MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

Regional Growth Initiatives Multi Year Appropriation

3b. Business Case Templates

April 2017

CONTENTS

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Regional Growth Initiatives Multi Year Appropriation
Business Case

Project Name
Taranaki's Historic Cathedral Project

Regional Lead/Applicant

Prepared by	Privacy of natural persons, Project + Design Manager
Prepared for	Taranaki's Historic Cathedral Project Board
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Document sign-off

Name	Role	Sign-off date
Privacy of natural persons	Commercial Information	**29 January 2018**

Checklist and other annexes

COMPLETED

Executive summary	√
Strategic case	√
Economic evaluation	√
Project plan	√
Operational budget	√
Management plan	√
Next steps	√

You should also attach any supporting documents. This must include evidence of endorsement by the regional lead which will be responsible for the relevant project, and could also include letters of support from regional stakeholders, governance documents, designs/concept development, feasibility studies, economic or risk evaluations or any document which supports assumptions, measurements or judgements made in the business case. Please list these in order below, and reference each document.

	Document (title)	Purpose
1	**Project Brief**	Public consultation and communication
2	**Holmes Consulting Preliminary Design Report**	Report prefacing current stage of engineering design. Actual design drawings available if required (note: large file)
3	**Preliminary Estimate,** Commercial Information	Key project information
4	**Image of interior enhancements to Cathedral**	Public consultation + communication
5	**Invitation to Hui Reflections on The Historic Cathedral Project -** Privacy of natural persons	Transcript of interviews at Hui, September 2017
6	**Our Shared Story,** Privacy of n	Current example of Visitor experience development
7	**Public statements of endorsement by** Commercia	Fundraising document
8	**Letter of endorsement from** Privacy of natural persons	Key Regional stakeholder

9	**Letter of endorsement from** Privacy of natural persons	Key Regional stakeholder
10	**Letter of endorsement from** Privacy of natural persons	Key Regional stakeholder
11	**Letter of endorsement,** Commercial Information	Key Regional stakeholder
12	**Letter of endorsement,** Privacy of natural persons	Key Regional stakeholder
13	**Letter of endorsement by** Privacy of natural persons	Key Regional stakeholder
14	**Letter of endorsement by** Privacy of natural persons	Key Regional stakeholder
15	**Letter of endorsement,** Commercial Information	Key Regional stakeholder

EXECUTIVE SUMMARY

- Funding of $5M is sought for the Taranaki's Historic Cathedral Project. The Project will restore and protect New Zealand's oldest stone, Taranaki Cathedral. It will enable the building and graveyard to be the centre piece of professionally curated displays that showcase the story of European settlement in Taranaki and the relationship between Maori and Pakeha over 175 years. Through a truthful telling of a turbulent and colourful history that saw the Church acting as a garrison, the project will make a unique contribution nationally to enhanced bi-cultural understanding and relationships in the future.

- The restoration and upgrade of Taranaki Cathedral is a $Commer construction project. This is the vital first stage of a $Commercia project which sees the site significantly altered. The existing wooden Vicarage, a distinctive turn of the century villa will be relocated within the site to be much closer to the Cathedral allowing it to take on a new role as a key community facility. Between it and the Cathedral a beautiful world class welcoming space, an Atrium, will be built that will signal a radical inclusiveness from the very point of entry on to the site. The development will acknowledge the life, leadership and achievements of Ta Paora Reeves, Puketapu Te Atiawa, Archbishop, Governor General, international negotiator and peace envoy. This will be a destination that provides the visitor with a transformative educational and interpretative experience.

- The aim is to start construction in May 2019 with the works expected to take 15 months. Ideally the $5M RGI funding would be spread over 2.5 years with a $Commerci payment Commercial Information and Cor payments of $Commercial Inf in the Commercial Information . Commercial Information

  To date $Commercial Inf has been raised by Commercial Information with steady progress being made. Commercial Information is an important contributor with a $Commercial Information pledged to bridge short term cash flows.

- Consultants are well advanced on the upgrading design. Architectural work is proceeding to design enhancements that will touch the building lightly, but greatly improve its flexibility and comfort as a community gathering space for music, discussion and drama.
  Conservation work to overcome areas of stone damage, moisture ingress and scope deferred maintenance is well underway.
  The essential strengthening components will be largely unseen as every effort is made to minimise visual impacts upon the heritage fabric of the building. Steel pins and high-tech grouts will be hidden within the stone walls using techniques mastered in the Canterbury rebuild. Steel and ply bracing elements will be concealed between the slate roof and timber ceiling and additional concrete placed under the foundations.

- The formal objectives of this project are
  - to upgrade, re energise and restore Taranaki Cathedral, safeguarding a Category 1 Heritage building and its history for generations to come
  - to showcase the story the buildings and site tell of the relationship between Maori and Pakeha that happened here; a story of pride and shame told in a way that will resonate with all New Zealanders and ultimately contribute to enhanced bi-cultural relationships in the future.
  - to create a nationally significant tourist drawcard assisting the region to meet Visitor Sector growth targets identified in the Regional Growth Strategy, Tapuae Roa.

STRATEGIC CASE

Investment objectives

Project Objective One	**To upgrade and restore Taranaki Cathedral**
Existing arrangement	Taranaki Cathedral is the oldest stone church in New Zealand and is recognised as a Category 1 Heritage Building. The building and its surrounding graveyard are vitally important components in the region's history and are in danger of being lost forever as this building silently deteriorates. The building has been closed to the public since February 2016 after being declared Earthquake Prone. All activities previously housed in the Cathedral have been moved off site to a Hall. Tourists are not allowed to enter the building. No maintenance is being undertaken on the building despite evidence of roof leaks and stone deterioration. Some readily relocatable treasures within the building have been removed to safe storage and as the duration of the closure bites planning has begun for relocation and storage of further treasures.
Business need/scope	The Cathedral was built by the community through a series of building projects over a 175 year period. For generations the Cathedral has been a place where the community of Taranaki has gathered to celebrate and grieve. The Cathedral space is the hub of the Parish and all the community work it performs. Closure has removed the revered space and its stories from the lives of the very families who built it with a consequent loss of pride, historical fabric and cultural identity. Closure impacts upon the regional economy as important commemorations and family weddings and celebrations are conducted elsewhere, often out of the region. Prolonged closure threatens the strength of existing community outreach programmes and work with the vulnerable in the community. Closure has removed a unique tourist offering from the Taranaki region
How will the project meet this need?	Upgrade and restoration works will allow Taranaki Cathedral to reopen, enabling this community to reconnect with its past, and safeguard a unique historical asset, allowing it to play an ongoing role in the economic life and identity of the Taranaki region. It is the essential first step in the Taranaki's Historic Cathedral Project.

Project Objective Two	**To showcase the Story of our Past and Future**
Existing arrangement	The oldest stone church in New Zealand is closed. The interior, rich with artefacts and stories of the relationships between Maori and Pakeha from earliest New Zealand settlement is unavailable as a visitor and educational experience. Educational visits from schools and tour groups have ceased since closure The Cathedral was an integral part of Pukeariki's Historic Walking Tours but since closure the tour quickly skirts the exterior of the building with a consequent loss of regional tourist income and engagement from visitors.
Business need/scope	Taranaki Cathedral and its site and are superbly placed to tell the stories of European settlement and the changing relationships between Maori and Pakeha since earliest times. There is a thirst amongst New Zealanders, especially our youth for the real stories of our history that can be experienced here- of Land wars, a disillusioned settler community and a garrison church. Some stories will engender pride and some shame, but their telling will be to the education and interest of all because they are reflective of not just this region's history but of our nation. Visits to cultural institutions and historic places are a significant reason for many people to travel domestically and internationally. Taranaki Cathedral and its site have the potential to be a huge tourist drawcard for the region.
How will the project meet this need?	The Historic Cathedral Project will re open the building bringing our history alive for all visitors – young, old, local or international. The destination will provide a transformative educational and interpretative experience through professionally designed displays, audio visual guides and multi media resources. This will be a truthful and engaging telling of an at times turbulent relationship between Maori and Pakeha as the cathedral and the region grew over 175 years. The second stage of The Project acknowledges the life and achievements of Sir Paul Reeves, Ta Paora, a man of two cultures who saw Taranaki Cathedral "as a place where the right relationship between Maori and Pakeha could be modelled"‡. His life story and contribution to peace-making globally points to the exciting future of reconciliation as the bi cultural partnership develops here in our country. Iwi engagement is well underway and will add a hugely important cultural dimension to this project. Taranaki's Historical Cathedral Project will ensure the visitor sector has a unique, nationally significant offering that differentiates Taranaki from other regions. For this reason it is understood that there will be specific references and prioritisation of The Cathedral Project in Visitor Sector Action Plans developing from the Tapuae Roa Strategy document. ‡See Annex 5: Privacy of natural persons, Hui in New Plymouth September 2017

Project Objective Three	**Re-energise the building by improving its flexibility as a community gathering space for music, discussion and drama.**
Existing arrangement	The Cathedral has a wonderful acoustic with a renown organ but its inflexible pew seating and succession of floor levels hinders its usage for variously sized and types of occasions. The building's current lighting is inflexible and detracts from the ambience and beauty of the architectural form. The existing gas heating system performs poorly and is contributing to moisture movement through the stonework.
Business need/scope	There is demand from the performing arts community for a space with the atmosphere and size of the Cathedral but the current interior configuration precludes that use – it is totally inflexible and unsuited to requirements of today's audience. Diversification of use is required. Cathedrals in United Kingdom have safeguarded their relevance and positions as important cultural centres by ensuring they can meet the needs of their communities and are seen as ideal places to host activities as diverse as art exhibitions and business interest groups meetings and debates. ‡ ‡Cathedrals & Their Communities: A report on the diverse roles of cathedrals in modern England. Dept for Communities and Local Government
How will the project meet this need?	New comfortable and readily moveable seating will be introduced and a single raised floor through the sanctuary area will be created to serve a wider range of users. New heating and responsive lighting will be designed to improve the comfort and experience within the building The Chapel area of the Cathedral will be enclosed by glazing to allow this beautiful intimate space to be always available for quiet contemplation even while visitors or others are using or moving around the building.

Key strategic risks

Risk	Responsible party	Risk treatment (by applicant)
Inadequate funding extends closure and community disengagement occurs. Church abandons building and commissions demolition to ensure public safety.	Taranaki's Historic Cathedral Project Board	Taranaki's Historic Project Board formed. Initial project scope developed and tested with Comm key community leaders and stakeholders, public and parish feedback. Project scope altered to reflect public input. The Historic Cathedral Project launched and a fund raising professional engaged to advise on fund raising strategy. Fund raising committee headed by experienced leader. Team actively seeking a range of public and private funding opportunities. Commercial Information will be targeted with thorough application + ensure advisers to Commercial Information are continuously consulted and well informed of The Project Communication strategy developed to keep public and parish engaged and informed throughout (website, radio, social media). Key local stakeholders – Commercial Information provided with one on one updates. Parish forums regularly held.
Seismic event occurs with significant loss of the building and contents prior to upgrade occurring	Taranaki's Historic Cathedral Project Board	Design work towards the upgrade is well advanced but construction can only proceed when funding in place. Currently safety of public is assured by closure of the building. Removal of easily relocatable items from interior has occurred. Removal of organ and reredos currently being planned A 3D Laser scan of the building interior and exterior has recorded the building and its current condition in detail. The building is insured.

Inadequate interest from Visitor Sector	Taranaki's Historic Cathedral Project Board	The project scope and intent is well researched and supported. Visits to cultural institutions and historic places are a significant reason for many people to travel domestically and internationally. Tapuae Roa, Taranaki Regional Economic Growth Strategy Aug 2017 states the visitor sector is currently under developed with significant potential to build upon the cultural life and history of the region…"premium products can attract premium rewards" Privacy of natural persons states "having access to the physical spaces and the stories that this project plans to deliver will enhance the offerings available and draw in people to the region who may not have considered coming before". See Annex 8.
Robustness of proposed engineering design – will it work, is it best solution?	Taranaki's Historic Cathedral Project Board	Holmes Consulting was selected as Structural Engineer as they have vast experience in earthquake engineering in Christchurch and Wellington. An Engineering Peer review was considered best practice however and is currently underway. Commercial Information are supportive of the peer review. Results are pending but have resulted in further site investigations being ordered.
Robustness of Cost Estimates- Are costs realistic?	Taranaki's Historic Cathedral Project Board	Commercial Information Quantity Surveyors have provided estimates on upgrade costs at Engineering Concept and again at Engineering Preliminary Design stages. Further estimates will be undertaken by Commercial Information at the conclusion of the Peer Review and at Developed Design stage (see Project Timeline, pg 19). This information will be fed in to and allow for updates of the Operating Budget (pg 25). This information will be relayed to funders as required.
Resource Management Act delays	Taranaki's Historic Cathedral Project Board	New Plymouth District Council planners are fully informed of the project and a Non-Notified Resource Consent application is required for this first upgrade stage. Commercial Information are fully informed and supportive of the upgrade. An Archaeological Assessment of the excavations required has been completed and Commercial Information have granted an Archaeological Assessment Authority Local iwi , Ngati Te Whiti have welcomed involvement in the project. They have been consulted and signed off on necessary excavation work required (foundations).

