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Unravelling heritage challenges: three case studies

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Abstract

Purpose – The purpose of this paper is to provide an overview of the diverse issues that affect heritage projects during their lifecycle and in particular, why heritage-listed projects often fail to meet the delivery goals of time, budget, quality and scope.

Design/methodology/approach – This research was undertaken on a qualitative basis by conducting series of semi-structured interviews drawn from three case studies in SE Queensland. Qualitative research involves the evaluation of people's experiences, feelings, social interactions, and the data gathered from this type of methodology is often varied and rich. A case study allows a researcher to test and generate theories based on real-world practice.

Findings – This paper presents the findings from a data collection exercise accomplished by conducting a series of qualitative case studies. Using a cross-case analysis approach, this paper highlights critical heritage project delivery issues and their causes.

Practical implications – The lessons learned from the study cases could be used in helping to prevent potential heritage project failures in the future.

Originality/value – The paper aims to bring greater awareness to practitioners and academics of the repeating issues that every heritage project is likely to face and offers some insight in how these may be mitigated.

Keywords Heritage management challenges, Heritage project case studies, Heritage project stakeholders, Project delivery challenges, Project time and cost overrun

Paper type Research paper

1. Heritage retention

The movement to protect historical buildings and places that are regarded as forming part of a Australia's national heritage has grown enormously over the last decade. Today, there is growing acceptance that heritage conservation provides cultural, economic and social benefits to urban communities.

Heritage includes "[…] stories, traditions, languages, events and experiences inherited from the past […]. shaped by nature and history, it gives context to where we are now and where we are headed as a community" notices by the Department of Sustainability Environment Water Population and Communities (2012, p. 2).

Heritage in the context of this paper is focussed on the project delivery of heritage buildings/places. Most heritage projects, whilst being acknowledged to be of high finished quality, often experience difficulty in constraining scope and in meeting financial and time targets. After 15 years of collecting data, Shenhar and Dvir (2007) came up with the astonishing result that 85 per cent of all construction projects have failed to meet time and budget goals, and heritage project are not exempt. Project failures may be perceived differently by different stakeholders and each stakeholder group is likely to enforce their expectations of success on their view of the project achievements. Zwikael and Smyrk (2011, p. 249) state: "Although all of the parameters for a project are clearly stated in the

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business case and project plan, additional constraints on the agreed timeframe and budget can emerge". The complexity of the conservation process and the often large numbers of stakeholders engaged usually leads to there being several different objectives and requirements, which brings about conflicts (Alallafa and Torreb, 2010).

Therefore, this paper addresses the omission of certain critical elements in the current management of the planning/design phase of the project lifecycle of heritage buildings, together with multiple stakeholder involvement, which negatively impacts on the subsequent execution/construction phase and causes, or significantly contributes to, scope expansion, project cost overruns and time delays.

2. Case studies – selection criteria

The aim of this research paper is to investigate the reasons why heritage-listed projects often fail to meet the delivery goals of time, budget, quality and scope. This aim was adopted as a major focus for selecting the case studies used in the carrying out of the research. Therefore, a set of selection criteria was established to find the most appropriate cases for analytical purposes that would achieve this aim. First, this research sought to investigate heritage-listed building projects in Queensland that were running over time and over budget. Three projects were identified that met this selection criterion. Second, in order to get an overview of the diverse issues that affect heritage projects during their lifecycle, the case studies were to include projects with different sources of funding, or with mixed funding. Third, in order to get a better perspective of how heritage projects are affected at different stages of their lifecycle, it was decided to select at least one completed and two ongoing projects. Choosing an ongoing project enabled the researcher to attend weekly and monthly site meetings as an observer. This enabled the researcher to make site visits, ascertain progress and discuss project issues with the stakeholders on a day-to-day informal basis. This in-depth participant role provided data in addition to the feedback from formal semi-structured interviews.

The three case study projects chosen were all located in Queensland, Australia and were: Old Government House (OGH) at 2 George Street, Brisbane CBD; Gona Barracks on Gona Parade, Kelvin Grove; and Anzac Square at 228 Adelaide Street, Brisbane CBD. The application of the criteria to select the three case studies for this research is presented in Table I.

As seen in the table, the chosen case studies most of the established criteria were satisfied. Therefore, it was believed that all three case studies would accomplish the research objectives, namely:

- to identify the causes of the project time overrun;
- to identify the causes of the project budget overrun; and
- to identify the influence of multiple stakeholders on the project and their inner relationships that have a positive or/and negative effect on the overall project delivery.

