

A63 Castle Street Improvement, Hull

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A63_CEMP_4-2- (i) Archaeological Project Design (APD)



A63 Castle Street Improvement, Hull

Development Consent Order 2020

Project Design for Main-Phase Clearance of Burial Remains and Archaeological Works

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1 OVERVIEW

Purpose of this document

- 1.1.1 Main This document is a project design for undertaking the clearance of burial remains and a programme of archaeological works within and around Trinity Burial Ground (TBG) in association with an improvement to A63 Castle Street, Hull. It presents a research framework and methodologies for the following:
- Planning and programming the archaeological works;
 - Preparatory and enabling works, including recording and databasing of the site's historic walls, gravestones and the Parish Burial Register;
 - Preparing a programme of community engagement;
 - Fieldwork, including:
 - archaeological recovery, on-site assessment and washing of 1500 skeletons, together with their associated coffin remains and artefacts using a zonal sampling system. Such skeletons will undergo physical osteological analysis in an on-site laboratory. A selection of these skeletons will be sub-sampled for bio-chemical analyses before they are reburied on site close to the completion of the archaeological fieldwork programme;
 - stratigraphic recording and rapid recovery of all remaining articulated burials and their associated coffin remains and artefacts, which will be immediately reburied on site;
 - recovery and immediate on-site reburial of charnel deposits and disarticulated bone;
 - processing of mechanically excavated arisings for the recovery of disarticulated remains to be immediately reburied on site;
 - production of an essentially digital primary archive, using methods such as
 - o laser scanning,
 - o digital photography and instrument surveys, with site records,
 - o on-site osteological assessment and analysis recorded into a centrally managed online database using tablet computers capable of taking photographs;
 - At the completion of site works, production of an interim report presenting a collation and quantification of the data recovered, a review of the project's research questions and an updated project design for the analysis of the data. This will not be an assessment report per se, as recording for osteological and other forms of physical analysis will have been completed on site;
 - The analysis and integration of the data recovered with documentary evidence and results from wider research;

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- Preparation of a draft text for publication and deposition of the digital and documentary archive with an appropriate repository;
- Programme and Risk Register.

2 INTRODUCTION

2.1 Project Background

- 2.1.1 The proposed improvement to the A63, Castle Street, Kingston upon Hull, East Yorkshire (the Project; HA Ref 1168-10-201-RE-002-PD2), will impact upon part of the historic post-medieval Holy Trinity Burial Ground (TBG; NGR: TA 09420 28377; Fig 1). Under Faculty 3¹ it will be necessary to remove all funerary remains from just over a third of the area of the burial ground, within a c 3508m² zone of impact (excavation zone) across the northern part of the site. Outside of that area, development impacts will be minimised. Nonetheless, to maintain a safe working environment, it may be necessary to temporarily remove a proportion of the grave monuments before returning them to their original positions at the completion of the works. Indeed, under a separate Faculty (Faculty 4), the part of the burial ground outside of the excavation area will be improved, landscaped and made safe, as appropriate, so that it is a more welcoming public space.
- 2.1.2 This document has been produced by Oxford Archaeology North and Humber Field Archaeology (OA-HFA) on behalf of Balfour Beatty (BB; the Principal Contractor (PC) for the scheme). The document provides methodologies for a programme of archaeological works within the affected part of TBG and its immediate surroundings. Methods for post-excavation works, the production of an archive and the dissemination of publications are also provided for, and a preliminary outline programme presented in Appendix 1. The works are being undertaken to meet the Development Consent Order (DCO), plus the requirements of the Church of England (CoE) Faculty and the Ministry of Justice (MoJ) licence under Section 25 of the Burial Act 1857. A methodology for archaeological works associated with heritage assets within other parts of the development area are addressed separately.
- 2.1.3 The archaeological works within TBG need to satisfy a wide range of stakeholder requirements, including the practical needs of Highways England (HE) and the sensitivities of the local community. In particular, satisfaction of the archaeological planning conditions requested by Humber Archaeology Partnership (HAP; Hull City Council's curatorial body responsible for advising on and monitoring, heritage matters) and Historic England (HistE), can only be achieved by the adoption of a clear strategy. Accordingly, this document has been compiled to meet the standards and guidance of HistE (MAP2, English Heritage 1991; MoRPHE, HistE 2015), the Chartered Institute for Archaeologists (CIfA 2014a-d) and the British Association for Biological Anthropology and Osteology (BABAO).

¹ Faculty 1 pertained to the advance archaeological works within the burial ground; Faculty 2 permitted the erection of a fence around the leaning walls at the north-east corner of the site.

2.1.4 This project design draws upon several earlier pieces of work:

- an enhanced archaeological desk-based assessment and deposit model on the proposed A63 scheme, which included the results of map regression, rapid historical research into the TBG and a brief examination of the Holy Trinity Parish burial register, as well as the findings from a site visit and walkover survey synthesis of the historical research into TBG (OA-HFA 2014);
- a report on advance archaeological works undertaken within TBG, including a survey and record of gravestones within the proposed excavation, trial-trench evaluation and monitoring of boreholes (OA-HFA 2016a);
- the design development work undertaken by Arup and supported by BB, including production of a statistical model of the number and state of burials that are likely to lie within the excavation area (Arup 2015; 2016).

2.1.5 For the sake of brevity, this Project Design does not reproduce large amounts of data from those reports, which are referenced where appropriate and should be consulted as necessary.

2.2 Existing Site Conditions

2.2.1 **Situation:** TBG is a publicly accessible open space maintained by Hull City Council (HCC). The walls surrounding the burial ground are in a varying state of repair, with those that bound its north-east corner currently being fenced off due to their unsafe condition. Although the walls vary in date they are generally of significance to the history and character of the site (OA-HFA 2014). Much of the northern edge borders the A63, Castle Street, and only 50m beyond the southern edge of the investigation area, there is an active wet dock. The interior and edges of TBG contain numerous mature trees which the trial trenching has shown have extensive root systems. The interior is also occupied by burial monuments in varying conditions and densities. These include a range of styles and forms, including several tomb structures. The site is overlooked on several sides: to the north by Castle Street, to the south-east by the Holiday Inn and to the south-west, by the Kingston Retail Park.

2.2.2 **Site Access:** the only current vehicular access is through the north-east corner of the burial ground, where there is a lay-by off Castle Street and no barriers.

2.2.3 **Ground Conditions:** the completion of the advance archaeological works in 2015 provided significant information about the ground conditions within the burial ground (OA-HFA 2016a, Table 3). Full details are presented in the advance archaeological works report but, in general, a horizon of fully skeletonised burials was found to lie between 0.7m and 1.85m below ground

level. The graves were found to have been cut into a silty clay in the north-eastern part of the burial ground, and into a sandy silt deposit elsewhere. Where undisturbed, the latter deposit was clearly banded, indicative of its alluvial origin. At a depth of approximately 2.3m bgl water entered the area of investigation, a little above the depth at which (c 2.6-2.8m bgl) a layer of soft silty clay alluvium was identified. The geotechnical investigation indicated that the water table was at approximately 3-3.5m bgl. The relatively high level at which soils become saturated, with the lowest extent of the burial horizon being approximately 0.5m above this, may be an indication of the knowledge of those interring burials with the aim of not cutting into saturated and therefore potentially waterlogged soils.

2.3 Key Roles, Responsibilities and Interfaces

2.3.1 All stakeholders must understand their responsibilities and roles (Table 1).

Stakeholder	Key Responsibilities in respect of the works
Highways England (HE)	The Client: funding a programme of works that meets the requirements of the DCO, MoJ and CoE Faculty
Archaeological Advisor to HE (AAHE)	Monitor the archaeological works on behalf of HE, to ensure that they are appropriate, efficient and meet the requirements of the DCO, the Faculty and HistE, as well as any MoJ and Environmental Health directions
Diocese of York (includes vicar and PCC)	Issue of a Faculty permitting the removal of funerary remains from the zone of impact and their subsequent reburial; oversee/conduct reburial service/s; oversee that the Faculty is observed throughout the works
Ministry of Justice (MoJ)	Issue of legal documentation permitting the removal of funerary remains from the zone of impact and their subsequent reburial at an appropriate location
Hull City Council (HCC); including, Environmental Health, Bereavement Services	Monitoring of compliance with environmental controls (including site and traffic management, vegetation clearance and waste management); handling and cremation of funerary remains (where required); reburial of funerary remains
Humberside Police (HP)	Monitoring works to ensure legal compliance and that works are undertaken in a manner that does not cause undue public concern.
Balfour Beatty (BB)	Establish a safe working area and site compound, including vegetation clearance, removal of memorials under OA-HFA supervision, piling works, tent erection, site security, lighting, welfare provision, specialist support for UXO clearance, traffic and site management, groundwater management, spoil handling, removal and storage, backfilling. Ensure a safe and secure working environment is maintained. Monitor ground contamination, groundwater movement and quality, settlement, undertake environmental monitoring such as dust, noise, ground gas (as

Stakeholder	Key Responsibilities in respect of the works
	required) and site compliance with occupational hygiene/control of potential risks from pathogens
BB TBG Liaison Officer	Appointed by BB, the TBG Liaison Officer will approve and disseminate information to the public and media and will be the contact point for all enquiries from the public and the media. The officer will also form the point of contact for public liaison matter with HE
OA-HFA	Adhere to a safe system of working (under regular review including with BB) and undertake programme of Works in accordance with this Project Design and WPP
Exhumation Contractor (EC)	Work under the auspices of OA-HFA to remove all loose human remains from spoil arisings. Exhume and rebury any lead coffins, fleshed, or partially fleshed remains
Historic England (HistE) and Humber Archaeology Partnership (HAP)	Monitor compliance of the archaeological works to ensure that they are undertaken in accordance with this document and the ACs Project Design.
Other Stakeholders	These include representatives from the TBG Liaison Group, local residents, community, history and archaeology groups. The HE TBG Liaison Officer shall remain the primary contact for all other stakeholders.

Table 1: Summary of Key Stakeholders, Roles and Responsibilities

- 2.3.2 **Communications:** all communications will follow the protocol (Figure 2) and appropriate responses to all foreseeable circumstances (see Risk Register, Appendix 4) will be agreed in advance. Stakeholders will be notified when responses are required in response to specific matters.
- 2.3.3 **Liaison with the public and police:** the TBG Liaison Officer (TBGLO) will liaise with HE Communication Team on matters relating to interface with the public, including descendants and special interest groups. The Liaison Officer will deal with all enquiries and will disseminate approved information as appropriate. Whilst only the Liaison Officer will provide information to the public, all site contractors have a duty to the public and to HE to ensure that public concerns are met. Accordingly, contact details for the TBGLO will be placed at the site and at the on-site and off-site facilities of all site contractors, so that queries can be redirected appropriately.
- 2.3.4 Where appropriate, representatives from OA-HFA can be involved with liaison with representatives from local interest groups. Such meetings will be approved, arranged and supervised by the TBGLO and will be held in a secure, controlled environment. The TBGLO will also undertake all appropriate liaison with the Police.

- 2.3.5 **Monitoring:** monitoring of the works will be undertaken on behalf of HE by the AAHE. Monitoring of the archaeological works may also be undertaken by HAP and the HistE Regional Science Advisor, who will be afforded reasonable access to the site, if required.
- 2.3.6 Monitoring meetings will be established with the AAHE, HistE, HAP and OA-HFA as required. The following is anticipated:
- 2.3.7 at the beginning of the programme;
- 2.3.8 during the fieldwork (the frequency of such visits will be dictated to some extent by the findings on site);
- 2.3.9 during the design of the post-excavation programme to ensure that the proposed post-excavation works are appropriate, meet the requirements of the Faculty and any other conditions, sufficiently resourced and adequately programmed; and
- 2.3.10 at appropriate points during the post-excavation work (*Appendix 1*).
- 2.3.11 OA-HFA will ensure that any significant results/matters during any stage of the Works, are brought to the attention of the AAHE and BB as soon as is practically possible and in any event within 24 hours.
- 2.3.12 Regular communication will be maintained with major stakeholders, particularly those concerned with the discharge of DCO and Faculty conditions. Such communications will provide a vehicle to describe progress and any instances where variations to the methodology are necessary. Where such necessary changes are substantial, stakeholders will be informed in sufficient time so that BB and OA-HFA seven working days to prepare proposals, and so that stakeholders have seven working days to respond. Such liaison will ensure that stakeholders are satisfied that conditions (ie, DCO, Faculty) are being addressed in an appropriate manner.

3 Archaeological Background, aims and Objectives

3.1 A Brief Background to Trinity Burial Ground

- 3.1.1 The wider scheme of improvement to the A63 has been the subject of several desk-based studies and investigations (YAT 1994; 1995; Pell Frischmann 2010), the latest of which has culminated in a deposit model (HFA and OA 2014). These reviews will be consulted for a detailed background to the project and the wider archaeological resource. Information specific to the TBG has been collated during the formulation of the *Method Statement for Archaeological Removal of Burials* (OA-HFA 2014) and will not be reiterated here.
- 3.1.2 Trinity Burial Ground at Castle Street opened in 1783, following the recognition that the original graveyard associated with the medieval Holy Trinity Parish Church, in the Market Place, had reached capacity and could not be expanded. The Holy Trinity Parish burial registers record the interment of some 44,041 individuals between 1783 and 1861, the latter date indicating the point when TBG on Castle Street had also become full. These parish registers are thought to provide the most accurate information concerning the number of burials likely to have been made at TBG, although it should be considered that not every individual documented therein was actually buried at Castle Street. For example, it is likely that burials continued to be made within vaults and family plots at the original Holy Trinity graveyard in the Market Place until those facilities were full. In addition, the recent excavation of c 400 burials at the latter site, and examination of a record of the gravestones that once stood in that churchyard, clearly indicate that both burial sites operated in parallel (Ken Steedman *pers comm*). Although such individuals at Holy Trinity Church (HTC) are likely to be among the 44,041 recorded on the Parish burial register, the fact that there is no statistical model for ascertaining the relative proportions of burials at HTC and TBG means that the figure of 44,041 burials at TBG has been retained for estimating the number of burials that may need to be excavated from TBG.
- 3.1.3 The north-east corner of the site was occupied by a gaol, which was authorised by the same Act of Parliament as the burial ground, and opened in 1785. Hargraves' map of 1791, whilst somewhat schematic, shows that the gaol occupied a plot of land at the corner of Castle Street (then known as Myton Place) and the no-longer extant Burford Street. The latter street also defined the eastern edge of the burial ground, which 'wrapped around' the gaol. The Hull Conservation Area Character Appraisal records that the New Gaol was:

- 3.1.4 '*...an attractive oblong block of 3-4 storeys, divided, by 1810, into six large rooms and an attic and thirteen smaller rooms or cells. The turnkey's or gaoler's lodgings also formed an integral part of the building. This arrangement was criticized and by 1817 the lodgings had been reconstructed so as to form a forebuilding.*' (HCC 2005, 15).
- 3.1.5 The New Gaol is shown on Cragg's map of 1817, but by 1830 the institution was closed in favour of a site on Kingston Street (HCC 2005). The Goodwill and Lawson map of 1842 shows the plot as vacant, which by 1869 (Goodwill and Lawson), had been redeveloped, presumably as the sawmill annotated on the 1893 OS map. By 1904 the site was occupied by the Humber Brass and Copper Works (to the east) and the Walker's, Parker's and Co Ltd Lead Works (to the west; Goad Insurance Map 1904). The site walkover (OA-HFA 2014) identified that the walls that formed the western and southern perimeter of the gaol-yard remain extant, are c 0.6m thick, survive to 2-2.4m high, and are built of typical Georgian bricks. Cragg's map indicates that one structure had been built against the eastern end of the southern (burial-ground side) face of the gaol wall by 1817, while the maps of Goodwill and Lawson show further structures added to the central part of that wall some time between 1842 and 1869). Within the area of the former gaol, the north face of that wall, and the east face of the western wall, had also been built against by 1869.
- 3.1.6 **Previous archaeological investigations:** a scheme of advance archaeological works was undertaken within TBG in 2015, including a survey and record of gravestones within the proposed excavation, trial-trench evaluation and monitoring of boreholes (OA-HFA 2016a). The evaluation explored the full depth of the burial horizon, through to undisturbed natural deposits, within three parts of the burial ground, and also investigated the site of a former mortuary building. That report should be consulted for further information.
- 3.1.7 Using the evaluation data and historical information (OA-HFA 2014), models have been developed to try and understand the number, nature and distribution of burials at the site, together with the resources required to excavate a sample for analysis. This information is presented as *Holy Trinity Burial Ground, Castle Street, Hull: Memorandum: Main-Phase Archaeological Works Sampling* (OA HFA 2016b) and within a mathematical model (Arup 2015).

3.2 Research Framework for the Archaeological Works

- 3.2.1 **Introduction:** it is neither desirable, necessary, practical, nor, indeed, likely to be possible, to analyse every set of human remains from the zone of impact. Rather, the archaeological works shall concentrate on the recovery of an appropriate sample for on-site analysis. Following consultation with its Archaeological Advisors, the Diocesan Advisory Committee (DAC) issued a

Faculty indicating that a sample of 1500 skeletons should be recovered from the excavation area for analysis (DAC 2018, parag 24). It is considered that this sample of 1500 skeletons is equivalent to 9-11% of articulated burials from the excavation area where it contains the remains of 18,938 interments; or 13-17% of articulated remains that are over 25% complete and thus considered suitable for analysis; Arup 2015; OA-HFA 2016b). It is understood that Historic England would prefer to see a larger sample and, whilst it would not be possible to contravene the directions of the Faculty, efforts will be made to accommodate reasonable requests from HistE during the works.