High level objectives alignment

Stakeholder	Relevant high level objective(s)	Explain contribution/alignment
Ministry for Culture & Heritage	To promote a confident and connected culture	The Cathedral was built by the community through a series of building projects over a 175 year period. For generations the Cathedral has been a place where the community of Taranaki has gathered to celebrate and grieve. The Cathedral space is the hub of the Parish and all the community work it performs. Taranaki Cathedral and its historic site hold a unique story of European settlement and the relationship between Maori and Pakeha settlers. This Project will use the site and buildings, professionally designed displays, audio visual guides and multi media resources to tell this story, making a unique contribution to enhanced bi-cultural understanding and relationships in the future.
	To support maintenance of cultural infrastructure such as heritage buildings, museums, art galleries and performing arts venues	Taranaki Cathedral is New Zealand's oldest stone church. It is a Category 1 Heritage building. Indefinite closure threatens the buildings existence. This Project ensures its retention and heritage values remain as well as touching the building lightly to enhance its usability as a community space for performance, debate or exhibition.
Tapuae Roa Strategy- (Taranaki Regional Economic Development Strategy)	Growth of Taranaki's Tourism and Visitor Sector	Taranaki Cathedral is New Zealand's oldest stone church. It is a Category 1 Heritage building, a nationally recognised treasure. An upgraded and re energised Cathedral safeguarding and showcasing the stories of the region widens domestic and international visitor options in the region and will be an important part of achieving the aspirational target of Comme% increase in tourism per annum. This historic building, site and story offers an all year, all weather experience engaging the visitor of any age or fitness on multiple levels.

Venture Taranaki Trust	Drive and facilitate sustainable, diverse economic growth in Taranaki….the place to visit	A re opened Cathedral can cement Taranaki's reputation not just as a centre for the arts, but as a destination for heritage and culture. Currently the region has few historical attractions and nothing of the cathedral's mana and scale. An upgraded and re energised Cathedral safeguarding and showcasing the stories of the region widens domestic and international visitor options in the region.
MBIE- Regional Economic Development	Promote regional economic development focussed on growing employment and investment	Taranaki Cathedral is New Zealand's oldest stone church. It is a Category 1 Heritage building, a national treasure. An upgraded and re energised Cathedral safeguarding and showcasing the stories of the region widens domestic and international visitor options in the region.
NPDC	Provide unique cultural and visitor experiences Preservation and appreciation of built heritage (Heritage Strategy)	Already recognised as the number 2 region in the world to visit (Lonely Planet 2017), An upgraded and re-energised Cathedral safeguarding and showcasing the stories of the region offers a unique domestic and international visitor experience. Taranaki Cathedral is New Zealand's oldest stone church. It is a Category 1 Heritage building. Indefinite closure threatens the buildings existence. This Project ensures its retention and heritage values not only remain, but are brought alive.
Heritage NZ	Preservation of heritage. Public accessibility, education and appreciation of social and built heritage	Taranaki Cathedral is New Zealand's oldest stone church. It is a Category 1 Heritage building. Indefinite closure threatens the buildings existence. This Project ensures its retention and heritage values remain while enhancing the interior to improve engagement for visitors. The Historic Cathedral Project will re open the building bringing our history alive for all visitors – young, old, local or international. - Through professionally designed displays, audio visual guides and multi media resources there will be a truthful and engaging telling of an at times turbulent relationship between Maori and Pakeha as the cathedral and the region grew over 175 years. The Historic Cathedral Project will bring a greater appreciation of Taranaki's social and built heritage.

MBIE	Progressively upgrade older building stock to reduce the risk to the public.	Upgrading and earthquake strengthening of heritage buildings ensures safety of public users and preservation of heritage fabric. Strengthening of unreinforced masonry buildings (URM) in close proximity to strategic transport routes is a priority. Taranaki Cathedral is located on a busy State Highway (45) with its 12m high URM northern gable just 3 metres from the footpath. This project upgrades and earthquake strengthens New Zealand's oldest stone church.
Heritage Taranaki	Preservation of heritage. Public accessibility and education about heritage	Taranaki Cathedral is New Zealand's oldest stone church. It is a Category 1 Heritage building. Indefinite closure threatens the buildings existence. This Project ensures its retention and heritage values remain while enhancing the interior to improve engagement for visitors. The Historic Cathedral Project will re open the building bringing our history alive for all visitors – young, old, local or international. - Through professionally designed displays, audio visual guides and multi media resources there will be a truthful and engaging telling of an at times turbulent relationship between Maori and Pakeha as the cathedral and the region grew over 175 years. The Historic Cathedral Project will bring a greater appreciation of Taranaki's social and built heritage.
Diocese of Waikato & Taranaki	Earthquake Prone Buildings policy states priority should be appropriately focussed on high risk buildings where long term sustainability is assured.	Taranaki Cathedral is New Zealand's oldest stone church. It is a Category 1 Heritage building, a national treasure. It holds stories of the Church and the region through the good and bad times. Telling its story through professionally designed displays, audio visual guides and multi media resources has the capacity to be a huge educational and transformative experience for all who come. The building has a sustainable future as an historic building, a place of commemoration, celebration, worship, education, performance and bi cultural understanding.

ECONOMIC EVALUATION

NOTE; At this early stage of development no formal economic evaluation has been completed although there has been significant discussion about the possible economic contribution. Other studies in New Plymouth, eg Berl, have been considered for relevant background data. This schedule outlines options.

Performance Measure	Low estimate	Medium estimate	High estimate	Basis and what will be needed to move from low to high estimates
Number of domestic visitors annually*	Commercial Infor	Commercial Infor	Commercial Infor	Low estimate based on visitors adding ½ day to itinerary while in New Plymouth, with interest in local history and genealogy. High estimate on significant music, art, drama events in Cathedral and a powerful story and exhibition attracting those who are historic and cultural tourists as one of the more significant reasons to visit Taranaki. Provides a wet weather option and exhibitions and offering is refreshed every 3 to 5 years. Adds an extra day to their stay
Number of international visitors annually* *This excludes attendance at church services, funerals, weddings etc	Commercial In	Commercial Infor	Commercial Infor	Low estimate based on visitors adding ½ day to itinerary while in New Plymouth, with interest in local history and genealogy. High estimate on significant music, art, drama events in Cathedral and a powerful reconciliation story and exhibition attracting those who are historic and cultural tourists as one of the more significant reasons to visit Taranaki. Promotions by Air NZ and government diverting tourists away from congested areas will influence number growth. Provides a wet weather option and exhibitions and offering is refreshed every 3 to 5 years Adds an extra day to their stay. Wedding numbers will increase including from out of region.
Percentage satisfaction with visit	Comm%	Comm%	Comm%	Amount of investment will produce a quality product and increase satisfaction
Number of school students attending	Commercial In	Commercial In	Commercial In	Commercial Information averages Commercial Infor per annum with a changing exhibition programme –this number focuses on relevance to school curriculum. Significant educational and learning opportunities. This has been a feature of the cathedral prior to its close.
Contribution to Regional Income	$Commercial Info	$Commercial I	$Commercial Info	Based on international visitors spending approx $Commerc per person as per the Berl report for the Commercial Information for each option. National visitors have been estimated at Comm% spending $Comm (low), $Commerc (medium) or $Commerc (high) each
Local economic opportunities	$Commercial I			Comm% of the $Commercial I construction value will be labour of which Comm% will be specialist and sourced externally. This represents a regional impact of Comm person years on site at $Commerc per day or $Commerc pa. There are opportunities for training of local people in specialist work such as stone masonry and slate roof work. These skills are in demand in New Zealand as earthquake remediations and rebuilds take place throughout the country.

ECONOMIC EVALUATION

Cost/benefit breakdown

	PREFERRED OPTION *Requested investment*	*EXISTING SITUATION*
Period of expected economic benefits from project (years)	Extend the life for at least another 175 years	Cathedral is 175 years from first construction.
Capital/whole of life costs	This has yet to be assessed	An economic review will be conducted as stage two is finalised.
Cost-benefit analysis of monetary costs and benefits		
Present value of monetary benefits	Unable to determine at this time	An economic review will be conducted as stage two is finalised.
Present value of costs	As per budget	Final planning for stage two being finalised.
Net present value	Unable to determine at this time	An economic review will be conducted as stage two is finalised.
Benefit/cost ratio	Unable to determine at this time	An economic review will be conducted as stage two is finalised.

PROJECT PLAN

Outline the procurement process used/to be followed

1 PROCUREMENT OF DESIGN CONSULTANTS

A Project Manager has been appointed to represent the Owner and Taranaki 's Historic Cathedral Project Board. The Project Manager is a Registered Architect with widespread experience in heritage and building survey work. The PM reports to the Governance Board. Sign off on all procurement will be the responsibility of the Board.

The following list of consultants have already been engaged in this project:

Holmes Consulting (Structural Engineering)
Commercial Information, (Architects)
Commercial Information (Quantity Surveyors)
Privacy of natural persons (Archaeologist)
Ian Bowman (Conservation Architect)
Privacy of natural persons (Structural engineer, peer review)

These consultants have been selected based on their specialised knowledge in the relatively unique field of restoring unreinforced masonry buildings of this age and type or their work with sacred heritage fabric. Credentials/references of each was discussed / evaluated with other project managers involved in earthquake rebuild projects (in Christchurch) and heritage rebuilds. Each consultant has/is contracted for services based on fee estimates for defined stages of the work.

Work is currently underway to confirm a small team to shape the brief (the content and key measurables) of the Visitor Experience. Privacy of natural persons has offered expertise and key iwi figures have signalled support for involvement. Work has begun amongst the wider Cathedral parish on content with a "Shared Story" educational series that began in October 2017. The connections and feedback from this series are providing invaluable pointers and material for the proposed experience. See Annex 6: Our Shared Story.

Once content and personnel are confirmed, a brief and tender opportunity will be provided to experienced Exhibition & Display Designers (see Timeline pg 19).

2 PROCUREMENT OF BUILDING CONTRACTOR

The construction skills required in this project are highly specialised and will use high tech drilling equipment and grouts. The trades people that will be required are also quite rare- skilled stone masons and slate roof applicators for instance.

For this reason, Holmes Consulting have recommended Early Contractor Involvement (ECI). This involves utilising the expertise and experience of a particular contractor or tradesperson as the documents and design is finalised to ensure ease of buildability. This is likely to mean that certain sub contractors (rather than a main contractor) would gain status of Nominated Subcontractor so that any main contractor tendering for the work would use that person for that section of the works.

