OUTLINE DEMOLITION METHOD STATEMENT
FOR THE GRAND UNION CENTRE, LADBROKE GROVE, LONDON W10 5AS.
Details Of Contractor

GREATER LONDON DEMOLITION LIMITED
DESTRUCTION AND DISMANTLING ENGINEERS
Greenwood house, Brimsdown, Enfield, Middx EN3 7PJ
Tel: 020 8805 7200  Fax: 020 8805 0570
Email: greaterlondondem@btconnect.com
Registered in England No 2788882  Reg. Office: 1 St Johns Cottages, Summers Lane, London N12 0LA

Scope of Works:

1. Erect timber hoardings to the site boundaries.

2. Arrange for the termination of all live services on the site.

3. Carry out a refurbishment / pre-demolition asbestos survey to all buildings.

4. Carry out structural investigation works to the retaining walls to the basements adjacent to the Ladbroke Grove footpath, and to the walls at the junction of nr 332 and 330 Ladbroke Grove.

5. Carry out a soils investigation survey (if required).

6. Carry out a condition survey to adjacent properties and surrounding roads and footpaths etc.

7. Demolition of all buildings on the Site - complete demolition including soft strip, removal of any asbestos, taking up ground floor slabs, and grubbing up foundations to a depth of 2 metres.

8. Prior to commencing structural demolition works to particular buildings some temporary works will be required. This will include protection scaffolding to various locations as detailed below and possible temporary propping to the basement walls adjacent to Ladbroke Grove and possible temporary support works to the northern wall to nr 330 Ladbroke Grove.

9. Externally carry out general site clearance including removing fences and walls, and taking up hardstandings across the site.

10. Excavate down to level for the piling mat.

11. Crush all concrete and masonry arisings on site for use in the piling mat.

12. Place the piling mat across the site.
Details of the Buildings to be demolished are as follows.

**The Southern Row elevation** – the following structures are to be demolished

1. Units 1 to 4 of the Business Centre.

   Units 1 to 4 are 2 storey units of steel frame construction with brick cladding. The eastern elevation of these units is close to the Southern Row footpath so fully monarflexed protection scaffolding will be required on this elevation for the demolition. There is sufficient room between the rear of the footpath and unit walls to locate the protection scaffold inside the site without encroaching onto the footpath.

**The West Row elevation** – the following structures are to be demolished

1. Units 5, 6, 7, & 8 of the Business Centre.

   Units 5 & 6 are single storey units of steel frame construction with brick cladding. No additional protection works will be required for the demolition of these units.

   Units 7 & 8 are 2 storey units of steel frame construction with brick cladding. The eastern elevation of these units is close to the West Row footpath so fully monarflexed protection scaffolding will be required on this elevation for the demolition. There is sufficient room between the rear of the footpath and unit walls to locate the protection scaffold inside the site without encroaching onto the footpath.

2. Units 9 to 17 inclusive of the Business Centre.

   Units 9 to 13 are single storey units of steel frame construction with brick cladding. No additional protection works will be required for the demolition of these units.

   Units 14 to 17 are 2 storey units of steel frame construction with brick cladding. The eastern elevation of these units is close to the West Row footpath so fully monarflexed protection scaffolding will be required on this elevation for the demolition. There is sufficient room between the rear of the footpath and unit walls to locate the protection scaffold inside the site without encroaching onto the footpath.

**The Kensal Road elevation** – the following structures are to be demolished

1. Units 18 to 23 of the Business Centre.

   Units 18 & 19 are single storey units of steel frame construction with brick cladding. No additional protection works will be required for the demolition of these units.

   Units 20 to 23 are 2 storey units of steel frame construction with brick cladding. The northern elevation of these units is close to the public grassed area to the north of the site so fully monarflexed protection scaffolding will be required on this elevation for the demolition. There is sufficient room between the northern wall of these units and the boundary hoarding to locate the protection scaffold inside the site without encroaching onto the public grassed area to the north.