- 3.2.2 The basic research potential of an assemblage recovered from Trinity Burial Ground is set out in Section 6 of the Advance Archaeological Works report (OA-HFA 2016a) and will not be reiterated here. The overarching focus of the archaeological programme is to obtain an holistic understanding of the lives, identities, beliefs and funerary culture of a representative cross-section of the parishioners of Holy Trinity, that can be interpreted within a temporal, economic, geographic and social context.
- 3.2.3 The report on the trial-trenching undertaken within TBG in 2015 highlighted the importance of an integrated approach to analysis, utilising documentary, spatial, contextual and osteological data (OA-HFA 2016a, Section 6.2). Focusing purely on the latter, the suite of analytical techniques that can be expected to be reliably employed on the assemblage includes all those that fall within nationally accepted practice (Brickley and Mckinley 2004), comprising a full macroscopic examination and recording for inventory, condition and completeness, estimation of sex and age, metrical and non-metrical analyses and pathology. This would also include on-site radiology to help diagnose pathological lesions (c 10% of analysed assemblage) but biochemical techniques on no more than c 10% of the analysed assemblage are also likely to be appropriate if used judiciously within a robust research context. This includes stable isotope analyses (diet and geographic origins); histology (to investigate pathology) and ancient DNA (ancestry, sex, genetic relationships).
- 3.2.4 In order to maximise efficiency, the potential of the resource, and the benefit to the public, the project necessarily has a clear strategy. Accordingly, the archaeological Works must fit within a firm and reasoned research framework that has clear aims and objectives that meet the research needs of the site, are realistic within the scope of the raw data that can be expected to be recovered from the site, and that lead the investigation to be focused and efficient, as it seeks to maximise the understanding of the sample and to benefit the public.
- 3.2.5 The research framework is summarised as a matrix in *Appendix 2* and comprises six elements:

- 3.2.6 Research Needs (RN1-13); these represent 'big' academic themes associated with the study of industrial-period burial grounds, and TBG in particular. The integration of osteological, archaeological and documentary data is seen as particularly important in gaining a holistic understanding of life, death, society and religion;
- 3.2.7 Research Potential (RPM-z); the key aspects of the data from TBG which, on the basis of the evaluation findings (OA-HFA 2016a), are considered most likely to have potential for analysis. The text in bold indicates which of the Research Needs could be addressed by each category of data with research potential;
- 3.2.8 Research Questions (RQ); these are the ones considered fundamental to the project, having been selected from a wider set and modified as appropriate (Capital Value and Risk Ltd, 27 August 2014; OA-HFA 2016a, Table 19). Each RQ is referenced back to related items of Research Potential in bold;
- 3.2.9 Research Objectives (RO), which are the practical means formulated to address the research questions (in bold);
- 3.2.10 Public Benefits (PB) arising from the works and which are tied to particular Research Objectives.
- 3.2.11 2.2.6 The research framework will be reviewed at the completion of the preliminary works (Project Stage 1) and the interim report (Project Stage 3) to ensure that it meets the requirements of the Works and the confines of the available data. Any changes to the research framework by OA-HFA will only be made where they can be justified, and they will not be implemented until a confirmatory instruction has been received from BB.

4 Programme outline and Project Team

4.1 Project Stages, Products and Review

- 4.1.1 The five Project Stages, together with their products and review points, are summarised in Appendix 3. The order and duration of the stages and, where definable, their sub-components, are presented within the project programme (Appendix 1). Stakeholders will be updated with the results of review stages, especially where review indicates that a continuing situation will present a potential risk to the completion of the project to time and budget. In addition, copies of those reports, once approved, will be issued to the Parochial Church Council and the Diocesan Advisory Committee within fourteen days of their completion. To assist with the identification of project risk a preliminary risk register is provided in Appendix 4.

4.2 Project Team Composition

- 4.2.1 The key roles within the project team are set out in Table 2. BB, OA-HFA and the EC will provide staff at a suitable level and in appropriate proportions to complete the works within the agreed programme for the fieldwork and post fieldwork activities and in a flexible manner to meet the changing requirements of the project. All staff will be provided with laminated information sheets outlining their roles and responsibilities, chains of command and operating instructions as a series of flow charts. To maximise flexibility, many of the staff will be capable of performing a range of roles.

Title	Project Stages	Roles and Responsibilities
BB staff	All	BB shall have overall responsibility for the site (and all stages of the Works) and provide qualified representatives to deal with the various specialist attendances to OA-HFA and matters relating to H+S. They will liaise with the OA-HFA project manager, site director and other team members as appropriate; design and erect the tent, organise spoil removal, processing and storage, including traffic and pedestrians routes; organise and maintain welfare provision and associated attendances; provide, service and fuel operated plant; organise and oversee the provision, installation and if necessary, removal of piling to the southern boundary of the area of the Works; Lift grave monuments, grub tree roots; undertake ground reduction of the upper deposits and burial horizon throughout the operation; undertake digital records and processing of the data produced;

Title	Project Stages	Roles and Responsibilities
		organise and undertake backfilling of the areas of the Works; provide, lay and move (as required) adequate temporary surfaces to meet the requirements of OA-HFA.
OA-HFA Project Director	All	Provide academic advice and quality assurance for the Works during all stages
OA-HFA Project Manager (PM)	All	Overall delivery and management of the archaeological aspects of the project during all stages of the Work. Preparation of PDs and WPP. Organisation of tasks, administration, correspondence, project review, task and resource tracking, stakeholder liaison in accordance with the communications protocol, staff briefings, commissioning of sub-contractors, ensure the site operates safely and efficiently; organise training; ensure the works are adequately and appropriately staffed; establish welfare and PPE requirements and ensure that these are in place and adequately maintained/replaced as necessary
PM's Assistant	All	Assist PM in basic tasks such as organising/hiring accommodation, etc. throughout all stages of the work
OA-HFA Health and Safety Advisor	All	Advise OA-HFA PM on H+S matters to assist with the safe running of the site. Liaise with BB H+S advisors. Undertake H+S inspections and advise site staff appropriately
OA-HFA Lead Anthropologist	All	Advise OA-HFA PM and Site director on matters of osteology and funerary archaeology. Help devise recording techniques, database, instruction sheets and staff guidance; day-to-day strategic guidance on recovery, on-site assessment and analysis; detailed photography for publication; liaison with other specialists; attend meetings with stakeholders
OA-HFA Community Archaeology Manager	All	Devise and organise the implementation of the community archaeology programme in consultation with stakeholders.
OA-HFA Site Director (SD)	All	Undertake day-to-day strategic liaison with BB and sub-contractors; Organise and coordinate archaeological teams and other contractors, Undertake inductions and briefings, ensure that a safe working environment is maintained, that the RA and H+S MS are observed and that toolbox talks are done; Maintain a site diary, register of on-site personnel, visitors, as well as deliveries and collections of

Title	Project Stages	Roles and Responsibilities
		materials and human remains; Help to set out sampling areas on the ground to ensure that there is minimal impact to burials; Review the archaeological viability of sampling areas; Establish the number of funerary remains to be recovered from individual sampling areas and monitor the balance of remains for removal by each of the two recovery methods; Review/download and check site records and digital survey data, ensuring that these are complete and free of issues; combine data that would help to identify individuals and burials excluded from osteological analysis;
OA-HFA Assistant SD	2	With the exception of tasks relating to H+S and to direct liaison with BB and AAHE, a number of the Site Director's numerous responsibilities will be undertaken by a second directorial member of staff
OA-HFA Team/Area supervisors	2-3	Establish local sampling areas following instruction from the SD; co-ordinate archaeologists, plant and, if necessary, exhumers, within sampling areas; ensure that progress targets, standards and H+S requirements are met; monitor all aspects of the welfare of their team, undertake watching brief
OA-HFA Surveyors	2-5	Record the three-dimensional location of all remains; Download, check and merge digital data; Undertake on-site GIS/CAD; ensure information is provided to Area Supervisors and Site Director Other tasks (including machine supervision and excavation, as appropriate);
OA-HFA Plant supervisors	1-2	Direct and signal plant to ensure that ground reduction is undertaken in a careful coordinated manner that reveals, but does not damage, intact burials
OA-HFA Osteologists	1-5	Provide guidance on and undertake, assessment and, where appropriate, on-site analysis of human remains. Provide advice and guidance on other funerary remains as appropriate
OA-HFA Coffin specialist	1-5	Record and analyse coffin fittings. Advise on recovery and treatment of fittings, and make selections for X-radiography
OA-HFA Archaeologists	1-2	Record gravestones/wall; monitor placement of retained memorials/bricks in safe storage; machine monitoring; characterise and record burials and other funerary remains; lift skeletonised remains and fragmented coffin fittings; undertake watching briefs
OA-HFA Skeleton Processors	2	Process skeletons in an appropriate manner so that they are clean, dry, bagged, boxed and ready for on-site analysis

Title	Project Stages	Roles and Responsibilities
OA-HFA Store supervisor	2-3	Management of the storage and reburial facilities and collation and completion of the associated database forms
OA-HFA Laboratory supervisor	2-3	Manage organisation and running of the osteology laboratory, skeleton washing and the processing of any soil samples; collation and completion of the associated database forms
OA-HFA IT support	2-5	Design, maintain, integrate and update the site databases to ensure that data can be recorded, accessed and collated at all times.
OA-HFA Data processors	2-4	Process, verify and integrate survey and photographic data
Site Security	1-3	Under the auspices of BB, site security will be maintained on site and, if necessary, at any storage locations, at appropriate levels throughout the duration of the preparatory and fieldwork stages. Security officers will maintain a list of people approved to enter the site and a register of visitors; provide space for visitors awaiting verification/approval; undertake patrols and monitor access points and the site perimeter; inform the police of any incidents
EC Manager	1-2	Provide a team of exhumers. Help to devise the system for recovery of disarticulated remains
EC Supervisor	2	The EC supervisor will work closely with the OA-HFA SD to ensure that there is close co-ordination between each workforce, particularly in those cases where the EC and OA-HFA teams are working side by side. The EC supervisor will organise and monitor the removal of human remains in the spoil processing area and their subsequent reburial. The EC supervisor will be responsible for ensuring that all human remains with flesh tissue (including metal coffins) are recovered and reburied appropriately on site.
EC Operatives	2	Recover disarticulated bone from spoil. Remove remains that fall outside the archaeological sample.
Humberside Police	1-2	Monitor the site, storage areas and reburial sites, together with the vehicular movement of remains between them; ensure all works are legal and undertaken in a manner that does not cause undue public concern; undertake additional security patrols and monitoring as appropriate; monitor the traffic management plan in action

Table 2: Summary of Roles and Responsibilities for the Archaeology Project Team and Attendant Contractors

5 Basic Considerations

5.1 Legal Considerations

- 5.1.1 **Faculty and MoJ Licence:** the site is consecrated according to the rites of the Church of England (CoE). Under the appropriate Faculty (Care of Churches and Ecclesiastical Jurisdiction Measure 1991; Faculty Jurisdiction Measure 1964; the Faculty Jurisdiction Rules 2000), permission is required to remove any funerary remains from the excavation zone. The Faculty is supported by a Ministry of Justice Licence issued under the Burial Act 1857 (Section 25). Copies of these documents will be forwarded to all appropriate stakeholders.
- 5.1.2 All Faculty and MoJ directions, together with any from the HCC Environmental Health Officer (EHO) and Bereavement Services Manager, will be included within the site induction for all on-site contractors. The directions, which will be displayed in an appropriate location (ie, site offices and welfare cabins), will be adhered to by all on-site contractors throughout all stages of the project. Where requested, the AC and EC will provide information (risk assessments and methodologies, as appropriate), to the relevant statutory bodies and advisors. Humberside Police will be provided with appropriate project details and time tables, as well as opportunities to monitor the site, so that they can ensure that all works are legal and undertaken in a manner that does not cause undue public concern.
- 5.1.3 **The Human Tissues Act (HTA; 2004):** under the HTA (2004) a licence is required to handle any human remains that are less than one hundred years old. The last documented burial on the TBG burial register dates to 1861. However, the EYFHS survey records two burials in 1867 (1985) and these may not be the last interments at the site. In the unlikely event that burials clearly interred within the last 100 years are identified, these will be handled only by the EC with an HTA licence in place.

5.2 Ethical and Religious Considerations

- 5.2.1 All staff involved in the excavation, exhumation and recording of human remains will behave with due care and attention, showing respect for the dead at all times. The AC and EC will observe the BABAO code of Ethics and will have and must adhere to, an in-house protocol for working with human remains.
- 5.2.2 The excavation and on-site osteological analysis of human remains will be screened from the public at all times. No access will be permitted to members of the public during any works where human remains might be exposed. The media will only be admitted to specific, pre-defined, parts of the site by pre-arrangement and with the specific permission of the Client. Photography by

the AC will be for archaeological purposes only. Photography by the EC will be strictly for the purposes of documenting the works.

- 5.2.3 All staff involved in the works will receive a Toolbox Talk prior to commencing works to ensure that key ethical, health and safety, environmental and welfare issues are communicated to staff. Regular Toolbox Talk updates will also be given for the duration of the works.
- 5.2.4 Personal wishes of descendants: as far as is reasonable and practicable, the wishes and directions of those descendants who have made themselves known during the DCO and Faculty application process will be adhered to. In particular, this includes the safe recovery and storage of the gravestone of Francis Conyers (*Section 7.1.32*), and the liaison necessary to ensure that it is placed appropriately at the completion of works.

5.3 Health, Safety and Wellbeing

- 5.3.1 Although archaeological works are not covered by CDM 2015, such is the nature of the scheme that it is expected that, throughout the Works, CDM Regulations will apply. BB will manage all aspects of the safe running of the site in accordance with CDM 2015, including the appointment of qualified personnel who will produce the site Health, Safety and Environmental Management Plan (HASEMP), and will monitor works through their H+S Officer who will work closely with the OA-HFA Project Manager and Site Director. These parties will liaise regularly before and during the works to ensure that all H+S procedures and documents are in place and appropriate to the works being undertaken. Particular care will be taken to comply with HE Raising the bar 12 document *Occupational Health* (revised May 2015), and BB documents, including *The Road to Improved Health and Wellbeing in Major Highways 2016-2019*, BB guidance documents such as *Occupational Health Surveillance-Assessment Procedures*, *HSF-PR-0035*, and all BB Health and Wellbeing Action Plans.
- 5.3.2 The core health, safety and wellbeing document to be formulated and maintained for the archaeological works will comprise a Work Package Plan (WPP; which integrates method statements and risk assessments). The WPP will be produced in sufficient time to allow for comments to be made and incorporated. All amendments will be agreed with BB and incorporated into an updated document. The themes outlined below will be treated at an appropriate level of detail in the WPP.
- 5.3.3 BB will be responsible for undertaking service clearance and for issuing permits to dig, for example within piled/shored interventions. All health and safety procedures, including those of BB, BABAO, and the policies and H+S manuals of OA-HFA and the EC, will be followed throughout the works. These will include adherence to the guidance of the FAME/SCAUM H+S Manual, the Health and Safety at Work Act (1974), the Management of Health

and Safety at Work Regulations (1999), the Public Health (Control of Diseases) Act (1984), the Manual Handling Operations Regulations (1992) and lifting operations (LOLER; 1998).

- 5.3.4 The OA-HFA site director (*Section 4.2, Table 2*) will maintain a register of all staff and visitors on site and a diary that summarises the day's working areas, progress and weather, as well as significant deliveries, collections and the removal of human remains from site. An indexed photographic record in digital format will be regularly maintained to record general working shots, progress and the condition of the site.
- 5.3.5 **Staff training and PPE:** all project staff must be CSCS qualified. All project staff will wear full basic PPE whilst on site, to include safety helmets, safety boots and high-visibility jackets. Protective suits, face masks, noise defenders, gloves and eye protection will be made available to staff as necessary, as will disposable gloves and suits. Additional PPE will be dependent on site conditions, although these are expected to be mitigated by the tent structure.
- 5.3.6 **Contamination:** known or suspected ground contamination issues will be communicated by BB and to OA-HFA, with health and safety procedures adopted during the works to mitigate potential risks appropriately. Should any previously unknown contamination be encountered, works will be suspended until a risk assessment has been completed and site procedures adapted accordingly. Archaeological sampling within contaminated areas will be reviewed and, if necessary, abandoned and relocated to an uncontaminated part of the site. Contaminated human remains will be removed by the EC under special provisions.
- 5.3.7 **Unexploded Ordnance (UXO):** may be present on site. BB will undertake appropriate searches to establish the extent of risk and, if appropriate, will engage a specialist contractor to undertake investigative works, monitoring and if necessary, removal.
- 5.3.8 **Infectious diseases:** all staff must have an up to date tetanus jab and provide details of salient allergies and medical conditions to the OA-HFA site director and BB H+S Officer. It is expected that skeletonised burials in earth graves will form the vast majority of the assemblage. These should not present any particular infectious risk to health according to the BABAO (nd, 7) *Code of Practice*: 'Human remains pose little or no risk as far as infection hazards are concerned because harmful micro-organisms do not survive beyond a few months following death'.
- 5.3.9 The BABAO *Code of Practice* attributes a greater, 'although believed to be remote' (*op cit*), risk of infection from smallpox and anthrax when remains (including the soft fittings for coffins) are soaked in body liquor, or where horsehair stuffing is present. No such remains were encountered during the

evaluation (OA-HFA 2016). Nonetheless, the WPP will give due consideration to such risks, including, where considered appropriate, vaccinations for smallpox and anthrax (as directed by the Public Health Laboratory Service (PHLS); Tel: (+44) 020 8200 4400) for personnel directly involved with the excavation works and handling of remains.

- 5.3.10 Where remains (such as those with flesh) are identified that are considered, on the basis of the above criteria, to present a health risk, the following will be observed:
- 5.3.11 All staff within the area of risk will wear additional protective clothing, including disposable masks, suits and gloves and will remove themselves to a safe distance; such PPE will not be removed from site other than as waste;
- 5.3.12 All such remains will be lifted, together with all their associated funerary furniture, by the EC (*Section 7.2.12*).
- 5.3.13 Where, despite these precautions, staff have managed to come into direct contact with such remains, or to have been splashed by their liquor, all affected clothing and PPE will be sealed in opaque plastic bags and disposed of in accordance with statutory requirements.
- 5.3.14 **Counselling:** all staff will be briefed and vetted by their employers to ensure that they are informed, willing and appropriate for their designated roles and responsibilities. During and after the fieldwork all staff will have unrestricted access to a counsellor, who will also make regular visits to site.