Outline the key project requirements, used/to be used in procurement
Commercial Information Instead a pre-qualification of tenderers will be required. Key information required from potential Contractors will be : Overall experience in unreinforced masonry restoration Track record in projects of this size- demonstrate sound financial and time management Satisfactory references from clients with similar projects Financial security/ resources Staff resources – skills, numbers, experience Insurances in place and current Health + Safety record

Commercial Information

Scheduled Payments

DATE	Project milestone	Associated payment	Evidence/reporting required
Commercial Information	Early Contractor Involvement- to inform specialist work		
Commercial Informa	Call for pre registration and qualification of main contractors		
Commercial Informa	Review of cost estimates based on detailed design		
Commercial Informatio	Contract Documents completed (coordinated by Architect). Application for Building consent		
Commercial Informatio	Selection and notification of Tenderers		
Commercial Information	Tender package released. NZIA Conditions of Tender		
Commercial Information	Tenders close		
Commercial Information	Evaluation of Tenders		
Commercial Information	Contract award. NZIA SCC 2016 (or current version)		
Commercial Information	Building Consent Granted. Construction begins		
Commercial Information	Construction continues, Monthly Progress Claim assessed and paid	see Note 1, 2	see Note 1, 2, 3
Commercial Information	Construction continues, Monthly Progress Claim assessed and paid	see Note 1, 2	see Note 1, 2, 3
Commercial Inform	Construction continues, Monthly Progress Claim assessed and paid	see Note 1, 2	see Note 1, 2, 3
Commercial Information	Construction continues, Monthly Progress Claim assessed and paid	see Note 1, 2	see Note 1, 2, 3
Commercial Informatio	Construction continues, Monthly Progress Claim assessed and paid	see Note 1, 2	see Note 1, 2, 3
Commercial Information	Construction continues, Monthly Progress Claim assessed and paid	see Note 1, 2	see Note 1, 2, 3
Commercial Information	Construction continues, Monthly Progress Claim assessed and paid	see Note 1, 2	see Note 1, 2, 3
Commercial Informatio	Construction continues, Monthly Progress Claim assessed and paid	see Note 1, 2	see Note 1, 2, 3
Commercial Informatio	Construction continues, Monthly Progress Claim assessed and paid	see Note 1, 2	see Note 1, 2, 3
Commercial Information	Construction continues, Monthly Progress Claim assessed and paid	see Note 1, 2	see Note 1, 2, 3
Commercial Information	Construction continues, Monthly Progress Claim assessed and paid	see Note 1, 2	see Note 1, 2, 3
Commercial Information	Construction continues, Monthly Progress Claim assessed and paid	see Note 1, 2	see Note 1, 2, 3

Commercial Information	Practical Completion. Partial payout of retentions	see Note 1, 2	see Note 1, 2, 3
Commercial Infor	Defects Liability Period	see Note 1, 2	see Note 1, 2, 3
Commercial Information	Defects Liability Period	see Note 1, 2	see Note 1, 2, 3
Commercial Informatio	Defects Liability Period over when works completed satisfactorily. Payout of retentions	see Note 1, 2	see Note 1, 2, 3

Notes:

Commercial Information

Key project risks

Risk	Responsible party	Risk treatment (by applicant)
Poor quality of Construction Tenders	PM, QS	Procurement method chosen will avoid this. Early Contractor Intervention and Pre Qualification of Tenderers will ensure market is well informed of scope of project and contractors have the information and ability to tender.
Tender prices exceed budgeted funds	PM, QS,	Quantity Surveyor updates estimates as project develops allowing greater accuracy. (see Project Timeline, pg 19). These estimates will allow for the Operating Budget to be updated. The Quantity Surveyor Estimate of $Commercial I includes a contingency. For additional risk mitigation a $Commercial Informat all of project contingency has been required by Governance Board. The Commercial Informat contributions to the project are already flowing in which will assist budget control.
Lower than expected Visitors and Use of Upgraded Cathedral	PB	The Project Board has listened to the community to ensure relevance. The initial project scope was developed and tested with Comm key community leaders and stakeholders, the parish and public. Project scope was then altered to reflect and align with feedback received. The Historic Cathedral Project was then launched. The Our Shared Story (see Annex 6) series currently being run is providing clear evidence of interest in the historical story that will be professionally showcased. Free and frank opinions [redacted] See Annex 8 Commercial Information [redacted]. Overseas evidence provides proof that diversification of use of Cathedral spaces is supported . Cathedrals in United Kingdom have safeguarded their relevance and positions as important cultural centres by ensuring they can meet the needs of their communities and are seen as ideal places to host activities as diverse as art exhibitions and business interest groups meetings

		and debates.* *Cathedrals & Their Communities: A report on the diverse roles of cathedrals in modern England. Dept for Communities and Local Government
(Risk to Funder) Project achieved at lower expenditure than budgeted	PM, QS	Commercial Information Quantity Surveyors have provided estimates on strengthening costs at Engineering Concept and again at Engineering Preliminary Design stages. These have been used to develop the Operating Budget, (pg 25). Further estimates will be undertaken by Commercial Information at the conclusion of the Peer Review and at Developed Design stage (see Project Timeline, pg 19). This information will be fed in to and allow for updates of the Operating Budget. This information will be relayed to funders who may wish to adjust their support accordingly.
Existing building condition differs from expectation or changed scope of work required with cost implications	PM, E, A, QS	Extensive investigation work of wall interiors undertaken during Peer Review phase to inform engineering design. Thorough documentation from consultants to avoid areas of unclear scope. Thorough planning and consideration of alternatives during design stages to avoid change or scope creep. There is a contingency built in to budget
Contractor error in tender pricing endangers their viability and ability to complete project	PM, QS	Price is only one factor in tender award. QS involvement in evaluation of tenders will eliminate unrealistic prices and identify large errors mitigating this risk
Poor weather slows work and threatens cost blow out	PM	Contract is Commercial Information so weather does not influence cost. The placement and maintenance of an all-weather shrink wrap around the building will be included in the Tender Conditions to prevent delay /weather damage
Contractor lacks necessary skills	PM	Pre qualification of Tenderers will prevent this situation
Fire or flood or vandalism damages building during works	PM	Contract Works Insurance will be taken out by building owner. Securing of building site is Contractor's responsibility.
Contractor has accident damaging his plant and equipment	PM	Contractor will be required to have adequate levels of Public Indemnity Insurance, Motor Vehicle and Plant Insurance.

Contractor goes in to Liquidation after another project goes sour	PM	Pre qualification of Tenderers will alert selection panel of other projects contractors involved in, which should prevent this situation. Legal advice immediately required and site locked and all access prevented while situation sorted.
Worker injury	Contractor	Architects scope of work includes ensuring Health + Safety in design across all disciplines. Contractors Health + Safety record will be part of Pre- Qualification selection. Contractor controls site and must supply Project Specific Health + Safety Plan and keep Health + Safety registers.
Changes to Project Team	PB	Professional handover process enacted. Taranaki has a skilled workforce to draw upon.

Key to Responsible Party

E Engineer
CA Conservation architect
QS Quantity surveyor
PM Project Manager
A Architect
PB Project Board

Operating budget

A) CATHEDRAL ONLY BUDGET		TARANAKI'S HISTORIC CATHEDRAL PROJECT							
Operating Budget	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	Total
	$k	$k	$k	$k	$k	$k	$k	$k	$k
Expenditure									
Capital Expenditure - Building *	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Capital Expenditure - Exhibit/Display		[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Contingency **	[redacted]	[redacted]	[redacted]	[redacted]	1 [redacted]	[redacted]	[redacted]	[redacted]	[redacted]
TOTAL Capital Cost	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]				
Operating Expenditure									
Campaign Costs	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]				[redacted]
Operating costs funded									
TOTALOperating Costs	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Co-funding Secured - [redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]				[redacted]
Co-funding - planned - [redacted]		[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Co-funding - unsecured									
TOTAL	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Operating Funding Required	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Capital funding Required	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Total Capital and Operating Costs	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Total Funding (above)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Funding Shortfall	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
* Quantity Surveyor estimate includes contingency of $[redacted] (industry standard for complex restoration of historic building).									
** Additional all of project contingency as required by THCP Governance Board.									

B) TOTAL PROJECT		**TARANAKI'S HISTORIC CATHEDRAL PROJECT**							
Operating Budget									Total
	$k	$k	$k	$k	$k	$k	$k	$k	$k
Expenditure									
Capital Expenditure									
Capital Expenditure - Building									
Capital Expenditure - Exhibit/Display									
Capital Expenditure - Atrium									
Vicarage Alteration									
Site Works									
Contingency - Cathedral									
Contingency - stage two									
TOTAL									
Operating Expenditure									
Future operating costs									
TOTAL									
Co-funding Secured -									
Co-funding - planned -									
Co-funding - unsecured									
Regional Growth Initiative									
TOTAL									
NET Annual Cash flow									
Note;									

MANAGEMENT PLAN

1. Project Management Process

The construction project will be managed by professional consultants skilled and experienced in large scale, high value and complex building work. They report to The (Historic Cathedral) Project Manager, a Registered Architect of 25 years experience. All consultants have solid track records of similar project work .

The principal consultants are.

Holmes Consulting (Structural Engineering)

Commercial Information, (Architects)

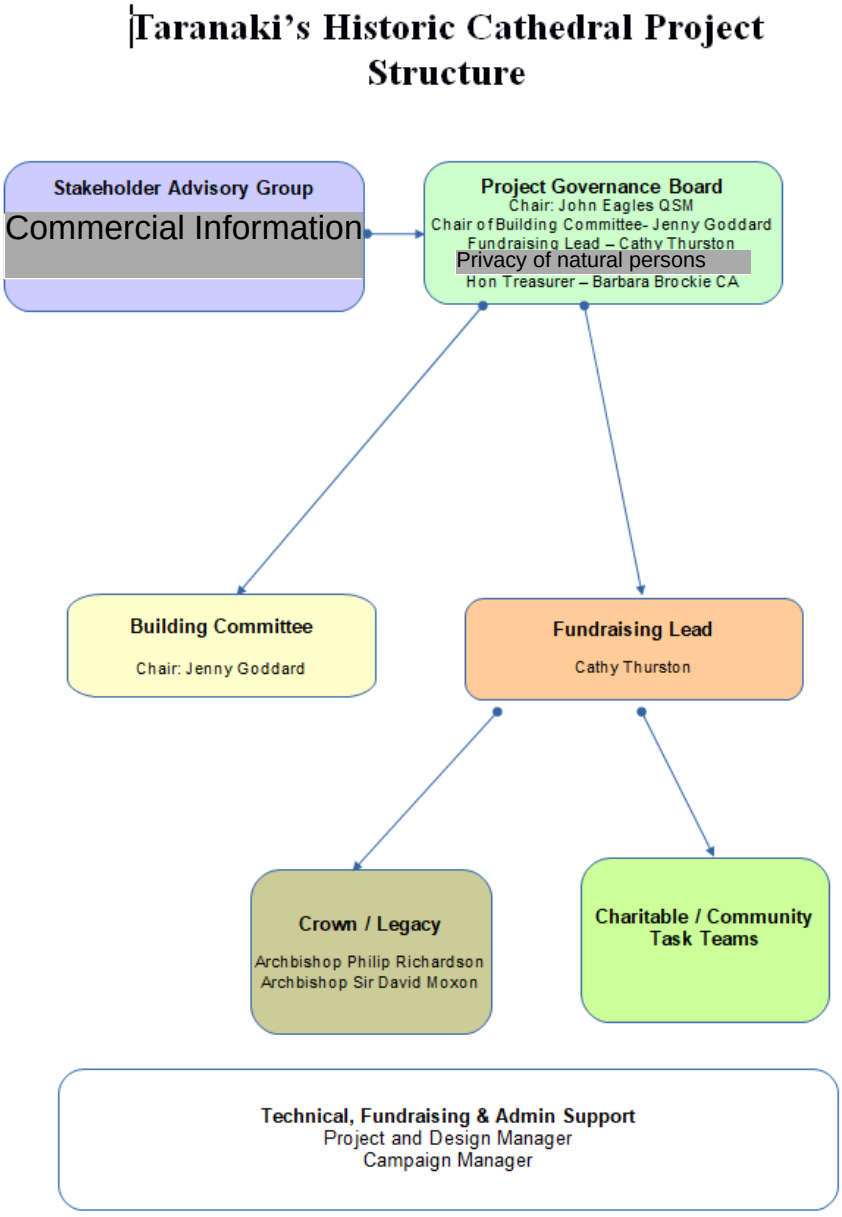
Commercial Information (Quantity Surveyors)

Privacy of natural persons (Archaeologist)

Ian Bowman (Conservation Architect)

2. Key Project Arrangements

Governance Structure



Key Roles

Governance Board Chair
John Eagles
Recently retired Solicitor. QSM for community service. Chairperson of Taranaki Anglican Trust Board Life member and committee member of Pukeiti. Life member and committee member of CCS Disability North Taranaki. Director Taranaki Rugby Union. Trustee of several other Charitable Trusts and Not For Profits

Building Committee Chair
Project and Design Manager
Jenny Goddard
Registered Architect, ANZIA, B Arch (hons), Dip Blg Survey
Chairperson Taranaki Arts Trail, Treasurer of Pukekura Rotary Club, Trustee Pukekura Education Trust, Trustee Tainui Rest Home

Fund Raising Chair
Cathy Thurston
An accomplished General Manager with over 20 years experience at a senior executive level in both Human Resources and management with a passion for making a difference in the community and the determination to deliver. Experience in fundraising has included. Cathy led the project to raise funds for the Len Lye Centre which successfully met the funding target of $Commercial Int.

Governance Board Member
Privacy of natural persons

Governance Board Member
Barbara Brockie, Chartered Accountant.
Strong record of commercial accounting practice and support to the voluntary sector.

Building Committee member
Privacy of natural persons

Ownership

The Taranaki Anglican Trust Board will continue to be Owner of the building.
Governance of Taranaki Cathedral will be by an external stakeholder group comprising Commercial Information

3. Post Project Evaluation

A robust review of the spend to budget, consultant effectiveness, actual vs projected project duration, and health and safety performance will be included in post project evaluation reports to funders. Experience gained from this review will be of benefit for the latter stage of the Historic Cathedral Project.

Measurement of achievement objectives
Visitor counts will be based on welcome desk attendant count.
Visitor survey re origin, satisfaction and commentary will be based upon similar done at Christchurch Cathedral and Len Lye Centre. Intention would be to survey seasonally for first 2 years.
Cathedral space bookings will provide clear evidence of usage month on month.

NEXT STEPS

Our project planning is well detailed in to the next 18 months.
Refer to our Project Timeline (flow chart) for next steps upon funding receipt.

