Fremantle Prison Parade Ground Excavation Report | 2013

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Masters of Professional Archaeology

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Figure 1: Location of Fremantle Prison within Western Australia

Introduction

Fremantle Prison is recognised as a historically significant site. It has been heritage listed on a state, national and global level – one of only two sites so designated in Western Australia. Possibly the oldest Feature of the site is the original well dug to supply water to the convicts during the prison's construction. At some time during the late nineteenth century, the well fell into disuse, and may have been capped, filled or used for refuse. This has led to it vanishing beneath the grounds.

This project was initiated as part of the field training for the Masters of Professional Archaeology Program at the University of Western Australia. The goals included: 1) mapping several portions of the Parade Ground and cisterns using a total station, 2) setting up an excavation trench to relocate the 1852 well, and 3) to begin the process of photo-documenting the structures for development of a 3D model of the site. This undertaking was not part of a formal survey or mitigation process, but falls under the stipulations of the Programmatic Agreement between UWA and Fremantle Prison.

Historical Background

When established in 1829, the Swan River Colony (now Perth, WA) was free of the convict penal system that was prominent in most of Australia at the time. The colony struggled to attract many new settlers because it was small and isolated, with land that was generally inhospitable and difficult to farm. Without a crucial influx of people, the colony faced a major labour shortage that threatened its development and survival. As a result, the Swan River Colony's Legislative Council sent a petition to the British Government requesting the transportation of convicts for use as free or cheap labour (Perth Gazette 1850).

The first convict vessel, the *Scindian*, landed at Fremantle Harbour on the 1st of June, 1850 – before notification of the British Government's approval for convict transportation had reached the colony. The result of this unanticipated arrival was that the unprepared colony had no place to accommodate the convicts nor the large workforce required to establish, manage and maintain their new institution. Aboard the *Scindian* was Royal Engineer Captain Edmund Henderson, who was appointed to direct operations at

Figure 2: Illustration of the Convict Establishment c. 1855

Figure 3: Fremantle Prison Parade Grounds looking north c. 1909

Western Australia's Convict Establishment (Perth Gazette 1850; Inquirer 1851). He immediately began organising temporary convict barracks and staff accommodation close to Fremantle Harbour, whilst also trying to expedite plans for the construction of a permanent prison complex. Construction for the Convict Establishment began in 1852, starting with the Warder's Cottages and the Main Cell Block. In 1855 the first residents moved into the prison and by 1859 the major construction works were complete, allowing full occupancy.

Western Australia's introduction of a colonial convict system was during the terminal period of Britain's convict transportation policy (officially abandoned in 1868). The Swan River Colony convict population dwindled and by 1867 there were less than 60 detainees held within the prison (of approximately 800 at full capacity). In this year the British Government relinquished control of the prison over to the Colonial Government, and the Convict Establishment was renamed Fremantle Prison (Bavin 1994:100; Gibbs 2001:62). At this point, the prison complex became Western Australia's primary incarceration institution and maximum security facility.

Between 1940 and 1945 (during WW2), the Australian military requisitioned Fremantle Prison to inter 'alien civilians' and for the detention of military personnel, but at the end of its military service, the prison returned to its prior civil function (*The West Australian*, 18/04/1942:6).

For the next 46 years Fremantle Prison remained the state's largest prison until in 1991, it was decommissioned and all prisoners transferred to the newly constructed maximum security prison in Casuarina.

Fremantle Prison represents one of the largest and most structurally sound convict structures of its kind left in the world. It represents an important period in local, national and international history. In recognition of its historical and cultural significance, the prison was converted into a museum and tourist attraction in 1992 and remains so today (Fremantle Prison 2013).

1852 Well

One of the first Features created at the Fremantle Prison site was a 40 foot deep well, built to serve as a water supply for the workers and the construction process. The first documented record of this well is in a progress report written by Henry Wray in 1853 (Wray 1853). Unfortunately, no location is given in this early report and there is no further documentation of any wells within the complex until 1856.

Plan of the Convict Establishment Parade Grounds and Main Cell Block Showing Location of Well