6 Project Stage 0: Document Preparation

6.1 Key Documents

6.1.1 During the planning stage of the project OA-HFA will work closely with BB to produce the following documents:

- Task-specific methodologies and operating instructions that will assist all project staff during the operation;
- Site set-up plan, showing utilities, organisation of facilities and work flow;
- Operating instructions to different types of site staff and working areas;
- Project-specific monitoring *pro-formae* and report templates;
- Tent arrangement plan;
- Plan showing locations for detailed sampling;
- Liaison and planning for outreach and community engagement;
- Programme for the Archaeological Works;
- Risk register for the Archaeological Works;
- Cost and timetable modelling;
- Cost and resource plan;
- The Work Package Plan (the safe methodologies and risk assessment for the archaeological elements of the Works);

6.1.2 The documents when approved by BB will be submitted to the AAHE for review and, where appropriate, to HistE and HAP.

6.1.3 OA-HFA will develop an integrated database that allows:

- recording of information to a level that is appropriate to the recovery method for particular burials;
- on-site digital recording of information relating to stratigraphy, coffin fittings and osteological assessment and analysis data, as well as photographs and survey data;
- individual burials to be tracked on an audited 'chain of custody basis' through the system of recovery, processing, analysis, deposition and/or reburial, as appropriate.

6.1.4 OA-HFA will develop a series of laminated job/task descriptions and operating instructions, guidance notes, crib sheets, and pro-forma for each staff role (to be provided to each member of staff) that will standardise and facilitate the completion of each task, aiding efficiency and the monitoring of progress.

- 6.1.5 OA-HFA will work with BB to develop robust digital record keeping which could include, web map that utilises robotic total stations, and GIS package and laser scanning as the principal means of recovering spatial data for individual burials.
- 6.1.6 OA-HFA will assist BB by providing suitable specialist input during the preparation of:
- The wider project WPP;
 - The integrated project-wide programme;
 - Any other documents or areas where archaeological information is required.

6.2 Community Engagement Plan

- 6.2.1 **Overview:** a separate community development plan will be produced by OA-HFA in consultation with the HE Communications Team and the TBGLO (Table 3). The themes presented in this document will be developed by the OA-HFA project manager and the OA Community Archaeology Manager in consultation with relevant stakeholders to ensure that the programme of community engagement reaches a wide audience, appeals to people from a range of backgrounds, age groups, but makes a real contribution to the project, without being an end in itself. The themes are as follows:
- Historical and documentary research (*Sections 6.1.5-7*);
 - Fieldwork training: recording historic structures (*Section 6.1.26*);
 - Fieldwork: where feasible, a strip, map and record of the former gaol site, including industrial buildings, comprising site visits, site tours, open days, information panels, scope for hands-on involvement and training;
 - Fieldwork: TBG. Although the site will not be open to the public, information panels will be posted around the hoardings. Meetings can be held with specialist interest and family groups.

Task	Staff	Person Days
Preparation, set-up, liaison for the community engagement plan	Project Manager	5
	Community Archaeology Manager	25
Quarterly meetings with stakeholders	Community Archaeology Manager	9
Monthly workshops over two years	Community Archaeology Manager	25
	Community Archaeology Manager	5
Five open days	Fieldwork Project Officer	5
	Project Manager	4
General management, remote guidance and queries	Community Archaeology Manager	48
	Illustrator	25
Set up a website that the volunteers could contribute	IT Support	2

to		
On-site community engagement for 15 days to assist with the public days on the wall recording and the strip, map and record of the former gaol	Fieldwork Project Officer	15
Total		168

Table 3: Summary of resources to be allocated to Community Engagement

5.2.2 **Programme:** the community engagement programme will be established during the planning stage of the project (Appendix 1). The actual programme of community engagement will relate to the fieldwork, but will be primarily focused on the early works and the period during the first six months of the off-site analysis stage of the project, representing the period during which osteological analysis and archaeologically led documentary research will be undertaken.

7 Project Stage 1: Preliminary Works and Site Set-Up

7.1 Preliminary Works

7.1.1 Various preliminary tasks are required to ensure that the archaeological works run smoothly and efficiently, and in accordance with the requirements of stakeholders (Table 4; *Appendix 1*). These have been divided between works that can be completed off-site and those that are required to prepare the site for investigation, although, as indicated on the programme, that division does not prevent works from being undertaken in parallel. Many of the tasks fall outside the expertise of OA-HFA; where such works are enacted by a specialist contractor, the contractor will provide H+S documentation as required by BB. BB will be responsible for setting up and maintaining the site and for meeting all welfare, attendance, security and support requirements (Table 6).

Task No	Task	Enacted by	Additional MS required?
1.1	Create a database of the burial register	OA-HFA working with research team and public interest groups	No
1.2	Devise Community Engagement Plan and undertake detailed research	OA-HFA working with research team and public interest groups	No
1.3	Preparation of information panels	OA-HFA, approved by stakeholders	No
1.4	Fence-off and set-up the former Gaol Area	BB	Yes
1.5	Conduct archaeological strip, map and record of former gaol area	OA-HFA, where feasible as a public excavation, potentially with some hands-on engagement	No
1.6	Close the site to the public	HCC; input from BB & PCC/Vicar	Yes
1.7	Level the grassy knoll to the south-west of TBG under archaeological watching brief	BB, with OA-HFA watching brief	Yes
1.8	Erection of hoarding and safety barriers to A63	BB	Yes
1.9	Traffic Management Plan	BB	Yes
1.10	Sharps/waste removal	BB/Specialist Contractor	Yes
1.11	Locate, make safe and redirect utilities	BB/Specialist Contractor, watching brief by OA-North	Yes

1.12	Establish site accommodation compound	BB	Yes
1.13	Initially record burial ground walls	OA-HFA	No
1.14	Clear vegetation Stage 1	BB/Specialist Contractor, monitored by OA-HFA where appropriate	Yes
1.15	Fully record burial ground walls	OA-HFA, working with public interest groups as a training exercise	No
1.16	Remove required sections of burial ground walls and stockpile	BB/Specialist Contractor. Monitored by OA-HFA	Yes
1.17	Clear vegetation Stage 2, including archaeologically investigating, reducing, making safe and stabilising the overgrown mound to the south of the excavation area	BB/Specialist Contractor, monitored by OA/HFA where appropriate, including recording and recovery of any funerary remains and parts of monuments exposed during making the mound safe	Yes
1.18	Record newly exposed monuments	OA-HFA	No
1.19	Remove and stockpile grave monuments from the affected area of TBG	BB/Specialist Contractor monitored by OA-HFA	Yes
1.20	Record and Remove lampposts	Recorded by OA-HFA; Moved by BB/Specialist Contractor monitored by OA-HFA	Yes
1.21	Tree surgery	BB/Specialist Contractor, monitored by OA-HFA where safe to do so	Yes
1.22	Install piling mat and insert sheet pile wall	BB	Yes
1.23	Erect tents	BB	Yes
1.24	Establish soil processing area	BB	Yes
1.25	Lay temporary trackways	BB	Yes
1.26	Prepare emergency drainage plan	BB	Yes
1.27	Laser scanning training	BB	No

Table 4: Summary of Task 1: Preliminary Works

- 7.1.2 **Task 1.1; Produce and populate database of the Burial Register:** to address **ROa** information from the Holy Trinity parish burial register will be entered into a database. This information can be integrated with the database of recorded grave monuments, which will be an essential aid for assisting the TBG Liaison Officer with queries from the public and for liaising with people who have contacted the Project Team to identify themselves as descendants of people buried at TBG. It will also provide important contextual and comparative data for the osteological analysis and will facilitate the production of demographic profiles to assist with modelling and comparison.
- 7.1.3 **Task 1.2; Devise Community Engagement Plan and Undertake detailed research:** the programme of detailed research will develop an appropriate body of data that is specific to a detailed study of TBG and will address **ROb** and **ROc** as well as several of the community engagement needs of the project. Although the community aspects will be focused on the preliminary works and the early post-excavation stages of the project, the overall programme of core-funded research will be an ongoing and iterative process throughout the fieldwork, analysis and publication stages of the project that will seek to contextualise the archaeological data recovered and maximise its value within a holistic approach, but will also seek to address significant research questions that cannot be fully, or even partly, addressed by the archaeological data that is expected to be recovered during the excavation. It will comprise:
- integration of documentary and gravestone data;
 - a review of readily available documents held by the ERYAS and the Hull History Centre, allowing collation of detailed information on TBG and its parishioners in particular;
 - collation, review and assimilation of documentary data on the socio-economic, demographic, funerary and religious trends prevailing during the use of TBG, both in the case of Hull, and more widely;
 - consideration of the principal industries and employers in the city, particularly those characteristic of Hull and Holy Trinity Parish;
 - more detailed research of named individuals and/or selected case studies. Specific sources will include the databased burial register; census returns and trade directories.
- 7.1.4 The programme will be carefully planned so that research is relevant, comprehensive in the most appropriate areas, and efficient. It will largely be undertaken by the project team, including regional historians, archaeologists and experts in post-medieval burial but, wherever possible, will facilitate and encourage public engagement.
- 7.1.5 *Community engagement opportunities:* the community engagement element of the project will be presented in specific 'Community Engagement Plan' which will be developed as part of the detailed set-up stage of the project and

will present methodologies not just for attracting and working with volunteers, the establishment of a steering group, inception and monitoring meetings, web-site management, but also user-friendly methods and guidance notes for those undertaking research. The following sections thus present an outline of what that community engagement plan might entail in the case of documentary research, rather than a definitive methodology.

- 7.1.6 The community engagement will run in parallel with, be complementary to, and will augment the main programme of research. As such, it will not duplicate tasks that would need to be undertaken or data generated as part of the core-funded works (ie, those dealing directly with physical remains such as the gravestones, coffin fittings and the human remains). Nor will it entail the historical study of identified named individuals and families unless the number of such individuals exceeds the core-funded resource for 50 such individuals/family groups. As such, although volunteers will be able to pursue research angles that interest them in order to maintain their enthusiasm, the scope of the research will necessarily have to fit within the wider research parameters. In particular, the community research will build on the City of Culture theme of 'routes to roots' and focus on the social-historical aspects of the project encapsulated by RQ5, RQ7 and, to a degree, RQ12 by seeking to study a cross-section of Hull's former community.
- 7.1.7 The volunteers will be encouraged to utilise and integrate different forms of non-confidential data as they become available, but the work will be essentially documentary. The community archaeologist and project historian will work with the volunteers to produce narratives that are referenced and academically valid so that, where appropriate, the data can be used in published material. The level of detail and the scope of each narrative will depend largely on the number of volunteers, their available time, and their aptitude and dedication. The narratives would form part of the project archive, could be made available online, and excerpts could be included, where appropriate, in the monograph and popular publication formats. Four Community Research (CR) themes are suggested in Table 5, together with a series of questions and a list of 'jumping off points' and resources that could be utilised to address those questions.

Theme	Questions	Jumping off points and resources
CR1: Family and individual case studies	- Where did people originate? - Can incomers be identified? - Were incomers integrated through intermarriage?	- Excavated identified individuals; - People recorded on gravestones;

	· What is in a name? · Can we trace other family members and inter-relationships? · Why are they buried at TBG rather than HTC? · Does memorialisation reflect positive and negative changes in family wealth and status? · What documentary evidence is there for the causes of death and aspects of people's lives?	· People recorded on the burial register; · Known ancestors; · Death certificates; · Court and police records; · Comparison of gravestone records between TBG and HTC; · Marriage records
CR2: The port, trade and sea farers		
CR3: Life and Death in 1842	· Where did the people buried at TBG live and work? · Are there any patterns in the 1842 mortality profile according to where people live? · Are there patterns in the 1842 mortality profile according to people's professions? · Are there patterns in family size? · Are people of different ethnicities or professions spread around the city evenly, or are there patterns within the data?	· 1841 census and the burial register (including the databased information) for year 1842, or period within that, dependent on number of volunteers; · gravestones as appropriate; · land deeds, documents recording installation of amenities
CR4: Local Industries	· What was life like in the gaol? · What sort of people were put in the gaol, and what were their crimes?	· Case studies of particular industries within Hull that can be identified as employers of people buried at TBG
CR5: Crime and Punishment	· Can any inmates be identified on the burial register and/or on the 1841 census?	· Court and police records; · Contemporary newspapers; · 1841 census; · Burial register

Table 5: Matrix for Community Research

7.1.8 **Task 1.3; Prepare information panels:** a series of information panels, covering different aspects of the project, will be devised for the works and affixed to fencing and hoardings. These will utilise information from the documentary research and the advance archaeological works (OA-HFA 2016) and will be updated as appropriate. Draft versions of the panels will be sent to HE for approval.

7.1.9 **Task 1.4; Fence off and Set-up the former Gaol Area:** the area that lies outside the north-east corner of TBG will be used to process spoil during the excavation. However, the area was occupied firstly by a late eighteenth-century gaol, and then by a series of industries. These remains are of archaeological interest in their own right, and will need to be investigated and

recorded in advance of their removal by the road improvement. The best time to investigate these remains will be well in advance of the main TBG excavation because:

- No investigation has yet been undertaken at that location and the condition and extent of the archaeological remains is thus not understood. The spoil processing area is on the critical path for the TBG excavation, and anything that delays its establishment represents a considerable risk to the project programme.
- The remains of the industrial buildings and the gaol are likely to be robust, made of durable materials that are easy to define and, being fairly modern, easy to interpret within the framework of historical documentation, such as old maps. As such, and if permitted by HE, they would present a good opportunity for an excavation that could be presented to the public, and could even involve hands on public engagement. Such work links to work undertaken for the City of Culture.

7.1.10 Preparation of the area will involve removal of trees and lifting of existing surfaces. Explanatory signage, to be approved by HE, can be designed by OA-HFA in consultation with the stakeholders, including those engaged with local historical research (*Appendix 3*). Provision will be made for adequate welfare facilities for a team of ten archaeologists and attendant machine drivers, as well as a site office and storage. Where the works take place as an early activity in advance of the majority of enabling works, these could be sited along the northern edge of TBG and the former gaol site. Where feasible, and in consideration of any enabling works that may be simultaneously taking place at the site, the area may be fenced in a manner that allows the archaeological works to be clearly visible. An additional site cabin could be used for the display of findings for exhibition purposes.

7.1.11 **Task 1.5; Conduct archaeological strip, map and record of former gaol area:** the investigation will use standard OA techniques for the investigation of industrial archaeology sites. This will involve the use of a 360° mechanical excavator, fitted with a wide toothless bucket and operating under the supervision of an experienced archaeologist to remove deposits of overburden down to the uppermost archaeological horizon. Maximum use of the machine will be made to facilitate spoil removal and to clean robust remains. Final cleaning will be by hand. The structures will be recorded using a hi-view camera on a stick. The photos will be rectified using surveyed base stations, and the data will be processed on a computer package to create plans and, if appropriate, three-dimensional models, tied into Ordnance Datum. Alternatively, recording could comprise web map that utilises robotic total stations, and GIS package and laser scanning, as a means of increasing familiarity of use for the main phase of excavation.

- 7.1.12 Recording methods for the gaol and industrial features are influenced by the fact that such remains are best treated as the buildings and structures that they once were, and are best interpreted and understood when the components are viewed holistically. Accordingly, the recording methods for building components owes as much to modern historic building survey techniques as to more conventional archaeology. Recording will generally use structure and room sheets, with individual context sheets completed for non-structural remains or for specific contexts where these show evidence of phasing or modification. A photographic record will be maintained in digital format, with detail shots and working shots taken to record elements.
- 7.1.13 *Public engagement:* the excavation can be viewed by the public at all times, and sufficient resources can be deployed so that a daily or weekly question and answer session could be held to demonstrate progress to the public and display any interesting finds. For several days during the excavation it is proposed to allow small numbers of the public to participate in the excavation, provided that this can be undertaken safely. Participants would sign up in advance and would be expected to wear stout shoes and gardening gloves. OA-HFA would provide hi-vis vests. Tools would be limited to trowels, hand shovels, brushes and buckets. Tasks, particularly for adult participants, would be seek to include an element of education and training, and could include archaeological cleaning, photography, survey and hand planning. Finds processing could be undertaken where water is available on site and where the finds assemblage is suitable (ie, not restricted to lumps of rusty iron and bricks, as is often the case on industrial sites). An open day could be held at the end of the project, with the archaeologists taking visitors through the story of the excavation and outlining the findings. This could be further illustrated by updating the information panels displayed on the perimeter fencing.
- 7.1.14 A specific section in the WPP will be developed for such community engagement.
- 7.1.15 **Task 1.6, Close TBG:** following any appropriate advertising, TBG will be closed to the public and the entrances securely barred. Appropriate signage and security measures will be put in place by BB.
- 7.1.16 **Task 1.7; level grassed area to west of TBG:** the grassed area immediately to the west of TBG will be used as the site for the archaeology works compound. Previous archaeological watching brief identified structural remains, possibly elements of the little-understood medieval settlement of Wyke, some 2-3m below the modern ground level (and thus well below the likely extent of development impact; OA-HFA 2014). Industrial-period remains, including a timber yard, may well survive at a more shallow depth. The area will be fenced off, stripped of topsoil, and then levelled to a suitable horizon and to create a platform by a 360° machine fitted with a toothless bucket operating under the supervision of an experienced archaeologist. Any

archaeological remains revealed by that work will be investigated and recorded using standard watching brief methods (*Section 7.4*).

- 7.1.17 **Task 1.8; erect safety barriers and hoardings:** BB will erect safety barriers and hoarding to the A63 to provide protection from traffic. A complete circuit of hoardings will be erected around the TBG, the spoil processing area, and the archaeological works compound. Hoardings will be at least 3m high, will have no gaps, and will be placed at a suitable distance from the burial ground walls to allow both faces to be recorded, and to allow stepping out of the excavations so that there are no high sections that might otherwise present a hazard. Entrances and security points will be established.
- 7.1.18 **Task 1.9, Traffic management plan:** BB will be responsible for establishing a safe, rational traffic management plan that does not endanger or inconvenience members of the public, but equally minimises disruption and delays on site. The principal periods of heavy traffic associated with the site itself are likely to be at the beginning and end of the fieldwork, when materials are being brought to and taken away from site. The installation of hoardings, piling and the removal of trees/limbs will involve large wagons, plant and delivery vehicles, as will the installation of welfare and tents. On a daily or weekly basis, site traffic will include crew buses, welfare maintenance vehicles, fuel bowzers, water bowzers.
- 7.1.19 **Task 1.10, Sharps/waste removal and disposal:** parts of the site have again been used for the casual disposal of sharps and other waste by intravenous drug users and vagrants. Contractors engaged in vegetation removal will be suitably prepared; organic material containing sharps will be transported and disposed of in appropriate manner.
- 7.1.20 **Task 1.11, Locate, remove/redirect services within and immediately around TBG:** where services will be impacted upon by elements of the proposed scheme (including those of the preparatory works), they will need to be located through trial investigations, decommissioned/removed and/or redirected. It is possible that those sited to the immediate north of the current TBG boundary may lie within the former extent of burial ground. Works in proximity to TBG will be monitored by an archaeological watching brief, where appropriate. Works where services are present may need to be staged.
- 7.1.21 **Task 1.12; Set up Archaeology works compound:** the area to the west of TBG will be surfaced appropriately with durable material and a series of stacked units will be installed by BB. These will be linked to services (electricity, clean and dirty water as appropriate). The working areas and site compounds will be designated as 'dirty' (where staff will be wearing/removing PPE) and 'clean' (where staff will have removed all PPE) zones. The changing and drying rooms will be the link between the clean welfare area and the dirty working area and accordingly will have separate entrances. The

areas and requirements are as summarised in Table 6 and are illustrated on Figure 3.