THE CATHEDRAL PROJECT

A TARANAKI TAONGA

UNDERSTANDING OUR PAST, BUILDING OUR FUTURE

THE CATHEDRAL PROJECT
A TARANAKI TAONGA
UNDERSTANDING OUR PAST, BUILDING OUR FUTURE

The *Historic Cathedral Project, a Taranaki Taonga*, will remediate this beautiful building, currently closed for earthquake strengthening, *and* ensure its future. The vision is to restore New Zealand's oldest stone church to ensure one of our nation's most significant sites remains to capture the soul of our region for generations to come.

"Our country's oldest stone Church and one of our nations most significant historic sites, captures the 'soul' of our city and our region".

- *The Historic Cathedral Project*[1] will secure Taranaki's Cathedral for the people of New Plymouth, the Taranaki region and the nation. This project will
  - earthquake strengthen the historic building,
  - enhance its interior and create a range of dynamic spaces for worship, arts, music, drama, cultural and community events, educational opportunities and social services,
  - following the remediation of the cathedral the Project will develop a beautiful, world class welcoming space providing a dramatic "bridge" between the Cathedral and the historic vicarage which will be redeveloped as a key community facility.
- The Cathedral, and its historic site, hold a unique story of European settlement and the relationship between Maori and settlers over 175 years. *The Historic Cathedral Project* will use the site and the buildings to tell this story, making a unique contribution to enhanced bi-cultural understanding and relationships in the future.

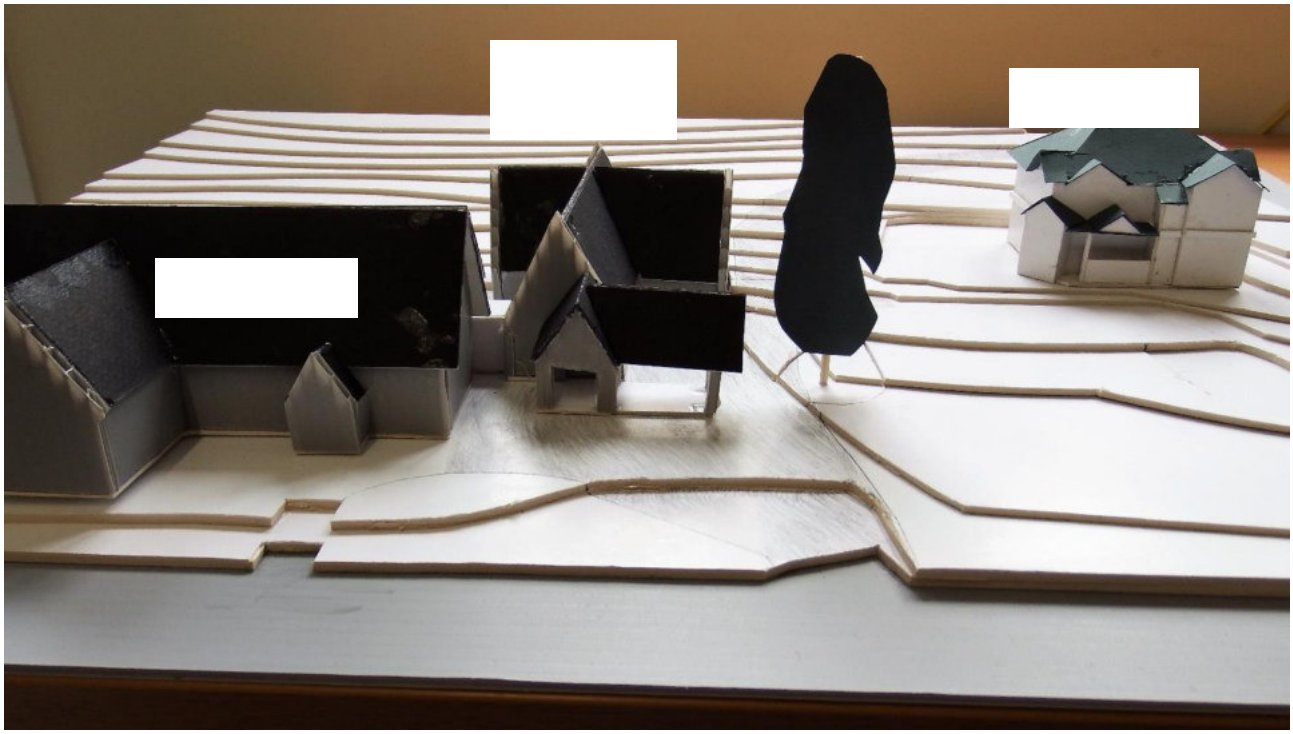
"All Taranaki's young people need to be able to visit, and to learn the stories the cathedral and site are waiting to tell. Some of those stories will engender pride, and some will truly get us thinking. But they encapsulate this region and this country's history"

- This development will acknowledge the life, leadership and achievements of Sir Paul Reeves. Ta Paora, *(Puketapu, Te Atiawa)*, was the first Maori Archbishop and first Maori Governor General of New Zealand. He made a unique contribution to education, and to peacemaking and reconciliation here in Aotearoa New Zealand and internationally in South Africa, Guyana, Ghana and Fiji as the Commonwealth Secretariat special envoy. While Sir Paul was a direct descendent of Te Whiti o Rongomai, Lady Beverley Reeves is the great, great grand-daughter of Robert Reid Parris, controversially involved in the Waitara Purchase among other Taranaki land dealings.

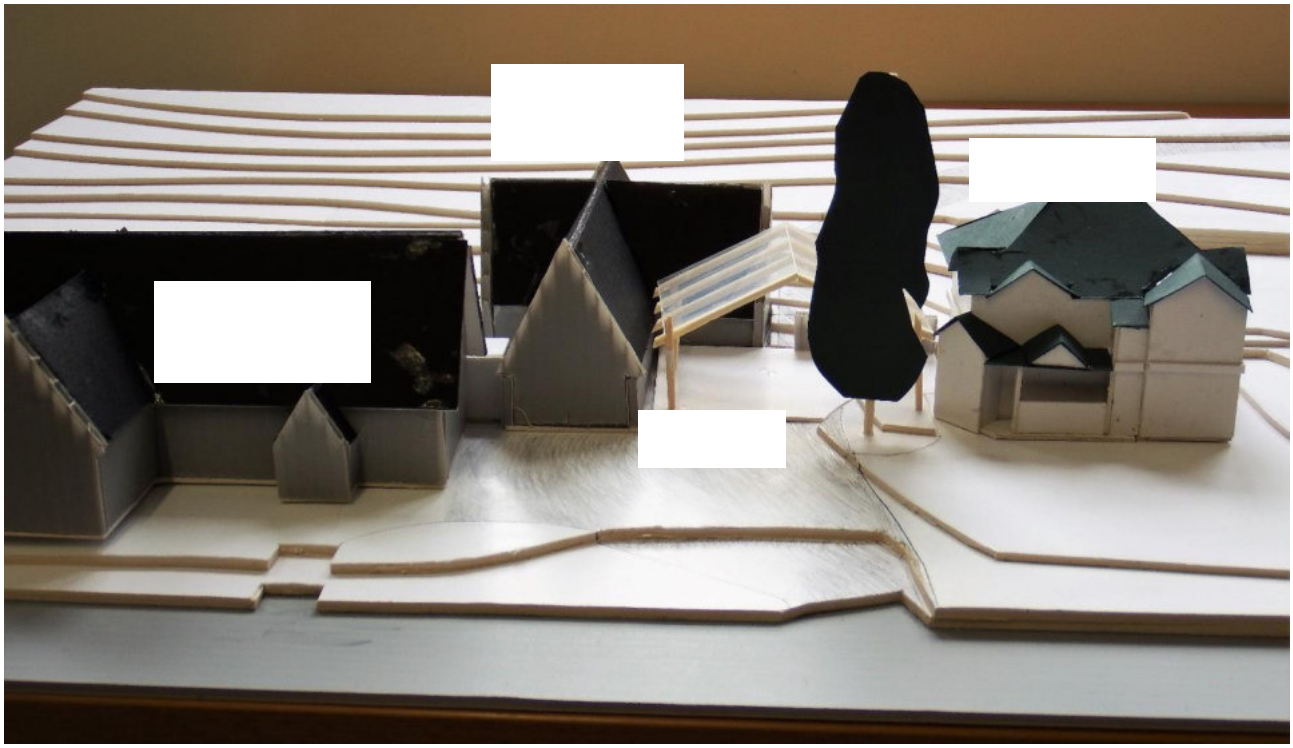
[1] Connected to this project, but subsequent to it, is the opportunity to re-develop the northern site to create a source of income to ensure that this building can be operated and maintained into the future.

THE CATHEDRAL PROJECT

EXISTING SITE DETAIL



PROPOSED SITE DEVELOPMENT DETAIL



THE CATHEDRAL PROJECT
A TARANAKI TAONGA
UNDERSTANDING OUR PAST, BUILDING OUR FUTURE

Sacred, historical, vibrant, serving

The Taranaki Cathedral Church of St Mary's, and the site it sits on, is of unique significance for New Plymouth, the Taranaki Region and for the nation.

The Cathedral was built in a number of stages over its 175-year history. Each stage of its development was only possible through significant wider community involvement. The original building, still part of the current structure, saw the whole community engaged in its construction. Saving St Mary's and enabling it to continue to serve the whole community into the future, will also only be possible through such wide community support.

Steeped in history, St Mary's is a place of exceptional beauty and poignancy. The buildings, grounds and graveyard tell the story of Taranaki. This history, the good and the bad, is our greatest teacher. Our stories, honestly told, can positively shape our present and our future. In recent years St Mary's has been a community prepared to honestly face up to the realities of its relationship with Maori.

For generations the Cathedral has been a place where the community of Taranaki has gathered to celebrate and to mourn.

It's exceptional acoustic, extraordinary ambience, and profound wairua, makes it a unique venue for music, art and drama; all that celebrates human creativity and nourishes the human soul. Over the years St Mary's has hosted musicians, modern and traditional, famous and unknown, big bands, art installations, chamber groups, opera, theatre, choirs and ensembles from our local communities, and from across the globe.

The Food bank, Community café, Stop Inn (the activities and any proceeds of these initiatives go entirely to support the wider community), programmes for children and young people, hospital chaplaincy, aged care through Tainui Home, counselling services and numerous other initiatives have been started and continue to be supported through the St Mary's community. The wider Anglican Church through its parishes, the Bishop's Action Foundation and the many programmes and initiatives under it's umbrella make a significant and positive contribution to the Taranaki community.

Built by the community, for the community

The essence of any cathedral is that it ***belongs to the whole community***. Long before it became a Cathedral this was true for St Mary's. In the week leading up to its consecration as a Cathedral in 2010 several thousand people attended the more than Comm different events, with over Commercial people attending the service of consecration. The consecration became a celebration of what St Mary's already was; a place with wide open doors and generous hospitality. Whether that has been by welcoming the members of the emergency services and other groups for an annual thanksgiving service, or large numbers of children from local schools for educational visits, or its open-door policy for funerals and weddings.

The challenges facing the survival of this Cathedral

The Taranaki Cathedral has undergone a Detailed Earthquake Assessment which assessed the % of NBS at [redacted]%. As a consequence the building was closed to use at the beginning of February 2016. Detailed proposals for the remediation of the building have been received and initial costings have been obtained.

Several additional challenges face the cathedral:

- The cathedral site includes the old vicarage, a distinctive historic, wooden building which will be redeveloped to serve another essential purpose.

- The nature of the cathedral building itself makes it expensive to operate. The cathedral needs a secure income stream to provide for the ongoing operational costs of the building.

- Currently cathedral facilities are divided between two physical sites on opposite sides of the busy westbound one-way road. The cathedral itself on one side, while the Peace Hall, Peace lounge, opportunity shop and Food Bank are located on the other side of the road. This not only severely limits a wide ranging use of the cathedral but presents a significant ongoing risk for those needing to cross between the two sites.

It is essential that the remediation of St Mary's ensures its future. The redevelopment of the northern site will achieve this.

Project elements:

- Earthquake strengthen the cathedral.

- Enhance the inside of the cathedral to enable greater flexibility of use for both contemporary worship and liturgical use, *and* for music, drama and other appropriate activities. *Remove pews, establish flexible seating, open up the space in choir and sanctuary and create a single raised floor area.*

- Develop a beautiful, world class welcoming space providing a dramatic "bridge" between the cathedral and the historic vicarage which will be redeveloped as a key community facility.

- Develop the cathedral facilities in such a way as to enable it to continue to respond to community needs with the flexibility to adapt to changing needs, in ways that align with the values of the cathedral.

The remediated cathedral, its dramatic new welcoming space and the repurposed vicarage are the key building elements of this project.

