PRE-CONSTRUCT ARCHAEOLOGY LIMITED			
REGIONAL OFFICE: Central	*TELEPHONE NO.: 01223 845 522*	*EMAIL ADDRESS: m.hinman@pre-construct.com*	*FAX NO.:N/A*

RISK ASSESSMENT: ARCHAEOLOGICAL EVALUATION

SITE NAME: Land at 38 Elm Street and Silver Street, Peterborough, Cambridgeshire		
SITE ADDRESS: 38 Elm Street and Silver Street, Peterborough, Cambridgeshire	**POSTCODE: PE2 9BL**	
SITE CODE: PEST14	**PCA PROJECT K CODE: K3536**	
CLIENT: Bill Singh of Silverline Developments	**PROPOSED START DATE: 29/05/14**	
RISK ASSESSMENT UNDERTAKEN BY: Mark Hinman	**SIGNATURE:**	**DATE: 29/05/14**
RISK ASSESSMENT ACTIONED BY: **(THE SITE HEALTH, SAFETY & ENVIRONMENTAL SUPERVISOR)**	**SIGNATURE:**	**DATE: 29/04/14**
RISK ASSESSMENT REFERENCE (number as VERSION 1, VERSION 2, VERSION 3, *etc.*): Atkins v.1 25/3/14		
NAME OF AUTHOR/REVISER: N/A	**SIGNATURE:**	**DATE:**

Control Coding:

CONSEQUENCE (C):	*FREQUENCY (F):*
1 Negligible	*1 Negligible*
2 Minor (e.g. minor injuries or financial loss)	*2 Rarely*
3 Major (e.g. major injuries or financial loss)	*3 Likely*
4 Serious (e.g. fatalities or catastrophic financial loss)	*4 Probable*

PCA's obligations regarding Risk Assessment

In order to comply with the '*Management of Health & Safety at Work Regulations 1992*', PCA must, as an employer, make a suitable and sufficient assessment of the Health and Safety (H&S) risks to their employees and to others not in their employ but to which their undertakings are relevant.

The Risk Assessment process in PCA fieldwork operations

Risk Assessment is an essential part of project planning and must be regarded as an ongoing, continuing process throughout any given project.

For all projects involving fieldwork, an initial **Site Inspection Preliminary Risk Assessment** (SIPRA) should be undertaken prior to a start on site. The SIPRA involves a site visit by the Project Manager or H&S Officer and completion of a PCA '*Site Inspection Preliminary Risk Assessment (SIPRA) Form*'. For large, complex or complicated projects comprising varied conditions and/or numerous individual locations, each area/part of the project must be assessed separately and recorded accordingly – by repeated use of the SIPRA form where circumstances differ.

The SIPRA results should be 'written up' as a formal **Risk Assessment**, hardcopy of which is added to the **Site Health, Safety & Environment File**. The original SIPRA form is stored in a designated file in PCA's office – not on site. In some cases a Risk Assessment may need to be compiled ahead of site access, *i.e.* without a SIPRA having been undertaken. In both events, the Risk Assessment must be checked and signed by the Site Health, Safety and Environment (HS&E) Supervisor (usually the Site Supervisor) when work on site commences. In all Risk Assessments, relevant control measures for potential hazards/events are identified on the Risk Assessment.

For projects where PCA fulfils the role of Principal/Main Contractor, a project-specific **Health & Safety Plan** should be compiled.

For the most part, control measures for identified risks will be covered by PCA's **Standard Procedures for HS&E.** Nevertheless, the Site HS&E Supervisor must describe **all** control measures arising from the Risk Assessment during a site induction and give appropriate instructions to **all** relevant site personnel. A record of site induction **MUST** be compiled so that **all** personnel can formally acknowledge their understanding of the Risk Assessment. Where the Risk Assessment indicates an HS&E requirement **over and above** PCA's Standard Procedures for HS&E and/or general site rules, a site-specific control measure (such as a training programme), rule or method statement must be designed, with the details either written-up as part of the Health & Safety Plan or appended to the Risk Assessment and then communicated to relevant site personnel.

If during any site operations, or as a result of additional instructions received after the commencement of the work, any hazards are identified which have not been covered by the SIPRA, these hazards must be evaluated and, where significant, must be recorded using a PCA '*Site Inspection Follow-up Risk Assessment (SIFRA) Form*', which is used to revise the Risk Assessment, with details of revision added to the first page of the Risk Assessment. Again, original SIFRA forms are stored in a designated file in PCA's office – not on site. The revised Risk Assessment will likely determine that work must not continue in the area where the 'new' hazard(s) might be relevant until appropriate control measures are determined and communicated to relevant personnel. Where appropriate, the Health & Safety Plan must be revised to take into account the additional hazards and additional control measures.

SECTION A. PRECISE NATURE OF FIELDWORK

			Comments	Check
Open area/detailed archaeological excavation - PCA team on site with PCA sub-contractor(s) only	**Y**	N		
Open area/detailed archaeological excavation - PCA team on site with PCA sub-contractor(s) and with other contractor(s)	Y	**N**		
Open area/detailed archaeological excavation - PCA team on site with other contractor(s)	Y	**N**		
Archaeological monitoring of PCA staff of groundworks undertaken by other contractors	Y	**N**		

SECTION B. GENERAL FEATURES OF THE SITE
(SUMMARY OF THE MAIN ELEMENTS OF THE SITE WHERE THE OPERATION WILL BE UNDERTAKEN)

