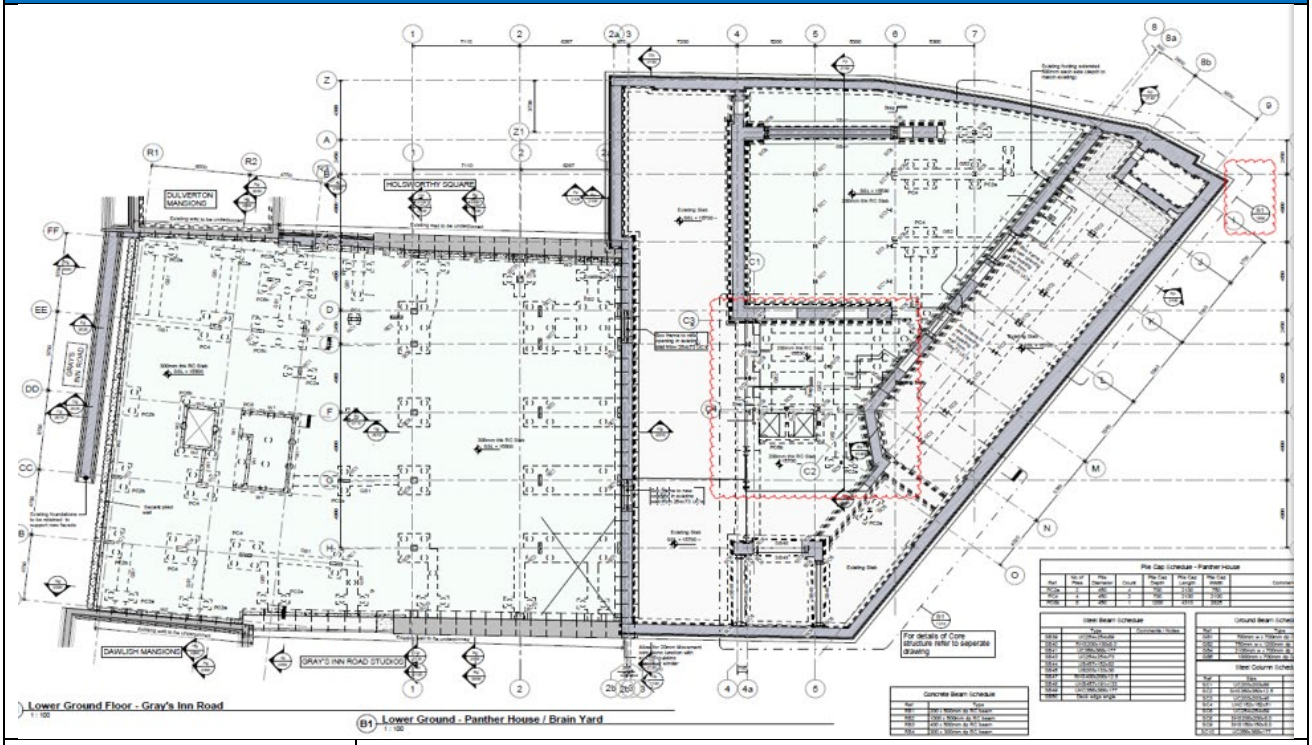
SSoW 021 – Piling
PANTHER HOUSE



Prepared For	Dukelease Properties
Prepared By	Erith Contractors Ltd
Document Reference	SSoW 021 – Piling
Project Reference	D10438

Document Revision / Authorisation Record

Revision No	Prepared By Position Date	Authorised By Position Date	Details
01	N. Riches **Project Manager** 09/03/2021	S. Accleton **Operations Director** 09/03/2021	First Issue
02			
03			
04			
05			

Distribution List

Roles	Name Organisation	Contact Details
Client	**Matt Rosser** Dukelease Properties	**Email :** Matt@Dukelease.com **Tel No :** 07738 553762
Principal Designer	**Paul Bussey** Allford Hall Monaghan Morris	**Email :** PBussey@ahmm.co.uk **Tel No :** 02072 515261
Operations Director	**Stuart Accleton** Erith	**Email :** Stuart.Accleton@Erith.com **Tel No :** 07770 943474
Project Manager	**Nick Riches** Erith	**Email :** Nick.Riches@Erith.com **Tel No :** 07384 114099
Site Supervisor	**Ram Istrefi** Erith	**Email :** Ram.Istrefi@Erith.com **Tel No :** 07468 697920

Table of Contents

Associated Documents
The list of associated documents below are to be referenced in conjunction with this document, and are issued as standalone documents to reduce unnecessary duplication.

Site Particulars

Scope of Works

- As part of the basement construction to Grays Inn road, Erith will install piles as per EOC drawing PAH-EOC-V1-B1-DR-S-1010. This will enable the substructure of the new building at Grays Inn road.
- As part of the basement construction to Panther House, Erith will install piles as per EOC drawing PAH-EOC-V1-B1-DR-S-1110. This will enable the substructure and new core construction to Panther House.
- This method statement will cover the logistics and install of the new piling.

