# Young High School Library and Jointuse Community Facility (Main Works)

Addendum to the GML Historical Archaeological Assessment and Research Design

Report to Joss Group on behalf of SINSW

Final Version 1.1-August 2021





shining a light on people and place



# Lantern Heritage Pty Ltd

PO Box 7039 TATHRA NSW 2550

ACN: 620 582 658 ABN: 30 620 582 658

Phone: (02) 6494 5759 Mobile: 0402 831 291

Email: info@lanternheritage.com.au Web: www.lanternheritage.com.au

Project Client
Joss Group
PO Box 7079
Albury NSW 2640

#### **Project Name**

Young High School Library and Joint-use Community Facility (Main Works)
Addendum to the GML Historical Archaeological Assessment and Research Design

Project Reference Number 128-089

Local Government Area Hilltops Shire Council

Report Author
Rebecca (Bec) Parkes

VERSION DATE		REVIEWER(S)	NOTES		
1.0	19.8.21	SINSW AND GHD	DRAFT FOR CLIENT REVIEW		
1.1	24.8.21	DPIE/HNSW	FINAL FOR SUBMISSION		



# **Table of Contents**

Doc	ument Overview	2
Intro	oduction	2
Α	Excavation Staging and reporting	
Α1	Archaeological Staging	
A-2	Reporting Commitments	
В	Conservation Management Recommendations	
B1	Archaeological Zoning Review	
B1	Conservation Management Recommendations	
С	Artefact Management	
Refe	erences	15
Atta	achment 1 - Extract from Preliminary Salavge Report: Revised Methodology	16
	naeology of the riot	
	rchaeological footprint of the riot	
	hodology for the archaeology of the riot	
	Goverage	
	anget Identification	
	Irtefact Recovery and Recording	
	RA Identification	
Α	Inalysis	20
Refe	erences	21
Lis	st of Figures	
Figu	re 1: Plan of Salvage Stages 1, 3, 4a, 5d, 5e and 7	4
Figu	re 2: Plan of Salvage Stage 2	5
Figu	re 3: Plan of Salvage Stages 1, 4, 5 and 7	7
Figu	re 4: Plan of Salvage Stage 6	8
Figu	re 5: Overlay of potential historical features with current predictions of archaeological s	
Figu	re 6: Archaeological conservation zoning plan	12
Figu	re 7: Riot Map 1 showing areas where FRAs evidencing the foot police's positions along extremes of the potential Camp's boundary fence may be expected along different ext the possible fence line alignments	remes of
Figu	re 8: Riot Map 2 showing the extent of areas where fired projectiles may be present	19



### **DOCUMENT OVERVIEW**

#### Introduction

This addendum report was prepared by Lantern Heritage Pty Ltd (Lantern) for Joss Group Pty Ltd (Joss) on behalf of School Infrastructure NSW (SINSW). The report is in response to a request from Heritage NSW (HNSW) to provide:

- A short addendum to the GML Archaeological Research Design and Excavation Methodology which supported the EIS and approval. The addendum should include:
  - a) the proposed staging for the salvage of state significant archaeology including a supporting plan outlining the stages. For consistency in one document the addendum could also address the following commitments for the project as part of the final excavation reporting (section 8.8): reporting commitments
  - b) a section with conservation management recommendations to guide ongoing use of the site including a supporting figure which acts as a conservation zoning plan (to show areas of archaeological potential requiring conservation and areas where archaeological resources have been removed)
  - c) The location of the dedicated long term artefact repository for the archaeological collection to be managed by SINSW for the Young High School site.

The additional information was requested following the discovery of State significant relics during preliminary archaeological salvage works during January and February 2021[Parkes et al 2021]. That discovery prompted a design review process (Parkes & Värttö 2021], which concluded that there were no practicable options to conserve the archaeological remains within the project footprint. As such, archaeological salvage is now planned across the project footprint.

Given that the original Archaeological Research Design and Excavation Methodology (ARD&EM) prepared by GML (2019) to support the Environmental Impact Statement (EIS) approval did not anticipate the removal of State significant relics, it is now necessary to outline the relevant proposed modifications to the archaeological investigations, including:

- approach to the archaeological salvage with details of how it will be staged;
- conservation management recommendations for the Young High School (YHS) accompanied by a zoning plan; and
- procedures and policies regarding artefact management.

This document aims to address those additional reporting requirements. It is divided into three parts that detail the additional information requested by HNSW.



### A EXCAVATION STAGING AND REPORTING

In accordance with CoA B22(b), the investigations to date have been conducted following the Excavation Methodology in Section 8 of the Historical Archaeological Assessment & Research Design Report, prepared by GML at Appendix J of the EIS. However, as outlined above in this report, the archaeological deposits across the project area are more extensive and complex than what could be predicted following the testing phase of investigations. As such, it is prudent to review the methodology set out by GML [2019].

The GML methodology set out procedures for archaeological monitoring, the design review process, salvage excavation, unexpected finds procedures, site recording, artefact retrieval strategy, sampling strategy as well as post-excavation activities such as analysis, reporting, public outcomes and interpretation, and archaeological collection repository. No major changes are proposed to these methods. What is proposed is a refinement to the methodology in terms of the following:

- Methods for identifying and recording the archaeology of the riot (refer to Attachment 1); and
- Staging of the proposed archaeological salvage investigations.

