3.8 Indigenous heritage

This Section summarises the existing Indigenous (Aboriginal) archaeological and cultural heritage values in the Project area, based on the findings of Technical Paper 4 — *Indigenous Heritage Assessment* (Volume 2). The Indigenous heritage impacts associated with the Project are discussed in Section 8.8.

3.8.1 Historical background and known Indigenous sites

The Aboriginal people living in the western region of Sydney when the First Fleet arrived were the Dharug linguistic tribal group. The Dharug are thought to have occupied land stretching from the Hawkesbury River in the north to Appin in the south and west into the Blue Mountains. The western region of Sydney has produced some of Australia's oldest Aboriginal artefacts; however, the majority of sites found on the Cumberland Plain date to the last 3,000 years.

Aboriginal cultural heritage in Australia is protected and managed under a number of different Acts of legislation. A summary of the Commonwealth, State and local Indigenous heritage listings in the vicinity of the Project, and the register under which they are listed, is included in Table 3-29. The statutory obligations under each Act are discussed in more detail in Technical Paper 4.

Table 3-29 Commonwealth, State and local Indigenous heritage legislation and listings

Legislation	Register	Registered sites within the study area
Commonwealth *EPBC Act 1999*	Register of the National Estate	None
	National Heritage List	None
	Commonwealth Heritage List	None
Commonwealth *Native Title Act 1993*	National Native Title Tribunal	No Native title claims under consideration
NSW *National Parks and Wildlife Act 1974*	Aboriginal Heritage Information Management System (AHIMS)	39 places and/or objects registered within 2 kilometres of the Project area. Nine sites are located within 50-100 metres of the study area.
NSW *Heritage Act 1977*	RailCorp S170 heritage and conservation register	None
NSW *Environmental Planning and Assessment Act 1979*	Blacktown Local Environmental Plan 1988	None
Non-statutory listing	National Trust of Australia	None

As indicated in Table 3-29, a search of the DECC AHIMS register identified a total of 39 Indigenous places or objects within two kilometres of the existing rail corridor. The list of sites recorded on the AHIMS database is not exhaustive, as only formally recorded sites are included. Therefore, it is possible that there are unrecorded sites in the Project area.

The 39 places or objects registered on AHIMS comprised 19 open camp sites, 11 artefacts, four potential archaeological deposits (PADs), three isolated finds, one Aboriginal gathering place and one modified tree. The nature of these finds is described in the following sections.

Open camp sites

Open camp sites comprise scatters of artefacts located on the surface and/or in subsurface contexts. They may constitute the remains of hunting and gathering activities, domestic camps, or the manufacture and maintenance of stone tools. These sites are classified as 'open', that is, occurring on land surfaces unprotected by rock overhangs, and are sometimes referred to as 'open camp sites'.

Isolated finds and stone artefact scatters

Isolated finds are artefacts that occur without associated evidence of prehistoric activity or occupation. They are generally defined as single artefacts located more than a certain distance from any other artefact.

Stone artefact scatters and isolated finds represent the most prevalent site types identified in the Riverstone-Vineyard-Schofields region, most commonly identified on flat to gently sloping land close to reliable water sources.

PADs

PADs are deposits of archaeological material usually associated with actively aggrading landform features or rock shelter deposits. PADs often do not exhibit identifiable archaeological material on the surface, but may contain subsurface material. PADs are usually identified by their context in, or association with, a landscape feature that was likely to have been exploited in prehistory.

Modified trees

Modified trees may include scarred and/or carved trees. Scarred trees result where bark was removed from a tree as a direct or indirect result of the manufacture of various goods and implements, or the result of making foot holes in a tree to collect food or facilitate the removal of bark. Carved trees exhibit intricate, often geometric, patterns carved into the outer surface and have been interpreted as possessing ceremonial significance. Carved trees appear to have been used in some areas to indicate the presence of significant burial sites, initiation sites or ceremonial grounds.

3.8.2 Archaeological potential and sensitivity

Methodology

In accordance with the Department of Environment and Climate Change's (DECC's) (2005) *Interim Community Consultation Requirements for Applicants*, written notification of the project was provided to the following stakeholder groups:

- Local Aboriginal Land Council(s)
- Registrar of Aboriginal Owners
- Native Title Services
- local council(s)
- DECC.

An advertisement was also placed in the local print media to inviting interested stakeholders and/or individuals to register their interest in the Project.

Five stakeholder groups have registered their interest in the Project:

- Deerubbin Local Aboriginal Land Council (DLALC)
- Darug Tribal Aboriginal Corporation (DTAC)
- Darug Custodian Aboriginal Corporation (DCAC)
- Darug Aboriginal Cultural Heritage Assessments (DACHA)
- Darug Land Observations (DLO).

Site surveys were attended by representatives of the registered stakeholders (a full attendance list is provided in Technical Paper 4). The site surveys were conducted in three phases to accommodate changes in the concept design of the Project as detailed below:

- Phase 1 — Quakers to Vineyard rail corridor, and proposed Vineyard Station and car park sites; conducted on 11 and 12 February 2008
- Phase 2 — Proposed Schofields Station site; conducted on 8 and 9 April 2008
- Phase 3 — Expansion of the Quakers to Vineyard rail corridor; conducted on 1, 4 and 8 September 2008, and 5 November 2008.

The survey methodology was a transect-based survey method, which was driven by the requirement to identify any extant archaeological artefacts, PADs, sites or features, and assess the archaeological sensitivity (potential) of the Project area. Further details on the survey method employed are provided in Technical Paper 4. The survey only targeted those areas marked for development that are situated outside the existing rail corridor. Areas within the existing rail corridor were not surveyed as it was agreed that there was no possibility for intact Aboriginal sites to be located within this disturbed region.

Archaeological sites

A total of seven archaeological sites were identified during the field survey. The location of these sites is shown in Figure 3-22. A description of these sites is provided in Table 3-30.

The archaeological sites predominantly comprised isolated finds located adjacent to dirt tracks and erosion scours, with the exception of one site, which comprised an artefact scatter.