While experiencing all common heritage projects-related problems, the Anzac Square project has been completed within overall budget, which included construction contingency of 20 per cent and on schedule.

Stakeholder interviews identification

Based on the case study objectives, a group of stakeholders was identified as representing the population of interest and capable of providing relevant sources of

	OGH	Anzac Square	Gona Barracks
Selection Criteria 1			
Heritage-listed (national/state/local)	✓	✓	✓
Time issues	✓	✓	✓
Budget issues	✓	✓	✓
Scope revisions	✓	✓	✓
Applicability for this research	Yes	Yes	Yes
Selection Criteria 2			
Privately funded	✓	0	✓
Funded by government	✓	✓	✓
Completed project	✓	0	0
Ongoing project	0	✓	✓
Applicability for this research	Yes	Yes	Yes

Notes: ✓ = satisfied the criteria; 0 = did not satisfy the criteria

Table I. Application of criteria to selected projects for case studies in this research

data to pinpoint and evaluate the specific challenges experienced by certain projects at different lifecycle stages. The identified stakeholders were asked the same set of semi-structured questions via interviews to enable the researcher to gather data from different stakeholders that was based on the same research rationale.

Interviewees for Three Case Studies:

- Project Owner.
- Project Manager.
- Superintendent.
- Heritage/Architect.
- Engineer.
- Quantity Surveyor.
- Builder.

The Anzac Square case study involved an extra stakeholder, namely, the project programmer, who was responsible to ensure that the construction work was meeting weekly schedule and provided a very focussed view on the reasons for time overruns.

During the interview process the researcher prompted the interviewees to go deeper than simply answering the basic interview questions in order to better explain the important challenges that the researcher had marked as being significant during the earlier document analysis and observation stages of the study. Asking the same questions to different project stakeholders in enabled the researcher to observe the same challenges, viewed from different perspectives and draw integrated conclusions. "Entering" into a project from inside gives the researcher a certain level of intensity in observing the issues that are happening. The interviewed stakeholders are presented in Table II.

3. Case study 1-OGH restoration project 2007-2009

The history of the place

In 1859, Queensland became a separate colony with 30,000 settlers and a site in the City of Brisbane was chosen for the state's first government house. The first Queensland Government House was designed by Colonial Architect Charles Tiffin. The building of

the house was completed in 1862 with the purpose of serving the various governors of Queensland until 1910. OGH has been used as a government office, public reception and governor's accommodation which included family members and servants. With changes in the role of governor around 1910, OGH was allocated to the new university that was established on the same site (Queensland Government, 2015c).

OGH is situated adjacent to the City Botanic Gardens and was built from sandstone. The building was designed to be naturally ventilated. It is a symmetrically planned, two storeyed building with an entrance facing the river emphasised by two storeyed semicircular colonnades. Figure 1 shows a photograph of OGH (1861) from the John Oxley Library archives.

Interviews were held with the OGH stakeholders, to extract and discuss the main project performance problems. A set of interview questions was composed to discuss the causes of target time, budget and scope issues on the project with each of the identified stakeholders, in order to get their differing and similar views on the same problems. The abbreviation (R) refers to the interview respondents.

Limitations of current policies and procedures for heritage building projects

Meeting the requirements of heritage legislation can sometimes be time consuming, but when dealing with heritage projects the concept of time can be considered differently: "what is two months in two hundred years?" (R1). Due to the limitations, "there are more about people to think in conservation way, to have more general understanding of procedures and it is about too many people who carry out this processes do not understand very well" (R1). Moreover, "a heritage classification of the building whether it is local, state or national listed limits the design" (R2).

Difficulties in accurately determining the scope of heritage building projects

"It is very hard to determine the scope" (R4), as the amount of investigation of the building is not adequate and "non-destructive investigation prior to tender documentation is desirable" (R2 and R3). Visual inspection of the building especially in relation to termite infestation could be insufficient. Differences in meeting the requirements of the BCA were noted, highlighting the need for adjustments to the BCA or a "separate code is needed" (R2). Also "finding strategies to meet Disability Discrimination Act 1992 (DDA) is a challenge" (R2) for heritage building projects.

