

Orchard Hill SEN & AP Schools



Construction Management & Logistics Plan

Revision History

Revision	Purpose	Date	Author
Rev 1	Planning Submission	03.06.2019	Mike Elliott
Rev 2	Condition Discharge	20.08.2020	Mike Elliott
Rev 3	Condition Discharge	23.10.2020	Mike Elliott
Rev 4	Incorporate LBH comments	17.01.21	Mike Elliott
Rev 5	Incorporate LBH comments – tree protection	22.02.21	Mike Elliott

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SECTION 1 - INTRODUCTION

Objectives of this Plan

The Construction Management and Logistics Plan is not confined simply to the activities occurring on this project.

The mandated logistics strategy will clearly set out the guiding principles to be followed in order to ensure alignment by all stakeholders and to aid the production of detailed (Lean & Agile) logistics plans. These plans must cover operational logistics requirements such as site accommodation, waste, security and temporary services, as well as material logistics requirements such as stores, material flows to / from site, delivery scheduling and tracking.

Logistics strategy planning will be considered over the whole project life cycle to ensure that the agreed logistics plans fully support and underpin the project goals.

As such the logistics strategy will manage all partners in a supply chain, extending beyond the boundaries of Laing O'Rourke.

The Logistics Strategy sets the guiding principles, driving forces and ingrained attitudes that aid in achieving objectives by coordinating goals, plans and policies between Laing O'Rourke, its partners and key stakeholders such as clients and local authorities.

The Logistics Strategy will also be aligned to the Project Execution Plan (PEP) which has the primary purpose of communicating to stakeholders how the requirements of the project will be delivered. It also provides a record at each stage of the project lifecycle of the agreed project strategy and a basis to measure and manage change.

This plan seeks to manage highway impacts in accordance with Policy DMHB 11, DMT2 and DME14 of the Hillingdon Local Plan: Part Two - Development Management Policies (2020).

Policy Context

Consideration and reference will always be given to relevant policies stipulated by authorities and local planning conditions, which include TfL and Hillingdon.

Additional policies referenced:

Construction Logistics and Cyclist Safety (CLOCS)

The Transport Research Laboratory published the 'Construction Logistics and Cyclist Safety' (CLOCS) report in February 2013. CLOCS aims at achieving a visionary change in the way the construction industry manages work-related road risk. This is being achieved through three industry-led work streams:

- Improving vehicle safety through design and manufacture of safer new vehicles and
- appropriate safety equipment for existing vehicles
- Addressing the safety imbalance in the construction industry by ensuring road safety is
- considered as important as health and safety on-site
- Encouraging wider adoption of best practice across the construction logistics industry by
- developing a common national standard and a new norm

CLOCS has developed the "CLOCS Standard for Construction Logistics: Managing work-related road risk" which has become a common standard for use by the construction logistics

industry. Implemented by construction clients through contracts, it provides a framework that enables ownership in managing road risk which can be adhered in a consistent way by fleet operators.

[Tfl Construction Logistics Plan Guidance \(2017\)](#)

This guidance document seeks to ensure that CLPs are developed of a high quality are produced to minimise the impact of construction logistics on the road network. The document

provides detailed advice on writing each section of a CLP, from policy through to planned measures.

It is noted that well-planned construction logistics will reduce:

- Environmental impact: Lower vehicle emissions and noise levels
- Road risk: Improving the safety of road users
- Congestion: Reduced vehicle trips, particularly in peak periods
- Cost: Efficient working practices and reduced deliveries

[The Mayor's Transport Strategy \(2018\)](#)

The Mayor's Draft Transport Strategy includes targets to reduce construction traffic within central London by 5% by 2020. Proposals 16 and 17 outlines TfL's aims to work collaboratively with the freight industry and businesses to produce a more efficient and safer servicing and delivery network within London. This is proposed as being achieved through incorporation of consolidation centres within CLPs and rescheduling of construction deliveries

away from peak periods.

SECTION 2 – CONTEXT, CONSIDERATIONS & CHALLENGES

Site Context

The school site is located in Yiewsley, West Drayton, approximately 4.1 km east of Slough. It sits within a residential setting, with predominantly two storey houses surrounding the site to the south and east. To the west it is bounded by Rabbsfarm Primary and to the north by parkland. The site access is from Falling Lane to the south. The closest major road is A408, linking the site into the centre of West Drayton, where there is a train station with links east into central London, and towards Reading and beyond to the west. There are several bus routes in the area linking commuters into West Drayton and towards Heathrow to the south. The U1, U3 and U5 bus routes pass the site to the south, on Falling Lane.

The current Young People's Academy is located at 71 Falling Lane, West Drayton UB7 8AB.

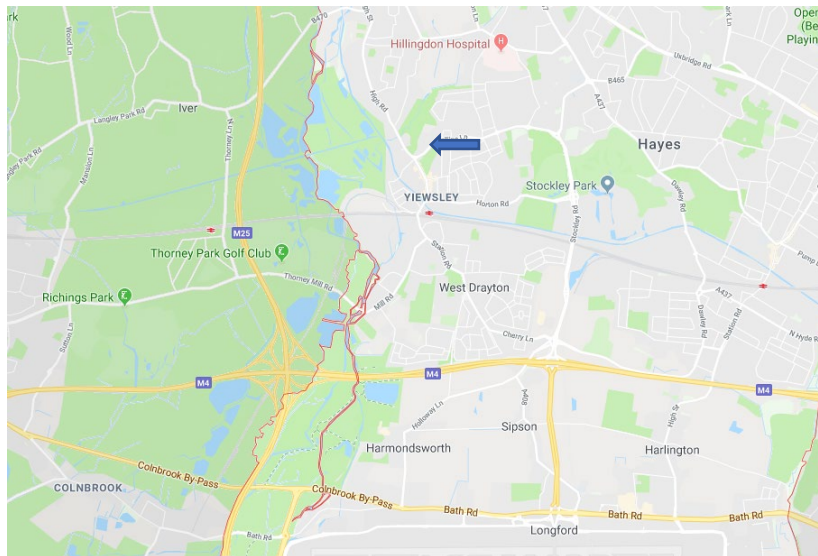


Figure 1 Google map of site location



Figure 2 Google earth aerial view of site boundary

Site Analysis

The site is bounded by residential properties to the south and east, Rabbsfarm Primary School to the west and open land to the north, with access to the site off Falling Lane to south. The site is currently used as a school and comprises a single storey school building located centrally on the site, with five prefabricated classroom buildings located to the west and south west of the main school building. A modern extension is present on the east of the main school building. An asphalt surfaced car park separates the school building from the prefabricated classroom to the south west.

The northern part of the site is comprised of a grassed playing field, with an approximately 1m high mound separating the playing field from the school building and the MUGA to the south.

The access to the current school gives on to Falling Lane to the south east and this access will be maintained for school use only throughout the construction phase.



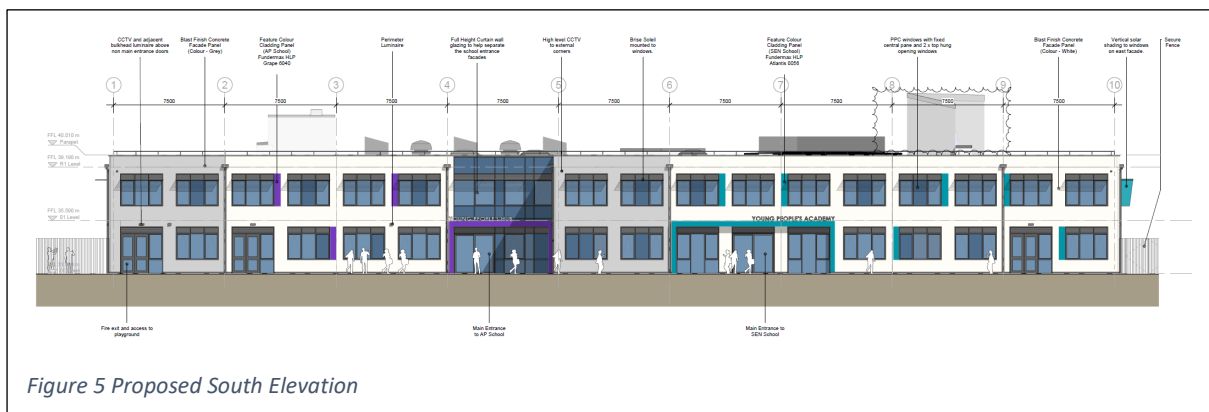
Figure 3 Entrance to Young People's Academy from Falling Lane

Development Proposal

The new school building is split into two zones. **Young People's Academy (YPA)** and **Young People's Hub (YPH)**. Students, staff and visitors enter each school zone through light and welcoming waiting areas.