Hours of Work

- Monday – Friday
  - 08:00 – 18:00
- Saturday
  - 08:00 – 13:00
- Sunday
  - By Agreement only

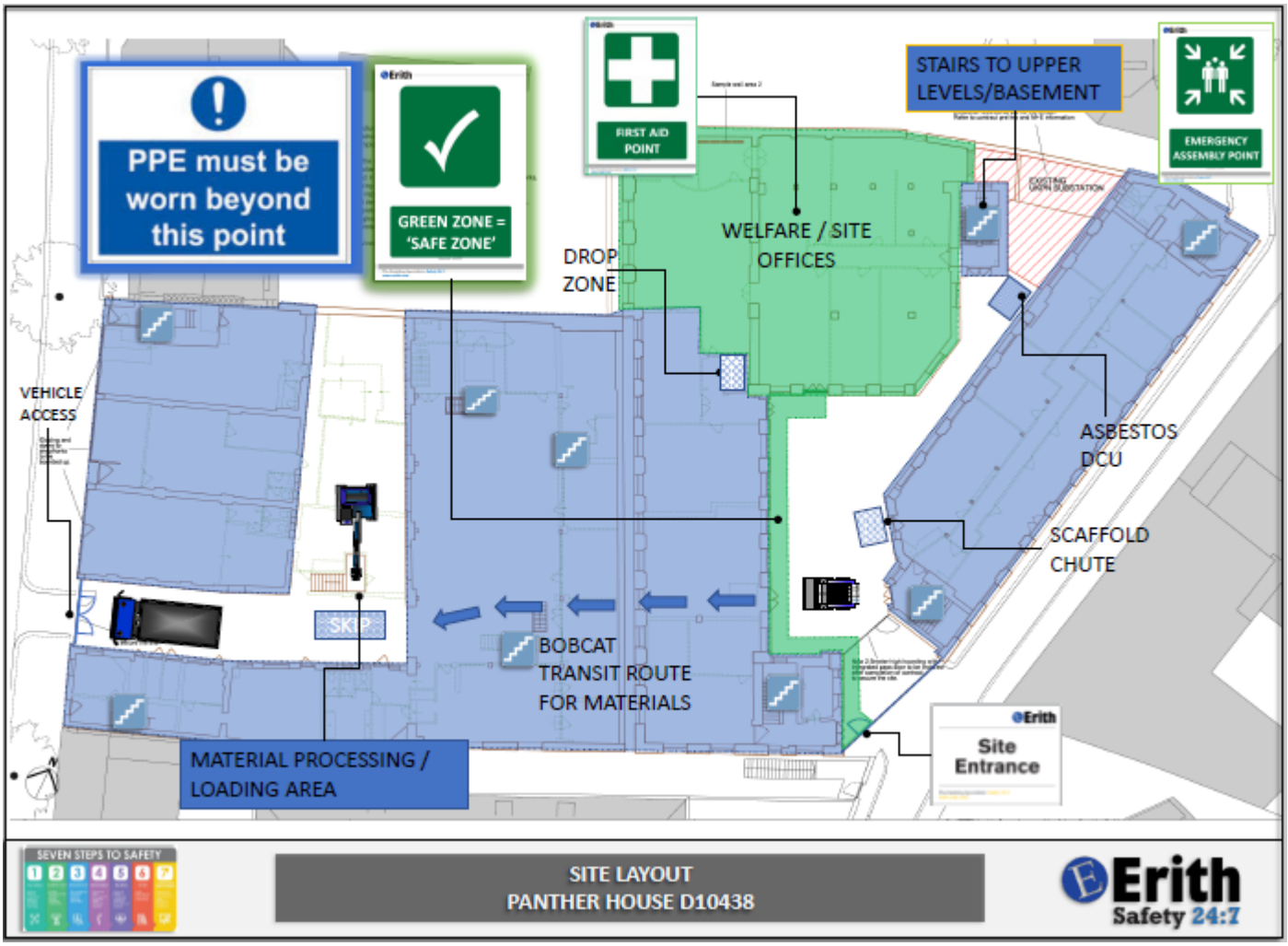
Constraints to work

- Scaffold/hoarding license obtained from London Borough of Camden (LBC)
- Section 80 obtained from LBC and demolition of existing buildings in Grays Inn road.
- Section 61 obtained from LBC. Noisy working hours 08:00-10:00, 12:00-14:00 and 16:00-18:00.
- AIP for basement construction from LBC.
- Stage 2 Written Scheme of Investigation (WSI) agreed with MOLA and Historic England.
- Noise, dust, and vibration monitoring installed as per requirements from LBC.
- Incoming services isolated and certificated.
- Party wall agreements for sub structure works to commence.
- Piling mat installed to Swanton's design.
- Basement sequence agreed with and designed by Swanton before works can start. A permit to load will be issued by Erith's TWC.
- Temporary works installed to design drawings with a permit to load issued from Erith's Temporary Works Co-ordinator.
- Construction issue drawings issued from client.
- Pile design report completed.
- Exclusion zones erected around all work areas before starting.
- All dust will be wet down at source by attendant operative using a water hose.
- Guide wall installed prior to secant pile wall install.

