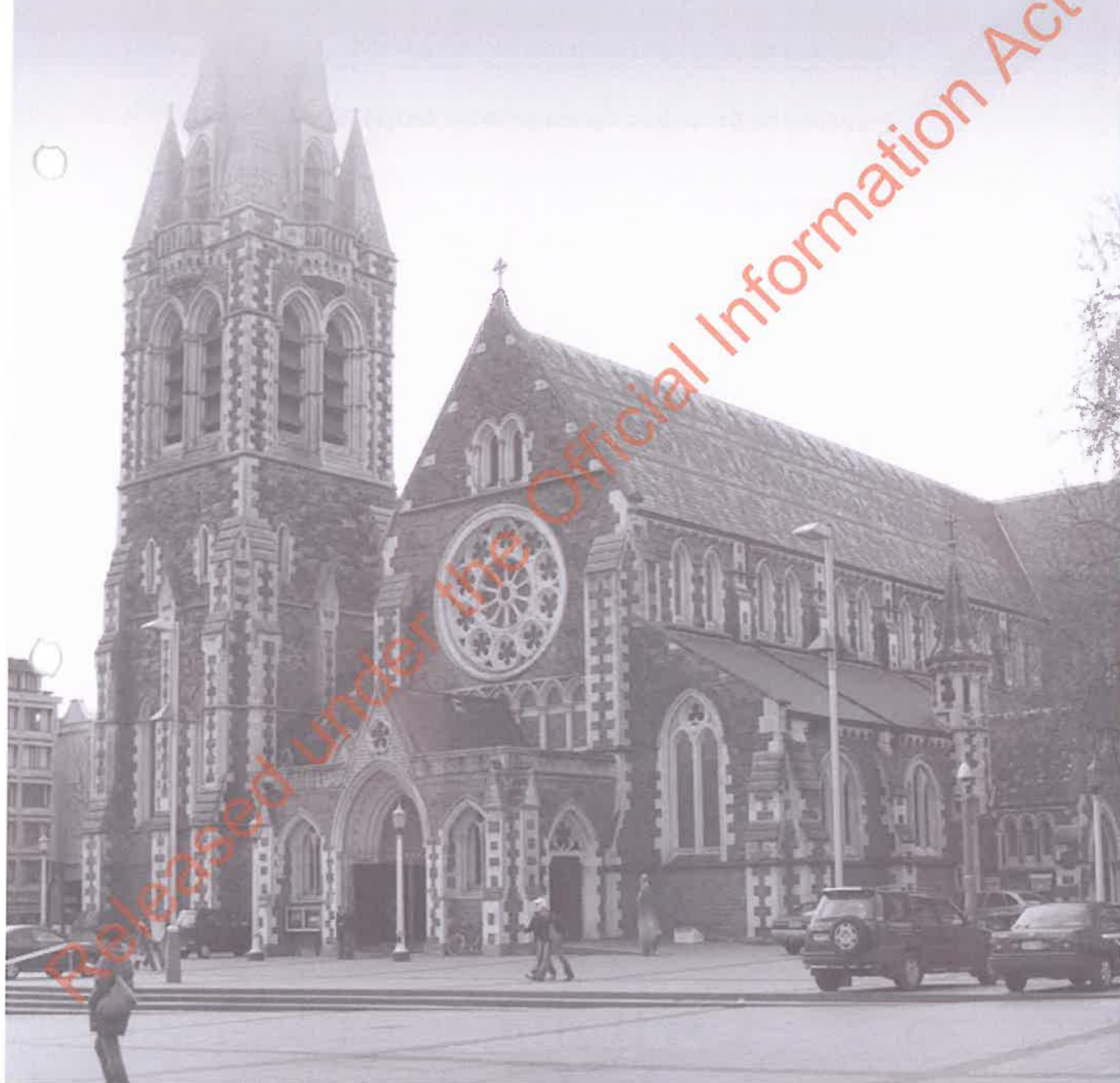


**APPENDIX 2: ARCHAEOLOGICAL
ASSESSMENT OF EFFECTS**

Released under the Official Information Act 1982

CHRISTCHURCH CATHEDRAL PROPOSED REINSTATEMENT

Archaeological Assessment of Effects
Prepared for the Cathedral Working Group
November 2016



Archaeological Assessment of Effects of the proposed reinstatement of ChristChurch Cathedral, 100 Cathedral Square, Christchurch

Commissioned by the Cathedral Working Group

Prepared by Dr Andrea Farminer MCIFA, Origin Consultants Ltd

November 2016



Architecture Heritage Archaeology

Origin Consultants Ltd 9 Arrow Lane, Arrowtown & Level 4, Security Buildings, 115 Stuart Street, Dunedin

Executive Summary

This report undertakes an assessment of the effects of the proposed stabilisation and reinstatement scheme for ChristChurch Cathedral on the archaeological values and significance of the site. This has been carried out in line with the requirements of the *Heritage New Zealand Pouhere Taonga Act 2014* on behalf of the ChristChurch Cathedral Working Group. The proposed scheme comprises geotechnical ground investigations, stabilisation works to make the Cathedral structure safe, and reinstatement works to repair the building for use once again. This programme of works will take a considerable number of years to achieve, and has the potential to require a degree of alteration along the way, in order to respond to repair and construction issues as they are encountered on site during the stabilisation and reinstatement phases. In accordance with the Act, the Assessment of Effects has considered the sub-surface effects of the proposed scheme and has made a series of recommendations to mitigate the outcomes of its assessed impacts.

The assessment has identified that ChristChurch Cathedral is a Category 1 Historic Place and an archaeological site of high historic value. It embodies both the Anglican religious and secular ideals held by the early settlers of Christchurch and the Canterbury region from the 1850s, whose endeavours to establish and construct the Cathedral over a forty year period from 1864, were not fulfilled until its completion in 1904.

The site of the Cathedral was also known and utilised by Māori in the centuries before the arrival of European settlers in the early 19th century, when the Christchurch landscape was mostly swampy wetland. The archaeological and cultural significance of the Kōiwi tangata/human reburials found during the construction of the Cathedral visitor centre in 1995 (Site M35/489) is high, and forms part of the longer story of the Cathedral site and its use by different cultures over several hundred years.

Today, ChristChurch Cathedral is a symbol of the devastation caused by the 2010 and 2011 seismic events in eastern Canterbury and stands in ruins in the centre of Cathedral Square. Its deconsecration in November 2011 removed the Cathedral as a place of worship, but did not remove its outstanding archaeological and cultural heritage significance to ChristChurch and the country as a whole.

At its core, the reinstatement proposals are focused on delivering a safe and workable scheme that will start with understanding the stability of the Cathedral site in more detail, through geotechnical investigations which will examine the ground deposits around the site. The stabilisation works are designed to make the structure safe in order to carry out the reinstatement phase of works. These comprise the insertion of bracing frames to key building elements, selected deconstruction of badly damaged masonry sections in advance of their later reconstruction (e.g. the west porch); the shoring of columns and piers, and reconstruction of selected collapsed sections of masonry and roofing (e.g. the north aisle).

The reinstatement works have been designed to provide a light level of protection to occupants and passers-by; to preserve and protect the heritage fabric of the Cathedral to the extent practicable; to improve its seismic resilience; and to provide a space that reflects modern worship needs. The key elements of this work will involve strengthening the building's structure through the use of a number of different methods, and stone masonry repairs using both in situ repair and reconstruction approaches. Finally, it is proposed to install a base isolation system for the Cathedral, which will provide a greater level of resistance during the occurrence of a future seismic event. This involves the insertion of new foundation beams

along and through the existing concrete foundations and the insertion of specialised isolation bearings that will reduce the amount of lateral seismic force transmitted from the ground to the Cathedral building. The interior columns will also be isolated, which will require the removal and replacement of the Cathedral floor.

Overall, the assessment has identified that there will be adverse effects from the proposed scheme on the archaeological significance of the Cathedral site from the sub-surface impacts. However, a series of recommendations for the archaeological monitoring, recording and, if necessary, investigation of the cathedral's foundations, floor and surrounding grounds have been made. These have been designed to maximise the amount of archaeological evidence recoverable from the proposed ground works, in order to expand and deepen the current understanding of the Cathedral's construction history. A recommendation has also been made for an archaeological On-Call Procedure and cultural monitoring by Iwi to be integrated into the overall project, so that significant archaeological deposits relating to Māori, if present, can be appropriately and sensitively addressed if they are encountered.

Released under the Official Information Act 1982

Contents

Executive Summary	i
Introduction	5
Statutory Requirements	7
Assessment Methodology	9
Physical Setting and Description of the Cathedral Site	10
Historical Background	14
Previous Archaeological Work	26
Summary of Research Results	28
Constraints and Limitations	29
Archaeological and Other Values	29
Assessment of Effects	32
Conclusion and Recommendations	39
References	44
Appendix A: Site Record Form	45
Appendix B: Proposed Stabilisation and Reinstatement Outline Designs	46

Figures

Figure 1: General location of Christchurch and the CBD. Map: Google Maps 2016	5
Figure 2: Detailed location and extent of the ChristChurch Cathedral assessment boundary (approximately following the line of the current perimeter fencing). Map: Google Maps 2016	6
Figure 3: Detailed aerial photographic view of the ChristChurch Cathedral site and east end of Cathedral Square in 2016. Image: Stuff.co.nz	10
Figure 4: The west front of ChristChurch Cathedral prior to the 2011 earthquake event. Photograph: Salmon Reed Architects	12
Figure 5: The Cathedral after the series of seismic events during 2011 and the partial demolition of the tower. Photograph: http://www.vengavalevamos.com/2016/03/christchurch-new-zealand/	12
Figure 6: An interior view of the Cathedral nave looking east towards the chancel and apse (pre-earthquake). Photograph: Wikimedia Commons	13
Figure 7: A view of the Cathedral interior after the earthquake with building damage	

- and collapsed material evident. *Image: Getty/Huffington Post* 13
- Figure 8: A view of the Cathedral under construction around 1880; the transept roofs are being erected and the eastern apse is partly built. *Photograph: Christchurch City Libraries* 16
- Figure 9: The chancel and apse under construction circa 1901. *Photograph: Christchurch City Libraries* 17
- Figure 10: An interior view of the Cathedral looking west to the rose window; date unknown but around the time of its completion. *Photograph: Christchurch City Libraries* 18
- Figure 11: An interior view of the Cathedral nave under construction circa 1878, looking towards the western end. The concrete bases for the stone columns are visible although the foundation level below the unfinished walls is harder to distinguish. *Photograph: Christchurch City Libraries* 24
- Figure 12: A slightly later view of the interior progress taken circa 1879 with the Rose window under construction. *Photograph: Christchurch City Libraries* 24
- Figure 13: A view of the nave floor with the Minton tile covering. *Image: www.eyeofthefish.org* 25
- Figure 14: Maw and Co tiles from the Creyke Porch. *Image: ww.tilesoc.org.uk* 26
- Figure 15: Recorded archaeological sites within the Cathedral assessment area (outlined in red); site M35/489 is located within the assessment area. *Source: New Zealand Archaeological Association* 27

Introduction

The following report undertakes an archaeological assessment of the effects of the proposed stabilisation and reinstatement scheme for ChristChurch Cathedral. The proposed scheme has been prepared by the Cathedral Working Group and comprises geotechnical ground investigations, stabilisation works to make the Cathedral structure safe, and reinstatement works to repair the building for use once again. This programme of works will take a considerable number of years to achieve, and has the potential to require a degree of alteration along the way, in order to respond to repair and construction issues as they are encountered on site during the stabilisation and reinstatement phases. However, the scope and scale of the accumulated impacts of the scheme are considered as being unlikely to vary significantly in their resulting effects on the archaeological and historic values of the Cathedral site identified in this report. As a consequence, these are similarly unlikely to significantly vary the archaeological recommendations for mitigation they will incur.

This report has been laid out in accordance with the guidance and templates for undertaking Archaeological Assessment of Effects (AGS2 and ATS1) published by Heritage New Zealand Pouhere Taonga in line with the Heritage New Zealand Pouhere Taonga Act 2014.

The location of the ChristChurch Cathedral site is illustrated in Figures 1 and 2. The Cathedral is located at 100 Cathedral Square, Christchurch (Lot 1 DP39475 SO10333).



Figure 1: General location of Christchurch and the CBD. Map: Google Maps 2016

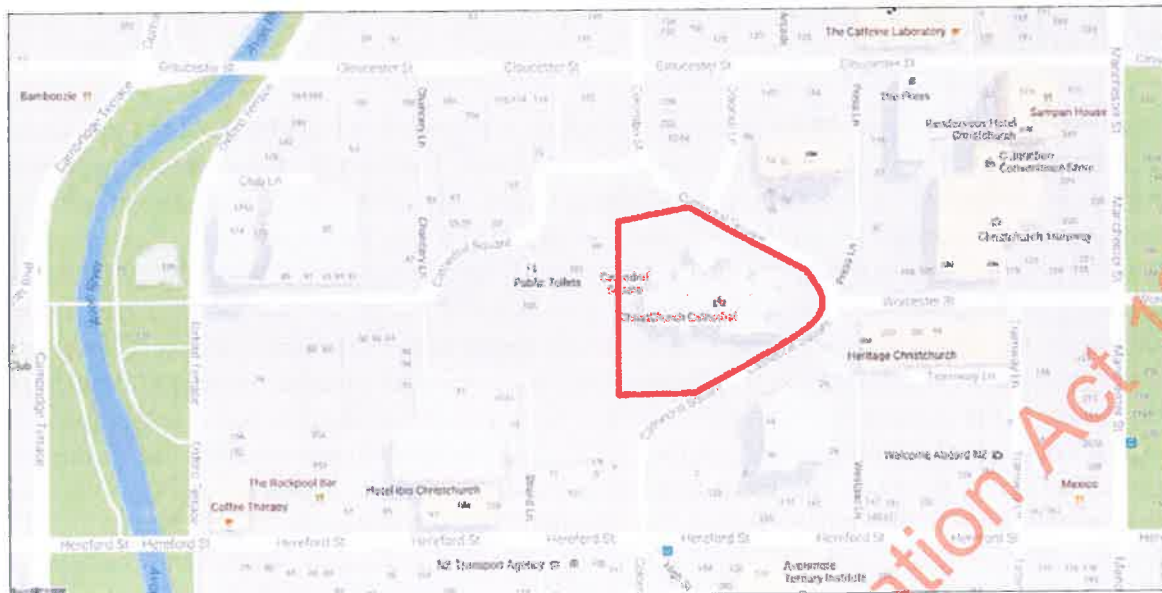


Figure 2: Detailed location and extent of the ChristChurch Cathedral assessment boundary (approximately following the line of the current perimeter fencing). Map: Google Maps 2016

Background to the Cathedral Assessment

[Summarised with amendments from Homes Consulting Group report, 2016]

The ChristChurch Cathedral was initially damaged in the Canterbury earthquake sequence, which commenced on 4th September, 2010. The Lyttelton aftershock of 22nd February 2011 caused locally severe damage, including principally the failure of the spire, which in turn damaged the north aisle, north porch roofs and the west wall. Subsequent aftershocks, in June and December 2011 caused further minor damage; as the damage has aggregated, the Cathedral has become increasingly vulnerable.

