BASEMENT CONSTRUCTION PLAN – 102 CAMLEY STREET

JANUARY 2016

This Basement Construction Plan seeks to satisfy the requirements and recommendations identified within Clause 4.2.1 of the Section 106 Agreement for 102 Camley Street. It is split into 7 sections and focuses on ensuring that basement construction activities are managed in a safe manner and undertaken using best practices, as well as mitigating site specific risks that could have an impact on the construction works from surrounding stakeholder/ properties.

For clarity, this plan has been structured to directly respond to the requirements of the Section 106 Clause 2.7.

Contents Page

Page	Section / content
3	Section 1 – Recommendations from the Arup Basement Impact Assessment, June 2014 (Appendix 1).
5	Section 2 – Details of a monitoring regime through the construction phase
6	Section 3 – Method Statement detailing proposed methods of ensuring safety and stability of neighbouring buildings throughout the construction phase including temporary works sequences.
10	Section 4 – Detailed drawings, specifications and supporting calculations for basement construction works.
11	Section 5 – Update to the Risk Assessment that was submitted as part of the planning permission
12	Section 6 – Phasing plan to demonstrate that the lower ground and basement can be constructed within 6 months of the bulk excavation commencing.
13	Section 7 – Provision of a contingency plan to ensure the adjoining properties remain safe if in the event of any delay or suspension to the construction works.
14	List of Appendices

Section 1 – Recommendations from the Arup Basement Impact Assessment, June 2014 (Appendix 1).

A) A detailed examination of the groundwater and surface water flows/ discharges

Full details of the scheme's drainage strategy are contained within Appendix 1A alongside Flood Risk Assessments for phases 1 and 2, Appendix 1Ai.

B) An assessment of whether any trees within the vicinity of the area could cause any adverse impacts or require protection.

Further discussions with the ecologist who undertook the planning report (Appendix 1Bi) it was concluded that as the site was to retain no existing trees, there was no requirement for protection nor was there to be an impact on the works themselves. Appendix 1B confirms this statement.

C) An assessment of the potential risk and impact of the adjacent canal and how these could be mitigated.

Due to the proximity of the adjacent canal/ towpath, the impact of construction works were considered in relation to the safety of pedestrians passing by as well as the structural stability of the tow path itself.

The Canal and River Trust were engaged and reviewed the proposals outlined in Appendix 1Ci detailing the installation of temporary works substantially set back from the site boundary that would act as a buffer to the activities during the piling phase. Following a meeting with the Canal and River Trust's engineer on 12th January, it was confirmed that the 45 degree zone of influence was outside of the retaining wall's location. Further to this design check, the neighbourly monitoring plan will provide real time analysis of whether the works are causing any movement to the tow path or canal.

In addition to this protection, a secondary hoarding line shall be installed to prevent any unauthorised access to the site from the public.

It was also considered as to whether the canal would pose a threat to the construction works due to flooding, however Appendix 1Cii confirms the control measure used in order to prevent the canal from overflowing.

D) A review of the predicted ground movement in relation to the adjacent railways lines and how these could impact their operations.

Detailed discussions were held with Network Rail in order to assess the potential impact of construction works on the operation of the railway. In order to conclude these discussions, a F001 Approval In Principal document was submitted which outlined in detail the predicted ground movement analysis for the adjacent railways, see Appendix 1D. This document seeks to agree permitted tolerances for movement and vibration as well as being linked to the monitoring strategy detailed in section 2 of this Basement Construction Plan.

This document was approved by Network Rail in December 2014 (Appendix 1Di) and has formed the basis of design parameters the design has been develop on.

Further discussions were held with High Speed 1 with regards to how construction operations could effect the bridge which is located a short distance from the site. In order to mitigate these concerns a detailed report was produced (Appendix 1Dii) and approved by the Asset Protection Engineer.

E) A further ground investigation should be undertaken in order to help inform design of the permanent foundations.

Please see Appendix 1Ei and 1Eii used in order to inform the detailed foundation designs as well as further analysis of any potential groundwater and contamination issues. All information provided the basis for the piling design and calculations contained within Section 4 of this document.

Section 2 – Details of a monitoring regime through the construction phase

A detailed monitoring strategy during construction works will ensure that both the railway lines to the North of the site, as well as the surrounding properties; this is detailed below:

Network Rail railway line monitoring:

Following close liaison with Network Rail, a document was developed that analysed what would be an appropriate level of movement/ vibration during construction works, and a set of monitoring points were installed on the lines in regular intervals.