### A1 Archaeological Staging

The archaeological salvage will comprise seven key stages:

- 1. Clean-up of site:
  - a. removal of protective layers to expose previously identified features; and
  - b. removal of existing spoil.
- 2. Archaeology of the riot following methods outlined in Attachment 1:
  - a. Remote sensing (via metal detector), across all areas of proposed impacts (including tree removal; construction and landscaping works for building NN; landscaping and associated upgrades in Carrington Park), to identify "targets" for firearms related artefacts (FRA) that may relate to the Lambing Flat Riot.
  - b. Single context hand excavation of 20cm x 20cm pits at identified targets using pin pointers to guide excavation to detected metal object(s).
  - c. Detailed recording of the stratigraphy, contexts and nature of the find. This data will be plotted across the project area to further refine understanding of site stratigraphy and integrity prior to commencing Stages 3 and 4.
- 3. Aboriginal Salvage of the Hilltops Aboriginal Artefact Site:
  - a. Archaeological salvage of at least 50m2 at the Hilltops Aboriginal Artefact Site immediately north of the eastern footings of Building CC.
  - b. Excavation of deposits overlying the Aboriginal archaeological deposits will be excavated by hand as single contexts.
  - c. The Aboriginal excavation will effectively provide a means of conducting controlled testing across the identified Aboriginal site which will build on the results of Stage 2 to further refine understanding of site stratigraphy and integrity prior to commencing Stage 4.
- 4. Mechanical stripping of overlying deposits across all other areas of proposed impacts for the construction and landscaping for Building NN:
  - a. Area directly south of the footings of Building CC.
  - b. Area directly north of the footings of Building CC.



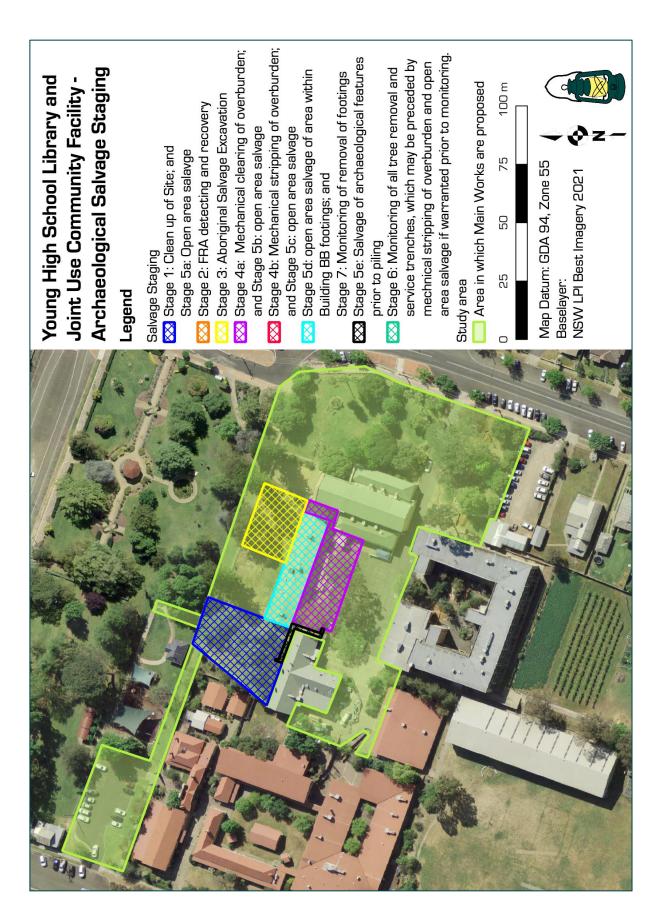


Figure 1: Plan of Salvage Stages 1, 3, 4a, 5d, 5e and 7.



# Stage 4a: Mechanical clearing of overburden; Stage 4b: Mechanical stripping of overburden; area salvage if warranted prior to monitoring. Stage 5e: Salvage of archaeological features service trenches, which may be preceded by mechnical stripping of overburden and open prior to piling Stage 6: Monitoring of all tree removal and and Stage 5c: open area salvage Stage 5d: open area salvage of area within Building BB footings; and Stage 7: Monitoring of removal of footings Archaeological Salvage Staging **Young High School Library and** 100 m Area in which Main Works are proposed Joint Use Community Facility Stage 3: Aboriginal Salvage Excavation Stage 2: FRA detecting and recovery and Stage 5b: open area salvage 🔀 Stage 1: Clean up of Site; and Stage 5a: Open area salavge 75 Map Datum: GDA 94, Zone 55 NSW LPI Best Imagery 2021 20 Salvage Staging 25 Study area $\boxtimes$

Figure 2: Plan of Salvage Stage 2.

- 5. Salvage excavation of identified relics with the following phasing:
  - a. Area directly north of Building BB.
  - b. Area directly south of the footings of Building CC.
  - c. Area directly north of the footings of Building CC.
  - d. Area within the footings of Building CC.
  - e. Features within the footprint of the contiguous pilings
- 6. Monitoring of works for tree removal and/or service trenches. NB pending the location of such works and the results of the preceding stages, the area of proposed impacts may be subject to mechanical stripping and archaeological salvage prior to monitoring works.
- 7. Monitoring of the removal of the footings for Building CC and excavation works for the contiguous piling.

