

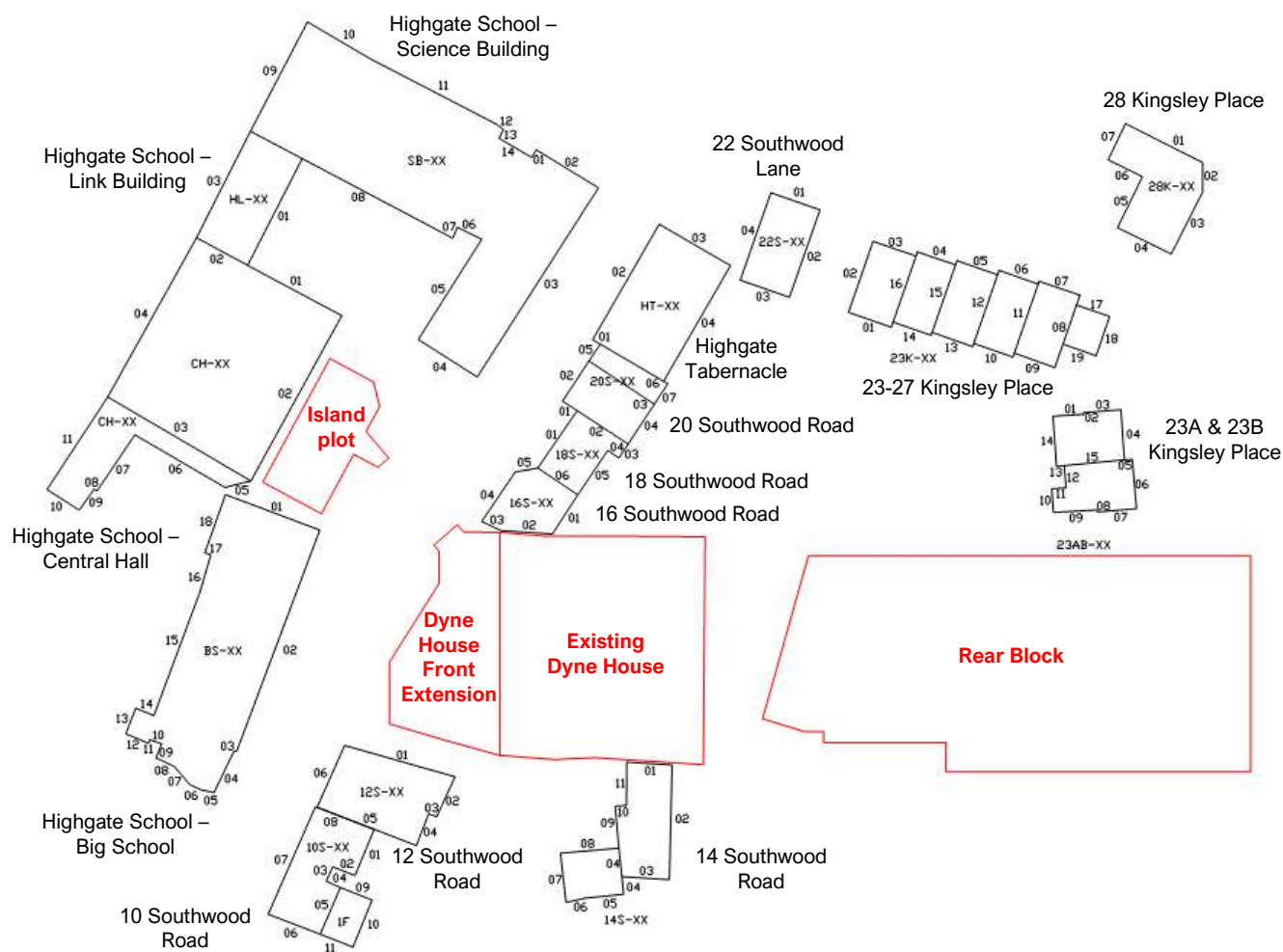


Figure 4.5 Simplified scheme and nomenclature for each building façade/masonry wall element

Each wall has been assumed to behave as an equivalent beam subject to a bending and extension/compression deformation mechanism, based on the evaluated greenfield ground movement, as outlined previously.

Tensile strains induced within the building masonry walls have been evaluated based on the deflection ratios Δ/L and horizontal extension mechanisms estimated from the analyses. The assessment considers the well-established Burland (1997) damage classification method, as presented and summarised in Figure 4.6 and Figure 4.7. This method involves a relatively simple but robust means of assessment, which is widely adopted and is considered to comprise an industry standard/best practice basis for impact assessments of this typology.

Potential damage categories are directly related to the tensile strains induced by the proposed construction stages, arising from a combination of direct tension and bending induced tension mechanisms. The evaluated damage categories correspond to an unlikely to be exceeded scenario (on the basis of the data sets adopted and greenfield assumptions).

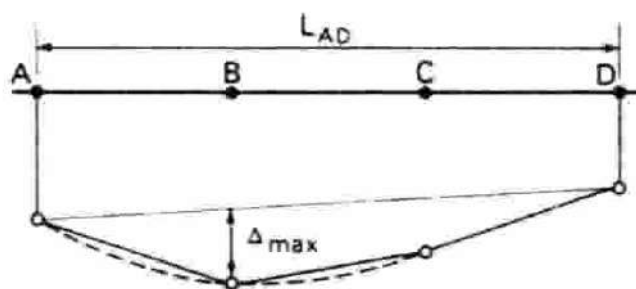


Figure 4.6 Definition of relative deflection Δ and deflection ratio Δ/L

Category of damage	Description of typical damage (ease of repair is underlined)	Approximate crack width (mm)	Limiting tensile strain ϵ_{lim} (per cent)
0 Negligible	Hairline cracks of less than about 0.1 mm are classed as negligible.	< 0.1	0.0–0.05
1 Very slight	<u>Fine cracks that can easily be treated during normal decoration.</u> Perhaps isolated slight fracture in building. Cracks in external brickwork visible on inspection.	< 1	0.05–0.075
2 Slight	<u>Cracks easily filled. Redecoration probably required.</u> Several slight fractures showing inside of building. Cracks are visible externally and <u>some repointing may be required externally</u> to ensure weathertightness. Doors and windows may stick slightly.	< 5	0.075–0.15
3 Moderate	<u>The cracks require some opening up and can be patched by a mason. Recurrent cracks can be masked by suitable linings. Repointing of external brickwork and possibly a small amount of brickwork to be replaced.</u> Doors and windows sticking. Service pipes may fracture. Weathertightness often impaired.	5–15 or a number of cracks > 3	0.15–0.3
4 Severe	<u>Extensive repair work involving breaking-out and replacing sections of walls, especially over doors and windows.</u> Windows and frames distorted, floor sloping noticeably. Walls leaning or bulging noticeably, some loss of bearing in beams. Service pipes disrupted.	15–25 but also depends on number of cracks	> 0.3
5 Very severe	<u>This requires a major repair involving partial or complete rebuilding.</u> Beams lose bearings, walls lean badly and require shoring. Windows broken with distortion. Danger of instability.	usually > 25 but depends on number of cracks.	

After Burland et al. 1977, Boscardin and Cording 1989, and Burland 2001.

Figure 4.7 Building damage classification – relationship between category of damage and limiting strain ϵ_{lim}

4.2.2. Results

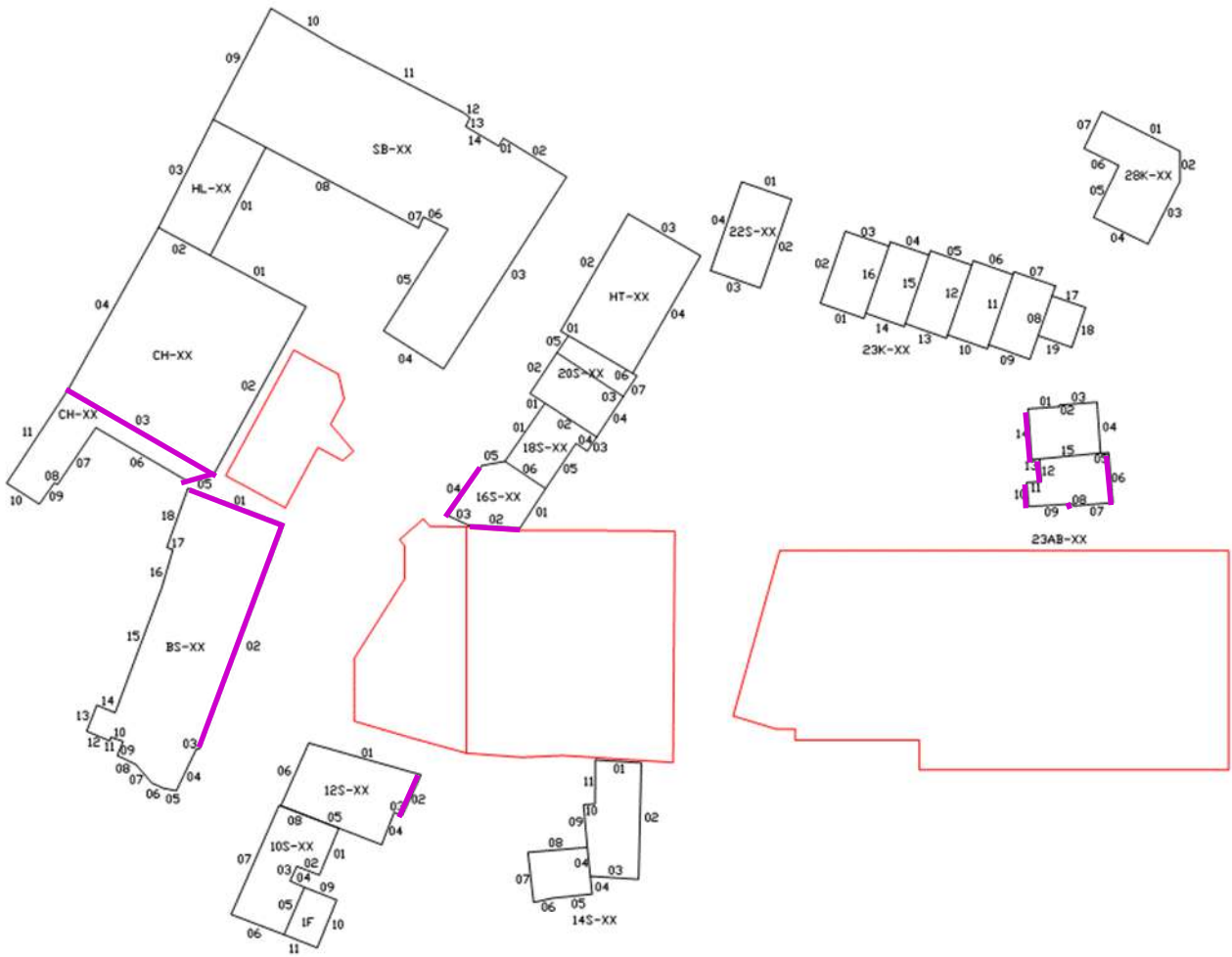
The results of the assessment indicate that eleven façades will experience damage *Category 1 – Very Slight* throughout the construction works. The affected façades are presented in Table 4.1 and Figure 4.8. The remaining façades are not expected to exceed damage *Category 0 – Negligible* and are omitted from the table below. Figure 4.9 and Figure 4.10 depict the vertical and



horizontal displacements, respectively, induced by the retaining wall installation and excavation calculated using CIRIA C760 datasets (i.e. assessment B1). It is noted that excavation works of the eastern side of Dyne House extension may induce ground movements on the adjacent façades of the existing one-level basement, but these have not been considered in this analysis.

Table 4.1 Evaluated damage categories resulting from the assessment (façades which do not exceed Category 0 are not presented)

Façade Reference	Analysis Scenario			
	A1	A2	B1	B2
16S-02	Category 0 – Negligible	Category 0 – Negligible	Category 1 – Very Slight	Category 1 – Very Slight
16S-04	Category 0 – Negligible	Category 0 – Negligible	Category 1 – Very Slight	Category 1 – Very Slight
BS-01	Category 0 – Negligible	Category 0 – Negligible	Category 1 – Very Slight	Category 1 – Very Slight
BS-02	Category 0 – Negligible	Category 0 – Negligible	Category 1 – Very Slight	Category 1 – Very Slight
CH-03	Category 0 – Negligible	Category 0 – Negligible	Category 0 – Negligible	Category 1 – Very Slight
CH-05	Category 0 – Negligible	Category 0 – Negligible	Category 1 – Very Slight	Category 1 – Very Slight
12S-02	Category 0 – Negligible	Category 0 – Negligible	Category 1 – Very Slight	Category 1 – Very Slight
23AB-06	Category 0 – Negligible	Category 0 – Negligible	Category 1 – Very Slight	Category 1 – Very Slight
23AB-08	Category 0 – Negligible	Category 0 – Negligible	Category 1 – Very Slight	Category 1 – Very Slight
23AB-10	Category 0 – Negligible	Category 0 – Negligible	Category 1 – Very Slight	Category 1 – Very Slight
23AB-12	Category 0 – Negligible	Category 0 – Negligible	Category 1 – Very Slight	Category 1 – Very Slight
23AB-14	Category 0 – Negligible	Category 0 – Negligible	Category 1 – Very Slight	Category 1 – Very Slight



Purple – Category 1 (Very Slight)

Figure 4.8 Damage category results from Group A and Group B assessments

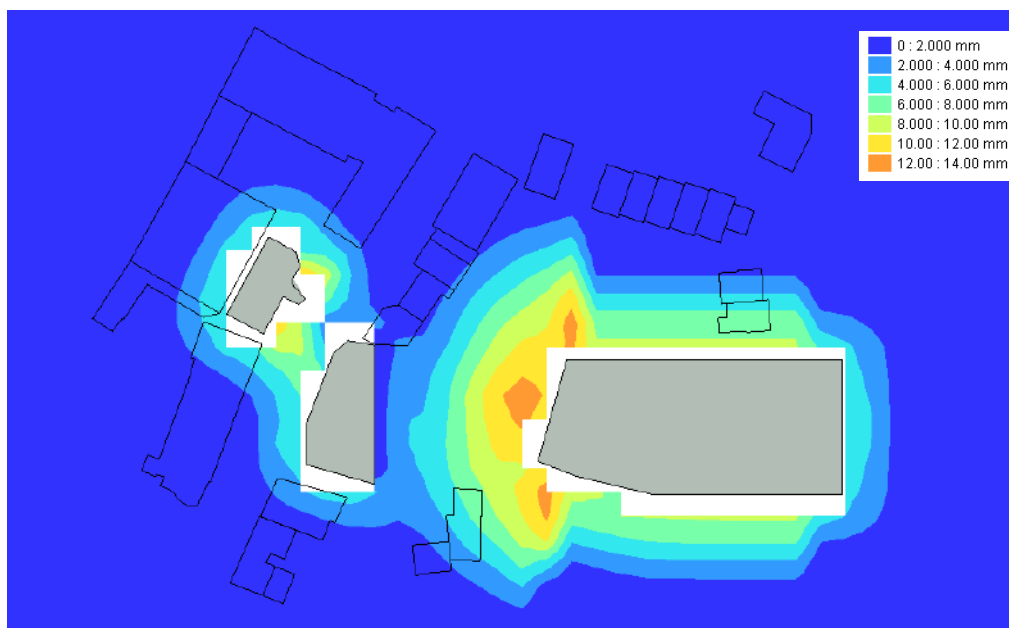


Figure 4.9 Resultant Xdisp vertical displacement contours for scenario B1 – units in mm – retaining wall installation and excavation (CIRIA C760)

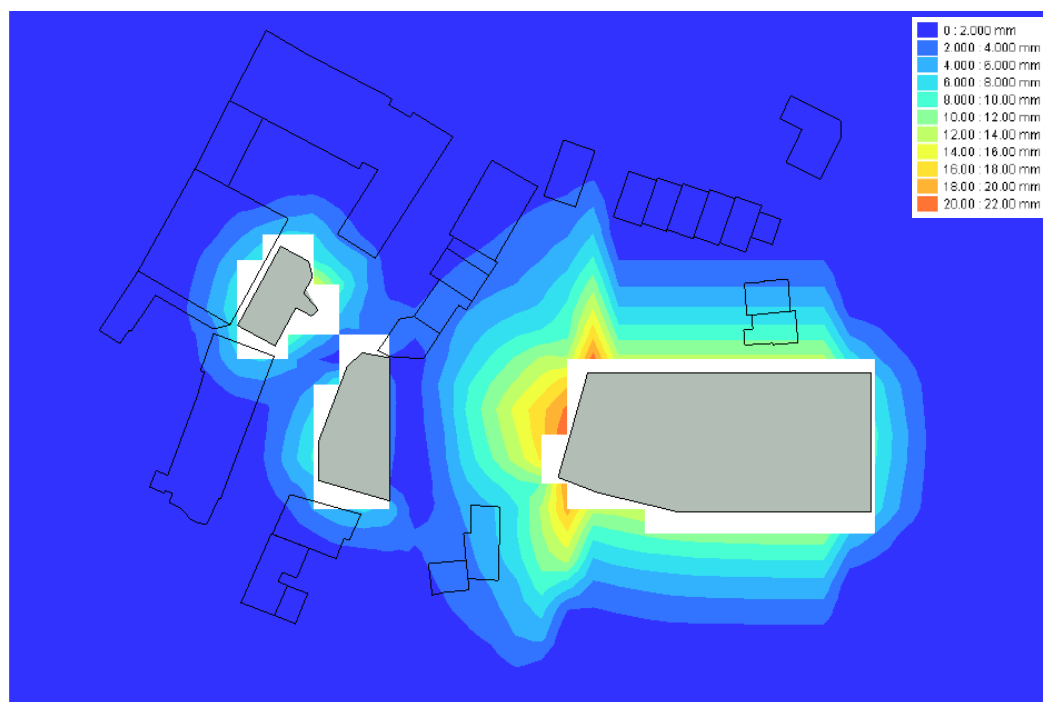


Figure 4.10 Resultant Xdisp horizontal displacement contours for scenario B1 – units in mm – retaining wall installation and excavation (CIRIA C760)



5. Conclusions & Closing Remarks

The interaction between the proposed Dyne House and Island developments and the neighbouring properties within the zone of influence of the schemes has been reviewed as part of the GMA study presented herein.

The proposed development construction operations comprise a series of stages, including the demolition of the two existing structures, installation of the embedded retaining wall, bulk excavation, and construction of the proposed permanent works elements. The impact of the various construction stages has been reviewed on the basis of two alternative methods, i.e. evaluating the effects of unloading / overburden removal using Pdisp and simulating the excavation-induced ground movement fields using empirical CIRIA curves in Xdisp. In the latter case, a propped embedded retaining wall solution (during the temporary works stage) has been considered, utilising the CIRIA C760 ground movement curves for excavation in front of *high stiffness walls in stiff clay*.

These two different scenarios have been considered in order to bind the potential ground movements arising from excavation operations (i.e. maximum potential heave and settlement respectively). This strategy ensures a robust evaluation of potential impact in light of the bespoke, intricate and workmanship-dependent construction methodology. Both short-term (undrained) and long-term (drained) conditions have been assessed by adopting the relevant soil stiffness parameters for each case.

In order to best limit ground movements in proximity to movement sensitive neighbouring buildings, due consideration may be given to suitable means and methods of construction. For example, reducing the extent of temporary excavations during earth removal operations in close proximity to buildings considered to be at most risk of damage.

The results from the GMA (denoting the evaluated damage categorisation in accordance with the Burland criteria described herein) are presented in Table 4.1. It is observed that the maximum damage classification for the neighbouring properties is *Category 1 – Very Slight*.

It is noted that the predicted ground movements, the associated wall tensile strains, and the level of damage categorisation are considered to be moderately conservative in view of the relatively cautious data selection and *greenfield* nature of the assessment undertaken.

It is also noted that the GMA will be supplemented by a project-specific monitoring regime and Action Plan, which will delineate lines of responsibility, trigger levels in accordance with those presented in this GMA, and appropriate mitigation measures. The assessment presented herein is dependent and reliant on the works being undertaken by an experienced contractor, high quality workmanship and appropriate supervision of construction means and methods by experienced personnel.

It is recommended that this report is reviewed and understood in full by the project team and relevant stakeholders. Where significant changes are made to items such as construction sequencing, temporary propping arrangements and scheme design, the engineer should thoroughly review the change and evaluate any potential impacts on ground movement and building damage. If necessary, the building damage categories should be re-evaluated.

It is critical that the permanent and temporary works designs are carried out in a coordinated manner between performance specified elements and substructure contractors, with the aim to ensure that such design elements are in alignment with the assumptions / findings of the GMA and overall design intent.



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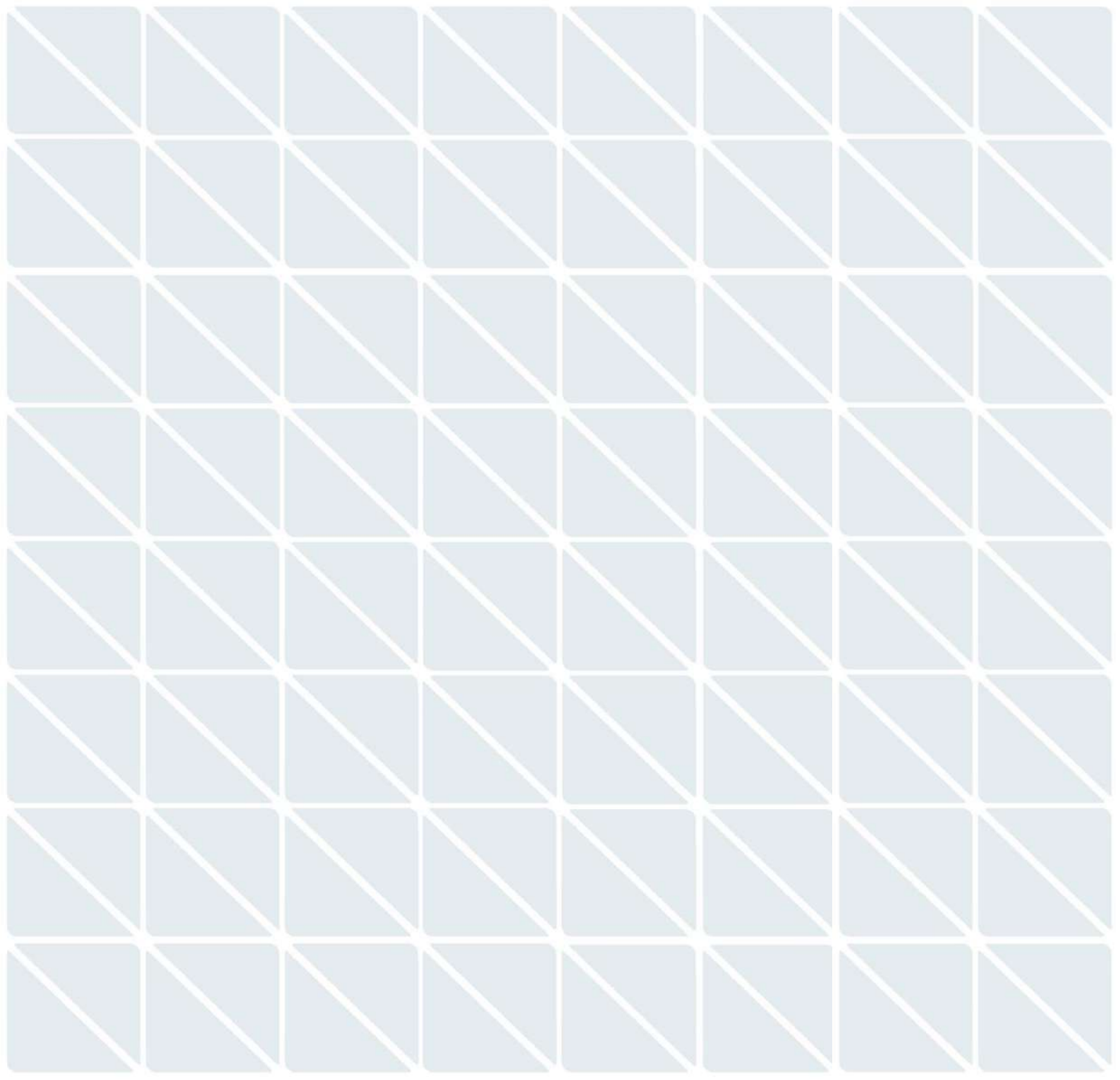
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Appendix D. Additional Supporting Information

CONSTRUCTION METHODOLOGY AND MANAGEMENT PLAN

NOVEMBER 2019

DYNE HOUSE 3 & ISLAND SITE



CONTENTS

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APPENDIX | Falcon Tower Crane Quotation

1.0 Executive Summary

Blue Sky Building was appointed to carry out a review of the construction programme and logistics for the refurbishment, part demolition and extension of the Dyne House 3 project, on behalf of Highgate School.

This report considers the programme and logistics impact of the project. These proposals can be considered as a Construction Management Plan for inclusion in the Planning Application Submission and subsequently to form the basis of detailed Plans by Contractors when appointed.

The Dyne House 3 project involves the extensive refurbishment of Dyne House and construction of a new extension, replacing the former gym and classroom buildings at the rear of the site. The site slopes steeply from west to east and north to south, and represents a considerable challenge in terms of design and construction logistics.

The project includes a smaller building on the Island Site opposite, linking into the existing Dyne House pedestrian tunnel and providing a new electrical substation and toilet facilities.

Programme Summary

Our Overall Summary Programme overleaf indicates a construction programme of 124 weeks or 31 months. Forecast durations are based on what we would consider a realistic delivery programme against which Highgate School might consider to add contingency in overall development planning terms, and set shorter targets when procuring the works.

A key point will be discovery and evaluation of unknowns as they arise. Refurbishment and structural adaption of buildings carries risks of additional or prolonged works due to unexpected finds. Building structures and services should be thoroughly explored and surveyed to the fullest possible extent that can be accommodated in the live environment before conclusion of designs.