The building has been permanently barricaded since the Lyttelton earthquake and a large timber and steel barrier was installed in 2014 along the northeast and southeast street frontages to allow the reopening of the square to traffic. A series of temporary securing and strengthening options have been prepared since the earthquakes, exploring different levels of reinstatement and strengthening objectives, ranging from a pure restoration through to a full contemporary replacement. No firm decision has yet been reached.

In November 2015, the Government appointed Miriam Dean Q.C. to facilitate discussions between engineers (Holmes Consulting Group, for Church Property Trustees and Dunning Thornton for the Greater Christchurch Buildings Trust) on the cathedral's condition and engineering options for its "repair, restoration or replacement". Their report concluded broadly that "there was no significant engineering disagreement in principle and that the reinstatement of the Cathedral would be possible by a combination of repair, restoration, reconstruction and seismic strengthening". Subsequently the Government has appointed a further Working Group, tasked with identifying "feasible, achievable and fully costed options to progress the reinstatement of the ChristChurch Cathedral."

On the 7th September 2016 members of the Working Group met with John Hare, Adam Thornton and Grant Wilkinson together with the quantity surveyors to the project (David Doherr (BBD), Julian Mace (Rawlinsons) and Lindsey Rhodes (Rhodes and Associates)), to workshop a number of engineering issues and in particular:

- Initial stabilisation
- Strengthening methodologies
- Potential internal modifications to improve sight-lines and level out the ground floor

The scheme of work presented as part of this archaeological assessment report is the result of that workshop. Although some repair and construction details may change across the lifespan of the Cathedral reinstatement project, these variations are not considered likely to significantly affect the overall scope and broad detail of the work assessed in this report.

Statutory Requirements

There are two main pieces of legislation in New Zealand that control work affecting archaeological sites. These are the *Heritage New Zealand Pouhere Taonga Act 2014* ('HNZPT Act 2014') and the *Resource Management Act 1991* (RMA).

Heritage New Zealand Pouhere Taonga ('HNZPT') administers the HNZPT Act 2014. The Act contains a consent (authority) process for any work affecting archaeological sites, where an archaeological site is defined as (a) any place in New Zealand, including any building or structure (or part of a building or structure), that:

- (i) Was associated with human activity that occurred before 1900 or is the site of the wreck of any vessel where the wreck occurred before 1900; and
- (ii) Provides or may provide, through investigation by archaeological methods, evidence relating to the history of New Zealand; and
- (iii) Includes a site for which a declaration is made under section 43(1)

Any persons who intend carrying out work that may damage, modify or destroy an archaeological site, or to investigate a site using invasive archaeological techniques, must first obtain an authority from HNZPT. The process applies to sites on land of all tenure including public, private and designated land. The HNZPT Act 2014 contains penalties for unauthorised site damage or destruction

The archaeological authority process applies to all sites that fit the HNZPT Act 2014 definition, regardless of whether:

- The site is recorded in the NZ Archaeological Association Site Recording Scheme or registered by HNZPT,
- The site only becomes known about as a result of ground disturbance, and/ or
- The activity is permitted under a district or regional plan, or a resource or building consent has been granted.

Once an authority has been granted, modification of an archaeological site is only allowed

following the expiration of the appeals period or after the Environment Court determines any appeals. Any directly affected party has the right to appeal the decision within 15 working days of receiving notice of the determination. Heritage New Zealand may impose conditions on the authority that must be adhered to by the authority holder (Section 52). Provision exists for a review of the conditions (see Section 53). The authority remains current for a period of up to 35 years, as specified in the authority. If no period is specified in the authority, it remains current for a period of five years from the commencement date.

The authority is tied to the land for which it applies, regardless of changes in the ownership of the land. Prior to any changes of ownership, the land owner must give notice to Heritage New Zealand and advise the succeeding land owner of the authority, its conditions, and terms of consent.

HNZPT also maintains the List of Historic Places, Historic Areas, Wahi Tapu and Wahi Tapu Areas. The List can include archaeological sites. The purpose of the List is to inform members of the public about such places and to assist with their protection under the Resource Management Act (1991).

The RMA requires City, District and Regional Councils to manage the use, development, and protection of natural and physical resources in a way that provides for the wellbeing of today's communities while safeguarding the options of future generations. The protection of historic heritage from inappropriate subdivision, use, and development is identified as a matter of national importance (section 6f).

Historic heritage is defined as those natural and physical resources that contribute to an understanding and appreciation of New Zealand's history and cultures, derived from archaeological, architectural, cultural, historic, scientific, or technological qualities.

Historic heritage includes:

- historic sites, structures, places, and areas
- archaeological sites;
- sites of significance to Maori, including Wahi Tapu;
- surroundings associated with the natural and physical resources (RMA section 2).

These categories are not mutually exclusive and some archaeological sites may include above ground structures or may also be places that are of significance to Maori.

Where resource consent is required for any activity the assessment of effects is required to address cultural and historic heritage matters (RMA 4th Schedule and the district plan assessment criteria).

A number of sites are recorded on the New Zealand Archaeological Association Site Recording Scheme in the vicinity of the Cathedral assessment area; these are discussed in the section 'Previous Archaeological Work'.

The Cathedral is included on the List of Historic Places maintained by Heritage New Zealand Pouhere Taonga as Cathedral Church of Christ (Anglican); No. 43; Category 1; 100 Cathedral Square, Christchurch. A Category 1 historic place is one of 'special or outstanding historical or cultural heritage significance or value'.

The Cathedral is listed on the operative Christchurch City District Plan (Vol 3, Part 10, Appendix 1) as: 100 Cathedral Square, 1864-1904, Christ Church Cathedral, Group 1, Lot 1 DP39475 SO10333.

The Cathedral was deconsecrated as a place of worship by the Anglican Church in Aotearoa, New Zealand and Polynesia on 9th November 2011.

A previous Authority (No. 2012/549eq) was issued by the New Zealand Historic Places Trust on 13th January 2012, for Phase 1 make Safe Works, under the Canterbury Earthquake (Historic Places Act) Order 2012. The Phase 1 make Safe Works proposed the deconstruction of certain parts of the building (primarily the Tower) and the erection of steel bracing and other support structures. This work was carried out between 2012-2013 and reported on in 2013 (HCA 2013).

Assessment Methodology

This assessment was informed by two key elements of research; desk-top archival, historic and archaeological information already recorded and published for the Cathedral site, and site-specific inspection data taken compiled from brief visits undertaken to the Cathedral in 2012-13. No close-up inspection of the Cathedral site has been possible for this assessment due to the earthquake damaged sustained by the building in 2011.

The desk-top assessment methodology consulted a wide range of archival sources to record and clarify the historical development and chronology of the Cathedral assessment site and its heritage values. The assessment used the following types of sources to trace the development of the Cathedral:

- 19th and 20th century surveyors maps.
- Certificates of Title and land transfer surveys (QuickMaps; LINZ).
- Aerial photographs and other survey information (source).
- Previously researched photographic and documentary archives (Hocken Library, Toitu Otago Settlers Museum, Archives New Zealand, Christchurch City Library Collections, on-line archive repositories - DigitalNZ, Hocken Library Snapshot, National Library of NZ, Museum of New Zealand/Te Papa Tongarewa; Paperspast).
- Published local and city histories, published Cathedral histories and similar accounts.
- The Christchurch City District Plan and schedules of historic sites'
- New Zealand Archaeological Association, 'ArchSite' database of recorded archaeological sites.

Site Visit

It is usual as part of an archaeological assessment to undertake a site visit and walkover survey/building inspection as part of the assessment methodology. As noted above, this was not possible due to the earthquake damaged sustained by the building in 2011. However, a site visit around the Cathedral's perimeter was carried out on 29th September 2016 by the Author to ascertain the current general condition and appearance of the building and its immediate environs.

Physical Setting and Description of the Cathedral Site

The ChristChurch Cathedral is situated in the eastern half of Cathedral Square in the centre of the Christchurch central business district (Figure 3). The setting of the cathedral and the square is dominated by hard landscaping, multi-storey buildings, roading and the tramway. This urban setting is softened slightly by mature trees located within the fenced Cathedral precinct and the remains of earth disturbed and deposited immediately after the 2011 earthquake. The Cathedral building, including the former visitor centre, sits on a very slightly elevated position above the roadway that runs eastwards around the building from Colombo Street.



Figure 3: Detailed aerial photographic view of the ChristChurch Cathedral site and east end of Cathedral Square in 2016. Image: Stuff.co.nz

The following summary provides a brief description of the main building elements of the Cathedral, taken from the Salmond Reed Conservation Plan (2006) as it stood prior to the 2011 earthquake, with added observations made after the disaster.

ChristChurch Cathedral has the appearance of a solid stone masonry building. However, it became apparent from the inspection of the damaged elements that the wall construction comprises a mixture of random rubble and cement core faced with relatively thin pieces of ashlar stone to the exterior and thin limestone ashlar facings internally. The external facings are interspersed with decorative limestone window and door surrounds, string courses, corbels and other decorative elements (Figure 4). The rubble core is extremely variable in quality, composition and location, ranging from hard concrete-like infill to literally rubble and loose

stones. Wrought iron straps were laid horizontally and overlapped at certain locations to improve stability. Some parts of the building are constructed in mass brickwork laid in cement mortar and then faced in ashlar stone. The columns along the nave are constructed of segmented carved limestone and are connected to limestone clad arches which spring between them. It is probable that these arches are constructed of brick masonry clad with limestone ashlar facing.

The roof structure comprises heavy timber crown post trusses with similar brackets, rafters and purlins and creates a dramatic effect from the inside of the cathedral. The ceiling is lined with diagonal timber sarking and roof slates are laid over the top of this. The roofs are covered in polychrome slates with lead flashings. The roof was re-covered in 2006 using imported slates from China and Brazil. The Cathedral has three separate porches; one on the north (which is two storeys high and incorporated an office at first floor level), one on the south and one on the west (which formed the main entry to the Cathedral). Two additions were constructed in the 1960s at the eastern end to provide additional space for the choir and vestries and these are built of concrete block clad in stone similar to the original building but with flat profiled metal roofs.

The spire and upper levels of the tower were lost in the February earthquake. The tower has since been reduced in height to approximately 3 metres above the surrounding ground level (Figure 5). The construction was revealed to include large areas of solid brick masonry, rubble stone infill and cement mortar (JGA 2013).

The Cathedral was lit by a large number of stained glass windows, mostly dating from the time of the building's construction, but one (the Bill Sutton window on the North Transept gable) which was designed in 1982. Along with these highly decorative windows, the Cathedral also had a number of coloured leadlight windows, which were mostly at high level in the clerestorey. Nearly all of these windows have been removed and stored as part of the Make Safe works in 2012-13.

Inside the building there are a number of important fixtures and artefacts, including memorial tablets in stone and brass, carved timber panelling and screens, a stone pulpit, altar table and font and the effigy of Bishop Harper (Figure 6). The floors are finished with intricate patterns of encaustic tiles, including a dramatic panel leading up the centre of the nave, and illustrations of the "Four Ships" in the chancel floor. There are five panels of similar tiles at dado height on the west and north walls. At least one of these panels collapsed in the 2011 seismic events (Figure 7).

The largest internal fixture is the organ, which is located to the north of the chancel at high level. This includes boxed timber, lead and brass pipes and trumpets and parts of the blower mechanism. The console is located at the upper level on the south side of the chancel and the main blower mechanism is located in the basement below the chancel.



Figure 4: The west front of ChristChurch Cathedral prior to the 2011 earthquake event. Photograph: Salmon Reed Architects

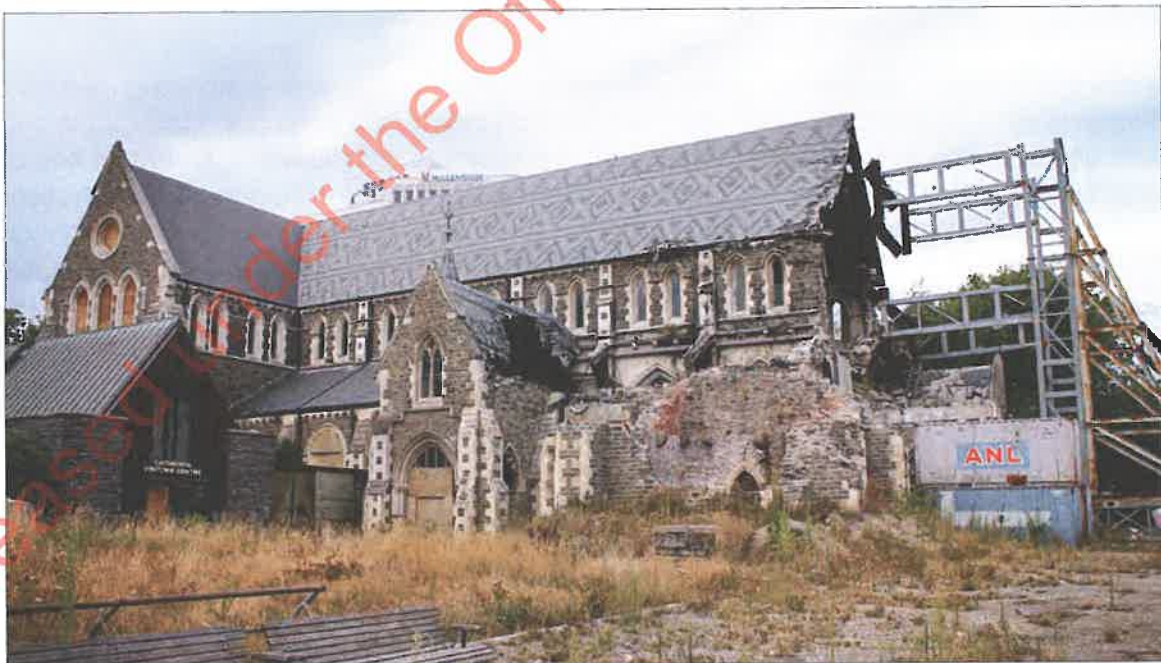


Figure 5: The Cathedral after the series of seismic events during 2011 and the partial demolition of the tower. Photograph: <http://www.vengavalevamos.com/2016/03/christchurch-new-zealand/>



Figure 6: An interior view of the Cathedral nave looking east towards the chancel and apse (pre-earthquake). Photograph: Wikimedia Commons



Figure 7: A view of the Cathedral interior after the earthquake with building damage and collapsed material evident. Image: Getty/Huffington Post

Historical Background

Introduction

The following section is taken from the 2013 report prepared by Jackie Gillies & Associates for the interim recording of the Cathedral Tower, which collated the existing archival information for the Cathedral's design and development. It has been updated with additional information pertinent to the current stabilisation and reinstatement proposals, particularly in terms of understanding the building's foundation construction.