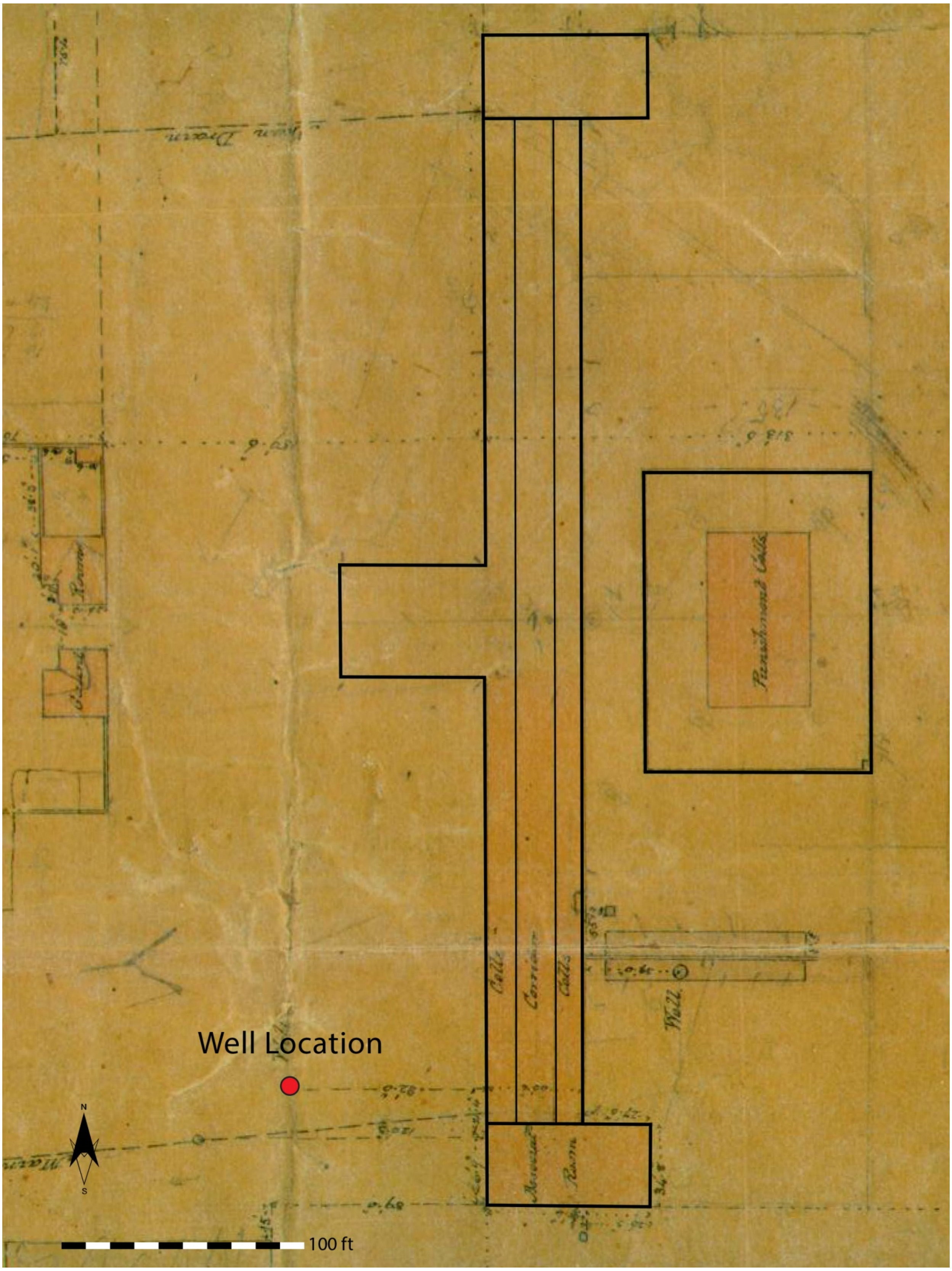


Figure. 4: Approximate Location of 1852 Well (PWD 1647-105 c.1850)

In another report (Wray 1856) there is a description of a series of wells along with a plan of the prison's layout. The 1852 well is not mentioned in the report but does appear on the plan drawing, as do the additional wells (Fig. 4 and another overlayed in Fig. 6). These sources provide a key to identifying the earliest well's approximate location because all other wells can be accounted for by Wray's descriptions. By a process of elimination, the 1852 well must be the undescribed well, located at the south end of the parade grounds, west of the kitchen area of the Main Cells Block structure (Wray 1856).

It is very difficult to determine the fate of the well because there is no documentation to reveal what happened to it and when exactly it ceased to be used. In an 1890 plan of the site, the south-western well is no longer shown, therefore the well was probably no longer present or used at this time. It is possible that a development and expansion of the prison's water systems in the late 1870s rendered the well redundant; thus it became disused and either capped, filled, or used as a refuse pit at this point (WA Legislative Council 1875:29).

The configuration of garden beds and grassland in the parade grounds at present was largely introduced during a series of reforms in the early 20th century, but the area specifically associated with and immediately surrounding the location of the well was used and altered extensively throughout the prison's history. Despite these changes, it is unlikely that the well would have been destroyed because most of the transformations appear to have been light structures, built upon banks and raised surfaces, or not large enough to cause substantial damage. Plans from the 1980's/1990 indicate small structures (the garden distribution and the laundry main switchboard) just south of the well's location, a path leading to these structures as well as electrical trenches with pipes and cables to service these structures (Fremantle Prison Conservation & Future Use 1990).

Previous Work

Fremantle Prison was acknowledged as an important historical site before it was decommissioned as a prison in 1991. An archaeological/conservation project was commissioned to guide any future development and ensure the survival of historically important Features. This may have been prompted (or at least expedited) as a result of the damaged caused during a prison riot in 1988 (Fig. 5). As part of his project, Bavin (1990) created an archaeological zoning plan, classifying areas of the prison into high and low potential zones for archaeological material. Bavin outlined different procedures to be followed as part of any proposed development within the prison. These range from archaeological test excavation and salvage operations prior to development in the high potential zones, to a basic awareness among contractors of what to do if artefacts or structural remains of archaeological significance are uncovered during their development.

Figure 4: Interior damage to Fremantle Prison's main cell block after the riot in 1988

Throughout the period following its closure in 1991, numerous architectural, structural and archaeological investigative reports were commissioned, regarding the prison's development, conservation and historical significance. Most valuable to the present search of the 1852 well is a series of exploratory excavations in the parade grounds area, conducted by Eureka Archaeology in 2008 (2009). One of the aims of the project was to locate the 1852 well but, unfortunately, the excavation was not successful. The 2009 report describes the material and sediments encountered during excavation and this provides a good base for a comparative analysis between the 2008 excavation and the current 2013 excavation results.

Aims and Significance

Fremantle Prison's significance is acknowledged at the state, national, and world level through its place on each heritage list. This significance is further expressed in the prison's conservation and management plan:

> *"Fremantle Prison contains major surviving evidence of the physical apparatus of the Convict Public Works establishment in Western Australia, and of its subsequent adaptation for colonial and, later, state use. It is the outstanding symbol of the phase in which major public facilities and infrastructure were developed in Western Australia using convict labour. Together with the associated housing and other remnants of the Convict Establishment, Fremantle Prison is without exception the most intact such complex in Australia"*(DTF 2010, p. 126)

This plan also acknowledges the Parade Ground's archaeological potential, estimating its significance to be between considerable and exceptional. Positioned within this area, the 1852 well has extremely high archaeological potential, not only as one of the earliest structures within the prison complex, but also as a refuse area that would likely provide materials from the earliest period of the prison – especially considering the short-term primary use of the well.

The principal aim of this 2013 excavation was to continue the search for the 1852 well. Additional goals were to: a) begin collating and georeferencing historic plans and maps to incorporate into a comprehensive GIS map of Fremantle Prison; b) use surveys, maps, plans and photography to investigate the possibility of building a 3D model of the prison; and c) to assess the potential of this well and its surrounds for a more extensive archaeological project. These goals fall under the Programmatic Agreement between UWA and Fremantle Prison and the applicable Federal Legislation regarding Heritage Management of historic sites is outlined in this document.

Methods

As a first step, historic maps that plot the 1852 well were geo-referenced against a modern aerial photograph of the prison to identify an approximate location for the well (Fig. 6 and Fig. 7). The resulting map was compared to the location of the 2008 excavation trench and other noticeable modern changes to the area. By a process of elimination, potential well site locations were narrowed and an excavation trench site was chosen.