The monitoring points will be read remotely and the readings reviewed in real time so if any breaches in the agreed limits are recorded, an immediate notification is sent to the agreed points of contact for both the contractor and Network Rail. For full details on this strategy please see appendix 2A and 2B. This document has been approved by Network Rail.

Procedure for ensuring the stability of neighbouring properties during construction of Basement

In addition to the Network Rail lines, a monitoring strategy will be in place for the surrounding properties/ structures. This will involve installing monitoring targets on the structures and undergoing a stringent reporting regime to alert the site team if any movement is recorded over and above that expected as best practice in engineering guidance.

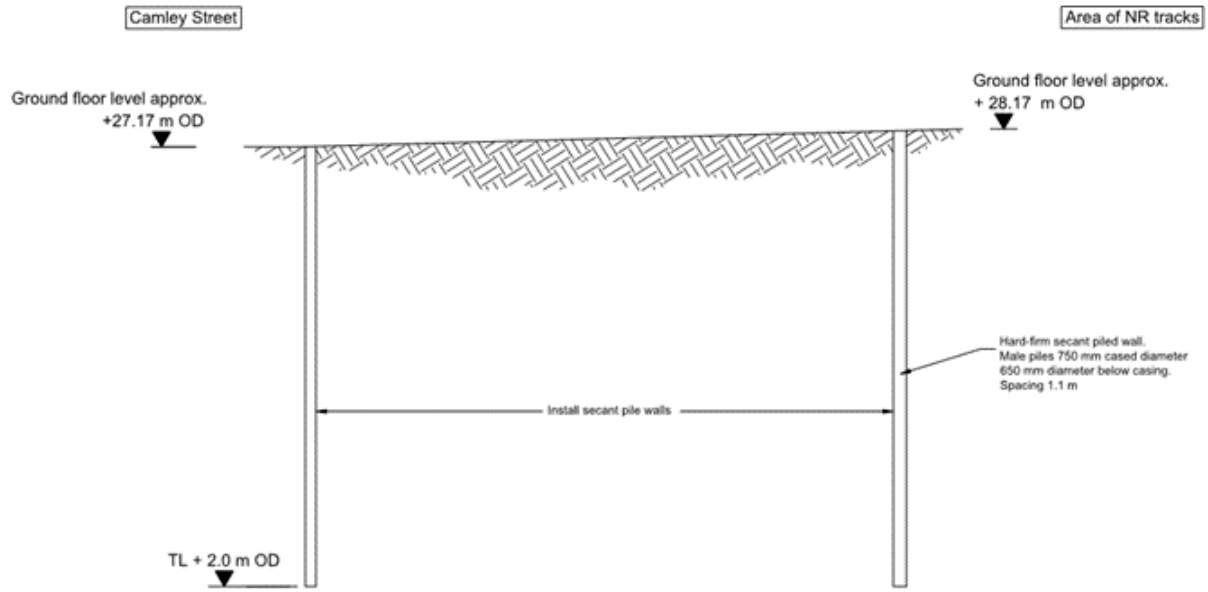
For full details of the monitoring plan including location of targets, please see appendix 2C.

Section 3 – Method Statement detailing proposed methods of ensuring safety and stability of neighbouring buildings throughout the construction phase including temporary works sequences.