Access / Egress

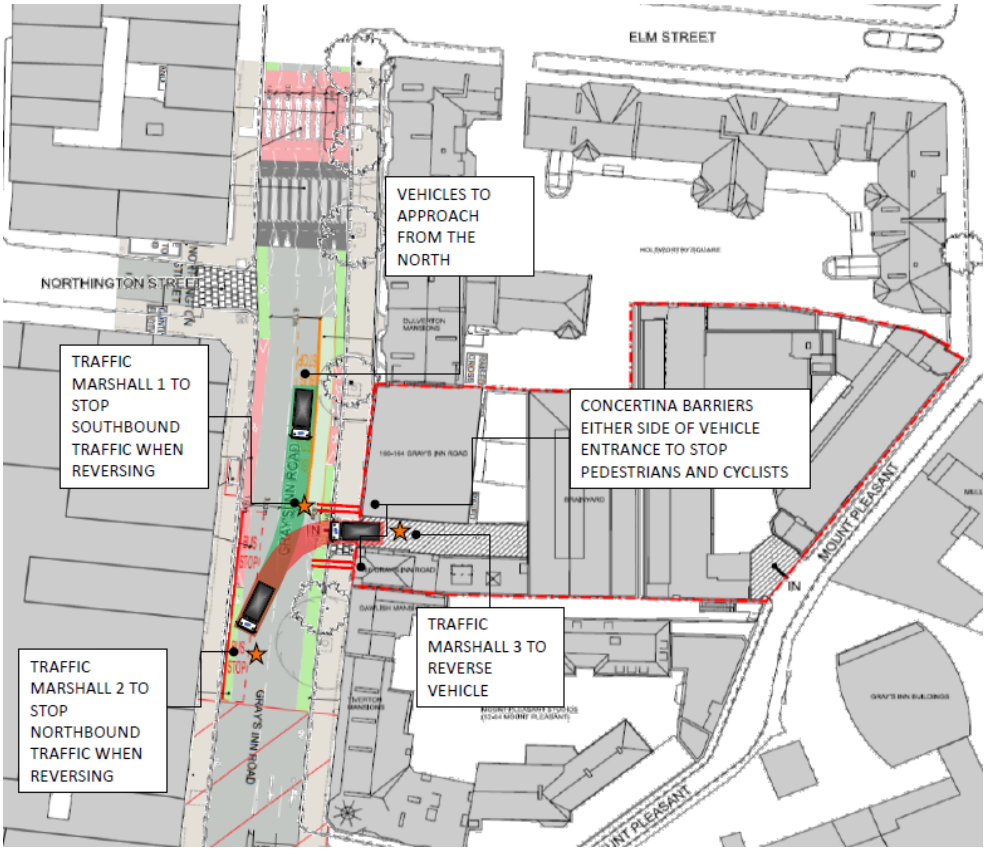
Site Access

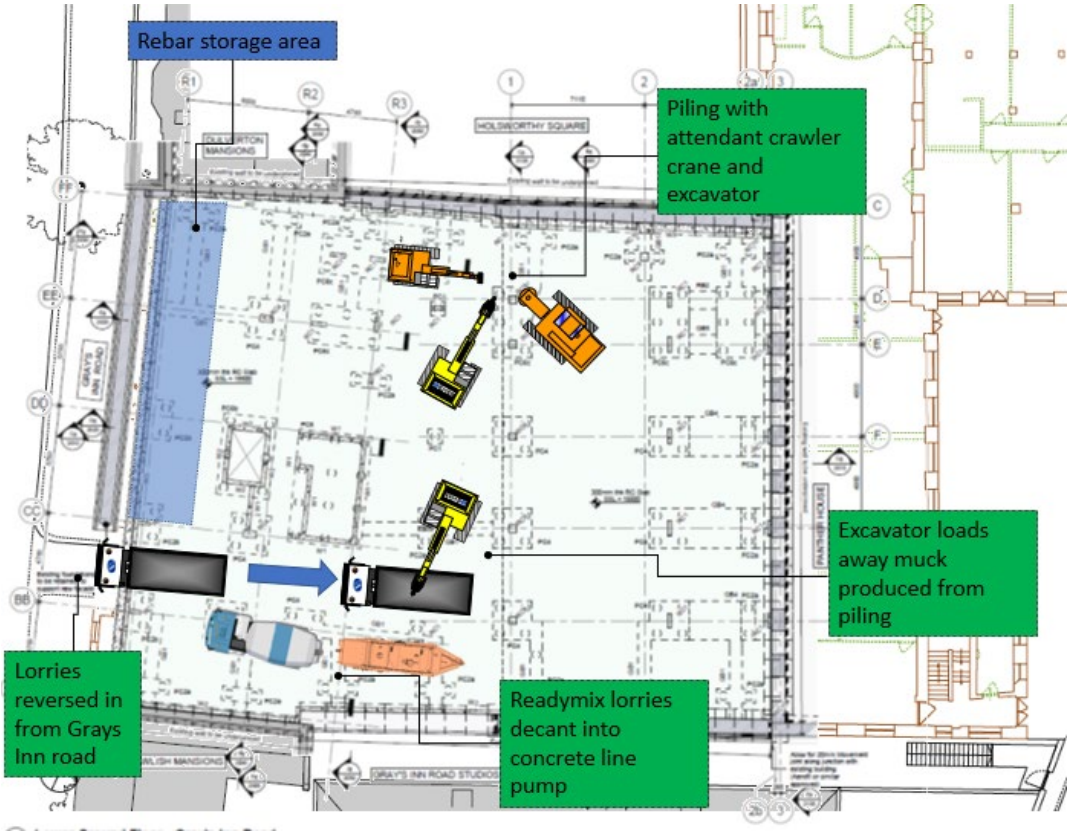
- Site access will be via Mount Pleasant as per below plan.



Workface Access

- Pedestrian access to Grays Inn road will be via an opening formed from Panther House.
- All vehicle movements will be via the site entrance on Grays Inn road.


ELM STREET
VEHICLES TO APPROACH FROM THE NORTH
NORTHINGTON STREET
TRAFFIC MARSHALL 1 TO STOP SOUTHBOUND TRAFFIC WHEN REVERSING
CONCERTINA BARRIERS EITHER SIDE OF VEHICLE ENTRANCE TO STOP PEDESTRIANS AND CYCLISTS
MOUNT PLEASANT
TRAFFIC MARSHALL 3 TO REVERSE VEHICLE
TRAFFIC MARSHALL 2 TO STOP NORTHBOUND TRAFFIC WHEN REVERSING
GRAYS INN ROAD


Rebar storage area
Piling with attendant crawler crane and excavator
Excavator loads away muck produced from piling