These are the sacred spaces, and they are the spaces for exhibitions and for learning. They are also the spaces in which to offer hospitality, just as they are the spaces where the whole community are welcomed to celebrate or to grieve. They are the spaces where creativity in drama, music and art will be enjoyed. The whole site and its buildings will be a transformative educational and interpretive experience.

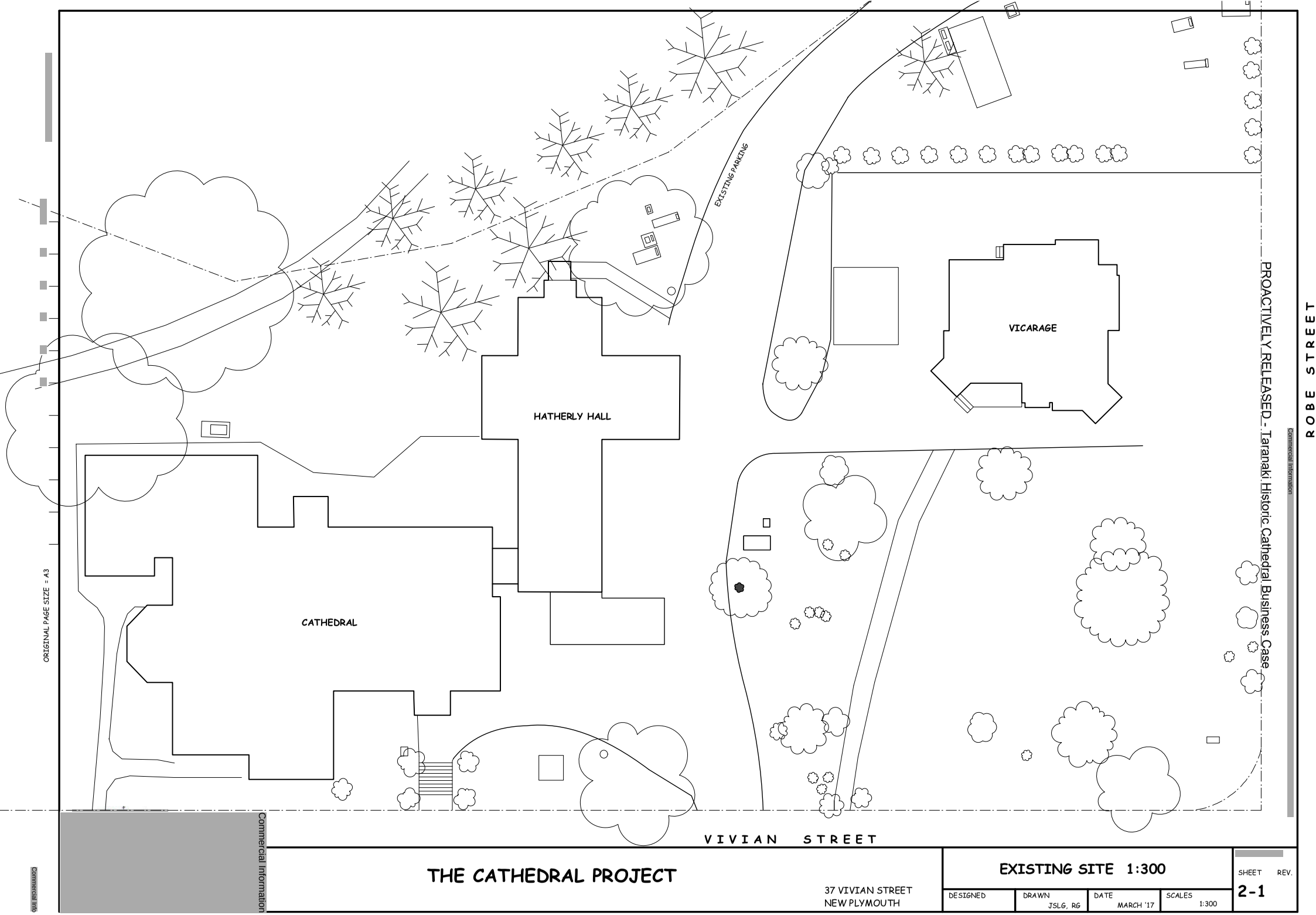
This is the way the ancient Cathedrals serve their communities
they are generous open spaces which are multi purposed.

Design priorities:

The **historic integrity of the site** itself needs to be considered as a whole as specific elements are developed. Any developments need to accentuate and enhance the buildings and site and:

- enable an engagement with contemporary spirituality.
- speak of a church and treaty based reconciling partnership.
- reflect Taranaki kawa.
- speak of peace and reconciliation in a way that points to the unique significance of Parihaka.
- speak of hospitality, welcome and a radical inclusiveness from the point of entry onto the land.
- acknowledge and honour those buried in the graveyard and the graves of the chiefs on the adjoining vicarage land.
- acknowledge the life, leadership and achievements of Ta Paora Reeves, *Puketapu Te Atiawa, Archbishop, Governor General, international negotiator and peace envoy.*
- truthfully represents the history of the Church in Taranaki.
- model the shape of bicultural partnership going forward.
- honour the ancient beliefs and karakia of Taranaki.
- celebrate contemporary art, weaving, and carving, music and drama.
- use AV and other forms of new technology to tell the story and commend the Gospel.

The key to this kaupapa is to allow the cathedral and its site to tell their (his)story with truth and confidence in a way that invites us into a bigger future focused story or vision.



PROACTIVELY RELEASED - Taranaki Historic Cathedral Business Case

ORIGINAL PAGE SIZE = A3

Commercial Information

Commercial Information

Commercial Information

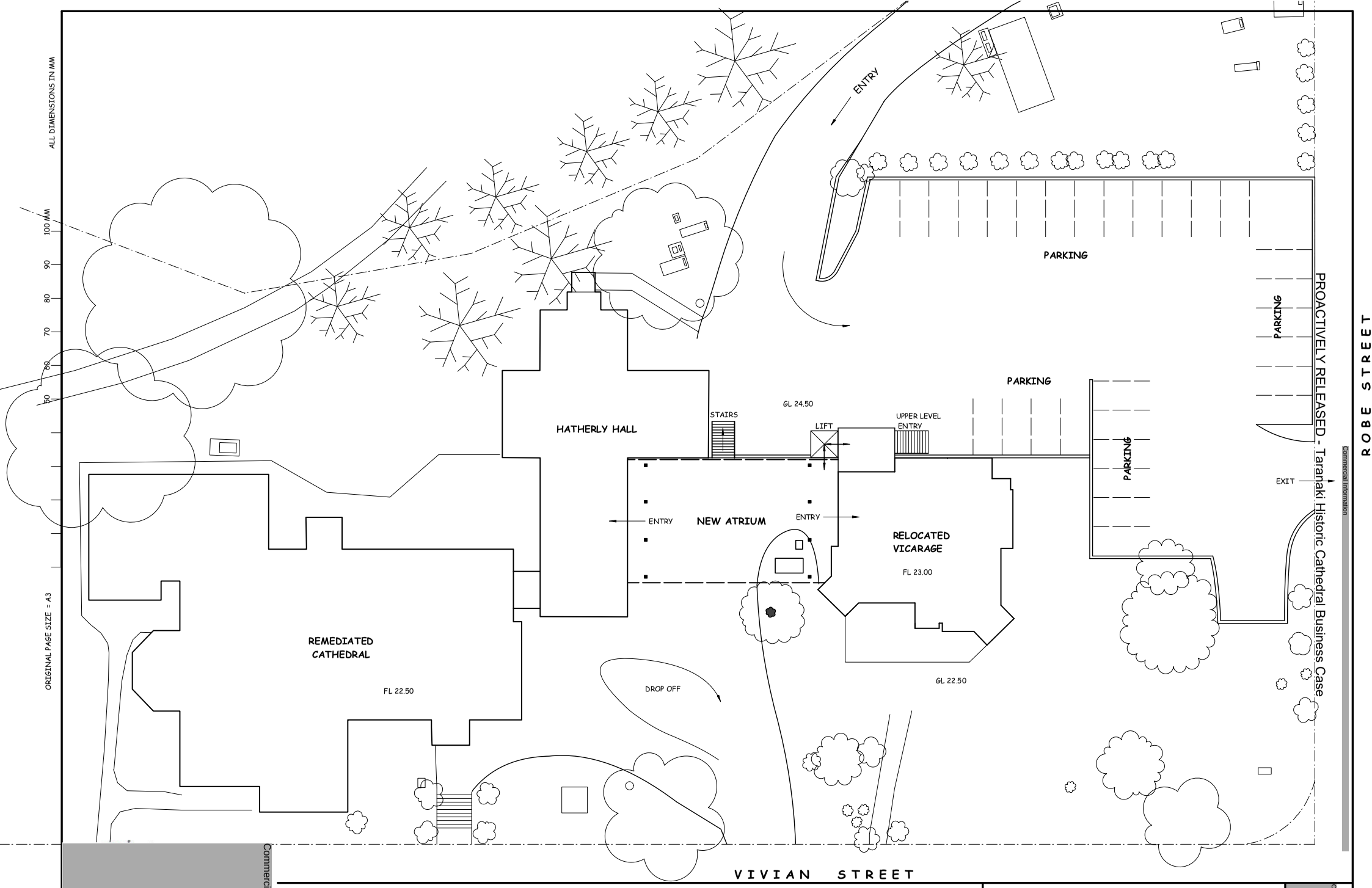
THE CATHEDRAL PROJECT

37 VIVIAN STREET
NEW PLYMOUTH

EXISTING SITE 1:300

DESIGNED	DRAWN	DATE	SCALES
	JSLG, RG	MARCH '17	1:300

SHEET 2-1 REV.



THE CATHEDRAL PROJECT

37 VIVIAN STREET
NEW PLYMOUTH

SITE CONCEPT : PLAN 1:300

DESIGNED	DRAWN	DATE	SCALES
	JSLG, RG	DEC 2017	1:300

SHEET 2-1A REV. C0

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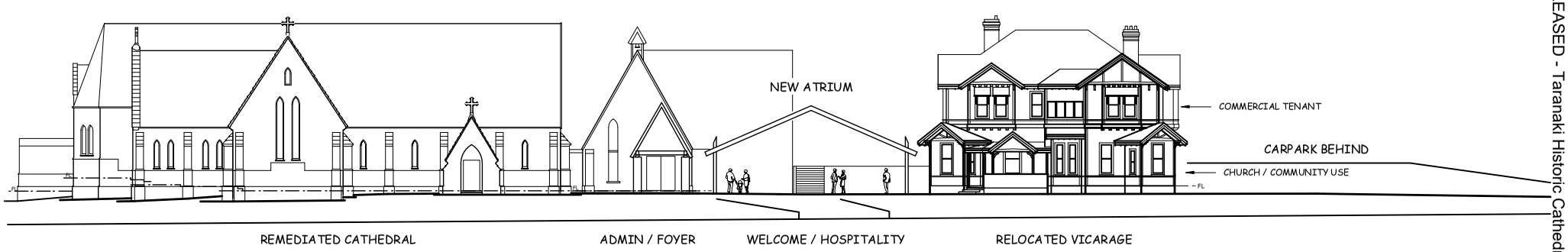


THE CATHEDRAL PROJECT

37 VIVIAN STREET
NEW PLYMOUTH

SITE CONCEPT: NORTH ELEV 1:300

DESIGNED	DRAWN	DATE	SCALES
	JSLG, RG	DEC 2017	1:300

C0

SHEET 3-1A REV.


NPGHS
MUSIC
MUSIC

Taranaki Cathedral - Church of Saint Mary

Seismic Strengthening

Date : 31 March 2016
HCG Job No. : 109825
Concept Strengthening Structural Design Report rev 0

Holmes Consulting Group

STRUCTURAL AND CIVIL ENGINEERS

Project Name: Taranaki Cathedral – Church of Saint Mary
Concept Strengthening Structural Design Report

Prepared For: Taranaki Cathedral – Church of Saint Mary

Date: 31 March 2016
Project No: Commercial Informa
Revision No: 0

Prepared By:

Privacy of natural persons

Privacy of natural persons
DESIGN ENGINEER

Reviewed By:

Privacy of natural persons

Privacy of natural persons
PROJECT DIRECTOR

Holmes Consulting Group LP
Wellington Office

CONCEPT STRENGTHENING STRUCTURAL DESIGN REPORT

1. Executive Summary

The structural design presented in this Concept Design Report is based on analysis work outlined in our Detailed Seismic Assessment Report. This package and appended sketches is intended to clarify the extent and level of structural intervention required to achieve improved seismic performance of the Taranaki Cathedral – Church of Saint Mary. Initial budget estimates could also be prepared by an experienced Quantity Surveyor, familiar with this type of heritage work.