SITE SETTING & OCCUPANCY			Comments	
General setting				
Semi-urban	**Y**	N		
If a rural location, is it all or partially located on agricultural land?	Y	**N**		
If a rural location, is it a designated road, pipe or cable corridor?	Y	**N**		
Urban	Y	**N**		
If an urban location, is it all or partially located on a road, highway or pavement?	Y	**N**		
At any location, is the site within a standing building	Y	**N**		
Within/upon or immediately adjacent to:				
Railway line or station	Y	**N**		
Airport	Y	**N**		
Hospital/residential care home	Y	**N**		
School/nursery	Y	**N**		
Shopping/other pedestrian area	Y	**N**		
Occupancy details:				
Occupied, as detailed above	Y	**N**		
Security on site	Y	**N**		
Not occupied and secure	**Y**	N		
Not occupied, with public access	Y	**N**		
Not occupied, but with other contractors, e.g. geotechnical, on site	Y	**N**		

EXISTING GROUND CONDITIONS			Comments	
Within a standing building	Y	**N**		
External hard surfaces	**Y**	N		
External soft surfaces	**Y**	N		
Steeply sloping ground	Y	**N**		
Trees or dense shrubbery	Y	**N**		
Cultivated land	Y	**N**		
General tall vegetation, e.g. cereal crops or grass	Y	**N**		
Livestock on site	Y	**N**		
Cellars/tunnels/coal workings/other voids	Y	**N**		
Body of water/waterlogged	Y	**N**		
Spoil heaps	**Y**	N		

EXISTING SERVICES/UTILITIES CHECK-LIST			Comments	
Has information regarding services been provided by the Client/Principal Contractor?	Y	N	**TBC – Review of service plans on site**	
If Y, identify all known services				
Underground				
Water	Y	N	**TBC**	
Gas	Y	N	**TBC**	
Electric	Y	N	**TBC**	
Telecommunications	Y	N	**TBC**	
Other	Y	N	**TBC**	
Overhead				

Power lines (OHPL)	Y	N		
Other overhead services/utilities	Y	N		

WELFARE CHECK-LIST			***Comments***	
Are ALL appropriate welfare/site facilities to be provided by the Client/Principal Contractor?	Y	N	**TBC**	
If Y, specific Risk Assessments may be required from the Client/Principal Contractor, for example a 'Fire Risk Assessment'				
If N, detail those welfare/site facilities which PCA are to provide				
Site accommodation (mess)	Y	N	**TBC**	
Site accommodation (paperwork)	Y	N	**TBC**	
Male WC	Y	N	**TBC**	
Female WC	Y	N	**TBC**	
Hot running water	Y	N	**TBC**	
Tool vault/store	Y	N	**TBC**	
De-contamination unit (if required)	Y	**N**		

GROUND CONTAMINATION CHECK-LIST			***Comments***	
Has information regarding ground contamination been provided by the Client/Principal Contractor??	Y	N	**TBC**	
Are any specific contamination issues known	Y	**N**		
If Y, a site specific PCA 'Ground Contamination Risk Assessment' will be required				

UXO CHECK-LIST			***Comments***	
Has information regarding UXO been provided?	Y	**N**	**TBC**	
Are any specific UXO issues known?	Y	**N**		
If Y, a detailed 'UXO Risk Assessment' will be required from the Client/Principal Contractor				

SECTION C. SPECIFIC FEATURES OF THE SITE: RISK ASSESSMENT

SITE VEHICULAR TRAFFIC

Task/Keyword	*Relevant* (delete as applicable)		*Potential Hazards*	*Potential Event* (as a result of the hazard)	*Before Control* (C)	*Before Control* (F)	*Risk Control Measure(s)* (refer to PCA Standard Procedures, where applicable)	*Supplementary Method Statement/ Specific Training required?*	*After Control* (C)	*After Control* (F)
Identify all non-plant vehicles likely to use site access/egress and designated parking areas										
PCA vehicles(s)	Y	N	HAZARD: Site traffic vehicle/pedestrian collision.	Injury to PCA staff and other site users. Damage to vehicles.	2-3	2-3	All vehicular movements on site to be undertaken with utmost caution. Speeds no greater than 5mph to be used on site. PCA staff & all visitors to wear relevant PPE (hi-visibility).	No	1	1
PCA staff personal vehicle(s)	Y	N	HAZARD: Site traffic vehicle/pedestrian collision.	Injury to PCA staff and other site users. Damage to vehicles.	2-3	2-3	All vehicular movements on site to be undertaken with utmost caution. Speeds no greater than 5mph to be used on site. PCA staff & all visitors to wear relevant PPE (hi-visibility).	No	1	1
Plant operator(s) personal vehicles	Y	N	HAZARD: Site traffic vehicle/pedestrian collision.	Injury to PCA staff. Damage to vehicles.	2-3	2-3	All vehicular movements on site to be monitored closely. PCA staff & all visitors to wear relevant PPE (hi-visibility).	No	1	1
Delivery vehicles	Y	N	HAZARD: Site traffic vehicle/pedestrian collision.	Injury to PCA staff. Damage to vehicles.	2-3	2-3	All vehicular movements on site to be monitored closely. Operators to be competent & hold relevant certification. PCA staff & all visitors to wear relevant PPE (hi-visibility).	No	1	1
Other Client/Principal Contractor vehicles	Y	N	HAZARD: Site traffic vehicle/pedestrian collision.	Injury to PCA staff. Damage to vehicles.	2-3	2-3	All vehicular movements on site to be monitored closely. PCA staff & all visitors to wear relevant PPE (hi-visibility).	No	1	1
Identify all plant likely to use site access/egress for delivery/collection and operate within working areas										
'Mini-digger' <5 tonne	Y	N								
'JCB–type' back-actor (c. 7.5 tonne)	Y	N	HAZARD: Site traffic vehicle/pedestrian collision.	Serious injury (up to fatality) to PCA staff from collision with plant.	2-4	2-4	Operators to be competent & hold relevant certification. All vehicular movements to be banked. Speeds no greater than 5mph to be used on site. PCA staff & all visitors to wear relevant PPE (hi-visibility).	No	1	1
360^{o} excavator >5 tonne	Y	N	HAZARD: Site traffic vehicle/pedestrian collision.	Serious injury (up to fatality) to PCA staff from collision with plant.	2-4	2-4	Operators to be competent & hold relevant certification. All vehicular movements to be banked. Speeds no greater than 5mph to be used on site. PCA staff & all visitors to wear relevant PPE (hi-visibility).	No	1	1
Tipper lorry	Y	N	HAZARD: Site traffic vehicle/pedestrian collision.	Serious injury (up to fatality) to PCA staff from collision with plant.	2-4	2-4	Operators to be competent & hold relevant certification. All vehicular movements to be banked. Speeds no greater than 5mph to be used on site. PCA staff & all visitors to wear relevant PPE (hi-visibility).	No	1	1
Dumper truck	Y	N	HAZARD: Site traffic vehicle/pedestrian collision.	Serious injury (up to fatality) to PCA staff from collision with plant.	2-4	2-4	Operators to be competent & hold relevant certification. All vehicular movements to be banked. Speeds no greater than 5mph to be used on site. PCA staff & all visitors to wear relevant PPE (hi-visibility).	No	1	1
Bulldozer	Y	N	HAZARD: Site traffic vehicle/pedestrian collision.	Serious injury (up to fatality) to PCA staff from collision with plant.	2-4	2-4	Operators to be competent & hold relevant certification. All vehicular movements to be banked. Speeds no greater than 5mph to be used on site. PCA staff & all visitors to wear relevant PPE (hi-visibility).	No	1	1
Box scraper	Y	N	HAZARD: Site traffic vehicle/pedestrian collision.	Serious injury (up to fatality) to PCA staff from collision with plant.	2-4	2-4	Operators to be competent & hold relevant certification. All vehicular movements to be banked. Speeds no greater than 5mph to be used on site. PCA staff & all visitors to wear relevant PPE (hi-visibility).	No	1	1
Other	Y	N								