7.1.22 A cleaner will be employed to maintain the cabins in good order.

Unit
Clean areas
Refuelling area: containing a large bunded fuel tank and space for vehicles and plant to pull in to
Loading area: an area for the loading and unloading of plant and other heavy materials
Lay-down/temporary storage area: for the receipt and stockpiling of materials (such as terram, fill materials and trakmats, etc)
Security office
Site Office: desk space and work stations for 15 staff
Dirty/Clean
Male and female shower, wash, changing and drying rooms
Dirty Areas
Osteology, coffin fittings and finds laboratory; space for 5 work benches, 5 computers and 2 sinks
Skeleton washing/finds and coffin fittings processing area; with 4 sinks; high-pressure hose over fine mesh
X-ray cabin
Skeleton drying cabins: x2; each with space for 300 skeletons at any one time
Storage: skeletons to wash for analysis; 10m store
Storage: skeletons washed, dry, ready for analysis; 10m store
Storage: skeletons that have been analysed; 10m store
Storage: skeletons that will not be analysed as part of the current programme and await reburial; 2x10m stores
Storage: tools; 10m unit
Storage: materials: 10m unit
Wheel wash areas, for plant to be cleaned before leaving site or going into clean areas

Table 6: Summary of Archaeology Works Compound Components

7.1.23 **Task 1.13, Initially record historic walls:** prior to the removal of vegetation and any damage that may cause, both faces of all burial ground walls will be rapidly recorded through photography and basic notes. Note, the inner faces of the former gaolyard walls have already been recorded in this manner, so any recording at this stage will be limited to their outer faces. BB will undertake structural surveys of any stretches of wall to be retained.

- 7.1.24 **Task 1.14, Clear vegetation, Stage 1:** scrub vegetation and any organic build-up at the exterior margins of the works area will be removed by a specialist contractor under the direction of BB. Where such work is likely to impact upon burial monuments and involve the removal of humic deposits, an archaeological watching brief will be undertaken.
- 7.1.25 **Task 1.15, Fully record walls and historic structures:** OA-HFA will record the visible parts of the burial ground walls to an appropriate level in accordance with HistE (English Heritage 2006) guidelines. Walls, such as those of the former gaol yard, that are likely to be of eighteenth- or nineteenth-century date (ie, contemporary with the use of the TBG; OA-HFA 2014) will be recorded to EH Level 2 standards. Later walls will be recorded to EH Level 1. In order to gain an understanding of the whole circuit, and where visible/accessible, even those sections of the walls that will not be impacted upon by the development will be recorded to provide for a record of the fully circuit of the burial ground walls.
- 7.1.26 **Community Engagement:** for a period of one week during the recording of the walls, a small number of community volunteers will accompany the building recording team, who will teach the volunteers the basics of their work, including photographic, textural and drawn records, as well as observation techniques for the identification of repairs, phasing, different materials, etc.
- 7.1.27 **Task 1.16; Remove required sections of walls and stockpile:** once recorded, the former gaol yard walls will be dismantled as carefully as health and safety considerations allow. Bricks will be retained in a designated part of TBG, outside the excavation area, for later use during the restoration of TBG. An archaeological watching brief (*Section 7.4*) will be maintained during dismantling, but must maintain a safe distance from the leaning walls until they have been made safe.
- 7.1.28 **Task 1.17; Clear vegetation, Stage 2:** under an archaeological watching brief, all remaining vegetation will be removed and disposed of appropriately. Particular attention will be paid during the clearance of vegetation and soil to reduce and make safe the overgrown mound that lies to the south of the excavation area. This will include investigating and recording the nature of the mound and leave it in a condition appropriate for the continued use of Trinity Burial Ground.
- 7.1.29 **Task 1.18; Record Grave monuments revealed by vegetation clearance survey:** a full survey and record of any grave monuments revealed by vegetation clearance will be made to current standards (*cf* Mytum 2002). Any *in-situ* memorials, whether complete or fragmentary, will be surveyed and allocated a unique number. Where possible they will be correlated with stones identified and recorded by the EYFHS survey (1982). Displaced stones, found during site preparatory works or during intrusive works, will be

treated similarly, provided that they display decoration or inscriptions. The accurate surveying and numbering of monuments will be critical, particularly where they are deemed to remain *in situ* and would be used as a potential means of identifying individuals or family groups in the associated grave plot. The stones will be recorded on *pro-forma* sheets based on and following, the guidelines set out by Mytum (2002) and will include details of:

- Shape;
- Dimensions;
- Type of stone used;
- Iconography (an illustration may best describe these features);
- Inscription (*verbatim* record of inscription; font of the lettering);
- Stylistic type.

7.1.30 Data relating to newly identified monuments will be added to the survey and database produced for the Advance Archaeological Works.

7.1.31 **Task 1.19; Remove grave monuments and stockpile:** all grave markers and monuments are technically the property of those who paid for their erection (and their descendants). As part of the Faculty application and Public Notice process, the intention to remove and relocate burial monuments will be advertised in advance of the works (DCA 2005, 12; Fairbairn 2012; ICCM 2012). OA-HFA will undertake a check on all such monuments to ensure that any revealed during the current scope of works are recorded and surveyed. Once recorded, all monuments within the affected part of TBG will be removed in a responsible manner (DCA 2005; ICCM 2012) by BB, working under the guidance of a monumental mason accredited by the British Register of Accredited Monumental Masons (BRAMM), under the auspices of the Faculty, and with the permission of the Burial Authority (ie, HCC). In the interests of facilitating the removal of the monuments, each monument destined for movement will be considered in cognisance of Sections 3.2 and 3.4 of *Management of Memorials* (ICCM 2012, 13-18). Memorials that lie outside the affected area of TBG will be left *in situ*, unless they are considered to be unstable and a direct safety risk to the Faculty 3 works.

7.1.32 Specifically, the recumbent remains of the gravestone of Francis Conyers (*Section 5.2.4*) will be recovered first. It will be labelled and moved to the storage area using the standard methodology, but will be placed on its own pallet, will be suitably demarcated, and will be protected by tarpaulin.

7.1.33 The works will entail the dismantling of the above-ground components of tombs and the partial excavation around those parts of the gravestone/monuments that are below ground. Such works will be undertaken in a manner that gives due consideration to the church's

requirements for repositioning and landscaping at the completion of construction works. The process will be monitored by OA-HFA to make a full record of the structures and ensure that any funerary remains or archaeological materials are collected (*Section 6.4*). Those monument components that the church would need to have retained for later re-positioning will be clearly labelled before they are lifted by BB using a mobile gantry and turntable truck, or a suitable machine under the supervision of a competent person trained in slinging operations. The monuments will be removed to secure storage locations within TBG.

- 7.1.34 The location and nature of subterranean features or voids will be recorded by OA-HFA. The information on these potential hazards will be provided to BB to ensure voids are covered/filled with granular material and/or fenced/demarcated.
- 7.1.35 **Task 1.20; Record and remove lamp posts:** a measured, written and digital photographic record will be made of the historic lamp posts within TBG, with detailed photography and survey as appropriate. Particular attention will be paid to the two examples that are locally listed structures and care will be taken to ensure that all documentation is in place to permit their removal and that subsequent treatment is in accordance with listed building documentation. Where safe to do so, a watching brief (*Section 7.4*) will be undertaken during, or after, the removal of the lamp posts to ensure that all human remains are recovered.
- 7.1.36 **Task 1.21; Tree Surgery:** numerous mature trees lie wholly, or partially, within the excavation area, with others that lie close to the southern edge of the excavation zone where they would impede vehicular movement. Those trees within the excavation zone will be felled by specialist contractors and the roots removed under archaeological watching brief. Where necessary, tree branches that intrude into the excavation area will be removed or trimmed back to ensure a safe working environment. Such works will take place outside the bird nesting season.
- 7.1.37 **Task 1.22 and 1.23; Install piling mats and insert sheet piles:** sheet-pile walls will be installed along most of the boundaries of the excavation area (Figs 3 and 4). That includes the complete length of the western, eastern, and southern boundaries of the Works area, as well as its curving northern edge, between the Mytongate Roundabout and the north-west corner of the former gaol area. A second row of sheet piles will be inserted at a distance of 2m from the southern edge to form the extents of a trench for reburying funerary remains. Prior to the installation, mats will be laid to provide protection to sub-surface elements of the burial ground and provide a suitable platform upon which the piling plant can operate. OA-HFA will maintain a watching brief (*Section 7.4*) during any excavations associated the installation of the piling mat and sheet pile wall (although the driving of the piles themselves will not be monitored due to severely limited visibility

associated with that technique). Where trakmats are used as the piling mats for the privacy tent piles, these will be repositioned to form spoil movement tracks at the completion of the piling.

- 7.1.38 **Task 1.24; Erect privacy tents:** all excavation of funerary remains will be fully screened from public view. Accordingly, several tents will be erected to cover the works. Initially, two large opaque tents (Tent 1 – western; Tent 2 - eastern), each supported on a scaffold system anchored by weighted blocks/kentledge, will be installed to cover the vast majority of the excavation area and reburial trench (Fig 3). Most of the support blocks will lie outside the excavation area, facilitating full and unimpeded access. However, at the very eastern and western ends of the investigation area, the kentledge will lie within the excavation area, meaning that small areas at those locations will lie, unexcavated, outside of the main tents. Once excavation and reburial is complete within Tent 2, it will be dismantled, and one or more smaller tents (Tent 3) will be erected to cover the unexcavated area. Similarly, once excavation is complete within Tent 1, it will be dismantled, and smaller tents (Tent 4) will be erected to cover the unexcavated area.
- 7.1.39 **Lighting:** the working area will be illuminated with artificial lighting. This is particularly salient when day light hours are limited, and a temporary superstructure has been erected. It will also provide flexibility should shift working be required (it is currently not planned to undertake the Works to a shift pattern). The scheme for the arrangement and powering of lighting will be designed by BB in advance of the works and take full cognisance of the site's logistical and environmental issues.
- 7.1.40 **Task 1.23; Establish soil processing area:** located as on Fig 3, this will occupy the former gaol area, which will have been mitigated by the Task 1.5 strip, map and record (Section 6.1.17), potentially extending into the area of the former mortuary building. The investigated area will be reinstated, consolidated, levelled and surfaced as appropriate.
- 7.1.41 An estimated minimum volume of 7014 m³ of material will be dug out during the site works (3,507m² dug to a depth of 2m below ground level), which will take up considerably more space in the form of loose arisings. All spoil will be removed to the processing area. For reasons of space, processed spoil will be removed from site. It will be returned to the excavation area at the end of the works.
- 7.1.42 **Task 1.24; Lay internal track network:** temporary routes formed from track mats will be laid to facilitate spoil movement from the western end of the burial ground to the spoil processing area at its eastern end. The track mats will be repositioned as appropriate throughout the works.
- 7.1.43 **Task 1.25; Emergency drainage and dewatering plan:** although the issues with groundwater are likely to be far less serious than originally anticipated,

provision will still be required, given that the works will take place through the winter months. A groundwater management plan will be devised for TBG in consultation with BB.

- 7.1.44 **Task 1.26: Laser scanning training:** BB and OA-HFA will organise sessions to determine the practical methodologies to be used during on site and during off site activities to enable OA-HFA to utilise the digital data.

8 Project stage 2: Archaeological Excavation

8.1 Introduction

- 7.1.1 The following sections outline a scheme of works that aims to ensure that the needs of the Stakeholders and the planning requirements are met and that the archaeological potential (Section 2.2) of the burial assemblage is realised efficiently and effectively.

8.2 Task 2.1, Archaeological Excavation

- 8.2.1 **Fieldwork Methodology:** the vast majority of the excavation area within the burial ground will be accessible and tented throughout the period of fieldwork. Very small areas at the eastern and western extremities will be tented separately following the dismantling of the ma Within that area, in order to ensure that the works are undertaken safely and respectfully and minimise damage to those human remains that will represent the archaeological sample, operations will take place within a series of distinct working areas (Fig 4).

- 8.2.2 **Basic tenets and sampling strategy:** the fieldwork methodology is influenced by consideration of the research framework for the project and of various practical constraints (Section 2.2):

- all human remains will be recovered from the excavation area, and a stratigraphic record will be made of all but disarticulated remains to facilitate an understanding of the density and spatial distribution of burials;
- all mechanically excavated arisings of anthropogenic deposits will be transferred to the spoil-processing area;
- disarticulated remains will be collected and reburied immediately on-site;
- charnel deposits will be reburied on-site after basic recording and lifting;
- within designated sampling areas, detailed excavation and in-ground assessment will be undertaken on a sufficient number of burials that will allow an appropriate number of skeletons and their associated coffin remains and any personal artefacts to be recovered for processing and detailed on-site osteological analysis;
- where it is apparent during the fieldwork that there are instances where skeletons within the analysis sample are stacked within the same grave, the value of stacked remains and potential family groups is such that all such skeletons will be retained and added to the analysis sample, even where some individuals might not meet sampling criteria in terms of completeness, or potential for aging and sexing;

- for logistical reasons, skeletons that lie within Tents 3 and 4 will not be used to fulfil the analysis sample unless they are the only means of meeting the requisite sample size;
 - remains that are unsuitable for archaeological recovery (fleshed or within metal coffins) will be removed by the EC and reburied on site immediately.
- 7.2.3 There is currently no published guidance on how an assemblage the size of that expected from the TBG should be investigated archaeologically. Published guidance (Historic England 2015b) provides a justification for sampling large post-medieval cemeteries. The sample size will be sufficiently large to:
- be statistically valid, allowing for the division of date and demographic sub-groups;
 - permit the exploration of changes over time;
 - permit exploration of spatial variation, including areas of higher and lower density and with and without extant gravestones;
 - examine family groups;
 - examine aspects of status and identity.
- 8.2.3 A sample of 1500 skeletons (equivalent to 9-11% of articulated burials from the excavation area where it contains the remains of 18,938 interments; or 13-17% of articulated remains that are over 25% complete and thus considered suitable for analysis; Arup 2015; OA-HFA 2016b) will be archaeologically recovered for on-site analysis. Skeletons that were over 25% complete (using a system where the most analytically significant bones are scored more highly than others, rather than gross presence/absence; OA-HFA 2016a, Section 5.6.1, Fig 14) had far more potential to have their ages and sexes estimated closely than was the case with less complete individuals. The results of the evaluation trenching and osteological assessment indicated that 70.9% of those burials that lay fully within the trenches were over 25% complete and would thus be suitable for analysis.
- 8.2.4 All skeletons and associated funerary remains in excess of the 1500 skeletons collected for analysis will be recorded stratigraphically, but will not be osteologically assessed and will be reburied as soon as they are lifted. It is envisaged that the reburial will be primarily on site, although as a precautionary measure, discussion will take place with the PCC to explore the possibility of using the Holy Trinity Church crypt for additional reburial space.
- 8.2.5 The sample recovery strategy will be monitored by OA-HFA in consultation with the AAHE, HistE, and HAP and in accordance with DAC wishes. It will:

- permit the examination of spatial variation across the affected portions of the TBG;
- allow for chronological variation, both vertically (ie, it will permit the full sequence of skeletonised burials within each grave within the sampling areas to be investigated and lifted) and horizontally (ie, to examine the development of the cemetery across each of its major axes);
- be modified in terms of sample area positioning to allow for constraints, or to permit the investigation of specific parts of the burial ground in the light of their potential;
- ensure that the programme is effective, both in terms of the appropriateness of the human remains being encountered and the gross number of burials being removed, but also that the recovered burials represent, as far as possible, a microcosm of the buried population as established from TBG burial registers and as observed on the ground;
- be flexible to permit the recovery of sufficient remains where burial densities are lower than might be expected, or remains are unviable for archaeological sampling. Equally, sampling areas will be contracted in the event of very high densities of burials;
- have sufficient sampling areas so that those abandoned due to localised adverse conditions, or where bone preservation is so poor as to prevent project research aims to be addressed, will not impact on the size of the sample recovered. Given the need to examine spatial and chronological variation, however, minor variations in bone preservation will not affect the sampling and recovery strategy;
- have several sampling areas worked on at the same time;
- include osteological assessment concurrent with excavation to ensure that the remains recovered for analysis are at **least 25% complete and have potential for analysis by retaining characteristics that allow them to be assigned to age and (where appropriate), sex categories**;
- once 1500 skeletons have been identified for on-site analysis, no further assessment will take place although stratigraphic information will be recorded.

8.2.6 The provisional sampling plan is shown on Fig 4 and explained in Tables 7 and 8. Areas for recovery for full osteological analysis are shown red. Areas for rapid recovery are shown with blue hatching. Skeletons in areas shown with purple hatching will be recovered rapidly unless the neighbouring red-hatched area fails to produce enough skeletons for analysis (ie, the purple-hatched areas represent a sampling contingency).