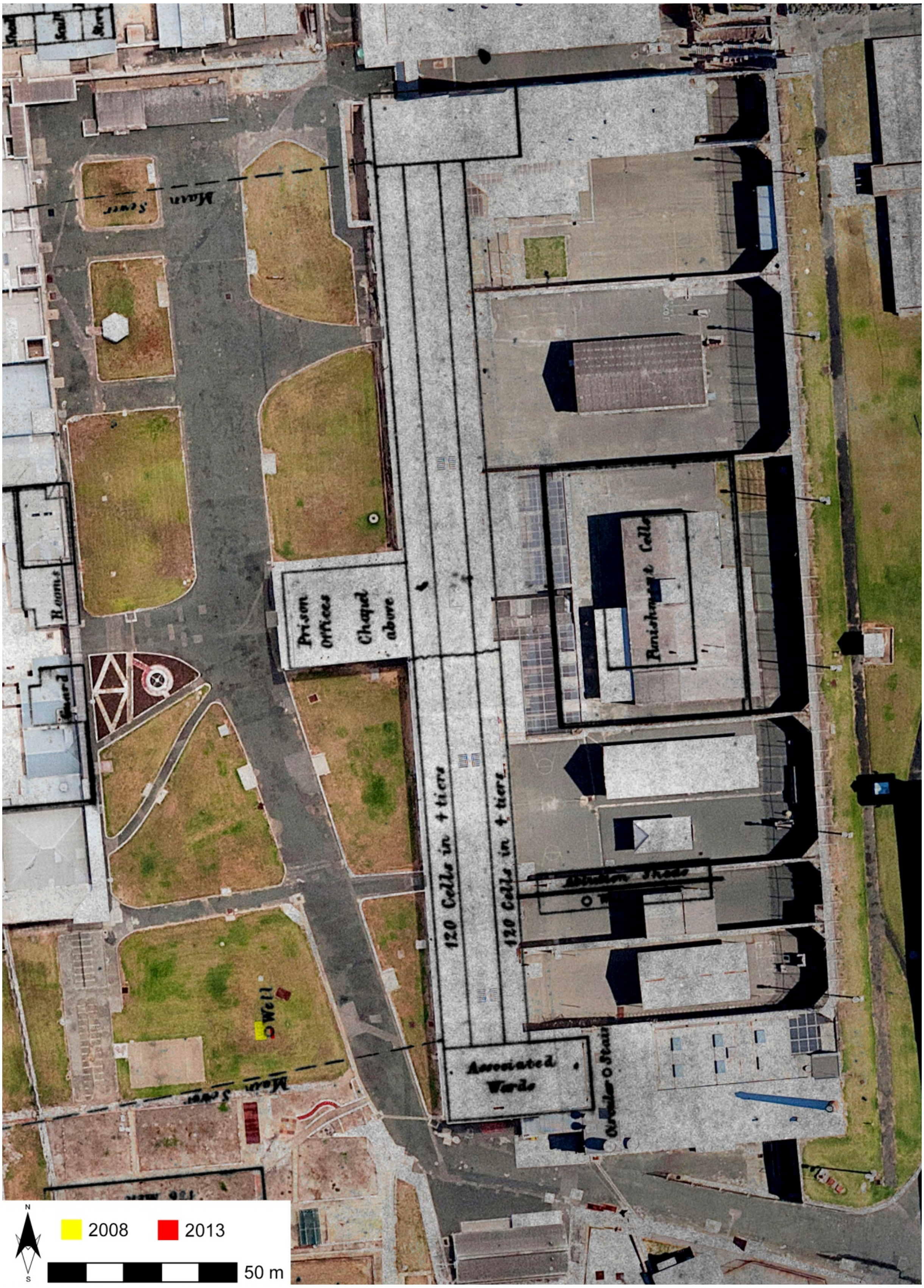


Figure 6: Overlay of Wray's 1856 plan drawing of "The Convict Establishment" with a modern aerial photograph (Wray 1856; Google Maps 2013)

Figure 7: Detail of the 2008 and 2013 Trench locations in the Prison Parade Grounds

A 3x1m trench was plotted along a north-south axis, located 1m east of the 2008 excavation trench, with an option to extend west, should the initial excavation produce unfavourable results (Fig. 7). The surface was thick grass within one of many lawn beds; this one in particular was established only after the prison was closed (1991) and converted into a tourist destination and museum. Based on the height of the roadways surrounding these lawn beds and information provided by our Fremantle Prison liaison, the original occupation layer was expected to appear approximately 30cm below the current surface level. All excavated sediments were screened through a 6 mm sieve and any artefacts discovered were collected and bagged according to which Spit or Feature they came from.

Surface grass was removed by shovel and sediment was initially removed by 10cm Spits despite some variance in soil texture and/or colour. This was because it was a recent layer (post-1990) of fill used to raise the garden beds. This stratigraphic layer can be seen in Fig. 11, just below the top-soil layer. Whilst digging Spit 1, a major colour change was observed in the sediment from the northern half of the trench. The suspicion that it was a cut made during the installation of modern plumbing was later confirmed when a water pipe was exposed within it. A buffer of unexcavated sediment was left around the pipe to protect and support it.

Throughout Spits 1 to 3 a significantly higher concentration of artefacts were recovered from the southern portion of the trench than from the northern end. The northern part of the trench was discontinued after Spit 3 because we had reached the original ground surface and found no artefacts or Features. At the end of Spit 4, two Features were clearly defined in the southern portion of the trench (Fig. 8).

Feature 1 was characterised by limestone rubble, large protruding bones, charcoal concentrations, and a profusion of flaking metal can fragments (Fig. 9 and Fig. 10). Feature 1 was originally split into northern

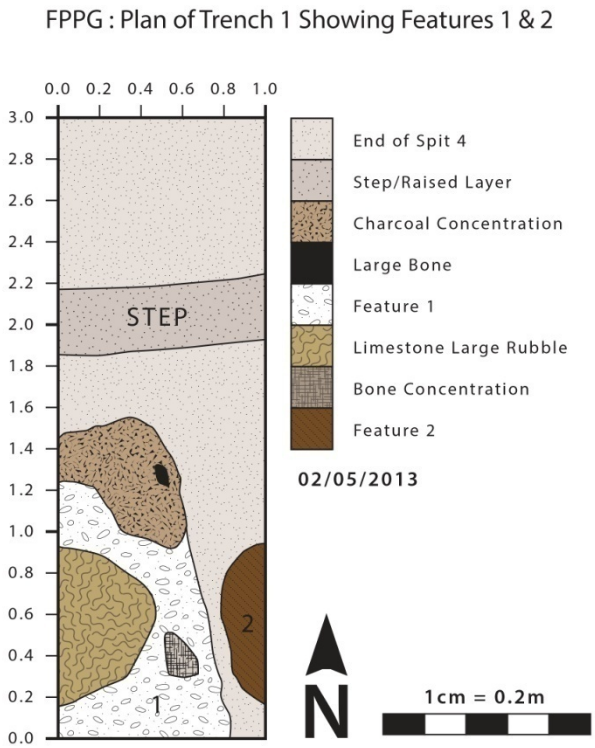


Figure 8: Plan drawing of Trench 1 (2013)

and southern halves to consider a profile of its internal stratigraphy and to confirm its validity as a Feature before removing its contents. After digging the north half of Feature 1 it was clear that the two halves were indeed part of one Feature. The full extent of this Feature was not yet discovered because it continued down into unexcavated deposits.