### A-2 Reporting Commitments

The Conditions of Approval (D17) for the project state that

The Applicant must prepare an archaeological report of the salvage excavation undertaken in accordance with condition B22. An interim report of the salvage excavation must be provided for the information of the Planning Secretary within one month of completion of the salvage work and a final report provided within 12 months of completion of the salvage work or within another timeframe agreed with the Planning Secretary. Copies of the report must also be provided to the Heritage Council and Council.

This condition will be adhered to with an interim report submitted within one month of completing salvage excavation, and a final report submitted within:

- 12 months of completion of salvage excavation; or
- within another timeframe agreed with the Planning Secretary.

The above reporting for the salvage excavations will comprise:

- 1. Interim Report including:
  - a. Overview of features salvaged
  - b. Overview of artefact assemblage
  - c. Overview of samples collected
  - d. Outline of proposed artefact management plan including:
    - i. artefact stabilisation requirements
    - ii. artefact discard policy
    - iii. short term location of artefacts prior to lodgement with SINSW
  - b. Outline of proposed archaeological management plan including:
    - i. any likely revisions to the zoning plan presented in this report (see Section B below)
    - ii. any likely revisions to the management recommendations presented in this report (see Section B below)
  - c. Updates to planned timing and content of the final report.
  - d. Details of the proposed timing for delivery of the Heritage Interpretation Plan.



# Stage 4a: Mechanical clearing of overburden; Stage 4b: Mechanical stripping of overburden area salvage if warranted prior to monitoring. Stage 5e: Salvage of archaeological features service trenches, which may be preceded by mechnical stripping of overburden and open prior to piling Stage 6: Monitoring of all tree removal and **Archaeological Salvage Staging** Stage 5d: open area salvage of area within Building BB footings; and Stage 7: Monitoring of removal of footings **Young High School Library and** 100 m Area in which Main Works are proposed Joint Use Community Facility Stage 3: Aboriginal Salvage Excavation Stage 2: FRA detecting and recovery and Stage 5b: open area salvage and Stage 5c: open area salvage 🔀 Stage 1: Clean up of Site; and Stage 5a: Open area salavge Map Datum: GDA 94, Zone 55 NSW LPI Best Imagery 2021 Salvage Staging Baselayer: Legend

Figure 3: Plan of Salvage Stages 1, 4, 5 and 7.



# Stage 4b: Mechanical stripping of overburden; Stage 4a: Mechanical clearing of overburden; area salvage if warranted prior to monitoring Stage 5e: Salvage of archaeological features service trenches, which may be preceded by mechnical stripping of overburden and open Stage 6: Monitoring of all tree removal and Archaeological Salvage Staging Stage 5d: open area salvage of area within Building BB footings; and Stage 7: Monitoring of removal of footings **Young High School Library and** 100 m Area in which Main Works are proposed Joint Use Community Facility Stage 3: Aboriginal Salvage Excavation Stage 2: FRA detecting and recovery and Stage 5b: open area salvage and Stage 5c: open area salvage 📉 Stage 1: Clean up of Site; and Stage 5a: Open area salavge Map Datum: GDA 94, Zone 55 NSW LPI Best Imagery 2021 prior to piling Salvage Staging 25 Baselayer: Legend

Figure 4: Plan of Salvage Stage 6.



#### 2. Final Report including:

- a. Plain English summary accompanied by relevant figures, maps, and photographs, suitable for public dissemination
- b. Details of the archaeological investigations conducted with relevant methodologies
- c. Historical context that includes all previous research conducted by GML and all additional research conducted by Lantern
- d. Discussion of the results of the archaeological investigations with reference to the research questions identified for the site
- e. Relevant site plans, photographs, illustrations, scale drawings and other interpretive graphics to illuminate the discussion
- f. Reassessment of archaeological significance including implications for future research, and management of the artefact assemblage and broader archaeological site
- g. Details of the long-term repository(s) for the artefact assemblage including information relating to accessing the assemblage and long term management requirements.
- h. Technical reporting including:
  - i. Analysis and interpretation of excavation results
  - ii. Site plans
  - iii. Section drawings
  - iv. Photography register
  - v. Photography catalogue
  - vi. Context register
  - vii. Harris Matrix
  - viii. Context forms/summaries
  - ix. Samples register
  - x. Artefact inventory
  - xi. Specialist reports
- i. Artefact management plan
- j. Archaeological Management Plan

In addition to the above reporting outputs, the Heritage Interpretation Plan will be prepared in consultation with relevant stakeholders, including DPIE and HNSW. That document will detail how the site will be interpreted, including details of the themes, audience, contextual importance of the site's location and history, the archaeological resource and information recovered. It will also identify the interpretive devices that will be implemented, the locations and content of each device, ways in which the device will communicate the history, heritage and archaeology of the site, and management plans for those devices.

The timing of the delivery of the heritage interpretation plan will be confirmed in the interim salvage report.



### **B** CONSERVATION MANAGEMENT RECOMMENDATIONS

#### **B1** Archaeological Zoning Review

As a result of the preliminary archaeological salvage investigations, and the accompanying research that was undertaken for the subsequent significance review and design review process, there is now a more refined understanding of archaeological potential across the Government Camp at the site of the Lambing Flat Riot. Taking into consideration the location, nature and integrity of deposits identified thus far, the following approach has been taken to reviewing archaeological sensitivity across the Young High School property.

