

General Considerations			
General considerations are measures which apply to all sites, to be considered when planning the site, prior to commencement of works or those which are not identified by the other categories.			
Mitigation for all Risk Sites			
Designated site-based staff shall have the authority to take the steps necessary on behalf of the contractor(s) to ensure noise and vibration & dust is adequately controlled and managed, according to the circumstances associated with each worksite. <b>NVD Monitor alerts will further assist as well.</b>			
At the commencement of their appointment on a project (or prior to start of works on site), all site staff are to be briefed on their responsibilities to the application of BPM to minimise construction noise and vibration and the content of any planning consents, codes of construction or other legal agreements. The performance of the training should then be regularly reviewed and repeated throughout the construction programme as appropriate. <b>This is done by SM team &amp; Logistics Manager when necessary</b>			
Site hoarding to be built and maintained to maximise the reduction in noise levels to sensitive buildings and land uses.			
Display contact details of contractor and responsible site manager as well as working hours and other site information on the hoarding. <b>Will be displayed within Osborne Community Board</b>			
Locate the site access away from noise sensitive receptors. <small>Pedestrian site access is located on Andover Place away from school and residents of Torndon House building.</small>			
Keep internal haul routes well maintained and avoid steep gradients. <small>Early deliveries are pre-organised &amp; noisy deliveries are not dealt with until 8:00am. No deliveries are allowed past 6:00pm and any issues with out of hour deliveries are reported to WCC hot line if necessary.</small>			
Limit material and plant loading and unloading to normal working hours.			
Reduce loading / unloading heights for muck away and material movement to mitigate impact noise.			
Handle all material in a manner that minimises noise.			
Join the Considerate Constructors Scheme for the site (see Appendix 6 for further information).			
Consult the respective Borough's Code of Construction Practice / Technical Guidance.			
Mitigation Measures to be Considered	Low Risk	Medium Risk	High Risk
Submit a Section 61 consent application to the local authority (see Appendix 2) <sup>1</sup> .	◇	○	●
Adhere to 'quiet hours' as agreed and/or adopted by the local authority. <small>This will be confirmed by WCC once agreed by school and residents &amp; adhered to by Osborne SM /LM.</small>	○	○	●
Maximise the screening effect of buildings and temporary stockpiles through programming / phasing of works.	◇	○	●
Use rubber linings in chutes, dumpers and hoppers to reduce impact noise.	○	●	●
Minimise opening and closing of site access gates through good coordination of deliveries and vehicle movements.	○	●	●
See Vehicle Activity for additional good practice with regards to the transportation of material.	○	●	●

● Highly Recommended      ○ Desirable      ◇ Not applicable

<sup>1</sup> For low risk sites (refer to 'Risk Assessment Approach' on page 12 for a definition) a formal Section 61 consent application would not typically be necessary, but the contractor can submit details to the local authority (see Appendix 1 for details).