Programme Periods

Our programme periods are based on the RIBA Stage 2 design currently available and will be subject to fluctuation as design develops. The programme period reflects the full closure of the main Dyne House site to school activities for the duration of the works, and recognises the logistical difficulties of the site.

Works to the Island Site are programmed at 56 weeks or 14 months. Criticality of start and completion of that part of the project has some flexibility.

General Deliveries

Pre-app discussions with Haringey have ruled out the use of Kingsley Place for delivery of materials and that is respected in our logistics proposals. Principle construction access will be from Southwood Lane to the front of the building and most deliveries will be able to enter the site for loading and offloading. Vehicle space is small and will be at a premium, calling for strong logistical management by the contractor. Discussion and agreements of deliveries using Southwood Lane should include both Haringey and TfL.

Plant access is allowable via Kingsley Place, although the steep, winding nature of the road and extensive resident's parking are an issue. Any use of the route will require careful management and forward planning.

Piling Design

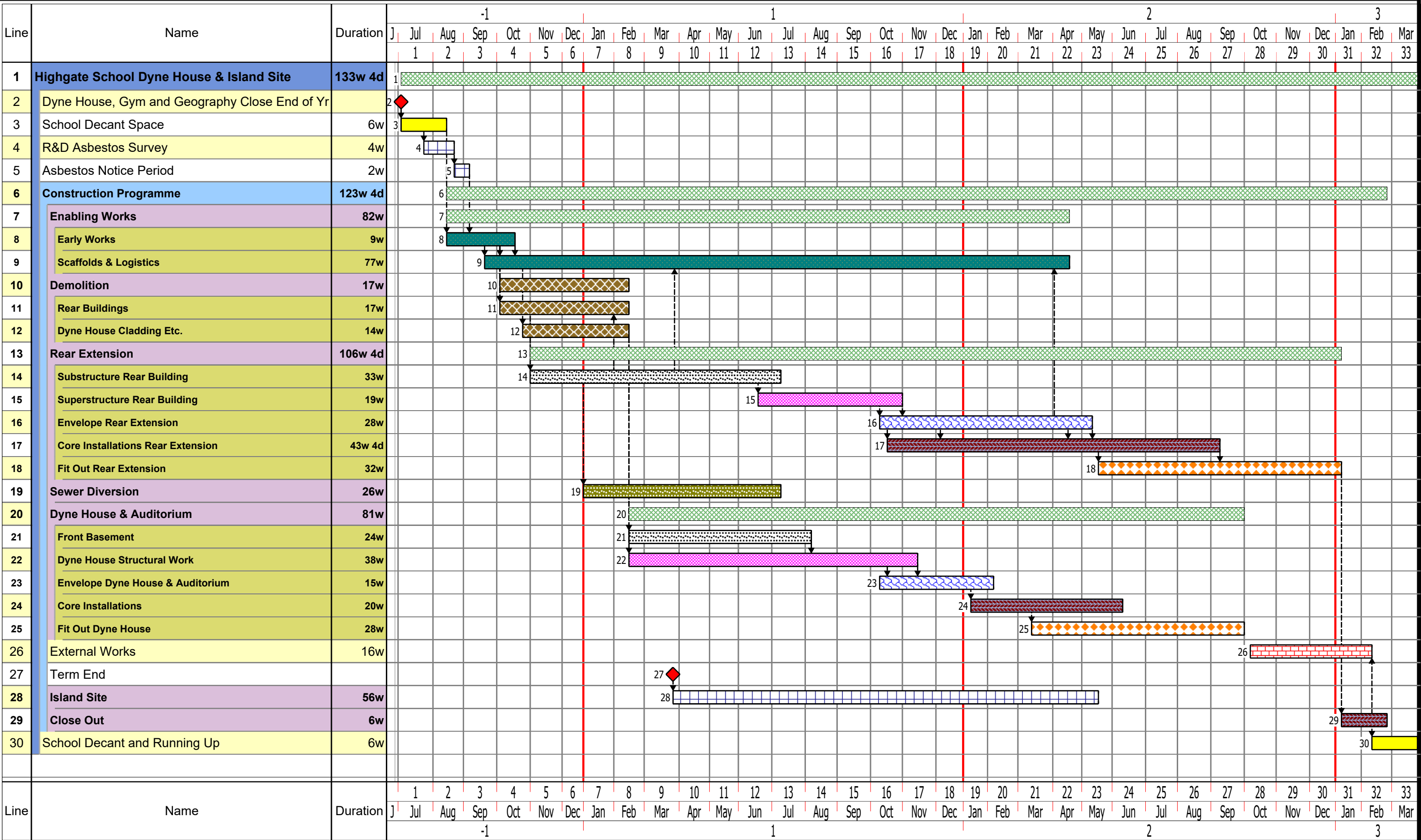
We have had preliminary discussions with Expedition regarding the option of sheet piling and bored piling for the perimeter wall of the basement extension. Our logistics proposals concur with the Stage 2 report based on sheet piling which would be more manageable for site preparation. Bored piling would take place from the lower levels of basement, where a level and compacted piling mat will be easier to construct.

Cranage & Logistics

Our proposals include two luffing jib tower cranes to service the superstructure and envelope phases of construction. The proposals are supported by a budget quotation from Falcon Cranes which is included for information as an appendix. Tenderers should be encouraged to offer their own alternatives when bidding the project.

Please refer overleaf to the Summary Programme

Highgate School Dyne House 3



Build Stages

School

Key Milestone

Enabling Works

Fit Out

Substructure

12 HO

Superstructure

Envelope

Services

Foul/SW Connect

Demolition

External Works

Programme :Highgate School Dyne House 3

Client: Highgate School

Notes: Draft for Discussion

Revision No. 0

Drawn by: TJC

Page: 1 of 1

Revision Date: 01/11/2019

2.0 Constraints

Location



The Dyne House site forms an integral part of the Senior School and is located on the east side of Southwood Lane and slopes steeply down from west to east. Most of the proposed works take place on that site of Southwood Lane with a smaller section of works on the Island Site. The Island Site is the main site of the senior school on the west side of Southwood Lane and the sites are linked by an existing pedestrian tunnel. The Dyne House site and the link tunnel will be completely closed to school operations for the duration of the works.

The steep slope of the site east to west, and to a lesser degree north to south makes for a difficult location regarding earth retention and accessibility for construction plant and materials movements. The retained Dyne House building virtually fills the width of the site frontage to Southwood Lane with just a narrow (small car width) ramp passing the southern elevation to a terrace car park beyond.

There is a small area of hardstanding between the building and back of pavement with crossovers to allow vehicle entry. The area currently includes some raised planters that limit access, although these are to be removed in the development proposed. There is also a tank below ground with uncertain loading capability which is also due to be removed.

Behind Dyne House and further down the slope of the site are the existing gym, pool and associated buildings that are to be demolished under these proposals. At the lowest level is the “parade ground”, an area of level hardstanding beyond the building line and accessible from Kingsley Place.

The Kingsley Place access is suitable for small vehicles only. A gate provides a direct point which is occasionally used for maintenance access to the school site. Undertakings have been given to Haringey and neighbours that the access will not be used for construction material deliveries and only for occasional plant.

Roads and Access Points

Southwood Lane serves the front of the site where vehicles can get off road onto the front hardstanding of Dyne House. It is a two-lane B road linking directly to the TLRN at its junction with the A1 Archway Road. Whilst it is heavily trafficked and includes stretches with parking bays it is navigable by all vehicles. It serves as a relief road or emergency bus route when closures occur around Highgate so TfL will have a strong interest in its use and will need to be party to any agreements for road closures (for crane erection).

The frontage to Dyne House includes telecoms manholes and cabinet, a post box and lamppost. Some temporary removal of those might be possible to improve access and reduce risk of damage.

Southwood Lane is also the only access route to the Island Site.

Kingsley Place which serves the lower level rear of the site is a residential, steep, narrow, winding street with parking bays on both sides. Even for occasional plant access it is difficult to navigate for all but the smallest vehicles.

We understand that Swept Path Analysis confirms that a full articulated vehicle can reach the site through Kingsley Place but that some street bollards would need to be removed to achieve it.



Southwood Lane Frontage



Kingsley Place entrance ramp as existing

Neighbours

The site is surrounded by mainly residential property and the school itself on the opposite side of Southwood Lane. One property, 16 Southwood lane, shares a party wall with Dyne House so would be particularly susceptible to construction noise during structural interventions to the retained building.



Pedestrians

Southwood Lane is not heavily trafficked by pedestrians, except for school use which will be limited to the west side during construction. Pavements both sides of the road should be kept open throughout the works with traffic marshalling and temporary barriers employed during vehicle movements and kerbside loading.

Concurrent Construction Projects

There are no large construction projects known to be proceeding in the area currently. The contractor will be required to keep local planning applications under review and to liaise with other contractors regarding logistics planning and delivery routes where appropriate. There are potential development sites on the south side of the Dyne House site, but no firm proposals have been made for those at present.

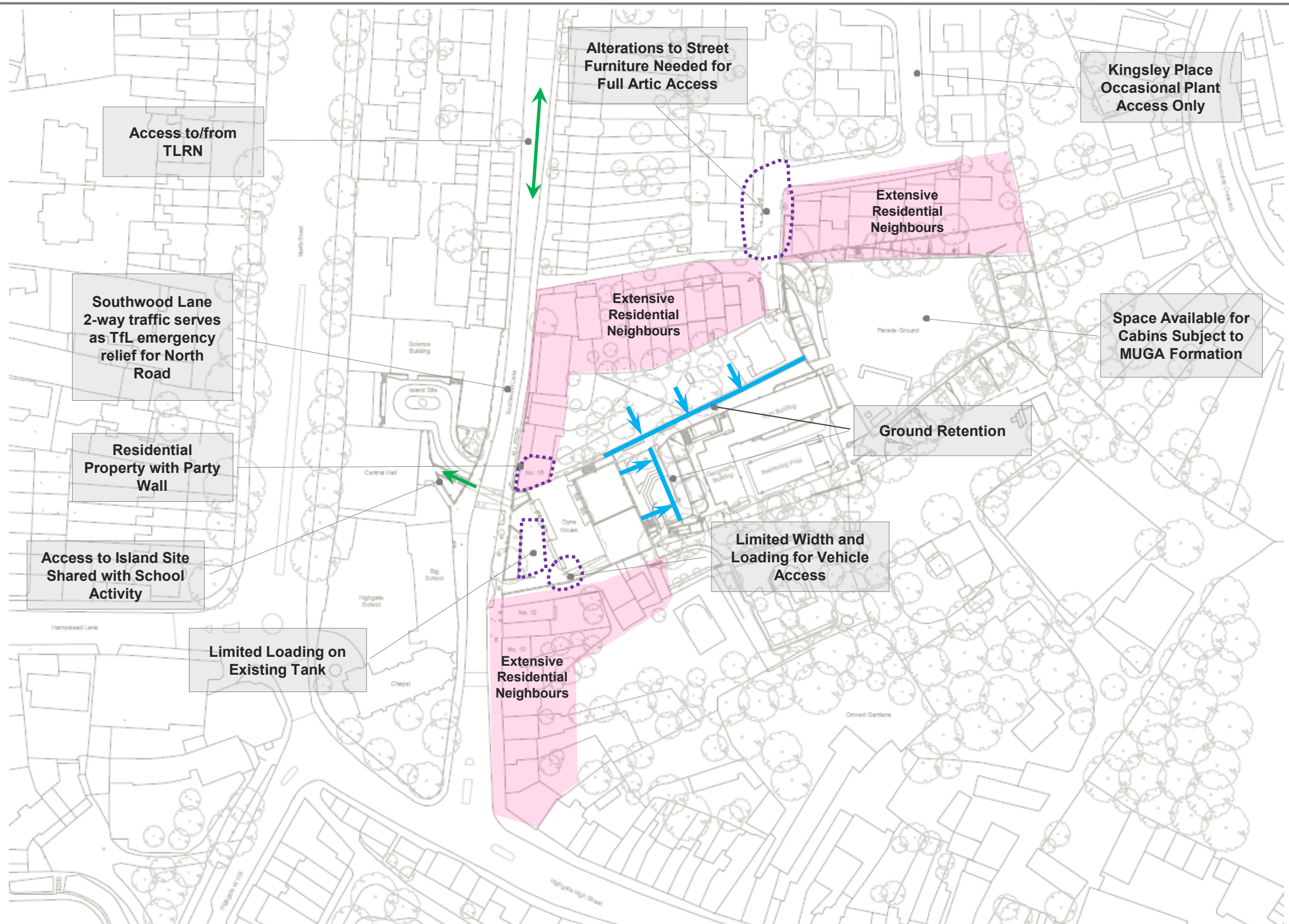
Existing Buildings

The structural frame of Dyne House is proposed to be retained, with some structural alteration. Its envelope and interior fittings will all be removed and the outbuildings behind it will be demolished in entirety. It is expected that normal levels of Asbestos Containing Materials will be present for buildings of this age, although much will have been removed under previous refurbishments. A full R&D survey will be undertaken when buildings are vacated.

Some of the structural characteristics of the buildings also remains subject to survey but it is intended that as much concrete and dense masonry as possible can be initially retained on site for construction of a piling platform.



Please refer overleaf to drawing BSB-DH-001 - Constraints



PROJECT: Dyne House & Island Site
CLIENT: Highgate School Estate
TITLE: Site Constraints

DRAWING NO.: BSB-DH-001
REVISION NO. & DATE: Rev 0 – 17/10/2019

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3.0 Logistics

Materials Deliveries and Cart Away

The efficient management of the site logistics will be vital to the success of the project. A key strategy of logistics for a construction project is to ensure that the products and materials arrive on site at the required time, in the quantities that are required, and that delivery and distribution can be managed efficiently. The same can be said for removal of volume materials including demolition waste and bulk excavation.

The Dyne House site offers some unique constraints on materials movements. The combined effect of the steeply sloping site and the retained building being close to the full width of the frontage call for a particularly well managed approach to construction logistics. Access for large components or multiple deliveries is constrained by the layout and the agreement made to use only the Southwood Lane frontage for materials movements. We understand that a logistics approach that minimises impact on neighbours is essential. The rear access from Kingsley Place has been considered for plant deliveries only.

We have proposed an approach to logistics that reflects the site constraints. The project will require a variety of equipment and methods as works proceed. Two tower cranes are envisaged to deal with the bulk movements through demolition and construction, augmented by hoists and small equipment through the early works and fit out stages.

Early Works

A key factor in making the early works stages as efficient as possible will be to open the site for fast clearance of waste as soon as possible. The frontage will provide good space for vehicle access and skips once the planters are removed and the underground tank is removed or strengthened. Early demolition would focus on removing some brickwork to maximise the width of the ramp to the terrace car park and knocking down the rear stair to make way for hoists.

The level change between the terrace and the garden below is a particular obstacle. We propose an external platform hoist, a skip hoist and a lifting beam (below) or be erected early in the programme for the movement of vegetation, demolition waste and excavated material toward the top of the site. Any plant for that location should be selected to allow entry via the southern ramp to the terrace and would be erected by spider crane pending erection of the tower cranes.



Crane Strategy

Two luffing jib cranes are proposed. The cranes are needed for site coverage to support construction of substructure, superstructure and envelope; and, to move materials from front to back of the site.

TC1 would be a luffing jib crane erected through the terrace area to the rear of Dyne House itself. Once the rooms below the terrace are certified clear of asbestos and live services a mini piling rig would be manoeuvred through the building to place mini piles for a crane base. An opening would also be cut through the terrace level for the mast. The crane we have selected has a 50m jib to allow a good reach for erection of the second crane and has a 3-tonne lifting capacity at full reach. That capacity is suitable for erecting the second crane and provides a good level of coverage for concrete frame construction and general material movements. If pre-cast panels form part of the envelope design, then a larger capacity would be needed. The crane has a luffing jib and a reduced out of service radius to ensure oversailing of neighbouring properties can be omitted by computer limiting.

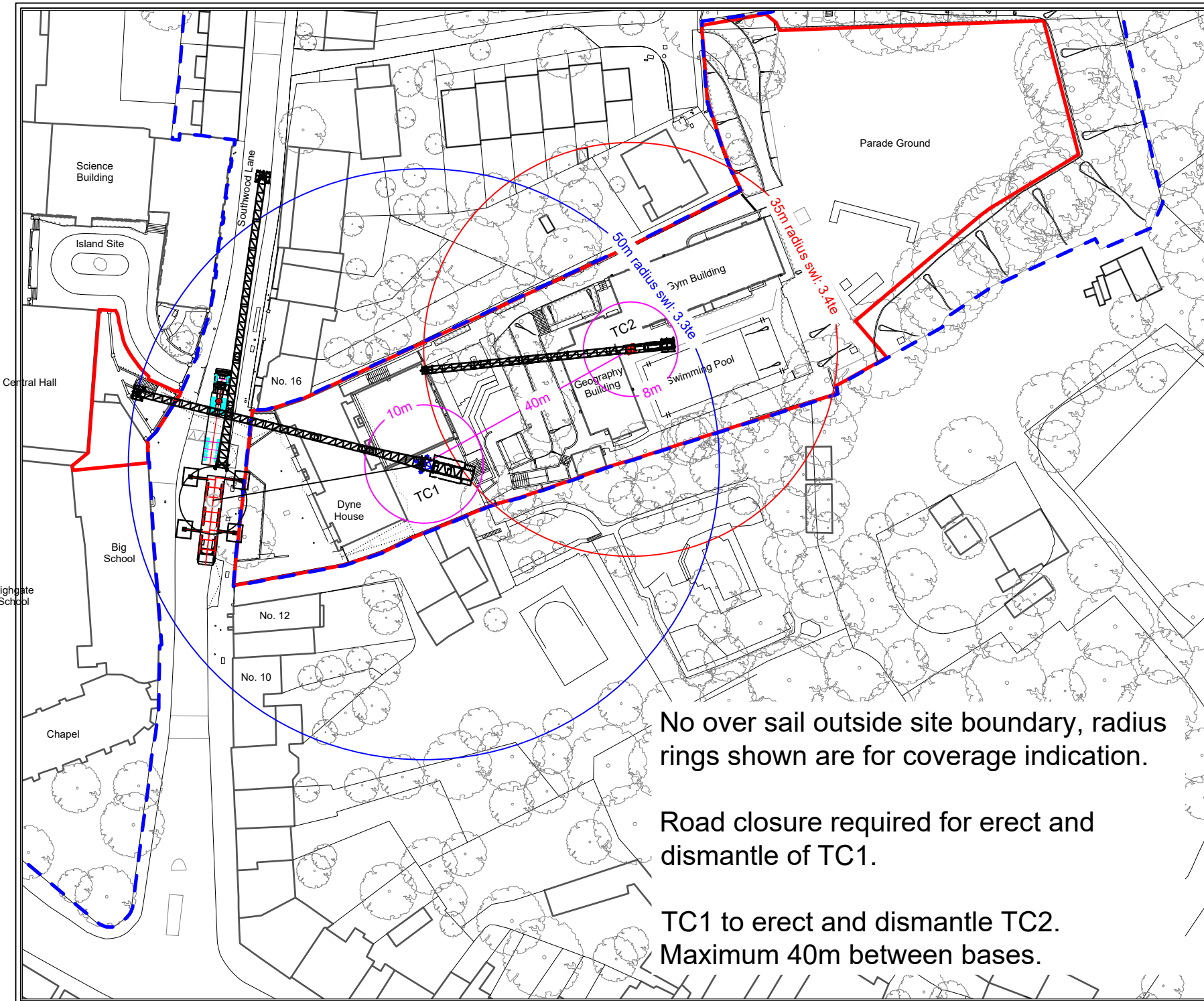
The first tower crane would be erected by mobile crane from Southwood Lane. The crane required to erect it needs a fly jib, so a 3-day road closure could be required (depending on the time of year and available hours of daylight for lifting).

TC2 is a similar crane but with a shorter jib (35m). It is located centrally to ensure that its out of service radius does not oversail neighbouring properties and lifting would be computer limited as for TC1. The crane would be erected by TC1, with a weekend road closure. Both cranes jibs would be assembled in Southwood Lane, so a carefully managed process needs to take place with agreement well in advance with Haringey, TfL and neighbours.

When planning multiple tower cranes for sites it is preferred that each crane has its own pick up point to make it fully efficient. Here there is unavoidably only one pick up point so there will be double handling of materials to the rear of the site.

The dismantle process would be a reverse procedure with TC2 removed by TC1 etc. A copy of Falcon Crane's estimated for the selected cranes is included as an appendix although alternative strategies and suppliers are available.

Crane Strategy Drawings – our crane strategy drawings titled 'Falcon SP226-01-10-19 TC & E&D Layout' and 'BSB-DH-005' are included overleaf.



This drawing is for reference only. Falcon Tower Crane Services Ltd accepts no responsibility or liability for any information contained within. All dimensions to be checked by site.

TC1 J208 luffing

50m jib
26,6m tower
Fixing angles

Reduced 10m out of service radius

TC2 J118 luffing

35m jib
20m tower
Fixing angles

9m out of service radius

FALCON
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CLIENT

Blue sky Building

PROJECT

Highgate School

TITLE

TC & E&D layout

SCALE	To fit	DATE	01.10.19
DRAWN BY	SP		
DRAWING NO.	SP226-01.10.19		
			REV

No over sail outside site boundary, radius rings shown are for coverage indication.

Road closure required for erect and dismantle of TC1.

TC1 to erect and dismantle TC2.
Maximum 40m between bases.

TC1 erected by mobile crane
from Southwood Lane.
2-3 day road closure.

TC1

J208 luffing jib
50m jib
26.6m tower
10m out of service radius
3 tonnes @ 50m

TC2 erected by TC1 from
Southwood Lane.
1-2 day road closure.

TC2

J118 luffing jib
35m jib
20m tower
9m out of service radius
3 tonnes @ 35m



PROJECT: Dyne House & Island Site
CLIENT: Highgate School Estate
TITLE: Crane Strategy

DRAWING NO.:

BSB-DH-005

REVISION NO. & DATE:

Rev 0 – 22/10/2019

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Conveyor Belts

Removal of waste material from stripping out and demolition and arisings from bulk excavation and piling will generally be labour intensive, using bins, mini dumpers and barrows to move materials up the site to skips located on the frontage. Conveyor belts could be used to assist movement.



Welfare

Welfare accommodation would initially be set up inside the vacated buildings until the rear gate and Kingsley Place can be made ready for delivery of cabins to the parade ground. Cabins would be sized for the minimum of disruption in transporting them into site and positioned to allow early progress on construction of the MUGA without having to re-site units.



Key Materials Movements – our table of key materials handling appears overleaf and summarises the preferred delivery methods for all key materials.