INITIAL SURVEY/SET-OUT

Will the investigation areas be surveyed/set out by the Client/Principal Contractor?	Y	**N**		***PCA will set out excavation area***

If N, detail the setting-out tasks PCA will be undertaking

Task/Keyword	*Relevant (delete as applicable)*		*Potential Hazards*	*Potential Event (as a result of the hazard)*	*Before Control*		*Risk Control Measure(s) (refer to PCA Standard Procedures, where applicable)*	*Supplementary Method Statement/ Specific Training required?*	*After Control*	
Method(s) to be employed for surveying										
Reel tapes or other manual method	**Y**	N								
Total Station EDM	**Y**	N								
GPS	**Y**	N								
Other	**Y**	N								

AREA/TRENCH PROTECTION

Will the investigation areas/trenches be protected by the Client/Principal Contractor?	**Y**	N		

If N, detail any area/trench protection PCA will be required to provide

Task/Keyword	*Relevant (delete as applicable)*		*Potential Hazards*	*Potential Event (as a result of the hazard)*	*Before Control*		*Risk Control Measure(s) (refer to PCA Standard Procedures, where applicable)*	*Supplementary Method Statement/ Specific Training required?*	*After Control*	
Method to be employed										
Hazard tape/road irons	Y	**N**								
Hi-visibility plastic mesh/road irons	Y	**N**								
'Heras' fencing panels (3.5m x 2m) on block feet with couplers	**Y**	N	Fence collapse	Impact injuries	2-1	2-1	Maintenance checks by contractor	No	1	1
Scaffolding barriers	Y	**N**								
Shoring	Y	**N**								

