

8. Archaeology & Cultural Heritage

8.1. Introduction

This chapter considers the likely effects on archaeology and cultural heritage interests of the construction and operation of the proposed Glasgow Airport Rail Link (GARL), intended to run between Glasgow Airport and Glasgow Central Station. The scheme areas lie within the administrative areas of Renfrewshire Council and Glasgow City Council.

The specific objectives of the archaeology and cultural heritage study were to:

- Establish the cultural heritage baseline within and adjacent to the scheme areas;
- Consider the scheme areas in terms of their archaeological and historic environment potential;
- Assess the potential impacts of the construction and operation of GARL on heritage resources;
- Define measures, where appropriate, that will be undertaken to mitigate any predicted adverse impacts, and assessing residual impacts taking mitigation into account.

The assessment and mitigation measures have been based upon the project components and route alignment within the Limits of Deviation (LOD) and the Limits of Land to be Acquired or Used (LLAU), as described in Chapter 2 and shown on Figures 4.1 – 4.5.

The GARL Environmental Scoping Report (Faber Maunsell 2005, Section 8) proposed cultural heritage baseline survey and assessment methodologies, which are followed here with some minor adaptations (see section 8.2.3). That document also contained a preliminary appraisal of the baseline conditions, potential environmental effects and the scope for mitigation.

8.2. Methods

8.2.1. Scope of Assessment

Archaeology is the study of the past through the material remains of human activities left behind, be they visible monuments, buried sites or portable antiquities. Cultural heritage is a more encompassing concept embracing historic buildings, townscapes and landscapes, which combine to characterise the historic environment. Heritage resources potentially include features dating from the earliest Holocene human occupation, approximately 10,000 years ago, through to 20th century buildings and townscapes.

The assessment of the impacts of GARL on archaeology and cultural heritage in and adjacent to the scheme has therefore considered:

- Scheduled Ancient Monuments.
- Undesignated sites and areas of archaeological significance.
- Listed Buildings and other features of architectural or historic interest.
- Conservation Areas and other important historic townscape features and areas.
- Historic Gardens and Designed Landscapes and other significant historic landscapes.

There are no Scheduled Ancient Monuments and Historic Gardens and Designed Landscapes within the study area defined for this assessment (Section 8.2.3) and, as the scheme would have no impact on cultural heritage resources designated as such, they are not considered further in this chapter.

The baseline assessment year is 2005. Construction is intended to occur between 2007 and 2009.

8.2.2. Legislative and planning policy framework

8.2.2.1 National Planning Policy

National planning policy relating to archaeology, both scheduled and unscheduled, is set out in National Planning Policy Guideline 5, Archaeology and Planning (NPPG 5), supported by guidance and advice provided in Planning Advice Note 42, Archaeology (PAN 42). PAN 42 indicates that the principle that should underlie all planning decision-making is preservation of archaeological resources, in situ where possible, or as a second-best option by record if destruction cannot be avoided. It is recognised in that document that preservation may not always be possible, and where damage is unavoidable various mitigation measures may be proposed.

The designation and protection of Listed Buildings and Conservation Areas is legislated for by the Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997. Government policy relating to the conservation of the historic environment, including Listed Buildings and Conservation Areas, is stated in

National Planning Policy Guideline 18, Planning and the Historic Environment (NPPG 18). That document stresses that sustainable development is the principle underlying Government policy towards the historic environment, securing preservation of the historic environment whilst accommodating and remaining responsive to present day needs. The obligations of the 1997 Act are also explained in the Memorandum of Guidance on Listed Buildings and Conservation Areas 1998 (Memorandum; published by Historic Scotland). Planning authorities are required to have special regard for the desirability of preserving Listed Buildings or their settings and any features of special architectural or historic importance they possess. The term 'setting' has no definition in the 1997 Act, although the Memorandum advises planning authorities to interpret the term broadly. The Memorandum states that a Listed Building should at all times remain the focus of its setting, and that attention should not be distracted from it by the presence of any new development. Planning Advice Note 71, Conservation Area Management (PAN 71) contains guidance on the assessment of development proposals affecting Conservation Areas.

8.2.2.2 Regional and Local Planning Policy

Regional planning policy is set out in the Glasgow and the Clyde Valley Joint Structure Plan 2000. Strategic Policy 7 requires the protection and enhancement of International, National and Strategic environmental resources including all categories of cultural heritage resource considered in this chapter. The policy states that there will be a presumption against any proposals that could have a significant adverse effect upon these resources, as they would not accord with the Structure Plan. Strategic Policy 9C requires developers to make provision for the excavation and recording of archaeological sites where preservation cannot be achieved.

These principles are reflected in local planning policy relating to the protection and enhancement of heritage resources and the historic environment. The policies relevant to the resources identified within the study area are:

- Renfrew District Council Local Plan 1996, Policies E6-E9, E16.
- Renfrewshire Local Plan Finalised Version 2002 (intended to replace the existing Local Plan), Policies ENV13-15, ENV20, ENV22.
- Glasgow City Plan 2003, Policies HER1-3, HER5.

Further policy information is provided in Chapter 4.

8.2.3. Baseline Survey

A desk-top study and, where land access permission allowed, reconnaissance field survey were undertaken to assess the potential cultural heritage sensitivity of the scheme area and its environs, including the proposed areas of both temporary (LLAU) and permanent (LOD) landtake for the scheme. No intrusive site investigation work was undertaken during the assessment.

The baseline survey was undertaken with reference to the Institute of Field Archaeologists' Code of Conduct and Standard and Guidance for Archaeological Desk-Based Assessment (IFA 2001). Recording and assessment were conducted according to established CFA Archaeology Ltd methods. A full list of all sources consulted is presented in the Appendix to Chapter 8.

8.2.3.1 Study areas

The study corridor width varied along the scheme alignment, reflecting both the character of the townscape / landscape crossed by the proposed scheme and lateral differences in the extent of land use changes that would result from the proposals. The study corridors are considered sufficiently broad as to include any cultural heritage receptors that might be affected by the proposed development.

Around Glasgow Central Station, on the north bank of the River Clyde, the search area has been restricted to the scheme LOD, almost entirely contained within the footprint of the station buildings and associated rail corridor. This is because the minor scheme works proposed are located mostly within the station, and their implementation would have no impact on the setting of the many Listed Buildings present in the streets to the west, east and north of the railway station.

For the Main Line sections between Glasgow Central Station and Paisley St James, and the Elderslie Loop, GARL would be constructed within an existing heavy rail corridor, and it is considered that indirect impacts on cultural heritage sites in the vicinity would be localised. For those scheme areas cultural heritage information has been collated on sites or areas with statutory and non-statutory designations present within c. 100m of the proposed route, and on non-designated sites or areas within or adjacent to the LOD and LLAU areas.

For the Branch Line between Paisley St James and Glasgow Airport a new rail corridor would be created, including structures standing more than 10m above the existing ground level. For this part of the scheme area cultural heritage information has been collated on designated sites or areas present within 500m of the proposed route, to allow potential indirect impacts of the scheme to be assessed more extensively.

The GARL Scoping Report (Faber Maunsell 2005, Section 8.2.1) had indicated that the locations of designated sites present within 1km of the Branch Line would be identified. However, further assessment indicated that as a result of the nature of the townscape setting and the nature of the development and intervening constructions, the presence of the scheme would have no impact on designated sites present over 500m from its alignment. Data was collated on previously recorded undesignated sites or areas present within 200m of the scheme alignment, extended where necessary to include proposed LLAU areas and the proposed new Fuel Farm site. The search for previously unrecorded undesignated sites of cultural heritage significance was restricted to within and adjacent to LOD and LLAU areas.