Area	Hatching	Recovery technique
Analysis	Red	Detailed
Recovery	Blue	Rapid
Overspill	Purple	Detailed where required to make up numbers for analysis, otherwise rapid
Exceptional burials (ie, burials that lie outside of the analysis areas but can be considered analytically important due to being identifiable as named individuals, have an unusual mode of burial, burial panoply or significant pathological condition)		Detailed

Table 7: summary of recovery techniques (see Fig 4)

Recording technique	Recovery Category				Section Reference
	Detailed	Rapid	Charnel	EC	
Excavation rate, skeletons/digger/day	1.8	3	5	As appropriate	
Receptacle	Skeleton box for analysis White fabric bag for immediate reburial	White fabric bag for immediate reburial	White fabric bag for immediate reburial	White fabric bag for immediate reburial	
Survey	Y	Y	Y	Y	8.2.8
Rectified Photography /photogrammetry	Special circumstances only	N	N	N	8.2.11
Record Photography	Y	One shot/burial; minimal	One shot/burial; minimal		8.2.11
Laser Scanning	Y	Y	N, unless arranged deposit	Y	8.2.11
Basic skeletal/strat record	Y	Y	Y	Y	8.2.12a-b

Recording technique	Recovery Category				Section Reference
	Detailed	Rapid	Charnel	EC	
Osteological Assessment	Y, only as required to confirm suitability for analysis	N	N	N	8.2.12c
Washed	On-site; only if part of analysis sample	N	N	N	8.5
Abdominal samples for parasites	N	N	N	N	
Osteological Analysis	Y	N	N	N	9.2.3
Biochemical Analysis	Selection	N	N	N	9.2.14
Basic Coffin Record	Y	Y	N	Y	8.2.121.1 e)
3D location of coffin fittings	Y	N	N	N	8.2.121.1 e)
Coffin Fittings and personal effects	Examined then reunited with burial	Kept together. Not examined	Kept together. Not examined	N	8.2.121.1 e)
Digital Collation and quantification of all records	Y	Y	Y	Y	9.1.2
Reburial	Following analysis, on site	Immediate on site	Immediate on site	Immediate on site	8.8

Table 8: summary of recording techniques for differing recovery levels

8.2.7 **Works Area Sequence:** archaeological investigation will commence as soon as Tents 1 and 2 are in place. Stripping from the western end of Tent 1 and the eastern end of Tent 2 will commence simultaneously, with investigation teams deployed as soon as they can safely reach the burial horizon.

8.2.8 **Setting out and Survey:** the sampling areas defined on Figure 4 will be set out on the ground as soon as is practical. Accurate survey of all archaeological remains is critical to the success of the Works. A series of

survey base stations will be established on suitable ground that will not be reduced or affected by plant or vehicle movement. A site location plan indicating the site north and aligned to OS NGR will be prepared (reproduced with permission of the Controller of HMSO). This will be supplemented by plans of the working area at appropriate scales. The location and dimensions of the investigation and sampling areas and the location, orientation and OD height of each burial, will be recorded by EDM or dGPS and a plan generated using a GIS package. Survey data generated during the fieldwork will be processed and amalgamated into a single file and plotted out in GIS format on a regular basis.

8.2.9 **Ground reduction:** topsoil will be left in place for as long as possible, in order to provide a measure of protection to the burials and maximise flexibility in terms of machining. Ground reduction will take place as follows:

- all ground reduction will be undertaken by 360⁰ machines fitted with a toothless ditching bucket, operating under the supervision of an experienced archaeologist;
- ground reduction will take place from south to north in Tent 2, from west to east in Tents 1 and 4, and from east to west in in Tent 3 (ie, towards the spoil-processing area in each case).
- as far as possible, soil will be stripped back to the sheet-piled edges, except in the case of those edges bordering the spoil processing area, which will be battered or ramped back. The western end of excavation within Tent 1 will also be stepped, the corresponding area being excavated within Tent 4;
- the overburden, which can be defined as the topsoil and the material between the base of the topsoil and the uppermost burials, will be systematically removed from as wide an area as possible;
- In the interests of maintaining a protective soil cover for as long as possible, it is not proposed to strip off all the topsoil from the site, then return to remove the remainder of the overburden. Rather, the plant will remove the topsoil and then the other overburden in a series of narrow strips;
- excavation will proceed down to the top of the burial horizon (literally the soil that contains the funerary remains) and will seek to expose as many burials as possible in plan, while also limiting any major variations in depth between adjacent graves; the outline and location of the excavation area and of all visible grave cuts and burials, irrespective of recovery technique, will be mapped using instrument survey;

- all spoil will be kept separate (topsoil, subsoil, burial horizon, natural material) and will be removed by dumper to the spoil-processing area for removal of disarticulated bone, which will be collected for reinterment;
- the burial horizon will be reduced incrementally by machine and by hand, with small machines being used throughout to assist with bulk excavation between burials and to assist with spoil management. As far as possible, the team will seek to reduce the burial horizon in level increments across the widest possible area, but excavations may need to be stepped or battered as appropriate for safety reasons;
- temporary trackways will be laid to allow the small machines to move across the stripped burial horizon without impacting upon the burials below.
- *Testing the base of the burial horizon:* once it is believed that all identified funerary remains have been removed from the area of the tent, OA-HFA will undertake a process of verification. This will comprise archaeologically supervised mechanical excavation to a point where undisturbed natural deposits are observed, or to the top of any underlying pre-cemetery archaeological horizons, but certainly no deeper than permitted by BB with due consideration to SHE matters;

8.2.10 **Numbering and recording:** a logical numbering system will be used for all archaeological and funerary remains and which allows unique burials to be identified, as well as elements of the same feature (ie, those of individual burials and of grave plots) to be grouped. A fully integrated, indexed archive will be generated during the fieldwork, with data accurately recorded on *pro-forma* that are either specific to, or sufficiently versatile to allow the treatment of the range of archaeological remains on site. Full use will be made of instrument survey and of digital photography (minimum 10 mega pixels, with sufficient depth of field to frame both individual and groups of burials). Digital images will be regularly backed up, and saved in both TIFF and RAW formats for long-term storage. The individual files will be named so that they correlate with photographic indices. Both file formats will be backed-up on archive-quality CDs for eventual submission with the archive. Plans and sections will be drawn as and where appropriate to standard scales (ie, generally 1:20, 1:50 and 1:100 for plans; 1:10 and 1:20 for sections).

8.2.11 In conjunction with the archaeological works robust digital record keeping which could include, web map that utilises robotic total stations, and GIS package and in some cases laser scanning maybe used of the areas of operation will be put in place by BB, who will provide OA-HFA with training in its use and operation. The purpose of the laser scanning will be to provide a digital record of the Works and to supplement the digital record compiled by OA-HFA.

8.2.12 **Archaeological excavation of burials:** hand-excavation of the remains will commence in accordance with the recovery strategy for the pertinent sampling area (Fig 4), with the teams moving from one end of the sampling area to the other. Where needed, a supervised mini machine will assist with removing baulks and reducing deep deposits of grave backfill grave down to the next burial, with the archaeologists eventually returning to the beginning to remove the next burial in the sequence. Table 8 summarises the different techniques that will be employed for the excavation, recording and subsequent treatment of burials within each sampling category. Funerary remains exposed by the machine will be rapidly excavated by hand by archaeologists in accordance with ClfA guidelines (Roberts and McKinley 1993; Brickley and McKinley 2004). In particular, the archaeologists will seek to reveal forms of identification, such as coffin plates (and speedily record them where deterioration may be rapid following exposure to the air). The following approaches will be utilised, modified as appropriate in accordance with recovery strategy:

- a) Burials will be very rapidly cleaned by hand in a manner that is sufficient to determine burial position, orientation, relationship to other features and to identify associated coffin remains. Their positions and orientations will be recorded in three dimensions by instrument survey. Very detailed instrument survey is not required except in those (currently unexpected) cases where such data can be used to separate individuals from mass graves. Atypical burial positions among skeletons within the analysis sample will be recorded by rectified photography, as appropriate.
- b) All recording will utilise specially designed *pro-forma* indices and recording sheets for skeletons and for coffins that can be completed on tablets and linked to a central computer for checking. Each burial will be recorded in terms of position, orientation, grave goods, burial dress and fastenings. An indexed high-quality digital photographic record will be maintained of all burials.
- c) All articulated skeletons within areas that have been selected to provide skeletons for analysis will undergo some form of in-ground assessment with recognition of national standards (Mays *et al* 2002; Brickley and McKinley 2004). Outside of those areas, assessment will only be undertaken where additional remains are required to meet the analysis sample. The assessment process will be rapid, and all recording will utilise the digital interface to the database. It will seek to identify those individuals that are more than 25% complete and retain diagnostic characteristics for ageing and sexing and are thus clearly appropriate for analysis. Skeletons will be scored for completeness, condition, potential for aging, sexing, and the presence of the skull and complete long bones that could be used for measurements and for the examination of non-metric traits. Skeletons will not be otherwise be systematically scored for their potential for metrical and non-metrical

analysis, nor will pathology be recorded, although obvious evidence of the latter may be noted.

- d) A record will be made of the positions and nature of personal items, other artefacts, and preserved fittings from clothing (ie, buttons, etc) that would elucidate the mode of dress worn at burial by the individuals selected for analysis. In keeping with ethical good practice these will be kept with the individual for reburial at the completion of osteological analysis.
- e) Coffins and any associated fittings, including fixing nails, will be recorded on specific digital *pro-forma* which will include details of dimensions, materials, construction technique, decoration and fittings. All surviving coffin fittings associated with burials selected for analysis will be recorded by reference to Reeve and Adams (1993) and the unpublished master catalogue being compiled by Oxford Archaeology. Where individual types cannot be paralleled, they will be drawn and/ or photographed and assigned a style number. Attempts will be made to read less fragmentary *deparum* plates (such as wet spray, and the use of a mirror and oblique light when looking at the reverse of the plate) in order to identify individuals who could be used as historical case studies. Biographical details obtained from legible *DE partum* plate inscriptions will be recorded.
- f) All coffin fittings associated with burials that fall outside of the analysis sample will be bagged and will be retained with that individual. These fittings will only be recorded where they are of intrinsic interest due to being unusual, closely datable, or extremely well preserved, such as the grips, which retain their form and decorative motifs. Given that so little timber was identified during the evaluation, it is not proposed that timber samples (for species identification) will be taken, although any reasonably preserved fabric samples will be taken where appropriate. It is intended that coffins will be reburied within the reinterment area along the southern edge of the excavation area (Fig 4), although where that may limit space available for the reburial of human remains, alternative methods may be considered in consultation with stakeholders.
- g) Provided the remains are skeletal and any associated coffins have survived as remains only, these will be placed within opaque, burial sacks (colour-coded according to recovery technique; Table 8), or boxes, as appropriate, with attached identification/location tags. They will be removed to the appropriate storage unit (for analysis or for reburial).
- h) *Textiles*: only very small amounts of textile were encountered during the trial-trench evaluation (OA-HFA 2016), and extensive remains are not expected. Should any burial garments, coffin linings or other fabrics directly associated with skeletonised burials be found within the sample selected for analysis, they will be recorded *in situ*. Fabric samples for detailed examination of

material and manufacture will be taken and the remainder of the garment will be reburied in the reinterment trench.

- i) *Bisected burials*: generally, plots that have been bisected by piling will not be used for the Samples A or B unless that is the only means of meeting sample numbers. The piled southern site limits will be strictly adhered to.
- j) *Sealed coffins*: should any completely sealed coffins be encountered, these will not be opened, but will be assigned context numbers, recorded on *pro-forma* coffin sheets (including survey) and assigned to the EC to recover under an archaeological watching brief. The EC will not open unbreached metal coffins.
- k) *Incomplete skeletonisation*: human remains that are mostly skeletonised (i.e., they have a bit of skin, some hair, a few toenails, a little adipocere, but no flesh) will only form part of Samples A or B where it would be impossible to meet the sampling programme without examining them.
- l) *Skeletons with any flesh* will be excluded from Samples A and B. They will be passed over to the EC for removal and reburial (compliant with any requirements of the Burial Authority and Environmental Health).
- m) Burials that have been disturbed prior to the investigation, either with elements *in situ*, or with the bones found as charnel deposits, will be recorded on site, as above. Bones will only be recovered for processing and analysis where they can be confidently identified as representing one or more distinct and separable individuals and there are sufficient elements present to contribute to analysis; burials that do not meet these criteria will be passed to the EC for reburial.

8.2.13 ***Burials to be recovered by the EC***: burials that are unsuitable for archaeological recovery will be recovered by the EC. OA-HFA will make a count of those burials that the EC recovers from otherwise archaeologically investigated plots, together with whatever basic spatial information can be safely recovered. Recovery by the EC will be by hand where safe to do so, otherwise mechanical techniques will be used where deemed appropriate. The EC's groundworks, particularly in areas/at depths where they could impact upon archaeological remains below the burial horizon, will be monitored by a watching brief (Section 7.4).

8.2.14 ***Excluded burials***: some descendants may request that the remains of their ancestors should not be included within any programme of archaeological analysis. The TBGLO will maintain a list of any such individuals and of the descendants concerned. The TBGLO will have a database version of the Holy Trinity Parish Burial Register against which to check any enquiries. A copy of the list will be provided to OA-HFA. Where it is possible to identify excluded individuals positively during fieldwork (for example from *in-situ* grave markers or

from coffin plates), those remains will be removed by OA-HFA and placed in yellow bags and transferred to a dedicated store. The TBGLO will be informed of their discovery, and will make appropriate arrangements with the family and the appointed undertaker so that the remains can be placed in a coffin and removed from site to the undertakers.

- 8.2.15 **Disarticulated bones:** individual disarticulated bones found within the cemetery deposits and which cannot be immediately attributed to a more complete individual burial will be reburied. Such remains will not be recorded unless they are of high scientific interest. The latter will include examples that bear clear signs of unusual pathologies that may not be represented within the articulated remains. Such data will be used observationally, but not statistically.
- 8.2.16 **Memorials:** any memorials identified during the works, whether complete or fragmentary (and which display decoration or inscriptions) will be surveyed as appropriate and allocated a context number. Once recorded (See *Section 6.1.25*), the stones will be stockpiled. Where the position of buried memorials will impede progress (*ie*, there is a layer of damaged memorials), these will be surveyed, labelled and moved to one side by the machine so that they can be recorded without impeding the progress of the excavation. Only manageable fragments will be removed by hand: all others will be removed by on-site plant fitted with appropriate equipment and undertaken and supervised by suitably qualified BB staff.
- 8.2.17 **Burial structures:** any brick shaft or vaulted structures identified on site will be recorded by OA-HFA and be dismantled by a qualified BB operative under archaeological watching brief. Recording will comprise the three-dimensional record of the feature's location using instrument survey and an appropriate photographic and written record, including measured and annotated drawings where appropriate (*ie*, the nature and structural complexity/composition of the structure cannot be captured through other means. Brick-by-brick drawings are not expected). It may be necessary to dismantle these structures incrementally in order to maintain a safe working environment. Where safe to do so, a measured cross section of the structure's vault may be produced. Burials within these structures will be treated in accordance with *Section 7.2.11*, dependent upon within which sampling category they fall.
- 8.2.18 **Associated personal items/artefacts:** personal items within plots but which cannot be directly associated with an individual will be surveyed where appropriate. Those, together with all items that are associated with individuals in the archaeological assemblage, will be packaged and removed for processing and an appropriate level of recording and analysis by a suitable specialist. All artefacts that can be associated with an individual burial will be placed with that individual prior to reburial. Where such items are directly associated with individual burials that fall outside the on-site analysis sample, they will be appropriately packaged and will be retained with

the burial, in accordance with the directions of the Faculty. Artefacts that are not associated with funerary activity will be collected in accordance with standard ethical practice.

- 8.2.19 **On-site storage:** OA-HFA will be responsible for the individual bagging or boxing all skeletons except for any remains recovered by the EC. Funerary remains will be kept temporarily in secure lockable stores that are specific to the recovery and processing stage of the skeleton (Table 6). The stores will be well organised and tidy, with remains kept safely and respectfully.

8.3 Task 2.2, Non-funerary Archaeological Remains

- 8.3.1 Where non-funerary archaeological remains associated with the use of TBG are identified on site, they will be investigated and recorded in a manner that is appropriate to their significance and condition. Typically, this will involve the use of instrument survey to accurately record their three-dimensional location and the generation of a comprehensive, indexed, archive of written records, digital photographs, scale plans and sections, as well as the formulation, in consultation with HAP and the HistE Regional Science Advisor, of an appropriate finds recovery and palaeoenvironmental sampling strategy. Particular consideration will be given to the recovery of waterlogged remains should any deep negative features be identified that extend below the watertable. Where features are present, they should be excavated to an extent that allows them to be understood.
- 8.3.2 **Pre-cemetery remains:** any pre-cemetery archaeological remains identified during the clearance of TBG will be subject to archaeological investigation, as appropriate. This will be in agreement with the AAHE, BB, and HAP.

8.4 Task 2.3, Watching Brief

- 8.4.1 Archaeological watching briefs will be undertaken at various points in the works. Whether undertaken during the movement of memorials, ground reduction, carriageway works, during static diversions (where those in the pavement immediately to the north of the burial ground have the potential to inform an understanding of whether the northern boundary of TBG was different to its modern limit), or during exhumation, the methodology will essentially be the same. An appropriate number of archaeologists will be deployed to directly monitor the works of BB contractors and, if necessary, will stop the activity at a point where archaeological remains are identified. As far as possible, OA-HFA will work with BB to minimise delays and additional staff will be deployed either to record, investigate and lift the remains revealed, or to continue monitoring the groundworks where they can be moved to a different location. Dependent on the nature of the remains identified, the appropriate methodologies can be found in *Section 7.2*.

8.5 Task 2.4, On-site Archive Processing

- 8.5.1 7.5.1 During and at the completion of the fieldwork, as appropriate, the different components of the site archive will be checked, processed and collated within a format that can be integrated and interrogated. This will include the generation of a site database and a suitable GIS programme. Digital files will be backed up regularly. The skeletonised human remains that are to be analysed on site will be taken to the skeleton processing cabin where they will be gently cleaned over a fine mesh sieve to ensure that no material is lost and will be bagged, boxed and catalogued. Finds and those retained coffin fittings and fabric samples, will be cleaned, dried, packaged to minimise any degradation, marked where necessary and catalogued.

8.6 Task 2.5 On-Site Analysis

- 8.6.1 All skeletons that fall within the analysis sample will be physically examined for analysis in the on-site osteology laboratory. Methods for on-site analysis are presented in *Section 8.2*.