Table 3-30 Description of identified Aboriginal heritage items

Site	Site type	Location	Description
QV1	Isolated find	Situated to the west of the rail corridor, along a dirt track within the HMAS Nirimba/Former Schofields Aerodrome.	Item comprises a red silcrete flaked piece. This item is associated with PAD QVP (refer section below), and is likely to form a part of a wider scatter that includes site QV2 and the previously recorded artefact scatters 45-5-0503, 45-5-0497 and 45-5-471 (as registered on the AHIMS database). These registered sites are located outside the survey area.
QV2	Isolated find	Situated to the west of the rail corridor along an erosion scour within the HMAS Nirimba/Former Schofields Aerodrome.	Item comprises a red silcrete flaked piece. This item is associated with PAD QVP (refer section below), and is likely to form a part of a wider scatter that includes site QV1 and the previously recorded artefact scatter 45-5-0503 (registered on the AHIMS database). Artefact scatter 45-5-0503 is not within the survey area.
QV3	Isolated find	Situated to the east of the rail corridor on a dirt track, along the alluvial flats of Eastern Creek, approximately 270 metres north of Quakers Hill Parkway.	Item comprises a yellow silcrete broken retouched flake. This site occurs in a similar context to previously recorded open camp sites 45-5-0358 and 45-5-0321 (registered on the AHIMS database) within 100 metres north-east of PAD Q3. Site 45-5-0358 was targeted for test excavations along the creek flats of the tributary, prior to the installation of the Metropolitan Water, Sewerage and Drainage Board pipeline. In situ material was found as part of this investigation, with radio carbon dating returning a date of 3,450 ± 60 Before Present (BP). It is unknown whether testing has occurred for site 45-5-0321 as reports were not available.
QV4	Artefact scatter	These finds are situated to the east of the rail corridor on a dirt track along the alluvial flats of Eastern Creek, approximately 170 metres north of Quakers Hill Parkway.	Items comprise three red silcrete debitage flakes, two red and brown silcrete flaked pieces, and one red silcrete complete flake. This site occurs in a similar context to previously recorded open camp sites 45-5-0358 and 45-5-0321 (registered on the AHIMS database) within 100 metres north-east of PAD Q3. Site 45-5-0358 was targeted for test excavations along the creek flats of the tributary, prior to the installation of the Metropolitan Water, Sewerage and Drainage Board pipeline. In situ material was found as part of this investigation, with radio carbon dating returning a date of 3,450 ± 60 BP. It is unknown whether testing has occurred for site 45-5-0321 as reports were not available.
QV5	Isolated find	Situated to the west of the rail corridor within an erosion scour along a lower slope of the alluvial flats of Eastern Creek, approximately 300 metres north of Victoria Street, Vineyard.	Item comprises one red silcrete flaked piece. This site is not thought to be associated with any subsurface deposits due to past land disturbance.

Site	Site type	Location	Description
QV6	Isolated find	Situated to the west of the rail corridor on a dirt track, along a gentle hill crest above the Eastern Creek floodplains.	Item comprises a broken hammer stone made from a grey cryptocrystalline river cobble. This site is associated with PAD V2.
QV7	Three isolated finds	Situated to the west of the rail corridor along a dirt track, located on a gentle hill crest above the Eastern Creek floodplains, in between Norwood and Ashwood roads.	Items comprise one orange chert flake and two orange chert flaked pieces. These items are potentially associated with PAD V2 (refer section below).

Figure 3-22a Location of identified Indigenous heritage items and areas of PAD relative to the area impacted by the Project

Note: Project detail shown is indicative only, subject to detailed design.

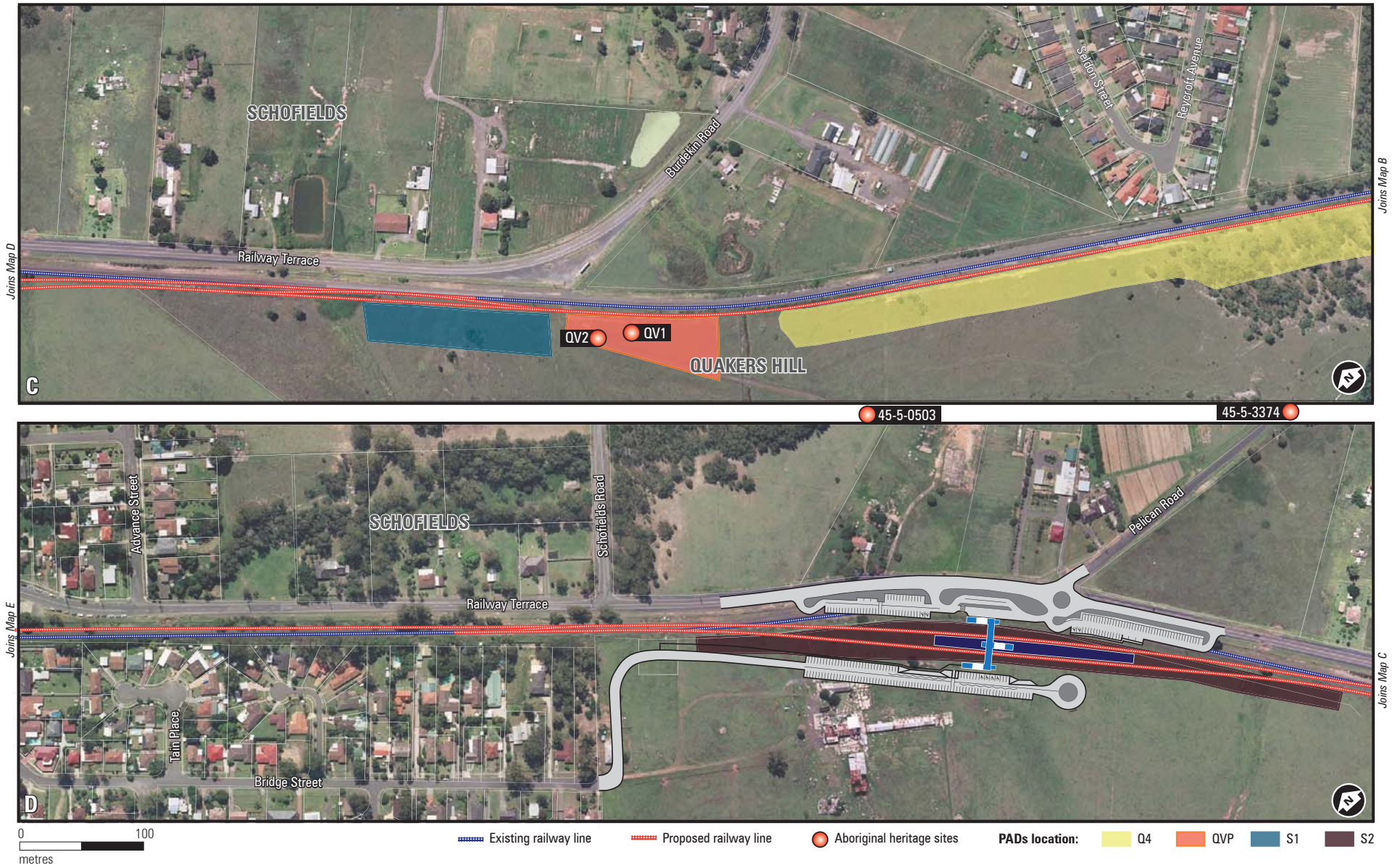

Figure 3-22b Location of identified Indigenous heritage items and areas of PAD relative to the area impacted by the Project

Note: Project detail shown is indicative only, subject to detailed design.