Lorries reversed in from Grays Inn road
Readymix lorries decant into concrete line pump

Resources

Labour

- Piling ops x 6
- Crawler crane op x 1
- Telehandler op x 1
- Traffic Marshals x 3
- Excavator op x 1
- Concrete pump op x 1
- Burner x 1

Plant

- 1 x Piling rig
- 1 x Crawler crane
- 1 x Telehandler
- 1 x Concrete line pump
- Lifting accessories as per lift plan
- Diesel bowser
- Augers and cleaning buckets
- Jet wash

Materials

- Concrete
- Prefabricated rebar cages
- Diesel
- Oxygen
- Propane

Methodology

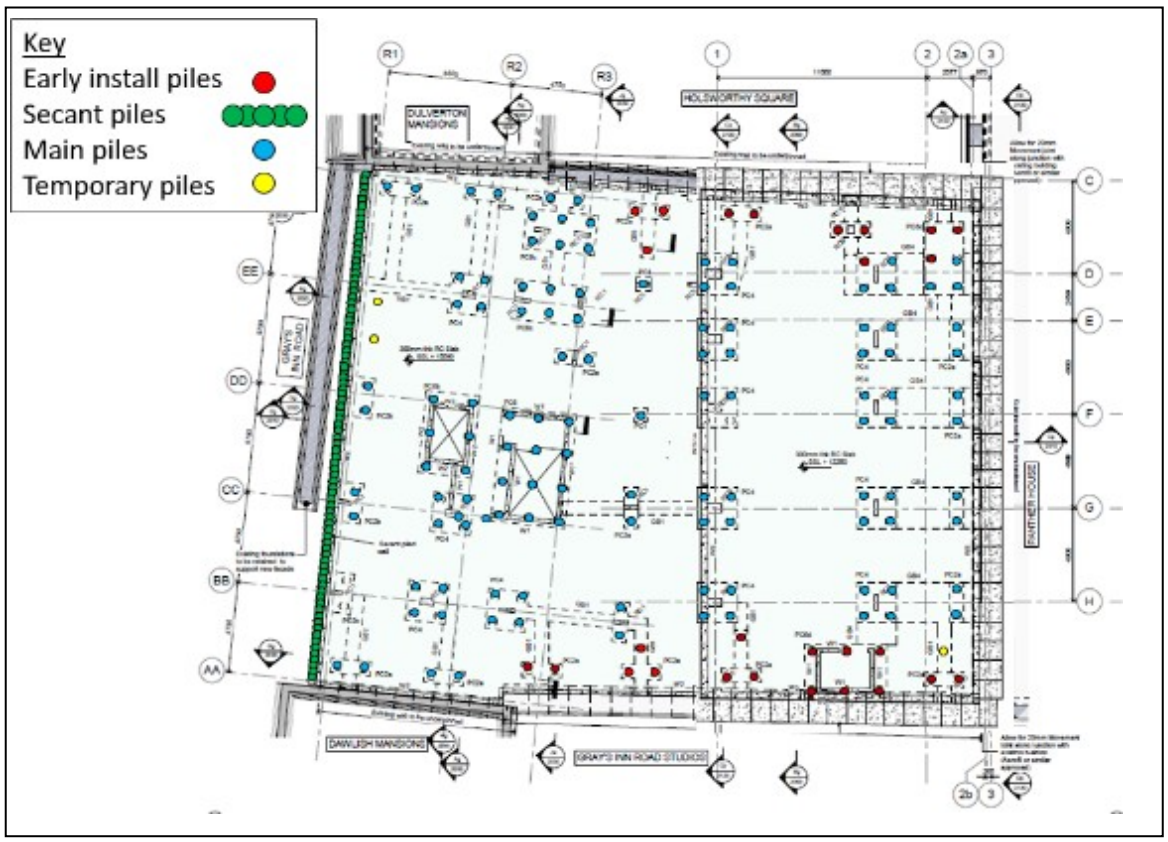
The following details the sequence and method of work to be adopted to complete the designated activity, the information detailed below should be briefed out to ALL PERSONS involved within the activity to ensure they understand their roles and the controls to be adopted:

Sequence

1. Site set up. Mobilise plant and equipment.
2. Install casing.
3. Bore piles to depth.
4. Install rebar cages.
5. Pour concrete to level and install plunge columns if required
6. Extract casing.
7. Load away muck.

Method of work

Pile Locations



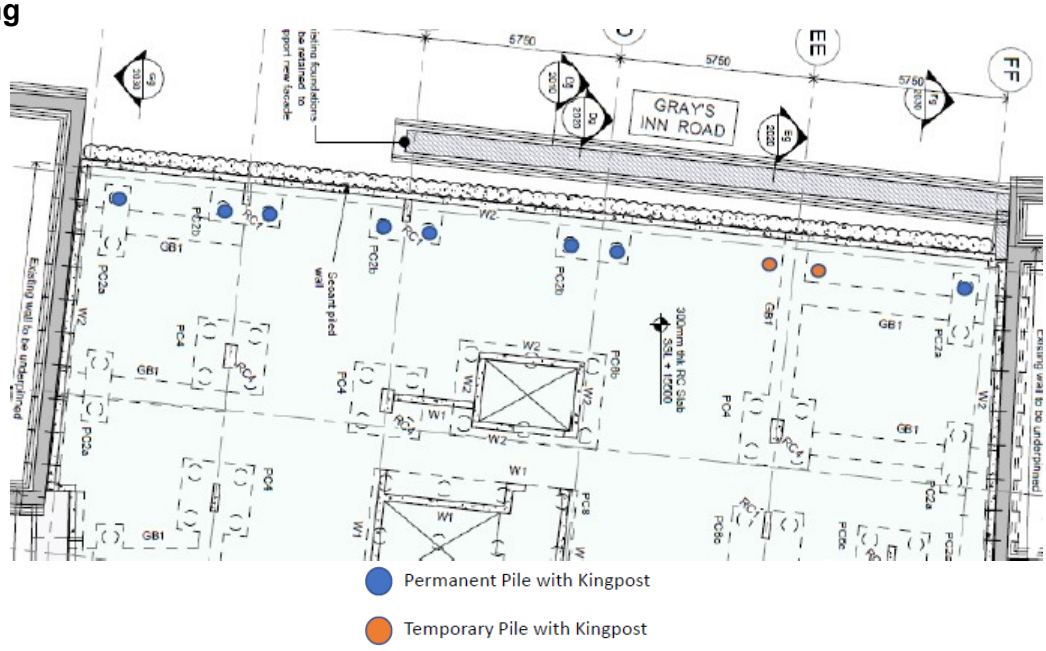
Secant Pile Wall
Male Pile Construction

A suitable piling rig will be utilised to install the male/female piles that form the secant piled retaining wall. All piles will be constructed using a CFA method. Attendant crawler cranes along with supplementary Piling Equipment: Augers, welding plant, concrete pump, agitator etc. would also be supplied to site.
To allow sufficient distance between piles to ensure that tracking of the rig and the drilling process itself does not damage freshly built piles, the installation will be sequenced on a hit- and-miss basis.
The piles will be drilled from a platform designed, placed, and maintained as necessary for the duration of our works. With a CFA technique, concrete and reinforcement is installed to the platform level.
The pile is bored to its designed toe level with use of a string of continuous augers and when constructing secant male piles will cut through the adjacent female piles. The rig will monitor verticality, boring rate and concreting process through read outs on computer screens within the driver's cab.
On reaching the required toe level pumping of the concrete will begin. For the site logistics and the volume of concrete we are anticipating placing during a shift, a holding drum will be used to temporarily store concrete during set up, boring and reinforcement installation to avoid concrete wagons being parked on site for long durations. The auger will not be extracted until either the specified pre-charge volume of concrete has been pumped through the auger or until a positive pressure registers on the instrumentation.
At all times during pile construction the auger is rotated in the forward direction. Concreting of the pile bore ideally is to a continuous process.
Spoil is cleared from the augers during the concreting operation by a full-time attendant excavator and the rig mounted auger cleaner. When the tip of the auger is at or approaches ground level the concrete pumping ceases.

Female Pile Construction

These piles will be constructed in advance of the male piles on a hit-and-miss basis and are not therefore required to cut through adjacent concrete piles. The advancement of the female piles will be controlled to ensure that male piles are cutting through female piles between 3-7 days after installation of the female piles. Female piles will be unreinforced.

Main Piling



Casing Installation

The temporary casing being used will be heavy duty segmental casing. This casing type is being used as it can be lengthened when needed and reduced in length for storage when extracted. This casing will be installed using the piling rig. The casing will be attached to the rig via the casing spinner, which is directly attached to the high torque rotary table. As the casing is rotated it will be pushed (crowded) into the ground by the rig using the hydraulic crowd system which is attached to the rig mast. The casing is supplied in lengths up 1.3m long. As a section of casing approaches dig level the next section will be lifted on to the top and connected using several casing plugs. As the casing is progressed into the ground the rig will remove the material from within using either an auger or a digging bucket. In general augers are used to remove dry, cohesive material. The casing will be installed to a depth whereby a seal is achieved into cohesive strata this will give a watertight seal between the casing and the clay.

