



Abbey Primary

Outline Construction Methodology Statement – December 2019

Project Description

- A new English medium primary school.
- The construction of the new Abbey Primary will allow the amalgamation of the existing Neath Abbey Infant School (currently split over three sites)
- The new school will be located on the site of the former Dwr Y Felin Lower Comprehensive.
- Building area 2780m² in accordance with the schedule of areas provided.
- The following requirements are set out by the brief:
 - o 420 3-11 pupils
 - o 50 nursery pupils
 - o 15-20 pupils for the early years assessment centre
 - o 30 pupils for additional childcare
 - o The construction budget excluding employer's contingency but including contractors pre-construction fee and preliminaries for the project is £8 million.
- The school is to be constructed in accordance with the BREEAM excellent.
- The school is to achieve secure by design accreditation.

Main Construction Phase

A logistics plan will be developed in cooperation with the exiting school to take into account delivery times and working hours.

Site Set-up

The site will be made secure by way of Heras panel fencing around the boundary. There will be a single set of vehicle gates (with gate man) which will enter the existing school entrance adjacent to a pedestrian walkway. Skips will be set up within the site boundary on level stoned up area with suitable exclusion barriers.

There will be temporary lighting set up around the site accommodation to enable safe walking to and from site. All lighting will be fitted with timers which will stop and nuisance from lighting affecting neighbouring properties.

Through the early works of the project we will use a temporary Oasis until we can forge access road and hard standing for welfare site cabins.

Perimeter fencing

The fencing will predominantly take the form of Heras or existing palisade fencing around the full perimeter.

Where our new fence line meet existing carriageway we will set back fencing to allow clear view, both up and down Heol Penlan.

During the main entrance phase a traffic management plan will be developed with the Highways authority and subcontractors of how best to manage this element.

There will be a separate area of fencing (heras) to the site office/welfare/car park compound. The main site works will be accessed by Biometric turnstile.

Site Logistics

Site operatives will arrive at the main site office/welfare compound, park their vehicles. All Construction deliveries will access site through main gate of heol penlan, which will be controlled by a gateman. A one way system will be implemented. Compound and lay down area will be lying on this route. Site waste will be segregated into material specific skips (eg, wood, plasterboard, metal etc) for onward disposal at a recycling centre.

Within the construction zone segregation of personnel and vehicles will be managed by means of pedestrian barriers and Red & white plastic barriers. Defined crossing points will be established, with the primary location being by the site entrance gate, allowing the gateman to supervise this intersection.

Earthworks

The initial operation of the Earthworks will be to construct a hard-standing route into the site. Topsoil is estimated to be removed of depths in excess of 400mm. As the soil is removed (from site) some 300-400mm of clean stone is to be laid (on terram) to provide a clean running surface.

The initial route is to establish an area in front of the proposed site entrance/exit with an access road in-between.

The strip foundation will be excavated to the required depths, and we are looking vibro pile under the building footprint to stabilise ground. There is a retaining wall structure which will be constructed in parallel with the foundations, allowing completion of the final stone infill across the site.

Principal drainage runs and storm cell storage tanks may be excavated at this stage, along with any adjacent ducts. The area between the site entrance and egress gates will be fully constructed, including tarmac (less wearing course), in order to provide a clean area for deliveries/site logistics and a stable platform. It will also simplify any wheel washing requirements (a road sweeper is predicted to be utilised supplied by the ground worker). The area will be constructed to a road standard in order to withstand the vehicle loads predicted. A jet wash will be site at the main gate, with the gateman responsible for ensuring all vehicles are clean. The dirty water run-off will be collected via a temporary site drainage run and discharged into the permanent foul sewer via a proprietary Silt-buster unit. A licence for discharge will be obtained via Welsh Water. The earthworks will be planned and carried out to minimise surface water runoff, off site.

Noise and Dust Control

We are aware of the sensitive nature of working around busy environment. Inevitably, some activities involved in a construction project of this type will generate both noise and dust. To mitigate potential problems we will adopt the following procedures:

Before commencing work on-site we will investigate the current levels of back ground noise in the area, this will involve undertaking a noise survey at various times and location around the site. As they are developed our detailed Method Statements and Risk Assessments will identify those activities where noise and dust may be a particular point of concern.