Major causes of heritage building project delays

In relation to project delays, common problems emerge from project to project. One of the OGH stakeholders (R1) highlighted: "Bad process of planning as significance of place is not well understood" (usually the approval of the proposed project is revised two to five times or more); "doing work in a wrong order as work that has been completed has been damaged because of the late work" (further causing new rework);

Case Study	Interviews: Project Owner	Project Manager	Super-intendant	Heritage/ Architect	Engineer	Quantity Surveyor	Builder	Total
OGH	✓	✓	0	✓/0	0	0	✓	4
Gona Barracks	✓	✓	✓	✓	✓	0	✓	6
Anzac Square	✓	✓	✓	✓	✓	✓	✓	7+1

Table II. Case studies stakeholders interviews

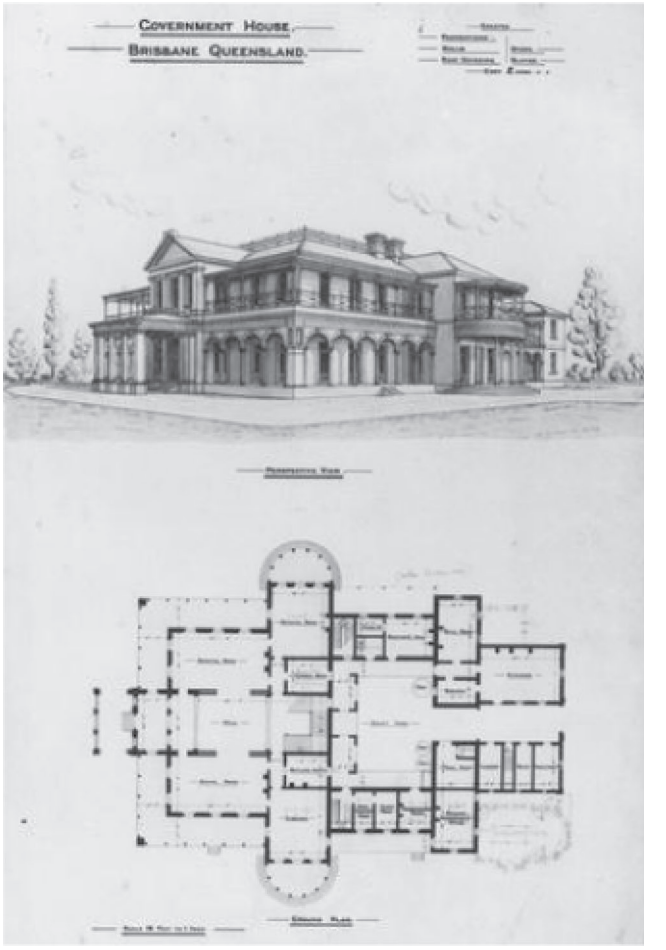

Figure 1.
Government House in George Street, Brisbane, circa 1861

Source: Courtesy of John Oxley Library, State Library Queensland, Image No. 139915

"having unsuitable deadline" (e.g. political interests); and "building investigation challenges" (only visual inspection was allowed prior to the scope definition). At the end, "It is all about the latent condition" (R2).

Different stakeholders and their impact on project delivery

When multiple stakeholders are involved in the project, it is ideal to have a "team environment where everyone heading towards the same outcome regardless of the political, financial and other goals" (R2). The stakeholders can be grouped as: "owners – passionate and have understanding; consultants – clear thinking, technical and historical knowledge experience; community – looking after the place to keep it significant – individuals and organisations such as the National Trust; regulators – ultimate protection; trades – knowledge that needs to be passed along" (R1).

Understanding the role of the different groups enables the project to be led and maintained in a desirable way. However, managing different stakeholders with different interest/influence on the project is difficult especially when project attracts considerable interest from media as well as political arenas.

Issues pertaining to specialists and subcontractors on the project

The subcontractor could be already allocated by the heritage consultant, or "the builder has to ensure the subcontractor for the specific work" (R3); "there are specific trades that are now difficult to find. In OGH, it was difficult to find a tradesperson for the re-roofing component. Stone mason is another trade difficult to procure" (R4). Therefore, sourcing of traditional trades to do the specific work can sometimes be difficult as "knowledge has not been passed along" (R3 and R4). Moreover, "very few understand to do it in a proper way" (R1).