Plant			
<p>Construction plant and equipment, in one form or another, will be used on a construction site throughout the duration of a project. They are a source of noise and vibration and can disturb local residents and users of other receptors and form the basis of a large proportion of complaints received by a local authority. <a href="#">Please see Controlling Noise and Vibration on Site of SEMP for more info.</a></p> <p>It is important that the appropriate plant and equipment for the task is selected and the correct procedures are followed to ensure the plant is used at its most effective and efficient.</p>			
Mitigation for All Risk Sites			
<p>Ensure that each item of plant and equipment complies with the noise limits quoted in the relevant European Commission Directive 2000/14/EC, United Kingdom Statutory Instrument (SI) 2001/1701.</p>			
<p>Fit all plant and equipment with appropriate mufflers or silencers of the type recommended by the manufacturer. <a href="#">Also see section 2 of the SEMP (Risk Assessment notes after the table).</a></p>			
<p>Follow manufacturer's guidance and measures to operate plant and equipment and use it in a manner which minimises noise. <a href="#">Good practices mentioned under section 2 of the SEMP.</a></p>			
<p>Use all plant and equipment only for tasks for which it has been designed for.</p>			
<p>Shut down all plant and equipment in intermittent use in the intervening periods between works or throttle it down to a minimum. <a href="#">Vehicle's engines will be turned off while not in use or while waiting where possible. see section 2 of SEMP more info.</a></p>			
Mitigation Measures to be Considered	Low Risk	Medium Risk	High Risk
<a href="#">If possible power all plant and equipment by mains electricity or other quieter technology rather than locally powered sources such as generators. Osborne considering the use of permanent power from UKPN or street lights if possible.</a>	○	●	●
Maximise screening from existing features / structures, or employ the use of full or partial enclosures for fixed plant. The enclosures should be well maintained. Fixed plant can include generators, compressors, pumps, batching plant and ventilation plant. <a href="#">Noise barriers will be installed to minimise noise where possible.</a>	○	●	●
Locate and orientate fixed or semi-static plant away from noise sensitive receptors.	○	●	●
Consider additional measures to control noise for any plant required to operate on a 24 hour basis; for example, dewatering pumps or generators used to power site security.	○	●	●
Vibratory compaction equipment shall be used in a mode which minimises the incident vibration at nearby residential and other sensitive properties. Consideration should be given to engaging concentric weights only when running at speed to avoid run up, run down resonances, the use of smaller equipment, or turning off the mechanical vibration on vibratory rollers and undertaking more passes for areas where there is a particular risk that disruption may occur at neighbouring properties.	○	●	●

● Highly Recommended      ○ Desirable      ◇ Not applicable

Vehicle Activity			
<p>Material deliveries and removals are major noise sources that can have an impact on receptors both close to and at a distance away from a construction site.</p> <p>Measures to minimise this impact should be considered as early as possible in the planning stage of a project, so site layout and logistical plans can be developed accordingly. Measures are especially necessary for sites close to schools or where a number of construction sites are operating within close proximity to each other. <a href="#">Osborne is considering stacking vehicles off site and bringing vehicles in as and when required.</a></p>			
Mitigation for all Risk Sites			
<p>Ensure all vehicle movements occur within normal hours or at agreed times, taking into account the primary function of sensitive receptors in the vicinity (i.e. avoiding school drop-off/pick-up periods). <a href="#">No deliveries are allowed between school drop-off/pick-up periods. Any deliveries turning up just prior to school drop-off/pick-up periods are parked and dealt with after this period.</a></p> <p>Maximise the reuse of any waste arising on site to minimise vehicle movements. <a href="#">Osborne will consider reusing/recycling where possible specially during, demolition, excavation, formation of pile mat, ground works and foundation works.</a></p> <p>Plan deliveries and vehicle movements so that vehicles are not waiting or queuing on the public highway. If waiting or queuing is unavoidable then engines should be turned off. <a href="#">See above (Vehicle activity) + section 2 of SEMP.</a></p> <p>Minimise opening and closing of site access through good coordination of deliveries and vehicle movements.</p>			
Mitigation Measures to be Considered	Low Risk	Medium Risk	High Risk
Plan site layout to ensure that reversing is kept to a practicable minimum, and where practicable eliminated altogether.	○	○	●
Where reversing is required, use broadband reverse sirens / alarms or, where it is safe to do so, disengage all sirens and alarms and use banks-men.	○	○	●
Produce a robust Construction Traffic Management Plan which may also be required by the Local Planning Authority to plan, manage and minimise vehicle movements. Avoid unnecessary impact on sensitive receptors, traffic diversions via other sensitive areas or bottlenecks (see TfL guidance <sup>2</sup> ).	○	●	●
Consider potential accumulation of traffic from other local construction sites and plan delivery routes and times to avoid congestion. <a href="#">Osborne will liaise with other local construction contractors regularly to make sure all activities are planned.</a>	○	●	●
Rubber/ Neoprene (or similar non-metal lining material) matting to line the inside of material transportation vehicles so as to avoid the 'first drop' high noise levels.	◇	○	●
Where site space is limited and volume of vehicles attending site is high, seek vehicle holding bay(s) to use with 'Just in time' delivery management systems <sup>3</sup> .	◇	○	●
Space planning for stockpiling of material (over weekends and, evening and nights) within the site to allow removal during normal working hours only.	◇	○	●
Consider alternative means of transport, e.g. river and rail.	◇	○	●