Feature 2 consisted of a small, narrow band of extremely dark rust-coloured soil exposed in the south eastern corner of the trench. This was excavated vertically to its full extent and horizontally to where it met (and continued into) the eastern wall.

The excavation ended without discovering the full extent of Feature 1 because we ran out of allocated time. When the excavation and documentation of the trench was complete, a layer of thick, green plastic was spread across most of the trench and then the trench was backfilled with the removed sediment.

Results

Spits 1 to 4 were largely characterised by the same attributes: mixed and diverse artefacts in dark brownish-grey sediment with small and motley lenses of other colours throughout. Overall, they provided a heavily mixed assemblage with

materials including silicone, plastic, glass,

Figure 9 (left): High density of bone and charcoal in Feature 1
Figure 10 (right): First indication of Feature 1 - a large protruding femur bone

Figure 11 (top): Photograph of Feature 1 mid-excavation, showing stratigraphy with bands of limestone rubble and charcoal
Figure 12 (bottom): Photograph of Feature 2 post-excavation showing it's extent and stratigraphy above it

metal and bone. While Spit 4 does have a marginal increase in the amount of bone compared with the other Spits, it seems likely this is cross-over material from the adjacent Feature 1. Compared to the concentrations found within the two Features, artefact density in the four Spits was low and their materials and functions diverse. Feature 1 was delineated by a lightening of sediment colour and its surface contained large pebble to cobble sized limestone rubble, protruding bone and flecks of charcoal. Material removed from this Feature was overwhelmingly fragmentary bone and metal. A large proportion of the metal held its form when initially uncovered and while in situ, but the extremely friable nature of the metal resulted in a high fragmentation rate upon retrieval.

Excavation of the north end revealed thick layers of charcoal banding - this charcoal was sampled but not entirely collected (Fig. 11). The largest bones from the Feature (some with very clear evidence of butchery), and a whole glass "ketchup" bottle, with a date range of 1922-1929 (Burke & Smith 2004 p. 370) This half of the Feature was excavated approximately 10 cm down to its perceived end, but following the path of charcoal bands in the western profile indicates that there may be another layer of charcoal beneath this level. In the southern half, charcoal was less concentrated and the bones were proportionally smaller than in the north. Despite the minor differences, both halves of Feature 1 were sufficiently similar in their characteristic mix of bone, flaky metal, charcoal, and limestone rubble to be considered a sole Feature.

By the end of the excavation, Feature 1 continued south and west beyond the excavated area and artefacts were still being recovered from the lowest level.

The dark rust-coloured sediment of Feature 2 contained a very high density of artefacts within a small deposit (Fig. 12). These artefacts were made from a variety of materials with a large proportion of glass and metal. This metal was different from the flaky can metal dominating Feature 1 and was mostly structural materials (e.g. nails and bolts). There were also two interesting brass buttons discovered; one with "Best Ring Edge" branding and the other still retained some thread, despite its heavily corroded state.

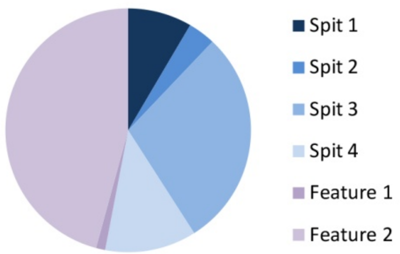


Figure 13: Window Glass Distribution

Window glass was the primary type of glass recovered from Feature 2 (76%) and within the entire assemblage, 46% of the window glass comes from Feature 2 (Fig. 13).