Our Detailed Seismic Assessment Report (rev 0 dated 22 December 2014) outlined that the overall building performance falls below the earthquake prone threshold of Comm% New Building Standard (NBS) when assessed against a 1000 year seismic event consistent with an Importance Level 3 (IL3) building classification.

The Concept Design targets an improved seismic performance rating of Comm%NBS for IL3 and site subsoil class 'Comme classifications.

Live load capacity of the floors, restraint of the organ and performance of the stained glass windows are not included as part of this report.

Two strengthening options were considered with the option allowing least permanent visual impact progressed to Concept Design and presented in this report. Strengthening requirements of the selected option include:

- Ply overlay to roof diaphragm (requires removal of slate roof).
- Steel flats and sections to the roof.
- Concrete beam recessed to top of stone walls.
- Horizontal steel plates and rods to stone gable walls to a limited number of locations.
- Vertical post tensioned steel rods to a limited number of locations.
- Restraint of stone crosses.

The other alternate option substitutes the plywood overlay with steel cross bracing positioned below both the existing timber sarking and eaves level in the horizontal plane. This option is thought to have unacceptable visual impacts.

Opportunities to target seismic performance levels ranging from Commercial Infl%NBS are available via changes to site subsoil classification (possible as a result of additional geotechnical investigations), and the importance level (possible by limiting capacity of church to less than Commer people), along with partial implementation of the strengthening works described above.

Approval to proceed with subsequent design stages is sought including confirmation of:

- Site subsoil classification.
- Importance level.
- Target %NBS.
- Roof diaphragm strengthening: plywood vs steel bracing.

Subsequent stages include:

- Liaison with Conservation Architect and New Zealand Historic Places Trust (NZHPT) to reach Preliminary Design for Resource Consent Application.
- Completion of Developed and Detailed Design for full Tendering of construction works and submittal for Building Consent.

A 3D Revit model has been developed using limited existing drawings and photos. Additional survey will be required to proceed with these subsequent stages.

Contents

1. Introduction

Holmes Consulting Group (HCG) has been engaged to provide Structural Engineering services in relation to the seismic performance of the Taranaki Cathedral - Church of Saint Mary (referred to as the Cathedral in the remainder of this report.). This report and the appended Concept Design sketches, provide a concept level seismic strengthening scheme for the Cathedral based on the scope outlined in our May 2015 proposal.

This Concept Design incorporates information and knowledge from the following sources:

- Detailed Seismic Assessment Report (DSA) completed by HCG in December 2014 [1].
- Update to the New Zealand Society for Earthquake Engineering (NZSEE) - Section 10 – Seismic Assessment of Unreinforced Masonry Buildings guidelines. 2011 edition [2] replaced by 2015 revision [3].
- Geotechnical desktop study by Commercial Information (Commercial) [4], including additional correspondence regarding site subsoil classification.
- Stone wall investigation works carried out by Commercial Information [5] with engineering review on site by Commercial Information [6].
- A Conservation Plan and Condition Assessment by Dave Pearson Architects Limited [7].

The strengthening scheme documented on the appended sketches have been developed based on the following:

- Importance Level 3 (IL3) structure in accordance with the New Zealand Loadings Standard [8]. This is consistent with the Cathedral having a capacity greater than Commer people.
- Target seismic performance of Comm% New Building Standard loading (NBS).
- Site subsoil classification "Commer
- Roof strengthening applied to pitched roof profile.

Each of these items presents options for consideration by Taranaki Cathedral. Discussion regarding each is provided in subsequent sections of this report.

In general terms, the following items are identified by the concept strengthening scheme:

- Removal of slate roof, installation of plywood overlay and reinstatement of slate.
- Reinforced concrete beam recessed to top of stone walls.
- Structural steel sections to top of stone gable walls and timber roof structure including; ridges, valleys, hips and trusses.
- Horizontal steel tie elements at eave level of the gable walls consisting of flat plate to face of stone wall or stainless rods installed centrally to the wall.
- Strengthening to stone piers in a limited number of locations consisting of vertical drilling and installation of stainless steel post tensioned rods.
- Restraint of stone crosses.

This package and appended sketches is intended to clarify the extent and level of structural intervention required to achieve improved seismic performance of the Cathedral. Initial budget estimates could also be prepared. This should be completed by an experienced Quantity Surveyor, familiar with this type of heritage work.

Our design work has been undertaken in general accordance with the New Zealand Construction Industry Council, Design and Documentation Guidelines to Concept Design level.

Subsequent stages of the design and documentation process:

- Liaison with Conservation Architect and New Zealand Historic Places Trust (NZHPT) to reach Preliminary Design for Resource Consent Application.
- Completion of Developed and Detailed Design for full Tendering of construction works and submittal for Building Consent.

1.1. Limitations

Findings presented in this report are for the sole use of the Taranaki Cathedral – Church of Saint Mary. The findings are not intended for use by other parties and may not contain sufficient information for the purposes of other parties or other uses. Our professional services are performed using a degree of care and skill normally exercised, under similar circumstances, by reputable consultants practicing in this field at this time. No other warranty expressed or implied, is made to the professional advice provided in this report.

Conclusions relate only to the structural performance of the building under earthquake loads. The following items have not been assessed as part of this report:

- Live load capacity of the floors.
- Lateral restraint of the organ, however this could be considered in subsequent design stages.
- Performance of stained glass windows. Although this has not been considered in detail, seismic induced movements of the adjacent stone piers will likely result in damage to the windows.

2. Brief Description of the Building

Taranaki Cathedral is an Unreinforced Stone Masonry building. It was constructed in various stages, between 1844 and 1916. The walls are predominantly stone with timber roof trusses and sarking supporting a steeply pitched slate roof. A reinforced concrete vestry was then added in 1959. The Cathedral is a Category 1 – NZHPT listed building.

The current seismic performance of the Cathedral, as outlined in the HCG DSA Report [1], is less than Comm%NBS. Therefore the Cathedral is considered Earthquake Prone.

Figure 1. View of the Cathedral from the North-west elevation

Figure 2. View of the Cathedral nave showing internal face stone walls and timber roof structure

3. Updates to Assessment Guidelines

The DSA completed in 2014 was based on unreinforced masonry guidelines available at the time [2]. A revision to this guideline was released in 2015 [3]. This Concept Design has been carried out incorporating this revision, with the significant changes in relation to the Cathedral being:

- Loading to in-plane stone walls reduced by approximately Comm% due to expected behaviour of piers with large height to length ratios.
- Assessment procedure for diaphragms.

The expected seismic performance of the existing Cathedral, as outlined by the DSA [1], does not differ significantly following review of the revised guidelines.

4. Site Considerations

4.1. Site Subsoil Classification

Site subsoil classification is defined by the New Zealand Seismic Loadings Code [8]. The classification determines the magnitude of seismic load required to be considered for the design or assessment of a building. It is therefore a critical parameter when considering the seismic performance and strengthening of the Cathedral.

Various correspondence and reporting has occurred over the past year to determine whether "Comm" or "Comme is the appropriate classification for the Cathedral. A "Comm classification results in a Comm% decrease in load (or Comm% increase in seismic performance) relative to a "Comme classification.

The DSA [1] was completed using a "Comm- classification. Whereas the strengthening Concept Design provided in the appended sketches have been based on the more onerous "Comme classification as required by New Plymouth District Council (NPDC).

The remainder of the section seeks to summarise the correspondence and advise on options and associated risks.

- A desktop study complete by Commercial Information (Commercial) [4] identified the following:
    - The soil profile in the area surrounding the Cathedral is relatively consistent and comprises Taranaki Brown Ash (soft-stiff silts and sandy silts) overlying lahar deposits (large blocks of cemented sand, rock, cobbles and boulders) at depths varying from Commerci m.
    - Expectation that the site can be considered Site Subsoil Class "Comme- to be confirmed by two Comm m deep bore holes.
- Following this desktop study further discussion occurred between Commercial and NPDC. NPDC are unlikely to approve building consent application based on a Commerc classification in New Plymouth without confirmation via acceptable site investigation.
- NDPC have been advised that much deeper bore holes (relative to the 25m previously proposed by Commercial) are required to confirm the classification throughout New Plymouth. They are therefore proposing four Commer m deep boreholes. The Cathedral may a suitable location for one of these.
- Commercial are concerned that the testing methodology NPDC are considering at the four borehole locations will not be sufficient to confirm a classification "Con". Therefore Commercial have recommended that the Cathedral consider contributing to the investigations to allow supplementary testing (shear wave velocity testing). This is thought to maximise the chance of confirming a "Con" classification.

Therefore Taranaki Cathedral should consider the following options:

- Option 1- Contribute to deep borehole supplementary testing. Pros: Comm% reduction of seismic loads if classification "Con" is confirmed, allowing a reduction in scope of strengthening works. Cons: Investigation results in classification "Com" and full scope of strengthening works remain, in addition to contribution to borehole testing.
- Option 2 - Accept "Comme classification. Pros: removes requirement to contribute to borehole investigations. Cons: Full scope of strengthening works remain, including inherent risks associated with retrofit of existing heritage buildings.

The scope of works referred to in this section as being dependent on the site subsoil classification are identified in Section 5 of this report and on the appended Concept Design sketches.

4.2. Bearing Pressure

Commercial reported in the desktop study [4] that an allowable ULS bearing pressure of Commer kPa may be used for preliminary assessment and design, however on site investigations will be required to confirm this.

4.3. Stone Walls

As requested as part of our proposal for this Concept Design, investigation works have been carried out on the stone walls by Commercial Information [5], with on-site engineering review provided by Commercial Information [6].

Figure 3. Stone block removed from external facade of Taranaki Cathedral

Figure 4. Stone wall core taken from East elevation of Taranaki Cathedral

These investigations have confirmed that wall construction consists of two facing stone layers with rubble fill between. The quality of the infill shown by these investigation works have led to the following conclusions:

- Pinning of inner and outer layers of stone at regular centres is unlikely to be required.
- Low pressure grouting of voids around the rubble infill is not required to the full extent of the wall. The exception being at location of connections to other strengthening elements, or if conditions are discovered during construction that differs from those inferred from the recent investigation. Refer appended sketches for further details and recommended pricing considerations.

5. Structural Design

The Concept Strengthening Design described in Sections 5.1 and 5.2, and the appended sketches target a seismic performance of Comm%NBS (IL3, soil classification Comme Section 5.3 then summarises the extent of the strengthening works required to achieve various performance targets (%NBS ratings) for varying importance levels and soil classifications.

5.1. Concept Strengthening Options

The DSA identified that increasing the strength and stiffness of the roof diaphragm formed the most significant component of the strengthening required to improve the seismic performance of the Cathedral. The following two options were considered.

- Option 1 – Plywood Overlay

  Option 1 involves removal of the slate roof and overlay of the existing timber sarking with plywood.

  This option has been progressed to Concept Design level and presented in this report (Section 5.2) and appended sketches, due to the Category 1 heritage rating of the Cathedral. This decision was made due to the significantly lower visual impact this option allows.

  Experience gained during the rebuild and strengthening of the Christchurch Arts Centre has shown that only a relatively small percentage of slate tiles removed during this process were able to be retained and reinstated. It is recommended that specialist advice is sought on the condition and likely retention rate for the slate tiles on the Cathedral.

This method of strengthening has been used on several similar buildings, including the College Hall building at the Christchurch Arts Centre. Figure 5 shows the steel straps and ridge beam which is required below the plywood overlay as part of the roof diaphragm strengthening.

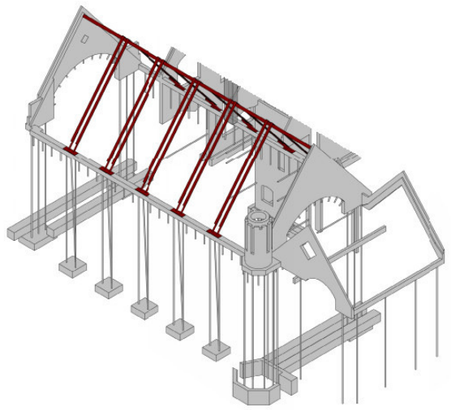


Figure 5. Revit model showing steel elements associated with plywood overlay strengthening of the Christchurch Arts Centre College Hall

- Option 2 – Steel Bracing

  This option substitutes the plywood overlay with steel cross-bracing, both to the underside of the existing sarking and at eave level throughout the full extent of the Cathedral. The resulting visual impact on the interior of the Cathedral would be significant. Figure 6 shows similar bracing installed in the Christchurch Arts Centre gymnasium.

  If this extent of visual impact is considered acceptable following liaison with a Conservation Architect, photo renders of similar bracing to the Cathedral could be developed.

Figure 6. Steel bracing at eave level used to strengthen the Christchurch Arts Centre gymnasium

5.2. Option 1 - Concept Design

Each of the components associated with Concept Strengthening Design for Option 1 (Comm%NBS, IL3) are described in the remainder of this section.