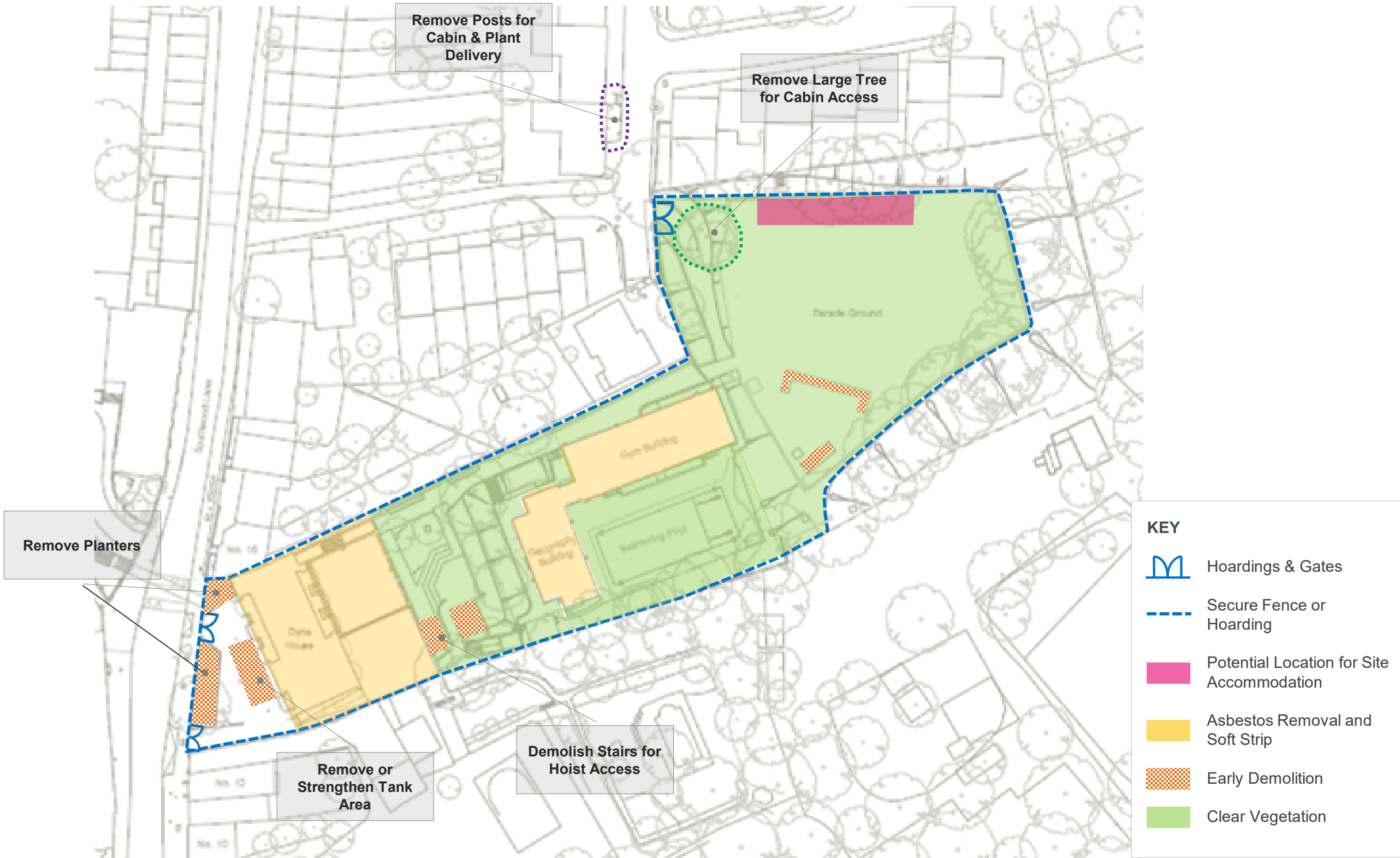
Key Materials Movements

Element	Number/ Type of delivery	Heaviest Lift	Key Constraints	Likely Method
Site Establishment				
Welfare	Cabins to Parade Ground/ New MUGA area	c 2 tonne	Permissible under the rules of use for Kingsley Place (as it's Construction Plant). Units may be of limited length due to the road itself and access is further restricted through the site gate until the large tree is removed and the entry ramp reconfigured.	Jackleg units, sized to negotiate Kingsley Place and the entry gate. Small mobile crane needed to offload and stack units. Welfare to initially be set up inside school buildings until site is prepared. Layout to allow completion of landscape works to MUGA.
Scaffolding	Multiple deliveries of tube and boards.	Small	Permissible under the rules of use for Kingsley Place (as it's Construction Plant). Deliveries needed to top and bottom of site.	Deliver and lift to compound on parade ground using Hiab. Distribute to rear of building by hand/ forklift/ pallet trolley. Deliver to frontage of Southwood Lane for Dyne House. Deliver to kerbside on Southwood Lane for Island Site.
Tower Crane	Occasional. Disruptive events.	Major lifts	Cranes can only be delivered and erected from Southwood Lane and will require weekend road closures for erect and dismantle. Southwood Lane is TfL emergency bus route and will require TfL agreement in addition to Haringey.	TC1 erected by large mobile crane from Southwood Lane. 3-day road closure needed (for configuration of mobile and fly jib due to long reach needed). TC1 will lift and erect TC2 from Southwood Lane. Reverse procedure for dismantling.
Hoists and Lifting Beam plant	Small plant and equipment delivery and erection	1 Tonne	Vehicle access limited to small vehicles.	Select initial equipment of suitable size to be delivered to terrace by small vehicle/ trolley and erect using small spider crane or winch. Larger hoist for vertical access to Dyne House to be erected by tower crane.
Asbestos unit (if required – subject to survey)	Trailer unit v. build inside	Small	Site access limits size and location of unit that can be delivered.	Check smallest trailer unit for access to terrace or create decontamination shower inside existing building. Don't place on frontage as that space is critical for wider use.
Demolition & Stripping Out				
Soft strip/ screeds & asbestos waste	Multiple moves of debris, timber and metal components, glass, general rubbish.	Small	The slope of the site restricts material movement.	Locate large roll on roll off skips on Southwood Lane frontage (after removal of planters). Move stripped materials by hand, powered trolley or bins with the assistance of platform hoist and hand fill skips.
Roof level materials	Multiple items of roof materials and debris.	Depends on structure	The slope of the site restricts material movement from the rear buildings. Bringing down from height for Dyne House.	Hand strip materials, send to ground via chute or empty riser for loading away by hand to skips for sorting and disposal off site.
Roof Plant	Items of HVAC plant, lift motors and switch panels at roof level	Up to ½ Tonne	Bulky items. Difficult to move vertically through the building.	Break down into manageable pieces for loading away via lifting beam to ground level or leave in position until TC available.
Facades	Multiple loads of masonry debris and windows	Small	The slope of the site restricts material movement from the rear buildings. Bringing down from height for Dyne House.	Lift robot breakers to upper levels using TC. Remove windows into floors. Drop to ground floor in empty riser or lift shaft. Load to skips on frontage. Lift large pre-cast elements to ground. Any suitable material to be transferred down the hill for crushing and use in piling mat.

Element	Number/ Type of delivery	Heaviest Lift	Key Constraints	Likely Method
Demolition & Stripping Out (cntd.)				
Rear superstructures	Multiple loads of masonry and concrete debris and rebar	Small	The slope of the site restricts material movement from the rear buildings.	Deliver small “city” crusher to parade ground and use with acoustic enclosure. Excavator with breaker attachment to demolish buildings. Suitable material to be crushed for use in piling mat. Unsuitable debris and rebar to be lifted by crane and skip to waiting skips at frontage.
Concrete Ground slabs and pool	Multiple loads of concrete debris and rebar	Small	The slope of the site restricts material movement from the rear buildings.	Keep slabs in position initially to help stabilise site while the first sheet piling is done. Break out slabs with excavator and crush as above.
New Sub-Structure				
Sheet piling/ Bored Piling	Rig for boring, sheet piler then multiple deliveries of sheets, concrete and rebar plus removal of muck away	Small/ numerous	Site access slope and dimensions limit size of rig, size of excavator for spoil, crane for servicing piling	Restricted access rig needed for piling, delivered from Kingsley Place. Sheet piling machine delivered to frontage and lifted by TC. TC to service piling. Pump concrete from front. Conveyors and skip hoist for muck away to skip in site access.
Propping	Heavy propping	Up to 1 tonne	Slope of site and front access limitations	Temporary works design to carefully consider size of propping and handling method. Largest components to be delivered to front for TC lifting.
Excavation	Constant volume earth moving	Medium	Slope of site and lorry movements	Load material by TC and skip to waiting skips or tippers on frontage.
New floors - concrete	Multiple slab pours	Formwork & rebar	All deliveries to frontage with limited space	Ready mix concrete delivered to site frontage for placement via static pump and boom. Formwork and re-bar delivered to frontage for TC offloading and placement.
Island Site	Multiple small deliveries	1 Tonne	Limited access and site space, close proximity to live school areas.	Manage deliveries to suit timetable. Use visiting mobile cranes in school down time or small spider crane within site boundary.
New Superstructure				
New concrete frame	Formwork, rebar and concrete	Multiple.	All deliveries to frontage with limited space	Ready mix concrete delivered to site frontage for placement via static pump and boom. Formwork and re-bar delivered to frontage for TC offloading and placement.
Scaffold	Traditional scaffold as access and edge protection	Multiple	All deliveries to frontage with limited space	Deliver to front for TC offloading.
Stairs	Consider design for best materials handling	Stairs need to be small components or in-situ concrete	All deliveries to frontage with limited space	Traditional formwork and pumped concrete in-situ stairs. If precast units are proposed, then size of cranes may need to be increased
Larger components	Steelwork? Framing? Prefabricated enclosures?	Limited opportunities	All deliveries to frontage with limited space	Design for traditional methods and components within TC capacity

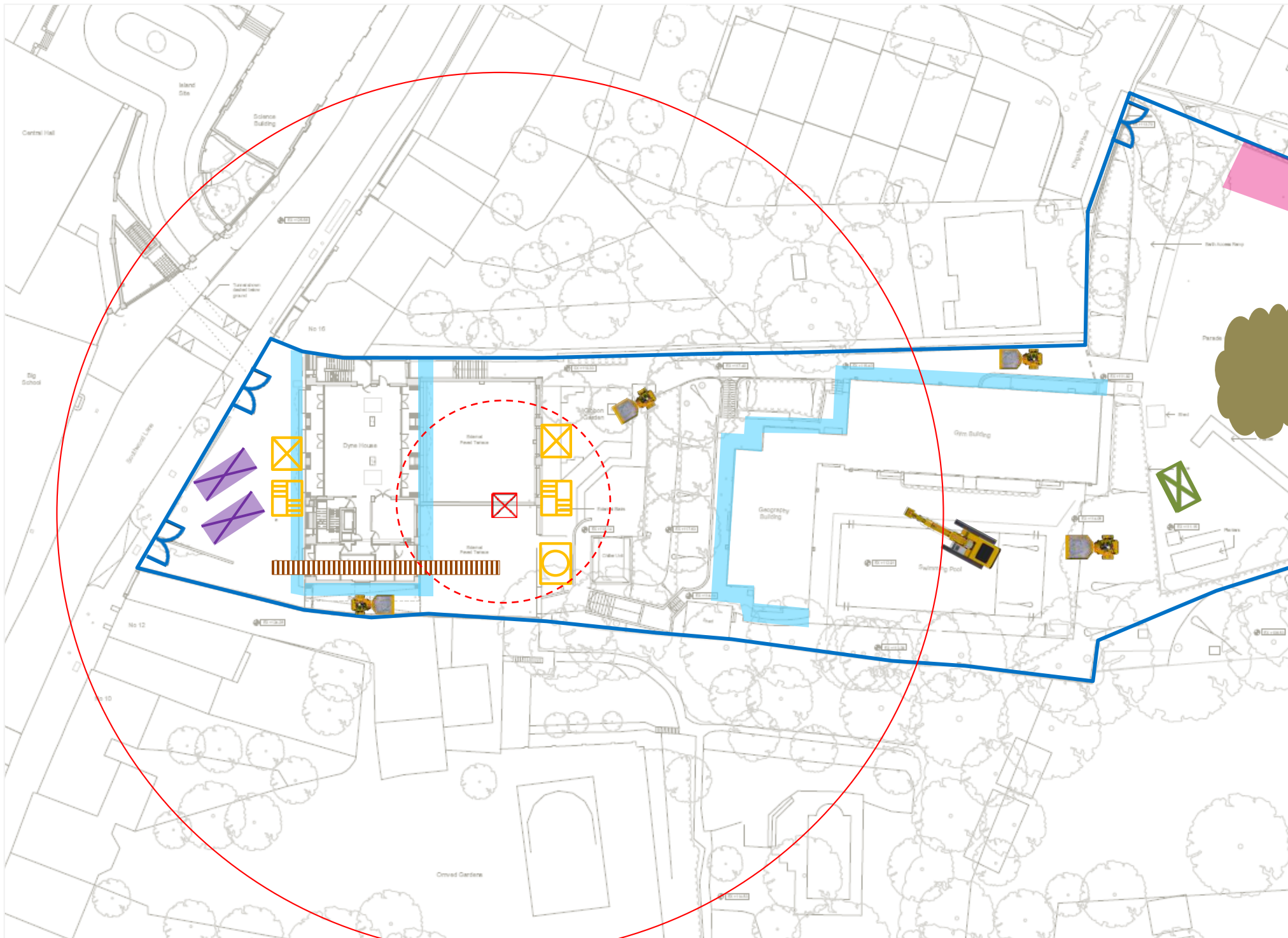
Element	Number/ Type of delivery	Heaviest Lift	Key Constraints	Likely Method
Building Envelope				
Perimeter wall inner skin	Consider Metsec, or similar panelised skin	Multiple lightweight	All deliveries to frontage with limited space	Deliver to front for TC offloading.
Brickwork & internal block work	Multiple deliveries	Small/ Medium	All deliveries to frontage with limited space	Deliver to front for TC offloading.
Roofing Materials	Multiple deliveries	Small/ Medium	All deliveries to frontage with limited space	Deliver to front for TC offloading.
Panelised cladding & glass	Multiple deliveries	Mostly medium but large glass units to some location	All deliveries to frontage with limited space. Crane limitations to be considered when sizing glass panels (including future replacements)	Deliver to front for TC offloading.
Windows,	Multiple deliveries	Small/ Medium	All deliveries to frontage with limited space	Deliver to frontage on rigid lorry for TC offloading.
Mortar	Daily deliveries of ready mixed mortar tubs during blockwork and brickwork operations	Small	All deliveries to frontage with limited space	Delivery by small vehicle for distribution by TC and platform hoist
M&E Plant / Fit Out				
Plant & Switchgear to basement	Several large deliveries	> 1 Tonne	All deliveries to frontage with limited space. Access to plant spaces gets progressively more restricted with site progress.	Consider programme and lead in to ensure plant can be delivered and placed at the optimum time, when the TC is still in place. Plant to be sized for best handling, including plant replacement strategy.
Switchgear to Island	New switch panels	< 1 Tonne	Limited access and site space, close proximity to live school areas.	Panels to be designed in sections to suit accessibility to site. Offload by Hiab at kerbside, move by forklift and install.
Lifts	New lifts to install. Multiple deliveries including long pieces	Medium. 1-2 tonnes max	All deliveries to frontage with limited space	Design in sections that can be offloaded by Hiab and distributed by lifting beam and platform hoist.
Plant	Plant to roof	Small	All deliveries to frontage with limited space	Ensure delivery before TC is dismantled.
Internal fitting out/ general materials	Plasterboard, M&E components, flooring, ceiling, kitchens, bathrooms, etc. Multiple deliveries.	Small	All deliveries to frontage with limited space	Deliver by small vehicle directly into site for distribution by pallet truck and platform hoist. Use hoist and cranes as far as possible. Load out floors as early as possible and subject to weathertight conditions to make full use of the external platform hoist or TC. Keep platform hoist until permanent lifts are available – then allow beneficial use.

Logistics Plans – please refer overleaf to the Site Logistics Plans.



PROJECT: Dyne House & Island Site
CLIENT: Highgate School Estate
TITLE: **Early Works**

DRAWING NO.: BSB-DH-002
REVISION NO. & DATE: Rev 0 – 17/10/2019



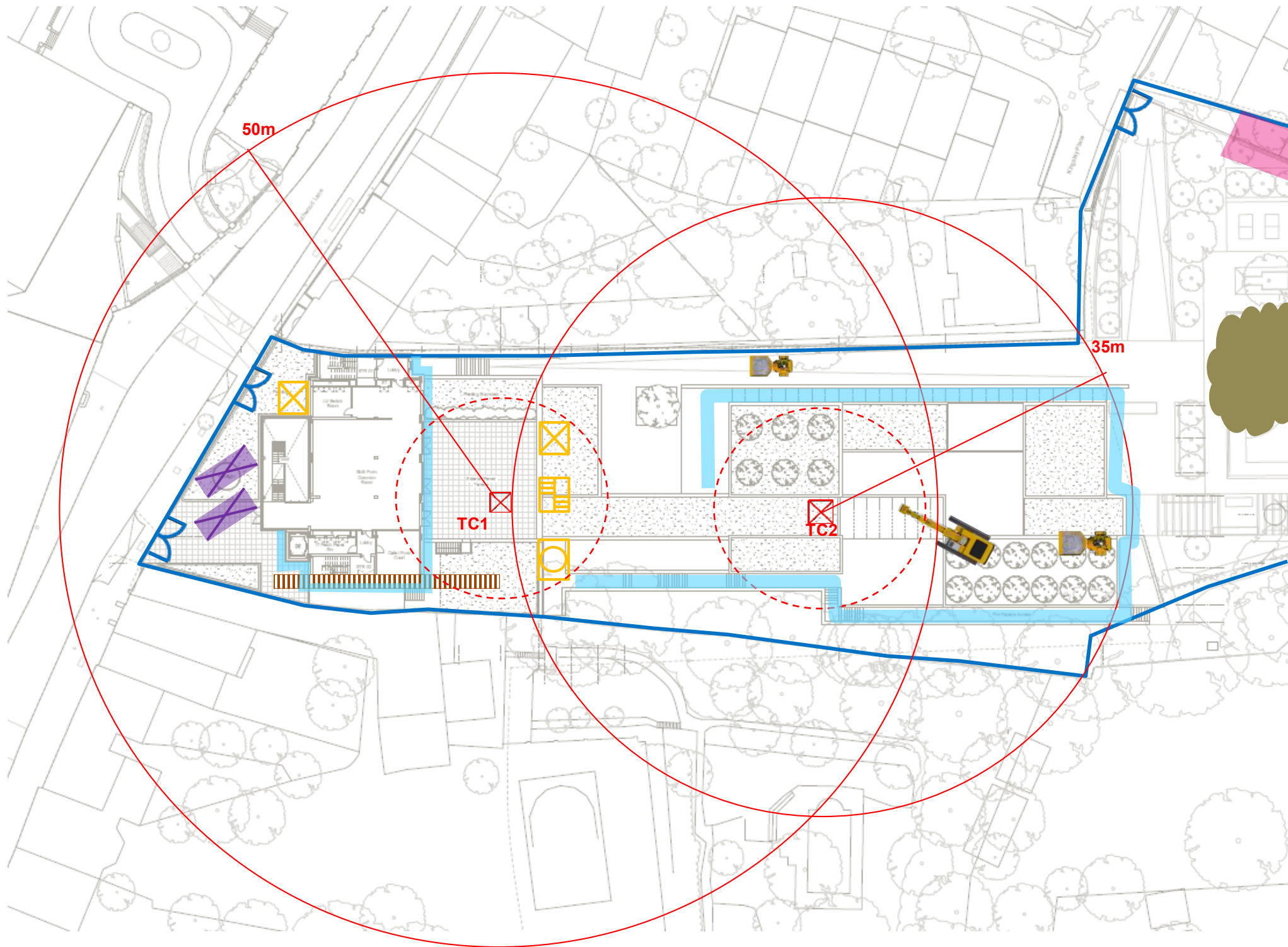
KEY	
	Hoardings & Gates
	Site Accommodation
	Demolition Scaffold/Screen
	Luffing Tower Crane
	Out of Service Radius
	Stair
	Platform Hoist
	Muck Away Hoist
	Crusher
	Crushed Material Stock Pile
	Conveyor
	Skip Locations



PROJECT: Dyne House & Island Site
CLIENT: Highgate School Estate
TITLE: Demolition Logistics Plan

DRAWING NO.: BSB-DH-003
REVISION NO. & DATE: Rev 0 – 22/10/2019

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KEY	
	Hoardings & Gates
	Site Accommodation
	Scaffold/ Screen
	Luffing Tower Crane
	Out of Service Radius
	Stair
	Platform Hoist
	Muck Away Hoist
	Crushed Material Stock Pile
	Conveyor
	Skip Locations



PROJECT: Dyne House & Island Site
CLIENT: Highgate School Estate
TITLE: Superstructure & Envelope

DRAWING NO.: BSB-DH-004
REVISION NO. & DATE: Rev 0 – 22/10/2019

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4.0 Programme

Early Works

We have assumed that the best time to vacate Dyne House and the rear buildings would be at the end of a school year so have shown decant and start of construction commencing through the summer holiday. The school will need some time to decant school property before handing over spaces to the contractor. If possible, the decant and handover can happen in stages to allow the most efficient start up. Prior to start the contractor would have a mobilisation period during which permissions and arrangements should be put in place with Haringey and TfL, and neighbourhood liaison should take place to provide detail to neighbours on how the works will be executed.

Early enabling works will include making the site safe and secure with solid secure hoardings and gates onto Southwood Lane. Street furniture and comms cabinets would be removed subject to approvals and the existing crossovers improved or widened if required. Raised planters to the forecourt would be removed to improve access and the underground tank either lifted and backfilled, or strengthened to allow road loading on its lid whichever the contractor finds most practical.

From Kingsley Place enabling works to allow cabins and plant to access the parade ground should happen early. This will include temporary removal of bollards in the public realm (subject to approval) and the widening of the school gate and vehicle ramp. The tree that blocks the entrance way should be felled at this stage.

A solid timber hoarding and gates should be erected to replace the fence at Kingsley Place to screen the working area from residential property and to assist in the containment of noise and dust. Existing boundary fences to the remainder of the site should be inspected in the mobilisation period and replaced or strengthened as appropriate.

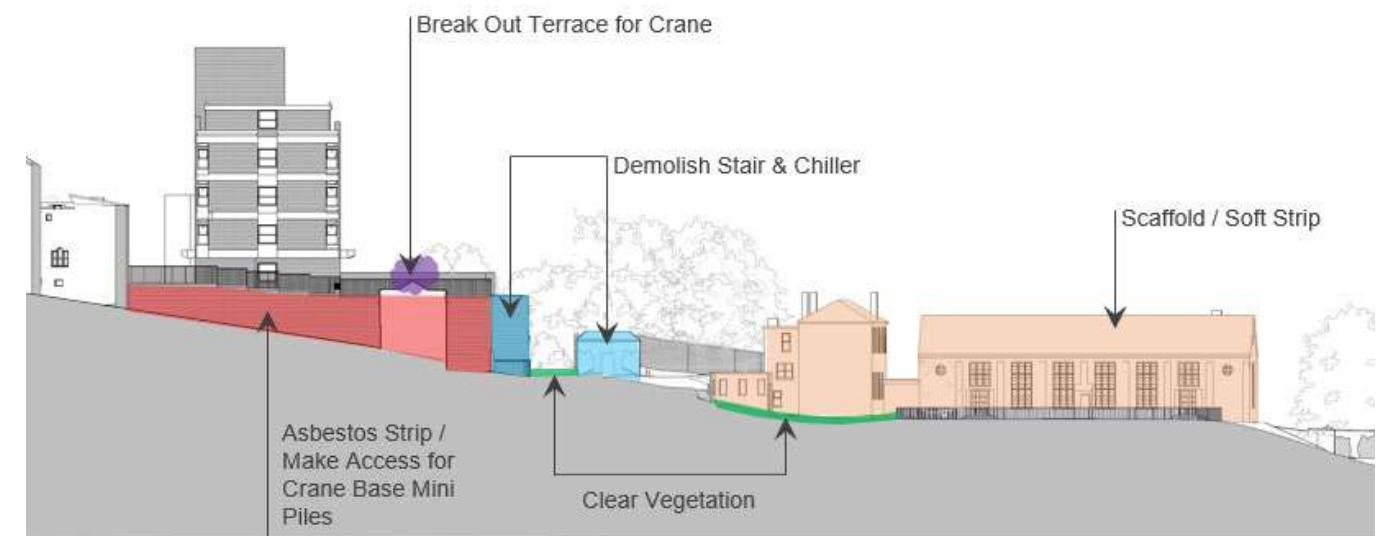
Site accommodation would initially be established inside existing buildings while the rear gate and parade ground is made ready to receive them. Site services for the works should involve taking power and water supplies from existing services in the vicinity (in preference to using generators and bowzers). A Refurbishment & Demolition Asbestos Survey would be undertaken as soon as practical.

Stripping Out and Logistics

The first key focus areas of stripping out and demolition are to make the site workable with plant installed to move materials out. The south ramp should be widened by removing non load bearing brickwork. The rear external stairs would be demolished to make way for mechanical hoists. A route through the building to be broken out to allow a mini piling rig to access the proposed location for TC1 to undertake temporary works.

Once hoists and the first tower crane are in position stripping out of the buildings can proceed in earnest, together with clearance of the external areas of vegetation and redundant fixtures fittings and hardstandings. As the insides of buildings are stripped, mostly by hand, waste materials will be carried up the site by powered barrow, mini dumper or crane hook as appropriate. Scaffolds will be erected to the rear buildings and Dyne House to allow the stripping of windows, roofs and external plant. Scaffolds would be clad externally in Monarflex sheet to help limit dust and noise breakout.

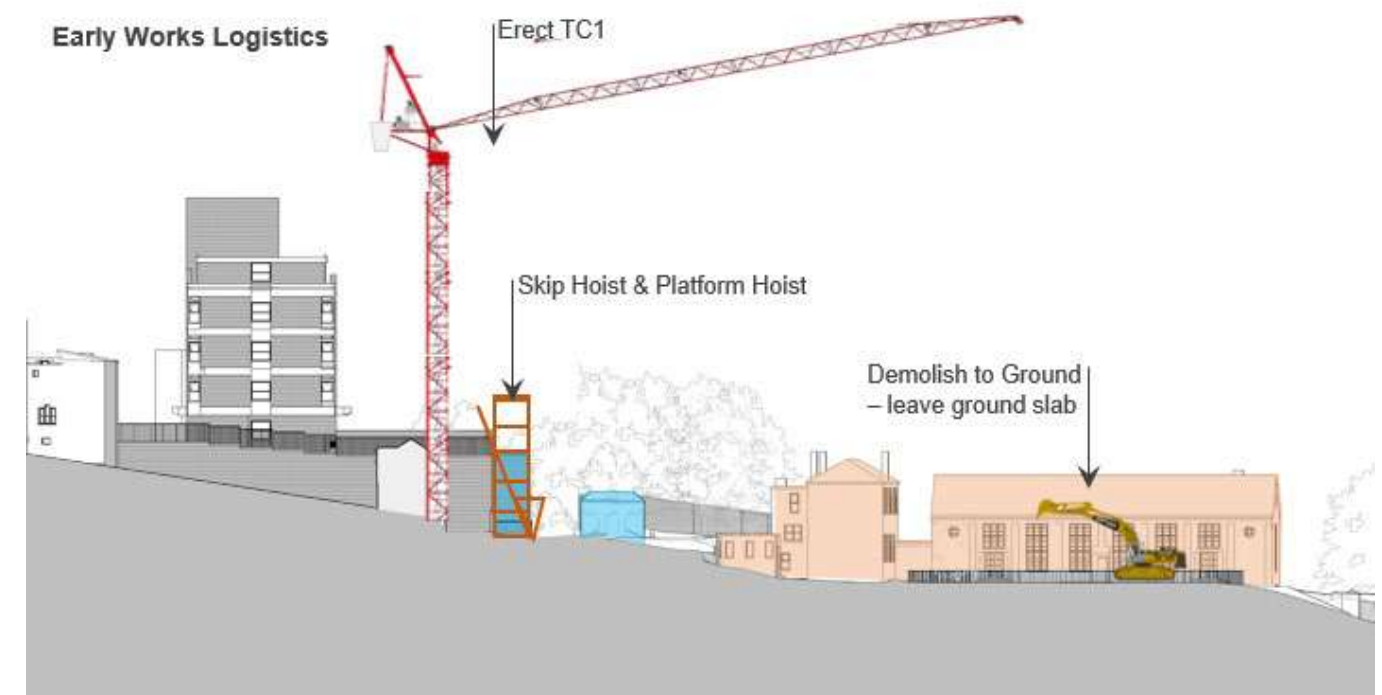
Early Works



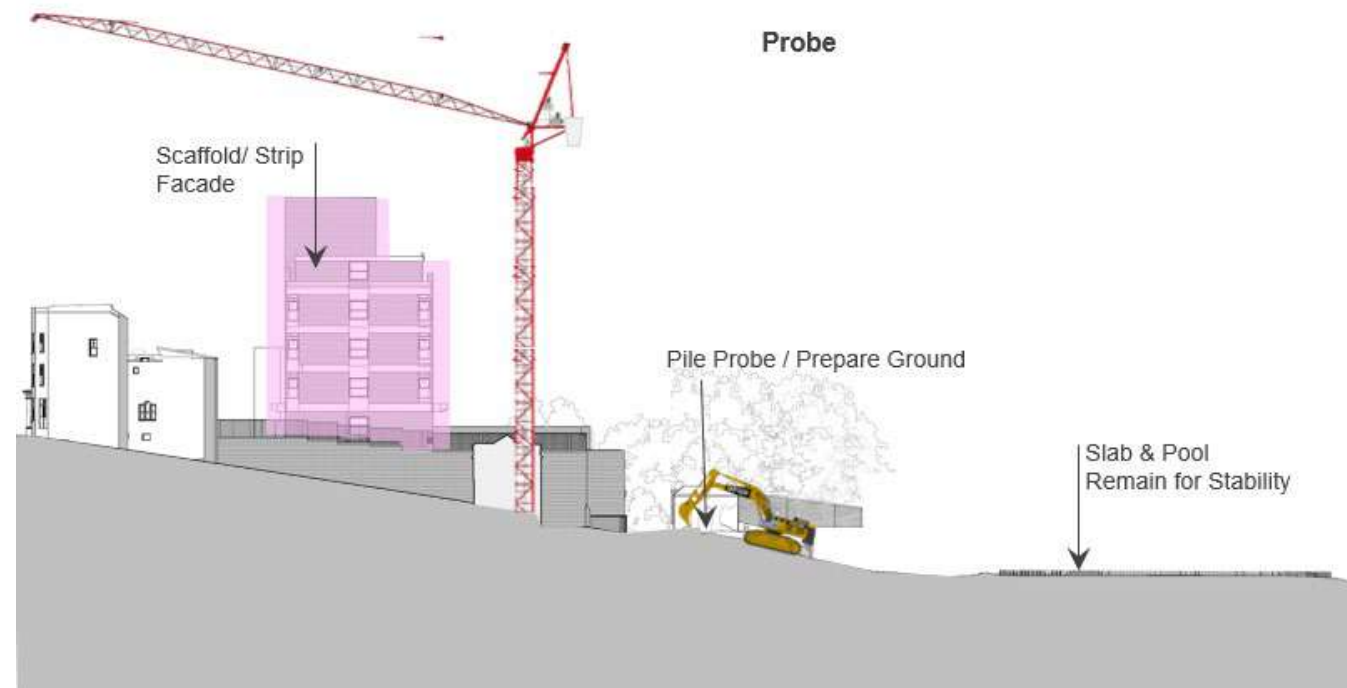
Demolition

When soft strip and logistics provision is complete the hard demolition of the rear buildings can proceed. The buildings will initially be demolished down to ground level with the concrete ground structure and pool left in place to provide stability to the upper levels of the site.