Figure 14: Artefact Distribution by Functional Category

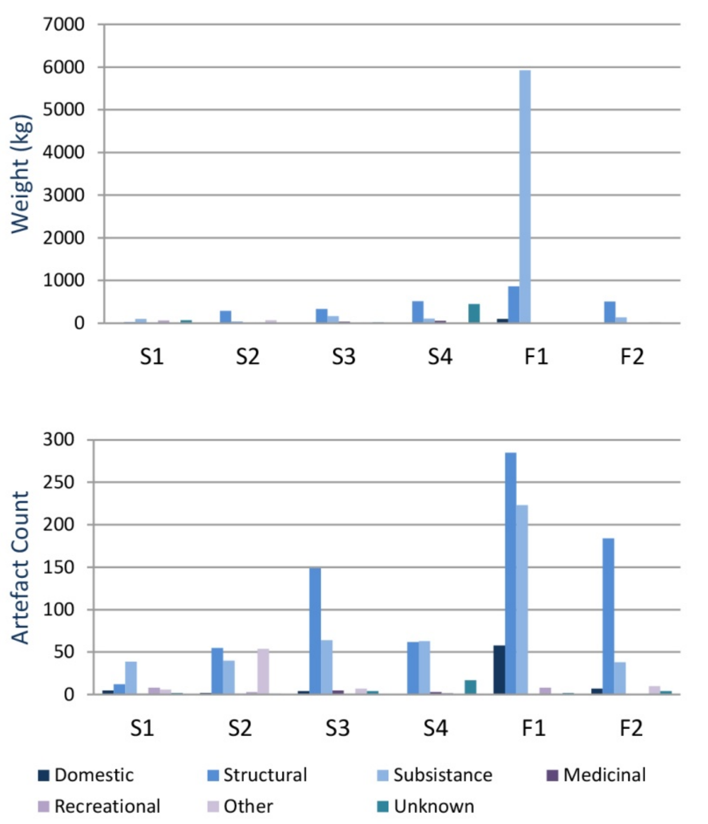


Figure 16: Metal Typology

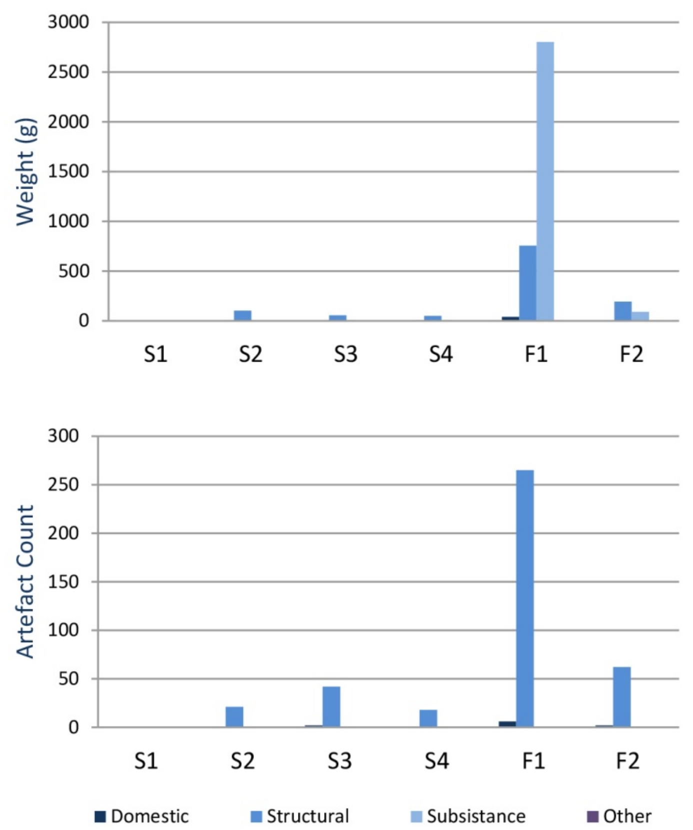


Figure 15: Artefact Distribution by Material Type

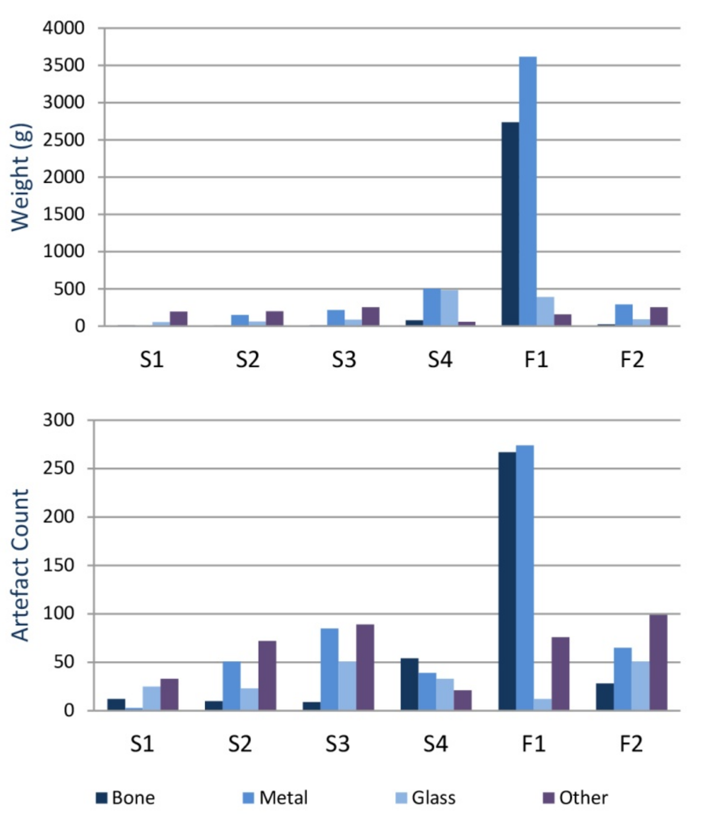
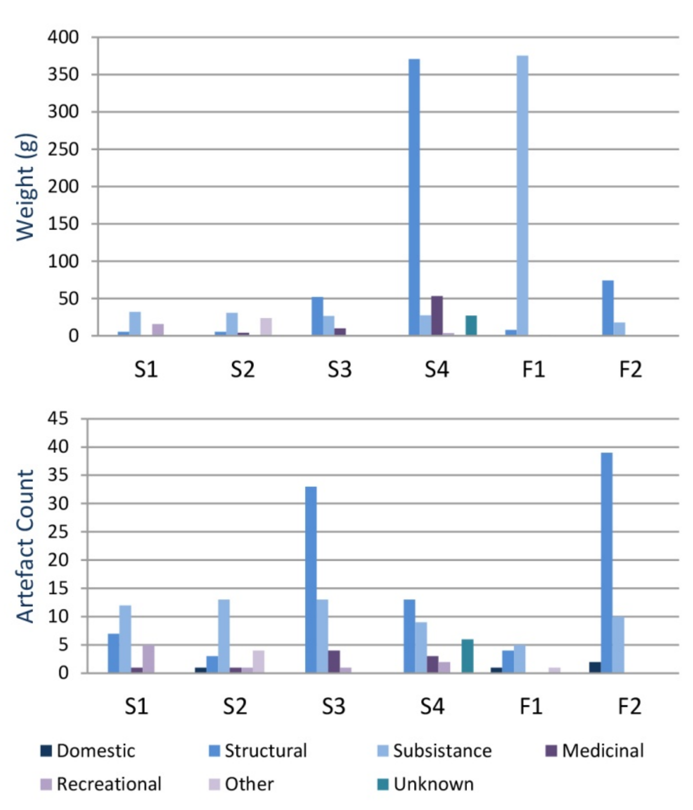