There are a number of key sources of historical information for the Cathedral which were consulted to create a contextual overview of the known history of the building. These include:

- Christ Church Cathedral Conservation Plan by Salmond Reed Architects (2006);
- Vision & Reality: Christchurch's Cathedral in the Square by Colin Brown (2000);
- A Dream of Spires: Benjamin Mountfort and the Gothic revival by Ian Lochhead (1999);
- NZ Historic Places Trust Register entry (No. 46) for Cathedral Church of Christ (Anglican), 100 Cathedral Square; Christchurch prepared by Melanie Lovell-Smith (2001).
- ChristChurch Cathedral Tower interim recording report prepared by Jackie Gillies & Associates (JGA 2013).

The following historical overview has extracted only the most significance historical elements of the Cathedral site from the above sources, in particular the NZHPT entry, in order to contextualise the archaeological significance and values of the Cathedral site. It is not intended as a comprehensive historical summary; the reader is referred to the original sources listed above for this information.

The Pre-Cathedral Site: Pre-European settlement of Christchurch

The *Contextual Historical Overview of Christchurch City* prepared by Christchurch City Council (2005) provides a detailed outline of the archaeological and historical development of the city. For the pre-European period it notes (p.9):

The swamplands and varied seashore (estuary, open beach and rocky foreshore) were productive eco-systems for the first Māori inhabitants of Christchurch. Early archaeological sites close to the sea suggest periodic, temporary exploitation of the area's resources. Closer to historic times there were permanent or semi-permanent settlements on the margins of the Estuary (notably at the mouth of the Otakaro/Avon) and built, like the city of Christchurch itself, on the first areas of higher, drier ground up the Avon and Heathcote Rivers... The Christchurch area had generous resources for Maori. They included eel and other fresh water species in the rivers and wetlands, flounder and other fish and shellfish in the Estuary, and birds in the patches of forests on the plains and more extensive forests on the flanks of the Port Hills.

The Christchurch area was known to the early Polynesian settlers, 600-700 years before the European exploration of New Zealand. It was certainly known to subsequent Māori iwi – Waitaha, Ngati Mamoe and Ngai Tahu – but it was with Ngai Tahu that Christchurch began its formal historical record, as opposed to its archaeological and traditional past evidence (Christchurch City Council 2005). In addition to the seasonal settlements, tracks crossed the

country on which Christchurch was later built; these lay between Ngai Tahu's largest pa, just to the north at Kaiapoi, and the centres of population on Horomaka (Banks Peninsula) and around Te Waihora (Lake Ellesmere).

European settlement and development: Cathedral design and construction

From its establishment in 1848, the Canterbury Association planned to make their settlement in Christchurch wholly Anglican, based on a model of churches, parsonages, schools, and college (grammar school and university), with a bishop and a cathedral at its centre. Originally designated 'Ridley Square' in the early survey plans of 1850 and 1851, the central square in Christchurch became known as 'Cathedral Square', although it was not until 1858 that a specific area of land within the square was set aside for the erection of a cathedral.

Christchurch officially became a city in 1856; the plans for the new cathedral and bishop having been delayed until then. Henry John Chitty Harper (1804-1893) was consecrated as the first Bishop of Christchurch (1856-1890) and held the position of primate of the Anglican Church in New Zealand. Sir George Gilbert Scott, (1811-1878), the distinguished British Gothic Revival architect, was asked to draw up plans for Christ Church Cathedral in 1859 by the Cathedral Commission, established in the same year. Scott had earlier drawn plans for a timber church, the plans for which arrived with the Reverend Thomas Jackson in 1851, but were never used. Choosing an English architect to design a colonial cathedral was common practice within the British Empire, as it reflected well on the status of the Church, and Scott already had a reputation for discerning what was architecturally possible in colonial circumstances.

Scott's original design was an austere, thirteenth-century English Gothic-style cathedral and was intended to be primarily constructed in timber, due to both the cost and the ever-present earthquake risk in New Zealand. Bishop Harper, however, preferred the cathedral to be built from stone; Scott subsequently revised his original plan and his new design (1862) featured an unusual internal timber frame with a stone exterior. Continuing pressure from the Cathedral Commission for an all-stone church and concerns over the lack of timber in Canterbury, led to Scott providing yet more alternative plans for a stone arcade and clerestory. These plans arrived in New Zealand in 1864; Scott himself never actually visited the Cathedral site.

Foundations for the cathedral were laid on 16th December 1864 under the supervision of Robert Speechly (1840-1884), after much fundraising both in England and New Zealand. Speechly, who had trained as an architect in London and worked for several leading Gothic Revival architects including William Slater and Alfred Waterhouse, was appointed resident architect to supervise the construction of the Christchurch Cathedral in 1864. The decision by the Cathedral Commission to appoint Speechly, rather than the leading local architect, Benjamin Woolfield Mountfort (1825-1898), led to an intense debate in the Christchurch newspapers. Scott supported the idea of appointing a local architect who would be familiar with the colony's conditions, and he was impressed by what he knew of Mountfort's buildings. However, the Cathedral Commission declined to accept Scott's advice, reiterating instead their concerns about the abilities of local architects (Figure 8).



Figure 8: A view of the Cathedral under construction around 1880; the transept roofs are being erected and the eastern apse is partly built. Photograph: Christchurch City Libraries

Lack of money halted construction on the cathedral in late 1866 and it resumed, intermittently, after 1873. In the meantime, Speechly completed his four-year contract and left New Zealand in 1868. Benjamin Mountfort was appointed as supervising architect by the Cathedral Commission in 1873 and thereafter work progressed, with the nave and tower completed by 1881. The cathedral was consecrated on 1st November 1881.

Mountfort made significant changes to Scott's design. The NZHPT register entry (entry 46; Lovell-Smith 2001) identified these as:

'...the use of stone rather than timber for the spire; the addition of balconies and pinnacles to the tower; the raising of the south porch roof, the addition of a turret to the junction between the south porch and aisle; and the enrichment of the decorative elements on both the exterior and interior. Mountfort also chose to sheath the roof in slates of different colours arranged in repetitive patterns. His contribution to the interior of the cathedral was particularly marked. He made general recommendations about the type and colour of stained glass in the Cathedral windows and designed a number of them himself. He also designed the font, pulpit, bishop's throne and the Harper Memorial of 1897.'

The Cathedral and tower were damaged by a succession of earthquakes in 1881, 1888 and 1901; all of which required repairs and some strengthening. The 1888 event collapsed the top of the spire, which was rebuilt in lighter firebricks. After the 1901 quake it was decided to reconstruct the upper portion of the spire in timber covered with copper, much like Gilbert Scott's original design suggestion.

In 1894-5 the west porch was added as a memorial to Alfred Richard Creyke, by his wife Elizabeth, an early settler of Ilam who amassed a considerable New Zealand estate before returning to England in the 1860s. Elizabeth Creyke also contributed to one of the Cathedral's windows in memory of her first husband, John Charles Watts-Russell, and £100 towards the Harper Memorial. Benjamin Mountfort died in 1898 and his son, Cyril Mountfort (1852-1920) took over his father's role as supervising architect, overseeing the completion of the chancel, transepts and apse (Figure 9). The Cathedral's construction was completed in 1904 and re-consecrated on 1st November of that year. From this point forward, the Cathedral was gradually furnished with both smaller interior and exterior additions such as a choir screen (1924), altar and communion rails (1922-25), memorial chapel (by RSD Harman; 1924), nave doors (1938), reredos (1951), and Bishop's chair and desk (1957; Figure 10). In 1937 a war memorial, designed by William Trethewey (1892-1972), was erected to the north side of the Cathedral.

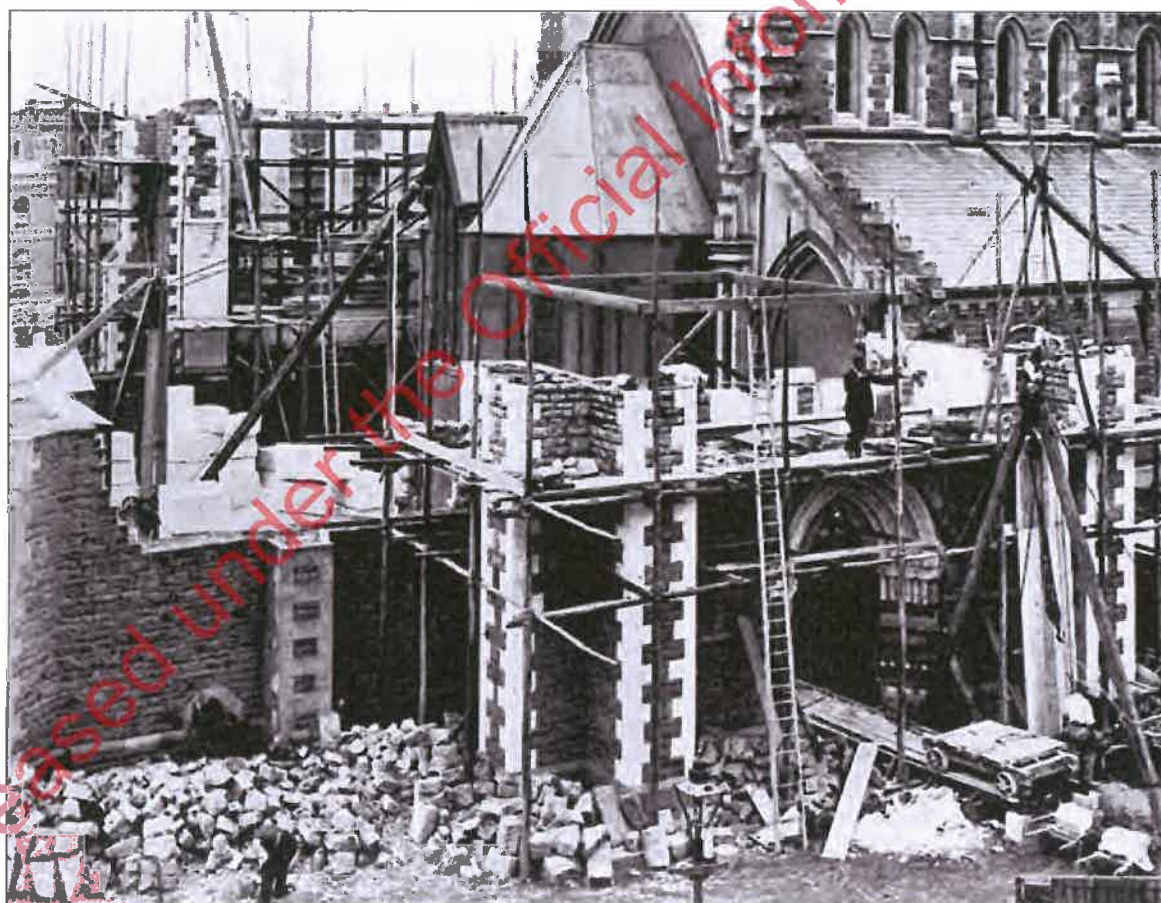


Figure 9: The chancel and apse under construction circa 1901. Photograph: Christchurch City Libraries

During the 1960s and 1970s the Cathedral continued to undergo other alterations, including the inevitable repairs to the ageing fabric of the building. In 1977 a major restoration programme was launched and completed in September 1981 with a grand re-opening ceremony. A Visitors' Centre was opened by Queen Elizabeth II in 1995, after three years of

controversy over its design. The Cathedral underwent a programme of seismic reinforcement during 1999, designed by Holmes Consulting Group, and employed steel frames and sheer walls to provide additional strength. This was provident as in September 2010 the cathedral survived an earthquake, centred to the west of Christchurch, without major damage to its fabric or structure. However, in 2011 event the Cathedral suffered major structural and fabric damage, including the complete loss of the tower spire, balcony and north elevation, the west porch and elevation including the rose window, and significant internal and other fabric damage.



Figure 10: An interior view of the Cathedral looking west to the rose window; date unknown but around the time of its completion. Photograph: Christchurch City Libraries

Cathedral Timeline Summary

A detailed Historical Chronology, including building phases, repairs and strengthening works was prepared by Salmond Reed Architects for the Cathedral conservation plan (2006). An extract is reproduced here, but reference should be made to the document in full.

- 1859 George Gilbert Scott, Architect, commissioned to design the Cathedral.
- 1862 Scott's plans accepted by the Anglican Church.
- 1864 Foundation stone laid.
- 1865 Foundations laid.
- 1866 Work ceased due to lack of funds.
- 1873 Nave walls and base of transepts commenced with temporary timber apse.
- 1880 Tower commenced.

- 1881 Nave and spire completed and the bells were installed and rung for first time. Minor damage to spire and nave from an earthquake.
- 1882 Organ installed and used for first time. First stained glass window (Hawden window).
- 1884 Pulpit installed.
- 1888 Further earthquake damage to spire and nave.
- 1894 Western/Creyke Porch added. Further stained glass windows added.
- 1903 Chancel and vestries commenced, floor tiling, alterations to organ, pulpit and Harper Memorial.
- 1904 Completion of additions.
- 1913 Memorial kerb wall.
- 1922-25 Altar and communion rails commissioned.
- 1924 Choir screen.
- 1938 New doors from west porch to nave.
- 1951 Reredos over altar added.
- 1957 Bishop's chair and desk in chancel added.
- 1959 Roof repairs, external walls and spire.
- 1961 Panelling in sanctuary completed.
- 1964 Mosaic panels below rose window added.
- 1966 Organ casing added.
- 1967-78 Stonework repairs, including decay around rose window.
- 1968 6 of 8 bells cleaned and remounted.
- 1973 Pacific chapel in south porch dedicated.
- 1974 Roof repairs.
- 1978 Crypt enlarged. New vestries added (Pascoe).
- 1983 Stained glass windows cleaned.
- 1984 Roof repairs to apse.
- 1988 Reordering of interior; removal of chancel screen, repositioning of choir stalls, glazing behind Chapter seats, Harper relocated, raised chancel floor extended.
- 1999 Floor retiled and levelled. Fixed stalls removed. New stone steps. Earthquake strengthening by Holmes Consulting.
- 2006 Roof re-slatted.

Foundation construction and flooring information

To more thoroughly inform the current stabilisation and reinstatement proposals for the Cathedral building, the following information focuses on available archival information

regarding the foundation and floor construction of the structure.

