

# Works Adjacent to Canal

For

## Ark Data Centres

**Project:  
Project Union Energy Centre 2**

North Hyde Gardens  
Hayes  
UB3 4QQ

**Contract No: SP149**

Rev No.	Date	Prepared By:	Reviewed By	Approved By	Reason for Revision
0	21 March 2023	Matthew Carter	Matthew Carter	Matthew Carter	For Planning
1					
2					
3					
4					

## 1 INTRODUCTION

### 1.1 Project Background

1.1.1 The site is a former Abellio Bus Garage based on North Hyde Gardens. The development is to construct an energy Centre which will provide standby power to the Ark Data Centre Complex.

1.1.2 As part of the development and the planning agreement the Canal and Rivers Trust (C&RT) has requested demonstration that the development will not:

- Affect the use of the Towpath
- Impact the character and appearance of the canal corridor
- Impact the structural integrity of the canal infrastructure or the canal biodiversity

### 1.2 Site Location

1.2.1 The site is located on the site of the former Abellio Bus Garage on North Hyde Gardens.

1.2.2 The site is adjacent to the Grand Union Canal and is separated from the tow path by means of weld mesh security fence portion of the site to be redeveloped lies directly adjacent to the Grand Union Canal.



**Figure 1-1 Site Location**

**1.3** Purpose of Report

1.3.1 The purpose of this report is to aid in the discharge of the planning condition stated in 1.1.2.

1.3.2 The report will outline:

- A high-level understanding of the works and how they will not affect the canal & rivers trust and improve the appearance of the area.

**2** Impact of the Substation Works

**2.1** Canal Towpath

2.1.1 The canal towpath will not be affected by the energy centre works. The site is separated from the towpath by means of a security fence which will remain in place during the whole of the works.

2.1.2 The fencing has netting installed to aid appearance and to protect debris from blowing in direction through the fencing.

2.1.3 As above, the towpath would not be stopped up or blocked at any time due to the works and due to the demarcation to the towpath there will be no impact on the safe enjoyment of the canal by users.

**2.2** Impact on the Character and Appearance of the Canal Corridor

2.2.1 Upon completion of the energy centre and Data Centre construction works, it is planned that the existing fence which directly abuts the towpath will be removed and replaced by a wider landscaping scheme as presented by Ark DC during the planning process. This will improve the appearance and feeling of space in the area immediately adjacent to the canal.

**2.3** Impact on the Structural Integrity of the Canal

2.3.1 No works will be within 6m of the canal.

2.3.2 Piling methodologies have been chosen to have limited impact on all known assets included the canal and the deep sewers. At significant cost, the project has chosen CHD and CFA piles which use an auger type drill with limited discharge of material. This technique removes all vibrations from traditional piling practices, a piling mat is created to ensure stability of the ground during the works.

2.3.3 There are no piles within 10m of the canal, the chosen methodology will not impact on the towpath or the canal basin, however a condition survey of the towpath will be undertaken before and after the piling works.

**2.4** Impact on waterway & health

2.4.1 There would be no impact on the waterway and health as a result of the works.

**Appendix A : CHD Piling**

[www.roger-bullivant.co.uk](http://www.roger-bullivant.co.uk)

## CONTINUOUS HELICAL DISPLACEMENT (CHD) PILES

Continuous Helical Displacement (CHD) Piles form a cast in situ pile producing minimal spoil. An ideal solution for contaminated sites. CHD piles can be used across various sectors and construction projects. This technique is commonly used within the residential and commercial sector. Suited for light to moderately loaded piles and can be used in a variety of soils.



### DESCRIPTION

Continuous Helical Displacement (CHD) Piles form a cast in situ pile producing minimal spoil and as such falls into the displacement auger category. CHD piles can be used across various sectors and construction projects, from housing, through infrastructure projects to large scale storage facilities.

The CHD pile is a bored pile which displaces the soil through which it is constructed as the mandrel is rotated into the strata. An ideal solution for contaminated sites, it creates no appreciable risings and therefore there is no potential for migration of contaminants of both displacement and non-displacement piles due to the way in which it is installed. This method of construction results in a more enhanced capacity and reduced settlement pile when compared with traditional bored or continuous flight auger piling methods. The pile is formed using a highly efficient multi-flight bullet ended shaft, driven by a torque rotary head, enabling penetration of the strata without bringing material to the surface.