Figure 3-22c Location of identified Indigenous heritage items and areas of PAD relative to the area impacted by the Project

Note: Project detail shown is indicative only, subject to detailed design.

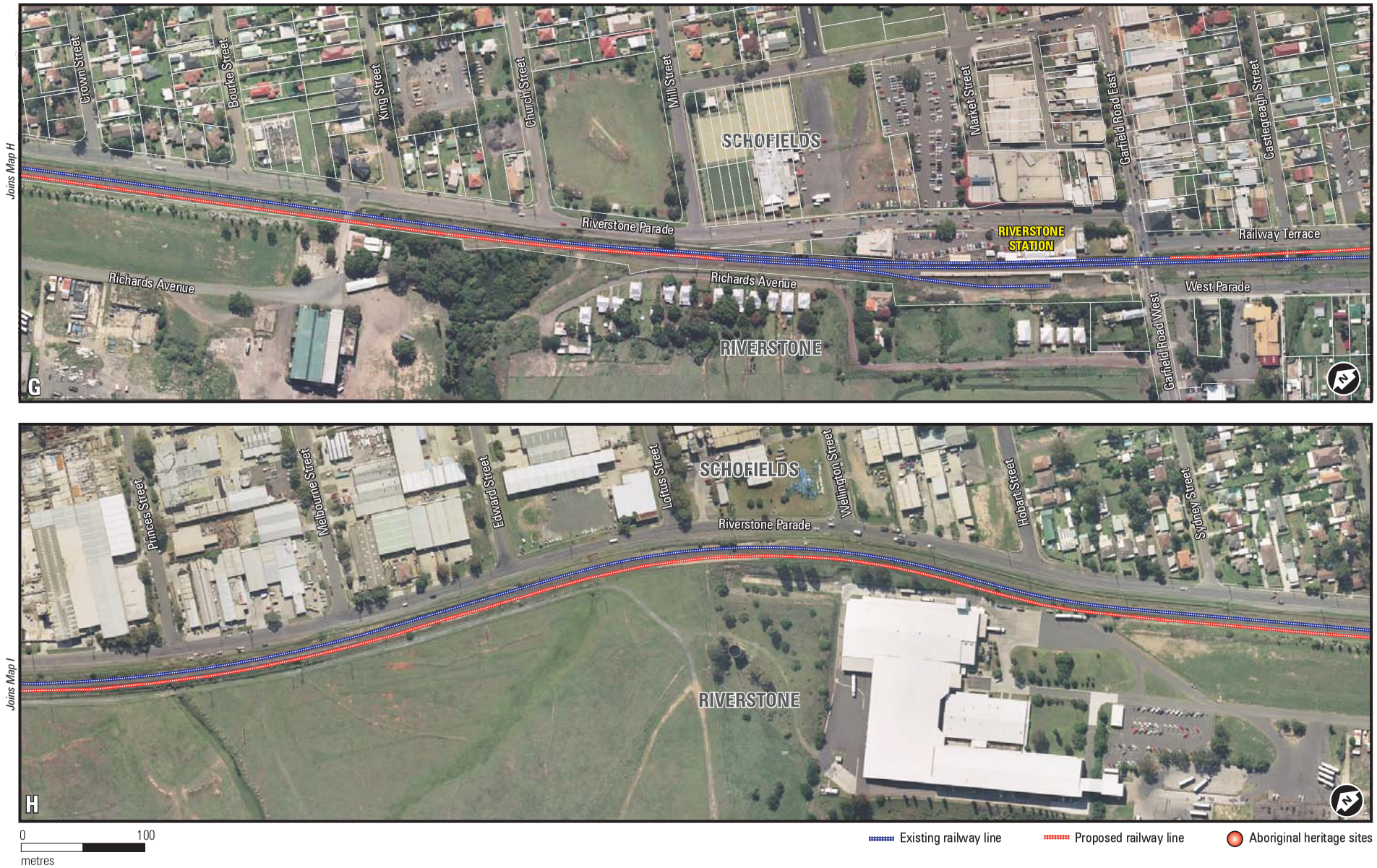

Figure 3-22d Location of identified Indigenous heritage items and areas of PAD relative to the area impacted by the Project

Note: Project detail shown is indicative only, subject to detailed design.