DAY-TO-DAY ARCHAEOLOGICAL OPERATIONS

Task/Keyword	*Relevant (delete as applicable)*		*Potential Hazards*	*Potential Event (as a result of the hazard)*	*Before Control*		*Risk Control Measure(s) (refer to PCA Standard Procedures, where applicable)*	*Supplementary Method Statement/ Specific Training required?*	*After Control*	
Working in proximity to heavy plant	**Y**	N	HAZARD: Heavy plant in the vicinity of PCA staff on foot.	Serious injury (up to fatality) to PCA staff from collision with plant.	2-3	2-3	Engender an awareness of risk from heavy plant: PCA staff to be aware of site traffic routes and to remain extra vigilant when working in areas with heavy plant. Maintain eye contact with operator and banksman. Stay out of swing radius of machine unless by agreement with operator. PCA staff to wear relevant PPE (hi-visibility) at all times and items to remain as outer garments.	No	1	1
Manual handling during hand excavation	**Y**	N	HAZARD: Using hand tools, pushing wheelbarrows and carrying heavy items e.g. sample tubs.	Muscular skeletal injuries to PCA staff from any of these activities	2-3	2-3	PCA staff always to follow manual handling directives. PCA staff always to assess loads & seek assistance when lifting heavy or awkward items.	No	1-2	1-2
Survey: reel tapes or other manual method; Total Station EDM; GPS	**Y**	N	HAZARDS: Working in site access routes or in areas used by site traffic. Tripping.	Injury to PCA staff from site traffic in such areas. Muscular and skeletal injuries from tripping	2-4 2-3	2-4 2-3	Engender an awareness of risk from site traffic: PCA staff to be aware of site traffic routes and to remain extra vigilant when working in areas used by site traffic. PCA staff to wear relevant PPE (hi-visibility). Engender an awareness of risk from tripping. Keep site tidy with regard to reel tapes when using manual methods, prism and GPS, which take user attention away from potential trip hazards, when using TST EDM and GPS, respectively.	No	1	1
Work on an uneven site	**Y**	N	HAZARD: Tripping.	Muscular skeletal injuries to PCA staff from tripping.	2-3	2-3	Engender an awareness of risk from tripping. Keep site as tidy as possible to minimise risks.	No	1	1
Work on a site on which a survey grid is set out	**Y**	N	HAZARDS: Tripping. Falling onto metal grid pegs	 Muscular skeletal injuries to PCA staff from tripping. Penetration injuries to PCA staff from falling onto unprotected grid pegs.	2-3 2-3	2-3 2-3	 Engender an awareness of risk from tripping. All grid pegs to have a protective cap/wooden block on at all times except when a tape is being attached.	No	1	1
Work on soft ground	**Y**	N	HAZARD: Slips and falls.	Muscular skeletal injuries to PCA staff from slips and falls.	2-3	2-3	Engender an awareness of risk from slips and falls.	No	1	1
Work in deep excavations (overall depth > 1.20m)	**Y**	N	HAZARD: Falling into deep excavations.	Serious injury (up to fatality) to PCA staff from falling.	2-3	2-3	Engender an awareness of risk from falls. Ensure area/trench protection is correctly installed and maintained. Keep site as tidy as possible to minimise risks.	No	1	1
Work in very wet weather	**Y**	N	HAZARD: Cold exposure. Footwear & clothing becoming soaked	PCA staff illness.	2-3	2-3	PCA staff to wear appropriate wet weather clothing and footwear.	No	1	1
Work in very cold weather	**Y**	N	HAZARD: Cold exposure.	PCA staff illness.	2-3	2-3	PCA staff to wear appropriate warm clothing.	No	1	1
Work in very dry windy weather	**Y**	N	HAZARD: Dust inhalation and eye contact, particularly when brushing surfaces.	PCA staff illness/injury.	2-3	2-3	PCA staff to be provided with P3 (European Standard EN 143) particle filter face masks and eye goggles.	No	1	1
Work in very sunny weather	**Y**	N	HAZARD: Sunburn/dehydration/sunstroke	PCA staff illness.	2-3	2-3	PCA staff to be provided with high SPF sun cream.	No	1	1
Work on a site with standing water, a known vermin problem or grazing livestock	**Y**	N	HAZARD: Weil's Disease (from rat urine within standing or running water).	PCA staff (potentially fatal) illness.	2-3	2-3	PCA to staff to appropriate gloves when in contact with standing water. All skin abrasions to be protected.	No	1	1
Work on a site in an area with a known drug use/HIV problem	Y	**N**								
Will any work be in a 'confined space'?	Y	**N**								
If Y, a detailed PCA 'Confined Space Risk Assessment' will be required										
Work on a site with known anthrax/other animal carcass burial pits	Y	**N**								
If Y, a detailed PCA 'Animal Burial Pit/Anthrax Risk Assessment' will be required										

I confirm that I have read and understood this Risk Assessment			
Name (please print)	**Signature**	**Company/Organisation**	**Date**

Pre-Construct Archaeology Limited

ARCHAEOLOGICAL EVALUATION: Land at 38 Elm Street and Silver Street, Peterborough, Cambridgeshire

Method Statement for Archaeological Evaluation

Method Statement Number 1

Amendment Record

Issue No.	Amendment	Prepared by	Approved by	Date

Pre-Construct Archaeology Limited

CONTENTS

1.0 Scope of Works

Pre-Construct Archaeology has been commissioned by Bill Singh of Silverline Developments to carry out a programme of archaeological evaluation at 38 Elm Street and Silver Street, Peterborough, Cambridgeshire. The project will be managed and directed for PCA by Mark Hinman, Regional Manager of PCA Central.

2.0 References

A Written Scheme of Investigation (WSI) for archaeological evaluation was prepared by Pre-Construct Archaeology June 2013.

3.0 Hazards Identified

PCA have prepared a full H&S Plan for the project. This includes a full suite of Risk Assessments. Significant hazards will thus be identified. Likely hazards include:

- Slips, trip and falls
- Noise
- Dust
- Buried services (see HSE publication *'Avoiding Danger from Underground Services')*
- OHL (see HSE publications *'Shock Horror. Safe Working near Overhead Power Lines in Agriculture'* and '*Working safely near overhead power lines. Agriculture Information Sheet No 8 (revised)*').
- Working with heavy plant
- Contaminations
- Manual handling
  Manual handling is largely unavoidable on all archaeological sites. Staff working on site must, in order to conduct the normal/basic procedures of archaeological excavation, use, for example, shovels, picks, mattocks and sledge hammers and move, for example, masonry and timbers, loaded wheelbarrows, timber battens, 'Heras' fencing panels and feet, and bulk sample tubs/storage boxes. Nevertheless, PCA considers manual handling a serious issue and is committed to improving capability through provision of information and training.
  All potentially hazardous manual handling operations should be avoided so far is as reasonably practicable and any potentially hazardous manual handling operations that cannot be avoided must be assessed and the risk of injury reduced, so far is as reasonably practicable.

  It should be possible to reduce risk from manual handling either by a) the provision of mechanical assistance, or b) making a load smaller or lighter, or c) by improving the working environment, for example by creating more space in which to undertake a task, or d) by removing obstructions.

Where Risk Assessment undertaken prior to site operations identifies a potential manual handling risk to PCA staff over and above those which arise from the normal/basic procedures of archaeological excavation, a site-specific 'Manual Handling Risk Assessment' must be carried out and reviewed at regular intervals.

4.0 Personnel

The overall Project Manager for PCA is Mark Hinman

PCA Ltd, Central Office, The Granary, Rectory Farm, Brewery Road, Pampisford, Cambridgeshire, CB22 3EN
Tel: 01223 845 522 / 07887 530 153

Mark is responsible for the co-ordination of the work activity associated with this and all subsequent Method Statements.