The development is for 230 place secondary SEN and all through Alternative Provision. The delivery of the specialist SEN curriculum requires careful refinement of typical teaching and learning spaces, to create the correct atmosphere and promote successful outcomes in SEN students.

The new building will be built whilst the existing school remains in use. On completion of the build, students will move across to the new school, to allow the existing building to be demolished to make way for sports play areas and parking for the new school. Construction works will be phased in sequence, working out from the rear of the site so as not to block the existing access route. Construction will be via a haul road to be constructed adjacent to Rabbsfarm Primary (as per similar access installed to enable the build of that school), to cause less disruption to the running of the existing live Young People's Academy.



SECTION 3 – LOGISTICS & DELIVERY

Site Location

The new school will be built on the playing field of the Young People's Academy to the north of the existing school at 51°31'06.0"N 0°28'18.8"W.

Maintenance of the uninterrupted operation of the Young People's Academy during the construction phase is of paramount importance.

The access to the construction site of the new school will be via Philpot's Farm green space accessed off Yiewsley High Street (A408) at 51°30'57.1"N 0°28'30.1"W

A construction access road will be constructed, like that which served the construction of the adjacent Rabbsfarm Primary though extended to the north to service the Orchard Hill site.

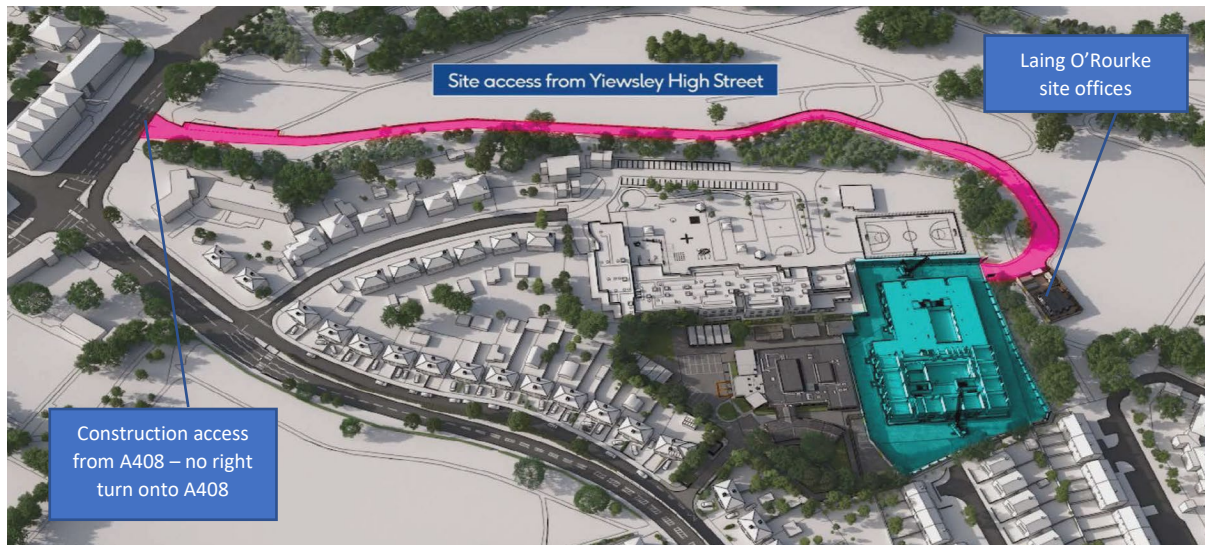
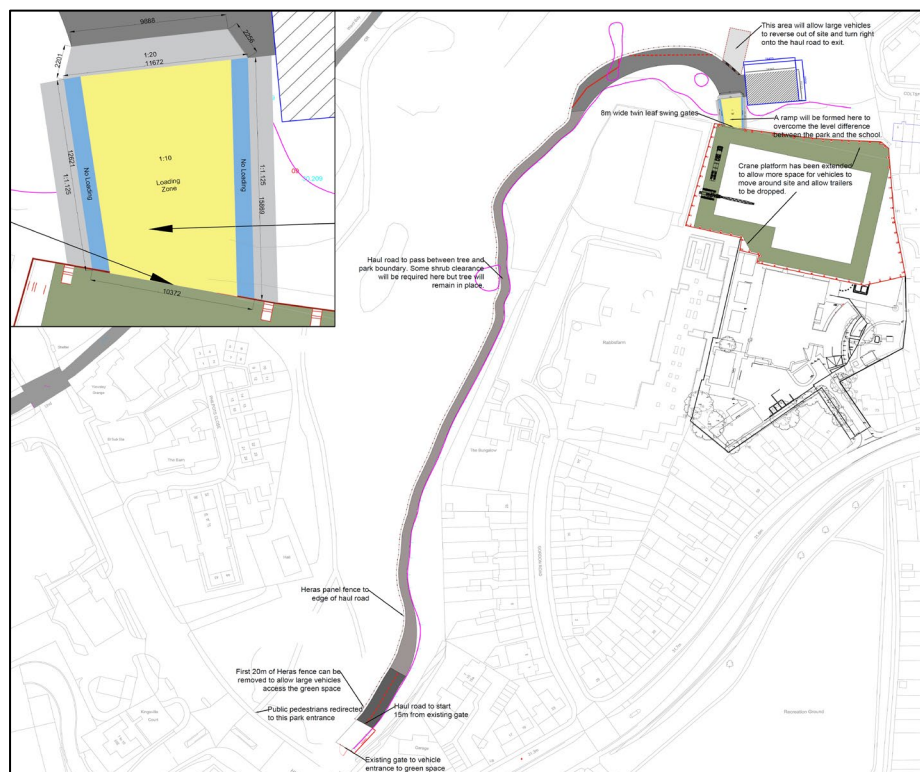


Figure 6 Proposed construction haul road through Philpot's Farm – view looking west

This haul road will enable Falling Lane to be kept clear of construction deliveries and allow Laing O'Rourke to control construction traffic flow directly.

The entrance off Yiewsley High Street A408 will be managed by Laing O'Rourke traffic marshals and turning right across the three lanes of traffic approaching the traffic lights at the falling lane junction will be prohibited – see section 7.

Laing O'Rourke will install site offices and welfare facilities from which to manage the project to the north of the site in a secure temporary compound.



Coltsfoot Drive

Site Compound

New School

Philpott's Farm

The site plan illustrates the layout of the proposed compound. Key features include:

- Entrance/Exit:** Located through the Aurora, with a 1.1m wide ramp leading to a 'No loading' zone (1:1.25) and a 'Loading Zone' (1:10).
- Buildings:**
 - Offices:** A large rectangular building with a total width of 24400 and a depth of 20000. It includes a 16000x16000 area and a 9520x16000 area.
 - Stores:** A building measuring 2500x3000, adjacent to a 1230x1850 COSHH Cage.
 - Septic Tank:** A rectangular structure measuring 4000x2500.
 - Cube Module:** A green rectangular structure measuring 2975x4750.
- Other Structures:**
 - 2 no OSHA Generators:** Two rectangular structures measuring 2910x1080.
 - Stairs:** A set of stairs measuring 1600x6000.
- Clearances and Zones:**
 - 1.5m clearance:** For opening doors.
 - 1m clearance:** For hoarding ballast blocks (800mm deep).
 - 1.1m wide ramp:** Leading to the 'No loading' zone.
- Access Points:**
 - Entrance/exit to compound through Aurora:** Indicated by a green arrow.
 - Exit from compound through gate in hoarding of site compound:** Indicated by a red arrow.

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Management Team

Name	Position	Contact Details	In/Out of Hours
Mike Elliott	Project Leader	07825726002	Primary Contact
Mark Ferguson	Structures Lead	07823362357	Secondary Contact
Leo Madden	Construction Manager	07733014452	Tertiary Contact
Clodagh Murphy	Senior Engineer	07341072261	

Managing Construction Vehicles & Deliveries

Laing O'Rourke have considered the residential nature of the locality and the requirement to keep the existing school operational and tried wherever possible to minimise the impact of the construction of Orchard Hill on the local community and road network.

The offsite - manufactured solution proposed by Laing O'Rourke to meet the brief of the Department for Education means that there will be less trades on site requiring less deliveries and logistics movements. Many of the components for the new building will be arriving from either:

- Explore Manufacturing, S80 3FD (Structural façade, columns, beams)
- Crown House Manufacturing, B69 4LA (MEP components and plant room)
- Creagh Concrete Products, NG14 7JX (Hollow core planks and precast stairs)

This allows accurate scheduling of deliveries and real time tracking of the same meaning less disruption and unpredictable arrival times.