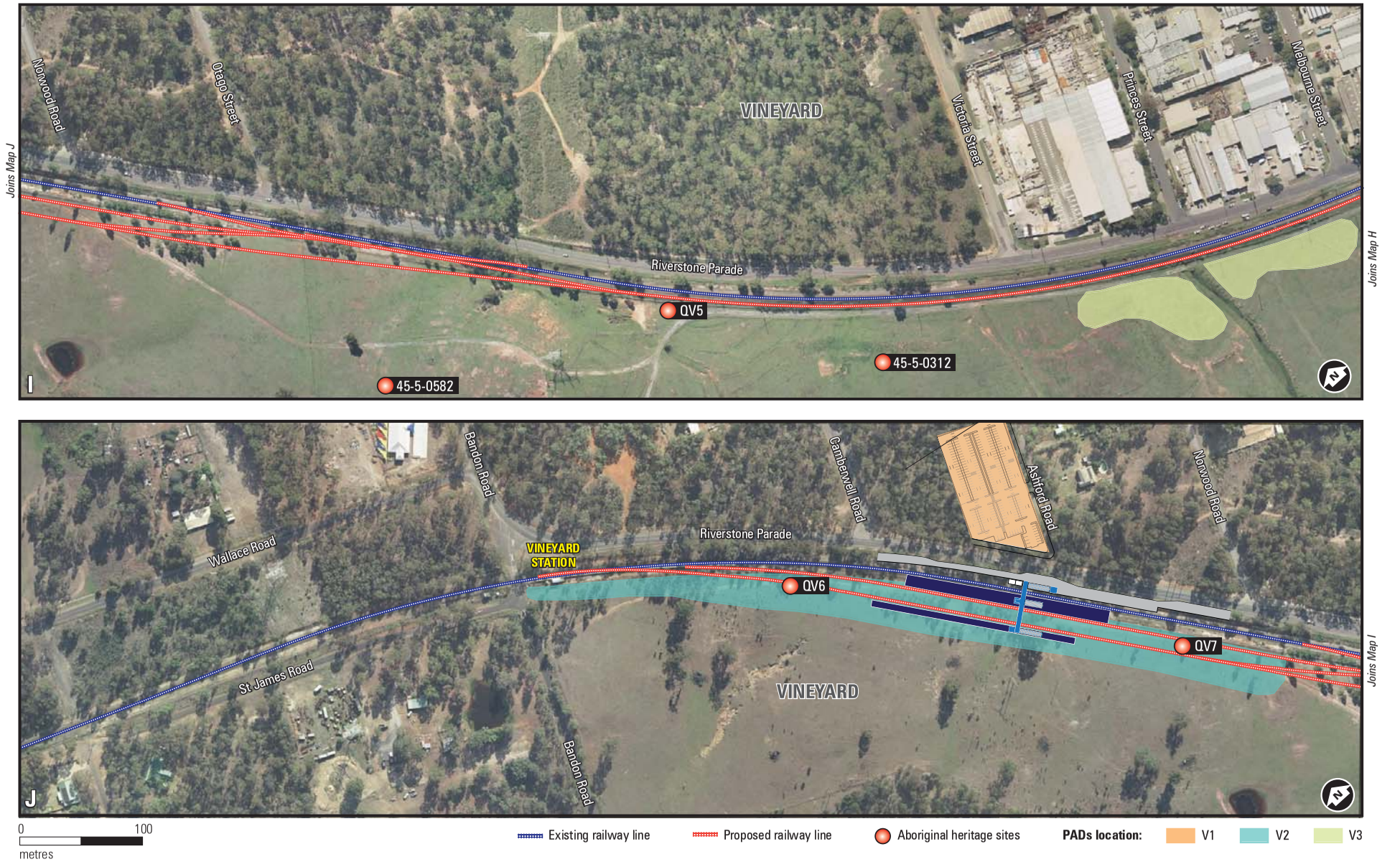

Figure 3-22e Location of identified Indigenous heritage items and areas of PAD relative to the area impacted by the Project

Note: Project detail shown is indicative only, subject to detailed design.

PADs

As described in Section 3.8.1, PADs are deposits of archaeological material usually associated with actively aggrading landform features or rock shelter deposits. PADs often do not exhibit identifiable archaeological material on the surface, but may contain subsurface material. PADs are usually identified by their context in, or association with, a landscape feature that was likely to have been exploited in prehistory.

A total of 10 areas of PADs were identified during the field survey. These areas of PAD are shown in Figure 3-22, summarised in Table 3-31 and described below.

PAD Q1 and PAD Q2

PAD Q1 comprises an area of approximately 17,045 square metres of alluvial terrace deposit, situated north-west of a tributary of Eastern Creek (refer Figure 3-22). PAD Q2 comprises an area of approximately 17,900 square metres of upper terrace deposit situated between the confluence of two tributary creek lines that cross the rail corridor at Quakers Hill (refer Figure 3-22). PAD Q2 is situated adjacent to PAD Q1, on slightly elevated ground above the immediate creek bank deposits.

The transition from PAD Q1 to PAD Q2 is marked by a change in vegetation structure from riparian woodland to open woodland. Both PADs are comprised of the South Creek soil landscape (refer Section 3.10); a landscape conducive to the retention of archaeological material. Archaeological deposits are predicted to occur at varying depths from the ground surface along the alluvial flats as this soil type is often characterised by buried soil horizons.

This area of PAD is set back from the creek line; a landscape position that is known to hold potential for both surface and subsurface Aboriginal sites. Sites recorded within the immediate vicinity are located within 100 metres of tributary creek lines, in some instances comprising extensive artefact scatters, and in many instances, along creek line confluences (refer Table 3-30).

In situ subsurface deposits have been identified within 200 metres south-east of PADs Q1 and Q2 in a similar landscape context (AHIMS Sites 45-5-0358 and 45-5-2321; refer Figure 3-22).

Land use impacts to these areas of PADs constitute historic land clearance and agricultural use, and the installation of both a sewerage line and Telstra utility service. While the majority of these impacts would have affected the integrity of topsoil deposits to varying degrees, they would not have necessarily served to remove archaeological material from the landscape.

The installation of utility services would have had the greatest impact on these PADs; however, such impacts are linear in nature and do not apply to the entire area of PADs Q1 and Q2. As such, there is the potential for both disturbed and undisturbed archaeological material to be present across these sites.

PAD Q3

PAD Q3 comprises an area of approximately 4,134 square metres of alluvial terrace deposit, associated with a tributary of Eastern Creek. The PAD extends along the eastern boundary of the rail corridor, across Oppy Reserve (refer Figure 3-22).

An archaeological testing program undertaken with DLALC conducted along approximately 19 metres of an access track has identified the presence of numerous buried Aboriginal stone artefacts (Phil Kahn DLALC, personal communication). Visual inspection of this area resulted in the identification of archaeological sites QV3 and QV4 (refer Table 3-30). PAD Q3 forms a natural extension to the north-west of the area tested, and comprises both the northern and southern creek flats of the unnamed tributary.

PAD Q3 is comprised of the South Creek soil landscape; a landscape conducive to the retention of archaeological material. Archaeological deposits are predicted to occur at varying depths from the ground surface along the alluvial flats as this soil type is often characterised by buried soil horizons.

Aboriginal sites have been recorded within Oppy Reserve and *in situ* subsurface deposits have been identified within 100 metres north-east of PAD Q3 in a similar landscape context (AHIMS Sites: 45-5-0358 and 45-5-2321; refer Figure 3-22).

Land use impacts (in the form of historic agricultural use, vegetation disturbance, urban expansion and the installation of a water main) are unlikely to have removed archaeological material from this site, as numerous artefacts have been retrieved from both the topsoil and subsoil immediately adjacent to the existing rail corridor and the creek line 100 metres to the north-east.

PAD Q4

PAD Q4 comprises an area of approximately 23,860 square metres and extends for approximately 450 metres along the western boundary of the rail corridor within the HMAS Nirimba/Former Schofields Aerodrome (refer Figure 3-22). This area of PAD is comprised of relatively intact woodland vegetation. The PAD is situated along the ridge top of a low rising hill, located above the alluvial floodplain of Eastern Creek.

Soils across this PAD are dominated by the Blacktown soil landscape (refer Section 3.10), which is characterised as a stable or relict landscape with minimal erosion. Although archaeological material will be confined to the biomantle (upper soil layer created mainly by organisms), the stability of this soil landscape and its position along an elevated rise above the floodplain mean that it has the potential to contain evidence of long-term Aboriginal occupation sites.

Previously recorded open camp sites 45-5-3374, 45-5-0503, 45-5-0471 and 45-5-0497 (AHIMS register) are situated within several hundred metres of PAD Q4, along the lower slopes and floodplain of Eastern Creek. Sites 45-5-0503, 45-5-0471 and 45-5-0497 are thought to be part of a wider site complex. Archaeological sites QV1, QV2 (refer Table 3-30) and associated PAD QVP (refer following section) are situated approximately 700 metres to the north of PAD Q4.