4. Case study 2 – QUT precinct 2, "Gona Barracks" 2013-2016

The history of the place

The Gona Barracks at Kelvin Grove, Brisbane, is a rare surviving precinct that demonstrates the pattern of Queensland military activities in history. From 1879 to 1911, the site was used by the Brisbane Grammar School under an endowment by the then British Colonial Government. No buildings were constructed on the site at that time. In 1911, the site was renamed as the Kelvin Grove Defence Reserve and was used for compulsory military training. Buildings including an infantry drill hall were constructed on the site. In the 1920s, the use of the site began to diversify as part of a gradual expansion in the inter-war period and now included a riding school and memorial hall. During the Second World War, a garage and workshops were added. In 1960, the name was changed and the site became known as "Gona Barracks", the name being derived from the battle of Gona on the north coast of Papua New Guinea in 1942. The site was mostly used as base of volunteer military forces until 1998 when the barracks officially closed (Queensland Government, 2015b). In 2000, the Queensland Department of Housing purchased the site and subsequently formed a partnership with the Brisbane City Council and the Queensland University of Technology to develop a mixed-use urban village precinct using the Gona Barracks site and adjacent land. Plate 1 shows the army barracks at Kelvin Grove, Brisbane during the Second World War, circa 1940.

The rationale for the interviews with the "Gona Barracks" stakeholders was similar to that for OGH. However, it gave the opportunity to see if the same drivers were causing similar or differing problems due to project and building type differences and also different stakeholders for the project.

Limitations of current policies and procedures for heritage building projects

From the structural point of view, "how much intervention is allowed in the building against how much heritage you keep" and "replacing small parts […] rather than the whole thing" are challenges that mean "you cannot comply with the current building code" (R9). Sometimes there is a need "to rebuild the building to make it safe" (R9) which goes against the heritage practice to change "as little as possible" (R9), as "heritage people don't want to change anything" (R9).

"The current policies and procedures are convoluted" (R6) as "there is not one particular policy and procedure that defines what you need to do" (R6). As a result,

Plate 1.
Army barracks at Kelvin Grove, Brisbane during the Second World War, circa 1940

Source: Courtesy of John Oxley Library, State Library Queensland, Image No. 6511-0001-0003

the policy and procedures framework "needs to be streamlined" (R6) especially if the "department keeps changing" (R7). Furthermore, the stakeholders "prefer the government to have [its] own resources and expertise", rather than relying on the external services. The stakeholders were concerned about "how to streamline this process" and "make administration more efficient" (R5 and R10).

The stakeholders also advised that "ensuring the specifications are written very clearly and concisely" would be desirable (R8) with "higher detail resolution" on the site in order to avoid unnecessary requests for more information.

Major causes of heritage building project delays

According to the stakeholders, in relation to the cause of delays, "predominantly, it is unknown latent conditions" (R9) as "the biggest one" (R6), as you have to "design and document without knowing enough about the building" (R7). This problem is attributed to "the scope that is not clearly defined and all documented, because you physically cannot document everything" (R6).

The lack of prior knowledge about the building then causes "too much work to redesign and re-document after construction starts" (R7) with "not knowing how long to wait the decision" (R7) and you almost always have to do a "lot more to get the design approved" (R9). In addition, there is not always the "time for approvals before" (R10) the construction starts, so it takes place "during the construction" (R10).

Discovering the latent conditions is the so-called "big exercise" (R5). When you "uncover something" (R5) you have to "design, price and agree on the methodology" (R5) again, and get it approved again. The same process has to be repeated each time the project team uncovers something new (R5).

The reality is that stakeholders are starting the project knowing that "you do know the full extent of [what is] required" (R5): "if you can identify [the requirements] before construction starts" (R5), it will lead to enormous savings in the time and project cost.

One of the stakeholders pointed out that, when a project is documented, "a lot of detail needs to be changed as it must not fit each scenario" (R8). Therefore, an "early works package" (R7) needs to be considered in heritage building projects as a "separate contract" (R7). This would consist of "the demolition work" (R7) which means detailed investigation work and "the removal of asbestos" (R7) if any as "the decision on design" (R7) will help clarify the tender documentation. That kind of the pre-tender "early works package" will require "all design approval – what to demolish" and with the possibility of the "extent of demolition" (R7).

Sometimes the heritage authorities do not quite understand the problem of "sourcing the materials" (R6) and the "limitation of sources". This problem occurs because the materials that are available today often cannot match the materials that were available at the time the object was built.