It is understood that the timely management of deliveries is key to the success of the project and in minimising disruption to local stakeholders.

During the works, weekly logistics planning meetings will be held with all the contractors to ensure their deliveries are scheduled, planned and coordinated to avoid congestion. The project will utilise a Delivery Management System (DMS) for the booking and scheduling of deliveries, which aids visibility of the planned contractors' delivery dates and times, locations of delivery, and offloading facility required.

All deliveries will be controlled by our site management team to prevent congestion from delivery vehicles on the surrounding roads.

No vehicles will be granted access to site unless booked-in and authorised. We will require subcontractors to strictly adhere to a just-in-time delivery methodology for loading out to the respective workforce. This protocol will be embedded into the supply chain and trade contractor contract documents and agreed in detail at pre and post-contract meetings.

This process will be managed and coordinated by the DMS; this is a live and interactive system linking the project and the supply chain.

Benefits:

- a) Enabling suppliers to request their preferred time slots and receive confirmation of their allocated slot
- b) Providing greater visibility for all application users
- c) Providing advanced notice to gate personnel and allows for a more efficient flow of site traffic
- d) Facilitating more efficient operations
- e) Enables planning of daily allocation of gate teams, traffic marshals and plant
- f) Preventing congestion on adjacent streets
- g) Provides a detailed record of all deliveries, should follow-up investigations be needed in the unlikely event of a breach in security
- h) All delivery vehicles to be CLOCS & FORS (silver or better) compliant.
- i) Packaging proposals are to ensure that waste is minimal.

Delivery Management

All supply chain contractors will be contractually required to use the project delivery management systems Voyage Control including vehicle tracking, failure to book all vehicle movements using this system will result in transport being denied access to the project.

Voyage Control system takes the guess work out of logistics management, removing the risk of human error and providing Laing O'Rourke and our suppliers with full, real-time visibility of logistics activity.

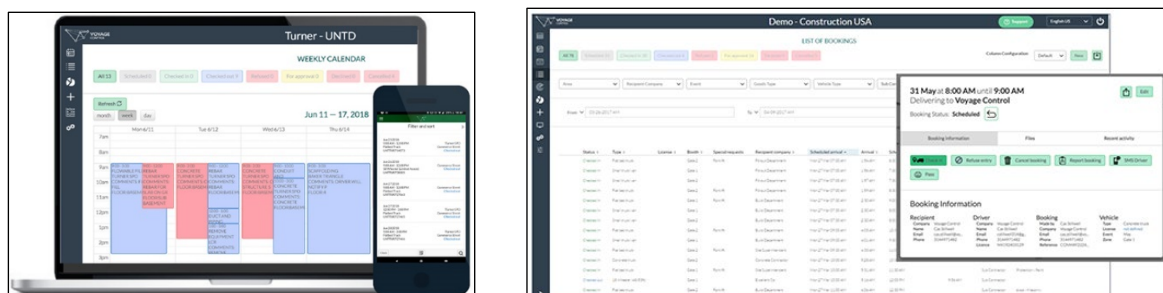


Figure 10 Voyage Control user interface

The automatic, cloud-based scheduling tool can be accessed by any supplier or subcontractor from any web-enabled device. The fully comprehensive and simple booking form allows them to input their required arrival time, time needed for offloading, vehicle type, user type (e.g. concrete or waste) and special requests, such as equipment required for offloading.

Using this information, the system online provides time slots that are really available. This saves the logistics manager the time it would take to ensure availability manually, while still providing the ability to accept or decline – thus maintaining total control of the project.

The automated nature of the system allows a raft of data to be collected and analysed on an ongoing basis. From punctuality to total CO₂, all related data is automatically shown on an easy-to-understand dashboard – with more detailed reports available at the touch of a button. This allows projects to produce highly accurate environmental reports to see their impact in real time.

Direct Vision Standard & Road Safety

The Direct Vision Standard measures how much an HGV driver can see directly through their cab windows. This indicates the level of risk to vulnerable road users, such as people walking and cycling, near the vehicle.

All vehicles entering site must conform to the DVS with **at least a 3-star rating and class VI mirrors**. Further information on standards and the permits which will be enforced from March 2021 is available here:

<https://tfl.gov.uk/info-for/deliveries-in-london/delivering-safely/direct-vision-in-heavy-goods-vehicles>

Delivery Access

Deliveries to site will approach from the north, turning left from the A408 Vehicles exiting site will be restricted to a left turn back on to the A408 to access the main part of Falling Lane and the B467 to get back to the A40 and M25.

Swept path analysis of the turning off the A408 and up and around the haul road has been carried out (see Appendix B).



Figure 11 Proposed construction traffic routes to and from site and M25



Figure 12 Explore Manufacturing Route to Site

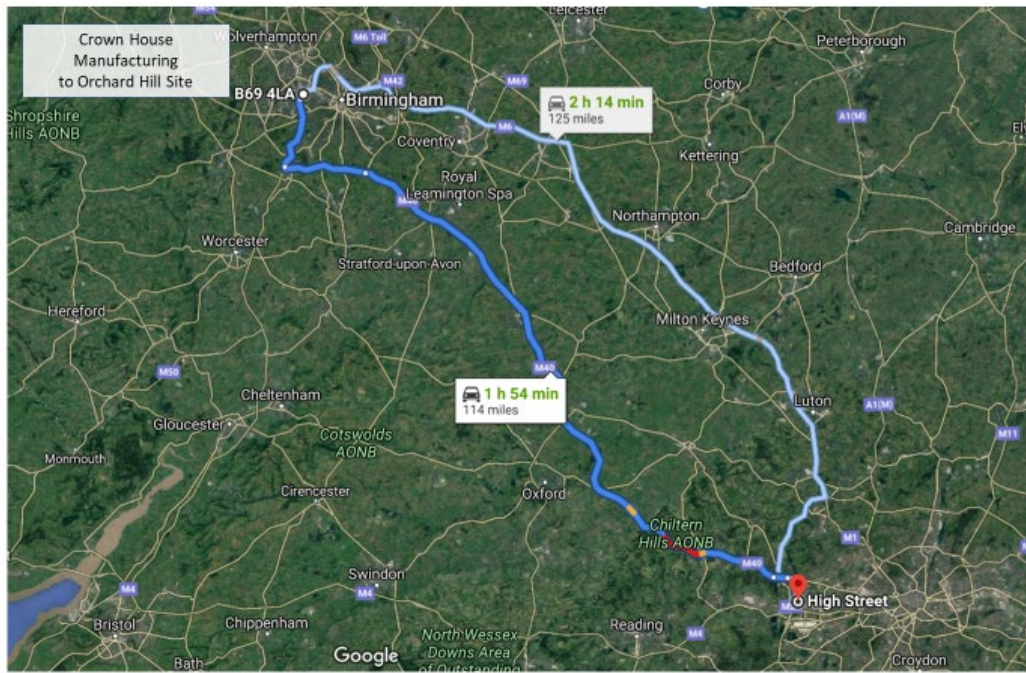


Figure 13 Crown House Manufacturing Route to Site

Haul Road

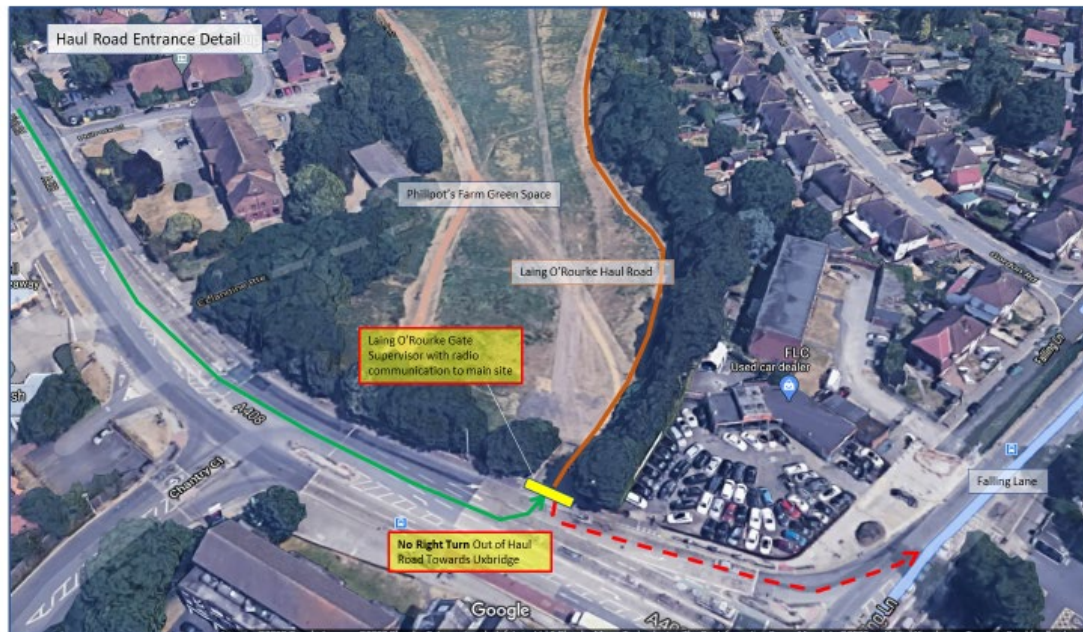


Figure 14 Detail at the Haul Road entrance off A408

Northern Approach

The junction of the haul road and the A408 is close to the existing junction of the A408 with Falling Lane heading east and Trout Road heading south west.