The study corridor boundary for designated sites, and the extents of LOD and LLAU areas, are depicted on Figures 8.1-8.7.

8.2.3.2 Desk-based assessment

In response to two separate requests for information, Historic Scotland provided in digital, GIS format summary information on Listed Buildings present within the study areas. Information on the St James Link and the Main Line sections was provided on 1 September 2004, with the data for the Elderslie Loop provided on 12 April 2005. It was confirmed in September 2005 through consultation with Historic Scotland that no additional buildings within the study area had since been listed. Glasgow City Council and Renfrewshire Council also provided to Faber Maunsell digital information on the locations and extents of Listed Buildings and Conservation Areas present within the study areas. The extents of Conservation Areas are also depicted on the Proposals Maps within the relevant Local Plans. Additional details of these designated features were obtained variously from the Statutory List of Buildings of Special Architectural or Historic Interest (Statutory List), available through the online Pastmap resource maintained by The Royal Commission on the Ancient and Historic Monuments of Scotland (RCAHMS) and Historic Scotland (www.pastmap.org.uk); the National Monuments Record of Scotland (NMRS); and through the Renfrewshire Council website (www.renfrewshire.gov.uk).

Information on previously recorded unscheduled archaeological sites and monuments and unlisted buildings of architectural or historic interest was obtained from the NMRS and the West of Scotland Sites and Monuments Record (SMR), the latter provided in GIS format by the West of Scotland Archaeology Service (WoSAS). Further information on several of the identified sites was obtained from the SCRAN website (www.scran.ac.uk).

Bibliographic references were consulted to provide background and historical information on the study corridor, with particular emphasis on the proposed Branch Line area. They included historic parish accounts and the Scottish Burgh Survey assessment of Paisley (Simpson and Stevenson 1982). However, no attempt was made within the remit of this study to conduct detailed historical analysis.

Other archival sources were consulted to enhance the cultural heritage baseline, with particular reference to the scheme areas. An assessment was made of vertical aerial photograph collections held by RCAHMS, focussing upon the route of the Branch Line, to detect archaeological sites either buried or with minimal surface relief not readily detectable from normal ground perspective. Photographic runs dating from between 1947 and 1988 were available for examination. Paisley Museum was contacted regarding the location of an 1830s burial ground within what is now St James' Park. Ordnance Survey (OS) maps and other early maps held by the Map Library of the National Library of Scotland and the National Archives of Scotland were examined, to provide information on sites of potential archaeological significance and historic land use changes. Minor items of railway furniture (such as mileposts, signal posts and signal boxes) that are depicted on early OS maps but not on current mapping, and which appear no longer to survive, have not been considered unless recorded as sites within the NMRS and/or SMR.

8.2.3.3 Field survey

A reconnaissance field survey was undertaken within accessible parts of the scheme area to:

- Locate and record the current condition of known archaeology and heritage features and any further features not detected from the desk studies;
- Identify areas along the proposed route with the potential to contain unrecorded, buried archaeological remains;
- Assess the potential impacts of the scheme on those features and areas, and on their settings where appropriate.

Much of the Main Line LOD and LLAU lie within an existing rail corridor or private land, and field survey was restricted by necessity to observation from overbridges and other vantage points along the route. These access restrictions limited the effectiveness of field survey.

Statutorily protected features within the study corridor were visited, or as closely as possible given constraints on entering private land, to assess the potential impacts of the scheme on their settings.

8.2.4. Consultation

8.2.4.1 Scoping Response

Copies of the GARL Environmental Scoping Report (Faber Maunsell 2005) were distributed to Historic Scotland and WoSAS, to introduce them to the scheme and to allow them to provide comments. Historic Scotland commented that it was content with the methodology, information sources, discussion of key features, potential environmental effects and scope for mitigation identified in the Scoping Report, Section 8. WoSAS commented that it was also content that the approaches and methods were suitable for informing the EIA. Renfrewshire Council commented that the approach was acceptable, and noted that any significant archaeological discoveries made should be properly recorded, providing scope for producing interpretative material.

8.2.4.2 Other consultation

Discussions were held with WoSAS to agree the approach to mitigating impacts. WoSAS and Historic Scotland provided comments upon a draft version of this chapter.

8.2.4.3 Assessment Methods

The type of impact of the proposed development on archaeology and heritage interests are assessed in the following categories:

- Direct, where there would be a physical impact on a site caused by the proposed development. Direct impacts may be caused by a range of activities associated with the construction of proposed development features.
- Indirect, where the setting of a site may be affected. Indirect impacts may relate to new development reducing views to or from cultural heritage features with important landscape settings or fragmenting historic landscapes, or may result from increased noise or vibration.
- Uncertain, where there is a risk that the works may impinge on a site, for example when it is not clear where the location or boundaries of a site lie or where the baseline condition of a site cannot be established satisfactorily.

Potential impacts, direct and indirect, were assessed in terms of their longevity and nature (beneficial / neutral / adverse). Beneficial impacts are those that contribute to the value of a receptor through enhancement of desirable characteristics or the introduction of new, positive attributes. Neutral impacts occur where the development can be accommodated comfortably by the receiving environment while neither contributing to nor detracting from the value of a receptor. Adverse impacts are those that detract from the value of a receptor through a reduction in or disruption of valuable characterising components or patterns, or the introduction of new inappropriate characteristics.

The assessment of significance of impacts took into account the importance of the receptor and the magnitude of impact. The importance of archaeological and heritage resources has been assessed principally according to the criteria published in NPPG 5, NPPG 18 and the Memorandum. The main thresholds of archaeological importance defined in NPPG 5 are National Importance, Regional and Local Importance, and Lesser Importance. The Memorandum states that Category A Listed Buildings are of national or international importance, Category B buildings are of regional or more than local importance, and Category C(s) structures are of local importance. Table 8.1 summarises the relative importance of key cultural heritage resources relevant to this assessment, and Table 8.2 defines magnitudes of impact.

Table 8.1 Definitions of Importance of Cultural Heritage Resources

Importance	Site types
International/National	Category A Listed Buildings Outstanding Conservation Areas
Regional	Archaeological sites and areas of distinctive regional importance Category B Listed Buildings Conservation Areas
Local	Archaeological sites and areas of local importance Category C(s) Listed Buildings Undesignated buildings of local historic or architectural interest
Lesser	Other archaeological sites; findspots, sites of former buildings Undesignated buildings of minor historic or architectural interest

Table 8.2 Definitions of Magnitude of Impact

Level of magnitude	Definition
High	Major impacts fundamentally changing the baseline condition of the receptor, leading to total or major alteration of character or setting.
Medium	Moderate impacts changing the baseline condition of the receptor materially but not fundamentally, leading to partial alteration of character or setting.
Low	Minor detectable impacts which do not alter the baseline condition of the receptor materially.
Imperceptible	A very slight and barely distinguishable change from baseline conditions, approximating to a "no change" situation.

Table 8.3 combines these criteria to provide an assessment of whether or not an impact is considered to be significant, as required by Schedule 4 of the Environmental Impact Assessment (Scotland) Regulations 1999.