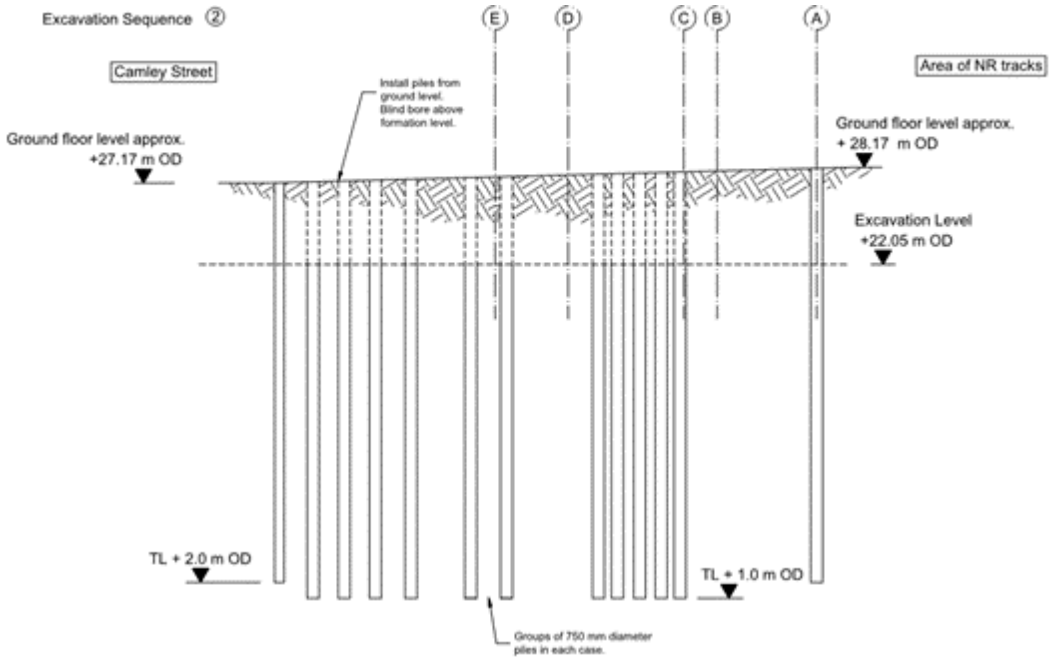
The monitoring strategy for both Network Rail and neighbouring structures will remain in place both before construction works commence (to record a base line) and also subsequently during construction. The most high risk activities will be during the excavation and installation of temporary works during this phase. An outline of this phase has been sketched out on the following pages and detailed Risk Assessments for these works can be found in section 4.