Vehicles approaching this junction from the north along the A408 and wanting to turn left into Falling Lane use a filter lane on the left of the carriageway. There are 3 other lanes – 2 to go straight ahead, 1 to turn right into to Trout Road.

Articulated delivery vehicles approaching from the North to turn left into the haul road will need to swing out the right into the middle lane to make this turn.

Traffic Marshals at the haul road entrance will manage other road users and pedestrians to ensure this turn is made safely, avoiding the danger of other road users continuing up the inside of delivery vehicles turning left. Clear signage will warn other road users of the turn across the filter lane.

For swept path diagrams see Appendix B.

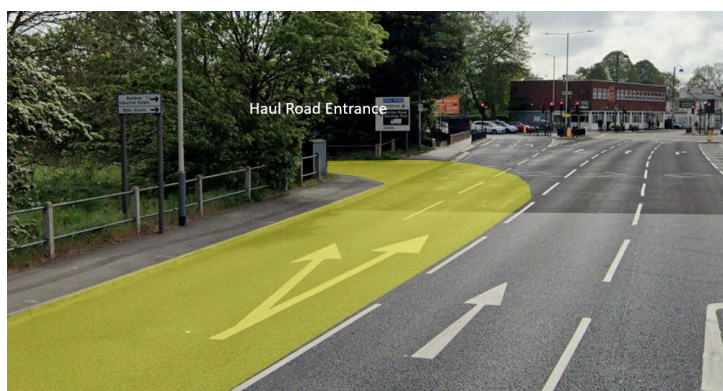


Figure 15 Street view image showing indicative turn zone across filter lane

Traffic Marshalling and Gate Control

There will be a gate staff located at the entrance to haul road from the A408 Yiewsley High Street as well as at the gate into the main site at the other end of the haul road. The gate team will be responsible for the safe passage of delivery vehicles entering and exiting the haul road and main site.

The gate team will communicate by radio, ensuring there is always room for deliveries prior to allowing them up the haul road. We have incorporated two layby waiting areas on the haul road to prevent blocking of the filter lane mentioned above. **No vehicles will be allowed to wait or on the local road network. No idle-running or waiting at the site entrance will be allowed.**



Figure 16 Haul road plan showing gate team locations and passing zone

Delivery Volumes

Weeks 1-13 Substructure Works

Peak - 50 loads/day: Mainly rigid tipper wagons, refuse and skip lorries

Weeks 13-25 Superstructure

Peak – 10 loads/day: Mainly articulated trailers, refuse and skip lorries

Weeks 25-60 Fit Out

Peak – 20 loads/day: Rigid wagons, vans, refuse/skip lorries with some articulated trailers

Weeks 60- 80 Demolition and Landscaping

Peak – 10 loads/day: rigid tipper wagons and vans

Delivery Flows

As described above, laybys have been provided inside site to allow vehicles to wait off the road network to be unloaded. In the unlikely circumstance that deliveries arrive when this space is full, they will be asked to loop around the route described in Fig 11 until such time as space is available.

Much of the building is to be manufactured by Laing O'Rourke and deliveries of these elements will be 'just in time' from our facilities in Worksop and Oldbury. Should there be a need, these deliveries can be held at the Explore Transport depot at Aveley in Essex or Erith in Kent. Roofing and drylining materials will be sourced via SIG, whose new yard at Heathrow will mean deliveries can be called in when required to minimise traffic in the borough. The same is true of the CCF depot at Alperton.

Measures to Prevent Dirt Tracking

Laing O'Rourke are conscious of the impacts on safety and appearance of construction traffic tracking dirt on to surrounding roads and footpaths. In order to prevent this, we will:

- Install a tarmac crane track around the new building so that all plant is tracking on a level and clean surface. This also prevents dirt being brought out of site on tyres.
- Provide a fully tarmac surface to the haul road to prevent construction dirt leaving Philpot's Farm on tyres of vehicles
- Provide a pressure washer at the exit onto Yiewsley High Street (A408) so that in the unlikely event that dirt is tracked down the haul road, the gate staff can wash it off before it reaching the road or footpath network.

Site Hours

Working hours will be **0800 to 1800 Monday to Friday** and **0800 to 1300 on Saturday**.

Work on Sundays will be avoided where possible and only carried out to fit with works avoiding school term time or abnormal loads.

Management of Out of Hours Deliveries

Abnormal loads will be received and removed from the project as detailed by the transport constraints imposed by the metropolitan police. A Section 61 variation will be obtained in advance and local stakeholders informed.

Contact with the existing school will be closely maintained and any sensitive or critical periods acknowledged with work activities planned appropriately where possible.

Travel to Site

Driving to site will be discouraged in favour of public transport. Pedestrian access is to be along the haul road to discourage disturbance to surrounding neighbours. Cyclists will access by the same means but there will be a separate pedestrian gate in the site compound hoarding to allow bikes to be brought inside the secure line once riders have entered through the turnstiles.

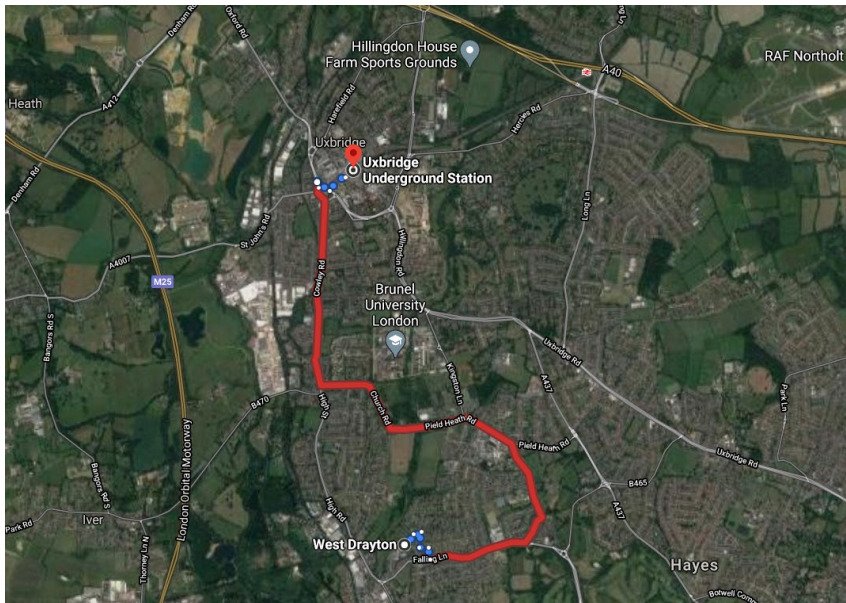


Figure 17 Travel from Uxbridge Underground Station via U5 Bus – 30 mins

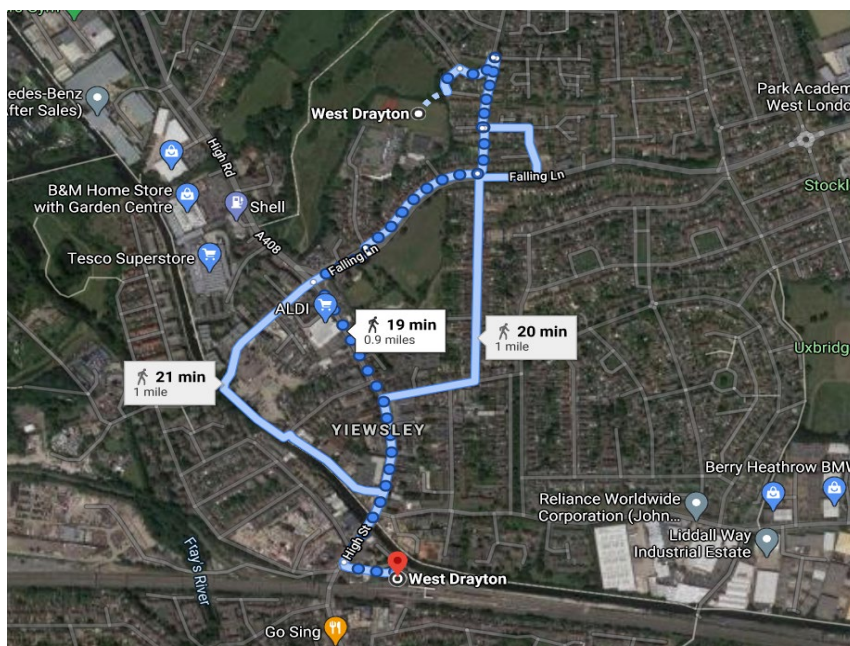


Figure 18 Travel from West Drayton National Rail Station via Yiewsley High St. - 20min walk