He will be overseen by PCA's H&S Manager Dr Frank Meddens or H&S Officer Alistair Douglas, working in close collaboration with Mark Hinman. Both Alistair and Mark hold relevant National Examination Board in Occupational Safety and Health (NEBOSH) qualifications.

Archaeological work will be undertaken by a team of professional archaeologists employed by PCA. The overall number of staff involved in the field team will be approximately 1-4. Various grades of staff will be involved, the main two being: Site Supervisors/Senior Archaeologists and Site Assistants/Archaeologists.

All PCA staff have Construction Skills Certification Scheme (CSCS) accreditation at a grade appropriate to their level of responsibility. CSCS accreditation demonstrates that all PCA staff have attained an agreed level of occupational competence.

Each PCA field team includes an appropriate number of personnel with a First Aid at Work qualification.

Each PCA field team includes an appropriate number of supervisory personnel.

5.0 Plant & Equipment

Archaeological Trenches will be opened using JCB (or similar) fitted with wide blade ditching buckets; back-actors may be used as required. For open area excavations heavy plant, typically 13 - 20 tonne tracked 360º excavators fitted with wide blade ditching buckets are used. Dumper trucks or tipper lorries will be used for spoil dispersal and management. All operatives will be competent & hold relevant certification. It is envisaged that all plant and operatives will be sub-contracted. Plant will be delivered to site on low-loaders or other appropriate vehicles. All operatives will be competent & hold relevant certification.

6.0 Materials

Details of welfare unit locations, plant & delivery vehicle movements and exclusion zones remain to be confirmed.

On-site welfare facilities will be required for the archaeological team. It is envisaged this will include 20' powered welfare units, 10' or 20' basic office units, 20' containers for equipment storage, chemi-loos. For guidance on site welfare requirements, HSE information sheets *Provision of welfare at fixed construction sites* (Sheet No. 18 (rev. 1) and *Provision of welfare at transient construction sites* (Sheet No. 46) should be consulted. For the purposes of the archaeological investigations which PCA undertake, a transient site is where short duration fieldwork is carried out by personnel working at one or several locations and short duration work covers work of up to two weeks duration.

Site welfare facilities must be adequate for the number of people on site. On most sites welfare facilities will be provided by hiring-in mobile installations. Loading and offloading of all welfare units must be undertaken by appropriately trained personnel.

Every site should have facilities provided for taking breaks. This must provide shelter from the weather and be adequately heated. Care should be taken to ensure adequate ventilation when heating appliances are used. On short duration works a work vehicle may be used if it is readily available and has sufficient seating. On most works a mobile installation (site hut or office) is used, such facilities having a table and chairs and, on longer duration works, a kettle or urn for boiling water and provision for preparing hot food, such as a microwave.

Every site should have facilities provided for washing. This should be located next to/within toilet installations and should include: basin(s) or sink(s) large enough to enable people to wash their hands, face and forearms; a supply of hot and cold running water; soap, towels or dryers.

Every site must have sufficient WCs for use by site operatives and visitors. Where possible, toilets should be connected to the mains drainage system and be water flushing. If this is not possible, facilities with built in supply and drainage tanks should be used. Portable chemical toilets should only be used for short duration works as should other short term measures, such as pre-arranged use of private facilities on site or use of nearby public toilets. Toilets should also: be adequately ventilated and not open directly onto workrooms or mess rooms; be reasonably accessible; have a lockable door; be kept clean and well lit.

Every site must have a supply of drinking water, which can be from bottles or tanks if there is no mains supply available. The drinking water must be clearly marked and cups should be provided.

7.0 Personal Protective Equipment and First Aid

PPE

PPE is provided to all PCA employees and must be worn as advised. Site visitors are also required to comply with this regulation. All PCA employees are provided with the following items of PPE:

- safety helmet ('hard hat');
- safety footwear;
- hi-visibility garment;
- other items of PPE as appropriate to work being undertaken as determined by a Risk Assessment, COSHH Assessment, Noise Risk Assessment or Manual Handling Risk Assessment

Safety Helmets. On all sites it is mandatory for all PCA staff and site visitors to wear safety helmets. Safety helmets must be approved to the standard BS EN397, which should be inscribed on the hard hat. As the plastic used for hard hats is adversely affected by sunlight, hard hats must be changed after a specified period. The date when a hard hat should be changed is marked on the hat and is normally 3 years after production.

Safety Footwear. It is mandatory for all PCA staff and site visitors to wear safety boots or safety wellingtons. The minimum requirement for footwear are items approved to the standard BS EN 345/EN-ISO 20345-1 (where the toecap offers 200 joules impact and there is a pierce resistant midsole). No person is permitted to wear soft-soled footwear (*e.g.* 'trainers') on any site.

Hi-visibility Garments. It is mandatory for all PCA staff and site visitors to wear high visibility vests or coats at all times on site. The minimum requirement for high visibility garments on PCA sites are those approved to the standard BS EN471 (2003), Class 2, which provide intermediate protection/medium visibility (where there is a minimum of 0.50m^2 background fluorescent material and a minimum of 0.13m^2 retroreflective material; for a standard site sleeveless/long sleeve vest this would mean two 5cm wide bands of retroreflective material around the torso plus a vertical 5cm wide band over each shoulder meeting the uppermost torso band).

Eye Protection. Eye protection comprising plastic goggles to standard BS EN166 is provided for PCA staff and their use is mandatory whenever there is a risk of flying particles.