An outline method statement for the excavation works can be found in appendix 3A

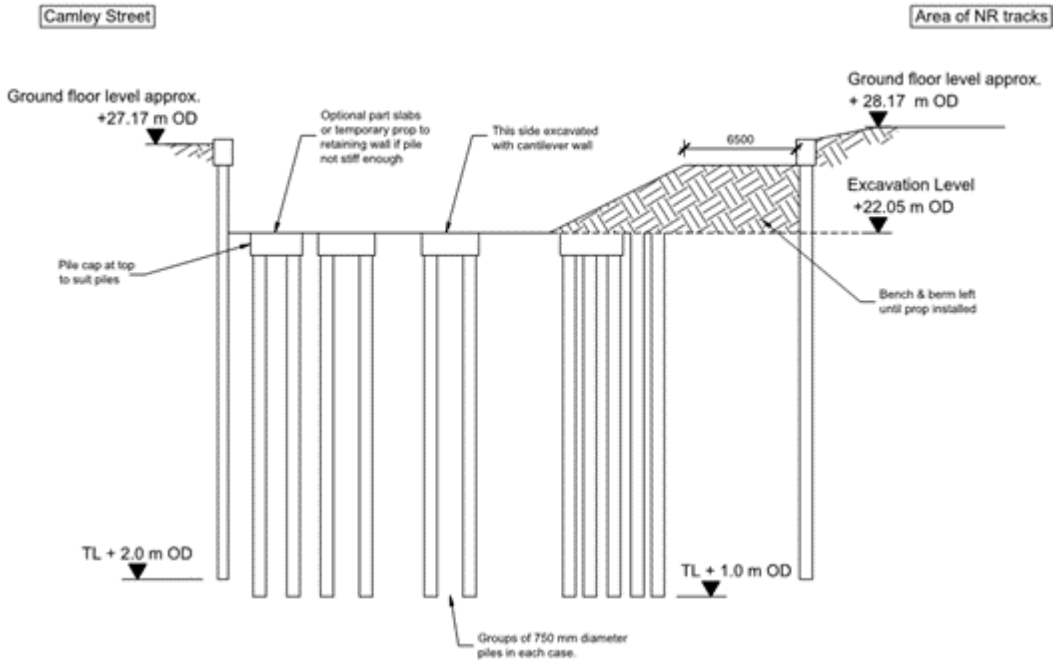
CONSTRUCTION SEQUENCE FOR BASEMENT WORKS



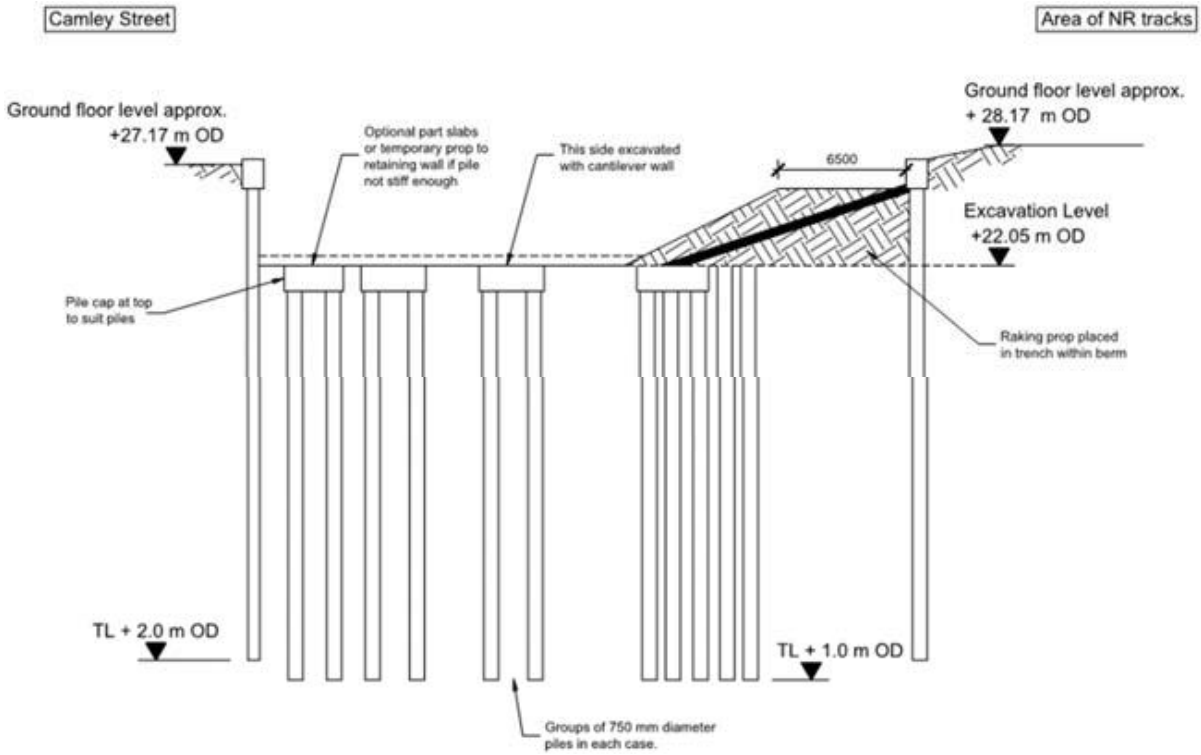
STAGE 1 – INSTALL SECANT PILED WALLS



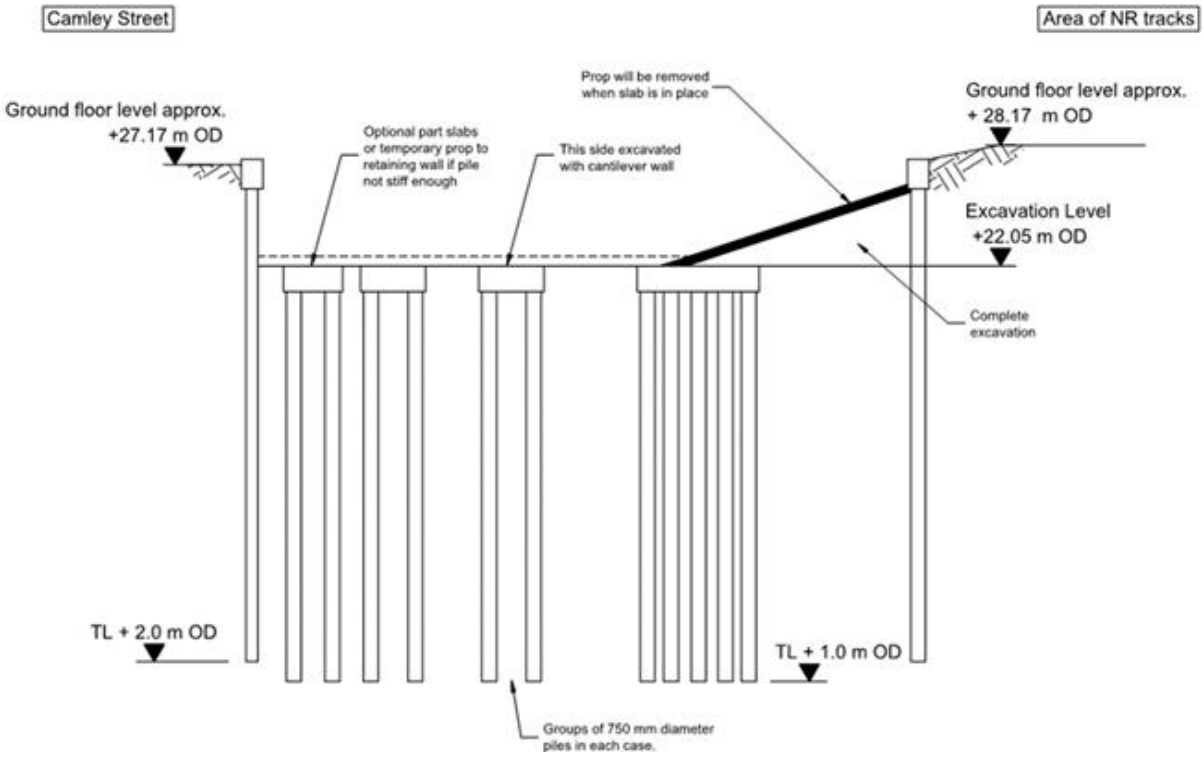
STAGE 2 – INSTALL BEARING PILES