Lateral response of the Cathedral is dominated by rocking of the stone piers in-plane. This has allowed a value of 3 to be adopted for the force reduction factor, Kr defined in clause 10.10.2.2 of the revised NZSEE URM assessment guidelines [3]. A ductility factor of Co has been considered for the plywood diaphragm. Significant cracking and deformations are expected as a result of this nature of response potential for differential settlement across the extent of the Cathedral.

The 3D Microstran model shown in Figure 7 has allowed distribution of load to each of the available load resisting stone walls, thus maximising the inherent strength of the Cathedral.

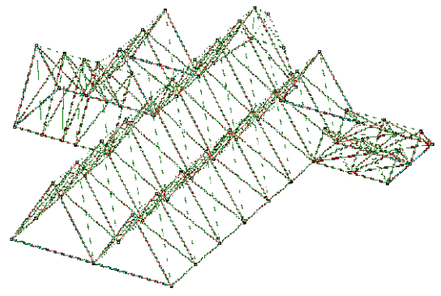


Figure 7. 3D Microstran model of the Cathedral's pitched roof

Figure 8 shows the ground floor plan of the Cathedral including location of gridlines referred to in this section.

Figure 8. Ground floor plan of the Cathedral

Plywood Roof Diaphragm

Plywood overlay to topside of existing timber sarking to increase the stiffness and strength of the diaphragm. This allows the diaphragm to provide out-of-plane restraint to the top of the stone walls and gables, and allows loads to be distributed effectively to all available walls to resist in-plane loads.

As noted previously this will require removal and reinstatement of the slate roof.

The plywood layer and associated battens and fixings will likely result in raising the profile of the slate by approximately Commmm. Modifications to flashings, gutters, spouting, and interface with other structure will be required.

Steel Sections

Steel plates to the top chord of the existing timber trusses and angle sections to ridges, valleys, hips, and top of gable walls also form part of the roof diaphragm strengthening, acting as both collector and chord elements. These sections are to be located between the sarking and roofing material (slate), and therefore will not be visible. The exception being discrete connections to the timber trusses as shown by the typical details in the appended sketches.

Concrete Bond Beam

A concrete beam is to be recessed into the top of the stone walls. This will require temporary propping to the roof trusses, deconstruction and cataloguing of the top layers of the stone to allow modification, and reinstatement of the facing stones.

The bond beam is fixed to both the strengthened roof diaphragm and the stone wall below to allow transfer of loads between the two elements. Fixing of the bond beam to the stone wall consists of approximately 1m long drill and epoxy stainless steel rod anchors. Low pressure grouting is required locally at these locations to ensure adequate fixing and limit the volume of epoxy product used to achieve this fixing.

Horizontal Steel Plates and Rods

Horizontal steel elements at eave level of the stone gable walls are required on a number of elevations to allow transfer of load from the roof diaphragm to the each of the stone piers. These elements consist of steel plates anchored to the face of the stone wall or stainless steel rods installed centrally to the stone wall via drilling and epoxy grouting.

Post Tensioned Vertical Steel Rods

Vertical stainless steel rods installed centrally to the stone walls over the full height are required at two locations on gridline 2 via drilling at low pressure grouting. These rods allow transfer of load from the strengthened roof diaphragm to the stone walls located on gridlines B and E.

Additional in-plane capacity of the stone piers on gridline B is required to achieve Comm% NBS (IL3, soil classification 'Commercial'. This may be achieved by providing four vertical rods similar to those described in the previous paragraph.

Concrete foundation elements to the bottom and bond beam to the top of the stone walls are required to anchor these rods following post tensioning.

Connection of Floor and Flat Roof

The timber joist and boarded mezzanine floor, and flat roof of the Vestry, located in the North-East corner of the Cathedral, require fixing at regular centres to the supporting stone and concrete walls.

Restraint of Crosses

The stone crosses positioned at the top of several gable walls require restraint. This can be achieved by diagonal steel bracing to the steel angle which is required along the roof ridges as part of the diaphragm strengthening requirements.

5.3. Alternate Seismic Performance Targets

As noted in the previous section, the Concept Design provided on the appended sketches target a seismic performance of [redacted]%NBS (IL3, soil classification '[redacted] – Scenario 1. The remainder of this section describes the extent of the strengthening works required to achieve various performance targets (%NBS ratings) for varying importance levels and soil classifications. Each of these scenarios is summarised in Table 1.

- [redacted]%NBS (IL3, soil classification '[redacted] – Scenario 5

  The majority of the strengthening components identified in Section 5.2 are required to increase the seismic performance above the existing capacity and the earthquake prone threshold of [redacted]%NBS. The exception being the seven vertical post-tensioned steel rods to gridline B. If these rods are excluded a seismic performance of [redacted]% NBS (IL3, soil classification '[redacted] can be achieved.

- [redacted]%NBS (IL3, soil classification '[redacted] – Scenario 6

  If the additional site investigations discussed in Section 4.2 confirms a soil classification '[redacted] [redacted]%NBS (IL3, soil classification '[redacted] can be achieved by implementing all of the components identified in Section 5.2, again with the exception of the seven vertical post-tensioned steel rods to gridline B.

- [redacted]%NBS (IL3, soil classification '[redacted] – Scenario 2

  Again if the site subsoil classification [redacted] is confirmed, [redacted]% NBS (IL3, soil classification '[redacted] can be achieved by implementing all of the components identified in Section 5.2.

As described earlier, the Cathedral has a capacity greater than [redacted] people, therefore an IL3 classification is required in accordance with the New Zealand loadings standard [7]. If the capacity of the capacity of the Cathedral was limited to less than [redacted] people an IL2 loading may be considered appropriate ([redacted]% reduced loading). Table 1 also includes the IL2 scenarios. This would require acceptance and consideration by NPDC given the size of the Cathedral and current capacity (assumed) of greater than [redacted] people.

Commercial Information

Table 1. Summary of seismic performance targets for various IL, soil classifications and strengthening scope.

6. Structural Outline Material Specification

6.1. Concrete

Concrete Foundation Beam: Commercial MPa

Concrete Bond Beam: Commercial MPa

6.2. Reinforcing Steel

Beam Longitudinal Reinforcement: Grade Commercial

Beam Stirrups: Grade Commercial

Post Tensioned Rods:

MacAlloy Stainless Steel bars 1030S

Dowel Bars: MacAlloy Stainless Steel bars 1030S

NOTE: Grade Commercial reinforcement shall comply fully with all aspects of AS/NZS 4671. All reinforcement shall be manufactured by Pacific Steel Ltd. Alternative manufacturers may be approved by the Engineer, but typically only for specific non-structural situations.

6.3. Structural Steel

Rolled Steel Sections: Grade Commer

Steel Flats: Grade Commer

Bolt Grades – timber connections (uno): Grade Comm

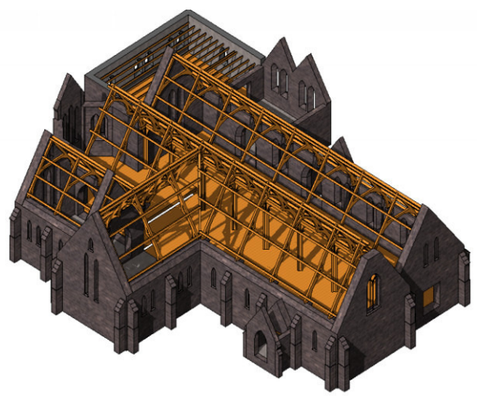
All steel plates and sections and anchor bolts to concrete to be galvanised.

All anchors to stone masonry to be stainless steel per Section 6.2.

7. Revit Model

HCG has developed a model of the Cathedral using the 3D modelling software Revit. This model was developed using photogrammetry (a system which utilises overlaying a series of photographs) and existing drawings. Due to the limited number of photographs and existing drawings available for this process, a relatively low level of confidence can be placed on the dimensional accuracy and completeness of this model. Sections of the Cathedral, especially the roof and sub-floor structure are omitted altogether.

Although this has been sufficient and very useful while completing the assessment and Concept Design stages, additional detail and certainty will be required to proceed with subsequent stages. This may be achieved by laser scanning or more traditional survey methods by a Registered Surveyor.



8. References

8.1. Previous HCG Documentation

[1] Holmes Consulting Group, *St. Mary's Cathedral Taranaki*, 22nd December 2014 rev 0-Draft, Project ref. 109825

8.2. Other Reference Documents

[2] New Zealand Society for Earthquake Engineering, *Assessment and Improvement of the Structural Performance of Buildings in Earthquakes – Section 10 Seismic Assessment of Unreinforced Masonry Buildings*, 2011

[3] New Zealand Society for Earthquake Engineering, *Assessment and Improvement of the Structural Performance of Buildings in Earthquakes – Section 10 Revision Seismic Assessment of Unreinforced Masonry Buildings*, 2015

[4] Commercial Information

[5] Commercial Information

[6] Commercial Information

[7] Commercial Information

[8] Standards New Zealand, *NZS1170.5 Structural Design Actions, Part 5: Eathquake Actions –New Zealand*, 2004

9. Appendices

[A] Holmes Consulting Group, *Taranaki Cathedral-Church of Saint Mary – Concept Design Sketches*, 31st March 2016, rev 0

Commercial Information

Elemental Estimate Summary

Project: Taranaki Cathedral
Building: Taranaki Cathedral - Church of Saint Mary
Details: Concept Estimate Update - Feb 2017

Item	Description	Total
	As at February 2017	
1	Foundations	Commercial Information
2	Eaves Level & Anchors	Commercial Information
3	In-situ Columns	Commercial Information
4	Buttresses	Commercial Information
5	Steelwork	Commercial Information
6	Diaphragms & Roofing	Commercial Information
7	Architectural, Services & Making Good	Commercial Information
8	External Works	Commercial Information
9	Specific P&G	Commercial Information
	Subtotal	Commercial Information
10	General P&G	Commercial Information
11	Main Contractors Margin	Commercial Information
12	Contingencies	Commercial Information
13	Professional Fees	Commercial Information
14	Consents	Commercial Information
15	Separate Contracts	Commercial Information
16	Inflationary provision to commencement	Commercial Information
		Commercial Information

Commercial Information

Commercial Information

Elemental Estimate

Project: Taranaki Cathedral
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As at February 2017

Foundations

Item	Description	Quantity	Unit	Rate	Total
	Preparation				
	External				
1	Carefully remove memorial stones	Commercial Information	item	Commercial Information	Commercial Information
2	Break up concrete/asphalt surface	Commercial Information	m2	Commercial Information	Commercial Information
3	Excavate to base of wall including working space including hand work	Commercial Information	m3	Commercial Information	Commercial Information
4	Trim base and tidy slab as necessary	Commercial Information	item	Commercial Information	Commercial Information
5	Scabble side of existing footing	Commercial Information	m2	Commercial Information	Commercial Information
	Internal				
6	Carefully uplift existing floor boards	Commercial Information	m2	Commercial Information	Commercial Information
7	Locally cut back floor framing	Commercial Information	m2	Commercial Information	Commercial Information
8	Break up concrete floor slab	Commercial Information	m2	Commercial Information	Commercial Information
9	Allowance for temporary support for surrounding floor	Commercial Information	item	Commercial Information	Commercial Information
10	Excavate to base of wall including working space including hand work	Commercial Information	m3	Commercial Information	Commercial Information
11	Trim base and tidy slab as necessary	Commercial Information	item	Commercial Information	Commercial Information
12	Scabble side of existing footing	Commercial Information	m2	Commercial Information	Commercial Information
	Foundation Beams				
13	Formwork to sides	Commercial Information	m2	Commercial Information	Commercial Information
14	Concrete	Commercial Information	m3	Commercial Information	Commercial Information
15	Reinforcing Steel	Commercial Information	kg	Commercial Information	Commercial Information
16	Drill through existing foundation	Commercial Information	m	Commercial Information	Commercial Information
17	Dowel bars	Commercial Information	kg	Commercial Information	Commercial Information
	Foundation Pads				
18	Excavate for pads including working space and including difficult access and hand work	Commercial Information	m3	Commercial Information	Commercial Information
19	Formwork to sides	Commercial Information	m2	Commercial Information	Commercial Information
20	Concrete	Commercial Information	m3	Commercial Information	Commercial Information
21	Reinforcing Steel	Commercial Information	kg	Commercial Information	Commercial Information