Figure 17: Glass Typology



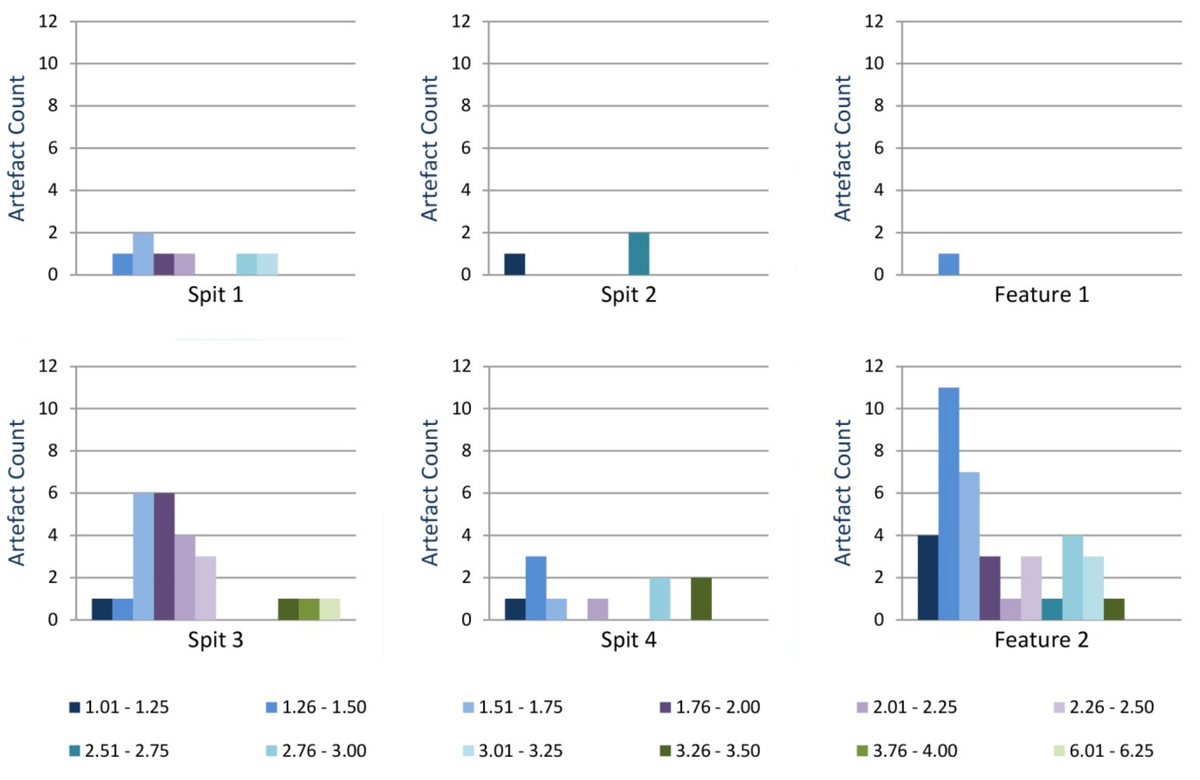
Summary of Artefacts

Artefacts were classified into primary categories based on their presumed original function (Fig. 14). For the sake of consistency and standardisation, wherever a primary function could not be determined, a function was designated to the object(s) based on most likely use, or similarity to objects with an identified primary function. Most unidentified bone and metal fragments were deemed to be fragmented from the butchered bone and tin can remains found within the trench and therefore assumed to be subsistence-related. The exception to this practice was faunal remains identified as very small creatures (such as rodents) who were considered intrusive elements in the assemblage. Artefacts were then categorised based on their distribution of raw material type as a secondary measure to remove the biases that are associated with assuming function (Fig. 15). Materials that represented small proportions of the assemblage were grouped in order to focus on the distribution of the main material types, which in the case of glass and metal, were then analysed for their functional distribution base. Histograms of artefacts across all Spits and Features are displayed in the following graphs. These are calculated and compared alternately by weight and artefact count to allow for preferential fragmentation and the disparity in material weights.

Typologies

Glass and metal were classified into multiple functional categories (Fig. 16 – metal; Fig. 17 – glass), depending on the individual artefact's form. Much of the metal was corroded and highly fragmentary, often breaking further with even slight handling, therefore metal of this kind was collected, bagged and

Figure 18: Window Glass Variation Across Spits/Features



weighed without counting. In this case, weight measures are more appropriate than artefact counts for evaluating metal distribution. Metal is clearly concentrated within Feature 1 and represents 3603.05g out of the 4109.37g of metal recorded, or 87.67% of metal within the assemblage. In contrast, Feature 2 contains 289.85g of metal, or only 7.05% of the assemblage. The unidentified , unless obviously structural, were assumed to be consumption related. This assumption was made based on the field observation of metal can shapes within the excavation. While this assumption would have increased the weighting of consumption items within the distribution there is a clear differentiation between the function of metal within Feature 1 – which was heavily subsistence based – while Feature 2 was heavily structural. All other artefacts were counted and weighed.

Glass distribution was calculated using both the weight and count measures. Most notable in the weight graph (Fig. 17 – top) is a large spike for glass in Feature 1 that is absent in the count graph (Fig. 17 – bottom). This spike exists because a large, whole bottle (FPPG-174; Fig. 22 f) was present in Feature 1. No estimate of glass vessels within the assemblage is given here because most shards had no identifying features capable of facilitating an accurate estimate.

Window glass was separated from bottle glass during accessioning and grouped based on glass thickness (Fig. 18). As glass thickness can be used as an indication of the age of the window glass, it could provide approximate date ranges for the Spits/Features. While glass thickness typologies dating window glass exist and have been analysed in sources such as Weiland (2009), they were not considered appropriate for this site. Feature 1 was the only Feature/Spit that did not provide high levels of variation within its window glass assemblage, however this was a direct result of Feature 1 containing only a single piece of window glass. The low level of window glass within Feature 1 when used in conjunction with its other artefacts reinforces the idea that this feature was used for subsistence based disposal. Feature 2, by comparison, has a large variety of window glass – conforming to the high proportion of structural material found within that feature.

Potential Can Calculation

A large proportion of the highly fragmentary metal was identifiable as food cans while in-situ, but these metal forms, unfortunately, deteriorated during the excavation process. Although unidentifiable while in small individual pieces, all of the metal that resembled the flaking form of these can fragments was classified together under the subsistence functional category. Their weight was used to estimate the possible number of food cans represented by the collection of unidentified metal fragments (Table 1). For this calculation, four cans of various sizes (one excavated and three from the UWA reference collection) were weighed, and used to calculate a rough estimate of how many cans each context represented. As the Spits were interpreted as a mixed fill layer with comparatively small proportions of metal fragments they

Table 1: Potential Can Calculation

	Base Weight (g)	Spits 1-4	Feature 1	Feature 2
		114.18	2811.03	92.5
Whole Can	131.27 g	1	21	1
Ref - Small	91.4 g	1	31	1
Ref - Medium	107.25 g	1	26	1
Ref - Large	149.04 g	1	19	1

