condition.
- 37-38 metres – One fallen stone requires pinning.
- 39-50 metres – Listing badly to East.
- 50-54 metres – Section collapsed – needs foundations and rebuilt, fallen tablets require pinning.
- 54-61 metres - Acceptable condition
- 61-69 metres - Section collapsed – needs foundations and rebuilt, fallen tablets require pinning.
- 69-72 metres - Requires dismantling, foundations and rebuilt, fallen tablets require pinning

8.6 Item Six – being the most Easterly of the three freestanding walls. Basically this wall is in good condition. Proceeding North, there is a collapsed grave at 12-15 metres (Hugh Smith lair) and the coping at 35-55 metres is poor. At 44 metres there is a fallen tablet which needs pinning.

8.7 Item Seven – being the East retaining wall with the hospital from the link corridor to the nurse's quarter. – 94 metres long x 1.5 metres high. Vigorous ivy growth has caused inward rotation and bulging of this stretch of wall. Two collapsed sections need rebuilt consisting of some fourteen linear metres and another three metres are bulging so will also require rebuilding. Approximately 35 metres of the coping needs replaced and there are evident problems with self seeders and branches which need to be removed.

8.7.1 Condition Proceeding South

- 0-13 metres – Acceptable condition.
- 13-19 metres –Section collapsed – needs foundations and rebuilt
- 19-40 metres –Acceptable condition
- 40-43 metres – Wall bulging - needs disassembled, foundations then rebuilt
- 43-51 metres – Section collapsed – needs foundations and rebuilt
- 51-94 metres –Acceptable condition

8.8 Item Eight – Being a pile of spoil approximately 24 metres x 3 metres. There are around six headstones laid out here (possibly by HES) which need to be protected- then the rest of the arisings removed – an area of some 60 cubic metres.

8.9 Item Nine - Being a pile of spoil approximately 14 metres x 4 metres – an area of some 56 cubic metres of arisings requires to be removed.

8.10 Item Ten – being a collapsed section of the Southern perimeter wall immediately adjacent to the HES workshops. This will require the rebuild of an area some 4metres x 2.5 metres high – an area equivalent to 10 square metres of sandstone.

8.11 Item Eleven – Arbor Works

- 8.11.1 – To crown lift nineteen (19 no.) mature trees to a height of three metres. These trees are situated at the North West of the cemetery - adjacent to the hospital car park.

Section Nine - Expectations on Contractors

The contractor will be expected to provide a holistic overview and consider the approaches and environs of the Cathedral and its Burial ground during this restoration project. The contractor must work in a logical, methodical manner; no damage should be caused to the ornate headstones or sandstone wall tablets during these works, likewise the contractor should recognise that the unstable walls may be dangerous to his own operatives.

There will be a considerable amount of working at heights on this job either on scaffolding or through the use of cherry pickers. The successful contractor must respond to the City Council's Risk Assessment file and CDM documentation.

The contractor will comply with the Council's Designer Risk Assessment for this project and offer sound solutions to the access restriction issues in their various method statements.

Scaffolding would be erected, with suitable covered protection to keep the retaining walls dry and safe from the elements during works. Elements of these works would be also carried out from a cherry picker. The scaffold will feature an anti-climb ground level perimeter with a locked entrance point. Illustrated panels will be attached to the railings providing project information to the public. It would also be advisable to erect Heras fencing as required. Welfare facilities with a toilet and washing facilities would also be located at the site

Identification of client's materials - when any components, such as any sandstone wall tablets or droved ashlar blocks are removed for the duration of works and transferred to the contractor's workshop environment, these should be clearly labelled individually as being "The Property of Glasgow City Council".

Safe public access during park opening hours and public safety at all times must be the paramount considerations. The working area should be closed off however the successful contractor must maintain a controlled pedestrian access throughout the cemetery during the construction phase. Proposals will be laid out in the contractor's method statement.