There will be some members of the site team who will stay locally during the working week in hotels/lodgings – a likely journey to site is:

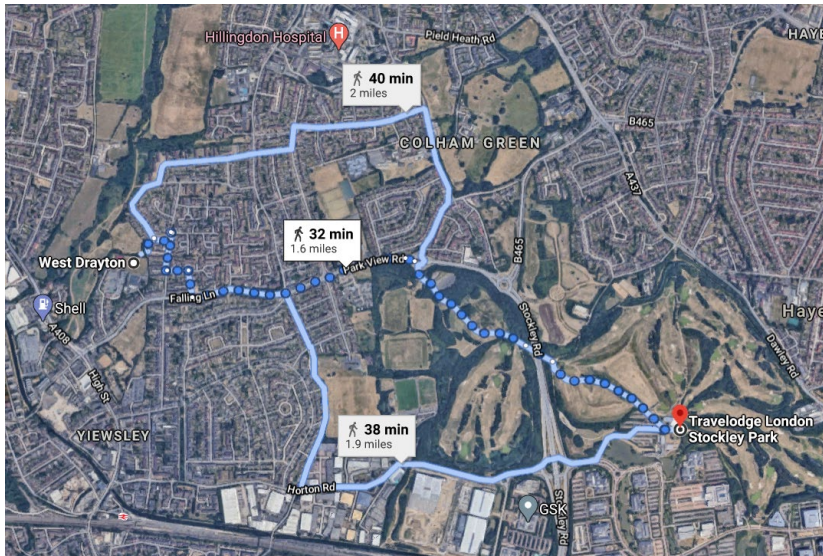


Figure 19 Travel from Travelodge London Stockley Park – 30 min walk

Those for whom driving is unavoidable can use the Fairfield road car park in Yiewsley where 9 hours currently costs £6.20.

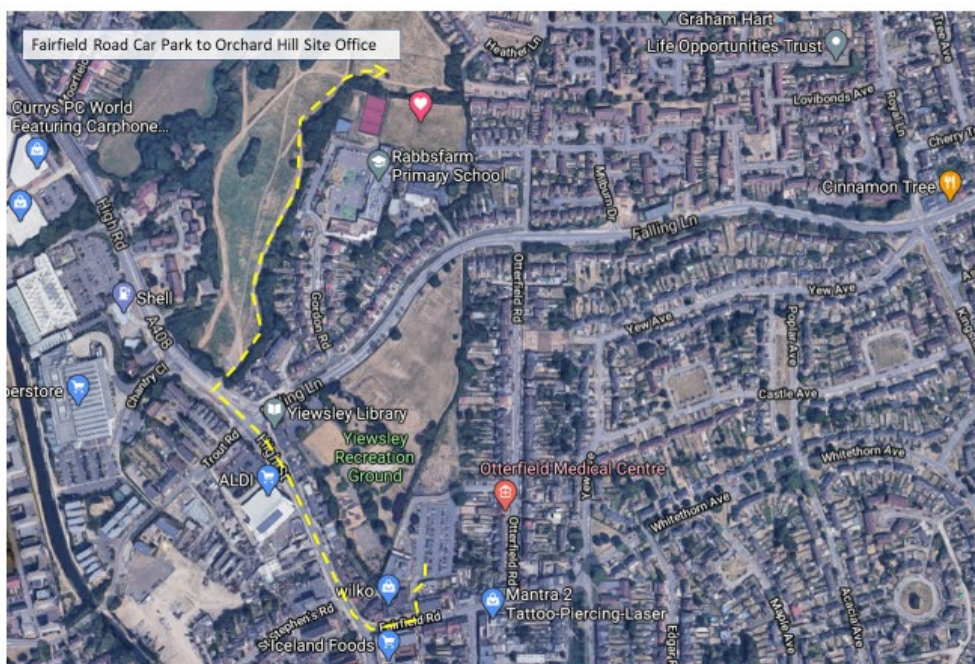


Figure 20 Travel from Fairfield Road Car Park – 15-minute walk

Site Offices and Welfare

Laing O'Rourke will provide offices for the site team and client alongside drying/changing rooms, canteen with microwaves and fridges, first aid room and toilets:

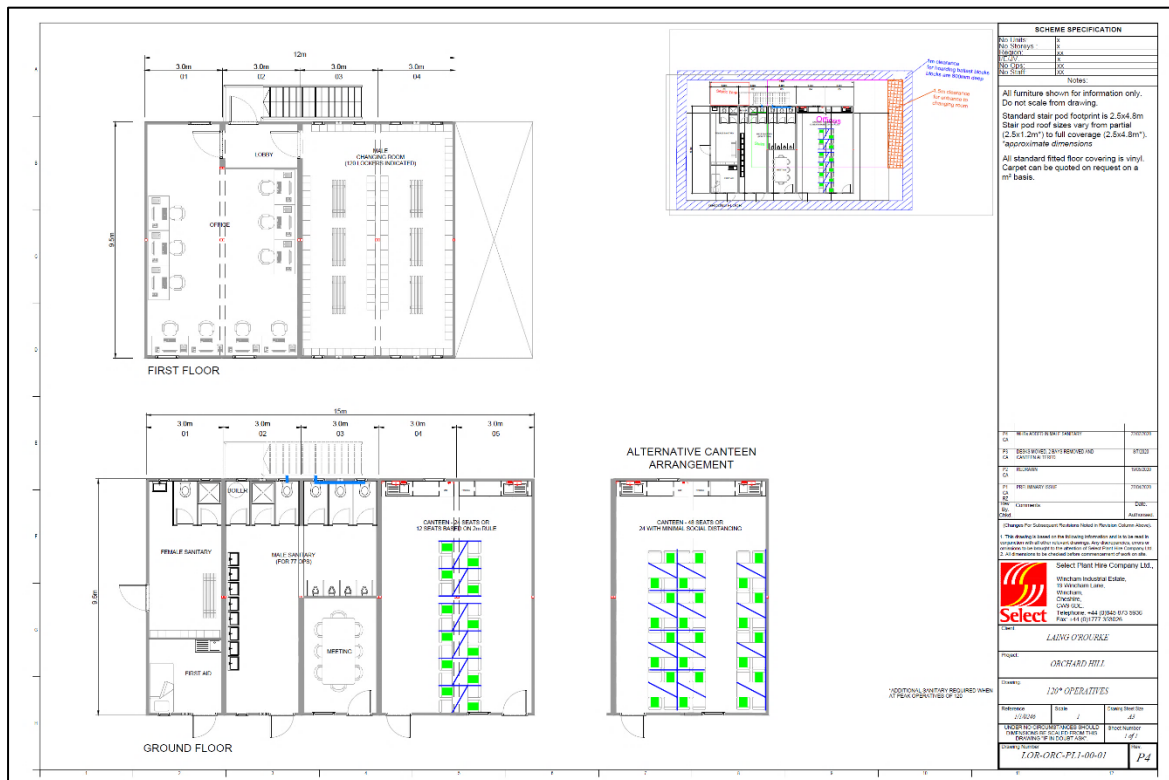


Figure 21 Laing O'Rourke Site Accommodation Layout

COVID-19

Welfare facilities will be made COVID secure in line with PHE guideline and those laid out in 'Site Operating Procedures – Version 6' published by the Construction Leadership Council.