● Highly Recommended      ○ Desirable      ◇ Not applicable

<sup>2</sup> Construction Logistics Plan Guidance for Developer <http://www.tfl.gov.uk/cdn/static/cms/documents/construction-logistics-plan-guidance-for-developers.pdf>

<sup>3</sup> Consult with Highways Department at the local council for possible locations.

Demolition <sup>4</sup> Phase			
<p>Demolition has the potential to cause the most disruption to a neighbouring receptor. Modern non-percussive demolition techniques need to be considered wherever practicable to limit its noise and vibration impact. Where these methods are not possible, due to site or other constraints<sup>5</sup>, then measures to minimise the amount and intensity of percussive breaking on site should be given priority. <a href="#">Please see section 2 of SEMP for good practices that are being considered by Osborne.</a></p> <p>Percussive demolition methods have been used for years to dismantle buildings and break up the resulting concrete and brickwork. These methods can be particularly intrusive and can have a major impact on the local environment with only limited noise mitigation measures available.</p>			
Mitigation for all Risk Sites			
<p>Employ the use of acoustic screening; this can include planning the demolition sequence to utilise screening afforded by buildings to be demolished. <a href="#">Noise barriers will be installed where possible such as around breaker, generators, cutting stations, neighbouring properties etc.</a></p>			
Mitigation Measures to be Considered	Low Risk	Medium Risk	High Risk
If working out of hours on safety grounds, limit highnoise/vibration demolition activities to normal hours wherever practicable. <a href="#">Unplanned out of hours works will be reported to Westminster out of hour team ASAP.</a>	○	○	●
Avoid demolition activities outside of normal working hours through the use of temporary measures, such as safety / protection fences, to enable works to be conducted during normal working hours.	○	○	●
Utilise low impact demolition methods such as non –percussiveplant wherever practicable <sup>6</sup> . <a href="#">Such as use of muncher attachment instead of breaker.</a>	◇	●	●
Use rotary drills and “burstors” activated by hydraulic or electrical power, or chemically based expansion compounds, to facilitate fragmentation and excavation of hard material.	◇	○	●
Avoid the transfer of noise and vibration from demolition activities to adjoining occupied buildings through cutting any vibration transmission path or by structural separation of buildings.	◇	○	●
Rather than breaking in-situ, consider the removal of larger sections by lifting them out and breaking them down either in an area away from sensitive receptors or off-site.	◇	○	●
<p>● Highly Recommended      ○ Desirable      ◇ Not applicable</p>			

<sup>4</sup> Including removal of temporary structures

<sup>5</sup> Including cost

<sup>6</sup> Lower noise impact demolition or mitigation measures may include pulverisers (munchers), saws and rotary drills and “burstors” activated by hydraulic or electrical power and hydraulic cracking or splitting.