When selecting subcontractors their ability to conform to the environmental standards that we have set, this will be an important part of the bid analysis process.

Our site teams, including our subcontractors will be aware of the requirements to comply with the agreed conditions and working methods. Regular checks will be carried out throughout the project to monitor the general level of site noise and dust.

It will be the responsibility of Rhys Lewis and his site team to manage coordinate and control the activities as listed above; this will be communicated through notifications, points of contact, weekly Liaison and review meetings so to avoid disruption. At these meetings, we will also discuss the overall methodology of our construction activities.

Having identified in this Method Statement activities likely to give rise to dust and noise, we will then decide on the best approach to minimise these problems. The following is a list of actions and procedures that we could take in the appropriate circumstance to mitigate the effects of noise and dust created by site operations:

- Construction plant fitted with the appropriate attachments to reduce noise and dust

- Regular damping down of areas identified to give rise to dust
- Creation of buffer zones around problem areas
- Controlled handling and removal of materials
- Enclosed skips to be covered where appropriate
- A strict road-cleaning regime, use jet washing facilities at exits onto public highway

For prolonged activities likely to give rise to high levels of noise, we will restrict the hours when these activities take place and will allow for regular “noise free” periods during the day, these periods shall be co-ordinated with neighbouring building occupiers via the liaison process.

All our site operatives will be issued with appropriate personal protection equipment.

Ancillary works at this time will include a temporary drainage connection for site toilets (located in welfare compound set up).

Site wide drainage and trenching for ducts can commence there-after, but not within 5m of the building foot-print as the area is to be used for MEWPS and the mat cannot be disturbed at this time.

On completion of the upper levels of the envelope final drainage/services trenching to the buildings can be undertaken, followed by landscaping and the perimeter fencing.

Structural Steel Frame

The beam and stick steel frame will be installed by firstly installing concrete pads which will have holding down bolts cast in situ, which then the steel columns will then get installed form. The steel frame will get installed in grid format from end to end, within section completed it will then be lighted levelled and grouted install to base to sure up frame.

The structural steel frame will be installed using mobile crane, the operatives installing the steelwork will be using MEWP, more than likely it will be a cherry picker which offers more easily and versatile bit of complete to complete the bolting up.

Envelope

The envelope will commence towards the end of the frame construction:

- 1) Metsec installation –The perceived method of installation is via large external MEWPS, though an internal installation would be considered subject to a satisfactory safe method being agreed. Entire elevations are required to be completed before moving onto others. Note where the building is two storey there will be suitable edge protection installed on first floor slab.

External insulated cladding – this element will be the second to commence, following the met-sec installation. The installation will be off large MEWPS running on the previously prepared stone mat. A stringent system will be required to ensure the mat is reviewed daily for suitability and before each MEWP is utilised after a move. One elevation is to be completed at a time unless sufficient work areas/resource becomes available. Note that the brickwork to the lower levels will commence after these works, and as such a suitable flashing detail is required to allow this installation to take place.

The External windows will follow the cladding installation, with sufficient co-ordination with the cladding sub-contractor to ensure any EPDM installation is captured at the appropriate time. Installation of the windows may be made from the inside, subject to an agreed safe system of work. Mastic type seals between window and cladding are predicted to be undertaken from outside using large MEWPS. Glass installation is predicted to be from inside, except to the large curtain wall areas, where access may need to be external from Large MEWPS. Any heavy glass units will be installed using glass robots as BAM minimum standards.