Another cause of project delays is change introduced by the client during the construction phase. Therefore, "the project client needs the clear image of the design brief of what they want" (R5) to avoid the situation where the client expresses the view that "it is not what I had in my mind" (R5).

Different stakeholders and their impact on project delivery

Every building project involves a range of different stakeholders who have a different interest in the project, guided by different motivations and focussed on different goals. Dealing with the multiple stakeholders and their influence is "critical in terms of the client" (R7). The project delivery is mostly "stakeholder driven" (R6): "[the] client wants to keep cost down and the architect often forgets about the cost, while heritage authorities want to maintain the heritage components of the building" ensuring that the heritage components "would not be compromised" (R6). The heritage authorities, as an external stakeholder, play an important role: "they determine what has to be kept" (R5) and "they have a final say [about] what you are allowed to do" (R10). Early involvement of heritage bodies during the design even conceptual phase is desirable.

Among the internal stakeholders, it is important that the engineers "do not overdesign what is required" (R6). Another internal stakeholder is the superintendent who is driven "to ensure that what the client is paying for they are getting", to guarantee that the "quality will be maintained" (R6) and moreover to verify "the design team [architect, engineer and services] give a realistic view" (R6) and are "aware of the importance and what the approaches are" (R7). The quantity surveyor has a hard task: "because of not standard materials, details, as there is no set standard market rate that you can apply" (R6). The builder's responsibility is to "appraise, construct and maintain the program" which might be very difficult due to the numerous "latent conditions" on the project.

Other external project stakeholders are "the members of the public that are really passionate about the heritage buildings" (R9) and taking into account the public opinion of the heritage projects is highly recommended. This is especially so with heritage projects that contain a military element or in projects where there is a much deeper relationship to the community.

Issues pertaining to specialists and subcontractors on the project

Finding the appropriate contractor and specialist consultancy staff could be difficult as "expertise is a challenge" (R6). Many times, "the realistic timeframe" is unknown "until they start doing it" (R6). This could be explained by "the lack of experience" (R6), as "the subcontractors that do have the skills" are few in number.

5. Case study 3 – Anzac square restoration project phase one (2013-2015) and phase two (2016)

The history of the place

The First World War took many lives: from an Australian population of around five million people at the time, 60,000 soldiers were killed and 152,000 returned wounded. Land was granted in 1928 for a memorial park in Anzac Square in Brisbane to acknowledge those who participated and died in the First World War. Anzac Square commemorates all Queenslanders who participated in armed service and has become a repository for memorials of other wars (Queensland Government, 2015a).

The site was designed to enhance the dominant feature of the square, namely, the Shrine of Remembrance. The design of the shrine was inspired by the classical Greek *temenos* (sacred enclosure) and *tholos* (circular shrine) comprising a circular colonnade with 18 Doric columns that support a circular entablature internally inscribed with the names of battlefields. Plate 2 shows a picture of Queensland National Anzac and South African War Memorials, Brisbane, which is a part of the Sidues series of postcards (No. 819).

Anzac Square was a project undergoing construction and so this case study gave the opportunity to determine if the same or similar problems were present on a different building type that was currently undergoing the construction stage and so reporting was current and not retrospective by stakeholders interviewed.

Plate 2.
Queensland National Anzac and South African War Memorials, Brisbane

Source: John Oxley Library, State Library Queensland, Image No. 194852

Limitations of current policies and procedures for heritage building projects

The lack of a building investigation (other than a visual investigation) prior to approval causes numerous issues as it is only possible to "make the best guess estimate" (R18). The difficulty arises in having to define a scope "with the lack of information about the structure – nature of the structure" (R18) together "with the lack of information on the existing drawings" (R13) and "lack of preliminary investigation" (R13). This compounds the problem of already facing a "lack of heritage experts – project managers" (R13) and trades. Therefore, there will usually be "hidden layers" (R16) to be uncovered during the construction phase.

The usual procedure is "tracking [down] the subcontractors" using "the database [of] who you already used or who you know" (R17). Specialist trades "are unique with not much competition on the market" (R17). Efforts are made to find the subcontractors who suit the project based on "their references, past experience, trade qualification and samples of work"; however, "at the end of the day it comes down to the budget, and what fits in the budget" (R17).

A further limitation in heritage projects arises when "you try to replicate heritage work" (R13). Sourcing the materials is not an easy task: for example, when "getting the right stone to replace" (R13) you have to "to consider how the heritage building will be impacted" (R12).