Details of the Buildings to be demolished continued

**The Ladbroke Grove elevation** – the following structures are to be demolished

1. Units 24 to 35 of the Business Centre.

   Units 24 to 35 are 3 storey units of steel frame construction with brick cladding.
There is a step in levels across the width of these units so that the lowest floor on the eastern elevation is at ground level, but the wall to the lowest floor on the western Ladbroke Grove elevation is below the footpath level of Ladbroke Grove. This wall possibly acts as a retaining wall to the Ladbroke Grove footpath. Investigation works will need to be carried out to determine if temporary propping will be required to the existing retaining wall to the Ladbroke Grove footpath before these buildings are demolished. Any temporary works to the retaining wall will need to be agreed with the Highway Authority.

Unit 35 abuts nr 330 Ladbroke Grove so there may need to be a Party Wall agreement in place before this unit is demolished. Investigation works to the junction between Unit 35 & 330 Ladbroke Grove will need to be carried out to determine if any temporary support works are required to 330 Ladbroke Grove before Unit 35 is demolished. Any such temporary support works will be incorporated into the Party Wall Agreement. Care will be required when demolishing next to 330 Ladbroke Grove, the adjacent property which remains.

Units 24 to 35 are built up to the rear of the Ladbroke Grove footpath so this and the returns at the ends of Units 24 & 35 will require fully monarflexed protection scaffold incorporating a covered and lit walkway, to the Ladbroke Grove elevation. This scaffold will require a pavement scaffold license from the Royal Borough of Kensington & Chelsea (RBKC).

Once the building has been demolished down to the Ladbroke Grove footpath level a 2.4 metre high timber hoarding will be erected at the back of the Ladbroke Grove footpath. This is likely to be located on the edge of the footpath so may require a license from RBKC.
Temporary works required:

As noted above the following temporary works may be required –

1. Temporary support works to the north elevation of 330 Ladbroke Grove, and temporary propping to the Ladbroke Grove footpath retaining wall.

2. Scaffold protection and monarflex sheeting will be required to the 2 storey buildings on all 4 boundary elevations as detailed above.

3. Because of the lack of room on the pavement to Ladbroke Grove the scaffold in this location will need to incorporate a boarded pedestrian walkway and suitable lighting. The scaffold above the walkway will be boarded out in 2 metre lifts to allow hand demolition of the roadside elevation walls. The scaffold will be designed as required under current regulations.

Pre – start Works.

1. The following will need to addressed before demolition works commence on site.

2. Confirm that the Party Wall agreements are in place before commencing any structural demolition works to the building containing Units 24 to 35.

3. Arrange for all necessary scaffolding and hoarding licenses.

4. Carry out a refurbishment / pre-demolition asbestos survey on all buildings once they have been vacated.

5. A soils contamination report / survey may need to be carried out before any excavated soils can be removed from site.

6. Carry out a condition survey to adjacent properties and surrounding roads and footpaths etc.

7. Prior to commencing structural demolition to any particular building, arrange for all live services to that building to be terminated outside the footprint of the building. If it is not possible to fully terminate all live services prior to commencing structural demolition ensure that adequate protection measures are in place for the live services.

8. Prior to demolishing Units 24 to 35 (Nrs 332 to 338b Ladbroke Grove) design temporary works schemes to support the north elevation of 330 Ladbroke Grove and to support the Ladbroke Grove footpath retaining wall. These temporary support works will be installed before commencing structural demolition to Units 24 to 35.
Pedestrian Protection.

1. Protection of pedestrians around the site perimeter during the course of the works is of the highest priority. The measures put in place to ensure the protection of pedestrians around the site at all times will include the following.

2. Where existing walls do not form the site boundary we will erect 2.4 metre high timber hoardings around the site boundaries. This will act both as protection for people outside the site, and will also prevent unauthorized entry into the site. Once any structure forming part of the site boundary has been demolished a timber hoarding will be erected in it’s place without delay.

3. A gateman / banksman will be provided at the site entrance to control the movement of vehicles into and out of the site. This will help to ensure that lorries leaving the site check for any pedestrians crossing the site entrance when they leave.