Land use impacts to this area of PAD are similar to those outlined for previous PADs, constituting historic land clearance and agricultural use, and the installation of utility services. Vegetation communities within this area of PAD have been assessed with a moderate to good level of structural integrity (refer Section 3.6), indicating minimal disturbance to the ground surface, despite historic agricultural practices. The most significant impact would be the installation of utility services; however, this impact is linear in nature and does not apply to the entire area of PAD.

PAD QVP

PAD QVP comprises a gently inclined slope that rises above the Eastern Creek floodplain. It is situated between PADs Q4 and S1 (refer Figure 3-22). Archaeological sites QV1 and QV2 are situated within 5 metres of the rail corridor (refer Table 3-30 and Figure 3-22). These finds are associated with numerous flaked cobbles, cores and flakes, eroding downslope in a westerly direction. These sites are considered as continuous with AHIMS sites: 45-5-0503 and 45-5-0471, the latter of which comprises an extensive artefact scatter.

Soils across this PAD are dominated by the Blacktown soil landscape, which is characterised as a stable or relict landscape with minimal erosion. Although archaeological material will be confined to the biomantle, the stability of this soil landscape and its position along an elevated rise above the floodplain, mean that it has the potential to contain evidence of long-term Aboriginal occupation sites. The presence of numerous artefacts eroding down slope support the potential for buried archaeological material.

Land use impacts to this area of PAD are similar to those outlined for previous PADs. Vegetation communities within this area of PAD comprise open pasture land; ground surface disturbance is limited to localised erosion. The most significant impact will be that of the installation of utility services; however, this impact is linear in nature and does not apply to the entire PAD.

PAD S1

PAD S1 comprises an area of approximately 6,363 square metres extending 125 metres along the western boundary of the existing rail corridor to the north of Burdekin Road (refer Figure 3-22). PAD S1 represents a similar landscape context to that of PAD QVP (refer section above), and as such, forms a natural extension of PAD QVP, comprising a gently inclined north-west facing slope. Vegetation comprises open pasture land with some disturbance to the integrity of the ground surface.

Soils across this PAD are dominated by the Blacktown soil landscape, which is characterised as a stable or relict landscape with minimal erosion. Although archaeological material will be confined to the biomantle, the stability of this soil landscape and its position along an elevated rise above the floodplain, mean that it has the potential to contain evidence of long-term Aboriginal occupation sites. Archaeological sites QV1, QV2, 45-5-0503, 45-5-0471 and 45-5-0497 are situated within several hundred metres of PAD S1, along the lower slopes and floodplain of Eastern Creek, which is a similar landscape context to that of PAD S1. Sites 45-5-0503, 45-5-0471 and 45-5-0497 are thought to be part of a wider site complex.

Land use impacts to this area of PAD constitute historic land clearance, agricultural use and the installation of utility services. While the majority of these impacts would have affected the integrity of topsoil deposits to varying degrees, they would not have necessarily served to remove archaeological material from the landscape.

The installation of utility services would have had the greatest impact on this area of PAD; however, such impacts are linear in nature and do not apply to the entire area of PAD. As such, there is the potential for both disturbed and undisturbed archaeological material to be present across this site.

PAD S2 — proposed Schofields Station

PAD S2 is approximately 16,360 square metres and is located at the site of the proposed new Schofields Station (refer Figure 3-22). The PAD is situated along a low rising hill located above the alluvial floodplain of Eastern Creek. Soils across this PAD are dominated by the Blacktown soil landscape, which is characterised as a stable or relict landscape with minimal erosion. Although archaeological material will be confined to the biomantle, the stability of this soil landscape and its position along an elevated rise above the floodplain, mean that it has the potential to contain evidence of long-term Aboriginal occupation sites.

Land use impacts within the vicinity of PAD S2 are minimal. While historic land clearance and continued agricultural use of the land will have impacted the topsoil to varying degrees, archaeological material is commonly found below the plough zone in similar contexts to that of the Project area across the Cumberland Plain.

A subsurface electricity cable cuts through PAD S2 in a south-easterly direction, originating from the substation in the northern end of the PAD. While the impact of this installation is likely to have disturbed the context of any potential buried archaeological material, it is not likely to have removed it. The impact of this installation is linear, confined in space, and does not detract from the potential for undisturbed subsurface material to be present across this site.

PAD V1 — proposed Vineyard Station car park site

The area of PAD identified at the proposed phase 1 and phase 2 Vineyard Station car park sites comprise an area of approximately 11,250 square metres. The proposed site is bound to the south by Ashford Road and to the north by a private property boundary. This northern extent is situated half way between Ashford and Camberwell roads (refer Figure 3-22).

Soils across this PAD are dominated by the Blacktown soil landscape, which is characterised as a stable or relict landscape with minimal erosion. Although archaeological material will be confined to the biomantle, the stability of this soil landscape and its position along an elevated rise above the floodplain, mean that it has the potential to contain evidence of long-term Aboriginal occupation sites.

Land use impacts in the vicinity of PAD V1 are minimal. Vegetation communities are assessed with good structural integrity, with a species complement characteristic of the pre-European equivalent. As such, ground surface disturbance in this area has been minimal.

PAD V2 — proposed Vineyard Station site

The area of PAD identified at the proposed Vineyard Station site comprises an area of approximately 21,272 square metres, extending from the intersection of Riverstone Parade and Norwood Road to Bandon Road at the existing Vineyard Station (refer Figure 3-22). A reassessment of this area (phase 3) identified two isolated finds (QV6 and QV7; refer Table 3-30) within the vicinity of this PAD. Archaeological material is predicted to occur at varying depths from the present ground surface in areas where the South Creek soil landscape predominates, and within the topsoil in areas where the Blacktown soil landscape predominates. The South Creek soil landscape is most prominent in the vicinity of the existing Vineyard Station, while the Blacktown soil landscape predominates along the remainder of the PAD.

Land use impacts in the vicinity of PAD V2 constitute historic land clearance and agricultural practices. An electricity easement crosses the PAD site near Norwood Road, the installation of which is likely to have disturbed the integrity of any potential subsurface deposits. The impact of this easement is, however, confined in space.

PAD V3 — Melbourne Street to Victoria Street

PAD V3 comprises an area of 5,478 square metres and extends along the western boundary of the rail corridor between Melbourne and Victoria streets, 900 metres south-east of Vineyard Station (refer Figure 3-22). PAD V3 is situated along the creek flats of a tributary to Eastern Creek and is dominated by the South Creek soil landscape, which is conducive to the retention of archaeological material. Archaeological deposits are predicted to occur at varying depths from the ground surface along the alluvial flats as this soil type is often characterised by buried soil horizons.