Ground Works and Piling Phase			
<p>There are many non-percussive methods available on the market for breaking-out and piling that make percussive methods obsolete in many cases and these should take priority when works are in the planning stage.</p> <p>Percussive piling methods can create both intrusive noise and vibration at local receptors and can continue for a long period of time, depending on the size of the new development. Where percussive methods are used measures within the Good Practice Table will help mitigate noise and vibration impacts.</p>			
Mitigation for all risk sites			
Avoid percussive piling wherever possible.			
Mitigation Measures to be considered	Low Risk	Medium Risk	High Risk
If working outside of normal hours on safety grounds, limit major excavation works to normal working hours.	○	○	●
<p>Adopt the following hierarchy of groundwork / piling methods, in order of preference to minimise the impact of piling, if ground conditions, design and safety allows:</p> <ul style="list-style-type: none"> <li>• Pressed-in methods, e.g. Hydraulic jacking</li> <li>• Auger / bored piling</li> <li>• Diaphragm Walling</li> <li>• Vibratory piling or vibro-replacement</li> <li>• Driven piling or dynamic consolidation</li> </ul>	○	●	●
Consider the location and layout of the piling plant for efficient operation and potential noise control of generators and any electric or hydraulic motors used by plant. <a href="#">Noise barriers will be installed if necessary</a>	○	●	●
Where impact piling is the only option, utilise a non-metallic dolly between the hammer and driving helmet, or enclose the hammer and helmet within an acoustic shroud.	○	●	●
Consider concrete pour sizes and pump locations. Plan the start of concrete pours as early as possible within normal working hours to avoid overruns. <a href="#">Late concrete pours will be avoided however concrete finish may overrun. In this case WCC out of hour team will be informed straight away by Osborne SM, although concrete finish works are not noisy but may require lighting.</a>	○	●	●
Where obstructions are encountered stop works and review approach; adopt work methods that minimise noise and vibration.	○	●	●
When using an auger (for bored piling), rather than dislodging material from the auger by rotating the drill back and forth quickly, use alternate methods where safe to do so. For example, some piling rigs are equipped with metal brush to remove spoil as the auger is taken out of ground.	○	○	○
Prepare pile caps using methods / procedures which minimise the use of breakers, e.g. using hydraulic splitters to crack the top of the pile.	○	●	●

● Highly Recommended      ○ Desirable      ◇ Not applicable

Construction Phase			
<p>During the construction phase many of the problems can be minimised or even removed by careful planning and organisation of the site.</p> <p>As the height of the building structure increases receptors further away from the site can potentially become more exposed to noise due to removal of shielding effects of neighbouring buildings. <a href="#">Noise barriers around cutting stations and windows / door openings will be considered.</a></p> <p>Each site and building method will offer its own opportunities to reduce its impact on local receptors.</p>			
Mitigation for all Risk Sites			
<p>When working within a building ensure all openings (e.g. windows and doors) are closed or sealed up.</p> <p>Plan the site layout to maximise screening from existing features / structures.</p>			
Mitigation Measures to be Considered	Low Risk	Medium Risk	High Risk
Use prefabricated building structures or elements to minimise noise on site.	◇	○	●
Where on-site fabrication is unavoidable, all high noise level works should be carried out within normal hours.	◇	○	●
Consider concrete pour sizes and plan the start of concrete pours as early as possible within normal working hours to avoid overruns.	○	●	●
Where practicable consider using an on- site, noise attenuated, concrete batching plant to minimise overruns and disturbance from queuing delivery wagons from off-site and remote facilities.	◇	○	●
Obtain and agree a protocol with concrete suppliers and sub-contractor with measures to ensure that as far as practicable overruns on concrete pours do not occur.	○	●	●