- The footprint of current and former mid to late twentieth century buildings is mapped with a
  one metre buffer to indicate areas that have been subject to substantial disturbance and
  that are likely to have limited potential for heavily truncated and/or disturbed nineteenth
  century archaeological deposits.
- 2. The locations of all known buildings and fences marked on 19<sup>th</sup> century plans and map have been mapped with a five metre around them to account for possible inaccuracies in georeferencing historical plans. These areas are assessed as having a high to very high potential for areas of relatively intact and well stratified nineteenth century archaeological deposits.
- 3. A further buffer has been extended out to include all areas surrounded by the zone of high to very high potential, which effectively encompasses the general locality of the 1860s Government Camp. It is predicted that this has a moderate to high potential to contain relatively intact evidence of ancillary nineteenth century features (e.g. rubbish pits, tent sites, paths, gardens).
- 4. The remainder of the school grounds have been assessed as being of low to moderate archaeological potential. These areas are predicted to have a moderate potential to contain subtle and/or ephemeral archaeological evidence associated with ancillary features and activities (e.g. paths/tracks, agricultural/horticultural infrastructure).

Mapping of the above zones is provided below in Figures 5 and 6. Figure 5 shows how the zones relate to probable locations of historical features, and Figure 6 shows the zones on their own as an interim conservation zoning plan, pending development of a more detailed and updated management plan once salvage investigations are complete.

#### **B1** Conservation Management Recommendations

It should be emphasised that the archaeological zoning is pending validation from the results of the archaeological salvage investigations. Following completion of the salvage program, combined with reference to plans of known underground services and other prior impacts, it will be possible to provide a more nuanced plan with detailed policies and actions. In the interim, the following general management recommendations should be implemented:

- 1. Avoid undertaking ground disturbance works within all zones of moderate to high or greater archaeological potential.
- 2. An archaeological assessment must be undertaken prior to **any** proposed ground disturbance activities (other than main works for SSDA 9671) within zones of **moderate to high or greater archaeological potential**.
- 3. Wherever possible limit the extent of any proposed ground disturbance works.



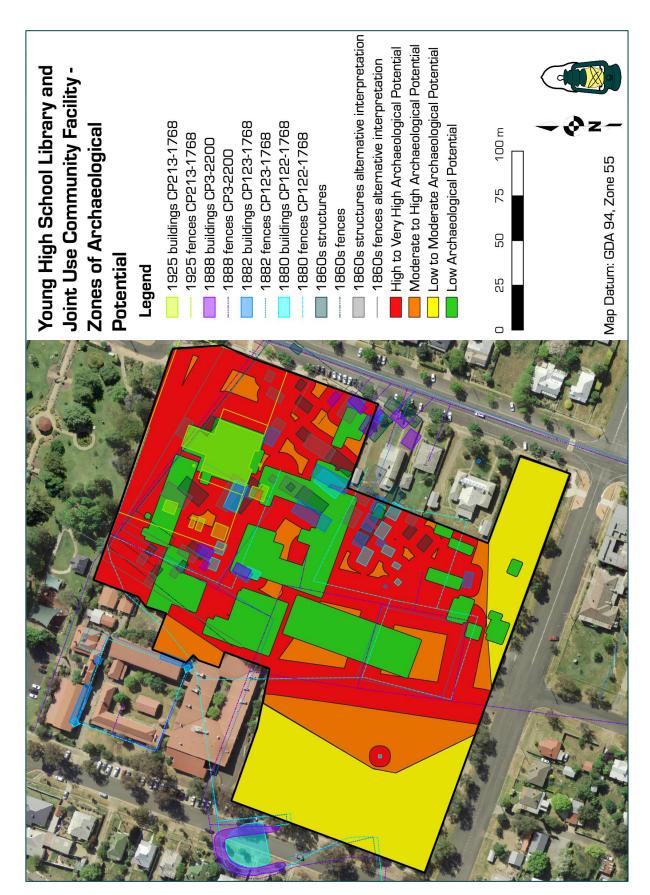


Figure 5: Overlay of potential historical features with current predictions of archaeological sensitivity across SINSW land.