Archaeological sites are situated in similar landscape contexts along the Eastern Creek floodplain, and further south along tributary creek flats at Quakers Hill and Schofields. *In situ* subsurface archaeological deposits have been documented within similar geomorphological environments within the immediate region.

Land use impacts within the vicinity of PAD V3 are minimal. While historic land clearance and continued agricultural use of the land will have impacted the topsoil to varying degrees in the vicinity of this PAD, archaeological material is commonly found below the plough zone in similar contexts to that of the study area across the Cumberland Plain. Several Telstra installations and one sewerage line cross this PAD at varying points. The impact of these services to the integrity of the PAD is linear and confined in space. Archaeological material is likely to have been disturbed, yet not removed, in these specific areas of impact. There is the potential for undisturbed subsurface archaeological material to be present across this PAD.

Table 3-31 Summary of PAD areas within the vicinity of the Project

PAD	Landform element	Description of associated sites
QVP	Upper slope	Sites QV1 and QV2 occur within this PAD QVP. Sites QV1 and QV2 are considered to be continuous with registered sites 45-5-0503 and 45-5-0471 (registered on the AHIMS database). Site 45-5-0503 comprises a small scatter of silcrete flakes in a localised erosion scour approximately 180 metres from the rail corridor near the Aerodrome runway. This site is thought to be part of a wider site complex that includes sites 45-5-0497 and 45-5-0471.
Q1	Creek Flat	Occurs in a similar landscape context to previously recorded open camp sites 45-5-0358 and 45-5-0321 (registered on the AHIMS database). Site 45-5-0358 was targeted for test excavations along the creek flats of the tributary, prior to the installation of the Metropolitan Water, Sewerage and Drainage Board pipeline. In situ material was found as part of this investigation, with radio carbon dating returning a date of 3,450 ± 60 BP. It is unknown whether testing has occurred for site 45-5-0321 as reports were not available.
Q2	Alluvial Terrace	Occurs in a similar landscape context to previously recorded open camp sites 45-5-0358 and 45-5-0321 (registered on the AHIMS database). Site 45-5-0358 was targeted for test excavations along the creek flats of the tributary, prior to the installation of the Metropolitan Water, Sewerage and Drainage Board pipeline. In situ material was found as part of this investigation, with radio carbon dating returning a date of 3,450± 60 BP. It is unknown whether testing has occurred for site 45-5-0321 as reports were not available.
Q3	Creek Flat	Sites QV3 and QV4 found to the north of PAD Q3 occur within a similar landscape context to previously recorded open camp sites 45-5-0358 and 45-5-0321 (registered on the AHIMS database). These sites are located within 100 metres of the north-east of this PAD. Site 45-5-0358 was targeted for test excavations along the creek flats of the tributary, prior to the installation of the Metropolitan Water, Sewerage and Drainage Board pipeline. In situ material was found as part of this investigation, with radio carbon dating returning a date of 3,450± 60 BP. It is unknown whether testing has occurred for site 45-5-0321 as reports were not available.
Q4	Ridge line/upper slope	Four previously recorded open campsites (45-5-3374, 45-5-0503, 45-5-0471 and 45-5-0497) occur within several hundred metres of PAD Q4. The sites 45-5-0503, 45-5-0497 and 45-5-0471 are thought to be part of a wider site complex. The site card for 45-5-3374 was not available. Sites QV1 and QV2 are situated approximately 700 metres to the north of this PAD.

PAD	Landform element	Description of associated sites
S1	Ridge line/upper slope	Two sites QV1 and QV2 and three previously recorded sites (45-5-0503, 45-5-0497 and 45-5-0471) occur within a similar landscape context within several hundred metres of PAD S1. Sites QV1 and QV2 are considered to be continuous with registered sites 45-5-0503 and 45-5-0471 (registered on the AHIMS database). Site 45-5-0503 comprises a small scatter of silcrete flakes in a localised erosion scour approximately 180 metres from the rail corridor near the Aerodrome runway. This site is thought to be part of a wider site complex with sites 45-5-0497 and 45-5-0471.
S2	Low rise hill	PAD S2 is impacted by a subsurface electricity cable however, while it is likely to have disturbed the context of any PADs in this area there is still the potential for undisturbed sub surface material to be present across the PAD.
V1	Hill top	Land use impacts in this area of PAD are minimal. Vegetation communities are assessed with good structural integrity, with a species complement characteristic of the pre-European equivalent (refer to Technical Paper 5). As such ground surface disturbance has been minimal. Therefore there is potential for undisturbed sub surface material to be present across the PAD.
V2	Hill top	Two sites QV6 and QV7 are located within PAD V2. Land use impacts in the vicinity of V2 constitute historic land clearance and agricultural practices. An electricity easement cross the PAD near Norwood road, the installation of which is likely to have disturbed the integrity of any potential sub-surface deposits. The impact of this easement is, however, confined in space. Therefore, there is potential for undisturbed sub-surface material to be present across the PAD.
V3	Creek Flat	Several Telstra installations and one sewerage line cross this PAD at varying points. The impact of these services to the integrity of the PAD is linear and confined in space. Other land use impacts within the vicinity of V3 are minimal. While historic land clearance and continued agricultural use of the land will have impacted the top soil to varying degrees in the vicinity of the PAD, archaeological material is commonly found below the plough zone in similar contexts across the Cumberland Plain.

Heritage constraints

Figure 3-23 shows the heritage constraints across the Project area based on the results of the historical research, searches for listed heritage items and the site inspection. The heritage constraints maps identify heritage zones according to the identified archaeological potential and the constraints that these archaeological values present. This concept is discussed further in Technical Paper 4.

Existing rail corridor

Original vegetation clearing, the construction and ongoing maintenance of the rail corridor is likely to have compromised surface and/or subsurface Aboriginal archaeological material within the existing rail corridor. As such, the rail corridor was identified as an area of no heritage constraint (refer Figure 3-23).

