

Case Study

33 Grosvenor Place

Location	Belgravia, London
Sector	Commercial
Client	Cleveland Clinic
Scope	Soft Strip/Demolition/Façade Retention/ Basement Works

In February 2017, Erith commenced work on this multi-phase project to facilitate the creation of a state of the art medical clinic in Belgravia, London. The Project involved soft strip, hard demolition, façade retention, underpinning and basement construction.

Soft strip involved the removal of all non-structural elements, prior to the full structural demolition of the works. Where soft strip was at an elevated level, an alloy tower was erected by a competent PASMA trained operative to gain access. To ensure Environmental compliance, a fine water mist was used to suppress dust emissions where necessary.

Concurrent with the soft strip phase and prior to hard demolition, Erith undertook enabling works to facilitate the removal of arisings and the transit of materials and equipment around site. These consisted of the following.

- Scaffold and deck atriums for glazing removal
- Removal of glazing in atriums to facilitate tower crane
- Erection of 2 No. tower cranes Wolff 320b within the atriums of 33 Grosvenor Place
- Construction of well holes throughout 33 Grosvenor Place to facilitate in the removal of demolition arisings to ground floor loading area
- Construction of crash deck at ground floor level of lift shaft
- Removal of concrete bays, steel columns and steel beams to construct a ramp
- Back propping to ground floor and lower ground floor slab
- Localised soft strip of mezzanine and basement level

Upon completion of the soft strip, Erith progressed to the hard demolition phase of works. This top down demolition sequence utilised 13 tonne machines being hoisted to the highest level onsite using the site demolition crane. The existing lift shafts and newly constructed well holes were used to allow for the most efficient removal of demolition arisings. Top down demolition targeted the roof down to the 6th floor. Top down internal demolition took place from the 5th floor to basement level. After hard demolition has progressed to the lower levels, the lifts were then removed in accordance to the separately issued and verified lifting plan. This method employed a combination of; 360 degree excavators fitted with pulverisers, hydraulic pneumatic breakers for heavier reinforced areas and wheeled bobcat skid-steer loaders.



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All of these works took place with close co-ordination with TFL and Westminster Council with various road closures and lane suspensions required to facilitate the frame erection. The façade retention frame's internal columns were based on 20m deep piles in the existing basement and extensive kentledge blocks on the surrounding footpaths.

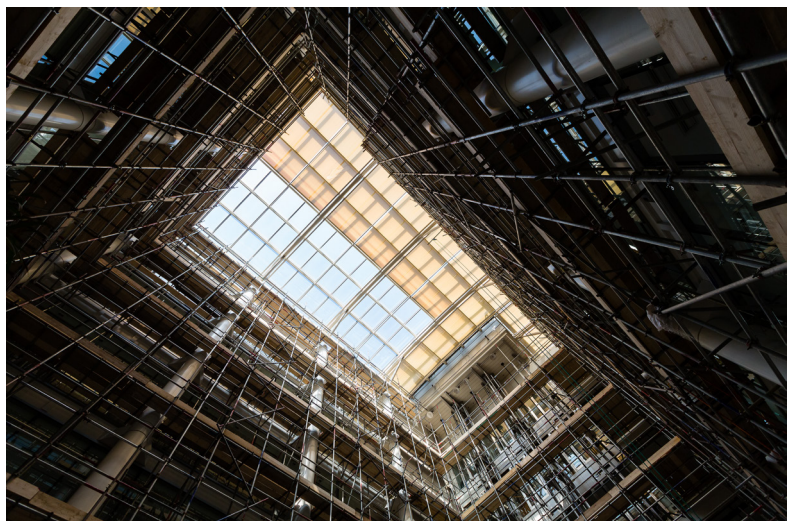
After completion of the frame a professionally printed wrap, with an image of the existing building, was fixed to the exterior of the frame. This reduces the visual impact of the works, provides an added layer of protection for dust emissions and noise from works and also provides wind shelter to the 40 cabins installed within the frame. The wrap was the largest ever fitted in the UK, measuring an immense 3,572m². After the hard demolition progressed below 5th floor, the lifts were removed. This method employed a combination of; 360 degree excavators fitted with pulverisers, hydraulic pneumatic breakers for heavier reinforced areas and wheeled bobcat skid-steer loaders.

In continuation of Erith's commitment to exemplary environmental performance, dust emissions were controlled in all areas with the deployment of bespoke water sprays. The quantity of water emitted by the sprays was regulated and controlled to prevent any flooding at basement level and internal office levels.

Running concurrently with the hard demolition works, Erith commenced the basement phase of the project. This involved temporary support to the façade columns using large, 65t temporary works steel frames, diamond drilling and saw cutting to isolate the break out bays, ground slab breakout of 1990's and 1950's slab, excavation to new formation level, construction of the new slab, cast in anchors, kingposts, drainage, façade column extension to the reduced level slab and installation of a reinforced concrete perimeter retaining wall.

In summary this phase incorporated the following activities:

- 1990's slab broken out using BROKK machine
- Diamond coring work to separate the 1950's slab into sections, completed by 2.2m diameter track saws, diamond tipped drilling rigs and hydraulic bursting.
- Piling works for the façade retention frame support
- Erection of façade support frame
- Installation of printed wrap around the retention frame
- Break out sections of the 1950's slab
- Excavation to a new formation level of and a 75mm concrete blinding layer installed
- Placement of new concrete slab, incorporating the temporary piling, new drainage works, anchors and king posts



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- Strengthening works to the existing columns for façade column lowering works
- Implementation of a reinforced concrete perimeter wall retaining scheme
- Two levels of wailing beams introduced with raking props

Fundamental to the award of this project was Erith's experience in effective incorporation of Building Information Management (BIM). Through an illustrious portfolio of projects working at a BIM Level 2, Erith can commit practised process, procedures and personnel to fulfil the client's requirements. Erith's effective deployment of BIM was essential in the provision of façade retention, temporary works and construction of the new basement.

A BIM Execution Plan (BEP) was agreed that detailed the documentation, models and obligations required for 33 Grosvenor Place. The BEP detailed the work required through demolition, excavation and construction phases. Swanton Consulting, Erith's in-house team of Chartered civil and structural engineers, work to the Industry Foundation Class (IFC) data model and provided all information to the project's Common Data Environment (CDE) for collaboration compliant to BIM Level 2. This information included, but is not limited to, the likes of; 3D models, engineering calculations, CAD (Computer Aided Design) drawings and material schedules.

Integral to the success of this project was stakeholder liaison. Due to the prominent location, a strategy was applied to mitigate the risk of disruption within this area. This targeted the surrounding residences, offices, building sites and Buckingham Palace Gardens.

Erith took the initiative of updating the residents of Belgravia with news of Project Macallan and established our own community liaison group which issued regular newsletters, information notices and residents meetings to inform of project progress and upcoming works. This was also an opportunity for the residents to relay their concerns and directly ask any questions about the project.

Furthermore, engagement with Westminster City Council was consistent throughout. As required, we established a Section 106 agreement and worked in full compliance to the Westminster Code of Construction Practice 2016.