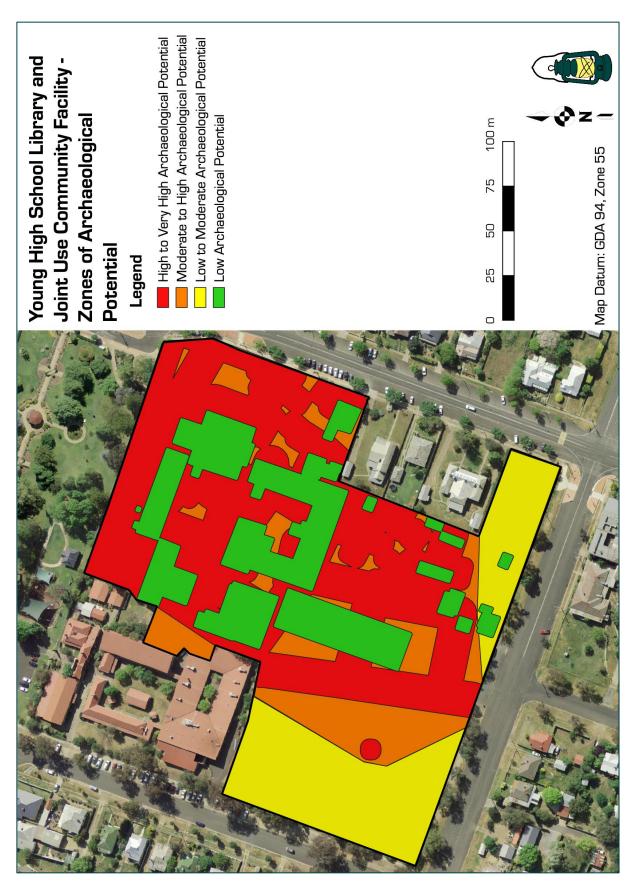


Figure 6: Archaeological conservation zoning plan across SINSW land.



- 4. An archaeological assessment must be undertaken prior to any proposed **major ground disturbance**<sup>1</sup> works (other than main works for SSDA 9671), within zones of **low to moderate archaeological potential**.
- 5. All minor ground disturbance<sup>2</sup> works (other than main works for SSDA 9671), should at a minimum, be archaeologically monitored in accordance with an approved excavation permit or permit exemption under the *Heritage Act* 1977.
- 6. Upon completion of all archaeological investigations for SSDA 9671, the archaeological conservation zoning plan should be updated to show where archaeological resources have been removed.

 $<sup>^2</sup>$  Minor ground disturbance is defined as excavation within existing service trenches and/or works with a footprint of less than  $1\text{m}^2$  in any given location or less than  $10\text{m}^2$  in total extent.



-

<sup>&</sup>lt;sup>1</sup> Major ground disturbance is defined as major earthworks such as landscaping works, preparations for new buildings, new roads etc,

# C ARTEFACT MANAGEMENT

c) The location of the dedicated long term artefact repository for the archaeological collection to be managed by SINSW for the Young High School site.

SINSW will take custody of the entire artefact assemblage, following development of a suitable artefact discard policy after full cataloguing, analysis of artefacts and assessment of significance. An appropriately secure and air-conditioned room/cabinet with any necessary humidity control will be set aside for housing the assemblage, in addition to any permanent display developed as part of the interpretation plan.

The details of the storage facility location and specifications will be provided within six months of the completion of the archaeological salvage investigations.

In the event that a better long-term repository is identified and secured for some or all of the assemblage, the details of that repository will be provided in the artefact management plan along with details of the planned permanent storage locations of all items and relevant policies for artefact management.

Professional materials conservators experienced in dealing with archaeological assemblages are already involved with the project. All decision regarding appropriate artefact cleaning, stabilisation, packaging, analysis and intervention will be made in consultation with the conservators. The artefact assemblage will be handed over to SINSW with appropriate long-term packaging. It will be accompanied by an artefact management plan developed in consultation with materials conservators and HNSW. The artefact management plan will include:

- a full assemblage inventory accompanied by relevant photographs;
- management requirements (e.g. temperature/humidity control, monitoring/audits of condition, replacement of packaging/buffering materials),
- roles and responsibilities, particularly with regards to ownership and financial responsibility;
- triggers for intervention;
- procedures and policies regarding artefact exhibition/display, including policies surrounding the loaning of material to other institutions; and
- triggers/requirements for revisions and updates to the management plan.



# **REFERENCES**

- GML Heritage, 2019: Hilltops Library and Community Facility, Young High School. State Significant Development 9671. Historical Archaeological Assessment & Research Design. Report prepared for Hayball on behalf of School Infrastructure NSW and Hilltops Council.
- GML Heritage, 2021: Young High School. Hilltops Library and Community Facility Early Works. Section 140 Archaeological Investigation Results (Draft Report). Report prepared for Hayball on behalf of School Infrastructure NSW and Hilltops Council.
- Parkes, R., Grguric N. & A Raudino 2021 'Young High School Library and Joint use Community Facility (Main Works) Preliminary archaeological Salvage Report. Report prepared for Joss Group.
- Parkes, R., & R. Värttö 2021 'Young High School Library and Joint use Community Facility (Main Works) Preliminary archaeological Salvage Report: Addendum Statement of Heritage Impact for Design Review. Report prepared for Joss Group.



# ATTACHMENT 1 – EXTRACT FROM PRELIMINARY SALAVGE REPORT: REVISED METHODOLOGY

As detailed below, an additional methodological procedure is now proposed across all remaining areas of impacts. The additional procedure aims to address the potential now recognised across the site regarding archaeological evidence of the Lambing Flat Riot. This procedure has been developed in such a way that it can be implemented as Stage 1 of the archaeological salvage program across remaining areas of proposed impacts.

### Archaeology of the riot

The Government Camp on the Burrangong Goldfields (Lambing Flat), today's Young, was the scene of a confrontation only equalled previously or since in this country by the storming of the Eureka stockade in 1854. On the evening of 14<sup>th</sup> July 1861 a body of approximately 1000 miners, many of whom were armed, approached the Camp accompanied by a brass band and a banner proclaiming 'Roll-up, Roll-up, No Chinese!'. The miners' intention was to demand the release of three of their number who had been arrested earlier that day for their part in recent violent attacks on Chinese miners, and deposited in the police lock up (McGregor 1999:76-77). Despite the entreaties of Gold Commissioner Griffin, the mob continued to press forward towards the Camp, and appeared poised to rush it (McGregor 1999:80). The rioters opened fire on a unit of mounted police. The latter mounted three charges against the mob, while the foot police fired into them. The skirmish lasted over two hours before the miners eventually withdrew, leaving one miner dead, and several police and miners wounded (McGregor 1999:80).