Commercial Information

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Elemental Estimate

Project: Taranaki Cathedral
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Item	Description	Quantity	Unit	Rate	Total
	Foundations				*(Continued)*
22	Prestressing anchor block	Commercial Information	no	Commercial Information	Commercial Information
23	Drill through existing foundation	Commercial Information	m	Commercial Information	Commercial Information
24	Dowel bars	Commercial Information	kg	Commercial Information	Commercial Information
	Organ Pit				
25	Allowance to repair/replace foundations undermined by excavation under organ	Commercial Information	item	Commercial Information	Commercial Information
26	Concrete slab to base	Commercial Information	m2	Commercial Information	Commercial Information
27	Masonry retaining walls to form proper pit	Commercial Information	m2	Commercial Information	Commercial Information
28	Waterproofing and backfilling	Commercial Information	item	Commercial Information	Commercial Information
29	Redirection / tidying of services and wiring	Commercial Information	item	Commercial Information	Commercial Information
30	Improve stair/ladder access	Commercial Information	item	Commercial Information	Commercial Information
31	Drainage sump and sump pump complete	Commercial Information	item	Commercial Information	Commercial Information
	Making Good				
	External				
32	Backfill against foundations and compact	Commercial Information	m3	Commercial Information	Commercial Information
33	Reinstate concrete/asphalt surface including drainage channels and falls	Commercial Information	m2	Commercial Information	Commercial Information
34	Carefully reinstate memorial stones	Commercial Information	item	Commercial Information	Commercial Information
	Internal				
35	Backfill against foundations and compact	Commercial Information	m3	Commercial Information	Commercial Information
36	Reinstate floor framing	Commercial Information	m2	Commercial Information	Commercial Information
37	Relay timber flooring	Commercial Information	m2	Commercial Information	Commercial Information
38	Reinstate concrete floor slab	Commercial Information	m2	Commercial Information	Commercial Information
					Commercial Information
	Eaves Level & Anchors				
	Eaves Beam				
1	Remove sarking to facilitate works	Commercial Information	m2	Commercial Information	Commercial Information
2	Remove top course of stonework	Commercial Information	m	Commercial Information	Commercial Information
3	Remove stones locally for anchors	Commercial Information	no	Commercial Information	Commercial Information
4	Form and cast eaves beam	Commercial Information	m	Commercial Information	Commercial Information
5	Drill wall for vertical anchor	Commercial Information	m	Commercial Information	Commercial Information
6	Vertical anchor epoxy grouted in place	Commercial Information	m	Commercial Information	Commercial Information
7	Vertical anchor to fixed to inside face of wall including drilling through external wall	Commercial Information	m	Commercial Information	Commercial Information
8	Drill wall for horizontal anchor	Commercial Information	m	Commercial Information	Commercial Information

Commercial Information

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Elemental Estimate

Project: Taranaki Cathedral
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Item	Description	Quantity	Unit	Rate	Total
	Eaves Level & Anchors				*(Continued)*
9	Horizontal anchor epoxy grouted in place	Commercial Information	m	Commercial Information	Commercial Information
10	Fixings to above	Commercial Information	No	Commercial Information	Commercial Information
11	Drill into existing stone corbels	Commercial Information	m	Commercial Information	Commercial Information
12	Angled anchor epoxy grouted in place	Commercial Information	m	Commercial Information	Commercial Information
13	Reinstate timber sarking	Commercial Information	m2	Commercial Information	Commercial Information
14	Reinstate timbers cover moulds internally	Commercial Information	m	Commercial Information	Commercial Information
15	Carefully re-install stonework, and mortar as required to match existing	Commercial Information	m2	Commercial Information	Commercial Information
16	Low pressure grouting of walls (to Commercial Information % of internal rubble matrix)	Commercial Information	m2	Commercial Information	Commercial Information
					Commercial Information
	In-situ Columns				
	In-situ Columns				
1	Carefully cut and remove stonework and set aside	Commercial Information	m	Commercial Information	Commercial Information
2	Remove fill inside columns	Commercial Information	m2	Commercial Information	Commercial Information
3	Formwork to sides	Commercial Information	m2	Commercial Information	Commercial Information
4	Concrete	Commercial Information	m3	Commercial Information	Commercial Information
5	Reinforcing Steel	Commercial Information	kg	Commercial Information	Commercial Information
6	Extra over for Vertical post tensioned bar inside columns (2 No)	Commercial Information	m	Commercial Information	Commercial Information
7	Carefully re-install stonework, and mortar as required to match existing	Commercial Information	m2	Commercial Information	Commercial Information
					Commercial Information
	Buttresses				
1	Buttress restraint - per buttress	Commercial Information	no	Commercial Information	Commercial Information
					Commercial Information
	Steelwork				
1	Fabricated steel sections - allowed as 50kg/m	Commercial Information	kg	Commercial Information	Commercial Information
2	Flat steels - allowed as 15kg/m	Commercial Information	kg	Commercial Information	Commercial Information
3	Plates, connections, finish and extras on steelwork - Commercial Information %	Commercial Information	kg	Commercial Information	Commercial Information
4	Anchor rods - vertical and horizontal	Commercial Information	m	Commercial Information	Commercial Information
5	Steel connection bracketry - grid 3 columns to timber trusses	Commercial Information	no	Commercial Information	Commercial Information
6	Allowance for seismic restraint to organ	Commercial Information	sum	Commercial Information	Commercial Information
					Commercial Information
	Diaphragms & Roofing				
	Flat Roof/Floor Over Vestry				
1	Remove ceiling throughout ground floor	Commercial Information	m2	Commercial Information	Commercial Information

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Item	Description	Quantity	Unit	Rate	Total
	Diaphragms & Roofing				*(Continued)*
2	Fully mechanically connect existing framing to perimeter walls	Commercial Information	m	Commercial Information	Commercial Information
3	Allowance for necessary alterations to framing and substrate to facilitate or repair water damage	Commercial Information	item	Commercial Information	Commercial Information
4	Reinstate ceiling and make good including painting and trims	Commercial Information	m2	Commercial Information	Commercial Information
5	Strip back, make good and reroof flat roof including gutters and parapets	Commercial Information	m2	Commercial Information	Commercial Information
	Main Roof				
6	Carefully remove existing slate roof entirely including flashings (sloping measure)	Commercial Information	m2	Commercial Information	31 Commercial Information
7	Remove stone crosses and store	Commercial Information	no	Commercial Information	Commercial Information
8	140 x 40 blocking to plywood diaphragm	Commercial Information	m2	Commercial Information	Commercial Information
9	240 x 40 blocking to plywood diaphragm	Commercial Information	m2	Commercial Information	Commercial Information
10	New plywood diaphragm over all with diaphragm fixings	Commercial Information	m2	Commercial Information	Commercial Information
11	New slate roof including flashings and underlays (price checked with Chch contractor)	Commercial Information	m2	Commercial Information	Commercial Information
12	Extra over to fix panels into place once erected onto roof	Commercial Information	m	Commercial Information	Commercial Information
13	Replace and finish fascias	Commercial Information	m	Commercial Information	Commercial Information
14	New copper fascia gutters	Commercial Information	m	Commercial Information	Commercial Information
15	Repair or replace internal gutters	Commercial Information	m	Commercial Information	Commercial Information
16	New rainwater heads	Commercial Information	no	Commercial Information	Commercial Information
17	New downpipes	Commercial Information	m	Commercial Information	Commercial Information
18	Reinstate stone cross including restraint	Commercial Information	no	Commercial Information	Commercial Information
					Commercial Information

Item	Description	Quantity	Unit	Rate	Total
	Architectural, Services & Making Good				
	Restoration				
1	Allowance for stone remediation/repairs	Commercial Information	item	Commercial Information	Commercial Information
2	Additional allowance for re-pointing	Commercial Information	item	Commercial Information	Commercial Information
3	Repairs and releading to stained glass windows as required	Commercial Information	item	Commercial Information	Commercial Information
4	Protection to stained glass - allowed as external safety glass in frame over existing	Commercial Information	no	Commercial Information	Commercial Information
5	Additional making good - generally	Commercial Information	item	Commercial Information	Commercial Information
6	New glazed windows to arches including frame and finish	Commercial Information	m2	Commercial Information	Commercial Information
7	Remove existing metal doors and frame to church	Commercial Information	No	Commercial Information	Commercial Information
8	New hardwood timber doors and frame including hardware and finish	Commercial Information	No	Commercial Information	Commercial Information
	Reredos				

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Project: Taranaki Cathedral
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Item	Description	Quantity	Unit	Rate	Total
	Architectural, Services & Making Good				*(Continued)*
9	Allowance to carefully remove the reredos, remediate/repair and reinstall on completion of works	Commercial Information	item	Commercial Information	Commercial Information
10	Carefully dismantle external wall behind reredos, rebuild and repair as required including all new re-pointing	Commercial Information	item	Commercial Information	Commercial Information
	Floor Coverings				
11	Allowance for floor protection during works	Commercial Information	m2	Commercial Information	Commercial Information
12	Uplift existing floor coverings throughout	Commercial Information	m2	Commercial Information	Commercial Information
13	Floor levelling and preparation	Commercial Information	m2	Commercial Information	Commercial Information
14	New carpet flooring	Commercial Information	m2	Commercial Information	Commercial Information
15	Prepare and refinish timber flooring	Commercial Information	m2	Commercial Information	Commercial Information
16	Extra value for vinyl finishes to wet areas (vestry toilets and flower rooms)	Commercial Information	m2	Commercial Information	Commercial Information
	Internal walls				
17	Prepare, make good and refinish including waterproofing layers to vestry plastered walls	Commercial Information	m2	Commercial Information	13, Commercial Information
	Services				
	Sanitary Plumbing				
18	Allowance for plumbing pipe rationalisation or concealment/rerouting	Commercial Information	sum	Commercial Information	Commercial Information
19	No allowance has been made for any other plumbing works		note		
	Heating & Ventilation Services				
20	New heating system throughout (scope tdb)	Commercial Information	m2	Commercial Information	Commercial Information
21	Repair and improve subfloor ventilation	Commercial Information	item	Commercial Information	Commercial Information
	Fire Protection Services				
22	Detection and alarm system throughout	Commercial Information	m2	Commercial Information	Commercial Information
	Electrical Services				
23	New electrical system including lighting throughout	Commercial Information	m2	Commercial Information	Commercial Information
24	Electrical upgrade for organ	Commercial Information	item	Commercial Information	Commercial Information
	Special Services				
25	Make good and reconnect audio system	Commercial Information	item	Commercial Information	Commercial Information
26	Data services throughout	Commercial Information	m2	Commercial Information	Commercial Information
27	Repair and make good hearing loops	Commercial Information	item	Commercial Information	Commercial Information
28	Provision of security system (intruder, motion alarms only - not cameras etc)	Commercial Information	item	Commercial Information	Commercial Information
	Vestry				

Commercial Information

Commercial Information

Elemental Estimate

Project: Taranaki Cathedral
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Item	Description	Quantity	Unit	Rate	Total
	Architectural, Services & Making Good				*(Continued)*
29	Allowance to reconfigure and upgrade existing finishes, services etc..	Commercial Information	m2	Commercial Information	Commercial Information
					Commercial Information
	External Works				
1	Provisional allowance to make good externally/improve drainage away from building/reinstate grass and gardens after works	Commercial Information	item	Commercial Information	Commercial Information
					Commercial Information
	Specific P&G				
1	Exterior hoardings and fencing	Commercial Information	m	Commercial Information	Commercial Information
2	Scaffolding of exterior (area includes roof)	Commercial Information	m2	Commercial Information	Commercial Information
3	Wrap	Commercial Information	m2	Commercial Information	Commercial Information
4	Scaffolding to interior perimeter	Commercial Information	m2	Commercial Information	Commercial Information
5	Internal protection of font, pulpit and immovable wall plaques	Commercial Information	item	Commercial Information	Commercial Information
6	Specialist contractors, travel and accommodation	Commercial Information	item	Commercial Information	Commercial Information
					Commercial Information
	Subtotal				
					Commercial Information
	General P&G				
					Commercial Information
	Main Contractors Margin				
					Commercial Information
	Contingencies				
					Commercial Information
	Professional Fees				
					Commercial Information
	Consents				
					Commercial Information

Commercial Information

Commercial Information

Elemental Estimate

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Item	Description	Quantity	Unit	Rate	Total
	Separate Contracts				*(Continued)*
1	Removal, storage and reinstatement of pews, furniture and loose items	Commercial Information	item	Commercial Information	Commercial Information
2	Removal, storage and reinstatement of organ and associated paraphernalia (as separate quote)	Commercial Information	item	Commercial Information	Commercial Information
3	New Chairs	Commercial Information	No	Commercial Information	Commercial Information
4	Storage contingency	Commercial Information	item	Commercial Information	Commercial Information
					Commercial Information
	Inflationary provision to commencement				
					Commercial Information
	Estimate Total				Commercial Information

Commercial Information

TARANAKI'S HISTORIC CATHEDRAL PROJECT

The existing church interior

"The vision is of:
A flexible interior space that allows quality contemporary worship just as readily as a musical performance, a community debate or an exhibition."

Moveable seating will allow differing layouts to suit differing uses.

Beautiful venue set for a chamber music concert

Illustration by www.stantiallstudio.co.nz ©