Cathedral foundations

The earliest record of the commencement of the foundation work appears to be recorded in the Otago Daily Times (13 July 1864, page 4; *Papers Past*):

We learn from the *Lyttelton Times* that action has been taken in connection with the construction of the Christchurch Cathedral. A number of men are engaged levelling the site for the foundations, and the work of construction is to be commenced shortly.

This took place prior to the arrival of Robert Speechly, George Gilbert Scott's deputy, in New Zealand in late September 1864, and a report in the Lyttelton Times (13 August 1864, page 3) plainly states that no further foundation work could be done until Speechly arrived.

The foundation work appears to have been undertaken in stages as once the site preparation work was completed, as an advert appeared to announce the receipt of tenders for the construction of the foundations in October 1864 (Lyttelton Times, 29 October 1864, page 5):

**THE FOLLOWING TENDERS for CHRIST-
CHURCH CATHEDRAL, CHRIST-
CHURCH, FOUNDATIONS.** George Gilbert
Scott, R.A., architect, London, and Robert Speechly,
M.R.I.B.A., architect, Christchurch; were received
and opened on Monday, October 24th inst. :—

	£	s	d
Robert Dalton and Co., Dunedin ...	5906	0	0
James Yait, Christchurch ...	4925	10	0
John M'Cosker „ ...	4522	0	0
Greig and Brook „ ...	4495	0	0
P. M'Arn and Co., Lyttelton ...	4338	10	6
Hemmingway and Sheriff, Christ- church, (nave only, and no fencing...	3557	0	0
James Courtney, Heathcote Valley (accepted) ...	3420	0	0
Joseph Bailey and Co., Christchurch (nave only) ...	2790	0	0
Resident Architect's estimate ...	5080	0	0
			868

Initially it was announced that James Courtney was appointed, but this appears to have been changed early on to the partnership of Hemmingway and Sheriff, as these are the contractors referred to in later sources. This work appears to have been underway fairly rapidly as the official foundation stone was laid with much pomp and ceremony on 16th December 1864. The corner stone was laid in the position of the future east wall of the Chancel and was described as being 5ft by 2.5ft with an inscribed fish symbol and crosses, and a central hole in which was placed a bottle with 'inscriptions marking the occasion' (Brown 2000: p.32).

The Lyttelton Times on the 15th Dec 1864 (page 4, supplement) noted that the foundations were to be constructed as follows.

colours at the Union printing office. Messrs. Hemmingway and Sheriff are the contractors for the foundation; this work is about 224 feet by 115, and consists of trenches six feet in depth, that of the tower being seven. The average may be taken at six feet and a-half. These trenches are to be filled in with concrete composed of shingle and neat Portland cement. About two thousand barrels of cement will be required at the least, the concrete being two feet in depth. The corner-stone, which has been described, will be placed at the east end of the chancel.

By the 19th January 1865 foundation work was well underway and a brief account in the Lyttelton Times on 19th January 1865, page 3, mentioned that 'The intended site has a strange desolate look. Cut into deep trenches, and encumbered with piles of rough stones, the place resembles an incipient fortification...'. A much more detailed account of the Cathedral foundation construction and design was included in the Lyttelton Times on 11th February (page 5). This reported:

'The first contract is nearly finished, and by March 15th, the contract date for the completion of the foundation, we shall hope to see the remaining portion of the foundation put in. The amount of the contract is £5315 19s. The bottom of the work is composed of concrete, which consists of one part cement to thirty barrels of ballast; these proportions have been strictly attended to. The whole of the masonry is built in neat Portland cement, the interstices being flushed in with neat cement and fine gravel, in the proportion of two parts of cement to one of gravel. The following are the general dimensions of the future work: - Total length of the Cathedral extreme dimensions, but exclusive of buttresses and tower, 204 feet and 9 inches; the western wall is 4 feet thick, most of the other walls being 3 feet thick. The total width of the aisles and nave is 74 feet clear outside of walls; the clear inside dimension of the nave is 106 feet 3 inches...The floor of the nave will be two feet above the outside ground level.'

An erratum notice in the paper on the 14th February corrected the information, to 'The concrete is composed of one part of the best Portland cement, and three parts of ballast', so not the 'thirty barrels of ballast' originally reported which would have created a very weak concrete foundation! The foundation contract appears to have been completed on time by the 15th March 1865 whereupon work ceased. A further report in the Lyttelton Times (4th March 1865, page 4) provided further detail of the foundations and their contractor:

THE CATHEDRAL.—The foundations of this building are now nearly complete: those of the tower alone remain, and are now in course of being put in. The remainder are brought up to their ultimate height, ready for the wall itself; and the site is neatly levelled in round them, so that the ground plan of the structure is now apparent to the eye. The foundations are perfect models for builders of stone edifices in the light sandy soil of this town. We have already described the mode of construction, and their finished appearance justifies the opinion which we expressed about the excellence of the workmanship. On the exposed surface a pick-axe would scarcely make an impression, and to remove any portion blasting would have to be resorted to as if they were solid rock throughout. The tower foundations are necessarily deeper and wider than those of any other part of the building; and the stones which are now lying on the spot to be used in courses on the top of the concrete bed are curiosities for size. They come from Mr. Thompson's Bridle-path quarries, and are the largest which have ever been taken out in the province for building purposes. Every exertion is being used by both architect and contractor to complete this first stage of the Cathedral structure, and work goes on early and late. The performance is highly creditable to Mr. Hemingway, and we trust it may also prove profitable.

For the remainder of 1865 little, if any further construction work took place, due in large part to a lack of funds caused by the mid-1860s economic depression that affected Christchurch and other areas. This was summarised succinctly by an article in the Nelson Examiner and New Zealand Chronicle on 14th April 1866 (Page 2).

THE CHRISTCHURCH CATHEDRAL.—We regret to learn from a letter, published in the *Canterbury Press* of a recent date, from the Lord Bishop of Christchurch to the Church of England members of his diocese, that works in connection with this building have been partially suspended through want of funds. Three years ago, the contributions promised amounted to £14,525. In most cases, these contributions were to extend over a period of five years, dating from January, 1863. During the three years, £8,715 ought to have been paid, whereas only £4,914 13s. 4d. has been collected. His lordship points out the

The abandoned foundations became overgrown and a topic of contention for the church and the city. In 1867 the Governor, Sir George Grey, visited the site of the future Cathedral and it was reported later that 'it was necessary to mow the grass and whitewash the top of

the foundations in order that he might see the outline' (Star, 29 October 1904, page 4). The well-known and well-travelled English novelist, Anthony Trollope visited Christchurch in 1872 and described the area as follows: 'in the centre of it [Christchurch], there is a large waste space, in which £7000 have been buried in laying the foundations of a Cathedral; but there is not a single brick or stone above the level of the ground. The idea of the Cathedral is now abandoned. It was a sad sight for me to look down upon the vain foundations. ' (Brown 2000: p. 37).

Despite the odds, in September 1873 construction started once again with contracts advertised for the construction of the nave walls and for supplying timber.

The foundations of the Cathedral can be summarised as follows:

- The footprint of the building was initially cleared and levelled.
- Trenches were excavated to take concrete foundation walls: generally 6ft (1.83m) deep for the main walls and 7ft (2.13m) deep for the tower walls.
- Presumably the trenches were excavated slightly wider than the masonry walls that would be constructed on them (most walls were 3ft (0.91m) thick; the western wall 4ft (1.2m) thick).
- A Portland cement and aggregate, 'shingle' or 'ballast' cement mixture was used to form the base of the foundation, approximately 2ft (0.6m) deep. The cement mix was 1:3 cement: aggregate.
- It was approximated that about 2,000 barrels of cement would be required for the foundations.
- Reference is made to 'the whole of the masonry is built in neat Portland cement, the interstices being flushed in with neat cement and fine gravel, in the proportion of two parts of cement to one of gravel'. As reference is later made to the top of the foundations being flush with the ground level and that the foundations were 'brought up to their ultimate height ready for the wall itself', this reference suggests that the upper portion of the foundations were constructed slightly differently although it is unclear how.
- The finished surface of the 'concrete' foundations were described as though of 'solid rock'.
- An 1878 reference (Press, 5 June 1878, page 4) noted that the base of the nave columns (weighing 1.5 tonnes) each had a concrete foundation (Figures 11 and 12).



CHRISTCHURCH CATHEDRAL AS IT APPEARED IN 1878, THREE YEARS AFTER THE FIRST SERVICE IN IT WAS HELD

Figure 11: An interior view of the Cathedral nave under construction circa 1878, looking towards the western end. The concrete bases for the stone columns are visible although the foundation level below the unfinished walls is harder to distinguish. Photograph: Christchurch City Libraries

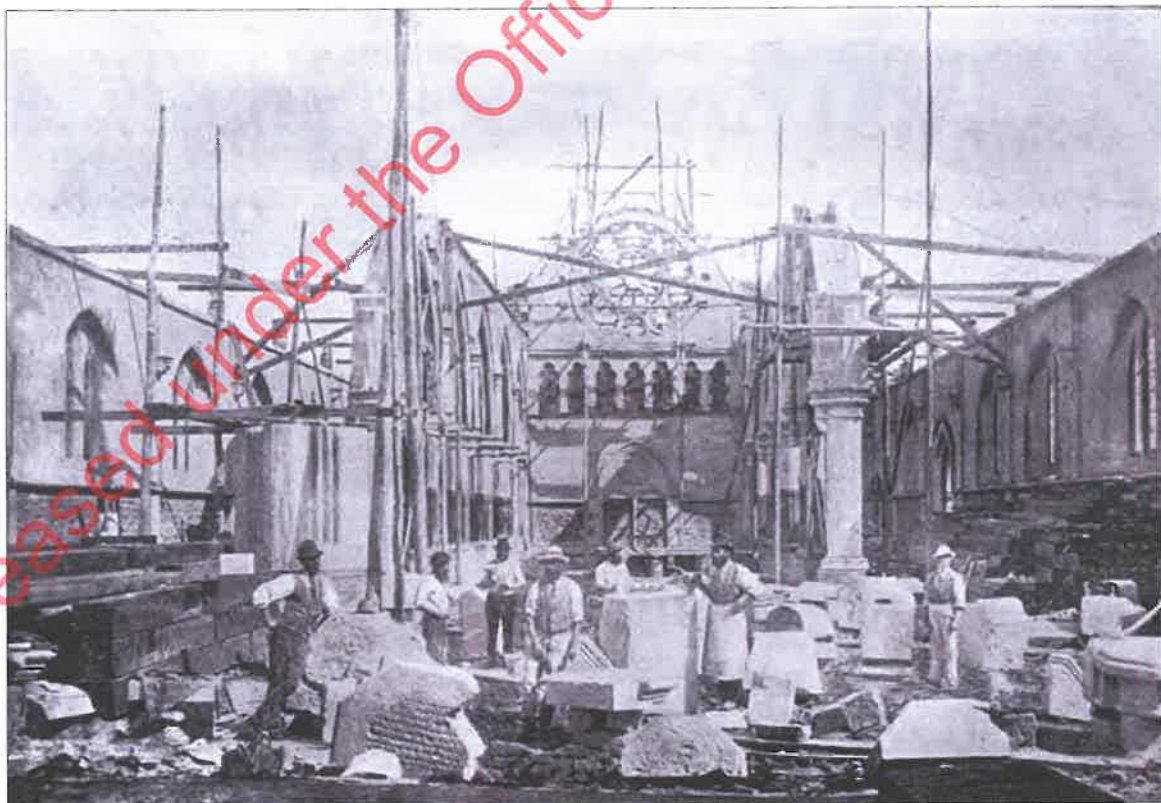


Figure 12: A slightly later view of the interior progress taken circa 1879 with the Rose window under construction. Photograph: Christchurch City Libraries

Floors

Not a great deal is known about the construction of the floors above the foundation level within the Cathedral, but a brief news report in the Star of 19th January 1881 (page 2) provides the following information.

THE CATHEDRAL. — The contractors to the erection of the Cathedral have commenced to lay the concrete foundations for the floor which is to be formed of Minton tiles laid upon a bed or substratum of concrete. Th

This implies that there is little in the way of a sub-floor space beneath the floor surface with the 'floor' formed in concrete. This was then laid with ceramic tiles manufactured by Minton and commonly referred to as *encaustic* tiles - ceramic tiles in which the pattern or figure on the surface is not a product of the glaze, but of different colours of clay, often two but up to as many as six colours. A close-up of the 1878 interior view (refer to Figure 11), shows the base of the columns resting on a large block foundation, presumably of concrete. The void between the ground level and top of this block appears to have been filled with the concrete referred to above. The floor levels at the eastern end of the Cathedral were raised above the nave and aisle floor level; two steps up to the choir from the chancel and then six steps from the sanctuary to the altar area (Lyttelton Times, 11 February 1865, page 5). At the east end of the building, in the apse below the floor level, two stone stair cases led down below the floor level into a small basement area containing a passageway and space for the organ blower.

The Minton tiles noted in 1881 referred to the company founded by Thomas Minton in 1793 in Stoke-on-Trent, Staffordshire, England. Minton and his successors formed various partnerships during the nineteenth century, to produce domestic tableware and later, earthenware tiles. The partnership of Minton, Hollins and Company, formed in 1845, became particularly noted for their ceramic and encaustic tiles which fuelled the Victorian enthusiasm for durable and decorative wall and floor finishes. Minton's were a significant international manufacturer and supplier of tiles for churches and other public buildings across the developed world by the late nineteenth century (The Potteries 2016). The laying of the nave floor tiles was completed by 3rd June 1881 (Star, 3 June 1881, page 3) with the grey slate of the basement level of the Tower probably completed soon after (JGA 2013).