Early Works Logistics



Waste arising from hard demolition, including concrete and dense masonry will be crushed on site and stockpiled for use in piling mat construction. Rebar will be separated from the concrete debris and removed as scrap for recycling. When the rear site is cleared demolition focus will switch to the facades and roof of Dyne House while ground preparation and pile probing is undertaken for the top level of the new rear extension.

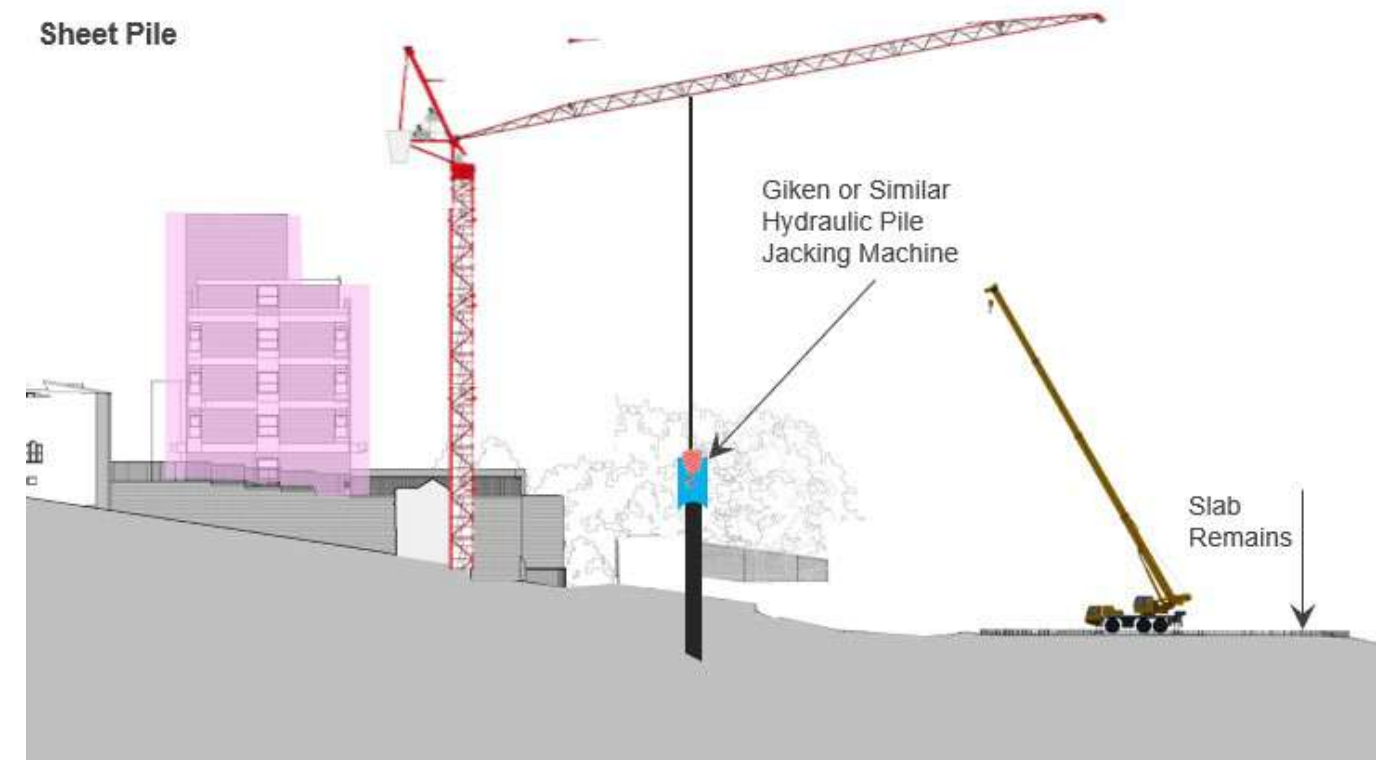


Sheet Piling

Sheet piling would ideally be carried out using a hydraulic pile jacking machine as manufactured by Giken or similar. The machine would be supported by either the tower crane or a small mobile crane and once initial piles are in will “walk” along the piles already placed. Piling in this way negates the need for a level piling mat for a traditional piling rig which would be difficult to achieve and would require temporary ground retention for the top level of piling.

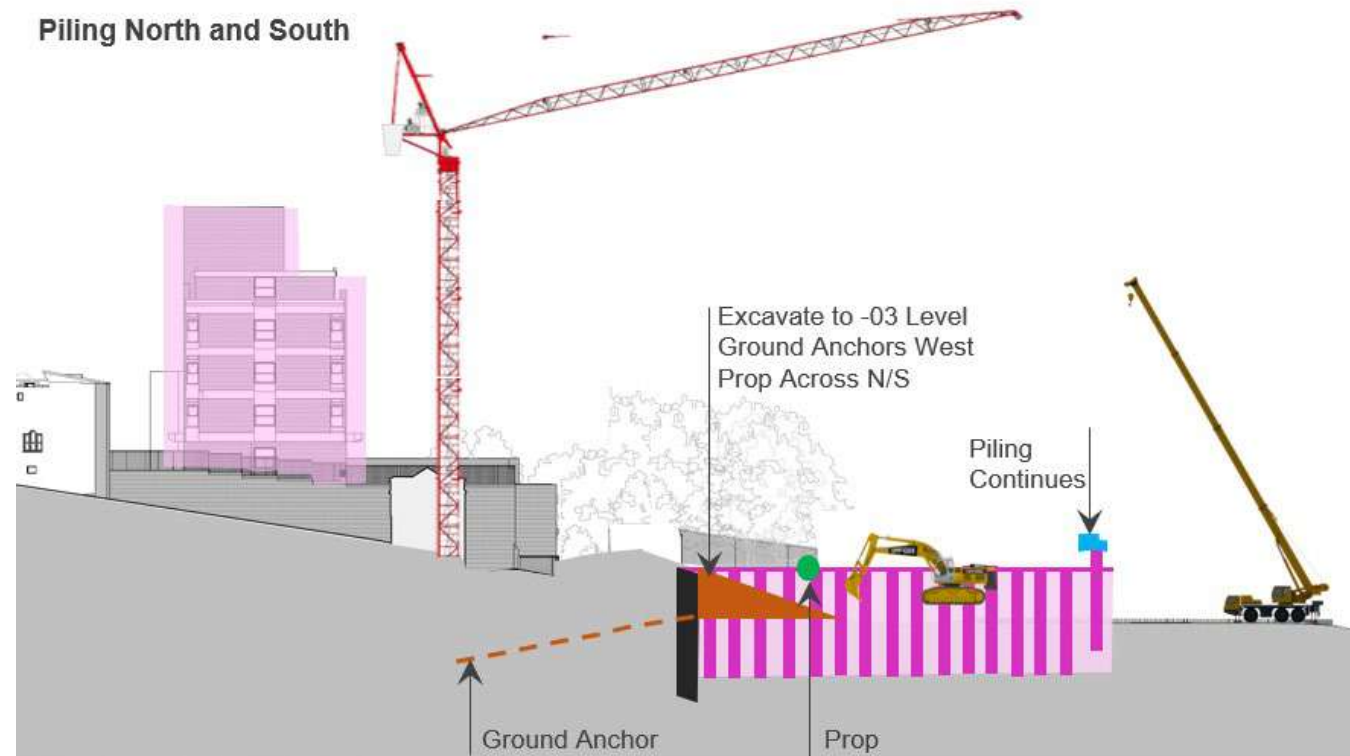


Sheet Pile

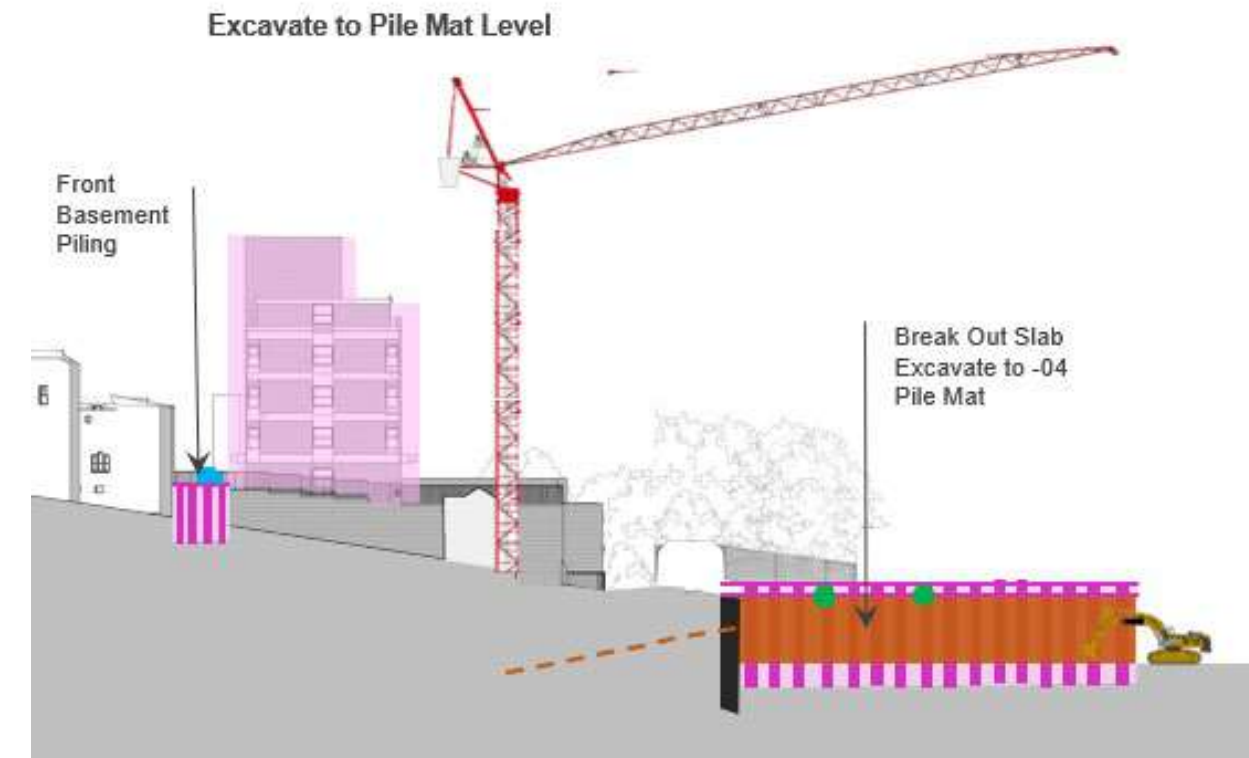


If possible (subject to ground conditions and temporary works design), the west elevation of sheet piled wall would be supported with ground anchors inserted below the level of the existing and proposed Thames sewer. Ground anchors would be wholly within school's property so should not require agreement beyond Thames Water.

When the West wall piling is in place the north and south elevations would proceed using the same piling technique. Edges of the remaining ground slabs or hardstanding may need to be removed as work proceeds but as much slab as possible would be left in position until perimeter piling is complete.

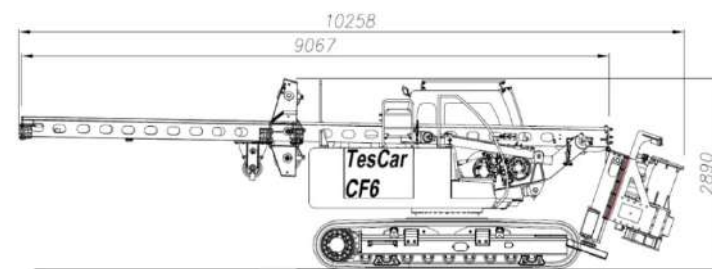


With sheet piling sufficiently advanced the remaining ground slabs and pool will be broken out and temporary propping introduced in accordance with temporary works design. Bulk excavation arisings will be lifted by crane and skip to waiting tippers at the front of the building. Excavation will proceed down to around level -04 and a piling platform laid using compacted demolition arisings, augmented with additional imported material if required.

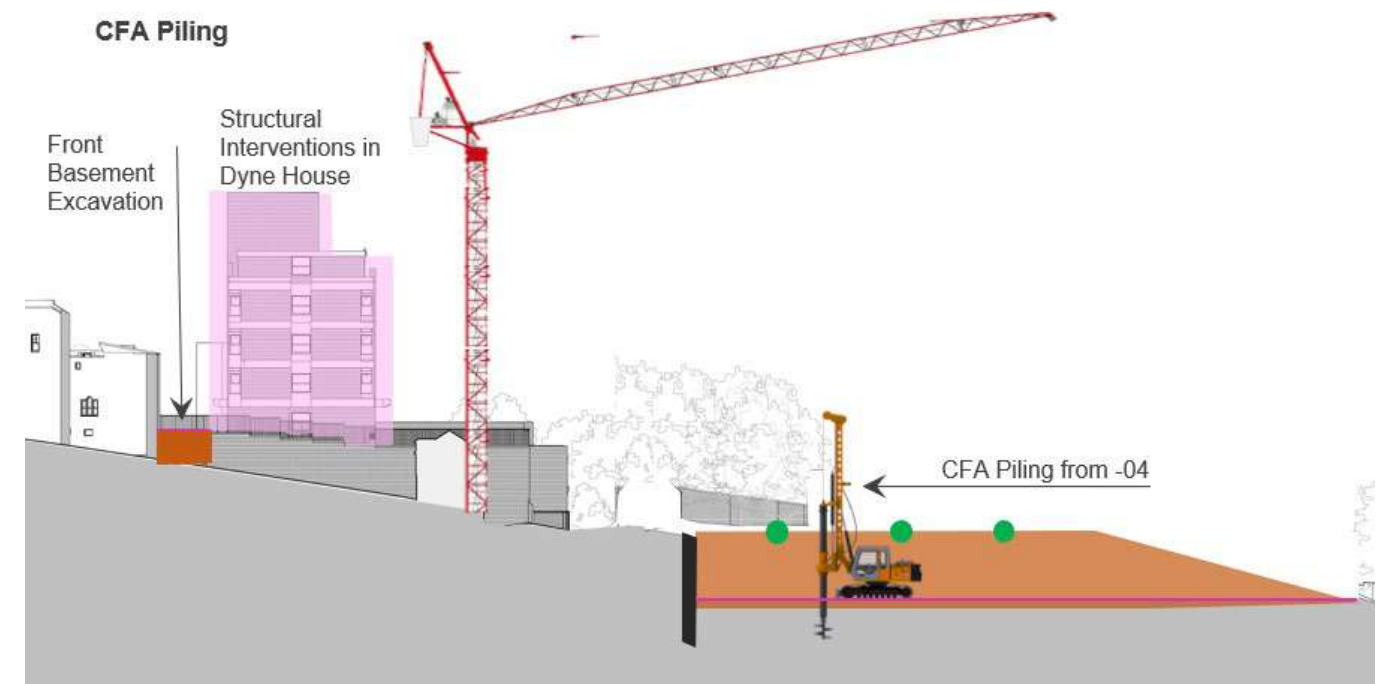


Load Bearing Piles

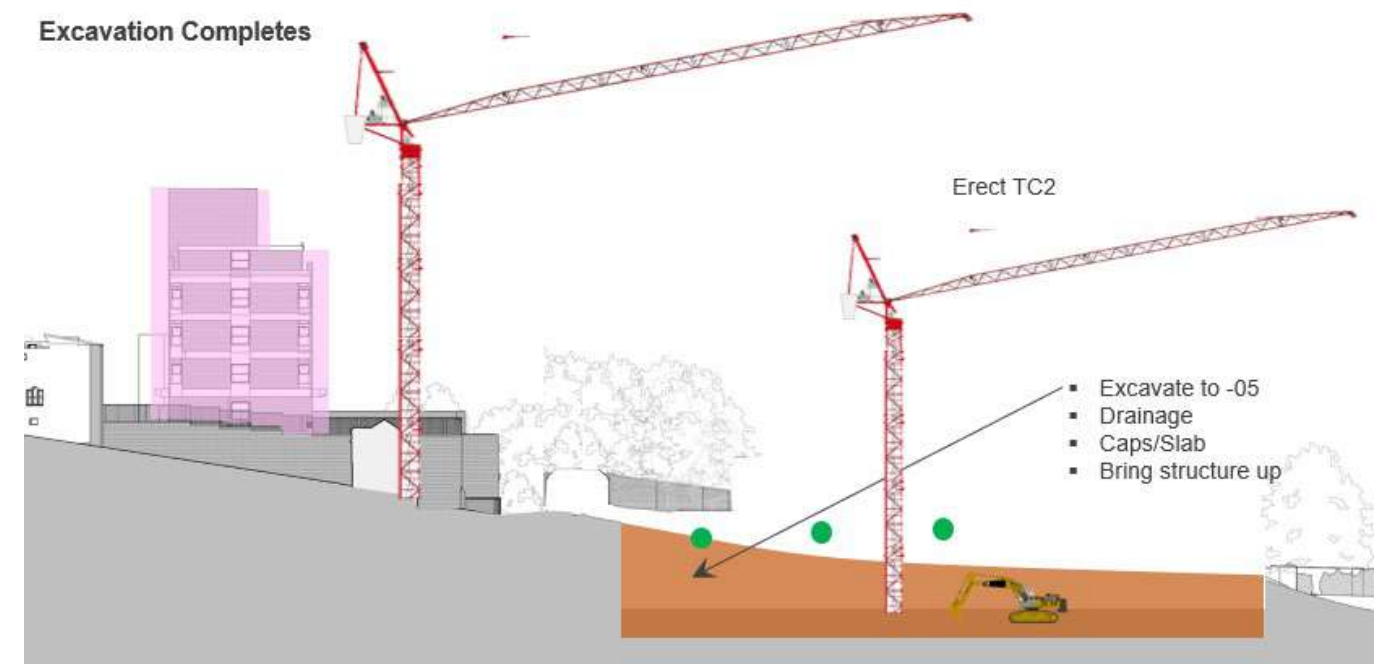
By undertaking load bearing piles at the lower level (rather than at an earlier stage) the piling platform can be constructed without the need for temporary earth retention. To pile from this level requires a restricted access rig that can be moved between propping zones which will need to be carefully designed to fulfil propping duties and to allow piling to proceed. We have identified the Tescar CF6 Rig as suitable for site access from Kingsley Place, able to produce 650mm diameter CFA piles and having a two-section mast for manoeuvrability.



Piling will be carried out with the support of the tower crane or a small mobile to the east of the site. Arisings will be lifted by crane and skip to waiting tippers on the frontage and concrete pumped through the retained building. Early piles would include temporary piles for construction of the second tower crane base.



When the excavation approaches the lowest level of formation for -05 the second tower crane will be erected, providing further support for the onward construction of the rear structure.



Parallel Operations

As the critical piling and excavation of the rear basement extension proceed parallel operations will include:

Sewer Diversion

When sheet piling is complete and stable to the upper, west side of the basement the diversion of the Thames Water sewer can progress. Small plant and equipment would be lifted into position by crane or driven up the north side of the site from the parade ground below. The works will be serviced by TC1.

Structural Interventions

Dyne house will be stripped back to bare structure and the re-working of the structural core can then take place. Temporary bracing may be needed while new structure is inserted to replace the existing structural core. When the new structure is stable the roof structure can proceed. The works will be undertaken inside a screened scaffold to limit dust and noise escape.

Front Basement

The piling, excavation and construction of the front basement will be phased to ensure stability of the adjacent retained building and to maintain an off road area for deliveries and muck away lorries. We envisage that this can be achieved by using a top down approach to the ground slab. The sequence of construction would therefore be:

- Break out and pile probe perimeter (in sections, keeping vehicle access available)
- Remove tank and backfill (if not completed in early works)
- Pile the perimeter (sheet or contiguous)
- LB piles with plunge columns in centre.
- Cast 50% of ground level slab onto perimeter piles and plunge columns.
- Use new slab as loading area. Break out and excavate other half of space down to -01 formation level, mining under new ground slab,
- Prepare and cast -01 slab to whole area
- Cast liner walls, columns and walls up to 00 level
- Shutter and cast remaining 50% of slab.

Superstructure

When the piling and bulk excavation is complete to the rear extension the formation at level -05 can be prepared with under slab drainage pile caps and tanking ready for slab casting. The rear structure will then continue to rise using traditional RC concrete techniques to construct columns, slabs, walls and liner walls. The works will be serviced by the tower cranes with concrete being pumped from the frontage.

The new front extension to Dyne House will be constructed to a similar programme using similar techniques, serviced by TC1. The steel roof structure will follow completion of the front extension.

The link structure that joins the front and rear elements of the site at level -02 would be the last piece of structure constructed and will be built in conjunction with the façade and window works.

Building Envelope

The facades of both buildings will be constructed to similar programmes. We see the inner skin as best constructed using a Metsec (or similar) SFS system constructed with windows sealed into it in order to secure the earliest watertight date for internal fitting out to proceed. The design includes some large glazed units the delivery of which will need to be carefully planned for handling. Consideration should also be given to future glass replacement strategy.

Brickwork is likely to be traditionally hand laid from external scaffolds. Mortar should be delivered daily in premixed tubs for consistency, distributed round the site by tower crane or hoist.

As the envelope trades near completion the tower cranes will be removed, and the structure made good and weathered. As much use should be made of them to distribute fit out and external works materials before they are gone.

Fitting Out

We have allowed a fit-out cycle of up to 22 weeks per floor for the larger floors of the rear extension and shorter cycles for smaller footprints where they occur. Plant installations should be planned to make good use of the tower cranes while in position, then risers and horizontal services distribution would follow, generally working away from the plant areas.

External platform hoists will serve as material distribution for fitting out after removal of the tower cranes. Permanent lifts should be targeted for early completion and beneficial use, allowing external hoists to be removed and facades completed.

External Works

Hard and soft landscaping will be completed as facades complete and scaffolds are removed. Material distribution would benefit from as much use of the tower cranes as possible before removal. The construction of the MUGA to the parade ground area will potentially involve bulk material movements in and out of the site, which should be planned to take place while cranes and plant are in position and not left to the late stages.