Table 8.3 Matrix for Assessing Significance of Impact

Magnitude*				
High	Minor	Moderate	Major	Major
Medium	Negligible	Minor	Moderate	Major
Low	Negligible	Negligible	Minor	Moderate
Imperceptible	Negligible	Negligible	Negligible	Minor
	Lesser	Local	Regional	National / International
	Importance			

* Impacts falling within the shaded boxes are considered to be significant.

8.3. Baseline Situation

8.3.1. General

A total of 70 archaeological and heritage sites or areas have been identified by the baseline survey, and are located on Figures 8.1-8.7. The Appendix to Chapter 8 provides detailed information on the character and baseline condition of each site.

The 70 sites or areas comprise:

- 27 Listed Buildings (L1-27), of which 2 are Category A, 18 Category B and 7 Category C(s).
- 2 Outstanding Conservation Areas (C1, C4).
- 2 Conservation Areas (C2, C3).
- 39 undesignated sites or buildings of archaeological, architectural or historic interest (A1-39).

Of the designated sites, two Outstanding Conservation Areas and two Listed Buildings are partly within the scheme areas. There are no Scheduled Ancient Monuments or Historic Gardens and Designed Landscapes within the study areas.

The following sections summarise the cultural heritage baseline along the study corridor in three route sections: the Branch Line corridor; the Main Line corridor including the Elderslie loop; and Glasgow Central Station. Detailed site descriptions are in the Appendices. Numbers in brackets refer to site numbers identified on Figures 8.1-8.7 and listed in the Appendices. The designated names of Listed Buildings are summarised in the following sections; full titles and reference numbers can be found in the Appendix to Chapter 8, by cross-referencing the site numbers in brackets.

8.3.2. Branch Line

One Listed Building (L1) and 14 undesignated sites or areas of cultural heritage significance (A1-13, A15) have been identified within the Branch Line study corridor. All are of 19th or 20th century origin.

8.3.2.1 Airport Zone (Figure 8.1)

The land around Glasgow Airport has been subject to intensive development in recent decades, from both airport-related construction and from the formation of the M8 motorway interchange and other service roads. RCAHMS has identified the former locations of three Second World War pillboxes within this area (A1-2, A4) and two 1930s or 1940s aircraft hangars associated with Abbotsinch Airfield (A3). The hangars were recorded as extant in 2003, but the pillboxes no longer survive. To the north of the M8 and on the west side of the former route of Greenock Road (now St Andrew's Crescent), modern electricity substation buildings occupy the site of two cottages depicted on early OS maps, the northern named Mosside

Cottage (A5). The original route of Greenock Road, as laid out in the second half of the 18th century (to judge from its absence from Roy's map of 1747-55 but its presence on Ainslie's map of 1796), was broken with the post-war expansion of the airport. The road (now the A726) was re-aligned to avoid the airport.

8.3.2.2 St James' Park (Figure 8.1)

Within the scheme area to the south of the M8 is St James' Park (A7). This area has been used for a variety of purposes in recent centuries. An information plaque on site indicates that St James' Park has been used in the past for common grazing, as a racecourse, for mining and as the location for an annual fair. It is currently used as sports pitches.

Early published maps (e.g. Roy 1747-55; Ainslie 1796; Thomson 1826) depict Paisley Moss extending across much of the park's current area. In 1832 many of the victims of a cholera epidemic were buried within the moss (A6; discussed further below). By the mid 19th century, as depicted on the first edition OS map, the land had been improved and was used as a racecourse. The second edition OS map depicts the position of a grandstand within what is now the SE corner of the park, although there are no visible traces of that structure (A7a). There are records of 19th century mining deep beneath the ground surface within and around the park area, which exploited fireclay and ironstone seams present up to 100m below the surface, the last date of working being 1914. A coalmine working also exists 150-170m down, and is recorded as last worked in 1886 (Faber Maunsell 2005a, 37). Vertical aerial photographs taken in 1947 depict what might be a pillbox towards the centre of the park (CPE/SCOT/UK277, frame 5467), which by that time had ceased to be a racecourse. That structure is no longer visible (A7b).

Within the northeast corner of St James' Park is the recorded site of a burial ground for the victims of the cholera epidemic of February 1832 (A6). A total of 446 people in Paisley lost their lives to cholera (e.g. Brown 1884, 276-86; Rowand 1993, 15), the majority of whom were laid to rest in this burial ground. A handbill issued by the Magistrates of Paisley on 18 February 1832 indicated that due to the lack of space in existing graveyards in Paisley a portion of the Community's lands near the toll-bar on Greenock Road had been set aside for the expected cholera victims. A report issued by a Committee of Inspection on 26 March 1832, which rebutted public accusations of widespread interference with graves by 'resurrection men' allegedly working for local doctors, indicated that the burial ground was located "in the Moss of Paisley, near to the Toll-house on the Greenock Road".

Paisley suffered outbreaks of cholera and smallpox in 1834, which carried off 140 and 61 people respectively, and further outbreaks of cholera in 1848 and 1854 caused respectively 191 and approximately 50 fatalities (Brown 1881, 286; NSA 1845, 145). It seems possible that some of the victims of these outbreaks were laid to rest in the same burial ground, although none of the 19th century documentary sources examined specifically confirmed that.

An information plaque standing at the SE corner of St James' Park indicates that the burial ground site is located within the playing fields opposite 172-176 Greenock Road. The potential site area shown on Figure 8.1 is as identified on a map provided by Renfrewshire Council depicting the location of the graves of cholera and smallpox victims. It is based upon information produced in the 1960s, at the time of the construction of the M8 motorway. The area corresponds with a field numbered 14 on the first edition OS map, in the NE corner of which the map records the toll-house. However, Brown's (1884, 281) account of the epidemic states specifically that "The burying-ground was at the extreme west end of the field in which the toll-house stands, and is No. 14 on the Ordnance map". Assuming Brown's testimony to be accurate, his evidence may place the burial ground outside the scheme area, somewhere beneath the M8 and associated roads (as hatched indicatively on Figure 8.1). However, no human remains are reported to have been discovered during the construction of the motorway.

Based upon the documentary evidence examined, the potential burial ground location is to be treated as approximate, as the precise locations of the graves, and their current condition, are not known. However, it seems likely that the burial site lies outside the scheme LOD. The second edition map depicts the toll-house building, by that time enlarged. It no longer survives.

Previous ground investigation works indicate that drift deposits within the park comprise 0.55-1.9m of made ground (black ash and topsoil) over dark brown spongy peat varying in thickness between 1.15m and 1.9m (Faber Maunsell 2005a, 36), and further works undertaken as part of the works also revealed buried peat at the southern boundary of the playing fields. The peat formation may relate to the former Paisley Moss, within which any graves are likely to have been buried. Therefore any graves present within the scheme area may be sealed beneath the made ground that may have been deliberately dumped in the 19th century to raise the ground level and create firmer conditions required for the use of the land as a racecourse. However, this interpretation is not certain.

8.3.2.3 Industrial zone: McFarlane Street to Murray Street (Figure 8.2)

Between the existing railway corridor and St James' Park the scheme area crosses a heavy industrial zone with later 19th century origins. The area is recorded on early maps (e.g. Thomson 1826) and the first edition OS map as open fields, although with a road network depicted that can be discerned as Greenock

Road, McFarlane Street, Clark Street, Murray Street and Greenhill Road. By contrast the second edition OS map shows the study area to have been substantially infilled by a series of industrial properties including the Abercorn Rope Works (A8), the Caledonian Fireclay Works (A9), a starch works (A10), a 'hot house' works (A12), and a series of railway sidings and goods sheds on the south side of Murray Street. Little of these original industrial features remains as visible structures.