Figure 13: A view of the nave floor with the Minton tile covering. Image: www.eyeofthefish.org

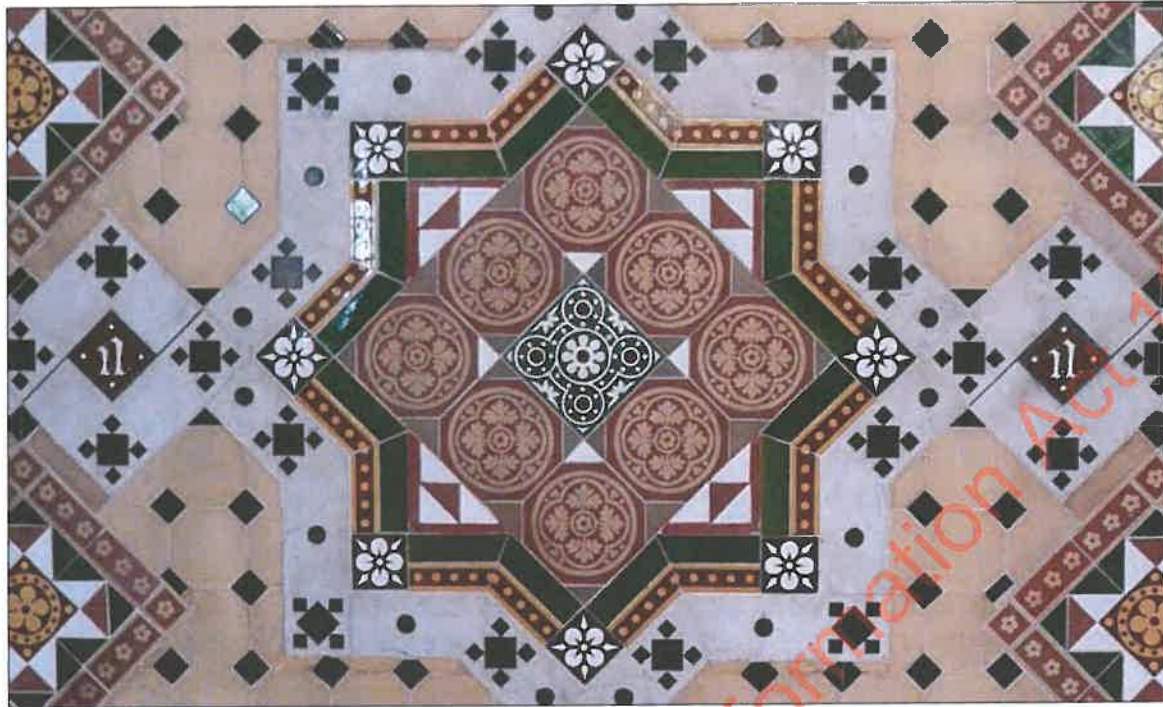


Figure 14: Maw and Co tiles from the Croyke Porch. Image: www.tilesoc.org.uk

The West porch, known as the Croyke Porch was added to the Cathedral building in 1894 and its floor is recorded as being tiled with 'Maw and Co.'s incised tiles, with cement inlays' (Press, 15 June 1894, page 5; Figure 14). Maw & Co were a well-known and successful ceramic tile manufacturer founded in 1850 and based in Broseley, Staffordshire, England. They were known for the quality and highly intricate production of their encaustic tiles and continued manufacturing until c.1970 (Maw's Craft Centre 2016). The porch architect was Benjamin Mountfort and it is possible that he also may have also designed the tiled floor pattern.

Previous Archaeological Work

Archaeological evidence for the Cathedral site

There is one entry for ChristChurch Cathedral under the New Zealand Archaeological Association site recording scheme, which identifies the finding of human bone fragments ('Kōiwi tangata') during the preparation of foundations for the Cathedral Visitors' Centre in 1995 (site No. M35/489; Maori; Indigenous pre-1769). This is located immediately north of the Cathedral building at (NZTM) Easting 1570675/Northing 5180180. The summary entry is as follows:

'Fragments of bones of two people were unearthed by contractors preparing foundations for the Cathedral Visitors' Centre in 1995.

These appeared to be the remains of the secondary burial of two people who had been buried in a small trench dug into swampy ground some time prior to European settlement. There was evidence that the bones had been exposed to weathering prior to their interment. Subsequently, and probably within the last two hundred years, the swampy area either dried up or was drained, and European activities, including pipe-laying, roading and building, were carried out in the vicinity. During the excavations for the

foundations of the Cathedral Visitor Centre, the buried bones were uncovered and broken by excavating equipment. A large proportion of the burials were probably removed from the site along with other excavated materials before the bone fragments were noticed.'

The complete site record form is included as Appendix A of this assessment report. A note on the site record form also mentions that in his book *Lore and History of the South Island Maori* (1950), WA Taylor noted on page 48: "Isolated burial-places have been found from time to time in all quarters of Christchurch, even in the heart of Cathedral Square."

In August 2016, a further entry on the site record form M35/349 recorded:

'Earthworks for the installation of a time capsule and supporting structure was hydro excavated on the east side of the Godley Statue at 105 Cathedral Square, Christchurch Central, Christchurch under the HNZPT authority 2017/039eq by City Care. The trench was 600 x 600 x 1130 mm depth. The strata exposed consisted of paving stone (80 mm), paving sand (5 mm), river rolled cobbles (700 mm) and then loose grey sand (350 mm).

No archaeological features or artefacts were exposed during these earthworks.'

The Godly statue is located approximately 46 metres immediately west of the West Porch of the Cathedral.

In addition to the above records, no archaeological sites or finds were identified during the controlled demolition of the Cathedral Tower in 2012 due to the work being restricted solely to the above-ground level of the standing structure.

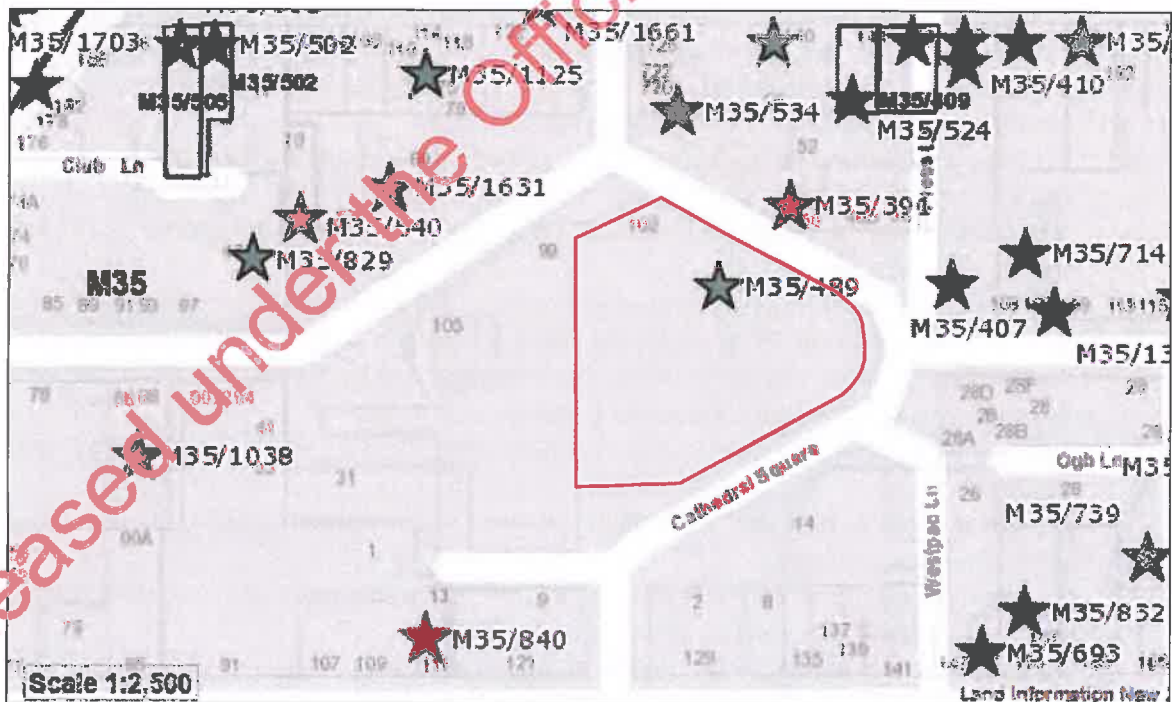


Figure 15: Recorded archaeological sites within the Cathedral assessment area (outlined in red); site M35/489 is located within the assessment area. Source: New Zealand Archaeological Association

A considerable number of other archaeological sites are recorded on the NZAA site recording scheme around the periphery of the Cathedral site. These largely represent the specific sites

of late nineteenth century commercial buildings and related activities, and are not considered to be of relevance to the Cathedral site from an archaeological perspective.

Site Survey

As noted at the beginning of this report, it is usual as part of an archaeological assessment to undertake a site visit and walkover survey/building inspection as part of the assessment methodology. This was not possible in any effective manner due to the earthquake damage sustained by the building in 2011, which has resulted in the cathedral site being fenced off completely with no access allowed within the site.

In the context of this archaeological assessment, it is not considered that even if a detailed site inspection had been possible, that it would have provided any significant additional information or insight into the archaeological significance and understanding of the building. However, it may have allowed some elements of the Cathedral's foundation construction, such as the floor make-up, to be inspected more closely, if access points were available.

Summary of Research Results

The results of the desk-based research have provided a basic understanding of the Cathedral site and its construction, the key points of which are summarised as follows.

- i. The site was originally a swampy area and possibly part of the Waimakariri River's channel/floodplain with a 'sandy shingle' reported below parts of Cathedral Square.
- ii. Ad hoc, pre-European burials of Māori peoples/Kōiwi tangata have been reported in Cathedral Square with the remains of two people buried in a former swampy area, close to the northern side of the Cathedral building.
- iii. The site was undeveloped prior to December 1864 when the Cathedral site was cleared and levelled.
- iv. The foundations were excavated and constructed between December 1864 and March 1865.
- v. The foundations consisted of excavated trenches in the outline of the building, 6ft deep for the main walls and 7ft deep for the tower, filled to a depth of 2ft/0.6m with a 1:3 Portland Cement to gravel concrete. The average wall thickness above was 3ft, with the west wall being 4ft and the tower basement up to 4ft.
- vi. The upper segment of the foundation was described as a mix of masonry and concrete.
- vii. The interior floor level of the Cathedral nave level was reported as being 2ft above the surrounding ground level.
- viii. The main floor was raised and levelled with concrete to the base of the stone columns, which were also supported on square concrete bases.
- ix. The chancel and altar floor sections were raised and accessed by steps.
- x. The floor areas were finished in 1881 with earthenware, patterned ceramic tiles generally referred to as encaustic tiles (after their western medieval counterparts) manufactured by the English firm, Minton. The tower basement floor was laid with plain slate tiles, and the 1894 western Creyke Porch was finished with tiles manufactured by Maw & Co, also from England.

In conclusion, the identified archaeological deposits relevant to the Cathedral site are divided into two types:

1. Pre-European Māori burials or re-burials/Kōiwi tangata placed in formerly swampy and riverine deposits; and
2. The extant, sub-surface foundations of the Cathedral building, constructed in 1864-65.

Constraints and Limitations

The key constraints and limitations of the archaeological assessment for the Cathedral assessment area are considered as follows.

- The assessment is based upon existing, desk-top archaeological and historical research information.
- No detailed site survey was possible due to the safety constraints of the site.
- This archaeological assessment has identified and discussed the Māori archaeological evidence that is present within the assessment area, but has not undertaken an assessment of their wider cultural values beyond the purely archaeological ones, as this is considered to be the prerogative of the local Iwi (Ngāi Tūāhuriri) to undertake. Consultation has been undertaken through Mahaanui Kurataiao Ltd with members of the Ngāi Tūāhuriri Rūnanga who hold mana whenua over the central Christchurch district and this discussed further below.

Archaeological and Other Values

Archaeological and Historic Values

Six main criteria have been used for assessing the archaeological and historic values of the Cathedral assessment area. These are:

- Condition – the physical condition of the site and any associated features.
- Rarity/Uniqueness – the degree of rarity of the site within its immediate and/or wider contexts.
- Contextual Value – the contribution of the site to its broader contextual situation (e.g. cultural, local and archaeological contexts).
- Information potential – the potential for additional information to be recovered by archaeological means and its nature.
- Amenity value – the potential contribution of the site as a local amenity.
- Cultural associations – the dominant cultural associations of the site.

Site	Value	Assessment
ChristChurch Cathedral 100 Cathedral Square	Condition	Fair – good. The super structure of the Cathedral building is currently in a fair to poor state of condition due to the impacts of the 2010 and 2011 seismic events. The condition of the cathedral foundations is unknown at present, but are thought to have been largely unaffected by the earthquake and may remain in good condition.
	Rarity	High - ChristChurch Cathedral is one of eight Anglican cathedrals in New Zealand and only one of three constructed prior to 1900. It is a Category 1 Historic Place under the HNZPT Act 2014, which identifies it as of 'special or outstanding historical or cultural heritage significance or value'; and a Group 1 site on the operative Christchurch City District Plan. Therefore it is one of only a small number of historic Anglican cathedral buildings in New Zealand.
	Context	High – The Cathedral embodies the original intentions of the Canterbury Association to make the new settlement of Christchurch an Anglican one. From its foundation in December 1864 to its formal completion in 1904, the site represents forty years of struggle, endeavour and the overcoming of adversity of the Anglican congregation in its aspiration to construct a cathedral building in Christchurch. The Cathedral is the only church designed by the renowned English Victorian architect, George Gilbert Scott in the country and was partly re-designed by Benjamin Woolfield Mountfort, New Zealand's finest Gothic Revival architect. The building embodies both the ecclesiastical and architectural ideals of the Victorian Gothic Revival period in its design and decoration. During the twentieth century, the Cathedral has continued as a centre of faith and worship for the Anglican Church; it has also become a significant community, cultural and tourism focus for the city, a role that has continued in spite of the damage and closure forced by the seismic events in 2010 and 2011.
	Information potential	High – The foundations and floors of the Cathedral have not been systematically investigated or recorded since their construction in 1864-65 and the 1880-81 respectively. Archaeological investigation and recording of any exposure or disturbance of the foundation level will provide an opportunity to ground-truth the historic record and will provide a clearer understanding and more detailed knowledge of 19th century construction practices.

Site	Value	Assessment
		The exposure of Māori re-burials from the pre-European period adjacent to the cathedral site creates the potential for other, similar archaeological burial deposits to be present in the area. However, the 1864 excavations for the building foundations did not report any encounters with human burials at the time, and it is highly likely that the act of excavating the foundations will have removed any such deposits if they were present.
	Amenity	High – The whole Cathedral site is a historic place under the HNZPT Act 2014 and its foundations are an archaeological site under the same act. The Cathedral has held, and continues to hold, a high level of amenity value due to its (former) public accessibility and central location in Cathedral Square, its former central role as a place of worship, and as a focus of the local Christchurch community, both in the past and present. Although currently closed, the Cathedral continues to draw visitors to its site and in the event it re-opens in the future, it will once again provide a high level of amenity value and significance as an archaeological and historic place.
	Cultural associations	European – The dominant cultural association of the Cathedral is with the members of the Canterbury Association, the English-led settlement organisation founded in 1848, which delivered the first of the European settlers to the new city of Christchurch in 1850. The establishment of an Anglican Diocese and Cathedral was a central part of their settlement plan. The Māori association with the area that became Christchurch is also significant, if less evident. Māori are known to have settled the area 600-700 year ago at which time it was swampy ground; from the archaeological and archival evidence, the Cathedral Square location may have been used to deposit human remains on an ad hoc basis, with the swamps also providing important sources of mahinga kai (natural resources).