Ear Defenders. Ear defenders to standard BS EN352:1 (connected) or EN352:3 (individual, helmet mounted) or disposable ear plugs to standard BS EN352:2 are provided to PCA staff and their use is mandatory when working in the vicinity of noisy equipment. Staff and operatives of sub-contractors employed by PCA must also use ear protection as advised.

Gloves. Hand protection in the form of gloves is provided for PCA site staff.

Risk Assessment may identify other PPE requirements to undertake the works. Likely requirements on occasion on this project are:

- Hearing protection.
- Respiratory protection.

First Aid

Trained First Aiders will be appointed for each place of work and their names will be prominently displayed at the workplace. Site-based First Aiders are also identifiable by stickers on the sides of their hard hats. These take the form of a white cross on a green background. Provision must be made that when the First Aider is unforeseeably absent, a person is appointed to take charge in any emergency.

Each site and work location will have a First Aid kit available adequate for the numbers of staff. If treatment is administered by a First Aider, a record of the treatment will be made in the Accident Book. It is the responsibility of the First Aider providing treatment to inform the relevant Health and Safety Officer of any restocking that is required.

First Aid Kit. The following items that should be included in a First Aid kit:

Guidance card.
Individually wrapped sterile adhesive dressings (assorted sizes).
Sterile eye pads, with attachment individually wrapped triangular bandages.
Safety pins.
Medium-sized, individually wrapped, sterile, un-medicated wound dressings (approx. 12 cm x 12 cm).
Large, sterile, individually wrapped, un-medicated wound dressings (approx. 18 cm x 18 cm).
Individually wrapped, moist cleaning wipes.
Disposable gloves (pair).

8.0 Planning

Details of the programme of work are to be confirmed.

9.0 Temporary Works

The archaeological work may require limited temporary works. Only a small number of excavations are likely to exceed 1.0m in depth and the majority will be far shallower. Shoring and support of excavations will be implemented as required and supplementary Method Statements prepared. To prevent collapse, all excavations greater than 1.0m in depth will need to have relevant support works in place, such as 'battering-back', 'stepping-out' or shoring, prior to PCA staff entering. Any necessary equipment needed for shoring, such as trench sheets, props, *etc*., must be available on site before work starts. The installation of shoring will be the responsibility of qualified shoring contractors, will be to an agreed design, and will be carried according to the specification detailed in BS 6031 (1981) and to the practices reported on in *CIRIA Report 97 - Trenching Practice – 2nd Edition* (1992). In addition, shoring is to be altered, dismantled, and inspected only by qualified, competent and authorised persons.

Method and locations of storage of arisings from machine removal of overburden will be agreed with the client.

10.0 Work Area & Access / Egress

Plans will be compiled depicting the locations of pedestrian personnel access and egress to working areas. These will be prominently displayed in site offices. Pedestrian routes will be demarcated with orange plastic hi-visibility fencing on road irons. All personnel will be briefed at the initial H&S induction in the safe use of pedestrian and traffic routes. Tool-box talks will update and further inform personnel on such matters.

11.0 Public Interface

Details of interface with the public are to be confirmed. Likely interface with the public will occur at site access/egress points with movement of plant and equipment on/off site and traffic management will be required. All such activities will require the attendance of a Banksman.

The archaeological working areas will not be suitable for partially sighted persons, wheel chair users, and pram access.

12.0 Method of Works

Area preparation

Ground reduction and all subsequent machine work in SMSE and DAE areas will be directly supervised by PCA's Site Supervisors. Non-archaeologically significant overburden will be removed by machine, down as far as the first significant archaeological horizon. Exclusively, PCA's Site Supervisors decide what constitutes overburden and all such work will take place under direct archaeological supervision. The machine will be suitably-sized and powerful enough to undertake the required work quickly and efficiently. Ground reduction in WB areas will be monitored by PCA's Site Supervisors. A wide blade 'ditching' bucket - with no teeth - must be used exclusively for excavation of overburden in all areas of archaeological mitigation

Archaeological hand cleaning

Machine clearance of overburden will be followed by appropriate hand cleaning in all mitigation areas to define the extent and distribution of all archaeological remains to allow adequate recording.

Archaeological excavation and recording

PCA's field team will use appropriate hand tools to clean all exposures that require examination or recording. These will be cleaned carefully with hoes and trowels to establish the presence or absence of archaeological features at these levels.

All archaeological features (layers, cuts, fills, structures) that do not merit preservation *in situ* will be excavated by hand tools and recorded in plan and/or section. Work in plan will use the standard 'single context planning' system.

Survey will be undertaken using GPS instrumentation. All data will be co-ordinated with the Ordnance Survey National Grid. Localised site grids' will be installed as necessary.

Archaeological excavation may require work by pick/mattock and shovel. Such tools are not employed on complex stratigraphy, and where deposits are removed in this manner they will have been properly recorded first.

Drawn records of archaeological features and deposits will normally be at a scale of 1:10 (sections) or 1:20 (plans). All archaeological features and deposits will be logged relative to Ordnance Datum. Photography will be undertaken in 35mm film and digital format.

All artefacts within archaeological deposits will be collected. Appropriate cleaning, marking and packaging of these will be carried out in a standardised form.

Palaeoenvironmental and technological samples, including building materials, will be collected by bulk sampling, where appropriate.

In the event of human burials being discovered, they would be treated with due respect and carefully excavated and recorded using standard archaeological techniques, by the use of photography and *pro forma* 'skeleton recording sheets' following receipt of the appropriate exhumation licence from the Ministry of Justice.

Appropriate procedures under the relevant legislation will be followed in the event of the discovery of artefacts covered by the provisions of the *Treasure Act 1996*.

Excavation Areas

By their very nature, all intrusive archaeological site investigations involve some form of excavation. Before undertaking any excavations, it is important to plan against the following:

- Collapse of sides.
- Materials falling onto people working in the excavation.
- People and vehicles falling into the excavation.
- Undermining nearby structures.
- Access to and into the excavation.
- Fumes.
- Flooding.