The Abercorn Rope Works (A8) was founded in 1884, closed in the 1970s, and was subsequently largely demolished. The land to the west is currently in use partly as a builder's yard, although to the east a building fronts Clark Street and appears to be the same structure as that depicted on the second edition OS map as forming part of the rope works (A8a). The site was not inspected in detail and it is possible that other fragments of earlier usage have survived. The fireclay works on Clark Street (A9) have been demolished, and the site is now occupied by modern industrial units. The starch works (A10) and engineering works (A12) on Murray Street have also been demolished. Adjacent to the former starch works site on Murray Street is a series of brick buildings that were used latterly as a cooperage, but may originally have been a weaving factory (A11). The second edition Ordnance Survey map depicts a firewood factory at this location, although the buildings mapped by that source are not necessarily those that currently occupy the site. In the angle between Murray Street and the railway is the site of the former Caledonia Lane Cottage (A13), as depicted on early OS map editions. Of these sites, the rope works site (A8), part of the former starch works site (A10) and cottage (A13) lie within the scheme areas.

Of 20th century industrial origin is the Category B listed factory warehouse on Greenhill Road (L1). This 1930s 3-storey rectangular-plan, flat-roofed factory building was erected by George Dobie and Son, makers of Four Square cigarettes at the factory. Its main façade is to the west, along Greenhill Road, and is best viewed from the south. It was added to the north of an earlier mid-19th century building that once stood at the corner of Clark Street and Greenhill Road (depicted on the second edition OS map but now demolished). The tobacco works closed c. 1955 (Rowand 1993, 38) and by 1971 the complex was in use as a carpet factory. A single-storey shed stands to the east of the 1930s building, but was not inspected at close quarters. Other buildings to the north of the factory building appear to be of more recent origin. The NMRS makes reference to the Caledonia Engineering Works on Murray Street, which are not depicted on the second edition OS map and are now demolished (A15).

8.3.2.4 Archaeological Potential, Branch Line

Intensive modern development suggests that the scheme areas within the developed airport zone have low or negligible potential to preserve buried and currently undetected archaeological remains of significance. By contrast, it is considered that the proposed fuel farm site and St James' Park have moderate or good potential to preserve such remains, which at least in the latter case may be relatively deeply buried beneath modern made ground.

Intensive modern industrial land-use between McFarlane Street and Murray Street has probably reduced the potential for the archaeological remains of pre-industrial features to survive. However, previous ground investigation works in the area indicate that, as in St James' Park, peat formations 1-1.85m thick are present beneath made ground (topsoil, ash and rubble) up to 1.45m thick (Faber Maunsell 2005a, 36). Where such buried land surfaces still survive they have, depending upon their antiquity, the potential to contain or cover features of archaeological significance. It is possible that fragments of standing features and buried remains relating to 19th century industrial works survive within the scheme area, in land not accessible for detailed field survey, and that this zone retains industrial archaeological interest.

8.3.2.5 Main Line

For the most part the scheme LOD areas along the Main Line are contained within the existing rail corridor. Some additional small areas of land within Paisley are contained within the scheme areas, and construction compound sites have been identified at other locations adjacent to the route, and are depicted on Figures 8.2-8.5.

The existing railway was first opened c. 1840 as the Glasgow and Paisley Joint Railway, and has been expanded and much modified since.

8.3.2.6 Paisley St James to White Cart Water (Figure 8.2)

Within this section of the study corridor, which runs from the northwest edge of Paisley to the centre of the town, are one Outstanding Conservation Area (C1), 18 Listed Buildings (L2-10, L12-20), and three undesignated sites (A14, A16-17). All features are of late 18th century or more recent origin.

Part of Paisley, The Cross and Oakshaw Outstanding Conservation Area (C1) extends into the study corridor around Oakshaw Hill, from where extensive views can be obtained northwards across Paisley and beyond, and around Gilmour Street. It extends into the scheme areas around Paisley Gilmour Street Station (L12). The Category B listed elevated railway station was built c. 1840 for the Glasgow and Paisley Joint Railway, was extended to the east c. 1890, was refurbished in the 1990s, and remains in use. The extent of the listing as depicted on Figure 8.2 is derived from GIS information supplied to Faber Maunsell

by Renfrewshire Council, who interpreted the extent of the listing from information produced by Historic Scotland. Other Listed Buildings within the study area that also lie within the Outstanding Conservation Area comprise a series of early 19th century houses and a former church building of late 18th century origin, listed variously Category B (L13) and Category C(s) (L14-18). They stand broadly south-facing on the north side of Oakshaw Street, on the crest of Oakshaw Hill. There appear to be extensive views northwards across Paisley and beyond from the rear of these buildings, although those private garden areas were not visited.

Along the railway line to the northwest of Paisley Gilmour Street Station, but outside the scheme areas, is the Category B listed, triple-arched c. 1840 railway viaduct running on a markedly skew alignment over Underwood Road (L3). Other Listed Buildings present within the study area south of the Main Line consist of the Category B listed St James Church on Underwood Road (L2), built in the 1880s and towering over the adjacent retained railway embankment; the Category B Head Post Office building in County Square (L19), standing adjacent to the railway station; and an 1830s 3-storey terrace on County Place nearby, also listed Category B (L20). To the north of the Main Line are early 19th century tenements on Caledonia Street (L4-5); early 19th century houses on Moss Street (L9-10); late 19th century municipal buildings consisting of the Sheriff Court House and Procurator Fiscal's Office on St James Street (L6-7); and a late 19th century welfare office block on Maxwell Street (L8). Of these, one is listed Category A (L6), one Category C(s) (L5), and the remainder Category B.

Paisley St James Station is recorded in the NMRS (A14). It is depicted on the second edition OS map, and remains in use. The site of a former mineral depot (A16), which closed in the 1970s and has since been partly redeveloped, projects partly into the scheme area north of Underwood Road. To the north of the railway line is a curving ramped embankment, supporting a cobbled road providing access to the upper level of the railway station and incorporating arcaded recesses in the embankment beneath (A17). It was built in the later 19th century on the site of an earlier timber yard, and possibly as part of the c. 1890 extension of the Gilmour Street station. It is now used as staff access to the railway station, with the land contained within the embankment used as a car park.

8.3.2.7 White Cart Water to Penilee Road (Figures 8.2-8.4)

Within this route section the scheme runs from the centre of Paisley, through its eastern suburbs of principally 20th century housing estates at Gallowhill and Whitehaugh, but with some earlier residential areas around Greenlaw, before crossing between a belt of agricultural land around South Arkleston and Barshaw Golf Course. One Conservation Area (C2), four Listed Buildings (L11, L21-23), and seven undesignated sites or areas of interest (A18-23, A36) have been identified within the study area.

On the south side of the Main Line is Paisley Greenlaw Conservation Area (C2), a predominantly residential area that developed as an elegant inner suburb on the eastern edge of Paisley during the 19th century. Listed Buildings present within the Conservation Area and the study corridor consist of St Mirin's Roman Catholic Cathedral (L22), built in the 1930s on the site of an earlier church of the same name, and a later 18th century outbuilding of Greenlaw House, now a garage at 38 Mansionhouse Road (L23). West of the Conservation Area is St Mirin's Old Academy (L21), a late 19th and early 20th century terraced group of school and residential buildings. On the north side of the Main Line, and outside the Conservation Area, stands the Wallneuk Church on North Croft Street (L11). This Perpendicular Gothic church was built 1913-15. There are buildings present between the church and the Main Line, which substantially obstruct visibility between the two.