4. As detailed above where the demolition works are of a height and a proximity to the site boundary to present a hazard to pedestrians outside the site boundary a protection scaffold will be erected to the buildings being demolished to prevent any demolition debris falling outside the site. On the Southern Row, West Row, and Kensal Road site boundaries this protection scaffold can be erected inside the site hoarding & will not affect pedestrians outside the site. On the Ladbroke Grove boundary the protection scaffolding will need to be placed on the footpath. In this instance, as detailed above, we will provide a fully monarflexed protection scaffold incorporating a covered and lit pedestrian walkway, to ensure the protection of pedestrians during the demolition works.

Hazardous Substances :

1. Asbestos may be present in the buildings & this will be determined by the refurbishment / pre-demolition asbestos survey report.

2. Any asbestos will be removed in accordance with the Control of Asbestos at Work Regulations 2012.

3. We have been unable to carry out any kind of survey at this stage for other possible hazardous materials. Once access is available a thorough check of the premises will be made to determine if any possible hazardous substances are present.

4. A separate method statement will be issued for any other hazardous materials found on site.
Sequence of Demolition & Associated Works.

1. a) Carry out asbestos survey.
   b) Carry out soils survey.
   c) Carry out structural investigation works to the Ladbroke Grove retaining wall & the north wall to 330 Harow Road.
   d) Carry out a condition survey to adjacent properties and surrounding roads and footpaths etc.

2. Carry out service terminations.

3. a) Soft strip furnishings, timber, studwork partitions, plant, doors, windows etc.
   b) Remove any asbestos from the buildings.
   c) Install temporary support works to Ladbroke Grove retaining wall & the north wall to 330 Ladbroke Grove prior to starting demolition to Units 24 to 35.
   e) Erect scaffold protection as detailed above.

4. Demolish Units 9 to 23 down to ground level. Demolition will commence with Unit 9 and will proceed along the buildings to Unit 23.

5. Take up the floor slabs and foundations to Units 9 to 23.

6. Hardcore & masonry from this demolition will then be stockpiled in the north-east corner of the site to give working room for the demolition works to the remaining buildings.

7. Demolish to ground level Units 1 to 8. Hardcore & masonry from this demolition will also be stockpiled in the north-east corner of the site.

8. Demolish Units 24 to 35.

9. Take up the remaining floor slabs and foundations to the demolished buildings, and grub up all hardstandings across the site.

10. Crush on site all masonry and concrete arisings for use in the piling mat.

11. Excavate as necessary to the underside of the piling mat and remove the excavated material from site.

12. Spread the crushed material across the site to form a piling mat.
Removal of Demolition Arisings

1. All demolition arisings except for concrete and masonry will be removed from site using 40 yard roll-on/roll-off rubbish bins and in 8 wheel tipper Lorries. All loaded lorries are to be sheeted before leaving site.

2. Debris will be removed from site by Greater London Demolition Ltd (Waste Carriers License No CB/HM3381ES) and by Greater London Waste Disposal Ltd (Waste Carriers License No CB/LB3375SG).

3. A consignment note is raised for each load removed from site. Disposal tickets are obtained for all loads tipped and copies of all consignment and disposal tickets will be kept in the project file.

4. Special measures for dealing with and disposal of any toxic materials such as fluorescent light bulbs and tubes, detailed specifically in the method statement, risk assessment and COSHH assessment for the works.

5. For dealing with fluorescent tubes we will use Recyclite Ltd, a specialist company for recycling used lamps and tubes. They will deliver special cardboard boxes to site, which will take between 70 and 150 tubes, depending on the size. We will carefully remove any fluorescent tubes and stack them in the boxes provided. Recyclite will then collect the boxes for recycling providing the relevant hazardous waste disposal tickets.

6. Recycling of Strip Out Materials. We are licensed waste carriers, and our sister company Greater LondonWaste Disposal operates its own licensed Waste Transfer Station at our yard in Enfield.

