

Appendix F

Indicative method for subsurface investigations of potential archaeological deposits

Indicative Methodology for Subsequent Works – Kempsey to Eungai Pacific Highway Upgrade

Salvage Collection of Aboriginal Artefacts

All salvage and collection of Aboriginal artefacts would be undertaken in consultation with, and where possible, in the presence of members of the local Aboriginal land council and the Department of Environment and Climate Change (refer Chapters 4 and 17 for details of the ongoing Aboriginal stakeholder consultation process). In addition these groups would receive the results of investigations for review and comment.

Indicative methodology

1. Re-visit the location of each of the previously recorded surface artefact occurrences where collection is required.
2. All artefacts visible to salvage personnel at the locations/sites specified in the brief will be collected according to one or more of the relevant strategies:
 - a) Where the surface distribution of artefacts occurs over a maximum areal dimension of 30 metres or less, all artefacts will be collected as a single grouping. A hand-held GPS map reference will be generated at the approximate centre of the artefact distribution, and/or at either end of the maximum areal dimension of the distribution.
 - b) Where the surface distribution of artefacts occurs over a maximum areal dimension of greater than 30 metres, the artefacts will be collected in groups according to an appropriate distance interval- generally 30 metres (measured along the maximum areal dimension of the distribution). A hand-held GPS map reference will be generated at either end of the maximum areal dimension of the distribution.
 - c) Where distinct small and localised artefact concentrations occur, these will be collected as a separate sub-group within the whole site collection.
3. A rough sketch map will be drafted for each collected site, showing:
 - a) local features, including vehicle tracks and north direction;
 - b) a graphic approximation of artefact densities;
 - c) the spatial extent of the surface distribution;
 - d) the location of any separate collection areas.
4. One or more digital photographs will be taken and logged, showing the general context of the artefact distribution.
5. All collected material will be appropriately bagged and labelled.
6. All collected material will be temporarily held by the consultants to allow processing by an archaeologist with specialist lithic analysis skills in the following way:

- a) Non-artefactual material will be discarded.
 - b) Basic technological traits will be recorded.
 - c) Where appropriate, notable artefacts will be photographed using a digital camera.
7. Following processing, all collected artefacts will be placed back into labelled bags and re-positioned as per the direction of the local Aboriginal land council and/or the Department of Environment and Climate Change.

Archaeological Subsurface Investigation

Indicative methodology for excavation by hand

All subsurface investigations would be undertaken in consultation with, and where possible, in the presence of members of the local Aboriginal land council and the Department of Environment and Climate Change (refer Chapters 4 and 17 for details of the ongoing Aboriginal stakeholder consultation process). In addition these groups would receive the results of investigations for review and comment.

The following excavation methodology will be followed for hand excavated pits. This methodology may be subject to change depending on factors encountered in the field that have not been anticipated.

1. Mark out and record pit locations. The arrangement of excavation areas will vary according to the characteristics of the site. Possible arrangements include: multiple square pits arranged within a grid pattern; rectangular trenches positioned to test/salvage along continuous and potentially intersecting transect(s); and broad area excavation where rectangular areas of 4 m² or more are conducted.
2. Excavate hand-dug pit.
Pits or trenches will be excavated by shovel and trowel using standard by-hand archaeological methodologies including vertical and horizontal recording of spit levels and sedimentary, cultural and stratigraphic features.
Indicative spit intervals will be 10 centimetres, but may be larger or smaller depending on pit specific conditions and stratigraphic units.
Excavation will cease according to an on-site appreciation of the vertical extent of the archaeological deposit.
3. Where cultural features are identified, such as heat treatment pits or hearths, detailed plans will be drawn and samples of dateable material will be obtained.
4. Other samples may be obtained for the potential analysis of palaeoenvironmental indicators such as pollen, phytoliths and microfauna.
5. All excavated archaeological deposit will be sieved either dry or with the aid of pressurised water from a water truck. The use of a dry sieving technique will be determined according to an appreciation of on-site characteristics. All material will be sieved through 4 x 4 millimetres mesh, with use of a top larger mesh (10 x 10 millimetres) where appropriate. All identified or suspected cultural material recovered from sieving will be retained, bagged and labelled.
6. All pits will be backfilled with the remaining excavated and sieved spoil (depending upon construction requirements).

Indicative methodology for excavation using a backhoe or excavator

The following excavation methodology will be followed for the mechanical excavation of pits. This methodology may be subject to change depending on factors encountered in the field that have not been anticipated.

1. Basic location information will be recorded for each pit.
2. Pits will be excavated by backhoe using either a straight-edged or toothed bucket, depending on the hardness of the material being excavated. The preferred bucket type has a straight edge and is between 800 and 1000 millimetres wide. A toothed bucket will be used if hard ground is encountered. The actual bucket type used will depend on availability. Spit depths will have an intended interval range of between 10 and 40 centimetres, depending on the excavation objectives and sediment conditions. Pits will have a potential final length of around 1.5 metres to 4 metres, depending on the final depth achieved. Pit excavation will include broad-scale vertical control only. Pit excavation will involve the following steps:
 - a) Excavation of spit one along an interval averaging 1.5-2.0 metres in length.
 - b) Excavation of spit 2 (and all subsequent spits), beginning approximately 200-300 millimetres from the far end of the previous spit. This will be done in order to create a 'clean' end-wall and prevent contamination from sediments from upper levels.
 - c) Following spit 2 (and after all subsequent spits), the near end of the pit will be extended by up to 300 millimetres in order to remove any fallen sediment from upper levels and to provide a 'clean' end point for the backhoe bucket.
 - d) Excavation will cease according to an on-site appreciation of testing requirements.

An appropriate sample of the excavated material will be sieved, either with or without the aid of pressurised water from a water truck. Generally the sample will consist of 8 x 10 litre buckets removed directly from the bucket. A larger sample may be taken if considered warranted. Smaller samples may occur where there is insufficient material to provide an 80 litre unit for sieving. Material will be sieved through 4 x 4 millimetres mesh, with use of a top 10 x 10 millimetres mesh where appropriate.

All identified or suspected cultural material recovered from sieving will be retained, bagged and labelled. In addition, a reference collection of natural gravels may be collected to aid in lithic interpretation, where appropriate.
3. Following cessation of excavation, the soil profile and characteristics will be described and checked with the separately documented incremental spit descriptions. pH measurements may be taken where necessary.
4. All pits will backfilled with the remaining excavated and sieved spoil.

Indicative methodology for excavation using a mechanical auger

1. The required pit location will be marked out and recorded. Basic surveying measurements along the test axes will be recorded.
2. Excavate auger pit.

Auger holes will be excavated using a mechanically driven auger mounted on a backhoe. Auger holes will be dug incrementally with spit depths of generally 20 centimetres. Sieving will be conducted with the aid of pressurised water from a water truck. All material will be sieved through a nest of 3 millimetres and 5 millimetres mesh sieves. Identified or suspected lithic cultural material recovered from sieving will be retained, bagged and labelled. In addition a reference collection of natural gravels will be collected to aid in lithic interpretation, where appropriate.
3. During and following excavation, the soil profile and characteristics will be described.
4. All pits will be backfilled using both the remaining excavated and sieved spoil, and where necessary, with imported fill material.

Archival Recordings

Archival recording of the former Frederickton ferry ramp (KEH6) and the affected areas of the Frederickton Butter Factory and other heritage elements affected by the development will be conducted to the standards prepared by the NSW Heritage Office ('How to Prepare Archival Records of Heritage Items' 1998).