Undesignated sites within and immediately adjacent to the scheme area include areas of former buildings recorded on early OS map editions but no longer present, including saw mills beside Incle Street (A18, A20), and properties lining both sides of Wallneuk (A19). There are no traces of these former buildings, and one site (A20) shows evidence of recent demolition works. A 4th century AD Roman coin (A36) was discovered prior to 1963 during groundworks at the site of a former Roman Catholic chapel, which stood just outside the scheme area to the north of Incle Street.

A 19th century signal box (A21) controlling the Paisley Goods Station once stood beside the railway close to Gallowhill Road, but was demolished in the 1960s (along with the Goods Station). The only visible structure of interest is the Arkleston Bridge (A22), a substantial single-arch masonry bridge built in the later 19th century to carry Arkleston Road over the railway, at that point in a deep cutting. In 2003 trial trenching around South Arkleston Farm revealed buried evidence of cultivation furrows and a narrow drainage ditch (A23), along with artefacts of 18th-19th century date, in the agricultural land adjacent to the railway cutting. The first edition OS map records the presence of a roofed building within the area of trenching, located to the south of the farm but connected to it by a track (A23a). The building is not recorded on later OS editions and is not visible within arable land.

8.3.2.8 Penilee Road to Shields Junction (Figures 8.4-8.5)

Within this route section the scheme runs through a townscape characterised by 20th century housing and industrial estates, with 19th and early 20th century residential areas present at Ibrox and Bellahouston. One Listed Building (L24) and twelve undesignated sites of interest (A24-35) have been identified within

the study area. The very northeast corner of Dumbreck Conservation Area (C3) extends into the study corridor, but not into the scheme area.

Several railway-related features are present within the scheme areas. The NMRS makes reference to the modernised stations at Hillington West (A24) and Hillington East (A25). Cardonald Station (A27) was opened in 1879 and extended in 1890, but as a result of subsequent modernisation retains little of its original character. A little to the west of the station is the site of a signal box now occupied by a modern construction, possibly an automated signal box (A26). Further east is the site of the former Ibrox Station, recorded on the second edition OS map as comprising platforms, overbridge and two other buildings. This station is no longer extant, although what may be the remains of a platform are visible on the north side of the railway line (A30).

Adjacent to the scheme area to the west of the M77 are Craigton Cemetery (A28) and the gasholder station on Helen Street (A29), both of which are extant. At greater remove is the 1860s Bellahouston Parish Church and associated hall (L24), listed Category B, which stand on the opposite side of the M8 motorway from the Main Line, in this area running within a cutting.

An area of industrial archaeological interest is present within Kinning Park, to the east of the M77 motorway. The site of a former flourmill and latterly a jam and confectionery works, has now been redeveloped (A31). Adjacent to this is the site of the extensive Clutha Works complex, incorporating variously a lead works, foundry and crane works (A32-33), as depicted on the second edition OS map. Elements of the complex survive, but much has been demolished and replaced by modern industrial units. Adjacent to the Clutha Works site is a large warehouse recorded by the NMRS (A34). The character of the industrial landscape at Kinning Park has been much altered by 20th century developments. A proposed construction compound site occupies the site of the former Vulcan Tube Works (A33), now (and apparently recently) demolished and the site levelled and vacant.

The route of the former Paisley and Johnstone canal (A35) runs through the study area within developed land at Academy Park and along the south side of the railway corridor at Shields Junction, although field survey of accessible areas revealed no visible trace of it. An Act of Parliament was obtained in 1805 to construct a canal linking Glasgow, Paisley and Ardrrossan, with the intention of transporting goods from Ardrrossan Harbour into Glasgow Tradeston. Construction commenced in 1807, and navigation between Glasgow (Port Eglinton) and Paisley commenced in 1811 (A35). The section between Johnstone and Ardrrossan was never built. The canal was used to transport both goods and passengers, the latter on three horse-drawn gig-boats that could carry up to 100 passengers each (NSA 1845, 277-9). Its route is depicted on the first edition OS map coverage dating from the late 1850s. However, the economic basis of the canal as a transport corridor was undermined by the opening of the Glasgow and Paisley Joint Railway in 1840. In 1843 passenger and freight usage of the canal ended, in return for the canal owners receiving an annual payment from the railway company. The canal was drained shortly after 1881 to make way for the Glasgow and South Western Railway (Rowand 1993, 45). The second edition OS map does not depict the canal.

8.3.2.9 Elderslie Loop (Figure 8.7)

Three features of cultural heritage interest have been identified within the Elderslie scheme area. A short length of the former Paisley and Johnstone canal (A38; discussed above) is depicted on the first edition OS map crossing beneath the railway line (A38a) and adjacent Paisley-Johnstone road (A38b). There is no trace of the canal within the scheme area. Two railway-related features consist of an underpass beneath the railway (A39), which probably formed an original element of the railway and still survives, and the site of Canal Street Station (A37). The second edition OS map depicts the site of a railway station at this location, comprising three buildings, opposing platforms and connecting overbridge. By the time of the 1914 OS edition the earlier station had been demolished and a new station built further west (A37a), consisting of opposing platforms, each with roofed building, and new connecting overbridge. The remains of the masonry-built southern approach to the replacement overbridge survive to the south of the scheme area.

There are no designated features of cultural heritage interest present within the wider study area at this location.

8.3.2.10 Archaeological Potential, Main Line

The scheme LOD lies very substantially within existing rail corridors, which are considered to have low or negligible potential to preserve the remains of currently undetected archaeological remains, although it is possible that undetected features of industrial archaeological interest relating to the early railway development survive. Some of the construction compound sites are also located within the existing railway corridor, or along former branch lines. The LLAU area in Barshaw Golf Course has the potential to contain buried archaeological remains. The LLAU area beside Fifty Pitches Road is currently a recently landscaped road verge, and contains negligible archaeological potential.

The Main Line passes to the north of the medieval core of Paisley burgh, which focussed upon High Street and Causewayside (Simpson and Stevenson 1982), and intersects the area of the 18th century suburbs of Old Sneddon and Wallneuk (ibid, 5). Most of the scheme areas are restricted to the existing railway viaduct, where the proposed works would have no impact upon archaeological resources. However, certain small parts of the scheme areas extend beyond the viaduct on the east bank of the White Cart, in areas with the potential to contain buried archaeological remains relating to the historic development of the burgh of Paisley. The Scottish Burgh Survey (Simpson and Stevenson 1982) identified the land between Smithhills Street and Incle Street, on the east bank of the White Cart, as an 'area of archaeological priority', to be examined when development proposals arise. That area was defined on the basis that it might contain archaeological evidence of historic land use prior to the feuing and development of the land in the 18th century (ibid, 12). An area of scheme LOD (partly identified as A18) falls within this sensitive zone. The scheme area to the north of Incle Street is also located just outside the likely former limit of the Paisley Abbey precinct (partly shown on Figure 8.2), as interpreted by Malden (1993, 6).