#### Archaeological footprint of the riot

Contemporary or near-contemporary accounts of the skirmish vary considerably in their details. Unfortunately, the official despatches of the commander of the police forces at the skirmish, Captain Zouch, do not provide any details as to the actual deployments or direction of firing (reproduced in McGregor 1999:80). For this it is necessary to rely on an account that appeared in N.S.W. newspaper *The Golden Age*, 11 days later. In it, the foot police are described as having been deployed, "opposite the lock up and within the two-rail fence by which the camp is surrounded" (25<sup>th</sup> July 1861:2). It was presumably from this position that that foot police fired on the rioters, and towards this position that at least some the latter's fire would have been directed (the other being towards the mounted troopers who were drawn up outside the camp) (*The Golden Age* 17/7/1861:2). As the lockup was the target of the mob's assault, fire from the miners would presumably have been coming from the north-east and the east, and directed towards the eastern corner of the Camp.

Evidence of the foot police's positions along the Camp's boundary fence potentially exists in the form of dropped carbine projectiles, and both discharged and dropped percussion caps. The projectiles the foot police fired towards the miners would have landed outside the project area, so the only potential for encountering these would be within Carrington Park. There is however potential for projectiles fired by the miners to exist within the project area. These would be identifiable as discharged revolver, pistol, or shotgun projectiles, and may potentially occur anywhere within the target area, not only on the alignment of the 1860s fence line.

# Methodology for the archaeology of the riot

Due to the nature of conflict events where firearms are used, firearms-related artefacts (FRAs) usually become deposited widely and sparsely. Because of this, the usual method of archaeological excavation using trenches or test pits is generally ineffective, as it can result in a 'needle in a haystack' situation. In cases such as this, a 'battlefield archaeology' approach is most appropriate. This approach utilises metal detector survey to identify FRAs which are then manually excavated in such



a manner that the artefact's spatial and stratigraphic relationships are accurately documented. It is this controlled method of excavation and documentation that differentiates archaeological use of metal detectors from that of relic hunters (Connor & Scott 1998:76). The great benefit of metal detectors to conflict sites is their efficiency, as in the hands of an experienced operator they can pinpoint FRAs over broad areas, which is ideal due to the often widely dispersed nature of FRAs at a conflict site as described above. Furthermore, the majority of 19<sup>th</sup> Century FRAs are made of nonferrous metals (e.g. copper percussion caps, brass cartridge cases and lead small arms projectiles. One of the great benefits of metal detectors is that they can be set to only allow non-ferrous metals to be targeted (Guard Archaeology 2015:8). Metal detectors can generally identify a target the size of an average coin at a depth of 20-30cm, although this varies greatly depending on the type and quality of the instrument used (BAJR 2005:21).

The areas where it is recommended that this methodology be adopted are shown in Figures 30 and 31. These areas have been identified as having the potential to contain material evidence (primarily in the form of FRAs) of the skirmish at the Government Camp on 14<sup>th</sup> July 1861, based on the documentary evidence combined with an assessment of the terrain, and the capabilities of the types of firearms in use at the time. However, this methodology would only be implemented across areas of proposed subsurface impacts with the areas of potential identified in Figures 30 and 31. i.e. areas of tree removal, landscaping, service upgrades and bulk earthworks proposed in association with Main Works.

Owing to the potentially shallow depth of historical artefacts, including FRAs, at this site (as demonstrated during the previous phases of excavation), it is recommended that this methodology be implemented across the designated areas prior to any other ground disturbance or excavation. In some areas, namely north of BB, the garden to the east of the Courthouse, and in Carrington Park, it may be beneficial to make two passes with the metal detectors: one prior to any ground disturbance, and a second one post-mechanical excavation of the topsoil and underlying clayey fills which have been observed overlay earlier topsoils in many parts of the project. The methodology recommended here is adapted from one that was developed in the United States at the Little Big Horn National Battlefield (Scott et al. 1989), and was subsequently improved at the Big Hole National Battlefield (Scott 1994), and at the Civil War battlefield of Monroe's Crossroads (Scott and Hunt 1998) (Connor & Scott 1998:81). It consists of two separate and sequential operations: identifying targets using a metal detector, followed by artefact recovery and provenance recording.

#### Coverage

The metal detector crew may be composed of one or more metal detector operators, under a crew chief, whose role it is to direct the transects to be searched by the operator/s. It is important that these transects be documented and carried out in a controlled manner so as to maintain spatial control over what areas have and have not been investigated. Each operator can generally cover an area of approximately 1.5-2m with each sweep (Connor & Scott 1998:81). By using 2m wide transects, close to 100% coverage can be achieved which is desirable in this case owing to the potentially widely-dispersed nature of artefacts associated with the riot.