Māori Cultural Values (Ngāi Tūāhuriri Rūnanga)

Consultation has been undertaken through Mahaanui Kurataiao Ltd with members of the Ngāi Tūāhuriri Rūnanga, who hold manawhenua over the central Christchurch district or takiwā. The Rūnanga recommended that the Mātauranga Taiao Manager (Kyle Davis) re-view the archaeological assessment report to provide an assessment on the Māori heritage associated with the Cathedral site. Their assessment is reproduced in full, as follows (prepared by Kyle Davis, Ngāi Tahu).

'The site of Christchurch Cathedral, and Cathedral Square generally, is in close proximity to Puāri Pā, occurring ancestrally on the West side of the Ōtākaro/Avon River, including the Provincial Chambers, the High Court, King Edwards Barracks and Christchurch City Council precinct, etc.

The entirety of the Ōtākaro/Avon River and adjacent environs were previous areas of food and resource gathering, tribally referred to as Mahinga Kai.

Page 26 of your report notes the Kōiwi Tangata discovered under what is now the Cathedral Visitors Centre in 1995 and prior, supported by Taylor's (1952) account.

This [is] in addition to further reports of burials being found in 1865 during levelling of Cathedral Square, and thought to be "...the second or third.." discovered within the central city (at the time), denotes a high potential for further Kōiwi and/or Taonga Tukurū to be discovered if proposed earthworks are going through previously undisturbed sedimentary layers.

With the above in mind, cultural monitoring (at a fee to the client) may be required during earthworks and Ngāi Tūāhuriri will need to be given the option of mandating a blessing to whakawātea before works commence. The tribally endorsed Iwi Management Plan Accidental Discovery Protocol will need to be followed.'

The recommendations by the Mātauranga Taiao Manager have been incorporated into the recommendation section of this assessment report.s

Assessment of Effects

The ChristChurch Cathedral Stabilisation and Reinstatement Proposals

The introductory sections of this assessment report have provided the background to the current repair proposals for the Cathedral building. In summary, it has been concluded that 'the reinstatement of the Cathedral would be possible by a combination of repair, restoration, reconstruction and seismic strengthening' (Holmes Consulting Group 2016: 1-1). The full Holmes Consulting Group report, proposals and outline design drawings are included as Appendix B of this report and should be read in conjunction with the following section.

To provide an overview, the proposals can be divided into three main categories or work elements which will be divided into different work phases:

1. **Pre-site investigation work** - mainly focused on geotechnical investigations to ascertain the ground condition of the Cathedral site. This is likely to include:
 - a. The excavation of test pits and mechanically drilled boreholes/cores for various types of soil and rock testing and analysis.
 - b. The extent of the number, location and depth of test pits and boreholes have yet to be decided, but it would be expected that these would be placed close to and around the perimeter of the building, and possibly within the footprint of the Cathedral itself. Test pits are likely to be excavated from between 1 - 3 metres in depth and in excess of 10 metres for boreholes, depending on the investigation strategy and ground conditions encountered.
2. **Stabilisation work** – designed to prevent further damage to the structure until reinstatement, to protect workers during the reinstatement, and to provide effective

access to parts of the Cathedral building during reinstatement. The key elements of this work will involve:

a. External stabilisation works (Phase 1):

- i. Removal of existing stabilisation steel frame and containers;
- ii. demolish remnant west wall to porch level; insert new West Wall Braced Frame and connect to Clerestorey roof;
- iii. install screw piles immediately west of porch for new Clerestorey Braced Frames and install concrete foundation block;
- iv. deconstruct west porch (retaining material where practicable);
- v. install concrete foundation block for new Transept Gable Securing Frames (north and south transepts); and
- vi. install concrete foundation block for new North Porch Securing Frame.

b. Internal stabilisation works (Phase 2 & 3):

- i. Nave: reconstruct damaged portion of north aisle wall and roof adjacent to tower;
- ii. Nave: replace existing damaged south aisle roof brace
- iii. Nave: progressively shore clerestorey piers and arches, remove/pin loose masonry; prop side aisle rafters and stabilise north and south aisle wall piers with ratchet tie downs;
- iv. Deconstruct and temporarily reinstate damaged portion of North Porch roof and remove tower rubble from attic;
- v. Transept & Apse: progressively shore transept piers and arches moving from west to east end, remove/pin loose masonry; prop damaged wall piers, and insert temporary roof level cross-ties;
- vi. Transept & Apse: temporary strengthening of north and south Apse walls with strops and timber packers; core through walls for new wire rope;
- vii. Transept & Apse: Cover and brace existing window openings with timber framing and plywood to reduce vermin ingress and provide new or make good existing flashings.

4 Reinstatement work – designed to provide a light level of protection to occupants and passers-by; to preserve and protect the heritage fabric of the Cathedral to the extent practicable; to improve its seismic resilience; and to provide a space that reflects modern worship needs. The key elements of this work will involve:

a. Strengthening:

- i. Techniques: this may include a range of techniques including reinforced concrete wall/frames inserted into the existing walls; grouting of the stonework with a pozzolan/lime grout and drilled and pinned at regular spacings; centre-coring of the walls to insert grouted reinforcing; fibre-reinforced composites applied to the face of the walls or epoxied

- into cut slots; and the insertion of structural steel to provide bracing and tie support.
- ii. Selection: this will depend on the condition of the element being strengthened, the location of the element in the building, and the extent to which the element is required to resist earthquake actions.
 - iii. Scope: grouting and pinning stone rubble fill in all retained walls; underpinning of shallow foundations; replacement steel bracing; reinforced concrete infill walls to transept, apse and side aisle walls tied into new foundations; reinforced concrete buttresses to replace existing ones, re-using masonry cladding; new reinforced concrete foundation beams; reinforcing of clerestorey walls; repair of the stone columns and their foundations; new ties; securing of vulnerable ornamentation; install a base isolation system (see below); new concrete rose window frame.
- b. *Stone masonry repair*: repairs will involve a variety of techniques depending on the severity of damage and the finished appearance required. This may include in situ stone repairs, removal of facing work and grouting/reinforcing of core behind with reinstatement, and deconstruction of stonework with all removed stone recorded and then reconstructed after core rebuilding/strengthening.
- c. *Base isolation system*: The purpose of the system is to provide greater protection for the heritage fabric, minimise the introduction of new strengthening structures and reduce the overall demand on the reinstated building in the instance of a seismic event. The base isolation system will involve:
- i. The creation of a 500mm 'separation' zone around the Cathedral building including physical separation from the existing visitor centre and tower structure;
 - ii. Excavation for, and construction of, two levels of new concrete sandwich beams on either side of the existing foundations, with 'finger beams' cut through these in the places where the isolation bearings are to be installed.
 - iii. Continuous underpinning of the lower part of the existing Cathedral foundation to accommodate the new, double foundation sandwich beams.
 - iv. Base isolation of the nave columns which may either follow the pairs of sandwich beams methodology or incorporate a single tie beam approach.
 - v. The removal and replacement of the entire ground floor of the Cathedral;
- d. *Tower*: At the present time the plans for the tower are undefined, but it is likely that a new tower will be constructed which will respect the 500mm separation zone required for the base isolation system. The new tower will require new foundations; it is unknown if the existing tower basement walls and foundations will remain in any form, or if they will be removed completely or partially. At worst case, they will be completely removed and the void backfilled in an

appropriate manner.

The effects of the Stabilisation and Reinstatement Proposals on the archaeological significance of ChristChurch Cathedral

The Heritage New Zealand Pouhere Taonga Act 2014, Section 42(1) states that 'no person may modify or destroy, or cause to be modified or destroyed, the whole or any part of that site if that person knows, or ought reasonably to have suspected, that the site is an archaeological site', or intends to investigate a site using invasive archaeological techniques, unless an authority is granted from HNZPT. However, Section 42(3) states that:

'Despite subsection (1), an authority is not required to permit work on a building that is an archaeological site unless the work will result in the demolition of the whole of the building.'

In the context of the current Cathedral proposals, only partial demolition (for reinstatement) of the above-ground building is proposed. Therefore, Section 42(3) applies in this instance. However, where modification or destruction of any sub-surface archaeological element of a pre-1900 building is proposed such as from earthworks, this will require an Authority from HNZPT supported by an Assessment of Effects of the relevant proposals.

This section addresses these effects by focusing on the proposed work elements of the geotechnical investigation, stabilisation and reinstatement phases that will have a direct effect on the sub-surface values of the Cathedral site. The remaining proposals will affect the standing building or above-ground fabric of the Cathedral building and, therefore, are not taken into direct consideration in this assessment (these have been considered and reported on separately – see Origin Consultants *Heritage Report* (2016)). However, a general comment has been provided on the effects of the extent and nature of the above-ground work proposals on the overall archaeological significance of the Cathedral site.

Site & Significance	Work Element	Impact of work element on (sub-surface) archaeological significance	Effects
ChristChurch Cathedral 100 Cathedral Square. Outstanding historical and cultural significance Site M35/489 Burial High Māori cultural significance	Geotechnical Investigation	Although unspecified at present, any geotechnical investigation will physically disturb the sub-surface ground deposits immediately adjacent to, and possibly within the footprint of the Cathedral.	Adverse: these impacts have a high potential to disturb deposits relating to the construction and foundation of the Cathedral building. They also have the potential to encounter and disturb culturally sensitive Kōiwi tangata/burial deposits related to the pre-European settlement of the area by Māori.
	Stabilisation	<p><u>External:</u> The installation of 8 no. screw piles to anchor the proposed Clerestorey Braced Frames will physically disturb the sub-surface ground deposits immediately west of the Creyke Parch footprint to a depth likely to be in excess of 2 metres.</p> <p><u>Internal:</u> No works are proposed in this phase that will have a sub-surface impact on the Cathedral site.</p>	<p>Adverse: these impacts have a low potential to disturb deposits relating to the construction and foundation of the Cathedral building due to the physically limited nature of their extent. They also have some potential to encounter and disturb culturally sensitive Kōiwi tangata/burial deposits related to the pre-European settlement of the area by Māori.</p> <p>None</p>
	Reinstatement	<p><u>Strengthening:</u> The underpinning of shallow wall foundations within the interior of the building will require the excavation of sub-surface deposits next to the existing foundations. Similarly, the repair of the column foundations will require the excavation of the Cathedral floor and sub-surface deposits below, next to the existing column foundations.</p> <p><u>Stone masonry repairs:</u> No works are proposed in this phase that will have a sub-surface impact on the Cathedral site.</p>	<p>Adverse: these impacts will destroy historic deposits relating to the construction and foundation of the Cathedral building. They have a low potential to encounter and disturb culturally sensitive Kōiwi tangata/burial deposits related to the pre-European settlement of the area by Māori as the historic construction of the existing walls is likely to have disturbed any earlier deposits, if present.</p> <p>None</p>

Site & Significance	Work Element	Impact of work element on (sub-surface) archaeological significance	Effects
		<p><u>Base Isolation:</u> The continuous underpinning of the existing, lower foundations; the excavation for, and construction of the new double sandwich beam foundations; and the insertion of 'finger beams' cut through the original foundations, will all disturb, destroy or modify the historic foundation deposits of the cathedral building to a significant extent and depth.</p> <p>The removal of the interior floor of the Cathedral necessitated by the base isolation installation works, will have a major impact on the archaeological and historic significance of the building through the destruction of the historic tiled floor surfaces and concrete floor sub-structure below.</p> <p>The creation of the 500mm wide separation zone around the Cathedral building will require the creation of a physical break with the tower structure and visitor's centre along the north side of the building. This is likely to necessitate the demolition of the south side of the existing tower structure and its foundation, which will have a major impact on the remaining archaeological and historic significance of the already partially demolished structure.</p> <p><u>Tower:</u> Undetermined at present. However, the proposed relocation and reconstruction of the tower is likely to require the complete removal, or</p>	<p>Adverse: these impacts will destroy historic deposits relating to the construction and foundation of the Cathedral building. They have a low potential to encounter and disturb culturally sensitive Kōiwi tangata/burial deposits related to the pre-European settlement or the area by Māori as the historic construction of the existing walls is likely to have disturbed any earlier deposits, if present.</p> <p>Adverse: these impacts will destroy historic deposits relating to the construction and foundation of the Cathedral building.</p> <p>Adverse: these impacts will destroy historic deposits relating to the construction and foundation of the Cathedral tower.</p> <p>Adverse: these impacts will destroy historic deposits relating to the construction and foundation of the Cathedral tower.</p>

Site & Significance	Work Element	Impact of work element on (sub-surface) archaeological significance	Effects
		significant reduction, of the existing tower and its basement and foundations. This will have a major impact on the remaining archaeological and historic significance of the already partially demolished structure.	
	Above-ground stabilisation and reinstatement proposals	<p>The overall impact of the above-ground works proposals will have a significant impact on the remaining historic fabric of the Cathedral building. The works will variously involve the in situ repair, deconstruction, reconstruction, reinforcement, strengthening and in some instances, replacement of the historic fabric of the building. The final scale of this work is unknown at present, but is likely to be extensive in the long-term. The damage caused by the 2010-2011 earthquakes was extensive and seriously jeopardised the future of the Cathedral site. The current proposals, although destructive to an extent, are vital for safeguarding and maintaining into the future, the outstanding historical and cultural significance of the ChristChurch Cathedral site. The proposals have been prepared in full acknowledgement of the ICOMOS New Zealand Charter for the Conservation of Places of Cultural Heritage Value (2010) and with a view to following these guidelines wherever practicable.</p>	<p>Positive: the proposed repair, strengthening and reinstatement methodologies for ChristChurch Cathedral will retain extensive portions of the building's historic fabric and structure. They will facilitate the renewed safe use of the building and safeguard its outstanding historic and archaeological significance into the foreseeable future.</p>

Alternative options

In 2012-13 a series of options for the future of the Cathedral site were explored by the Church Property Trustees. This resulted in the choice of a scheme that would have seen the almost complete demolition of the Cathedral building. However, with the intervention of the Government and establishment of the Cathedral Working Group, the current scheme proposals are focused on the reinstatement of the Cathedral through a combination of repair, restoration, reconstruction and seismic strengthening. Therefore the current Cathedral proposals are considered to be the most feasible, conservative and effective scheme for the site's reinstatement.

Site Management

No site management issues have been identified with regard to the archaeological resources of the Cathedral site beyond those already addressed in this report. Since 2011 the Cathedral site has been closed for all public access and this situation will remain until the building is made safe and accessible once again.

Conclusion and Recommendations

Archaeological Assessment summary

ChristChurch Cathedral is a Category 1 Historic Place and an archaeological site of high historic value. It embodies both the Anglican religious and secular ideals held by the early settlers of Christchurch and the Canterbury region from the 1850s, whose endeavours to establish and construct the Cathedral over a forty year period were not fulfilled until 1904. In spite of many financial setbacks and design changes over this period, the Cathedral stands as a testament to its supporters, architects and builders who helped deliver George Gilbert Scott's only Victorian Gothic cathedral design in New Zealand.