8.3.3. Glasgow Central Station (Figure 8.6)

Within the study area around Glasgow Central Station are three Listed Buildings (L25-27), and an Outstanding Conservation Area (C4).

Central Station is listed Category A (L27), the designated area including the station building, associated hotel, railway bridge over the River Clyde and an area on the south bank of the River (based on Glasgow City Council GIS information). The station was first opened as the Caledonian Railway Station in 1879, and was extended to provide 13 platforms 1899-1905. The hotel is a 5- and 6-storey and attic building in French Renaissance style with a massive corner tower, completed in 1883 and extended in Hope Street 1905-7. Below the main station is the Low Level Station, opened in 1896, closed in 1964 and re-opened in 1979. The station is supported by an undercroft that houses offices, shops and stores. The railway bridge over the River Clyde was built 1899-1905 and is of steel with granite piers, each founded on five steel caissons. It was built alongside an earlier bridge dating from 1875-8 (largely demolished 1966-7, with only piers and cast iron arches surviving). The station is a nationally important example of large-scale railway architecture.

The road bridges spanning the River Clyde to either side of the Central Station railway bridge (discussed above as part of L27) are both listed Category B. To the west stands the King George V Bridge, built in the 1920s, with three segmental arches (L25). To the east is the Jamaica Street Bridge, a seven-arched masonry construction with granite facing built in the 1890s and replacing an earlier Telford bridge of 1836 (L26).

Central Station and the Jamaica Street Bridge stand within the Central Glasgow Outstanding Conservation Area (C4).

8.3.4. Assessment of Importance of Cultural Heritage Features

Using the criteria detailed in Section 8.2.3 and Table 8.1, the Appendix to Chapter 8 contains an assessment of the importance of each cultural heritage site listed.

Outstanding Conservation Areas (C1, C4) are considered to be of National Importance, and Conservation Areas are of Regional Importance (C2-3). Category A, B and C(s) Listed Buildings (L1-27) are individually of National, Regional and Local Importance respectively.

Undesignated features are of Lesser or Local importance. Locally important features include St James' Park (A7) and associated burial ground (A6), industrial sites with surviving structural elements (A8, A11, A29, A32, A34), examples of distinctive railway architecture (A17, A22, A39), hangars at Glasgow Airport (A3), and Craigton Cemetery (A28). The Paisley and Johnstone Canal, although poorly preserved, is considered to be of local historical interest (A35, A38).

A considerable number of sites have been identified as being of lesser importance. These include an artefact findspot (A36) and a previous excavation site (A23). The sites of former pillboxes (A1-2, A4), 19th century housing (A5, A13, A19), 19th and 20th industrial or commercial premises (A9-10, A12, A15-16, A18, A20, A31, A33), all now demolished, are considered to be of Lesser Importance, although it is possible that buried remains of industrial archaeological interest may survive at locations where the land was not re-developed following demolition. Existing railway features of little architectural interest (A14, A24-25, A27) and other former railway structures no longer surviving (A21, A26, A30, A37) are also of Lesser Importance.

8.3.5. Future Baseline Conditions without GARL

It is not possible to predict future baseline conditions of most cultural heritage features accurately. Assuming that no land development takes place, baseline conditions of archaeological sites are likely to remain broadly unchanged. The conditions of Listed Buildings and their settings, and other structures of architectural or historic interest, may change as a result of alteration, extension or demolition.

8.4. Construction Effects

8.4.1. Potential Impacts

Most construction impacts upon cultural heritage resources are permanent in nature, e.g. ground-breaking works that would cause direct impacts on heritage features, or the erection of development features that would cause indirect, visual impacts. Such impacts are considered in the Permanent and Operational Effects section below. However, certain construction impacts may be temporary in nature and affect the settings of cultural heritage receptors. These relate, for example, to the effects of increased visual intrusion (e.g. through the presence of construction works and construction compounds, or the erection of temporary structures), dust, construction noise and vibration upon receptors in the immediate vicinity of the development works.

Based upon the nature of the proposed works (Section 2), the following receptors are most likely to receive indirect construction impacts:

- Four Square tobacco factory warehouse (L1).
- Glasgow Central Station (L27).

These impacts would arise at the same time as the permanent impacts considered in Section 8.5.

The construction works would not cause material temporary adverse impacts on the character or setting of the Conservation Areas (C1-4). No other identified cultural heritage feature would receive a temporary construction impact. Along the Branch Line the features do not have settings that would undergo temporary impacts as a result of construction works, whereas the limited scale of the proposed works along the Main Line is unlikely to give rise to visual or noise impacts that would affect the settings of adjacent features.

8.4.2. Mitigation

There are no practical means of reducing the temporary impacts of the construction works on the settings of the receptors identified above.

8.4.3. Residual Impacts

The construction works to the rear of the Four Square tobacco factory (L1) would have a temporary adverse impact on its setting. However, views of the principal west façade of the building would not be significantly affected. On this basis it is considered that the impact would be of low magnitude, leading to a minor adverse and non-significant impact.

The presence of the construction works within Glasgow Central Station (L28) would have low magnitude impact on the setting of the station complex as a whole, leading to a moderate adverse and significant temporary impact arising.

8.5. Permanent and Operational Effects

8.5.1. Assumptions

The assessment of permanent and operational effects is based upon the scheme design within the LOD and LLAU, as described in Chapter 2 and depicted on Figures 4.1 – 4.5.

In the assessment of indirect impacts, primarily visual factors have been taken into consideration. As regards cultural heritage receptors, noise impacts are unlikely to be significant along the Glasgow Central and Main Line sections of the route, as the scheme would be constructed within an existing rail corridor. Potential noise and vibration impacts of the operation of the scheme are considered further in Chapter 13.

8.5.2. Potential Impacts

8.5.2.1 Direct impacts – Branch Line

The following cultural heritage features along the Branch Line may receive direct adverse impacts from the construction of the scheme:

- The 19th century burial ground (A6) could lie at least partly within the scheme area, and might be disturbed by the construction of the viaduct across St James' Park. However, some documentary evidence suggests that the burial ground likely lies outside the scheme LOD (Section 8.3.2.2).
- Construction activities within St James' Park may disturb features relating to the recorded past uses of that area, including the racecourse (A7).

- The branch line viaduct would be built across the site of the Abercorn Rope Works (A8), of which some buildings appear to survive immediately adjacent to the route alignment and outside the scheme area, and other fragments may survive within the LOD.
- Part of the site of the former starch works (A10) lies within the LLAU adjacent to Murray Street, and ground-disturbing works in that area have the potential to disturb and foundations or other associated buried remains. There would be no direct impact on any surviving buried remains of this site if no ground-breaking construction activities were to take place within this LLAU area.

The construction of the Branch Line may disturb buried and currently unidentified archaeological remains present along the Branch Line route, in particular within St James' Park and the proposed fuel farm site, but also possibly in the industrial zone between McFarlane Street and Murray Street. The archaeological potential of this route section is considered in Section 8.3.2.4.

The sites of the cottages at Mosside (A5) and Caledonia Lane (A13) lie at least partly within the scheme areas, but the buildings have been removed by their demolition and the subsequent re-development of the sites. No impacts are predicted. The site of a former pillbox lies within an area of LLAU in St James' Park to the north of the M8 motorway (A4), but will receive no impact as no ground-disturbing construction activities are planned for that area. All other sites within the branch line study corridor lie outside the scheme area, and no direct impacts would occur (A1-3, A9, A11-12, A15).