When the casing is sealed into clay the bore may be advanced out of casing by up to 2m, additional casing will then be added to the string and crowded down into the clay bore, the pile may be bored to depth.

During the casing installation periodic checks will be made on the casing position by the rig's driver and competent rig attendant, and the site surveyor. The verticality will be maintained by the rig attendant who will check the verticality using a spirit level, the casings orientation will be below a tolerance of 1:75.

A C shaped barrier will be provided around the protruding casing to prevent personnel falling into the bore.

From time to time, it might become necessary to briefly reduce the projection of the casing above the ground, for example when casing joints are being made. At such times, the rig attendant will exclude unauthorised entry into the immediate adjacent working zone by means of a barrier. When the bore is left unattended a steel cover will be placed on top of the casing.

During piling works, the attendant excavator may be used to lift items of plant or materials on the lifting eye of the excavator arm. Lifts will be limited to the SWL of the machine.

Pile Boring

All boring will be carried out open bore below the casing. In general, standard augers will be used to excavate the material, although digging buckets may be used to excavate any non-cohesive material. To minimise the mud transferred from site to public roads, the spoil stockpile will be kept in the basement and only dug out when being loaded onto a tipper lorry.

On completion of the pile boring operation, the depth of the pile will be measured accurately using a weighted tape and recorded on the Bored Pile Record Sheet. The base of all piles will be cleaned using a clean bladed cleaning bucket, the bucket must be maintained and be in good working order, the cleaning bucket will take out a minimum of 200mm from the base of the pile and then be reversed to polish the toe of the pile.

Steel Reinforcement Sections.

Steel reinforcement for the piles will be manufactured off site by a specialist contractor. The reinforcement will be pre-manufactured under carefully controlled, CARES approved, factory conditions and transported to site on 40ft wagons.

Pile cages will be delivered to the offload area in Brain yard and moved using the telehandler. The cages will then be transported using the telehandler to the agreed storage area. A lift plan will be in place and approved prior to any lifting.

All lift plans will be covered in separate documents.

Lifting points will have been prefabricated prior to delivery. These lifting points will be marked with paint.

The rig crane/ attendant excavator will be used to lift the sections. Lifting chains will be attached at the appropriate lifting points. The weight of the section and the lifting points will be provided on the supplier's drawing – a drawing will be supplied and approved for each section type prior to delivery. The sections will either be delivered pre-slung with nylon strops, or within pre-slung stillages. The sections will be lifted from the delivery wagon and placed in the lay down area with timbers placed under the cage(s). When the section is placed in a borehole it will be lifted either using shackles and strops of suitable capacity, attached at the lifting points, or using 2 leg chain brothers, again attached at the lifting point.