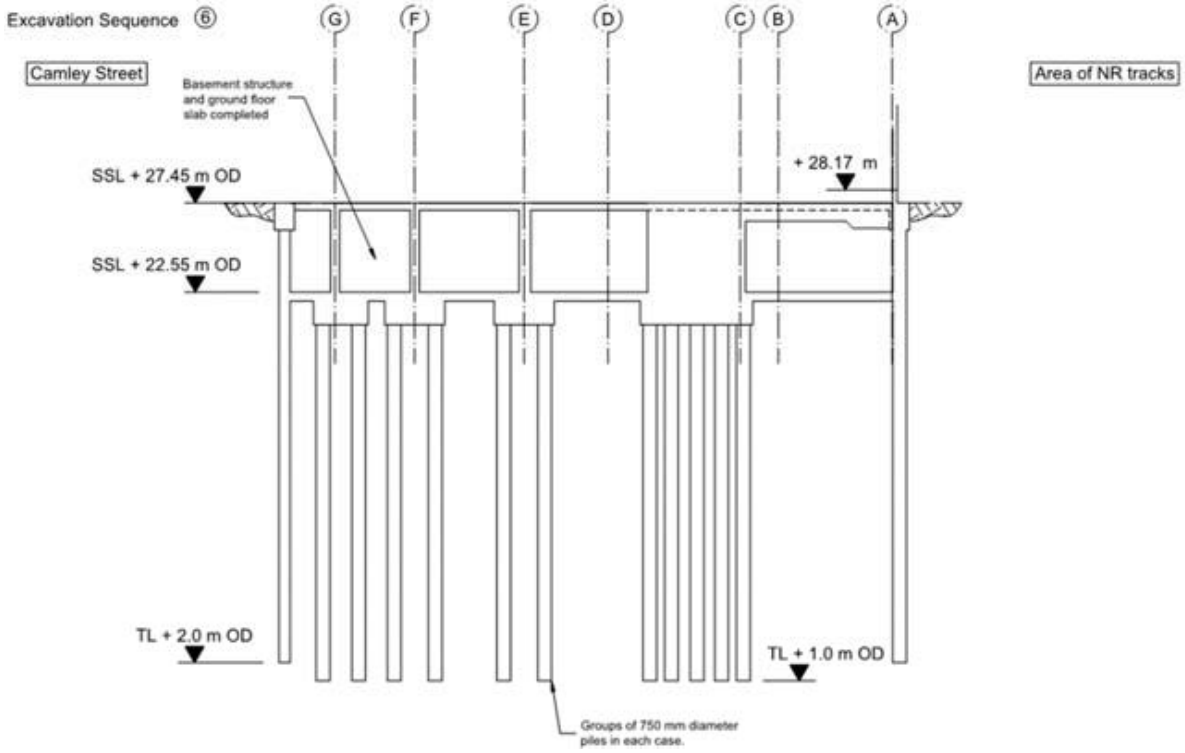
STAGE 3 – EXCAVATE WEST SIDE LEAVING BERM AGAINST EAST WALL



STAGE 4 – INSTALL PILE CAPS AND RAKING PROPS



STAGE 5 – EXCAVATE BERM WITH INCLINE PROPPING



STAGE 6 – INSTALL BASE AND GF SLABS AND REMOVE PROPS

Section 4 – Detailed drawings, specifications and supporting calculations for basement construction works.