7. We will provide separate skips for the sorting on site of different materials such as timber, plasterboard, metals, cabling, and rubbish in order to maximise the potential for recycling on site.

8. Concrete and masonry will be crushed on site for re-use on site as detailed below.

Removal of Asbestos.

1. Any Asbestos in the buildings will be detailed in the pre-demolition asbestos survey reports following the completion of the survey.

2. Any asbestos identified in the survey and any other areas found will be clearly labelled on site using marker spray paint.

3. The asbestos may be both notifiable and non-notifiable.

4. Any notifiable asbestos will be removed by a licensed asbestos removal contractor, who will submit a FOD ASB5 FORM advising the HSE of the Asbestos removal in accordance with Control of Asbestos at Work Regulations 2012. The licensed asbestos removal contractor will issued their own separate method statement & risk assessment.

5. GLD will remove any non-notifiable asbestos as detailed in the survey report. This will be carried out by personnel trained in accordance with the requirements of the Control of Asbestos at Work Regulations 2012. A separate section in the method statement will detail any such asbestos removal works.
Soft Strip Works.

1. Soft strip works can commence once the services have been isolated back to the heads and any asbestos removal works in the area carried out (unless the soft strip is required to facilitate the asbestos removal or it will not affect the asbestos).
2. Our site supervisor will clearly mark the presence of asbestos on site using spray paint.
3. Any soft strip works will generally be carried out by hand.
4. Any soft strip works within the building will be carried out in areas where access by for hand removal can be easily affected from existing floor levels, or using mobile scaffold towers or podium steps for access.
5. We will remove all non-structural elements from buildings, including floor coverings, partitions, furnishings, doors, windows, small & light M & E etc (lightweight air ducting etc will be removed as part of the soft strip work, but heavy units will be left in place & removed with the main demolition). These works will generally be carried out by hand.
6. All operatives are to be reminded that timber can present hazards during soft strip and demolition works. Any protruding nails are to be removed. Caution is to be exercised when dealing with sharp or broken edges which can cause injuries.
7. Windows etc will only be removed where it is easy and safe to do so. Windows will be left in place where their removal would require difficult manual handling, using stanley knives or the like, and/or involve a risk of breaking glass, thereby risking eye injuries or cut hands from broken or flying glass. Where risks from removing glass by hand mean that it is left in place the following method will be adopted. When the building is empty the glass in the windows will be pushed in using the excavator working from the outside. Other personnel will be kept away while this is carried out, thereby eliminating the risk of uncontrolled flying glass. The excavator operator will be well away from the glass and will be protected by his winds screen. Broken glass will then be swept up prior to demolishing that section of the building.
8. Hop-ups and ladders are not allowed on site and only podium steps, mobile scaffold towers or the like are to be used as working platforms.
9. Elements to be removed by carrying by hand will not exceed 20kgs in weight for one person carrying, and will not exceed 40kgs for two people carrying.
10. The heaviest elements that may be removed by hand are plasterboard (2.4m x 1.2m x 12.5mm panels weigh 27kgs) or plywood sheets (2.4m x 1.2m x 18mm panels weigh 30kgs). A manual handling assessment for carrying these materials will be forwarded in due course.
11. Rubbish and recyclable material will be loaded into skips/lorries for removal to a suitably licensed disposal facility or recycling facility.
12. The soft strip arisings will be segregated on site using different skips to increase recycling.
Main Demolition Works.

- All demolition works are to be carried out in accordance with relevant legislation, Statutory Regulations, BS 6187 the Code of Practice for Demolition and other guidelines relevant to demolition.& current good practice.
- In addition consideration will be given to the guidelines given by RBKC as detailed on the “Noise and Vibration” and Air Quality “Advice for Builders” pages on their web site.