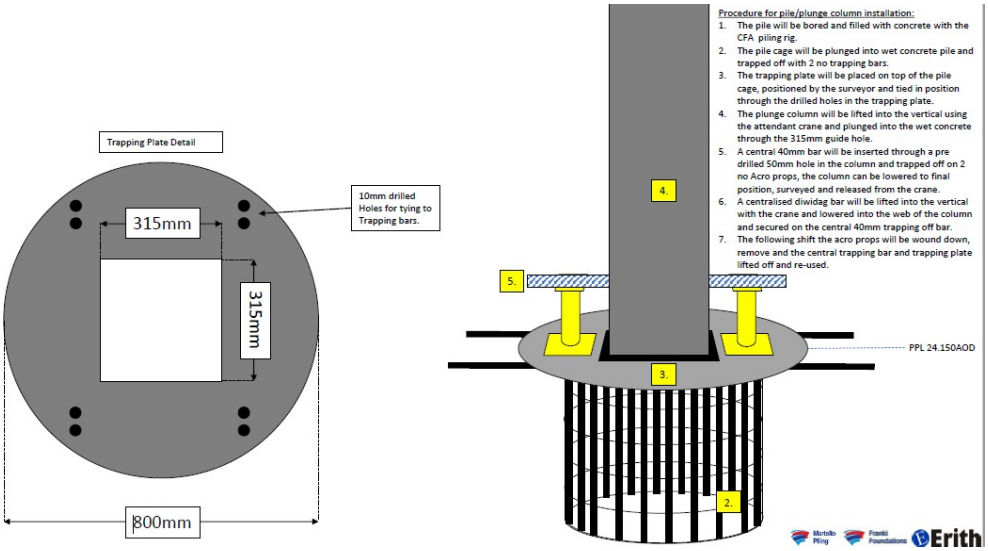
Section connections will be carried out within the pile bore. The lower section will be lowered into the pile bore and trapped on the top of the casing using several heavy-duty bars. The upper section will be lowered

over the lower section and the cages spliced together using bulldogs or an approved splice system. The joined sections will be lifted by the attendant excavator or the rig crane and the trapping bars removed, and the sections lowered into the bore. The connection process will be repeated for each additional section until the full reinforcement section is assembled within the bore. As the cut-off level is low for all piles the reinforcement will be inserted and suspended on the temporary casing, the pile will then be concreted to 1m above the cut-off level and left overnight. The remaining open bore will then be backfilled with a soft P280 mix and the casings extracted.

King Posts

All piles will be installed as per the main Works Package Plan. The casing upstand will be predetermined to suit the column level below Piling Platform Level. Once the pile is drilled to the required depth and the reinforcement installed and checked as per the Inspection Test Plan, the King Post installation will commence.

The plunge columns will be lifted in using the attendant crawler crane under a specific lift plan as per the below sequence.



Concreting

All concrete used within the pile construction will be supplied from an approved supplier, accredited (e.g. BSI, QSRMC) as a supplier of ready mixed concrete to BS: EN 206 & BS 8500.

The Supervisor will order the concrete on the previous evening and confirm the follow morning. Concrete will be delivered in 6-8m3 concrete trucks. When the truck enters the site, the concrete ticket will be checked to ensure that the correct mix has been delivered. A workability test will be carried out and the truck will be directed to the concrete pump. Should the truck be required to reverse a vehicle marshal will be in attendance. A sample will be taken from the middle of the concrete load during placement to make test cubes, the frequency for taking concrete test cubes shall be in accordance with the project specification.

A 10-inch concrete tremmie pipe to the toe of pile will be used for all wet piles. This will be assembled from the designated racking, joined using the designated wire fed into the joint. The assembled tremmie pipe shall then be inserted into the pile bore using the rig crane.

The Concrete will be tremmied from the toe from the tremmie hopper at the top of casing, the tremmies will be imbedded in the concrete at least 3m and will be split when the concrete flow reduces, the concrete will be flushed over the top of the casing until clean concrete is found with no contamination.

For dry piles the concrete will not be dropped more than 10.0m through reinforcement, as detailed in the ICE SPERW Specification.

Upon completion of concreting the concrete delivery tube will be completely removed and stored in the rack where it will be washed. Washout will be into a pile of stockpiled hardcore which will be loaded away in the same method as the muck away described further into this method.
Casing will be extracted using either the piling rig or Casing extractor, the piling rig will be attached to the casing via the casing spinner and the casing screwed out and detached in sections. If a casing extractor is used the extractor will be 1.5 tonnes in weight and will be listed in the lift plan (in accordance with the approved lift plan).
Protection will be used so as not to damage the recently concreted piles.

Concreting
Concrete will then be introduced to the bore (as described above) and the casting level will be as per the ICE specification.
After concreting the column will be checked again for any deviations and any adjustments required to be made.
The concrete will be left to cure for a minimum of 24 hours before the trapping bar is removed, and the remainder of the bore backfilled with a soft mix or crush and casings extracted.
The column will then undergo a 3rd check to ensure that the column is within the required tolerances.
Removal of Spoil
Spoil will be continuously cleared from around the rig during piling using the attendant excavator. The excavator will pull the material back, a safe distance from the rig and stockpile the material awaiting removal from site in tipper lorries. The tippers wheels will be washed and sheeting in place before leaving site.