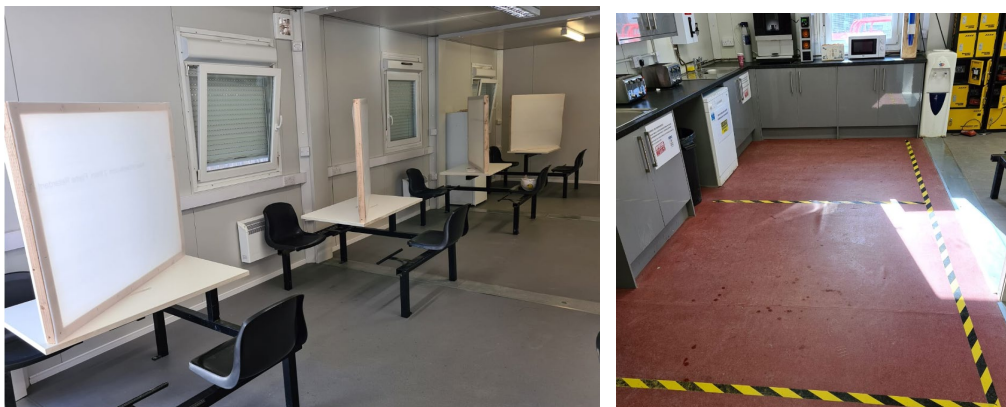


Figure 22 Examples of COVID security measures

Laing O'Rourke now has extensive experience of making workplaces COVID-safe and we will use all of the lessons learned from other projects to ensure Orchard Hill meets the high standards set elsewhere – and government guidance as a minimum.

Site Access and Aurora

Access to site for all personnel is via a facial recognition turnstile system (Aurora) which will be located at the entrance to the site compound and accurately record the arrival and departure time of personnel and visitors on site.



Aurora Turnstile

Movement Around Site

Access to all parts of the site (internal and external) will be in line with Laing O'Rourke Group standard guidance G4 -J Access Routes and COVID-19 Operational Workplace Guidance (attached in Appendix C). These standards ensure safe access at all times.

Access routes will be reviewed at least weekly or as works require to ensure they always remain appropriate and safe.

In general, and notwithstanding the standards mentioned above:

- All main access routes will be pre planned to ensure all pedestrian access routes are segregated and protected from vehicular traffic or plant if possible
- All pedestrian access routes will be clearly identified and delineated.
- Any crossing points over traffic routes will be planned and established to allow control with provision of roadside barriers, warning notices for pedestrians and vehicles, painted crossing points on the road and traffic calming measures considered when planning and designing crossing points and pedestrian routes through sites or workplaces

SECTION 4 – PHASING & PROGRAMME

Key Dates

Haul Road Start – 7th December 2020

Section 1 (New School) Start – 4th January 2021

Section 1 Completion – 28th February 2022

Section 2 (Demolition and Landscaping) Start – 7th March 2022

Section 2 Completion – 12th October 2022

Construction Phasing

The new school building is to be delivered between December 2020 and February 2022, allowing occupation of the new building during half term in that month. There will then be an external phase involving the demolition of the existing school and completion the car parking and external landscaping.

The construction of the new building is split in to 4 ‘pours’ or areas and the flow of work will be East to West.

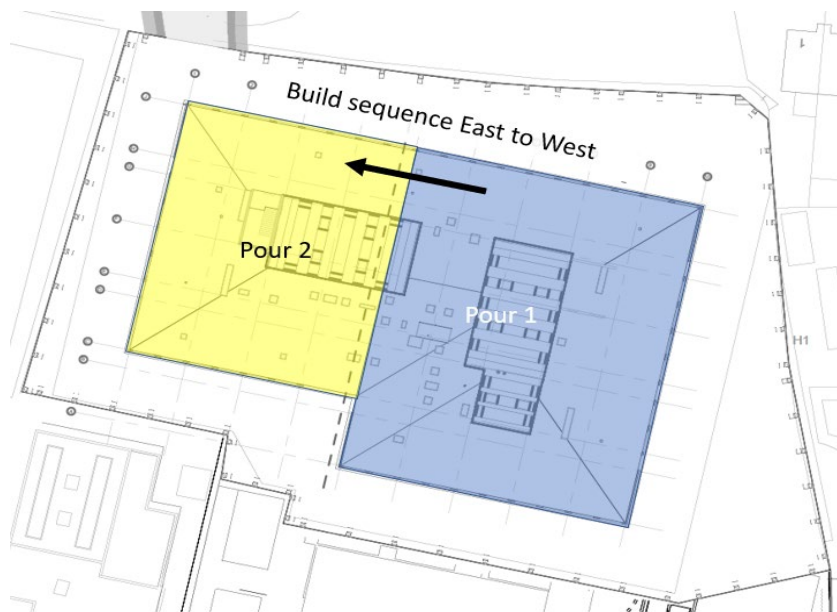


Figure 23 Build sequence

Enabling works

Laing O’Rourke will provide temporary access to site through Philpot’s Farm as described above and in Figure 7. The site compound will be positioned to the northwest – separated from the existing school and residential neighbours.

Site clearance, reduced level dig, imported hardcore for haul road, hard standings and foundations will require increased lorry movements for two weeks.

There are tree trimming and some removal works associated with this work phase. All tree removal works to be as per recommendations in the Arboriculture Method Statement and Tree Protection Plan appended to this document in Appendix F which outline requirements under BS 5837:2012.

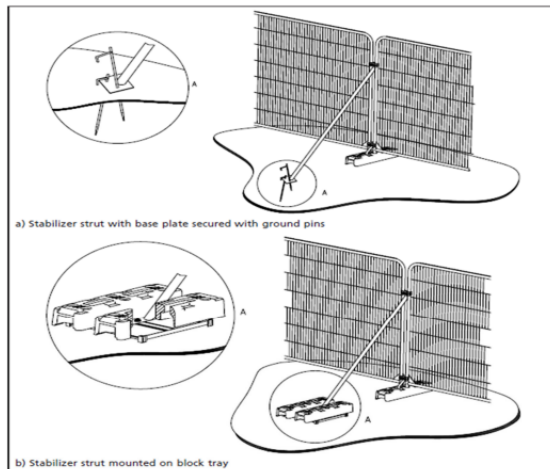


Figure 3: tree protection fencing.

The protected areas shall be seen as sacrosanct and once installed shall not be moved or altered without recommendation by an arboriculturist and, where necessary, approval from the local planning authority. The fencing shall also have signs attached so all are aware of the reason and importance of the fencing.

Figure 24 Tree Protection Fencing



Figure 25 Weeks 1-5 Enabling Works

Substructure Construction (week 1–11)

Substructure will commence at week 5 with the ground preparation for a crane access track around the perimeter of the school footprint. We have allowed 30 days for 2000m³ bulked excavation with a lorry capacity of 9m³ equalling **eight lorries daily**.



Figure 26 Week 8-19 Substructure

Superstructure Construction (week 12–28)

With area 1 complete, the superstructure will commence:

- Site serviced by two crawler cranes with fly jibs
- Systematic erection of precast concrete
- Superstructure completed in ten weeks
- Roof insulation/membrane completed by week 30
- Package plantroom and air handling units following roof



Figure 27 Superstructure weeks 18-28

Cladding

- Cladding panels installed in parallel with structure
- Precast elevation panels delivered pre-glazed – allowing fit-out progression



Figure 28 Cladding panels installed

Internal Fit Out – MEP Services (week 27–60)

Laing O'Rourke's modularised approach reduces programme and onsite labour. We anticipate a peak workforce of less than 60 – a 50% reduction on traditional methods. This improves site set-up, logistics, health and safety, and disruption. Main runs of corridor and riser services will be modularised where possible, as will over 60% of internal walls.

Incoming Utilities and Temporary Student Drop-Off (week 40–46)



Figure 29 Incoming services diversions completed during school Easter holiday

Works are sequenced to minimise disruption to school activities – ensuring early availability of incoming utilities. The works will take place out of school hours, with access maintained.

Incoming Utilities

- Gas and water proposed routing at the southeast corner of the site
- Scottish & Southern Electricity Networks (SSEN) electrical supply via Leacroft Close to the east.

Fit-Out Commissioning

- Key hold and inspection points will ensure wall and ceiling void signoffs are recorded. A six-week
- Snagging period is programmed before ceiling tile and loose FFE installation to support quality objectives.
- Progress of fit-out links into the commissioning period – particularly for BMS and fire alarms. Life safety tests and a system proving soak test (seven continuous days) follow.

Temporary drop-off

- In advance of decant, we will take possession of the multi-use games area (MUGA) and provide temporary drop-off.