The site of the Cathedral was also known and utilised by Māori in the centuries before the arrival of European settlers in the early 19th century, when the Christchurch landscape was mostly swampy wetland. The archaeological and cultural significance of the Kōiwi tangata/human burials found during the construction of the Cathedral visitor centre in 1995 (Site M35/489) is high, and forms part of the longer story of the Cathedral site and its use by different cultures over several hundred years.

Since before its completion, the Cathedral site has been a focus of Anglican worship, a focus for broader civic, community and social events for the city's people, and latterly as a centre of cultural heritage tourism that attracted people worldwide. Today, ChristChurch Cathedral is a symbol of the devastation caused by the 2010 and 2011 seismic events in eastern Canterbury and stands in ruins in the centre of Cathedral Square. Its deconsecration in November 2011 removed the Cathedral as a place of worship, but did not remove its outstanding archaeological and cultural heritage significance to ChristChurch and the country as a whole. It did however, signal a period of fiercely competing arguments for its reconstruction and demolition that have stirred feelings across New Zealand and internationally. The current repair proposals that have been assessed in this report are potentially the next phase of the Cathedral site's development.

Recommendations of the assessment

Taking into consideration the findings of the archaeological assessment undertaken for the ChristChurch Cathedral site, the following recommendations are made.

Recommendations relating to the Archaeological Process:

1. As noted previously, under the *Heritage New Zealand Pouhere Taonga Act 2014* an archaeological site is defined as one associated with human activity that occurred before 1900 and which may be able, through archaeological investigation by archaeological methods, to provide evidence relating to the history of New Zealand. Within this context the mid-late 19th century foundations and building of ChristChurch Cathedral can be classed as an 'archaeological site'.
2. It is therefore recommended that the Cathedral site is entered on the New Zealand Archaeological Association's *Site Recording Scheme* as an archaeological site for future record and reference. Any additional information relating to this site that may arise through the proposed stabilisation and reinstatement scheme of works should be entered onto the record for the Cathedral site.
3. The archaeological assessment has identified that the above-ground historic fabric of the Cathedral building will only be subject to partial demolition as part of the proposed stabilisation and reinstatement scheme with considerable portions of the pre-1900 fabric remaining in situ or repaired in situ. Therefore, under Section 42(3) of the Act, an Archaeological Authority application is not required for partial demolition works to the standing Cathedral building.
4. The archaeological assessment has identified that there will be extensive disturbance and modification of the 1860s foundation levels and the ground levels adjacent to the foundations from the proposed foundation base isolation system and creation of the 'rattle' zone. It is recommended that an application for a General Archaeological Authority is made to Heritage New Zealand Pouhere Taonga for these works. As the length of the proposed stabilisation and reinstatement programme is uncertain due to the unknown nature of many of the repairs and rebuilding elements that will be required in the project, it is recommended that the minimum duration of the General Authority applied for is at least ten years from the commencement of the grant of the Authority. Note that if an Authority application is made under the Canterbury Earthquake (Historic Places Act) Order 2011 (amended under the Greater Christchurch Regeneration Act 2016) then the maximum length an Authority may be issued is five years due to the expiration of the Act in 2021.
5. The proposed geotechnical investigation works required prior to the start of the stabilisation and reinstatement programme, although currently unspecified, have been assessed as having a generic level of adverse impact on the sub-face archaeological values of the Cathedral site. It is recommended that they are also included within the General Authority application.
6. The previous disturbance and partial recovery of Kōiwi tangata/Māori reburial remains have highlighted the often unpredictable nature of some archaeological deposits. The current Cathedral stabilisation and reinstatement proposals have some potential to disturb

similar deposits, if present within the sub-surface levels around the Cathedral site. The most appropriate method to address this eventuality within the scope of any Authority grant, is through the adoption of an 'On-Call Procedure' similar in approach and extent to the existing Accidental Discovery Protocol recommended by HNZPT and the Ngāi Tahu Iwi Management plan. HNZPT does not currently have a guidance note for On-Call Procedures, but the basic approach to be used is included below for reference. It is also recommended that the guidelines prepared by HNZPT (AGS8 Guidelines for Kōiwi tangata/Human Remains; February 2010) for encountering and appropriately handling Kōiwi tangata are adopted as part of the Cathedral project protocols. Similarly, in the case of Taonga tūturu/Māori artefacts, the HNZPT guidelines (AGS7 Guidelines for Archaeologists in Relation to the Finding of Artefacts; 2009) are to be specifically followed.

In summary, an On-Call Procedure will require:

- a. If unexpected archaeological material is likely to be encountered, it is important that the contractor has been briefed in advance as to what may constitute archaeological evidence (to be undertaken in the site induction briefing).
- b. In the event unexpected archaeological remains are disturbed, the Contractor or site manager must contact the Approved Archaeologist immediately if they are not already present on site. If the Approved Archaeologist cannot be present immediately then the contractor will cordon off and then leave area of work where the archaeological material has been encountered, and continue elsewhere if possible until the material can be inspected by the Approved Archaeologist or their representative.
- c. Where such unexpected archaeological material relates to possible Maori Taonga tūturu or Kōiwi tangata, work must cease immediately and the area either cordoned off or protected. The contractor must notify the following immediately:
 - i. the Project Archaeologist, who will in turn notify:
 - ii. the HNZPT Regional Archaeologist and;
 - iii. the Rūnanga o Ngāi Tahu/Ngāi Tūāhuriri Rūnanga iwi representative (to be advised).
- d. No further work will be undertaken in the area of the find until they have responded and an appropriate path identified for the recovery of the archaeological material.
- e. If a Taonga tūturu is found during the course of an archaeological authority, the Ministry for Culture and Heritage or the Canterbury Museum must be notified of the find within 28 days of the completion of the field work.
- f. The Authority Holder and contractors are also advised to be aware of their responsibilities and the actions specifically required under the Protected Objects Act 1975 and the Heritage New Zealand Pouhere Taonga Act 2014 in relation to the discovery of artefacts.

Recommendations relating to Archaeological and Cultural Mitigation:

1. As advised by Ngāi Tūāhuriri Rūnanga/Ngāi Tahu, cultural monitoring may be required during the earthworks phase of the project; therefore it is recommended that further discussion is undertaken with the Rūnanga representatives (Mahaanui Kurataiao Ltd) to establish the exact level of cultural monitoring required.
2. Members of Ngāi Tūāhuriri Rūnanga should be further consulted as to their desire to hold a whakawātea (blessing) of the Cathedral site, prior to or at the commencement of work.
3. All geotechnical investigations must be archaeologically monitored for in situ archaeological deposits relating to the development of the Cathedral site.
4. All sub-surface level works associated with the stabilisation and reinstatement programme must be archaeologically monitored and recorded in an appropriately safe manner. In particular, the works relating to the foundation and base isolation proposals must be closely monitored in order to retrieve and construct a detailed understanding of the sequence and nature of the historic foundation construction of the Cathedral and any differences visible across the whole site. This monitoring will also include the foundation strengthening work proposed for the interior columns of the building. It is understood that this ground-level work is programmed to take place towards the end of the stabilisation and repair phases, in order to allow the ground-level work to be undertaken safely once the building has been secured.
5. The proposed removal of the extant Cathedral floor and steps must be archaeologically monitored and the tiled floor surface recorded prior to its removal. It is recognised that some areas of the tiled floor may be too damaged or inaccessible for this to be undertaken in its entirety, so a suitable photographic method is recommended such as a standardised photomosaic approach that will allow the gradual coverage of the tiled floor to be acquired, as areas are progressed across during the works programme.
6. It is recommended that annual interim reports or updates are provided to HNZPT, due to the fact that the proposed works programme will be undertaken over a considerable number of years with the potential for changes in project personnel. An annual reporting scheme will allow all parties to maintain their awareness of the progress of the repair programme and of their responsibilities under the Authority.
7. In accordance with current HNZPT Act 2014 Authority requirements, a final archaeological recording report will be required within twelve months of the completion of the Cathedral site works.

General recommendations – above-ground archaeological values:

The ChristChurch Cathedral Reinstatement Heritage Report, prepared by Origin Consultants (in draft at October 2016), outlines a raft of mitigation recommendations for the above-ground reinstatement works proposed for the Cathedral. These largely encompass appropriate, conservation-focused approaches to the disturbance and replacement of the heritage fabric of the building. Although it may be beyond the remit of the present Authority parameters, it is a strong recommendation of this archaeological assessment that a degree of building archaeology recording is undertaken during the programme of reinstatement work in order to

capture at least some of the key fabric and construction details of the standing building. It is fully recognised that the logistical and access challenges posed by the current and ongoing condition of the structure will limit many normal and strictly 'archaeological' recording practices. However, the maintenance of a photographic record by the contractors, for example, with planned visits by an experienced buildings archaeologist at suitable points in the reinstatement programme, will likely enable sufficient and suitable archaeological information to be retrieved, recorded and analysed as a long-term record of the Cathedral's historic structure.

Released under the Official Information Act 1982

References

Brown, C. (2000) *Vision & Reality: Christchurch's Cathedral in the Square*. Christchurch, Christ Church Cathedral Chapter.

Christchurch City Council (2005) *Contextual Historical Overview of Christchurch City*. [Online]. Available from: <https://www.ccc.govt.nz/assets/Documents/Culture-Community/Heritage/ChristchurchCityContextualHistoryOverviewFull-docs.pdf> [Accessed 19th October 2016].

English Heritage (2006) *Understanding Historic Buildings: a guide to good recording practice*. Swindon, English Heritage.

Holmes Consulting Group (2016) *Christchurch Cathedral Working Group Report*. A report prepared for Resource Co-ordination Partnership Ltd on behalf of the Christchurch Cathedral Working Group. Unpublished.

JGA (2012) *Christchurch Cathedral Archaeological Assessment: Summary of significance*. A report prepared on behalf of RCP, Christchurch for the Church Property Trustees by Jackie Gillies & Associates. Unpublished.

JGA (2013) *Interim Archaeological Recording report for the Tower, Christchurch Cathedral, Christchurch, Canterbury*. A report prepared on behalf of the Church Property Trustees for submission to the New Zealand Historic Place Trust by Jackie Gillies & Associates. Unpublished.

Lochhead, I. (1999) *A Dream of Spires: Benjamin Mountfort and the Gothic Revival*. Christchurch, Canterbury University Press.

Lovell-Smith, M. (2013) *Cathedral Church of Christ (Anglican), 100 Cathedral Square*. Register entry No. 46. [Online]. Available from: <http://www.historic.org.nz/TheRegister/RegisterSearch/RegisterResults.aspx?RID=46> [Accessed 18th October 2016].

Maws Craft Centre (2016) *Maw & Co. History*. [Online]. Available from: <http://www.mawscraftcentre.co.uk/history.php>. [Accessed 20th October 2016].

McKenzie, G.M. (1931) *The history of Christchurch Cathedral (The Cathedral Church of Christ)*. Christchurch, Alex Wildey Limited.

Origin Consultants (2016) *Christchurch Cathedral Proposed Reinstatement*. Heritage report prepared for the Cathedral Working Group by Origin Consultants Ltd. Unpublished.

Salmon Reed Architects (2006) *Christ Church Cathedral – A Conservation Plan*. Unpublished report prepared on behalf of The Dean and Chapter, Christ Church Cathedral, Christchurch.

The Potteries (2016) *The History of Minton*. [Online]. Available from: <http://www.thepotteries.org/potters/minton.htm>. [Accessed 18th October 2016].

Appendix A: Site Record Form

NZAA Site Number M35/489 Human Burials; Māori; Indigenous Pre-1879

Released under the Official Information Act 1982



Site Record Form

NZAA SITE NUMBER: M35/489

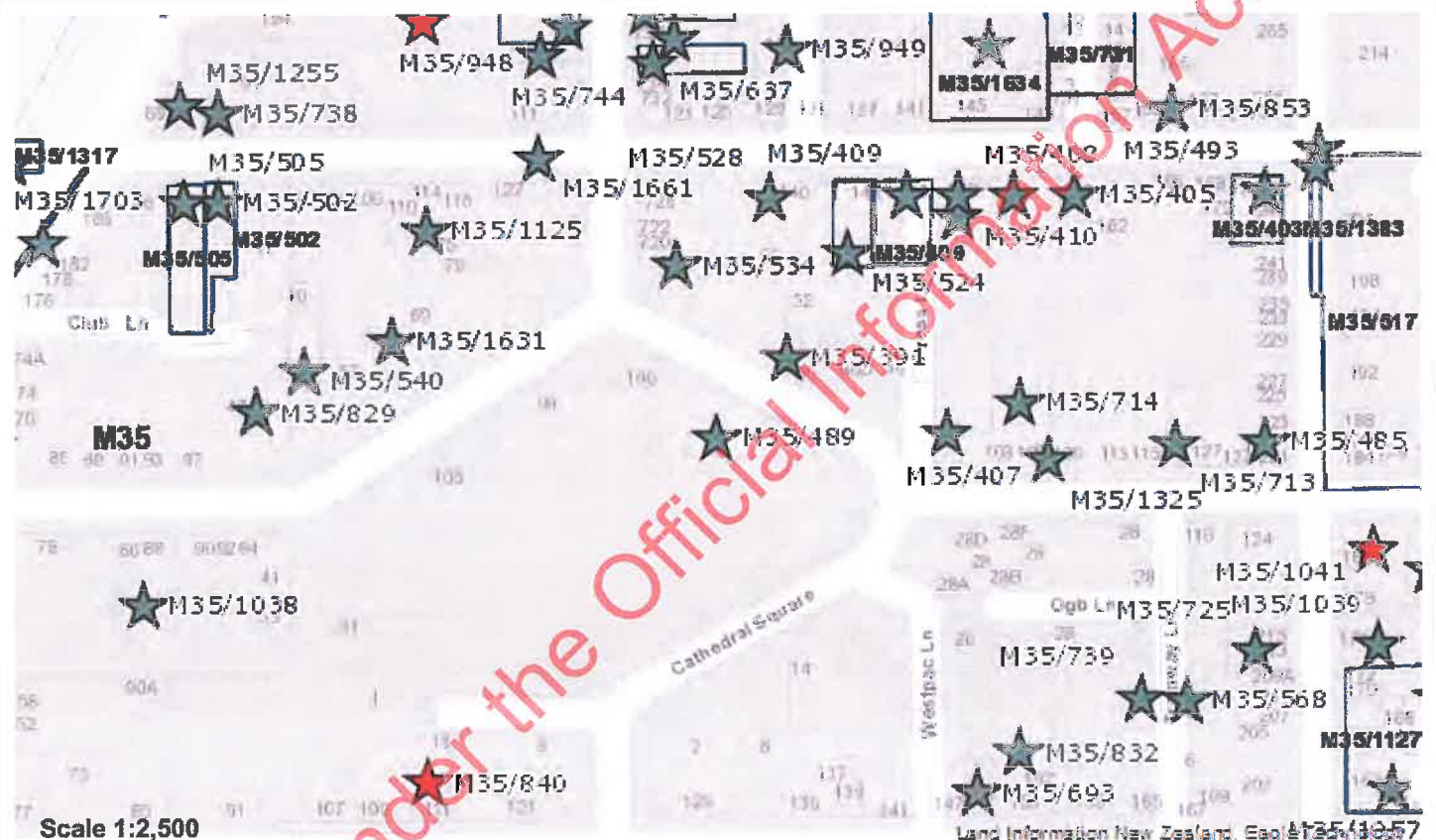
SITE TYPE: Burial/ cemetery

SITE NAME(s):
DATE RECORDED: 29/07/2011

SITE COORDINATES (NZTM) Easting: 1570675

Northing: 5180180

Source: On Screen

IMPERIAL SITE NUMBER:
METRIC SITE NUMBER:

Finding aids to the location of the site

Beneath the Christ Church Cathedral Visitors' Centre, Cathedral Square, Christchurch.