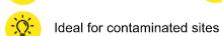
### APPLICATIONS



Residential sites



Commercial sites



Ideal for contaminated sites

### ADVANTAGES



Minimal spoil



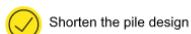
Improved soil strength



Minimal vibration



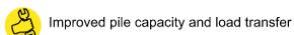
Cost effective



Shorten the pile design



Alternative to CFA/Steel Tubular + Driven piling



Improved pile capacity and load transfer

### INSTALLATION

Installation of the pile is automated, controlled and recorded for quality management. Once drilled to calculated or proven depth, concrete is pumped under pressure down the hollow shaft to the boring head and out of the tip while the shaft is reverse rotated and withdrawn from the bore.

Reinforcement in the form of cage and additional bars as necessary are introduced into the bore upon completion of the concreting operations. Surface heave and waste is cleared from the formation to complete pile construction.

This forms the characteristic shape of an enhancing single continuous flight rotating around a central and continuous core.

### TECHNIQUE CAPABILITIES

SPECIFICATION	FROM	TO
Standard pile size	300mm/600mm	400m/700mm
Typical load capacity	100kN	1500kN
Practical depth	4m	27m

**Appendix B : CFA Piles**

[www.roger-bullivant.co.uk](http://www.roger-bullivant.co.uk)

## CONTINUOUS FLIGHT AUGER (CFA) PILING

Continuous Flight Auger (CFA) piles are widely used within the industry, suitable for a variety of ground conditions. The installation process is virtually vibration free, making it ideal for working in close proximity to existing buildings or in environmentally-sensitive areas.