8.7 Task 2.6, Spoil Processing

- 8.7.1 All mechanically excavated arisings from the topsoil and subsoil will be transported from the excavation areas in dumpers and will be placed in stockpiles within the spoil-processing area. A small 360° mechanical excavator will place the spoil into the spoil-processing facilities, where the sorting staff will utilise a combination of mechanical facilities and manual techniques to search for and recover all visible fragments of disarticulated bone and other funerary remains, which they will place in sacks for reburial. Any artefacts will only be retained and examined where they either contribute to the project research aims. Once searched, the processed spoil will be loaded into a dumper by the small mechanical excavator and removed from the processing area.
- 8.7.2 All disarticulated bone recovered during hand excavation will be placed in burial sacks and taken to the processing area. A record will be made of the weight of each burial sack which will then be buried in the reburial trench.

8.8 Task 2.7, On-Site Reburial

- 8.8.1 **Reburial:** all funerary remains will be reburied in an appropriate manner in accordance with the Faculty/MoJ directions/licence and in conjunction with the PCC, vicar and any other appropriate Burial Authorities. All human remains will be reburied during the construction programme. Wherever possible, reburial will take place within TBG itself, although arrangements will

be discussed with the PCC for use of the Holy Trinity Church crypt as a precautionary measure.

- 8.8.2 **Reburial trench:** A 2m-wide shored strip at the southern edge of the excavation area will be used for reburial. This will be mechanically stripped of overburden at the same time as the adjacent investigation areas. It is not intended that the full strip, from one end of TBG to the other, will be cleared of burials at once. Rather, short lengths will be opened and used for reburial at any one time. Starting from the eastern end of the site, short (full archaeologically excavated) stretches of this area will be made deeper, if appropriate, by mechanical excavation operating under BB control. Open areas will be temporarily covered by metal road plates to prevent people falling in and to maintain access. Individual cells will be used exclusively for reburial of either disarticulated bone, coffin fragments, or for exhumed remains recovered by the EC.
- 8.8.3 The reburial and backfilling process will be carefully documented, and a plan will be produced, and updated, that shows contents (for example, the locations of any lead coffins or fleshed remains). Area within the trench will be backfilled by BB with clean (processed) arisings from the site, or, if more appropriate, an engineered fill.
- 8.8.4 **Reburial of disarticulated bone:** the weighed bags of disarticulated bone will be placed within a reburial cell by the EC, or by a BB team member with confined space training with OA-HFA support as necessary. The bags will be placed in a dense layer to avoid gaps and maximise the utilisation of the available space. Sand or other cleaning arisings will be used to fill voids between bags to limit settlement. Bags will be replaced to a level 0.5m below the modern ground surface. They will be sealed with a layer of clean sand, and the cell backfilled.
- 8.8.5 **Reburial of EC-exhumed remains:** sealed or lead coffins removed by the EC will be transported to a reburial cell within a dumper or on a turntable truck. They will then be lifted by machine and placed into the reburial cell under the direction of the EC supervisor and a BB slinger. At the end of each day, a 0.3m-thick layer of processed soil will be placed on top of these reinterments. Reinterments will be stacked to a level 1m below the modern ground surface. They will be sealed with a layer of clean sand. Arrangements will be made to establish provision for off-site reburial of lead coffins, should that be required.
- 8.8.6 **Reburial of coffin remains and undiagnostic monument fragments:** although it is not expected that large amounts of either material will be encountered, any such remains will be reburied within the reinterment area. These will be placed in the cell by the EC or by BB, compacted by machine to limit gaps, with filling taking place to a level 0.5m below the modern ground

surface. They will be sealed with a layer of clean sand, then the cell will be backfilled.

- 8.8.7 ***Reburial of individuals that have been analysed on site***: individuals that have been analysed will be retained on site for as long as possible throughout the fieldwork, permitting the skeletons to be revisited for further examination, as necessary. One month prior to the programmed completion of archaeological site works the process of bagging and reburial of such remains will commence, so that, at the completion of site works, all will have been reburied on site in a manner similar to the bags of disarticulated bone (Section 7.8.4). Due consideration will be given to individually reinterring those burials positively identified from their funerary remains.
- 8.8.8 ***Reburial of Remains unsuitable for analysis***: individuals assessed as not meeting criteria for analysis, or exceeding sample quantities, will be reburied as soon as they are lifted, in a manner similar to the bags of disarticulated bone (Section 7.8.4).
- 8.8.9 ***Samples taken for scientific analysis***: small samples of bone and a tooth will be taken from a selection of individuals so that they can undergo specialist biochemical analyses that would seek to address several of the project research aims (Sections 9.2.14 - 9.2.16). That off-site analysis of biochemical samples will take several years to complete, and will thus extend beyond the duration of the fieldwork stage of the investigation within TBG. At the completion of the biochemical analysis, the treatment of any remaining tiny fragments of tooth or bone will be agreed with the Church.

9 8. Project Stages 3-5: Post-excavation Works

9.1 Project Stage 3: Collation and Review

- 9.1.1 **Task 3.1, Compile Interim Report and prepare Updated Project Design (UPD):** throughout the programme of works, the findings will be closely monitored and there will be regular liaison with stakeholders. A good understanding of the assemblage will be gained during the fieldwork, archive processing and on-site specialist assessment of each category of data. Basic data gathered during the fieldwork and on-site assessment and recording will be entered on a database throughout the programme of site works. This will be regularly collated and quantified during the works as a means of monitoring progress and sampling strategies.
- 9.1.2 At the completion of the fieldwork, the data will be fully processed, collated and quantified. As far as possible within the time constraints and the limitations of a predominantly digital medium, the data will be integrated and reviewed. A validation exercise will then take place on the data, with the results forming the basis of a justified, quality-assured, illustrated UPD for off-site analysis. The combined interim report and UPD will include:
- a very brief background to the project;
 - a synopsis of the work completed, including a rapid overview of those parts of the site where archaeological works have been undertaken, their nature, extent and any reasons for abandoning areas or for the movement/transfer of sampling. This will enable the sample size to be confirmed;
 - an overview of the findings, with observations of the character of the archaeological findings, including their density and distribution, together with any other factors that may influence the setting of the project's research questions;
 - a quantitative and qualitative review of the archive according to data type, culminating in a statement of potential that is couched within a relevant research framework;
 - with reference to the statement of potential, a review of the project objectives and the formulation of appropriate research questions and objectives for analysis;
 - a method statement presenting the methodologies for those forms of analysis that will be used to meet the project's research questions;

- bibliography;
- plans and photographic plates;
- costs, methodology and programme for preparation and deposition of the project documentary and digital archive (assuming that the physical archive has been largely, or completely, reburied);

9.2 8.2 Project Stage 4: Analysis

8.2.1 It is not possible to be completely prescriptive about the nature of the Project Stage 4 works at this stage, as there are several factors, including the directions of the MoJ burial licence, the Faculty and also any specific Environmental Health requirements that may influence exactly what, and how analyses are undertaken. Essentially, it is proposed to undertake an appropriate programme of analysis on the sample of funerary remains assessed and examined on-site (prior to on-site reburial prior to the end of the archaeological excavation) and, if identified and appropriate to do so, of pre-cemetery archaeological remains, ensuring that the techniques utilised enable comparison with other assemblages and, as far as the data allows, statistical validity. The analysis will include:

- the use of gravestone data in the identification of individuals;
- the use of non-metric traits to explore familial relationships;
- the synthesis of all relevant forms of data from the site;
- comparison with data from other contemporary sites to assist in identifying those elements of the record that are specific to TBG;
- a population-based bio-cultural study of the assemblage, including examination of the anatomical distribution of lesions of pathology potentially relating to occupation and lifestyle (particularly among those aged below 40 years old, to mitigate the effects of age-related pathologies) which will be of use when helping to understand the characteristics that make the site unique against contemporary comparanda;
- a firm grounding within a socio-economic historical context at local, regional and national levels.

9.2.1 Accordingly, the following sections must be seen as provisional and a guide to the post-excavation procedures that could be undertaken. These procedures will be formalised within the UPD (*Section 8.1.1*).

9.2.2 **Stratigraphic data:** the processed stratigraphic and survey data will be integrated and will then be interrogated in order that the findings are understood as fully as possible at a range of levels, ranging from individual burial events through plots to zones across the impacted part of the burial

ground. An appropriate and illustrated explanatory text will be formulated, utilising a concise scheme of phasing where applicable. Non-funerary and or/pre-cemetery data will be analysed in a way that is appropriate to its significance and completeness.

9.2.3 ***On-site osteological recording:*** on-site osteological recording and off-site analysis will be undertaken in accordance with IfA (Brickley and McKinley 2004), EH (Mays 2002; CoE and EH 2005) and BABAO (nd) standards. Essentially analysis will seek to gain an appropriate understanding of the demography and epidemiology of the population and the lifeways of individuals when couched within an appropriate research framework and historical and socio-economic context. The programme of analysis for the surviving bones and teeth from each skeleton selected for analysis will involve standard processes of macroscopic examination, measurement and recording in order to identify and digitally catalogue data, allowing an identification of sex, age (Bedford *et al* 1993), and pathological lesions (Aufderheide and Rodriguez-Martin 1998; Hillson 1996; Ortner 2003). Details of stature, general bone physiology and proportions, and non-metric traits (Saunders 1989; Tyrell 2001) will also be recorded. Detailed photography of selected osteological material will be undertaken, as will, where appropriate, on-site x-radiography and/or microscopy. The resultant information will be recorded within a database that can be used to create detailed skeletal inventories and appendices.

9.2.4 The analysis of the osteological material will seek to address a number of specific aims:

- to record and analyse basic demographic and biological information, such as sex, age and stature;
- to record and statistically examine palaeopathological information in order to learn about the health status of the TBG community (in the broadest sense);
- to gain an understanding of the origins of members of the population, both through morphological characteristics and through the selection of specific individuals for isotope analysis;
- to identify any additional specialist analysis, such as radiography, of the remains;
- to place the remains within a regional and national context.

9.2.5 In order to achieve these aims, the following information will be collated during the osteological analysis:

- quantification of the remains;

- evaluation of the overall condition and completeness of the remains, with reference to the survival of indicators of age, sex and stature, metrical and non-metrical analyses, and palaeopathological examination;
 - establishment of the demographic composition of the population;
 - establishment of the overall range and extent of palaeopathological conditions.
- 9.2.6 Each skeleton will be examined and digital analysis forms will be completed within the on-site database detailing condition, completeness and noting biological and palaeopathological information.
- 9.2.7 *Condition and completeness:* the general condition of the skeletal material will be recorded with reference to the scoring system set out by McKinley (2004), which grades bones according to the degree of erosion to surfaces and alteration to bony contours. The completeness of each skeleton will be estimated by recording, as a percentage, how much of the skeleton has survived.
- 9.2.8 *Biological sex and age:* the basic demographic composition of the population will be established through examination of extant age and sex indicators by employing the techniques described by Brickley and McKinley (2004). The detailed demographic profile, with narrower age categories, will be explored by considering the extent and range of sex and age indicators that have survived and the reliability of these indicators. Estimation of biological sex and age is more accurate if a range of indicators is employed instead of one or two (Bedford *et al* 1993) and this will be taken into account.
- 9.2.9 Preservation and completeness permitting, age estimations can be based on observations of dental development (Moorees *et al* 1963), epiphyseal fusion and long-bone length (Scheuer and Black 2000), the morphological changes of the pubic symphysis (Brooks and Suchey 1990), the auricular surface (Lovejoy *et al* 1985; Buckberry and Chamberlain 2002) and the morphology of the sternal rib ends (Iskan and Loth 1986a; 1986b). The overall degree of cranial suture closure (Meindl and Lovejoy 1985) can also be considered alongside the aforementioned methods. Biological sex can be estimated based on observations of the sexually dimorphic traits of the skull and pelvis (Phenice 1969; Bass 1987; Buikstra and Ubelaker 1994).
- 9.2.10 *Metrical data:* metrical data will be recorded for archive where feasible. This can include, where preservation allows, 29 cranial, five mandibular and 26 post-cranial measurements. Adult stature can be calculated using complete long bone lengths of sexed individuals, and applying them to the appropriate regression formula (Waldron 1998, 75; Trotter and Gleser 1952; 1958; Trotter 1970). Metrical data may also be employed to assist in the estimation of sex (Bass 1987) and also to explore variation in skeletal anatomy in relation to

environmental and hereditary influences. For example, calculation of the platymeric (degree of flattening on the femur front to back), platycnemic (degree of flattening of the tibia front to back) and cephalic (cranial shape) indices may be undertaken by employing measurements of the relevant bones.

- 9.2.11 *Non-metrical data*: non-metric traits, minor anomalies of skeletal anatomy that may be genetically or environmentally induced (Mays 1998), are another means of studying human skeletal variation in relation to the environment and inheritance (Saunders 1989; Tyrell 2001). A list of up to 23 cranial (Berry and Berry 1967) and 29 post-cranial traits (Finnegan 1978) can be scored for each skeleton where preservation allows.
- 9.2.12 *Ancestry*: ancestry may be defined as ‘...the biogeographic population to which a particular individual belongs, by virtue of their genetic heritage’ (Barker *et al* 2008, 322). Methods for examining ancestry in skeletal remains involve the visual inspection of morphological characteristics, primarily in the skull, and the use of metrical data (cranio-facial) in discriminant analysis programs, such as CRANID (Wright 2008). Such examination will be undertaken and recorded for archive where preservation and completeness permits.
- 9.2.13 *Palaeopathology*: the analysis of palaeopathology is dependent on the completeness and preservation of skeletons. Similar bony changes may be observed in many different categories of disease and they can be very subtle; incomplete and poorly preserved skeletons therefore limit palaeopathological study. Pathology or bony abnormalities will be described using standard terminology, and differential diagnoses can be explored with reference to standard texts (Aufderheide and Rodríguez-Martín 1998; Ortner 2003; Resnick 1995). Systematic examination for the presence, severity and statistical frequency (crude and true prevalence rates (CPR and TPR)) of common conditions will be undertaken in accordance with standard scoring schemes, including cribra orbitalia (Stuart-Macadam 1991, 101-13), endocranial lesions (Lewis 2004, 90), maxillary sinusitis (Boocock *et al* 1995), extra-spinal joint disease (Rogers and Waldron 1995, 43-4) and spinal joint disease, including Schmorl's nodes, spondylosis deformans, osteoarthritis and marginal osteophytes of the bodies. Dental pathologies, including calculus (Brothwell 1981, 115), dental caries, periapical cavities, and ante-mortem tooth loss, dental enamel hypoplasia (DEH) and periodontitis (Ogden 2008, 193), will also be recorded.
- 9.2.14 *Biochemistry*: at the completion of osteological recording, individuals will be selected for sampling for biochemical analyses. The number of samples chosen, together with the selection criteria, will be informed by the on-site analysis results, but will take cognisance of bone preservation, physical characteristics and of any documentary evidence, as well as the location from which the burial was recovered. The findings will be discussed with the

Historic England Regional Science Advisor, with such consultation enabling the formulation of any appropriate strategy for undertaking biochemical analysis.

9.2.15 Samples from selected individuals will be taken for one or more of the following analyses:

- DNA, in order to explore family groups, and the movement of populations by examining a cross section of individuals whose anatomical characteristics indicate a range of local and non-indigenous ancestry;
- Strontium and Oxygen (Sr and O) stable isotopes to explore themes of origins for those individuals;
- Carbon and Nitrogen (C and N) stable isotope analysis to explore diet, including those individuals with evidence for dietary deficiency disease and a background sample;

9.2.16 In the interests of maximising an understanding of individuals, skeletons will ideally receive multiple forms of biochemical analysis (ie, those individuals selected for DNA, SR and O, will be among those selected for C+N isotopes).

9.2.17 **Radiography:** where appropriate and agreed with the Historic England Regional Science Advisor, selected bones will be x-radiographed on site by a specialist who will visit periodically.

9.2.18 **Comparative analysis and reporting (Tasks 5.6-8):** the data generated by the analyses will be statistically examined, both in terms of reviewing patterns within the site, but also in comparison with a base-line demographic profile generated from the burial register and data from other appropriate sites, allowing patterns in demography and pathology to be considered in a wider context. The details of these analyses will be presented within an illustrated and quality-assured specialist text. Due consideration will be given to assemblages from sites that are contemporary, have been recorded to a similar standard, or potentially share geographical, cultural or geopolitical similarities. Details of appropriate sites are presented in the evaluation report (OA-HFA 2016a). Where named individuals are present, their osteological data will be compared to information gained from coffins and documents, with more detailed statistical analysis undertaken where numbers are sufficient to support such work.

9.2.19 **Coffin remains and gravestones:** site records relating to the coffins and gravestones will be included in a database, with further written and pictorial recording undertaken as appropriate. Where possible, biographical information will be correlated with individual skeletons. Analysis of these remains will examine their physical and decorative elements in close relation

to the results of the osteological analysis, seeking to explore the expression of wealth, status, age, gender and other such themes, as well as any chronological trends.

9.2.20 Where the quantity and quality of coffins remains is sufficient to enable meaningful study, it will seek to gain an understanding of the presence, absence, basic shapes, and positions of the varying forms of coffin furniture, but also to study those variations in spatial distribution that are indicated by the evaluation findings.

9.2.21 Analysis of the grave monuments will include:

- formatting the database to allow study of individuals, family groups, demographics, to identify named individuals, select case studies;
- examining spatial and temporal distribution of monument types, designs and iconography to explore social traits and, with available data from other sites, to assist with identification of regional, national and temporal trends;
- integrating, where appropriate, the EYFHS and other appropriate data from Holy Trinity Church (HTC) to facilitate the identification of individuals buried at each site, to focus case studies and assist with modern family liaison where relatives approach the Project Team, as it may be possible to demonstrate that relatives actually lie at HTC (where OA-HFA have recently undertaken the excavation of over 400 burials). It would also further the exploration of any social or temporal trends in the use of each site for burial. The latter may assist a greater appreciation of the social dynamics that influence the choice of burial location (TBG vs HTC) and an improved understanding of TBG, and Hull, society;
- following a pilot study and, where feasible, an integration of the OA-HFA plan and the EYFHS (1985) TBG plan to establish the original location of laid-down or now broken monuments; and
- update plans showing the possible locations of relatives of modern descendants who have made themselves known to the project, as these will be used to inform any recovery and special treatment of those individuals.