Figure 19: Human Impact on Bone

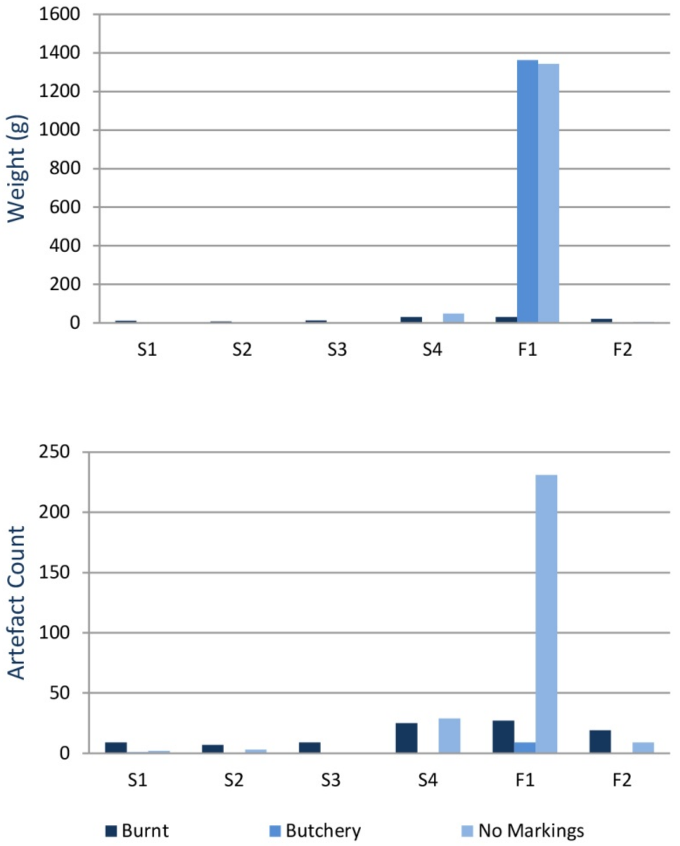
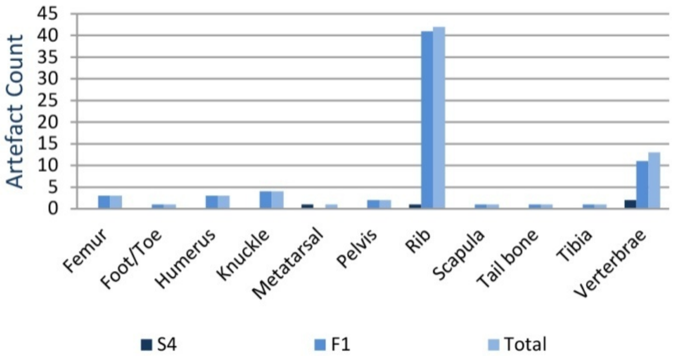


Figure 20: Bone Distribution by Type



were combined for the calculation.

Faunal Remains

Where possible, faunal remains were categorised into groups based on signs of human impact, type of bone and which side of the body it came from. Figures 6 and 7 highlight the trends that were observed during the excavation. Bone fragments without any identifiable marks of human impact dominate the overall bone assemblage, but this does not necessarily mean they represent an absence of impact – just no obvious markers. When this category is disregarded, the leading characteristics alternate between burnt bones and clear butchery marks, depending on which comparative measure is used. For example, bones with butchery marks dominate the entire assemblage by weight (Fig. 19 – top), but represent a significantly smaller portion when measured by artefact count (Fig. 19 – bottom). In general, the bones with evidence of human impact were the largest of the collection and were most often ribs or vertebrae. These are the best subsistence-related artefacts in the entire assemblage because they represent large and ideal portions of meat, probably from cattle, sheep or pig (Fig. 22 a, b, c, d). Bones of much smaller animals were also present within the assemblage but none had evidence of butchery and few were clearly burnt. The smallest of these animals (approximately rat or mouse sized) were most likely not eaten. Despite this, many small, non-diagnostic bones and bone fragments were classified as "unidentified" within the subsistence category because they were associated with the bones that were clearly subsistence-related. Where possible, the type of bone was identified (e.g. rib, femur etc–Fig. 20) and what side of the body it came from was determined (e.g. right or left). Only seventeen bones could be sided: fifteen were right and two were left. It is interesting to note that the left bones were both pelvises of different sizes.

Table 2: Bone Species & Use

	Common Name	Use
Bos primigenius	Cattle	Subsistence
Ovis aries	Sheep	Subsistence

Feature 1's continuation into the south and west wall means that the faunal remains recovered are an incomplete assemblage; perhaps this is why there is an odd ratio of left to right bones. It is possible that the tendency towards right bones relates to actual portions consumed per disposal but to evaluate this, the faunal assemblage must be complete and the bones identified securely to specific species.

MNI Calculations

The minimum number of individual (MNI) specimens was calculated for bone over the entire assemblage (Table 3). The calculations only used specimens identified by side and specific bone and therefore much of the bone was excluded. Once this was completed, bone was separated into small, medium and large species in order to provide a basic measure of which bones in the assemblage had the potential to belong to a single animal. The MNI was calculated as 3 based on the based on the number of right femurs with an additional individual based on the medium bone section that was determined to represent a different individual then the small and larger remains. While there were a

large amount of vertebrae and ribs, as they were not identified to their specific location, they were not considered within the analysis.

Table 3: Bone Siding & Size

	Small			Medium			Large		
	Right	Left	Unknown	Right	Left	Unknown	Right	Left	Unknown
Femur	1						1		1
Humerus			1				1		1
Pelvis		1			1				
Scapula	1								
Tibia				1					

Unique Artefacts

A number of artefacts were selected as unique because they were able to be dated by specific attributes. Others were similarly categorised because they possessed special characteristics within the feature, or trench in general. Bones with obvious butchery marks or concoidal fractures were photographed, for example the large and medium sized pelvis, and the large femur (Fig. 22 a – e). These bones were selected because of their size, and prominence within Feature 1. Other artefacts were generally miscellaneous items, and differed greatly from the average mix of bone, metal, and glass. A good example of this is the whole bottle of Rossella's Ketchup, which was dated to between 1922 and 1929 using an 'AGM' embossed logo on the base of the bottle (Fig. 22 f). Another artefact classed as unique was a small four-holed button identified as a "Best Ring Edge" (Fig. 21 a), which are a common artefacts within convict sites. Other items such as a light bulb (Fig. 21 d), forceps (Fig. 21 e), other buttons, a chess piece (Fig. 21 c), and metal with engraved letters (Fig. 21 b) were unique within the trench, but no specific dates could be obtained from them.