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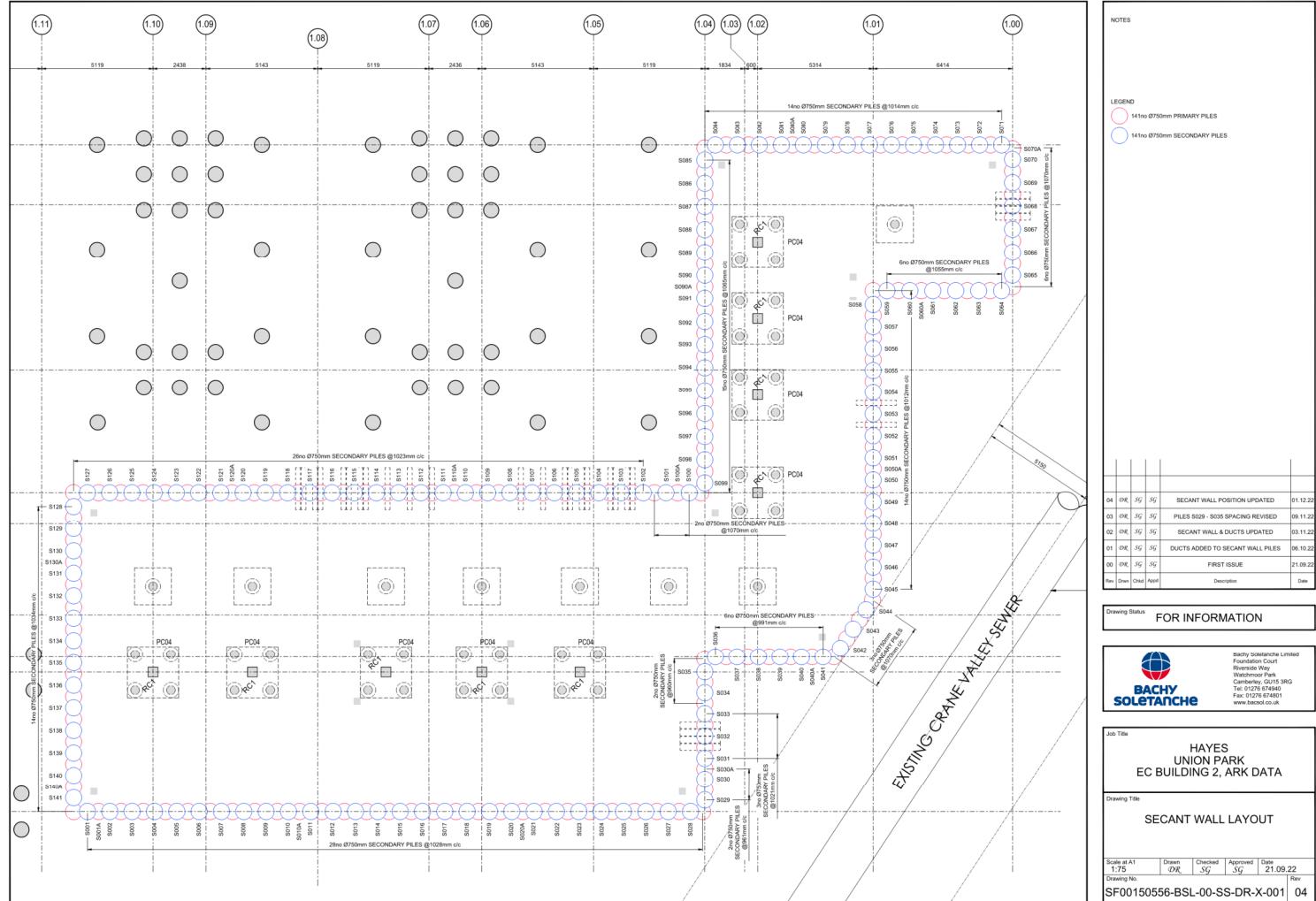
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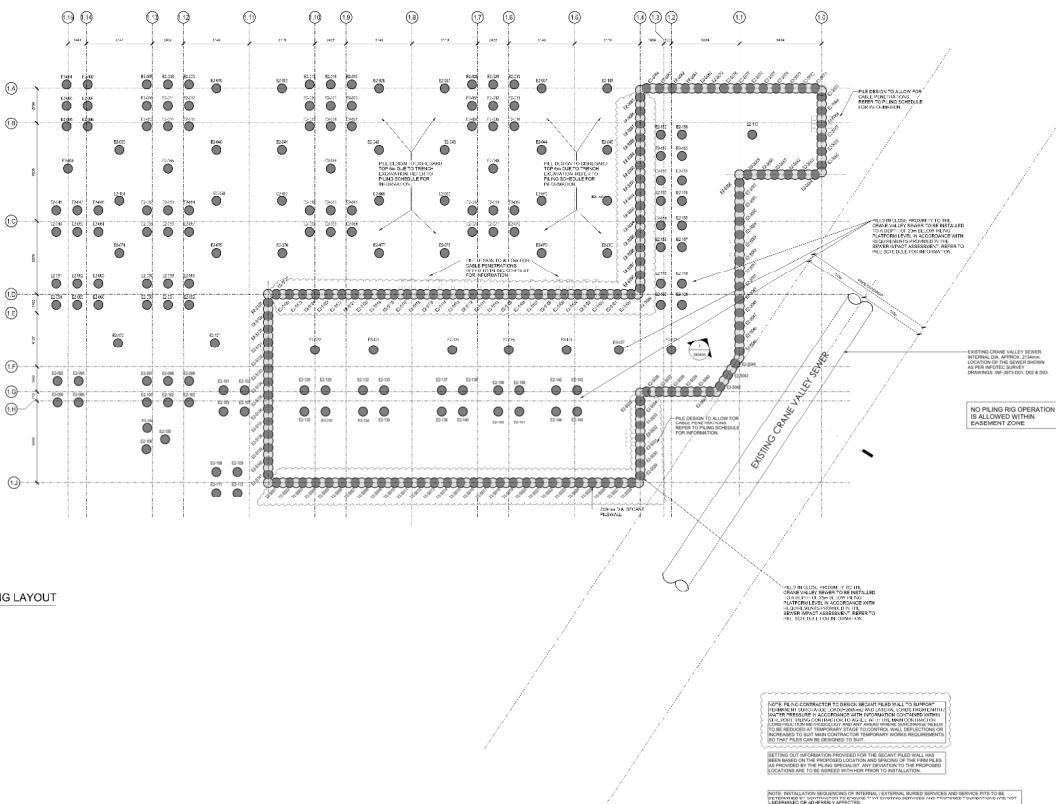
**Works Adjacent to Canal  
For  
Union Park Substation Works – North Hyde**

**sweet**  
PROJECTS

## Appendix C : Pile Layouts



### Secant wall installed with CFA piles



## Structural piles installed using CHD piles