- 2) Brickwork/Blockwork – this activity will follow behind the cladding/window works to the majority of elevations.
- 3) Scaffolding – primary means of access is to be by external MEWPS run off the stone mat. However, there are a number of areas requiring scaffold which are inaccessible. These include:-
 - a) Block/brick walls; external brickwork walls not practical off a MEWP.
 - b) Roof stair cores
 - c) Roof light well perimeter upstands
 - d) Birdcage scaffold to light wells for internal finishing's and roof light glass platform
 - e) Lift shaft doors
 - f) Guard-rail to stairs
 - g) Haki-stairs
 - h) Access platforms within stairs
 - i) Proprietary scaffold loading bay gates

Internal Works

1. Internal partitions – these will commence when the building is sufficiently water tight commencing at the upper floor and sequencing down to the ground. The logistic route will primarily be via loading bay points established on each floor for Telehandler supply.
2. MEP – First fix installation to commence in line with partition installation, top down, including the primary routes at ceiling level and within partitions. MEP install at slab level will commence when all adjacent partitions are complete and the risk of damage has been mitigated with the establishment of pedestrian 'crossing points' to the service routes.
3. Internal finishes – doors/ceilings/floors/decoration: to follow same sequence. The raised access floor will be fitted as soon as adequate MEP install has been achieved. A forklift will be available during initial period, giving way to beneficial use of the permanent lift towards the latter stages, though larger items will not fit into the permanent lift and will need to be delivered early enough for hoist use, or broken down to manageable size for permanent lift use.

Site Clearance / Crane Mat

The site will be stripped, reduced in level and a crane mat installed.

All vegetation and some trees are to be removed as part of the new building.

Groundworks

Prior to commencement of the groundworks, GSI tests and service inspections will take place. Once complete, the first task will be to construct a new entrance into the site.

Pad foundations with cast-in H.D. bolts will then be constructed to form the MSCP foundations. Ground beams will be constructed to the perimeter to provide a foundation for the ground floor mesh enclosure. An insitu-concrete floor slab will then be constructed.

Trenches for the below ground drainage and service ducts will then be excavated and pipework and ducting installed. The below ground drainage will include installation of gullies, man holes, attenuation tank. The drainage will be connected into manhole. WAC testing will be carried out throughout any excavation works.

Once below ground works are complete, the top 100mm of the working platform will be scraped off and regraded as required. A Type 1 sub base will then be installed and compacted to form the final formation to level across the site.

Once the frame is complete, all remaining groundworks will commence. This will include construction of the bottom of the vehicle ramp, formation of the entry/exit lanes into site, external roadway and paths, kerbs and a 450mm layer of topsoil. The wearing course across the site will be completed on a separate visit once instructed by the Employer.

Stairs

The main stair will be manufactured off site and delivered to site to enable quick assembly and installation by mobile crane. Once complete, the internal fit-out will commence and will include items such as the lift, stair nosing's, wall rail, balustrade, and roofing.

Mechanical and Electrical Installations

BAM SE will install a main MCCB panel board which will supply sub distribution boards for lighting and power throughout the new school.

Containment will then be installed to the underside of the suspended floor decks. LED light fittings and controllers will be installed and wired. Light/CCTV columns will be erected externally.

A fire alarm system will be installed and connected to the plant/server room.

External lighting will be installed to the perimeter of the car park through light fittings fixed back to the main school structure and lighting columns.

Further power supplies will be provided to the lift, roller shutters and vehicle barriers. Small power points will also be installed into the stair core.

Lightning protection, earthing and bonding will then be completed.

All services will be terminated in the plant/server room for connections going on through the school.

The electrical system will be subject to a rigorous testing and commissioning process once complete.

Quality Control

The Bim 360 system will be utilised throughout to log, manage, rectify and close out and defects arising from the works. Bam proprietary check sheets will be the primary means of ensuring element

are thoroughly reviewed at each relevant stage. A formal stage of snagging will be determined within the programme, though constant monitoring throughout will mitigate the scale of works required.

Commissioning

A formal period of time is to be allowed for the systematic commissioning of the building. Pre-commissioning checks will be undertaken at the earliest practical opportunity. The design is to be sense checked prior to install to ensure sufficient access points and commissioning valves are in place.

Use of The Drive

As provisionally discussed with Highways, we plan to use the road temporarily. All deliveries will be marshalled from the bottom of the Drive road to the site entrance by a designated gateman. We would also carry out a letter drop and liaising with local residents making them aware of our intentions.