PPE

The following PPE / RPE is required to be used as identified below:
Standard PPE items:

Hard Hat (BS EN 397)	
Hi-Viz (BS EN 471)	
Safety Boots (EN ISO 20345)	
Gloves (BS EN 388)	
Glasses (BS EN 388)	

Additional PPE items:		**Required**	**Activity**	**Type**
Hearing Protection		☐		Ear plugs / ear muffs
Goggles		☒	Burning / Welding	Burning goggles
Coveralls		☒	Piling / concreting	Weather proof
Harness		☐		Fall restriaint / inerita reel
RPE		☐		FFP3 dust masks
Hand Protection		☒	Concreting	Chemical resistant

All required PPE / RPE shall be in accordance with relevant BS EN / ISO standards

Competency / Supervision

Given the works to be completed the following competencies and supervision will be required onsite, all requirements stated below are in addition to the prerequisite CSCS / CCDO card. Copies of training shall be issued during site induction and retained onsite.

Role / Task	Competency
Operatives (demolition / soft strip)	Demolition / Asbestos awareness
Erection of mobile towers	PASMA
Use of scissor lift	IPAF
Excavator driver	CPCS
Traffic Marshal	Banksman / Traffic marshal training
Wearers of RPE	Face Fit
Site Supervisor / Person inspecting TW	Temporary works supervisor
Site Supervisor	1st Aider
All supervisors	SSSTS
Site Supervisor / Fire Watcher	Fire Marshal
Changing of discs on grinder	Abrasive Wheel

Supervision

The following details any tasks that require direct works supervision and the names of the appointed supervisors

Activity	Supervisor Name	Dated appointed
Piling	TBC	26/04/21

Permits

As part of Erith's risk control strategy permits are used for all high risk activities, identified below are the permits applicable to these works and the duration for which the permits will be issued:

Permit	Applicable
001 – Hot Works	☐
002 – Harness Use	☐
003 – Ladder Use	☐
004 – Lifting Operations	☒
005 – Confined Space Entry	☐
006 – Demolish	☐
007 – Break Ground	☒
008 – Enter Excavations	☐
009 – Use Drop Zone	☐

Emergency Arrangements

Erith Emergency Response Plans (ERP's) are contained within the site specific PMP and displayed in welfare areas. Identified below are the relevant ERP's to the works being undertaken.

ERP Ref / Name	Applicable
ERP 001 – Accident / Incident	☒
ERP 002 – Fire	☒
ERP 003 – Asbestos Disturbance	☒
ERP 004 – Service Strike	☒
ERP 005 – Work at Height	☒
ERP 006 – Excavation	☐
ERP 007 – Confined Space	☐
ERP 008 – Spill of Hazardous Liquid(s)	☒
ERP 009 – Structural Collapse	☐
ERP 010 – Security Breach	☒
ERP 011 – Un-exploded Ordnance Discovery	☒

Please see below link to all Erith Emergency Response Plans.
http://ezone.erith.com/DMS/view_document.aspx?ID=1195332&Latest=true

Environmental Considerations

The following environmental considerations need to be applied when undertaking the works, the controls detailed below will ensure that the environmental risk factors are properly managed.

Item	Control Method(s)	Applicable
Fluorescent tubes	Disposal coffin	☐
Diesel Bund	Drip Tray	☒
	Spill Kit	☒
	Fire Extinguisher	☒
COSHH Items (Paints, cleaning products, etc.)	COSHH store	☒
	Fire Extinguisher	☒
Fuel Barrels	Bund	☒
	Spill Kit	☒
	Fire Extinguisher	☒
LPG / Oxygen Cylinders	Locked cage	☒
	Fire Extinguisher	☒
Demolition Dust	Water suppressant (dust boss / fire hoses etc)	☒
	Dust Masks	☒
	Dust monitoring	☒
Noise	Section 60/61 working hours	☐
	Hearing protection zone	☐
	Ear protection	☐
	Noise Monitoring	☒
Soft strip work	Housekeeping	☐
	Dust Masks	☐

Risk Assessment

The table below is to be used to identify the major activity risks associated with the defined task, each identified risk activity has an associated activity risk assessment which details the site specific controls to be adopted. Assessments identified below are reviewed and revised by site management.

Site	PANTHER HOUSE	***Date***	
Briefing title	SSOW 021: Piling		

Person Delivering Briefing	Signature	Job Position

By signing I confirm that I have understood the content of the attached document / Briefing given to me and will conform to its requirements

No#	Name	Signature	Company	Date
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				

Feedback

Appendices