9.2.22 **Artefacts:** each of the artefactual and ecofactual categories will be identified, recorded and catalogued in accordance with ClfA guidelines (2014c). Where suitable, metalwork will be x-rayed on site and the interpretation of these artefacts will be reviewed with the aid of the x-ray plates. As far as the programme and ethical practicalities of reburial permit, subsequent analysis of personal items with individuals selected for osteological analysis, particularly where these would aid an examination of status, occupation, dating, etc). The results of the finds analysis will be presented within a report and a catalogue for inclusion in the project archive and integration into the

publication text as appropriate. It will provide details of the quantity and quality of the artefactual data, spot-dating where possible and any other significant observations. The catalogue will be added to the site database, so that they can be integrated fully with the stratigraphy and provide suitable information and spot dating for general analysis.

9.2.23 *Documentary Research:* See Section 6.1.3.

9.2.24 *Preparation of draft text for publication:* the results of the work will be compiled within a draft text for publication (with specialist appendices as appropriate) that will be a fully quality-assured, illustrated and internally consistent document prepared for submission to BB, the AAHE, HistE and HAP. It will present:

- a non-technical summary;
- an introduction, detailing the contract background, site location and historical context;
- a section dealing with the methodologies employed on site, as well as those of the specialist analyses;
- the results of all analyses, including an examination of the spatial and temporal patterning of data;
- detailed discussion of the results of the work within a local, regional and national framework, to include:
- comparative analysis of all appropriate forms of data, including, where appropriate, statistical analyses that will permit an exploration of the degree to which TBG data differ from those of comparative sites and the factors particular to the Trinity congregation that might influence such patterns.
- synthesis of the different analyses and of the historical research in order to present a coherent, holistic interpretation of the archaeological remains, the people and the society that produced them, within wider historical, economic and social contexts. Data will be examined at a range of levels, from selected individual burials, family groups within graveplots and, thirdly, the congregation and the burial ground as a whole.
- bibliography;
- appendices of raw data, together with key documents (such as project designs);
- selected illustrative plates and plans;
- a programme for publication, archiving and reburial of the funerary remains.

9.3 Project Stage 5: Publication and Archiving

- 9.3.1 **Publication (Task 5.1):** it is envisaged that the results of the archaeological programme will be worthy of publication. The scale of this publication will be dependent upon a range of factors, but it is likely that there will be sufficient information for a monograph. Texts for publication will be prepared for approval by the AAHE, BB, HAP and HistE.
- 9.3.2 **Archive (Task 5.2):** the site archive (digital, paper and photographic record), together with all reports, will be prepared for long-term storage with the Hull Museum and/or the Hull History Centre at the project's completion. Hard and digital copies of all reports will be deposited with the Humber SMR. All personal artefacts directly or indirectly associated with burials will be reburied, with, where possible, their original owner. Non-funerary artefacts, where they meet retention criteria and agreed by the landowner, will also be deposited within a Hull Museum in accordance with standard guidelines (Walker 1990; MGC 1992). Due consideration will be given to lodging selected elements of the archive with the Archaeological Data Service (ADS) or some other form of publicly accessible online format.

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11 Appendix 1: Programme Appendix 2: Research Matrix

12 Appendix 3: Project Stages, Products and Review Points

Project Stage	Products and Originator	Review Points	Receivers/ sign-off
0: Document Preparation, comprising: Compilation of documentation providing details of technical approach, health and safety, risks, resourcing and programme for the Works to be implemented by OA-HFA; Compile documents relating to outreach	OA-HFA to produce: Draft and final documentation comprising: · Project Design · Work Package Plan · Programme · Risk Register · Cost Plan · Resource Plan · Documentation relating to public outreach	BB to review draft of all documents and iteration as appropriate	HistE, HAP, HE, AAHE
1: Preliminary works, comprising: Documentary research; Compile burial database; Outreach works, including physical recording and investigation where appropriate; On-site set up and preparation to provide Stage 2 works by BB; Watching brief and recording during vegetation clearance, grave monument removal as appropriate	OA-HFA to co-ordinate production of research framework document OA-HFA to produce: Record of burial ground wall in advance of removal; Updated grave monument survey and database as required during removal of monuments from the Works area; BB to: Stockpile materials and wall monuments safely and carefully	OA-HFA and BB to review documents and procedures prior to start of each piece of work and at completion	HAP, HE, AAHE
2: Main Fieldwork Phase, comprising: BB to maintain attendances throughout the fieldwork programme OA-HFA to undertake controlled archaeological excavation within the affected areas of the burial ground, including the	OA-HFA to produce an archaeologically recovered and processed assemblage of funerary remains and supporting data; Appropriate information on funerary remains that fall outside the samples for full analysis; A site that has been completely cleared of human	Regular reviews, presented as highlight reports, of findings, progress in terms of area and depth of	AAHE, BB, HistE, HAP

Project Stage	Products and Originator	Review Points	Receivers/ sign-off
stratigraphic recording and recovery of funerary remains; A watching brief during BB's excavations for stats diversions outside the modern bounds of the burial ground, particularly within the area between the north wall of TBG and the current A63 carriageway; Processing of the fieldwork archive, including the funerary remains and creating a database of the records	remains as certified by AAHE	investigation, projected programme	
3: Interim Reporting and UPD, comprising: collation and summary of the findings and site archive, interim reporting and Updated Project Design (UPD) for Project Stages 4 and 5;	OA-HFA to produce a full interim review of the fieldwork results in the form of a short, illustrated report presenting a summary of the archive, statement of potential, and UPD with methodologies and resources for Project Stages 4 (off-site analysis) and 5; information for interpretative panels	Submission of the interim report and UPD	AAHE, BB, HistE, HAP
4: Analysis Activities presented in the UPD	OA-HFA to produce client report, incorporating draft text for publication	Reviewed by OA-HFA at completion of analysis	AAHE, BB, HistE, HAP
5: Dissemination and Closure, comprising: Publication, archiving by OA-HFA	Archive for submission to the Hull Museum and/or the Hull History Centre; published report for dissemination; funerary remains appropriately deposited	OA-HFA, HAP, HistE, AAHE and BB to undertake review of draft publication	AAHE, BB, HistE, HAP

13 Appendix 4: Risk Register

Risk Register													
			Impact on		Unmitigated Risk				Mitigated Risk				
ID	Description	Category	Programme Task Number/s	Linked risks	Probability	Impact	Risk Rating	Control Measures	Probability	Impact	Risk Rating	Owner	Monitors
1	More burials than indicated from trial trenching and models	Programme & Cost	2		3	5	15	Provide for programme and resource flexibility to enable such an occurrence to be accommodated within the programme for the Works.	3	5	15	HE/BB	HE/BB
2	Insufficient storage space for human remains	Programme & Cost	2		2	5	10	Review storage capacity of the locations identified for reburials to determine capacity of each. Identify alternative locations initially within the confines of the site (removal of burials from site should be avoided as far as possible) and, secondarily, in consultation with the PCC and appropriate stakeholders, off-site	1	5	5	HE/BB	HE/BB
3	Trespass to the area of the Works	Reputational	2	4,5	3	5	15	Provide 24 hour security to the Works with patrols of the site boundary.	1	2	3	BB	BB

Risk Register													
ID	Description	Category	Impact on		Unmitigated Risk			Control Measures	Mitigated Risk			Owner	Monitors
			Programme Task Number/s	Linked risks	Probability	Impact	Risk Rating		Probability	Impact	Risk Rating		
4	Media interest / sensationalism	Reputational	All	3,5	5	5	25	HE and BB plan for inevitable press coverage continue and extend to the Works to be undertaken the media approach adopted to date. Plan for the likelihood of adverse or media coverage	2	5	10	HE/BB	HE/BB
5	Adverse community reaction	Reputational	All	3,4	5	5	25	HE and BB engage with the relatives, the community and other stakeholders in a sensitive and open manner. Manage information flow from the project team.	2	5	10	HE/BB	HE/BB
6	Insufficient archaeological / specialist contractor resources available (Competition from other major projects being	Technical & programme	All		5	5	25	Engage AC early in order to provide for sufficient time to plan for, recruit and train appropriate staff and, as appropriate, appoint subcontractors.	1	5	5	OA-HFA	BB

Risk Register													
ID	Description	Category	Impact on		Unmitigated Risk			Control Measures	Mitigated Risk			Owner	Monitors
			Programme Task Number/s	Linked risks	Probability	Impact	Risk Rating		Probability	Impact	Risk Rating		
	undertaken simultaneously, regionally and nationally will compete for available resources)												
7	Specialist - scientific analysis (Capacity of contractors to undertake the scientific analysis within the project programme)	Technical	3		5	5	25	Identify analysts during the planning stages of the project; analysts encouraged to employ adequate technical support; book laboratory time; ensure that the scale of specialist analyses is not only academically valid but also viable within the project budget and programme	2	5	10	OA-HFA	BB
8	Collapse into voids from graves/vaults	Technical	1, 2		2	5	10	Identify and as appropriate fill with granular material. Where practical, prioritise investigation and clearance to facilitate fillings	1	3	3	BB/OA-HFA	BB
9	Low staff	Reputatio	All		5	5	25	AC shall devise and enact	2	5	10	OA-	BB

Risk Register													
ID	Description	Category	Impact on		Unmitigated Risk			Control Measures	Mitigated Risk			Owner	Monitors
			Programme Task Number/s	Linked risks	Probability	Impact	Risk Rating		Probability	Impact	Risk Rating		
	morale could have an effect on progress and staffing numbers.	nal						systems to monitor and actively manage site conditions and staff morale through all stages of the works and devise appropriate measures to maintain moral levels, guarding against wastage throughout the project.				HFA	
10	Administrative error resulting data loss or confusion	Technical	All		2	5	10	AC to implements a robust quality assurance systems to ensure that all data is effectively and accurately tracked from exhumation through to reburial. AC to formulate an approach and detail as part of the PD.	1	4	4	OA-HFA	BB
11	Ground contamination by past industrial land use	Programme, Cost & Technical	1,2		5	5	25	Potential for ground contamination to be present particularly in the area of the former gaol. AC to provide staff with appropriate PPE and approaches to be detailed in their WPP. BB to review and if located to make	3	3	9	BB	OA-HFA/BB

Risk Register													
ID	Description	Category	Impact on		Unmitigated Risk			Control Measures	Mitigated Risk			Owner	Monitors
			Programme Task Number/s	Linked risks	Probability	Impact	Risk Rating		Probability	Impact	Risk Rating		
								provision made for the safe removal and disposal of contaminants and the containment of any effluents.					
12	Cemetery more extensive than current grounds – particular concern to the northern boundary	Programme & Cost	1,2		3	5	15	The stepping out of the areas the Works will assist with the identification the presence or otherwise of burials beyond the current boundaries of the TBG	2	5	10	BB	BB
13	Spoil build up within the area of archaeological investigation or soil process area	Programme	2		5	5	25	AC and BB as part of the detailed planning for the Works to develop process to avoid or contingency measures.	4	3	12	OA-HFA/BB	OA-HFA/BB
14	Critical failure of AC computer systems	Programme & Reputational	2-5		1	5	5	AC to implement robust and demonstrable systems for the protection of digital data. Details to be provided as	1	3	3	OA-HFA	BB

Risk Register													
ID	Description	Category	Impact on		Unmitigated Risk			Control Measures	Mitigated Risk			Owner	Monitors
			Programme Task Number/s	Linked risks	Probability	Impact	Risk Rating		Probability	Impact	Risk Rating		
	resulting on loss of digital data or extended timescales to recover							part of the AC PD.					
15	Loss of AC critical resource/s due to extended illness	Programme	0-5		4	5	20	AC to review resourcing and identify alternatives for those resources critical to the successful delivery of the Works and formulate a contingency plan for submission to BB.	2	4	8	OA-HFA	BB
16	Infestation of project digital files through viral attack	Programme	0-5		2	5	10	AC to ensure provision of network wide antivirus systems that include real-time email scanning are in place and are updated regularly.	1	3	3	OA-HFA	BB
17	Loss of physical archive in transit	Programme & Reputational	0-5		2	5	10	The AC shall for those materials requiring transit either in person or where not feasible, material to be transmitted by courier rather	1	5	5	OA-HFA	BB

Risk Register													
ID	Description	Category	Impact on		Unmitigated Risk			Control Measures	Mitigated Risk			Owner	Monitors
			Programme Task Number/s	Linked risks	Probability	Impact	Risk Rating		Probability	Impact	Risk Rating		
								than unaccompanied. Regular archive stock-take during the project will identify the location of all items.					
18	Unavailability of preferred external specialists.	Programme	0-5		4	5	20	AC to implement early consultation with preferred specialists, either internal or external to provide for capture of the necessary resources.	2	5	10	OA-HFA	BB
19	Delay while awaiting external reviewer feedback.	Programme	0-5		3	5	15	Programme requirements and constraints to be clearly articulated to all reviewers as part of the preparation of the review process for each document issued by the AC.	2	5	10	OA-HFA	BB
20	Delays due to insufficient AC internal resource allocation.	Programme	0-5		3	5	15	AC to implement internal procedures to ensure that the Works are fully resources during all stages to ensure programme and technical compliance.	2	4	8	OA-HFA	BB

Figures

Figure 1: Location plan

Figure 2: Organogram for communications, roles and responsibilities

Figure 3: Site plan showing tents and burial characterisation areas

Figure 4: Site plan showing proposed sampling areas

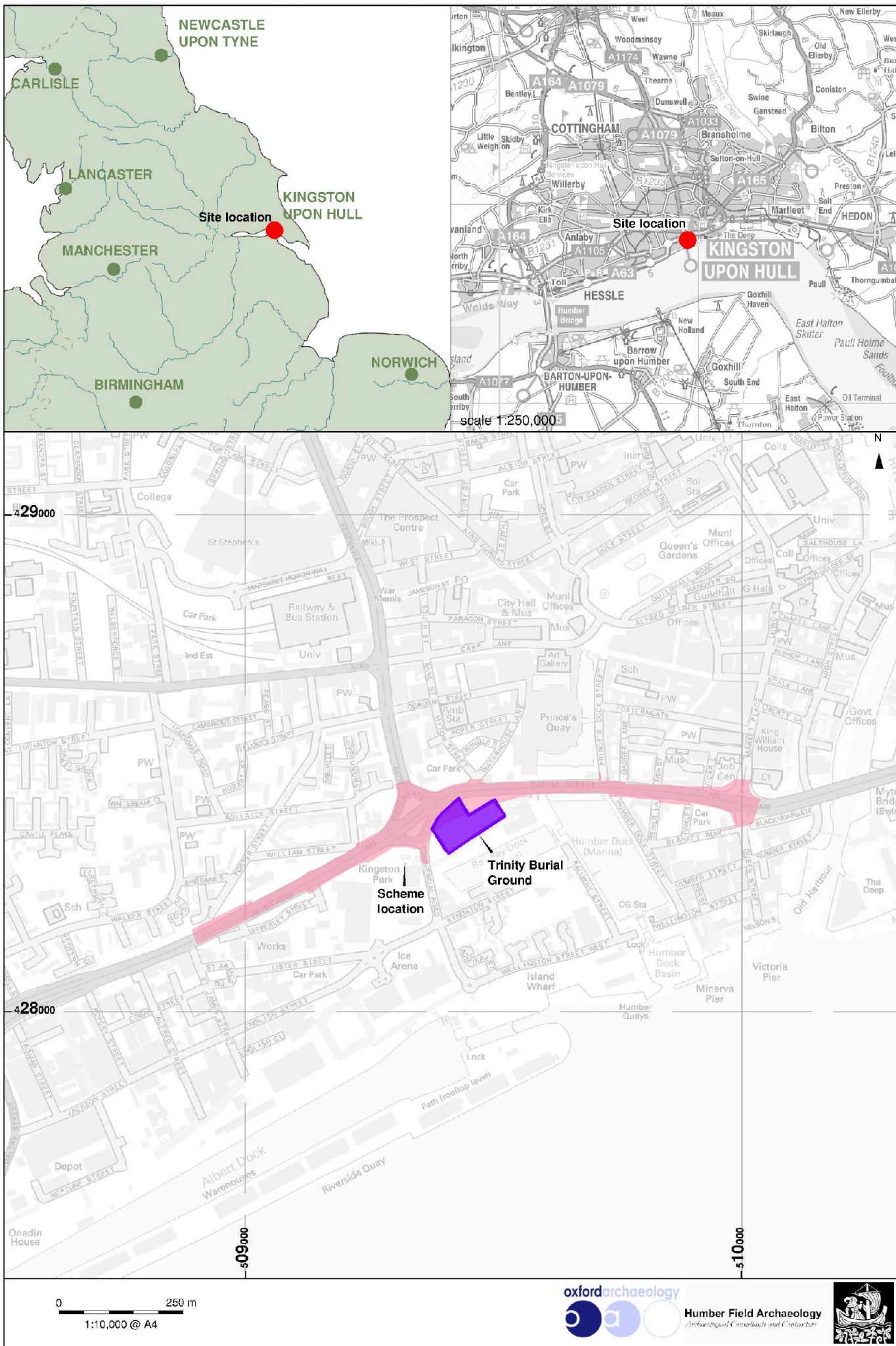
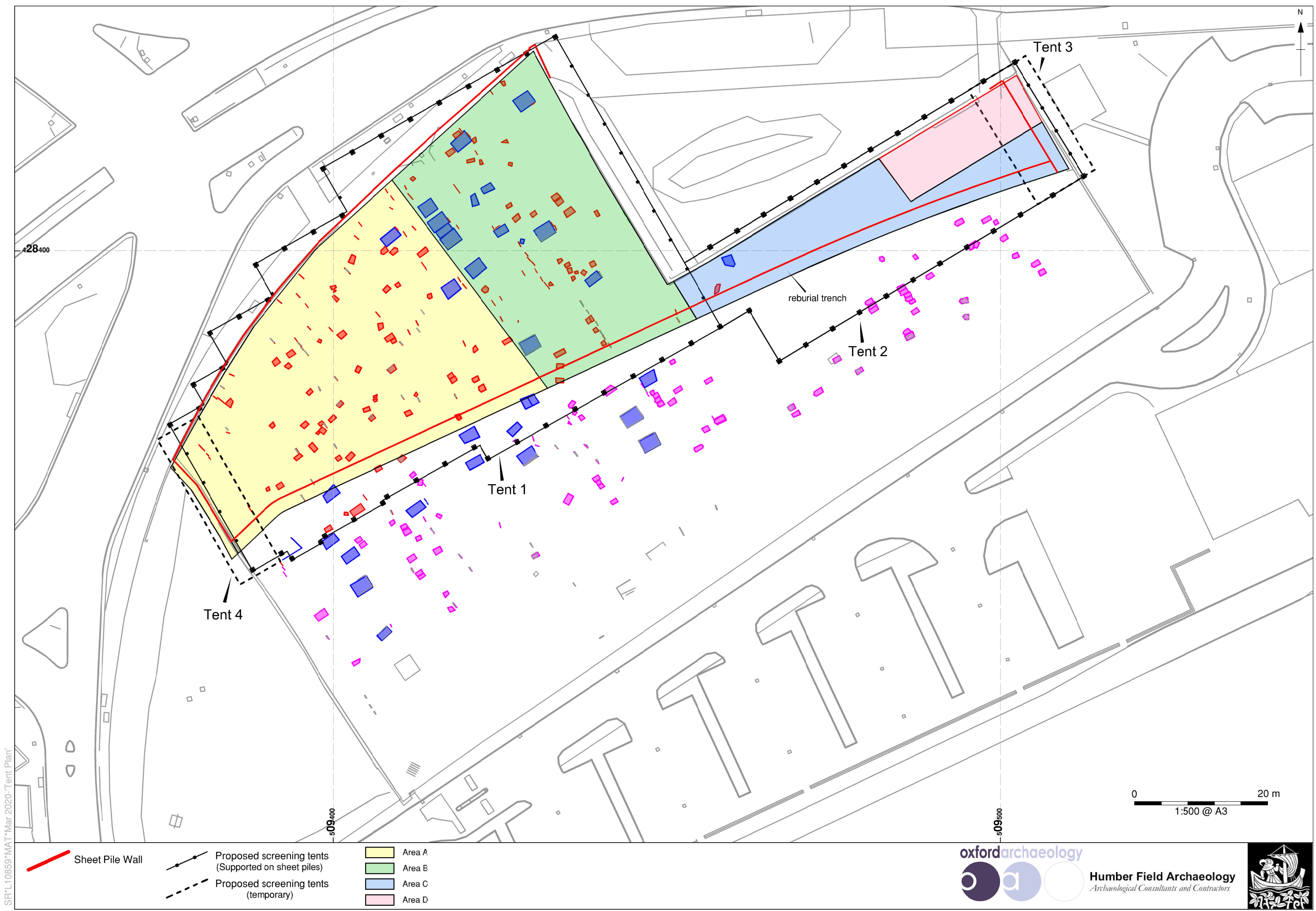