Areas of low archaeological potential

Five areas of low heritage constraint were identified throughout the course of the site survey (refer Figure 3-23), comprising the following:

- An area of land located along both the western and eastern boundary of the rail corridor between Quakers Hill Station and the Parkway Overpass. This area is contextualised within a heavily modified urban environment. No archaeological sites were identified and the potential for subsurface archaeological material is low (refer Figure 3-23).
- An area of land located along the eastern boundary of the rail corridor between the Quakers Hill Parkway Overpass and Manorhouse Boulevard. This area contains archaeological sites QV3 and QV4 (refer Figure 3-22). These sites are associated with a testing program undertaken with the DLALC (refer Section 5.6 of Technical Paper 4). As artefactual material has been sampled and collected from this site, this area is considered to be a low heritage constraint (refer Figure 3-23).
- The Project area between Westminster Street and Riverstone Station. This area has been designated with low archaeological potential due to the lack of surface finds and the disturbed nature of this area (the majority of this section of the Project comprises of artificial earthen embankments associated with road works and the rail corridor).
- An area of land located along the western boundary of the rail corridor between Church Street (Riverstone) and Melbourne Street (Riverstone). Infrastructure development associated with both the Meatworks and the rail corridor has resulted in a heavily modified environment, which means that the potential for archaeological material is low (refer Figure 3-23).
- An area of land located along the western boundary of the rail corridor between Melbourne Street (Riverstone) and the proposed site for the new Vineyard Station. This landscape has been significantly modified, through rubbish dumping, creek line modifications, the establishment of an ash road and erosion control measures. This area contains the archaeological site QV5. Archaeological site QV5 comprises an isolated find and is not thought to be associated with any subsurface deposits, owing to land use disturbances.

Areas of moderate archaeological potential

Nine areas of moderate archaeological potential were identified during the field survey (refer Figure 3-23). These comprise PAD areas Q1, Q2, Q3, Q4, S1, S2, V1, V2 and V3 (refer above).

As discussed in Section 4.8 of Technical Paper 4, the state of the soil environment informs the context in which archaeological materials were deposited. The South Creek and Berkshire Park soil landscapes have archaeological potential as they are characterised by frequent occurrences of buried soil landscapes (relict stable land surfaces). The Blacktown soil landscape also has the potential to contain subsurface archaeological remains. The Blacktown soil landscape is a residual landscape, which has essentially remained stable over a long period of time, allowing for the accumulation of artefactual material before burial. As such, land surfaces within the Project area that have been subjected to limited land use and urban development impacts have been identified as PADs (refer section above). PAD V2 contains archaeological sites QV6 and QV7, while the remainder of identified PADs are associated with previously recorded sites.

Areas of high archaeological potential

One area of high heritage constraint was identified during the field survey within the area of PAD identified as QVP (refer Figure 3-23). This area is comprised of archaeological sites QV1, QV2 and previously recorded AHIMS site 45-5-0503. These sites are located along an upper slope in the Project area and, in some instances, comprise extensive artefact scatters. It is likely that these sites are associated with subsurface deposits owing to their geomorphological context and their location in the landscape. High places situated above the floodplain were often selected as camp sites and are likely to contain evidence of repeated use. This translates into larger, more complex archaeological sites as opposed to small-scale episodic sites. The association of archaeological sites QV1 and QV2, and PAD QVP with previously recorded artefact scatters indicate that this landscape once represented an extensive occupation area. This complex may be seen to represent this interconnectedness, as it is an extension of previously recorded sites 45-5-0503, 45-5-0471 and 45-5-0497, which together form a large occupation area. Discussions with stakeholder groups on site indicated that cultural heritage conservation is a priority as too many sites are disappearing. Historically, all Aboriginal sites were ‘joined’ together and may be viewed as a once interconnected cultural landscape.

Figure 3-23a Indigenous heritage constraints within the project area

Note: Project detail shown is indicative only, subject to detailed design.

Figure 3-23b Indigenous heritage constraints within the project area

Note: Project detail shown is indicative only, subject to detailed design.

Figure 3-23c Indigenous heritage constraints within the project area

Note: Project detail shown is indicative only, subject to detailed design.

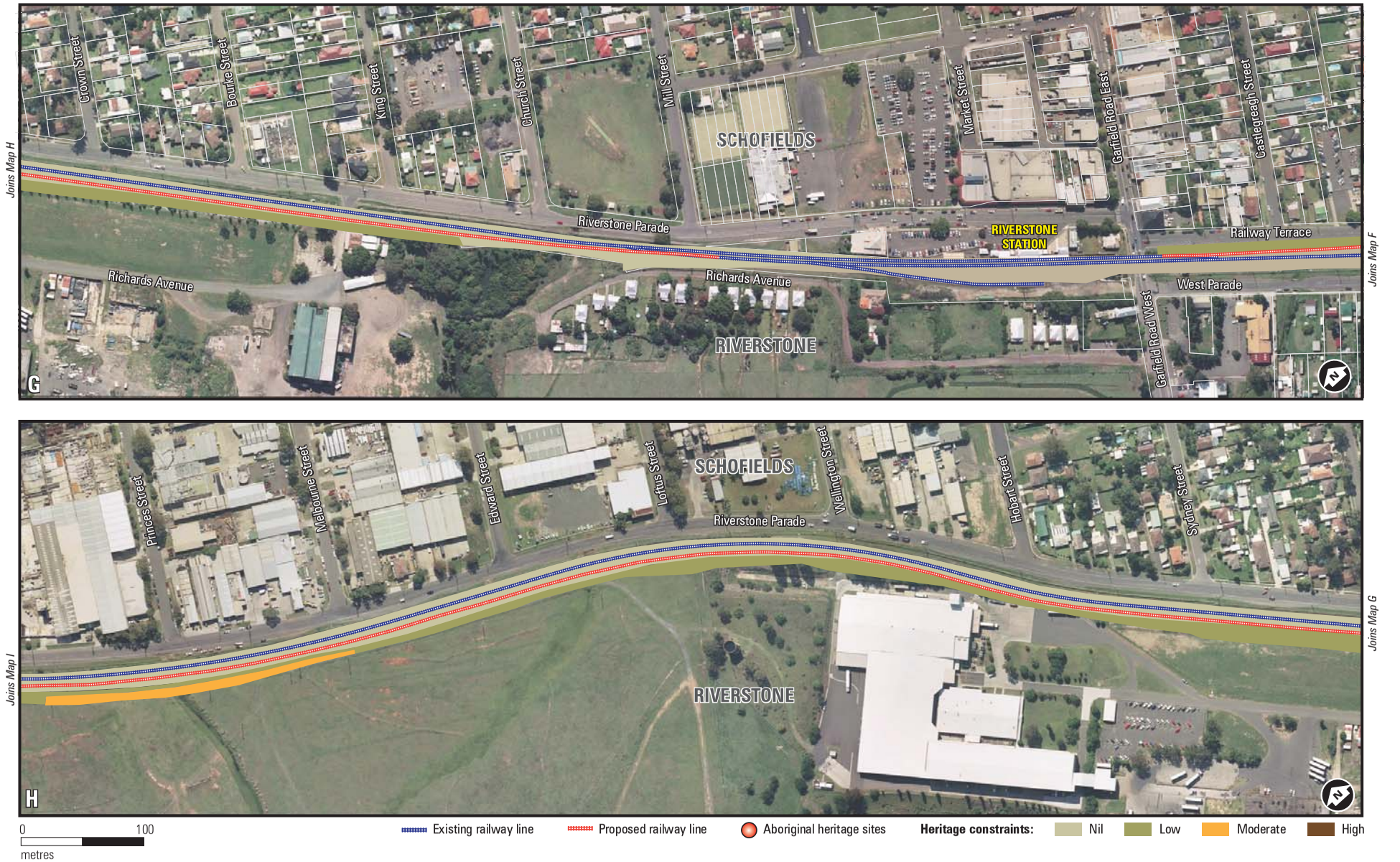

Figure 3-23d Indigenous heritage constraints within the project area

Note: Project detail shown is indicative only, subject to detailed design.