8.5.2.2 Direct impacts – Main Line

Potential direct impacts are predicted within the scheme area along the Main Line section include where:

- New track would be laid to the east of Gilmour Street Railway Station (L12), extending into an area interpreted by Renfrewshire Council as part of the listed area of the station, and also within the Paisley, The Cross and Oakshaw Outstanding Conservation Area (C1). The viaduct upon which the train tracks run would not be altered, and there would be no impact on the character of the Outstanding Conservation Area.
- A construction compound site at Kinning Park would occupy the former site of the Vulcan Tube Works, now demolished (A33). It is possible that any surviving buried remains could be disturbed by any ground-disturbing construction activities that take place. There would be no direct impact on buried remains if the construction compound were to be used without requiring ground-breaking works.
- Within the scheme areas to either side of the railway viaduct in Paisley, on the east side of the White Cart (A18-20), the construction of the scheme has, depending upon the nature of the construction activities, the potential to disturb archaeological remains. Archaeological remains present in those areas are likely to be of buildings and associated features relating to the historic development of the burgh of Paisley. There would be no direct impact on buried remains at these locations if the construction activities do not require ground-breaking works. Construction works on the viaduct itself would have no impact on archaeological resources.

The construction of the scheme along the Main Line section has, depending upon the nature of the construction activities, the potential to disturb buried and currently unidentified archaeological remains within the proposed construction compound at Barshaw Golf Course. There would be no direct impact on any buried remains present if the construction compound were to be used without requiring ground-breaking works. Other construction compounds sites along the Main Line have minimal potential to contain buried remains of archaeological significance. The varying archaeological potential along the Main Line route is considered in Section 8.3.2.10.

There would be no impact on the Paisley Goods Signal Box (A21), since the structure has been demolished and no longer survives. All other cultural heritage sites either lie outside the scheme areas (L2-11, L13-24; C2-3; A14, A17, A23, A28-29, A31-32, A34-36) or at least partly within the scheme areas but at locations that would be unaffected by the proposed works (A16, A22, A24-27, A30, A37-39), and no direct impacts would occur.

8.5.2.3 Direct impacts –Glasgow Central Station

There would be a direct impact on the Category A listed railway station (L27), which lies within the Central Glasgow Outstanding Conservation Area (C4), as a result of the construction of a new platform and associated modifications. A new single track would be constructed on the western approach to the station, passing through the western entrance arch, and would terminate at a new platform 11A, between the existing platforms 11 and 12, to be formed by modification of an existing underused platform. New overhead line electrification wires would be required. Formation of the new platform would require the loss of existing car parking within the station, between platforms 11 and 12, and the construction of decking over the down ramp of the underground car park, necessitating changes to vehicular access arrangements. Some strengthening of the undercroft and the Argyle Street Bridge may be necessary.

The road bridges over the River Clyde (L25-26) would not receive a direct impact.

8.5.2.4 Indirect impacts

The settings of the following cultural heritage sites would be affected by the presence and operation of the scheme:

- The Four Square Tobacco factory (L1), through the presence of the viaduct running across Clark Street and to the rear of the building.
- Glasgow Central Station (L27), through the presence of the new platform and associated modifications to the character of the station.

As a result of the minor changes to the baseline environment along the Main Line sections and at Glasgow Central Station, the presence of the scheme would not cause any perceptible impact on the character or setting of the Conservation Areas (C1-4). No other identified cultural heritage feature would receive an indirect impact from the scheme. Along the Branch Line the features do not have settings that would undergo impacts through the presence of the scheme, whereas along the Main Line the presence in certain sections of a new rail line and modified OLE within the existing rail corridor would have no measurable impact on the settings of adjacent structures.

8.5.3. Mitigation

The preferred mitigation strategy is to preserve in situ and in an appropriate setting all cultural heritage resources. The following mitigation measures are proposed to address the potential impacts outlined above, and are designed to comply with the planning policies set out in Section 8.2.2:

- Field survey of the scheme area between McFarlane Street and Murray Street, with photographic and standing building survey of any features of industrial archaeological interest that survive and that would be disturbed by the construction of the scheme, in particular relating to the Abercorn Rope Works (A8).
- Design of the proposed alterations to Glasgow Central Station (L27) to a specification and finish that would respect the character and setting of the Listed Building, in accordance with the design standards set out in Glasgow City Plan Policy HER3, as required by Policies HER1 and HER2, and with the guidance set out in the Memorandum. Prior photographic recording will be undertaken of those areas to be altered.
- An archaeological field evaluation to be conducted within land proposed for ground disturbance during construction works that is presently undeveloped and/or has the potential to preserve buried archaeological remains. The principal areas for evaluation comprise St James' Park and the proposed fuel farm site. Machine trial trenching would examine a minimum of 5% of those proposed development areas. This evaluation work would be undertaken prior to the commencement of construction works, to establish the presence, extent, depth, date, function, condition and quality of any buried archaeological remains present within those areas. This work would include examination of that part of the potential area of the 19th century burial ground present within the scheme area (A6) and other features in St James' Park (A7). Archaeological evaluation would also be conducted in any area proposed for disturbance adjacent to the rail corridor in Paisley, on the east bank of the White Cart (A18-20).
- Further mitigation responses to be developed as appropriate to the results of the evaluation, such as preservation in situ of significant remains, set-piece excavations, or conducting watching briefs during construction works. There may be opportunities for preservation in situ of significant archaeological remains discovered in the LLAU, depending upon the nature of the construction activities proposed for those locations. It is also possible that opportunities for preservation in situ will arise within the Branch Line LOD, for example where remains could be buried beneath the embankment or preserved between viaduct foundations.
- If the burial ground (A6) were to be detected within the scheme area and could not be preserved in situ, all burials within areas proposed for disturbance would be fully excavated and arrangements made for their reburial at an appropriate alternative location agreed with Renfrewshire Council, following appropriate scientific analysis. Any excavation of human remains should be carried out following the policies outlined by Historic Scotland (1997) and the Church Archaeology Human Remains Working Group (CAHRWG 2004), in a sensitive and respectful manner and in accordance with Scots Law (Logie 1992), and taking into account local community and family wishes. The potential for study of post-medieval skeletal remains is high, as so few large groups have been available for study (e.g. Mays 1994). If the individuals are buried with any form of identification (whether name-plates or documentary records) this potential is greatly increased (English Heritage 2004). Appropriate osteological and palaeopathological analysis is therefore recommended.
- Archaeological watching briefs to be conducted during construction ground-breaking works in the areas of archaeological interest, including the sites of the Abercorn Rope Works (A7), and the former starch works (A10). Provision would be made for the full recording of remains of archaeological significance discovered during the watching briefs. In the event that the burial ground (A6) was not located by the field evaluation, a watching brief would be conducted on all ground-breaking construction works in the vicinity of the suspected site.

- The definition of formal arrangements for any unexpected archaeological discoveries made by the construction contractor to be reported to a retained professional archaeological organisation. This will allow any discoveries to be assessed and dealt with appropriately. The CCP to be developed for the scheme will include statements on procedures for the treatment of unexpected archaeological discoveries, and will outline the legal responsibilities placed upon those who uncover antiquities such as portable artefacts and human remains.
- Development of a strategy for public access to, and interpretation of, the significant findings of the archaeological work, during and after fieldwork, to include open day access to excavations in progress (although taking into account the sensitivity of excavating human remains), public lectures, and presentation in electronic and paper format.