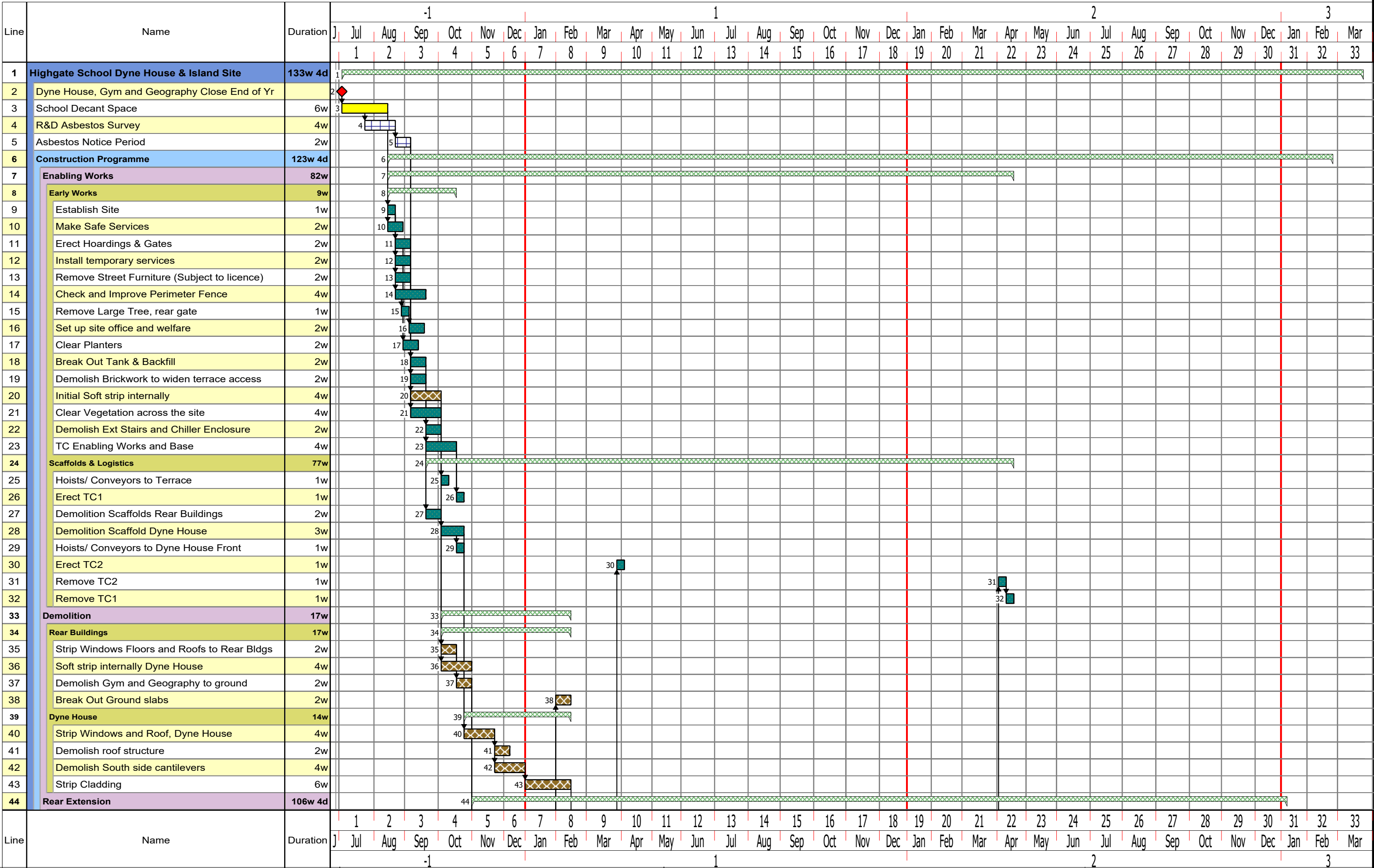
Island Site

The Island site programme is thought to be flexible and should be planned around when power is required for Dyne House or other school projects, and to make economic use of resources engaged on Dyne House main works. The works can only use small plant given the location and size of site and will be more susceptible to school timetable management due to the access position.

Our programme assumes an Easter Holiday start, ensuring that power is available for Dyne House completion and commissioning the following year.

Construction Programme – please refer overleaf to the Construction Programme.

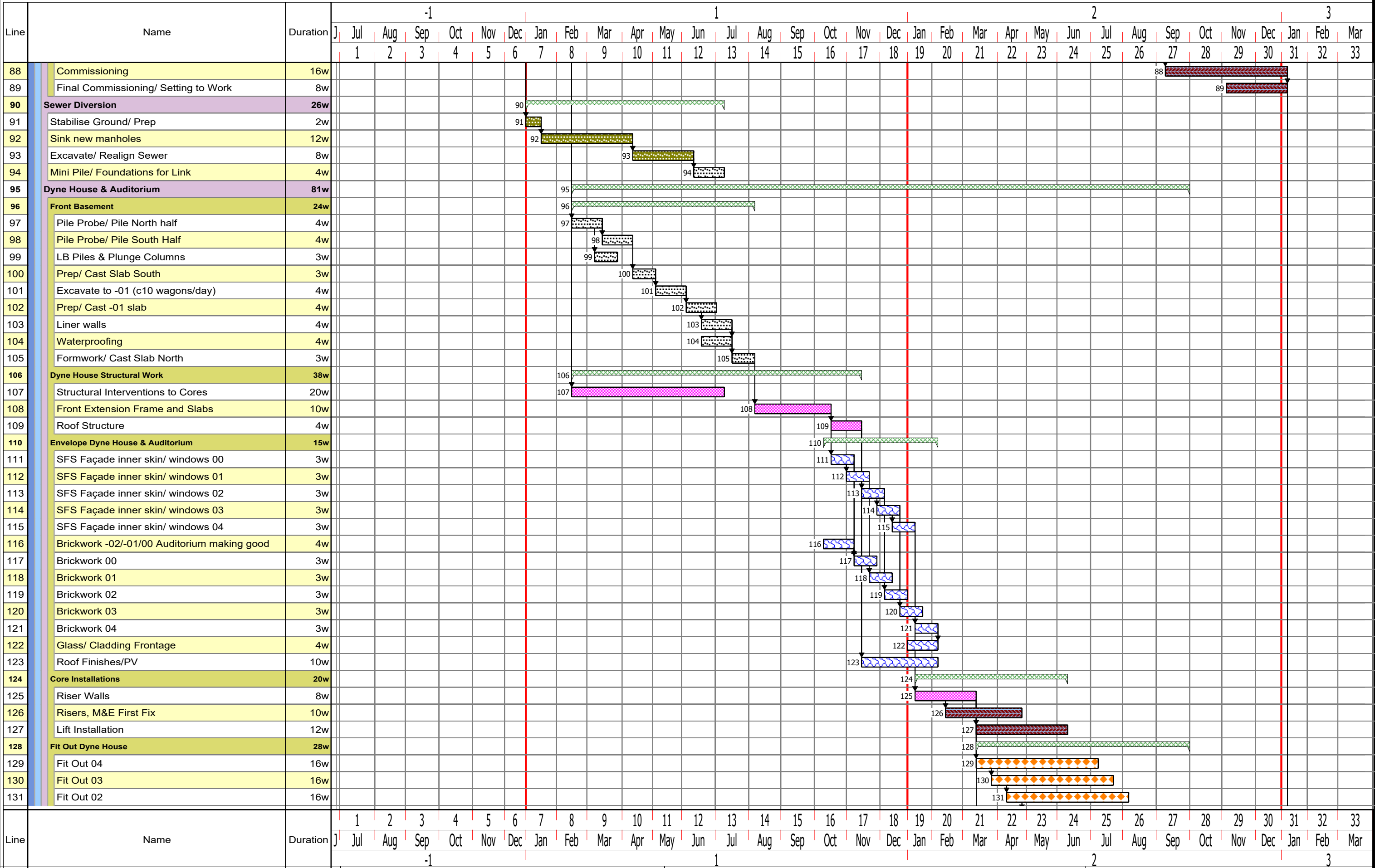
Highgate School Dyne House 3



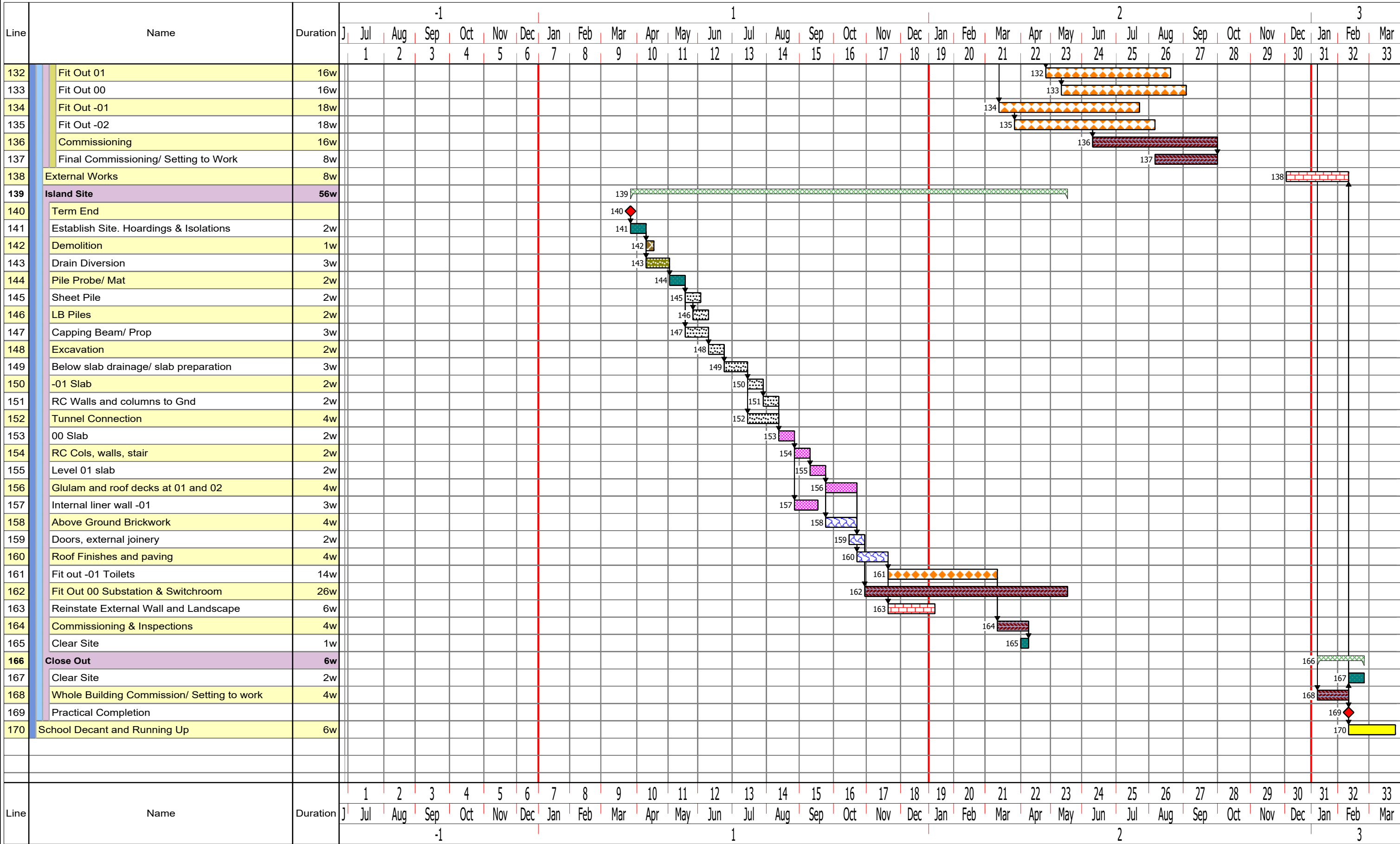
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Highgate School Dyne House 3



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Build Stages

School

Fit Out

Enabling Works

12 HO

Substructure

Superstructure

Envelope

Services

Foul/SW Connect

Demolition

External Works

Key Milestone

Fit-out

Programme :Highgate School Dyne House 3

Client: Highgate School

Notes: Draft for Discussion

Revision No. 0

Drawn by: TJC

Page: 4 of 4

Revision Date: 01/11/2019

5.0 Risks and Mitigation

KEY RISKS / ISSUES	MITIGATION
Substructure	
Basement perimeter and foundation design (sheet and CFA piles) and rig access to the site	Piling specialist input at an early stage to ensure the design is matched to a rig size and methodology that works with the site access
Excavation plant and accessibility for excavation of	Provide multiple materials handling methods for peak movements – crane and skip, hoists, conveyors.
Temporary works loadings for ground retention	Establish loading constraints with Engineer prior to tender returns. Ensure tenderers have a workable solution in their returns.
Below ground services delay substructure construction	Early identification of works required with intrusive surveys undertaken as necessary and TW approvals.
Superstructure	
Structural interventions to the existing Dyne House building could extend the programme	Early intrusive structural investigations to inform the design and methodology.
Construction approach requires considered methodology and crane plan. Supply chain appreciation needed or risk of extended programme	Ensure clarity of site constraints in tender documents.
General	
Full consideration of on-site, school and public health and safety at all stages of planning and execution.	Detailed risk analysis of site operations.
A strategy to minimise disruption to the school, local environment and adjoining properties/ owners.	Positive approach to neighbours – newsletters/site talks.
A methodology to secure the highest quality.	Samples/mock-ups prepared in advance and signed off.
Full consideration of both site and public health and safety at all stages of planning and execution	Detailed risk analysis of site operations
A realistic preconstruction period which provides the best input to the Client and Design Team	Ensure strategic programme and procurement route allows sufficient time to coordinate all aspects of the project
Provide above industry average facilities for the workforce	Make the site attractive to the workforce. Attract best tradesmen
Safe segregation of M&E services between site and occupied school areas (for the Island Site Works in particular)	Early surveys and identification of services. Safe system of work throughout demolition and construction phases.
Multiple phases could be procured singly, for economy of scale but subsequent delays between phases could then be expensive	Consider procurement routes and include cost options or escape routes from contracts

KEY RISKS / ISSUES	MITIGATION
Logistics / LBH & Neighbours	
Demolition and piling impact for noise and general disruption to neighbours and school functions.	Contractor to ensure environmental monitoring is in place and a robust demolition plan is agreed with LBH and neighbours.
Works to other school projects overruns or clashes leading to delays or pressure on temporary classrooms	Early alignment of programmes. Contingency plan for late works.
Hours of Work conflict between LBH, neighbours and school.	Beware conflicting desires for noisy work times. Contractor to ensure pre-agreement before finalising programme.
Gate accesses not agreed	Consider alternative access strategies and potential alternative methodologies as a contingency plan.
Welfare location clashes with MUGA construction	Make a contingency plan for the project that meets programme strategy and dates
Oversailing agreements restrict crane operations	Review crane positions and make early approaches to neighbours if required
School Access impacted by construction of Island Site works	Early agreement of delivery strategy with school and regular review with contractors
Continuity of Building Services to school and neighbouring property.	Ensure before services are terminated that all systems are truly separated and will continue to function.
Construction deliveries too disruptive or dangerous to ongoing school activities and movements	Agree vehicle slots for school use separately to contractor. Agree phased parameters of closing in hoardings with due attention to CDM requirements.

6.0 Traffic Management

TfL may want to see detailed evidence of how construction traffic will be managed at Planning stage and afterwards, given the importance of Southwood Lane as a bus relief road for the centre of Highgate. They may request an Outline Construction Logistics Plan (CLP) with the application and/ or will Condition a requirement for more detailed versions when contractors are appointed and before site works start.

Access routes

TfL prefer that construction traffic uses the TLRN (Red Routes) as far as possible to get to sites. Southwood Lane links with the TLRN at the A1 Archway Road although southbound traffic can't turn right there, so vehicles will approach via North Hill or Southwood Avenue as shown on the right. Vehicles leaving site will re-join the TLRN directly from Southwood Lane.

Undertakings have been given in pre-app discussions to minimise the use of Kingsley Place with all materials being delivered or removed from Southwood Lane. Only essential plant deliveries will be made to the rear of the site via Kingsley Place.

Access routes to and from the site to be used by heavy goods vehicles (HGVs) will be agreed with TfL and Haringey Borough Council prior to initiation of the demolition and construction programme, to minimise disruption to the road and pedestrian network. At this stage we don't know which direction specific traffic will approach from but that will become clearer once the materials are better known and ultimately when a contractor is able to place supply orders.

The logistics approach in this document uses as little kerbside loading as possible. Vehicles approaching arriving at site would turn directly into site for loading and unloading. All movements would be under the control of marshals throughout.

Vehicle Management

The number of lorry movements, hours of operation and any lorry holding areas will need to be agreed in advance with TfL and Haringey Borough Council.

Where possible all delivery and waste removal vehicles should be planned to be between the hours of 09.30 and 15.30 hours to avoid the peak periods.

No vehicle waiting will be permitted in neighbouring streets. Vehicles will only deliver in accordance with their allocated slot, booked through a Delivery Management System.

Delivery companies and suppliers will be required to be registered with FORS. CLOCS compliance will be a contract requirement.

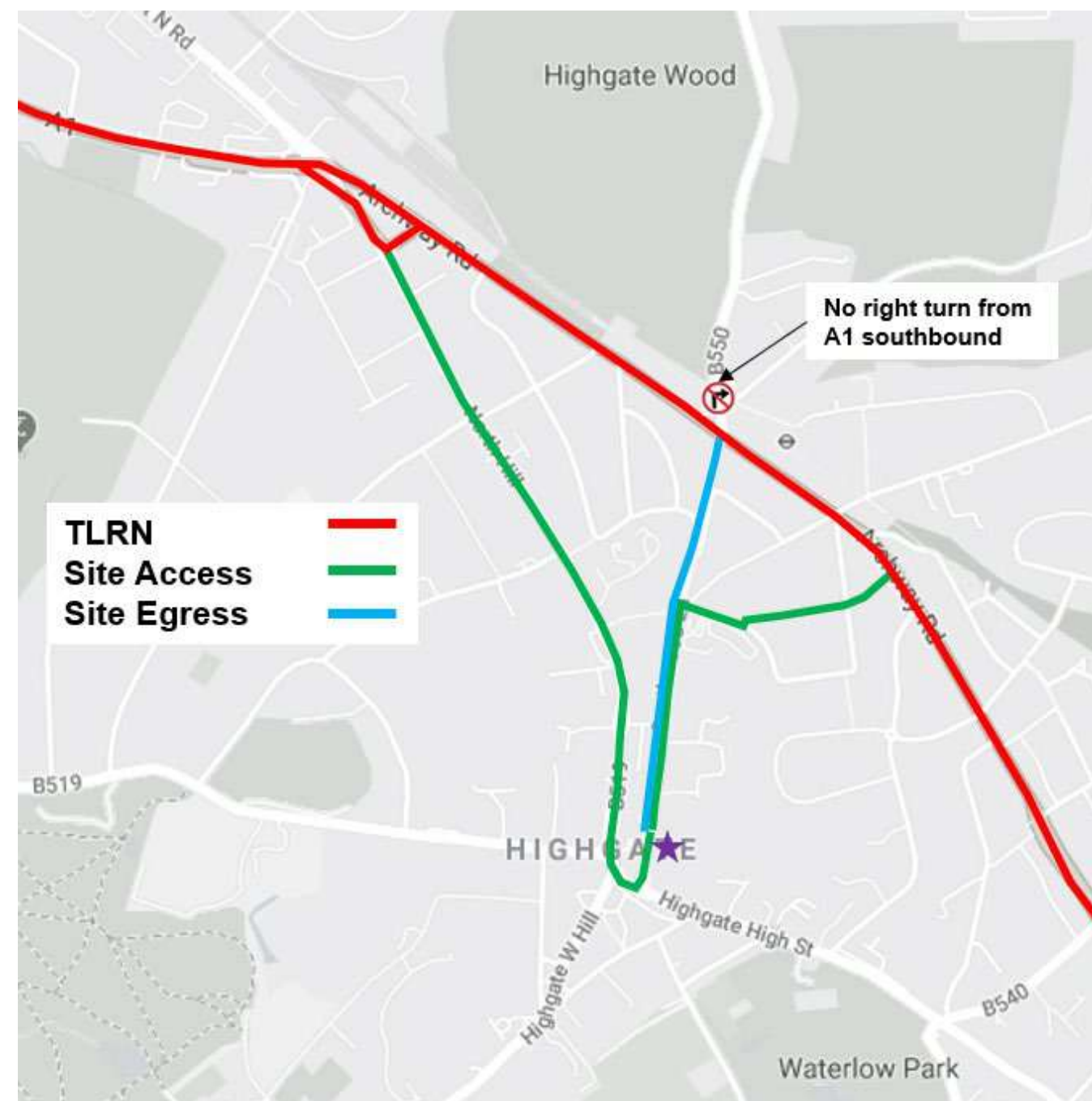
Copies of registration documents for regular / repeat vehicles will be held on site and will be available for inspection.

All suppliers should be notified of the requirement in supply orders and a log of vehicles held on site. Non-compliant vehicles should not be permitted entry.

Operatives Journeys to Work

Operatives should be encouraged to come to work by public transport or cycle. No parking will be permitted on site for operatives or staff.

Bike parking and showers should be provided on site



7.0 Waste Management

Site Waste Management

The Contractor will use working methods that minimise waste. Any waste arising from the site will be properly categorised and dealt with in accordance with appropriate legislation.

Opportunities for re-using or recycling construction or demolition waste should be explored and implemented.

The Contractor will carry out the works in such a way that, as far as is reasonably practicable, the amount of spoil and waste (including groundwater, production water and run-off) to be disposed of is minimised.

The disposal of all waste or other materials removed from the Site will be in accordance with the requirements of the Environment Agency, Control of Pollution Act (COPA), 1974, Environment Act 1995, Special Waste Regulations 1996, Duty of Care Regulations 1991 and the Waste Management Regulations 2011.

In general, and in accordance with the principles of the UK Government’s ‘Waste Strategy 2010’, a principal aim during demolition and construction will be to reduce the amount of waste generated and exported from the Development site.

This approach complies with the waste hierarchy whereby the intention is first to minimise, then to treat at source or compact and, finally, to dispose of off-site as necessary. All relevant Contractors will be required to investigate opportunities to minimise and reduce waste generation, such as:

- Agreements with material suppliers to reduce the amount of packaging or to participate in a packaging take-back scheme.
- Implementation of a ‘just-in-time’ material delivery system to avoid materials being stockpiled, which increases the risk of their damage and disposal as waste.
- Attention to material quantity requirements to avoid over- ordering and generation of waste materials.
- Re-use of materials wherever feasible (e.g. re-use of crushed concrete from demolition for the piling platform; re-use of excavated soil for landscaping).
- The Government has set broad targets of the use of reclaimed aggregate, and in keeping with best practice, Contractors will be required to maximise the proportion of materials recycled.
- Segregation of waste at source.
- Re-use and recycling of materials off-site where re-use on- site is not practical (e.g. through use of an off-site waste segregation facility and re-sale for direct re-use or re- processing). Our expectations in this regard are shown in the table opposite.

The Contractor’s CEMP is to include the full environmental management requirements and Site Waste Management Plan.

Material	Target	Probable Location
Architectural salvage	100% re-used	Several architectural salvage companies in London.
Metals	100% recycled	Every effort will be made to recycle these materials on site with any surplus being taken to waste transfer station.
Hardcore (brick/block/concrete etc.)	100% recycled	To be crushed on site and reused in the piling mat and used as inert fill after removal from site.
Excavated material/clay etc.	100% recycled	100% processed for re-use as fill (subject to analysis).
Timber	Up to 85% re-used The amount re-used will depend on the material	We will attempt to salvage any re-usable timber for hoardings, battening, shuttering etc. for possible use on site with the balance being retained by the Contractor.
Mixed waste	The amount recycled will depend on the material	An absolute minimum will remain for transport to landfill.
Asbestos	100% landfill	Taken to a licensed site.

8.0 Noise & Dust Mitigation

The Contractor will monitor and control levels of noise and vibration from the site.

Measures for reducing such levels are set out of this section. A prior approval via Section 61 of the Control of Pollution Act 1974 is proposed.

Noise Control

The Contractor's environmental team will undertake a noise assessment using noise-predicting software that projects noise levels at adjoining properties based on the emissions made by specific equipment. This noise assessment will be carried out in accordance with BS5228-1: 2009+A1: 2014 'Code of Practice for noise and vibration on construction and open sites'.

This assessment allows the Contractor to select the most appropriate plant, methodology and controls to minimise disruptions of buildings at close proximity of the adjacent structures (sensitive receptors) and in particular the neighbouring residents, during the demolition and structural work phases.

Noise levels will be monitored by the Contractor during the course of the works. Haringey Borough Council shall be given access to all noise readings if required as soon as they become available.

Although the noise levels to be included in a formal agreement between the Contractor and Haringey Borough Council are the maximum to be allowed, at sensitive locations the Contractor will be requested to achieve, where practicable, noise levels lower than the specified limits.

Noise Control Provisions – Screens and Scaffolds

Throughout the demolition and structural stages all works will take place behind an encapsulation scaffold clad in fire rated Monarflex sheeting (or similar). The encapsulation scaffold provides the following benefits during the demolition construction stages of the works:

- It acts as a visual screen hiding the on-going works.
- Dust arising will be contained.
- With the use of the sheeting, (and the addition of acoustic blankets near particularly sensitive locations) noise is contained.

The encapsulation scaffolding will be erected before any of the demolition works commence. The scaffold will then be struck progressively in line with the demolition sequence, remaining one lift above the working floor throughout the demolition works.

Vibration Control

The measures taken to reduce the acoustics of these operations will assist in mitigating the effects of vibration on neighbours, their property and the existing building to be retained.

A digital seismograph measuring device will be used to measure the amount of vibration produced during these works. Where elevated levels are recorded the source will be investigated and, where possible, alternative techniques employed to reduce the levels.

The Contractor will comply with the vibration levels established by agreement with Haringey Borough Council.



Monarflex Encapsulation Scaffold

Air Quality

The Contractors will, as far as reasonably practical, seek to control and limit emissions to the atmosphere in terms of gaseous and particulate pollutants from tools and equipment used on site and dust from construction activities.

The site activities will be assessed for the control of dust & emissions during construction & demolition. The contractors must submit a statement to Haringey Borough Council for approval identifying proposed dust control measures before work starts. Special precautions must be taken when materials containing asbestos are encountered.