The following drawings make up the detailed design package for the piling GAs, sections, and structural connection details:

S110 – FOUNDATION PLAN

S200 – BUILDING SECTION SHEET 1

S201 – BUILDING SECTION SHEET 2

S400 – BASEMENT SECTION SHEET 1

S401 – BASEMENT SECTION SHEET 2

S402 – BASEMENT SECTION SHEET 3

S411 – CORE 1 PILE CAP AND SETTING OUT

S412 - CORE 2 PILE CAP AND SETTING OUT

S421 – CAPPING BEAM DETAILS SHEET 1

S441 – EXTERNAL WORK SHEET 1

Calculations and engineering assumptions document for the permanent works can be found in:

Bearing Pile Design Pack rev01 – JM Piling (Appx 4A)

Design Report for the Design of Bored Pile Basement Retaining Wall – Geofirmat Ltd (Appx 4B)

Section 5 – Update to the Risk Assessment that was submitted as part of the planning permission

Please see appendix 5A and 5B with reference to the updated design drawings contained in section 4.

Section 6 – Phasing plan to demonstrate that the lower ground and basement can be constructed within 6 months of the bulk excavation commencing.

Appendix 6A indicates the 4 phases which the basement will be constructed from the point at which excavation commences. The sequence in which the basement shall be excavated and supported is detailed with section 3 of this document.

If read in conjunction with appendix 6B, the construction programme, it's evident that activity item 33 (Excavate, blind and trim piles) is due commence on 7/3/16 and final basement slab (activity 49) is to be constructed by the 22/7/16.

Section 7 – Provision of a contingency plan to ensure the adjoining properties remain safe if in the event of any delay or suspension to the construction works.

If for some reason during basement construction works have to be suspended the, site and project team will discuss in order to agree on the most suitable, and safest, point in the programme to stop works. This may require additional bracing or temporary works to be in place if the works require immediate suspension.

Before leaving site, operatives must leave the site in a safe manner that will not affect the public/ surrounding infrastructure. Therefore the Project Manager will identify a safest point on the programme, work will then once this operation has been completed.

The agreed monitoring plans contained in section 2 would remain in place should works be delayed or suspended.

The recordings will continue to be compared with that of the previous week, if there are any discrepancy between the co-ordinates, the engineer will immediately inform the Project Manager/ Responsible Person.

List of Appendices:

Appndix 1 - Basement Impact Assessment June 2014
Appndix 1A - Strategic Drainage Report
Appdx 1Ai - Flood Risk Assessment for phases 1 and 2
Appdx 1B - Ecology protection
Appdx 1Bi - Arbo report
Appdx 1Ci - Canal protection
Appdx 1Cii - Halcrow_Report_for_Camden
Appdx 1D - NR ground movement analysis F001
Appdx 1Di - Form 001 DRN Signed 041214
Appdx 1Dii - Impact on HS1 Abutment
Appdx 1Ei - Ground InvestigationII
Appdx 1Eii - REC report 2014
Appdx 2A - NR Monitoring MS
Appdx 2B - NR monitoring points
Appdx 2C - Neighbourly monitoring
Appdx 3A - Excavation RAMS
Appdx 5A - Excavation RA
Appdx 5B - Piling RA
Appdx 6A - Basement phase plan
Appdx 6B - Programme Phase 1
Appx 4A - Bearing Pile Design Pack Rev01
Appx 4B - Camley Street Design Report Rev A
S110 – FOUNDATION PLAN
S200 – BUILDING SECTION SHEET 1
S201 – BUILDING SECTION SHEET 2
S400 – BASEMENT SECTION SHEET 1
S401 – BASEMENT SECTION SHEET 2
S402 – BASEMENT SECTION SHEET 3
S411 – CORE 1 PILE CAP AND SETTING OUT
S412 - CORE 2 PILE CAP AND SETTING OUT
S421 – CAPPING BEAM DETAILS SHEET 1
S441 – EXTERNAL WORK SHEET 1