1. In order to reduce dust to a minimum during the works water will be sprayed on the buildings and resulting rubble etc throughout the demolition, loading and crushing works. This will be done using both hand held water hoses & “dust boss” fine mist spray machines.
2. The main above ground demolition works to the blocks will be carried out using 20 - 40 tonne 360º excavators with munchers, hydraulic breakers or buckets. The operation of the excavators will be directed by a banksman. These machines will also be used for moving and loading the demolition debris for disposal and during the crushing operations.
3. Where necessary additional exclusion zones comprising temporary block & mesh fencing & warning signs will be set up around the working areas of the excavators, in order to create a safe working area free from unauthorised personnel.
4. Each block will be demolished top down starting at roof level, and the demolition will be carried out so that the buildings and debris are pulled away from the site boundaries towards the centre of our working area.
5. Debris from the demolition of each floor will be allowed to fall either to the ground or onto the floor below. To prevent overloading of the floors before the next floor is demolished the debris will be removed by pushing it off the edge using the muncher or a bucket on the excavator.
6. Any steel framing will be cut using the shears attachment on the excavators.
7. Where necessary the roadside elevations of the scaffolded 2 / 3 storey buildings will be demolished by hand working from the scaffold.
8. Once the buildings have been demolished to ground level the ground floor slab, foundations and hardstandings will be broken out using 30 tonne 360º excavators with hydraulic breakers or lifted out with the bucket.
9. Rubbish, and recyclable material, will be loaded into skips/lorries for removal to a suitably licensed disposal or recycling facility, and concrete / masonry / tarmac arisings will be crushed on site for use in the piling mat as detailed below.
10. The lorries will be loaded using 360º excavators with either buckets or tined grabs.
General Site Clearance & Shallow Excavation Works.

1. Prior to any works being carried out that involve breaking the ground GLD will survey the area for any live services with a CAT & Genny operated by a trained & certificated operative. If any positive readings are found further investigation works will be carried out before proceeding with machine excavation works.
2. The soils surveys will confirm the presence any contaminated soils – the method statement will be amended accordingly to account for any such contaminated soils.
3. Before commencing excavation works a daily permit to dig will be obtained from the site supervisor.
4. The general site clearance & any excavation works will be carried out using the same 360º excavators used for the demolition works.
5. The operations of the excavators & lorries will be supervised by a trained banksman.
6. The lorries will operate on the existing site hardstanding and road areas, which provide a firm level surface.
7. The sides of the excavations will all be battered at 45º to ensure stability. The only exceptions to this will be where existing retaining walls are present or where additional earthwork support is provided.
8. The excavation will be carried out by 14 – 40 tonne 360º excavators and the excavated material loaded onto 8 wheel tipper lorries for removal from site to a licensed disposal facility.
9. Prior to leaving site any soil on the lorry wheels will be cleaned off using a jet wash, to minimise any soil getting on to the roads outside the site.
10. An exclusion zone will be formed around the excavation. The exclusion zone will be fenced off with block and mesh fencing to prevent any pedestrians or plant from falling into the excavation.

Crushing Works.

1. As noted above the broken concrete and masonry will be crushed on site for use in the piling mat using a mobile crushing plant.
2. The concrete and masonry debris will be transported using a loading shovel or 8 wheeled tipper lorry and stockpiled prior to crushing.
3. The crushing plant will be hired-in with an operator and will be set up by the hire company.
4. GLD will obtain any necessary licenses from the local authority, although in our experience most local authorities only require to see a copy of the license from the “home” local authority where the crusher is based a few days before the crushing operations start.
5. Large lumps of concrete will be broken up using 360º excavators with hydraulic breakers or munchers prior to being loaded into the crusher.
6. Since 1st April 2007 a new regulation has been introduced that prevents operatives from attending the crusher while it is in operation to pull out longer lengths of rebar that wont pass through the crusher jaws. Therefore the concrete will have to be broken into smaller sections and rebar cut into shorter lengths to prevent long lengths of rebar getting stuck in the crusher. Providing the rebar is in short enough lengths it is segregated by the magnetic sorter built into the crusher.
7. The rubble will be loaded into the crushing plant using 360º excavators.
8. Damping down by spraying with hosepipes as necessary will be carried out during the crushing to minimise the generation of dust.