Major causes of heritage building project delays

"Allowing the sufficient time" for investigation work in the design stage and having access to appropriate "cost contingency" (R18) will reduce the likelihood of project delays. When "the records are not kept" (R11) or "the archived records are not the latest version" (R11), the documentation can be misleading. This is compounded by problems related to "investigative works such as soil investigation, X-rays and visual inspection on hidden elements" (R14). Limitations in the equipment are a problem. For example, the use of non-destructive techniques (such as X-rays) for structural investigations is not reliable: in some cases, what was anticipated (solid concrete beams under the slab) and what was found (brick webbing) are totally different.

"Latent conditions" (R14) and "client brief changes" (R14) are the most common causes of project delays. Managing projects on time when "the time is based on the current program" (R16) but "the whole sequence of events has been changed" (R13) is the typical scenario.

Sometimes "the competitive type of arrangement and trying to win the project tend to [lead to] underestimating the work" (R18) and this has further consequences in terms of delays. Furthermore, when the construction phase starts "the RFI [requests for more information] slow the process down" (R17).

In order to manage delays it is necessary "to mitigate delays as they arise not to try and mitigate accumulated delays at the end of the project" (R18). The construction progress has to be strictly monitored in order "to stay on track" (R18). However, having the "project team and construction team working to the same goal with everyone on the same page with quick decision making" (R17) can ensure the project's success.

Sourcing of the materials for the heritage projects is difficult most of the time. It is "more challenging to get heritage stuff products as predominantly all of it was from the UK, and we have to source from the UK" (R17). This is because the project team must follow the rule of "like to like" (R17), so the making of timely decisions in

procurement is critical. The "lead time for material" (R17) has to be considered and "ordering material early on in the project" (R17) will avoid "procurement delays – materials" (R14). If a delay still happens, "the realistic timeframe to start with dealing delay with procurement" (R14) has to be thoroughly considered if "there is no more room to change" (R12).

Different stakeholders and their impact on project delivery

Through the decades, war memorial sites have been of broad interest to the community. Today, the "community are more interested in theoretical outcomes, purity of restoration and integrity of building" (R14). Further, any intervention to a memorial site can result in "losing the essence of community" (R14). War memorials have "extremely personal attachment" (R14) to the families who lost loved ones in a war and have to be dealt with sensitively as "people get very emotional" (R14). Managing the project in line with the "political agenda" (R16) puts an added pressure on all project stakeholders.

Different project stakeholders have different goals: "Getting all the team to recognise opportunities and constraints is a challenge" (R14). Every stakeholder "has a different perception which leads to a different set of objective in their mind and from the objective and design" and "if some of their objectives cannot be met, animosity between different stakeholders can be [present]" (R18). Therefore, "managing expectations in the initial phase" (R18) is desirable.

War memorial projects must be "dealt with very carefully and thoughtfully" (R16) especially due to the community expectations. Managing stakeholders, either external or internal, is about "managing expectations – what they expect and what they receive" (R17) and sometimes "changing the mind" will require "more work which will impact to extend [i.e. delay]" (R17). Not every stakeholder can visualise the space from the design and sometimes it can cause the additional changes. Sometimes the stakeholder "does not have visibility of cost" (R18) and this can give rise to issues as every post-design intervention is always more costly.

Issues pertaining to specialists and subcontractors on the project

The Anzac Square project was affected by the availability of "only two stone masons in Queensland" (R13). The "NSW heritage advisory network" (R14) helped the project team and contractors to find "recommendations for suppliers" (R14).

6. Cross-case study analysis

Following the summary of the case studies, the cross-case analysis undertaken to determine causes of issues of similar or different natures is summarised in Table III to provide a visual overview of the issues experienced in heritage projects. The issues were selected if they occurred in a minimum of two case studies. A number of issues repeatedly emerged showing in the heritage project case studies. The interviews enabled the most frequently encountered issues to be highlighted and investigated in more detail. The interviewees also suggested solutions to address the issues as each of the stakeholders was highly interested to identify what needs to be done to ensure the successful delivery of the projects. Table III presents the summary of the issues highlighted in the case studies and the identified causes.