Figure 30 New school complete and start of decant

Demolition of Young People's Academy and Landscaping (week 71–84)

After decanting old school into new, hoarding will separate the operational new school from the demolition zone. Demolition traffic will be directed to the northwest site entrance and segregated. Works will be sequenced to:

- Maintain drop-off zone
- Maintain staff car park
- Control noise/pollution

After demolition, final landscaping will be completed within site boundaries.



Figure 31 New school operational & start of demolition/landscaping

Final Landscaping, MUGA and All-Weather Pitch

This section of works consists of:

- Site A – west side of new permanent car park/drop-off/access
- Site B – east side of new permanent car park/drop-off/access



Figure 32 Final landscaping and provision of sports facilities

Project Completion 23rd August 2021



Figure 33 Project complete

SECTION 5 – OFFLOADING, DISTRIBUTION, WASTE & CONTROL OF NUISANCE

Cranes

The frame construction will utilise 2 100t crawler cranes with fly jibs to lift precast columns, beams, hollow core planks, twin wall panels, precast stair units and sandwich cladding panels. Cranes will also be used to assist wet concrete works where concrete pumping is not appropriate. These cranes will travel around the 7m wide track that will be formed around the entire footprint of the school. This will be finished in tarmac base course and left low for final finishing with landscaping.

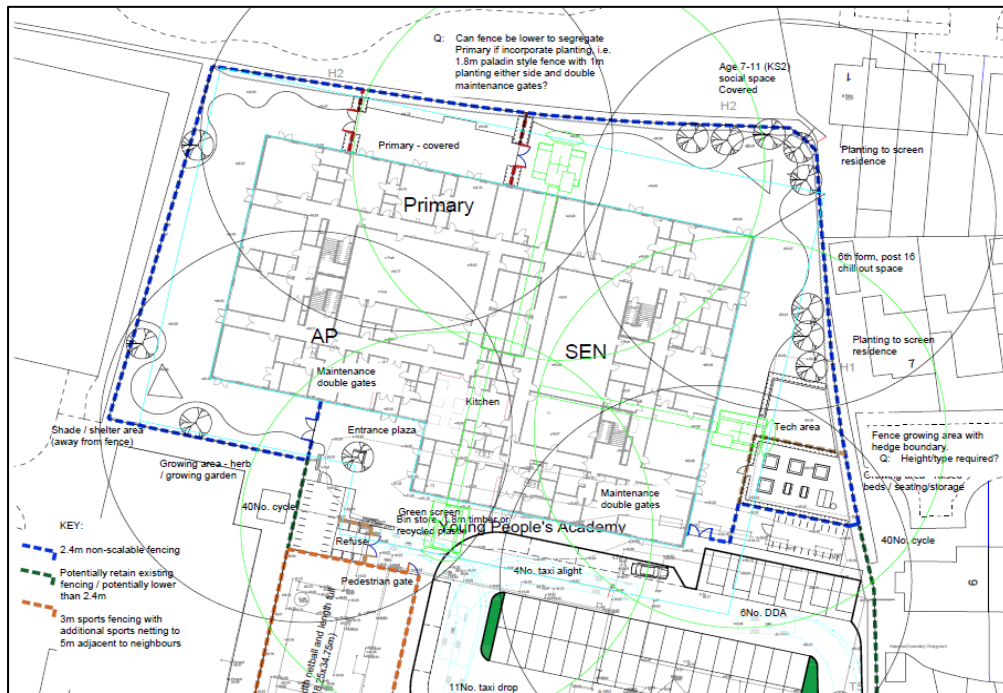


Figure 34 Crane plan with crane working radii



Figure 35 Foundations showing crane track around building footprint

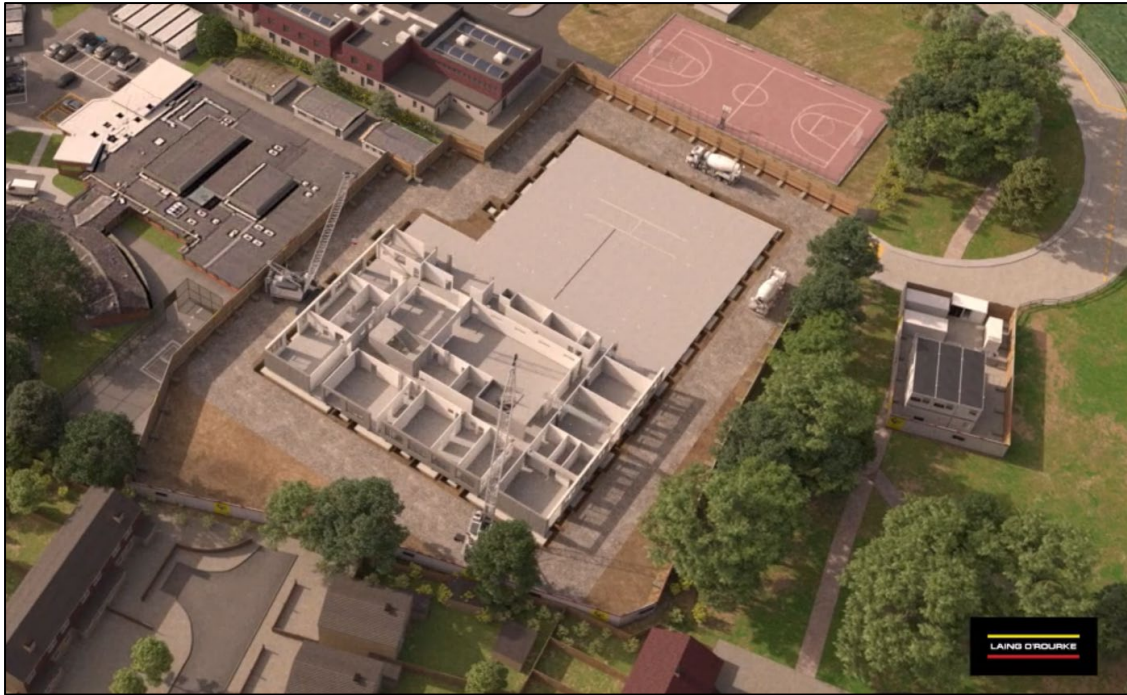


Figure 36 Crawler cranes constructing frame and internal walls (Smart wall)

Loading Out

Loading out will be by 360° forklift (Merlo) onto scaffold loading bays at breaks in cladding which will ultimately be clad using curtain walling. This method will be used to load out MEP modules, plasterboard, pipe work, FF&E, ceilings and other required fit out materials.

Roof steel and decking, rooflights and the modular plant room will require a mobile crane which will be brought in as required. Predicted crane positions are shown in Appendix D.

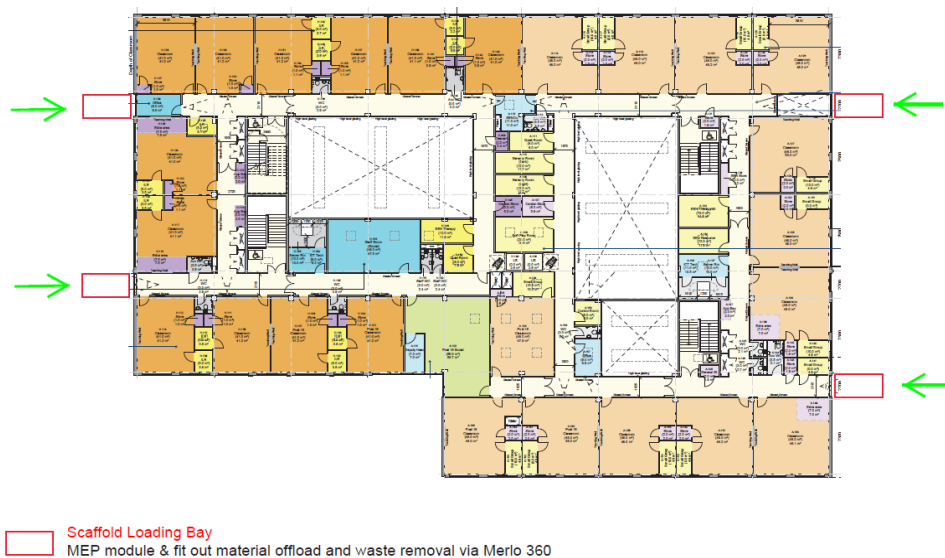


Figure 37 Offloading and distribution to Level 1 and roof

Materials Storage on Site

- Minimal on-site material storage will be allowed with construction elements and materials brought in 'just in time' wherever possible.
- Where material must be stored on site this will be for limited time and in strictly controlled and clearly labelled storage areas.
- Secure cages will be used for storing COSHH materials and gas bottles
- The Laing O'Rourke Supervisor will be responsible for ensuring materials are stored safely and for the shortest time possible.