There is little practical mitigation for reducing the impact of the scheme upon the setting of the Four Square tobacco factory (L1) with the exception of finishing the viaduct in a manner that respects the setting of the Listed Building.

No mitigation is necessary in relation to the proposed minor changes to the railway track adjacent to Paisley Gilmour Street Station (L12). No archaeological mitigation measures are proposed in relation to other features that would not be affected by the proposed development.

8.5.3.1 Consents and Standards for Mitigation

Except where otherwise stated, all mitigation works would take place prior to the commencement of development construction works. All work would be conducted to relevant Institute of Field Archaeologists Standard and Guidance Documents (Archaeological Investigation and Recording of Standing Buildings or Structures, Archaeological Field Evaluation, Archaeological Excavation, and Archaeological Watching Brief).

Work in the burial ground site will take place following prior consultation with statutory agencies, and in compliance with the requirements of COSHH Regulations. There is no health risk associated with the exhumation of cholera victims as the cholera bacterium is not very resilient and will not survive more than 20 days or so in soil (information from the Food and Agriculture Organisation of the United Nations: <http://www.fao.org/docrep/W5367E/w5367e04.htm#pathogen>; also Cox 2001, 18). The risks posed by smallpox are less easily defined, and a small but significant potential risk to health exists to those handling previously infected inhumations that have surviving skin with scabs (Cox 2001, 18). Such preservation conditions are unlikely to occur in an open burial ground (as opposed to within a crypt). From the sources examined it is not certain that victims of smallpox were laid to rest in the burial ground. All archaeological work in the vicinity of the burial ground would be undertaken under the direction of appropriately qualified forensic archaeologists, in accordance with the working methods defined by the Institute of Field Archaeologists (Cox 2001).

Project designs for archaeological mitigation works would be detailed in Written Schemes of Investigation (WSI) approved in advance by Renfrewshire Council and Glasgow City Council as appropriate. WSIs will make provision for appropriate post-excavation analyses and dissemination of the results of the mitigation works, as well as for archiving of the project materials and records.

The Private Bill seeks powers to make specified alterations to Listed Buildings.

8.5.3.2 Residual Impacts

Table 8.4 summarises the residual impacts of the proposed development upon cultural heritage resources, taking into account mitigation measures. The assessments are based upon the results of desk-based study and reconnaissance field survey. As no intrusive investigations were carried out, for several receptors where there are no visible remains the magnitude of potential impact cannot be established with any certainty, as it is not known what, if any, buried archaeological remains survive of them (see Section 8.2.4.3). The implementation of the mitigation strategy presented above includes the investigation of what survives of those receptors within the scheme areas, which would allow the nature of impacts to be better defined, and provides for further recording as appropriate of features that cannot be preserved *in situ*.

Table 8.4 Summary of Assessment of Residual Impacts, Based on Desk-based Assessment and Reconnaissance Field Survey

ID	Site	Effect Type*	Site Importance	Impact Magnitude	Significance of effect
L1	Greenhill Road, Four Square Tobacco Factory	I, N	Regional	Medium	Moderate
L12	Paisley Gilmour Street Station	D, N	Regional	Imperceptible	Negligible
L27	Glasgow Central Station	D, I, N	National	Low	Moderate

ID	Site	Effect Type*	Site Importance	Impact Magnitude	Significance of effect
A6	St James' Park, cholera graves	Unknown	Local	Unknown	Uncertain
A7	St James' Park	D, A	Local	Unknown	Uncertain
A8	Abercorn Rope Works	D, A	Lesser	Unknown	Uncertain
A10	Murray Street, starch works	D, A	Lesser	Unknown	Uncertain
A18	Incle street, site of saw mill	D, A	Lesser	Unknown	Uncertain
A19	Wallneuk, site of buildings	D, A	Lesser	Unknown	Uncertain
A20	Incle Street, site of buildings and saw mill	D, A	Lesser	Unknown	Uncertain
A33	Vulcan Tube Works	D, A	Lesser	Unknown	Uncertain
N/a	Buried archaeology	D, A	Unknown	Unknown	Uncertain

*Key – D, direct; I, indirect; A, adverse; N, neutral; B, beneficial

Shaded boxes indicate significant effects

Only two identified cultural heritage sites or areas would receive significant impacts from the proposed development, and in both cases the nature of the impact would be neutral rather than adverse.

The new viaduct would be visible to the rear of the listed Four Square Tobacco Factory building (L1). However, as the building was erected, and is still located, within an industrial area with an existing railway line nearby, it is considered that the addition of a new railway line would not detract from the current setting of the Listed Building. The scheme would have a medium magnitude impact on the setting of the receptor, leading to effect of moderate significance. However, as the new development could be accommodated comfortably by the receptor without detracting from its key features the impact would be neutral in effect, and not adverse.

The laying of new track on the railway viaduct adjacent to Gilmour Street Station (L12) would constitute only a very minor change to the baseline environment. The impact would therefore be of imperceptible magnitude, leading to a negligible and non-significant effect, which would be neutral in character. There would be no change to the fabric of the railway viaduct, and no impact upon the Paisley, The Cross and Oakshaw Outstanding Conservation Area (C1).

The proposed alterations to Glasgow Central Station (L27), designed to respect the character of the receptor, would result in a low magnitude change to the baseline condition of the railway station. The effect would be moderate and significant, but would be at least neutral in character. Elements of the alterations, such as the replacement of a car parking area with a railway platform, may enhance the setting of the railway station as a whole, as the new use of the area would be more congruous with the setting of the Listed Building than the existing one.

The magnitude and significance of impact of the construction of the proposed road upon buried and currently unidentified archaeological remains cannot be assessed accurately from baseline conditions. This assessment also applies to documented sites and areas of archaeological interest where archaeological remains potentially, but do not certainly, survive within the scheme area (A6-8, A10, A18-20, A33). The archaeological mitigation works defined above will ensure that all archaeological remains within those parts of the scheme areas to be disturbed are subject to appropriate excavation and recording where preservation in situ is not feasible. Only in the case of locally important sites (A6-7) is there a potential for a significant impact to arise on identified resources. As a result, it is anticipated, but not certain, that the construction of the scheme would not give rise to significant residual impacts on archaeological remains.

8.6. Summary

70 archaeological and heritage sites or areas have been identified within the study corridor centred upon the proposed route. They comprise 27 Listed Buildings, two Outstanding Conservation Areas, two Conservation Areas and 39 undesignated sites and buildings of interest.

Temporary construction impacts have been assessed in relation to two Listed Buildings, the Four Square tobacco factory on Greenhill Road in Paisley and Glasgow Central Station. The effect would be significant and adverse only in the latter case. Permanent impacts on these two receptors would be neutral in nature (with beneficial aspects in the case of Glasgow Central Station), and not adverse.

Potential adverse impacts may occur up to nine sites of archaeological or industrial archaeological interest, but the magnitude and significance of impacts cannot be established from baseline information. A comprehensive package of archaeological mitigation measures has been defined that would permit the

recording of all significant archaeological and built heritage resources, both known and currently undetected, that could not be avoided by construction works. It is anticipated, but not certain, that the construction of the scheme would not give rise to significant residual impacts on archaeological remains.

It is concluded that the overall effect of the proposed scheme upon archaeology and cultural heritage interests would be minor and non-significant and, taking into account mitigation, would not conflict with national, regional and local planning policy as regards cultural heritage.