Piling Mat Works

1. A layer of crushed granular fill of 300mm thick will be spread across the entire site for use as a piling mat.
2. The crushed masonry and concrete generated above will be used for this. In addition it may be necessary to import material to crush on site as there may not be sufficient arisings from the demolition, excavation and pile probing works.
3. The piling mat material will be spread in 150 mm layers using 20 –40 tonne excavators & compacted using vibrating rollers.
**Environmental**

**Proximity of sensitive buildings:**

- Occupied residential buildings mean that demolition works will be restricted to 8.00am to 6.00pm Monday to Fridays and 8.00am – 1.00pm Saturdays.

**Traffic Management**

- All road traffic will enter and leave the site using the existing site entrance in West Row.
- This entrance is large enough for all vehicles to enter and leave the site in forward gear.
- There is sufficient room on site for all vehicles to turn around within the site, again allowing all vehicles to enter and leave the site in forward gear.
- The intention is to crush on site all masonry and concrete arisings for use in the piling mat. This will help to greatly reduce the number of lorry movements in and out of the site during the demolition works.

**Dust.**

- Dust control and monitoring procedures will be implemented in accordance with The Mayor of London’s and London Councils’ best practice guidance document ‘The control of dust and emissions from construction and demolition’, Nov 2006.
- Detailed procedures for monitoring of dust levels and any trigger levels for action will be agreed prior to starting structural demolition works on site.
- In accordance with current good practice we would use the “best practicable means” to control the generation and spread of dust.
- The main methods for controlling the spread of dust on site are as follows – Water spraying of demolition, materials handling, and crushing operations using both hand held water hoses & “dust boss” fine mist spray machines. Use of monarflex sheeting on the perimeter protection scaffolding which will limit the spread of dust outside the site boundaries.

**Noise and Vibration.**

- Noise & Vibration control and monitoring procedures will be implemented after reference to the British Standard 5228-1 2:2009: ‘Code of practice for noise and vibration control on construction and open sites.
- Detailed procedures for monitoring of noise & vibration levels and any trigger levels for action will be agreed prior to starting structural demolition works on site.
- In accordance with current good practice we would use the “best practicable means” to control the generation and spread of noise and vibration.

**Vibration**

1. All above ground demolition will be done using muncher or shears attachments on the 360º excavators. This methodology produces virtually no vibration.
2. Once the investigations to the boundary to 330 Ladbroke Grove have been completed, GLD will issue further details of how the separation works will be carried out in order to minimise the vibration being transmitted into the adjacent building.
3. Prior to taking up the ground floor slab we will ensure that it is separated from the adjacent building by saw cutting if necessary.
4. Breaking out of the floor slabs using hydraulic breakers creates some vibration, but this is attenuated by the ground around the sections being broken out. The floor slabs nearest to the site perimeters will be broken out last, so that they can be pulled away from adjacent properties.

5. GLD will monitor vibration levels throughout the works with a Vibrock monitor to ensure that the agreed action levels are not exceeded.
NOISE ASSESSMENT FOR DEMOLITION WORKS

INTRODUCTION

BS 6187:2000 The Code of Practice for Demolition states that one of the considerations when planning demolition projects should be the assessment and control of noise at site boundaries. New noise regulations came into force in April 2006, which reduce the lower and upper action levels for noise control to 80db and 85db respectively.

Measures to control noise detailed in the Method Statement are detailed below.