To prevent collapse, all excavations greater than 1.20m in depth will need to have relevant support works in place, such as 'battering-back', 'stepping-out' or shoring, prior to PCA staff entering. Any necessary equipment needed for shoring, such as trench sheets, props, *etc*., must be available on site before work starts. The installation of shoring will be the responsibility of qualified shoring contractors, will be to an agreed design, and will be carried according to the specification detailed in BS 6031 (1981) and to the practices reported on in *CIRIA Report 97 - Trenching*

Practice – 2nd Edition (1992). In addition, shoring is to be altered, dismantled, and inspected only by qualified, competent and authorised persons.

To prevent materials falling onto people working in excavations, any overhanging, loose or unstable material and any weak structures in or near an excavation must be removed, if it is safe to do so, prior to any personnel enter an excavation. Thereafter, areas around the top of excavations must be kept clear of tools, loose material and spoil - the latter should be at least 1.20m from the upper edge of excavation.

To prevent any person or vehicle falling into an excavation, it must be protected by an appropriate barrier and must have appropriate signage (*e.g.* 'Danger Deep Excavation'). Vehicles must not be driven within 5m of the top edge of an excavation at any time. Only the shallowest of excavations (up to 0.50m in depth) should be protected by hazard tape/road irons and this method should only be used when the overall site perimeter is secure. All other excavations with vertical sides of up to 2m overall depth will require welded mesh ready fence ('Heras' fencing) as protection. Excavations with vertical sides of 2m or more overall depth will require substantial barriers, comprising anchored guardrails, where necessary with toe boards. All such barriers are to be installed altered, dismantled, and inspected only by qualified, competent and authorised persons. Hazard tape or other temporary fencing including 'Heras' fencing will not suffice.

If a ladder is proposed for use to access a deep excavation a site-specific Access Risk Assessment is required to be carried out to ascertain if a ladder is suitable or another means of access is required. Where ladders are to be used the following issues must to be considered:

- Class 1 Industrial heavy duty wooden or aluminium ladders and Class 2 Light Trades ladders must only be used. They must be individually marked with a unique identification number and the class or duty rating.
- Ladders should be set on a firm, level base.
- Ladders must installed as near as possible, at an angle of 75° (1m out to 4m up).
- Ladders must be secured against slipping by tying at top and bottom. Ladders must not be secured by their rungs; lashings should be around the stiles, or proprietary ladder ties should be used.
- Ladders must be regularly inspected.
- Site conditions must be taken into account, *e.g.* exposure to wind or rain, proximity of vehicles and/or people.
- Ladders should be sited clear of any excavation, and in such a position that they are not causing a hazard, or placed anywhere where they may be struck or dislodged.
- Ladder length regarding flexing and bowing.
- The structure the ladder is to rest against must be strong and stable enough for the purpose.
- Ladders should have good handhold availability for climbing.
- Heavy or bulky loads or tools should not be carried up ladders.
- Ladders must extend at least 1 metre above the landing place, unless some other suitable handhold is available, and must be placed so that there is adequate space behind each rung for a proper foothold.

Any excavation will be assessed with respect to ventilation risk, the potential for gas and flooding problems, with regard to classifying it as a confined space. If an excavation is classified as a confined space then a full assessment following the *Confined Spaces Regulations 1997* will follow, and only personnel who have been appropriately trained, who are issued with appropriate equipment and who are under authorised supervision will be allowed into the excavation. Where there is flooding risk cofferdams/caissons will be installed with pumps of a suitable capacity.

Wheelbarrow runs and walkways should be located at a safe distance from the edge of any excavation. They should be of adequate width. Scaffold boards or staging should be in good condition, free from splits, warping, nails or loose metal strips, and must be adequately supported in accordance with the instructions of the manufacturer/supplier. Where barrow runs and walkways span a void or a deep excavation extra width and support may be necessary, in addition to guard rails and toe boards as edge protection.

Vertical steel grid pegs protruding from the ground must be covered with PCA approved wooden grid peg covers, except whilst in immediate use.

PCA staff, site visitors and personnel from other contractors are not permitted to run on site, nor jump across trenches or other excavations.

13.0 Underground and overhead utilities

All available information on underground utility routes or services and overhead power lines (OHPL) will be supplied to PCA.

Underground

Almost all intrusive archaeological site investigations have the potential to come into contact with underground utility routes or services. Pre-intrusive checks must be undertaken by obtaining plans of known services in advance from water/drainage/sewerage, electricity, gas, telecommunications/telephone and cable/television companies. No intrusive work by machine (trenches/test or trial pits/area stripping) shall be undertaken until it has been verified that the locations are sited, as far as possible, to avoid known buried services. Crossing locations of known or suspected services with heavy plant/equipment should be avoided.

As a general rule, all intrusive locations must be checked with a CAT (Cable Avoidance Tool) in advance of excavation. Repeat checks with the CAT should continue as works progress. Personnel operating cable location equipment must be trained to the appropriate requirements.

Hand-held power tools and mechanical excavators are the main causes of danger for buried utility routes or services and they must not be used in close proximity to buried services. At all locations where buried services are suspected, excavation will only proceed by hand. Hand tools, however, can also be a source of accidents and they must, therefore, be used carefully, for example, every effort must be made to excavate alongside cables/pipes rather than directly above them.

Service pipes or cables should never be used as impromptu ‘handrails’ or steps by PCA staff to enter or exit excavations.

All services must be assumed as being live until confirmation to the contrary has been supplied. Where there is any doubt about the identity of an exposed service, it should be treated as an electricity cable or gas pipe until proven otherwise.