Delivering heritage project – issues	Case study – experiencing an issues OGH	GB	AS	Delivering heritage project – causes
Records are not kept or archived records are not often the last records	Yes	Yes	Yes	Documentation/drawings based on the archived records – not reliable 100%
Lack of sufficient time for investigation work (assessing the condition of the building)	No	Yes	Yes	Fully extend what is required is unknown The best guess estimate
Expertise in heritage projects	Yes	Yes	Yes	Unrealistic time frame New rework
Obtaining approval from the heritage bodies	Yes	Yes	Yes	Multiple redesigns
Visual inspection of the object	Yes	Yes	Yes	Hard to define scope of the work, design and document without knowing enough about the building - results in inaccurate scope definition
Inaccurate scope definition	Yes	Yes	Yes	Incomplete tender set
Incomplete tender set	Yes	Yes	Yes	Latent conditions
Latent conditions	Yes	Yes	Yes	Multiple design, price and agree on the methodology : architect – engineer – contractor Heritage authorities - to get design approved Searching for trades specialist Sourcing materials Notice of likely delay (NOLD) Variations
Specifications/site documentation	Yes	Yes	Yes	Not enough documented results in numerous RFI
Request for information (RFI)	Yes	Yes	Yes	Slow down the construction phase
Sourcing the materials	Yes	Yes	Yes	Overseas If hardly to match result Inadequate replacement
Building Code of Australia (BCA) Discrimination Disability Act (DDA)	Yes	Yes	Yes	Hardly to comply with the current building code Installations to satisfy disability access
Multiple Stakeholder Management	Yes	Yes	Yes	Project delivery is stakeholder driven Client brief change
Media and political interest	Yes	No	Yes	Attract considerable interest from media as well as from political arenas

Table III.
Cross-case study analysis – highlighted issues and causes

7. Concluding remarks

According to the interviewees, the main problem at the beginning of a heritage project is the assessment of the significance of the place. Understanding the place and its fabric is crucial for well-managed projects that can guarantee the quality will be maintained and the various categories of significance will be satisfied.

Another more technical issue is the problem of records that have not been archived, or if they have been archived, may not be the latest record. Thus, the available documentation is used without knowing whether or not it is 100 per cent reliable.

Difficulties arise from having to define a scope of the work, which cannot be clearly determined due to the limitations on the building investigation. The visual inspection of the building cannot uncover what is behind the walls and under the floors, and thus cannot determine the full extent of the work that has to be considered. From the poor scope definition, several other difficulties arise such as an incomplete tender documentation with omissions when items are missed and not included. This leads to extensive variations together with the latent conditions revealed once the construction phase starts. The latent conditions are linked to multiple redesigns and price and

agreement negotiations, which involve the owner, architect, engineer and builder and then the heritage authorities in obtaining approvals for expenditure and to continue the works. This problem is compounded when the latent conditions are uncovered one after another.

Another major challenge is the quality of the documentation delivered on the site, which due to being incomplete or not fit-for-purpose, often results in numerous requests for information and slows down the construction process.

Heritage projects require specific knowledge; therefore, finding the experiences and relevant trades and specialists to do the work sometimes can be difficult, together similarly with the sourcing of the materials.

Another difficulty is faced in applying the requirements of the Disability Discrimination Act (1992) when such access was never considered at the time the heritage building was originally constructed. Furthermore, all the design has to comply with The Australian Building Codes Board (2013); according to the interviewees, meeting the current code is usually difficult for a heritage building as the code was designed for conventional building projects.

The involvement of multiple stakeholders, each with different interests in the project, was identified as a challenge. This is especially the case if there is a lack of experience in the project team. As an added pressure, the political and media interest in a heritage project is an issue.

This research has delved more deeply into determining the major issues that delay or force heritage building projects to run over cost and extend the original scope of contracts. The paper is not designed to present solutions, this will be the aim of further studies emanating from this authors overall research in the field of heritage project management. Rather what it provides is a view onto what are the ongoing challenges of heritage projects as seen through the eyes of different groups of stakeholders operating on different projects in different stages and at different times. It lays a foundation for the next research stage which is to begin to determine ways of mitigating the problems identified and finding solutions to improve future heritage building projects. The positive impact made upon revealed delivering heritage project issues may help heritage authorities and heritage project stakeholders to look upon other stakeholder's experiences of the current regulations and project practices.

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Ashok Madan has more than 30 years of experience in the construction and infrastructure industry. He is currently Program Director for the Civic and Buildings Section, Brisbane City Council managing capital works program for civic, building and infrastructure projects. The Section provides program, project, contract, and procurement management services to various program areas within the Council. Prior to this role, Ashok was the Associate Director, Major

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