Noise Control and Reduction

Nuisance from demolition and construction works is subject to control under The Control of Pollution Act 1974 and all noise generated during such works should be controlled in compliance with British Standard Code of Practice BS 5228: 1984.

A meeting with the EHO at London Borough of Hillingdon is to be arranged prior to work starting to ensure noise and nuisance reduction proposals are acceptable.

Noise Mitigation

The noise impact of the construction phases can be minimised by use of the noise control measures. General principles for the control of noise during the construction works are presented below:

- Appropriate choice of plant and equipment
- Regular plant maintenance to keep plant in good working condition and reduce noise from machinery
- Careful phasing of the proposed operations
- Provision of temporary barriers where works are beyond normal acceptable noise levels

Noise Reduction of Mobile Plant

- The movement of plant onto and around the site will have regard to the normal operating hours of the site and the location of any noise sensitive receptors.
- Audible reversing alarms will be of a type, which whilst ensuring that they give proper warning, have a minimum noise impact external to the site.
- The haul road and routes around the site will be well maintained and avoid steep gradients.
- Earth moving plant to be fitted with sound reduction equipment where possible and manufacturers' enclosure panels to be kept closed.
- Careful phasing of the works will also aid in minimising their impact.
- The site compound is at the back of the site so as to be as far away as possible from noise sensitive locations to assist in minimising sources likely to generate nuisance.
- Close liaison with the occupants of properties within noise sensitive locations will be maintained in order to ensure that they are aware of the timing and duration of activities. This particularly applies to residents of Falling Lane and Coltsfoot Drive to the east of the site and Rabbsfarm Primary School to the West.
- Constant liaison will be maintained with Young People's Academy with regard to noisy works

- Generators to be placed behind site cabins (away from local noise receptors) and use acoustic covers to aid noise reduction
- One way traffic system to be used to reduce annoyance caused by vehicle reversing alarms
- Haul road and crane mat tarmac surfaced to reduce vibration impacts from heavy plant

Control of Dust and Impact on Air Quality

All reasonable measures will be taken to prevent annoyance or inconvenience to residents, road users or pedestrians due to dust or air-borne contaminants due to the construction process. Mitigation measures:

- Tarmac surface to haul road and crane track minimises dust from vehicles
- All deep excavations taking place in winter months
- Full skips to be covered when leaving site
- Full muck/aggregate wagons to be covered when entering and leaving site
- Minimal storage of aggregates/fill materials on site. Where necessary, piles/mounds to be covered with appropriate membrane to prevent airborne dust
- Maximisation of offsite manufactured building elements- structural frame, slabs, facades and internal walls - reduces dusty materials on site
- Where perimeter hoardings are not solid, monarflex or similar sheeting to be used to reduce dust migration from the site
- Water bowzers to be used to suppress dust where necessary
- All cutting and grinding tools to have water dust suppression accessories
- Low VOC products to be promoted where their efficacy is not in contravention of building regulations or client specification
- Plant engines to be switched off when not in use

Lifting

All lifting will be planned and carried out in line with the Laing O'Rourke 'Safe Lifting Operations' document, Provision and Use of Work Equipment Regulations 1998 (PUWER) and Lifting Equipment Regulations 1998 (LOLER).

Tree Protection

All construction activities will pay heed to the Arboriculture Method Statement and Tree Protection Plan appended to this document in Appendix F which outline requirements under BS 5837:2012.

Resource Management Plan (Site Waste Management Plan)

Waste to be disposed of in skips during construction of sub and superstructure and into bins located in central areas once fit out starts.

All subcontractors are responsible for minimising waste and designing packaging for re-use as a priority, recycling if re-use is not possible. Packaging to be removed from site by subcontractors where possible.

All waste is governed by the following regulations:

The Waste (England and Wales) Regulations 2011 (last amendment SI 2015/1417)
The Hazardous Waste (Wales) Regulations 2005 (last amendment) SI 2015/1417
The Hazardous Waste (England and Wales) Regulations 2005 (last amendment SI 2016 / 336)
The Waste Electrical and Electronic Equipment Regulations 2013 (last amendment SI 2015/1968)

Waste Hierarchy

1. **PREVENTION** of waste
2. If there is waste, **PREPARE FOR RE-USE**
3. Next consider **RECYCLING**
4. If it can't be recycled, then think of **OTHER RECOVERY** (for example, for energy)
5. Last resort – **DISPOSAL** in landfill

Waste will be minimised from design stage, through subcontract procurement and construction.

Design:

- Offsite manufacture means factory standard waste management processes and the ability to design out waste at source
- Smart wall install with the structural frame minimises plasterboard waste on site
- Where plasterboard is required, board sizes to be designed and manufactured to optimise manufactured product and minimise waste
- 70/60/30/0/0 approach – 70% of construction asset delivered via DfMA (offsite manufacture), 60% labour reduction onsite, 30% programme reduction in areas we control, 0% carbon footprint, 0% accident frequency rate

Subcontract Procurement:

- All subcontractors to be aligned with Laing O'Rourke's environmental and sustainability policies (see Appendix E)

Construction

- Materials packaging minimised and taken away by suppliers where possible
- Sustainability and environmental management embedded in construction team culture – project leader's responsibility
- Site waste remaining after the above will be disposed of via segregated, clearly labelled skips and the Laing O'Rourke site logistics supervisor will be responsible for ensuring waste leaves the site in the appropriate skip.
- Signage will comply with the National Colour Coding Scheme – this consistent approach aims to increase recycling. The standard colours for each waste stream are:

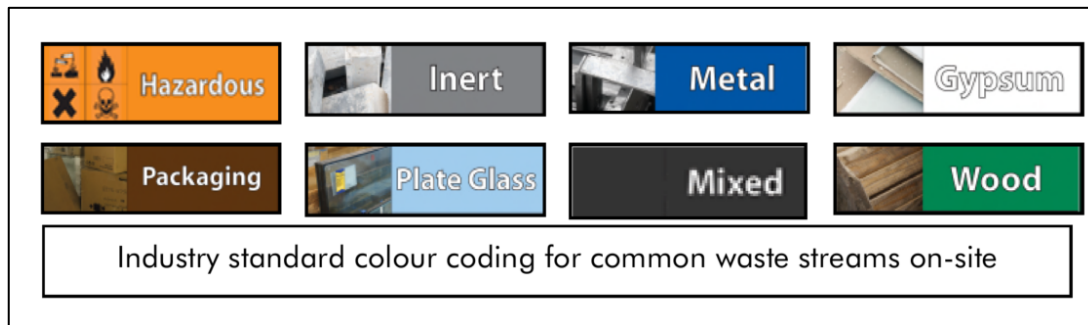


Figure 38 Waste stream colour coding

DO	DON'T
PREVENT ✓ Store materials neatly to avoid damage/loss and keep in packaging until needed (protection). ✓ Think of ways to reduce waste created on site and where appropriate, implement them. PREPARE FOR RE-USE ✓ Keep significant off-cuts for use elsewhere. ✓ Re-use materials until not fit for purpose. ✓ Re-use materials for alternative purposes. RECYCLE ✓ Segregate waste for recycling where possible and store in the correct container until removed from site. ✓ Ensure skips are labelled clearly.	✗ Burn or bury waste – it's illegal. ✗ Leave materials unprotected and where they are likely to be damaged by rain or mud (etc.). ✗ Open new cans/pallets before the ones in use are empty. ✗ Mix different types of waste – it prevents recycling. ✗ Put waste materials into the wrong waste container. ✗ Leave materials at risk from site traffic movements.

Further waste management targets and policies will be in the **Laing O'Rourke Construction Environmental Management Plan**.

SECTION 6 – IMPLEMENTATION & MONITORING

The implementation and monitoring of the Construction Logistics Plan will be responsibility of the project Logistics team.

Constant review of the plan will take place at weekly logistics meetings and daily briefings and at major changes in project scope. This document will be updated accordingly.

APPENDIX A

Laing O'Rourke Health and Safety Policy

APPENDIX B

Swept Path Analysis Diagrams

APPENDIX C

Laing O'Rourke COVID Workplace Guidance Document

APPENDIX D

Crane Strategy

APPENDIX E

Environmental & Sustainability Policies

APPENDIX F

Arboriculture Method Statement & Tree Protection Plan