Throughout the project, the Contractor will ensure the following:

- Where potential dust producing activities are taking place, the screens remain in position. This will include all demolition, piling, excavation and structural works.
- There is no burning of waste materials on site.
- There is an adequate water supply on the site.
- Disposal of run-off water from dust suppression activities and cleaning is in accordance with the appropriate legal requirements.
- All dust control equipment is maintained in good condition and record maintenance activities.
- Strip inside of the building before any demolition of the structure and envelope.
- Site hoarding, barriers and scaffolding are kept clean.
- Loading of material into lorries within designated loading area.
- If necessary, clean public road and pavement using wet sweeping methods.
- All vehicles carrying loose or potentially dusty material to or from the site are fully sheeted.
- Minimise the amount of demolished or excavated material held on site.
- Sheet, seal or damp down unavoidable stockpiles and skips of material held at site, where required.
- Avoid double handling of material wherever reasonably practicable.
- Ensure water suppression is used during demolition operations.
- Use enclosed rubble chutes and conveyors where reasonably practicable or use water to suppress dust emissions from such equipment.
- Sheet or otherwise enclose loaded bins and skips.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
- Use prefabrication of goods and materials to reduce the need for grinding, sawing and cutting on site wherever reasonably practicable.
- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction.
- The engines of all vehicles delivering to site are not left running unnecessarily to prevent exhaust.
- That conveyor equipment will be well maintained, with regular servicing and maintenance carried out.
- The Contractors will ensure that dust monitoring will be carried out during potential dust producing activities. The assessment will look at the dust raising potential of construction activities proximity to potential receptors and the duration of construction activities at each location.
- No materials produced as a result of the site development or clearance shall be burned on site.

APPENDIX

Falcon Tower Crane Quotation



Contact our sales team today to discuss your project requirements
enquiries@falconcranes.co.uk
+44 1362 821048
www.falconcranes.co.uk



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QUOTATION

400+
SADDLE, LUFFING
& SELF ERECTOR
UNITS

150+
GENERATORS



OUR SERVICES

LUFFING & SADDLE
TOWER CRANES

SELF-ERECTING &
CITY CRANES

GENERATORS

TRAINING ACADEMY

SHOTBLAST & PAINT
SPRAYING FACILITIES








THE LARGEST INDEPENDENT CRANE HIRER IN THE UK

FALCON TOWER CRANE SERVICES LTD

Shipdham Airfield Industrial Estate
 Shipdham
 Thetford, Norfolk IP25 7SD
 Telephone: (01362) 821048
 Fax: (01362) 821233

Quotation No. E.15081	Date: 01st October 2019
For The Attention of: Tim Cole	Your Contact: Steve Paxman- 07917638706 paxmancranes@gmail.com
Blue Sky Building Ltd 35 Duke Street, London, W1U 1LH	Tel: 0207 8315950 Email: timcole@blueskybuilding.com
Contract: Highgate School	

We are pleased to provide this quotation and trust that we have covered all aspects of your requirements. Please contact us should you require further information/clarification.

Crane Specification – TC1			
Tower Crane Manufacturer/Model/Type:	Jaso J208	Luffing Jib – fitted with a park radius device giving an out of service radius of 10 metres	
Lifting:	3,300kgs @ 50 metres	Jib Length: 50 metres – single fall operation	
	Max lift - 6,000kgs @ 35 metres		
Tower Height:	26.6 metres	Given Building Height: 24 metres	
Base Type:	Fixing angles		
Insurance Value of Crane:	£350,000.00		
3 Phase Power Supply Requirements:	Hoist Motor:	1 x 44.1kw	frequency converter control motor
A clean independent earth to be provided for lightning protection. Please see point 19 in the T&C's.	Slew Motor:	2 x 5.5kw	frequency converter control motor
	Luffing/Trolley Motor:	1 x 44.1kw	frequency converter control motor
	Starting Current:	169	Amps Per Phase (3 Phase)
	Running Current:	155	Amps Per Phase (3 Phase)
Mains and generator power supply requirements:	Mains Power Supply:	124kva	
	Generator Power Supply:	200kva	
Prices are based on a hire period of TBC weeks – Commencing: 2020			
Tower crane hire per week. 50 hours Monday – Friday - Minimum of 10 hours per day:		£ 2,500.00	
Tower crane excess hours charge per hour:		£ 50.00	
Tower crane operator hire per week. 50 hours Monday – Friday:		£ 1,395.00	
Minimum of 10 hours per day			
Midweek excess hours charge per hour:		£ 43.00	
Operator Saturday overtime rate per hour:		£ 43.00	
Operator Sunday/Bank Holiday overtime rate per hour:		£ 43.00	
Minimum charge of 8 hours for weekends and Bank Holidays.			
Fixing angles delivered to site:		£ 5,000.00	
Delivery of fixing angles by HIAB if required – off loading only		£ 650.00	
Tower crane transportation, erecting and testing – midweek rate:		£17,800.00	
Supplement for weekend erection:		£ 1,650.00	
Tower crane dismantling and removal – midweek rate:		£17,350.00	
Supplement for weekend dismantle:		£ 1,650.00	
Council Permits/Traffic Management/Road Closure:		£TBC	
Independent inspection – 1 st visit upon completion of erection – thereafter at 6 monthly intervals - price per visit:		£ 750.00	
Erection costs were calculated with the mobile crane standing within 36 metres of the crane base and lifting over 0 metres obstruction. Dismantling costs were calculated with the mobile crane standing within 36 metres of the crane base and lifting over 20 metres obstruction. Erection and dismantling radii are not qualified and subject to confirmation by site survey. Two days have been allowed for the mobile crane for both the erection and dismantling operations. Standard out of service is 19 metres, this is reduced to 10 metres when fitted with a park radius device. This increases base loadings and is an additional cost option. Please seek advice. Self drive not available. Client to protect pavement and clear area for mobile crane to rig. PLEASE NOTE; All fixing angles should be checked for damage upon delivery. They should also be checked to ensure that all dimensions are correct prior to casting in situ. We would also draw your attention to the Terms and Conditions reference the hiring of the crane and provision of power requirements by site.			

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Crane Specification – TC2			
Tower Crane Manufacturer/Model/Type:	Jaso J118	Luffing Jib – standard out of service is 8 metres	
Lifting:	3,400kgs @ 35 metres	Jib Length: 35 metres – 4 fall operation	
	Max lift – 6,000kgs @ 20 metres		
Tower Height:	20 metres	Given Building Height: 24 metres	
Base Type:	Fixing angles		
Insurance Value of Crane:	£200,000.00		
3 Phase Power Supply Requirements:	Hoist Motor:	1 x 24.2kw	frequency converter control motor
A clean independent earth to be provided for lightning protection. Please see point 19 in the T&C's.	Slew Motor:	1 x 5.5kw	frequency converter control motor
	Luffing/Trolley Motor:	1 x 15kw	frequency converter control motor
	Starting Current:	81.6	Amps Per Phase (3 Phase)
	Running Current:	73.6	Amps Per Phase (3 Phase)
Mains and generator power supply requirements:	Mains Power Supply:	56kva	
	Generator Power Supply:	100kva	
Prices are based on a hire period of TBC weeks – Commencing: 2020			
Tower crane hire per week. 50 hours Monday – Friday - Minimum of 10 hours per day:			£ 1,400.00
Tower crane excess hours charge per hour:		£ 28.00	
Tower crane operator hire per week. 50 hours Monday – Friday: Minimum of 10 hours per day			£ 1,395.00
Midweek excess hours charge per hour:		£ 43.00	
Operator Saturday overtime rate per hour:		£ 43.00	
Operator Sunday/Bank Holiday overtime rate per hour:		£ 43.00	
Minimum charge of 8 hours for weekends and Bank Holidays.			
Fixing angles delivered to site:			£ 4,750.00
Delivery of fixing angles by HIAB if required – off loading only			£ 650.00
Tower crane transportation, erecting and testing – midweek rate:			£ 5,800.00
Supplement for weekend erection:		£ 1,650.00	
Tower crane dismantling and removal – midweek rate:			£ 5,350.00
Supplement for weekend dismantle:		£ 1,650.00	
Council Permits/Traffic Management/Road Closure:		£TBC	
Independent inspection – 1 st visit upon completion of erection – thereafter at 6 monthly intervals - price per visit:			£ 750.00
Erection costs were calculated with TC1 and operator to FTCS paid for by customer standing within 40 metres of the crane base and lifting over 0 metres obstruction. Dismantling costs were calculated with the TC1 and operator to FTCS paid for by customer standing within 40 metres of the crane base and lifting over 0 metres obstruction. Erection and dismantling radii are not qualified and subject to confirmation by site survey. Self drive not available. Max distance between TC1 & TC2 bases is to be 40 metres.			
PLEASE NOTE; All fixing angles should be checked for damage upon delivery. They should also be checked to ensure that all dimensions are correct prior to casting in situ.			
We would also draw your attention to the Terms and Conditions reference the hiring of the crane and provision of power requirements by site.			

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Tower Crane Additional Options – Prices Per Crane	
Please note all lump sum hire items are payable at commencement of hire. Minimum charge of one week hire for all other ancillaries	
Obstruction lights – lump sum hire – hard wired:	£ 900.00
Obstruction lights – battery back-up option – rental per week:	£ 50.00
Obstruction lights – solar powered option – rental per week:	£ 50.00
200 Candela aircraft warning lights – lump sum hire – hard wired:	£ 1,200.00
2000 Candela aircraft warning light – lump sum hire x per light:	£ 1,500.00
Anti-collision/Zoning System Installation charge per system:	£ 1,500.00
Anti-collision/Zoning System Hire per week per system – 1 system required per crane:	£ 150.00
Supply + Installation of 1 x illuminated sign - fitted at time of crane erection:	£ 1,900.00
Digital Sign – 3m x1m fitted to the ballast – Pen drive included – rental per week	£ 100.00
Digital Sign – 2m x1m fitted to the handrails – Pen drive included – rental per week	£ 80.00
Additional pen drives – purchase price:	£ 350.00
Supply + installation of 4 x floodlights – fitted at time of crane erection – not maintained - lump sum hire:	£ 1,000.00
Standard 6.7te chain pack rental per week:	£ 50.00
Skip – rental per week:	£ 20.00
Sale of webbing slings per pair:	£ 50.00
Brickforks rental per week:	£ 25.00
Sale of Safety Net:	£ 120.00
FTCS remote anemometer – rental per week:	£ 40.00
Anti-climb protection – lump sum hire – fitted at time of crane erection:	£ 1,500.00
Rescue from height training and kit:	£ 3,800.00
Hook camera rental per week:	£ 250.00
Stretcher cage rental per week:	£ 35.00
Budget Road closure cost – each operation:	£ 7,500.00
200kva generator + fuel tank rental per 50 hour week – 10 hours per day minimum.	£ 280.00
Generator excess hours charged at	£ 5.60 per hour
100kva generator + fuel tank rental per 50 hour week – 10 hours per day minimum.	£ 165.00
Generator excess hours charged at	£ 3.30 per hour
Delivery/Collection of generator and tank: (each way):	£ 250.00
Fuel per litre, fuel monitoring and management:	£ 0.75
Generator adaption box for ancillaries – lump sum hire:	£ 500.00
Spreader mats for the mobile crane – each way – (if required):	Included up to 10/m2
Relief Operator / Slinger / Signaller are all as per above operator rates:	

Terms and Conditions of Hire

1. Offer

This offer is valid for 30 days from the date of this offer and will be subject to availability and a site inspection prior to delivery.

2. CPA Conditions

All Falcon Tower Crane Services Limited plant is hired under the CPA Model Conditions for the Hiring of Plant (2011) including the supplementary Conditions Applicable to Tower cranes – copies available upon request.

3. Terms of Payment

All invoices rendered by the Owner to the Hirer shall be payable within 30 days of the invoice date unless expressly agreed otherwise in writing by the Owner. If any invoice rendered by the Owner remains unpaid after 30 days or as otherwise agreed as described above, all other invoices rendered by the Owner to the Hirer shall become immediately due and payable without further demand. These are our normal payment terms and are subject to a suitable credit check.

4. Tower Crane Base – All Types – Design

The design of the actual base is the responsibility of the client unless specifically agreed by All Falcon Tower Crane Services Limited to the contrary at the time of tendering.

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5. Tower Crane Base – Fixed

Site management are to liaise with All Falcon Tower Crane Services Limited regarding the delivery date of any expendable crane base giving at least 14 days notice. The positioning and fixing of these items is the responsibility of the client as well as the offloading of them from our transport. Your attention is particularly drawn to the fact that these angles are heavy and some means of mechanical lifting may well be needed to handle them. It is the responsibility of site to ensure that the base is correctly positioned and to ensure sure it is plumb and level +/-2mm.

6. Tower Crane Base – Travelling

In the case of rail mounted tower cranes, it is the responsibility of site to ensure the off-loading and laying of rail track on the prepared base ensuring that the track is levelled and within gauge tolerances of +/-4mm.

7. Tower Crane Base – Cruciform

In the case of cruciform base mounted tower cranes, the deviation from level should not exceed +/- 4mm measured between any two base corner plates. If shims are required, these can be supplied by All Falcon Tower Crane Services Limited at an agreed extra cost.

8. Tower Crane Mast Sections

Please note that it is the responsibility of the client to ensure that the mast sections of the crane remain in a reasonable condition and free from concrete and any other construction materials during the hire period. Should the mast sections be returned in a contaminated state, All Falcon Tower Crane Services Limited Ltd reserve the right to charge for the cleaning of, and if necessary, the repainting of the affected sections.

9. Erection/Dismantle Requirements

Power must be available in a fused isolator box supplied by the client on the day of erection adjacent to the crane base.

It is the responsibility of the site to ensure that there is adequate hard standing provided to support the outrigger loadings of the mobile crane used for erection and dismantle. The hirer is to make suitable preparation so that the ground on which the mobile crane and transport will travel or on which it will work is substantial enough to support the forces imposed on it by the wheels and jacks of the plant. These forces will be given to the site prior to the commencement of our works and written confirmation that the above preparation has been done must be confirmed to this office

As a result of the Metropolitan Police's new restriction on the movement of mobile cranes within the London area it should be noted that access to site must be provided before 06.00 on the morning of an erection or dismantling operation and permission to move the crane off site at the end of the day must be given after 20.00 hrs at night. If access or egress is not allowed within these time periods then a full day's charge for the mobile crane will be levied if, effectively, the crane is "trapped" on site as a result of the new regulations.

All major site works and deliveries must be kept to a minimum during the erection and dismantling operations and confined to areas outside of the erection/dismantling exclusion zone.

Transport, erection and dismantling prices are based on standard weekday working with clear access to within 10 metres of the base of the tower crane unless otherwise stated within the crane specification/pricing section. All rates quoted assume that there are no environmental restrictions imposed on the working hours for the mobile cranes, labour and transport. Any such restrictions must be notified to this office in writing. Unless specifically stated within the crane specification/pricing section, one day for the mobile crane has been allowed for erection and dismantling purposes.

Please be aware that should site wish to cancel either the erection or dismantling of the tower crane, we will require 48 hours' notice to avoid any charges for late cancellation of transportation and mobile craneage. This will need to be sent to the office in writing clearly stating reasons for cancellation. Please note that emailed notification is perfectly acceptable in this instance. Should the 48 hour notice period not be adhered to, please be advised that there will be cancellation charges applied.

10. Ancillary Equipment

If required, we can supply any/all of the quoted ancillary items under the heading of "Tower Crane Additional Options".

11. Operator and Labour Information

Unless otherwise stated, operator bonus payments have not been included in this quote, with these being solely at the discretion of the site. Should an operator's bonus be included on their weekly timesheet, we will add a 17.5% surcharge to cover Employers NIC charges.

Operator minimum working hours are chargeable as follows

Monday – Friday – 10 hours per day

Weekends and Bank holidays – 8 hours per day minimum

12. Bank Holidays

Only the machine rate will apply during statutory holiday periods.

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13. Road Closures, Traffic Management Fees, Traffic Marshall Costs and Associated Licences

No allowance has been made for council permit fees or traffic management fees unless otherwise specified. Road closures will usually require a minimum of 6 weeks notice to the local authority concerned. We may not yet have had the opportunity to visit site, and will need to be advised should the mobile crane be required to stand on the public highway.

14. Delays

Please refer to the CPA Conditions for details of idle time while working. Delays that occur during erection and dismantling that are beyond our control will be charged at day work rates unless otherwise specified. Inclement weather conditions are classed as being beyond our control.

15. Hire Period

Should the hire period fail to meet the original minimum hire period quoted for, we will reserve the right to review the machine rate and may back date charges from when hire commenced, including changes to the original erection and dismantling costs. Furthermore, if the hire period exceeds 8 weeks over the originally stated duration, we will also reserve the right to review all charges. If an extension of the original hire period is required, this request must be made in writing to this office at least 8 weeks prior to the end of the original agreed hire period. Such requests will be dealt with as quickly as possible.

16. Off hire Notice

Please be advised that as per your CPA agreement, if your crane is not subject to a road closure or traffic management, we require one weeks' notice for off-hiring. We would like to point out that this does not guarantee a dismantle date within this period. Dismantle dates are subject to labour availability and would need to be booked at least 8 weeks in advance for mid-week dates and possibly even earlier should a weekend date be required.

17. Notice of Termination of Hire

For the purposes of clarity and not withstanding the notice period outlined in the main contract, it should be clearly understood that the required period for the termination of hire will depend on any impediment regarding access to the tower crane. For example, if a road closure is required then the necessary notice for the termination of hire will reflect the amount of notice required to effect the closure.

18. Regulations

The crane is hired on the understanding that it will be used strictly in accordance with the requirements of the Construction Lifting Operation and Lifting Equipment Regulations (LOLER) 1998.

19. Hirer to Provide

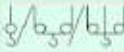
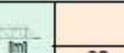
- A suitable certificated base foundation designed to the relevant British Standard, including all works, labour and material.
- Clear and suitable access, plus hard standing for mobile cranes and transport.
- A 3 phase power supply to the base of the machine, terminating in a switched fused isolator to be available on day 1 of our operations.
- Please note that the crane will require an industrial, motor-rated specification, variable RCD protective device with a range from 0-300ma minimum with a time delay variation of 0-0.5 seconds.
- A clean independent earth for the purposes of lightning protection, is to be provided at the base of the crane and must not exceed 10ohms of resistance to earth. This should be flexible and of suitable length, terminated with a M12 crimp for attachment to the base of the tower on the first day of erection.
- All risks insurance cover.

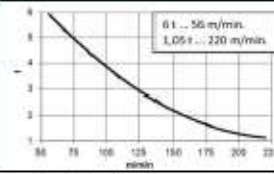
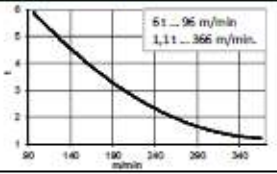
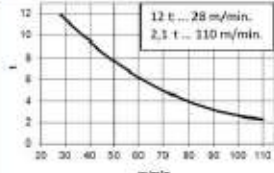
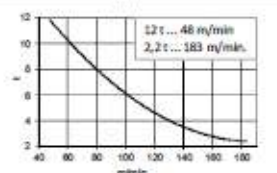
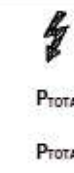
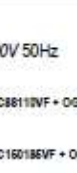
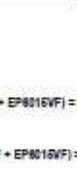
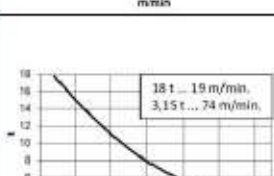
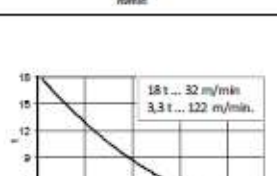
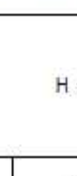
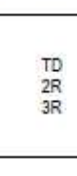
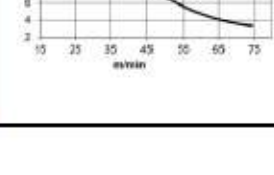
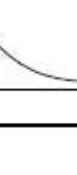
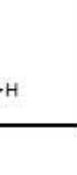
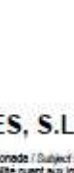
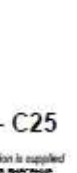
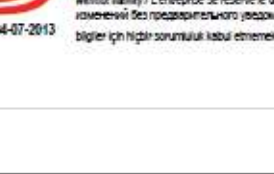
Steve Paxman

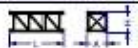
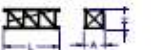
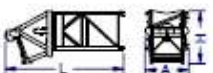
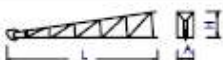
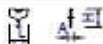
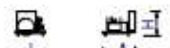
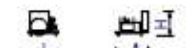
Steve Paxman
Sales Director

Falcon Tower Crane Services Limited

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CARGAS / LOADS / CHARGES / YÜKLER / الأحمال											J208PA	
		Cargas máximas / Maximum loads / Charges maximales / Максимальные нагрузки / Maksimum yük / أقصى حمولة TD/2R/3R - 6t/12t/18t									TD 6t @...[m] 2R 12t @...[m] 3R 18t @...[m]	
		Alcance del gancho [m] / Hook reach [m] / Portée du crochet [m] / Радиус действия крюка [m] / Kancanın yüksekliği [m] / مدى الخطاف										
[m]		60	55	50	45	40	35	30	25	20		
60	1,5	2,2	3,0	3,9	5,2	6,6	8,6	11,4	12,0	37,1	24,2	17,9
55	—	2,2	3,0	3,9	5,2	6,6	8,6	11,4	12,0	37,1	24,2	
50	—	—	3,1	4,1	5,3	6,7	8,7	11,5	15,6	37,4	24,3	
45	—	—	—	4,2	5,4	6,8	8,8	11,5	15,6	37,8	24,3	17,9
40	—	—	—	—	5,4	6,8	8,8	11,5	15,6	37,8	24,3	17,9
35	—	—	—	—	—	7,5	9,5	12,2	16,4	35,0	25,4	18,5
30	—	—	—	—	—	—	9,6	12,3	16,4	30,0	25,5	18,5

CARACTERISTICAS DE MECANISMOS / MECHANISMS FEATURES / CARACTÉRISTIQUES DES MÉCANISMES / ХАРАКТЕРИСТИКИ МЕХАНИЗМОВ / MEKANİZMALARIN ÖZELLİKLERİ / الخصائص الآلية											J208PA			
*optional *optional *optional *optional اختياري														
														
														
														
														
														
														

LISTA DE EMBARQUE / PACKING LIST / LISTE DE COLISAGE					СПИСОК ПОСТАВКИ / ÇEKİ LİSTESİ / قائمة التحميل	J208PA
DENOMINACIÓN / DENOMINATION / DÉSIGNATION / НАЗВАНИЕ / AÇIKLAMA / اسم			L [m]	A [m]	H [m]	P / W [kg]
Torre inferior / Lower tower / Tour inférieure / Нижняя башня Alt kule / البرج السفلي	TLI20-5,6 TSI20-5,6 TSRI20-5,6		5,886 5,966 5,990	2,306 2,328 2,257	2,357 2,390 2,257	4235 5390 6562
Torre / Tower / Tour Башня / Kule / برج	TL20 TL20-5,6 TS20-5,6 TSR20-5,6 TSR20-5,6A TS20-5,6A		4,175 5,886 5,966 5,990 5,926 5,978	2,201 2,306 2,328 2,257 2,368 2,381	2,281 2,357 2,390 2,257 2,325 2,331	2095 2938 3604 4262 3637 4221
Torre asiento pista, base punta torre y orientación / Slewing table, tower head base and slewing mechanism / Tour pivot + base du porte-fleche + mecanisme d'orientation / Сиденье площадки + основание верхней секции башни + поворотный механизм / Döner tabla+kule kafa bölümü tabanı+mekanizma برج وحدة الدوارن + قاعدة رأس البرج + آلية الدوران			6,970	2,550	3,057	9500
Estructura punta de torre sin base / Tower head structure without base / Structure de porte-fleche sans base / Структура верхней секции башни без основания / Tabansız kule başının yapısı هيكل رأس البرج بدون قاعدة			11,58	1,910	2,033	5470
Tramo de pluma / Jib section Tronçon de fleche Секция стрелы Bot bölümü أجزاء الذراع	(I) (II) (III) (IV) (V) (VI) (VII)		9,180 10,160 10,160 10,160 10,160 5,270 5,270	2,040 1,266 1,266 1,266 1,266 1,266 1,266	1,765 1,565 1,565 1,565 1,565 1,565 1,610	1585 1410 1340 1190 1000 580 770
Punta de pluma / Jib end / Pointe de fleche / Конеч стрелы / Bot ucu مقدمة الذراع			3,420	1,560	3,585	856
Polipasto / Hook assembly / Palen / Panuonasm / Kancas takım / بكرة			0,910	0,350	1,370	455
Tirante sostén pluma / Jib support tie / Tirant de fleche / Распорка поддержки стрелы / Kol destek bağları / مشد دعامة الذراع			5,000	0,360	0,450	1232
Estructura contrapluma / Counterjib structure / Structure de contre-fleche / Структура противовесной консоли / Denge kolunun yapısı هيكل الذراع المعاكس			7,110	1,875	0,540	1145
Contrapluma con mecanismos / Counterjib with mechanisms / Contre-fleche avec mécanismes / Противовесная консоль с механизмами / Mekanizmalı denge kolu الذراع المعاكس مع الآليات			7,110	2,230	1,819	9200
Plataforma y cabina / Platform and cabin / Plateforme et cabine / Платформа и кабина / Platform ve kabin / منصة وكابينة			3,440	1,810	2,416	856
Mecanismos / Elevación carga / Hoisting / levage de charge / Подъем груза / Yük kaldırma / رافع الحمولة			1,919	2,110	1,540	3830
Mecanismos de / Elevación pluma / Luffing / Relevage de fleche / Подъем стрелы / Yük kaldırma ve indirme / رافع الذراع			1,948	2,170	1,400	3250
Transporte torre de montaje / Jacking cage transport / Transport de tour de montage / Транспортировка монтажной башни / Kaldırma kafesinin taşınması / نقل برج التركيب	TM 20PAL-5,6		9,550	2,070	2,520	5,690



JASO EQUIPOS DE OBRAS Y CONSTRUCCIONES, S.L.