Any damage to buried services must be reported to the Principal Contractor or the landowner. Minor damage to the sheath of a cable or to a coating on a pipe can result in moisture penetration, corrosion and subsequent failure. A cable pulled and stretched may result in a conductor or core being broken; and an earthenware or concrete duct broken may prevent a service being installed.

This is the procedure if a gas pipe on site is fractured or starts leaking:

- Evacuate all personnel from area.
- Enforce a no smoking and no naked lights ban.
- Prevent any approach by members of the public or vehicles.
- Inform the gas company immediately.

This is the procedure if an electricity cable on site is broken:

- Avoid all contact with the cable.
- Do not attempt to disentangle the cable from a machine bucket, *etc*.
- Do not attempt to leave your cab. Stay put until you are told the cable has been made safe.
- Inform the electricity company immediately.
- Keep everyone clear.

Surplus concrete, hard-core, rock, rubble, flint, *etc*. must never be tipped directly onto a service while backfilling an excavation, since it may result in damage. Selected backfill material should be adequately settled and compacted, care being taken to avoid mechanical shocks to the service pipe or cable. Warning tapes, tiles, *etc.* should be placed above the service at about 300mm. When gas service pipes have been exposed, advice on backfill should be sought from the local gas company.

Overhead

When working outside, checks will be undertaken for overhead power lines (OHPL), particularly in advance of any mobile plant operations. Plant operators must be made aware of all OHPL. The transport (tracking) height and maximum vertical reach of **each** machine must be known in advance of work.

For 20kV OHPL machines will not operate, other than tracking at transport height, within a horizontal distance of at least 9.0m from the OHPL. This distance will be measured from the line of the nearest line to the work, projected vertically downwards to the ground and perpendicular to the route of the line.

For 132kV OHPL machines will not operate, other than tracking at transport height, within a horizontal distance of at least 15.0m from the OHPL. This distance will be measured from the line of the nearest conductor to the work, projected vertically downwards to the ground and perpendicular to the route of the line.

14.0 Environmental Arrangements

The work will be undertaken with regard to PCA's Environmental Policy.

15.0 Emergency Procedures

All contact telephone numbers in the event of an emergency are to be made available.

Consideration will be given to works that are carried out outside normal working hours.

Accident Reporting. All accidents, including the most minor ones, must be entered into the Accident Book. Upon completion of fieldwork, the site Accident Book will be checked by the relevant Health and Safety Officer/Manager and any incidents occurring on the site will be recorded and kept on file for future reference.

A detailed list of reportable injuries, diseases and occurrences can be obtained from www.riddor.gov.uk.

The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1985/2013 (RIDDOR) sets out the requirements for accident reporting of accidents under the following categories:

- Fatal
- Major Injuries/Conditions
- Specified Dangerous Occurrences
- 'Over three day' Accidents

PCA's designated Health and Safety Manager and Officers are responsible for reporting any RIDDOR notifiable accidents, dangerous occurrences and diseases. This must be reported as soon as possible, following dealing with the consequences of the incident and making safe of the affected area, by the person in charge of the work area. Form AR2 must be completed for fatalities, major accidents/conditions, specified dangerous occurrences and 'over three day' accidents. Within 7 days a completed form F2508 must be forwarded to the Enforcing Authority.

In the event that a **gas pipe** is fractured or starts leaking on site, the emergency procedure is:

- Evacuate all personnel from area.
- Enforce a no smoking and no naked lights ban.
- Prevent any approach by members of the public or vehicles.
- Inform the gas company immediately.

In the event that an **electricity cable** is broken on site, the emergency procedure is:

- Avoid all contact with the cable.
- Do not attempt to disentangle the cable from a machine bucket, *etc*.
- Do not attempt to leave your cab. Stay put until you are told the cable has been made safe.
- Inform the electricity company immediately.

- Keep everyone clear.

PCA's Emergency Response Plan for **UXO** is as follows:

The moment you suspect that you have encountered UXO:

- **STOP** work immediately
- **NOTIFY** your Site Supervisor
- **CLEAR** the area
- **INFORM** the police
- **PREVENT** access to the area

16.0 COSHH Assessments

The following substances are commonly used on archaeological sites:

Standard Unleaded Petrol is most often used as fuel in trash pumps, hydraulic breakers, turf cutters and other small/medium sized hired-in plant. These items are usually filled from dedicated 5-20 litre plastic fuel containers, with built in spout/anti-splash funnel and screw-in vent cap. All such containers must be stored at a suitable, safe location so as to minimise the risk of pollution and prevent exposure to heat. Storage and refuelling should be away from sensitive locations such as drains and watercourses. Means of addressing spills should be readily available.

Diesel is most often used to fuel hired-in earthmoving machinery, which will usually arrive on site with a fuel bowser/steel barrel(s)/plastic container(s) containing diesel. All such containers must be stored at a suitable, safe location so as to minimise the risk of pollution and prevent exposure to heat. Storage and refuelling should be away from sensitive locations such as drains and watercourses. Means of addressing spills should be readily available. When fuel pumps are not used to refuel vehicles, funnels should be used in conjunction with jerry cans top prevent spillage. Diesel can cause skin irritation and, therefore, personnel should wear rubber gloves when handling diesel or the containers in which it is stored.

Where the Risk Assessment undertaken prior to site operations identifies a potential risk involving another substance hazardous to health, a site-specific COSHH Risk Assessment must be carried out and reviewed at regular intervals. Manufactured products such as paints and oils could be considered as hazardous substances as well as those created by other site works, such as dust from cutting of materials or movement of spoil or fumes from cutting of materials.

17.0 Risk Assessments

PCA have prepared a full suite of Risk Assessments.