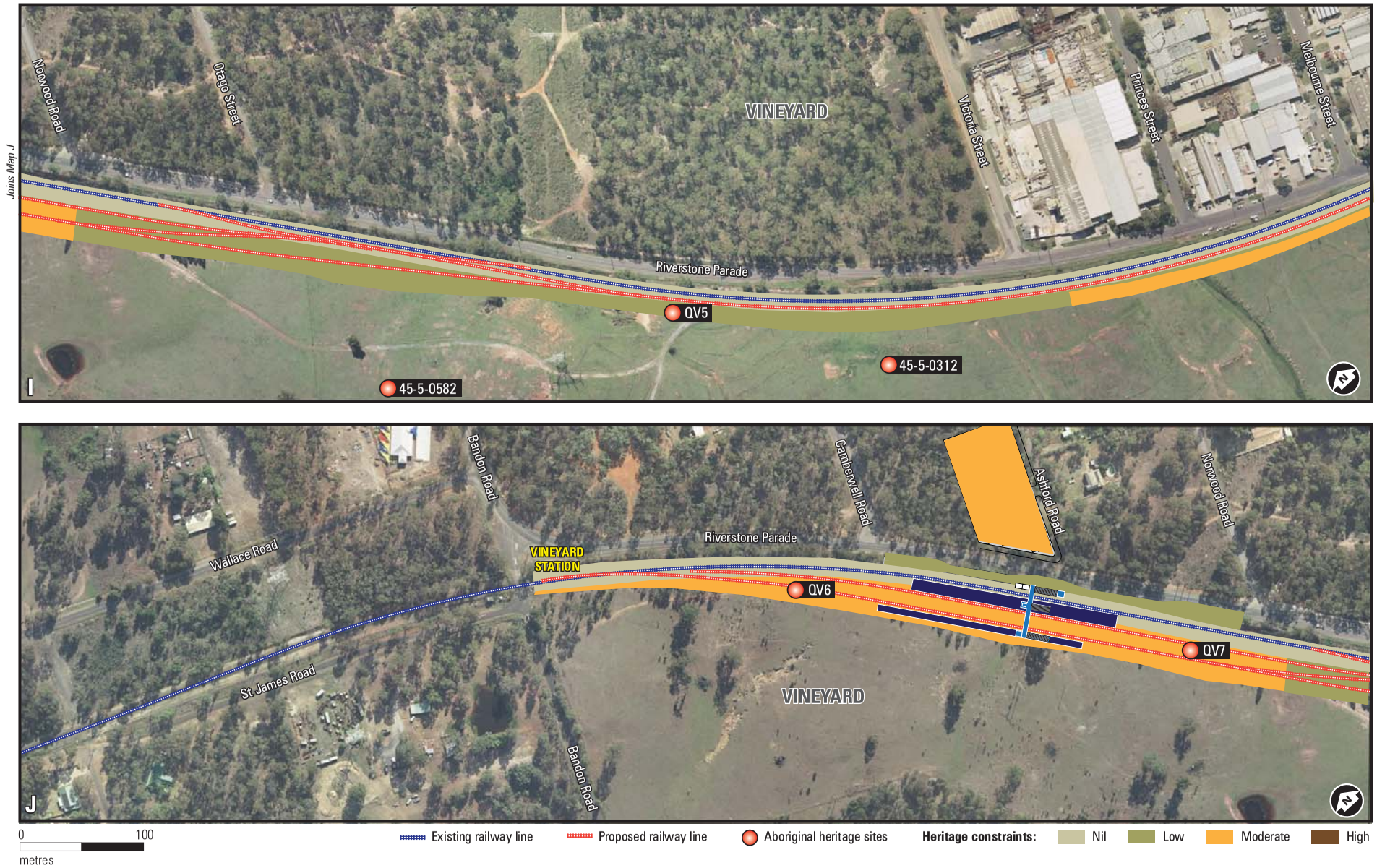

Figure 3-23e Indigenous heritage constraints within the project area

Note: Project detail shown is indicative only, subject to detailed design.

Heritage significance

The presence of archaeological material does not necessarily equate to research potential or archaeological significance. An assessment of significance seeks to understand and establish the importance or value that a place, site or item may have to the community. The assessment of cultural significance ideally takes a holistic approach, drawing upon the response these factors evoke from the community. The Australia ICOMOS (International Council on Monuments and Sites) *Charter for the conservation of places of cultural significance* (the Burra Charter) was formulated in 1979 and most recently revised in 1999. It is the standard adopted by most heritage practitioners in Australia. This assessment uses the adopted criteria to assess Aboriginal archaeological and cultural heritage values in the Project area.

Historical value

No historical associations with 'place' were identified during the course of the review of historic records and archives.

Aesthetic value

Since no social heritage, cultural heritage items or historic associations were identified during the course of the assessment, the study area has no specific aesthetic Aboriginal heritage value.

Social value

The Quakers Hill to Vineyard landscape once formed part of a highly significant region of social and cultural importance to Aboriginal people. Archaeological sites identified in this study provide an important link to this once extensive cultural landscape and are of high social value to Aboriginal people today. Cultural statements regarding the Aboriginal resource within the Project area are located in Appendix D of Technical Paper 4.

Scientific value

Considered individually, archaeological sites QV1, QV2, QV3, QV4, QV5, QV6 and QV7 hold little scientific value. These surface finds do not contribute significantly to the existing archaeological record concerning Aboriginal occupation on the Cumberland Plain, as they simply inform a basic presence or absence of sites in the area. However, archaeological sites QV1, QV2, QV6 and QV7 are associated with areas of PADs QVP and V2. As such, this association has the potential to further inform the archaeological context of these sites.

Archaeological sites QV3 and QV4 are associated with an extensive occupation area, with subsurface deposit. However, as this site has been tested and recorded, no further information can be gained from these finds.