FEM 1005 – C25

Fecha / Date: 04-07-2013

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COMPOSICIONES DE TORRE / TOWER COMPOSITIONS

COMPOSITIONS DE LA TOUR / КОНСТРУКЦИЯ БАШНИ / KULE KOMPOZİSYONLARI / مكونات البرج

J208PA

T	H	T	H
1	4,2	TL20 193.31.000	3,09
2	9,8		
3	15,4		
4	21,0		
5	26,6		
6	32,2		
7	37,8		
8	43,4		
9	49		
10	54,6		
11	60,2		
12	65,8		

T: Torre / Tower / Tour / Башня / Kuleler / أبراج
H: Altura / Height / Hauteur / Boyama / Yükseklik / ارتفاع

Otras configuraciones de torre / Other tower configuration / Autres configurations / Прочие конфигурации / Diğer konfigürasyonlar / مكونات أخرى

TREPADO / CLIMBING / TÉLESCOPAGE / RESTHİÇİA / TIRMANMA / التسلق

J208PA

h_{max}: TS 20-5,6T + 2xTS 20-5,6 + TS 20-5,6A + 3xTL 20-5,6

h (m)	D (m)	P (KN)	Rmax (KN)
39,2	15,6 - 19	1025	905
		247	498

Trepado interno / Internal climbing / Télescopage intérieur / Внутренняя лестница / Bina içi tırmanma / التسلق الداخلي

Viento fuera de servicio / Out of service wind / Vitesse du vent hors service / Ветропая нагрузка в покое / Rüzgar devre dışı / الرياح خارج الخدمة

Consultar / Consult / Nous consulter / Консультироваться / Danışınız / إلى / الرجوع إلى

En servicio / In service / En service / В работе / Devrede / في الخدمة

Fuera de servicio / Out of service / Hors service / В покое / Devre dışı / خارج الخدمة

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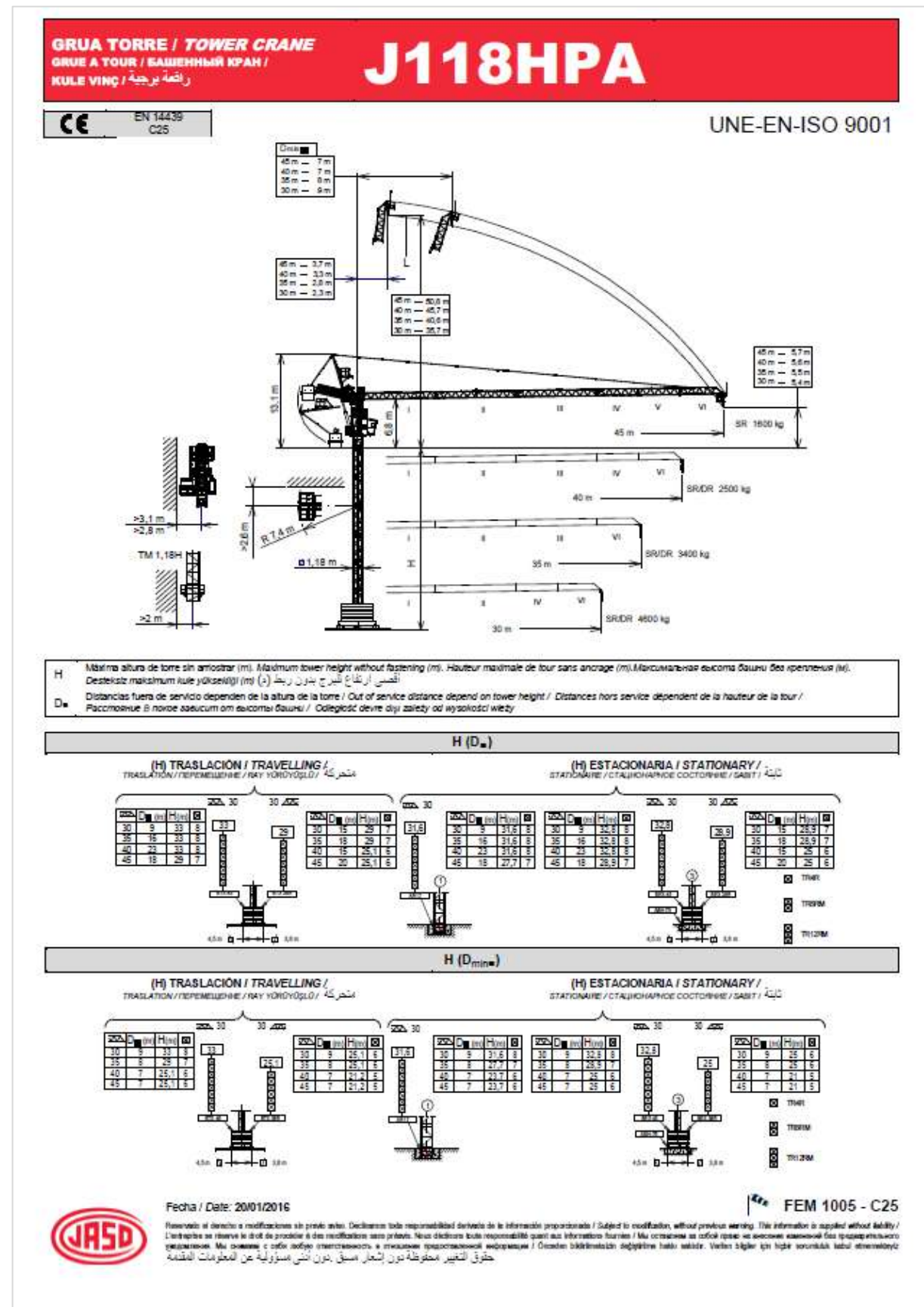
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Fecha / Date: 04-07-2013

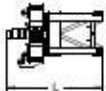
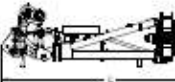
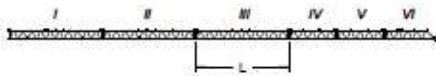
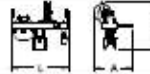
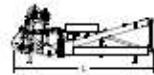
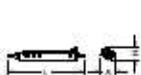
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CARGAS / LOADS / CHARGES / НАГРУЗКИ / YÜKLER / الأحمال								J118HPA
SR / DR (kg)								

LISTA DE EMBARQUE / PACKING LIST / LISTE DE COLIBAGE / СПИСОК ПОСТАВКИ / ÇEKİ LİSTESİ / قائمة التجهيز					J118HPA
DENOMINACIÓN / DENOMINATION / DÉSIGNATION / НАЗВАНИЕ / AÇIKLAMA / اسم		L [m]	A [m]	H [m]	P / W [kg]
Torre / Tower / Tour Башня / Kule / برج	TR8RM TR12RM TR4R	 	8,070 12,010 4,15	1,190 1,190 1,190	2575 3715 1430
Torre asiento pista + base punta de torre + orientación Slewing table + tower head base + slewing mechanism Tour pivot + base du porte-fleche + mecanisme d'orientation Сиденье площадки + основание верхней секции башни + поворотный механизм Göbek + kule kafa bölümü tabanı+mekanizma / برج وحدة التوازن + قاعدة رأس البرج + آلية الدوران	 	2,900	1,710	1,900	3.000
Conjunto asiento pista, punta de torre, orientación y elevación Slewing table assembly, tower head, slewing and hoisting mechanism Groupe pivot + porte-fleche + mecanisme d'orientation + de levage Сиденье площадки + верхняя секция башни + поворотный механизм + подъемный механизм Göbek + kulenin kafa bölümü+mekanizma+vinç kulesi مجموعة وحدة التوازن + رأس البرج + آلية الرفع	 	8,450	1,750	2,450	8.000
Tramo de pluma Jib section Tronçon de fleche Секция стрелы Bom bölümü أجزاء الذراع	 	10,230 10,165 10,155 5,265 5,265 5,705	0,990 0,860 0,860 0,860 0,845 0,865	1,075 1,065 1,060 1,060 1,045 1,057	1.195 870 630 320 290 410
Punta de pluma / Jib end / Pointe de fleche / Конец стрелы / Bom ucu / مقدمة الذراع	 	0,820	0,550	0,685	90
Mecanismo elevación carga / Hoisting mechanism / Mécanisme de levage / подъемный механизм / Vinç kulesi / آلية الرفع	 	1,430	1,060	0,800	810
Punta de torre + Elevación carga / Tower head + hoisting mechanism Porte-fleche + mecanisme de levage / Верхняя секция башни + подъемный механизм Kulenin kafa bölümü + Vinç kulesi / رأس البرج + آلية الرفع	 	6,100	1,500	2,455	5.000
Elevación pluma con plataforma / Luffing mech + platform / Relevage de fleche + platform + Подъем стрелы + Платформа + Yük kaldırma ve indirme + Platform / رافع الذراع + كلبينة / Cilindro hidráulico / Hydraulic cylinder / Cylindre hydraulique /	 	2,700 3,360	1,180 0,620	2,23 0,535	1.130 1.350
Polipasto / Hook assembly / Palan / Полуснаст / Kanca takımı / بكرة / Gancho / Hook	 	0,835	0,235	1,175	220
Tirante sostén pluma / Jib support tie / Tirant de fleche / Распорка поддержки стрелы / Kol destek bağları / مشد دعامة الذراع	 	6,260	0,360	0,350	685
Contrapluma con plataformas / Counterjib with platforms Contre-fleche avec plateformes / Противовесная консоль с платформами / Platformlu kuyruk / التراجع المعقل مع المنصة	 	4,600	1,700	1,600	1.900
Parte superior Top part	 	5,500	1,260	0,650	750
Plataforma y cabina / Platform and cabin / Plateforme et cabine Платформа и кабина / Platform ve kabin / منصة و كلبينة	 	3,500	2,070	2,425	1.100
Contrapeso / Counterweight / Contrepoids / Противовес / Denge ağırlığı / موازن معكسة	 	1,486 1,486	0,600 0,600	2,125 0,905	4.100 1.650
Lastre / Ballast / Lest / Balıncak / Ait ağırlık taşları / ثقل	 	4,000	0,340	1,300	4.100
Estructura torre de montaje / Jacking cage structure / Structure de tour de montage / Структура монтажной башни / Kaldırma kafesi / هيكل برج التركيب	TM 1.18H  	7,14	1,76	1,71	3300



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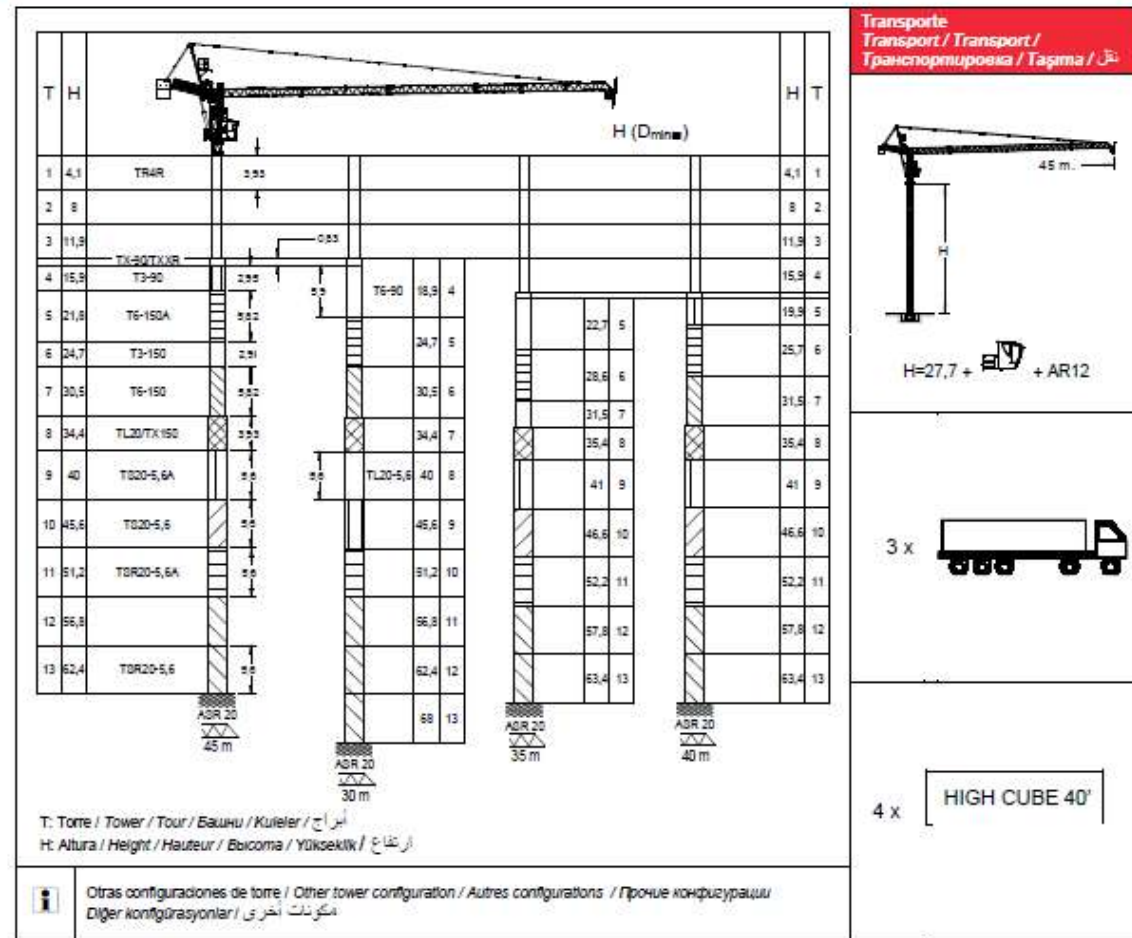
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COMPOSICIONES DE TORRE / TOWER COMPOSITIONS

COMPOSITIONS DE LA TOUR / КОНСТРУКЦИЯ БАШНИ / KULE KOMPOZİSYONLARI / مكونات البرج

J118HPA



- W Viento fuera de servicio / Out of service wind / Vitesse du vent hors service / Ветропояная напорная е покое / Rüzgar devre dışı / الريح خارج الخدمة
- C Consultar / Consult / Nous consulter / Консультуруємо / Danışınız / الرجوع إلى
- En servicio / In service / En service / B parome / Devrede / في الخدمة
- Fuera de servicio / Out of service / Hors service / B noke / Devre dışı / خارج الخدمة
- D Distancia fuera de servicio / Out of service distance / Distance hors service / Расстояние B покое / Odległość devre dışı / الخدمة خارج الريح مسافة



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MODEL CONDITIONS FOR THE HIRING OF PLANT (With effect from July 2011)

These conditions are not to be used for consumer contracts.
A consumer contract is a contract entered into with a person acting in their own capacity and not for or on behalf of any business or trade entity.

1. DEFINITIONS

- The "Contract" is the Contract between the Owner and the Hirer for the hire of Plant, which incorporates the Offer and is governed by these conditions.
- The "Hire Period" shall commence from the time when the Plant leaves the Owner's depot or place where last employed and shall continue until the Plant is received back at the Owner's named depot or other agreed location. For the avoidance of doubt the Hire Period includes the time Plant is left on site during a Holiday Period.
- The "Hirer" is the Company, firm, person, Corporation or public authority taking the Owner's Plant on hire and includes their successors or personal representatives.
- "Holiday Period" covers any cessation of work over Easter, Christmas and the New Year, as well as any other Bank or Public holidays.
- "Offer" is the Owner's offer to hire the Plant to the Hirer which will include details of the Plant to be hired, the Hire Period, relevant hire rates and charges and any supplementary conditions to be incorporated into the Contract.
- The "Owner" is the Company, firm or person letting the Plant on hire and includes their successors, assignees or personal representatives.
- "Plant" covers all classes of Plant, or replacement Plant, machinery, vehicles, equipment, accessories, and any ancillary items, vehicles or equipment thereof, which the Owner agrees to hire to the Hirer, or anything which is supplied by the Owner to effect the hire, and anything supplied by the Owner for the safe operation and routine inspection and maintenance of the Plant.
- A "Working Day" shall be from 8.00 am to 4.30 pm, Monday to Thursday, and 8.00 am to 3.30 pm, on Friday allowing a half-hour lunch break each day, unless otherwise specified in the Contract.
- A "Working Week" covers the period from 8.00 am on Monday to 3.30 pm on Friday, unless otherwise specified in the Contract.

2. EXTENT OF CONTRACT

No terms, conditions or warranties other than as specifically set forth in the Offer shall be deemed to be incorporated or to form part of the Contract or shall otherwise govern the relationship between the Owner and the Hirer in relation to the hire of any particular Plant pursuant to the Offer. This excludes all other terms or conditions which the Hirer may seek to apply under any order or acknowledgement or acceptance or similar document and supersedes all prior negotiations, representations or agreements, whether written or oral, and to the extent that they are expressly accepted in writing and signed by the Owner. The Owner and the Hirer do not intend that any of the terms of the Contract will be enforceable by virtue of the Contracts (Rights of Third Parties) Act 1999 by any person not a party to the Contract, except that a person who is a successor to or an assignee of the rights of the Owner is deemed to become a party to the Contract after the date of succession or assignment (as the case may be).

3. ACCEPTANCE OF PLANT

Acceptance of the Plant on site implies acceptance of all terms and conditions herein unless otherwise previously agreed in writing.

4. UNLOADING AND LOADING

The Hirer shall be responsible for the unobstructed access and egress and, unless otherwise agreed in writing, for unloading and loading of the Plant at the site, and any personnel supplied by the Owner for such unloading and / or loading shall be deemed to be under the direction and control of the Hirer. Such personnel shall for all purposes in connection with their employment in the unloading and / or loading of the Plant be regarded as the servants or agents of the Hirer (but without prejudice to any of the provisions of clause 13) who shall be solely responsible for all claims arising in connection with unloading and / or loading of the Plant by, or with the assistance of, such personnel.

5. DELIVERY IN GOOD ORDER AND MAINTENANCE: INSPECTION REPORTS

- Unless notification in writing to the contrary is received by the Owner from the Hirer in the case of Plant supplied with an operator within four working days, and in the case of Plant supplied without an operator within three working days, of the Plant being delivered to the site, the Plant shall be deemed to be in good order, save for either an inherent fault or a fault not ascertainable by reasonable examination, in accordance with terms of the Contract and to the Hirer's satisfaction, provided that where the Plant requires to be erected on site, the periods stated above shall be calculated from the date of completed erection of Plant. The Hirer shall be responsible for the safe keeping of the Plant, its use in a workmanlike manner within the manufacturer's rated capacity and in accordance with the manufacturer's and / or the Owner's recommendations, and its return on the completion of the Hire Period in equal good order (fair wear and tear excepted).
- The Hirer shall at all times when hiring Plant without the Owner's operator or driver take all reasonable steps to keep himself acquainted with the state and condition of the Plant. If such Plant is continued at work or in use in an unsafe and unsatisfactory state or environment, the Hirer shall be solely responsible for any damage, loss, cost, expense or accidents whether directly or indirectly arising therefrom.

- Any inspection report required under the relevant legislation, or a copy thereof, shall be supplied by the Owner, if requested by the Hirer, and returned on completion of the Hire Period.

6. SERVICING AND INSPECTION

The Hirer shall at all reasonable times allow the Owner, his agents or his insurers to have access to the Plant to inspect, test, adjust, repair or replace the same. So far as reasonably practicable the Hirer shall allow such access during the Working Day.

7. GROUND AND SITE CONDITIONS

- The Hirer is deemed to have knowledge of the site or the property or land where the Plant is to be delivered and the Hirer warrants that the condition of the site or place of delivery of the Plant is suitable for the use of such Plant.
- If, in the opinion of the Hirer, the ground (including any private access road or tracks) is soft or unsuitable for the Plant to work on, travel over, be transported over, be erected or dismantled on without timbers or equivalent support, the Hirer shall supply and lay suitable timbers or equivalent support in a suitable position for the Plant to travel over, work on, be transported over, be erected or dismantled on, including for the purpose of delivery and collection.
- Any timber or other material supplied by the Owner is provided solely to assist the Hirer under their duties within clause 7(b) and expressly not to relieve him of his legal, regulatory or contractual obligations to ensure adequate stability of the Plant.
- The Hirer is responsible for the protection of, and liable for any damage to, any underground, surface or above ground services and utilities including, but not limited to cables, ducts, water pipes and gas lines, and any pavements, bridges, tunnels and roadways on or adjacent to the site and the Hirer shall liaise as necessary and comply with all requirements of the relevant statutory authority or similar body.

8. HANDLING OF PLANT

- When a driver or operator or any person is supplied by the Owner with the Plant, the Owner shall supply a person competent in operating the Plant or for such purpose for which the person is supplied and such person shall be under the direction and control of the Hirer. Such drivers or operators or persons shall for all purposes in connection with their employment in the working of the Plant be regarded as the servants or agents of the Hirer (but without prejudice to any of the provisions of clause 13) and the Hirer shall be solely responsible for all claims arising in connection with the operation of the Plant by the said drivers / operators / persons.
- The Hirer shall not allow any other person to operate such Plant without the Owner's prior written consent.
- Such drivers or operators or persons shall not operate any other plant or machinery or undertake work other than that for which they are supplied by the Owner unless previously agreed in writing between the Owner and the Hirer.

9. BREAKDOWN, REPAIRS AND ADJUSTMENT

- Any breakdown or the unsatisfactory working of or damage to any part of the Plant must be notified immediately to the Owner, and confirmed in writing. Any claim for breakdown time will only be considered from the time and date at which written notification is received and acknowledged by the Owner.
- Full allowance for the hire charges set out in the Offer will be made to the Hirer for any stoppage due to breakdown of the Plant caused by the development of either an inherent fault or a fault not ascertainable by reasonable examination or fair wear and tear and for all stoppages for normal running repairs in accordance with the terms of the Contract.
- The Hirer shall not (except for the changing of any tyre and repair of punctures), repair, modify or alter the Plant without the prior written permission of the Owner. The changing of any tyre and repair of punctures are however the responsibility of the Hirer who should arrange for them to be changed / repaired. The Hirer is responsible for all costs incurred in the changing or replacement of any tyre (which must be of an equivalent specification) as approved by the Owner and for the repair of any puncture.
- The Hirer shall be responsible for all expense involved arising from any breakdown, unsatisfactory working of or damage to any part of the Plant due to the Hirer's negligence, misdirection or misuse of the Plant, whether by the Hirer or his servants, and for the payment of hire at the idle time rate as defined in clause 25, during the period the Plant is necessarily idle due to such breakdown, unsatisfactory working or damage. The Hirer is responsible for the cost of spares and / or repairs due to theft, loss or vandalism of the Plant. The Owner will be responsible for the cost of repairs, inclusive of the cost of spares, to the Plant involved in breakdown from all other causes.

10. OTHER STOPPAGES

No claims will be admitted (other than those allowed for under "Breakdown" (clause 9) or for "Idle Time" (clause 25), as herein provided), for stoppages through causes outside the Owner's control, including but not limited to bad weather and / or ground conditions nor shall the Owner be responsible for the cost or expense of recovering any Plant from soft or unsuitable ground, or a hazardous environment. For the avoidance of doubt, the Hirer shall be responsible for the cost and expense of recovering any Plant from soft or unsuitable ground or a hazardous environment.

11. LOSS OF OTHER PLANT DUE TO BREAKDOWN

Each item of Plant specified in the Contract is hired as a separate unit and the breakdown or stoppage of one or more units or vehicles (whether the property of the Owner or otherwise) through any cause whatsoever, shall not entitle the Hirer to compensation or allowance for the loss of working time by any other unit or units of Plant working in conjunction therewith, provided that where two or more items of Plant are expressly hired together as a unit, such items shall be deemed to be one unit for the purpose of breakdown.

12. LIMITATION OF LIABILITY

Except for liability on the part of the Owner which is expressly provided for in the Contract (including these clauses):

- The Owner shall have no liability or responsibility for any loss, or damage of whatever nature due to or arising through any cause beyond his reasonable control;
- The Owner shall have no liability or responsibility, whether by way of indemnity or by reason of any breach of the Contract, breach of statutory duty or misrepresentation or by reason of the commission of any tort (including but not limited to negligence) in connection with the hire, for any of the Hirer's loss of profit, loss of use of the Plant or any other asset or facility, loss of production or productivity, loss of contracts with any third party, liabilities of whatever nature to any third party, and / or any other financial or economic loss or indirect or consequential loss or damage of whatever nature, and whenever the Contract (including these clauses) provides that any allowance is to be made against hire charges, such allowance shall be the Hirer's sole and exclusive remedy in respect of the circumstances giving rise to the allowance, and such remedy shall be limited to the amount of hire charges which would otherwise be or become due if the allowance in question had not been made.
- For the avoidance of doubt, nothing in these conditions limits or seeks to exclude the Owner's liability for claims of death or personal injury caused by the Owner's negligence, fraud or for any other liability for which it is not permitted to seek to limit or exclude by operation of law.

13. HIRER'S RESPONSIBILITY FOR LOSS AND DAMAGE

- For the avoidance of doubt it is hereby declared and agreed that nothing in this clause affects the operation of clauses 4, 5, 8 and 9 of these conditions.
- For the duration of the Hire Period (which for the avoidance of doubt includes the time Plant is left on site during a Holiday Period) the Hirer shall, subject to the provisions referred to in sub paragraph (a) make good to the Owner all loss of or damage to the Plant from whatever cause the same may arise, fair wear and tear excepted, and except as provided in clause 9 herein, and shall also fully and completely indemnify the Owner and any personnel supplied by the Owner in respect of all claims by any person whatsoever for injury to person or property caused by or in connection with or arising out of the storage, transit, transport, unloading, loading or use of the Plant during the continuance of the Hire Period, and in connection therewith, whether arising under statute or common law. In the event of loss of or damage to the Plant, hire charges shall be continued at idle time rates as defined in clause 25 until the settlement has been agreed. Payment of the settlement must be made within 21 calendar days of the date of the agreement or idle time charges can be reinstated from the date of that agreement. Should idle time charges be re-instated, the agreed settlement figure remains payable in full.
- Notwithstanding the above the Hirer shall not be responsible for damage, loss or injury:
 - prior to delivery of any Plant to the site (or, where the site is not immediately adjacent to a highway maintainable at the public expense, prior to its leaving such highway) where the Plant is in transit by transport of the Owner or as otherwise arranged by the Owner;
 - during the erection and / or dismantling of any Plant where such Plant requires to be completely erected / dismantled on site, provided always that such erection / dismantling is under the exclusive control of the Owner or his agent;
 - after the Plant has been removed from the site and is in transit on a highway maintainable at the public expense (or where the site is not immediately adjacent to a highway maintainable at the public expense after it has joined such highway) to the Owner by transport of the Owner or as otherwise arranged by the Owner;
 - where the Plant is travelling to or from a site on a highway maintainable at the public expense (or, where the site is not immediately adjacent to a highway maintainable at the public expense, prior to its leaving or after its joining such highway) under its own power with a driver supplied by the Owner.