#### **Calibration**

Prior to commencing metal detector survey, the operator should calibrate their machine by sweeping it over examples of the types of FRAs expected to be encountered. This will be provided by Lantern in the form of a reference collection. The machines should also be set to discriminate against ferrous metals in order to limit the number of non-FRA targets.



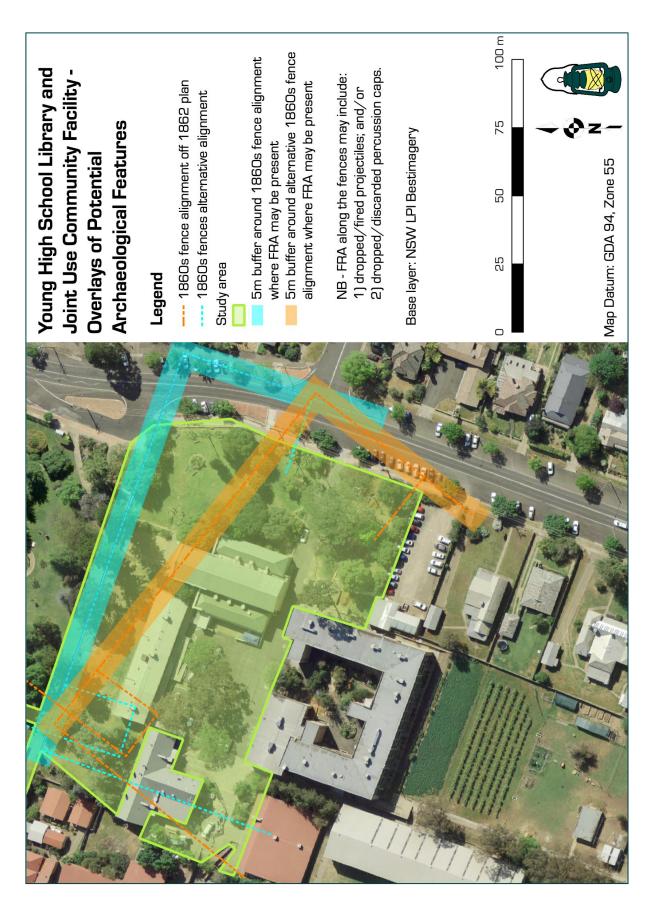


Figure 7: Riot Map 1 showing areas where FRAs evidencing the foot police's positions along the two extremes of the potential Camp's boundary fence may be expected along different extremes of the possible fence line alignments.



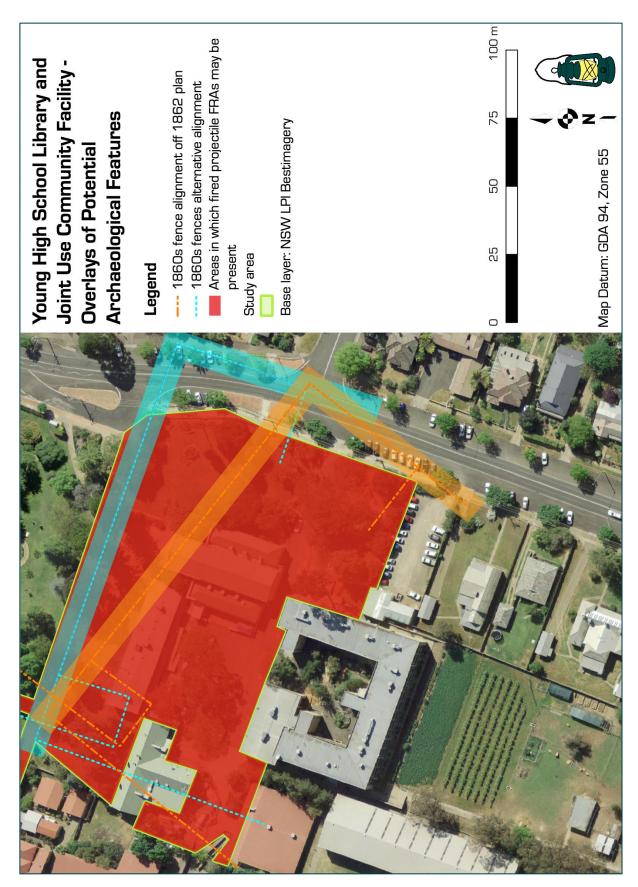


Figure 8: Riot Map 2 showing the extent of areas where fired projectiles may be present.



#### Target Identification

When an operator identifies a target, its location will be marked as precisely as possible (e.g. with a pin flag. Having marked a target, the operator can continue surveying and identifying targets while the recovery crew investigates the targets. Occasionally, however, a target will need to be excavated immediately so that the operator can appreciate the nuances of the machine functions such as depth readings, metallic and object type-discrimination, object size, and accuracy in pinpointing subsurface artefacts (Connor & Scott 1998:82).

#### Artefact Recovery and Recording

The recovery crew will place a 20cm x 20cm excavation unit (XU) centrally over the flagged target, and its position recorded by means of a total station or similar. This will then be excavated using hand tools. Excavation will be carried out by context, in such a manner that the target will be exposed in situ. A sample should be taken of the deposit in which the artefact was found. A pin pointer device can be used to more precisely identify the location of the target within the XU. As some pin pointers can be set to discriminate against ferrous artefacts, this is advantageous when non-ferrous FRAs are deposited in association with ferrous artefacts. Once the FRA has been exposed in situ, it should be photographed, and its depth and spatial position accurately recorded by means of a total station or similar. A recording sheet should be completed for each XU, describing the process of the excavation, context changes, etc. It is likely that other historical artefacts unrelated to the riot, but associated with other aspects of the site's use, will be encountered in the XUs. These should be bagged by context and depth in order to allow them to be associated with other artefacts from the same context.