The North Burial Ground is a busy site, with a high tourist footfall exacerbated by traffic and parking from the hospital - so the contractor should be conscious at all times of the rigorous safety requirements these restorations will entail. The perimeter must be screened off with robust fencing to protect visitors and tourists as this site is immediately adjacent to the entrance to Glasgow cathedral and the goods entrance to the Royal Infirmary. The cemetery site must be lockfast at all times and the public should not be able to gain access to the hospital walls or free standing walls during restoration works. This consideration applies to nighttimes and at weekends. Plant should be locked down, fencing must be padlocked and ladders and tools removed from the site when the contractor leaves each night - for obvious safety requirements.

The contractor shall comply with Glasgow City Council 'Safety at Buried Services and Overhead Cables' procedures which will be enclosed in the contract documentation. Where needed, correct lifting practice should be adhered to when hands on labour is required. All contractor's operatives are required to be trained in the safe use of cementitious materials including possible hazards & treatment procedures. This to include mortar, paraloid, dust and stone mixes. Likewise all operatives involved in removing or laying bitumen / macadam / related materials will be fully trained and are versed in the current guidelines on safety.

Contractors should evidence that they are capable of producing a satisfactory method of work statement for dismantling, repair and re-assembly of any stone. Contractors should evidence that they have adequate purchasing systems in place to acquire and deliver any replacement stone or mortar within the short lead times involved. Likewise they must evidence that their purchasing systems can source sub-contractors as required, sufficient adequate heavy duty vehicles, scaffolding and plant as required. This will involve vans, lorries, lifting frames, rated slings and shackles, cherry pickers, low loaders, transit boxes, DOFF machines, thermatec and gv6 steam generators.

These works will be carried out in prominent public location. In this light the contractor should evidence that they understand the ethos of a 'Considerate Contractor' and are capable of responding timeously to the needs of the Client and perhaps even the Press Office of Glasgow City Council.

The contractor must evidence that they employ or will engage conservators and stone specialists capable of working to the restoration standards dictated by the Client and Historic Scotland. Only experienced craft trained stone masons and brick layers should be engaged on the restoration of the stonework.

Contractors should evidence that they have worked on other projects supervised by Historic Scotland. During the restoration and re-construction stages lime based mortars approved by Historic Scotland must be used in every instance – likewise no ferrous components should be used as part of this restoration process.

The contractor shall comply with the following Noise Considerations – the immediate area contains a hospital, a cathedral and a museum. This development is likely to be extremely noisy and may interfere with office business. In terms of the Control of Pollution Act 1974, the normal hours recommended for carrying out noisy work would be:

- Monday to Friday: 8am to 7pm
- Saturday: 8am to 1pm
- Sunday and Public Holidays: No noisy operations

Any generators should be run silent type or preferably battery operated. Neighbour notification, with a contact number for an officer overseeing the development, in addition to a number for the contractor, is essential.

The best practicable means of minimising noise must be used and guidance is given in British Standards BS 5228 entitled “Noise Control on Construction and Open Sites” The following examples are applicable:

- For any particular job the quietest plant and/or machinery should be used. Where appropriate it must be constructed to meet the requirements of EEC Directives;
- All equipment should be maintained in good mechanical order and fitted with the appropriate silencers, mufflers or acoustic covers;
- Stationary noise sources should be sited as far as possible from noise sensitive developments and where necessary, acoustic barriers should be used to shield them;
- Any piling should be carried out by the method of causing the minimum of noise and vibration, sheet steel piling whether permanent or temporary should be driven by vibratory jacking or box silenced percussion systems or a combination of these methods subject to the requirements of the Council;
- The movement of vehicles to and from the site must be controlled and should not take place outside the permitted hours unless with prior approval, employees should be supervised to ensure compliance with the noise control measures adopted.

The contractor shall comply with the following Light Considerations. - Any floodlights placed in the vicinity of the hospital or the cathedral should be positioned to ensure no disruption or inconvenience. The contractor shall comply with the following Dust/Dirt Considerations. - Measures require to be put in place to suppress production of dust as part of the development. The contractor should be required to put in a daily regime to keep the surrounding carriageways and footpaths clean.

Section Ten - Indicative Pictures of the work requirements

