14. NOTICE OF ACCIDENTS

If the Plant is involved in any accident resulting in injury to persons or damage to property, immediate notification must be given by the Hirer to the Owner by telephone and confirmed in writing to the Owner no later than 24 hours after such telephone notification. In relation to any claim in respect of which the Hirer is not bound to fully indemnify the Owner, no admission of liability, offer, promise of payment or indemnity shall be made by the Hirer without the Owner's prior written permission.

15. RE-HIRING ETC.

Neither the Plant nor any part thereof shall be re-hired, sub-let, or lent to any third party without the prior written permission of the Owner.

16. CHANGE OF SITE

The Plant shall not be moved from the site to which it was delivered or consigned without the prior written permission of the Owner.

17. RETURN OF PLANT FOR REPAIRS

If during the Hire Period the Owner decides that urgent repairs to the Plant are necessary then he may arrange for such repairs to be carried out on site or at any location of his nomination. In the event that urgent repairs to the Plant are necessary the Owner shall be obliged to replace the Plant with similar Plant if available, the

Owner (but without prejudice to any of the provisions of clauses 9 and / or 13) paying all transport charges involved. In the event of the Owner being unable to replace the Plant he shall be entitled to terminate the Contract forthwith (but without prejudice to any of the provisions of clauses 9 and / or 13) by giving written notice to the Hirer. If such termination occurs:

- within three months from the commencement of the Hire Period, the Owner (but without prejudice to any of the provisions of clauses 9 and / or 13) shall pay all transport charges involved, or;
- more than three months from the commencement of the Hire Period, the Owner (but without prejudice to any of the provisions of clauses 9 and / or 13) shall be liable only for the cost of reloading and return transport.

18. BASIS OF CHARGING

- The Hirer shall render to the Owner for each Working Week an accurate statement of the number of hours the Plant has worked each day. When any personnel, operator or driver is supplied by the Owner, the Hirer shall sign their time record sheets. The signature of the Hirer's representative shall bind the Hirer to accept the hours shown on the time records sheets.
- Full allowance will be made for breakdown periods resulting from mechanical or electrical faults or absence of driver or operator supplied by the Owner except where breakdown is due to acts or omissions of third parties and / or the Hirer's misuse, misdirection or negligence, subject however to the provisions of clause 8 of these conditions.
- Breakdown time in respect of such periods shall be allowed for not more than the Working Day less the actual hours worked.
- Plant shall be hired out either:
 - for a stated minimum number of hours per Working Day or per Working Week or;
 - without any qualification as to minimum hours. Odd days at the beginning and at the end of the Hire Period shall be charged pro rata.
- Stoppages due to changing of tyres and repairs to punctures will be chargeable as working time up to a maximum of 2 hours for any one stoppage and any excess will be charged for at the appropriate idle time rates.
- In the case of Plant which is required to be dismantled for the purpose of transportation, if the Owner agrees to a modification of the hire charge for the period required for assembling on site and dismantling upon completion of the Hire Period, such modification of the hire charge and the Hire Period for which it shall apply shall be stated in the Offer / Contract.

19. PLANT HIRED ON A DAILY BASIS WITHOUT QUALIFICATION AS TO HOURS

The full daily rate will be charged on a daily basis irrespective of the hours worked except in the case of breakdown for which the Owner is responsible, when the actual hours worked will be charged pro rata of the average Working Day. No hire charge shall be made for Saturday and / or Sunday unless the Plant is actually worked.

20. PLANT HIRED BY THE WEEK OR MONTH WITHOUT QUALIFICATION AS TO HOURS

The weekly or monthly rate shall be charged irrespective of the number of hours worked, except in the case of breakdown for which the Owner is responsible when an allowance pro rata of the agreed weekly rate or pro rata of the agreed monthly rate will be made for each full Working Day broken down calculated to the nearest half Working Day.

21. PLANT HIRED BY THE WEEK OR THE HOUR FOR A MINIMUM OF 39 HOURS PER WEEK

The full hire for the minimum period in the Contract will be charged and an additional pro rata charge will be made for hours worked in excess of such minimum period. Allowance will be made for breakdowns up to 8 hours except on Fridays when the allowance will be up to 7 hours providing always that where the actual hours worked are in excess of the minimum period less breakdown time, the actual hours worked shall be chargeable. Idle time for this purpose shall be treated as actual working time. The minimum Working Week of 39 hours shall be reduced by 8 hours Monday to Thursday and 7 hours Friday for each Holiday Period occurring in such Working Week, provided that the Plant is not in use during such Holiday Period.

22. "ALL-IN" RATES

Where "All-In" rates are charged by agreement the minimum period shall be as defined in the Contract and in accordance with the hire rates and terms contained therein, subject to the provisions of clause 26.

23. COMMENCEMENT AND TERMINATION OF CONTRACT (TRANSPORT OF PLANT)

- The Hire Period shall commence from the time when the Plant leaves the Owner's depot or place where last employed and shall continue until the Plant is received back at the Owner's named depot or other agreed location but an allowance shall be made of not more than one day's hire charge each way for travelling time. If the Plant is used on the day of travelling, full hire rates shall be paid for the period of use on that day. If more than one day is properly and unavoidably occupied in transporting the Plant, a hire charge at idle time rates shall be payable for such extra time, provided that where Plant is hired for a total period of less than one Working Week, the full hire rate shall be paid from the date of despatch to the date of return to the Owner's named depot or other agreed location.
- If the Plant is not made available for collection as agreed between the parties, such Plant shall be deemed with immediate effect to be placed back on hire. The Hirer shall be responsible for the safekeeping of the Plant in accordance with clause 13, and for all the reasonable costs and expenses incurred by the Owner in seeking to collect such Plant.
- Upon the completion of the Hire Period, the Hirer shall clean and where necessary, decontaminate the Plant. All fuel and contaminants will be removed from bunds, storage tanks and bowsters. The Hirer shall be liable for any costs, liabilities and expenses incurred by the Owner should the Hirer fail to comply with this clause.

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24. HIRER'S LIABILITY DURING THE NOTICE OF TERMINATION OF CONTRACT

- a) Where the Hire Period is indeterminate or having been defined becomes indeterminate the Contract shall be terminable by seven days notice in writing given by either party to the other except in cases where the Plant has been lost or damaged. Notwithstanding that the Owner may have agreed to accept less than 7 days notice of termination, the Hirer's obligations under clause 13 shall continue until the Plant is returned to the Owner in accordance with clause 31 or until the Owner has collected the Plant within the 7 days following the acceptance of short notice. Oral notice given by the Hirer to the Owner's driver or operator shall not be deemed to constitute compliance with the provisions of this clause.
- b) Without prejudice to clause 24(a), should the Hirer fail to make the Plant available for collection by the Owner before the end of the 7 day notice, the Hirer's obligations under clause 13 shall continue for a further 3 days or until such time as the Plant is made available for collection and the Owner has collected the Plant. For the avoidance of doubt, where the Hirer gives a notice pursuant to clause 24(a) but subsequently and with the consent of the Owner, withdraws such notice, the obligations of clause 13 shall continue to apply and the requirements of clause 24 will apply to any later termination of the Contract.
- c) If the Hirer terminates the Contract before the Hire Period commences, then the Hirer is liable for all reasonable costs and charges incurred by the Owner or to which the Owner is committed at the time of termination.

25. IDLE TIME

When the Plant is prevented from working for a complete Working Week, the hire charges shall be two thirds of the hire rate or such other idle time rate as is agreed in writing by the Owner for the period during which the Plant is not in use. If the Plant works for any time during the Working Day then the whole of that Working Day shall be charged as working time. In any case no period less than one Working Day shall be reckoned as idle time save for as provided for in clause 18(e). Where an "All-in" rate is charged, idle time is calculated on the machine element only. Full rate will be charged for the operator.

26. WAGES AND OTHER CHARGEABLE ITEMS RELATING TO DRIVERS AND OPERATORS OF PLANT

All chargeable items shall be paid by the Hirer at the rates set out in the Contract save that any subsequent increases before and / or during the Hire Period arising from awards under any wage agreements and / or from increases in the Owner's statutory contribution shall be charged as additions at cost by the Owner and shall be admitted and paid by the Hirer.

27. TRAVELLING TIME AND FARES

Travelling time, fares and similar expenses for drivers, operators and any person supplied by the Owner, incurred at the beginning and end of the Hire Period and where appropriate return fare of the driver, operator and any person supplied by the Owner to his home will be chargeable at cost. No charge shall be made by the Owner for any such expenses incurred by other employees of the Owner for the purpose of servicing, repair or maintenance of Plant, unless necessitated by the Hirer's negligence, misdirection or misuse of the Plant.

28. FUEL, OIL AND GREASE

Fuel, oil and grease shall, when supplied by the Owner, be charged at net cost or an agreed estimate of net cost, and when supplied by the Hirer, shall be of a grade or type specified by the Owner. The Hirer shall be solely responsible for all damages, losses, costs and expenses incurred by the Owner if the Hirer uses the wrong fuel, oil or grease.

29. SHARPENING OF DRILLS/STEELS ETC.

The cost of re-sharpening or replacement of drill bits, blades and other ancillary items shall be borne by the Hirer.

30. OWNER'S NAME PLATES

The Hirer shall not remove, deface or cover up the Owner's name plate or mark on the Plant indicating that it is his property, without the prior written permission of the Owner.

31. TRANSPORT

The Hirer shall pay the cost of and if required by the Owner, arrange transport of the Plant from the Owner's depot or other agreed location to the site and return to the Owner's named depot or other agreed location on completion of the Hire Period.

32. GOVERNMENT REGULATIONS

- a) The Hirer will be responsible for compliance with relevant regulations issued by the Government or Local Authorities, including regulations under the Environmental Acts, Factories Acts, Health and Safety at Work, etc. Act and observance of the Road Traffic Acts should they apply, including the cost of road fund licences and any insurances made necessary thereby, save that if and during such time as the Plant is travelling, whether for full or part journey from Owner to site and site to Owner under its own power with a driver supplied by the Owner, the Owner and not the Hirer shall be responsible as aforesaid.
- b) The Hirer shall indemnify the Owner against any charges or fines that the Owner may become liable for as a result of the operation of the Plant during the Hire Period.

33. PROTECTION OF OWNER'S RIGHTS

- (a) The Hirer shall not re-hire, sell, mortgage, charge, pledge, part with possession of or otherwise deal with the Plant except as provided under clause 13 and shall protect the same against distress, execution or seizure and shall indemnify the

Owner against all losses, damage, costs, charges and expenses arising as a direct result of any failure to observe and perform this condition except in the event of Government requisition.

- (b) The Owner may terminate the Contract forthwith by written notice to the Hirer if one or more of the following events occur:

- (i) The Hirer defaults in punctual payment of any sum due to the Owner for hire of Plant or other charges payable pursuant to these conditions;
- (ii) The Hirer fails to observe and perform the terms and conditions of the Contract;
- (iii) The Hirer suffers, or the Owner reasonably believes that the Hirer shall suffer, any distress or execution to be levied against him;
- (iv) The Hirer makes or proposes to make any arrangement with his creditors or becomes insolvent within the meaning of Section 113 of the Housing Grants, Construction and Regeneration Act 1996 or any amendment or re-enactment thereof for the time being in force; or
- (v) The Hirer does or causes to be done or permit or suffer any act or thing whereby the Owner's rights in the Plant may be prejudiced or put into jeopardy.

- (c) In the event of termination under sub-paragraph (b) above:

- (i) The Hirer must give the Owner or his agents, immediate unobstructed access to recover the Plant.
- (ii) The Owner shall be entitled to claim the hire charges outstanding as at the date of termination of the hire under this clause and return transport charges under clause 31.

- (d) The rights under sub-paragraph (b) and (c) above:

- (i) May be exercised notwithstanding that the Owner may have waived some previous default or waiver of the same or a like nature.
 - (ii) Shall not affect the Owner's right to claim damages for breach of Contract or recover any sums due under the Contract as a debt.
- (e) If the Hirer does not make payment of a sum by the final date on which payment is due to be made, the Owner has the right to suspend performance of its obligations under the Contract. The right to suspend may not be exercised without first giving to the Hirer at least 7 days notice in writing of the Owner's intention to suspend performance, stating the ground or grounds on which the Owner intends to suspend performance. The right to suspend performance will cease when the Hirer makes payment in full of the amount due.

34. CHANGES IN NORMAL WORKING WEEK

The foregoing provisions have been framed upon the basis of the Hirer working a 5-day week of 39 hours; it is hereby agreed that in the event of:

- (a) there being any agreed change in the normal weekly hours in the industry in which the Hirer is engaged or;
- (b) the Contract being made with reference to a 5 day week of other than 39 hours. Clauses 1(b) and (i), 18(c) and (d), 20 and (in regard to breakdown allowance and reduction for statutory holidays) 21 shall be deemed to be modified conformably and in the event of an alteration in the normal weekly working hours in the said industry the "Hire Rates and Terms" of Plant hired for a minimum weekly or daily period shall be varied pro rata.

35. DISPUTE RESOLUTION

- (a) If the site is situated within the United Kingdom, then the court whose jurisdiction covers the site will have exclusive jurisdiction and interpretation of the law for this Contract. If the original site is not situated within the United Kingdom, then the relevant jurisdiction and interpretation of the law of the Contract will be governed by the country where the Owner's head office is located.
- (b) Both parties to the Contract have a right to refer any difference or dispute arising under or in connection with the Contract to adjudication and the procedure set out in Part 1 of the Scheme for Construction Contracts (England and Wales) Regulations 1998 (or any amendment or re-enactment thereof for the time being in force) will apply. The person (if any) specified in the Contract to act as adjudicator may be named in the Offer. The specified nominating body to select adjudicators shall be the Construction Plant-hire Association acting by its President or Chief Executive for the time being.
- (c) The Owner and the Hirer shall comply forthwith with any decision of the adjudicator, and shall submit to summary judgment and enforcement (and / or, under Scots law, shall consent to a motion for summary decree and submit to enforcement) in respect of all such decisions, in each case, without any defence, set-off, counterclaim, statement or deduction. Where, under Scots law, the Owner, the Hirer, or the adjudicator, wishes to register a decision of the adjudicator for execution in the Books of Council and Session, any other party shall, on being requested to do so, forthwith consent to such registration by subscribing the decision before a witness.

36. LATE PAYMENTS

The Owner reserves the right to charge the Hirer for the late payment of any outstanding invoices under the Late Payment of Commercial Debts (Interest) Act 1998, or any subsequent legislation.

37. SEVERABILITY

If any of these clauses are held to be unlawful, void or unenforceable, then that clause will be deemed severable and will not affect the validity and enforceability of the remaining clauses, to the extent permitted by law.

SUPPLEMENTARY CONDITIONS APPLICABLE TO TOWER CRANES 2012

TO BE READ IN CONJUNCTION WITH THE CPA MODEL CONDITIONS FOR THE HIRING OF PLANT (2011)

EXPLANATORY NOTE: The purpose of these Supplementary Conditions is, partly, to raise awareness of the Hirer's responsibilities under the British Standard Code of Practice 7121 for the Safe Use of Tower Cranes ("BS 7121") and partly to define contractually the extent of the Owner's and Hirer's responsibilities as between themselves. BS 7121 makes it clear that the Hirer is in overall control of the lifting operation, and is responsible for providing a suitably trained and experienced "appointed person" to ensure the adequate planning and supervision of the operation. When provided, the Owner's responsibility is limited to providing competent personnel, and a crane that is properly maintained, inspected, thoroughly examined, tested where necessary, and certificated.

For the avoidance of doubt, when the hire is subject to the CPA's Model Conditions for the Hiring of Plant 2011 ("CPA Model Conditions"), the Owner is not a specialist sub-contractor and/or sub-contractor of the Hirer. The Owner will supply Plant pursuant to the CPA Model Conditions together with these Supplementary Conditions to form the Contract between the Owner and the Hirer.

1. DEFINITIONS AND INTERPRETATION

- 1.1 These Supplementary Conditions are applicable to Tower Cranes only and shall be referred to as the "Supplementary Conditions".
- 1.2 Unless the context suggests otherwise words and terms in these Supplementary Conditions shall have the same meaning as in the CPA Model Conditions.
- 1.3 If any conflict shall appear between any provisions of the Supplementary Conditions and the provisions of the CPA Model Conditions then the former shall prevail.

RESPONSIBILITIES OF THE HIRER

2. PLANNING, SUPERVISING, CO-ORDINATING, SLINGING AND HANDLING

- 2.1 In order to comply with the requirements of the Lifting Operations and Lifting Equipment Regulations 1998 (SI 1998 No. 2307) and BS 7121, the Hirer is responsible for planning, supervising, co-ordinating and controlling the lifting operations, including the preparation and distribution of risk assessments, method statements and for the safe slinging of the goods to be lifted or handled.
- 2.2 If advice or information is sought from and given by any person supplied by the Owner, the Hirer understands and accepts that such advice or information is given without responsibility and does not relieve or reduce the Hirer's requirement to make his own independent assessment as outlined in clause 2.1 above.
- 2.3 When we provide any personnel including a, crane co-ordinator, slinger, signaller or crane operator (as defined in BS 7121-5), all such personnel will work under the direction and control of the Hirer's Appointed Person, in accordance with Clause 8 of the CPA Model Conditions for the Hiring of Plant (2011).
- 2.4 The Hirer is responsible for ensuring, that the tower crane operative carries out the daily / weekly checks to the tower crane and to notify any defects to the Owner and

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take appropriate action on his findings. The Hirer is also responsible for the completion and retention of records and compliance with all Health and Safety legislation and regulations at all times. The cost of carrying out the daily / weekly checks will remain the responsibility of the Hirer.

- 2.5 The Hirer is required to ensure that the Tower Crane's Thorough Examination Certificate is registered on the Health and Safety Executive's Register. The Owner may assist in registering the Certificate on behalf of the Hirer for a small fee.
- 2.6 The Hirer must ensure that the tower crane operative is supervised whilst ascending and descending the tower crane to ensure that the operative ascends and/or descends the tower crane safely and without harm. The Hirer must also ensure that the tower crane operative leaves the site safely at the end of each Working Day.
- 2.7 During times of darkness or limited daylight, the Hirer must ensure that the tower crane operative has adequate lighting to safely ascend and/or descend the tower crane.

3. INSURANCE

The Hirer shall take out and maintain insurance against any and all liabilities the Hirer may incur under the Contract. The Owner reserves the right at any reasonable time to require confirmation that the Hirer is complying with its insurance obligations.

4. SUPPLY OF ALTERNATIVE CRANE

In the event that the Contract specifies a particular type of crane, the Owner reserves the right to supply a suitable alternative crane to that specified subject to prior acceptance by the Hirer. Acceptance of the crane on site shall be deemed to be acceptance of the variation of the Contract by the Hirer in respect of the crane supplied and the Owner shall have no liability to the Hirer in respect of that variation.

5. PROVISION OF LIFTING ACCESSORIES

If requested and specified by the Hirer in advance, the crane will be provided with specific certified lifting accessories, subject to availability and at additional cost. The Owner accepts no responsibility for any costs, losses or expenses incurred or delay caused should the lifting accessories prove unsuitable.

6. GROUND AND SITE CONDITIONS

Without prejudice to clause 7 of the CPA Model Conditions:

- 6.1 The Hirer shall be fully liable to the Owner for any damage to the tower crane or any Plant required for the erection, servicing, adjusting, modifying and dismantling of the tower crane or any associated equipment for the tower crane caused by ground and site conditions and shall indemnify the Owner and hold the Owner harmless against any liability, expense, loss or damage caused by ground and site conditions.
- 6.2 The Hirer will ensure that a suitable base is prepared prior to the delivery of the tower crane, subject to site discussion between the Owner and the Hirer. Otherwise, the Hirer shall ensure and confirm that the foundation on which the tower crane is situated is level, and able to withstand the forces that the tower crane exerts and is in keeping with all current Health and Safety legislation and regulations, and within the manufacturer's recommendations / drawings for the type of tower crane being hired. The design of any base or foundation will be checked in accordance with Category 2 of

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Table 1 of BS 5975 - Code of practice for temporary works procedures and permissible stress design of falsework.

7. TRAVELLING, ERECTION AND DISMANTLING

- 7.1 The hire charge will begin once the crane has been erected, tested and commissioned, provided that the appropriate entries have been completed and signed in the site's statutory register. Hire charges will continue until the crane is off-hired by agreement with the Owner provided always sufficient written notice has been received from the Hirer to the Owner.
- 7.2 Insofar as the Hirer's use of the tower crane will require any licence, permission or authorisation from any private or public body or government or Local Authority or the giving of notice for any such licence, permission or authorisation, the giving of any such notice shall be the entire responsibility of the Hirer, who must ensure that sufficient notice is given to the Owner to guarantee compliance with the relevant regulations. This responsibility extends to ensure that the site is kept clear of all obstructions and that if required, traffic management arrangements are set up and operated correctly. Where the Owner is required to obtain a licence, permission or authorisation to supply traffic management on the Hirer's behalf the Hirer shall indemnify the Owner against any costs and/or expenses incurred by the Owner in doing so.
- 7.3 The Owner will charge the Hirer for any time incurred whilst erecting, dismantling, modifying, adjusting or moving the tower crane, including re-testing, and service inspections, for the duration of the Contract. The Hirer shall ensure that the Crane Operator fully assists the Owner or the Owner's representative(s) during the service inspection(s). The Hirer shall also allow the Owner, or any representative(s) of the Owner and their vehicle(s), free and unrestricted access to the tower crane and any associated equipment and to all areas of their operation.
- 7.4 The Hirer will not attempt to adjust or modify the tower crane or the attachments thereto without prior express written permission of the Owner. If there is a need for the Owner's representative to ensure safe adjustment, modification or movement of the tower crane, any reasonable costs incurred by the Owner in so doing will be charged to the Hirer.
- 7.5 The Hirer will clear all debris and site rubbish surrounding the tower crane and associated equipment prior to dismantling of the tower crane. Any reasonable costs incurred by the Owner due to the default of the Hirer in failing to clear all debris and site rubbish will be chargeable to the Hirer.
- 7.6 Any costs incurred by the Owner as a result of delays or cancellation by any cause beyond the Owner's reasonable control including but not limited to inclement weather, aborted road closures, ground conditions, access / egress in the planned area of operations, or industrial action on site during the erection, alteration or dismantling of the tower crane and associated equipment will be charged in full to the Hirer.
- 7.7 Subject to Clause 25 of the CPA Model Conditions, the Hirer shall be liable to the Owner for the agreed fees and charges regardless of any change in the Hirer's circumstances or the circumstances affecting the use to which the Hirer intends or intended to put the tower crane to, and any decision to accept a cancellation or variation of the Contract in any respect shall be at the Owner's full and entire discretion.

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- 7.8 The Owner shall be given the necessary notice from the Hirer prior to erecting or dismantling the tower crane and associated equipment or any alterations thereto.

8. EXCLUSION ZONES

- 8.1 The Hirer will create and maintain an exclusion zone at no cost to the Owner, whilst the tower crane is either being erected, serviced, adjusted, modified or dismantled. During this time, the Hirer will be solely responsible for preventing any unauthorised personnel from entering the exclusion zone. Should the Hirer fail to comply with this requirement, the Hirer will be solely liable for any loss or damage or injury to persons or property and to costs sustained by the Owner as a result of suspension of works arising from the failure to maintain the area.
- 8.2 The Hirer will receive written confirmation of the agreed area of the exclusion zone from the Owner, a reasonable period prior to the tower crane being erected, serviced, adjusted, modified or dismantled.

9. POWER SUPPLY

- 9.1 If an electric power supply is required, the Hirer will be responsible for the cost of providing the correct power supply for the type of tower crane being hired to the base of the tower crane or close by, prior to the arrival of the tower crane. The power supply will terminate in a suitably sized Switch Fused Isolator (SFI), at the Hirer's cost, and will remain available until the tower crane has been completely dismantled.
- 9.2 The Owner will be responsible for connecting the power supply to the tower crane from the Hirer's SFI, ensuring it is of the required size for the crane's requirements. Unless otherwise agreed, when the tower crane is not in use, the Hirer will ensure that the power supply is properly isolated.

10. HOLIDAY PERIODS

It is the responsibility of the Hirer to ensure the safekeeping of all Plant hired which is not returned to the Owner before the start of any Holiday Period. The Hirer will be charged for the crane during the Holiday Periods in accordance with the terms of the Contract. If an operator works during this period, then the Hirer will be charged for the operator too.

11. MINIMUM HIRE PERIOD

The Hirer will hire the tower crane for a minimum period as stated on the Contract. The Owner reserves the right to charge the Hirer the balance of the Contract, should the hire be terminated earlier than contractually agreed.

RESPONSIBILITIES OF THE OWNER

12. LIMITATIONS OF LIABILITY

Without prejudice to the terms of Clause 12 of the CPA Model Conditions, the Owner shall have no liability to the Hirer in respect of any damage, including but not limited, to:

- 12.1 any goods or other things being moved by the tower crane;
- 12.2 any surface or subsurface features such as underground services;

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- 12.3 any above ground structures, including any overhead cables, overhanging or protruding things which might result from the travelling, positioning or working of the tower crane or any associated equipment.

13. COMPETENCE

If the Owner provides an operator with the tower crane, Clause 8 of the CPA Model Conditions will apply and the operator will be deemed to have the appropriate qualifications, training and experience to operate the Plant.

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