#### FRA Identification

It is impossible to know exactly what firearms were used by the police during the skirmish at the Government Camp, and even more so those used by the miners. In terms of the police, this is due to the fact that the various, semi-independently administered and armed police forces that operated in N.S.W. were yet to be consolidated into a single force with a centralised administration (that was to occur the following year, in 1862). Nevertheless, it is possible to predict what arms were most likely used, based on what kinds of firearms were used by police in N.S.W. more generally. In addition there is a contemporary reference to a request from the police there for Deane Adams & Deane, and Colt revolver cartridges and percussion caps ( $Sydney\ Morning\ Herald\ 17/7/1861:4$ ), which indicates that some of them were armed with these types of revolvers. The types of arms that the police and miners were likely to have had at the riot are presented in Table A, along with details of their associated projectiles and percussion caps.

#### **Analysis**

Finds of projectiles have the potential to provide new information on the types of firearms used at the riot by both the police and the miners. All of the FRAs found in secure contexts (i.e. reasonably in situ, as opposed to within introduced fills) have the potential to provide information on the deployment of the police. For example, dropped projectiles and/or percussion caps may indicate where an individual was reloading a firearm. In situ finds of fired projectiles within the Government Camp area could be attributed to incoming fire from the miners.

Discharged percussion caps have the potential to yield unique individual tool marks that can be microscopically examined to determine a minimum number of weapons present at a site (Weber & Scott 2006:131), as well as potentially tracking an individual's movement while using a particular firearm. The same can be achieved with fired projectiles from rifled firearms (such as the revolvers likely to have been used at the riot).



Table A: Predicted firearms-related artefacts potentially used at the Government Camp skirmish (compiled from various sources).

Firearm	Calibre (inches)	Projectile Form	Projectile Diameter (inches)	Projectile Diameter (mm)	Percussion Cap	Possible Users
Navy Colt Revolver	.36	Spherical Or Conical	.38	9.7	Small	Mounted Road Patrol; Miners
Deane Adams & Deane Revolver	.442	Spherical Or Conical	.457	11.6	Small	Mounted Road Patrol; Miners
Deane Adams & Deane Revolver	.50	Spherical Or Conical	.492	12.5	Small	Mounted Road Patrol; Miners
Smoothbore Pistols (Patt. 39/42)	.753	Spherical	.68	17.3	Service	Mounted Gold Police; Local District Constables
Yeomanry Carbine	.66	Spherical	.61	15.5	Service	Mounted Road Patrol; Foot Gold Police
Constabulary Carbine	.65	Spherical	.61	15.5	Service	Foot Gold Police; Local District Constables
Sergeants Carbine	.73	Spherical	.68	17.3	Service	Local District Constables
Shotguns	12-14 Gauge	Spherical (ball, buckshot, birdshot)	Various Up To .73	18.5	Small	Miners
Various Civilian Pistols/Revolvers	Various	Various	Various	Various	Small	Miners; Police

### References

BAJR (2005) Battlefield Archaeology: A Guide to the Archaeology of Conflict

- Connor, M. & Douglas. D. Scott (1998) Metal Detector Use in Archaeology: An Introduction. Historical Archaeology 32(4): 76-85.
- Guard Archaeology (2015) A9 Dualling Programme, Killiecrankie to Pitagowan. Archaeological metal detecting survey at Killiecrankie battlefield. Unpublished report prepared for Jacobs UK Limited.
- GML Heritage, 2019: Hilltops Library and Community Facility, Young High School. State Significant Development 9671. Historical Archaeological Assessment & Research Design. Report prepared for Hayball on behalf of School Infrastructure NSW and Hilltops Council.
- GML Heritage, 2021: Young High School. Hilltops Library and Community Facility Early Works. Section 140 Archaeological Investigation Results (Draft Report). Report prepared for Hayball on behalf of School Infrastructure NSW and Hilltops Council.

McGregor, J.K. & H.E. McGregor (1999) Roll-up. J.K. McGregor, Dunedoo, N.S.W.



- Scott, Douglas D. (1994) A Sharp Little Affair: The Archaeology of Big Hole Battlefield. Reprints in Anthropology, 45. J & L Reprint Co., Lincoln, N.E., U.S.A.
- Scott, Douglas D., Richard A. Fox, Jr., Melissa Connor, and Dick Harmon (1989) Archaeological Perspectives on the Battle of the Little Big Horn. University of Oklahoma Press, Norman, U.S.A.
- Scott, Douglas D. & William J. Hunt (1998) The Archaeology of the Monroe's Crossroads Battle, Fort Bragg, North Carolina. Southeast Archaeological Center, National Park Service, Tallahassee, FL, U.S.A.
- Weber, Kent P. & Douglas D. Scott (2006) Uncapped Potential: Applying Firearms Identification Procedures in the Analysis of Percussion Caps. Historical Archaeology 40(3):131-143.