Figure 1: Site location



Figure 2: Organogram



SR*L10859*MAT*Mar 2020-"Tent Plan"

Figure 3: Plan showing proposed screening tent Layout

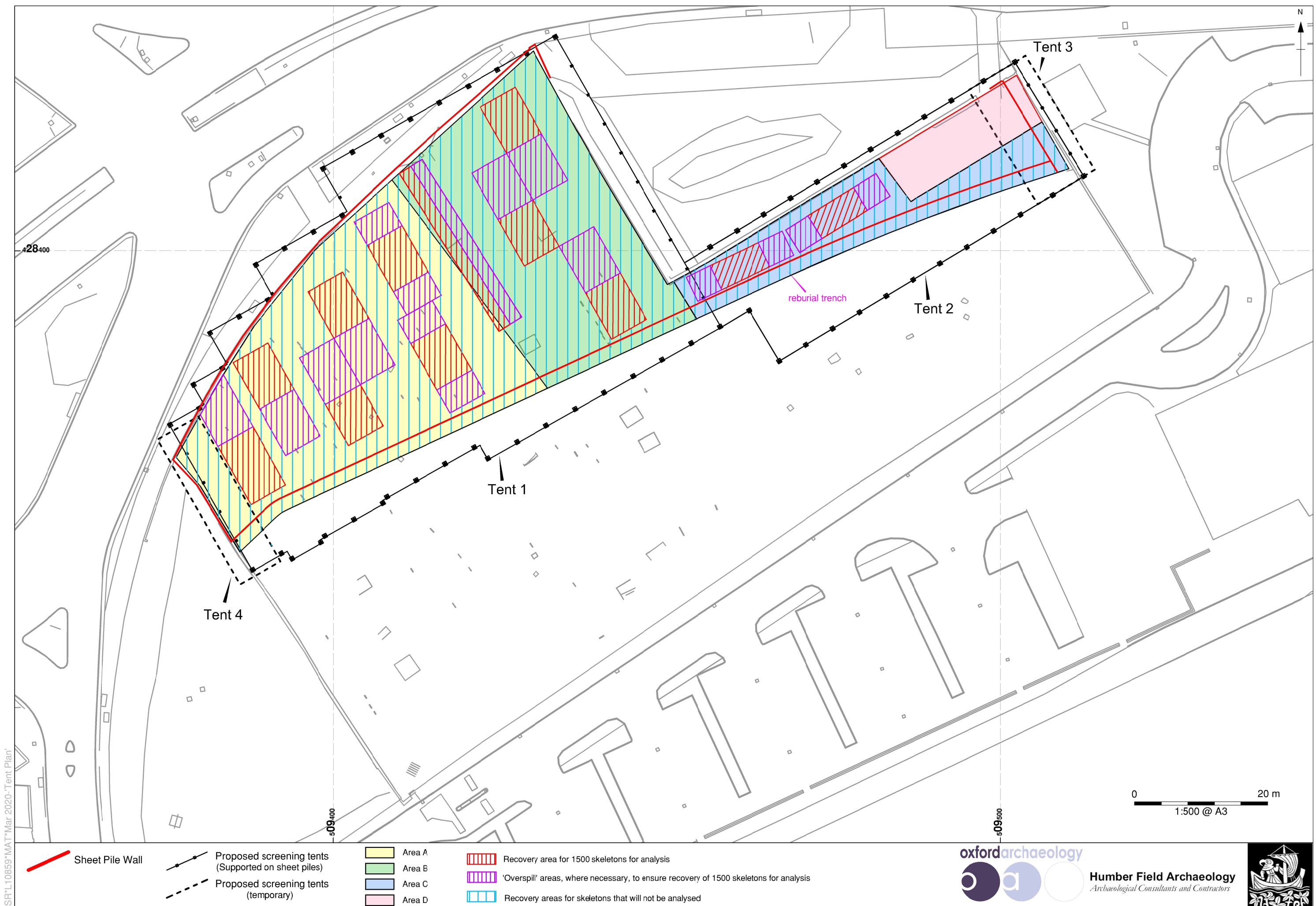


Figure 4: Plan showing proposed access tracks, piling and sampling areas for the recovery of 1500 skeletons for analysis

Appendix 2: Research Matrix

Research Needs	Research Potential	Research Questions	Research Objectives	Public benefits
RN1: There has been no work to date on industrial-period assemblages of funerary remains from Hull, and little on those from Yorkshire and the north in general. RN2: To examine the impact of industrialisation upon the population of Hull, particularly in terms of health but also the rise of the Middle Class. RN3: To examine the effect of international contacts on the health and genetic heritage of a port town, and how that may have affected funerary activity. RN4: to examine, as far as possible, a cross-section of the Holy Trinity Parish community. RN5: to gain an understanding of the ways that funerary activity was undertaken, and beliefs expressed, for members of Hull’s different social strata. RN6: to understand the degree to which TBG is reflective of Hull’s population and their funerary activity as a whole. RN7: to understand the organisation of the burial ground and the use of the mortuary buildings. RN8: to identify and explain characteristics in data that are unique to Hull. RN9: To interpret the archaeological findings within a documentary context. RN10: To produce a holistic narrative social history of Hull and of Holy Trinity	RPm: Burial activity at TBG is closely dated and spans just 80 years during a period of rapid industrialisation, urbanisation and population growth and, significantly for a port such as Hull, trade and migration. The gaol was authorised as the same time as the burial ground, and its construction reflects many of the issues associated with the process of industrialisation, and the planned expansion of the city (Addresses: RN1-4, 7, 9, 13). RPn: Throughout the industrial period, Hull was the principal urban settlement in East Yorkshire, being a significant international port and the commercial centre for a wide rural hinterland; it was thus the epicentre for the introduction and interaction of people, ideas and forms of expression from a range of cultural backgrounds and localities, both near and far (Addresses: RN1-3, 5, 8, 10). RPo: TBG was the final resting place of a significant proportion of Hull’s population, rich and poor alike, and the site is likely to contain a cross-section of the parish community (Addresses RN2-8, 10); RPp: Aspects of the data that are unique to, or characteristic of, Trinity Burial Ground, can be established by comparing them with studies of contemporary assemblages from other industrial-period sites from a range of locations and settings, many of which share commonalities with TBG, albeit that there is currently no direct comparator to TBG as a CoE, largely working-class assemblage from a northern port town (OA-HFA 2016a, Section 5.6.41) (Addresses: RN1, 3, 5, 8, 10-11). RPq: Good historical data and contemporary documents specific to Hull to provide a context to the archaeological data, comprising a complete burial register, parish records, Commissioners’ Reports, Trade Directories, <i>etc.</i>, relating to trades, industries, health and sanitation (Addresses RN2-11). RPr: An increasing body of archaeological and synthesised historical literature relating to the socio-economic, demographic, funerary and religious trends prevailing during the use of TBG, which can be used to contextualise the archaeological data (Addresses RN2-5, 7-11). RPs: The burial register can be used to create a demographic model against which the excavated data can be tested (Addresses RN1, 2, 4, 6-9). RPt: there are variations in the spatial and temporal distribution of grave monuments and burial structures that are likely to relate to the socio-economic organisation of the burial ground (OA-HFA 2016a, Section 5.2-5.4); (Addresses RN2-7, 11). RPu: the gravestones can be studied in terms of shape, iconography and text, as well as spatially and through family associations. (Addresses RN2-8, 10-11). RPv: although coffin fittings were less well preserved, their type and distribution varied spatially, and are likely to be important interpretive tools. Whilst there is a growing understanding of the burial accoutrements of the wealthy, many questions remain unanswered regarding changing burial fashions and practices	RQ5: How can aspects of the demography, social composition, status and lifestyles of those buried be understood, particularly with reference to the historical documentation for the site and for Hull? (develops RPm, n, o, q, s, u-y). RQ6: Where graves contain family members, how can the osteological data be used to explore, test, and explain patterns in non-metric traits and other genetically influenced characteristics? (develops RPm, o, q, s, w, x, y). RQ7: What is the documentary evidence for physiological and demographic change associated with urban intensification and industrialisation of Hull? Can such evidence explain patterns in the osteological data? <i>This question has been modified since the evaluation findings to better reflect the limitations of TBG data, particularly in terms of establishing chronological sequences. Develops RPm, p, q, r, x, y.</i> RQ9: How can the results of the fieldwork and post-excavation programme be made available to the wider public in an accessible form, whilst undertaking appropriate reburial of the human remains and associated artefacts (including all coffin fittings and personal adornments)? Develops RPm-z). RQ12: Is it possible to identify patterns of occupation-related pathology amongst the buried population, both with reference to the known occupations of the buried population as a whole, but	ROa. <i>Digitise TBG Burial Register</i> by incorporating the information into a database that can be used to integrate with the database of recorded monuments at TBG, produce demographic profiles to assist with modelling and comparison and liaise with people who have contacted the Project Team to identify themselves as descendants of people buried at TBG (RQ5-6). ROb. <i>Undertake Research</i>: including establishing and enacting a research framework, and involving members of the public where appropriate, undertaking an iterative programme of targeted desk-based research; formulating demographic and socio-economic models against which the TBG historical and archaeological data can be tested; identifying the principal industries and employers in the city, particularly those characteristic of Hull and Holy Trinity Parish; facilitating all RQs, but RQ5 in particular; identifying and analysing documentation relating to named individuals and selected case studies (RQ7). ROc. <i>Record and study grave monuments</i>, including consideration of selected information from those recorded at Holy Trinity Church, then process and format the data presented on them to facilitate the study of individuals, family groups, demographics; identification of named individuals (including those where modern relatives have identified themselves to the project team), and selection of case studies; spatial and temporal analysis of physical and design characteristics, exploration of social traits and the social dynamics of burial location, identification of regional, national and temporal trends (RQ5 and RQ6). ROd. <i>Site Preparation Investigation, monitoring and Recording</i>, comprising detailed recording of the former gaolyard and historic boundary walls, involving where feasible, training members of the public in archaeological skills; undertake, with appropriate public involvement, an archaeological strip, map and sample on the site of the former gaol (subsequently industrial buildings) which will be used as the spoil-processing area to the north-east of TBG; maintain watching briefs during site preparation works where these may reveal archaeological remains, including any evidence of the former burial ground boundaries and any elements of the little-understood medieval settlement of Wyke (RQ9). ROe. <i>Establish a zonal sampling strategy</i> for the recovery of appropriate samples of burials that allows for spatial variations in the distribution of different forms of data, for correlation of individuals and family groups with gravestones and for recovering individuals from complete grave sequences to maximise recovery of family groups and complete temporal spans (RQ5 and RQ6). ROf. <i>Undertake an appropriate level of intrusive archaeological investigation</i> that will permit: - processing topsoil and subsoil arisings for recovery and subsequent reburial of disarticulated remains by EC; - recovery, processing, assessment, and cataloguing of a sample of 1500 skeletons (c 10% of remains expected within the excavation area) along with their associated coffin remains and personal items for immediate detailed analysis (where the quantity and quality of remains is sufficient to enable meaningful study in the case of the latter forms of data); - collection of samples from a selection of skeletons to be submitted for off-site biochemical analyses; - on-site radiography of a selection of pathological remains and of funerary fittings and artefacts where this may reveal significant information relating to dates, stylistic details and biographical information; - stratigraphic and locational recording then recovery of all other human remains from the site, - on-site reburial of all funerary remains with all their appurtenances throughout the fieldwork programme; - appropriate stratigraphic excavation and palaeoenvironmental sampling of non-funerary archaeological remains within TBG, including features and structures contemporary with the use of the burial ground; recovery and processing of associated non-funerary artefacts (all RQ).	Unless otherwise stated, the public benefits stem most directly from ROb, ROd and ROJ, but will gain from all of the Research Objectives PB1: Involvement with the archaeological process. PB2: Learning new skills, including archaeological recording and research. PB3: a greater understanding of Hull’s heritage and how the people of the city fit into that heritage. PB4: An appreciation of Hull’s archaeological resource, but also of the documentary resources that are free to access within the city. PB5: Expanding people’s perception of archaeology to include the relatively recent past, rather than just very ancient things. PB6: Potentially identification and recovery of family members where relatives have come forward to the Project Team (ROa). PB7: A continuation of the legacy of City of Culture themes, feeding a more enduring interest in the heritage of the city. PB8: Employment of local people. PB9: An appreciation of the diversity of the past and of previous generations. PB10: A greater appreciation of the similarities and differences in the lives of modern people and those in the past, who are separated from the modern population by just a few generations.

parish within the wider context of the UK. RN11: to undertake a multi-disciplinary approach, integrating examination of historical records, osteology, funerary remains, monumentalisation, burial locus and personal artefacts. RN12: to gain an understanding of pre-cemetery activity on the site, such as the medieval settlement of Wyke. RN13: to gain an understanding of the former gaol, which is an important component of the industrial-period planned expansion of the city.	amongst the less affluent, and particularly how that would be manifest at Trinity Burial Ground; (Addresses RN2-8, 10-11). RPw: the evaluation identified several instances where the remains of gravestones could be correlated with plots: given the paucity of legible coffin plates, this may represent the only means of identifying family groups and individuals. Although representing less than 2% of the burial population, there is potential to identify several scores of individuals who could be used for historical case studies; (Addresses RN2-8, 10-11). RPx: the evaluation identified spatial variations in the density of burial activity; (Addresses RN4, 7, 10-11). RPy: osteological assessment during the evaluation indicated that skeletal remains were generally in a good state of preservation, with the vast majority of those that were over 25% complete suitable for osteological analysis; pathological conditions were well represented (Addresses RN1-4, 6, 8-11). RPz: very little is known about the medieval settlement of Wyke, the area of which encompassed TBG. Although post-medieval disturbance will be extensive, surviving isolated pockets of medieval remains may be informative (Addresses RN13).	with particular regard to named individuals of known occupation? <i>Poor for examining specific cohorts;</i> <i>Moderate for case studies of individuals;</i> <i>Moderate for the general buried population and unique characteristics of the site.</i> Develops RPq, v, w, y.	ROg. Produce a complete, collated and interrogatable archive of documentary, photographic and digital data (all RQ). ROh. Undertake (on-site for funerary remains, off-site for other remains or specialist materials, as agreed under the CoE Faculty conditions) an appropriate programme of collation and quantification of all data recovered from the site, together with a validation and review of the research questions. This will be presented in a very basic summary document including an updated project design for off-site analysis and dissemination (all RQ); ROi. Undertake an appropriate programme of analysis on the sample of funerary remains assessed and examined on-site and, if identified and appropriate to do so, of pre-cemetery archaeological remains, ensuring that the techniques utilised enable comparison with other assemblages and, as far as the data allows, statistical validity. The analysis will include an appropriate programme of biochemical analysis, the synthesis of all relevant forms of data from the site and comparison with data from other contemporary sites in the undertaking of a population-based bio-cultural study that is firmly grounded within a socio-economic historical context at local, regional and national levels (all RQ); ROj. Prepare for public dissemination the results of the fieldwork and post-excavation programme (RQ9); ROk. Prepare the assemblage of non-funerary material recovered from the Works for appropriate deposition and the original records and non-funerary finds for archiving (RQ9).	PB11: A better understanding of why Hull is the city it is now, and the huge changes in society, welfare and economics that the city and its people have been through. PB12: Encouraging interaction between different interest groups. PB13: Challenging perceptions and breaking down barriers between different social groups: everyone has a heritage of equal value, irrespective of their ancestry, economic background and their qualifications.

Appendix 1: Programmje for Archaeological Works Associated with Trinity Burial Ground

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