<table>
<thead>
<tr>
<th>Type of Construction</th>
<th>1, 2, &amp; 3 storey steel framed warehouse buildings.</th>
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<tbody>
<tr>
<td>Adjoining/Adjacent Structures</td>
<td>Adjacent commercial properties in 1 location only.</td>
</tr>
<tr>
<td>Boundary Fencing</td>
<td>Where no boundary walls exist timber hoarding will be erected around the site.</td>
</tr>
<tr>
<td>Scope of Works</td>
<td>Demolition down to existing ground level &amp; removal of foundations. Crushing on site of masonry and concrete arisings.</td>
</tr>
<tr>
<td>Proximity of sensitive buildings</td>
<td>The works are to be carried out in a residential area.</td>
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</tbody>
</table>

Noise Control

1. All demolition plant is to be well maintained and fully fitted with silencers.
2. Plant is not to be left running unnecessarily.
3. Use munchers / shears wherever possible for demolition works, and only use hydraulic breakers as a last resort. Munchers / shears are a “quiet” method of demolition and generate a greatly reduced noise level for both the plant operators and other people in the vicinity.
4. Working hours are restricted as follows - Monday to Friday 8.00am to 6.00pm.
5. GLD will monitor noise levels around the site to ensure excessive levels are not being generated.

Noise Assessments for the various operations:

Soft Strip Works.
These works will be carried out inside the building using hand tools only, and may include some hammering. The existing walls or the timber hoarding around the site, and compliance with the site working hours detailed above, mean that the noise levels at the site boundary from these operations will remain well within acceptable limits.

Main Demolition Works.
As detailed in the Method Statement the main demolition works will be carried out using a 360° excavator with a hydraulic shears / muncher attachment. The “munching” of the concrete and masonry is a quiet operation, but noise will be generated when the debris hits the ground. However the muncher breaks the building into relatively small pieces, and our experience in demolishing a 7 storey building in an occupied estate using the same method is that the noise levels generated are well below action levels. This, together with the fencing around the site, and compliance with the site working hours detailed above, mean that the noise levels at the site boundary from these operations will remain well within acceptable limits. The removal of the ground floor slab and foundations will be using 360° excavators with hydraulic breakers and this is likely to be the noisiest operation during the demolition works. The fact that the breaking will be in the ground will deaden the noise generated. Although the noise will be relatively high it should still remain at acceptable levels outside the site hoarding.
Noise Assessments for Plant.

1. We have 14 tonne - 40 tonne excavators for demolition works.
2. The operator noise levels in the cabs for these machines are 74, 74, & 73 dB respectively. These values are all below the lower exposure action value of 80 dB, and so the operators do not need to wear any hearing protection when operating the machines.
3. Older excavators have noise levels some 5dB higher than the newest machines, which are still just below the lower action level – therefore hearing protection will not be required for the operators of these machines.
4. The maximum external noise levels of the 14 – 30 tonne excavators is 100-105 dB.
5. Therefore banksmen and other operatives working close to the excavators will need to wear ear defenders or ear plugs to BS EN 352 with an SNR rating of at least 30dBa. When ear defenders are being worn the banksman must ensure that they are visible to the machine operator so that communication can be maintained via hand signals.
6. Published noise levels for angle grinders are 104 dB – therefore operators of this plant will need to wear ear defenders to BS EN 352 with an SNR rating of at least 30dBa. As noted in the HAVs section above these works will only be of short durations, and the operatives will be alternated to limit noise and vibration exposure.
7. Noise levels generated by machine mounted hydraulic excavators are in the range of 85 – 95dB at 10 metres distance. Therefore plant operators should keep the cab doors closed and wear ear defenders to BS EN 352 with an SNR rating of at least 20dBa. Banksmen supervising machine breaking should stay at least 10 metres from the breaker & wear ear defenders to BS EN 352 with an SNR rating of at least 20dBa if within 15 metres of the breaker.

Crushing Works.

This operation involves the use of the excavators and a mobile crushing plant to load and crush the concrete and masonry. Provided the plant has the proper silencers fitted and is properly maintained, the noise levels generated will not be as great as that when the floor slab and foundations are being broken out.

The external noise levels for the crushing plant are as follows:
- 1 metre from the machine - 84 to 89 dBs.
- 7 metres from the machine - 77 to 85 dBs.
- 10 metres from the machine - up to 77 dBs.

Therefore banksmen and other operatives working close to the crushing operation will need to wear ear defenders or ear plugs to BS EN 352 with an SNR rating of at least 10dBa.
Appendix One – Site Plan