Brief description

Fragments of bones of two people were unearthed by contractors preparing foundations for the Cathedral Visitors' Centre in 1995.

Recorded features

Burial

Other sites associated with this site

SITE RECORD HISTORY	NZAA SITE NUMBER: M35/489
----------------------------	----------------------------------

Site description

Updated 02/11/2016 (other), submitted by Nicola Molloy
Grid reference (E1570675 / N5180180)

Coordinates amended to E1570675 / N5180180, as per Michael Trotter's original burial site record form, which was submitted in July 2011.

Updated 01/09/2016 (Field visit), submitted by Teri Anderson, visited 31/08/2016 by Anderson, Teri
Grid reference (E1570589 / N5180158)

Earthworks for the installation of a time capsule and supporting structure was hydro excavated on the east side of the Godley Statue at 105 Cathedral Square, Christchurch Central, Christchurch under the HNZPT authority 2017/039eq by City Care. The trench was 600 x 600 x 1130 mm depth. The strata exposed consisted of paving stone (80 mm), paving sand (5 mm), river rolled cobbles (700 mm) and then loose grey sand (350 mm).

No archaeological features or artefacts were exposed during these earthworks.

Anderson, Teri. 105 Cathedral square, Christchurch: Report on archaeological monitoring. Unpublished report for Christchurch City Council.

Updated: 29/07/2011, Visited: 17/03/1995 - NZTM E1570675 / N5180180 (On Screen). Remains of the secondary burial of two people that had been placed in a small trench dug into swampy ground some time prior to European settlement. There was evidence that the bones had been exposed to weathering prior to their interment. Subsequently, and probably within the last two hundred years, the swampy area either dried up or was drained, and European activities, including pipe-laying, roading and building, were carried out in the vicinity. During the excavations for the foundations for the Cathedral Visitor Centre, the buried bones were uncovered and broken by excavating equipment. A large proportion of the burials was probably removed from the site along with other excavated materials before the bone fragments were noticed. See also attached site record form for additional information. Inspected by: Trotter, Michael.

Condition of the site

Statement of condition

Updated: 02/11/2016 - Destroyed - Evidence must be provided - Site build over.

Current land use:

Updated: 04/08/2011, Visited: 17/03/1995 - Industrial/ commercial
Updated: 04/08/2011, Visited: 17/03/1995 - Industrial/ commercial, Industrial/ commercial
Updated: 04/08/2011, Visited: 17/03/1995 - Industrial/ commercial, Industrial/ commercial, Industrial/ commercial

Threats:

Updated: 04/08/2011, Visited: 17/03/1995 - Road/ track formation or maintenance, Property development, Services/ utilities
Updated: 04/08/2011, Visited: 17/03/1995 - Road/ track formation or maintenance, Road/ track formation or maintenance, Property development, Property development, Services/ utilities, Services/ utilities
Updated: 04/08/2011, Visited: 17/03/1995 - Road/ track formation or maintenance, Road/ track formation or maintenance, Road/ track formation or maintenance, Property development, Property development, Property development, Services/ utilities, Services/ utilities, Services/ utilities

Supporting documentation held in ArchSite

Released under the Official Information Act 1982



Figure 1. Looking west with base of Godley statue in background. Image: Teri Anderson 31/08/2016.



Figure 2. Looking at the northern baulk of the hydro excavated trench at 105 Cathedral Square, Christchurch Central, Christchurch. Image: Ten Anderson 31/08/2016.

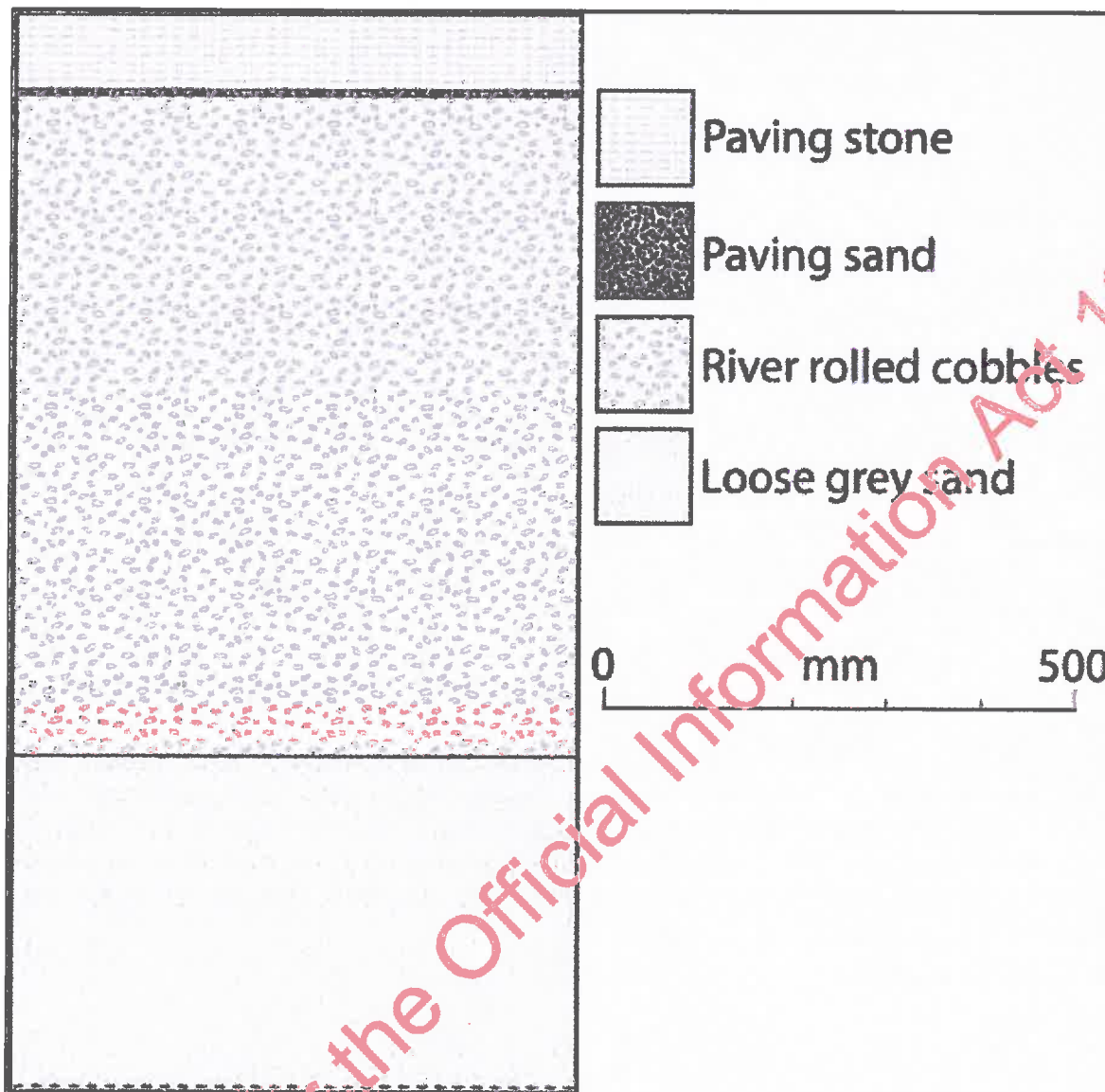


Figure 3. Stratigraphic profile of the northern baulk. Image: Teri Anderson.

**NZAA Site Record
Number: M35/489****SITE TYPE:** Human burials**SITE NAME:** Cathedral Square, Christchurch**RECORD DATE:** 29 July 2011**SITE COORDINATES (NZTM):** Easting: 1570675 Northing: 5180180**Source of location data:** Scaled on map**Field visit date:** 17 March 1995**Visited by:** Michael Trotter**Finding aids to the location of the site:**

Beneath the Christ Church Cathedral Visitors' Centre, Cathedral Square, Christchurch.

Site description:

Fragments of bones of two people were unearthed by contractors preparing foundations for the Cathedral Visitors' Centre in 1995.

These appeared to be the remains of the secondary burial of two people that had been buried in a small trench dug into swampy ground some time prior to European settlement. There was evidence that the bones had been exposed to weathering prior to their interment. Subsequently, and probably within the last two hundred years, the swampy area either dried up or was drained, and European activities, including pipe-laying, roading and building, were carried out in the vicinity. During the excavations for the foundations for the Cathedral Visitor Centre, the buried bones were uncovered and broken by excavating equipment. A large proportion of the burials was probably removed from the site along with other excavated materials before the bone fragments were noticed.

See next page for details.

W. A. Taylor in his book *Love and History of the South Island Maori* (Bascands Limited, Christchurch, 1950), notes on page 48: "Isolated burial-places have been found from time to time in all quarters of Christchurch, even in the heart of Cathedral Square."

List of visible archaeological features:

Nothing now visible as the site has been built over.

Other recorded sites associated with this site:**Condition of site:**

Largely if not completely destroyed.

Record submitted by:

Michael Trotter, Tuahiwi, North Canterbury.

REPORT ON HUMAN BONES FOUND NEAR THE CATHEDRAL

On Friday, 17 March 1995, the Canterbury Museum was asked by Michael Nesbit of Chas Luney Ltd, contractors working on the proposed Visitors' Centre at Christchurch Cathedral, if we could identify some bones uncovered in the course of excavating for foundations. Beverley McCulloch responded to this request and shortly afterwards reported back to me that the bones appeared to be human.

In the meantime Sgt Wayne Jones of the Christchurch Police contacted me to request identification of the bones. As a result, I visited the site, accompanied by Beverley McCulloch, and spent some time sorting the bone fragments out of a pile of earthy material and interpreting the stratigraphy of the cut section adjacent to where they were lying.

The remains were very fragmentary but it was possible to identify part of a male pelvis and a section of limb bone with Maori characteristics.

In accordance with established protocol I requested Sgt Jones to contact Rakihiia Tau so that he or other Ngai Tahu representatives could take appropriate action regarding the disposal of the remains. The bone fragments were then collected together, placed in a covered box and left on the site.

Judging from the evidence of the excavated section, the ground in the area had been swampy at the time the bones had been deposited. The hole dug to accommodate them had been dug through a layer of swampy material, now represented by a 12 centimetre thick black layer, into layers of silt and sand overlying river shingle and more sand. The total depth of the hole that had been dug for the remains, as indicated by intrusive stratigraphy, was 60 centimetres from the top of the black layer, which was itself now overlain by about 40 centimetres of nineteenth or twentieth century ditch fill and other material. The original ground level at the time of the burial could not be determined as it has been affected both by a change in volume of the swampy layer as it dried out and by subsequent activities on the ground.

Before leaving the site we were informed by Dean Bluck of the Cathedral that he was concerned that action had been taken without his prior approval. I advised him that we had responded to a request from the Police and had observed the protocol that had been established with the tangata whenua.

Later in the day Rakihiia Tau advised me that he would be bringing the bones into the Museum for more detailed identification prior to their reburial by the Ngai Tahu.

When received at the Museum, the bone fragments were in a small white coffin together with a quantity of sand and shingle – they had evidently been placed on the ground again during a ceremony on the site. They comprised 112 bone fragments and one broken tooth; there were no whole bones and many of the fragments showed mechanical gouging and abrasion suffered during the excavation for the Visitor Centre foundations. Some of the bone surfaces also showed old pitting marks due to weathering.

A flake of andesite rock which I had obtained while cleaning down the stratigraphy, and which had been deliberately buried with the remains, was missing, although it had been left with the remains in the original box. The fragments were brushed clean and the larger pieces sorted out. They comprised:

Tibia:	9 pieces of 4 bones
Femur:	7 pieces of 2 bones
Humerus:	4 pieces of 2 bones
Ulna:	3 pieces of 1 bone
Radius:	1 piece

Rib:	7 pieces
Pelvis:	2 pieces
Scapula:	1 piece
Mandible:	1 piece with a broken tooth

These clearly comprised the partial remains of two people, one slightly smaller than the other. The freshness of the broken surfaces indicated that the breakage occurred on two occasions, one immediately prior to our visit to the site, the other some days earlier. The fact that even when pieces were fitted together no bone was complete indicated that many pieces had been taken from the site since breakage, presumably amongst excavated sand and shingle.

The smaller of the two individuals represented by the bone fragments is estimated as having been about 173 centimetres tall, of medium build, and a male; the only slight indication of degenerative disease suggests he was aged no more than about 30 years. The other individual was both taller and more heavily built, but was probably much the same age. Other bones were too fragmentary and sparse to assign to one or other of these individuals, but the wear on the one tooth suggests a similar age.

An interpretation of the evidence is that at some unknown date prior to European settlement, the dry bones of two individuals were gathered together and buried in a small V-shaped trench dug into a patch of swampy ground. The bones had been exposed to weathering prior to their interment. Subsequently, and probably within the last two hundred years, the swampy area either dried up or was drained, and European activities, including pipe-laying, roading and building, were carried out in the vicinity. During the excavations for the foundations for the Cathedral Visitors' Centre, the buried bones were uncovered and broken by excavating equipment. A large proportion of the burials was removed from the site along with other excavated materials. On 17 March the remaining fragments were noticed and brought to the attention of the Police who contacted the Museum, the Cathedral authorities and the tangata whenua.

Michael M. Trotter

Canterbury Museum

23 March 1995

Appendix B: Proposed Stabilisation and Reinstatement Outline Designs

Please refer to the main project report for the following document:

Holmes Consulting Group (2016) *Christchurch Cathedral Working Group Report*. A report prepared for Resource Co-ordination Partnership Ltd on behalf of the Christchurch Cathedral Working Group.

Released under the Official Information Act 1982

APPENDIX 3: HERITAGE REPORT

Released under the Official Information Act 1982