Artefact Sampling and Laboratory Analysis

Artefacts recovered during excavation were bagged at site based on material type or individually if they represented a particularly interesting find. During lab analysis artefacts were cleaned and washed as appropriate and accessioned assigning individual accession numbers to each artefact. Fragmentary and non-diagnostic pieces of metal and bone were bagged as a single artefact based on Spit/Feature due to the material offering no diagnostic information. Artefacts were catalogued using a Microsoft excel database recording weight, number of artefacts, and functional category as a minimum with extra information pertaining to specific use or datable attributes being added when available. Once analysed, Artefacts were stored at the UWA Lab pending curation at Fremantle Prison.

Figure 21: Artefacts (left to right) - a. button with "Best Ring Edge"*; b. small brass object with* "B↑O"*; c. plastic chess piece; d. light bulb; e. forceps*

Figure 22: Artefacts (top to bottom) - a. & b. large femur with concoidal fracture; c. & d. large pelvis with butchery marks; e. smal pelvis; f. glass bottle with "A.G.M."

The following definitions were used as a basis for cataloguing the material by function:

Domestic: Materials used in a domestic setting, but not created to be a permanent Feature in the landscape. These items included clothing and household items such as light bulbs and furnishings.

Structural: Material used in the construction of a permanent Feature on the landscape such as those related to buildings and other general construction. This category included items such as nails, brick and window glass.

Subsistence: Material related to the consumption of food or beverages including the remains of the food items themselves and the materials used in the consumption of the goods. This included remains of cutlery, bowls, plates, bottles, cans as well as faunal remains. As a convention, fragmented bone and metal were assumed to be related to subsistence if otherwise unidentifiable.

Medicinal: Material related to health or healing, included surgical equipment and glass bottles and jars with diagnostic Features indicating their use for medicinal purposes.

Recreational: Material related to activities completed for enjoyment. Included in this is items related to games and leisure activities. This included Alcohol, Tobacco, Writing implements, and game pieces.

Other: Items identified but unable to be incorporated into the above categories.

Unknown: Items that had no identified function.

Discussion

As a basic trend, material within the Spits seemed to represent a mixed fill deposit of a significantly more varied nature than the Features below it. Artefacts within the Spits were made of a variety of materials with a large diversity of function, including plastic cutlery and post prison closure coins, glass and metal of varying ages. Some artefacts were able to be refitted despite being found in Spit 1 and 3 respectively. The Spits themselves, while having colour and texture changes within the soil, were composed of a thin lens of material as would be expected in a fill layer (the obvious exception being the cabling trench found running east-west in the southern portion of the trench). Feature 1 was mostly composed of bone and metal. The metal, as previously mentioned, was considered to be subsistence related due to the high level of can shapes identified during excavation. The material within the Feature seemed to indicate disposal relating mostly to subsistence as well as the Feature being a long term refuse pile. This can be inferred from the thick charcoal layering seen between the layers of Feature 1 – which was not immediately visible during the excavation.

The most secure dating of the material culture within Feature 1 was provided by the undamaged ketchup bottle, which suggests the 1920's. Though this may be the case, there is still significant evidence that the Feature does in fact relate to the well, including the high density of artefacts, bone and charcoal beneath a limestone rubble "cap-layer" in an approximate quarter-circle shape - and the absence of these features in other investigated locations (i.e. our 2013 trench and the 2008 trench).

Should the well have been used as a disposal point it is likely that, given its depth, a wealth of material over a significant age point would have accumulated.

While future excavation is required to determine whether this Feature is simply a rubbish dump or the actual well, the depth at which high levels of artefacts have been found in comparison with the 2009 Eureka excavation only a metre away make the site extremely promising for future investigation.

Feature 2 consists mainly of metal and glass along with some domestic items such as buttons that were found. While the Feature was comparatively small vertically, it provided an extremely high density of artefacts, with a high proportion of these being iron fragments considered to be related to structural material. The soil colour was stained to a heavily rust based colour, indicating the density of the metal artefacts within the excavation. The size of the Feature despite only being partially excavated (to the limit of the trench) line is something of an oddity. Expansion of the trench in order to uncover the horizontal extent of the Feature is required in order to examine it thoroughly or exhume it. At this point it is clear that the material is functionally different to those found in Feature 1.

Features 1 and 2 are consistent with artefact composition, density and stratigraphic variance that could be expected from a well used as a refuse dump. Also the work done for the 2009 report and the 2013 areas that did not contain Features showed a consistent low density and diversity of artefacts that is in stark contrast to the high density and diversity of results from Features 1 and 2.

The 2009 report specifies that by Spit 3 – at the 30 cm depth – there was a marked paucity of artefacts implying that the excavation reached the original ground layer and there is perhaps no more to be found at a greater depth. Conversely, when the 2013 trench reached a 30 cm depth, there was a sudden and proportionately large *increase* in artefact density. When added to the succession of stratified charcoal layers and the array of artefacts found – in terms of density, type, items that could be effectively dated and how those dates correlated to what could be expected, there seems to be a strong indication that Feature 1 is the top of the capped well. in contrast Feature 2 may be an associated deposit, or another refuse pit of unspecified origin.

Recommendations

Analysis both during excavation and during artefact sorting and accessioning suggests that Feature 1 and Feature 2 have high archaeological potential. Feature 1 must be considered likely to be related to the well. As such trench 1 should be expanded on the southern end to fully uncover both Features. Both the 2009 Eureka Archaeology Report and this excavation describe significant modern fill within the area, it is therefore recommended that the grass topsoil and highest soil horizons (Spits 1 through 3) be removed quickly.

Ground Penetrating Radar

Ground penetrating radar provides a non-invasive technology in which buried Features can be detected. Previous archaeological excavations suggest that Features that have been buried often remain in situ within the prison environment (Eureka 2009) and as such should be recognisable within the scope of a GPR scan. The well should be easily identifiable, given its depth and what it is likely to contain. This should provide a strongly contrasting signal when compared to the limestone bedrock that surrounds it. As there is no record of ground penetrating radar occurring within the grounds of Fremantle prison it is highly recommended that the area be tested using the technology. Of greatest priority for the field school run by UWA is the testing of the parade ground and knoll area. Both areas should be considered to have high archaeological potential. Fortunately these sites should offer minimal disruption to the everyday processes of the prison, as well as having a landscape in which the machinery of the ground penetrating radar is able to function without impediment.

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