● Highly Recommended      ○ Desirable      ◇ Not applicable

Monitoring			
<p>Monitoring may include either physical measurement or observational on-site monitoring. Noise and vibration monitoring is the most obvious way of demonstrating to a local authority that you are complying with the noise and vibration levels presented within any agreements (see Appendix 2 for Section 61 example) and works are being carried out in accordance with the British Standard BS5228.</p> <p>Any monitoring regime should be agreed with the local authority prior to being implemented to avoid unnecessary costs. Any personnel undertaking noise and vibration monitoring shall be able to demonstrate their competency for the task. Any monitoring undertaken should be readily available for the local authority to review upon request.</p>			
Mitigation for all Risk Sites			
<p><b>Establish pre-existing levels of ambient noise.</b> <small>This is carried out &amp; forwarded to WCC Environmental prior to submission of SEMP and S.61</small></p> <p>Carry out attended noise monitoring at the start of any new phase of works, to check sourcesound emission data from plant on-site and following any complaints. <small>Noise, vibration &amp; Dust monitoring stations are installed in various locations on site and on neighbouring properties where allowed as a good practice.</small></p> <p>Carry out regular on site observation monitoring and checks/ audits to ensure that BPM is being employed at all times. Such checks should include:</p> <ul style="list-style-type: none"> <li>• Hours of working</li> <li>• Presence of mitigation measures, equipment (engine doors closed, airlines not leaking, etc.) and screening (location and condition of local screening, etc.)</li> <li>• Number and type of plant</li> <li>• Construction method, and</li> <li>• Where applicable, any specific Section 61 consent conditions.</li> </ul> <p>The site reviews should be logged and any remedial actions recorded.</p>			
Mitigation Measures to be Considered	Low Risk	Medium Risk	High Risk
Monitor noise continuously during demolition, piling, excavation and sub- and superstructure works at agreed locations and report to the local authority at agreed intervals. <small>Online live NVD monitoring will be in place &amp; site managers will be informed of any exceedances. Investigations or justifications comments online will be done Also monthly reports will be issued. WCC will be informed within 2 days of any exceedances or complaints.</small>	◇	○	●
Monitor vibration continuously during demolition, piling, excavation and sub-structure works at agreed locations and report to the local authority at agreed intervals.	◇	○	●
Appraise and review working methods, procedures and logistics on a regular basis to ensure continuous development of BPM.	◇	○	●
Establish level trigger alerts in agreement with the local authority and guided by BS5228. Monitor noise and vibration to trigger text alerts; where levels exceed the triggers then inform the local authority, review work practices and agree additional mitigation measures with the local authority.	◇	○	●
Use monitoring equipment with web access capabilities to view and inspect real time measurement and/or audio data.	◇	○	●

● Highly Recommended      ○ Desirable      ◇ Not applicable

Communication and Liaison			
<p>It is important that good relations are built with people living and working within the vicinity of the worksite.</p> <p>The developer or contractor should communicate with neighbours on all planned works, especially for periods outside of normal working hours, where agreed. Methods of communication, as a minimum would involve letter drops prior to and during works. Other forms of communication could include newsletters, meetings which residents or community groups can attend, notice boards, websites or social media, depending on the size of the project.</p> <p>All correspondence to be sent to residents or other neighbouring receptors should be forwarded to the local authority prior to its distribution, ideally for comment. The local authority can also provide guidance on the area to be included within the letter drops.</p>			
Mitigation for all Risk Sites			
<p>Develop a Community Liaison Plan. Develop a Complaint Procedure (see Appendix 6) with timescales for responses and a nominated liaison person to engage with residents and to handle complaints. These should be agreed with the local authority.</p>			
<p>Display contact details for the site manager and liaison officer prominently on the site hoarding.</p>			
<p>Brief all site staff regarding the complaints procedure and mitigation requirements and their responsibilities to register and escalate complaints received.</p>			
Mitigation Measures to be Considered	Low Risk	Medium Risk	High Risk
Send regular updates at appropriate intervals to all identified affected neighbours via newsletter and posting information on the site hoarding. Also make information available via email when requested.	◇	○	●
Develop and maintain a website to provide information about the project and to receive feedback.	◇	○	●
Arrange regular community liaison meetings at appropriate intervals including prior to commencement of project. Respond to issues raised and report back to attendees.	◇	○	●
Arrange meetings and communicate on a regular basis with neighbouring construction sites to ensure activities are coordinated to minimise any potential cumulative issues.	◇	○	●
Advise neighbours about reasons for and duration of any permitted works outside of normal working hours.	○	●	●
Arrange meetings and communicate on a regular basis with the local authority to monitor the progress of the works and to consider any concerns or complaints raised by the local community.	◇	○	●

● Highly Recommended      ○ Desirable      ◇ Not applicable